

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

**PEOPLE'S COMMITTEE OF HO CHI MINH CITY (PCHCMC)**

**MINISTRY OF PLANNING AND INVESTMENT (MPI)**

**THE SOCIALIST REPUBLIC OF VIET NAM**

**THE DETAILED DESIGN STUDY  
ON  
HO CHI MINH CITY  
WATER ENVIRONMENT IMPROVEMENT PROJECT  
IN  
THE SOCIALIST REPUBLIC OF VIET NAM**

## **FINAL REPORT**

### **DRAFT BIDDING DOCUMENTS**

#### **PREQUALIFICATION DOCUMENTS**

#### **FOR**

#### **PACKAGE C :**

**INTERCEPTOR SEWER CONSTRUCTION,  
INTERMEDIATE WASTEWATER PUMPING  
STATION CONSTRUCTION,  
PROCUREMENT OF SEWER CLEANING EQUIPMENT**

**JUNE 2001**

**PACIFIC CONSULTANTS INTERNATIONAL**

**THE SOCIALIST REPUBLIC OF VIETNAM  
PEOPLE'S COMMITTEE OF HO CHI MINH CITY**

**PROJECT MANAGEMENT UNIT**

6<sup>th</sup> Floor, 216 Nguyen Dinh Chieu, District 3, Ho Chi Minh City, Vietnam  
Telephone:84-8-9300529, Fax:84-8-9300528

**INVITATION FOR PREQUALIFICATION**

**HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT PROJECT**

**Under JBIC Loan Agreement No. VNV III - 5**

**Package C : Interceptor Sewer Construction  
Intermediate Wastewater Pumping Station Construction  
Procurement of Sewer Cleaning Equipment**

Date: \_\_\_\_\_

Contract No.: \_\_\_\_\_

1. The Government of Socialist Republic of Vietnam has received an ODA Loan from Japan Bank for International Cooperation, hereinafter referred to as the JBIC, toward the cost of Ho Chi Minh City Water Environment Improvement Project, and intends to apply a portion of the proceeds of the loan to payments under the contract for which this invitation for Prequalification is issued. Disbursement of the ODA Loan by JBIC will be subject, in all respects, to the terms and conditions of the Loan Agreement, including the disbursement procedures and the "Guidelines for Procurement under JBIC ODA Loans". No party other than the Government of Socialist Republic of Vietnam shall derive any rights from the Loan Agreement or have any claim to Loan proceeds.
2. JBIC requires that bidders and contractors, as well as the Government of Socialist Republic of Vietnam, the Borrower and The Project Management Unit, People's Committee of Ho Chi Minh City, the Employer, under contracts funded with JBIC ODA Loans and other Japanese ODA, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, JBIC;
  - a) will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices completing for the contract in question;
  - b) will recognize a contractor as ineligible, for a period determined by JBIC, to be awarded a contract funded with JBIC ODA Loans if it at any time determines that the contractor has engaged in corrupt or fraudulent practices in competing for, or in executing, another contract funded with JBIC ODA Loans or other Japanese ODA.
3. The Project Management Unit, People's Committee of Ho Chi Minh City, hereinafter "the Employer," intends to prequalify contractors for the following contract under this project:  
Package C: Interceptor Sewer Construction, Intermediate Wastewater Pumping Station Construction and Procurement of Sewer Cleaning Equipment.

The Works comprise the following components:

- (1) "Sewer Construction Works", which includes the construction of 2,671m of main interceptor sewer (diameters 300 mm to 1,200 mm) at depths less than 10 m using open cut methods, construction of 3,867 m of main interceptor sewer of diameters 1,200 mm to 2,200 mm at depths greater than 10 m using pipe jacking methods, construction of 5,642 m of secondary interceptor sewers (diameters 300 mm to 1,000 mm) using open cut methods; *(Note that construction methods are suggested and not mandatory)* and construction of a 242 m long portion of the double-cell conveyance sewer from the Intermediate Wastewater Pumping Station up to the interface with the works for Package D and the associated operation and maintenance road.
- (2) "Structural Works for Pumping Station", which includes all civil, structural and building works for sewage pumps and related plant of the intermediate wastewater pumping station;
- (3) "Mechanical and Electrical Works for Pumping Station", which includes all mechanical and electrical plant for the intermediate wastewater pumping station with a total capacity of 133.4 m<sup>3</sup> per minute; and
- (4) "Procurement of Sewer Cleaning Equipment", which includes the supply of water jet cleaners, vacuum cleaners, trucks, pumps and other items of sewer cleaning equipment.

It is expected that Invitations to Bid will be made in \_\_\_\_\_ [*month and year*].

4. Prequalification is only open to formed joint ventures consisting of construction firm(s) for Sewer Construction Work and Structural Works for Pumping Station, and a pump manufacturer for Mechanical and Electrical Works for Pumping Station and Procurement of Sewer Cleaning Equipment, from eligible source countries, in accordance with the Guidelines for Procurement under JBIC ODA Loans. Joint ventures consisting of construction firm(s) with supplier/vender shall not be accepted, similarly, joint ventures consisting only of construction firms shall not be accepted. Separate application is required for prequalification for other contract packages in this project.
6. Eligible applicants may obtain the prequalification documents after \_\_\_\_\_ [*date*] by calling, writing, faxing:

The Director  
Project Management Unit  
6<sup>th</sup> Floor, 216 Nguyen Dinh Chieu  
District 3, Ho Chi Minh City, Vietnam  
Telephone :84-8-9300529  
Fax :84-8-9300528

7. The request must clearly state

"Request for Prequalification Documents for  
Ho Chi Minh City Water Environment Improvement Project  
Package C: Interceptor Sewer Construction, Intermediate Wastewater Pumping Station  
Construction and Procurement of Sewer Cleaning Equipment  
Contract No.: \_\_\_\_\_

The documents are available for a nonrefundable fee of Vietnamese Dong 2 million. The Employer will promptly dispatch the documents by registered airmail, but under no circumstances will it be held responsible for late delivery or loss of the documents so mailed.

8. A minimum requirement for prequalification is that:

Joint ventures seeking prequalification for this package shall consist of:

- A construction firm(s) for the "Sewer Construction Works" and the "Structural Works for Pumping Station", having particular experience in pipe jacking and diaphragm wall construction.
- A pump manufacturer having certification for ISO 14001 and 9001 for the "Mechanical and Electrical Works for Pumping Station"

All joint venture partners shall be required to demonstrate their capability to undertake the Works by proving adequate financial capacity by certifying their annual turnover and certifying successful experience in similar projects as the prime contractor in the last ten (10) years.

9. Submissions of Applications for Prequalification must be received in sealed envelopes, either delivered by hand or by registered mail to:

The Director  
Project Management Unit  
6<sup>th</sup> Floor, 216 Nguyen Dinh Chieu  
District 3, Ho Chi Minh City  
Vietnam

not later than:

\_\_\_\_\_ and be clearly marked

"Application to Prequalify for

Ho Chi Minh City Water Environment Improvement Project

Package C: Interceptor Sewer Construction, Intermediate Wastewater Pumping Station

Construction and Procurement of Sewer Cleaning Equipment

Contract No.: \_\_\_\_\_"

10. The Employer reserves the right to accept or reject late applications.

11. Applicants will be advised, in due course, of the results of their applications. Only joint ventures prequalified under this procedure will be invited to bid.

---

Director, Project Management Unit

# TABLE OF CONTENTS

Page

INSTRUCTIONS TO APPLICANTS .....	1
Letter of Application .....	9
General Information .....	12
General Experience Record .....	13
Joint Venture Summary.....	14
Joint Venture Agreement.....	15
Joint Venture Organization Chart .....	17
Particular Experience Record.....	18
Details of Contracts of Similar Nature and Complexity.....	19
Summary Sheet: Current Contract Commitments / Works in Progress.....	21
Personnel Capabilities .....	22
Candidate Summary.....	23
Equipment Capabilities .....	24
Financial Capabilities .....	25
Litigation History.....	27
List of Eligible Countries of JBIC ODA Loans .....	28
APPENDIX 1: PROJECT DESCRIPTION AND SCOPE OF WORK.....	29
APPENDIX 2: LOCATION OF THE PROJECT SITE .....	32
APPENDIX 3: DRAWINGS OF MAIN FEATURES OF THE WORKS.....	33
APPENDIX 4: SUMMARY OF MAJOR QUANTITIES .....	34

# INSTRUCTIONS TO APPLICANTS

Ho Chi Minh City Water Environment Improvement Project  
Under JBIC Loan Agreement No.VNV III - 5  
Project Management Unit  
People's Committee of Ho Chi Minh City

Date: \_\_\_\_\_ 200\_

Package C: Interceptor Sewer Construction, Intermediate  
Wastewater Pumping Station Construction and  
Procurement of Sewer Cleaning Equipment

Contract No. : \_\_\_\_\_

## 1. Scope of Bid

- 1.1 The Project Management Unit, People's Committee of Ho Chi Minh City, hereinafter called "the Employer," as agent for the Government of the Socialist Republic of Vietnam, has received an ODA Loan from Japan Bank for International Cooperation, hereinafter referred to as the JBIC, toward the cost of Ho Chi Minh City Water Environment Improvement Project, JBIC Loan Agreement No.VNV III - 5 dated March 30, 2001, and intends to apply a portion of the proceeds of this loan to payments under the contract for which this Invitation for Prequalification is issued. Disbursement of the ODA Loan by JBIC will be subject in all respects to the terms and conditions of the Loan Agreement, including the disbursement procedures and the "Guidelines for Procurement under JBIC ODA Loans." No party other than the Government of the Socialist Republic of Vietnam shall derive any rights from the Loan Agreement or have any right to the loan proceeds.
- 1.2 JBIC requires that bidders and contractors, as well as, the Government of the Socialist Republic of Vietnam, "the Borrower" and the Project Management Unit, People's Committee of Ho Chi Minh City, "the Employer", under contracts funded with JBIC ODA Loans and other Japanese ODA, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, JBIC;
  - a) will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;
  - b) will recognize a contractor as ineligible, for a period determined by JBIC, to be awarded a contract funded with JBIC ODA Loans if it at any time determines that the contractor has engaged in corrupt or fraudulent practices in competing for, or in executing, another contract funded with JBIC Loans or other Japanese ODA.
- 1.3 The Employer intends to prequalify contractors for the following contract under the project:

Package C: Interceptor Sewer Construction, Intermediate Wastewater Pumping Station Construction and Procurement of Sewer Cleaning Equipment.

The works include:

- (1) **“Sewer Construction Works”**, which includes the construction of 2,671 m of main interceptor sewer (diameters 300 mm to 1,200 mm) at depths less than 10 m using open cut methods, construction of 3,867 m of main interceptor sewer of diameters 1,200 mm to 2,200 mm at depths greater than 10 m using pipe jacking methods, construction of 5,642 m of secondary interceptor sewers (diameters 300 mm to 1,000 mm) using open cut methods; *(Note that construction methods are suggested and not mandatory)*, construction of a 242 m long portion of the double-cell conveyance sewer from the Intermediate Wastewater Pumping Station up to the interface with the works for Package D and the associated operation and maintenance road.
- (2) **“Structural Works for Pumping Station”**, which includes all civil, structural and building works for sewage pumps and related plant of the Intermediate Wastewater Pumping Station;
- (3) **“Mechanical and Electrical Works for Pumping Station”**, which includes all mechanical and electrical plant for the Intermediate Wastewater Pumping Station with a total capacity of 133.4 m<sup>3</sup> per minute; and
- (4) **“Procurement of Sewer Cleaning Equipment”**, which includes the supply of water jet cleaners, vacuum cleaners, trucks, pumps and other items of sewer cleaning equipment.

Further details of the works are given in the appendix.

This application shall only be applicable to the above-mentioned package. Separate applications are required for prequalification for other contract packages in this project. It is expected that Invitations to Bid will be made in \_\_\_\_\_ [month and year].

- 1.4 Prequalification is only open to formed joint ventures consisting of construction firm(s) for “Sewer Construction Work and Structural Works for Pumping Station”, and a pump manufacturer for “Mechanical and Electrical Works for Pumping Station” and “Procurement of Sewer Cleaning Equipment, from eligible source countries, in accordance with the Guidelines for Procurement under JBIC ODA Loans. Joint ventures consisting of construction firm(s) with supplier/vender shall not be accepted, similarly, joint ventures consisting only of construction firms shall not be accepted. Separate application is required for prequalification for other contract packages in this project.
- 1.5 General information, including information on the climate, topography, access to site, is included in the appendices. The contract will be a unit price contract. The bidding documents will be based on Sample Bidding Documents for Procurement of Civil Works under JBIC ODA Loans, including their currency and securities provisions.

## 2. Submission of Applications

- 2.1 Submission of applications for prequalification must be received in sealed envelopes, either delivered by hand, courier or by registered mail at:

Project Management Unit  
6<sup>th</sup> Floor, 216 Nguyen Dinh Chieu  
District 3, Ho Chi Minh City  
Vietnam

not later than: \_\_\_\_\_ and be clearly marked

“Application to Prequalify for  
Ho Chi Minh City Water Environment Improvement Project  
Package C: Interceptor Sewer Construction, Intermediate Wastewater  
Pumping Station Construction and Procurement of Sewer Cleaning  
Equipment  
Contract No.: \_\_\_\_\_”

The Employer reserves the right to accept or reject late applications

2.2 The name and mailing address of the Applicant shall be clearly marked on the envelope.

2.3 All the information requested for prequalification shall be answered in the English language. Where information is provided in another language, it shall be accompanied by a translation into English language, which will prevail and will be used only for interpreting the information.

2.4 Failure to provide information that is essential to evaluate the Applicant's qualifications, or to provide timely clarification or substantiation of the information supplied, may result in disqualification of the Applicant. i.e.

(a) Letter of Application

(b) Power of Attorney

(c) Joint Venture Agreement

(d) Credit Line issued by a reputable bank as per clause 4.7

(e) Company Registration

(f) Articles of Incorporation

(g) Letter of Authorization from subcontractors for Procurement of Sewer Cleaning Equipment

2.5 Requests for clarification of the requirements for this package and the criteria for qualification may be made to the Employer in written form not later than \_\_\_\_\_200\_ at:

Project Management Unit  
6<sup>th</sup> Floor, 216 Nguyen Dinh Chieu  
District 3, Ho Chi Minh City  
Vietnam

Answers in reply to such requests for clarification will be made by the Employer ten (10) days prior to the closing date for submission of prequalification applications.

**3. Eligible Bidders**

3.1 This invitation to prequalify is open to any bidder from an eligible source country as shown in the attached List of Eligible Source Countries included in these Prequalification Documents.

**4. Qualification Criteria**

4.1 Prequalification, at first, will be based on meeting all the minimum pass/fail criteria regarding the mandatory submittal documents described in para. 2.4 above and the minimum requirements for the Applicant described in para. 4.3 below.



Following checking for the above pass/fail criteria, evaluation will then proceed only to the Applicants who have passed such criteria, based on general experience, personnel and equipment capabilities, and financial position, as demonstrated by the Applicants' responses in accordance with the forms to be attached to the Letter of Application. The Employer reserves the right to waive minor deviations if they do not affect the capability of an applicant to perform the contract.

Note:

To demonstrate satisfying the minimum experience requirements the Applicant shall submit certified true copies of completion certificates of each overseas project listed..

- 4.2 Since highly specialized inputs (essential for execution of the Contract) are to be supplied by the pump manufacturer by specialist subcontractors, especially for the Procurement of Sewer Cleaning Equipment, the names and the inputs of such subcontractor(s) shall be described in Application Form 3.

For the purposes of this contract a specialist subcontractor for Procurement of Sewer Cleaning Equipment shall mean a vehicle chassis manufacturer meeting the following requirements:

- a) average sales turnover in the export, to Vietnam, of diesel trucks and heavy and medium duty tractors with capacities not less than 5 ton in both CBU and CKD conditions, of not less than Yen 0.2 billion equivalent over the last three (3) years;
- b) a local facility, which is an authorized service station of the manufacturer, having mechanics who have undergone at least 60 days training at the manufacturer's head office or principle manufacturing plant, and capable of providing prompt after-sales service and supply of spare parts for the equipment to be supplied;
- c) sufficient experience in the export of diesel trucks and heavy duty and medium duty tractors from his country with sales volumes of at least 50 units of any model in the last one (1) year or at least 150 units of any models in the last ten (10) years.

- 4.3 **Minimum Requirements:** Applicants shall meet the following pass/fail criteria:

- 4.3.1 For Sewer Construction Works and Structural Works for Pumping Station:

The construction firm(s) for the "Sewer Construction Works" and the "Structural Works for Pumping Station" shall have had:

- a) average annual turnover as a prime contractor (defined as billing for works in progress and completed) over the last ten (10) years of Yen 100 billion equivalent; including not less than Yen 10 billion for overseas works completed and at least one successful construction project completed in the Socialist Republic of Vietnam;
- b) successful experience as prime contractor in the execution of ten (10) or more projects of a nature and complexity comparable to the proposed project within the last 10 years and which includes one (1) completed sewerage works project which involved the use of pipe jacking methods for construction of sewers 2,000 mm or greater diameters for lengths of over 200 m, at depths greater than 10 m, in soft soil conditions with high water table;

- c) successful experience as a prime contractor in the execution of 5 or more projects for construction of wastewater pumping stations having total pumping capacity of greater than 200 m<sup>3</sup>/minute and involving construction of diaphragm walls.

4.3.2 For “Mechanical and Electrical Works for Pumping Station”,

The pump manufacturer for this portion of the Works shall:

- a) have successfully completed at least three (3) project similar in nature to the Project within the last ten (10) years, including at least one (1) project in a tropical area. Such projects shall have included submersible motor pumps with dry motors greater than 200 kW, and pump discharge diameters greater than 600 mm and associated mechanical and electrical equipment;
- b) hold a certificate of ISO 14001 and ISO 9001 from the International Standards Organization relating to a pump manufacturer with the scope of design, manufacturing, engineering, procurement, installation and commissioning of pump plant. The member for this work is required to demonstrate his capability of carrying out total engineering work of mechanical and electrical equipment at the pumping station;
- c) a cumulative turnover of at least Yen one hundred (100) billion equivalent in the last five (5) years;

4.4. **General Experience.** The Applicant shall have had the following general experience:

4.4.1. For Sewer Construction Work and Structural Works for Pumping Station:

- (a) have successfully completed, during the last 10 years, as a prime contractor, overseas contracts having a cumulative value of not less than Yen 5 billion equivalent which includes at least one project in the Socialist Republic of Vietnam;
- (b) have successfully completed during the last 10 years, as prime contractor, at least five (5) sewerage projects which involve the use of pipe jacking methods for the construction of sewers 2,000 mm diameter or greater, for lengths over 200 m, at depths greater than 10 m, in soft soil conditions with high water table;
- (c) have successfully completed, during the last 5 years, as prime contractor, construction of five (5) wastewater pumping stations each having a total pumping capacity of greater than 200 m<sup>3</sup>/minute;
- (d) have successfully completed, during the last 5 years, as prime contractor, construction of sewerage projects which include the construction of diaphragm walls having concrete volumes of at least 10,000 m<sup>3</sup>.

4.4.2. For Mechanical and Electrical Works for Pumping Station:

- (a) have successfully completed, as prime contractor, two (2) contracts with a combined contract value of a least Yen 0.5 billion, in tropical areas;

(b) have successfully completed at least one (1) contract for mechanical/electrical work, having a contract amount of at least Yen 0.3 billion equivalent, in the Socialist Republic of Vietnam.

4.5. **Personnel Capabilities.** The Applicant must have suitably qualified personnel to fill the following positions. In Form 5, the Applicant will supply information on a prime candidate and on an alternate for each position; both people should meet the experience requirements specified below:

Position	Total Experience (years)	In Similar Works (years)	As Manager of Similar Works (years)
Project Manager	20	10	10
Tunneling Engineer	15	10	5
Civil Engineer	15	10	5
Civil Supervisor	15	10	5
Structural Engineer	15	10	5
Architectural Engineer	15	10	5
Mechanical Engineer	15	10	5
Electrical Engineer	15	10	5
Other key positions nominated by Applicant			

4.6. **Equipment Capabilities.** The Applicant should own, or have assured access (through hire, lease, purchase agreement, availability of manufacturing equipment, or other means) to the following key items of equipment in full working order, and must demonstrate that, based on known commitments, they will be available for use in the proposed contract. The Applicant may also list alternative equipment that it would propose for the contract, together with an explanation of proposal.

Equipment type and characteristics	Minimum number required
1. Excavators	3 units
2. Pipe Jacking Equipment capable of jacking pipe 2200 mm diameter	1 unit
3. Pipe Jacking Equipment capable of jacking pipe 1500 mm diameter	1 unit
4. Diaphragm wall equipment	1 lot
Other equipment nominated by applicant	

4.7. **Financial Position:** As minimum criteria, the Applicant shall submit bank reference letters together with evidence of a line of credit amounting to at least Yen 5 billion. The Applicant should also demonstrate that it has accessed to, or has available, liquid assets, unencumbered real assets, and other financial means sufficient to meet the construction cash flow for a period of twelve (12) months during the duration of the contract, estimated Yen 3 billion equivalent, net of his commitments for other contracts.

4.8. The audited financial statements for the last five (5) years shall be submitted and must demonstrate the soundness of the financial position of each partner of Joint Venture, showing long-term profitability. Where necessary, the Employer will make inquiries with his bankers.

4.9. **Litigation History.** Each partner of Joint Venture should provide accurate information on any litigation or arbitration resulting from contracts completed or under its execution over the last five (5) years. A consistent history of awards against any partner of a joint venture may result in failure of the application.

## 5. Joint Venture Requirements

5.1 Joint ventures must comply with the following requirements:

(a) Following are the qualification requirements:

(i) The lead partner shall meet not less than Seventy (70) percent of all the qualifying criteria given in each scoring for paras. 4.4, 4.5 and 4.7 above.

(ii) Each of other partner shall meet individually not less than sixty (60) percent of all the qualifying criteria given in each scoring for paras. 4.4, 4.5 and 4.7 above.

(iii) The joint venture must collectively satisfy the criteria of paras. 4.4 through 4.9 for which purpose the relevant figures for each partner will be added together to arrive at the joint venture's total capacity.

(b) Any bid which includes any change of the formation of the joint venture after prequalification will be rejected.

(c) Any bid shall be signed so as to legally bind all partners, jointly and severally, and any bid shall be submitted with a copy of the joint venture agreement, as in Application Form 2a and 2b, providing the joint and several liabilities with respect to the contract.

(d) Joint ventures may nominate subcontractor(s) for specialized works only, if necessary. In the event that some items of works are to be given to subcontractor(s), subcontracts shall not exceed 25 % of the contract cost of works and subcontract agreement(s) between the joint venture and subcontractor(s) shall be entered into and then submitted to the Employer for approval.

5.2 Submission by any firm through more than one application for the same package, either as an Applicant or a Subcontractor, will result in disqualification.

## 6. Conflict of Interest

6.1 The Applicant (i.e. all members of a joint venture) shall not be associated, nor have been associated in the past, with the consultant or any other entity that has prepared the design, specifications, and other prequalification and bidding documents for the Project, or with an entity that was proposed as Engineer for the Contract. Any such association may result in the disqualification of the Applicant.

## 7.Updating Prequalification Information

7.1 Bidders shall be required to update the financial information used for prequalification at the time of submitting their bids and to confirm their continued compliance with the qualification criteria. A bid shall be rejected if the Applicant's or even its member's qualification thresholds are no longer met at the time of bidding.

## 8. General

- 8.1 Only the joint ventures that have been prequalified under this procedure will be invited to bid.
- 8.2 Bidders will be required to provide bid security in the form of a certified check, letter of credit, or a bank guarantee from an internationally reputed bank of the Bidder's choice located in any eligible country for an amount of \_\_\_\_\_. The successful bidder will be required to provide performance security. Examples of acceptable forms will be supplied with the bidding documents.
- 8.3 The Employer reserves the right to ;
  - (a) amend the scope and value of the contract to be bid, in which event the contract will only be bid among those prequalified bidders who meet the requirement of the contract as amended;
  - (b) reject or accept any application; and
  - (c) Cancel the prequalification process and reject all applications.
  - (d) The Employer shall neither be liable for any such actions nor be under any obligation to inform the Applicant of the grounds for them.
- 8.4 Applicants will be advised by the Employer in writing by fax or telex, within 90 days of the date of submission of applications (para 2.1 above), of the results of their application, and of the names of the prequalified applicants, without being assigned any reasons for the Employer's decision.

# Letter of Application

*[Letterhead paper of the Applicant or partner responsible for a joint venture, including full postal address, telephone no., fax no., telex no., and cable address]*

Date:.....

To: The Director  
Project Management Unit  
6<sup>th</sup> Floor, 216 Nguyen Dinh Chieu  
District 3, Ho Chi Minh City  
Vietnam

Ladies and/or Gentlemen,

1. Being duly authorized to represent and act on behalf of .....(hereinafter referred to as "the Applicant"), and having reviewed and fully understood all of the prequalification information provided, the undersigned hereby apply to be prequalified by yourselves as a bidder for:

Ho Chi Minh City Water Environment Improvement Project  
Package C: Interceptor Sewer Construction, Intermediate Wastewater Pumping Station  
Construction and Procurement of Sewer Cleaning Equipment,  
Contract No.: \_\_\_\_\_

2. We hereby attach to this letter <sup>26</sup>
  - (a) Certified Article In corporation to define the Applicant's legal status;
  - (b) Certified Company Registration in our country to show the principal place of business; and
  - (c) Certified Power of Attorney authorizing the signatories of this letter of application.
3. Your Agency and its authorized representatives are hereby authorized to conduct any inquiries or investigations to verify the statements, documents, and information submitted in connection with this application, and to seek clarification from our bankers and clients regarding any financial and technical aspects. This Letter of Application will also serve as authorization to any individual or authorized representative of any institution referred to in the supporting information, to provide such information deemed necessary and as requested by yourselves to verify statements and information provided in this application, such as the resources, experience, and competence of the Applicant.

---

<sup>26</sup> All the information requested in the prequalification documents is to be provided for each party to the joint venture separately. The lead partner should be clearly identified. Each partner in the joint venture shall sign the letter. All mandatory submittal documents mentioned here shall be legally certified by the Chamber of Commerce.

4. Your Agency and its authorized representatives may contact the following persons for further information<sup>27</sup> :

General and managerial inquiries	
Contact 1	Telephone 1
Contact 2	Telephone 2

Personnel inquiries	
Contact 1	Telephone 1
Contact 2	Telephone 2

Technical inquiries	
Contact 1	Telephone 1
Contact 2	Telephone 2

Financial inquiries	
Contact 1	Telephone 1
Contact 2	Telephone 2

5. This application is made with the full understanding that:
- (a) bids by prequalified applicants will be subject to verification of all information submitted for prequalification at the time of bidding;
  - (b) your Agency reserves the right to:
    - amend the scopes and value of any contracts bid under this project; in such event, bids will only be called from prequalified bidders who meet the revised requirements; and
    - reject or accept any application, cancel the prequalification process, and reject all applications.
  - (c) your Agency shall not be liable for any such actions and shall be under no obligation to inform the Applicant of grounds for them
6. Appended to this application, we give details of the participation of each party through Joint Venture Agreement in the given form that at least include capital contribution and profit/loss agreements, in the joint venture. We also specify the financial commitment in terms of the percentage of the value of the contract, and the responsibilities for execution of the contract.

---

<sup>27</sup> Joint Venture applicants should provide on a separate sheet equivalent information for each party to the application.

7. We confirm that if we bid, that bid, as well as any resulting contract, will be:
- (a) signed so as to legally bind all partners, jointly and severally; and
  - (b) submitted with a joint venture agreement providing the joint and several liability of all partners in the event the contract is awarded to us
8. The undersigned declare that the statements made and the information provided in the duly completed application are complete, true, and correct in every detail.

Signed	Signed
Name	Name
For and on behalf of (name of Applicant or lead partner of a joint venture)	For and on behalf of (name of partner)

Signed	Signed
Name	Name
For and on behalf of (name of partner)	For and on behalf of (name of partner)

Signed	Signed
Name	Name
For and on behalf of (name of partner)	For and on behalf of (name of partner)



## General Information

Name of Partner of Joint Venture:

*Each partner of a joint venture applying for prequalification is requested to complete the information in this form. Nationality information should be provided for all owners or applicants who are partnerships.*

*Where the Applicant proposes to use named specialist subcontractor(s) for critical components of the works (reference sub-clause 4.3 of the instructions), the following information should also be supplied for the specialist subcontractor(s), together with a brief description of their specialized input and local facility regarding available spare parts and mechanics required. For the purpose required a certificate to exclusively supply such inputs to the Applicant and also to provide proper after sales service of the goods locally for at least 7 years after the completion of the Project are also to be attached. (Sample form for such purpose can be given if required.)*

1.	Name of firm	
2.	Head office address	
3.	Telephone	Contract
4.	Fax	Telex
5.	Place of incorporation / registration	Year of incorporation / registration

Nationality of owners		
	Name	Nationality
1.		
2.		
3.		

## General Experience Record

Name of Partner of a Joint Venture
------------------------------------

*All individual partners of a joint venture are requested to complete the information in this form. The information supplied should be the annual turnover of the Applicant for each member of a joint venture, in terms of the amounts billed to clients for each year for work in progress or completed, converted to Yen at the rate of exchange at the end of the period reported. The audited evidence to certify those figures shall be attached.*

*Use a separate sheet for each partner of a joint venture.*

Annual turnover data (construction only)		
Year	Turnover	Yen equivalent
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

## Joint Venture Summary

Names of all partners of a joint venture		
1. Lead partner		
2. Partner		
3. Partner		
4. Partner		
5. Partner		
6. Partner		

*Total value of annual construction (and/or equipment, goods or services which apply to this contract) turnover, in terms of work billed to clients, in Yen equivalent, converted at the rate of exchange at the end of the period reported:*

Annual turnover data (construction only; Yen equivalent)											
Partner	Form 2 page no.	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
1. Lead partner											
2. Partner											
3. Partner											
4. Partner											
5. Partner											
6. Partner											
Totals											

## Joint Venture Agreement

To:           The Director  
               Project Management Unit  
               6<sup>th</sup> Floor, 216 Nguyen Dinh Chieu  
               District 3, Ho Chi Minh City  
               Vietnam

The undersigned of this declaration of cooperation are by means of attached Powers of Attorney legally authorized to act with regard to Ho Chi Minh City Water Environment Improvement Project, **Package C: Interceptor Sewer Construction, Intermediate Wastewater Pumping Station Construction and Procurement of Sewer Cleaning Equipment, Contract No.:** \_\_\_\_\_ and on behalf of their organizations.

They hereby declare:

1. that they will legalize a Joint Venture Agreement in case that a Contract for the Ho Chi Minh City Water Environment Improvement Project, **Package C: Interceptor Sewer Construction, Intermediate Wastewater Pumping Station Construction and Procurement of Sewer Cleaning Equipment, Contract No.:** \_\_\_\_\_ is awarded to their group;
2. that they have nominated \_\_\_\_\_ [*name of the lead partner*] as the Sponsor Firm of the group for the purpose of this Bid;
3. that they authorized Mr./Ms. \_\_\_\_\_ [*name of the person who is authorized to act as the Representative on behalf of the Joint Venture*] to act as the Bidder's Representative in the name and on behalf of their group.
4. that all partners of the Joint Venture shall be liable jointly and severally for the execution of the Contract;
5. that this Joint Venture is an association constituted for the purpose of the execution of the Ho Chi Minh City Water Environment Improvement Project, **Package C: Interceptor Sewer Construction, Intermediate Wastewater Pumping Station Construction and Procurement of Sewer Cleaning Equipment, Contract No.:** \_\_\_\_\_;
6. that if the Employer accepts the Bid of this Joint Venture, it shall not be modified in its composition or constitution until the completion of Contract;
7. that each partner's description and share of the Work, stated as percentage of the total contract amount, shall be as follows :

Name of Partner	Description/Share of the Work (as percentage of the contract amount)
1. Lead Partner	
2. Partner	
Total	100

Give names and positions of the proposed Joint Venture Representatives, as well as organization's names and addresses:

1.	Name:	Signature:
	Position:	Date:
	Representative of (Organization's name)	

2.	Name:	Signature:
	Position:	Date:
	Representative of (Organization's name)	

3.	Name:	Signature:
	Position:	Date:
	Representative of (Organization's name)	

4.	Name:	Signature:
	Position:	Date:
	Representative of (Organization's name)	

5.	Name:	Signature:
	Position:	Date:
	Representative of (Organization's name)	

## **Joint Venture Organization Chart**

*An organization chart of the proposed joint venture, showing proposed personnel at head offices of each partner and at the Site shall be attached hereto.*

## Particular Experience Record

Name of Partner of a Joint Venture
------------------------------------

*To prequalify, the Applicant shall be required to pass the specified requirements especially applicable to this form in addition to other minimum requirement, as set out in the "Prequalification Instructions to Applicants".*

*On a separate page, using the format of Form (3a), each member of a joint venture is requested to list all contracts completed and in progress, of similar nature and complexity to the contract, in accordance with the requirement mentioned in Clause 4, for which the members wishes to qualify. The partners of a joint venture should respectively provide details of similar contracts to their share in the Joint Venture for prequalification. The value should be based on the currencies of the contracts converted Yen, at the date of completion. The information is to be summarized, using Form (3a), for each contract completed by the Applicant or by each partner of a joint venture.*

*Where the Applicant proposes to use specialist subcontractor(s) for critical components of the works, the information in the following forms should also be supplied for each specialist subcontractor.*

*Certified true copies of evidence documents for work completed **must** be attached in support of the data given in Form (3a).*

*The pump manufacture shall submit the following documents to demonstrate their performance capability:*

- a) Outline and sectional drawings of the pumps being similar to those in the Project, approved by the Owner or authorized engineer for those projects*
- b) Pump performance test curve at shop and test records approved by the Owner or the authorized engineer for those projects*
- c) As-built drawings of those projects*
- d) Certificate by the Owner or authorized engineer for those projects, stating that they successfully performed the works under the contract obligation*
- e) Owner's contact address including TEL/FAX No. together with those names of authorized persons*
- f) Detailed explanation regarding locally available facility in Vietnam for the purpose of proper maintenance service required, inclusive of facility name, location, year of establishment, contact persons and other information of the facility*

## Details of Contracts of Similar Nature and Complexity

Name of <span style="color: blue;">Partner of a Joint Venture</span>
--

*Use a separate sheet for each contract.*

1.	Number of contract	
	Name of contract	
	Country	
2.	Name of employer	
3.	Employer address	
4.	Nature of works and special features relevant to the contract for which the Applicant wishes to prequalify	
5.	Contract role (check one) <div style="display: flex; justify-content: space-around; font-size: small;"> <span>Sole contractor</span> <span>Management Contractor</span> <span>Subcontractor</span> <span>Partner in a joint venture</span> </div>	
6.	Value in specified currencies at completion, or at date of award for current contracts, <ul style="list-style-type: none"> <li>Total Contract Amount: _____ (name of currency)</li> <li>Sub-Contract Amount (if the role was sub contractor): _____ (name of currency)</li> <li>Responsible Contract Amount (if the role was partner in a joint venture):                          _____ (name of currency) _____ (percentage of share)%</li> </ul>	
7.	Equivalent value Yen	
8.	Date of award	
9.	Date of completion	
10.	Contract/subcontract duration (years and months) <div style="display: flex; justify-content: space-around; font-size: small;"> <span>_____ years</span> <span>_____ months</span> </div>	
11.	Specified requirements <sup>32</sup>	

<sup>32</sup> The partner of Joint Venture for "Sewer Construction Work and Structural Works for Pumping Station" should insert any specific contractual criteria required for particular operation, such as annual volume of pipe jacking, diaphragm walling, earthmoving, underground excavation, or placing concrete. The partner for Mechanical and Electrical Works for Pumping Station should also insert the same such as pump installation and supervision.



## Summary Sheet: Current Contract Commitments / Works in Progress

Name of <span style="color: blue;">Partner of Joint Venture</span>
--

*Each partner to an application should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which full completion certificate has yet to be issued. Evidences for those such as true copies of Letter of intent and the contract signed shall be attached hereto.*

Name of contract	Value of outstanding work (current Yen equivalent)	Estimated completion date
1.		
2.		
3.		
4.		
5.		
6.		

## Summary Sheet: Current Contract Commitments / Works in Progress

Name of <a href="#">Partner of Joint Venture</a>
--

*Each partner to an application should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which full completion certificate has yet to be issued. Evidences for those such as true copies of Letter of intent and the contract signed shall be attached hereto.*

Name of contract	Value of outstanding work (current Yen equivalent)	Estimated completion date
1.		
2.		
3.		
4.		
5.		
6.		

## Personnel Capabilities

Name of Applicant
-------------------

*For specific positions essential to contract implementation, applicants should provide the names of at least two candidates qualified to meet the specified requirements stated for each position. The data on their experience should be supplied in separate sheets using one Form (5a) for each candidate. The site organization with supporting system of head offices shall be in details explained by separate sheet to demonstrate the capacity of the Joint Venture to perform the contract obligation.*

	Project Manager
	Name of prime candidate
	Name of alternate candidate
	Tunneling Engineer
	Name of prime candidate
	Name of alternate candidate
	Civil Engineer
	Name of prime candidate
	Name of alternate candidate
	Civil Supervisor
	Name of prime candidate
	Name of alternate candidate
	Other Position
	Name of prime candidate
	Name of alternate candidate

<Note>

*Details shall be included for all positions listed in Clause 4.5 including key positions nominated by the Applicant.*

## Candidate Summary

Name of Applicant
-------------------

Position	Candidate	
	Prime	Alternate
Candidate information	1. Name of candidate	2. Date of birth
	3. Professional qualifications	
Present Employment	4. Name of employer	
	Address of employer	
	Telephone	Contact (manager / personnel office)
	Fax	Telex
	Job title of candidate	Years with present employer

*Summarize professional experience over the last 20 years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the Project*

From	To	Company / Project / Position / Relevant technical and managerial experience

## Equipment Capabilities

Name of Applicant
-------------------

*The Applicant shall provide adequate information to demonstrate clearly that it has the capability to meet to the requirements for each and all items of equipment listed in the Instructions to Applicants. A separate Form (6) shall be prepared for each item of equipment listed in para. 4.6 of the Instruction to Applicants, or for alternative equipment proposed by the Applicant.*

Item of equipment		
Equipment information	1. Name of manufacturer	2. Model and power rating
	3. Capacity	4. Year of manufacturer
Current Status	5. Current location	
	6. Details of current commitments	
Source	7. Indicate source of the equipment <div style="display: flex; justify-content: space-around; font-size: small;"> <span>Owned</span> <span>Rented</span> <span>Leased</span> <span>Specially manufactured</span> </div>	

*Omit the following information for equipment owned by the Applicant or partner.*

Owner	8. Name of owner	
	9. Address of owner	
	Telephone	Contact name and title
	Fax	Telex
Agreements	Details of rental / lease / manufacture agreements specific to the Project	

## Financial Capabilities

Name of Partner of a Joint Venture
------------------------------------

*Each partner of a joint venture should provide financial information to demonstrate that they meet the requirements stated in the Instructions to Applicants. Each partner of a joint venture must fill in this form. If necessary, use separate sheets to provide complete banker information. An original of the line of credit facility with the required amount, a copy of the audited balance sheets and statement of profit and losses should be attached.*

Banker	Name of banker	
	Name of banker	
	Telephone	Contact name and title
	Fax	Telex

*Summarize actual assets and liabilities in Yen equivalent (at the rates of exchange current at the end of each year) for the previous five years. Based upon known commitments, summarize projected assets and liabilities in Yen equivalent for the next two years, unless the withholding of such information is justified by the Applicant to the satisfaction of the Employer.*

Financial information in Yen equivalent	Actual: Previous five years					Projected: Next two years	
	1.	2.	3.	4.	5.	6.	7.
1. Total assets							
2. Current assets							
3. Total liabilities							
4. Current liabilities							
5. Sales							
6. Ordinary Profits							
7. Profits before taxes							
8. Profits after taxes							

Specify proposed sources of financing to meet the cash flow demands of the Project, net of current commitments for other contracts (Instructions to Applicants, para. 4.7)

Source of financing	Amount (Yen equivalent)
1.	
2.	
3.	
4.	

Attach audited financial statements for the last five years (for the individual applicant or each partner of a joint venture).

Applicants are requested to submit a bank reference letter from a reputable commercial bank to effect that such bank certifies the financial capability of the applicants to meet their financial obligation to perform the said contract and [also to submit a specific line of credit determined in Instructions to Applicants – Clause 4.7](#)

## Litigation History

Name of <a href="#">Partner of a Joint Venture</a>
--

*Each partner of a joint venture should provide information on any history of litigation or arbitration resulting from contracts executed in the [last 5 years](#) or currently under execution (Instructions to Applicants, para. 4.9). A separate sheet should be used for each partner of a joint venture).*

Year	Award FOR or AGAINST Applicant	Name of client. Cause of litigation, and matter in dispute	Disputed amount (current value, Yen equivalent)



# List of Eligible Countries of JBIC ODA Loans

*All countries and areas*

# APPENDIX 1: PROJECT DESCRIPTION AND SCOPE OF WORK

## 1. Project Overview

The Ho Chi Minh City Water Environment Improvement Project aims to contribute to the improvement of urban drainage and sewerage system of Ho Chi Minh City.

The project area covers an area of 3065 ha which includes the central part of the city as well as the outlying areas of Thanh Da and Ben Me Coc.

The main elements of the project are:

- Tau Hu – Ben Nghe canal improvement of 7.3 km
- Pump drainage improvement at Thanh Da (15.4 ha) , Ben Me Coc (1) (70.9 ha) and Ben Me Coc(2) (46.0 ha)
- Existing combined sewer improvement of 9.5 km
- Interceptor sewer of 12.2 km
- Conveyance sewer of 3.5 km
- Intermediate wastewater pumping station of 0.6ha with a total pumping capacity of 133 m<sup>3</sup>/min
- Wastewater treatment plant with a capacity of 141,000 m<sup>3</sup>/day

## 2. Topographic Conditions

The project area region including central parts of the city is mostly urbanized. The northern region along Saigon River is low land area with an elevation of EL +0.6 to +9.2 m.

## 3. Geology

Ho Chi Minh City is located in the transitional part from the Northeastern Hills to the Mekong Delta. The geology in HCMC is composed of soils and rocks in Paleozoic and Cenozoic era. The Paleozoic rocks distribute at the northeastern hilly lands of HCMC. They are andesite, andesite tuff of Long Binh formation. The Cenozoic is composed of Holocene, Pleistocene and Tertiary deposits. The Pleistocene deposits include Thu Duc and Cu Chi formation. Thu Duc formation is distributed along the hilly land with its ground elevation varying from EL +5 to +30 m in Thu Duc and District 9 at the northeastern area of HCMC. Cu Chi formation distributes on the continuous plain relief with its ground elevation from EL +2 to 10 m in Hoc Mon District at the north of HCMC and most of existing urbanized area. The Holocene deposits are distributed on the continuous plain relief with its ground elevation vary from EL +0.6 to +1.0 m in suburban low-lying area.

Soil test conducted for the project show Holocene deposits, of which thickness varies from 2.5 to 35 m, covering Pleistocene deposit, of which thickness could not be confirmed because of the maximum boring depth of 50m. The thickness of Holocene deposits along the proposed interceptor sewer is within 10 m in District 1, 4, and 5, however, it is more than 20 m in District 8. The Holocene deposits are composed of very soft, low or high plasticity organic clay, sandy clay (cohesive fine-grained soil) and very loose, loose clayey sand or silty clay. They have low bearing capacity in N-value varies from 0 to 2

The Pleistocene deposits are medium dense silty sand, sand or clayey sand (cohesiveness coarse-grained soil) and sometimes they are stiff sandy clay or clay.

#### 4. Climate

HCM City is located in the tropical monsoon zone and its climatic characteristics are almost uniform temperature, high humidity, and heavy precipitation. Meteorological observation has been carried out at Tan Son Nhat station since 1915.

Meteorological characteristics as recorded at the Tan Son Nhat station from 1976 to 1977 station are as follows:

- The annual average temperature and relative humidity are 27.4 °C and 77.2 % respectively;
- Annual sunshine hours are 2,508 hours,
- Annual average rainfall is 1,929 mm, of which about 93 % (1,788 mm) occurs during the rainy season starting from May to November with maximum monthly rainfall of 308 mm occurring in the month of August. Only about 7% (141 mm) of annual rainfall occurs during the dry season from December to April.

#### 5. Construction Materials

The following sources of materials are listed for information only. Applicants should satisfy themselves as to the suitability of such sources.

Material	Source	Approx. Distance from Site
Sand and Gravel	Long Thanh District, Dong Nai Province	60 km
Sand Fill	Dong Nai River	40 km
Concrete Aggregate	Bien Hoa City, Dong Nai Province	30 km
Cement	Thu Duc District, HCMC	15 km
Concrete Reinforcement	Long Thanh District, Dong Nai Province	60 km
Precast Concrete Piles	Thuan An District, Binh Duong Province	25 km
Precast Concrete Pipes	Thu Duc District, HCMC	15 km

#### 6. Project Implementation

The project has been divided into packages for the purposes of implementation as follows:

Package A: Tau Hu – Ben Nghe Canal Improvement

Package B: Pump Drainage Improvement

Package C: Interceptor Sewer Construction, Intermediate Wastewater Pumping Station Construction and Procurement of Sewer Cleaning Equipment

Package D: Conveyance Sewer Construction and Existing Combined Sewer Improvement

Package E: Construction of Wastewater Treatment Plant

## 7. Specific Information for Package C

### Scope of Work

The main elements of the works to be completed under this package include, but are not limited to, the following:

Component	Main Elements of Scope of Work
Interceptor Sewer Construction	<ul style="list-style-type: none"> <li>• Construction of 2,671 m of main interceptor sewer (diameters 300 mm to 1200 mm) at depths less than 10 m using open cut method</li> <li>• Construction of 3,867 m main interceptor sewer (diameters 1200 mm to 2200 mm) at depths greater than 10 m using pipe jacking method</li> <li>• Construction of 5,642 m of secondary sewers using open cut method</li> <li>• Construction of 28 diversion chambers</li> </ul>
Intermediate Wastewater Pumping Station Construction	Construction of an intermediate wastewater pumping station complete with the supply and installation of all mechanical and electrical plant including 3 pumps each having a capacity of 66.7 m <sup>3</sup> /min.
Conveyance Sewer Construction	Construction of a 242 m long portion of the double cell, reinforced concrete conveyance sewer from the Intermediate Wastewater Pumping Station up to the interface with the works for Package D and the associated operation and maintenance road.
Procurement of Sewer Cleaning Equipment	Sewer cleaning equipment as shown in Appendix 4.

### Implementation Schedule

The works are planned to commence in June 2002 with a time for completion of 1080 days.

#### Site Conditions

##### a) Interceptor Sewer Construction

The area to the North side of the canal crossing is built-up with high traffic volumes. The general surface level is around 1.9 to 2.1m above datum.

South of the canal crossing the area is less developed, low-lying and swampy. The general surface level is around 1.3 to 2.6 m above datum.

##### b) Intermediate Wastewater Pumping Station

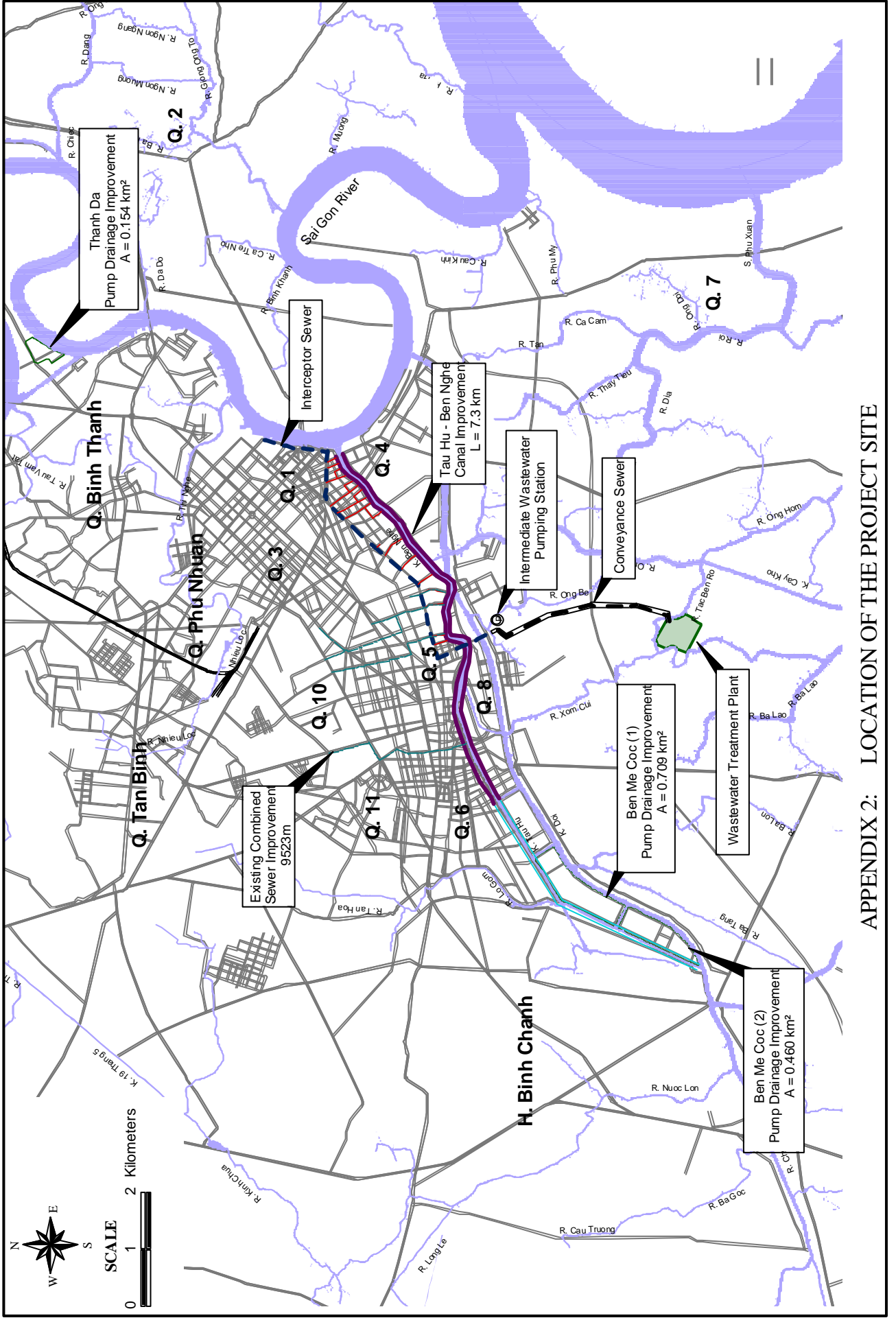
The site of the pumping station is low-lying and swampy and relatively undeveloped. The general surface level is around 1.4 m above datum.

##### c) Conveyance Sewer

The site of the conveyance sewer is partially low-lying and swampy and relatively undeveloped. The general surface level is around 0.9 to 1.4 m above datum.

## APPENDIX 2: LOCATION OF THE PROJECT SITE

[Map of the site](#)



APPENDIX 2: LOCATION OF THE PROJECT SITE

## **APPENDIX 3: DRAWINGS OF MAIN FEATURES OF THE WORKS**

Refer to the attached drawings:

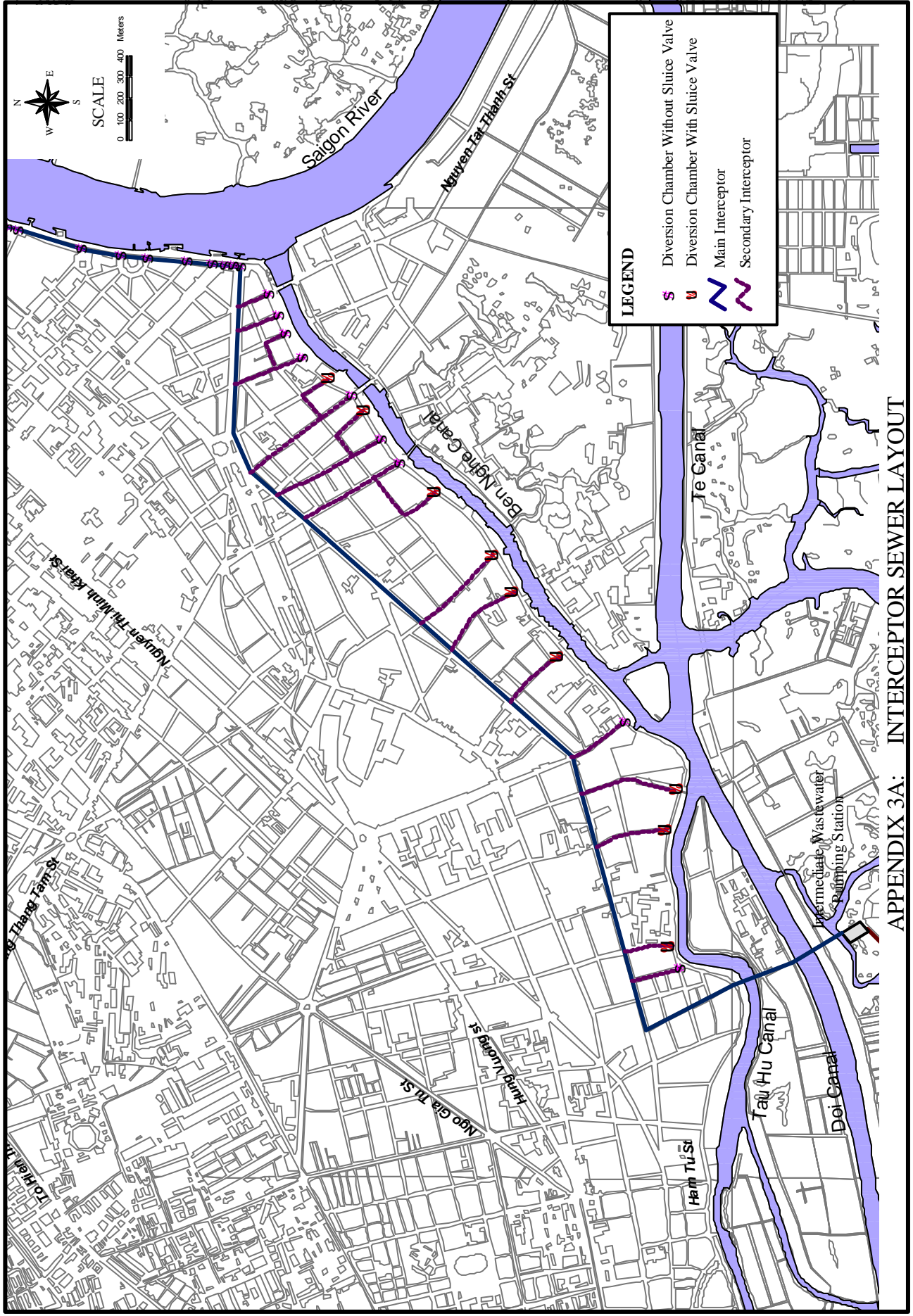
APPENDIX 3A: INTERCEPTOR SEWER LAYOUT

APPENDIX 3B: GENERAL LAYOUT OF INTERMEDIATE WASTEWATER  
PUMPING STATION

APPENDIX 3C: PLAN AND CROSS SECTION OF INTERMEDIATE  
WASTEWATER PUMPING STATION

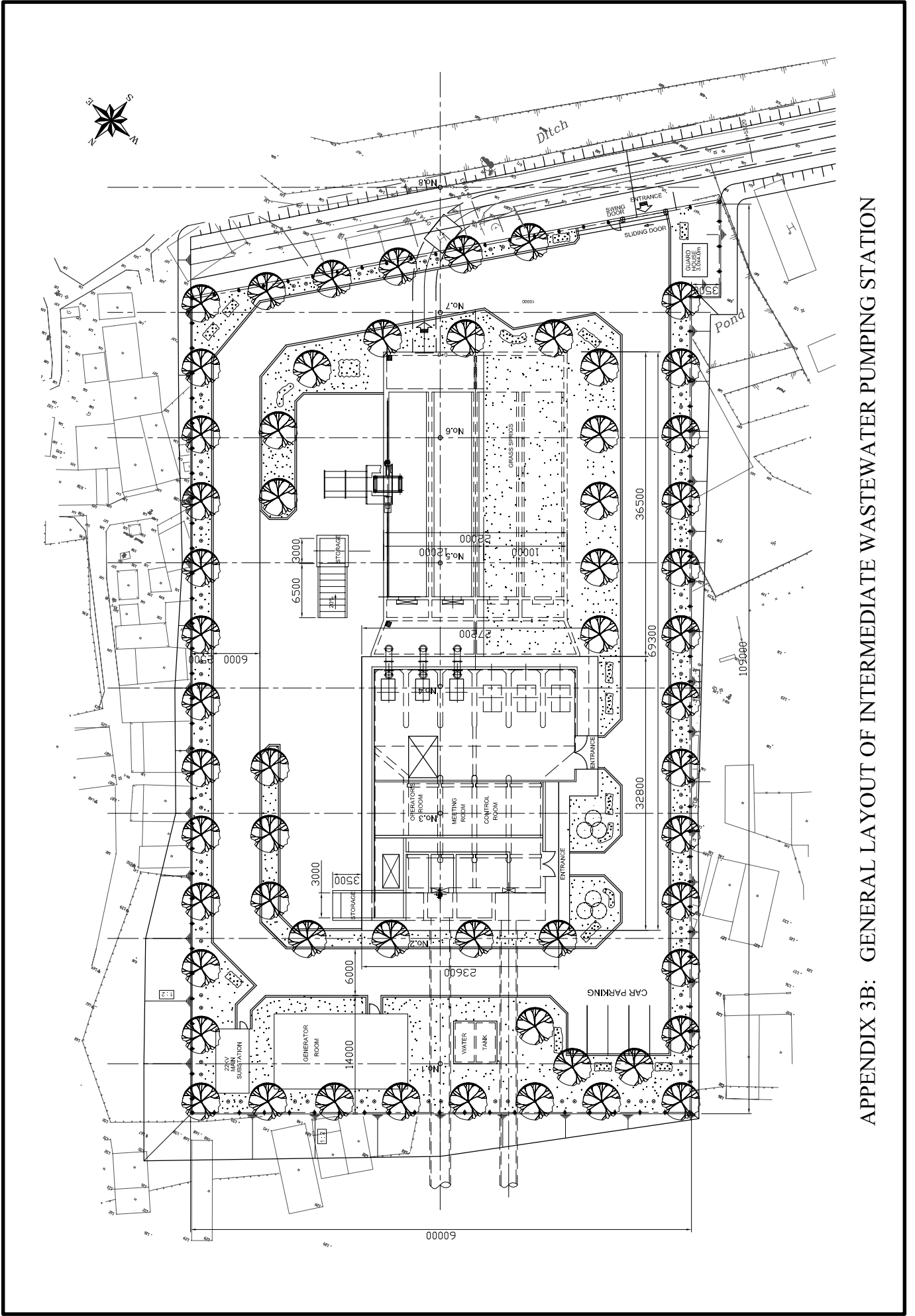
APPENDIX 3D: TYPICAL PLAN AND SECTION OF DIVERSION CHAMBER IN  
MAIN INTERCEPTOR

APPENDIX 3E: TYPICAL MANHOLE IN MAIN INTERCEPTOR

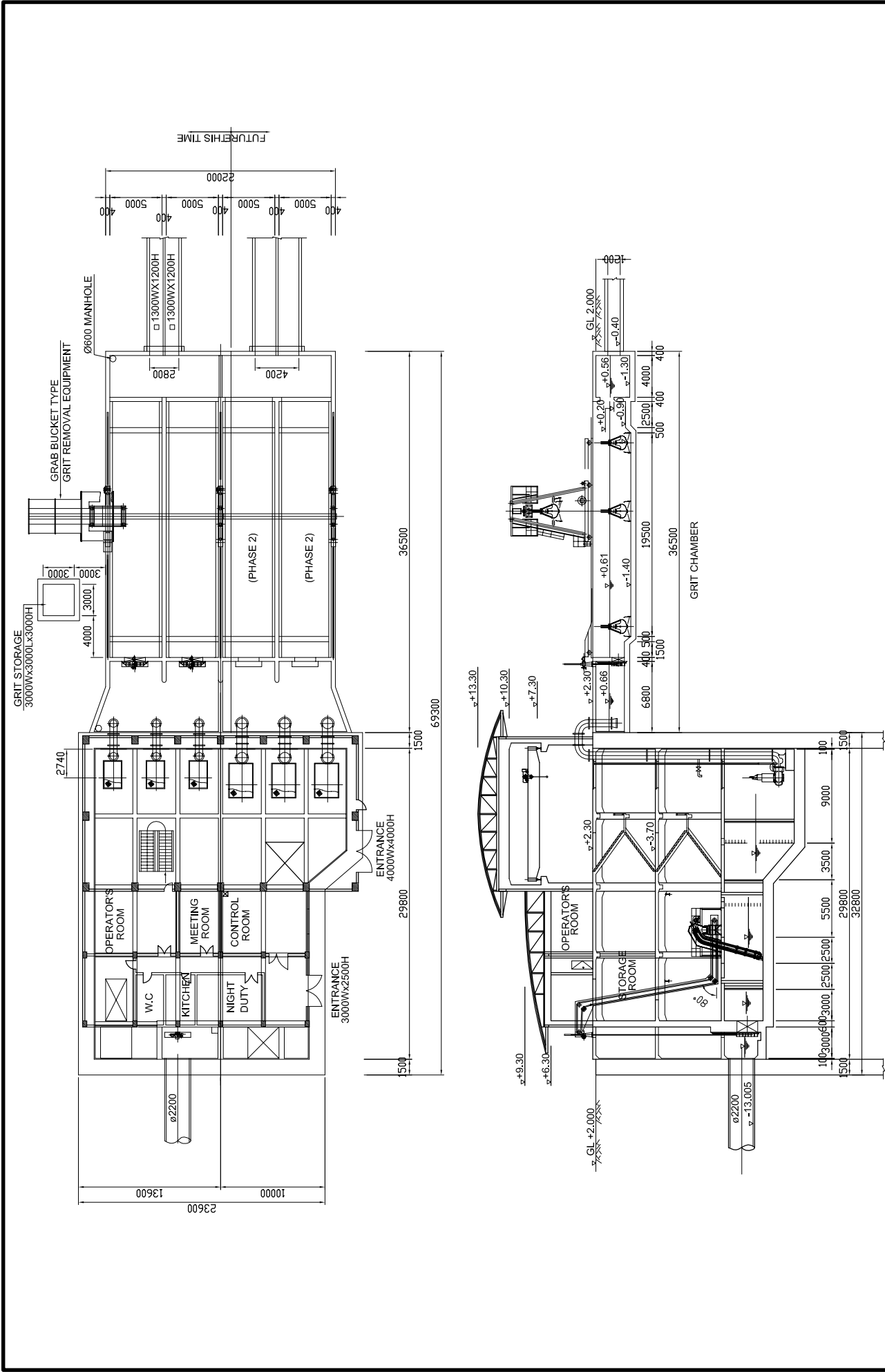


APPENDIX 3A: INTERCEPTOR SEWER LAYOUT

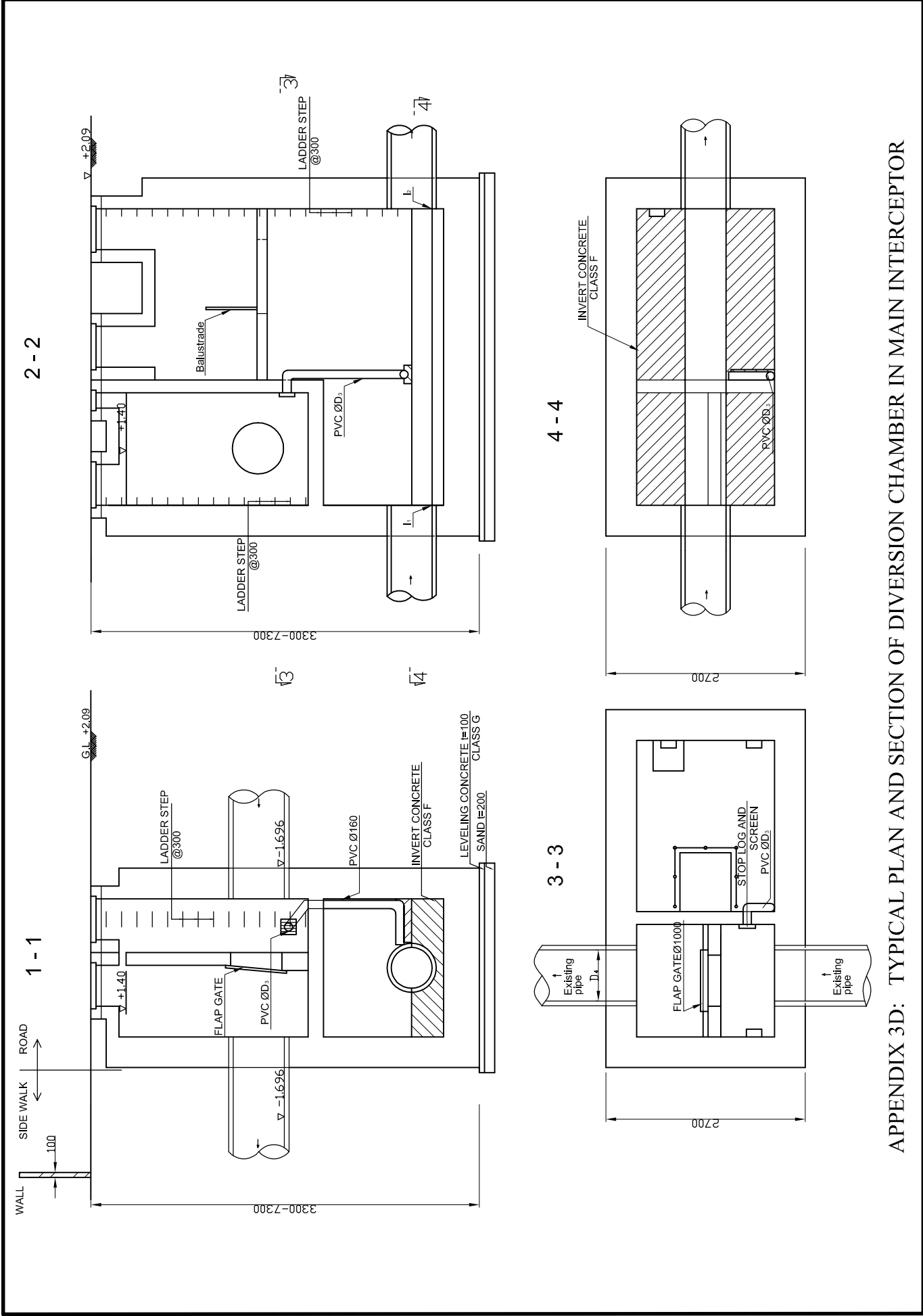




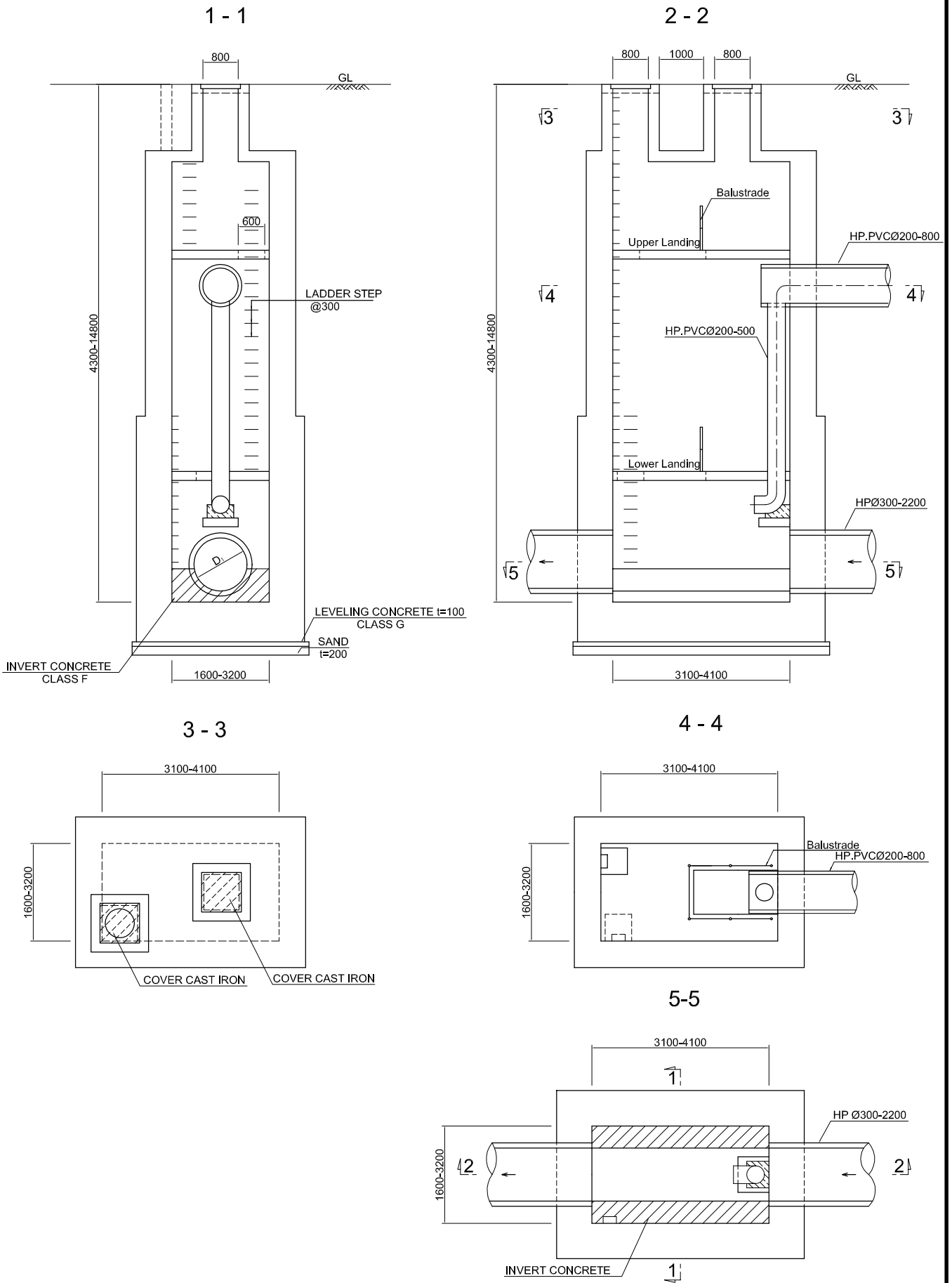
APPENDIX 3B: GENERAL LAYOUT OF INTERMEDIATE WASTEWATER PUMPING STATION



APPENDIX 3C: PLAN AND CROSS SECTION OF INTERMEDIATE WASTEWATER PUMPING STATION



APPENDIX 3D: TYPICAL PLAN AND SECTION OF DIVERSION CHAMBER IN MAIN INTERCEPTOR



APPENDIX 3E: TYPICAL MANHOLE IN MAIN INTERCEPTOR

## APPENDIX 4: SUMMARY OF MAJOR QUANTITIES

The following are indicative of the quantities of major work items:

ITEM	UNIT	QUANTITY
<b>INTERCEPTOR SEWER:</b>		
Sewer Pipe (300 mm to 1,000 dia.)	m	7,659
Sewer Pipe (1,200 mm to 2,200 dia.)	m	6,314
Excavation	m <sup>3</sup>	120,456
Backfill	m <sup>3</sup>	81,292
Roadworks	m <sup>2</sup>	10,926
Concrete	m <sup>3</sup>	8,269
Steel Reinforcement	tonne	410
<b>INTERMEDIATE WASTEWATER PUMPING STATION:</b>		
Excavation	m <sup>3</sup>	22,060
Fill	m <sup>3</sup>	8,910
Concrete	m <sup>3</sup>	3,215
Steel Reinforcement	tonne	880
Mechanical and electrical plant including 3 pumps each having a capacity of 66.7 m <sup>3</sup> /min.	Item	
Building Works	item	
Roads paving and landscaping	item	
<b>CONVEYANCE SEWER:</b>		
Excavation	m <sup>3</sup>	3,494
Fill	m <sup>3</sup>	3,230
Concrete	m <sup>3</sup>	603
Steel Reinforcement	tonne	42
<b>PROCUREMENT OF SEWER CLEANING EQUIPMENT:</b>		
4 - ton Water Jet Cleaner	No.	1
8 - ton Water Jet Cleaner	No.	1
4 - ton Vacuum Cleaner	No.	1
8 - ton Vacuum Cleaner	No.	1
4 - ton Water Tank	No.	6
4 - ton sludge hauling dump truck	No.	15
4 - ton truck	No.	3
Submersible pump 100A	Set	3
Submersible pump 150A	Set	2
Diesel Generator 20 kVA	Set	4