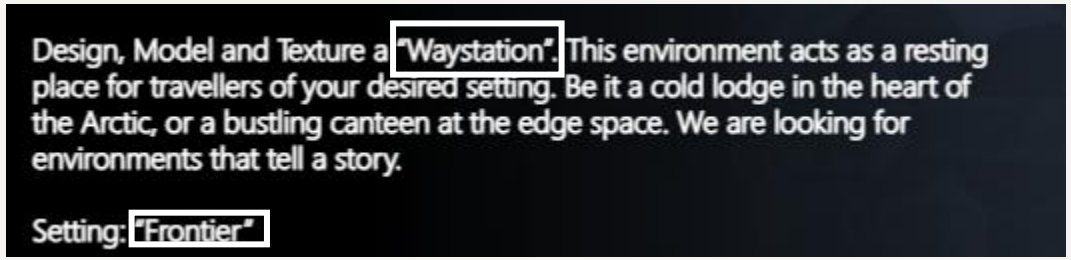
Flix Interactive Stylised Environment Brief - Development Diary

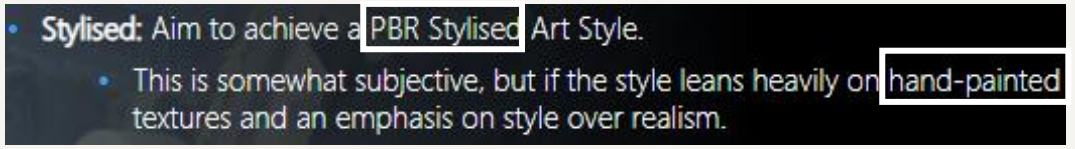
BY ELLA COTTERILL

WEEK 1 - RESEARCH

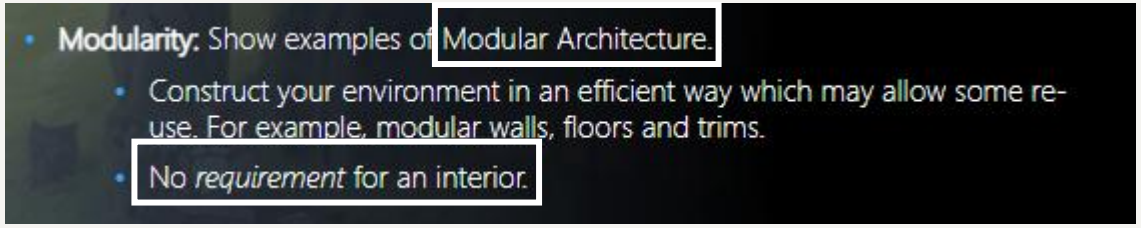
Initial Information



Need to create a resting point for players in the middle of nowhere.

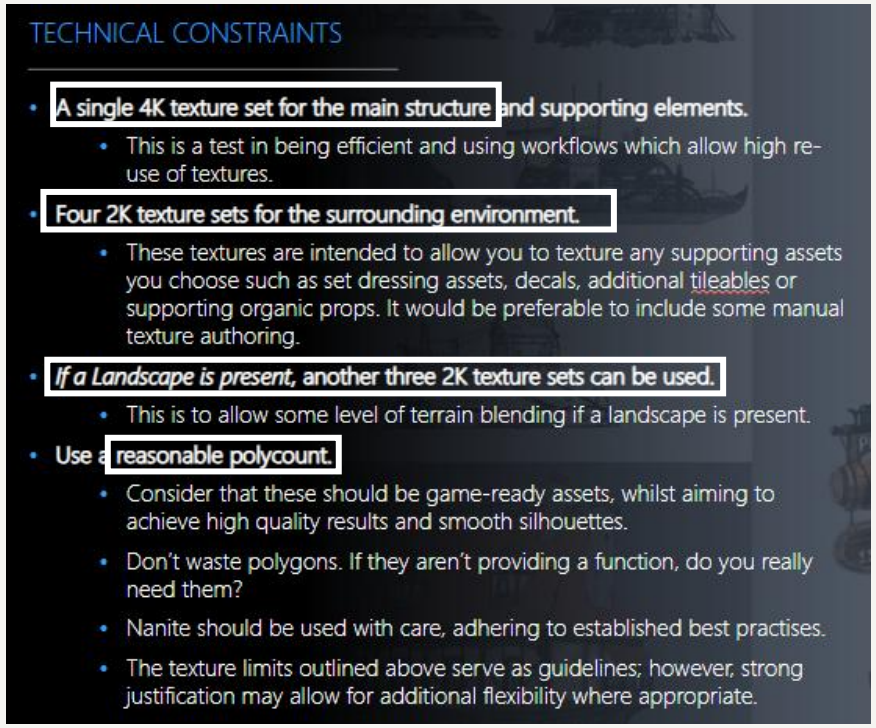


Create hand-painted textures.

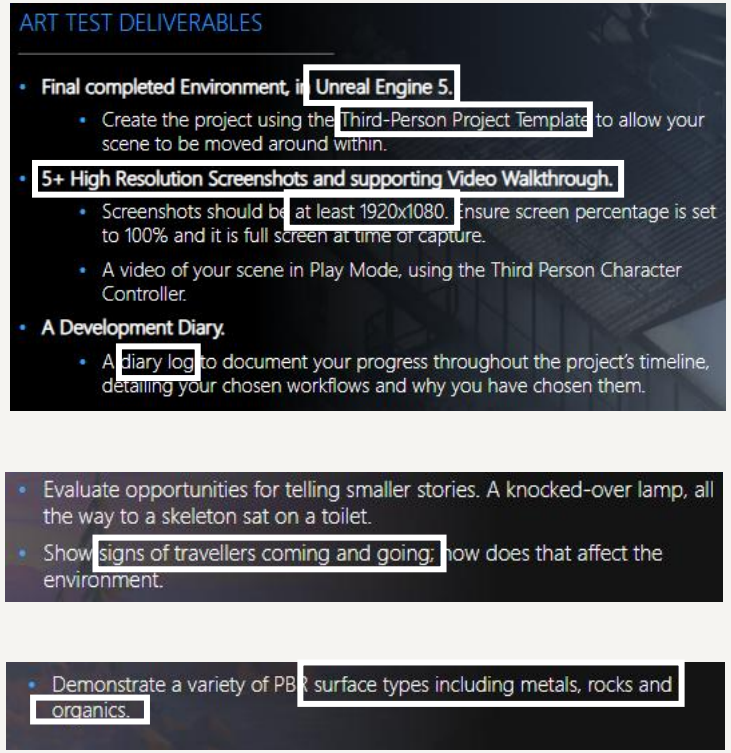


Assets need to be modular. Do not need to create an interior.

Initial Information



Need to include **one** 4K texture for the main structure. Can also utilise **four** 2K textures for the surrounding environment. **Three** 2K texture sets can also be used for the landscape. Need to also use a reasonable polycount – keep everything as low-poly as possible whilst also removing faceting.

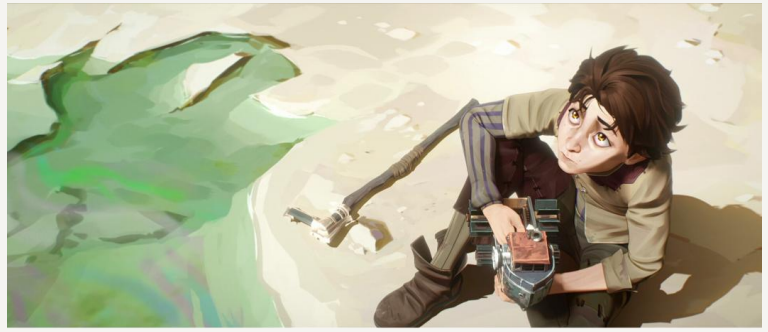


Need to utilise the 3rd Person Project Template and create **5** or **more** high resolution screenshots. A video walkthrough also needs to be created alongside a development diary. Also need to get creative with showcasing sigs of travellers coming and going from the scene, and ensure that even though textures are hand-painted, to still be utilising PBR surface types.

Research

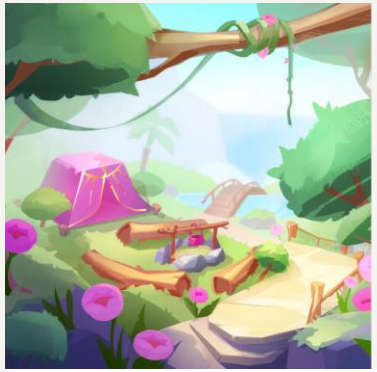
[Welcome to Noxus – Bite Marks (ft. TEYA) | 2025 Season 1 Cinematic – League of Legends]

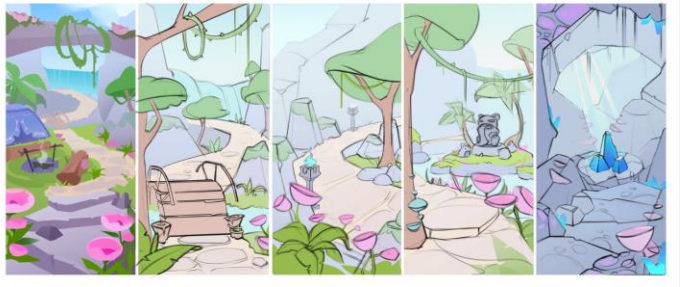
[Geoffroy Thoorens – Arcane Season 2 Concept Artist]



I knew as soon as I was given this brief that I wanted to utilise the art-style that is presented in the animated series 'Arcane'. It is one of my favourite series of all time, so I knew that using this style would keep me engaged right to the end of the project. It is also extremely stylised and everything is hand-painted which fits the brief perfectly.

Research





[Haat Lunis - Camp Blossom Valley]

[Jet Bernal - Waypoint Tavern]

[Max Roche - Desert Stop Concept Art]

I tried to find some concept art that both fit the brief and could be easily transferred into the 'Arcane' art style. These three were the ones that peaked my interest the most, and were ones I believed could easily slot into both points above regarding the brief and art style.

Research

Max Roche - Desert Stop Concept Art

I ended up deciding upon using the 'Desert Stop Concept Art' piece by Max Roche due to:

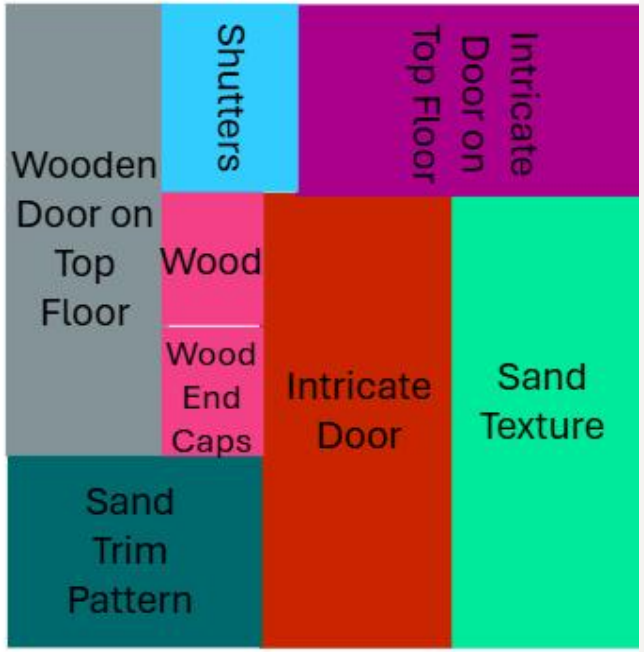
- Being able to utilise modular assets
- Being able to possibly use the ‘Arcane’ art style for it
- Can practice both cloth and rope simulation
- The artist has drawn lots of different angles for the piece
- Will be challenging myself into creating stylised sand VFX

WEEK 2 - PLANNING

Modular Draw-Over

I completed a quick draw-over of the pieces I could re-create in a modular fashion. There are a lot more modular assets than what I had initially thought when I took a quick glance at the concept art originally, however I still think that I can make it all work successfully.

Trim Sheet Draw-Over



The brief states that only one 4K texture may be created for the main structure of the building, meaning that it will all have to be created using a trim sheet. There was a lot of different pieces to this art work that had to be turned into a trim sheet, which became quite tricky to get correct, even purposefully flipping some of them on their side in order for them to sit comfortably inside the trim.

Supporting Environmental Assets Draw-Over

Wooden Barriers

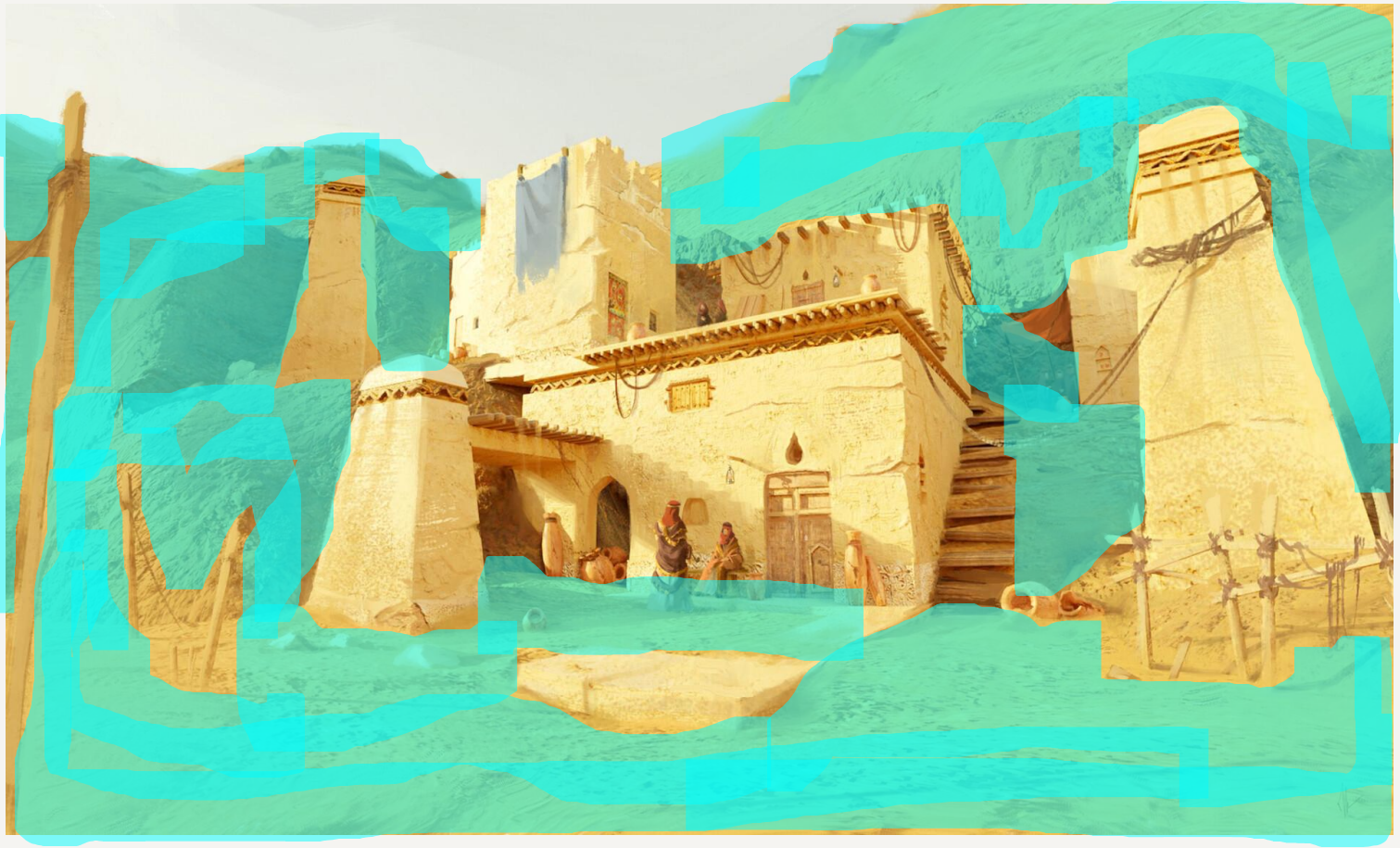
Rope

Vases

Cloth (could make it black and white to then tint different colours in UE5 at a later date)

Here are the draw-overs for the supporting environment as shown in the concept art. As per the brief, we are allowed to use four 2K materials for supporting assets. There are more than 4 different materials in the scene, with two cloth materials having different colours, however this could easily be turned into one texture sheet. This could be done through creating a black and white texture, and adding a tint to it in post in Unreal Engine 5.

Supporting Environmental Assets Draw-Over

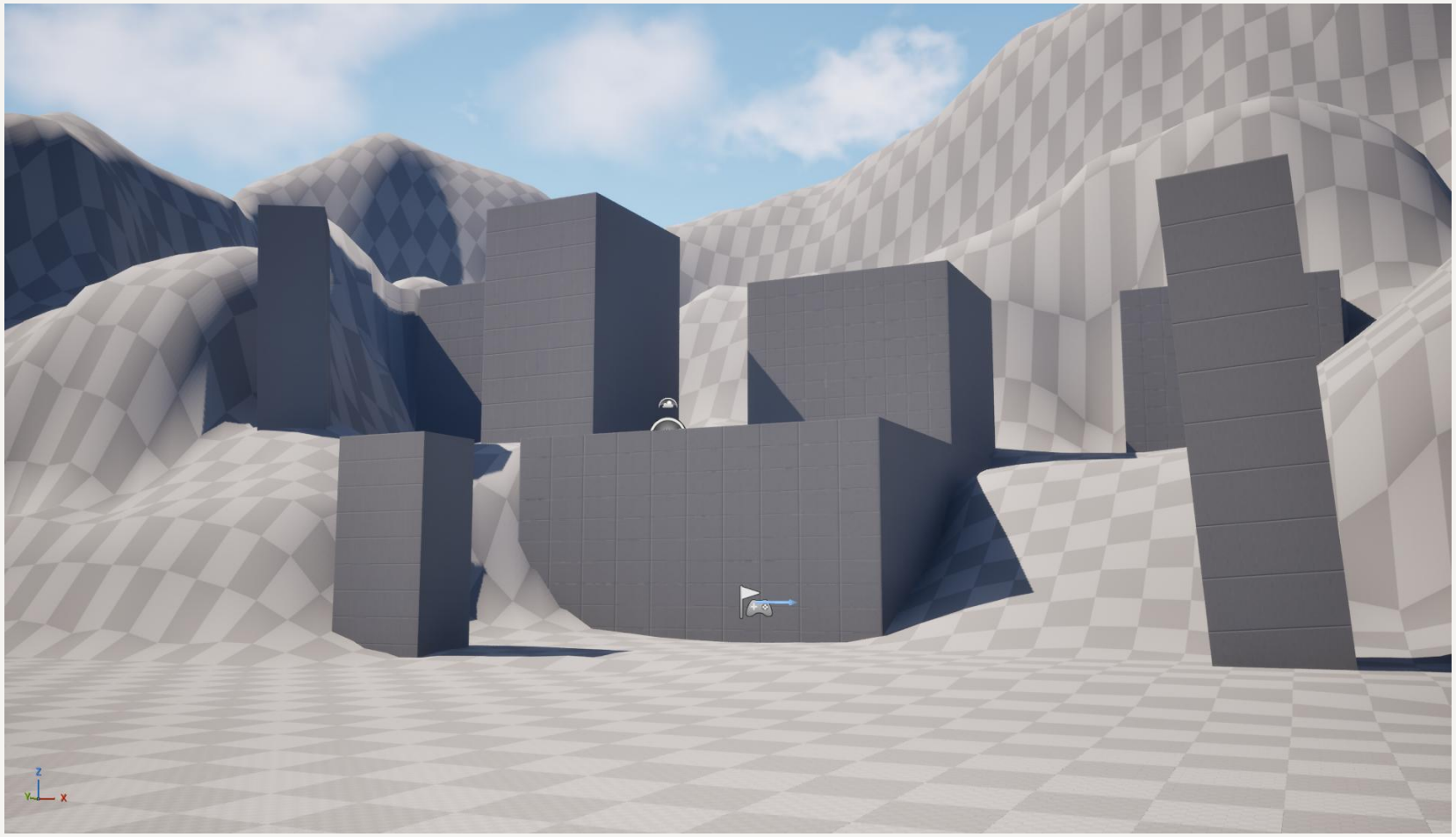


Three 2K texture sets were also allowed for the landscape, however since the entire landscape is made entirely out of sand, I could possibly get away with only utilising one, perhaps two if I were to make darker patches of sand in order to showcase footsteps, for example.

WEEK 3 – MACRO & MICRO BLOCKOUTS

Macro Blockout

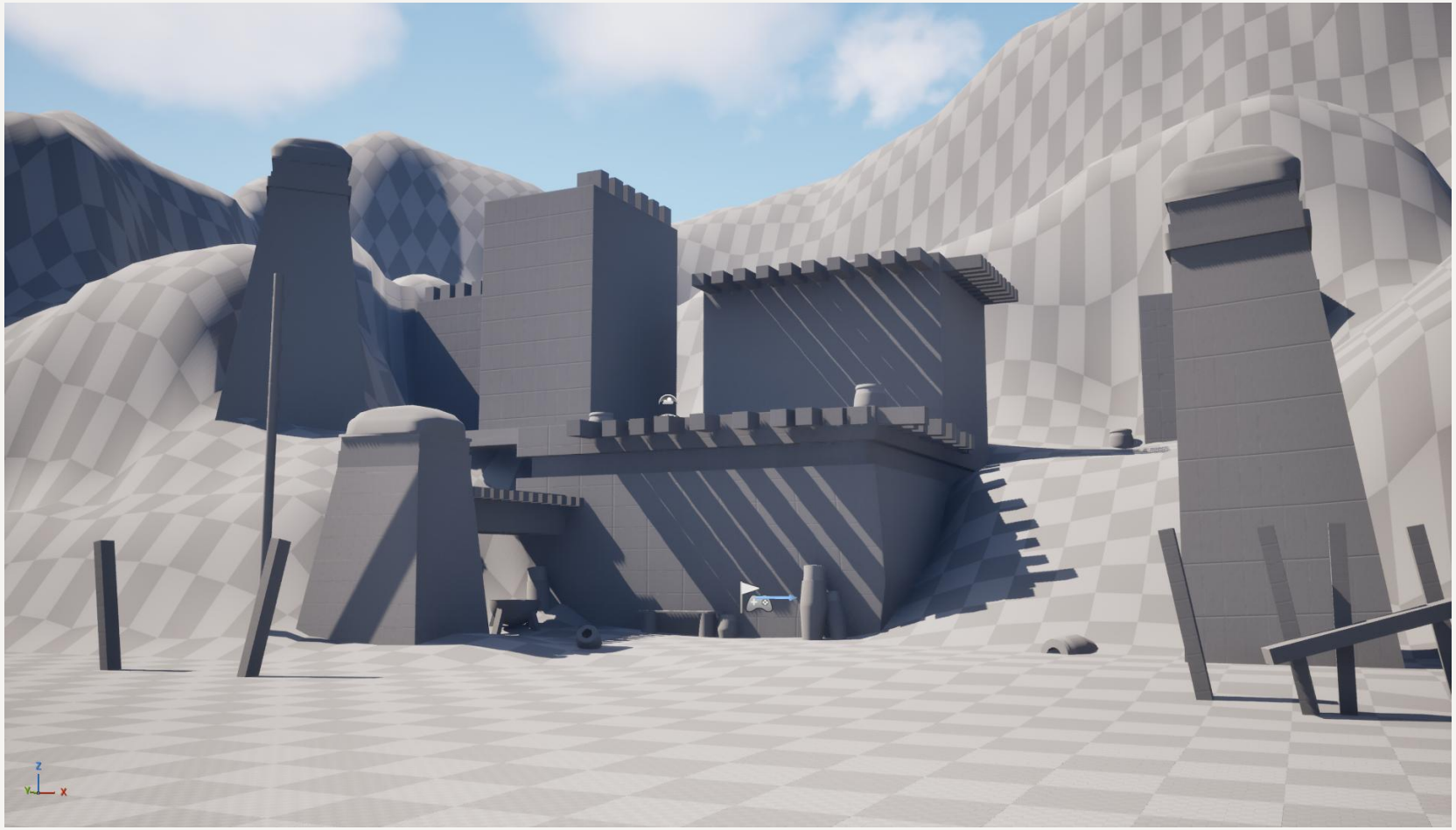
Here is an image of the macro blockout I created in 3DS Max, and then exported into Unreal Engine 5. It was an amazing test of the landscaping, as it makes up the majority of the environment, although some refinement is needed in order to have it appear exactly like the concept art. I will need to learn how to create hard edges in the landscape in order for it to be entirely accurate, and to add some more visual interest throughout.



Draw-Over/Photobash

Some feedback I had received from lecturers/classmates during the at the end of week 2 was to make the scene feel a little more like a waystation where the player could interact with objects and have a good break. There is already a vendor selling items inside the concept art, which I decided to keep, yet I also added a cooking pot for the player to utilise in order to prepare food. This was inspired by 'The Legend of Zelda: Breath of The Wild'. I also thought that fire would act as a stark contrast versus the constant yellow of the sand. A friend of mine also came up with a great idea of adding a flag into the environment, which would signal to the player that this is a safe point.

Micro Blockout

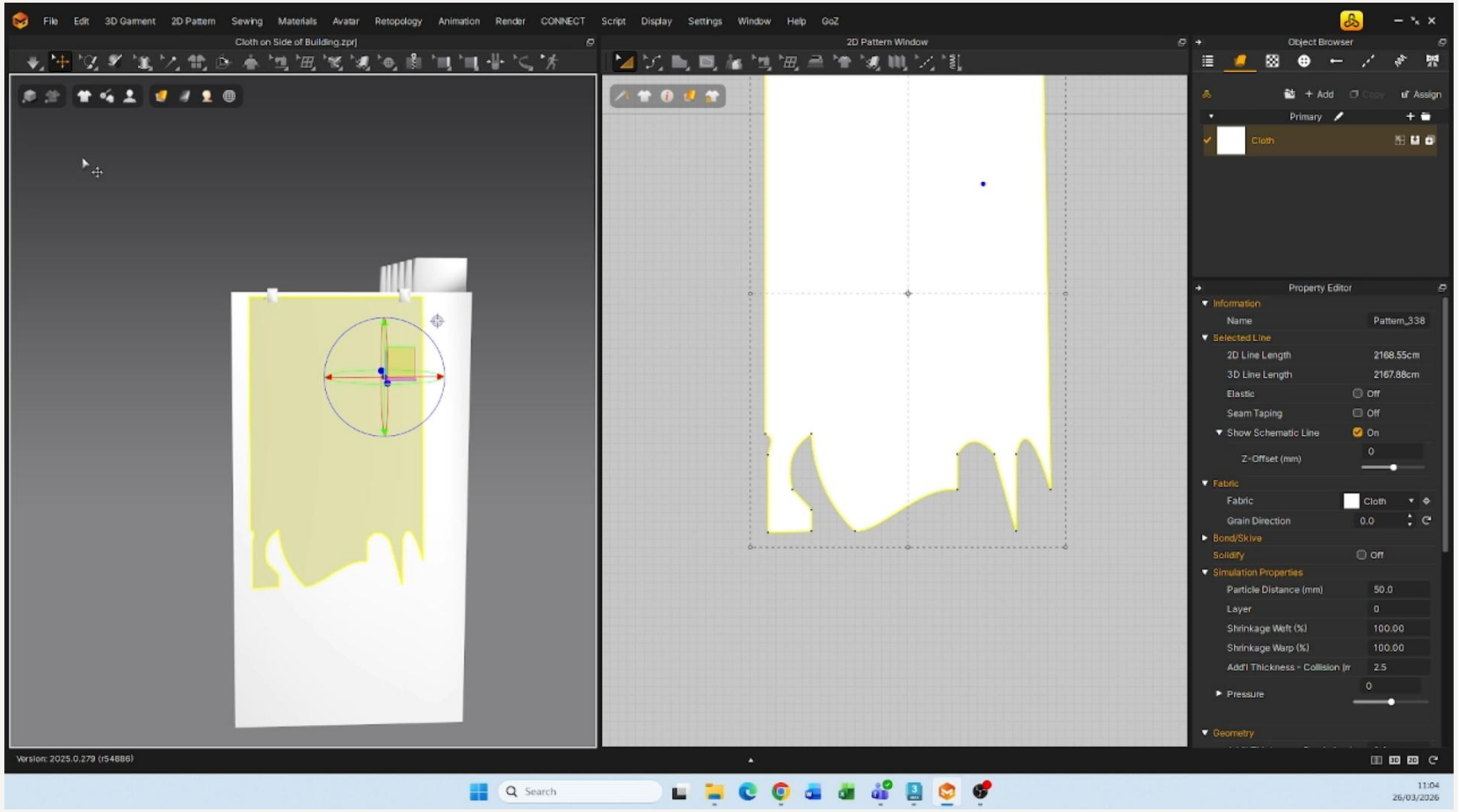


Here is an image of the micro blockout I created in 3DS Max, and then exported into Unreal Engine 5. It is not entirely completed as some cloth simulation needs to be created for the flags and market area in order for the entire silhouette to be finalised. It is incredible to see the differences between this image and the macro blockout. I am enjoying the progress so far!

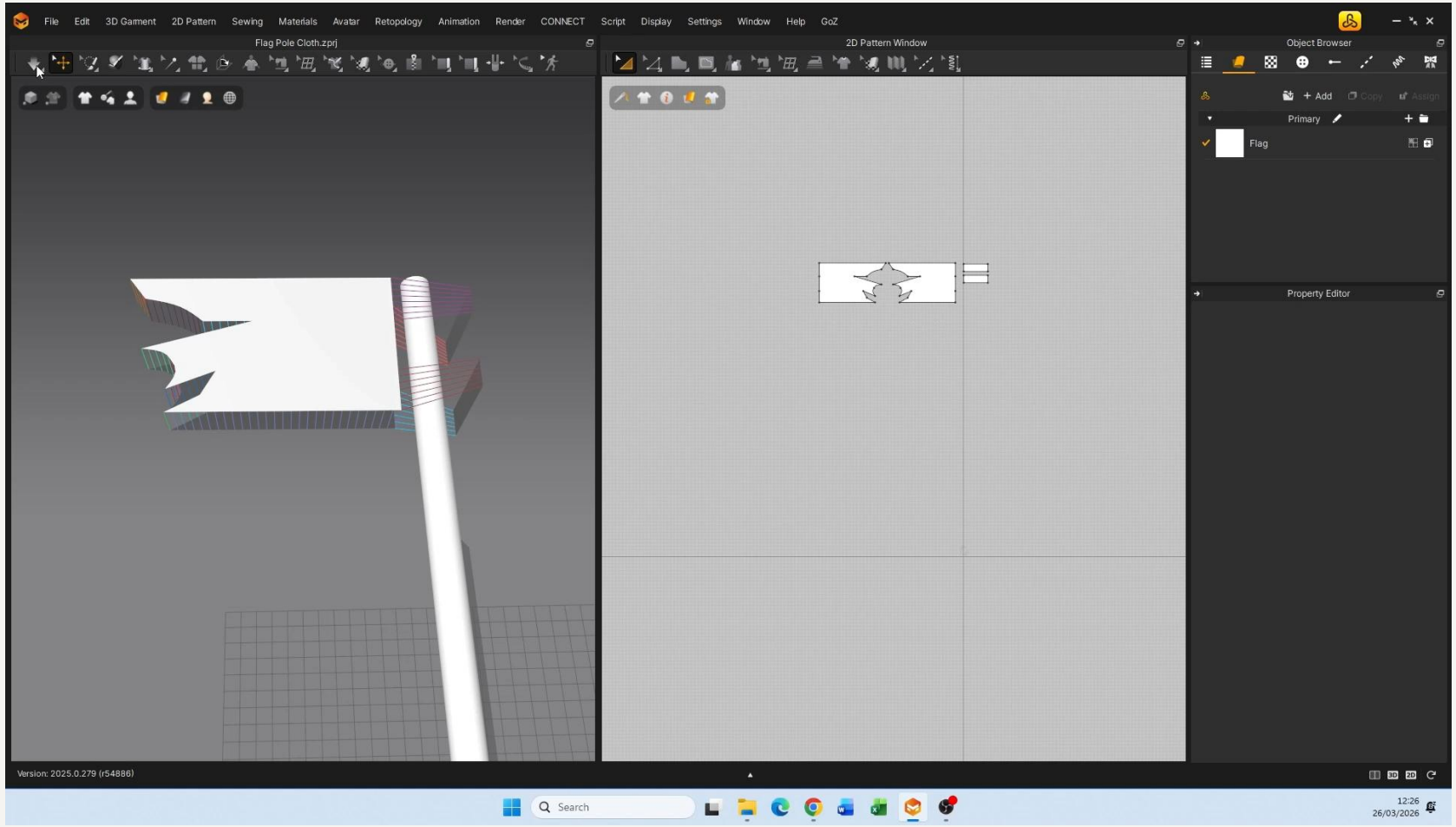
WEEK 4 – CLOTH SIMULATION

Blue Cloth Simulation

This is the blue cloth that is featured on the side of one of the buildings near the top of the environment. I hadn't utilised Marvelous Designer in quite a while, so this was a nice practice for the two other simulation pieces I am planning to complete for this project. I wanted to utilise this software over other cloth simulation software due to its ease of use, its editability on the fly, and it being able to simulate realistic cloth incredibly easily.



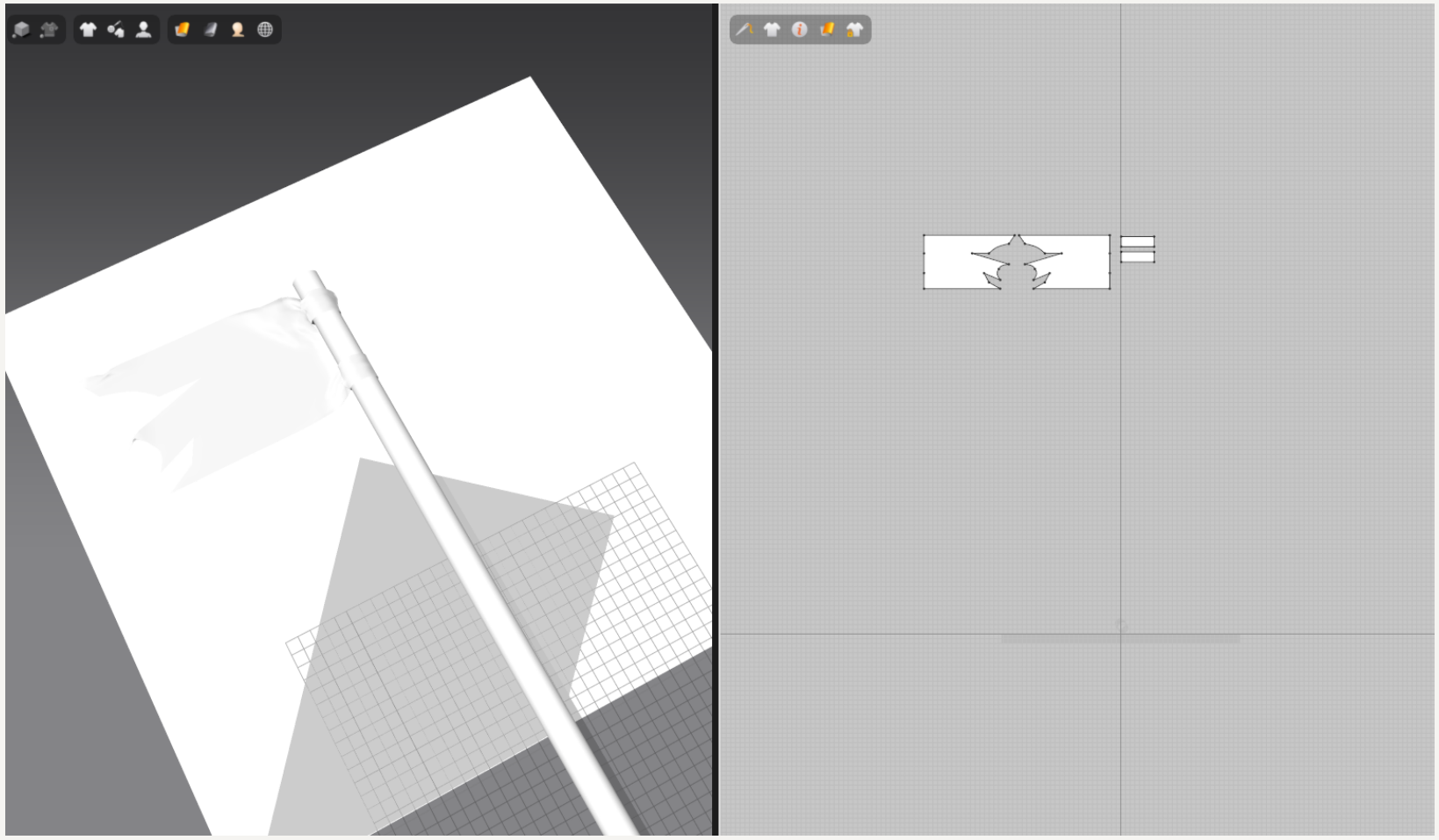
Flag Simulation



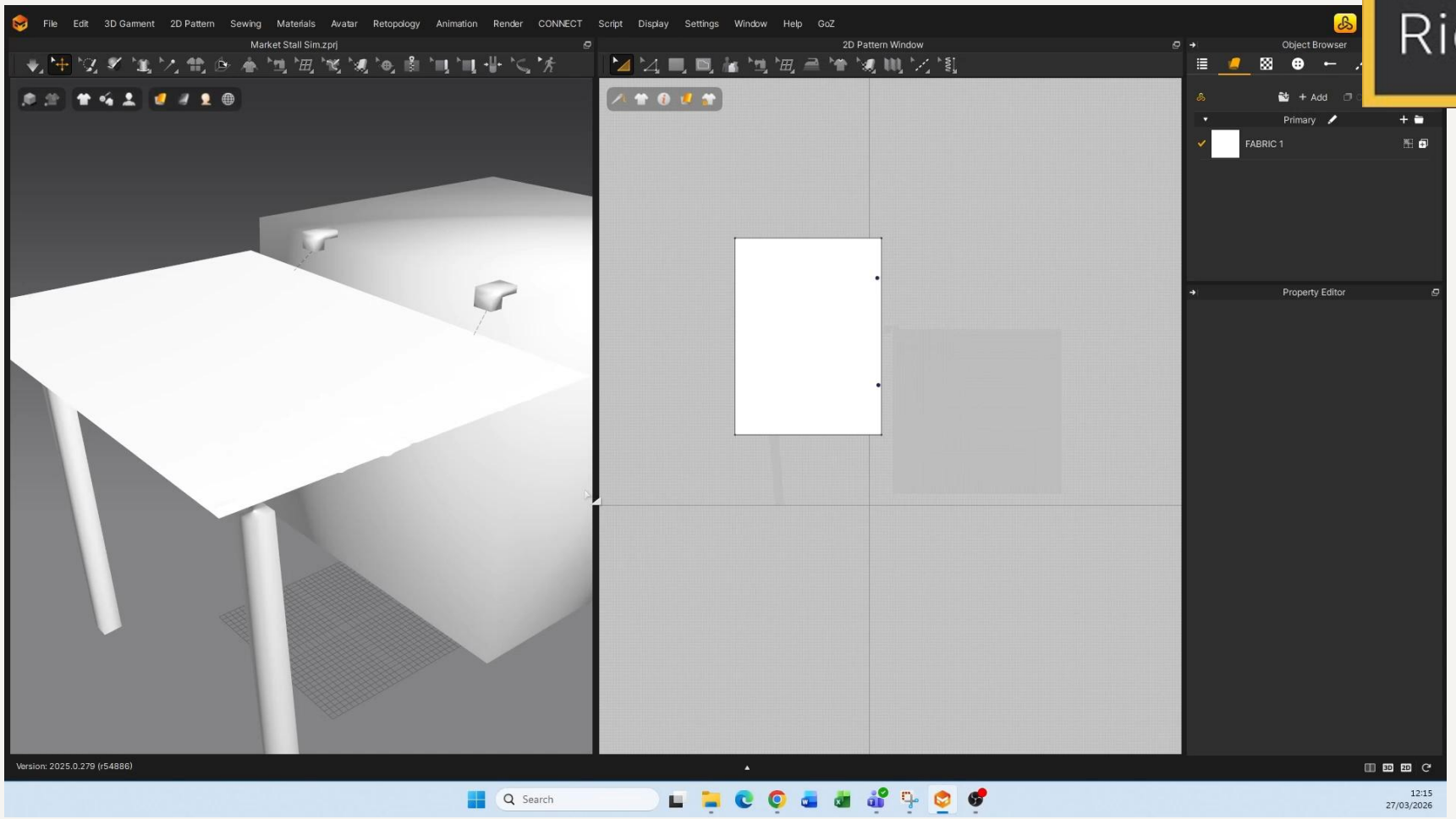
This is the flag addition I added in order to make the environment feel more like a waystation, as was requested. It was a little tricky to get the gravity correct at first, however a friend suggested having the pole on the floor, which made the flag stay on the pole as I had wanted, rather than sliding down it. The video is sped up in parts, as I had spent over 2 minutes trying to manually fix it. Further fixing might need to be done in 3DS Max.

Flag Simulation (continuation)

During our second project , a classmate suggested that I add a plane behind the flag when simulating it, in order for it to appear more flat, and less like wind is already running through it (a wind simulation will be added in UE5 at a later point). This worked perfectly, and I am incredibly pleased with the final result!



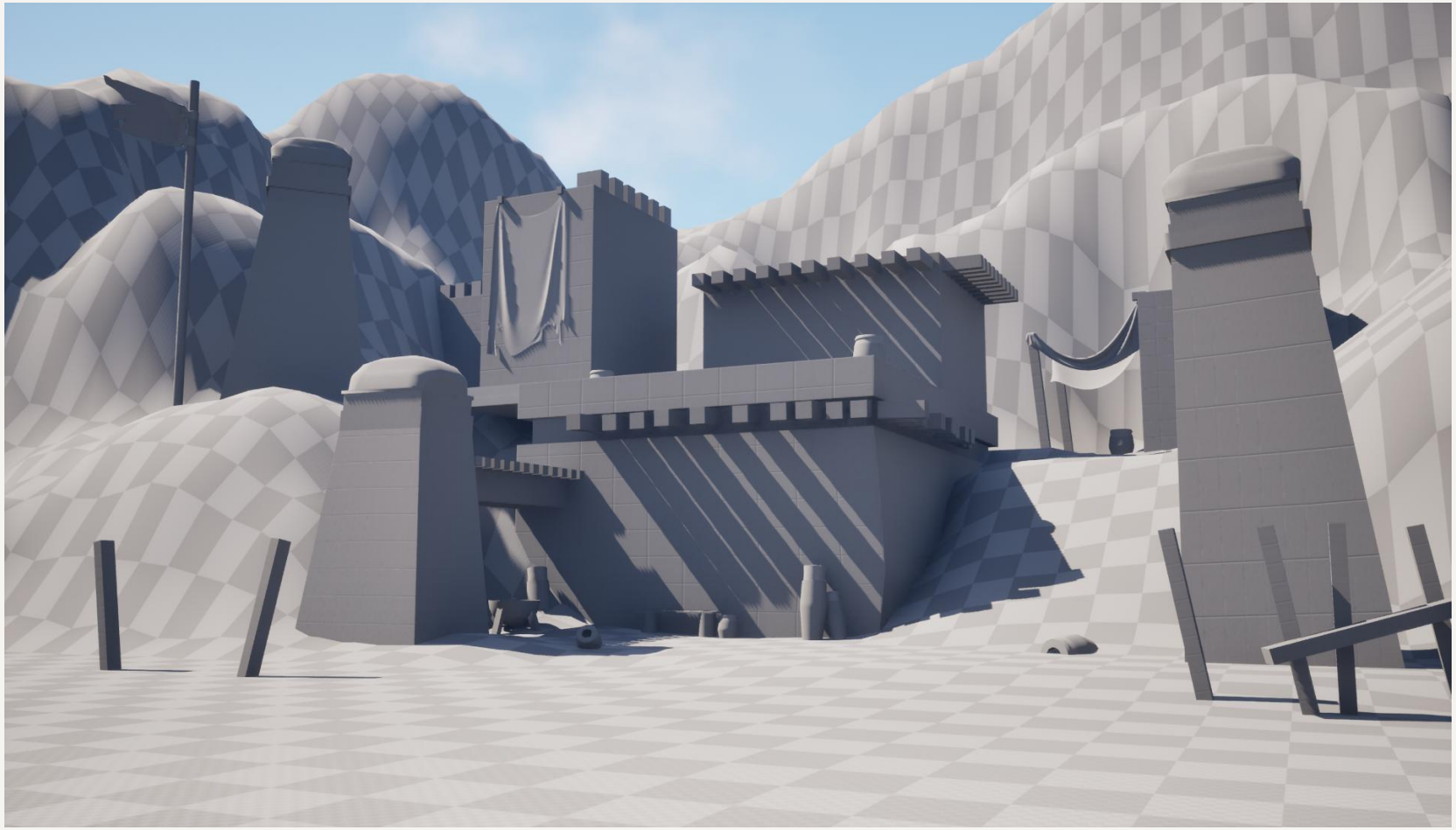
Market Stall Simulation



Marvelous Designer 12.1: Ridge Tent

I watched a video that the Marvelous Designer team had created themselves in order to better understand how I could re-create a market stall awning. It lead me to learn some new techniques, like using the 'skin offset' setting in order to have the cloth not clip into the 'avatar'. The final result appears like how it does in the concept art, so I am super happy!

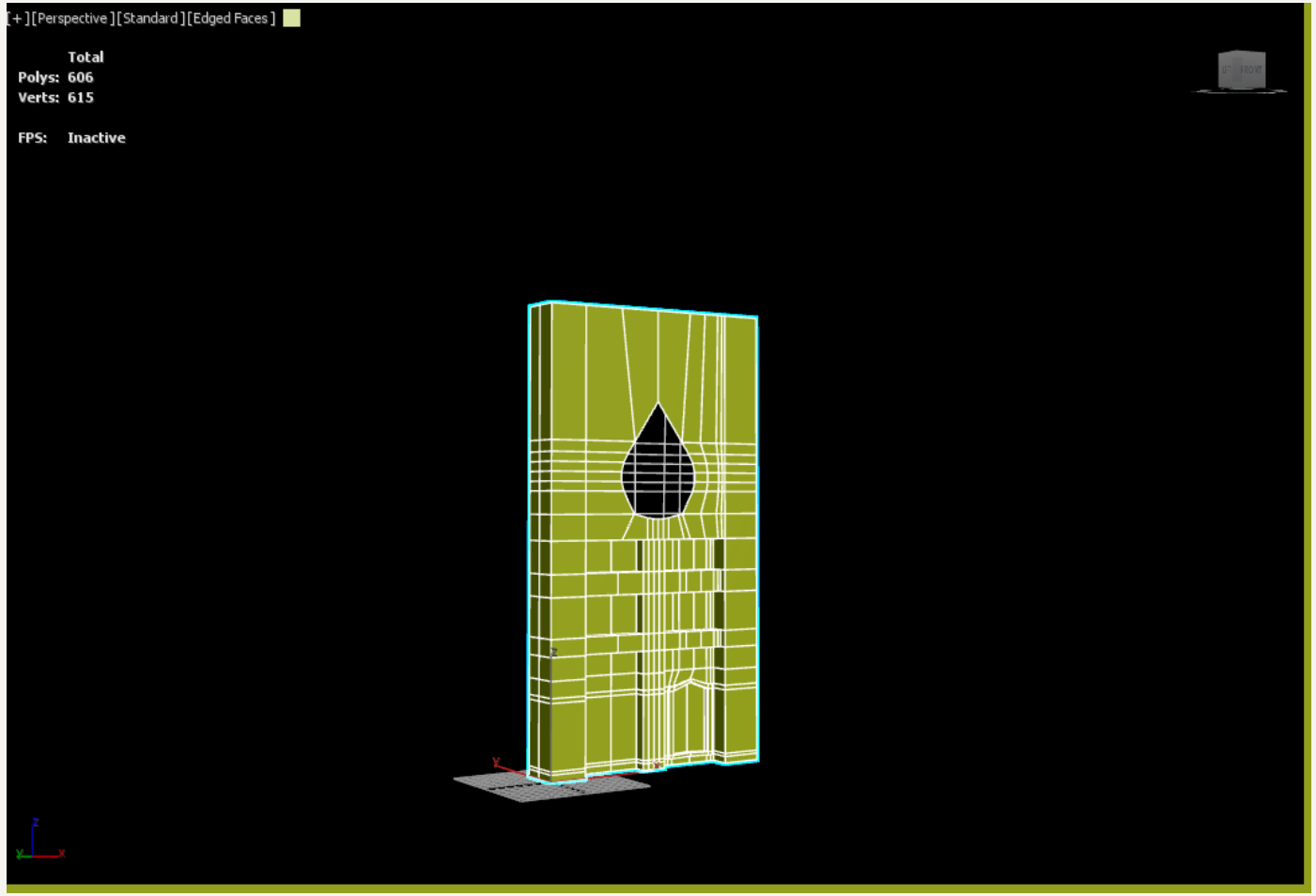
Micro Blockout (continuation)



Here is a the finalised micro blockout, with all of the cloth simulation included! I have worked a little on the landscaping since the previous iteration, although it still needs some improving. I may have to watch some tutorials in order to get it entirely correct. Despite this, I am proud of the progress so far! I have also moved the flag next to the tall pillar on the left, as I thought it would be more visible to the player from further away.

ASSIGNMENT UPDATE – HYBRID BLOCKOUT & MODULARITY

Modularity



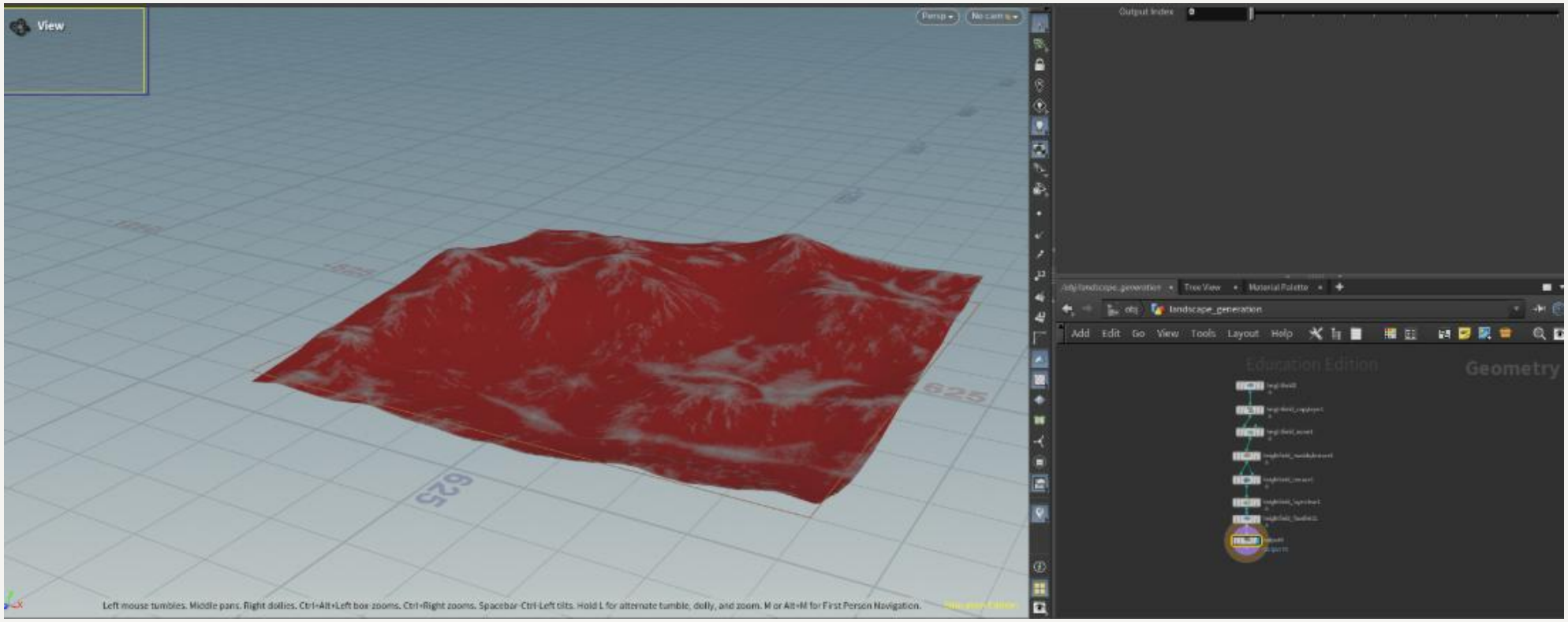
For the Hybrid Blockout, I created more detailed assets which are practically at the point of being finalised. Before exporting them into UE5, I split them up into modular pieces in order for the final blockout to be as accurate as possible scale-wise, and to fulfil certain sections of the brief.

Hybrid Blockout

This is a version of the hybrid blockout I have completed with all of the modular assets included. The landscaping still needs a lot of work, yet I am unable to create the right shape using UE5 alone. Due to this, I am going to try and experiment with Houdini, which I have found a really nice tutorial on landscaping for. Wires also need to be included, which will be added through the usage of 'cable actors' in Unreal Engine due to their ease of use, and being able to perhaps have them react to wind.

WEEK 5 – LANDSCAPING, CABLE ACTORS & PASSES

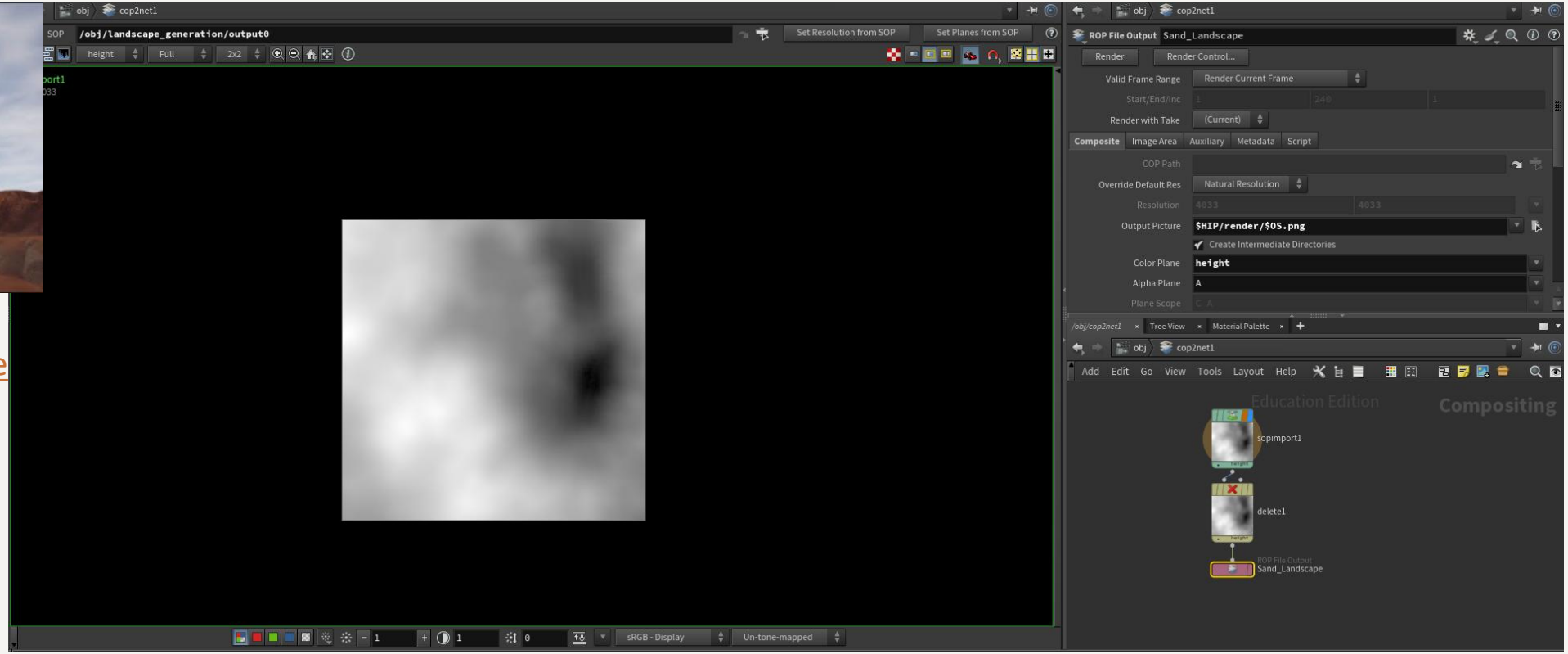
Generating a landscape in Houdini



I had learnt a few months ago that landscapes could be created in Houdini, which I decided to pursue as replicating the landscape in UE5 was becoming impossible for me to complete. In order to create a base landscape, I followed the tutorial posted on the Houdini website with a few minor tweaks (Generate a Landscape from Houdini).

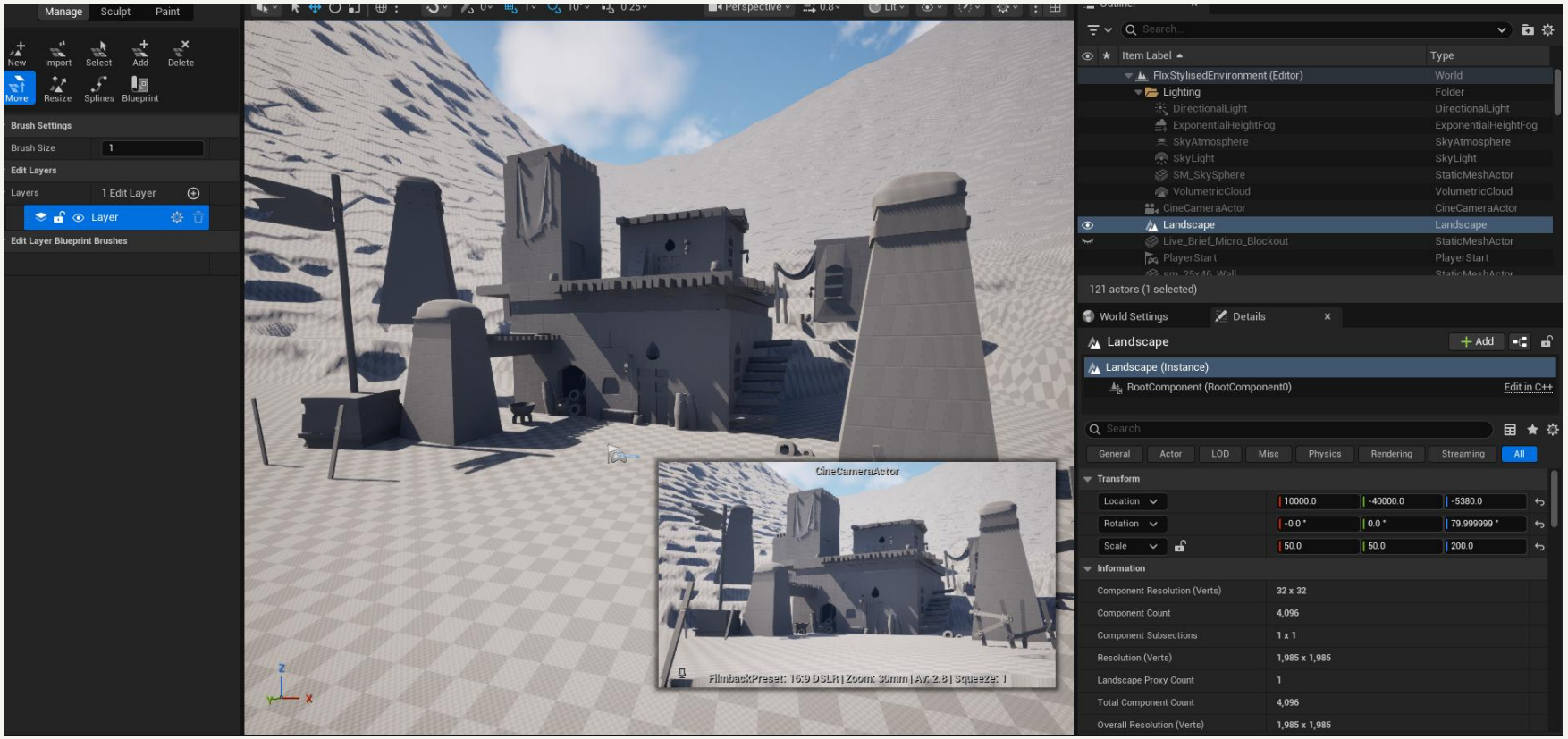
Generating a landscape in Houdini (continuation)

[How to import a Houdini Heightfield as an Unreal Engine Landscape (on both UE5 & UE4)]



Instead of exporting the landscape in the manner that was shown in the website tutorial, I wanted to generate a height map and export it in that fashion instead. I found an amazing YouTube tutorial by GDi4K who explained the process of how I may go about doing this, and it worked perfectly!

Importing the landscape into Unreal Engine 5

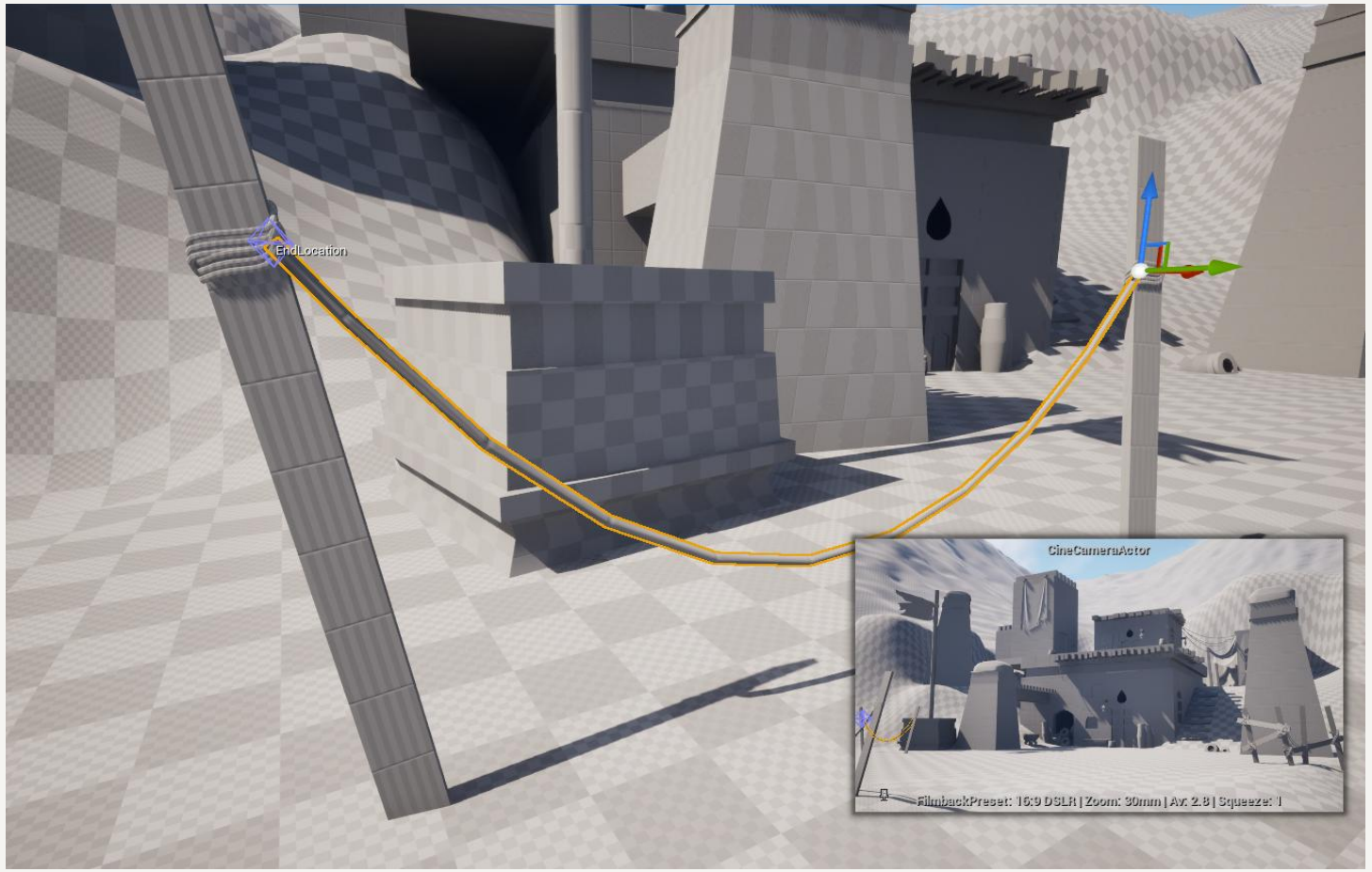


This is what the landscape looked like once it was imported into UE5. The silhouette is significantly better compared to my previous attempts, however some tweaks still need to be made in order for it to be mostly accurate when compared to the concept art.

Importing the landscape into Unreal Engine 5 (continuation)

Here is the final result with the tweaks on the landscaping included. It is significantly better compared to previous attempts, and I paid more attention to how the dunes in the middle ground were shaped this time around. I am super happy with what I have achieved!

Cable Actors



I also wanted to utilise cable actors in order to have more accurate looking rope, as it was something I struggled simulating in previous projects through the usage of splines in 3DS Max. This was my first time using this feature in Unreal Engine 5 and it worked exactly to what I had in mind, so I am incredibly pleased!

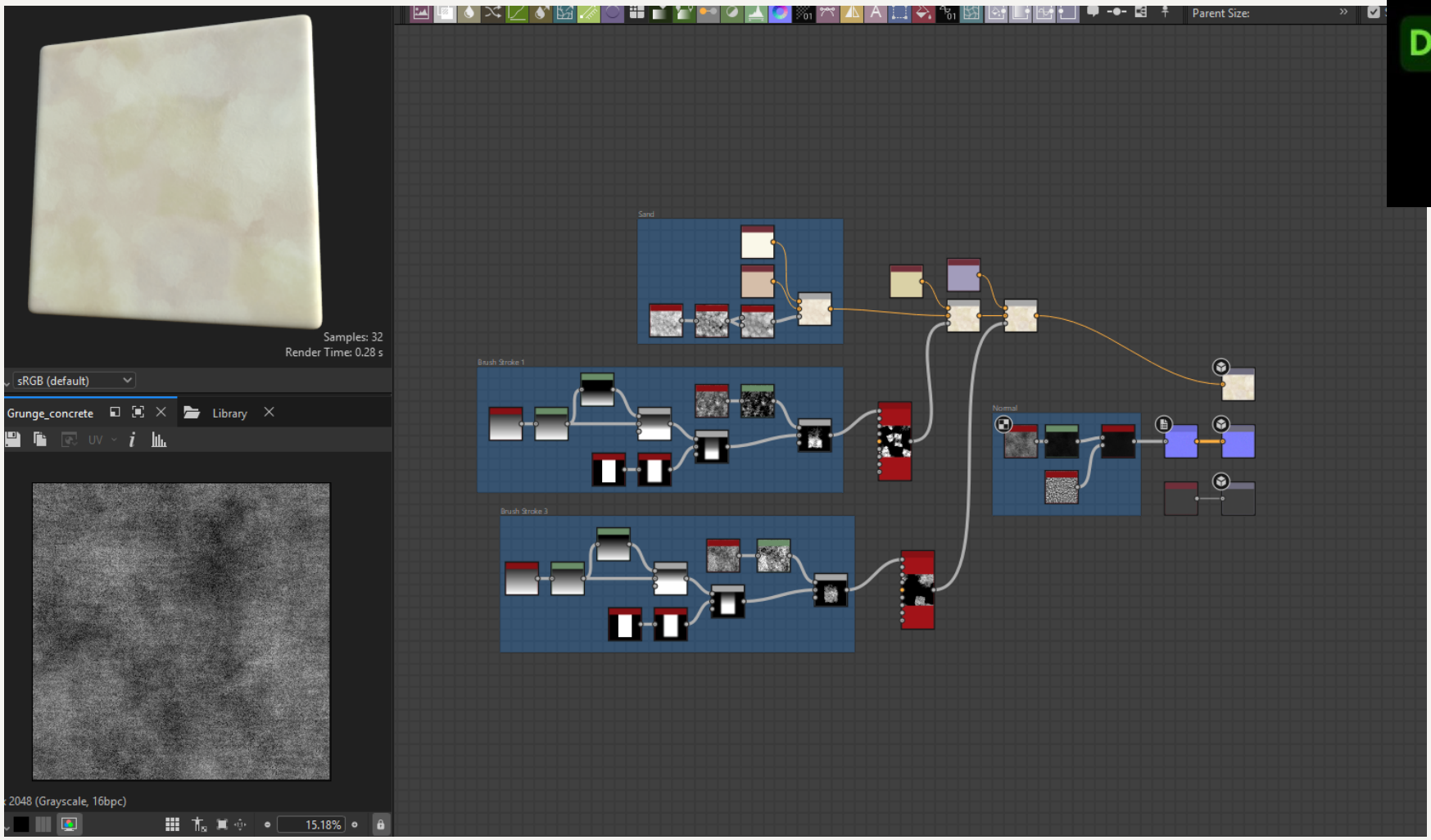
Cable Actor Render

Passes

From completing these observations, it seems as if the colour pass is a little deceiving, as it seems as if all of the sandy colours I have applied to the environment are all the same colour, which is not the case whatsoever, as can be shown in the flat colour pass. I also made the flag a light green, as it's a colour that is often associated with safety, however it blends too much with the background, and appears too blue, so I may have to do a re-think. The scene also lacks warmth, which is something the concept artist was striving for, so I will have to include this through the usage of lighting.

WEEK 6 – TEXTURING THE LANDSCAPE

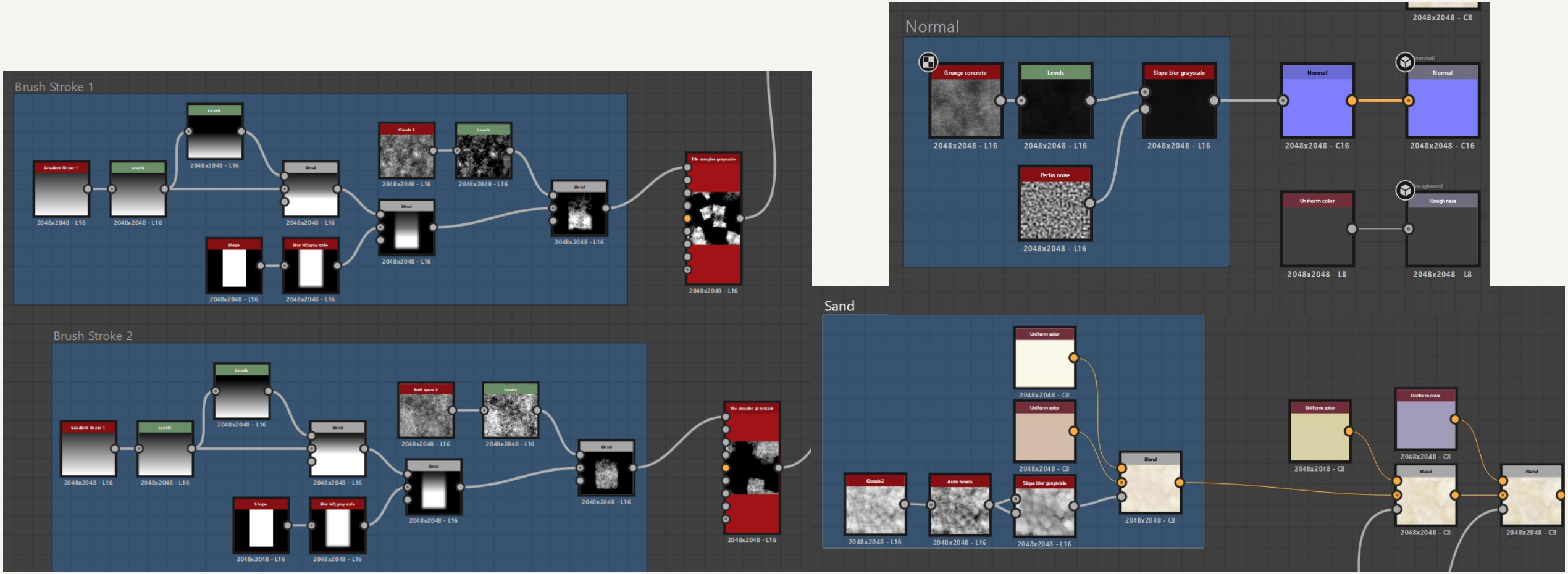
Landscape Texture in Designer



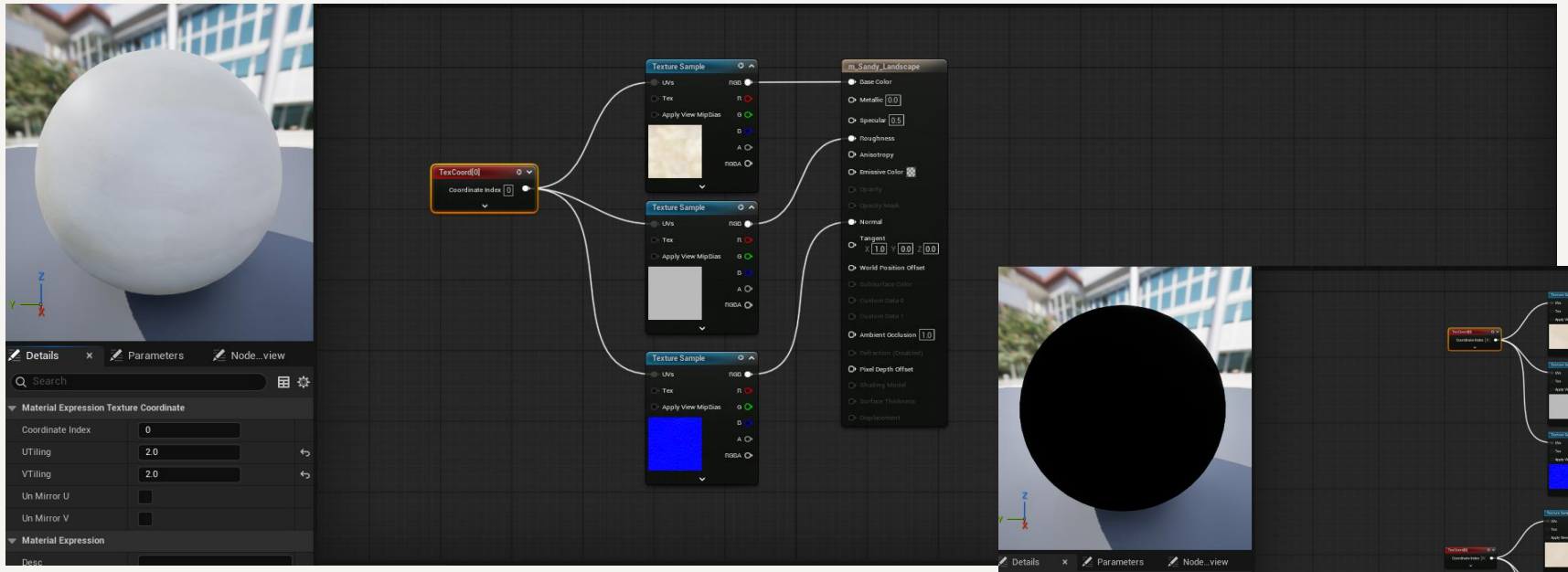
Water Color Effect – Substance Designer

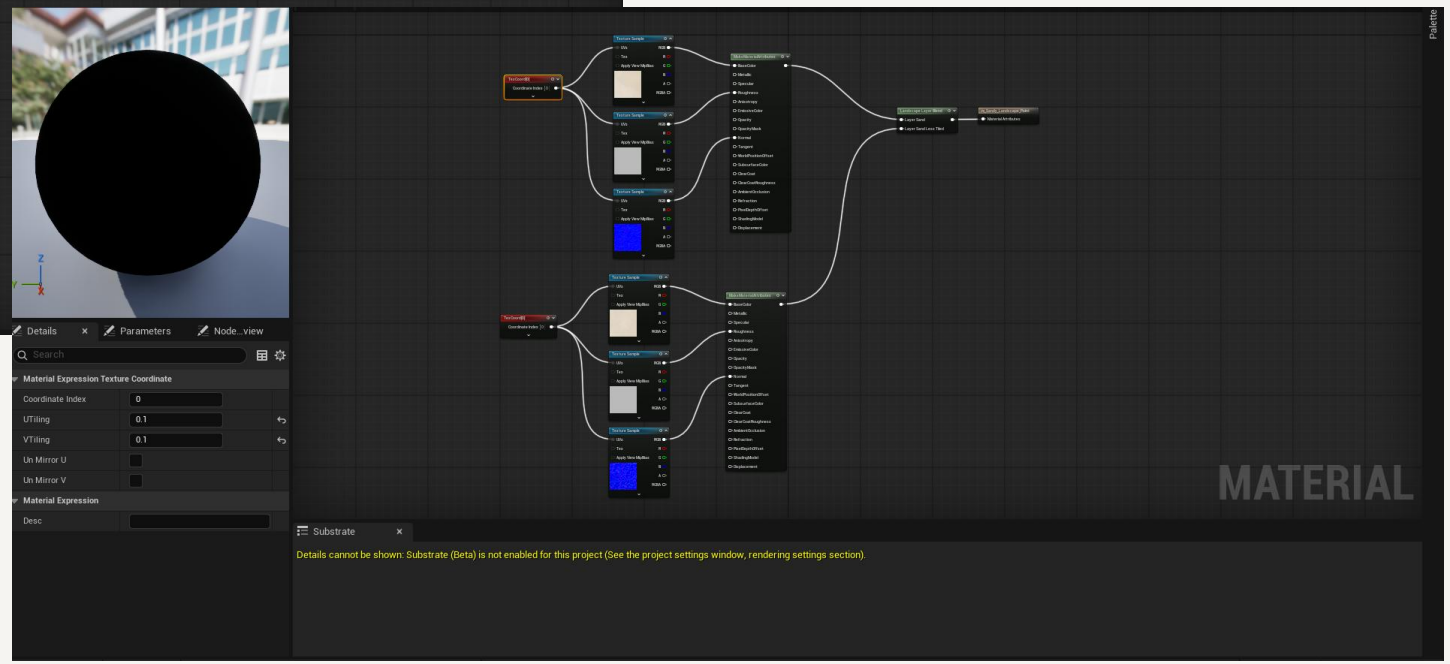
'Arcane' uses quite a painterly artstyle which I was unsure on how to re-create in Substance Designer. Luckily, I stumbled upon this tutorial and thought that it looked fairly similar to the art style I was trying to re-create, and so adapted it to suit my needs. I analysed the appearance of sand in the series, and replicated it as accurately as possible to a great result!

Landscape Texture in Designer (continuation)



Landscape Texture in Unreal Engine 5



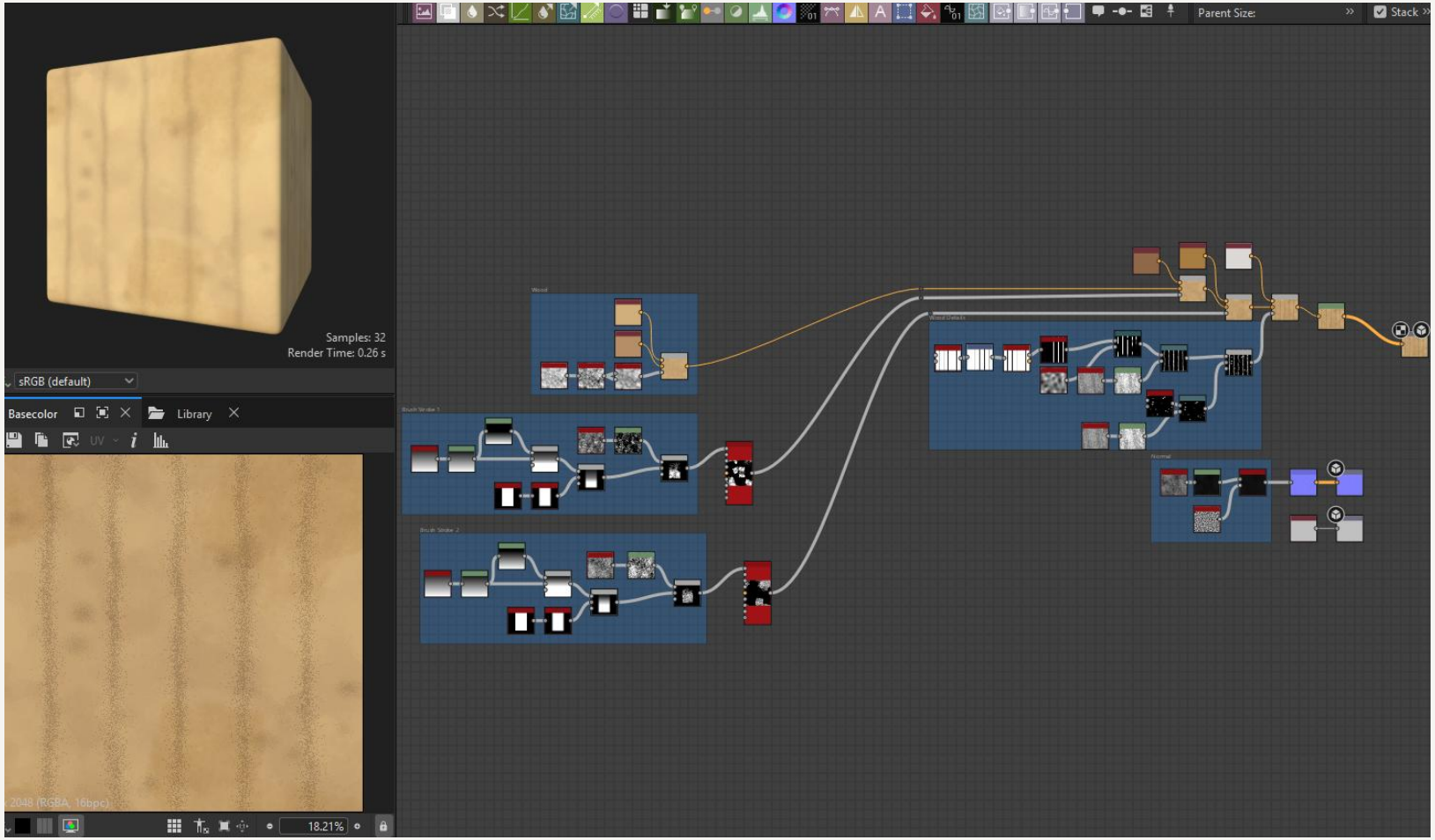


Once in Unreal Engine, a standard material had to be created for the rocks imbedded into the sand, and a landscape material was also developed in order to be able to paint the landscape in 'Landscape' mode. There were a few issues with tiling for both, yet this was easily rectified with a 'Texture Coordinate' node.

Landscape Showcase

WEEK 7 – TEXTURING THE SURROUNDING ENVIRONMENT

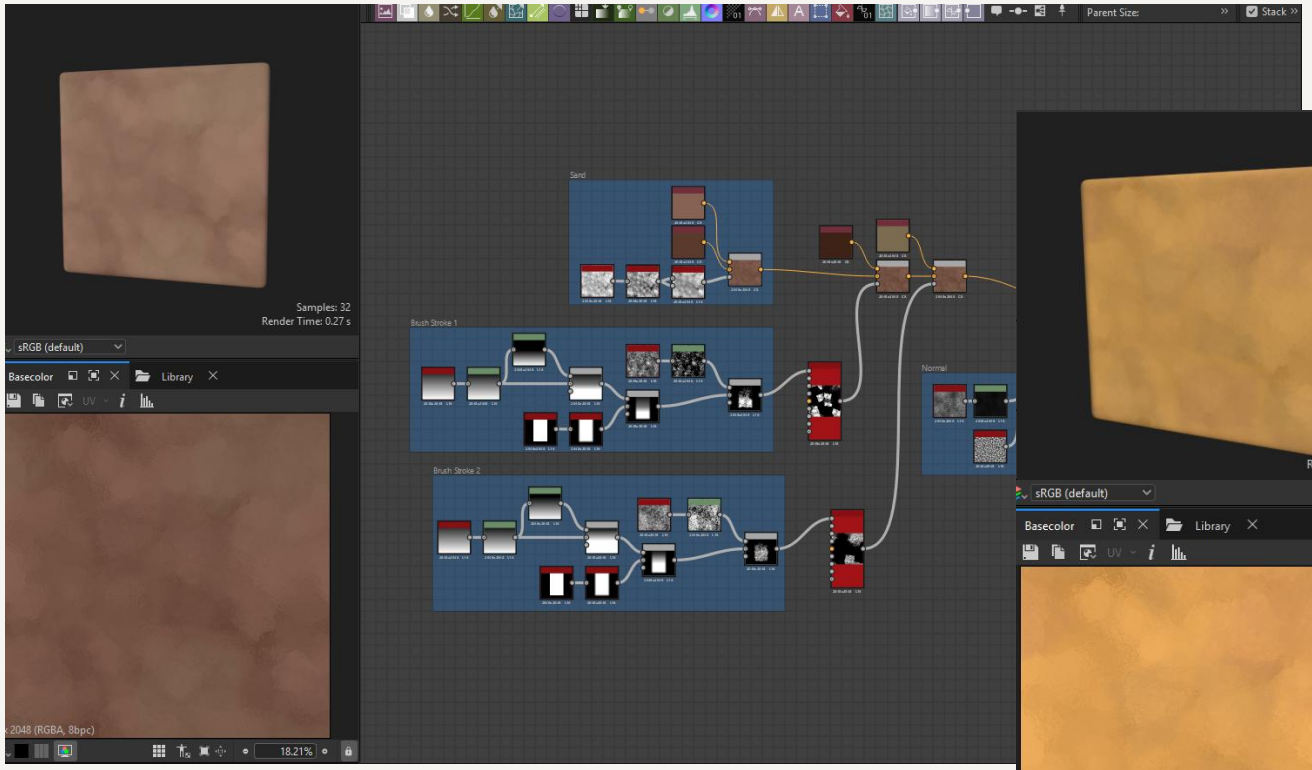
Wood Texture in Designer



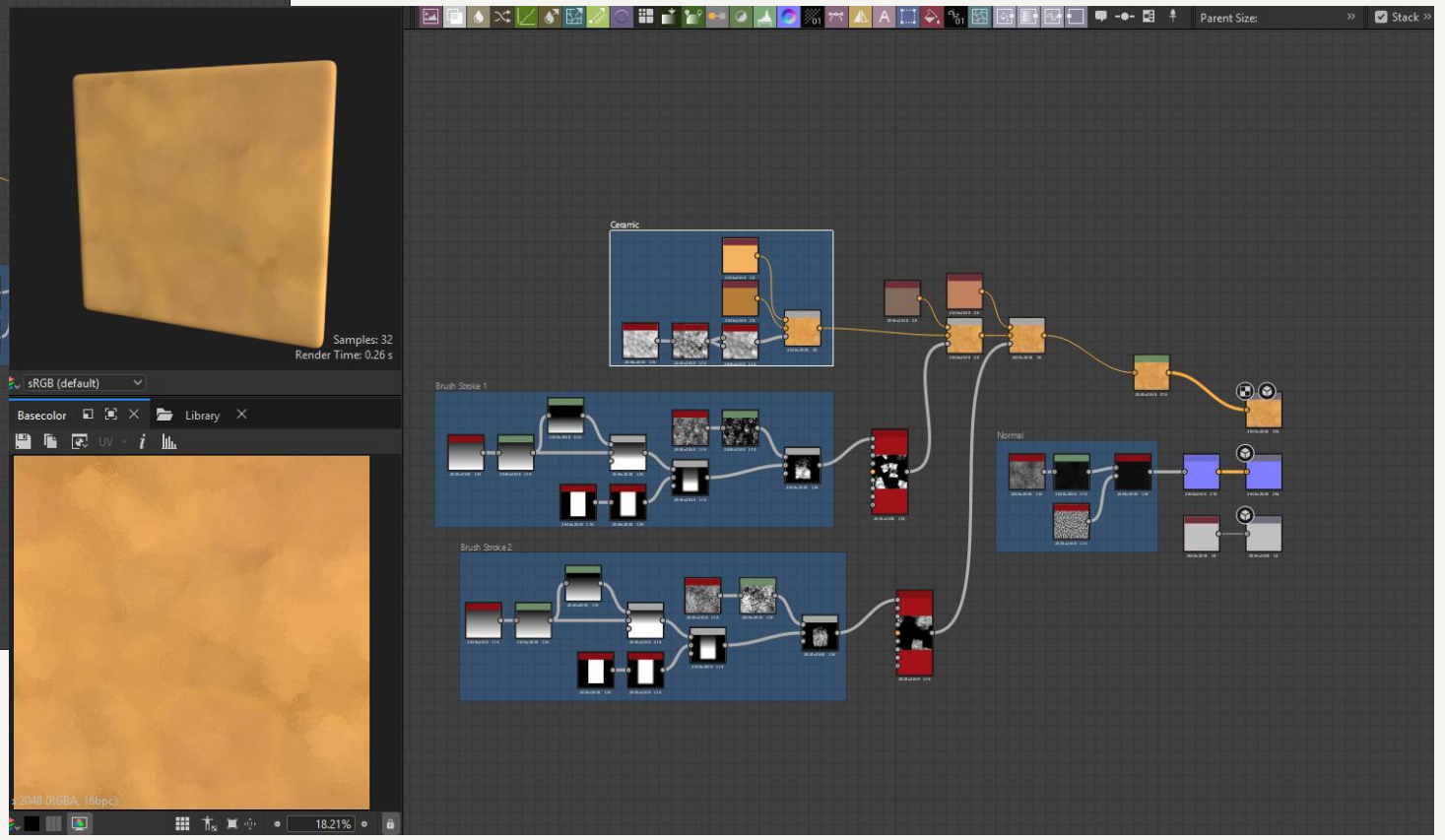
Like with the sand, I once again observed how wood textures are created in the 'Arcane' series. The textures were sort of plain initially, which is why I added in details like wood grains in order to add more visual interest.

Ceramic Texture in Designer

I initially re-created a ceramic texture based upon a ceramic bowl I found from the series, however it was way too dark for the environment. This meant that I had to update it to better suit the colours I needed, losing some of the detailing in the process.



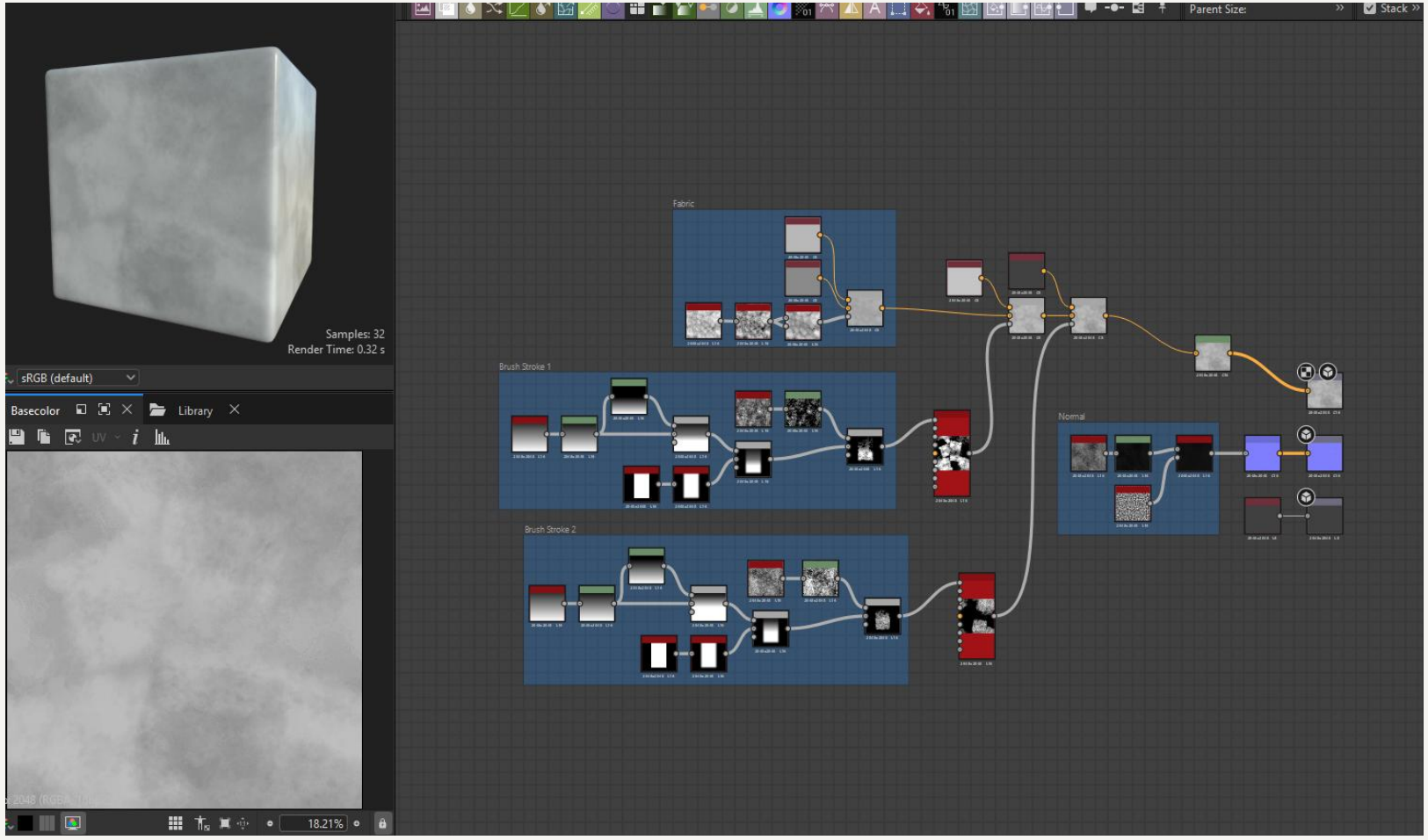
Before



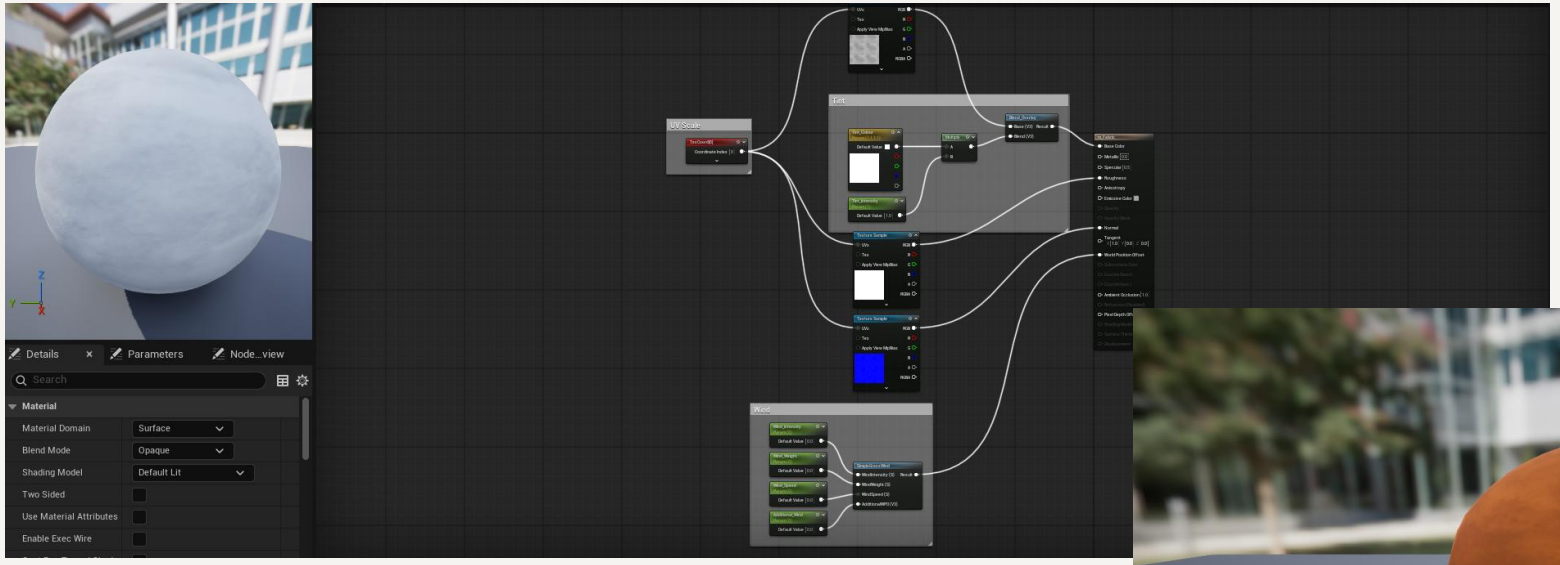
After

Fabric Texture in Designer

It may seem like an odd choice to make the colours for the fabric entirely white, however this was completed in order to save on memory. I understood that all of the fabric inside the diorama would utilise the same texture, which meant that there was a possibility that I could just tint the material in Unreal Engine in order to create different colours, rather than producing a large amount of texture maps in order to achieve the same result. Making it white from the outset means that the colours will apply a little easier in UE5.

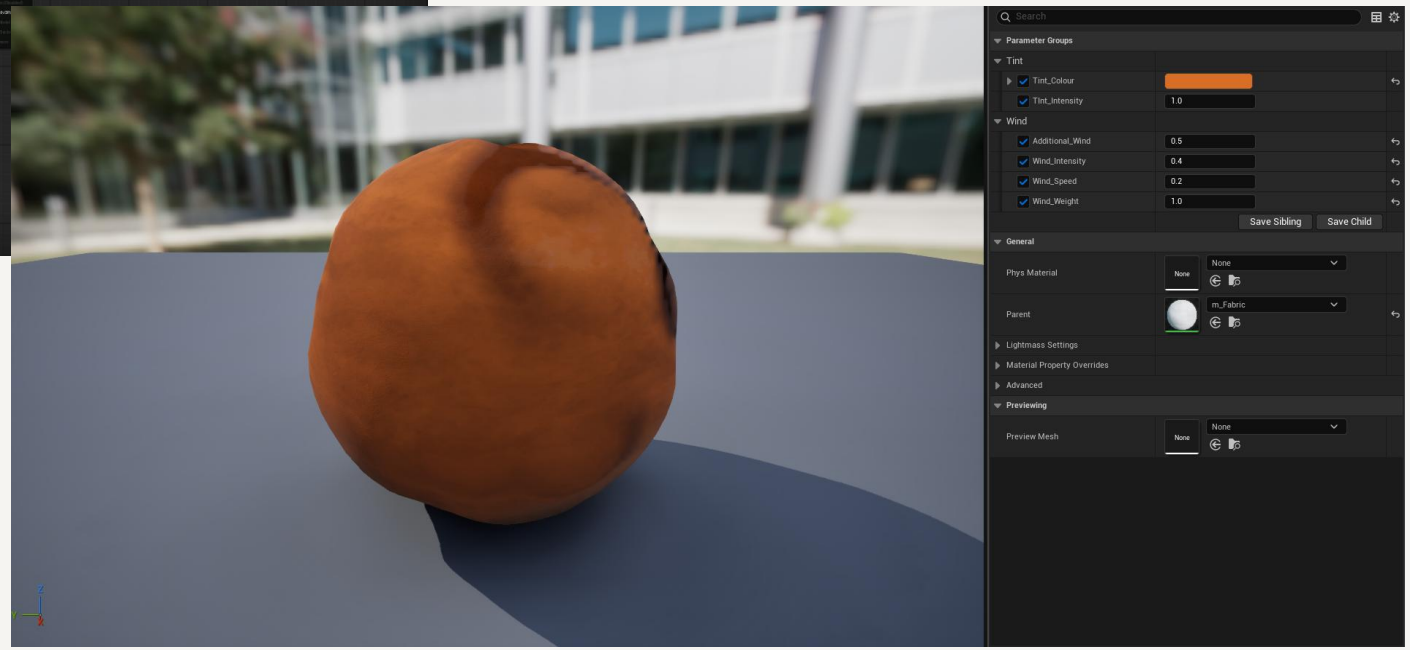


Fabric Texture in Engine



Main Material Editor

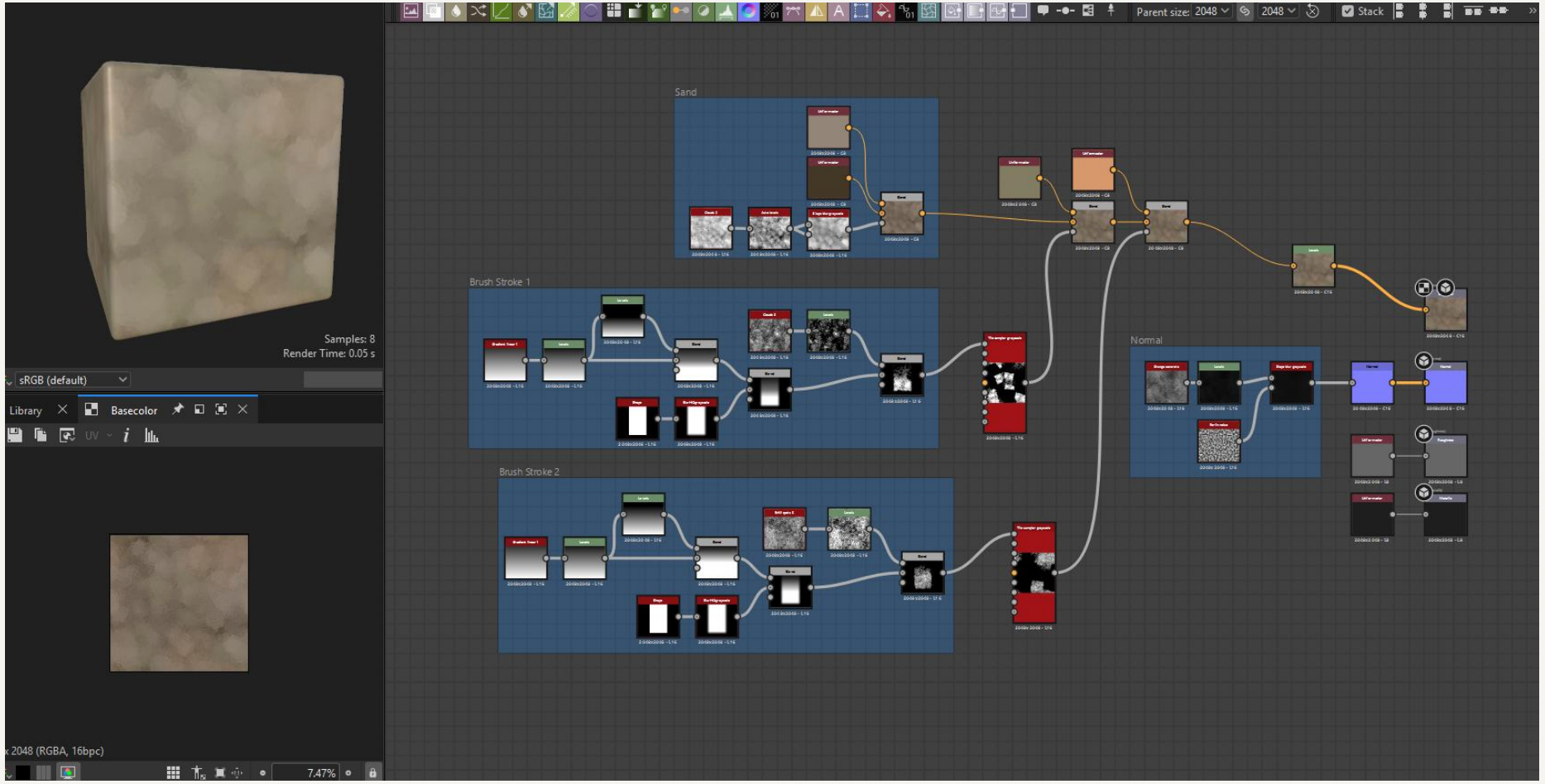
Here is some evidence on how I added a tint to the texture maps created in Designer, and then proceeded to make them move in the wind, using both the main material editor and material instances in Unreal Engine 5.



Material Instance

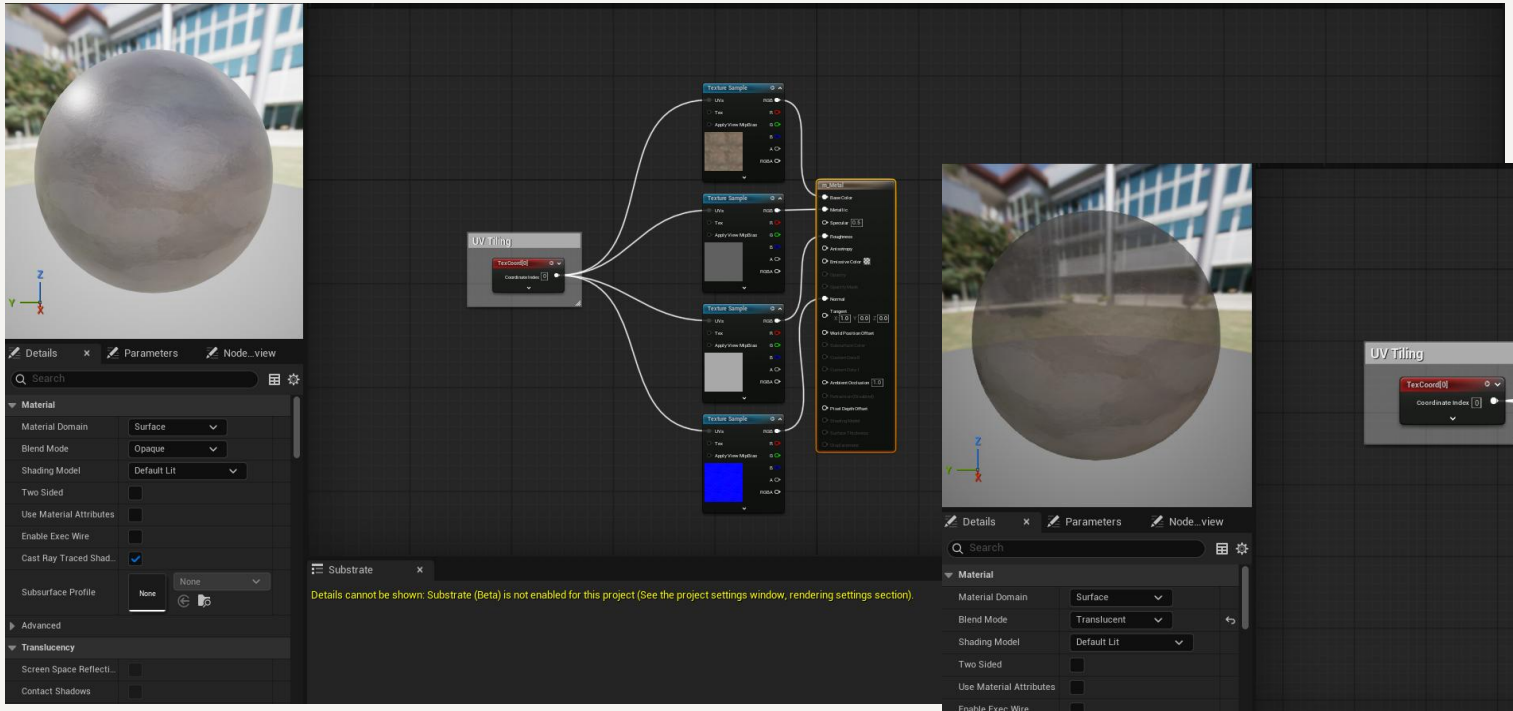
Texture & Updated Lighting Showcase

Metallic Texture in Designer



Due to there being so many different supporting assets, all needing a unique texture each, I asked permission if I could add an extra 2K texture for the supporting environment, bringing my total from 4 to 5 texture maps. I was told to continue, and so I created this metallic material for the cooking pot and lanterns in the diorama.

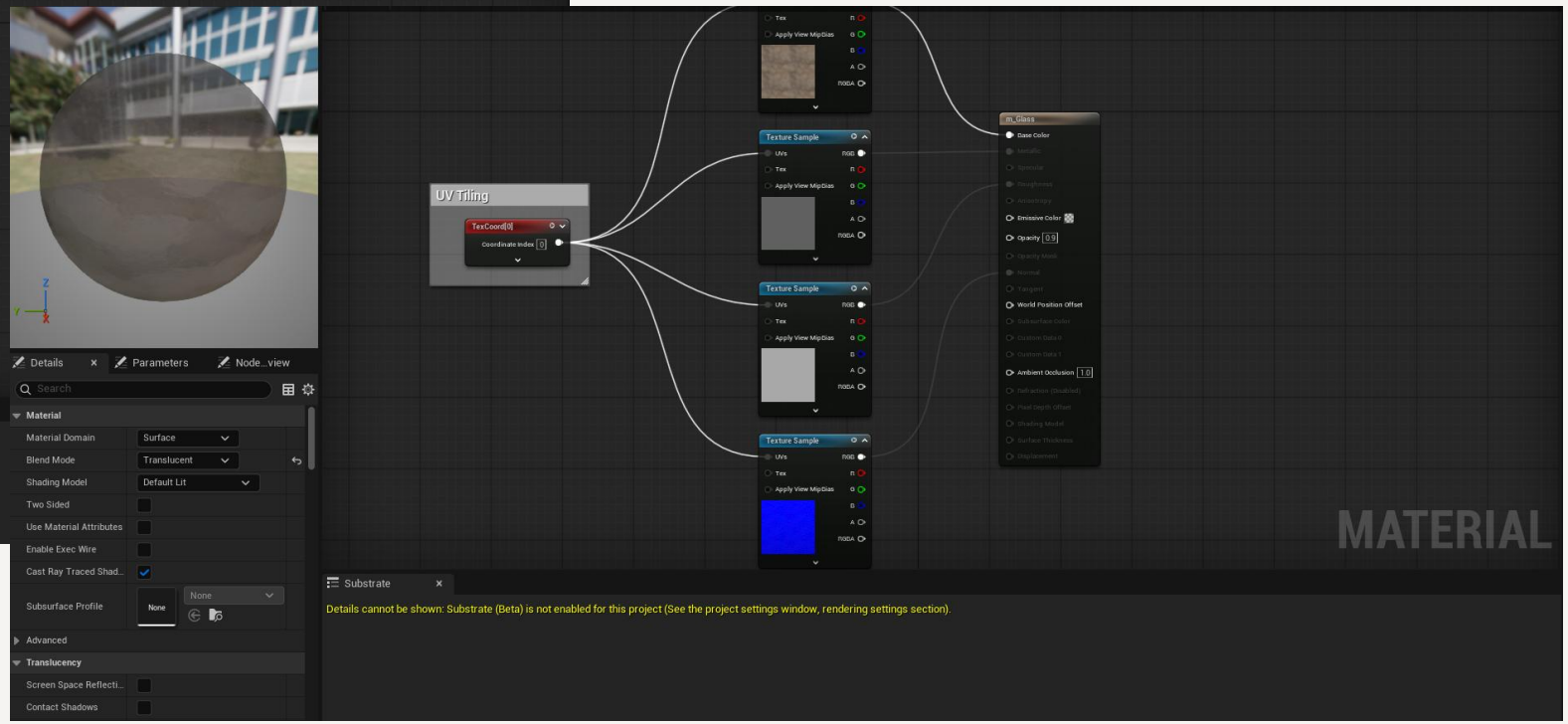
Metallic and Glass Materials in Unreal Engine 5



Metal Material

Through this technique and the tint technique I utilised for the fabric, I have been trying to maximise the texture sets created as much as possible.

As I also needed a glass material for the lanterns, yet did not want to create a whole entirely new texture set, especially as I have gone over the limit as set out in the brief already, I utilised the metallic material, and turned on the opacity in Unreal Engine 5 in order to create ‘Arcane’-accurate looking glass.

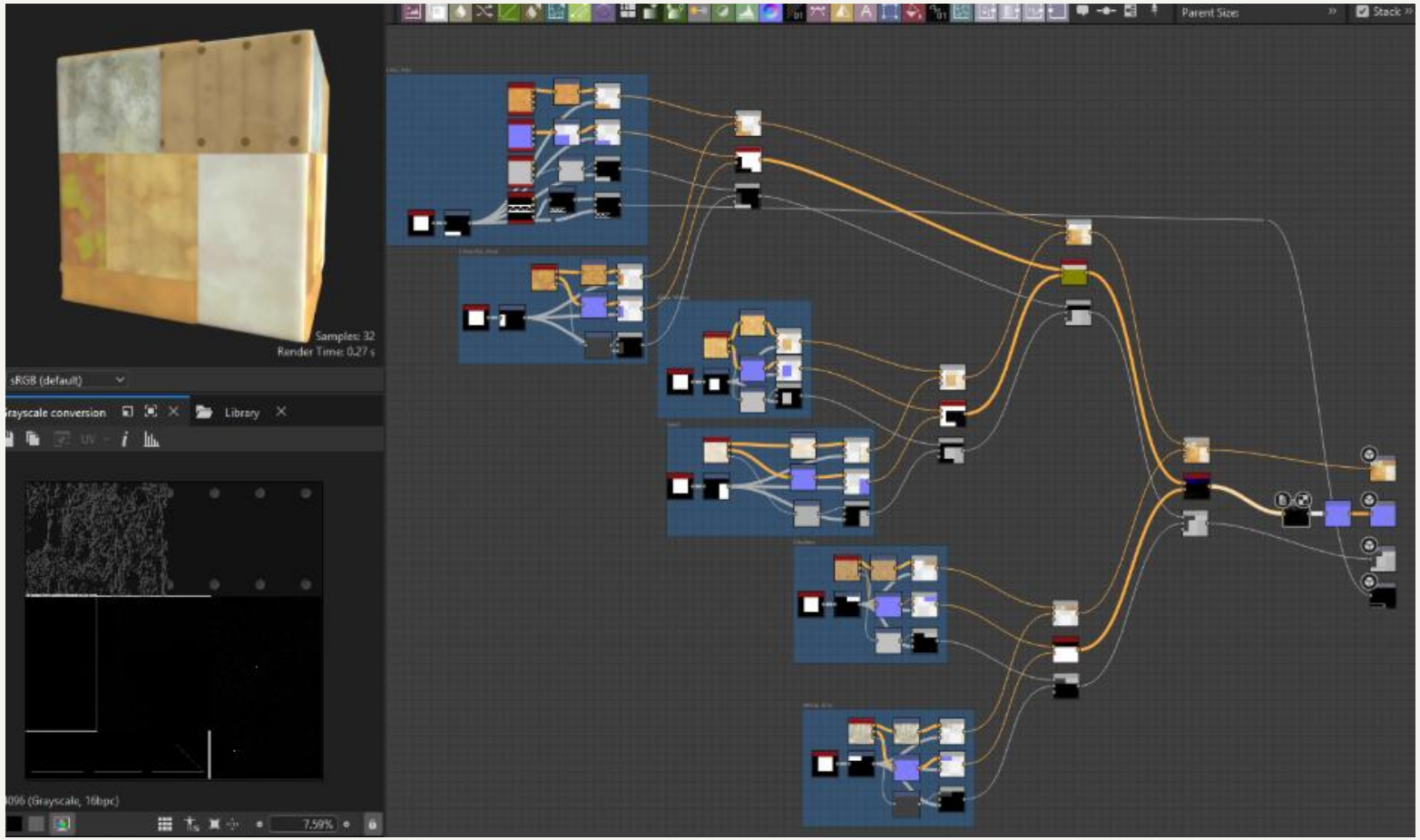


Glass Material

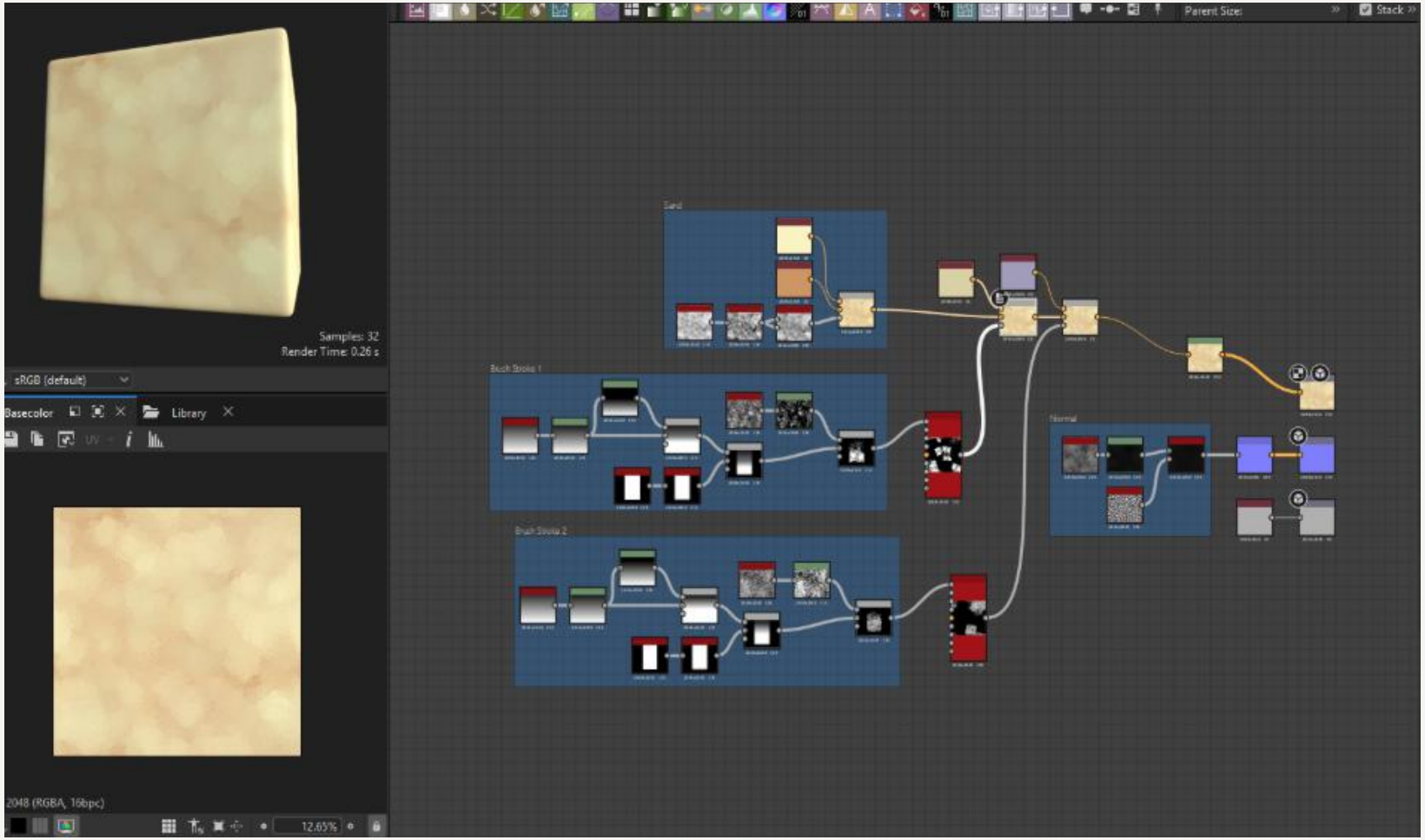
WEEK 8 – TRIMSHEET CREATION, NIAGARA, SHADERS & DAMAGE DECALS

Final Trimsheet in Substance Designer

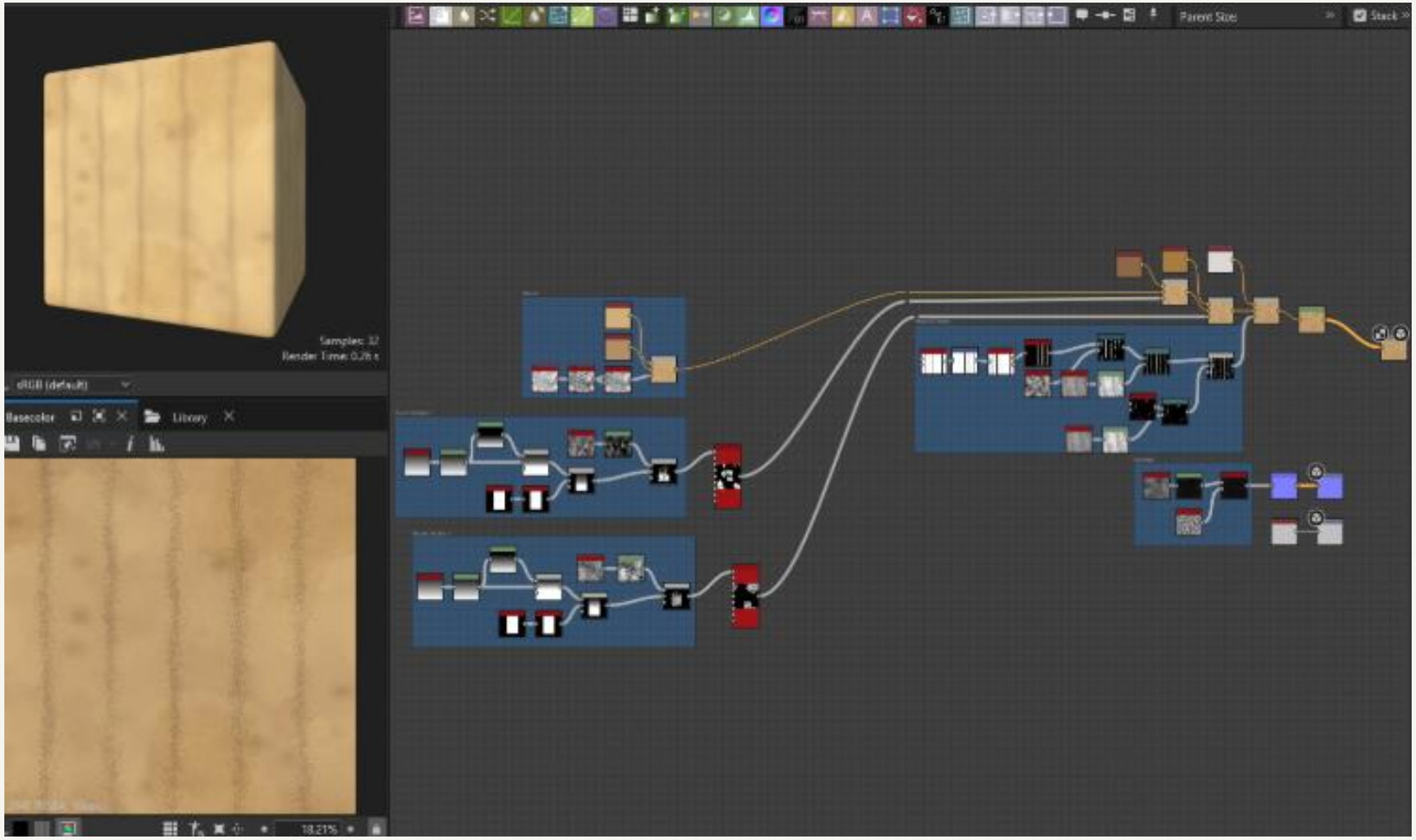
As I had finished texturing all of the supporting assets previously, it was time to create the final 4K trim sheet for the main buildings. It was a fairly long process due to needing to create multiple textures mostly from scratch and then needing to combine them all together in one final Designer project. There were a few issues when combining everything together due to not being able to combine the normal maps together properly. However, this was remedied using a 'normal combine' node.



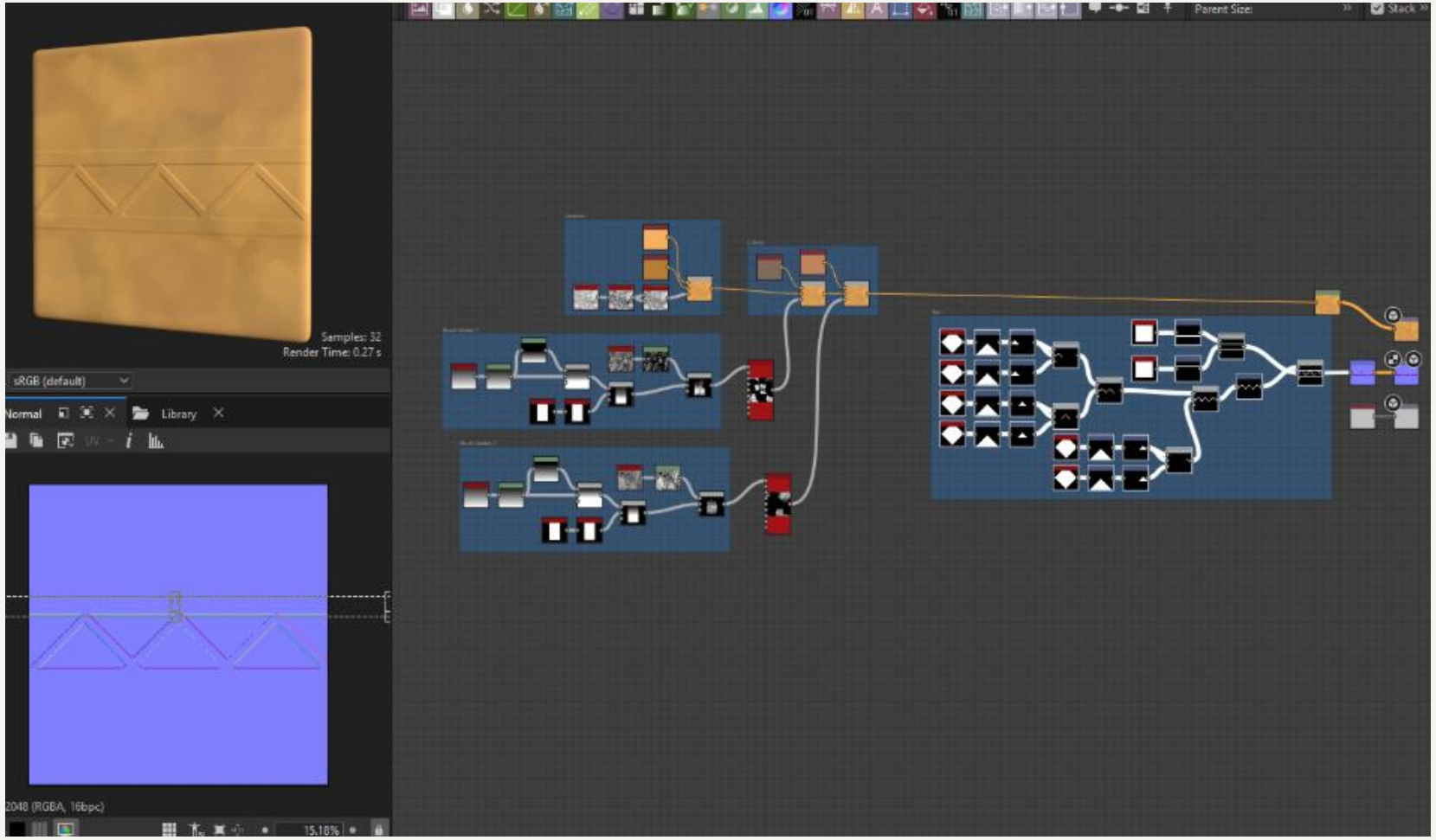
Sand Used in Trim Sheet in Substance Designer



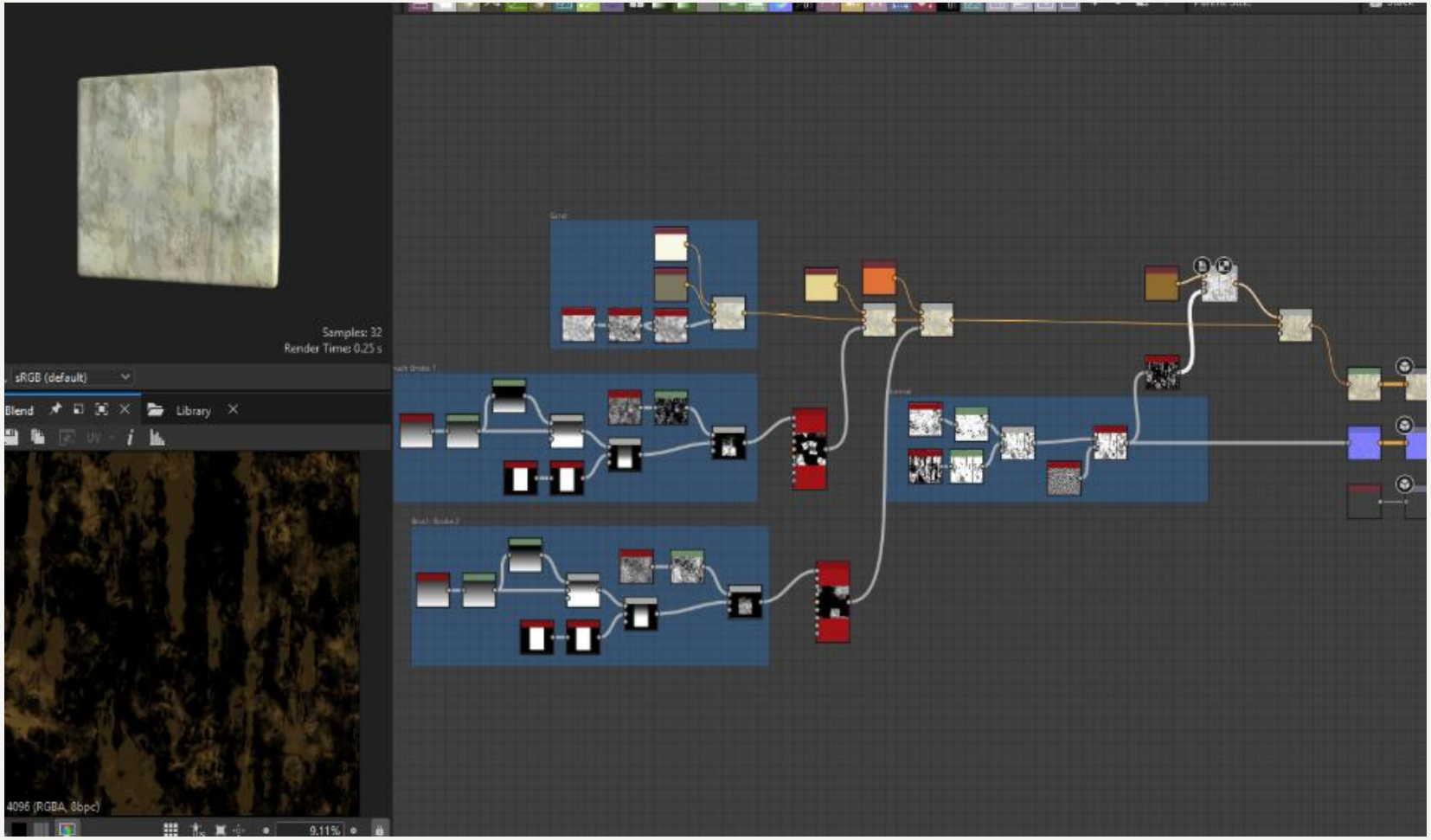
Wood Used in Trim Sheet in Substance Designer



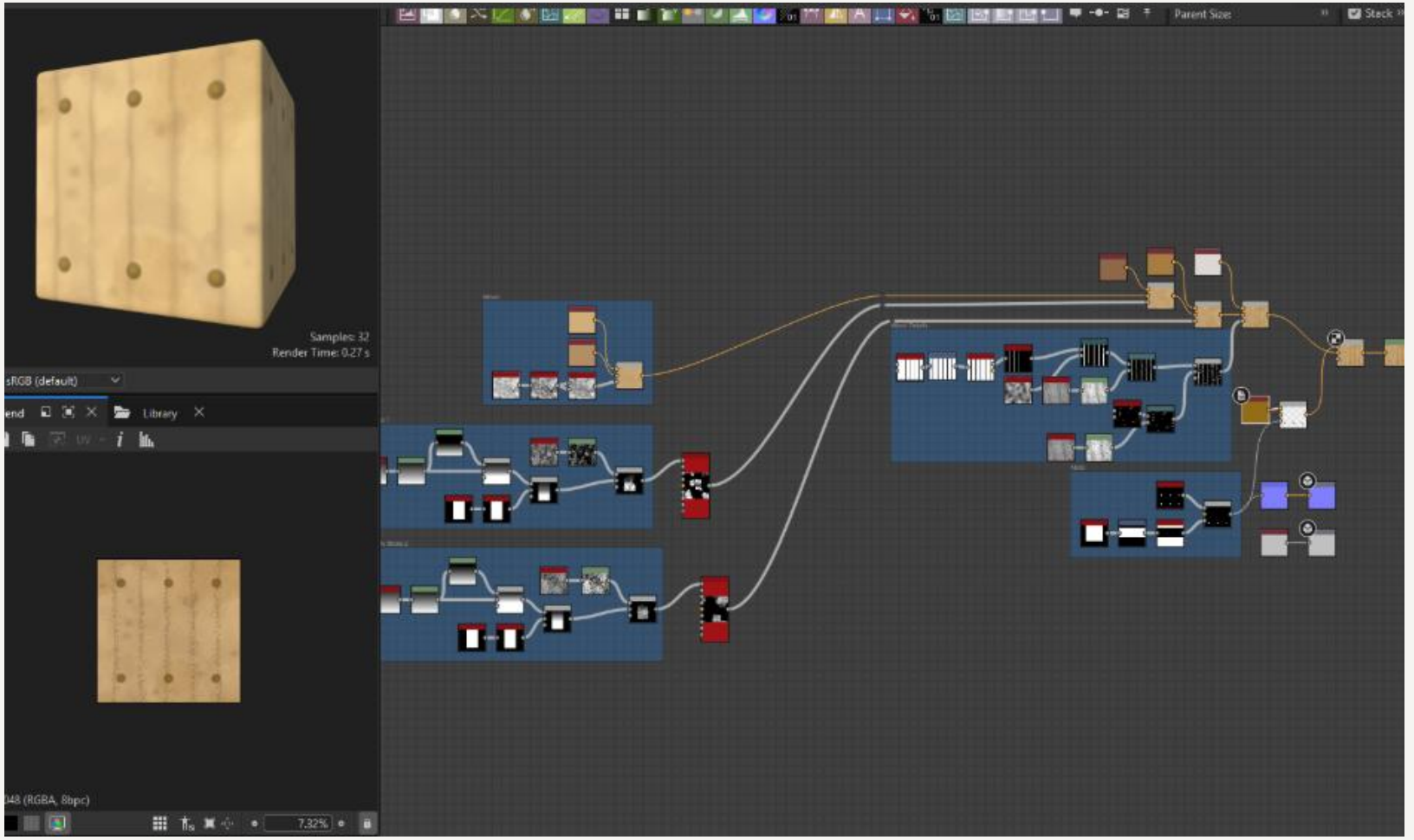
Ceramic Pattern Used in Trim Sheet in Substance Designer



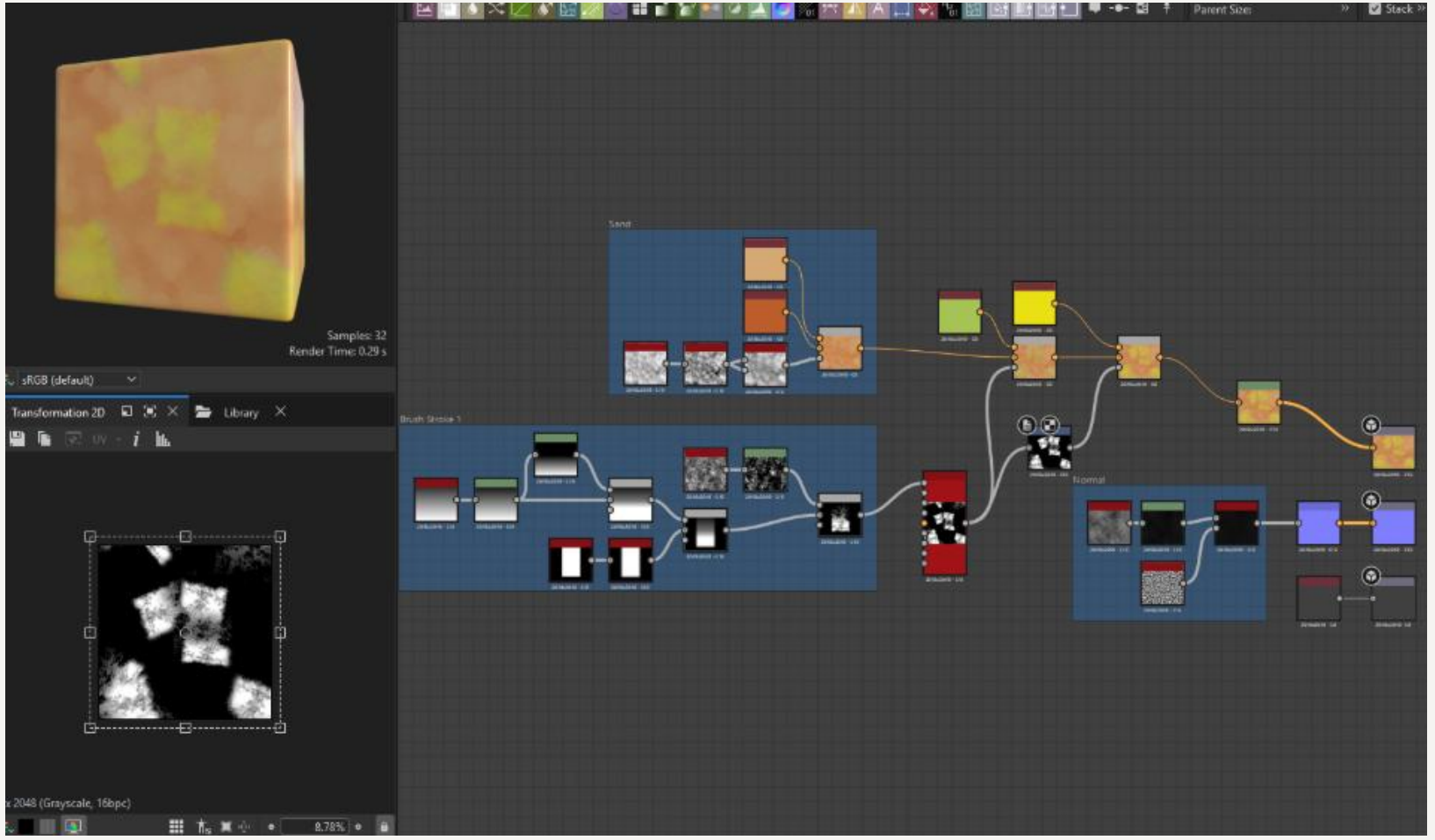
Sand Trim Used in Trim Sheet in Substance Designer



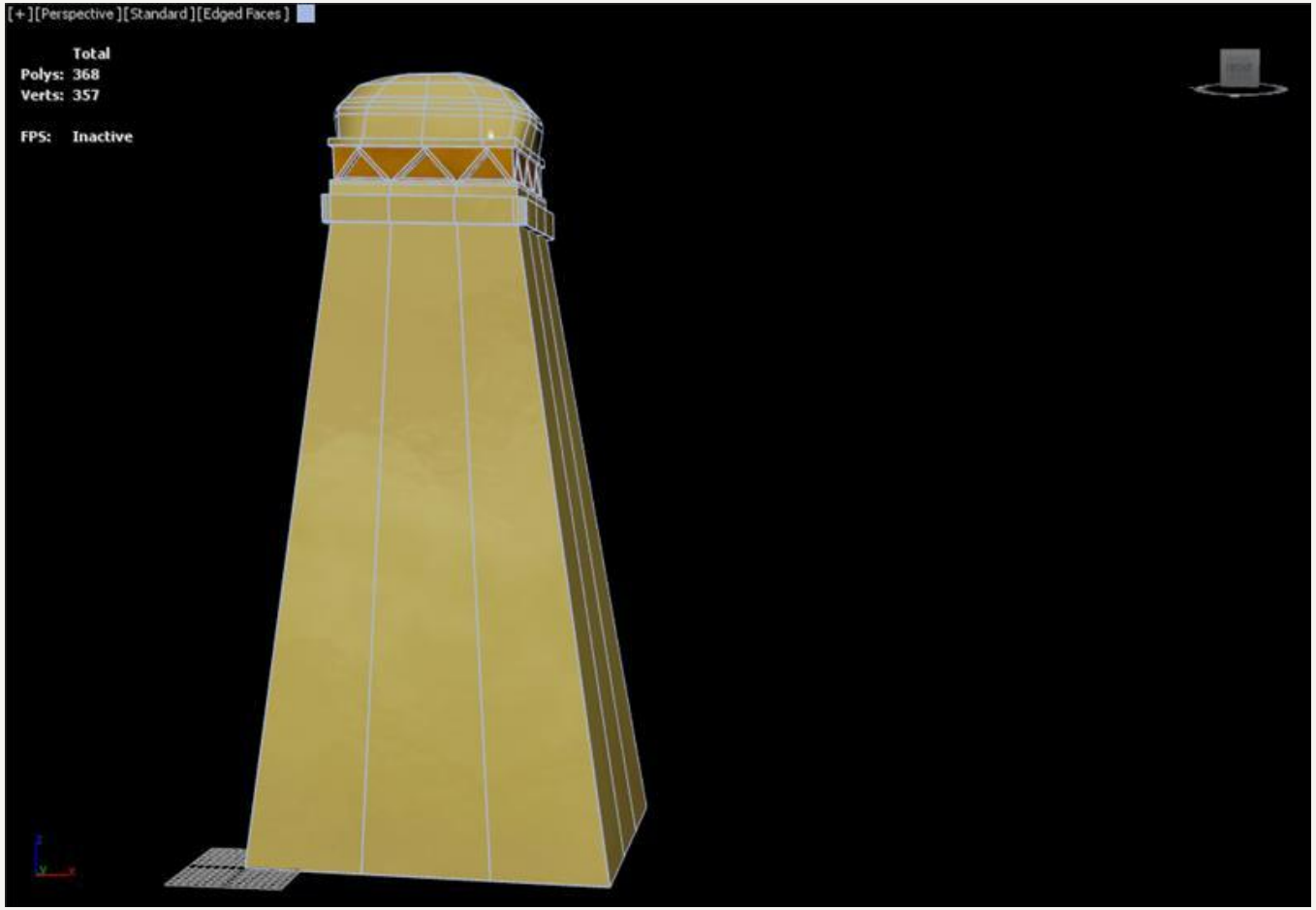
Wood Used on Shutters Used in Trim Sheet in Substance Designer



Red Door Colour Used in Trim Sheet in Substance Designer

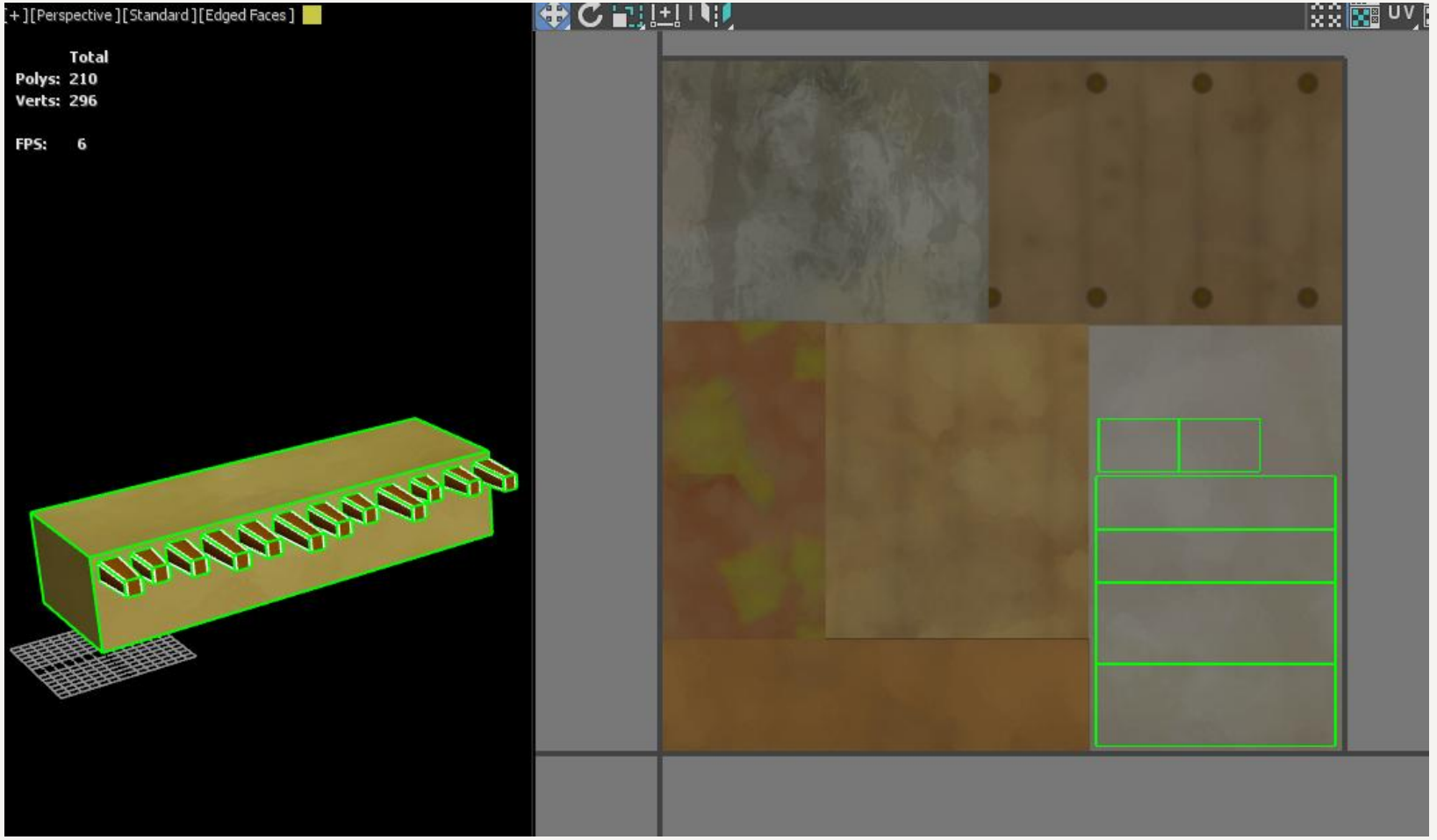


Asset Update Based on Trim Sheet



I was originally hoping to create the triangular ceramic pieces on the pillars through the usage of a trim sheet, however the normal map created was not strong enough to truly represent how they feature in the concept art. Due to this, the triangular pieces had to be modelled into the asset itself.

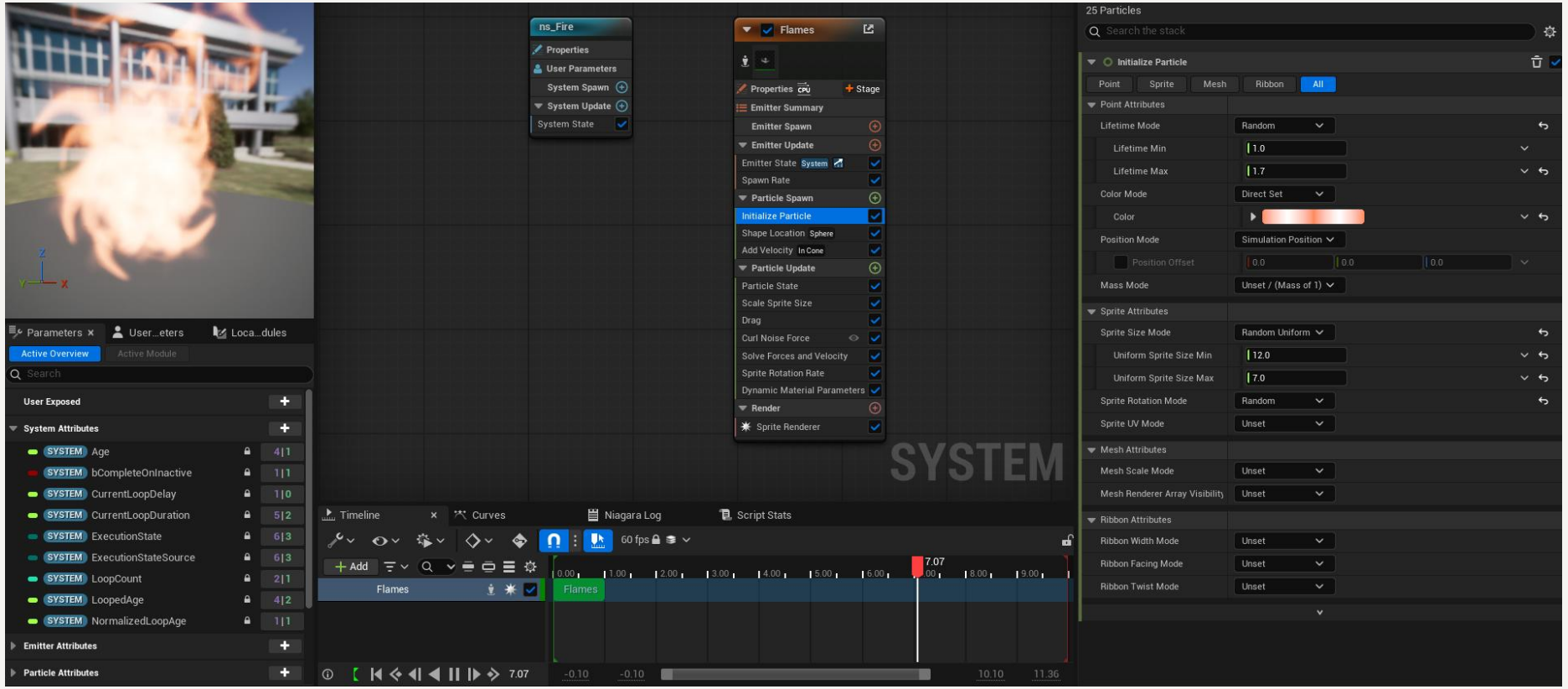
Asset Update Based on Trim Sheet



The wooden awnings that feature on some assets were also changed to better reflect the concept art in their non-uniformity and roundedness.

Updated Texture Showcase

Fire in Unreal Engine 5

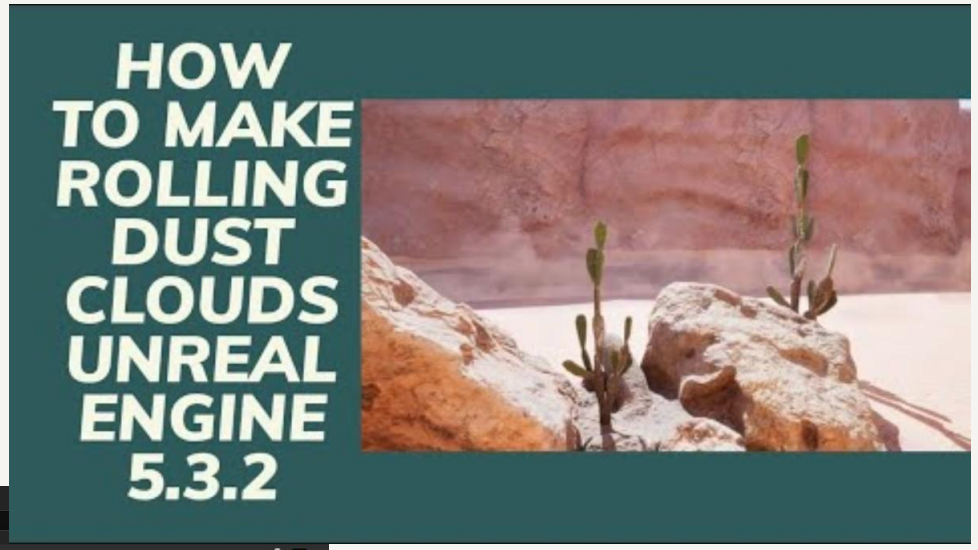


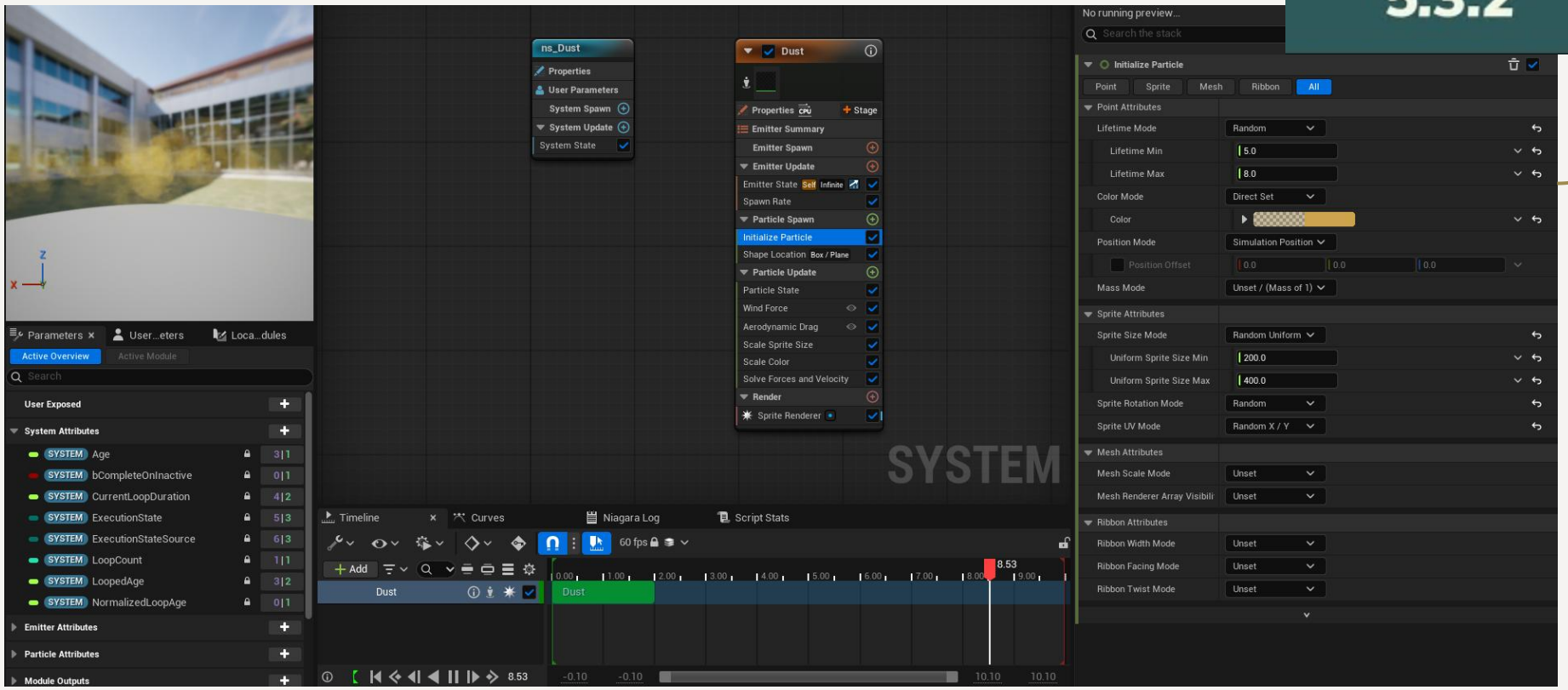
Fire Simulation FX in Unreal Engine Niagara | in 12 minutes

Unreal Engine 5 – Stylized Fire VFX – Niagara Tutorial

As part of the brief, I wanted to add fire to the firepit in order to showcase storytelling, whilst also showing that the environment is being used, whether by NPCs or other players. As Arcane is entirely stylised, and the fire in the show often appears wispy, I tried to recreate the same effect via combining two tutorials I found on YouTube.

Rolling Sand in Unreal Engine 5

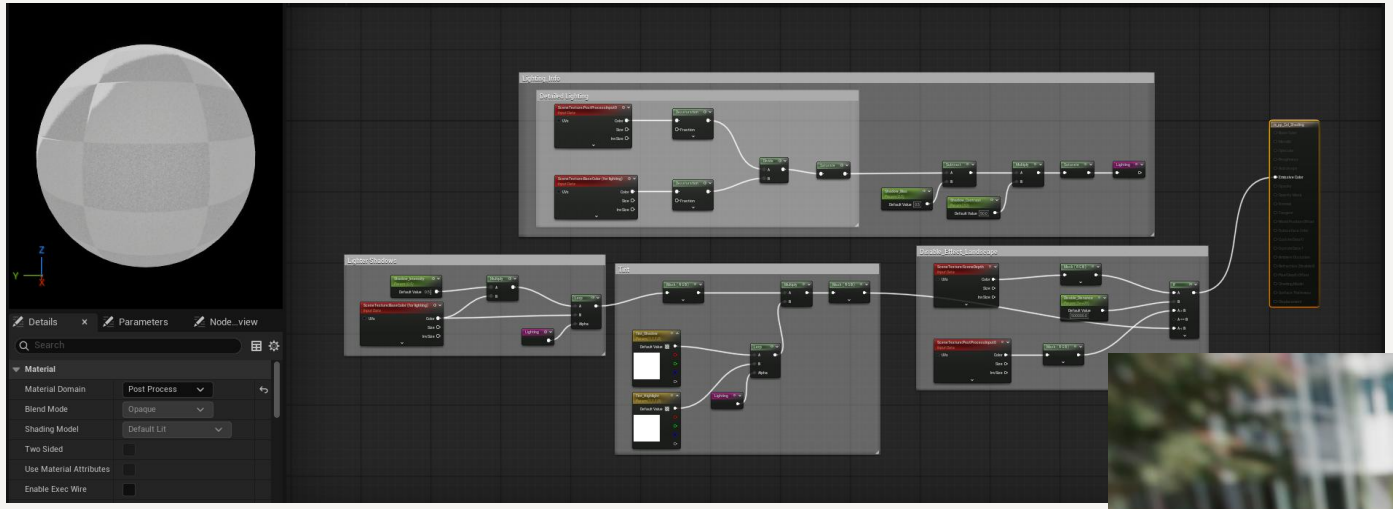




LEVEL DESIGN TUTORIAL ROLLING DUST PARTICLES IN UNREAL ENGINE 5

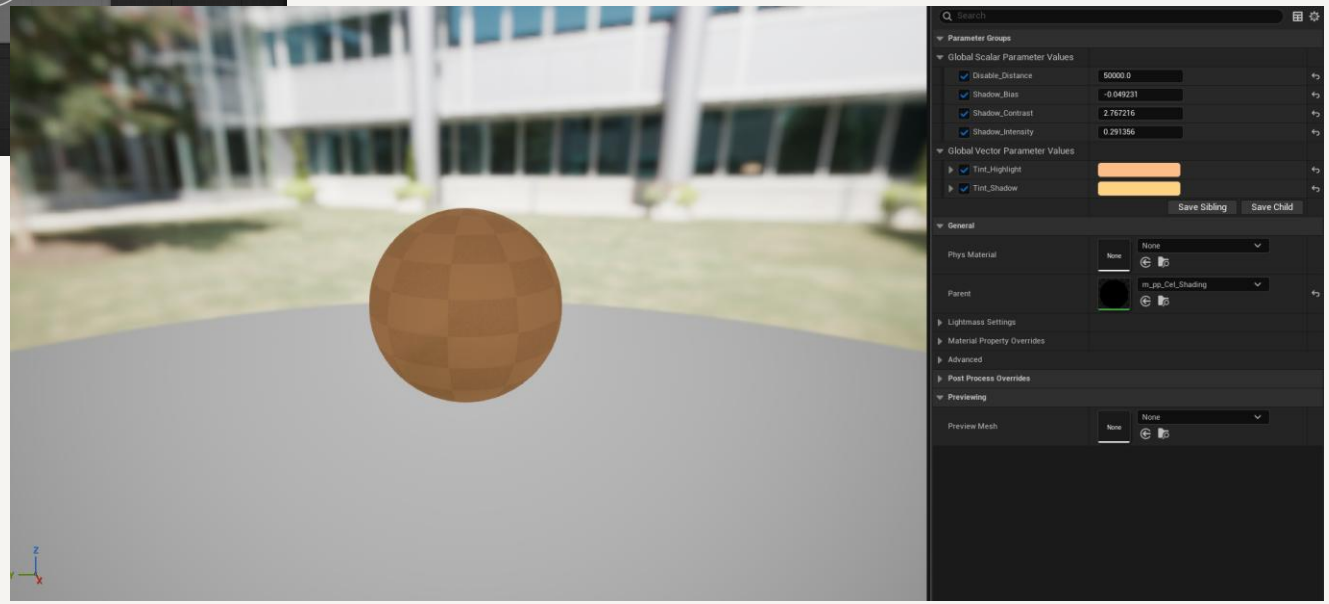
Eventhough it is a clear sunny day in the concept art, I wanted to also include some rolling sand and make it appear as 2D as possible in order to really push home that this is an ‘Arcane’-style piece. Arcane utilises quite thick smoke/fog in most of its scenes, which I tried to replicate initially, however (as seen in later screenshots), I decided against it eventually as it obscured way too much of the diorama created.

Creating Shaders in Unreal Engine 5



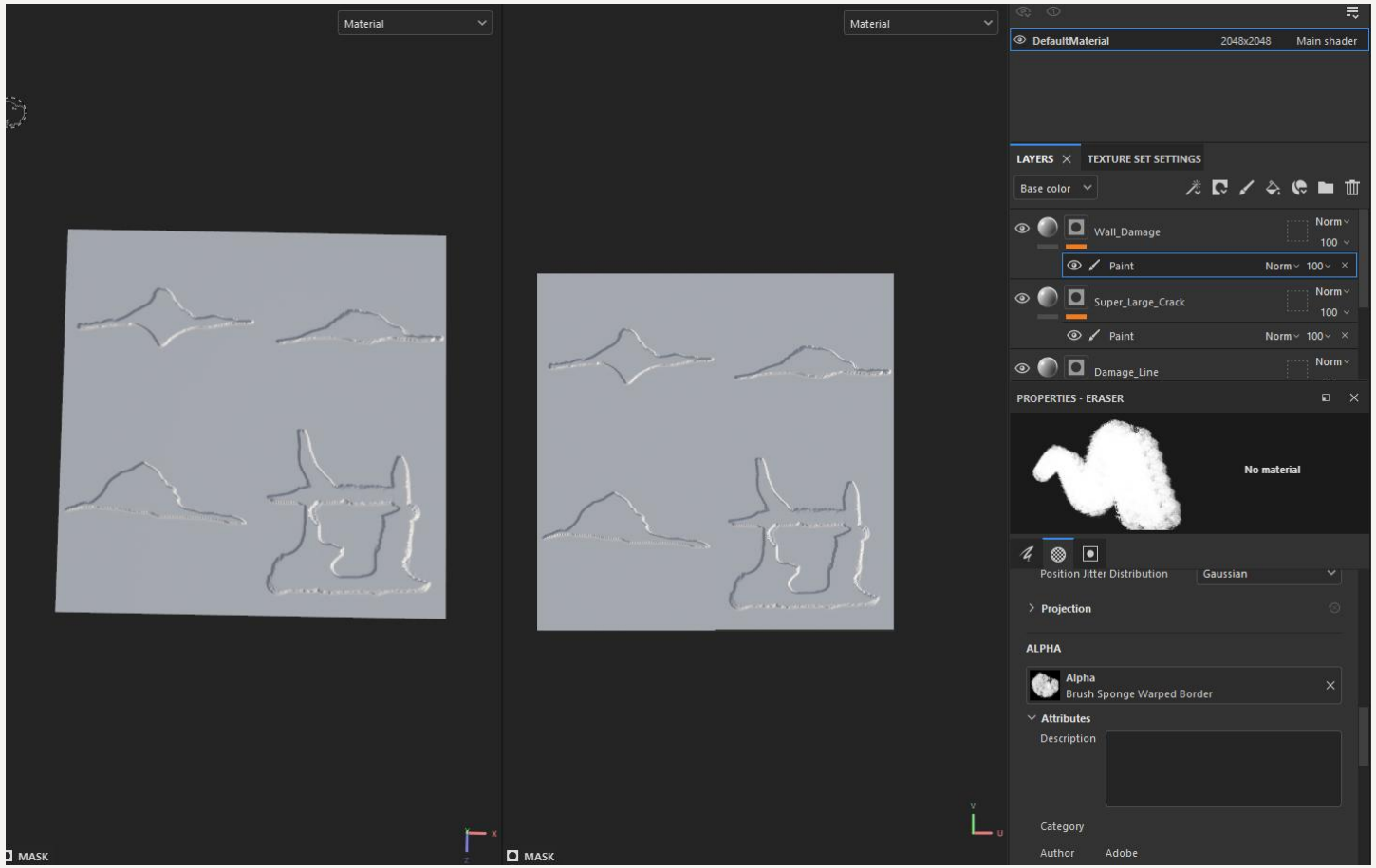
How Create A Simple Cel Shader – Unreal Engine 5 Materials Tutorial

As I still felt as if the 2D aspects of ‘Arcane’ were not represented accurately enough, I decided to create a shader for the first time, and utilise it throughout the environment. A friend of mine shared with me a cel shader tutorial they had utilised in a project of their own, as they felt it would suit the style of ‘Arcane’ perfectly, and they were right!



Updated Diorama Showcase

Damage Decals in Substance Painter



In the concept art, damage is showcased on certain assets, like the walls and pillars for example. I decided to re-create them in Substance Painter using only the normal/height map due to it being nearly impossible to sculpt damage on certain 3D models as they're all separate modular pieces. I then manipulated the UVs in order to separate each UV space into its own material instance so that I could easily place the decals wherever I wanted inside the diorama.

Updated Diorama Showcase With Damage

Final Diorama Showcase With A Few Tweaks