



Thuyloi University



Faculty of civil engineering

# TOPIC: DAY DAM - FLOOD CONTROL STRUCTURE IN RED RIVER

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# Day Dam hydraulic construction



Day Dam flood diversion works are located in Dan Phuong, Phuc Tho, old Ha Tay province (currently Hanoi), approximately 23km from the center of Hanoi, 11km from the mouth of the Day River

Day Dam flood diversion works have the following tasks:

- Redistribution the flood discharge of the Red River into the Day River to protect Hanoi from large flood, potentially causing unsafety condition to the Hanoi dike system.
- prevention areas along the Day River from inundation as the Red River flood has not yet threatened to affect the safety of the Hanoi dike system and its vicinity.

Dike system around Day Dam: In front of the flood diversion work of Day Dam, there are 2 dikes connecting with Huu dike to prevent over-estimated flood from the Red River. To the left of Day Dam is La Thach dike with 8km long, connected to the Red River dike. On the right is Phuc Tho dike with 12km long. The road on the crest dike from La Thach dike to Phuc Tho dike is 3km long.

# The distribution of water sources and the flood volume at some points on the Red River

Location	riverside	catchment area (km <sup>2</sup> )	Year flow		Qmax measured (m <sup>3</sup> /s)
			km <sup>3</sup>	% compared to Son Tay HS	
Hoa Binh	Đa	51.700	37,2	47,5	21.000
Yen Bai	Thao	48.000	26,8	22,2	10.350
Phu Ninh	Lo	57.000	31,4	26,0	14.000
Son Tay	Hong	143.000	120,9	100,0	38.000

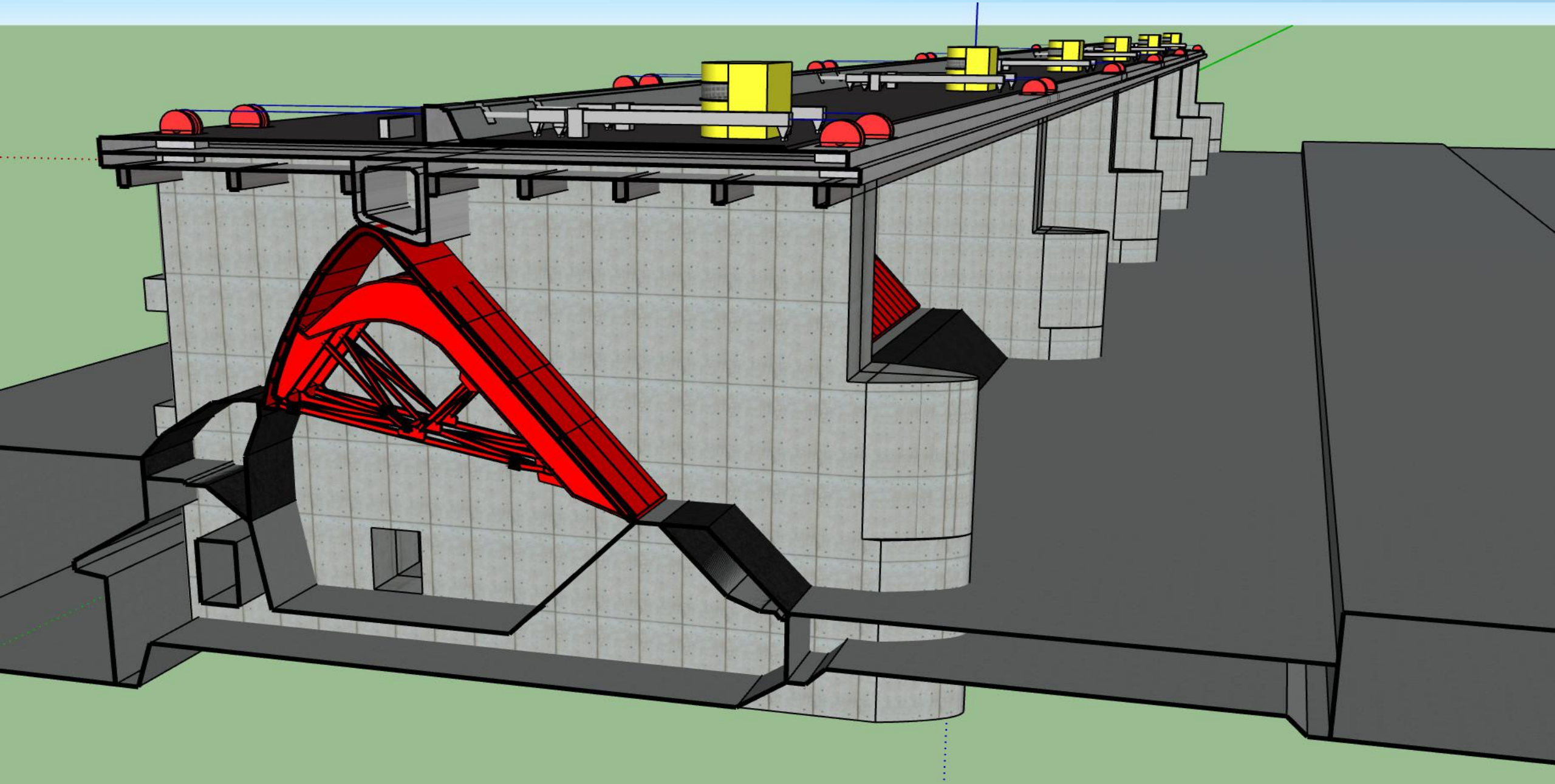
# Observation of water level in 70 years from 1902 with large water occurrences

Hanoi water level	Number of years of recurrence	Frequency %
+ 9,5	68	91
+ 10,5	38	34
+ 11,5	17	24
+ 12,0	9	123
+ 13,0	3	4

## Extreme flood data

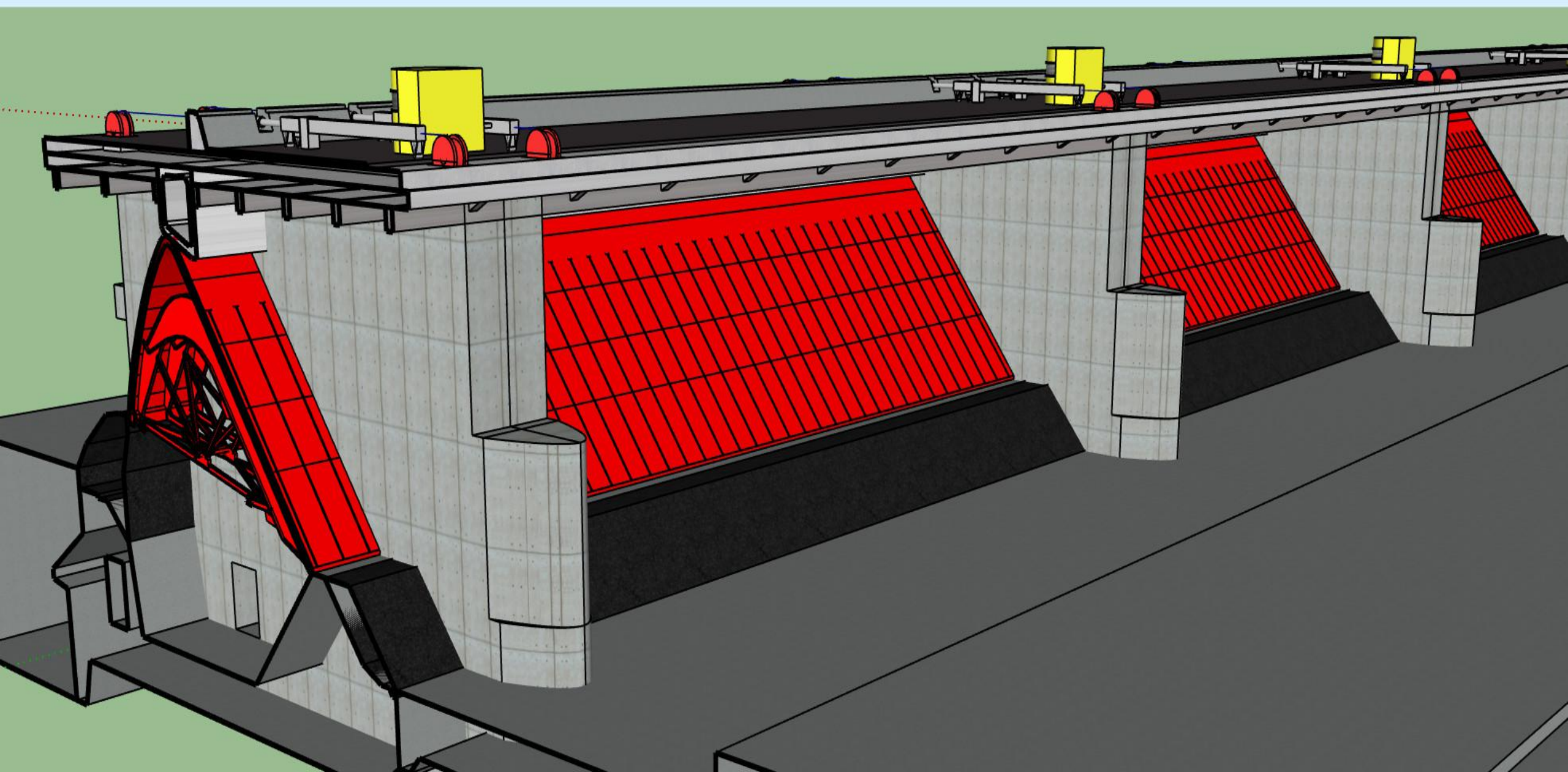
Time	$Q_{\max}$ in Son Tay	Elevation of water level at		Note
		Son Tay	Hanoi	
8/1945	33.500	16,30	13,90	Reverted
8/1969	28.300	15,62	13,36	Reverted
8/1971	38.000	16,85	14,60	Reverted

# 3D dam longitudinal section

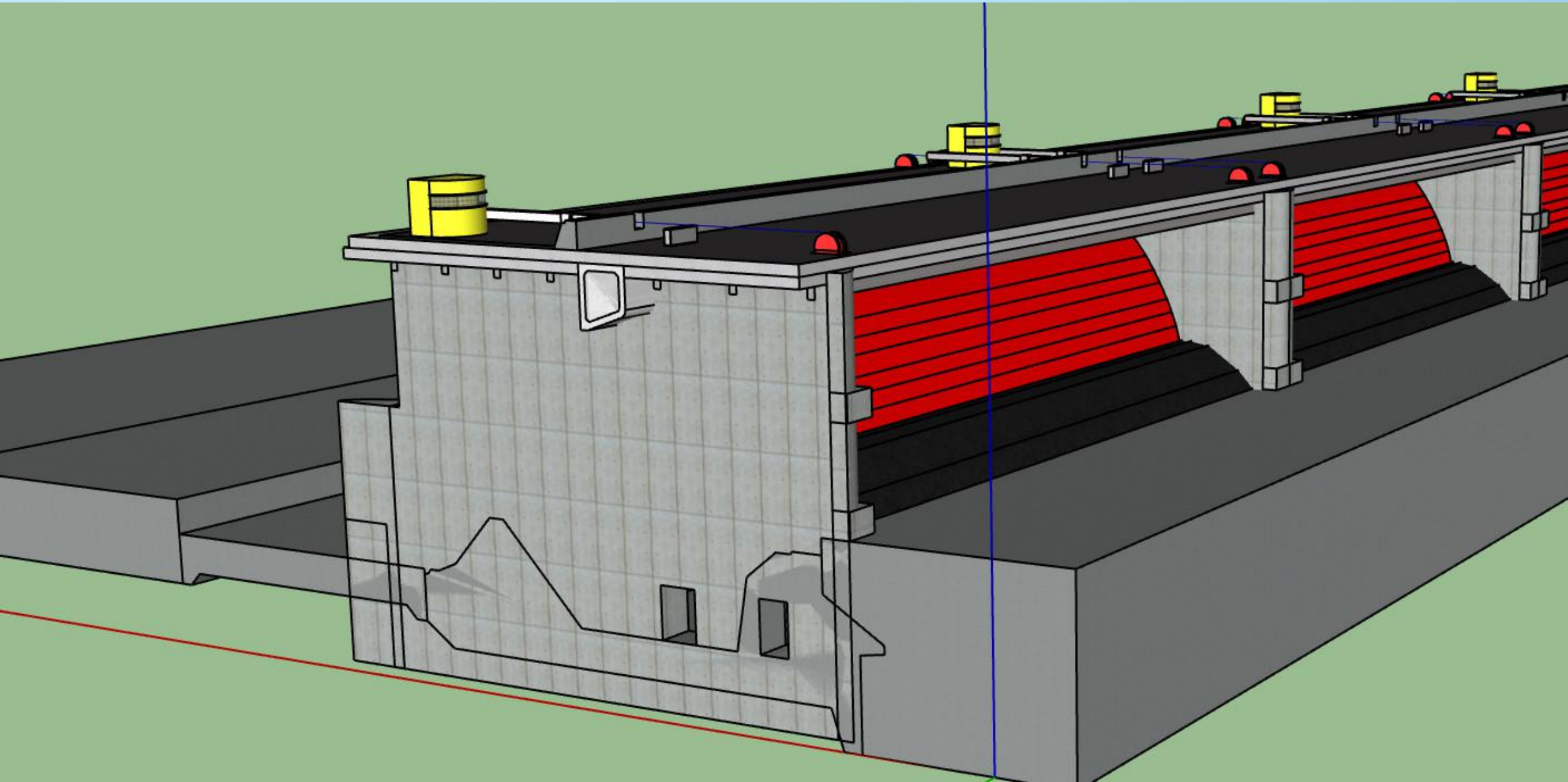


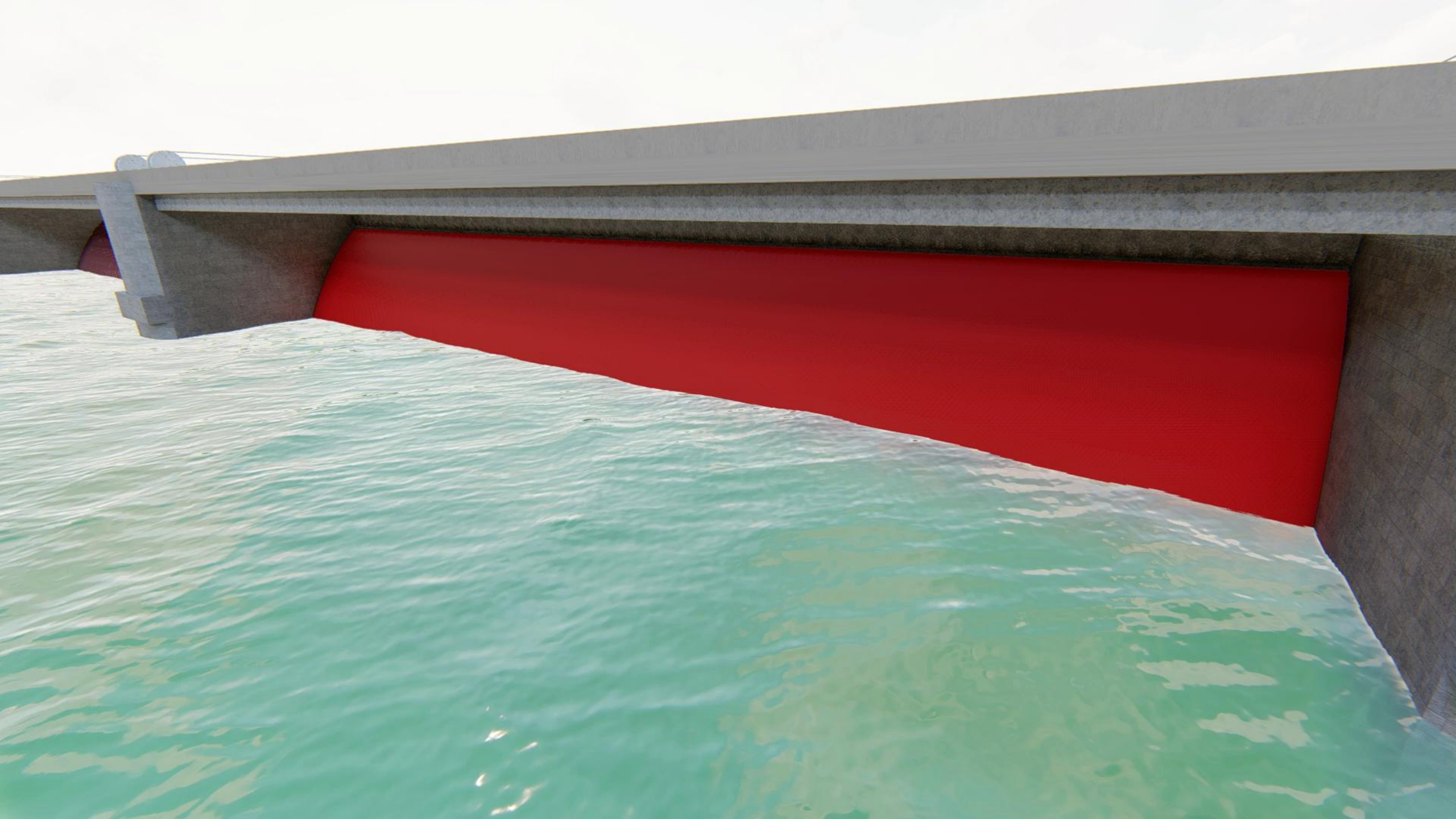


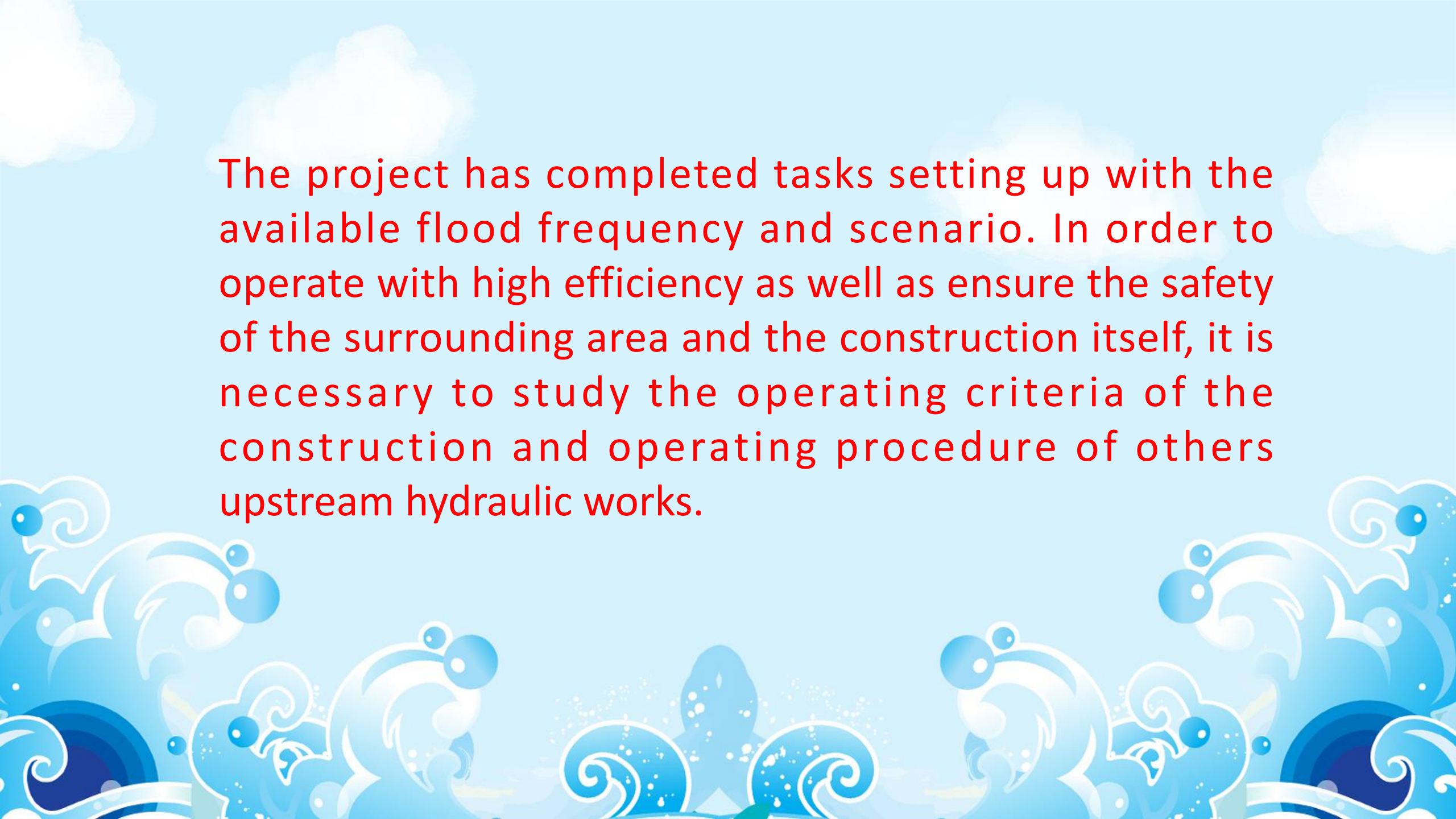
# 3D dam cross section



# 3D perspective from downstream side







The project has completed tasks setting up with the available flood frequency and scenario. In order to operate with high efficiency as well as ensure the safety of the surrounding area and the construction itself, it is necessary to study the operating criteria of the construction and operating procedure of others upstream hydraulic works.



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**THANK YOU!**

**WISHING EVERYONE GOOD HEALTH**