

**PNOC Sewage Treatment Plant (STP)**

General Notes:

1. Proposed STP flow is 45 m<sup>3</sup>/day (cmd)
2. Proposed STP minimum of Compact Type SBR technology or approve equal partially buried on the ground and shall comply with DENR Administrative Order 2016-08 Water Quality Guidelines and General Effluent Standards (DAO 2016-08). **Table 1** shows the class of water bodies while **Table 2** show the effluent parameters for class SC
3. This Plan/Process flow of STP shown in **Figure 1** is for reference only.
4. All commercial establishment such as restaurants, must provide their own grease trap / oil interceptor.

**Table 1. Water Classification**

<b>Classification</b>	<b>Intended Beneficial Use</b>
Class SA	Protected Waters – Waters designed as national or local marine parks, reserves, sanctuaries, and other areas established by law (Presidential Proclamation 1801 and other existing laws), and/or declared as such by appropriate government agency, LGUs, etc.  Fishery Water Class I – Suitable for shellfish harvesting for direct human consumption
Class SB	Fishery Water Class II – Waters suitable for commercial propagation of shellfish and intended as spawning areas for milkfish ( <i>Chanos chanos</i> ) and similar species.  Tourist Zones – For ecotourism and recreational activities  Recreational Water Class I – Intended for primary contact recreation (bathing, swimming, skin diving, etc.)
Class SC	Fishery Water Class III – For the propagation and growth of fish and other aquatic resources and intended for commercial and sustenance fishing  Recreation Water Class II – For boating, fishing, or similar activities  Marshy and/or mangrove areas declared as fish and wildlife sanctuaries
Class SD	Navigable waters

**Note: Class SC classification is the water classification of the receiving water body for the proposed project.**

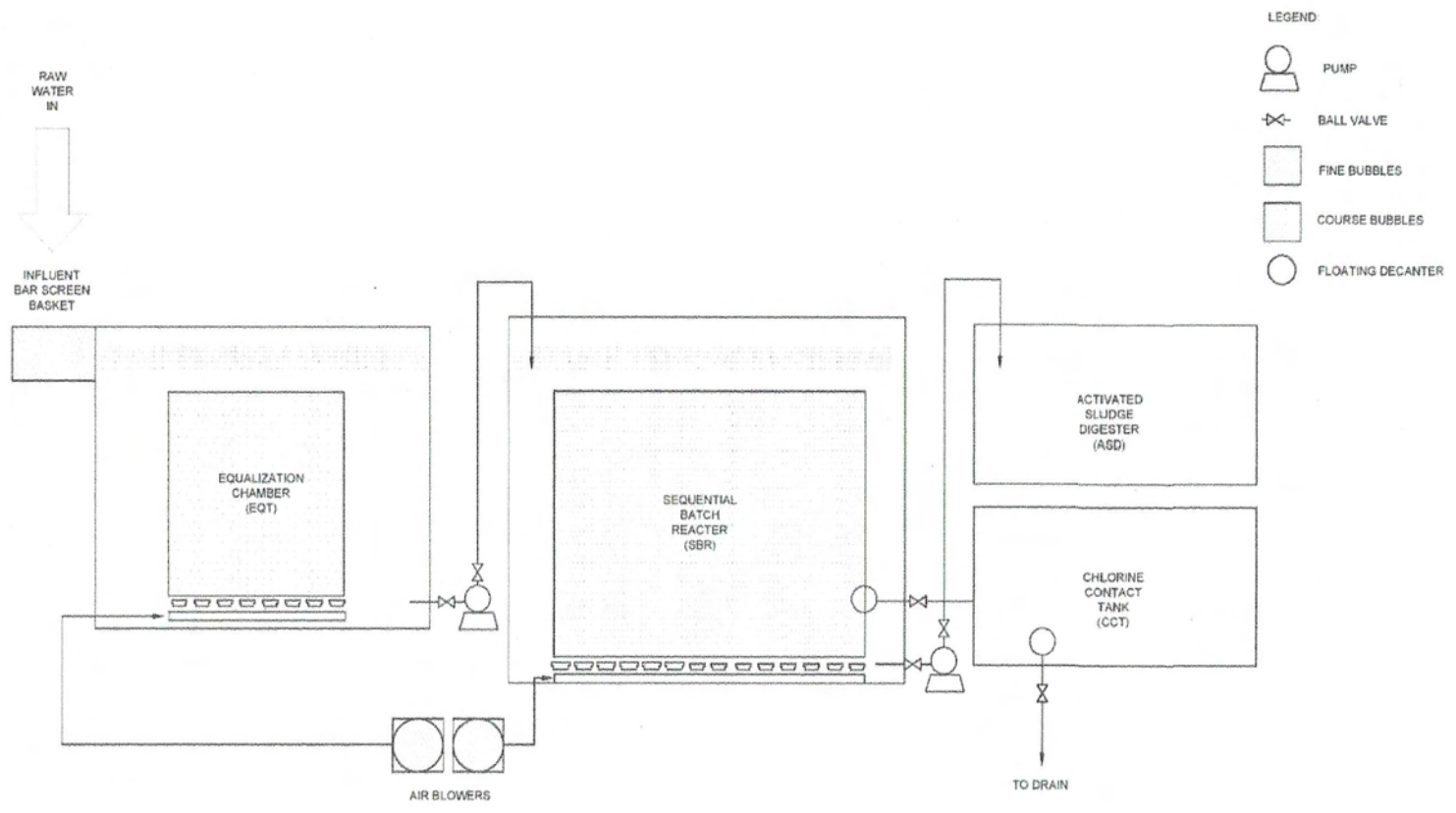
**Table 2. Effluent Standards for Class SC**

11/6/2021

Significant Parameter	Influent/Typical Domestic Sewage <sup>1</sup>	DAO 2016-08 Effluent Standards Class for SC	Unit
Biochemical Oxygen Demand (BOD <sub>5</sub> )	110-400	100	mg/l
Chemical Oxygen Demand (COD)	250-1000	200	mg/l
Total Suspended Solids (TSS)	100-350	100	mg/l
Fecal Coliform	-	400	MPN
Ammonia as NH-3	-	0.5	mg/l
Nitrate as NO <sub>3</sub>	-	20	mg/l
Phosphate	4-15	1	mg/l
Oil and Grease	50-150	10	mg/l
Surfactants	-	15	mg/l

Notes: 1 - Wastewater Engineering: Treatment and Reuse, 4<sup>th</sup> Edition, by Metcalf and Eddy (2003)

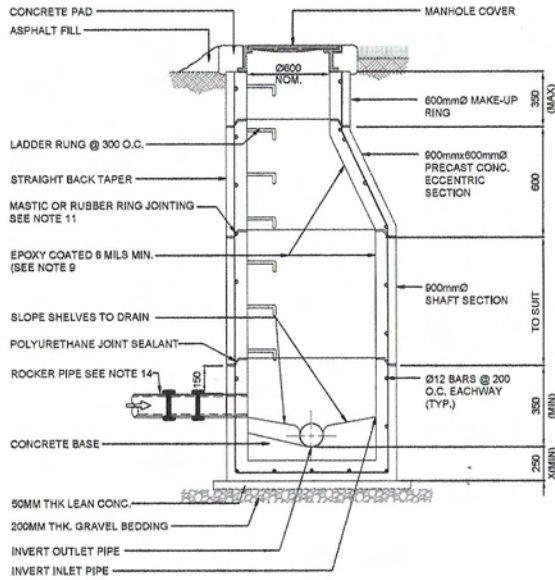
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1  
 SBR SEQUENCE PROCESS FLOW DIAGRAM  
 100' TO SCALE

CONSULTANT	DESIGNED BY	DRAWN/TITLE BY	IMPLEMENTING AGENCY	CHECKED BY	RECOMMENDING APPROVAL	APPROVED BY	PROJECT NAME AND LOCATION	SHEET CONTENTS	SET NO.	SHEET NO.
WOODFIELDS CONSULTANTS INC. A Planning and Engineering Consulting Firm			PHILIPPINE NATIONAL OIL COMPANY PNOC					SBR SEQUENCE PROCESS FLOW DIAGRAM	P	

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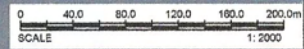
**2 STANDARD SEWER MANHOLE TYPICAL DETAILS**  
SCALE

**LEGEND:**

- PROPOSED PORT SEWER LINE
- PROPOSED ESB SEWER LINE
- SEWER MANHOLE
- FLOW

NOTE: ALL SEWER PIPES ARE 200mm DIAMETER

**1 PNOC - ESB PORT SEWERLINE GENERAL LAYOUT PLAN**  
SCALE 1:2000



CONSULTANT: <b>WOODFIELDS CONSULTANTS, INC.</b>	DESIGNED BY: NELSON S. DE GUZMAN, PSE SENIARY REGISTERED	PREPARED BY: MA. LOURDES M. MANATAD PROJECT TEAM LEADER	SUBMITTED BY: HENRY M. MEDINA PROJECT MANAGER	OWNER: PHILIPPINE NATIONAL OIL COMPANY <b>PNOC</b>	ENGR. CARLITO B. PENA DEPARTMENT MANAGER	ATTY. GRACIELA M. BARLETA SUPPORTIVE PRESIDENT, ENERGY BUSINESS	PROJECT NAME AND LOCATION: CONSULTANCY SERVICE FOR THE PREPARATION OF FEASIBILITY STUDY AND DETAILED ENGINEERING DESIGN ON THE PROPOSED DEVELOPMENT OF PNOC ENERGY SUPPLY BASE LOCATED AT MABINI, BATANGAS	SHEET CONTENTS: PNOC - ESB PORT SEWERLINE GENERAL LAYOUT PLAN AND STANDARD SEWER MANHOLE TYPICAL DETAILS	SET NO. P 01a   06	SHEET NO. 49a 63
PROPOSED PORT DEVELOPMENT (PACKAGE CONTRACT II)										