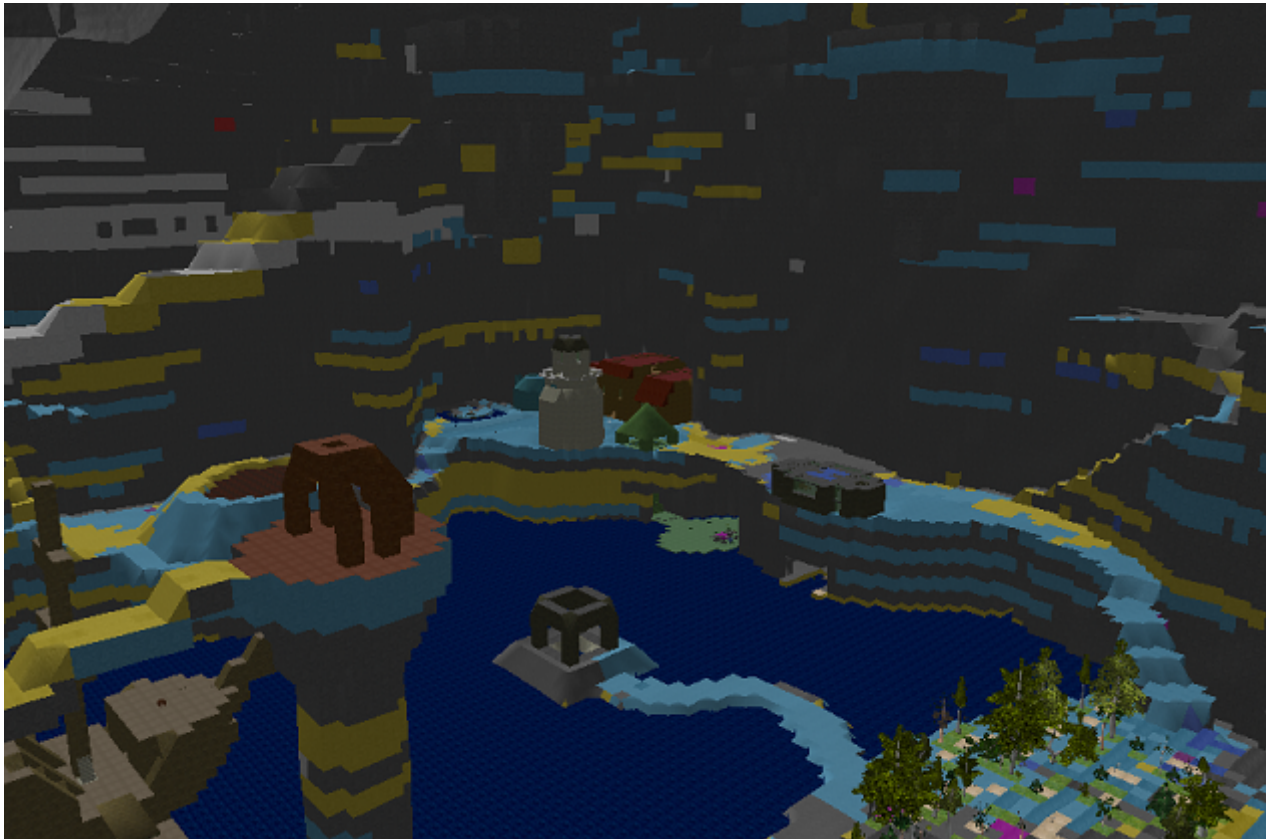


Welcome to Undergrotto

A grotto fortress in a massive underground cavern.



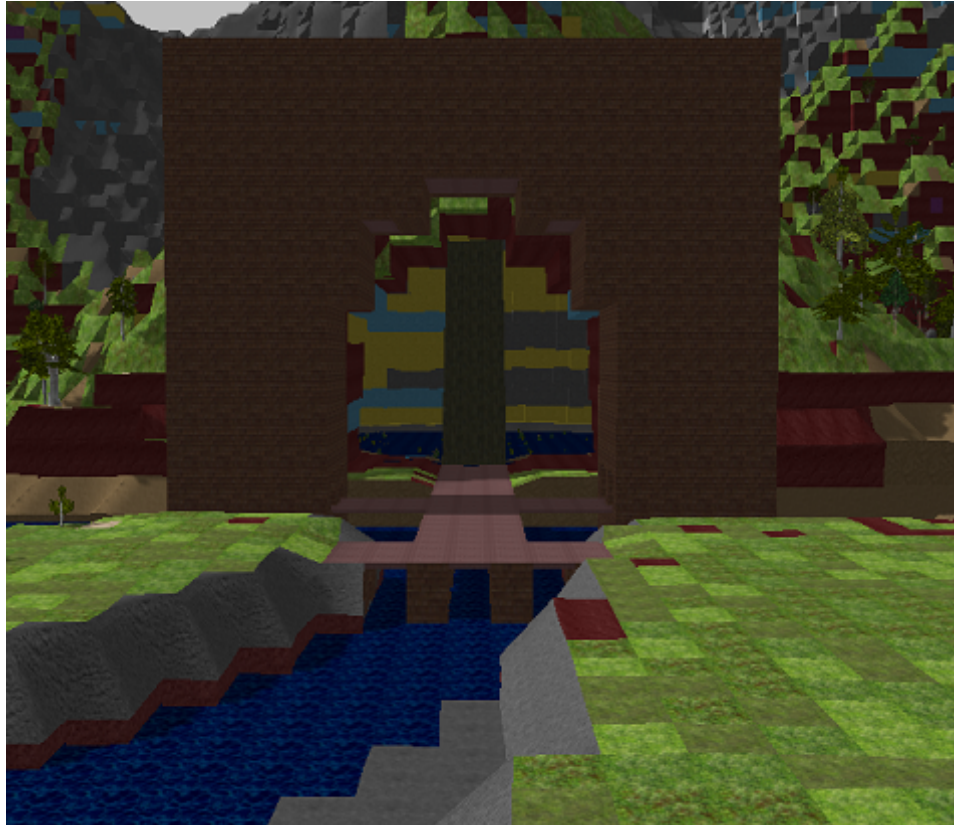
Constructed and Written by Retro
Compiled for DFstories.com

I should probably stress the word ‘massive.’ Many megaprojects could fit inside the main cavern, even disregarding the many other sub-caverns inside – many entire fortresses could fit in it, in fact. The main reason I’m posting Undergrotto here is because I don’t think anyone’s done anything *quite* like this before. Undergrotto was not constructed, it was entirely carved out, with many large structures later been built within. Rather than use simple staircases, I chose to make long, twisting slopes up the sides of the various plateaus and leave winding, suspended walkways hanging throughout the cavern. My goal with the fort was to build each of the large quantity of subprojects I had in mind with a purely aesthetic approach and to make each unique and stand out from each other, and above all, befit their purpose. This has left a lot to see, so without further ado...

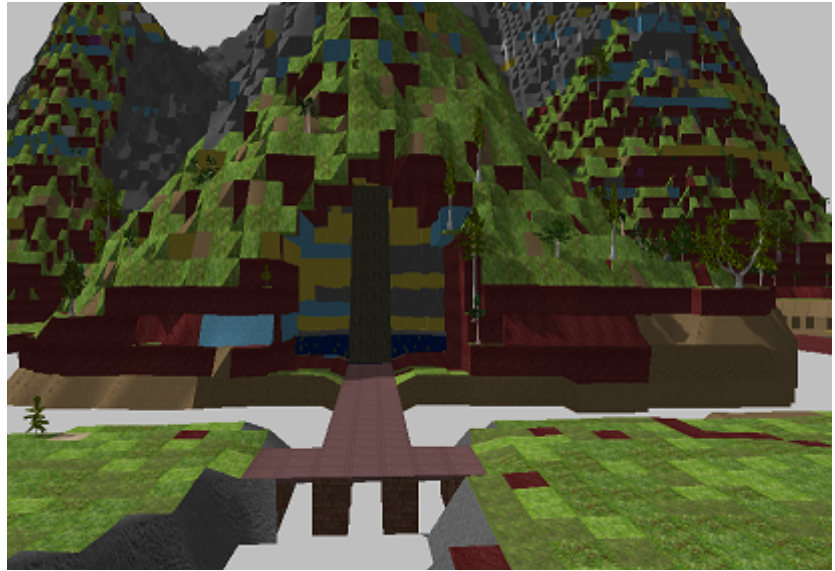
The fort is, as you might guess, rather far from efficient – dwarves routinely walk 300-500 steps to the dining pod, or the stalactite apartments, or the ship, and gods forbid if they ever need to go outside. Each project was given a lot of space, primarily so it would look good in visualizers – as such, I'll be ignoring in-game screenies except for two spots; if you want to see more in-game stuff there are plenty of POIs on the DFMA maps. Why don't we start with the exterior?



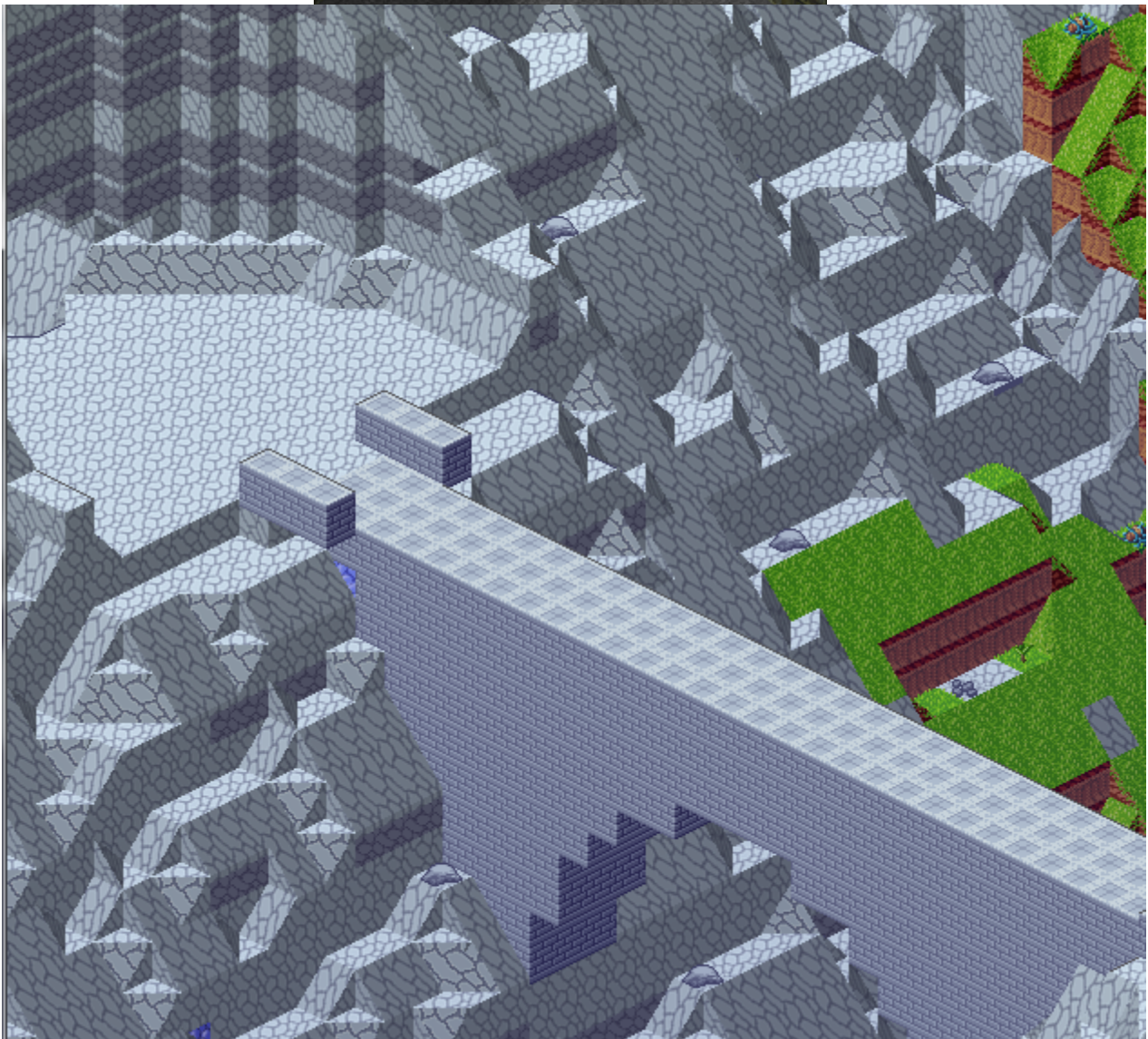
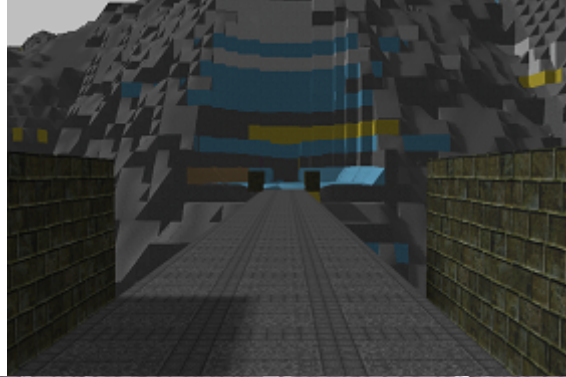


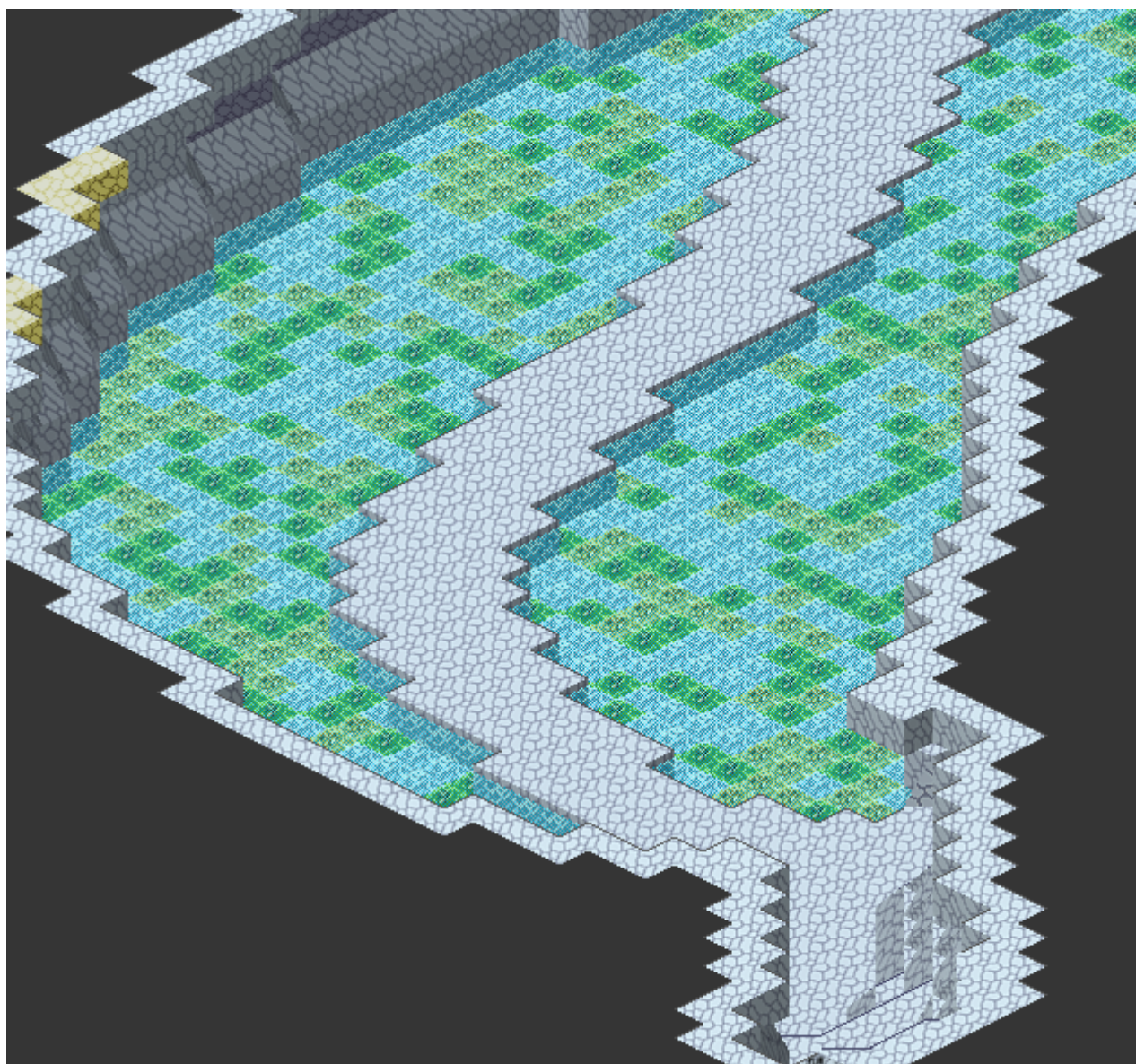


Mountaingate is the name I gave to the hollowed-out spire mountain that serves as an entirely-ornamental entrance to the fortress. When I embarked, I had intended on making the entrance directly in the mountain range, but upon seeing the spire, I decided to make the spire the access point and build a bridge to connect to the true entrance. I carved away several nearby layers of mountain in order to give Mountaingate its own moat as well as make the approach look more formidable and impressive. I also opened up its entrance to have a big semi-circle cave opening for coolness effect. Within the spire is a lake, with a long ramp moving upwards to the bridge. The large arch and bridge in front of the mountain houses my rather small 7-dwarf military, who are the sole defense measure of the fortress.

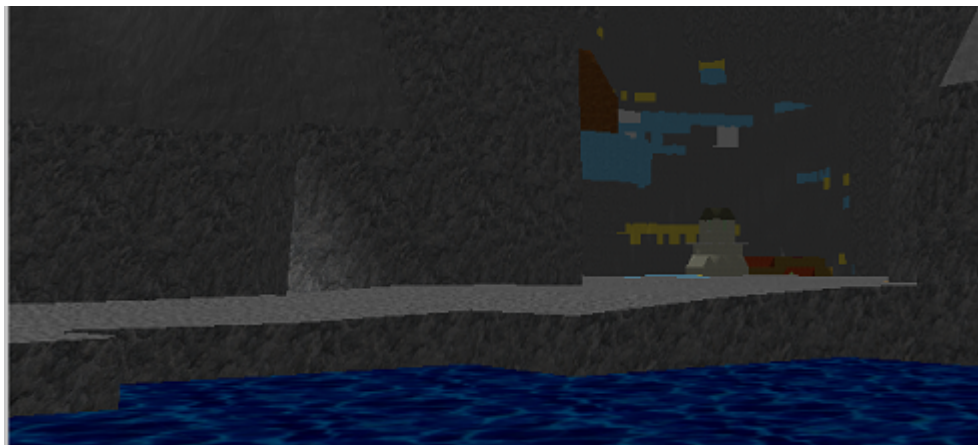
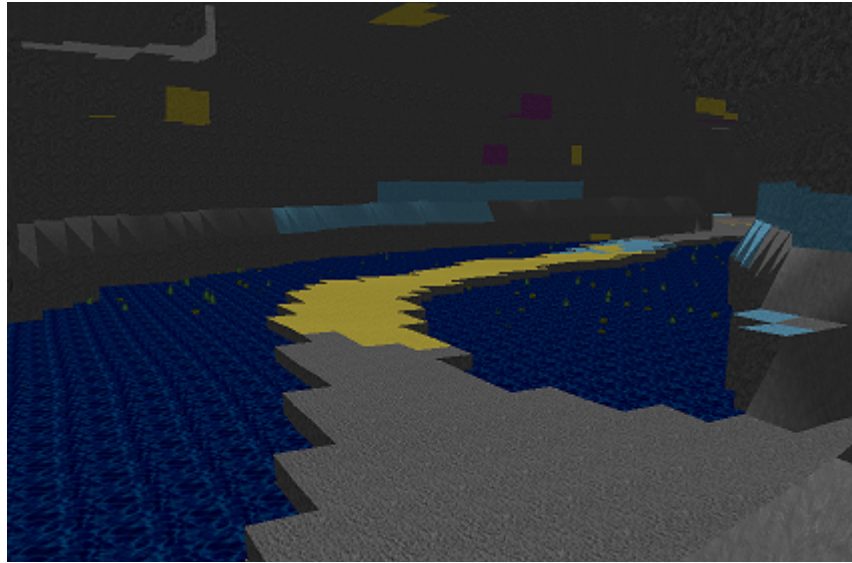


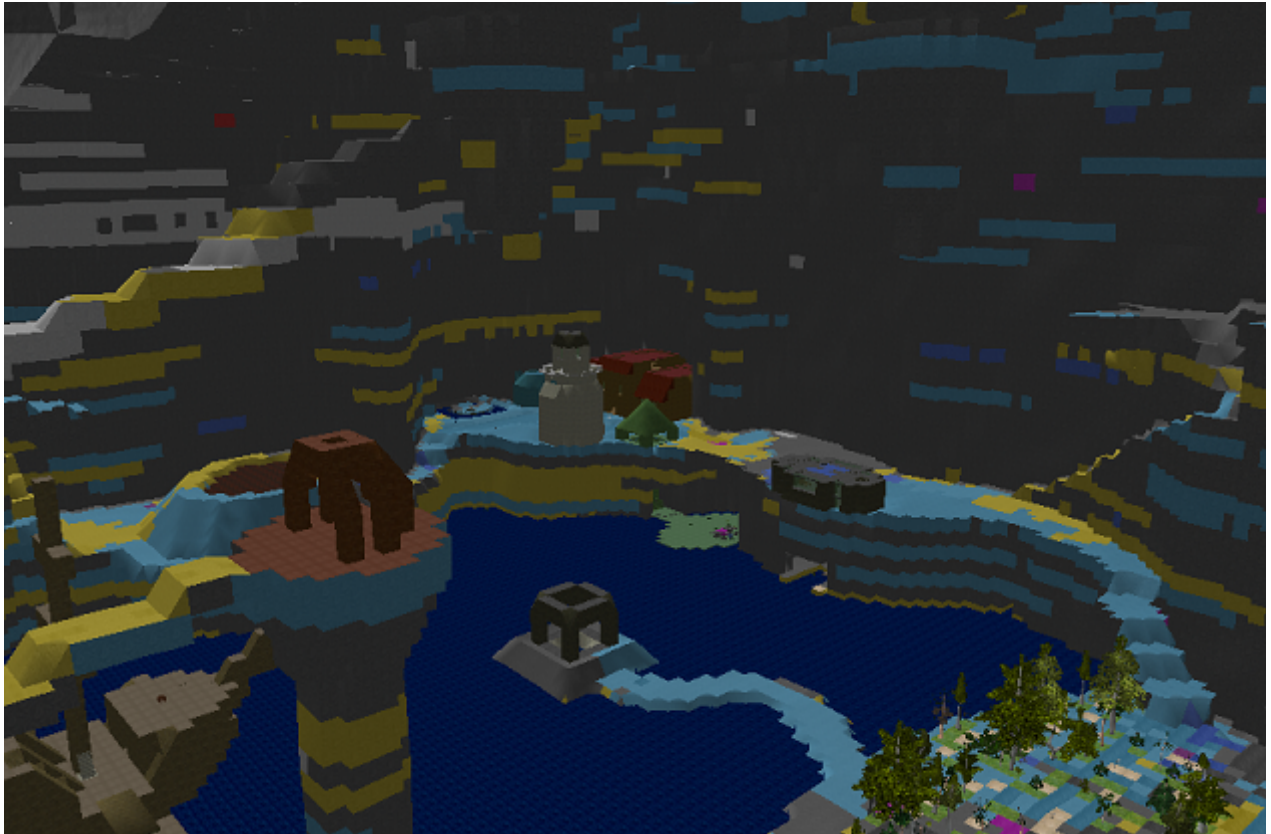
I tore down the arch just for these shots, as as nice as it was it blocked the view of the mountain. We enter the mountain, follow the walkway up, cross the bridge, and follow the tunnel...



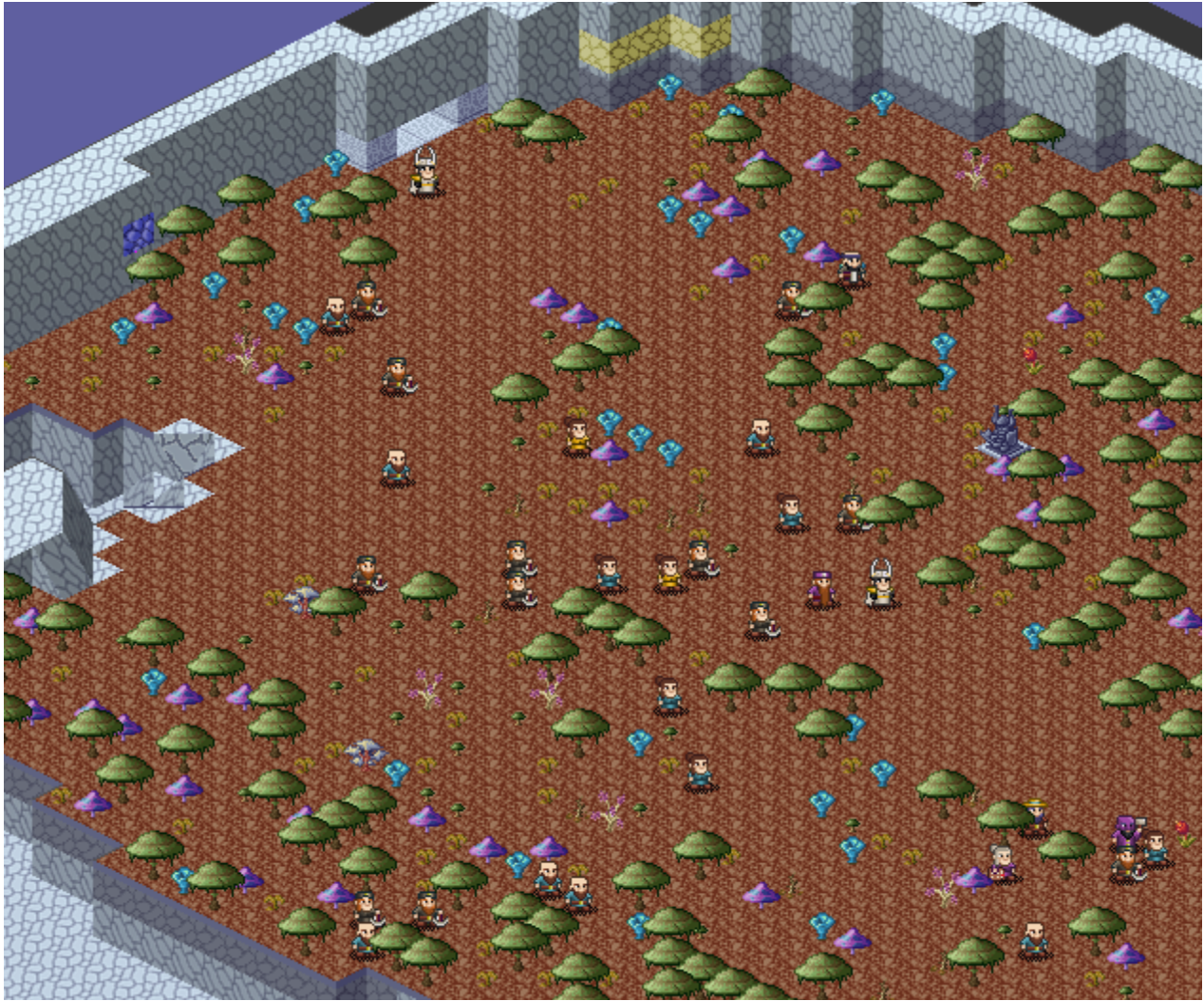


...and end up in a small water-filled cavern. The tunnel forks and heads farther downwards here, but we'll come back to that later. For now, we cross this cavern and enter the *main* cavern.

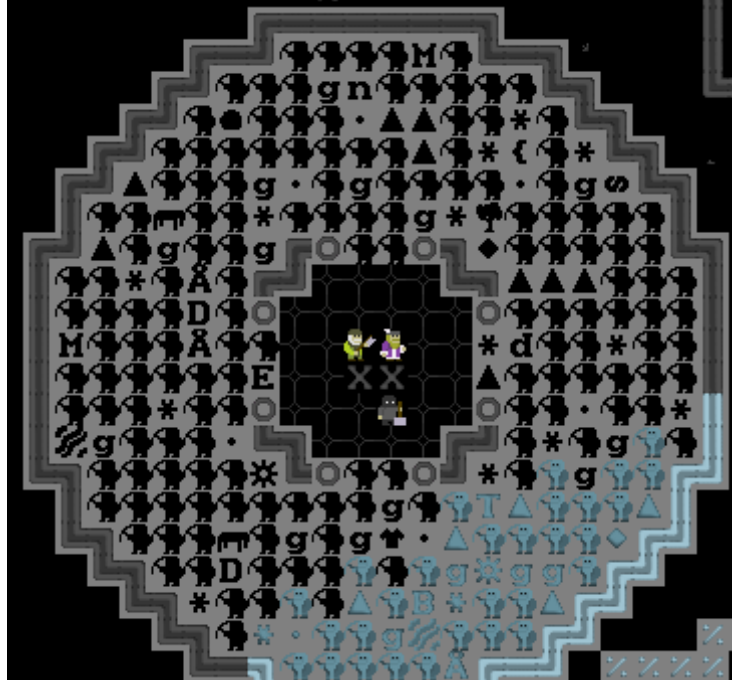




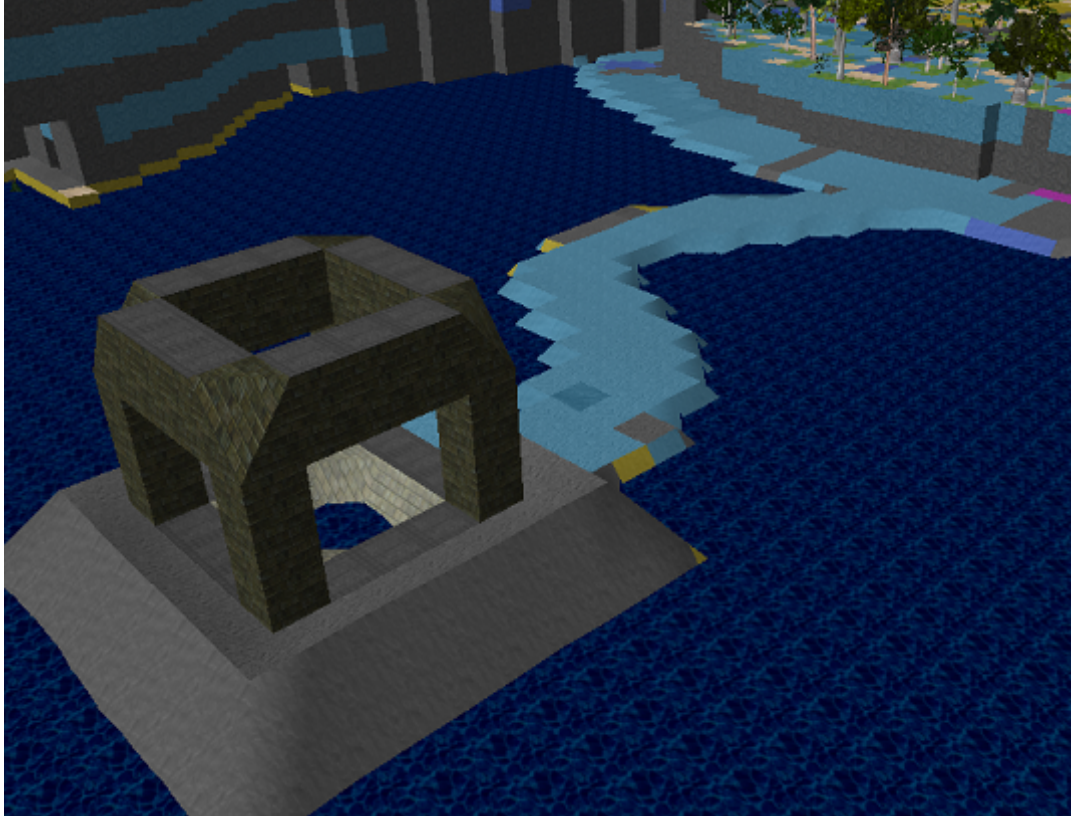
I am immensely proud of this cavern, which was the first thing I visualized when getting ideas for Undergrotto. The above view is from a mid-level alcove that the previous cavern connects to. We'll start by going to the right and will eventually make our way around the entire cavern.



Heading down a slope we find ourselves in a large tower-cap park. There is an artifact statue hidden among the mushrooms that turns the entire plateau into a statue garden for dwarves to relax in, and traffic orders over a decade or so caused the caps to grow thicker in some areas and thinner in others, making a pleasant path for dwarves to stroll through. To create the park I had to build scaffolding below the plateau in order to build walls – I was very picky about what would get muddy and what wouldn't. I don't harvest any of these trees – there's a separate tower-cap farm elsewhere.



From the park there is a small entrance to the archives – 360 tiles are engraved per year, and a new level is dug annually. I mistakenly thought DF months had 30 days instead of 28 when I planned it out; I pretend the extra 24 engravings are like ‘the best of the year’ kind of thing. Neither of my preferred visualizers show engravings yet, unfortunately. We exit the archives and stroll back through the park, following a ramp off the plateau and to the lakeshore.

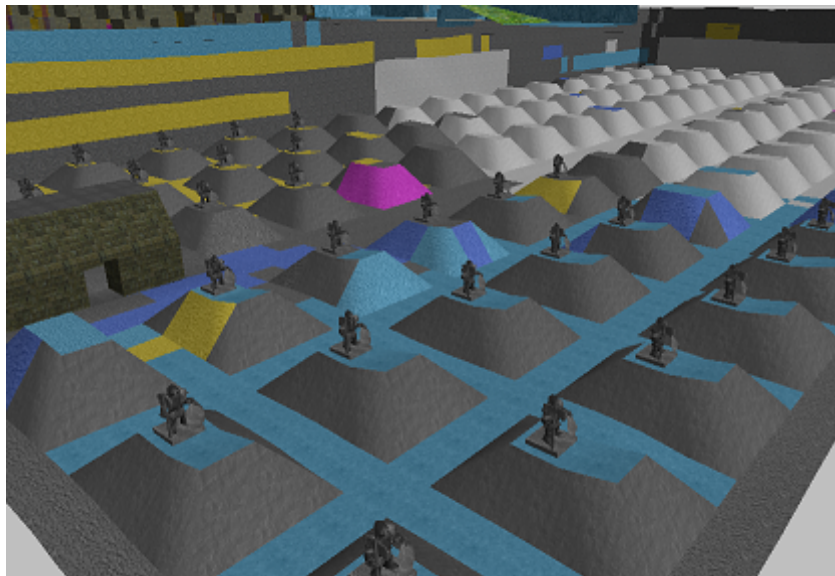
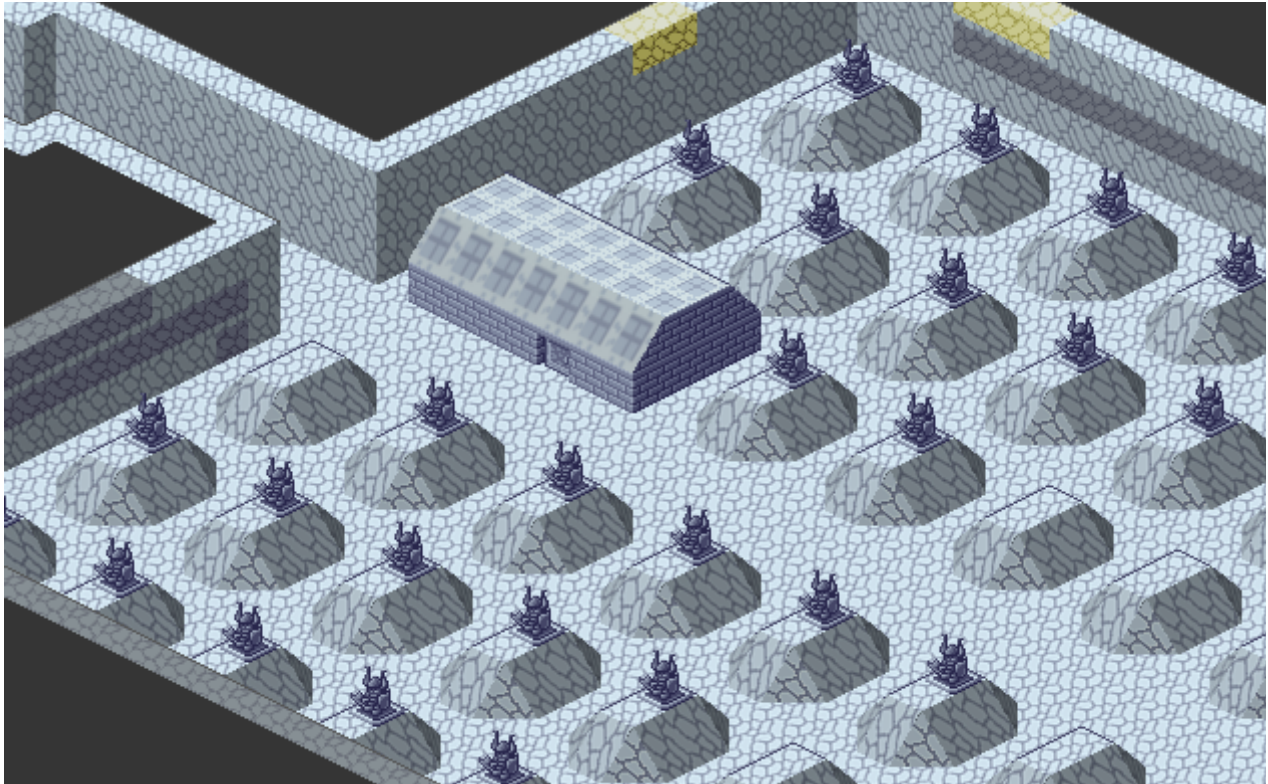


The lake is probably the centerpiece of the grotto; it's only 2z deep, but is rather large and peaceful. It's fed through a three-pump-wide stack drawing directly from the underground river's waterfall source tiles, which refill near-instantaneously and can feed pumps faster than aquifers. In the center of the lake is the shrine to Armok. Unlike many other places of blood worship, this one is rather small and simple. It makes up for its plainness in function, to be showcased later.

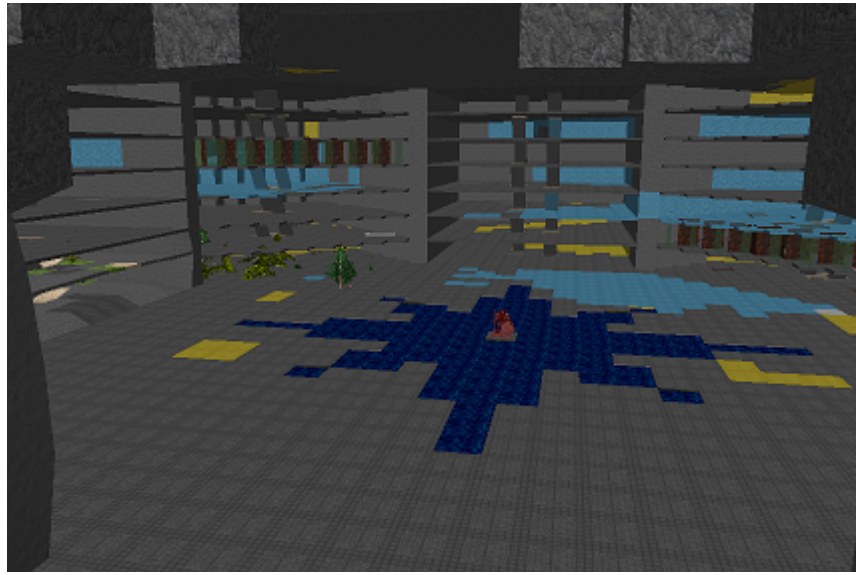




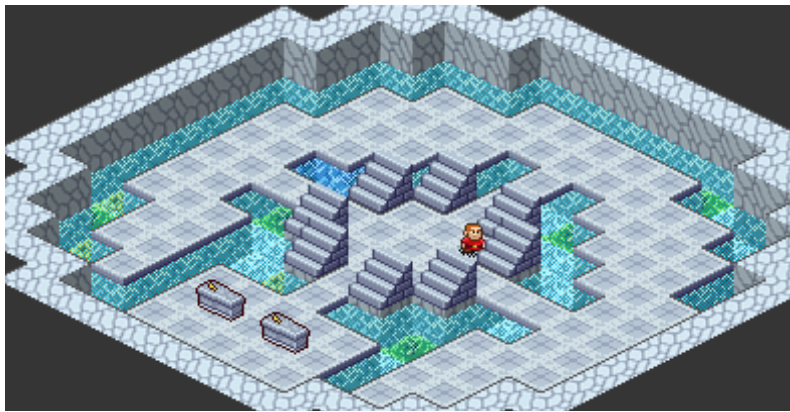
Over to the side is the beach, where the Rummy Dodger is anchored. The beach is one of the few things about the grotto that is artificial, as will be explained later. The Dodger is a sail-less ship that serves as the alcohol warehouse for the entire fortress. I like to image the dwarves drunkenly rock from side to side in time with the ship. Cap'n Flask is in charge of the ship, but I thought it was more appropriate to give him the custom profession of Drunk rather than Captain. He does have a gear assembly that he plays with like a steering wheel sometimes though. Ship's 100% wood aside from the gold-bar railings.



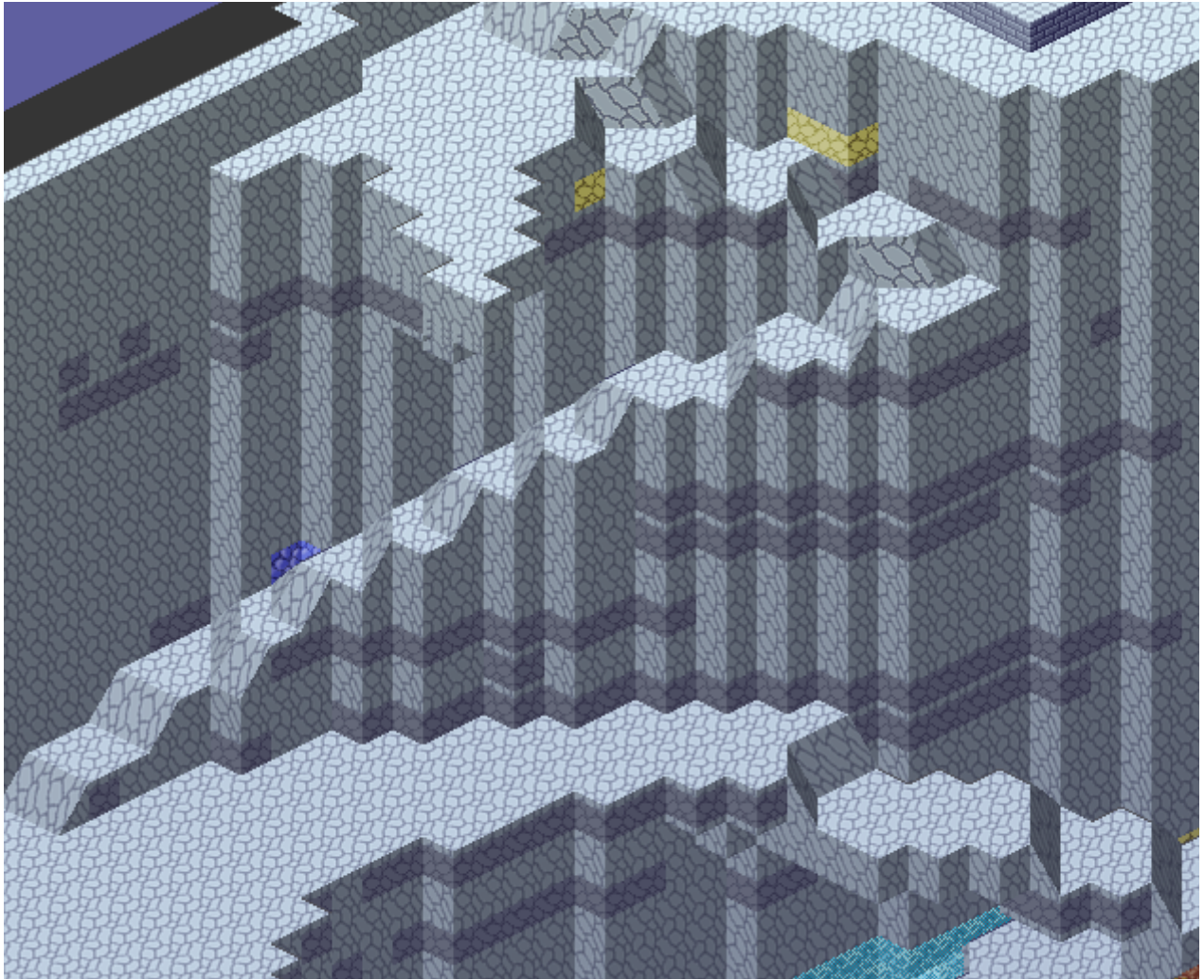
A cave in the side of the cliff face leads down a short tunnel away from the beach and into the graveyard's chamber. Mort, the undertaker, has a small shack here from which he accesses each tomb (he's the only one with the Burial labour). I give each deceased dwarf or pet a mound with a coffin underneath; occupied mounds are marked with obsidian statues as headstones.



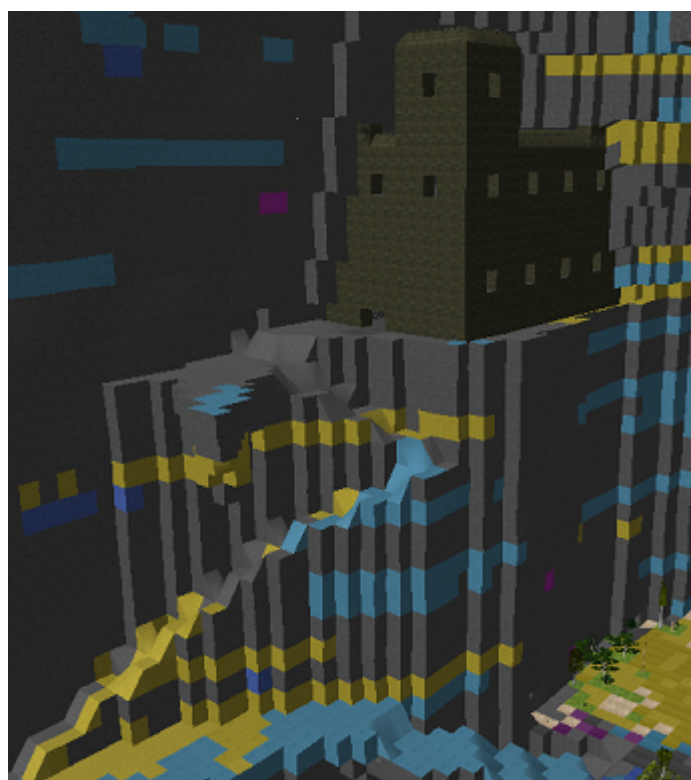
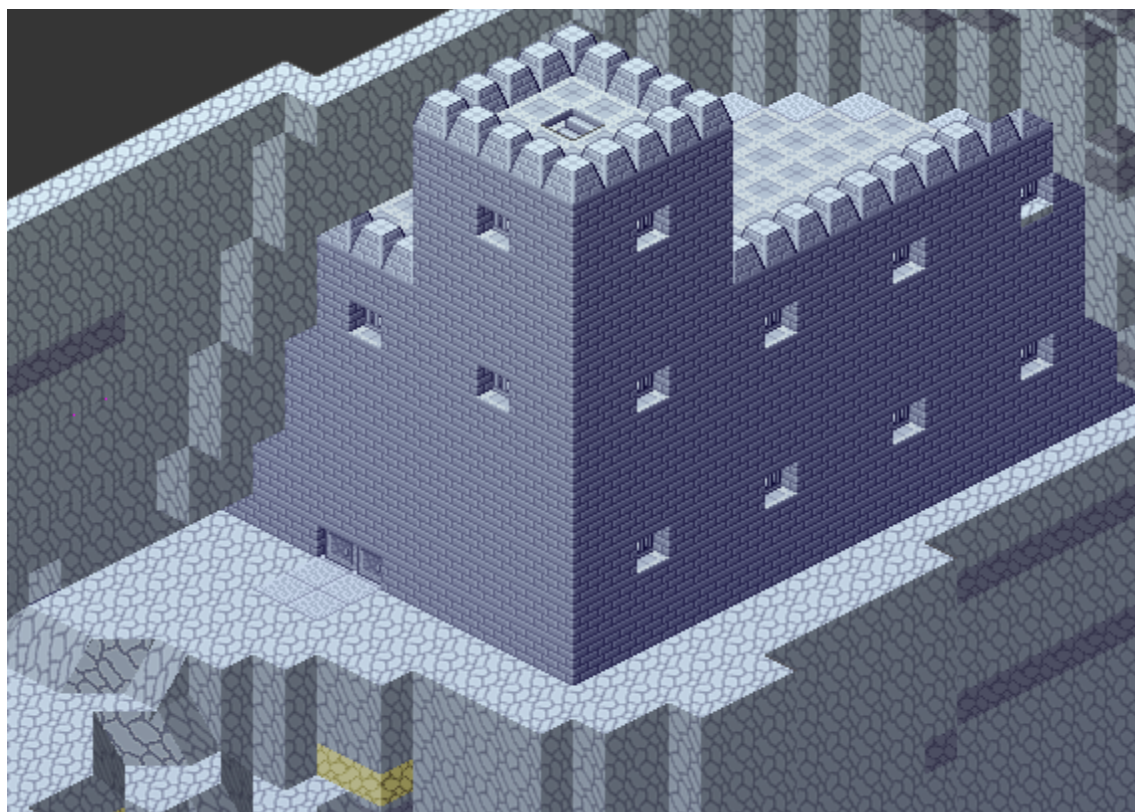
Returning to the beach, we pass under a small arch and arrive at the Industrial Plaza. As of right now, there is absolutely nothing my dwarves need, and as a result I've mostly removed the stockpiles and workshops. I developed an industry theory a while ago that you can separate dwarven industry into organics, metal, stoneworking, wood/glassworking, and cloth, and are able to follow each of these industries from raw resource into final product in each of their sectors, along with a misc. sector for stuff like jewelry, alchemy, and siegeworking. To put the idea to use, I gave each industry a spoke on the gear. It worked pretty well in practice, except I gave too much space to the workshops and not enough to storage. I usually only have one or maybe two dwarves who do each workshop labour, anyhow.

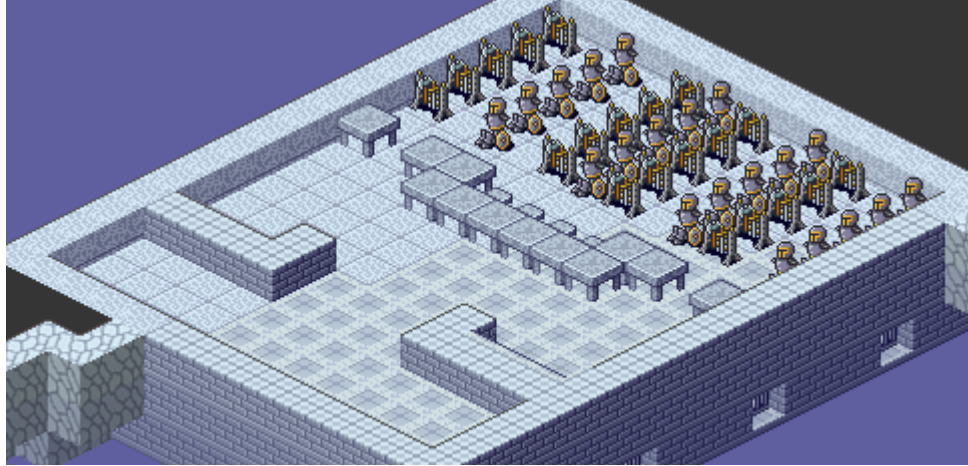
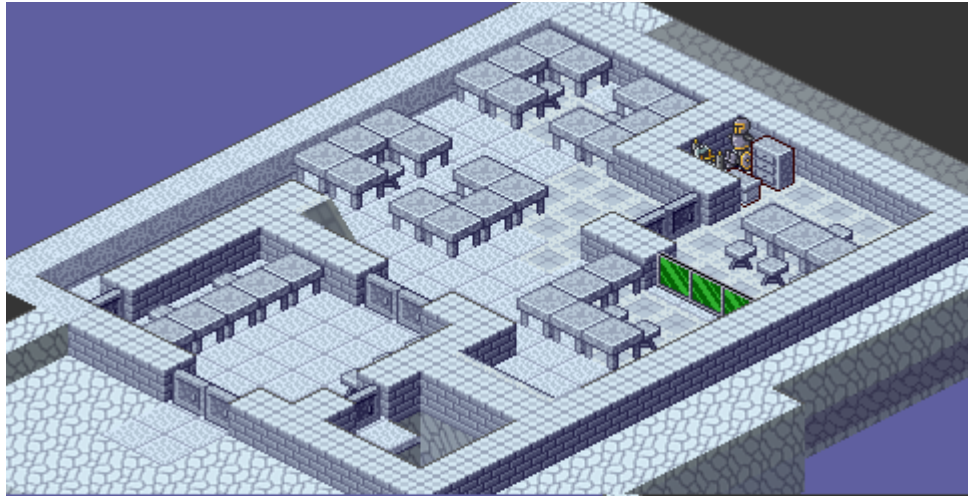


Through a small tunnel here we have the old abandoned miner's guild. Back when I needed a lot of miners, there were 32 regular offices and a larger office for Sickle, the head miner. Unfortunately I no longer need more than two active miners, so the guild was dissolved. When Sickle died, I turned her old office into a tomb for both her and Pick's coffins. These two miners are still the only two of the starting seven to die; the former was frozen during a winter aquifer excavation and the former died in a cave-in accident while hollowing out Mountaingate.

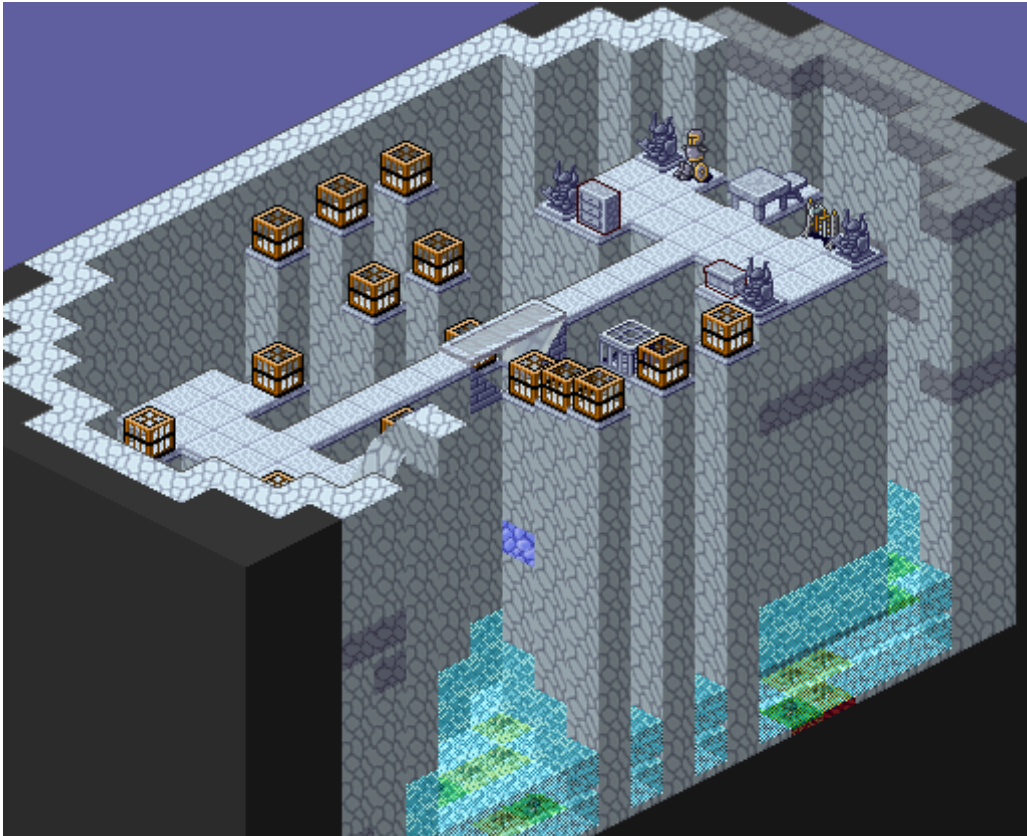


Returning to the beach then back up to the park, we follow an arch up to the social sector's plateau. Shortly we'll be heading to the central square, but first, let's go to prison!

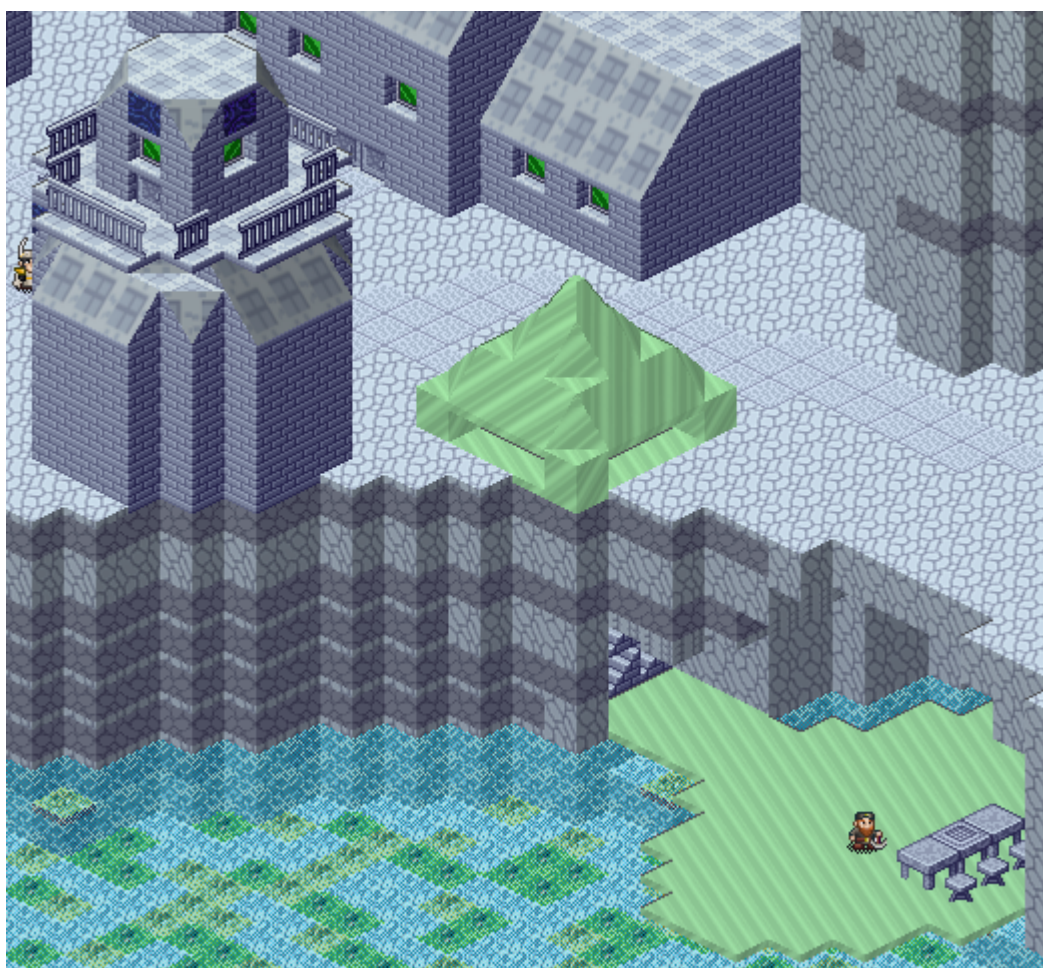


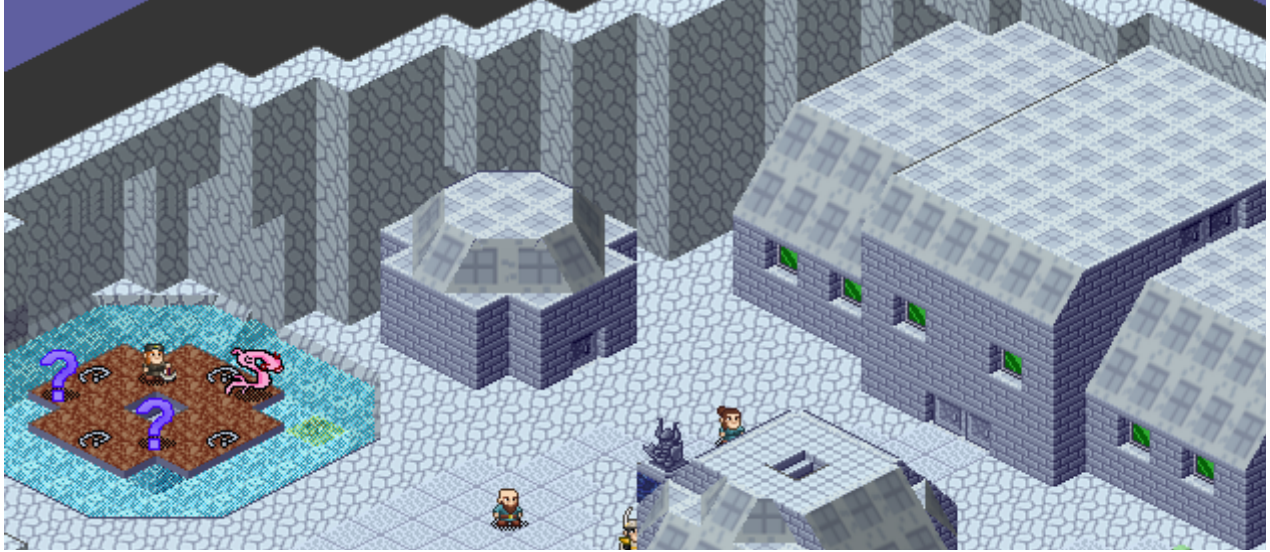


At the top of the slope on a lonely plateau sits the Undergrotto penitentiary. It has a mere twelve cells, two floors of six, but also has offices for each of the fortress guard as well as a watchtower, an armoury, and an illegal still (which explains a lot about dwarven justice – besides, even guards can get ‘hammered’ 🍷).

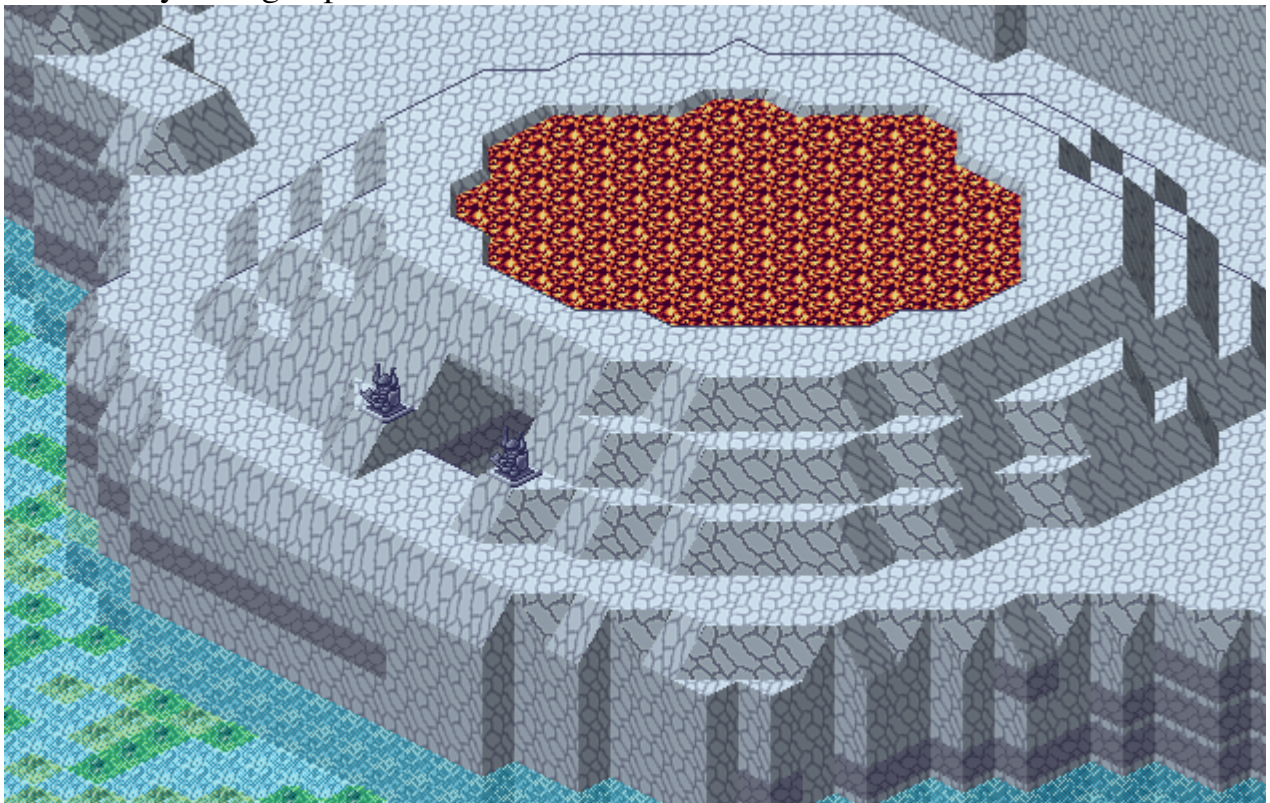


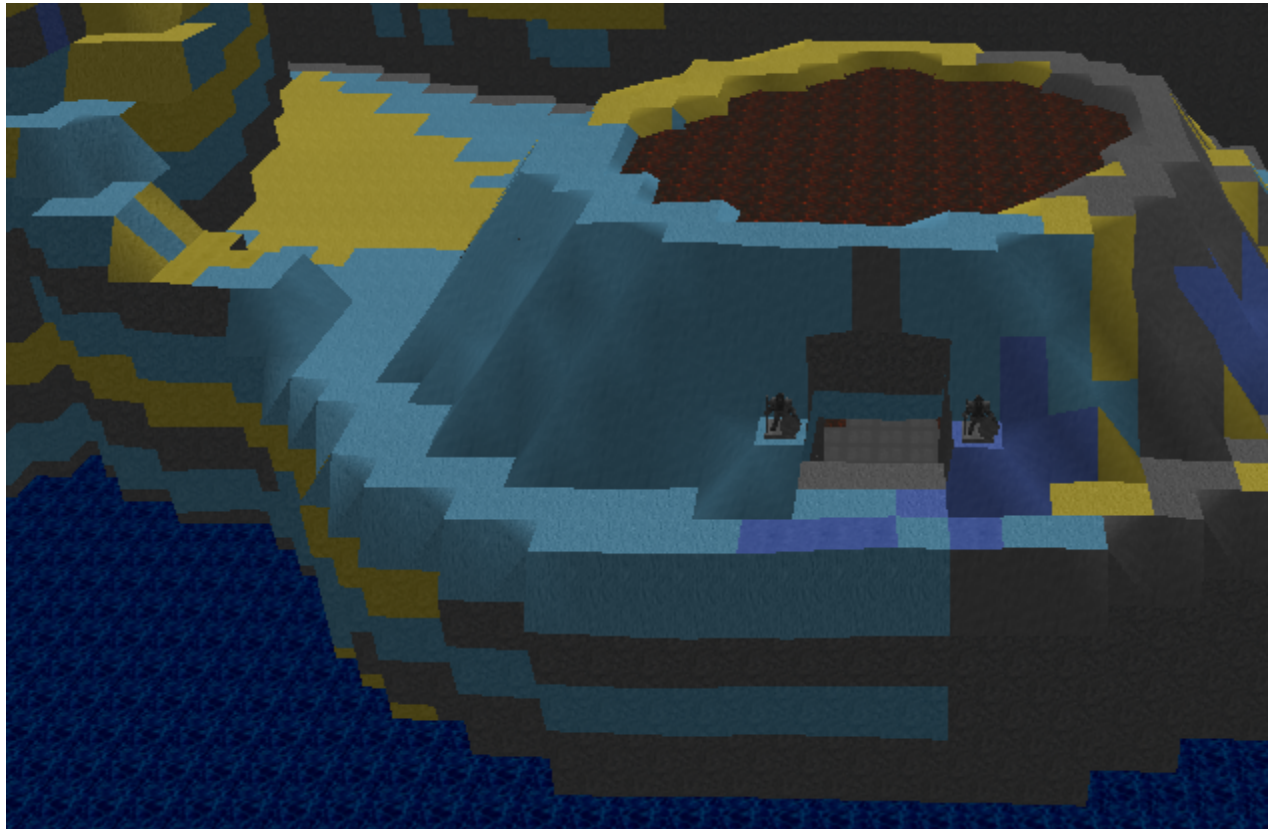
Below the penitentiary lies the Hammerer's dungeon. Two platforms, one shaped like an axe and the other a hammer, make up the cavern, which is coated in cages containing helpless and insane humans and elves. The platforms and thin outcroppings rise up from water far below. The hammerer enjoys sitting at his desk between torture sessions, listening to water trickle down from above as his prisoners cry quietly to themselves. I forgot to take VF screenies of this and don't have access to a computer that can right now, but you can go take a look for yourselves later.

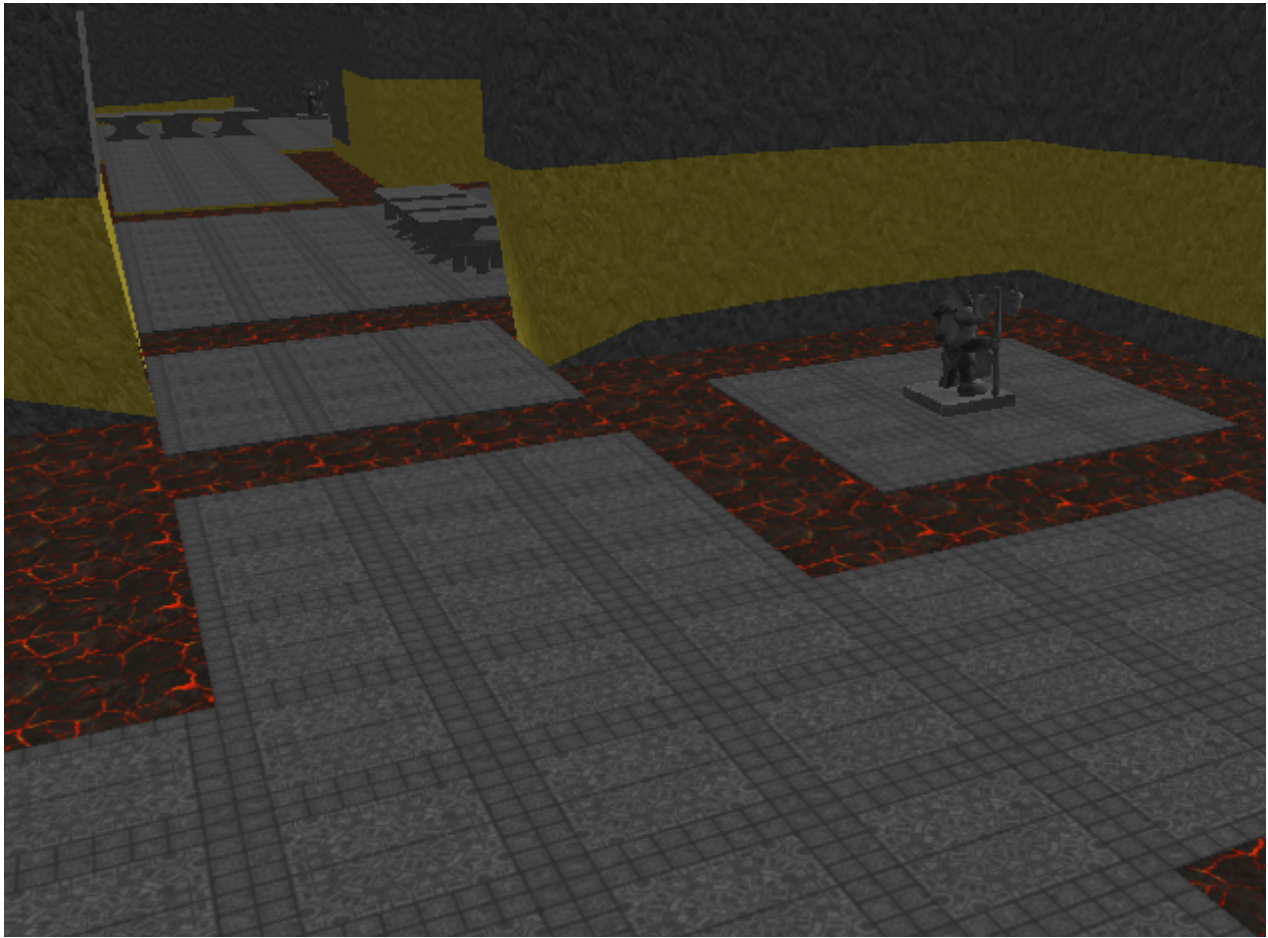




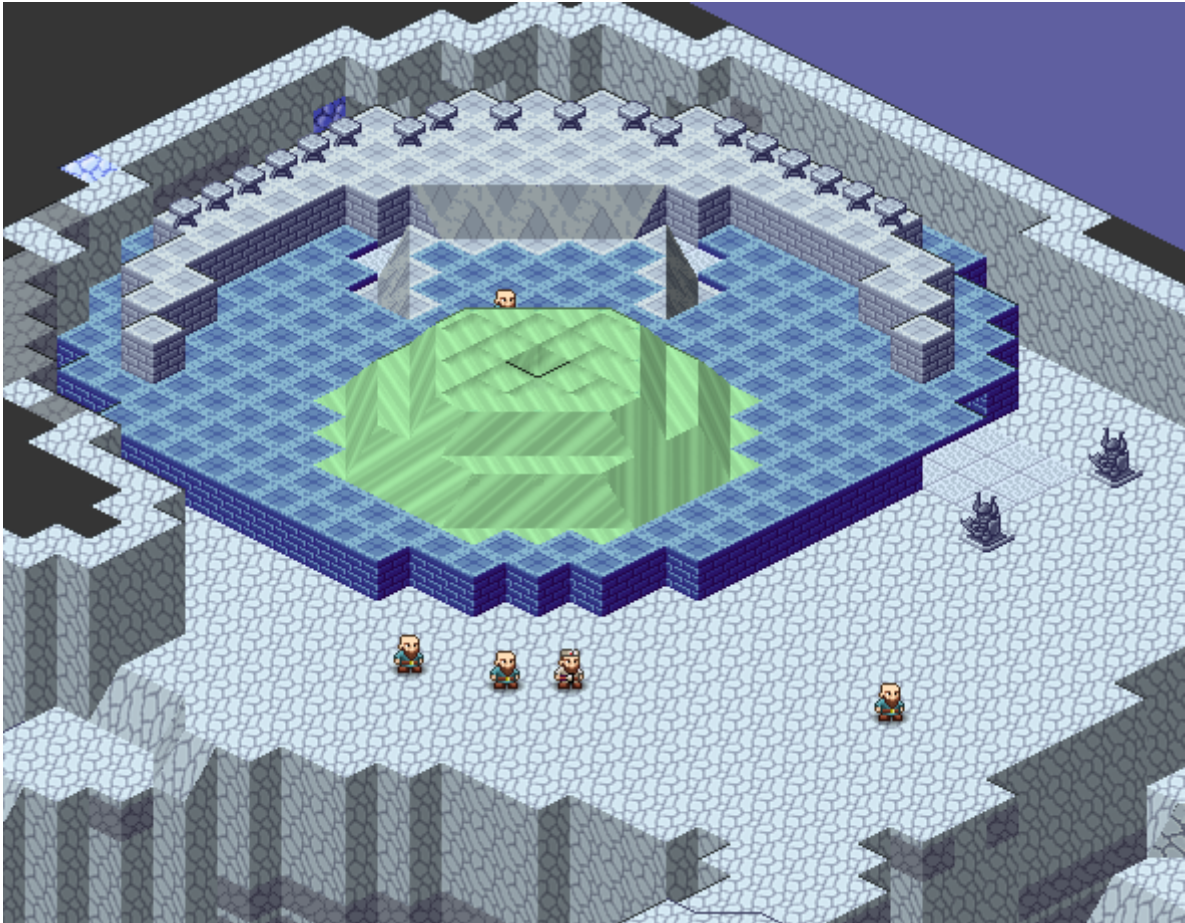
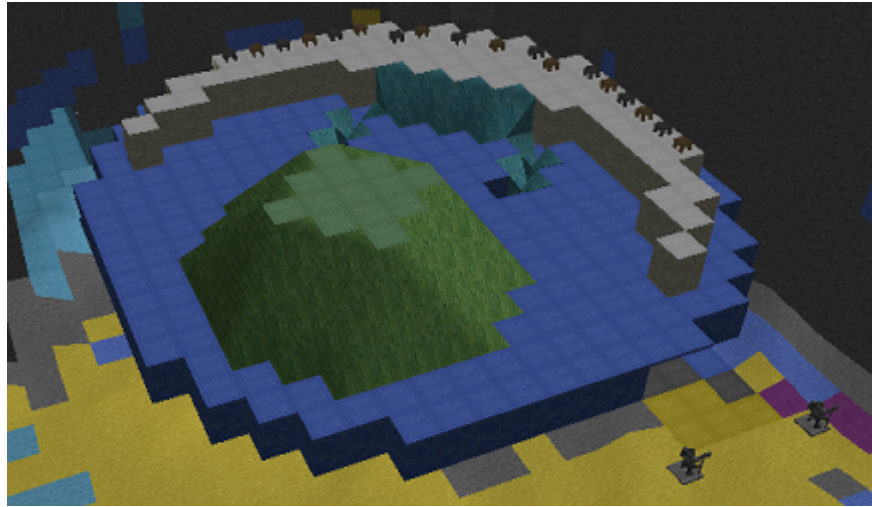
Leaving the jailhouse and descending down the slope we pass the hospital, with four cozy rooms and a private well for recovering dwarves (and a helipad), and end up in the town square. Here there is a lighthouse, with a small pond beneath it for reasons I no longer remember, the mayoral manor with many fine rooms, and the zoo, with two giant olms, a sasquatch, and a dragon on a platform surrounded by water. Until the Rummy Dodger was built, there was a pub here, but it didn't have nearly enough space to hold all the fort's alcohol.





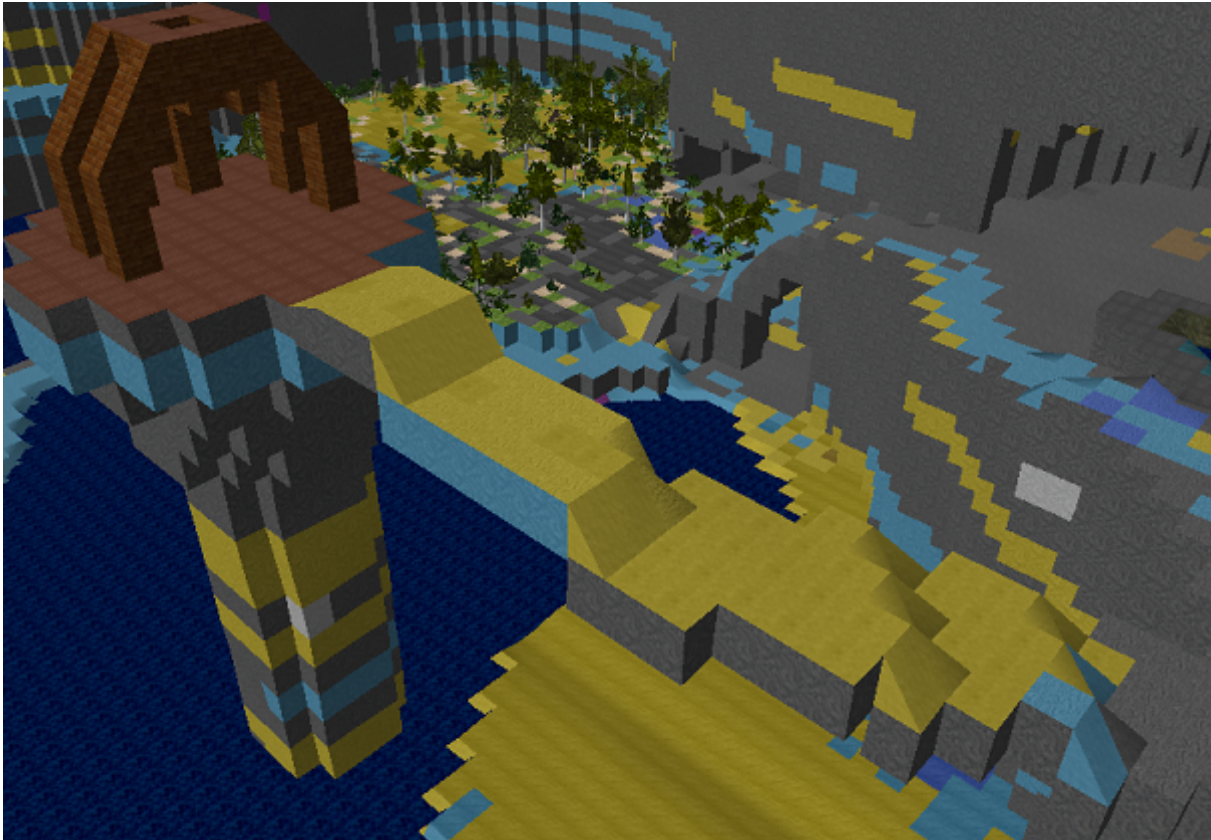


We continue past the social sector down a small slope to the magma caldera. Though completely useless and ornamental, the caldera was one of the first things in the grotto I'd envisioned. Later, while looking for somewhere to build the DM's dungeon, I realized how perfect it was, and created a tunnel downwards. The dungeon has lava running all along it, with grates connecting the platforms. All animal training is done here, and I even created a private swimming pool for my titan, Cerol. He swam for a decade until he became a level 62 swimmer with 8 strength, 10 agility and 9 toughness.

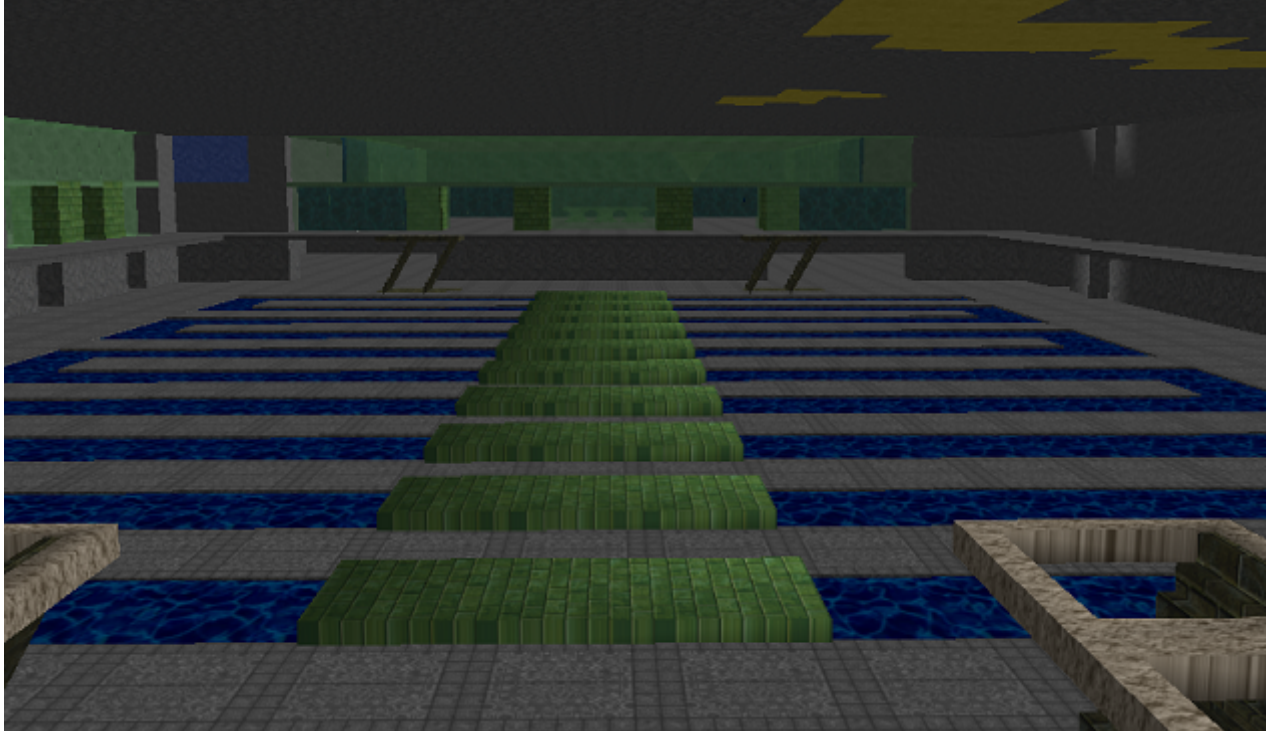


Cerol was recently moved up from the caldera dungeon to the Crescent Arena, where he is to do battle with the hydra Thicivi. The arena isn't as nice as I had wanted it to be, but with a small glass dome over the arena itself I think it does the job well enough. It's named after the moon-like shape the audience's area took on once I'd made the arena's circle take up some of the entire building's circle space. There's a very handy bridge system that allows you to prepare very dangerous critters without fear of job cancellations, escape, or them destroying your bridges.

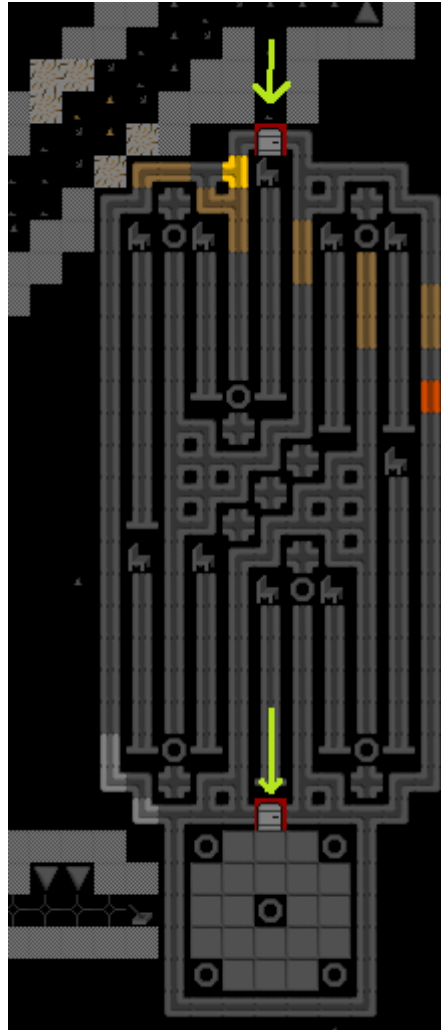




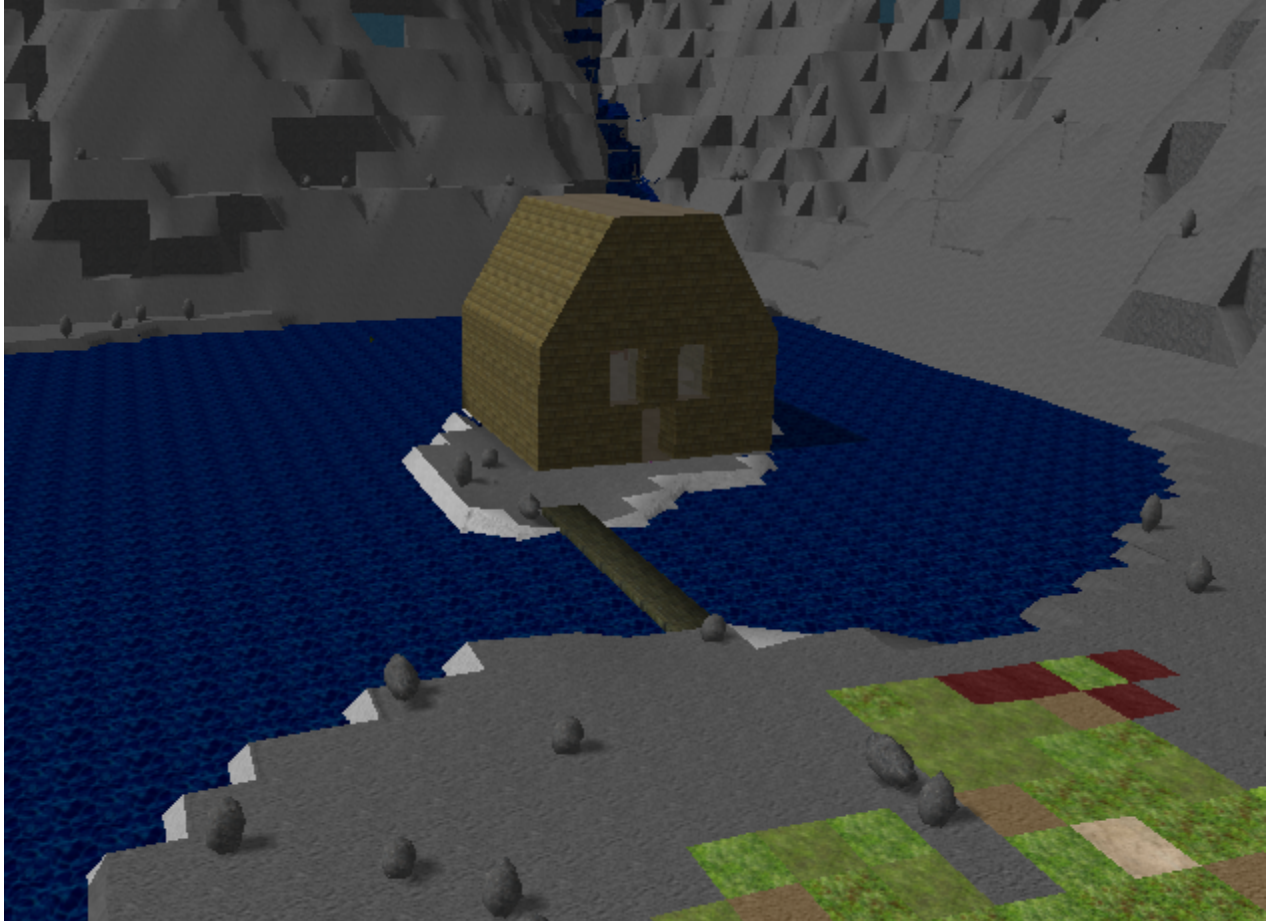
A winding path rises from the arena's plateau, but we won't follow it up just yet. First we've got to finish our lap around the cavern, so let's go down and follow the path around to the trade depot's post, resting towards the center of the cavern. The cage, a small structure around the depot, is what I came up with while trying to think of how to make the depot impressive. It's appropriately named as I routinely catch trading humans and elves, and is built entirely out of copper, with the depot in black bronze.



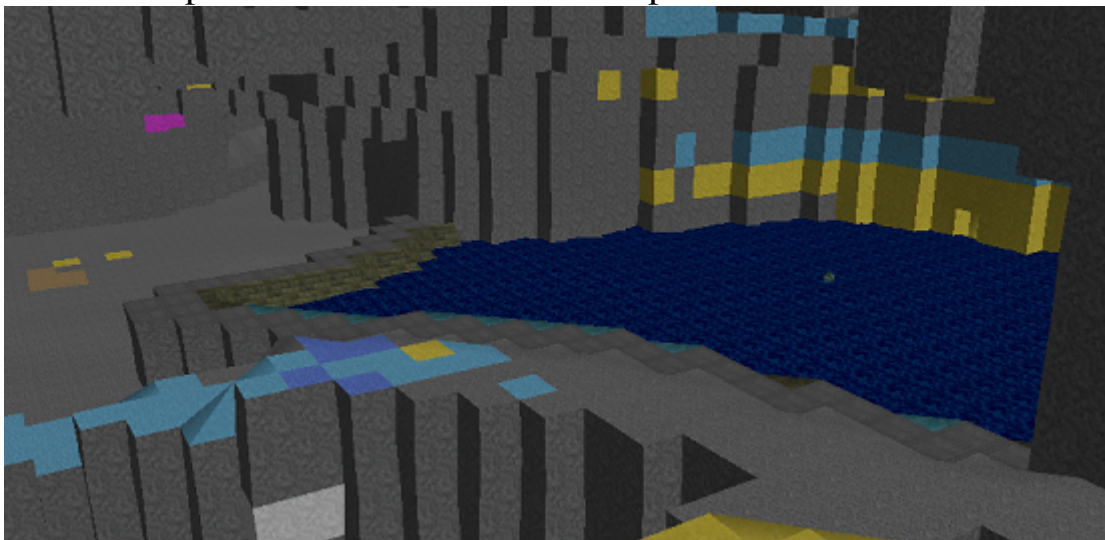
A small square hole in the wall near the depot leads down to a very large room with water crisscrossing across the floor. This is Engineering. The current setup generates a mere 4000 power, but I could easily adapt it to generate 5000, or expand it much more if I wanted. Mostly it just powers the huge pump stacks I have running. The original system drained from the brook above and poured into the underground river's chasm, but a tower cap grew in the system so I blocked it all up and now it feeds itself. On the catwalk above, all my engineers have impressive green glass offices with their own private workshops. The head engineer, Gear, has an aquarium office because I thought it was cool.

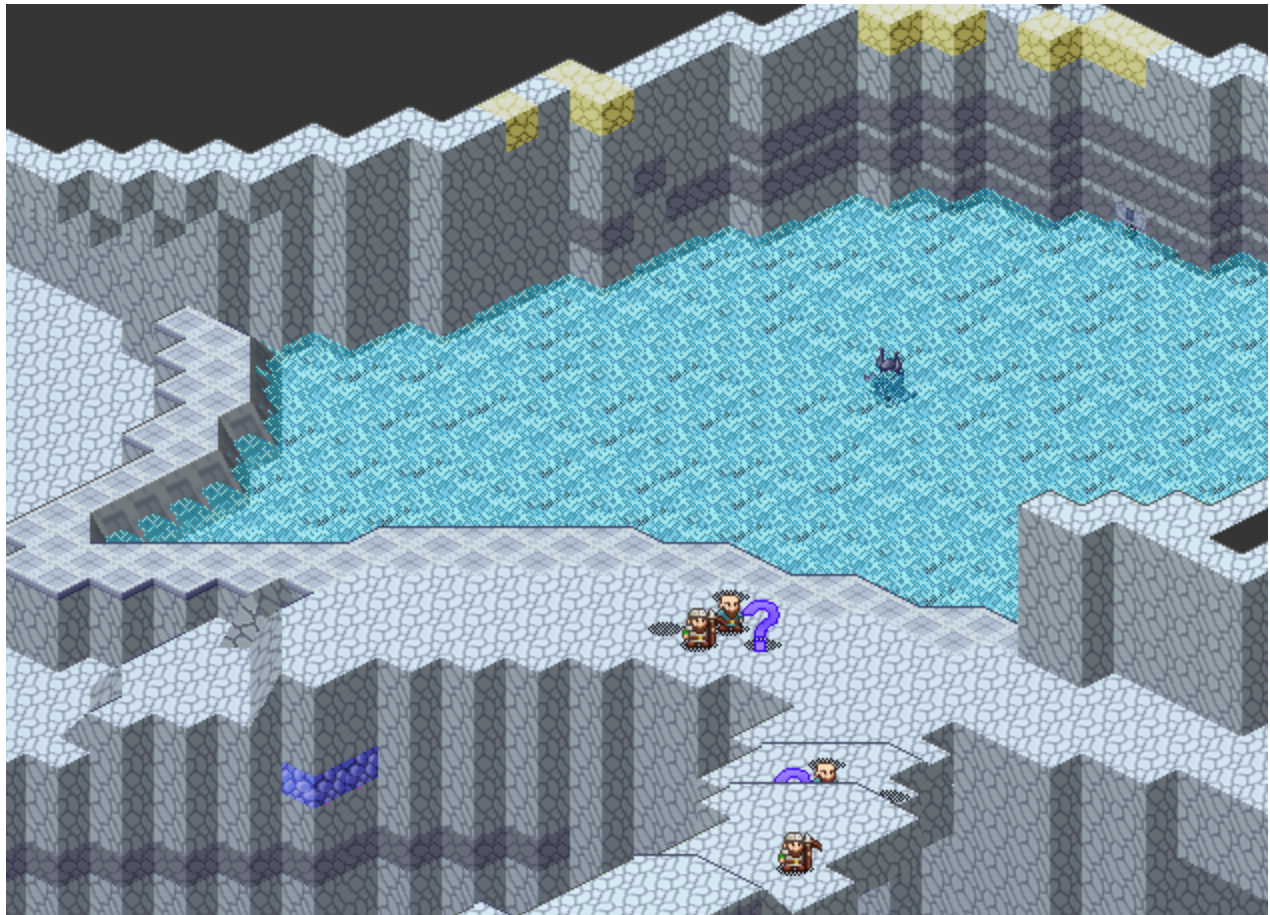


At the back of engineering there is a complex path of bridges. This is an elf trap – as elves don't bring wagons, they instead path to this much-closer depot. While walking through the trap to it, I pull the switch and they all fall onto the below cage traps. It's a pretty fun system.

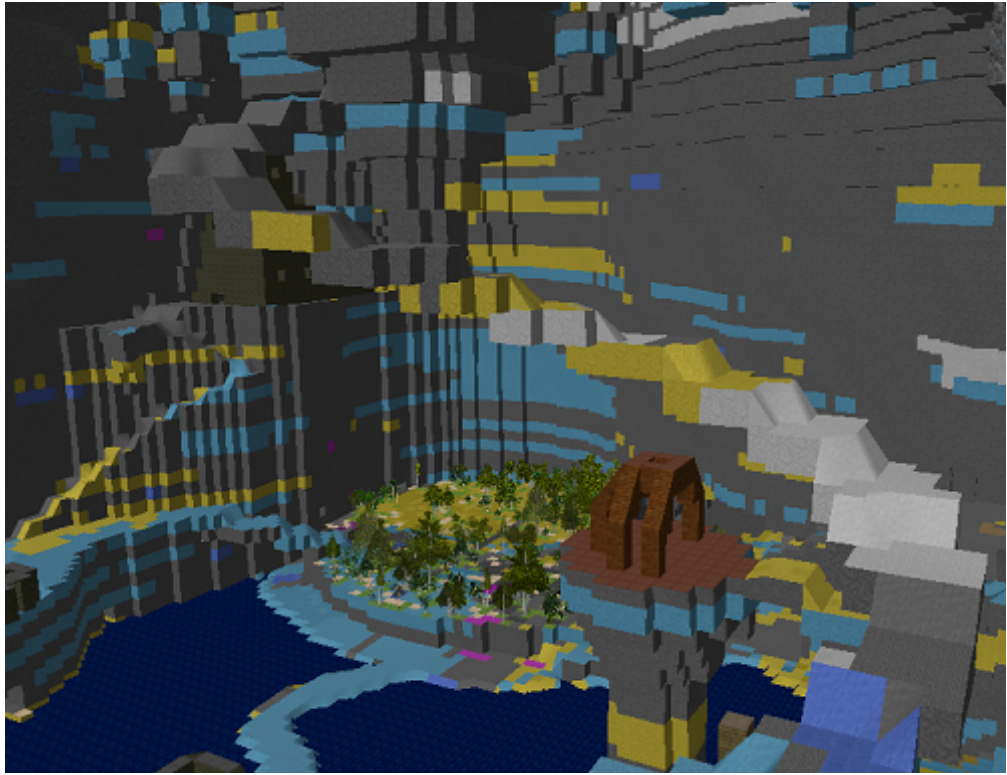


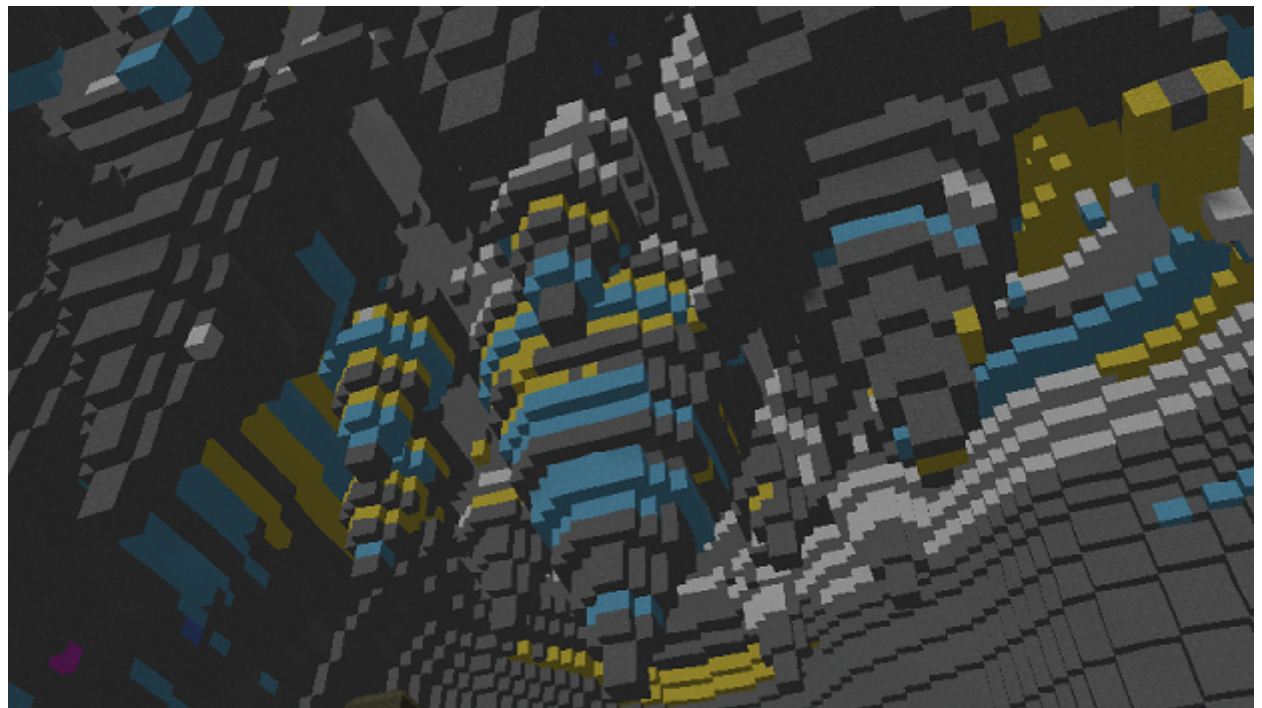
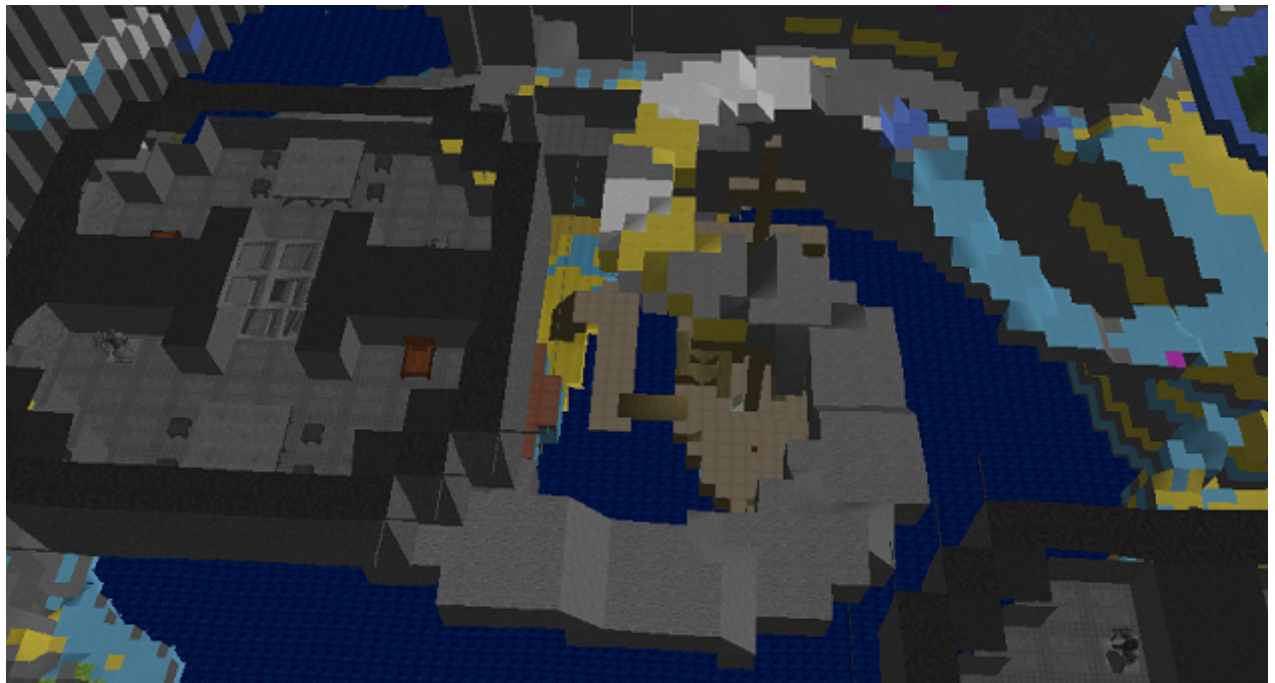
There's another path back here that leads upwards into a small wooden cabin. This is Hermit's house, and the back entrance to the fort. The cabin sits in the center of a dwarf-made lake, and has a drawbridge to the mainland that's operated only by Hermit, the bridgekeeper. There's an iron fence set up so that even in winter it's protected.



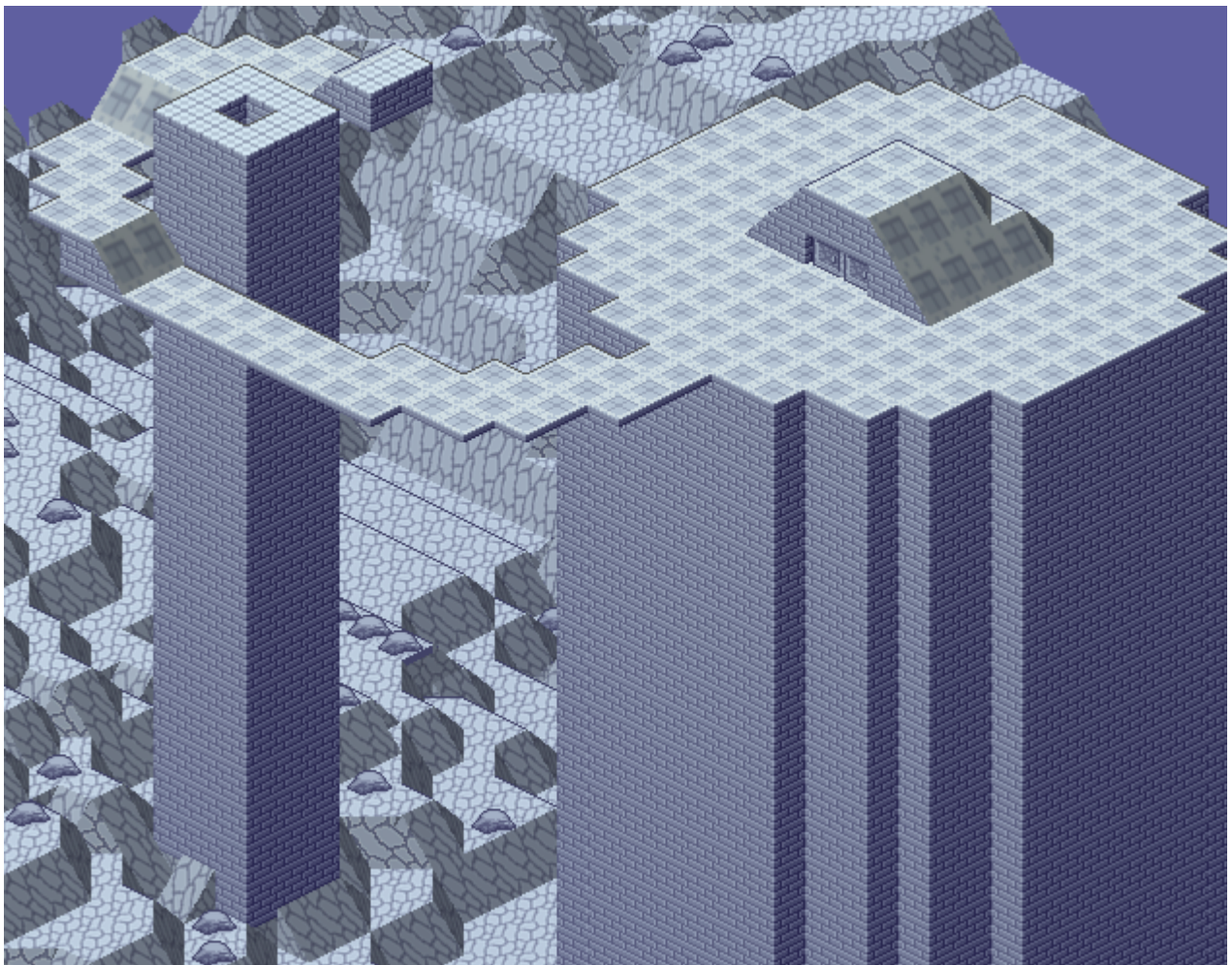


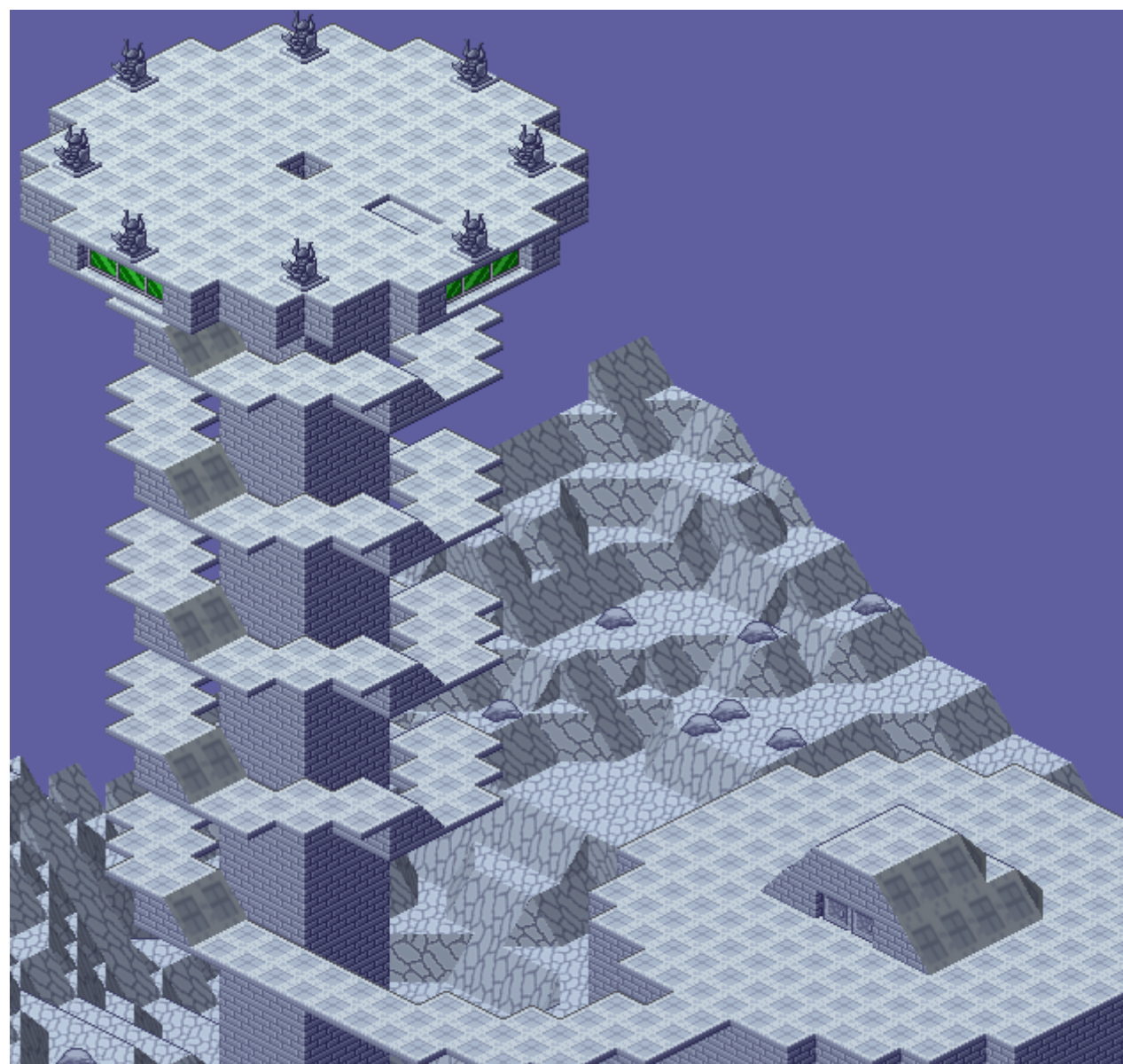
Going back through engineering and back in the main cavern, we see to our left a large pool. I had hoped to train all my dwarves to legendary swimmers here, but 3/4 was too low to give experience and 4/7 was too high to get them to path in, so all I got was dangerous terrain spam. Now it just adds colour to the grotto. We could continue past the pool down to the alcove where we originally entered the cavern, but instead we'll go back to the arena's plateau and head up that winding path... in the next spoiler!





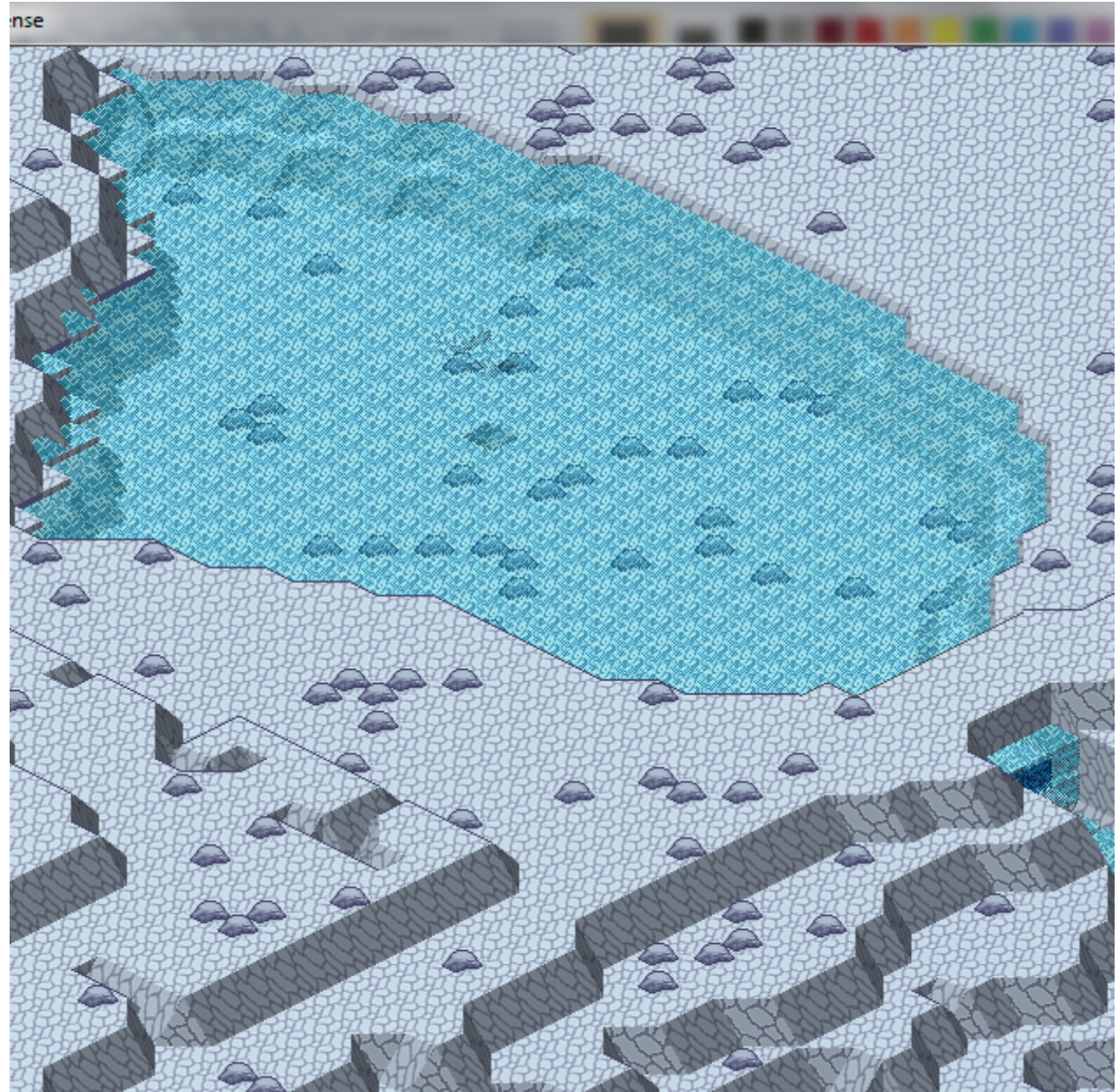
Higher and higher through the cavern we go, twisting around, until we come to... the base of a stalactite. I really, really, really wanted to have stalactites in the ceiling of the grotto, and although I think they turned out pretty well, they were hell to designate. Within the five biggest stalactites lie 190 rooms – 10z per stalac, 5 stalacs, 2 dwarves per room (ALL are married), 2 rooms per z-level, minus 10 rooms that serve as access points between stalacs. The dwarves have rather nice accommodations – double doors lead to a full living room table (four tables, four chairs), a cabinet and chest by the bed, and a personal statue flanked by an armour stand and a weapon rack, all obsidian and either exceptional or masterwork. 100% of the rooms are engraved, and altogether the worst of these 190 rooms is ‘Grand.’ One of them is Royal enough to rival my king’s bedroom, since a native gold vein ran through it.

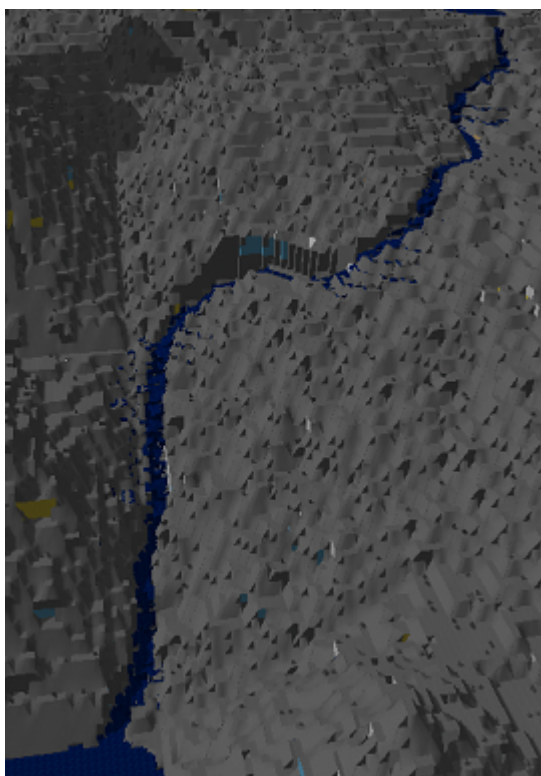
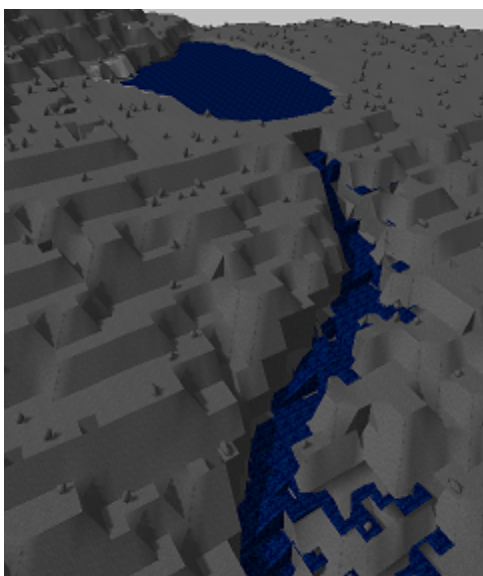


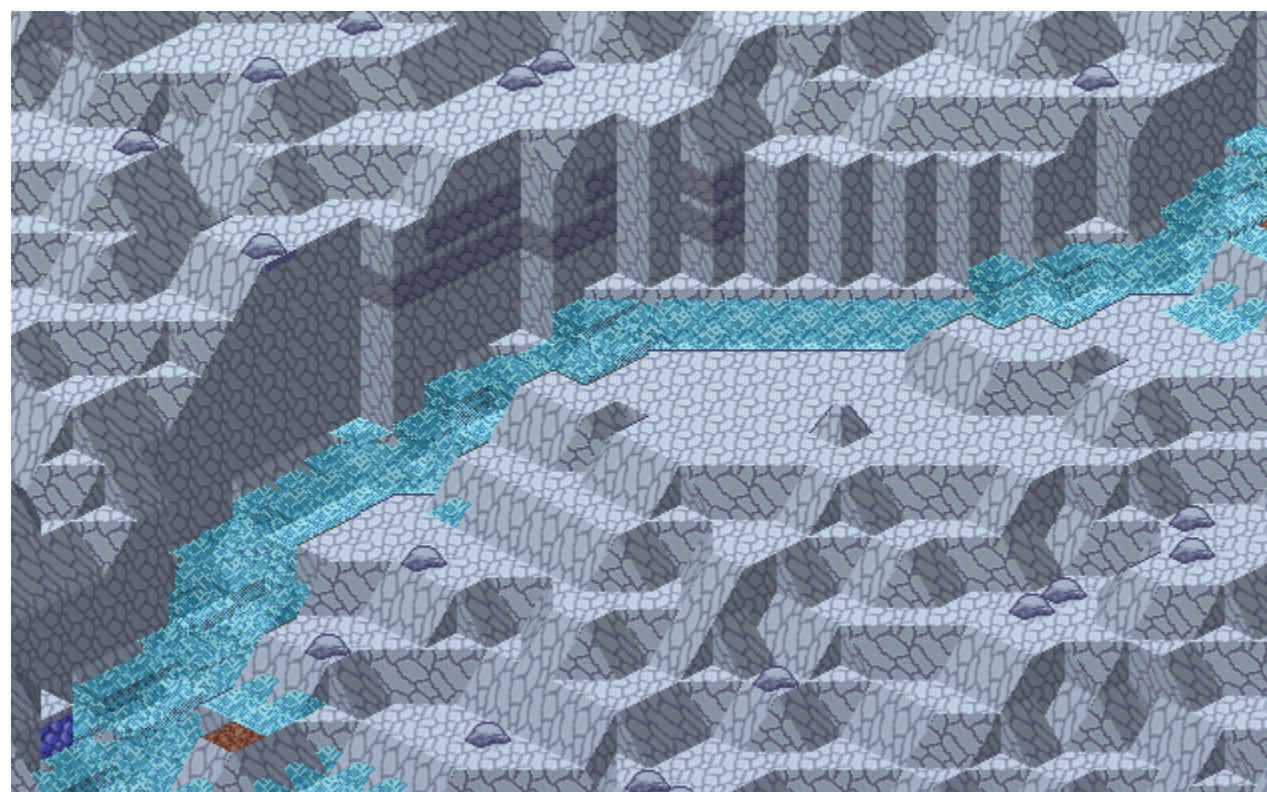


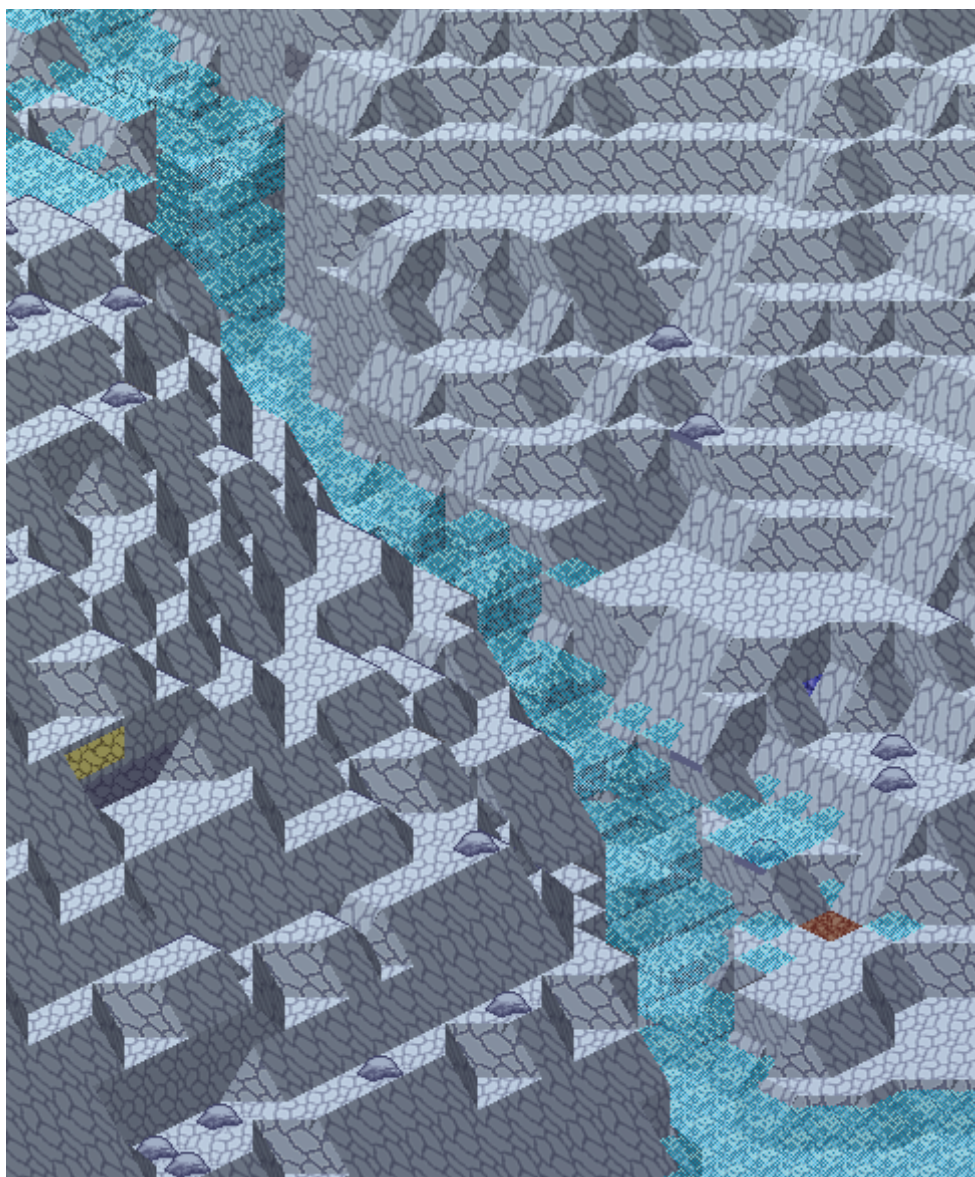


Continuing up the stairs within the first main stalactite we suddenly get a sense that we are no longer in the mountain. This is the access tower, rising high above the landscape. The access tower is largely bare and serves only one purpose. At the top of the tower, double doors lead out to a suspended spiral path circling around a thin stone pole ever higher and higher. This is the droptower, extending to the very top of the nearly 100z map. There is a small viewing pod at the top of the tower which has a view windows from which the entire map can be viewed.





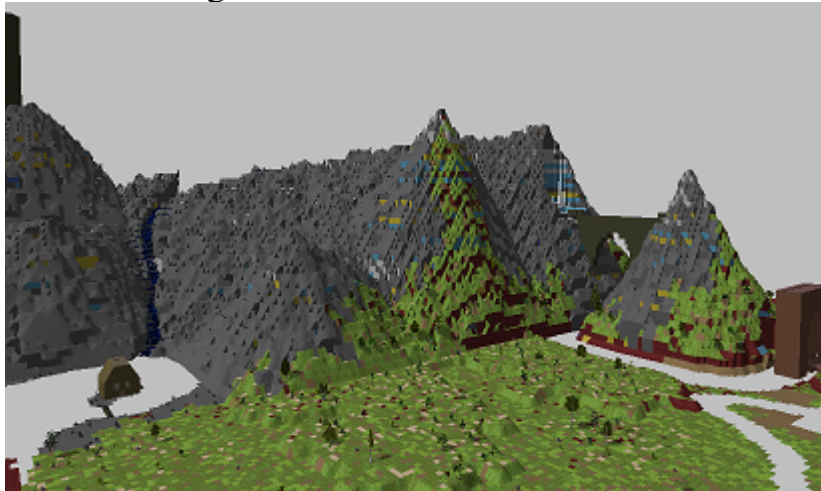




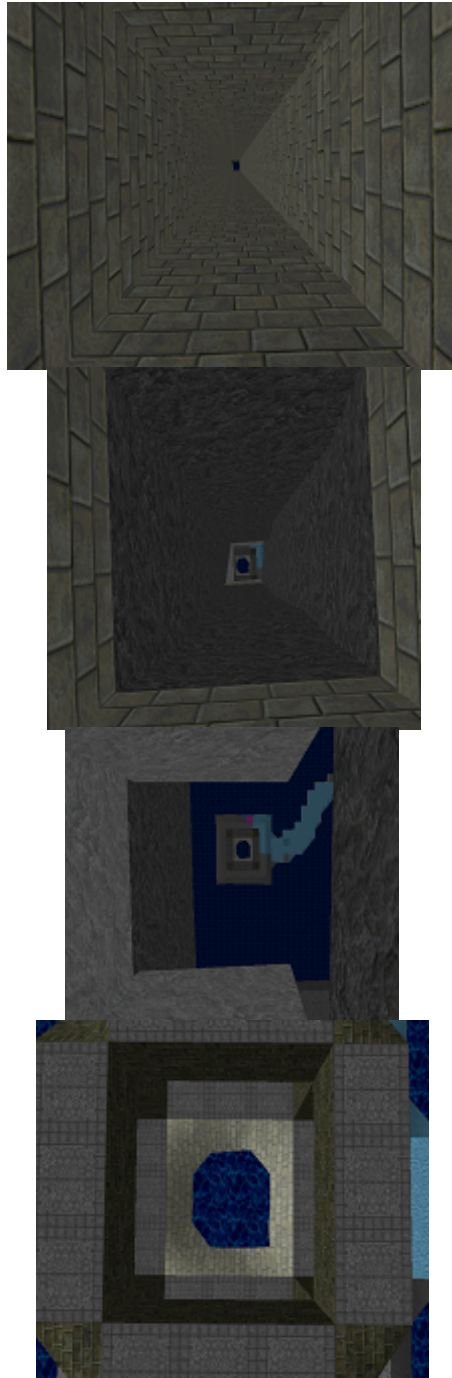
Far below, but still high in the mountains, a small spring can be seen. This spring of mysterious origin pours under a small stone arch and then trickles down the mountainside, sloping down into the outdoor lake seen earlier. There's no overflow as the lake and former brook are connected to a lot of aquifers now – the map has a ton of weird little mini aquifers on the eastern biome. I think I did a pretty good job at getting the spring to not spill out everywhere, considering I'm no professional designer or anything, though there's a bit of 1/7 splash puddles here and there. The spring is absolute hell to FPS, so it's only running ornamentally for the purposes of screenshotting. Your small, curious dwarven child may say

that he thought he saw some kind of massive three-pump-wide 90z pump stack deep within the mountains feeding the spring. You laugh and tell him that he is a stupid boy and of course there's no such pump stack as that and asking too many smartass questions will get him tossed off the tower.

For comparison, here's shots of the landscape from before and after I embarked. Kind of crappy because the current version of VF doesn't have a full draw range (or I messed up a setting, take your pick). In the pic on the right, at the top left, that structure is the access tower – the droptower rises another 20z or so higher.



Above the observation pod is a small 1x1 hole into which goblins and other critters are thrown, with a bridge system to stockpile multiple goblins as well as block off the storing area so dwarves don't run away in terror. Multiple goblins fall 89z, but single ones require no bridge setup and fall 91z. The goblins fall down, down, down... the light beginning to fade from above them... suddenly the walls around them turn from constructions to natural rock, and still they fall, until eventually they find themselves in a large cavern. Falling between the stalactites and their many suspended walkways, the goblins see the cavern open up around them, and think, "dude, whoa." Moments later they fall in the small pool of water in the shrine of Armok, bloodying it (in theory; this didn't work out last time). A video is [here](#). Unfortunately I haven't gotten a goblin siege in quite some time, and human sieges are super annoying to try and cage, so I don't have a lot of creatures stockpiled for dumpin' purposes.

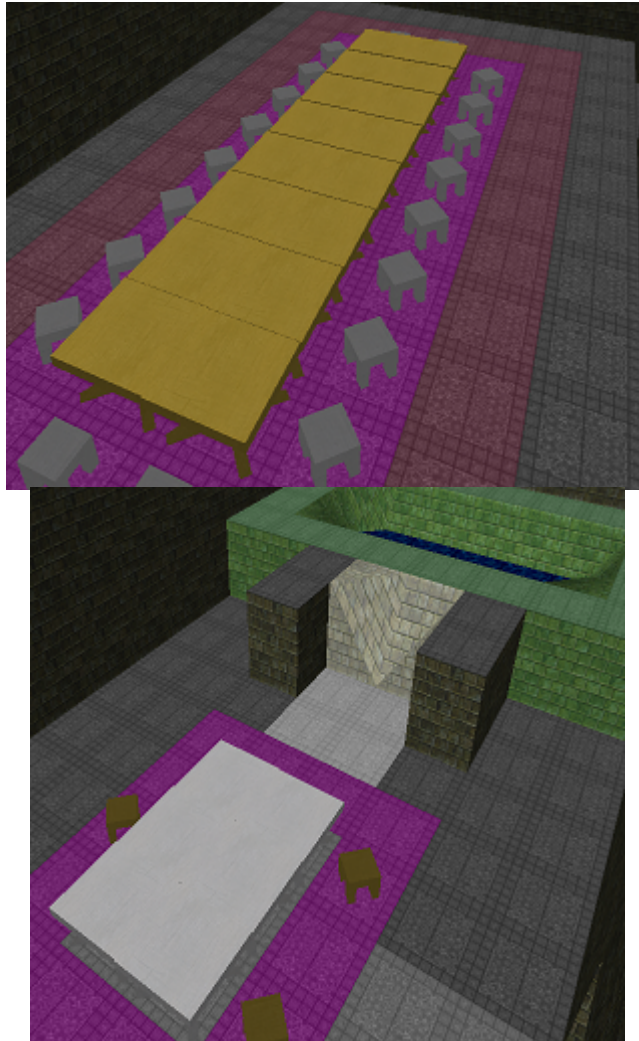


A goblin watches as his doom quickly rises to meet him. SPLAT!

Now that we're back in the cavern, it is time to check out Undergrotto's last secret. From the fork in the road where the tunnel in met the small entrance cavern, we turn and continue farther down the tunnel we had originally passed. After a few turns, the tunnel opens up to reveal the final cavern and the jewel of the fortress: The palace.

The royal palace is constructed purely of metal save for a handful of stone walls in the throne room hidden within the pillars as well as a tiny bit of green glass. I have 4447 metal bars listed as used in constructions on my z-stocks screen, and which means that when excluding the trade depot's 119-bar copper cage, 4328 bars of metal were used in the palace's construction (not including furnishings). It was constructed primarily out of gold, copper, iron, electrum, and billon, with many other metals being used for floor patterns and furnishings. I didn't realize the absurd amount of metal I had until I began this project – I don't use metal for anything, generally, I just hoard it and order more from traders in case of mandates – and along the way I continued to expand the scope of the palace. I'm still amazed I had enough at all.

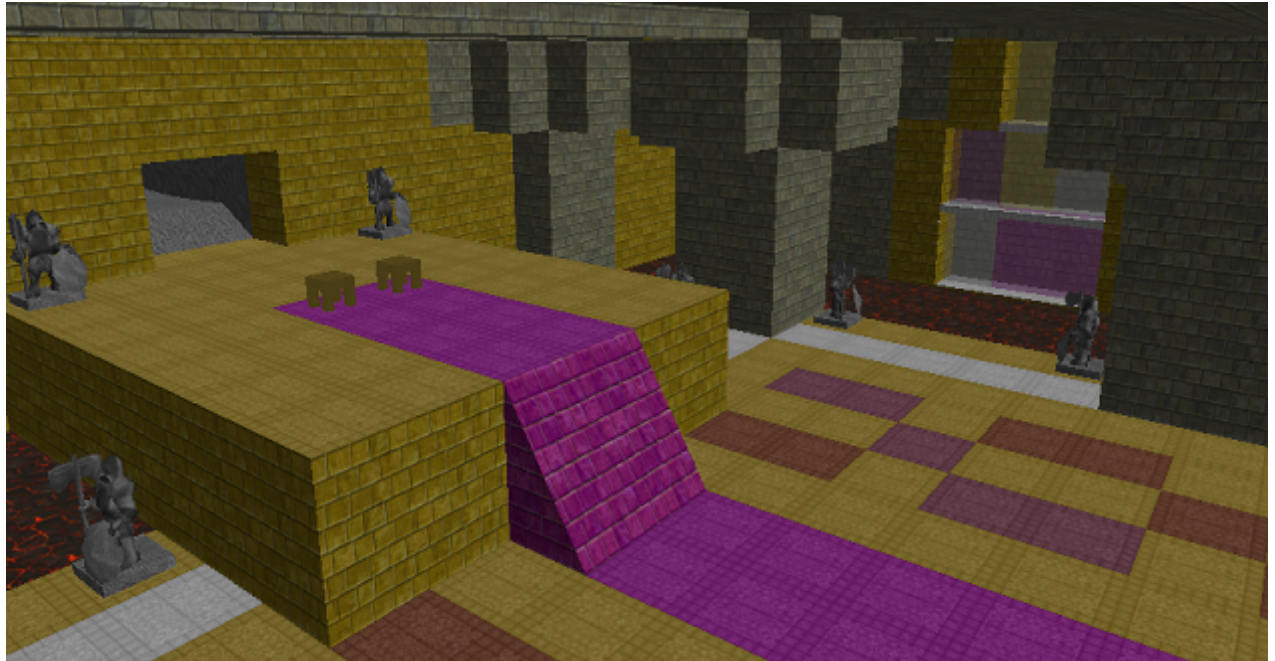




After following a short, winding path through a pool of lava, we arrive in the main atrium. A golden five-pointed star is inlaid on the ground, the symbol of Undergrotto's civilization, the Noble Handles. To the west we have the Royal Advisor's office, who schmoozes visiting diplomats into the royal jacuzzi and orders plenty of drinks. The green glass tub is filled with $\frac{3}{7}$ water over a $\frac{7}{7}$ magma tank beneath, perfect for dwarven relaxation, and has some noble-only levers set to repeated pulling connected to gear assemblies that operate as jets. The floor includes fine pewter, bismuth, and nickel bars. Leaving this office and crossing the hall we enter the grand dining hall, with silver and platinum thrones surrounding a massive golden longtable over rose gold and black bronze. All the nobility eats here in this wonderful room. Doubledoors discreetly set off to the side lead below, to where four kitchens and stills work furiously to prepare decadent meals for the nobles.



We ignore the southern doors in the atrium and head upstairs (this entire floor is made of billon, btw) to the advisor and chamberlain (tax collector)'s bedrooms. They are rather plain but nonetheless extravagant, with a shared balcony looking out over the magma lake below. Across the upper hallways are the count's chambers, significantly larger in size. The countess passed away long ago in a construction accident, but her body is enshrined here in the count's favourite sterling silver, beside his own tomb. His spacious room reminds him of his late wife, so I gave him a pet to keep him company. Snookums the elf sits on his floor and entertains the noble (custom profession: Cuddle Monster). The count also has a personal balcony with the same view as the other.

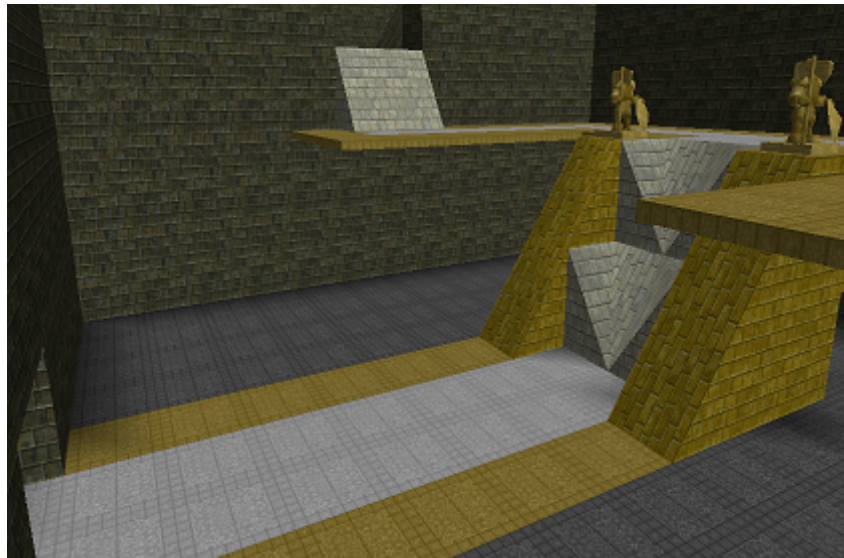
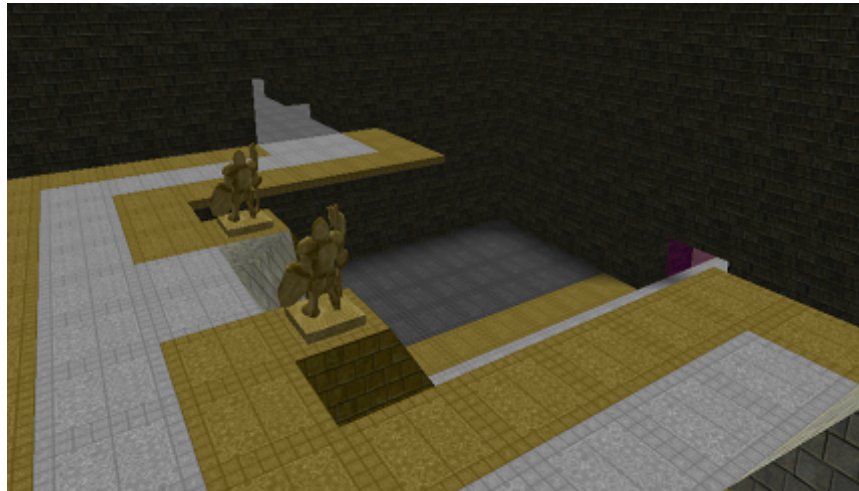


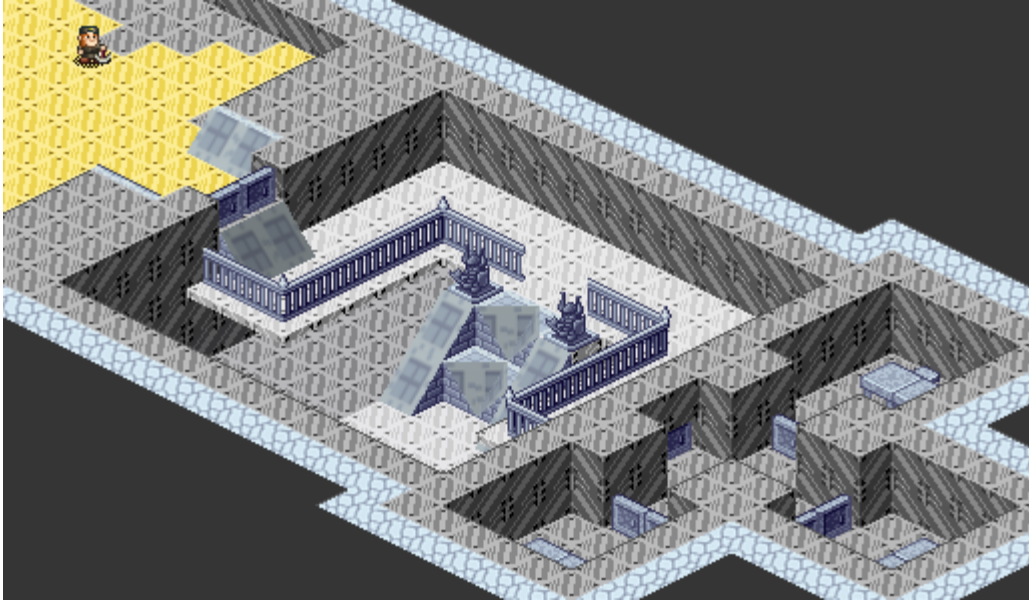
Heading even further upstairs and passing electrum statues, we rise into the king's royal throne room. The floor, surrounded by a river of magma, is made of solid gold with black bronze and copper designs and a rose gold carpet leading to the king's seat. The walls are primarily electrum, with six crystal stained-glass windows inlaid, and the arches across the room are billon. Many masterwork/exceptional obsidian statues also line the great hall. I actually went to the length of digging out *above* the throne room in order to put down an electrum ceiling and also continued building the walls out of metal on the magma's level, just so the top edge of it would still appear to be metal in visualizers. The king himself will sit at a golden throne with a artifact native gold millstone before him – it has a picture of him on it and is I think the most expensive artifact in the fort, so I thought it was appropriate, and it looked so nice I gave the absent queen one as well. The many furnishings around the throne are variously made of platinum, brass, rose gold, and aluminium.



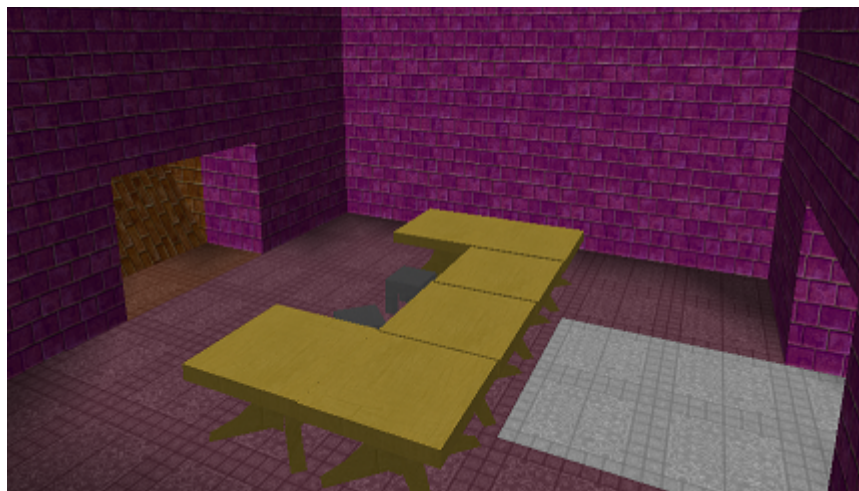
The king will actually be the most modest dwarf in the fort, living in a small 6x6, 1z high unsmoothed stone room. Both royal beds and tombs are located here, with a few stone furnishings – nothing high quality. The king's artifact scepter and artifact crown are both located here as both have engravings of him on them. I've also placed all the artifact furnishings here with the king's image here, as well as ones of the previous king, Iden (his father, actually). I imagine the king of the Noble Handles and lord of the Undergrotto is quite a humble dwarf, but I've yet

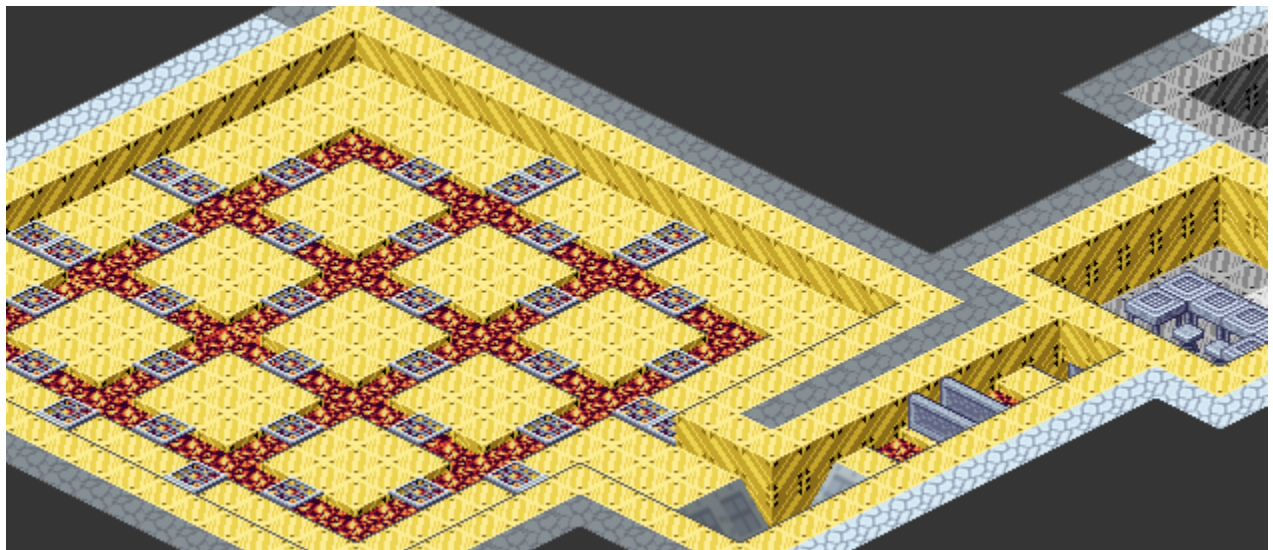
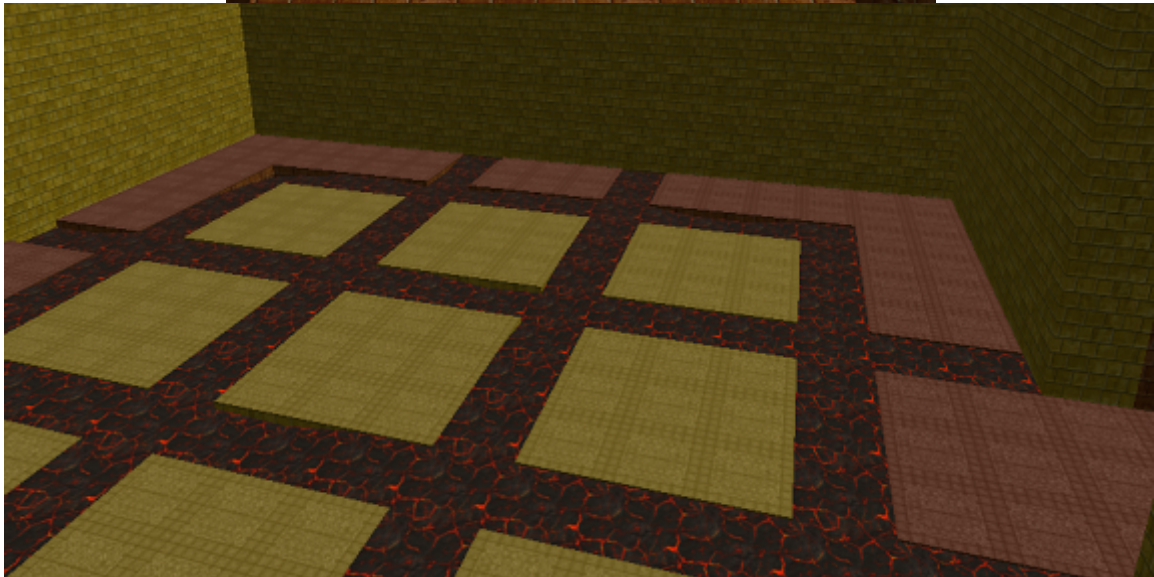
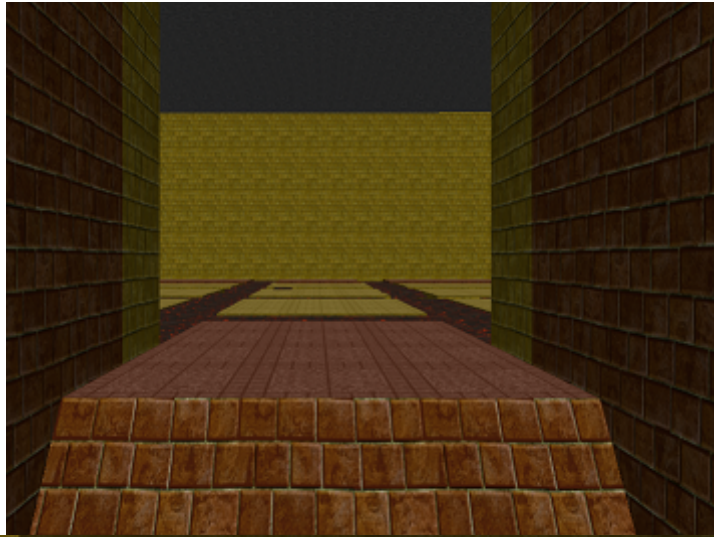
to meet him. Undergrotto was created with an absolute childcap of 1 and a popcap of 100, so my population never passed 109; I turned the popcap up to 200 about a year ago and the childcap up to 100, but I've yet to get migrants despite little death and obscene surplus for the traders, so I haven't been able to upgrade my count to a duke and get 'the incoming king' on my nobles screen. But I have quarters ready for his entire entourage, including the count's upgrade to ducal status, so I'll be ready if the game ever lets me become a mountainhome.

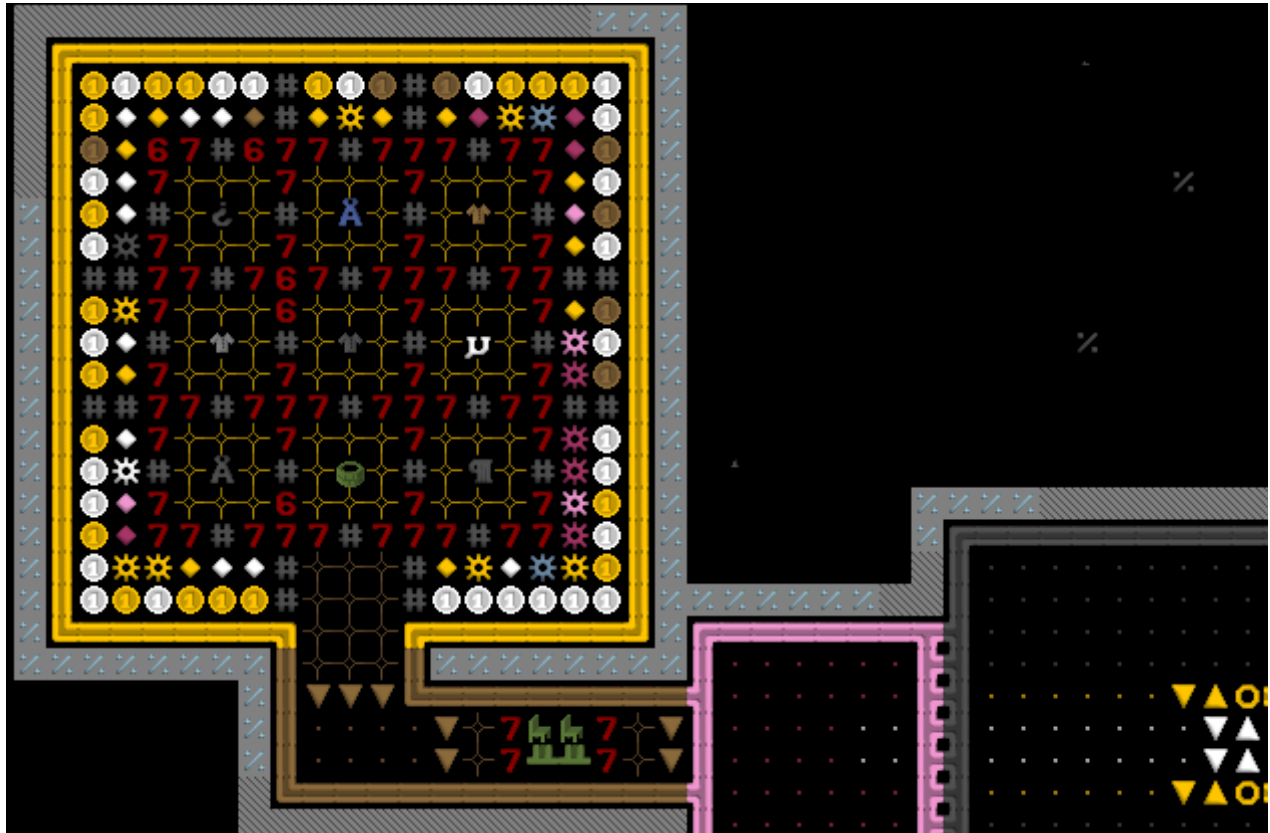




Returning to the atrium one last time, we enter the southern doors and find ourselves in a grand hallway. A gold railing and silver walkway leads to impressive offices for the fortress broker, hoardmaster, and manager, but we'll be descending down the steps to the chamberlain's impressive black bronze and rose gold office, through two sets of nickel silver double-doors. With a pull of the nearby lever, two green grass drawbridges behind him lower over previously impassable pools of magma and we are permitted access to the royal vault, the most hidden-away chamber in all of Undergrotto.







The 4-z-high walls and central platforms bearing artifacts are made of gold, while the outside floors are made of copper, with obsidian grates crossing the magma below. The room is lined with gold, silver, bronze, and copper coins minted specifically for stocking the vault as well as rough and cut gems.

And that concludes our extensive tour! I trust you'll be able to find your own way out 😊

Author Notes:

Thanks for taking the time to read all this (if you did, heh)! I began thinking up ideas for Undergrotto in the last week of October and embarked just before Halloween, and I've worked on it generally between 4-8 hours every day since, so it's the product of rather a lot of effort. I'm just happy to have it done before Toady finishes up the next release. The next post is mostly just fort background processes, history, random anecdotes, etc. so don't mind just skipping all that unless you're curious. Thanks again, and see you next version!

Appendix:

Digging and stone management

Undergrotto dug out a little over a million stone in its construction. The main cavern was dug in two separate halves, each churning out 300-330k stone, and the side chambers and sub caverns, as well as vast tunnel system and Mountaingate used up another 400k – even the graveyard’s massive hall left obscene amounts of stone. I also routinely dug out a few thousand stone here and there for smaller projects. Yet now, at the fort’s complete, there are a mere 41 loose stones in the entirety of the fort, and they’re all so inaccessible that I almost lost a fey dwarf to not having any loose stone – in fact, I had to dig out a quarry for later constructions! So how did I do it? Depending on the size of the project I alternated between chasming in the underground river’s pit, creating a temporary atom-smasher on the spot, and for the main cavern, raw-tampering in order to vaporize 650k of stone. The process of digging out the main cavern took one week each for each half making two weeks total in real-time; that’s including designating, digging, dumping, and channelling away. With [SPEED:0] dwarves. [Here](#)’s what the process looked like.

For anyone who wants to undertake a sizeable digging project like this, here’s what I recommend: First of all, you absolutely *can* have too many miners. Simple 1z side-tunnel designations can take forever when you have every miner wanting to take turns digging out a piece of a tiny area from hundreds of tiles away – one by one, in order. A team of 33, which is what I had for both halves of the main fort, is far too many. Due to pathing, a dwarf can dig its way deep into a designated area and then find itself 2 whole tiles away from another chunk of stone – and then run all the way back to the northwest-most designation to start over. When you have this many miners working for you, they frequently dig out all the stone around each other and spend most of their time running back and forth instead of digging.

Secondly, use Dtil's Unpause utility. Dear god. The sheer amount of stone and gem pockets I struck... I actually have well over a thousand cut gems as well as a hundred loose rough gems, and that's with getting rid of a significant amount of them.

Thirdly, to make sure you don't lose mechanisms and furniture at the time of stone vaporization, I advise you to pick a stone type that you won't be boiling away and use only that for building with (perhaps an economic stone mod would help here, though I've never used one). I didn't think of this beforehand as I didn't know I'd be using the boiling trick, and aside from the near-tantrum spiral from all the destroyed masterworks, a lot of my lever linkages and water systems were destroyed and there were some pretty bad flooding crises that I had to clean up later.

Fourth, designation advice: Digging out square areas is easy to plan regardless of how many rooms and offshoot tunnels you have. This goes double if your rooms are the same shape from top to bottom, no matter how high they extend. When you want to create natural curving rooms that open up and taper non-uniformly at many different points, the difficulty level rises high enough to spit on your house from here. You can certainly plan everything in MS Paint layer-by-layer or in some sort of 3D planner but *have fun* copying your designation out tile-by-tile over a massive space like this, so here's my advice: After you do a rough sketch of what you want, ignoring z-level changes, outline everything on the bottom-most z-level. For plateaus, use designation type A (in this case I used regular dig designations) and sometimes B if you have two that are side-by-side, and use a third separate designation to mark the winding rampways connecting these together (for now ignoring height level swaps). Once you've decided what height you want each plateau to be, go to the rampway designated spots and mark off ramps from one plateau to the other using as many sets of ramps as needed to match the height difference. Place your ramps as if they needed support – don't miss the diagonals; visualizers connect any ramp touching a wall tile and the effect looks great. Now what you need to do is copy this large designation mark for mark up a z-level at a time, copying everything except the stuff that's reached its proper floor (you could jump more z-levels at a time but it's a

lot harder to copy up multiple-z than it is to go one at a time). Once everything's been placed, black out the extra copies of certain layers you made so nothing overlaps and everything's on its right layer. Then change all the non-ramp designations to up-tile designations. This is tedious as hell, but I guarantee you, it's nothing compared to what's next. Your designated area should look something like [this](#).

Now you get to fill in all the empty space between up-stairs and ramp designations with up-down stair designations. On every level. You don't want to use regular-dig designations and use the collapse method; it requires an access stairwell, which makes the miners spend most of their time running back and forth to it. Continue up until you can taper away the tops of each pocket of the cavern. This will take you a long, long time. The exact shape of your cavern is really at your discretion; personally I have a lot of experience with MS Paint and I hand-design all my circles, so I based the slow tapers of my ceilings off of that knowledge. At this stage I suggest uploading your designation map to the DFMA so you can zoom out and look at everything to make sure it's right. This is effectively a photo-negative of your cavern. Mine looked like [this](#) for the bottom half of the cavern and [this](#) for the top.

It's time to dig. Due to weird pathfinding, your miners will probably work their way towards the north-western end of your designations and slowly move their way up z-level by z-level until they start over from the bottom again. It's possible to avoid this by changing your designations one at a time, but as the ramps give accessibility to most of the cavern, you'll probably just end up digging a few layers out improperly. Anyhow, let them finish. This is when Unpause comes in handy so long as you've got a lot of food/drink built up and your defense systems are solid.

As for getting rid of the stone, I've mentioned the boiling trick a few times now, and here's what it is: Pick the layer stone and all large pockets of non-desirable stone and in the raws give them the tags [MELTINGPOINT_10000] and [BOILINGPOINT_10010]. You want to do this after the digging's finished, not during; the boiling mist is a big FPS hit and it's better to get it over with all at once than consistently.

The con of the up-down-stair method is that once it's all over you need to channel it out from the top down. This takes a while, but isn't as bad as the previous designations. When you're finally done, remove the up-stairs while avoiding removing the natural ramps and pop open a visualizer to check out your cavern!

All this and more [here](#). If you have any digging-related questions, just ask me. I consider myself pretty experienced with large-scale digging projects at this point.

What could have been

There are a few things I didn't get to do in Undergrotto or did in an unsatisfactory manner. First of all, the Rummy Dodger has no sails. I honestly don't know much about ships and was happy enough to get it to look vaguely like a ship at all, so I just gave it two masts and figured it looked good enough. But I'd want to add an alunite (or if I was feeling bold, clear glass) sail if I ever went back to it.

I'm also unimpressed with the Crescent Arena. I mean, the arena part works fine, but it's just not big enough for me. The main reason was that I thought of the design for it rather late in the figurative game and most of the stone had been removed already; I didn't feel like going back and digging out more stone just to heighten it. But I could definitely do better if I really cared enough to put in the time.

I'd wanted to make a special building in the social sector for the Philosopher as well; some kind of observatory with a big fake telescope and a few alchemist's workshops, but never was happy with any of the design ideas I'd thought of and ditched it. But there's a big empty space just across from the hospital that would've been perfect.

I learned a lot while making Undergrotto, but the one thing I'm disappointed that I never had the chance to do was to use a fluid logic computer of some sort. I've never really tried anything with that before. Something I thought of a while ago was making massive canal locks from the outer lake to the inner lake, so I could pretend that it'd sailed in or something. But it would've taken a year or maybe two more and would've been silly and kind of a waste of time. Maybe next time I'll plan a port town and put it in or something.

Concessions

Undergrotto was built in 14 in-game years, and I flat-out do not believe it's possible in a 'fair' game to create something like this in that short a time. I used a lot of utilities in Undergrotto; however I need to stress that these were done either out of necessity or purely for aesthetic purpose. Specifically:

From year I think 4 or 5 on, dwarves were given the [SPEED:0] tag. This wasn't so much for having lighting-bolt uberwarves so much as because my FPS ranged from >0 to 3 for a few years. The dwarves only moved as fast as regular 30FPS dwarves do in real-time, anyhow, and to fight sieges I set the dwarves back to normal speed, so the only thing this really affected was the fact that the fort is 15 years old instead of, say, 150.

The beach was also purely artificially created. My original plan was, as the western half of the map is a cold mountainous biome and the eastern half is a somewhat-less-cold forested biome, to make the beach way eastwards and move a whole bunch of sand down by collapsing a ton of sandy walls way down. I only realized in December, a month and a half into the project, that I'd completely forgot to embark on a map with sand at all. So begrudgingly I spent an hour or so slowly editing the current beach area into yellow sand using Dtil's Tile Editor utility.

As opposed to my earlier instructions on how best to dig Undergrotto, I dug out the first half using regular dig designations with an access shaft and later collapsed it. This was an incredibly stupid move, because all the

natural ramps I'd worked so hard to plan out were destroyed, and I'd done a whole bunch of work and saved since then without noticing. I later went back and constructed them, but in visualizers it looked really stupid, so I eventually used Dtil again to turn them into natural ramps.

I also did a handful of miscellaneous aesthetic touch-up work here or there. Basically stuff like I dug a tunnel out one too many tiles and went back and pushed the walls in. What I'm trying to say is that in situations like that, where I could've ignored the too-long tunnel or constructed a wall to fill the end, I had the capability to easily legitimately do what I wanted to. It just wouldn't have had the same effect as the original, natural feel did. The only thing I did that I really consider straight-up cheating was the beach, and that was out of need for sand.

Appreciation

(yes, I'm doing this, I don't care how cheesy it is)

First and foremost I want to expression my deep appreciation for Toady and Threetoe for developing this game. Nothing before it has managed to intellectually stimulate my mind so, and I have reservations that anything after it will.

Also a huge shout-out to Baboonanza, the now-absent creator of [Visual Fortress](#), and the [Stonesense](#) team for making fabulous visualizers.

Undergrotto was designed from the start to look good in visualizers rather than simply layer-by-layer on the DFMA, so having access to quality visualizers did wonders for being able to watch my ideas come to fruition.

Undergrotto needs to pay its dues to some other forts as well. I consider myself a bit obsessed with the DFMA, and have probably looked at 95% of all the maps that have been posted between November and now. There are four maps specifically that inspired an aspect of Undergrotto in one way or another:

Slogo/Logo's [Murkgrotto](#) – When I saw his grotto, an underground cavern with water under its buildings, I was very impressed and knew I wanted to

do something similar with the idea of building structures within a dug-out cave. Murkgrotto (or rather ‘this’ Murkgrotto, as it was one of many DFM2 entries) also inspired me to give Undergrotto its lake.

sneakeypete's [Relicrags](#) – The trader’s entrance inspired me here. It slowly turns and twists around following (or sometimes being followed by) a river. The river itself is also very nicely incorporated with the rest of the fort. The twisty tunnel from Mountaingate down to the cavern as well as the inner lake and Mountaingate’s moat were inspired by this.

Coaldiamond's [Clockworks](#) – Coaldiamond had set out to create a very natural fort that was shaped by the landscape rather than shaping it. Despite all the digging I did, the ‘challenge’ of Undergrotto was to make it feel entirely natural as well. I also wanted to make a mountain spring after seeing his, though I did mine differently.

Yojimbo's [Goldparch](#) – Goldparch is an impressive port fortress (portress, ohoho), and I gave Undergrotto something of a port feel due to this. Goldparch also inspired the Rummy Dodger and the lighthouse in the social sector, though the former is kind of shabby and the latter is kind of really ugly.

As a final note, please try not to quote any screenshots – there’s already a whopping 92 images in the first post, and the load time’s probably going to piss enough people off as-is. It’s unlikely I’ll ever seriously return to Undergrotto (until Stonesense comes out with its next, even sexier release warranting more screenies), so ‘til next time, goodnight.