

# LEVEL DESIGN DOCUMENTATION TEMPLATE (WATER TREATMENT)

(Daniel Burley)



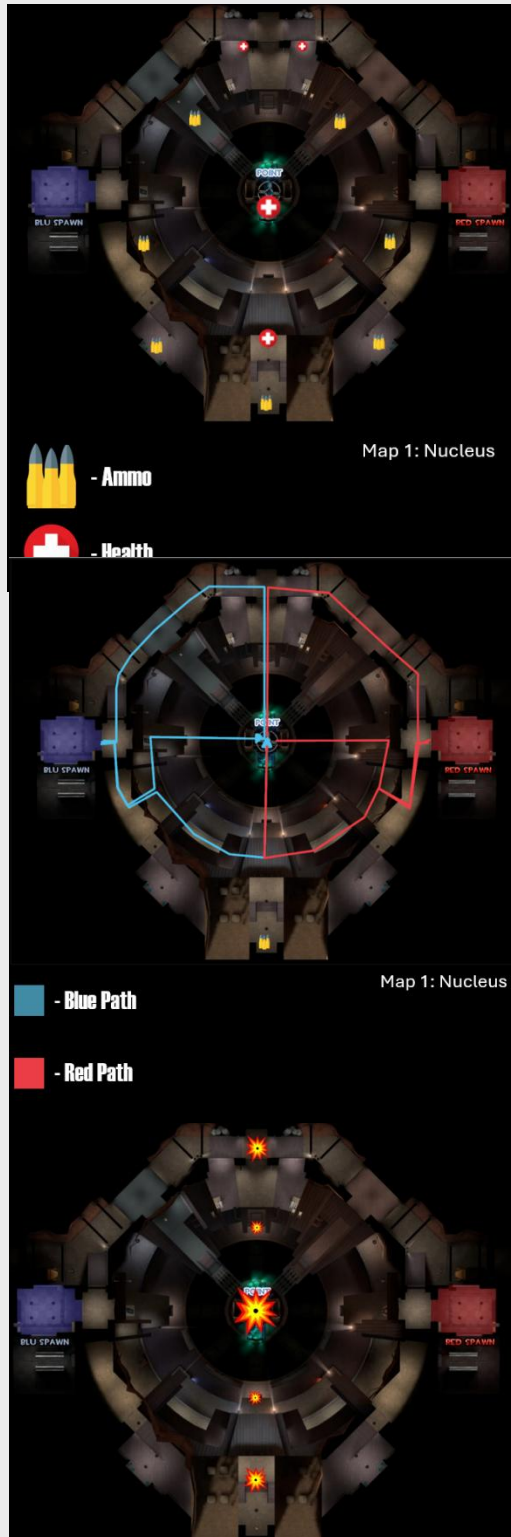
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## Research

### TF2 Maps



#### Nucleus

This is my map of Nucleus; this map highlights the ammo and health packs.

They are spread evenly throughout the level

They vary in size and quantity

The south side of the map has more resources than the north, making it more dangerous.

The big health pack is underneath the point, making it useful a useful secondary objective.

Here are the most taken paths the point

There are three main routes

They have multiple places they intersect and cross over. They all start from Spawn

Possible spawn camping due to lack on angles to leave

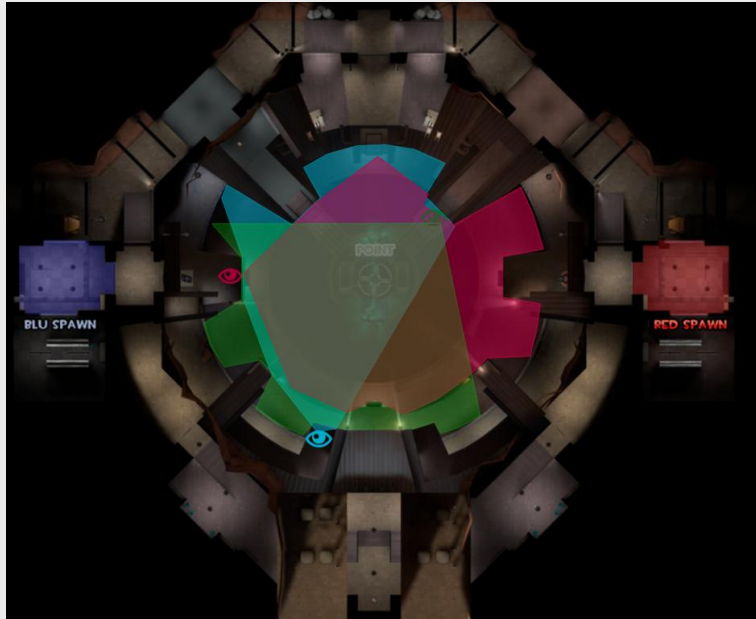
Same for both teams

These are the main combat zones on the map

The bigger explosion the more likely combat is to break out

Most of the fights break out halfway between the spawns.

Biggest combat zone is obviously on the point



Nucleus has a very open design

Because of this the sightlines are hard to calculate

The point is very hard to defend because of this

Here are some notes about how each character fairs on this map

#### Class Specific



SCOUT - Scout works very well on this map, mainly because he can traverse through each level so much easier than every other class. He can also run to the point and be relatively safer than every class, as he can change bridges with his double jump. However if he runs around the edge of the rings he can run out of room to dodge shots.



SOLDIER - Soldier can also make use of the vantage points on the top floor on this map and rain havoc. If no one stops him he can easily control the whole point from up there. Also because of the tight corridors around the edge of the map he can basically always hit shots. He does not have any real weakness on this map



PYRO - Probably the best class on this map, can run people down and flank them so easily. There's really no escaping him once he has found you on Nucleus.



HEAVY - Heavy really struggles on this map, there is alot of sightlines and flanks, meaning he can be ripped to shreds before he even stands on point. Enemies can be far away so he can't hit them even if he wanted too.



DEMOMAN - Can get good flanks using sticky bomb jumps, can also make use of the high ground like the soldier. Alot of walls to get cheeky angles with your bombs.



Engineer - Maybe one of the only maps where engineer struggles to get going, there is no reliable turrets spots that are also effective. As they will quickly be taken out by a sniper or soldier if placed in the main part of the map. The map is so chaotic that dispensers are rarely useful.



SPY - Alot of ledges, this is great as it means the spy can drop down on enemies and keep tabs on both floors at once. Flanking is very easy on this map, so he is a very powerful class on this map



SNIPER - Lots of sightlines and verticality, however its also very easy to get flanked.



MEDIC - Pretty average, just stick to the top of the map, as its harder to get flanked.



## Sawmill

Here are the main critical paths for the map.

There are two main paths to the point

There is also a flank route that allows for more sneaky plays and gaining the upper hand

The different paths normally benefit different classes more than once



Map 2: Sawmill

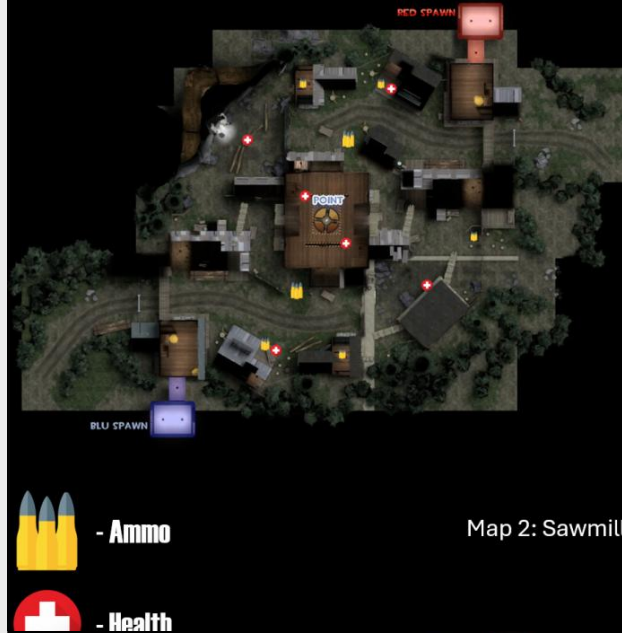
- Blue Path

- Red Path

Here are the ammo and health packs on this map

There is a lot more pickups on this map than Nucleus

Nucleus is much smaller than Sawmill, so this is defiantly the reason why there is more



Map 2: Sawmill

- Ammo

- Health

Here are the main sightlines on this map

The Blue area is much more general, with medium sightlines, purple is for longer sightlines and finally red is for short sightedness. This is known as the three lane structures.





### Class Specific



SCOUT - Scout works very well on this map, his double jump allows him access to the entire map and he can get there very quickly. This means he can get very easy flanks and disrupt an enemy team easily



SOLDIER - Soldier's rocket jump is useful to get onto of the roofs, giving him a nice vantage point. He is also useful when capturing the point, because its so enclosed. However due to sawmills nature, you can get flanked easily yourself.



PYRO - There is some water on this map, meaning pyro isn't as effective as normal in some areas, however hiding in sheds and around corners gives him enough power to still be dangerous.



HEAVY - Heavy is fine on this map, just watch out for the buzzsaws! Fewer sightlines that Nucleus meaning you can make a push for the point with a medic.



DEMOMAN - Can get good flanks using sticky bomb jumps, can also make use of the high ground like the soldier. Sheds are prime sticky bomb locations, as people walk through them alot to get to health packs



Engineer - Very useful on the point as the enemy can't destroy the turret from outside it, also the map is separated enough for dispensers to have a purpose and do their job effectively.



SPY - Lots of different routes and ways around the map is always a good thing for spy, as it allows him to get in undetected, the changes of elevation for this map also allow him to escape easily.

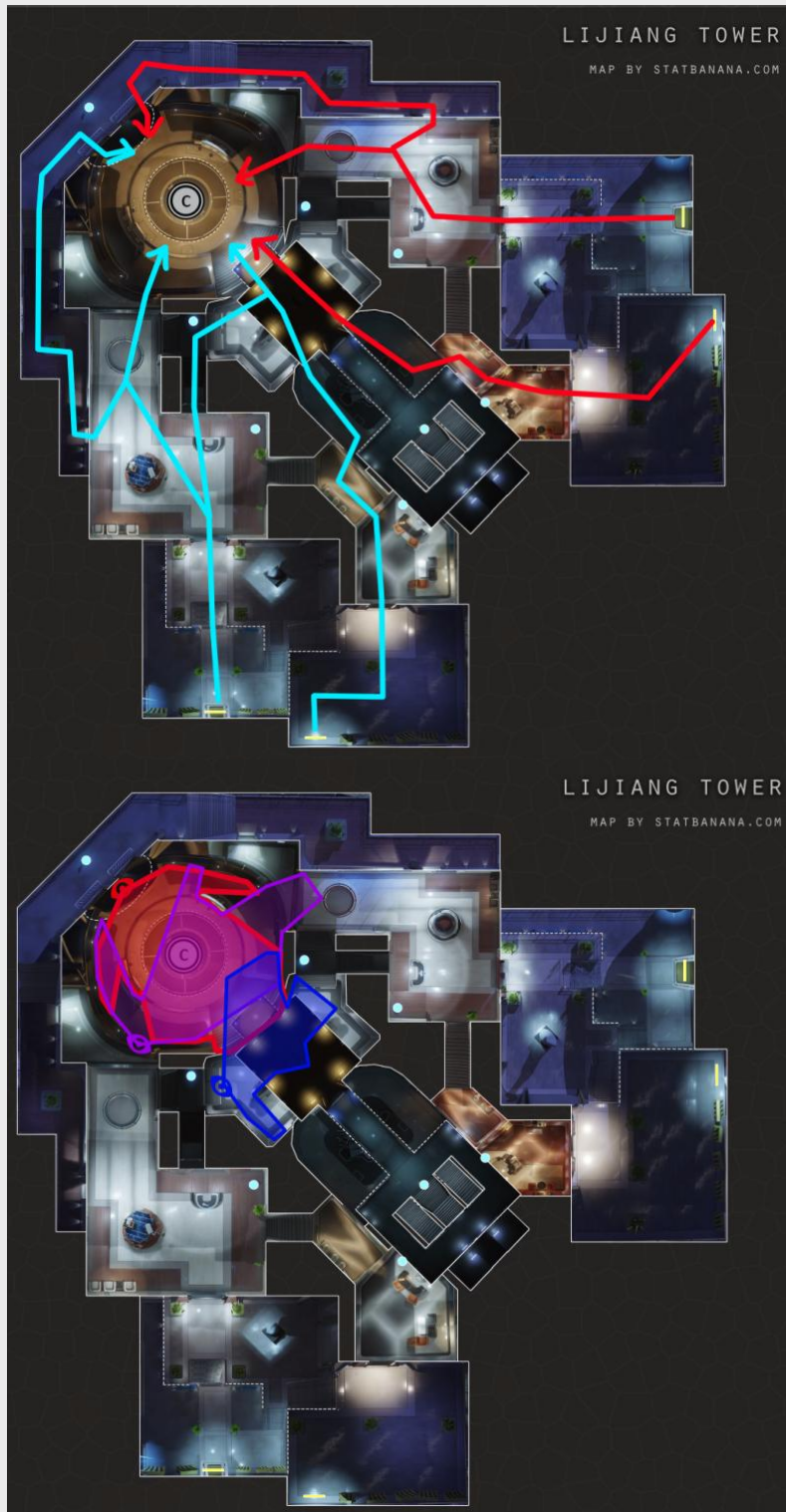


SNIPER - Sniper is great at defending the rooftops, but he can't get picks on the point without being on it himself, which leaves him vulnerable.



MEDIC - Few sightlines for large areas of the map, so medic can keep himself safe, especially because of the enclosed capture point,





## Other Games

This is Lijiang tower from overwatch.

These are the main critical paths for this map, they cross over very frequently.

The Three Lane Structure is also visible here too, as there are three main ways to get on the point.

Here are the sightlines for these lanes, the blue area is for short sightline heroes, purple is middle sized sightlines. Finally, the red area is for the long sightline heroes.



This map is from Splatoon 2. Moray Towers, here is another map based off the three-lane structure. The Red line is the shortest way to the point and is good for close combat weapons. Blue takes the longest, but obviously this allows you to cover more ground in paint. Green is the flanking route as you can get around undetected.





## Time to point

### SCOUT'S TIMES



 400 HUPS

	HARVEST	NUCLEUS	SAWMILL	SUIJIN
1 <sup>st</sup> Run	6.63s	6.64s	11.28s	7.59s
2 <sup>nd</sup> Run	6.94s	7.20s	11.25s	7.28s
3 <sup>rd</sup> Run	6.24s	6.44s	11.05s	7.23s
Average	6.60s	6.76s	11.19s	7.36s

### DEMOMAN'S TIMES



 280 HUPS

	HARVEST	NUCLEUS	SAWMILL	SUIJIN
1 <sup>st</sup> Run	8.86s	8.47s	14.87s	9.72s
2 <sup>nd</sup> Run	8.59s	8.93s	15.07s	10.05s
3 <sup>rd</sup> Run	9.02s	8.59s	15.03s	9.78s
Average	8.82s	8.66s	14.99s	9.85s

These are the results for each map and the average time overall. The number above shows how many Hammer Units they travel per second. Harvest and Nucleus are smaller maps, so therefore the point can be reached faster, giving us our minimum numbers. Sawmill is the longest by quite a way, giving us our maximum number



## HAMMER UNITS \*



\*Rounded to 1 decimal place

## THE RESULTS



A small map would be (on average):

2,400 – 2,800 HU

Take 6.5 – 7 seconds for Scout to get to the point

Take 8.5 – 9 seconds for DemoMan to get to the point

An average map would be (on average):

2,900 – 3,800 HU

Take 7 – 9 seconds for Scout to get to the point

Take 9 – 11 seconds for DemoMan to get to the point

A large map would be (on average):

3,900 – 4,500 HU

Take 9 – 12 seconds for Scout to get to the point

Take 11 – 14 seconds for DemoMan to get to the point

**The Average results are:**

**3,054 Hammer Units to point**

**7.97s to point for Scout**

**10.58s to point for DemoMan**



## High Level Overview

Level Goals  
For Designer

LEVEL GOALS	HOW I WILL ACHIEVE IT
<b>CREATE A BALANCED ENVIROMENT</b>	I want to have at least one area where every class shines and is accommodated for. Using the here lane structure I can make sure certain classes are better than others by controlling sightlines and verticality.
<b>HAVE AN UNIQUE DESIGN</b>	I really want my map to have some verticality, and I want it to be indoors, so it stands out from other maps. My favorite TF2 map is Nucleus so I want to take a lot of inspiration form that
<b>PLAYER WILL HAVE A FUN TIME</b>	The most important thing however is making sure the players have fun, I will achieve this by making sure the map is balanced and easy to understand, whilst also having some harder to pull of tricks, so that all players are engaged
<b>FOLLOW THE CONVENTIONS OF PREVIOUS TF2 MAPS</b>	Conventions like the Three-Lane Structure and Symmetry. These are very important so my map doesn't feel out of place

For Player

LEVEL GOALS	HOW I WILL ACHIEVE IT
<b>HAVE A FUN AND CLOSE GAME</b>	As a player I want to make sure the game is fun to play and also that its close as I can make it. No one enjoys getting steamrolled so I need to make sure I minimize the risk of this happening
<b>ALL THE CLASSES ARE VIABLE</b>	I want to be able to play as anyone, being locked into a certain class makes for a less fun game and ruins the magic of TF2
<b>SEE SOMETHING NEW</b>	As a player I want to see something new, I don't want to play in the same environment over and over.

## Design Considerations

**Three Lane Structure:** I will dividing my map into three section based of the length of the sightlines. This will help each class have a specific route to take that benefits them, it also adds variety between the classes and makes the map more fun to explore. The Three Lanes will be **Short Sight Line**, **Medium Sight Line** and **Long Sight Lines**

**Symmetry:** My map will use Reflection Symmetry, as that means the map will be the same for both teams. This also makes the map easier to balance and create.

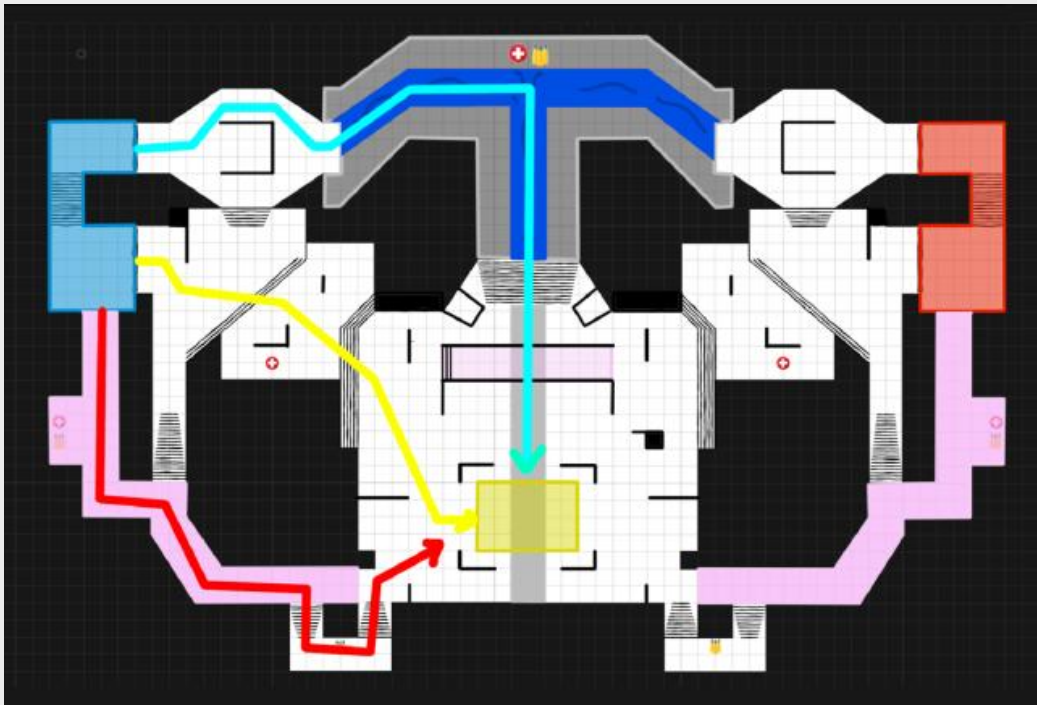


**Ammo & Health Packs:** My map will feature maps and ammo pickups, as all maps need them to function properly. The packs will get bigger the further away from your spawn you are.

**Class Specifics:** The map will feature areas for all characters to flaunt their abilities/weapons. This could be a platform that only the scout could use, or maybe a rocket jump spot for soldiers.

## Map Overview

### Map Structure



Here is a bird's eye view of my map, let's go over each lane:

**Blue / Short Sight Line:** The short sight line goes through the sewer, it is fully enclosed and features a lot of covers, this means that characters like The Scout, The Pyro and The Heavy do very well in this area. It also features a full health kit, to create a secondary objective

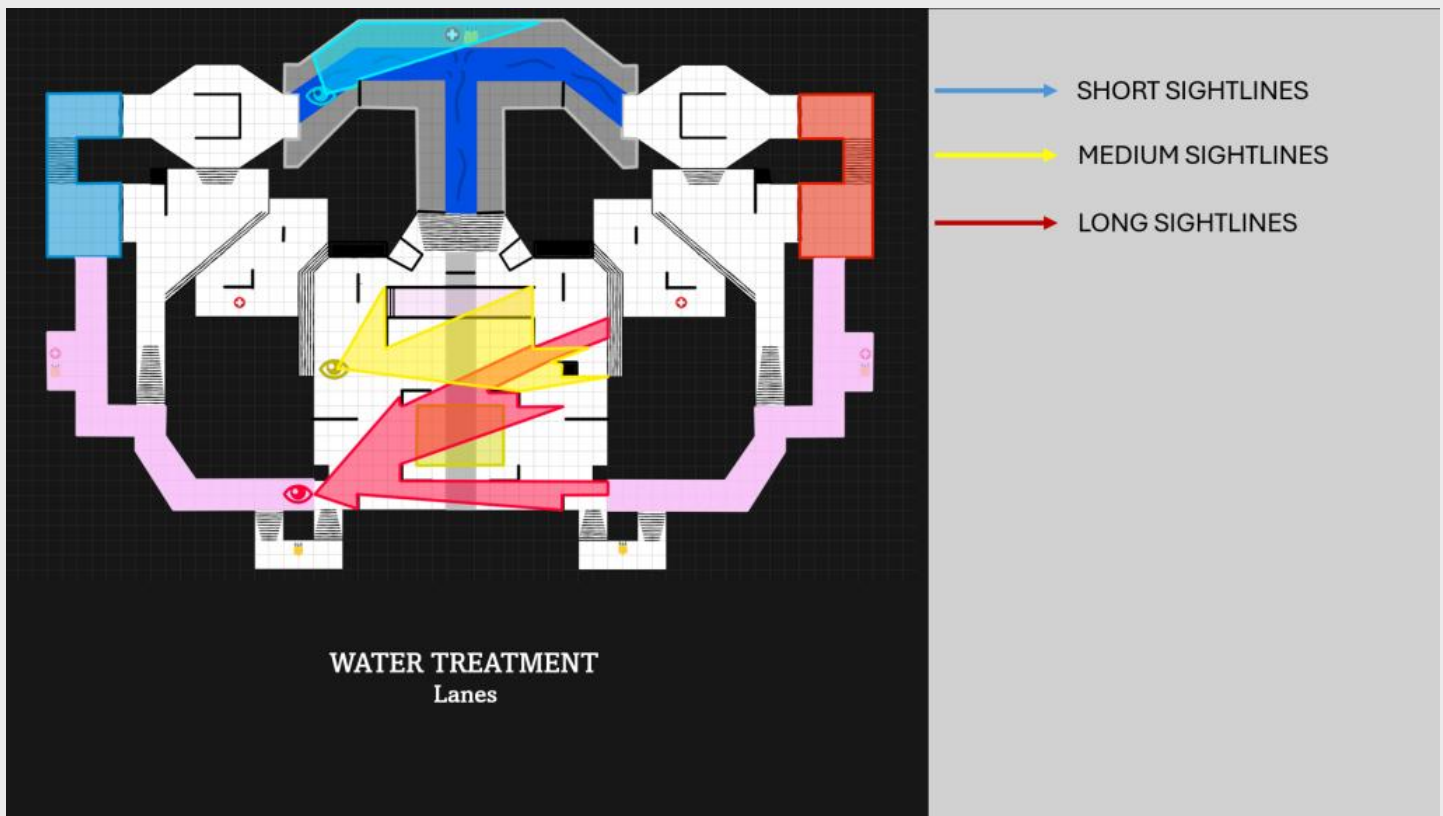
**Yellow / Medium Sight Line:** the yellow sight line is the most direct way to the point. This area features a taller and more open area. It also has cover and is more useful to characters like Soldier / Engineer and Medic

**Red / Long Sight Line:** The long sight line, is the most round-about way to the point. This route lacks cover and puts you in the highest spot of the map. It also features stairs for a



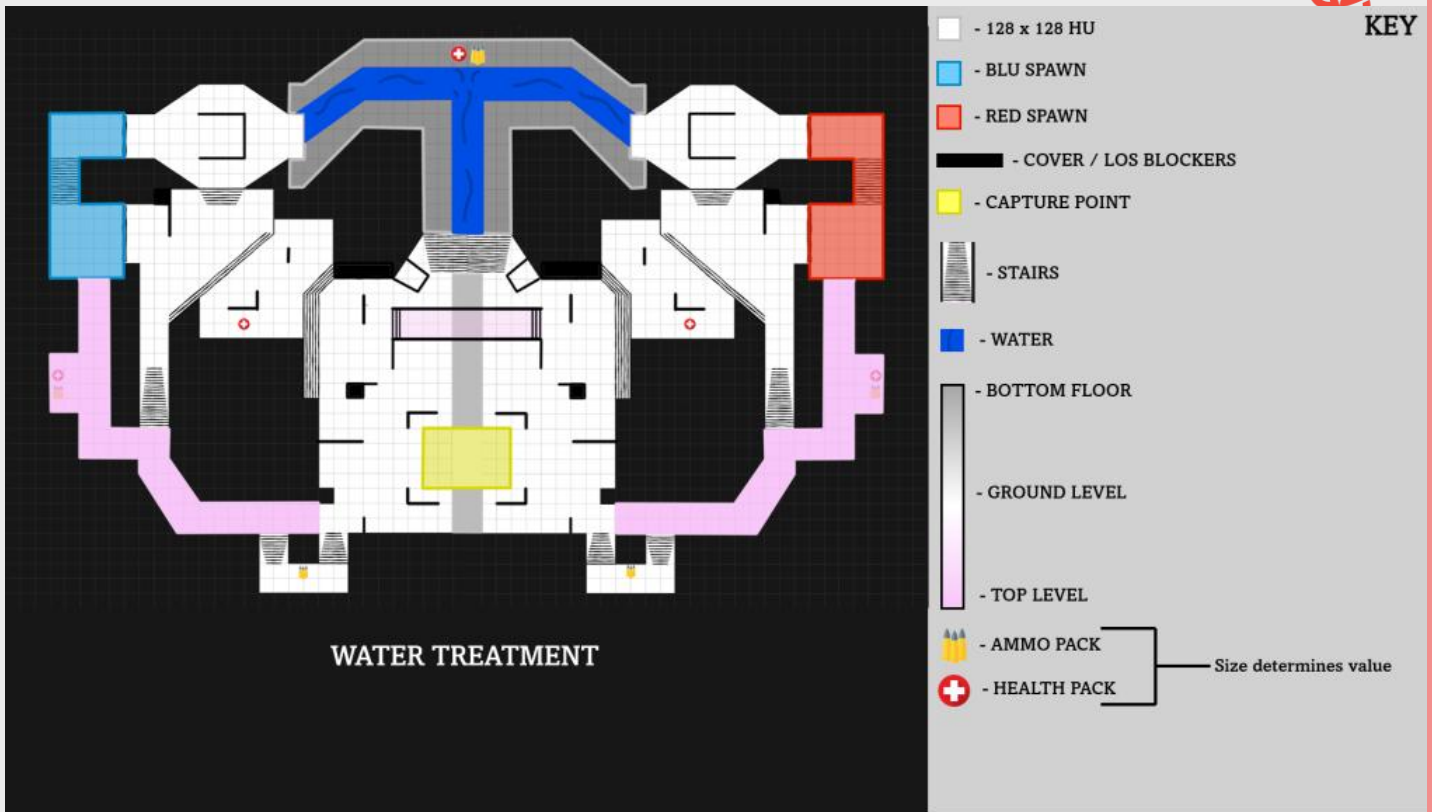
quick transition onto the point. Characters like The Sniper and the demo man because of its verticality.

**Reflection Symmetry:** The map uses reflectional symmetry to create an even playing field for both classes. This does mean however the map is flipped, which means the routes are on different sides for each team, this problem could be avoided with reflectional symmetry.

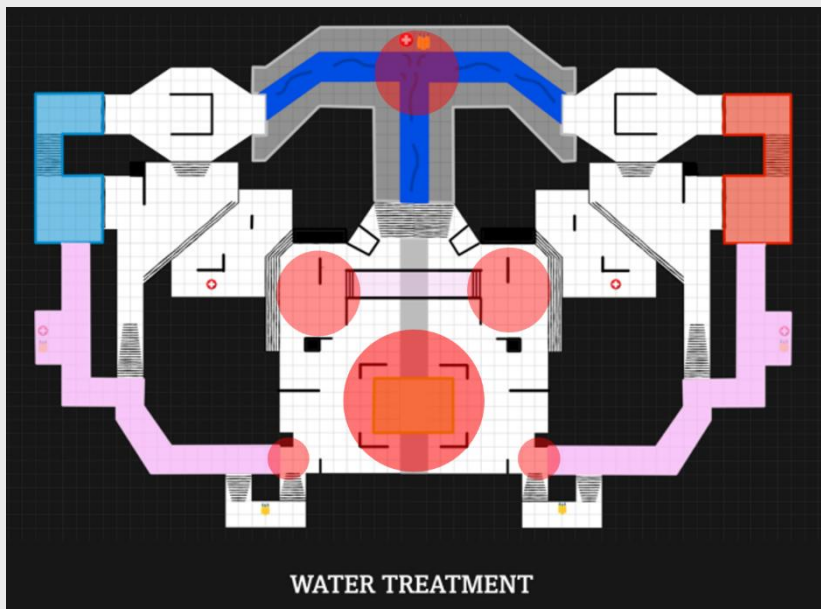


Visual Representation of the sightlines in my map





Here is a diagram of my map, with a key of every labeled part. It comes with a scale as well as a vertical gradient key.

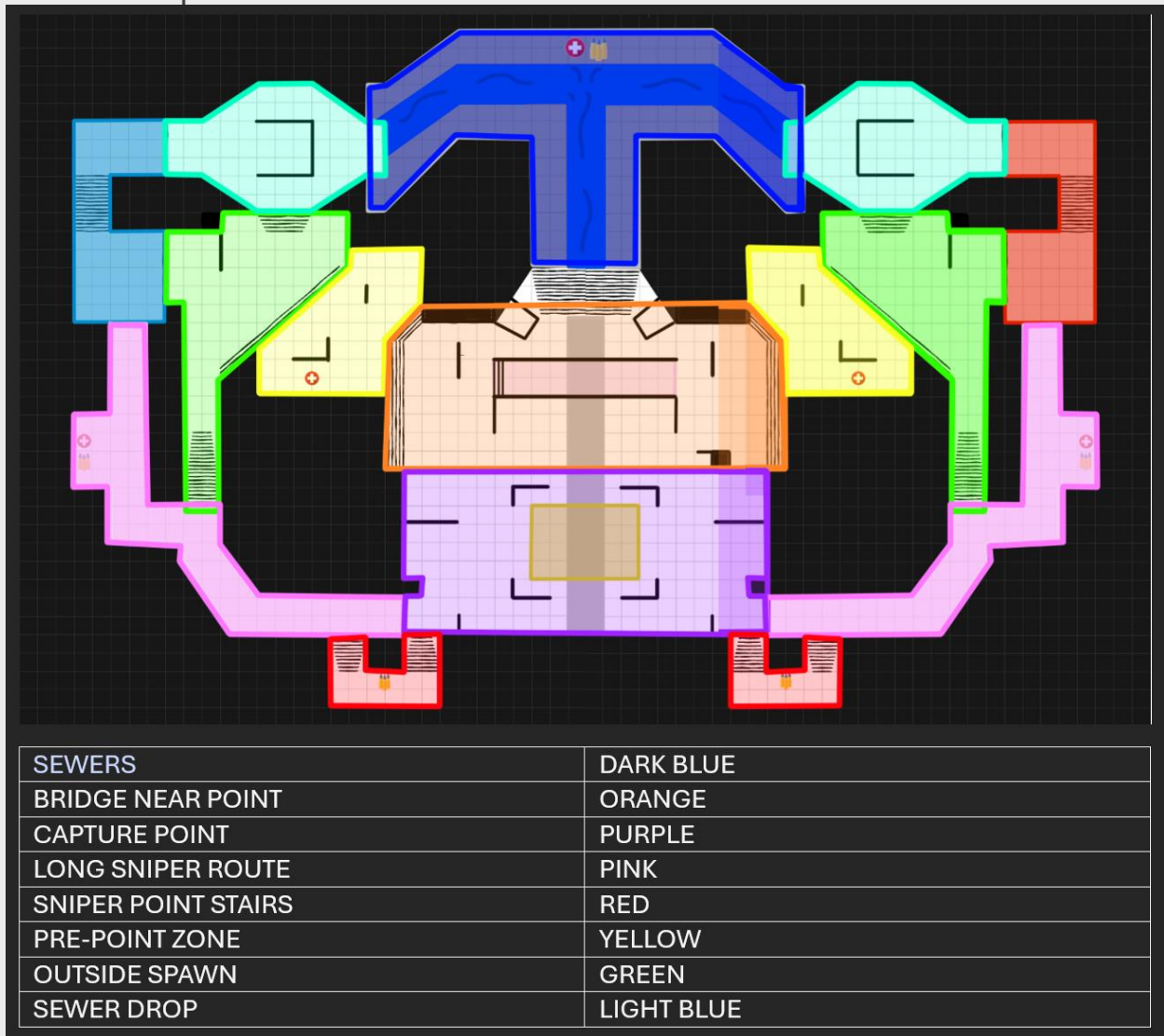


Here are the main conflict points, the size of the circle represents how likely it is for a fight to happen here.





## Character Experience



Here is a breakdown of every section of the map, we will now break down how every character fairs in these areas.



## SPECIFIC CHARCTER GUIDES



The Scout

Preferred Lane: [Light Blue / Short Sight Line](#)

Shortest Time To Point: 9.7s

	SEWERS	BRIDGE	SEWER DROP	OUTSIDE SPAWN	CAPTURE POINT	SNIPER ROUTE	SNIPER STAIRS	PRE-POINT ZONE
SCOUT								



The Pyro

Preferred Lane: [Light Blue / Short Sight](#)

Shortest Time to Point: 11.9s

	SEWERS	BRIDGE	SEWER DROP	OUTSIDE SPAWN	CAPTURE POINT	SNIPER ROUTE	SNIPER STAIRS	PRE-POINT ZONE
PYRO								



The Demoman

Lane: [Light Blue / Short Sight](#)

Shortest Time to Point: 12.7s

	SEWERS	BRIDGE	SEWER DROP	OUTSIDE SPAWN	CAPTURE POINT	SNIPER ROUTE	SNIPER STAIRS	PRE-POINT ZONE
DEMOMAN								



### The Soldier

Lane: Yellow / Medium Sight

Shortest Time to Point 13.1s

	SEWERS	BRIDGE	SEWER DROP	OUTSIDE SPAWN	CAPTURE POINT	SNIPER ROUTE	SNIPER STAIRS	PRE-POINT ZONE
SOLDIER								



### The Heavy

Lane: Light Blue / Short Sight or Yellow / Medium Sight

Shortest Time to Point: 15.3

	SEWERS	BRIDGE	SEWER DROP	OUTSIDE SPAWN	CAPTURE POINT	SNIPER ROUTE	SNIPER STAIRS	PRE-POINT ZONE
HEAVY								



### The Medic

Lane: Any

Shortest Time to Path: 10.9s

	SEWERS	BRIDGE	SEWER DROP	OUTSIDE SPAWN	CAPTURE POINT	SNIPER ROUTE	SNIPER STAIRS	PRE-POINT ZONE
MEDIC								



### The Sniper

Lane: Red / Long Sight

Shortest Time to Path: 11.9s

	SEWERS	BRIDGE	SEWER DROP	OUTSIDE SPAWN	CAPTURE POINT	SNIPER ROUTE	SNIPER STAIRS	PRE-POINT ZONE
SNIPER	Red	Yellow	Red	Yellow	Yellow	Green	Red	Green



### The Spy

Lane: Any

Shortest Time to Path: 10.9s

	SEWERS	BRIDGE	SEWER DROP	OUTSIDE SPAWN	CAPTURE POINT	SNIPER ROUTE	SNIPER STAIRS	PRE-POINT ZONE
SNIPER	Red	Yellow	Red	Yellow	Yellow	Green	Red	Green



### The Engineer

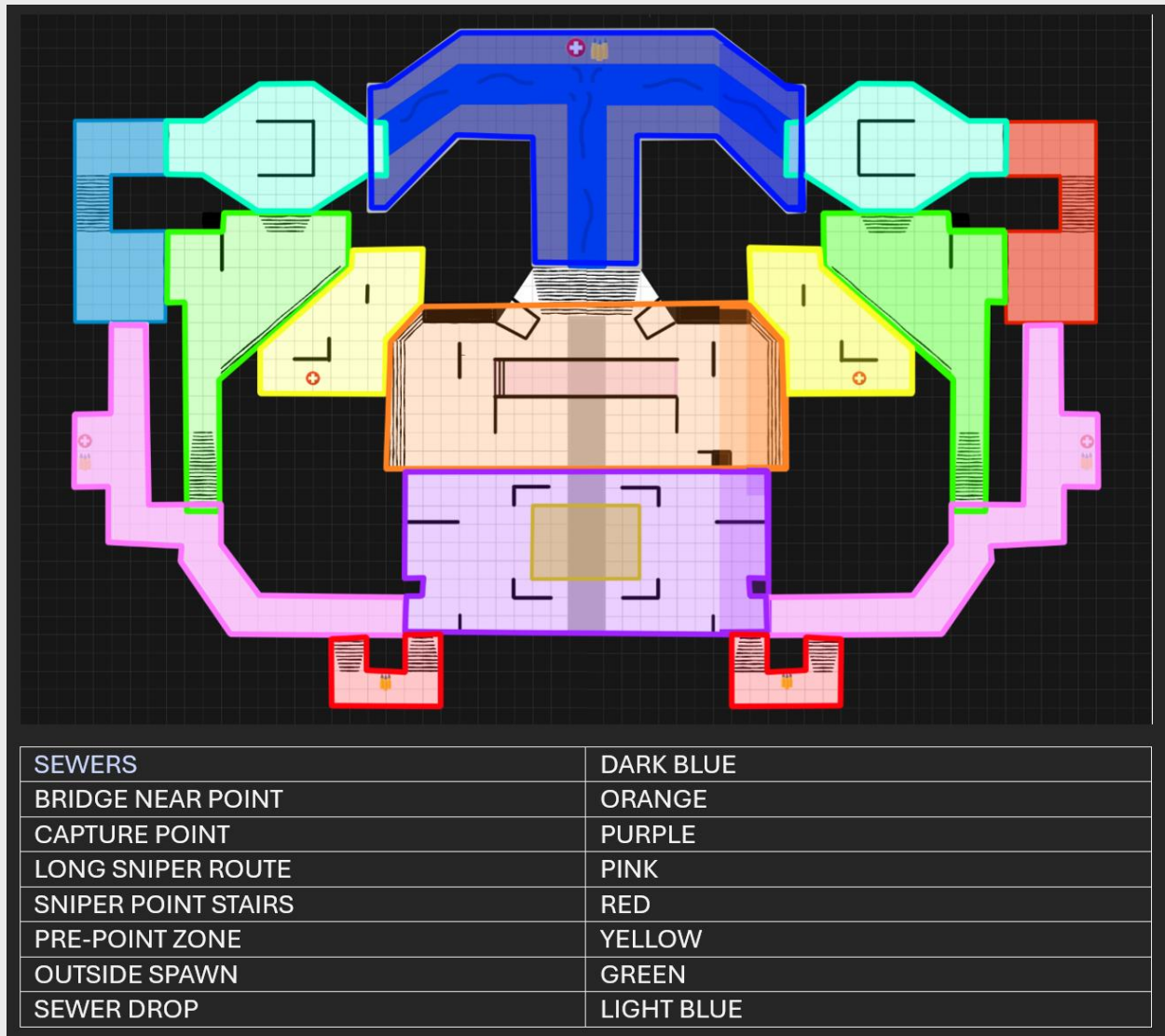
Lane: Yellow / Medium Sight or Red / Long Sight

Shortest Time to Path: 11.9s

	SEWERS	BRIDGE	SEWER DROP	OUTSIDE SPAWN	CAPTURE POINT	SNIPER ROUTE	SNIPER STAIRS	PRE-POINT ZONE
ENGINEER	Red	Yellow	Red	Yellow	Green	Yellow	Green	Yellow



## Points of Interest



These are the main points of interest on my map.

### **SEWERS**

The sewers are designed to be a space for short sight line characters to go, it's a little bit further out, but it allows the characters to move around the map more freely. There is also a full health pack, as it means the players will fight over it, creating a secondary objective.

### **BRIDGE**

The Bridge is important for two reasons, it's a big LOS-blocker for spawn-to-spawn sightlines, and it also adds more verticality to the map. It also allows more flanking routes.



## **CAPTURE POINTS**

The capture is, obviously, the most important part of the map. It features a lot of cover, it's almost in a separate room. There is a sniper sightline into the point though, so it shouldn't snowball at all.

## **LONG SNIPER ROUTE**

This is an elongated route to the point, which provides the player with a higher vertical route. This is good for taking the capture point and favors classes like Sniper & Soldier. This sniping spot can also see its mirrored counterpart, so you can have sniper duals.

## **SNIPER POINT STAIRS**

This is the major counter to the sniper zone, as a flight of stairs takes you right up there. The stairs can also be used for the sniper to walk down to the point. An ammo pack also lies here, meaning engineers find it very important.

## **PRE-POINT ZONE**

The pre-point zone is a very usual area of a TF2, there is some cover and a health-pack as well. This area's main purpose is just to connect the point and the spawn room.

## **OUTSIDE SPAWN**

Outside spawn features some cover and multiple pathways to get to the point, I've sort of designed it like a funnel, making it obvious where the entrances/exits are.

## **SEWER DROP**

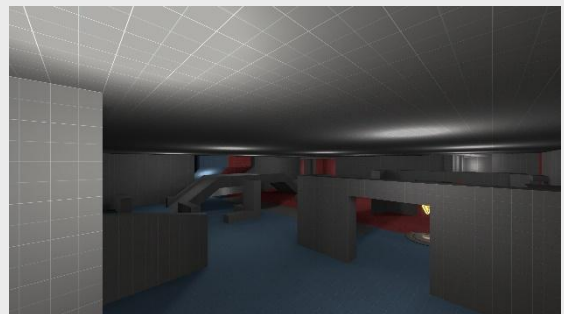
A steep ramp that allows the player to drop into the sewers without taking fall damage, the scout can actually jump back up this ramp for a very tricky flank route.

## **Balance**

### **Update Log**

17/10/24 – 20/10/24

The map has been fully blocked out, it is almost identical to the diagram, but some extra spots of cover have been added. All doors work and all pickups have been added. The map is ready for the first round of testing.







24/10/24

After this first playtest I update numerous parts of the map. The sewer has been flipped horizontally, allowing players to remain closer to the point. The wall near the point has also been lowered, allowing for players on the bridge to shoot enemies on the point. I also made the outside spawn area more of a funnel shape, using player guiding to make sure the players know where to go.

7/11/24

The second playtest happened recently, this playtest found that there was too much cover around the point, and nearby it. Another issue involving characters jumping from the sniper balcony has been fixed, by adding some pipes, blocking access.

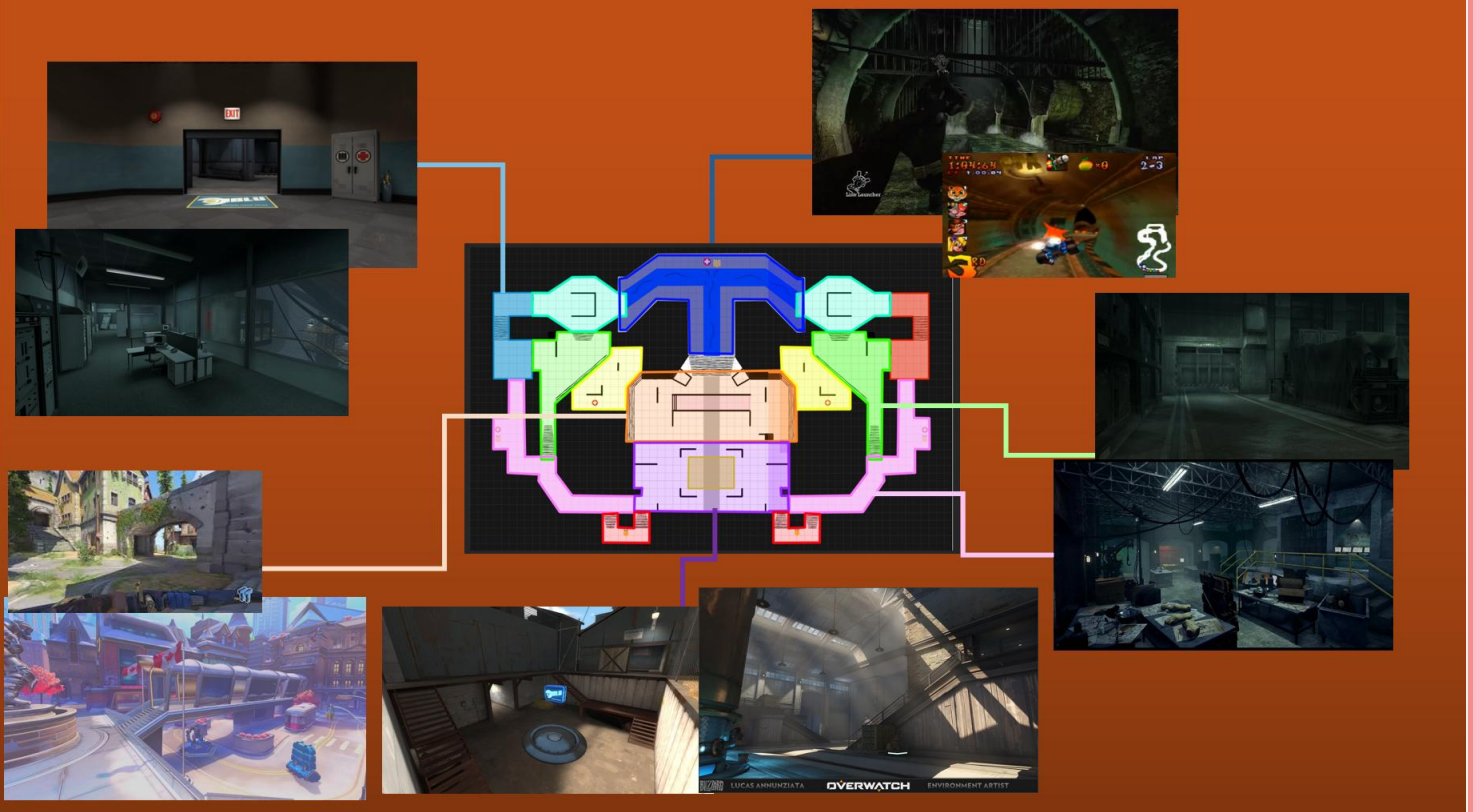
13/11/24

Another playtest occurred, some problems involving the openness of the point. Also, some sniping sight lines were too long. To fix this I have created two big walls on the side of the bridge, to separate the map a bit. We also had some feedback on the lack of health packs, which I have fixed by adding some more.



## Aesthetics

### Visual Development



Sewers – Inspired by other sewers in game. Examples used are Arkham Asylums Killer Croc Section. Also the Sewer Speedway in Crash Bandicoot

Outside Spawn – Inspired by factory levels in games. Examples used are Shadow Moses from metal Gear, or The Game from Dead By Daylight

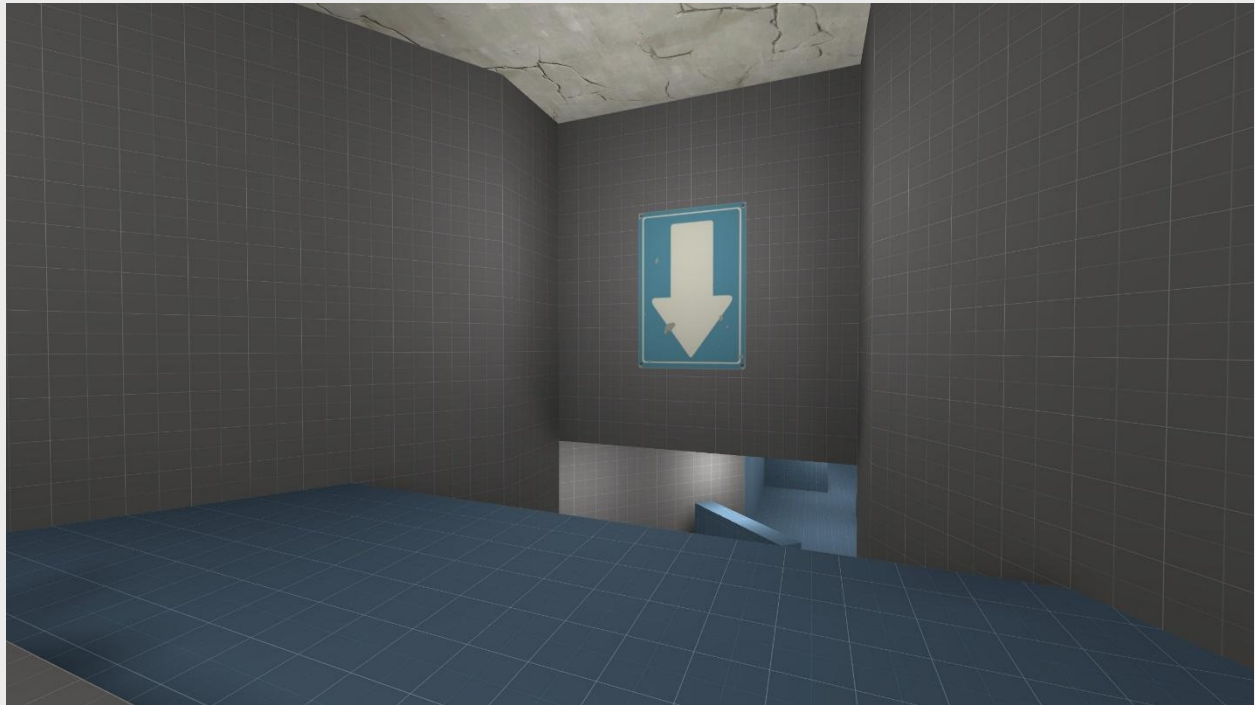
Spawn – Inspired by spawn rooms from other TF2 maps, and other office like areas like portal or the Stanley Parable

Capture Point - The point is also using the factory setting. I picture the inside section of Havana from overwatch as a reference.

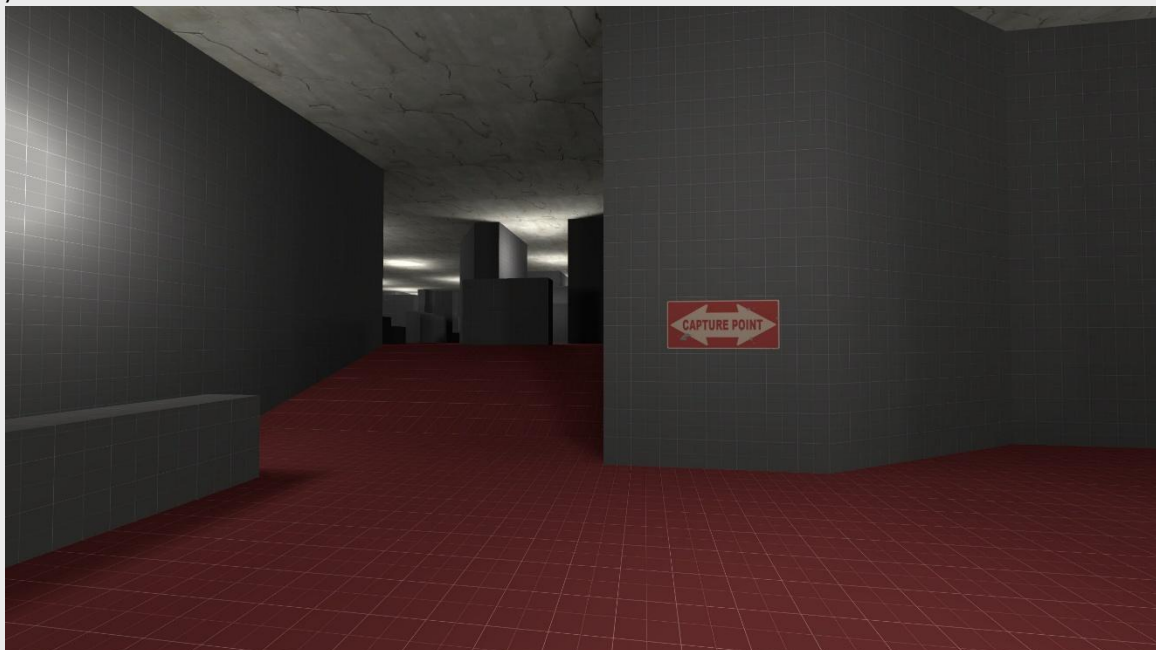
Bridge - The Bridge section will remind players of the bridge from Eichenwald from Overwatch & Overwatch 2



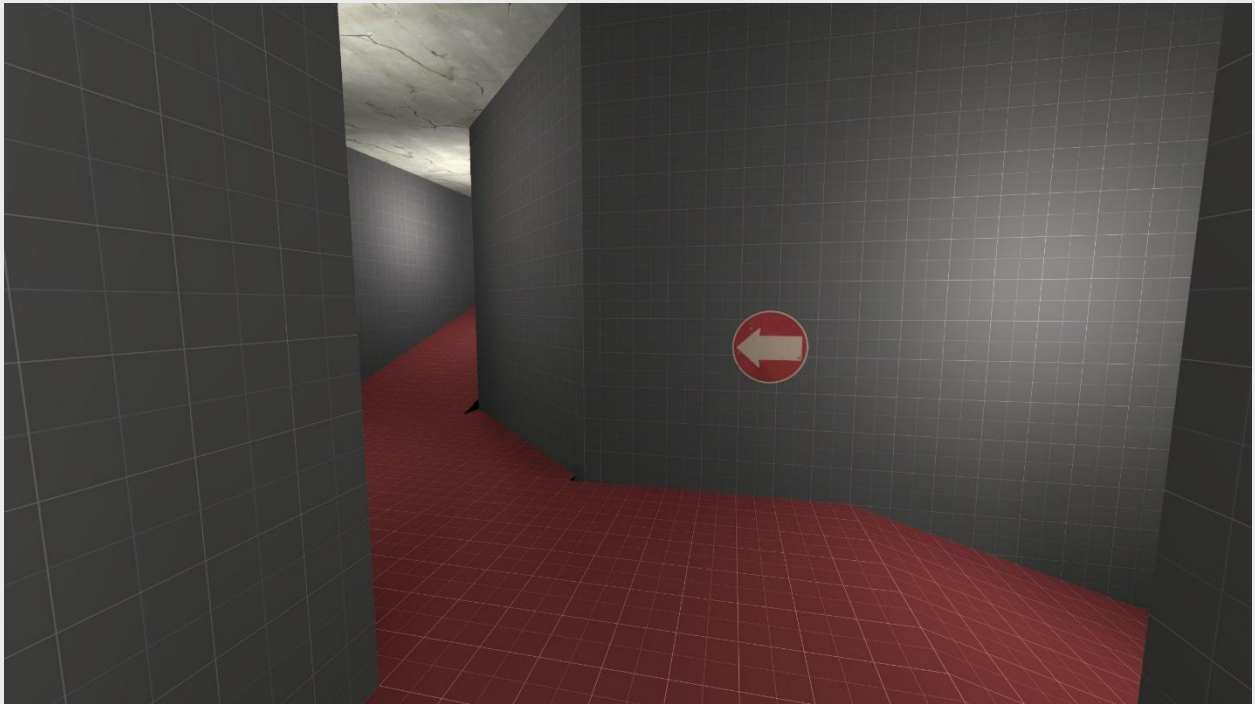
## Affordance



There are many arrows in the map, pointing to the capture point and showing the players the alternate route. These arrows exist for both teams



This arrow is between the medium sight line path and the short sight line into the sewers. As you can see there is an arrow sign with two heads because of this.



The final arrow is in the sniper path, leading the player to the point. This arrow also exists for both teams.