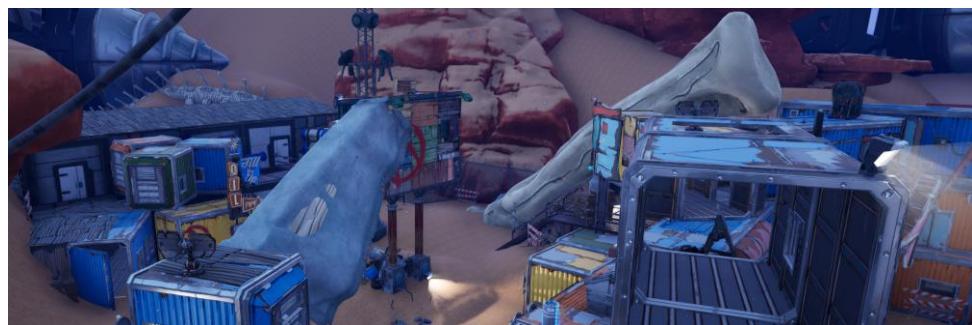




# Storm Remnants

Level Design with UEFN  
Yu Zhou



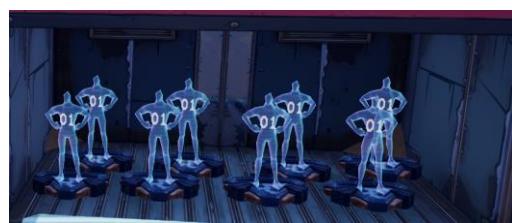
## Table of Contents

Table of Contents .....	2
Overview .....	3
Context .....	4
Backstory .....	4
References .....	5
Level Design .....	5
Loadouts and Characters .....	7
Aesthetic .....	9
Game Mechanics & Game Flow .....	10
Rules-Mode .....	10
Rules-Player .....	10
Game flow .....	11
Design and Development Timeline .....	12
Level Design .....	13
Initial Idea .....	13
Level Plan .....	14
Legends .....	14
Top Down Level Plan - Draft .....	14
Areas .....	14
Player Paths .....	15
White Box .....	16
Top-Down Level Plan – White Box .....	16
Areas .....	16
Details .....	16
Final Deliverable .....	19
Top-Down Level Plan – Level .....	19
Areas .....	19
Details .....	20
Iterations .....	27
Level .....	27
V. Draft .....	27
V. White Box .....	27
V.0 .....	28
V.1 .....	31
V.2 .....	33
V.Final .....	36
Decoration & Lighting .....	38
Post Mortem .....	42
Credits .....	43
Appendices .....	44

## Overview

Storm Remnants is a multiplayer map set in the Borderlands universe, created with Unreal Engine Fortnite Network (UEFN). The map primarily utilizes assets from the Borderlands series, named “Pandora” in UEFN content library, to create an immersive and chaotic battleground.

Players are divided into two teams of 8 and engage in intense combat across the map. Each player can choose from 6 loadout presets, each inspired by the classes from the Borderlands series. The design emphasizes strategic team play, though Team Death Match is the only game mode at this time, the map is designed for Capture The Flag (CTF) and Capture Point modes as well.



## Context

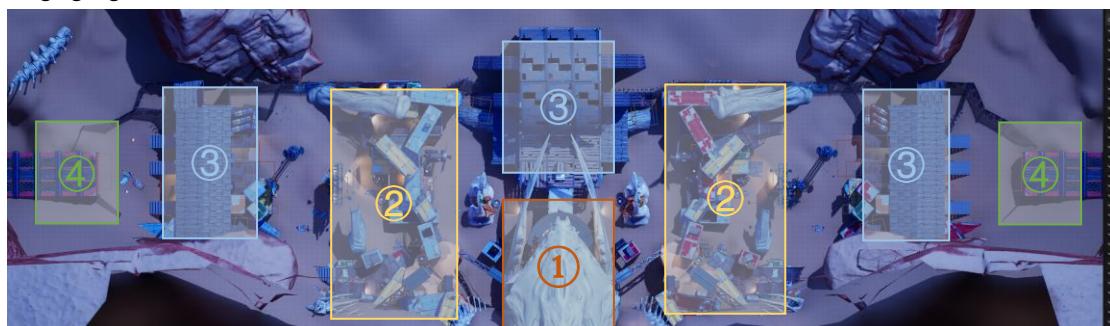
### Backstory

The battle between two Sirens sent shockwaves across Pandora, caused massive sandstorms that buried countless structures and creatures beneath the dunes. Decades later, remnants of these ruins slowly began to resurface, revealing the Holy Broadcast Center, once-glorious stronghold of Children Of the Vault (COV), and the skeletons of giant beast (①). When the sun shine on the aged radar it was reactivated, then transmitted a message claiming that a hidden Vault lies within the ruins of Holy Broadcast Center, waiting for the first to claim it.

The COV, fractured into two factions after the death of the Calypso twins long ago, established outposts (②) at the entrance of the skull canyon and began fighting over the treasure. However, the arrival of the Vladof forces, with advanced equipment and tactics, overpowered the warring factions, setting up their own camp (③) on the outskirts.

Soon after, Maliwan and Hyperion forces, drawn by the radar's signal, arrived simultaneously. Surrounded on both sides of the skull canyon, the Vladof troops were forced to retreat, leaving the battlefield to the upcoming showdown between Maliwan and Hyperion (④).

Players will take on the role of bounty hunters hired by either Maliwan or Hyperion, engaging in intense combat within the Storm Remnants.



## References

### Level Design

Overwatch – Illios, Ruins – Highground for Snipers	
Require skills/ability to reach the place, no covers here. Close to Health Pack.	Sight are Blocked, only part of the core combat area is visible. Close to Health Pack.
Flank path for enemies.	A lot of retreat options.

Overwatch – Midtown – A Mirrored Symmetrical Path and High Ground	
Can use as a high ground defending the point or attack through the path inside the train	

	
Enemy will not be able to completely suppress the area and spawn zone if taken the high ground.	Dark secret path on the left where enemy can sneak to the side of the combat area.

## Loadouts and Characters

Main references of Loadouts presets are from *the Borderlands series*.

Class	Figure	Featured in	Characteristics
Operative		Borderlands 3	Can cast hologram to draw attention and fire. Protect teammate.
Mechanician		Borderlands 2 Borderlands 3	Can build (summon) turret (Mecha), infinite shield was one of the most powerful build.
Psycho		Borderlands 2 Borderlands 3	Chainsaw, melee weapons, health recover on hostile elimination.
Siren	 	All Borderlands games	Can pull or push enemies, heal teammate.

Gunserker



Borderlands  
Borderlands 2

Master of heavy power and  
can hold more than one at  
a time

Assassin



Borderlands 2  
Borderlands 3

Flexible sneaky sniper

## Aesthetic

Yellow paint implying the paths through containers



Signs and lights guiding the way through gate.



Post-apocalypse,  
Wasteland, sense of chaos.



## Game Mechanics & Game Flow

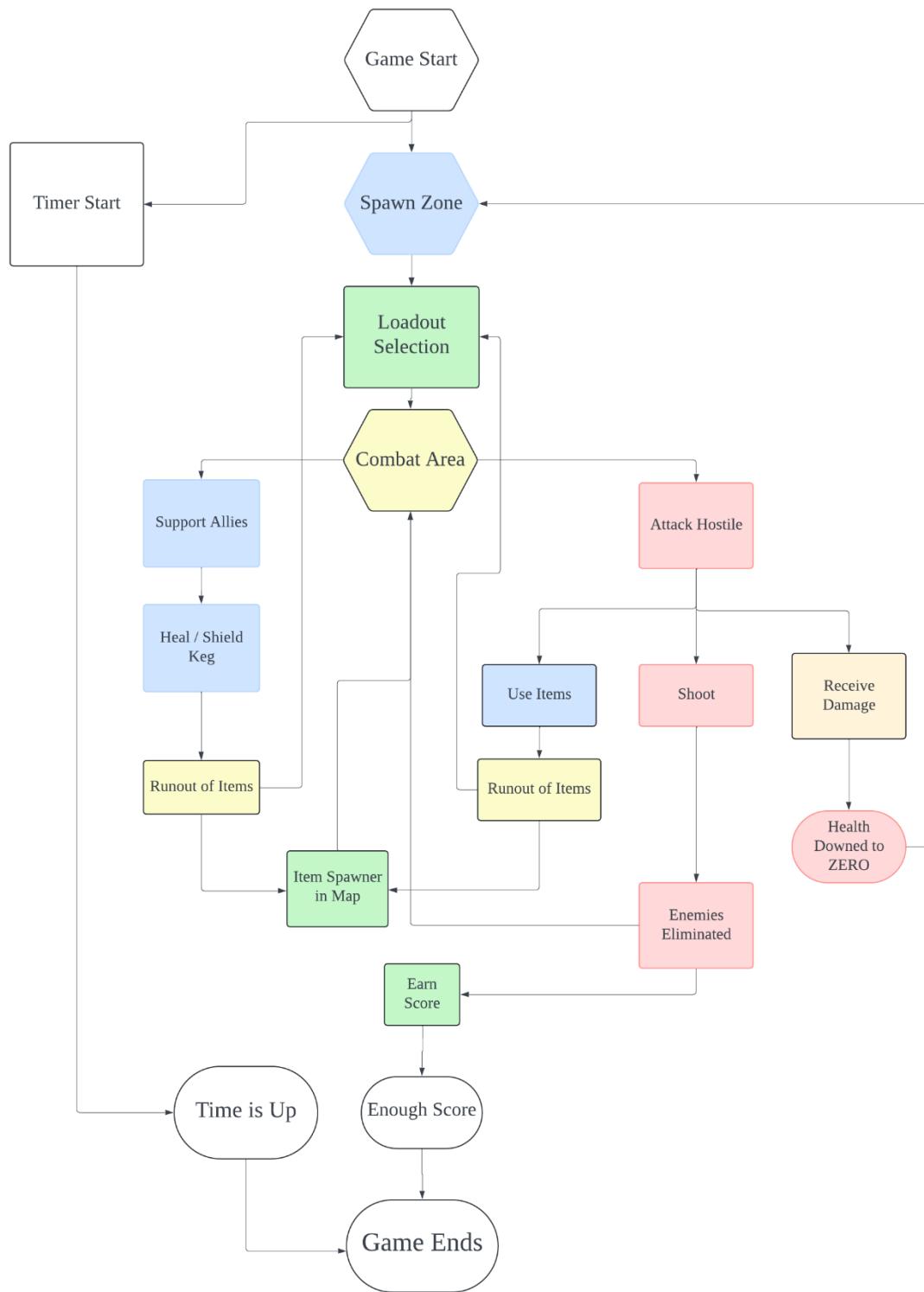
### Rules-Mode

- Both teams need to achieve a certain number of eliminations to secure victory.
- Players spawn at fixed locations and must wait 3 seconds after being eliminated to respawn.
- Six different loadout presets are available in the respawn room, and players can switch their loadout at any time by picking up new loadout.
- Each team can only have up to two players using the same loadout presets simultaneously.

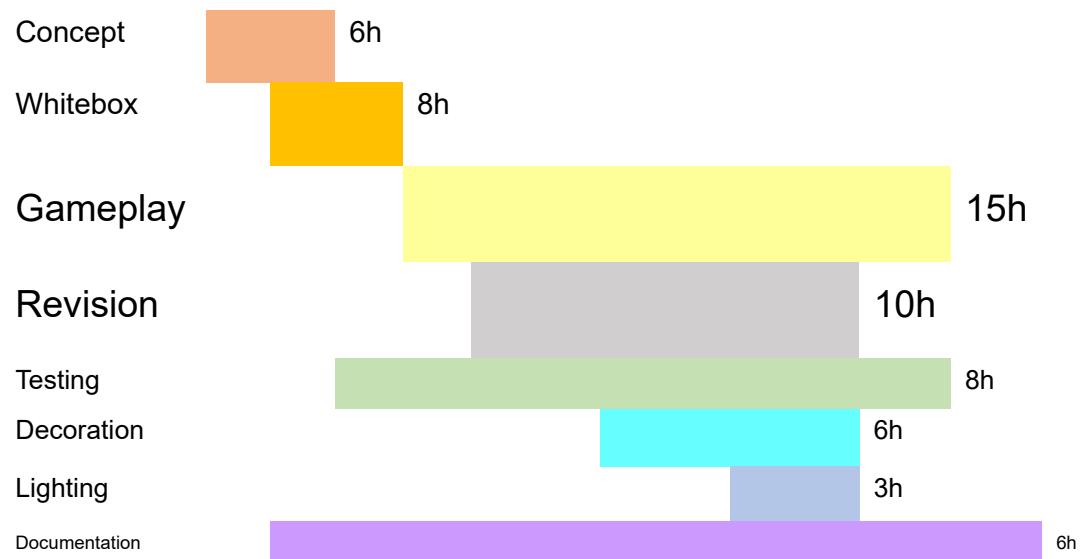
### Rules-Player

- Players can hurdle over certain covers but cannot climb walls.
- A player's health, shield, movement speed, and energy consumption will vary depending on the chosen loadout preset.
- When a player's health and shield reach 0, they will be instantly eliminated without entering a "downed but not died" state, but they can always respawn.
- Equipment will not drop upon a player's elimination
- Players have unlimited backup ammunition, but items and certain equipment can only be obtained from pickups on the map or by respawning and picking up a new loadout preset.

## Game flow



## Design and Development Timeline



## Level Design

### Initial Idea

Main Goals:

- A balanced Capture the Flag map for a third person shooter game. (A Team Death Match map eventually)
- Guide player with color, lighting, and signs.

Trade-offs:

- Simple yet classic game mode
- Limited aesthetic consideration (story and visual style)
- Limited character development (abilities)

Constraints:

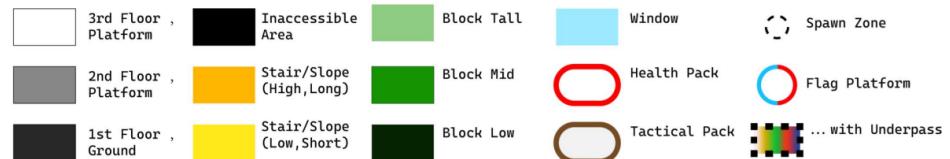
UEFN only: assets, functions and features are limited.

Time restriction: Final deliverable is due in five weeks.

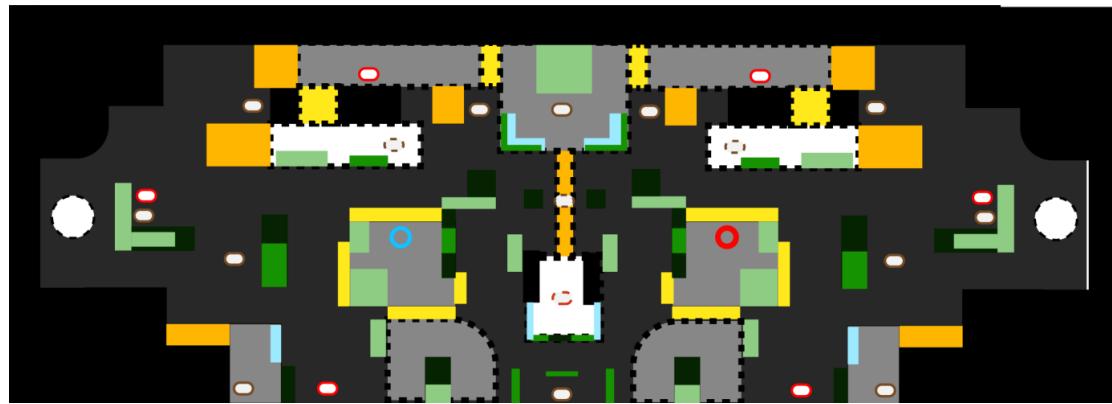
## Level Plan

### Legends

	Block Tall	Taller than 3m, no more than 3.5m		Window	Bullets nor throwables can go through
	Block Mid	Taller than 2m, no more than 2.5m			
	Block Low	Taller than 1m, no more than 1.5m			Map Size: 120m *40m



### Top Down Level Plan - Draft



### Areas



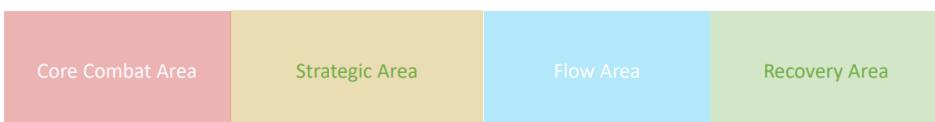
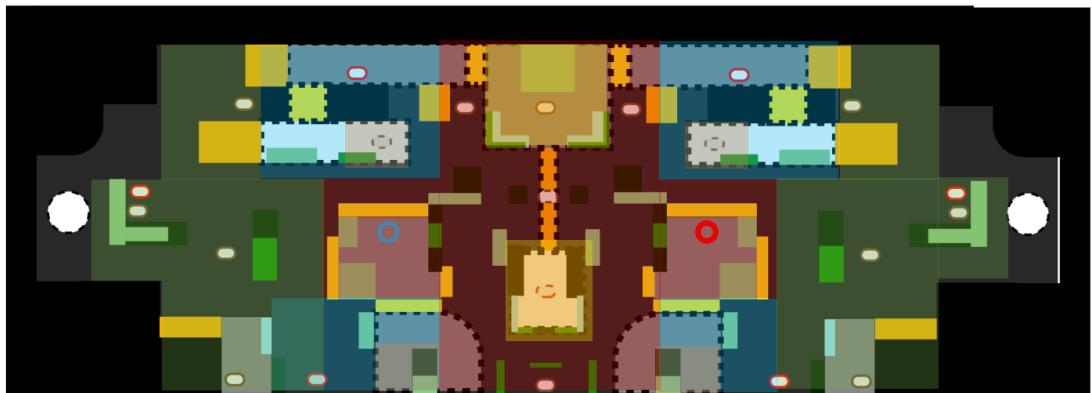
① Spawn Room

② Children of the Vault (COV) Outposts

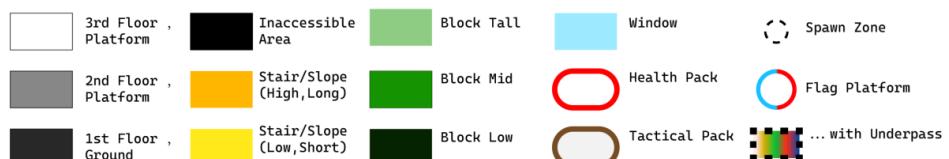
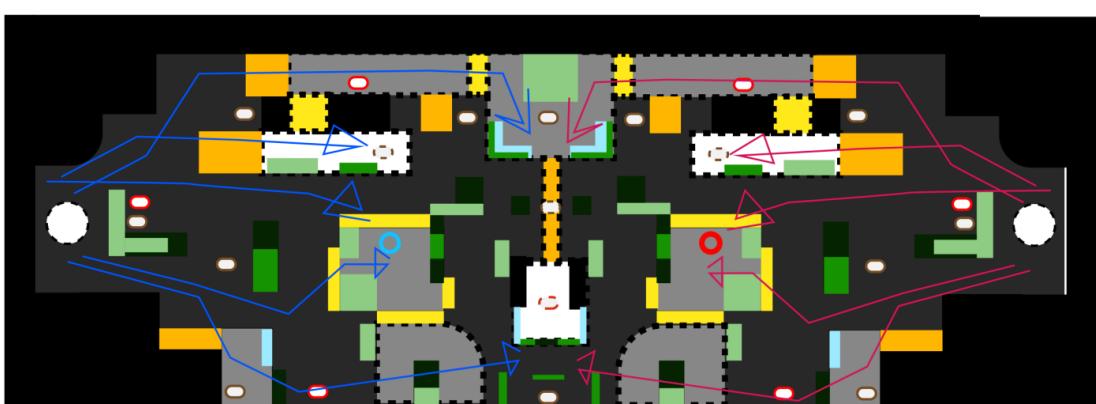
③ Cliff Ground

④ Vladof Building

⑤ Skull

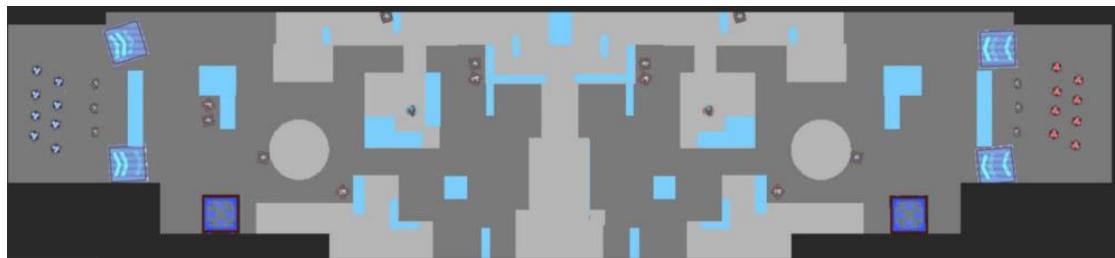


### Player Paths

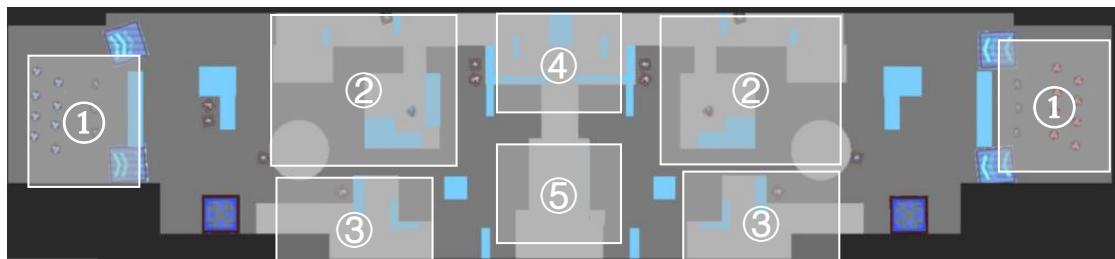


## White Box

### Top-Down Level Plan – White Box



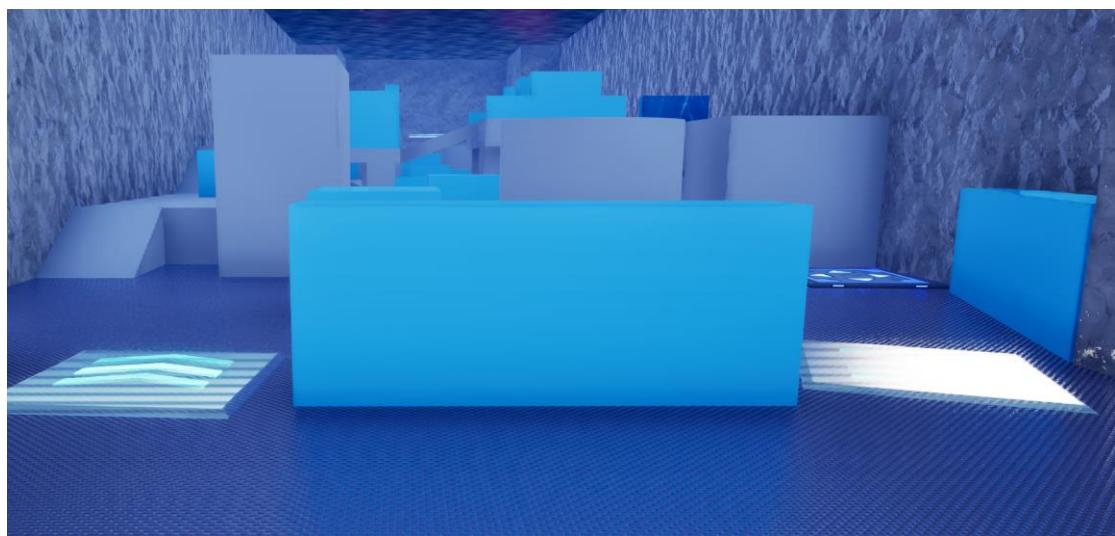
## Areas



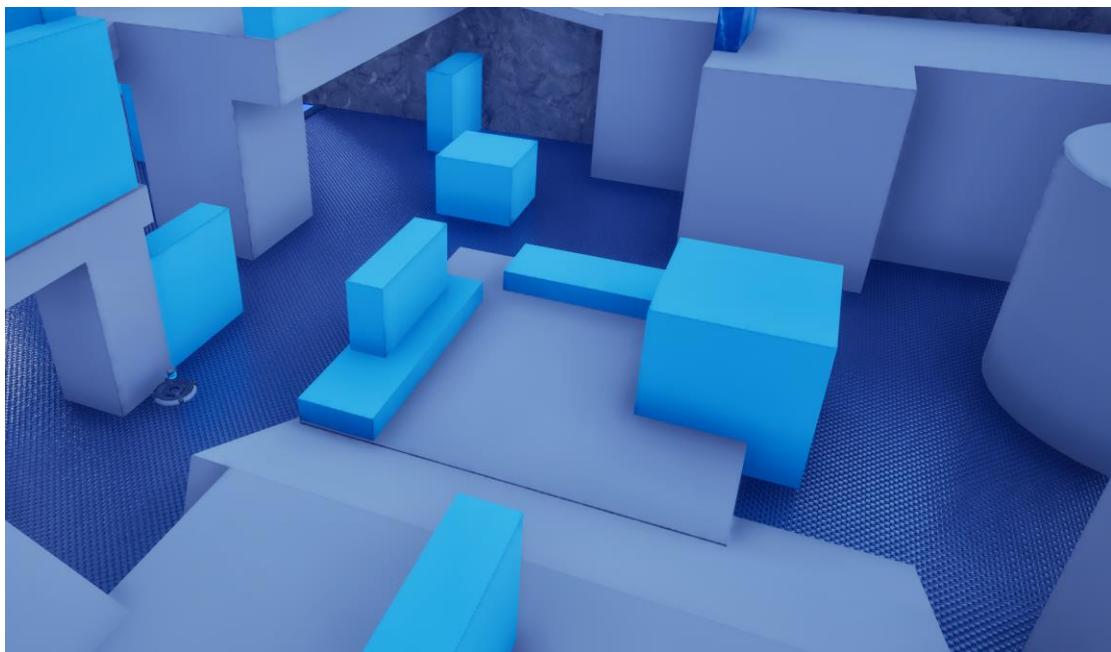
- ① Spawn Room
- ② Children of the Vault(COV) Outposts
- ③ Cliff Ground
- ④ Vladof Building
- ⑤ Skull

## Details

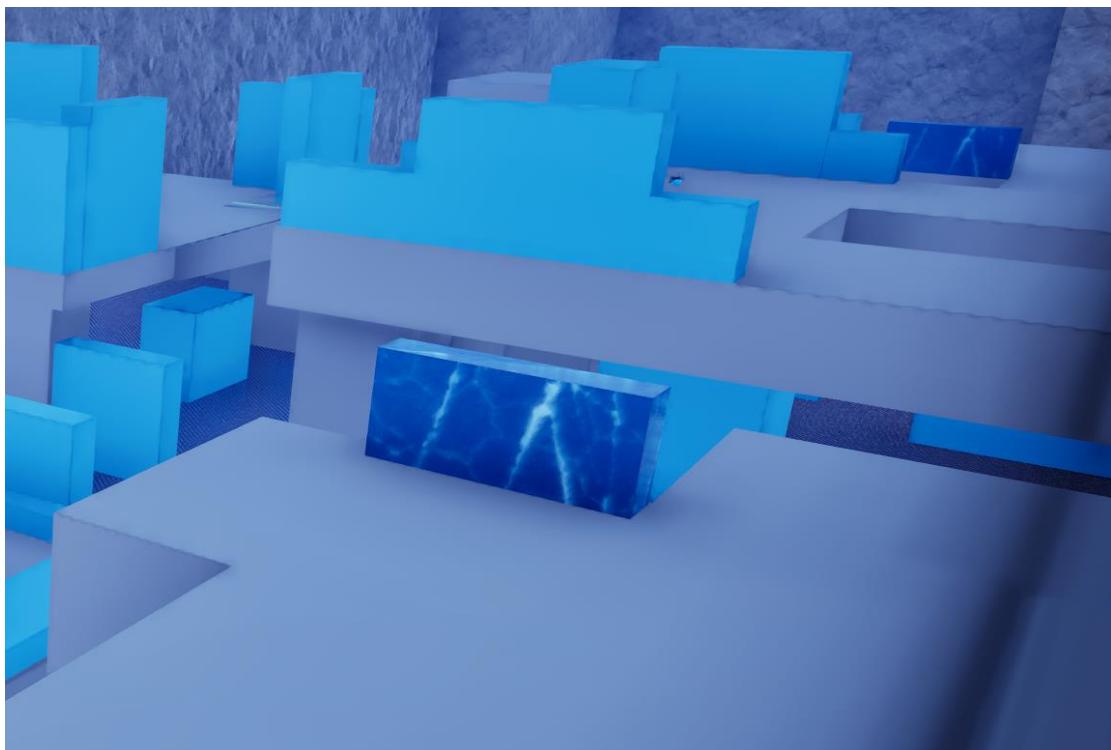
### Spawn Room



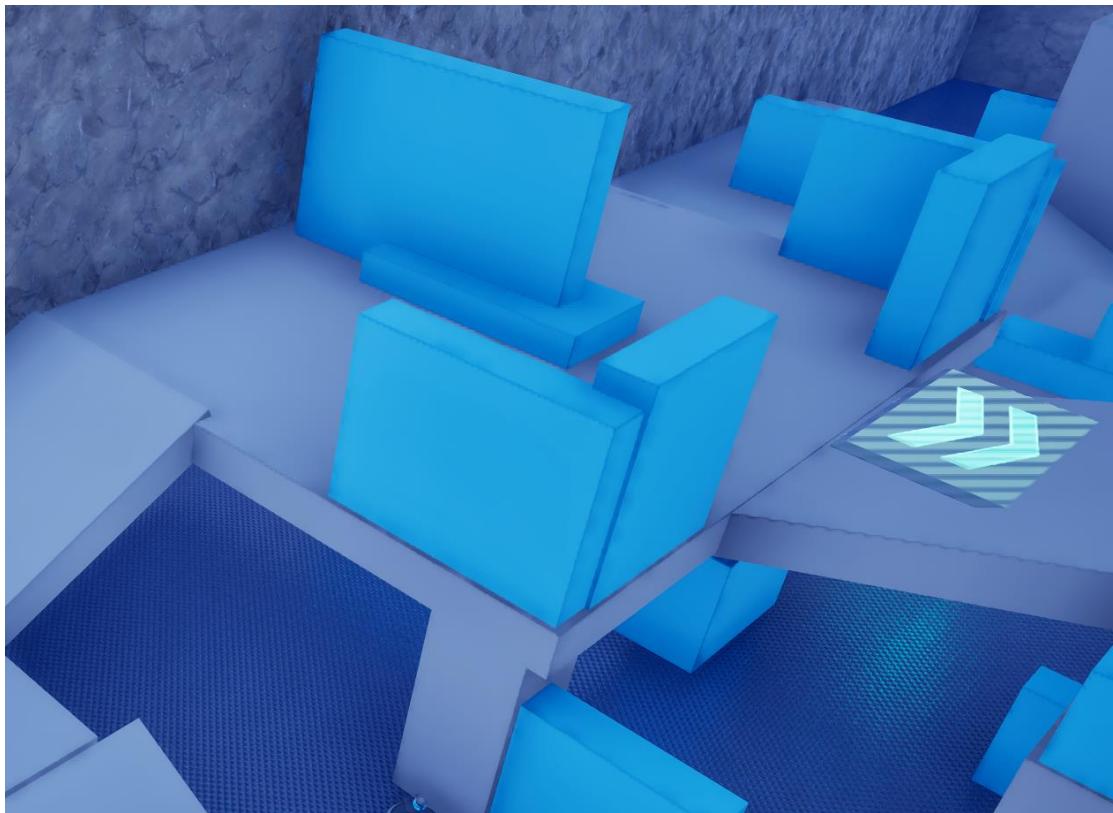
- COV Outpost



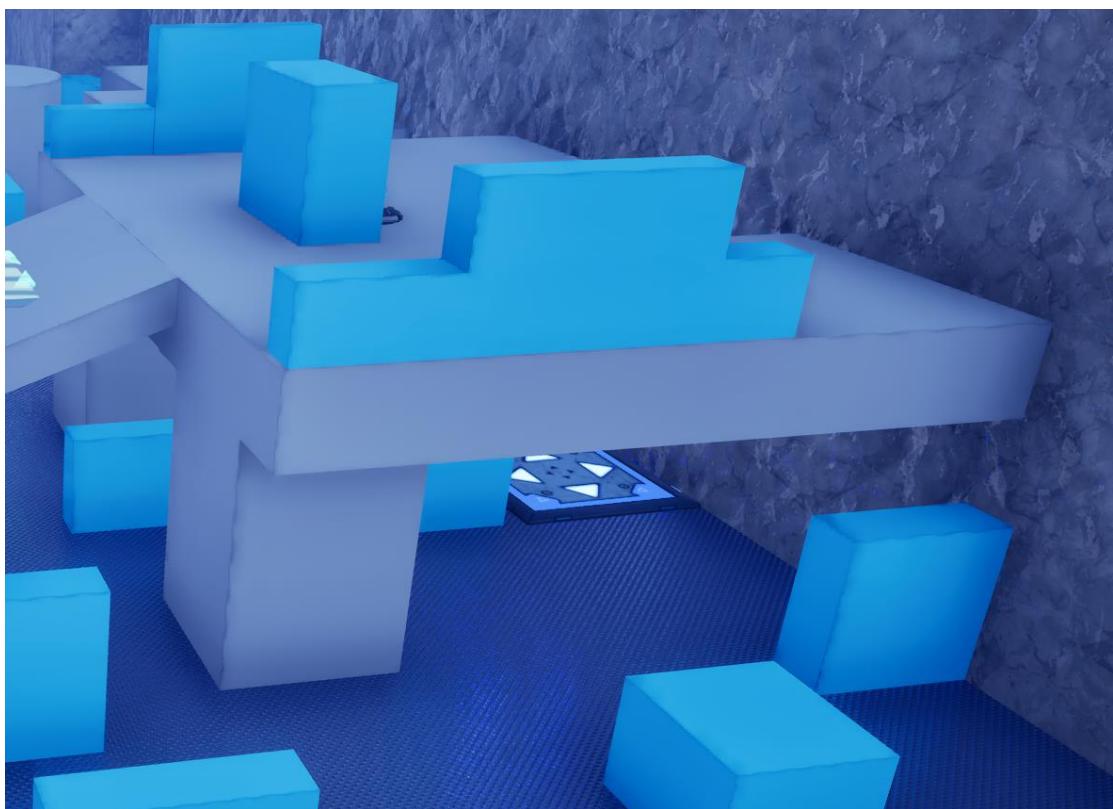
- Cliff Ground



- Vladof Building



- Skull

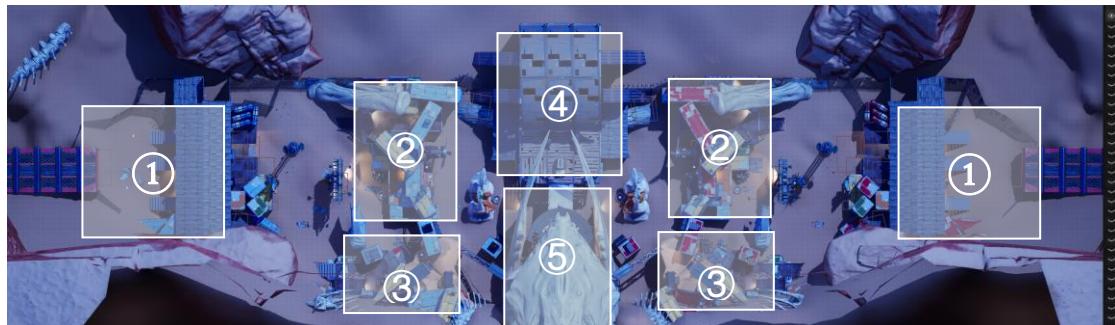


## Final Deliverable

### Top-Down Level Plan – Level



#### Areas



- ① Spawn Room
- ② Children of the Vault(COV) Outposts
- ③ Cliff Ground
- ④ Vladof Building
- ⑤ Skull

## Details

- Spawn Room



Inside



Outside

- COV Outpost



Back (View from Spawn)



Front (View from Vladof Building 3f)

- Cliff Ground



Back (View from Spawn Room)



Front (View from Vladof 3F slope to Skull 2F)

- Vladof Building



Outside 1F (View from COV Outpost 1F)



Outside 3F (View from Cliff Ground)



Interior (View from the entrance to Vladof Building close to COV Outpost)



Interior (View on stair from Vladof Building 2F to 3F)

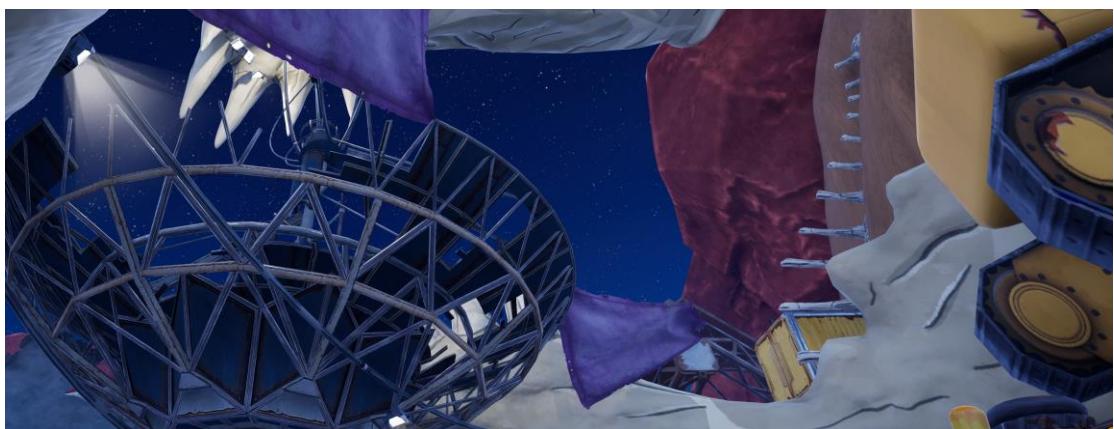
- Skull



Skull 2F (View from Vladof Building 3F)



Skull 2F (View from Path to Cliff Ground)



Skull 2F (View from Skull 1F)



Skull 1F (View from entrance close to COV 1F)



Skull 1F (View from corner close to Cliff Ground)

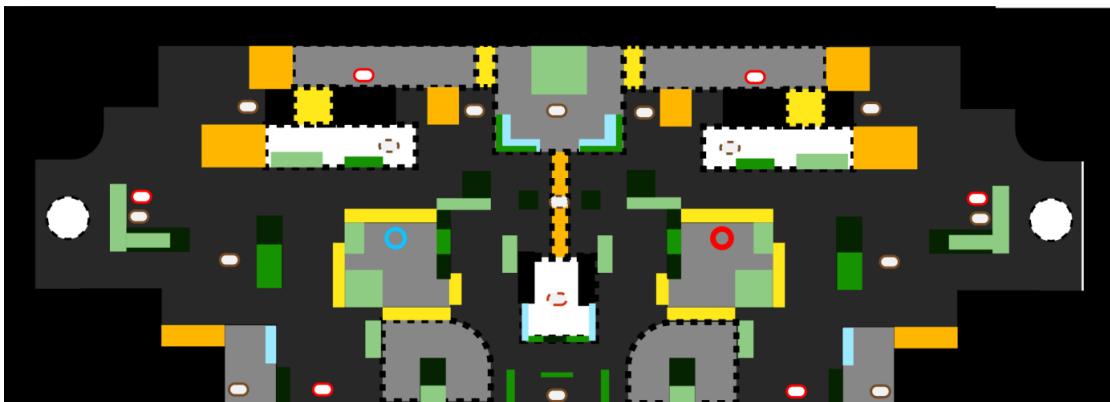


Skull 1F (View from Vladof 1F entrance)

## Iterations

### Level

#### V. Draft



#### Draft Feedback:

- ① The actual heights of areas are not clearly indicated, hard to tell from just top down
- ② The map's width may be too large.

#### V. White Box

##### Changes made in this version:

- Redesign the Upper part of COV Outpost area for more intensive and engaging combat.
- Adjust the ratio of Map
- Add Movement pad and jump pad to speed up the respawning process which slowed by new map ratio.



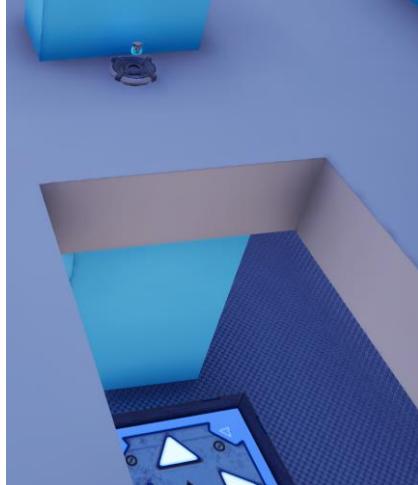
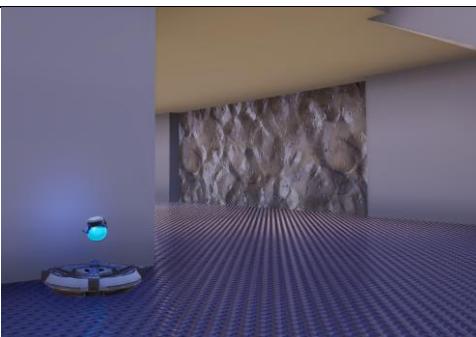
#### Whitebox Feedback:

- ① Items are placed evenly across the map but most locations are very safe.
- ② Add space into the 1F of Skull
- ③ Reconsider the design of COV Outpost for more defensive option

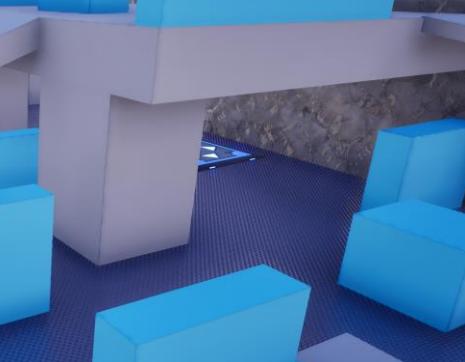
## V.0

Changes made in this version:

- Relocate most item spawners to combat area while some remains at safe place.

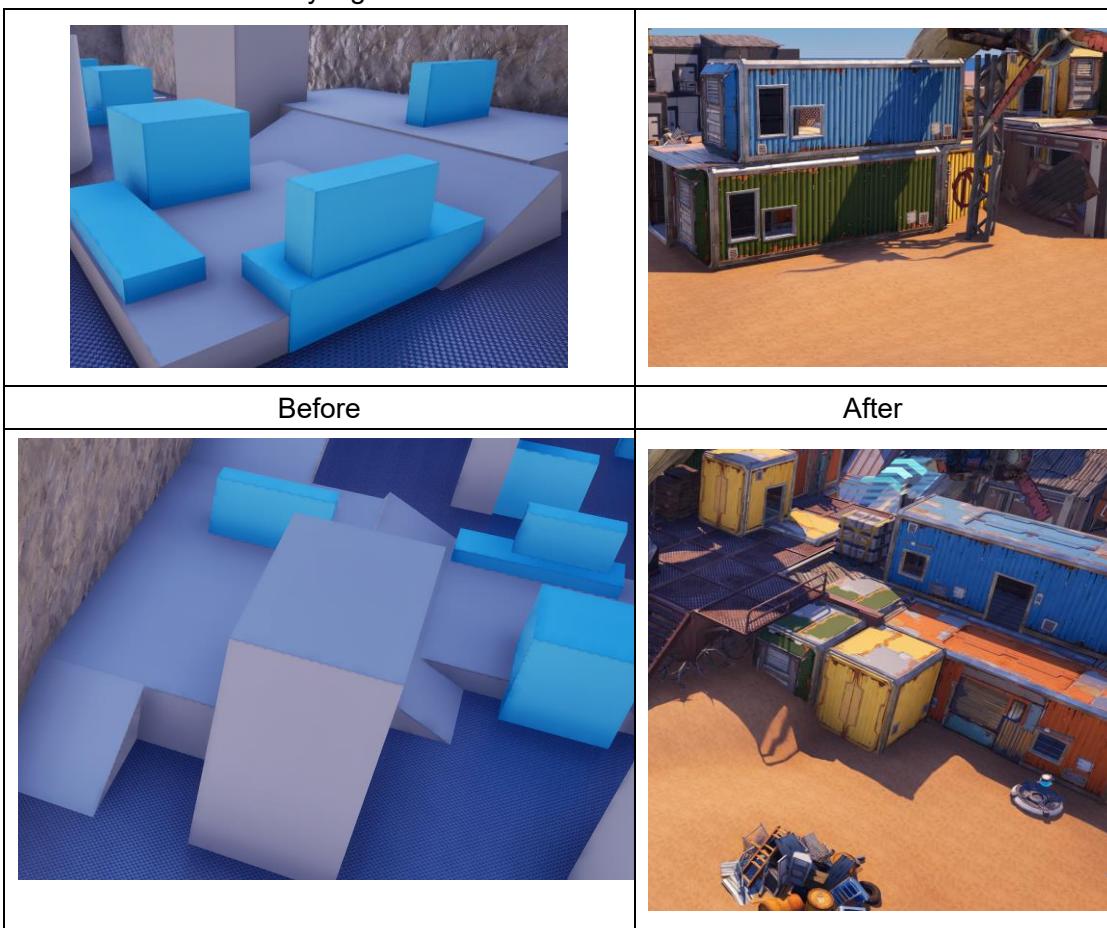
	
Before	After
	
Before	After

- Redesign the 1F of Skull
  - New 1F of Skull provide better sight and open to surrounding areas

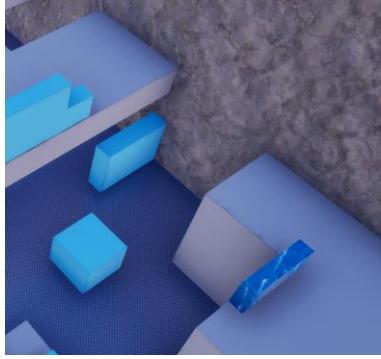
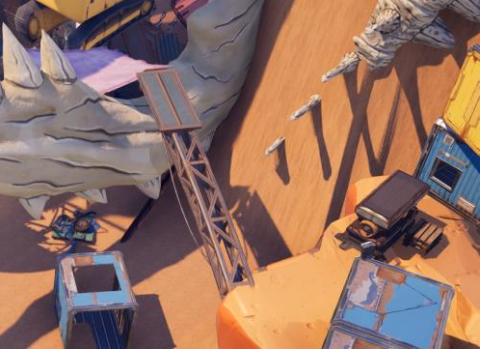
	
Before	After



- Redesign The COV Outpost
  - A not vary high 2F with covers and windows to shoot from.



- Connection Between Skull and Cliff Ground
  - Provide additional route to Skull 2F

	
Before	After

## V.1

### Observations and Feedbacks from V.0 Playtesting:

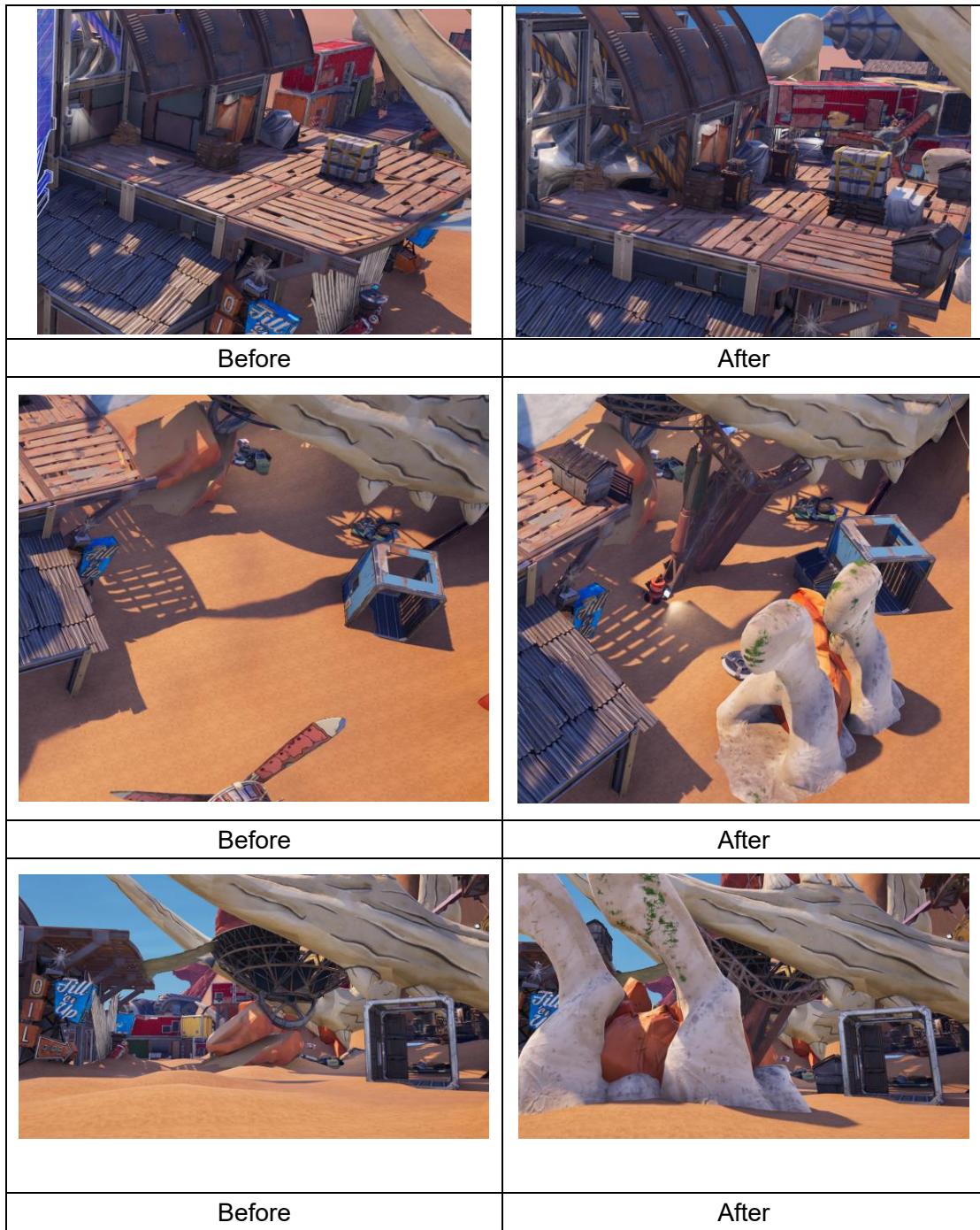
- ① There should be Blocks to prevent spawn kills
- ② Some areas are way too exposed to several lines of fire

### Changes made in this version:

- Large Blocks are placed between COV Outposts and Spawn Room; some covers facing Spawn Room are redesigned for same purpose.
  - The cover on the giant teeth, relocate the WELCOM Board, a container added to COV Outpost. All blocking fire shoot directly to spawn room from combat area.



- Changes made to Vladof Building 3F and Skull 1F
  - Vladof Building 3F is now connected to the top of the skull, it servers as a flank area.
  - Large covers are added to Skull 1F, on the one hand providing cover, providing separation between areas, on the other hand supporting the Giant Skull.



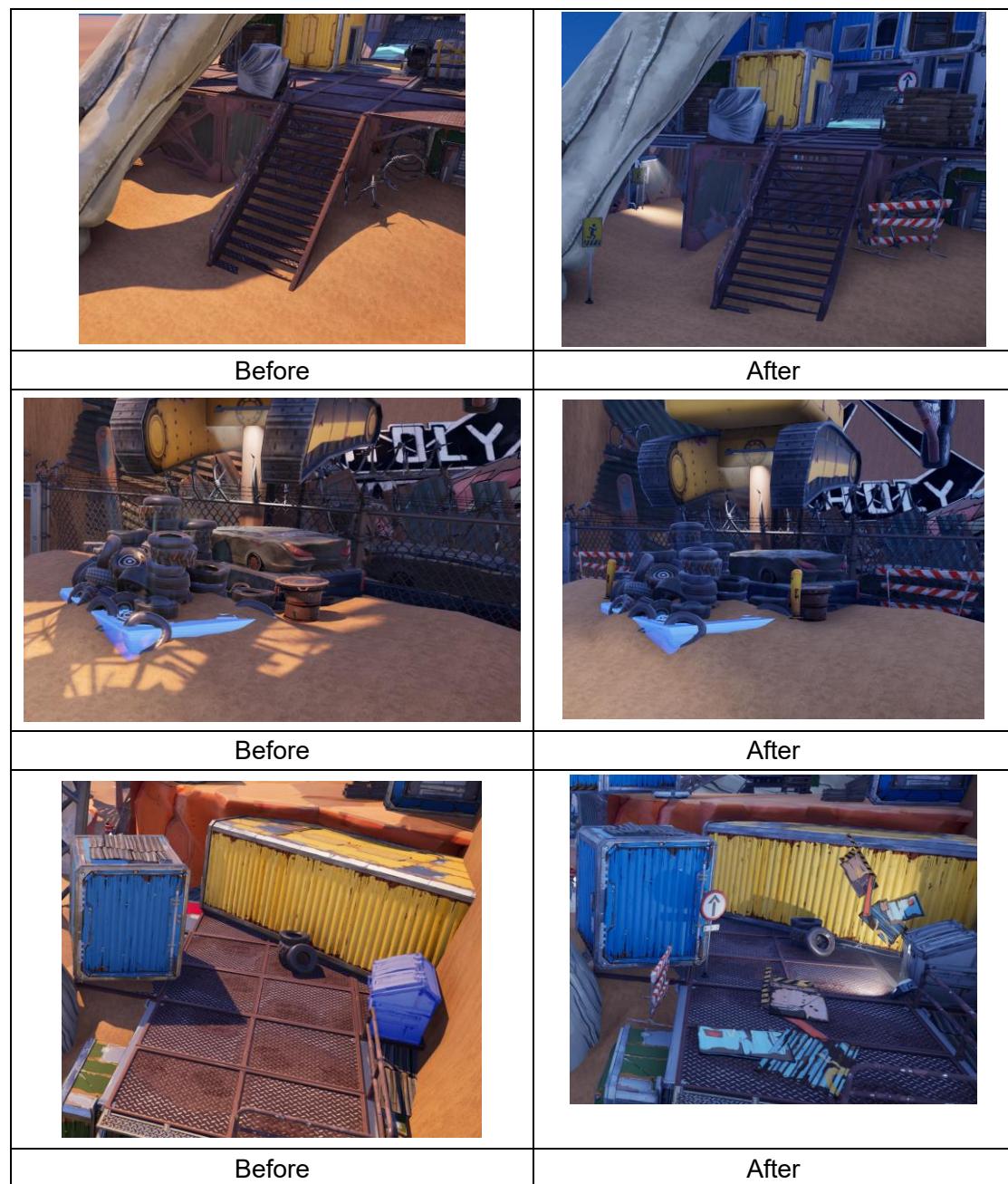
## V.2

### Observations and Feedbacks from V.1 Playtesting:

- ① The connections between areas are not obvious or lack of paths.
- ② It is almost impossible to flank

### Changes made in this version:

- Add signs and change time of day from noon to night for better lighting work.
  - Arrow signs indicate a way up or forward
  - Red and white striped barricades indicate the border of map, meaning “no access”
  - A combination of boards looks like a hand and arm, finger pointing at a direction.



- Changes made to COV Outpost 1F,2F and 3F:
  - A secret path is added to 1F of COV Outpost for flank;
  - Add another way up to Cliff Ground from COV Outpost 1F;
  - Add bouncer and object for easier access to 2F;
  - 3F now connects with Cliff Ground 2f.

Before	After
	
	
	

Storm Remnants



## V.Final

### Observations and Feedbacks from V.2 Playtesting:

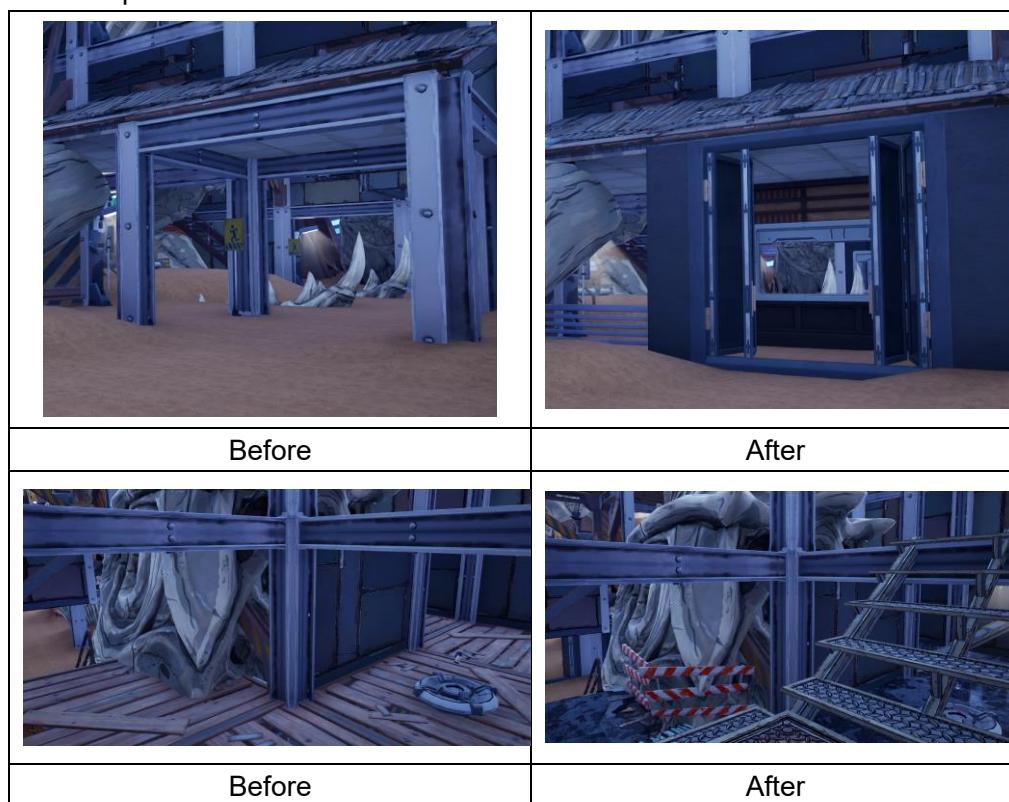
- ① Platform on Cliff Ground is hard to reach and harder to survive.
- ② The utilization rate of 1F and 2F of Vladof Building is low.
- ③ The design of Spawn Room is visually connected to Loadout Presets but could be clearer.

### Changes made in this version:

- Rework on Cliff Ground: Larger platform to stand, easier access, safer.



- Rework of Vladof Building 1F 2F, add door and windows as partial block, add stairs connect to 3F of Vladof Building. Now mainly serves as a flank area of 3F and to COV Outpost.



- Optimize the visual elements of spawn room

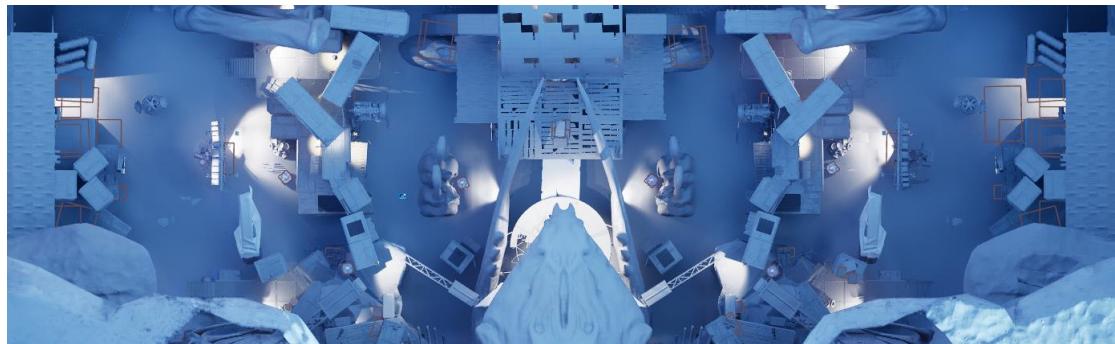


- Outskirt decoration is done ([see decoration](#))

Decoration & Lighting

*Light Map Top-down*

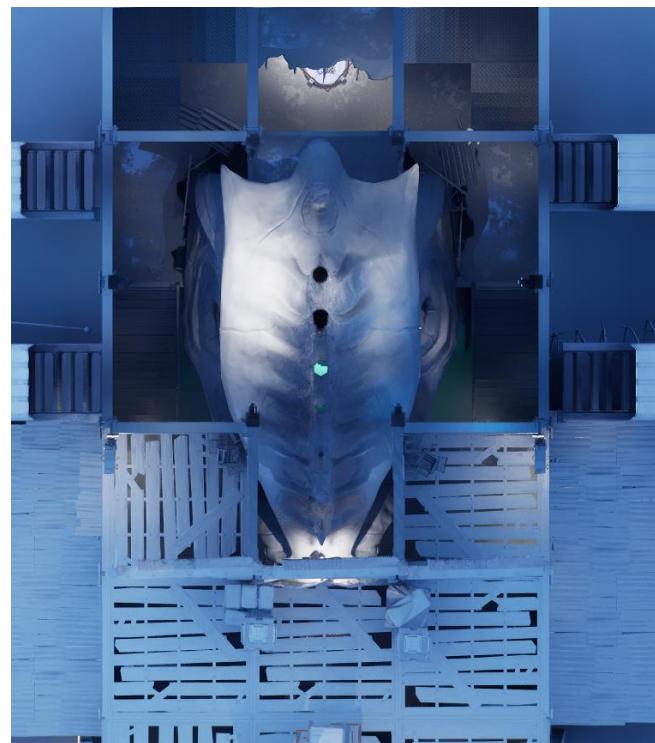
Whole map



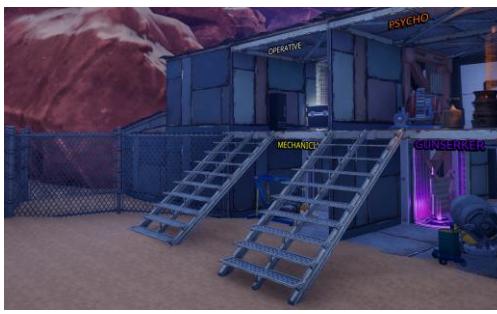
Skull 2F



Vladof Building 3F



*Detailed Comparison*

Spawn Room	
	
Before	After
	
Before	After
	
Before	After

### COV Outpost



Before

After



Before

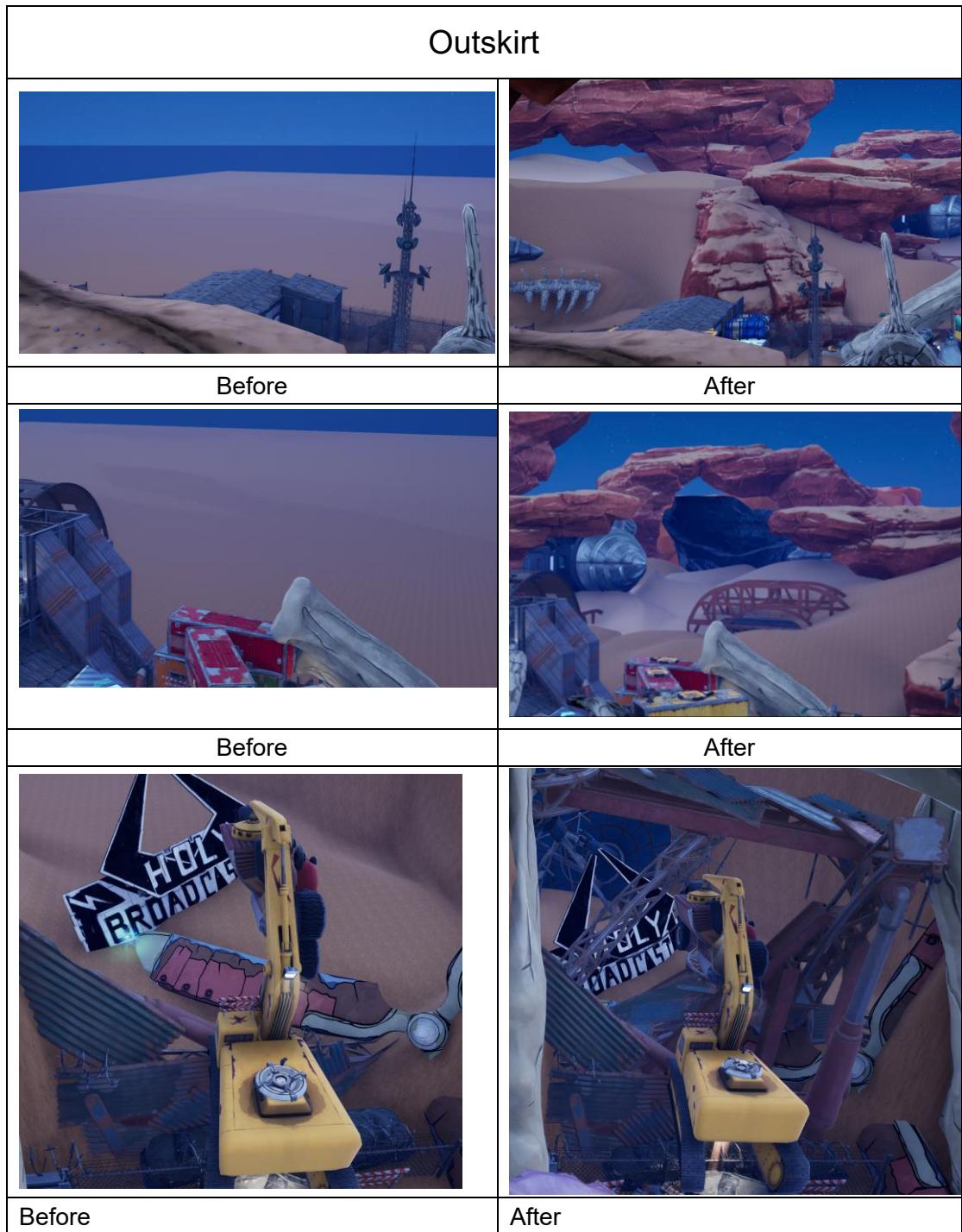
After

### Cliff Ground



Before

After



## Post Mortem

The post-apocalyptic art style of Borderlands feels like creating order and seeking harmony out of chaos, which makes the design of aesthetics both challenging and rewarding. I believe there is still plenty of room for improvements in terms of art, architecture, and environmental design.

During the process of establishing this map, I encountered several constraints within the editor, such as limitations on placing floors and walls, and restrictions on customizing the specific value for weapons and items. In these cases, I had to adapt to these constraints and modify parts of the design accordingly.

In terms of level design, my experience lies mostly in first-person shooters (FPS). While some design principles could be transferred to third-person shooters (TPS), there are still many differences that required adjustments during testing and iteration after the initial design phase. One thing I realized during the process was that one key difference between FPS and TPS is: TPS involve an additional step of safely observing from behind cover before identifying the target and then shooting.

Special thanks to my friends who participated in playtesting, it is complicated to test the map in a region that is not supported by the Epic Creator Program but we did it!

## Credits

Angela Wu	Supervisor
Song Huang	Tutor
Yu Zhou	Level Designer
Miao He	Game Tester
Jierui Tan	Game Tester
Bobby Dong	Game Tester
Senhao She	Game Tester
Lenin Zhou	Game Tester

## Appendices

Map Walkthrough Video

<https://youtu.be/lC45c2ADwQ>

Loadout Presets Video

<https://youtu.be/xHtE1BcMpiw>

Combat with AI Demo Video

<https://youtu.be/qOi4ZZP6cM4>