

SWIM and Horizon 2020 Support Mechanism

Working for a Sustainable Mediterranean, Caring for our Future

SWIM-H2020 SM Regional Activities 14

Presented by:

MOHAMMD SUTARI, MEHSIP RESIDENT EXPERT-JORDAN

SWIM and Horizon 2020 SM REG-14: Refugee Emergency: Fast track project Design of wastewater

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ENVIRONMENTAL AGENCY AUSTRIA **umweltbundesamt**

ATKINS

CONFIGURATION , LAYOUT & OVERVIEW OF OTHER WASTEWATER TREATMENT SYSTEMS



CONTENTS-1

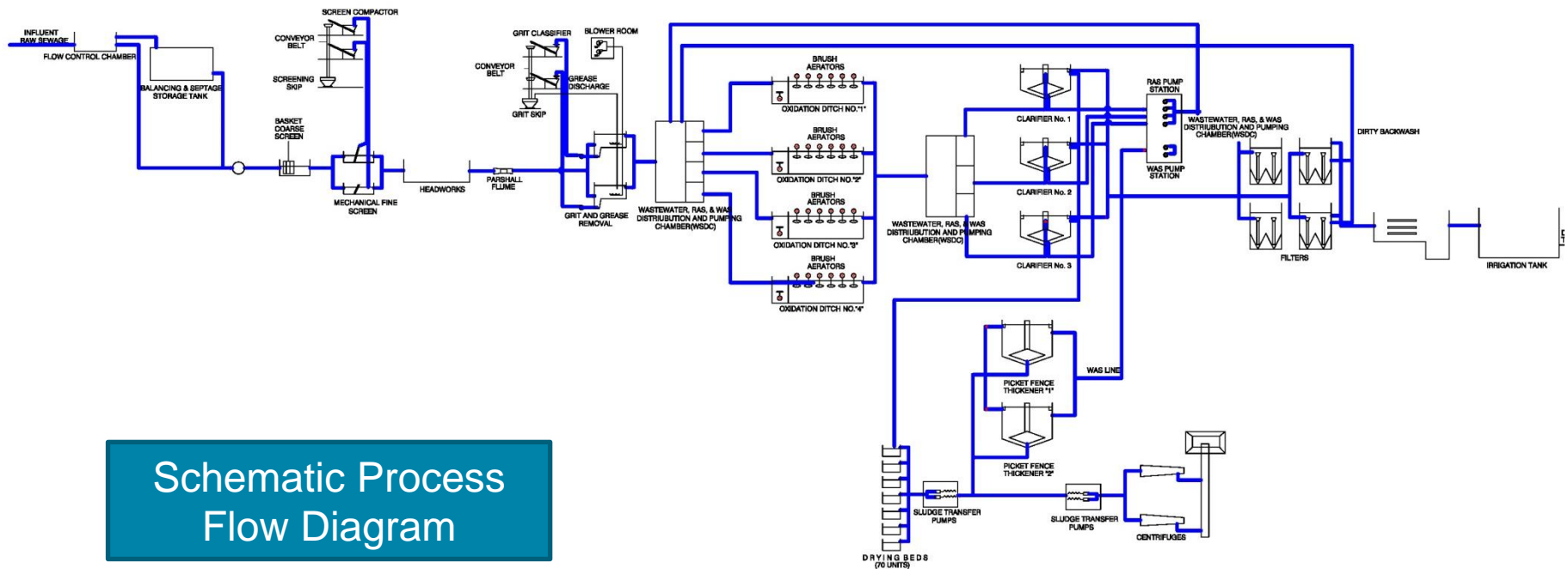
1. Process & instrumentation diagram(P&ID)
2. General site plan
3. Headwork's & Screens
4. Grit removal
5. Air lift pumps selection
6. MLSS recycle pumps
7. Plug Flow Reactors
8. Flow Distribution
9. Secondary clarifiers
- 10.Scum collection
- 11.RAS collection
- 12.Distribution boxes

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- 13. Sludge thickening
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- 15. Design mistakes for aeration configuration
- 16. Sludge Dewatering
- 17. Activated Sludge Systems
- 18. Attached Growth Systems
- 19. Integrated biological treatment systems
- 20. Waste stabilization ponds

PROCESS FLOW DIAGRAM

Developed early in the design phase by the process engineer.
Helpful in giving a quick overall description of the entire plant and its many p
Used as tools for the other design disciplines.
It doesn't include instrumentation symbols

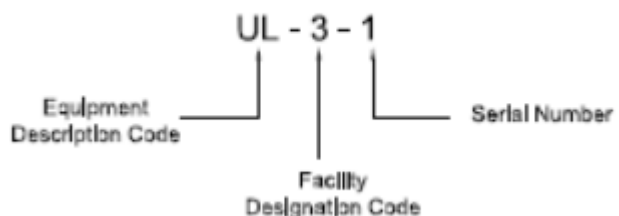


FACILITY & EQUIPMENT IDENTIFICATION

Facility Description	Facility Code
Balancing Tank	1
Screens	2
Ultrasonic Flow Measurement	3
Grit removal	4
Bio Reactors Facility	5
Secondary Clarifiers	6
Disk Filters	7
Chlorination Facility	8
Irrigation Pump station facility	9
RAS & WAS Pump Station	10
Sludge Dewatering	11
Deodorizing facility	12
Liquor Pump Station Facility	13
Plant Water System	14
Distribution Boxes	15

Equipment	Code
Pump	PU
Valve	VA
Gate	GT
Meter	ME
Screen	SC
Screening compactor/washer	SW
Mixer	MI
Aerator	AE
Ejector	EJ
Ultrasonic Flow measurement	UF
Miscellaneous Equipment	ME
Grit Classifier	GC
Monorail	MO
Scraper	SC
Bridge	BR
Blower	BL
Oxygen Sensor	DO
Adjustable Weir	WE
Screen Filter	SF

LEGEND



EQUIPMENT LIST & ELECTRICAL DEMAND

Code	Structure Description		Equipment Type	Facility Code	Serial No.	Equipment Code	Power (kW)				Required VFD
							Stage-1		Stage-2		
							Duty	Standby	Duty	Standby	
1	Balancing Tank	Submersible Pumps	PU	1	1	PU-1-1	11		11		√
			PU	1	2	PU-1-2	11		11		√
			PU	1	3	PU-1-3		11	11		√
			PU	1	4	PU-1-4				11	√
		Ejectors	EJ	1	5	EJ-1-5	15		15		
			EJ	1	6	EJ-1-6		15		15	
		Ultrasonic Water Level Measurement	UL	1	7	UL-1-7	√		√		
		Flap Valve	FV	1	8	FV-1-8					
		Low_Low Float Switch	FS	1	9	FS-1-9	√		√		



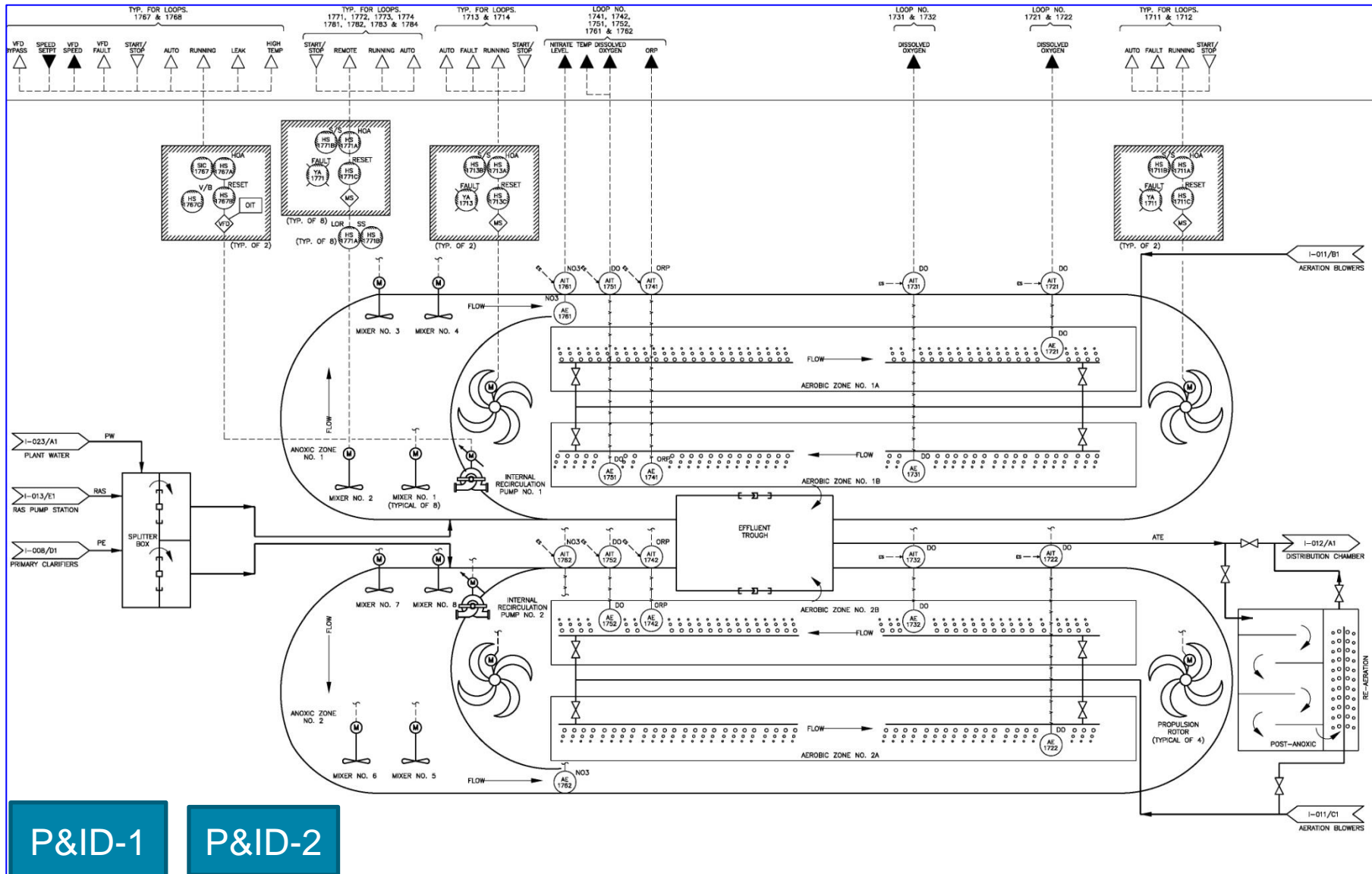
PROCESS & INSTRUMENTATION DIAGRAM(P&ID)

The purpose for PID is to provide sufficient information for knowledgeable person to understand the means of measurement and control of the process without detailing instrumentation, which requires the knowledge of an instrument specialist.

Level of details

- ☐ Valves
- ☐ Pipe sizes.
- ☐ Process flow stream
- ☐ Piping material identification.
- ☐ All process & mechanical equipments
- ☐ Instrumentation and control panel designations

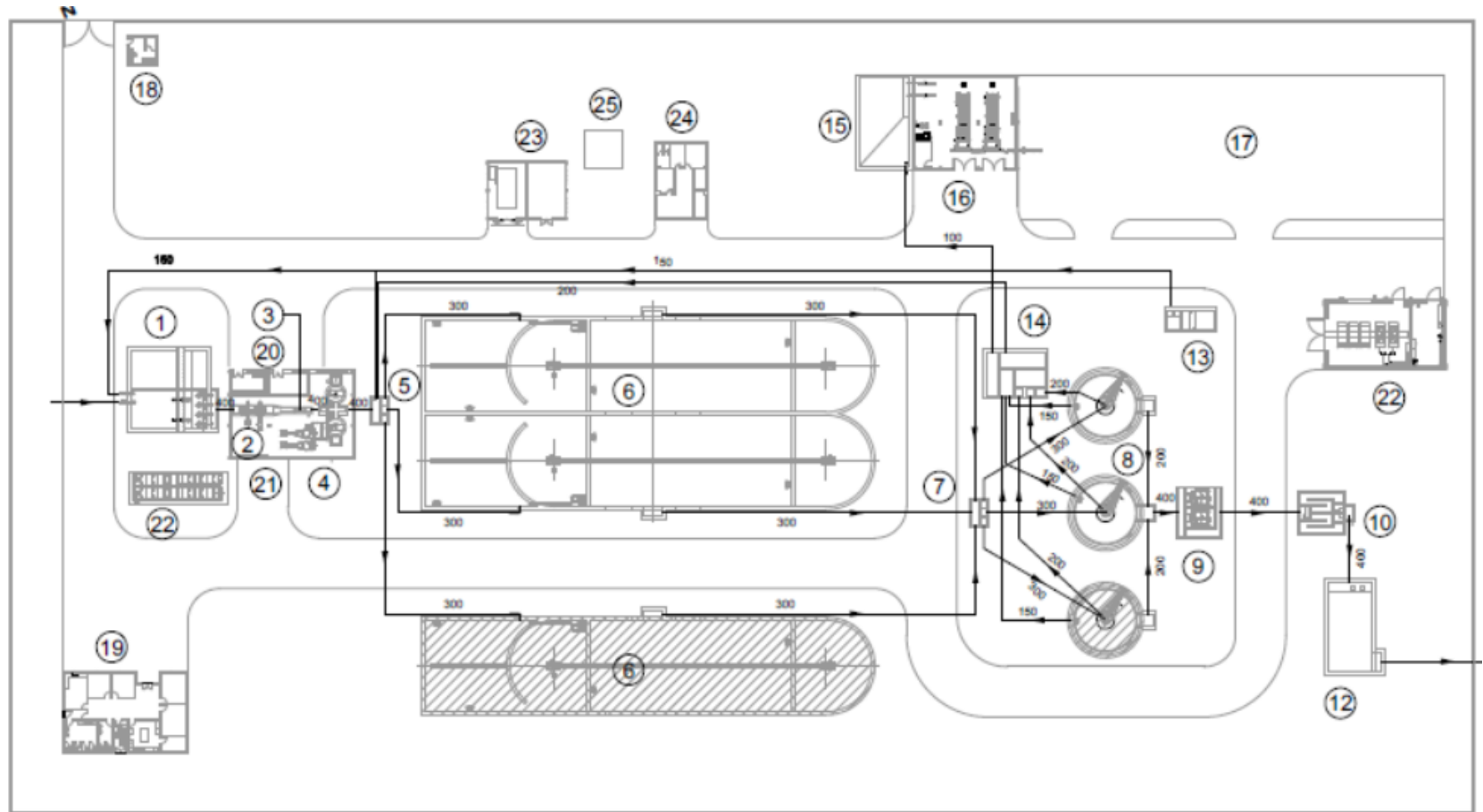
P&ID



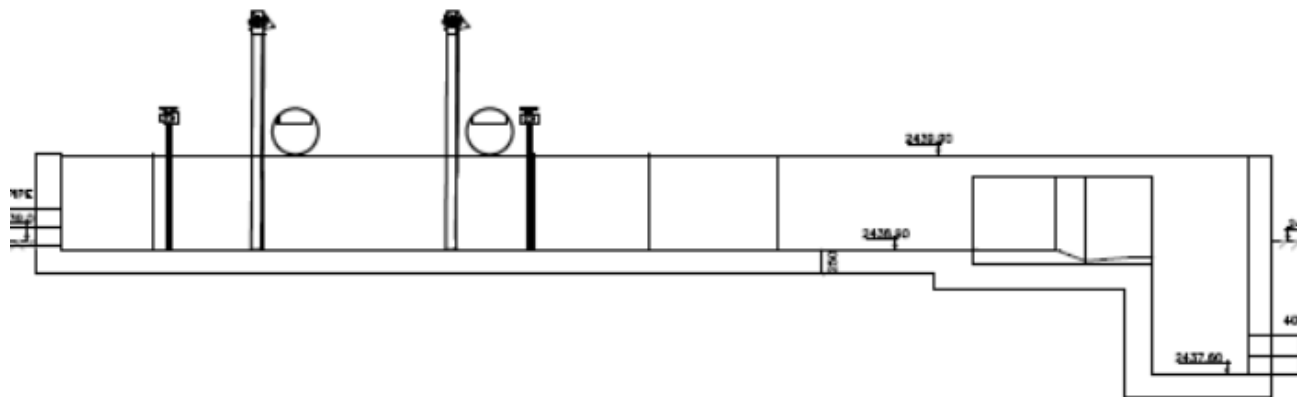
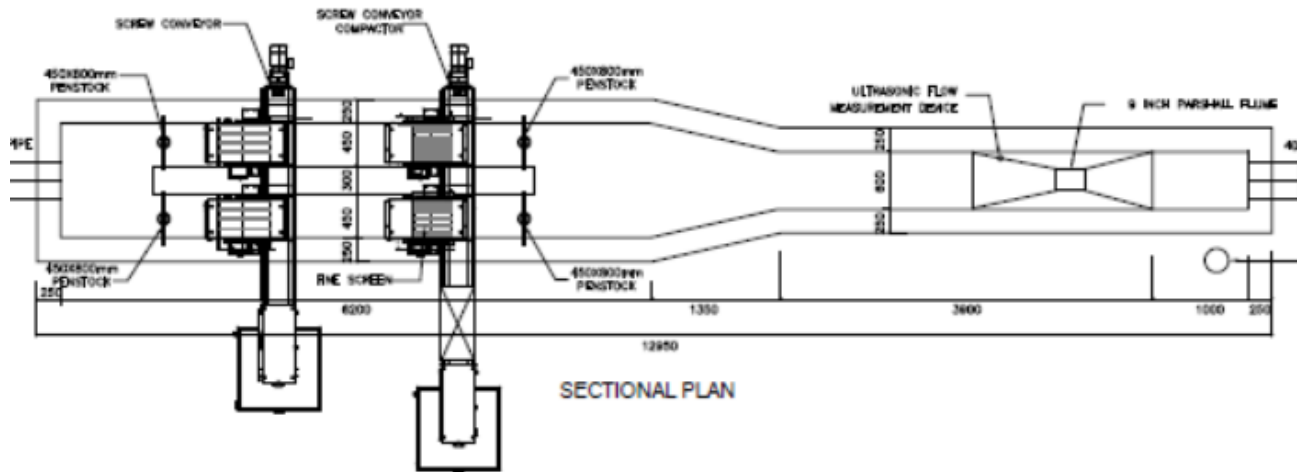
P&ID-1

P&ID-2

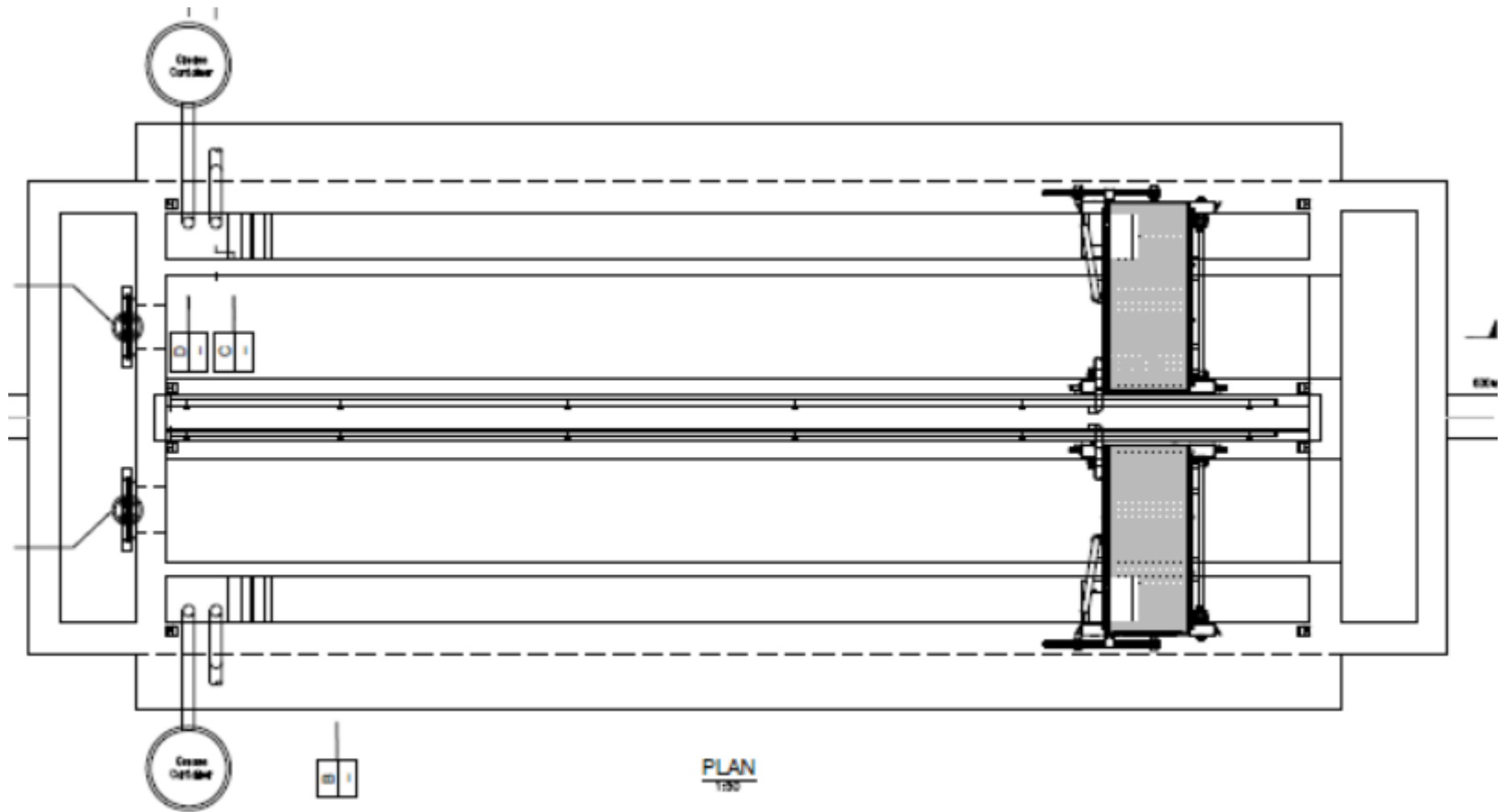
GENERAL SITE PLAN



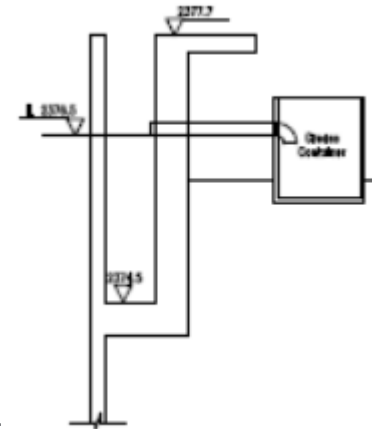
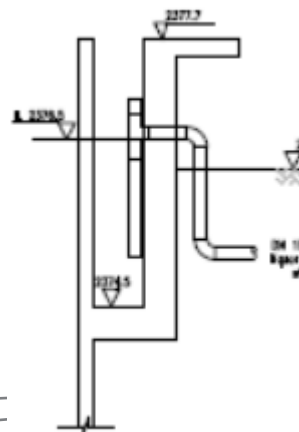
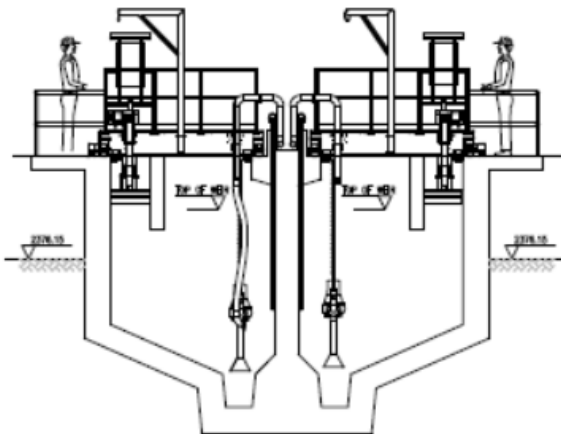
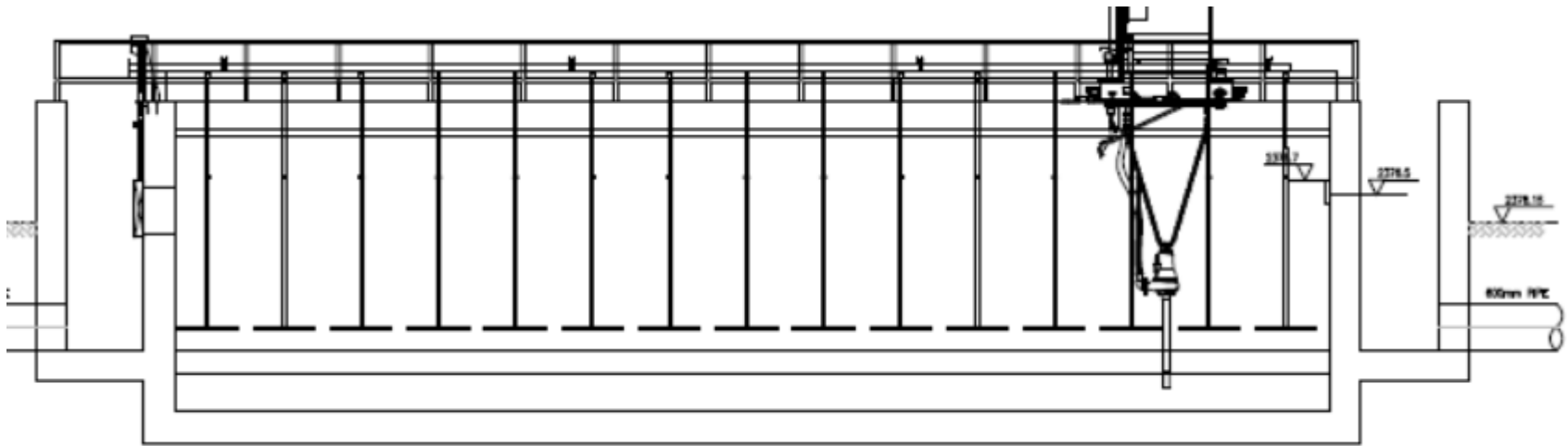
HEADWORKS & SCREENS



AERATED GRIT REMOVAL PLAN

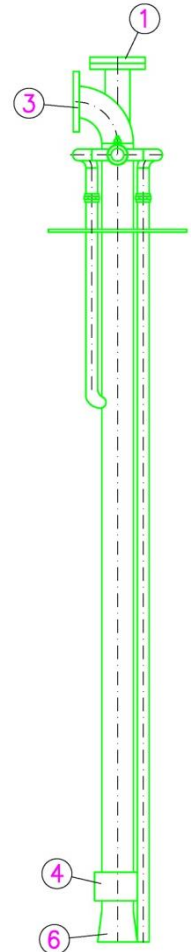
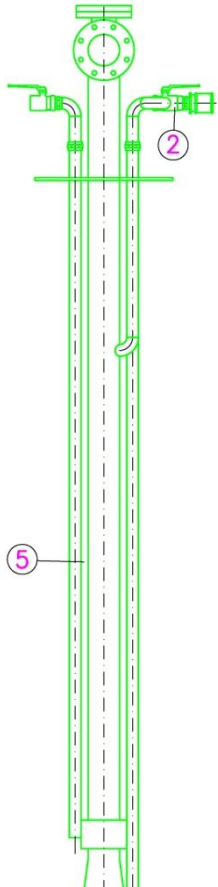


AERATED GRIT REMOVAL SECTIONS

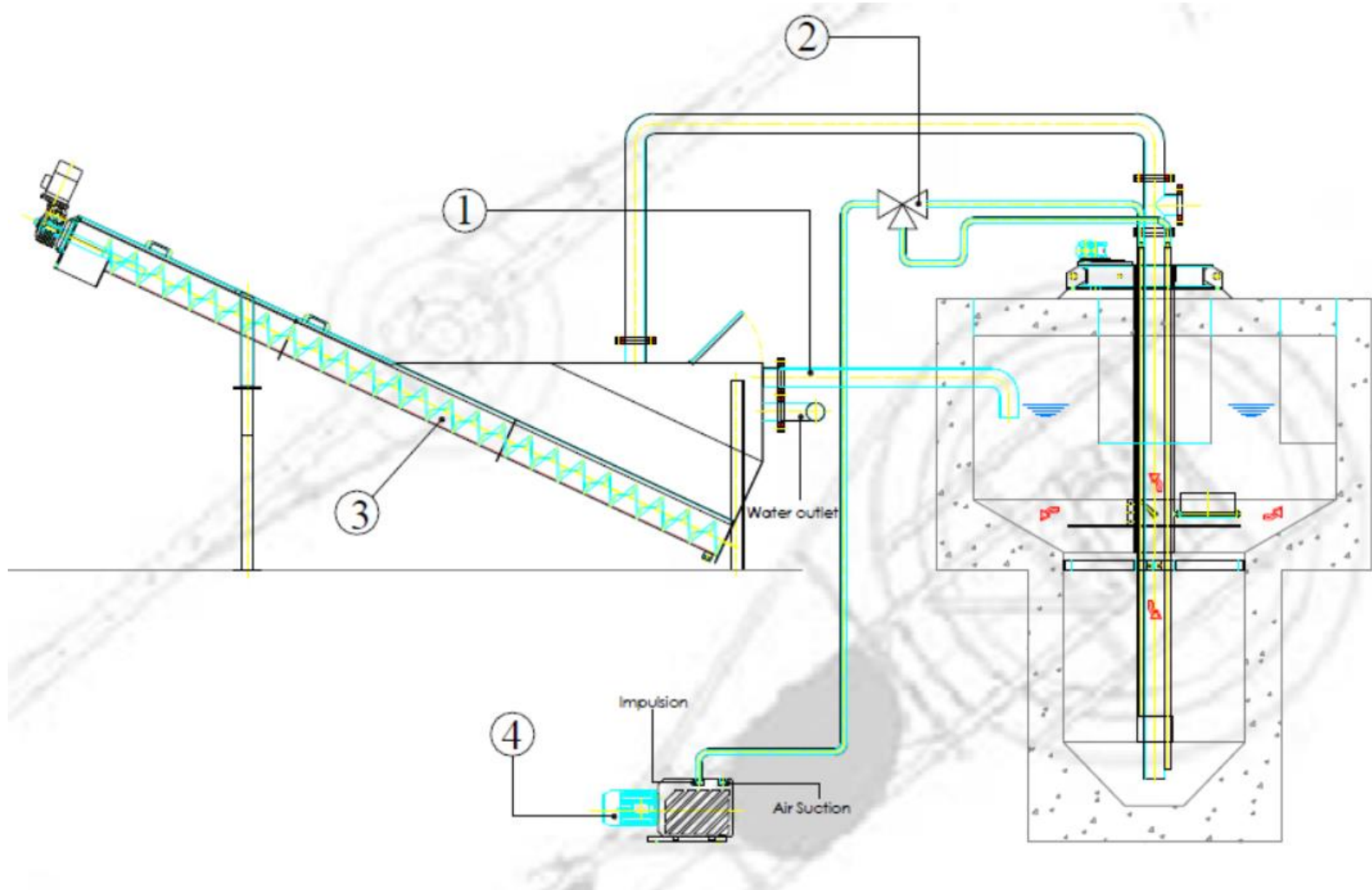


AIR LIFT PUMPS SELECTION

TYPE	DN	LIFT mm	AIR FLOW m ³ /h	WATER FLOW m ³ /h
AL	80	500	9	13
	100	500	12	15
	125	500	24	24
	150	500	32	30
	175	500	50	40
	200	600	65	50
	300	700	150	100
REMARKS	THE VALUES RECORDED FOR LIFT EQUAL TO 1/4 OR INFERIOR TO AIR INJECTION.			



VORTEX GRIT CHAMBER WITH AIR LIFT



VORTEX GRIT CHAMBER WITH GRIT PUMP

