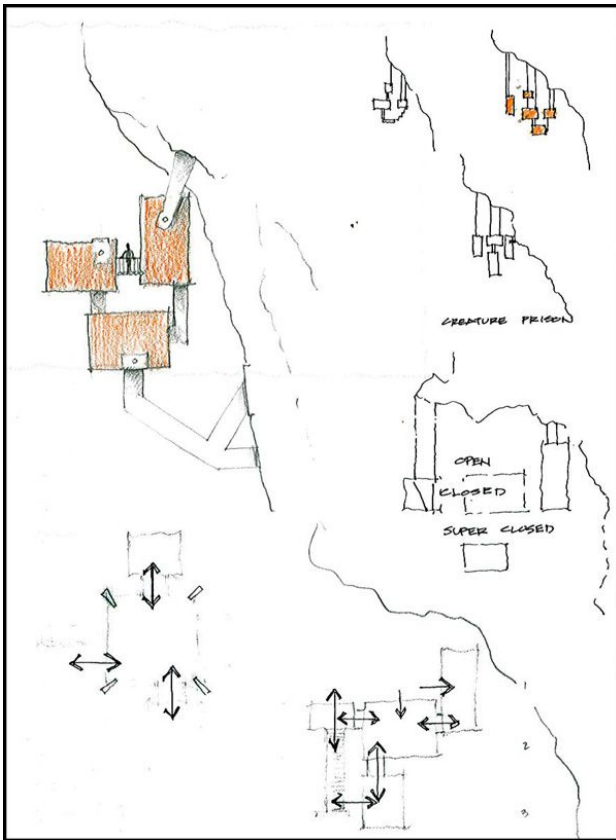


# Bungie: Carney's Crash Course: Map Design 101 by Chris Carney

- “For most maps I will go through at least 5 to 10 ideas on paper before I start building in 3D.”

## First paper drawing for Halo 2's Lockout



### Notes from creating Lockout:

- “First, I wanted to build a small 4 – 8 player space that had isolated combat spaces (rooms) that were connected by bridges. This way the player could see where the opposition was moving, but not know exactly where they ended up.”
- “Second, I liked the idea of a map hanging exposed over an abyss, so that players who moved well through the space would be rewarded. Specifically, the space needed to be easy to run through, but also contain “bonus” exposed ledges and jumps that would provide shortcuts for the more adventurous.”
- “Finally, I wanted the map to have different combat experiences on each floor. The lowest floor would emphasize close range combat, the middle level room to room clearing utilizing the bridges, and the top level would feature tower to tower mid-range donging.”
- “One of the elements I really enjoyed about Halo 2's Ascension and Halo 3's The Pit was that players could move around the entire circumference of the level while experiencing different sight lines in towards the center of the map and then could choose when to strike or when to keep moving.”
- “In addition, both Lockout and Guardian were designed around a central hub that organized the environment and provided one large dominant combat space. Was there a way that we could break this up by stretching the map into multiple large combat spaces where one was not more dominant than the other?”
- “Outer circulation” serves as flanks to the main combat area and can provide different angles into the main combat area

# The 7 Essential Multiplayer Design Elements

## 1. Simplicity

- a. Simplify it into basic elements the players can understand on spawn
  - i. “Lockout, for all of its complexity, is a center square surrounded by four structures.”
- b. “Less is more”

## 2. Orientation

- a. “... I wanted to be very heavy handed about orienting the player. Thus I decided to hang The Cage off of a wide, high cliff that could be easily seen from any point in the environment.”

## 3. Navigation

- a. “The player needs to easily understand how to get from point A to point B.”
- b. “Long, structural walkways, well lit doors and rooms, and clear paths of suggested movement need to be a core part of the design.”
- c. “Whether it is too much contrast in the lighting, an excess of visual detail, or just a jumbled layout, if a player is confused as to how to move around the space, the level is going to struggle.”

## 4. Flow or Circulation

- a. “you should feel like a ninja running across easy-to-see ledges, jumping on well-placed rocks, and swiftly leaping to perfect bits of cover.”
- b. “This is also where you starting considering good spots to draw the player for weapon placement and areas to better define as hard points.”

## 5. Hard Points

- a. “These are areas that you want to feel memorable on a map, which are also great spots for concentrated combat.”
- b. “This can be a small structure, cave, intersection of two paths or any other moment in the environment that you want to feel significant.”
- c. “From a gameplay perspective, these are also great spots for a hill, territory, stockpile, or team spawn.”
- d. “When selecting these areas, the goal is to think about cover patterns that allow players to approach or defend the area. In addition, what are the sight lines between hard points on the map? These views and the spatial relationship between these areas are also critical ingredients in establishing flow and easy navigation.”
- e. “Finally, these areas often contain the infamous “three or more ways to access” and enough room to stage a layered defense, while also feeling like an integral part of the environment.”

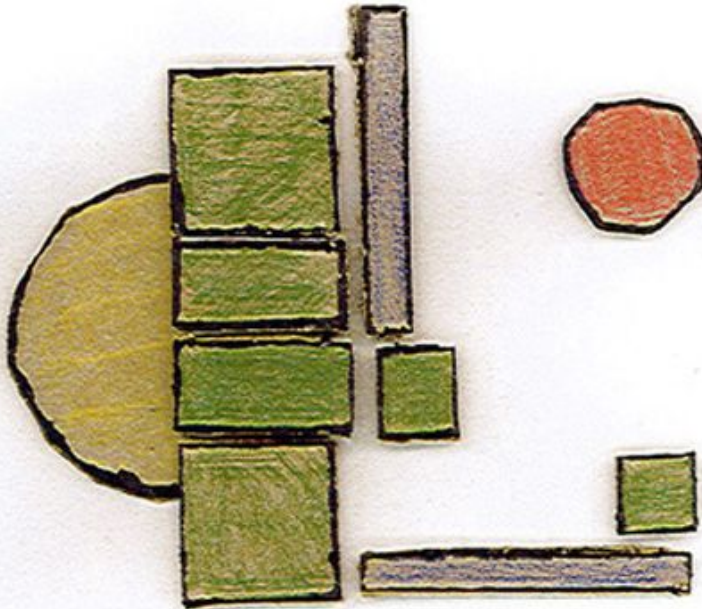
## 6. Game Objects

- a. “Start with power weapons. As you design the map there are certain spots in the environment to which you will want to draw the player to in order to better define flow.”
- b. “one strategy is to avoid placing a weapon in an area that is ideal for its use, such as spawning a Sniper Rifle on a “hard to access ledge with a great view of the map.” Make the player earn it.”
- c. “Other weapon layout strategies include emphasizing risk versus reward, such as running across the bottom of the launch bay for the Shotgun on Countdown or grabbing the Rocket Launcher on Reflection.”
- d. “In addition, for team games, setting up power weapons that are at the 50 yard line, like the Concussion Rifle on Zealot or Spartan Laser on Valhalla, is also a great technique.
- e. “Setting up game objects also involves developing strategies for team spawns. Where should teams spawn in a symmetrical gametype or in a multi-team game? Hard points are usually ideal spots for this, but again, consider the sight lines and proximity of these areas to one another.”

## 7. Iteration

- a. "Playtest. Playtest. Playtest."
- b. "Challenge your original assumptions and see if players use the map as it was designed."
- c. "Is any part of the map too easy to control? Do people get confused? Does the flow feel logical? Can you easily orient yourself when respawning or quickly navigate a flag return route across the map? Here is where playing the map with friends will really pay huge dividends."

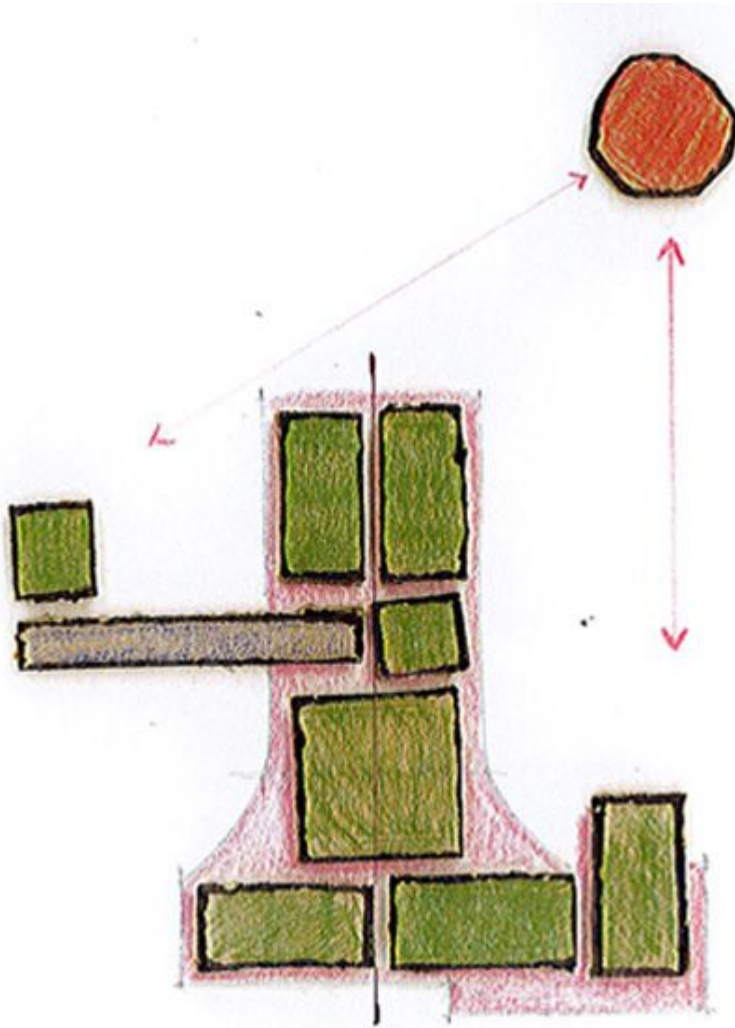
## The Cage Concept 01



The green boxes represented rooms, the blue rectangles were bridges or walkways, the yellow circle was a central platform, and the red circles were areas that needed to be traveled to directly using teleporters, man cannons or jumping. While not appropriate for every map, this method was great for my cliff hanging aspirations and again, allowed for me to quickly iterate through ideas.

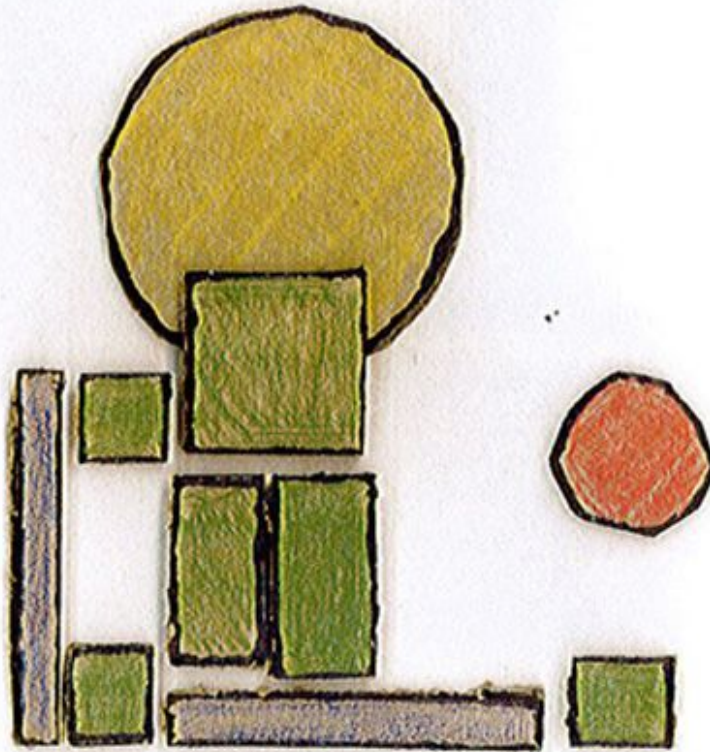
Yet, after some consideration, the three areas in this layout felt too separated from one another and also did not suggest a flow that allowed the player to easily move around the exterior of the map, so I moved on.

## The Cage Concept 02



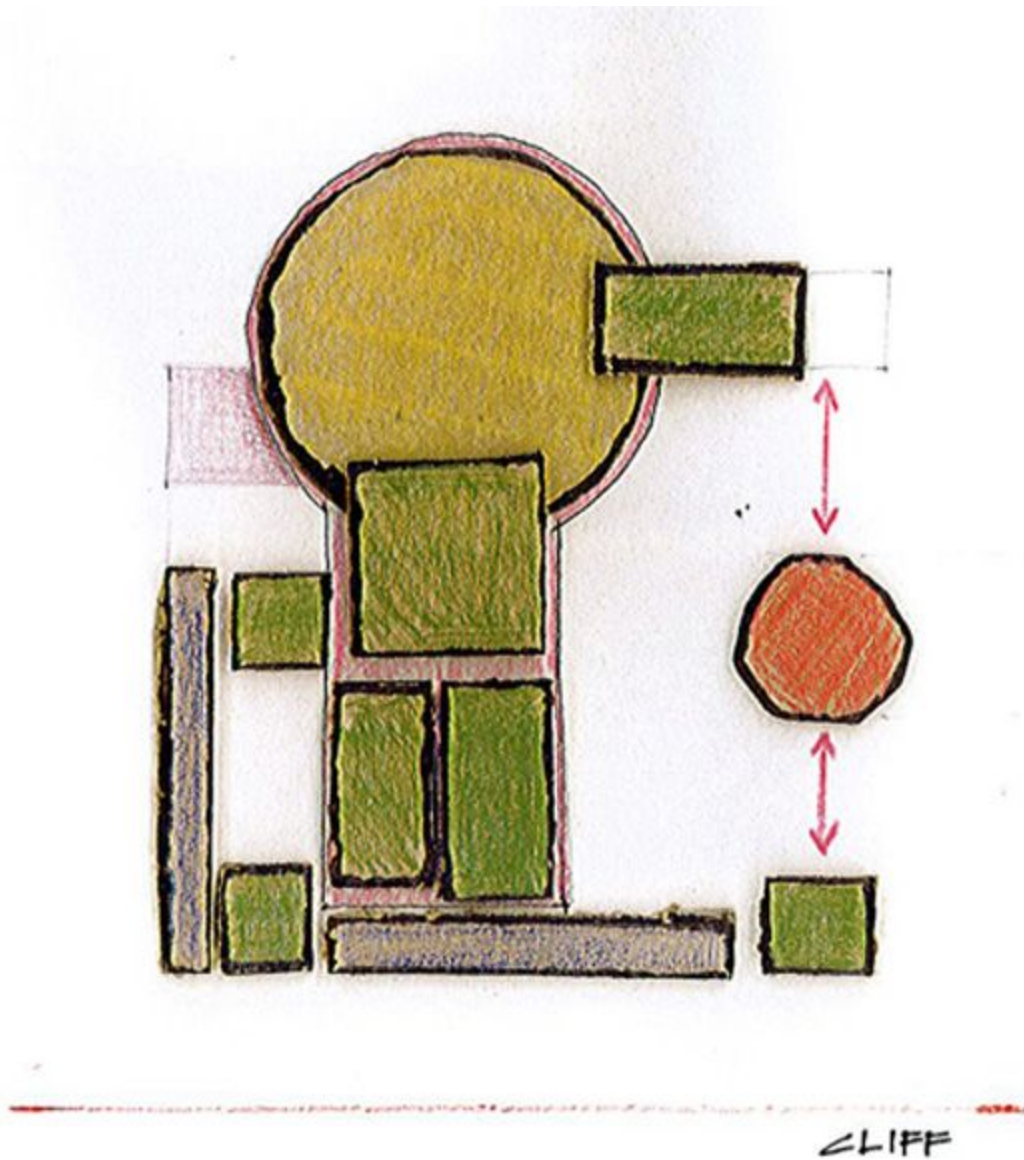
In this second iteration, I removed the central platform (the yellow circle) and started using the hanging platform (red circle) to help define a path around the level. In these smaller environments, one-way paths are excellent ways to force a specific direction of circulation. This creates movement that is predictable – you know when someone drops down for the Shotgun on Lockout that they will eventually end up by the man cannon – but also allows for players to build map strategies. For example, a player may jump down for the Shotgun knowing that his teammates already have the base of the man cannon locked down. So I wanted to incorporate this idea of one-way travel by using man cannons to the platform and back. At this point, the collection of green blocks was suggesting more of a large structure, which was another way to isolate pockets for combat. Yet again, the outer circulation was not working and the overall collection of rooms was confusing.

## The Cage Concept 03



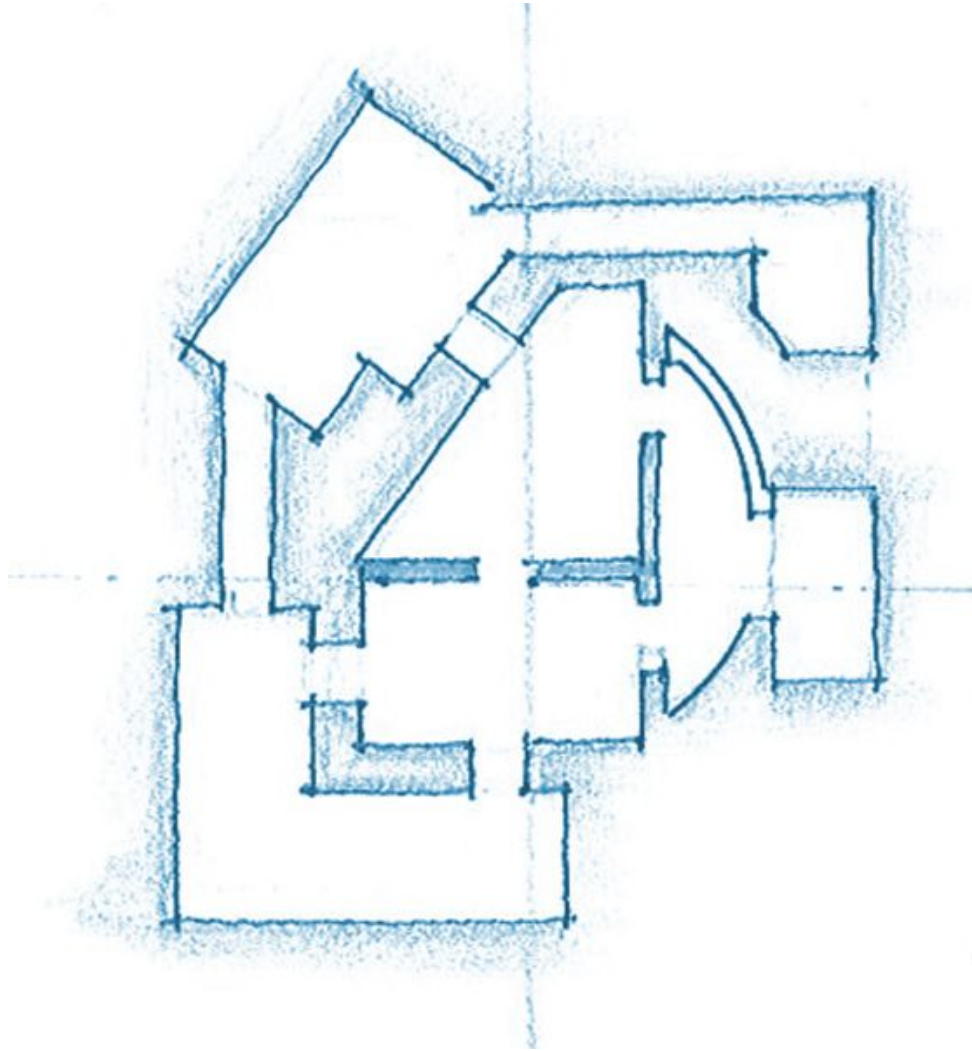
During the next iteration of The Cage, I brought back the central platform, since it was a unique space that aided in orientation and navigation which might help clean up my jumble of rooms. I also kept thinking of that outer path of circulation and the one-way movement to the platform. Now the idea was beginning to come together. I started considering the lower corners of the environment as great spots for a hard point or at least areas for good weapons. The long walkways also reminded me of the long bridge on Ascension and again provided good navigation clues.

## The Cage Concept 04



The next iteration included extending an arm to the man cannon platform and the addition of the cliff wall, which in the back of my mind I think I always considered lying on the bottom.

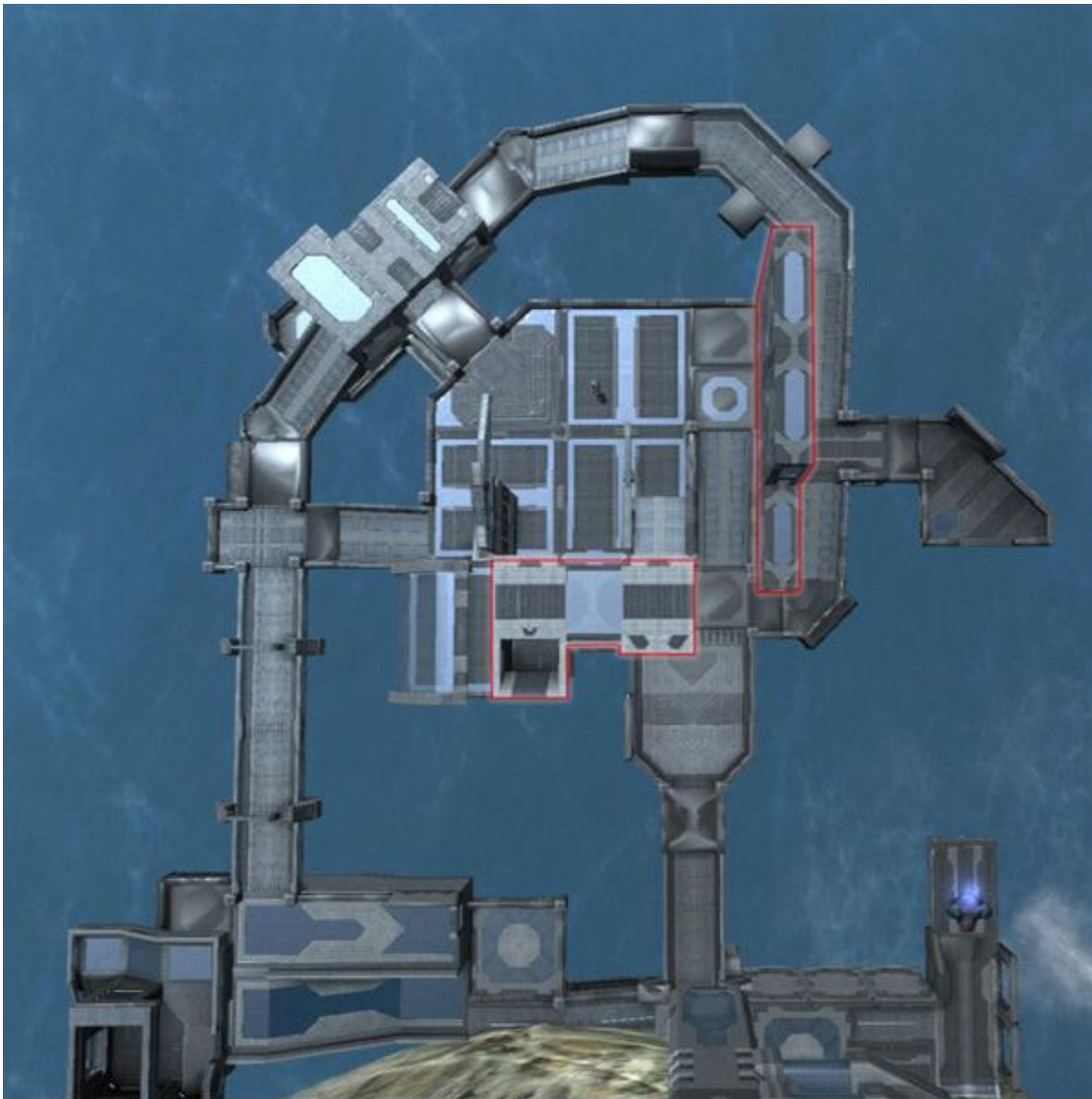
## The Cage Concept 05



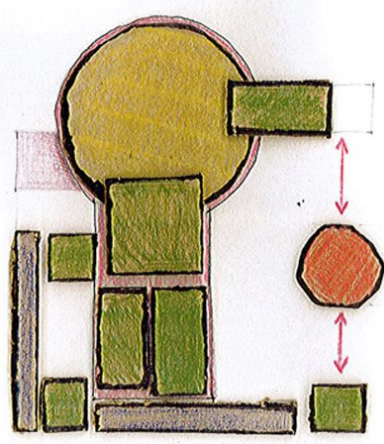
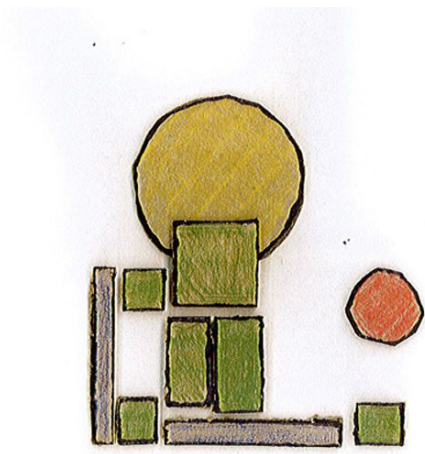
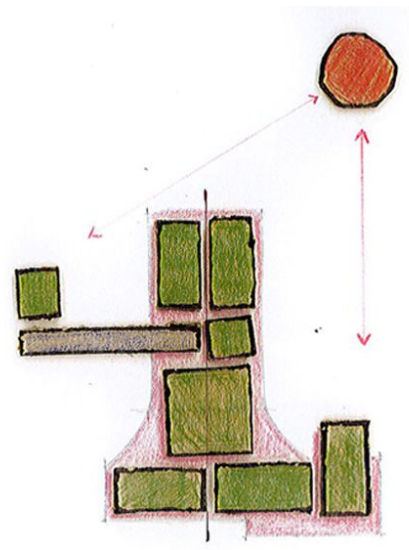
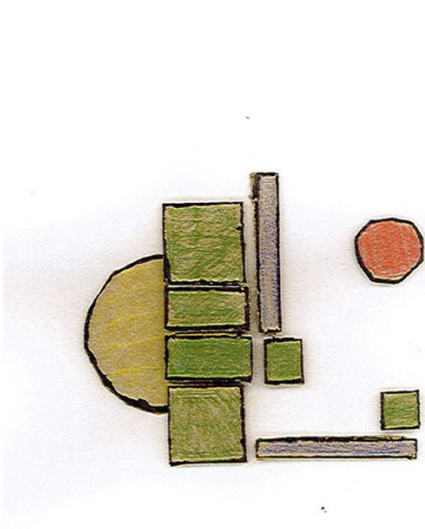
The layout below is similar to the previous one, but I started to better define the shapes of each space. I sheared off a corner of the central platform to make it asymmetrical and easier for overall orientation and also aligned a structure to follow that new diagonal edge. In addition, the dark walls that bisect the central collection of rooms into three spaces (triangle, rectangle and half circle), were intended to be large, tall walls that divided the map into, again, our three combat pockets. It was fine if they overlapped a bit, but I did not want one space to be able to control all three. The outer circulation here is working well and I knew that I wanted to have a man cannon on the right edge, though had not finalized where. I also was starting to design the map in three dimensions, as this entire experience was not all going to exist on one flat plane. One side of the map, maybe cliff side, was going to be higher than the rest and the other sections were to cascade away from that in elevation.



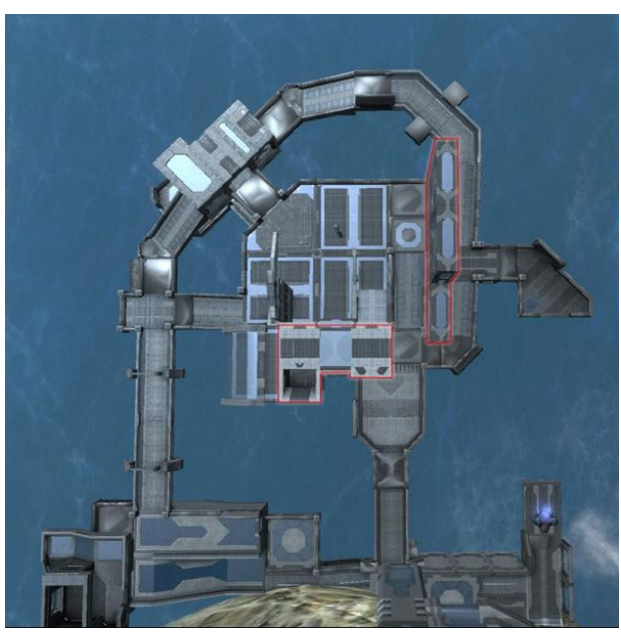
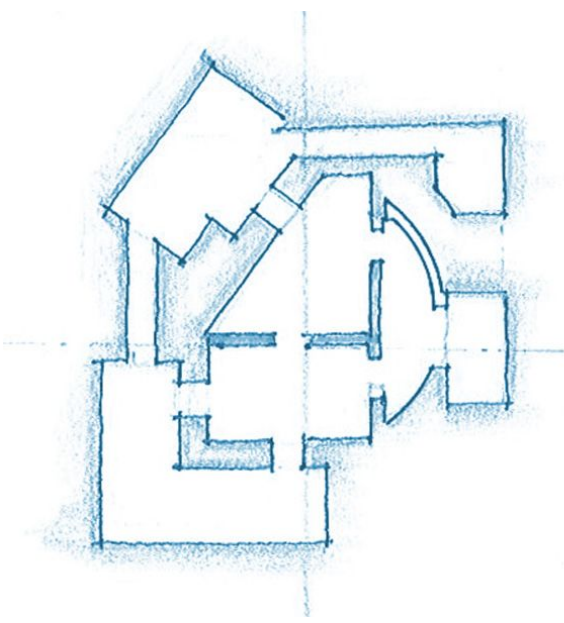
## The Cage Final



Below is the final version of The Cage from above (in perspective). You can see the path of circulation around the map and also that the man cannon landing became attached to the level (that idea actually came from that second drawing). Once working in Forge, I was able to construct some more one-way paths, such as the drop off in the middle towards the cliff and the hole that drops down to the plasma launcher, in addition to establishing hard points. I have also highlighted in red the two wall sections, which still divide the map into three areas, although the lower section later became a room. However, this was the fun stuff where evaluating different pieces and adjusting locations made the level come alive.



CLIFF



“The best map designs in Forge often use fewer pieces. Let the terrain and safe zones do the heavy lifting on Forge World and then use small pieces to define hard points and augment your design (the “column,” for instance, is great for man-sized cover). Also, using too many pieces can easily get in the way of awesome Halo gameplay. Just create logical moments in the environment for the game to shine and the engine will take care of the rest. Finally, don’t be afraid to try crazy ideas, as some of those may end up being unique and lead to something completely awesome. ”