

Suma hydro		
Overview	Company name	Suma Hydro ltd
	Type of hydro	Small/mini run of the river hydro scheme
	location	9°15'22.32"S 33°42'31.64"E
	Gross head	63.5m
	Expected net Head (gross head - losses)	57.7m
	Design flow rate	2.08m ³ /s
	Weir and headrace designed to take 2.27m ³ /s for Suma 2 project	
	Total generation capacity (flow rate*net head*9.81*assumed efficiency of 85%)	1000kW
	Proposed turbine type	francis
	Number of turbines	2
Headrace	Type	steel
	Diameter (internal)	1.1m
	Length	1230m
	Pressure rating	PN6
	Expected head loss	4.12m
Penstock	Diameter	0.9m
	Length	120m
	Pressure rating	PN10 steel (50m)
		PN15 steel (70m)
	Expected head loss	1.67m
Interconnection	Voltage stepped up to 33kV in indoor switchgear room, connected to private distribution network and national grid(TANESCO). Must be able to run in island mode.	

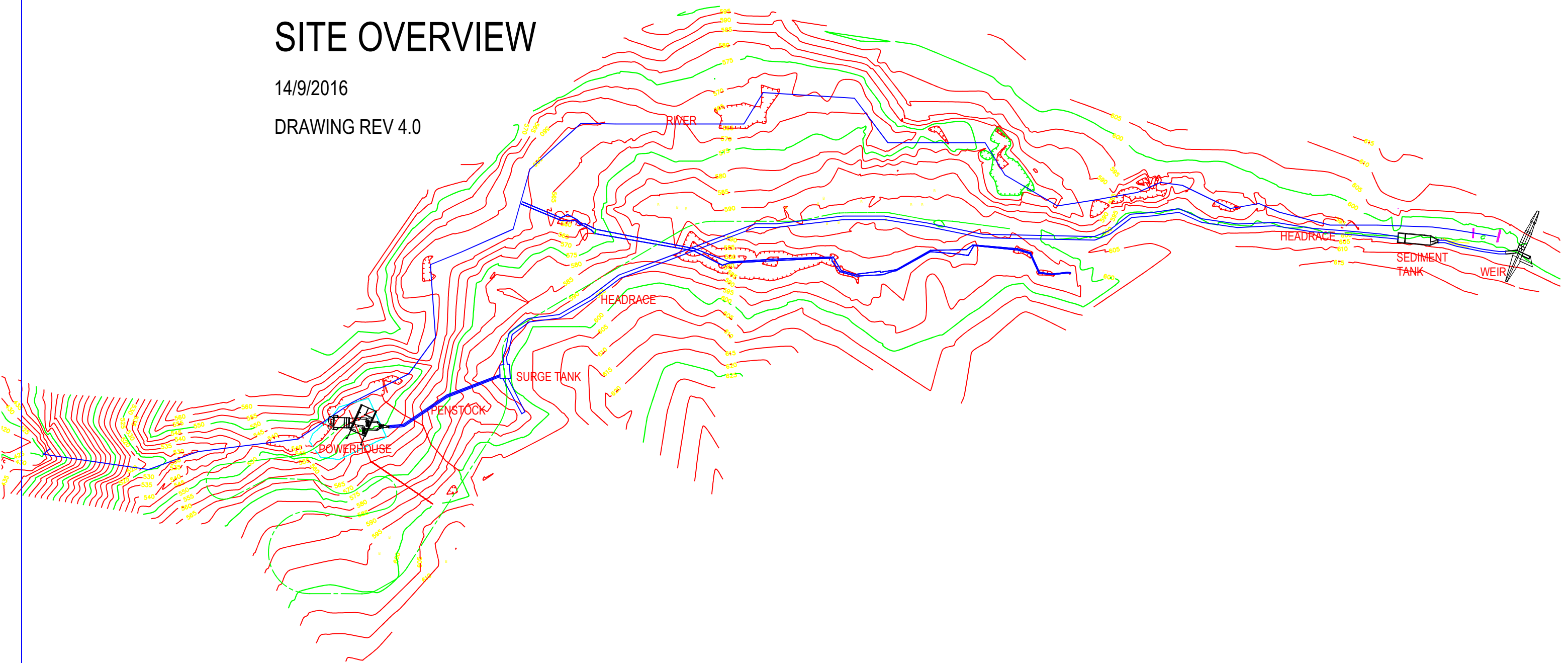
Suma monthly flow probability table

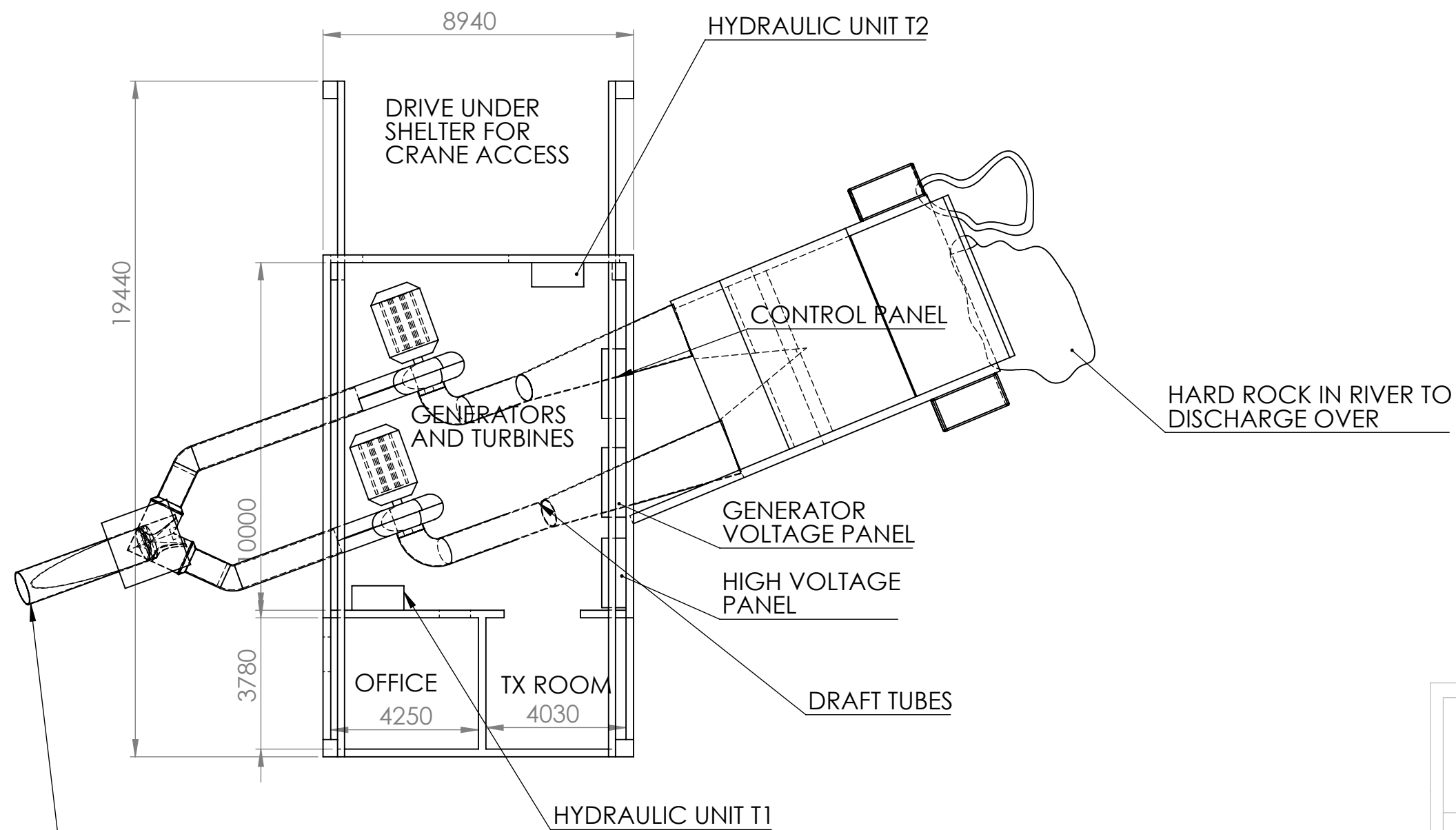
Monthly average flow probabilities (m ³ /s)													
Percent	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Average
10	3.20	3.40	3.35	4.30	4.30	2.90	2.05	2.05	1.80	1.70	2.25	2.70	2.83
20	2.50	2.95	2.95	4.00	3.40	2.50	1.85	1.85	1.65	1.55	1.75	2.10	2.42
30	2.20	2.60	2.80	3.50	3.10	2.25	1.75	1.70	1.55	1.45	1.55	1.90	2.20
40	2.05	2.30	2.65	3.40	2.95	2.10	1.70	1.60	1.45	1.35	1.40	1.75	2.06
50	1.95	2.20	2.50	3.25	2.80	2.00	1.60	1.55	1.38	1.30	1.35	1.60	1.96
60	1.80	2.05	2.45	3.00	2.65	1.80	1.50	1.50	1.35	1.25	1.30	1.40	1.84
70	1.65	1.95	2.35	2.75	2.50	1.70	1.30	1.40	1.25	1.22	1.25	1.35	1.72
80	1.50	1.75	2.10	2.50	2.30	1.50	1.25	1.28	1.20	1.20	1.20	1.25	1.59
90	1.25	1.40	1.70	2.10	2.00	1.30	1.20	1.20	1.17	1.15	1.18	1.20	1.40

SUMA HYDRO SITE OVERVIEW

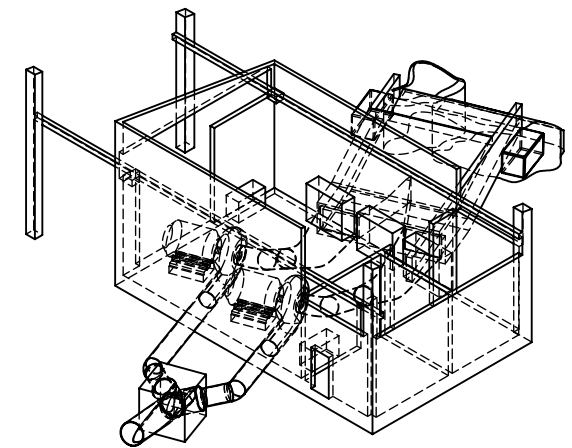
14/9/2016

DRAWING REV 4.0





WATER SUPPLIED BY FLANGED 900mm PIPE, ALL PIPE WORK AND TURBINE CONNECTIONS BEYOND THIS POINT WILL BE THE RESPONSIBILITY OF THE TURBINE SUPPLIER



RIFT VALLEY
ENERGY



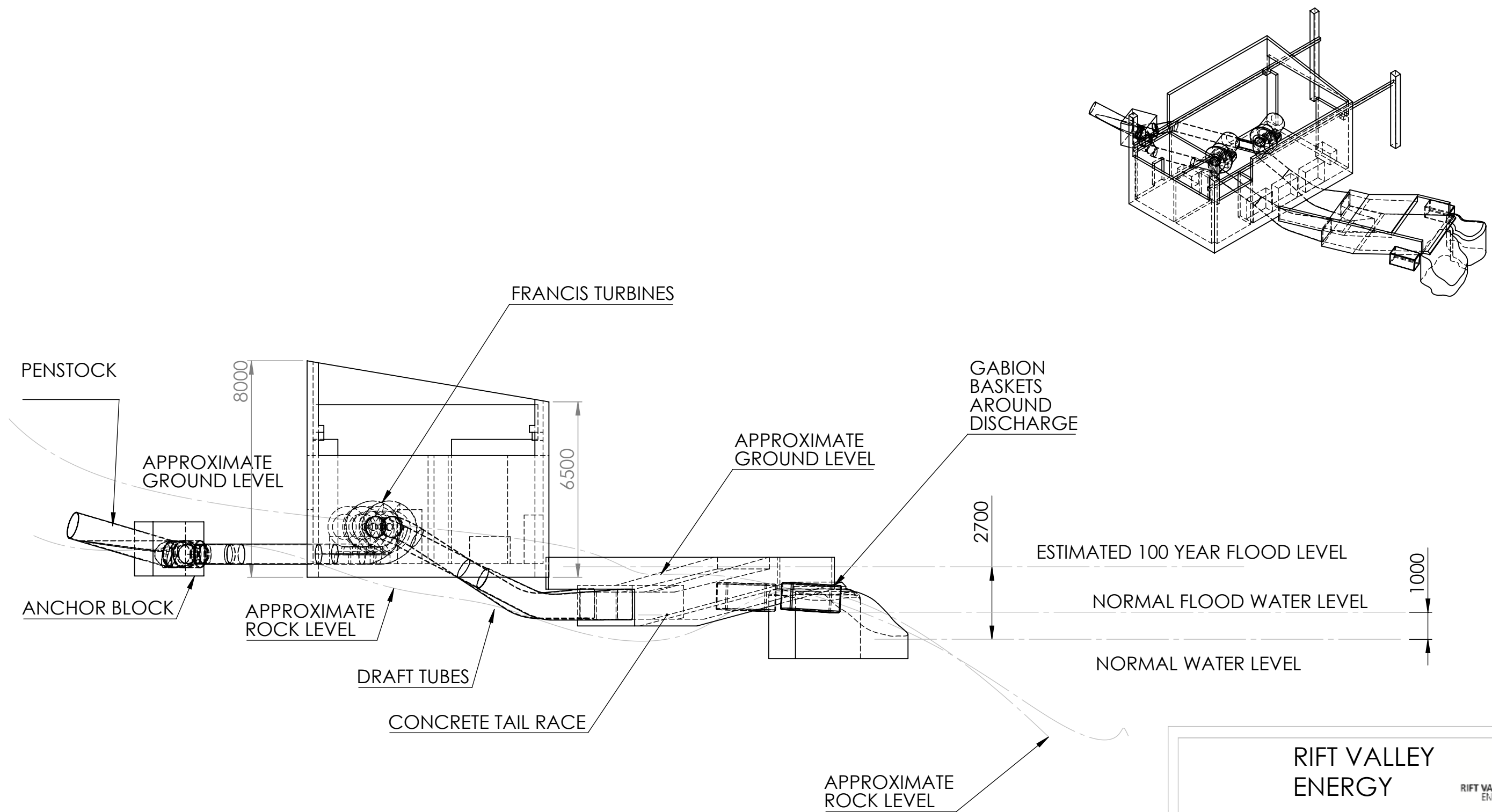
CONCEPTUAL LAYOUT FOR TENDER PURPOSES – FINAL LAYOUT TO BE DETERMINED FROM SELECTED TURBINE PROPOSALS

DRAWING POWERHOUSE PLAN

PROJECT SUMA HYDRO

REVISION 3.1

DATE 25/1/2016



NOTE : 100 YEAR FLOOD LEVEL AND SOFT ROCK LAYER ARE ESTIMATES BASED ON SITE OBSERVATIONS,

THE SUPPLIER SHOULD ENDEAVOR TO KEEP THE FOOTING OF THE ALTERNATOR ABOVE THE 100 YEAR FLOOD LEVEL

RIFT VALLEY
ENERGY



CONCEPTUAL LAYOUT FOR TENDER PURPOSES – FINAL LAYOUT TO BE DETERMINED FROM SELECTED TURBINE PROPOSALS

DRAWING	POWERHOUSE PROFILE
PROJECT	SUMA HYDRO
REVISION	3.1
DATE	25/1/2016

PRELIMINARY SUMA HYDRO SCHEMATIC ELECTRICAL LINE DIAGRAM