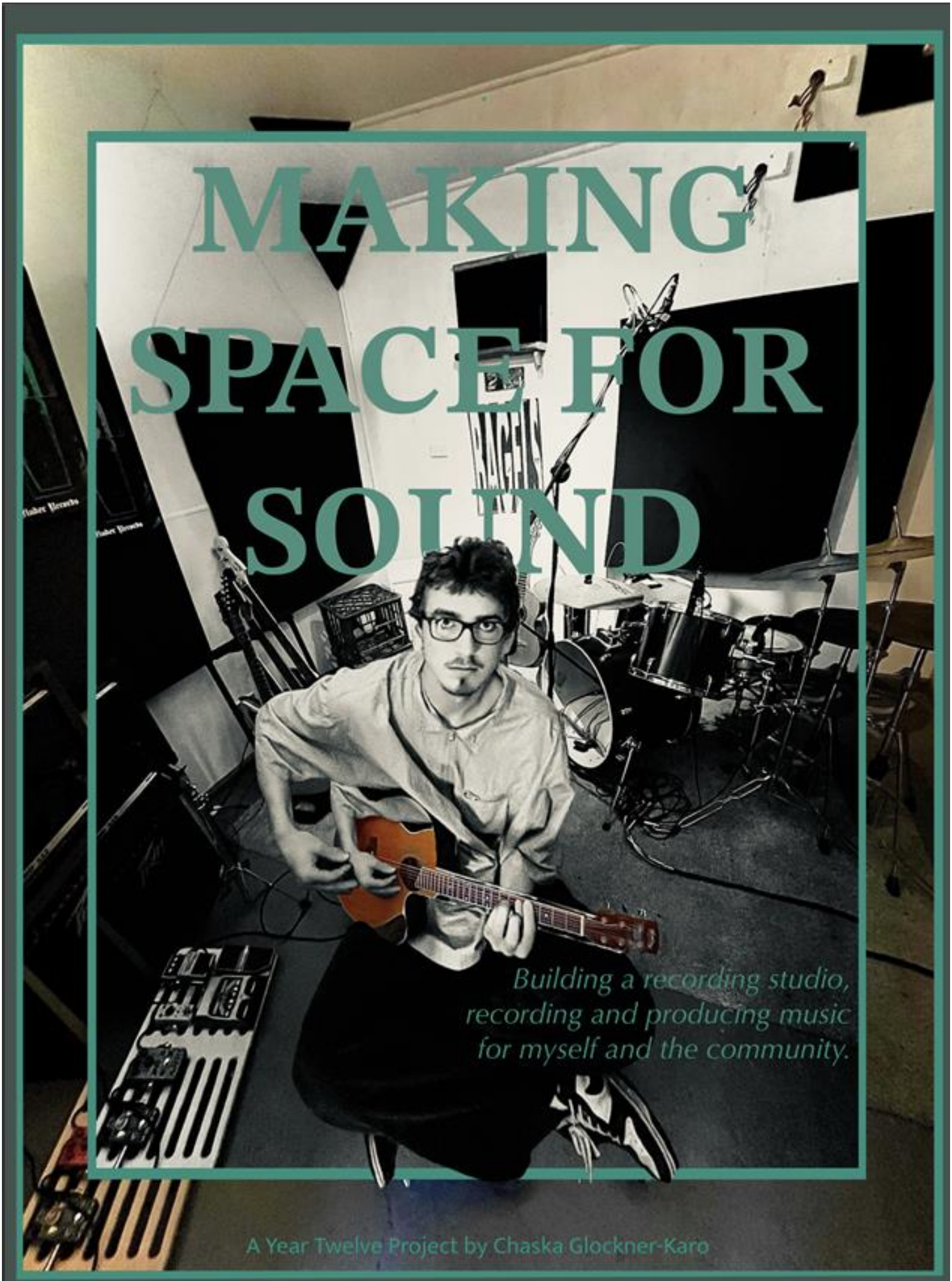
MAKING
SPACE FOR
SOUND
Building a recording studio,
recording and producing music
for myself and the community.
A Year Twelve Project by Chaska Glockner-Karo

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Introduction

This project in essence is about three things. The value of DIY, the importance of expression, and understanding creative processes.

I remember coming into Willunga Waldorf at the start of year 10, and hearing about the Class 12 projects. It seemed so far off, so irrelevant to me at the time. However, as I got older and started year 11, it started to loom up, both as something to look forward to, as well as a huge hurdle to overcome. With the pressure building I started brainstorming, I remember I had so many ideas and inspirations, and almost was overwhelmed with the freedom. Even though I was unsure of the specifics of the project, I knew I wanted my project to be creative, and expressive. I also did not want to morph it to fit into the bounds of the criteria, negatively impacting it. I wanted the project to naturally take form, encompassing both my own needs and the schools' expectations. I was completely set on doing something I would want to do every day, driven completely by myself simultaneously pushing me, both physically, creatively and mentally.

I then settled on music as my form of expression. And decided that building a small recording studio and recording in it, would fit myself and the project perfectly. I originally intended to have an album consisting of a series of collaborations I did with various artists/bands, but due to changes throughout the year, this transformed into something different. The project now consists of a few songs, soundtracks, experiments, films, collaborations and of course the studio itself, which I think turned into a clearly documented process of learning. Throughout the year I have learned about sound, recording, building, creative expression, and myself, finding what I want to do in my life. I think this project ended up taking over my whole life throughout the year, keeping my brain busy with creative ideas, what ifs and when can I's. It both challenged me deeply, with collaborations and expectations, and rewarded me with incredible experiences, opportunities and works of sound.

Not only was this project about the physical things I would create, like the studio, and the songs, but also creating how the space would feel and act as a place for free expression. This idea or need for the project only came nearer the end, but it felt important to create this space to be free of the pressure that comes with recording music in a “professional” studio, without losing the sound and expertise that comes with it. I wanted it to be a place where you can both not worry about time, money or pressure, and have access to the proper equipment and space. I had to then think about, space utilisation, cost, gear choice, my own learning, and just how to create a space like this within a year. This came with many challenges and learning curves which both pushed me to the extreme, as well as rewarded me exceedingly.

Over the year I transformed a small room in a transportable building in my garden. With walls of art, mould and dust this space functioned as a jam room (see glossary) but lacked the facilities for a functioning studio space. I transformed it into a live room with everything required. I built a control room adjacent to that, which I sound proofed, and sound designed. Transforming both spaces completely with all the necessary gear and furnishings. After that, I started on the second part of the project, recording. I’d already created some very simple electronic music, and experimented with some small-scale recording, but the process of learning the intricacies would be long and difficult. Far more challenging and rewarding than I thought. I also wrote songs as an expression, a form experimentation and in support of others in their creative endeavours. These individual explorations intertwined with one another, and my knowledge and love of carpentry, electronics and sound quickly grew. This process unfolded, challenging and extending me as the project developed.

Why I chose this Project

I chose this project for several reasons, with some developing, and changing throughout the year. The first reason was my love of music. From quite a young age, I was in love with music and dance, I would tap dance around the house, playing the piano and sing to myself. This drive for expression, not just in music, but in all creative expression continued in my life, and I grew to value the importance of this to me.

Only in the last few years, however, have I actually pursued learning instruments. I Had been gifted a drum set when I was around 11, and this let me physically express myself in a way I had never before. However, I had not started writing music. That started when my uncle showed me how to play 'Knocking on Heaven's Door' by Bob Dylan, and learning my first three chords, I went off on my own and started making up songs. This helped me so deeply in my life at the time, and helped me express and formulate ideas, worries, and doubts. This continued in my life and my dad, and I built out a spare room, separate to our house into a small jam room. This would become a hub for creativity and eventually would turn into the studio it is now. I think the jams in that room, and the songs I would create on my own, inspired this project, along with the love of music, and understanding of its importance.

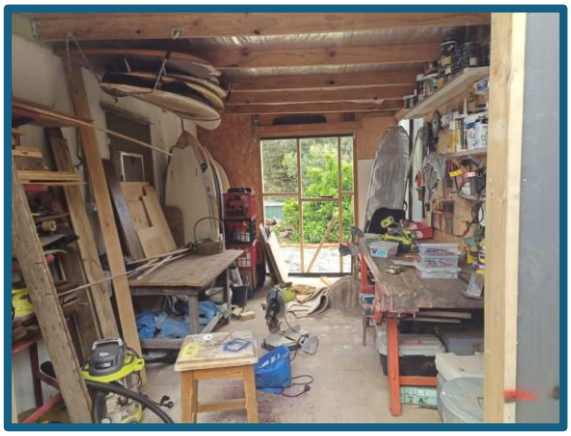
Photo of me playing the piano we still have

Photo of Me with my first electric guitar and pedal (see glossary)

I was inspired by my parents, and their love for music and art in general. My whole family including my sister Isadore Glockner-Karo have been to art school, and that creativity has definitely impacted me. I have a huge love for all forms of creative expression and have painted, drawn and made music my whole life. My dad, Stefan Glockner, was in multiple bands when he was younger and he, as well as my mum, Heidi Karo, have exposed me to many bands and artists which have influenced me and this project. These musicians not only helped me develop song writing skills, but also led me to producers which further helped me find inspiration in and around this project.

Producers like Steve Albini and Rick Rubin motivated me to delve deeper into how songs are recorded and created, and their philosophies also helped understand why this is important. Additionally, I delved into the philosophy of creativity and the benefit of expression throughout this project. Connecting this to sound and music was something that helped me in my life, and I wanted to help others in that as well. I have also always loved building things, and from a young age, made things out of wood, such as instruments, weapons and cubbies.

In the last few years my dad and I built a workshop, next to where the studio is now. Through building this, I gained an understanding of carpentry and building which helped me realise this project. Dad again was a big part of this and supported me immensely with the physical building of the room.



A photo of the workshop which me and dad built, as well as where a lot of the carpentry for the studio took place (Heidi Karo, 2024)

Overall, I chose this project as I had a love for music, building and creation in general. Through this project I would be able to explore these myself and help others express creatively. I also wanted to understand music production on a deeper level, and get a grasp on music and recording, which I had only just touched on.

I also wanted to create a space free of the pressure, and prestige that comes with many professional creative spaces, and a recording studio seemed like the perfect place. This understanding came later in the project but became a key driver for pushing the project and myself forward.

Mentor and Supervisor

Chris Harrison

Looking for a mentor was terribly nerve-racking for me, mostly as I had the idea that it would be somebody completely new. I wanted them to be both knowledgeable, and someone that I would feel comfortable with.

Photo of Chris, 2024

Chris' name came up when discussing who I should choose with my parents, and dad suggested him. He thought he would be a good mentor as he has been a long-time friend of my dad.

I had met Chris a number of times and agreed he would be a good fit. Looking back now, Chris, as a mentor, has been a huge help. He supported me to learn and explore recording and music, was someone I could rely on to ask difficult questions and helped overcome challenges.

Having him as a mentor also gave me the opportunity to record his band and let me test my skills as a producer/recorder. The next part is a passage from Chris, talking about his experience as a sound artist.

Chris says, “My earliest experiences as a sound artist was learning the guitar at an early age, I went on to study the guitar and visual arts post school education, this experience opened up to me other aspects of the sound industry including music production, live sound engineering and audio technology.

I have never been comfortable confining myself to a single genre or skillset. Instead, I am continually drawn to the diversity of sounds and the myriad ways to interact with sound and music.

Previous experiences include:

- Recorded and performed live with various bands in Adelaide on and off over 30 years
- Live sound engineer and live sound recorder (resident at the Gallery Gigs)
- Created music/soundscapes for theatre
- Created music/soundscapes for short films
- Collaborated on music in school projects
- Run a small home recording project studio

More recently I am drawn to more deeply studying the guitar, undertake field environmental recordings, creating soundscapes, creating digital content for audio production and collaborating with others on various audio/sound projects.”

Renee McGowan

Arranging a supervisor was a long process for me, and I think I was the last person in the class to confirm one. I originally had two ideas of who I wanted to invite. My first thought was Tom Redwood, but due to him leaving the school I had to find someone else. I then thought of Alex Walker-Symons who's experience both in music and in carpentry would be very helpful in my project. I emailed him, but he was on long service leave, so did not respond in time.

I then reached out to Renee, and she offered to be my supervisor at the last minute. This was deeply relieving. Knowing I had such a competent supervisor in terms of project knowledge was reassuring. Her understanding of the project, especially as she was on the project panel, helped during the year. I knew I could ask her anything and she would probably have an answer. She was reliable and meeting with her added stability throughout my project. Whenever I felt like I hadn't done enough I could talk to her, set goals, follow through with them, and see her again. This consolidated the process and helped me feel I had been productive.

The only thing that could have been better, would have been catching up more. We ended up only having a handful of meetings. This was a consequence of sickness, forgetfulness and Renee not being there on some Tuesdays. Saying this, Renee was a great supervisor and helped me stay on target when I felt lost in my project.

Building The Studio

Inspiration

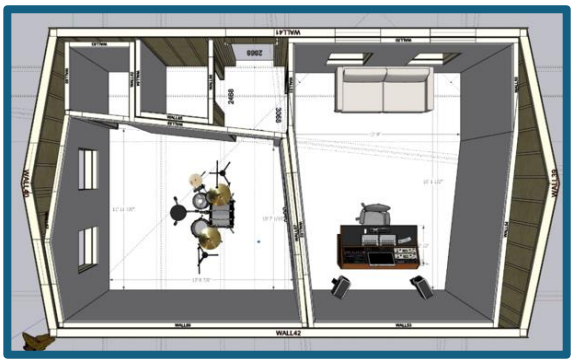
I had many inspirations around this project, and specifically the space itself. It was influenced by both people around me, artists, producers and other recording studios. The first time I thought about building a studio was with my family when we were discussing options. This highlights the influence from my parents, and how they helped me make decisions about the layout and building. One thing they helped me with was convincing me to have more shelving and storage space. This was a great decision, and now the room is filled, I'm so glad they helped me come to that decision.

Another huge inspiration was Steve Albini (RIP - 7/5/24) and his music, recordings, studios and philosophies. His is production is both raw, visceral and beautiful. His instructive videos and interviews helped me morph the space into what it is now and his influence is visible in my studio. I am able to record instruments live together, as well as produce and alter the songs as a group. Steve Albini says about the ideal set up for recording: (the) "goal for the records… is to produce music that can easily be reconstructed live." (Maxwell Newsom, 2024) This presented some challenges as the space was quite cramped, but I didn't want it to feel like a space for one person. I think I achieved this quite well and I've had multiple experiences of this in practice.

1 - Stebe Albini in his studio, Electrical Audio (Madeline Happold, 2014)

2 - Electrical Audio studio A (Electrical Audio, N.D.)

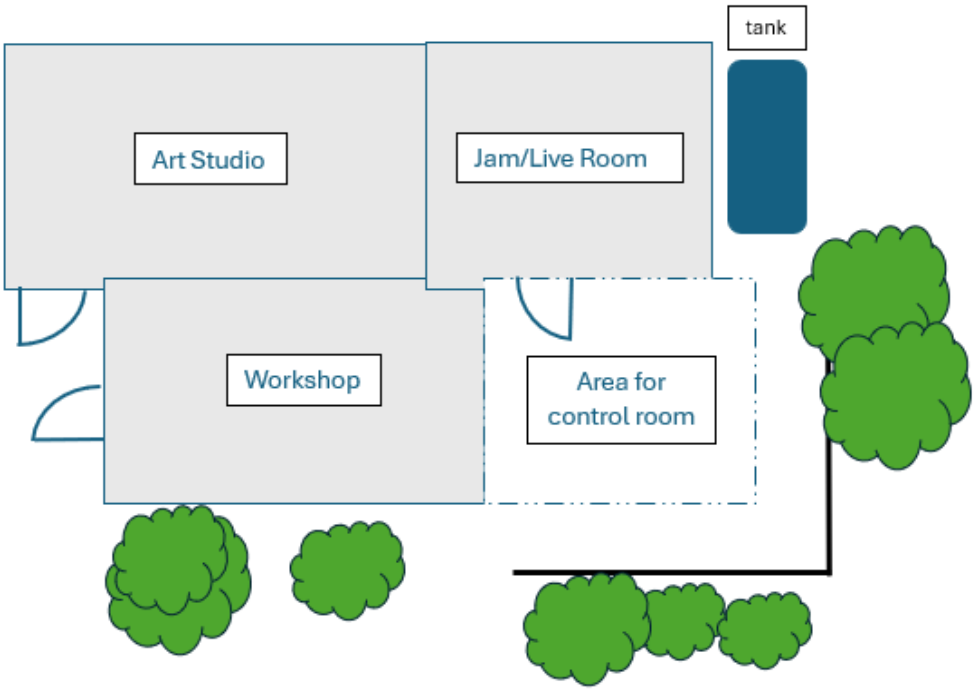
I researched other small studios and took inspirations from them. I took key features, like cable management, desk, gear, and instrument placement, to design my own room suited for my endeavours. I also looked at some videos by Andrew Masters as he had a studio in his home and had a lot of great tips about DIY studio builds. His space was especially interesting as recording and mixing were done in the same room, and consequentially, I considered taking down the separating wall.



3 – A small area studio design (Sam, eaightamrock, 2022)

4 – Andrew's Studio (Andrew Masters, 2024)

Before going through the process of building the studio, it is important to understand the layout of the area, and to what parts I am referring to. This diagram should help with any confusion.



The Planning

Throughout this project I planned things as they came, without preconceptions or anything set in stone. I did this intentionally as I was learning. I knew there would be many mistakes and changes, so there was no point creating a set outline of work. However, the planning and set up both rooms was very important, both so I knew what I was doing, as well as to utilise the space as effectively as possible.

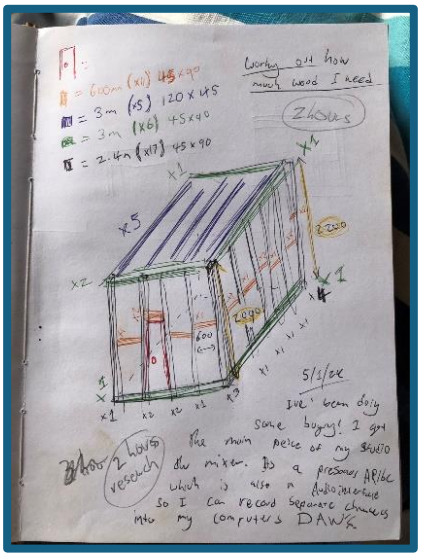


Photo of planning how much timber I needed for the frame

Knowing this, the planning phase was not separate from the building, and both intertwined, collectively growing as the project progressed. Throughout this document, however, I treat them as separate, first talking about the general planning, and then going into detail about each building process.

There were some things however, that I did know I wanted. I wanted both spaces to be somewhat acoustically sealed, so people close by in the village, and my parents would hear as minimal noise as possible. This was especially relevant for a wall in the jam room, where just outside of that was our close neighbour. I would need to re-panel, re-insulate and acoustically treat that wall.

Photo of the impact on the termite infestation (2023)

The existing jam room was quite small only around 3 x 3 meters and the space I had to work with was slightly smaller, around 2.5 x 3 meters. This meant I had to think deeply about how I wanted to treat the space, to use it as effectively as possible. The cost and choice of the materials was also something I had to consider early, and thankfully, my parents offered support, buying materials. I wanted something that was sustainable, cost effective, and sound absorbent. The floor I originally wanted was hardwood.

This helps with sound and reverb control. Due to its cost, I went with a concrete slab and added rugs. I hoped it would be sufficient to help with diffusion and absorption of sound (see glossary). I also discovered that wood floors would be of more value in the live room, rather than the built-on control room. This relieved me as the jam/ live room already had thick wood particle board (with a portion filled with cement due to a termite infestation) and would be perfect for live instruments.

I then decided on a layout, with the door and window placement being essential for both productivity, comfortability, and ease of the build. I chose the layout above as the windows were in places where I would be sitting, the door would be the most out of the way, and just seemed to use the space well. My research around small studio builds came in handy when designing the room and helped me consider the space in terms of the position of the mixing desk (see glossary), studio monitors (see glossary), cables, electrical outputs and lighting. I planned where the instruments would go, and how the microphones would enter the mixing desk. This, as well as considering the orientation of the control room enabled me to design how I would acoustically treat the spaces. With this in mind, I could then design the framing of the room. I calculated how much timber I would need and considered the different choices of pine. I then planned the roof, how much tin I needed and how it would attach to the other two surrounding buildings. I planned the cladding and finally the window and door placement. The window and door placement, however, would depend on my material choices. As I was sourcing most things second hand, it was tricky to plan so I relied on window and door standard sizing. As things progressed, most things just worked themselves out. The planning did make things a lot easier, especially in the beginning, but it did not eliminate all mistakes, which will soon be evident.

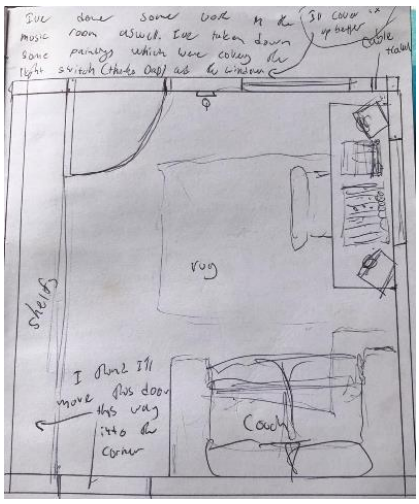


Photo of an early design for the layout

The Foundation

Photo I took of the space before clearing

Walking up to the small, paved, weed ridden, unused rectangle of land, put a small bit of doubt, and discouragement into me. It felt impossible that this could be turned into a recording studio. But with some encouragement from my dad, off I went, pulling up weeds, bricks and pavers. Moving water tanks, chairs and rubbish.

It felt like a good start for what was to come. Once the space was cleared, it had to be flattened and levelled. A formwork for the slab had to be put in place. I had helped pour one slab before, so I knew the basic process. We had a truck deliver the concrete base, and I spent the rest of the day making mixes in the rain, cutting and transporting huge sheets of steel mesh (ouch!) and, wheelbarrowing and pouring concrete.

Photo of the spaced, cleared levelled and framed

Apart from the rain causing small imperfections in the slab, it went pretty smoothly, and it was a huge first step in creating the foundation of the studio. The slab itself, unfortunately turned out slightly uneven, and this, as well as skewed angles on the other buildings, led to more issues down the track.

I viewed these inconsistencies as part of the DIY nature, rather than taking away from the project. Considering the purpose of the space was for musician and artists to feel comfortable to create, I hoped that by embracing and accepting imperfections in the build of the studio, they would be inspired to create freely and explore without creative doubt. This whole building process then, reflects this mindset, both in the studio, and in its creation. At the foundation of the Studio is the DIY mindset, reflecting my message. This foundation then, acts as both a physical and metaphorical one.

Getting the base delivered by truck

Pouring and settling the concrete in the rain

Me leveling the slab (Heidi Karo, 2024)

The Frame

The framing of the studio was something that felt quite daunting to achieve, but with most of it planned, it felt doable. I had only a small understanding of how the frame needed to go together, but talking to my dad, and sketching everything on paper first helped me visualise what needed to happen.

I decided to go with treated pine, as it would last longer against the elements. We went down to the hardware store and bought the wood, cut it to size and strapped it to the car. This would be a common occurrence throughout the project, and without the help of my dad and his ute, this wouldn't have been possible.

The frame went up easily in a couple of days, and the main issues were attaching it to the surrounding buildings, and the slab. As I previously mentioned, the buildings and slab were not square, so I needed unconventional solutions to attach the frame successfully. These complications, however, were minor and were solvable during the build. I did have to make some sacrifices on space both vertically and horizontally. Space was also an issue when building the frames, as the area was cramped and surrounded by trees.

Each wall needed to be built flat and then lifted into place, then attached to the slab, and buildings. This procedure was quite enjoyable and after the frame was up, gave me a sense of space and achievement. I left room in the frame for the door and window, but eventually had to cut extra out for the window, as it was too large, and had to add a lot extra for the door, as it was too small. Overall, though, it went very well, and I felt very satisfied and motivated to build the rest.

Building the frames flat on the slab

Attaching the roof beams to the exterior wall of the jam room

The frame finished

The Roof

To clad the roof, I used corrugated steel panels. This was an obvious choice as the surrounding roofs were the same. It was good for rain collection and was easy to install. I first had to use an insulative silver wrap (see glossary), stapling it to the frame, under the sheets. This process was difficult due to wind and made for some awkward positions. Once complete, the result was good with only some creases, which weren't a great concern.

Installing the roofing sheets, however, was a different story. It was very difficult, both because of the size of the sheets as well as the position of the frame. The build is tucked right at the back corner of the property, surrounded by tight paths, trees, and buildings. My dad and I had to lift them onto the workshop next to the frame and walk them across the roof and onto the frame. This was very challenging, but I loved it.

Lining everything up with the studs (see glossary) and getting it to fit with the other buildings was a tricky task and required careful use of tin snips (see glossary), some yelling, many screws and four hands. The result however was very worth it and seeing the roof completed helped me realise that the building and my project was coming together.

A photo showing how we had to transport the sheets

The finished roof, showing the cramped space we worked in

A photo showing the building of the roof

The Door and Windows

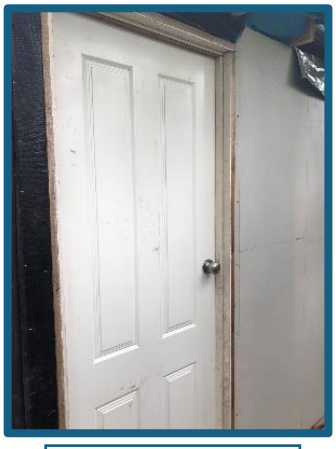
Finding and hanging a door seemed like a scary task and something that I assumed would not be a job for the inexperienced. Looking for a door and window, however, turned out to be the biggest issue, and I spent hours looking on Gumtree and Marketplace until my dad suggested we drove down the road to have a look at DeYoung's (see glossary). this turned out to be both a great choice and a terrible one. We did find a perfect door, which fit the size perfectly, but later led to some issues which I will soon address.

Looking for doors in DeYoung's

Fitting the door was an enjoyable process for me, and I spent a couple of days, cutting old boards, building a frame, cutting the door, and finally fitting the handle and hanging the door. There were a few more steps like, shimming (see glossary) and blocking up which were relatively easy. It sat almost completely flush, and I was very proud of it.

The window installed

The window, however, took a bit longer to find, and mum and I ended up driving over an hour to pick up a small sliding aluminium window. The reason it took so long was that I needed a specific size, type and price. The window was a little big for the space between the studs, but with some extra framing it fit well. This was a much easier process than the door and flooded the room with light and air.



The door installed

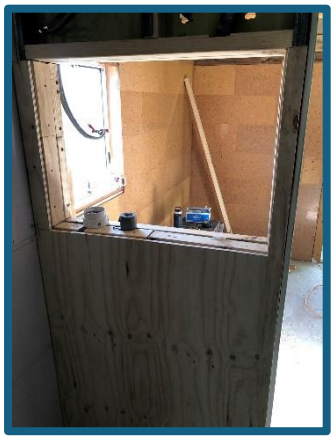
Unfortunately, a few months after hanging the door, when exposed to rain for a number of weeks, started to swell, especially at the bottom. This meant the door was no longer flush and would rub on the frame. To fix this I trimmed the edge, but it has been only a temporary fix, and I will have to replace it before winter next year. This demonstrates the importance of choosing the correct door. I should've been certain it was an exterior door, instead of just buying one that seemed right in the moment. I also regret not putting in a locking doorknob, as now it is secured with a sliding exterior lock.

The area I wanted the window

As I previously mentioned, I also wanted a window connecting the two rooms. This is for ease of communication between people in the live and control rooms. I originally wanted a double-glazed window (see glossary) for the best sound depletion but settled on a single piece of sound proofed glass, which was recommended to me by a man at the glass shop in Aldinga. He showed me a sheet highlighting both cost, sound, and efficiency of each type of glass, and from that, the glass I chose seemed the best choice.

After cutting the holes

Before any of this, however, I had to create a space for it. The rooms were separated by steel beams and sheeting. To remove the section of wall was an arduous procedure. I needed help from my dad to cut the steel. While this was happening, I also cut a hole under the window and installed some PVC (a plastic) pipe for cables to enter the control room. After it was cut, I framed up the hole with pine and hardwood, ready for glass installation.



After framing and cladding

The glass arrived later, after everything was installed in the rooms, and was a relatively simple process; the most difficult being ensuring the frame was square on all planes and setting the glass with wood trims. This window gave the rooms separate acoustic characteristics which was key to recording. I wanted two independent spaces but with visual communication available. The new window allowed for this. It also made the space feel larger.

The window finished (Edie Pickering, 24)

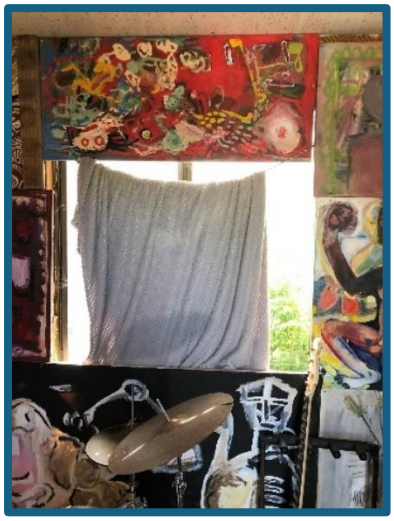
I did some testing with the window installed and the sound depleted nearly completely. This would be perfect for monitoring recording sessions, in the control room without much bleeding of sound.

The Cladding

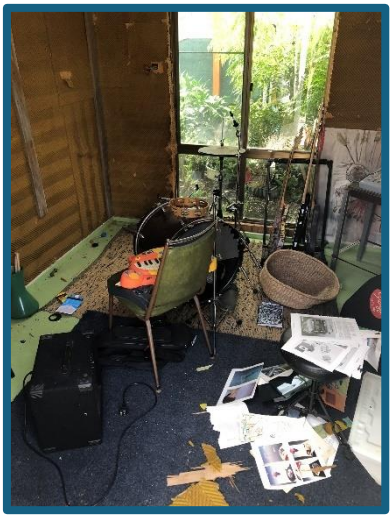
At this point in the project, I was confident and motivated to get the build finished. I did not, at the time understand how massive the installation of cladding would be. I had to consider both cost, ease and sound.

The first step in the process was to clear out the old walls in the jam room. This was a long and messy process. The condition of the room before renovating was pretty chaotic. It took a long time to clear everything out. I say this was messy as the walls were covered with old carpet and a strange rubber underlay that smelled bad, and heaps of artwork. The art and materials made the room have an interesting and cool atmosphere, and helped with sound, but had an unpleasant smell and felt cramped. So, deciding it all had to come out, I started pulling it all off. This process took a couple weeks. I was able to do this while everything else was going up.

Not only did just the instruments, gear, and decorations have to come out, but the skirting, and two of the walls. This was because it was made of a thin, plywood material, which was terrible for sound control and broke very easily. I also wanted to cover up a window and add a new one in, connecting the control and live room. After everything was out, I also found that all the insulation needed to be replaced, and the electrics redone. But once I saw everything clear, I could finally see what the space might look like in a few months.

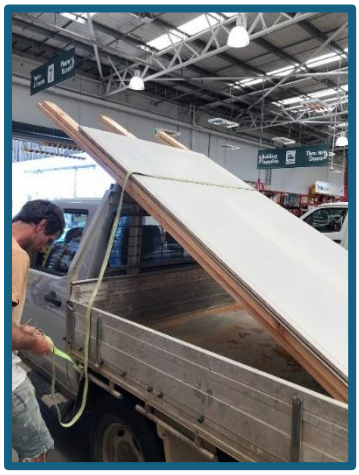


The Window wall before clearing



The window wall during clearing

The rubbish dump it created



Buying the Cement Board

The first thing I clad was the exterior of the control room. Just like the roof, I first had to wrap it in the insulative silver wrap which again was tricky with the wind but went pretty smoothly.

I originally wanted to have treated pine (see glossary) slats with hardwood trims, as it would be simple and look quite good. However, the Aldinga Eco Village (see glossary) by laws state that treated pine should be used minimally. Instead, I used cement board, and pine trims, with both being fairly inexpensive.

This turned out to be an error in planning, and looking back wished I chose something different. The board was very tough to install, and I had to go through many processes including trial and error, to make it fit. I had to measure out both where the cuts needed to be made and where the studs were. I then cut it with a scissor like cutter, which was a horrible process and took about 20 minutes per board.

Installing the board was also a hard and awkward process due to its weight, size and the cramped space. We struggled to nail it in the right spot which resulted in many unnecessary holes, and some bad fitment. It took my dad and I a few days in boiling hot weather to complete the installation.

The end result was far from perfect but finished. The pine trims, however, were much easier to install and helped hide all the dodgy bits. Enough caulk and wood could hide anything! (this again became important in the next step). It was also later sealed, painted and stained, and gave it a much neater look.

Wrapping the frame in silver wrap

Putting up the cement board

Adding the pine slats

The next step was cladding the walls inside both the rooms with ply. This went smoothly compared to the outside. It was a relief to work with wood again, although, little did I know that soon, I would get sick of this, very quickly.

The building also needed insulating. This was the worst part of the cladding process, as it seemed to get under any amount of clothes or mask. I was itchy and felt sick and deeply relieved once everything was sealed up.

The most difficult thing about the ply was cutting around doors and windows. I had to measure, transpose that measurement onto the ply, cut it, hope it lined up, and screwed it in with screws.

Taking out the old insulation, framing up over the window and building a new window frame

A few notable things about the ply cladding, was that in the jam room, I had to build a frame over a window. I wanted to partially cover this up which was a difficult process, especially because I wanted to leave a space for a small bit of glass showing for light.

I also had to frame up an old doorway that led into the control room from the workshop, which meant the frame of the door would show through into the control room. This, however, would actually come in handy later, when attaching shelves. I also had to rout electrics through the walls to attach outputs, lights and switches which I would wire later.

Insulating and cladding around the window in the control room

The control room clad in ply

The Live room clad in ply and the new window framed

Once the control room was clad with ply, I then clad again over the top of that. This was not something completely planned out, but I (or my parents rather) found a whole lot of second-hand cork flooring, which is made up of recycled wine corks. These I wanted to use as a final finishing cladding on the walls and or ceilings of the rooms.

Cladding the walls in the cork

I chose this material as it was second hand, and sustainable. From research I discovered it was very acoustically absorbent (see glossary) with little reflection (see glossary). This meant it would be perfect for controlled detailed listening, especially when paired with acoustic panels.

I soon found out I didn't have quite enough for both rooms but could completely clad the control room. Using these panels in theory was very easy, as they just clicked into place with one another, to create a flush neat surface.

Cladding around the door in the cork

In practice, however, it was pretty straightforward, but tricky to fit into the corners when there was not much room. It was also difficult to nail into the walls, as the nails would often bend. Apart from this it went very well and just took time. Cutting these boards also took a toll on me and the amount of glue and cork dust was irritating.

Cladding the ceiling was really challenging, especially as I wanted it to be inlaid between the beams, giving it more room and better sound. I used a combination of the cork board, MDF (particle board) we had laying around, and some cheap quads (see glossary) to seal everything. After everything was installed, it felt very secure, and the spaces sounded so much better. To test how the spaces performed acoustically, I made recordings before and after cladding. I also undertook clap tests (just clapping in the space to see how the space reverberated). The space sounded and felt very warm (See glossary. At this point I was very excited for more acoustic treatment, and tests.

Mum admiring the clad control room

Trims and Finishings

After the cladding was on, the inside was still very bare and unfinished. There were many gaps, and paired with the unpainted floors, walls and ceilings, the final product felt so far off. The unfished nature of it, instead of generating a sense of un-achievability, compelled me to finish the build.

Cutting the hardwood into strips

To cover up these gaps, I used a number of different trimmings. For the skirting boards in the control room, I cut up long strips of an old hardwood board and used them to run along the bottom of the walls. These turned out well, but as a result of them not being completely straight (due to my cuts) and the slab not being perfectly flat (due to my pour), there were many gaps.

The skirting in the top corners

I used second-hand skirting (see glossary) and quads as well as other off-cut boards to do the rest of the skirting and upright trims in the corners of the rooms. One thing that helped incredibly and was essential to both this process and those in the future, was a battery-operated nail gun. This helped with quickly attaching skirting and quads, especially in tight spaces. I was able to work independently and a lot faster.

The trim around the window in the control room

There were also many small gaps and tight areas where large trims would not suffice. For this I used thin pine board (20x8mm) to finish around the doors, windows, and inconsistent ceiling line. I also used some nicer, dressed (see glossary) hardwood trims around the windows. This made everything so much cleaner, and complete feeling.

The next step was gap filling, which was something that I underestimated hugely, I picked up a couple of tubes of caulk and got to work filling up all holes and gaps, both inside and out of both rooms. I quickly realised that I would need more and for the next couple of days, I managed to seal everything. This, paired with the wood trims meant the space felt so much more secure. It also made the space acoustically sealed, meaning there was less sound bleed, less complaints from neighbours and happy parents.

The thin pine board around tight spaces

Painting

Finally, I had to paint. The first step was to prime the ceiling in both rooms. I used a white primer that we already had in the shed and used a roller to apply a few coats to the ceilings. I then painted the joining door, trims and finishings white.

Painting the control room ceiling

For the walls in the live room, I chose a blue for one wall and plain white for the rest. These paints were also in the shed, and the process was relatively easy and straight forward. I did two coats on each wall which seemed to have good coverage.

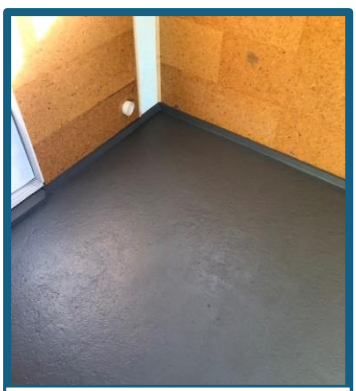
The window wall in the live room painted

The ceilings provided the biggest challenge for a few reasons. The ceilings in both rooms were at quite an awkward height so it was difficult to find a comfortable position to paint. They also required about three to four coats each as there were stains on both ceilings.

To mask areas I did not want painted, I used painter's tape. This sucked to both stick up and take down but ended up resulting in clean and neat lines. The paint also covered all the caulk that was used to fill the gaps.

The floor in both rooms also needed to be painted. The concrete was already sealed with BondCrete (concrete sealer) and just had to be painted over. The paint I chose was concrete paint which is used on driveways and sheds. It worked very well in both rooms and helped to create a consistency between the rooms. This paired with the paint and trims gave the whole space a professional and finished look. The hardest thing about painting was just the effort, and my arms were dead after a few days.

A Photo during the painting of the floor



A Photo after the painting of the floor

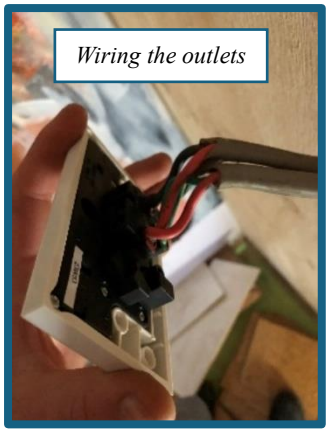
Masking and painting the trims white

Electrical

The last thing I did to finish the space, was wiring the electrics. There was already a couple of outputs, and a few terminated ends we could use. House electrics was something that was completely new to me. For that reason, my dad helped me work out how to wire the switches and outputs.

Once I understood the basics, I could work independently. I wired an extra output in the live room, totalling three, and put two in the control room. I also put a three-way light in the live room from Ikea and added two clamp lights also from Ikea in the control room. This would be plenty and helped give the room life and prepped it for installing the gear.

Running the wires through the cladding



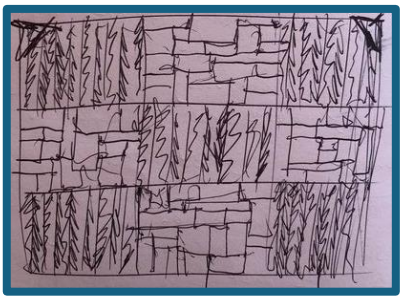
Wiring the outlets

The hotchpotch of outlets and lights

The three-way light installed in the live room

Acoustic Treatment

Before I did any final trims, I wanted to include a feature wall. This wall would be functional, sound absorbing and also something that looked good acting as an interesting feature. My first idea was to have a checkerboard style wall with squares of wood sticking out inconsistently with acoustic foam in between.

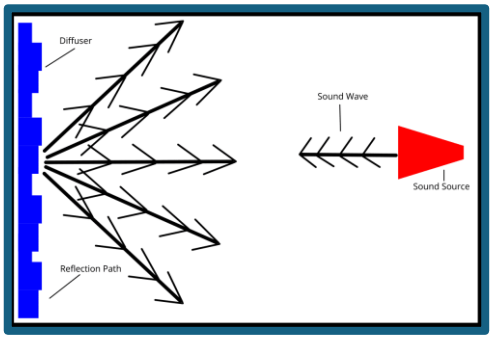


A sketch of what I originally wanted the wall to look like

The wall complete

This changed however when I was offered a huge pile of cypress offcuts by Edie Pickering's dad (Warren Pickering). These pieces were all different thicknesses and lengths, but had the same width, meaning they could be placed end to end, stacked on one another, creating a textured wall. These worked so well but couldn't cover the whole wall. To compromise, I went halfway up and did the rest alternating between other hardwood and acoustic foam.

I wanted something with texture, helping to diffuse sound. This works with textured surfaces, minimising direct reflections, by producing an array of smaller reflections. The wood also acts as an absorber, where soundwaves are trapped and terminated within the material. This only happens in porous materials like wood and does not happen with things like metal. This is why I covered up all metal walls and added texture wherever I could. I was extremely happy with how it sounded and looked and couldn't wait to get some instruments in there.



5- Sound Diffusion Diagram (Steve Snider, 2024)

After the rooms were complete in their barest forms, I had to think about adding more acoustic treatment. I'd found many inspirations from other small recording studios and found there was a few key things I had to include when acoustically treating a room. For the control and/or listening room, I wanted at least two acoustic panels, one on each side of the listening chair, and one directly above the chair. This would ensure enough sound absorption around the listener, resulting in the purist form of sound from the studio monitors. This works by limiting unwanted reflections and echoes, which muddy the sound. I also wanted a few in the live room as there were a lot of reflections and the space sounded quite tinny (lots of high sounds). This would not suffice for recording instruments, especially loud ones such as drums.

The design I went for was inspired by a few YouTube videos and was a simple frame with insulation and fabric. I used a frame of MDF board which was a bit thin which meant the boxes bent a little but with an extra cross brace at the back, they held up fine. I used wood glue and a nail gun to build these. For the insulation, I used sound shield EarthWool which would provide great sound insulation and absorption, while being easy to cut at use. I built the frames around the size of the insulation for ease.

6- Acoustic Pannel Inspo (Nick Braren, N.D.)

Me building the frames using MDF

After the frames were built, I stretched black poplin (see glossary) material bought from spotlight on one side and put the sound shield insulation inside. I then did the same on the other side sealing the boxes off. Poplin was a clear choice for fabric as it was very acoustically transparent, while being neat. You can test how acoustically transparent by holding it up to the light, and the more that comes through the more sound it will let through.

Me stretching and stapling the material, then adding insulation

Additionally, I built two base traps, using ply and the same fabric and insulation. These were difficult to make due to the angle cuts. I needed to custom design these as there was no simple diagram or video to follow. These would sit in the top corners of the live room trapping lower frequencies

Building the bass traps using ply

I used mounting brackets, screws and wire to both hang and attach the acoustic boxes to the walls and ceiling. They turned out amazing and made the place feel and sound so much better. The final aspect of the acoustic treatment was adhesive acoustic foam squares. I covered the metal dividing door with them. All These helped reduce reflections from the metal surfaces and absorbed sound effectively. However, there was one spot in the live room that I could hear flutter echoes (see glossary) when undertaking a clap test. To fix this, I used insulation inside of a large painting and hung it where I could hear the flutters and reflections.

Covering In fabric and filling with insulation

Seeing the space complete gave me a huge sense of achievement and I could finally imagine actually how the space would look with furnishing and gear. During this time, I began to explore ideas for songs and recordings. I think building the space led to this flood of inspiration. It felt almost like a meditation working on the studio, a time for myself to listen to music, imagine and just relax. I found myself throughout the process losing hours just building.

I even built a few side projects that I thought could go in the room. I built a table out of some old cedar that I wanted the mixer to go on, I built a wooden handle for the joining room door, and I fixed up an old shelf for the live room. All these projects didn't make it to the room, but they reflected my love for carpentry and woodworking, and how that increased during the project. It also demonstrated and highlighted the importance of DIY for me. I built pretty much everything by myself with some help from my dad, and it was an incredibly rewarding experience. This project became more than a project for school. It became a reflection of myself, my values, my flaws and my growth throughout the year.

Wall in the live room acoustically treated

Wall in the live room acoustically treated

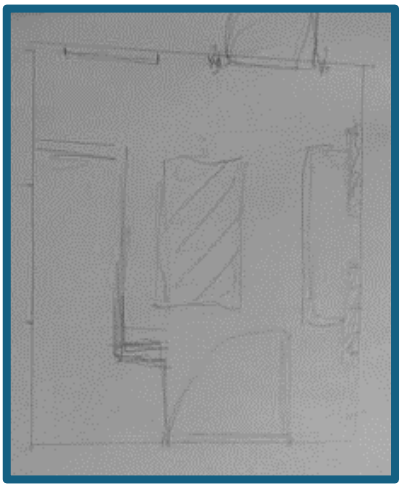
Furnishings

One aspect of this project that I planned very thoroughly, was the interior design of the room, including the furnishings and storage. Throughout the year, I was planning the control room around two things: a bench to house my mixing desk and studio monitors, as well as a shelf to store gear, and instruments.

A photo of the workshop filled with the kitchen, also showing the chaos of the workspace

Originally, the desk was small, only 450 x 1325 mm, and I built a table with these dimensions for this reason. I soon found out that I would have to have a much larger desk. I always knew where I wanted the shelves, (see plan). This carried through to the final product. There were two things that changed the desk layout the most.

First was getting all the wooden benchtops, cupboards and shelves from my grandparent's old kitchen, which inspired me to re-use and customise these pieces to work for the studio. The second thing was getting a huge old mixing desk, which I will talk about soon. Acquiring this, led me to design for a longer and wider working desk.

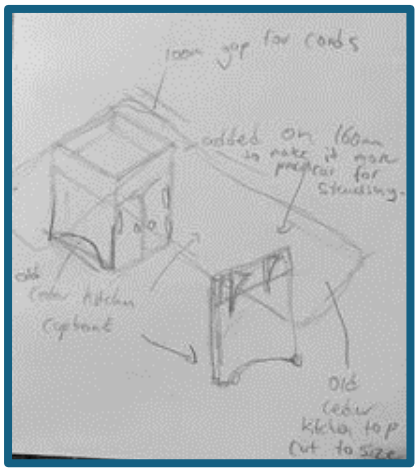


A photo of a drawing I did planning the desk, shelves and acoustic panels

The first step in building the desk, was working out how tall, wide, and long I wanted it to be. I wanted to use the cupboard as a base, then build another leg to support the top. I also wanted to raise the desk up for ease when standing. I would be standing most of the time, especially when mixing with more than one person in the room, and when using the mixing desk.

Finaly, I went with an L shape for the desk. This meant maximum space usage, leaving some room in the corner for chairs, or gear. This would also allow enough room for the large mixer as well as studio monitors and my laptop.

I then started building the desk. I used all recycled wood which needed a variety of tools like a circular saw, drill, driver, nail gun, rasp, file and sandpaper to re-purpose. I first cut out a chunk of the table top out, so it would have a square (90 degree) corner, rather than having a 45-degree edge. This would allow for more space, and let me access both edges of the desk, with more ease. I then cut down both ends to fit perfectly. I raised the desk by 160mm, rasped, filed and sanded the wood to give it a natural look, and then put it in place. I also allowed for a gap at the back of the desk for cables. Additionally, I cut a hole in the cupboard and took the doors off for more cable management and higher accessibility. This helped make the whole thing function and look much neater. The desk turned out so much better than I thought, and helped tie the space together.



A photo of a drawing I did planning how to build the desk

Me cutting the desk down to size, as well as the 45-degree corner off late at night

The desk complete, with cables routed

The next thing was building the shelves. This was easy compared to the desk. I used old shelves from the same kitchen, cut them down to size, and installed them using black metal brackets. These brackets made the process super easy and quick because they attached directly to the frame on the wall which I left exposed, previously mentioned in ‘cladding’. I built three straight shelves on the side opposite to the desk, and one L shaped shelf in the corner above the right side of the desk. These looked great paired with the desk, felt strong, and gave enough storage for all my gear and instruments. I also allowed enough room for a bass drum (see glossary) and the large mixing desk under the shelf.

A photo of the shelfs complete

The Recording Gear

The Mixer/Interface

The purchasing and collation of the gear spanned the year and continues, beyond this project. Not only was accumulation a long process, but also the research and investigation of what to buy. In the beginning, I had a simple perception of what I needed. I knew I needed microphones and something to record the sounds. From hours of research, I found that I required some very specific recording gear.

The first, most essential, and expensive piece I needed was an audio interface (see glossary). The interface had to fit some criteria though. It needed to have at least ten microphone channels with capacity for independent channel recording. It needed headphone outputs, USB connectivity, and outputs for the studio monitors. The need for so many inputs is that to record drums well, up to six inputs are required, guitar one to two, bass one, and vocals one. I also wanted it to be a mixer in case I wanted to use it for live events. With all this in mind I had three main options:

7 - Zoom liveTrak L-20 (zoomcorp, 2024)

8 – Tascam model 16 (Tascam, 2024)

9 – Presonus studiolive AR16C (Presonus, 2024)

All of these models are almost identical in terms of features, and would be perfect for my studio. The zoom had some features like more inputs, wireless control on a phone, but was the most expensive. The Tascam had a smaller footprint, nicer build quality and reveiws, and DAW control (see glossary) bult in, although it also was quite expensive. The Presonus was a good mix of the two but with less features. It also came with software (see glossary) extras, such as free DAW's (see glossary) and plugins (see glossary). It was also the cheapest at the time. For these reasons I decided to get the Presonus unit.

Looking back and reflecting on how the board has worked (or didn't), I wished I had chosen one of the other units. I still might trade it in, and buy the Tascam as I would value the DAW control feature. Some things that went wrong was the Phantom Power (see glossary) making a huge amout of noise through the mics when being turned on, the headphone and aux outputs stopping working, and the control room outputs doing the same. This caused some issues with listening back to music, caused me to stop and reschedual recording sessions, and spend extra on adapters.

10 – A $45 adapter I had to buy to work around the issue (VideoGuys, 2024)

A photo of me experimenting with the desk and a complimentary DAW "Capture" (see glossary)

My early experience with the desk was pretty instructive and I learnt a lot very quickly. I didn't have many mics, cords, or experience, and Chris helped me by both lending me gear to experiment with, as well as supporting me in using the gear. Over time, I learned to use all the features of the board, in the most productive way.

These challenges led me to learn more about electronics, as well as troubleshooting, to find the cause of the problem. I explored this consistently throughout the year, combating many technical issues. This was basically a process of elimination. Addressing each issue independently, identifying hardware or software that couldn't be the issue, until left with one or two things that it could be. I could then replace or fix the issue with near certainty. With the mixer problems, I had the security of a two-year warranty. I have contacted the manufacturer, on what to do next. For the time being, it will suffice and works to a usable level, it just made things more difficult.

Another aspect to mention about mixers is that I was gifted an incredible one. My friend Marley Foale has also recently built a studio and was given an old analogue (see glossary) mixing desk that was used for live shows for huge international bands. The person who gave the board to him was Surahn Sidhu, who is an artist, producer and ex bandmate of the band 'Empire of the Sun'. Marley connected us, saying that he had another analogue mixing desk that he was looking to give away.

I messaged him and picked up the board from his almond farm in Willunga. Chatting with him was great. I gained some knowledge on recording, and he offered to meet up again. This helped me feel connected in the community without actually actively reaching out.

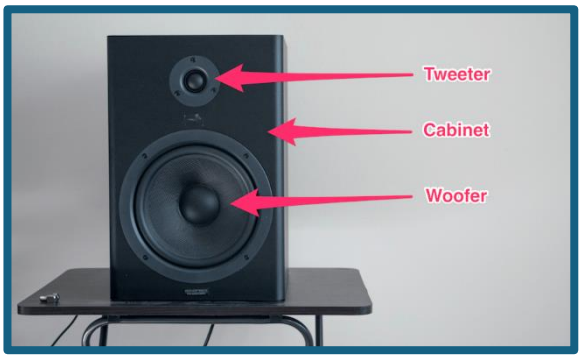
Understanding that there were other DIY studios around locally made me feel like I was going into an incredible and established creative community. The desk itself was huge, around 700 x 1400mm, and had twenty-four very wide channels. It is a 1979 Peavey MK3 desk, which was used as a live music desk in Adelaide venues. The board worked perfectly, and Surahn suggested different ways to integrate it into the studio. I found that it is a bit too big to always be in the space but can fit on the desk. I would use it in three scenarios.

First, if I wanted the sound to be of a vintage, analogue quality, I could either record straight through the board into my interface and then record that, or I could pass the recorded signal through a channel. Another use could be if I wanted to extend the number of inputs, going from 12 to around 30, which is many more that the Presonus. This would be useful if I was using more than 12 mics at once. The last way I could use it is if I recorded using all analogue gear using a tape machine (see glossary). This recording method interests me the most as it would be interesting to learn to record music the way people did 40 years ago. The board was beautiful, and I plan to use it more, as I only have briefly experimented with it.

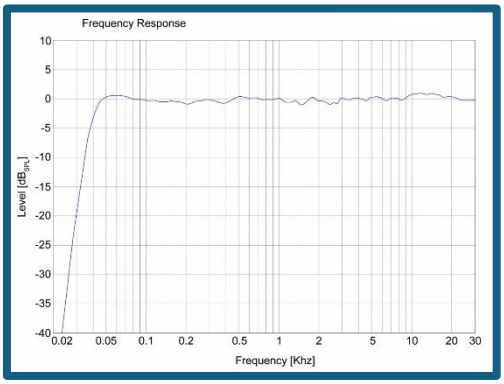
Me opening up the board for the first time (Heidi Karo, 2024)

The Studio Monitors

Studio Monitors are one of, if not, the most important piece of equipment in a control room. They are basically speakers, that have built in amplifiers (see glossary) are designed to give the most balanced sound. This means the frequency response heard is relatively flat, meaning the speaker is not attaching any character to the sound, simply representing the sound as it is. For my studio I wanted two-way monitors (meaning two speakers in each unit) with an 8- or 7-inch woofer, and a 1 inch tweeter.



11 – Labelled diagram of a studio monitor (Grifin Brown, 2018)



12 – A frequence response chart of studio monitors which is quite flat (Production expert, 2021)

The reason I wanted such large woofers is that it would offer more bass, which is where a lot of smaller monitors lack. I researched, and realised the best way to buy monitors, was to constantly check marketplace and look at reviews for the products until something came up. I wanted something both cheap, well reviewed, and well looked after. This took some time until I found the ones.

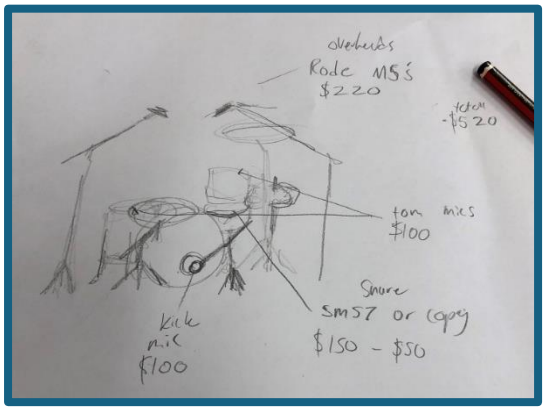
I found a pair of Event TR8's which Chris Harrison also had and agreed would be perfect. They were also reasonably priced, only $250, which comparatively speaking was a very good deal, especially as new, were purchased for $1000 (8 years ago).

They have had some issues, with quiet playback, but with some tinkering and swapping parts around between the monitors, the problem fixed itself.

These monitors had a great sound, and listening through these speakers to my Favorite songs, let me hear new things in the mixes, understand, and enjoy music on a whole new level. The monitors, paired with the Presonus mixer, worked so well, and I couldn't wait to get some mics to start recording.

A photo of the Event TR8's

The Microphones



A sketch of the mics I would need

The choice of microphones, especially when limited by space and funds, were a huge decision. Mics determine the sound of the instruments, just as much as the instrument itself. I made a list of what I needed mics for and came up with a minimum of 8 mics for my space. For the drums, I needed a bass/kick drum mic, a snare (see glossary) mic, two tom (see glossary) mics and two overhead mics. (see glossary)

For guitars and vocals, I needed two more. I already had two microphones at home, I had a Superlux kick drum mic, and an AKG instrument mic. I researched for hours, watched videos comparing mics, reviewing mics and testing different setups. From this, I concluded the best way to come to any decision was to do some tests and comparisons myself (when it was possible). In this respect, I was very lucky, and Chris had a good selection of mics which I could use, as well as test. He lent me five different mics. A set of rode M5's (2 overheads), A rode NT-3 (A studio condenser), A Shure SM57, and a Behringer sl75c (SM57 copy), and a Behringer BA19A. These not only helped me decide about buying my own mics but meant I could start recording.

The Rode NT - 3

Testing the SL75c and SM57

The first mics I tested were the SM57 and the S175c, comparing them on a snare drum and guitar amp. I wanted to see if it would be worth spending the extra money on the 57 or just buy the copy. The price difference was over $100 so this was very important. By doing these tests I noticed that there was actually quite a difference, and in many cases I preferred the cheaper copy. This led me to buy two of these mics, one for the snare, and the other for other instruments and vocals.

I also did some other tests between other mics, such as the two kick drum mics. I experimented with mic positioning, and other things to work out what mics worked the best. It was also useful to just gain knowledge about how different microphones act. I learned so much about how mics work, the different types, and how they can be best utilised.

The SL75c on an amp

There are three main types of mics: dynamic mics like the SM57, which are basic and simply transfer an audio signal from a diaphragm into the interface. These are best used on loud instruments like drums or electric guitar. The next type is a condenser, like the Rode NT-3. These are a lot more complex and require 48 volts to power them. These work well for more subtle sounds, like vocals and acoustic guitar. The last mic type is ribbon, which are much less common. They pick up both the speed and displacement of the air. This means it has a very detailed sound, especially on higher frequencies.

From the tests, I also considered a pair of the Rode M5's but when comparing them to other models, like the cheaper Behringer C1's, found that again, the higher price did not mean the sound was better. This led me to buy a set of the C1's, which would act as my overheads. I chose these specifically, as the role of the overheads, was to capture the sounds of the cymbals (see glossary). The C1's favoured the higher end of the dynamic range, meaning that it would capture the brightness of the cymbals, without the boomy low end of the kick and toms.

The Behringer C1's

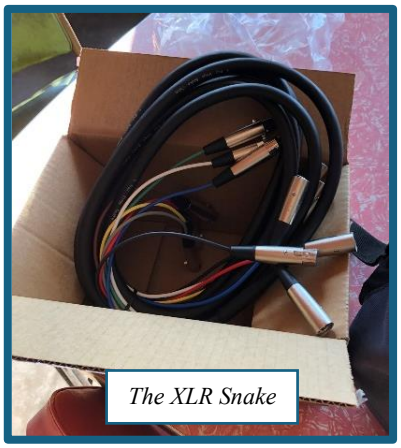
The superlux mic

For the tom mics, I went with my trusty Superlux kick mic I already had, and put it on the larger, floor tom (see glossary), which, opposed to the rack tom (see glossary), was a lot more like a kick drum. I also heard reviews saying that this specific mic sounded great on floor toms. For the rack tom, I went with a Beyerdynamic TG D35. This was a very trusted and well-reviewed mic and was designed specifically for toms. For the kick drum mic, I bought another Superlux mic, identical to the one I currently had. From testing this against the Behringer BA19A, I much preferred the sound of the Superlux and therefore bought another one.

These mics made a great first setup for my studio and allowed me to make my first drum recordings. It took a long time, to tune my drums, get the mics positioned in good spots, and just figure out how to record effectively. After everything was setup; however, the mics sounded great. Hearing my first recordings through the monitors, and being able to mix, made everything feel real. It was amazing to be able to utilise the space as a studio. I also borrowed some mics from Chris occasionally, when there was a specific need. For example, when recording Sam and his dad Benjamin Powell, I wanted to use the NT-3 as I wanted to capture the subtle details of the voice and guitar. I want to expand my collection of mics, but for the moment I have what I need.

My kick drum mic setup

Accessories/ Extras



The XLR Snake

With only the mics, mixer, and monitors, it wouldn't be possible to record. I would need all the other gear in between. I needed cables, stands, a computer, and other small extras. At the start of the year I had a few things. I had a DIY mic stand made from a cymbal stand, 1 short XLR cable (microphone cable), and quite a few ¼ inch jacks, used for electric guitar, and my laptop. These limited me greatly for many reasons, I first had one XLR, so I could only record one mic. To fix this, I bought a 5m 8-way XLR snake, and 8, 3 meters long individual XLR cables. These would be a good start for recording drums, guitar, bass and vocals all at once. I ran it from the desk, through the hole in my wall, and neatly hit the other end under the drums.

The next thing I needed were stands. I bought two very cheap mic stands, which would be just enough for recording drums, but nothing else. These stands sucked, and I wish I bought second-hand, better-quality ones instead. For the moment though, I can use a combination of the stands, my DIY one, and some other unorthodox methods using tape and wire. With these additions, everything came together and the space become a functioning recording studio.

Setting up the mic stands

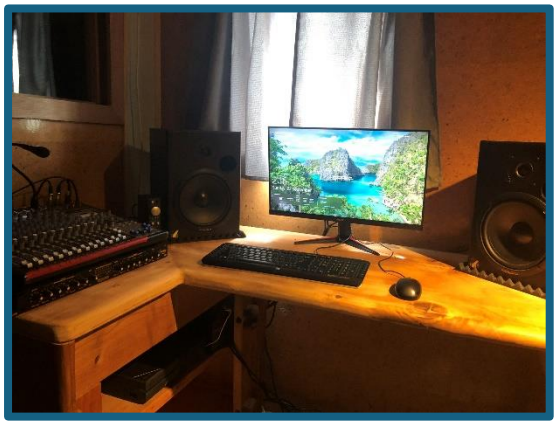
To finally complete the space, I wanted to have a designated PC in the studio. Throughout the year, I had been recording, experimenting, and testing with my personal laptop. This was also used for school, emails, entertainment, and just wasn't suited for being a work computer. I wanted something that would live in the control room. I also wanted a bigger display, so multiple people could see the screen, help make changes and mix the song.

The PC how it came

This led me to checking marketplace every day for about a week, until I found a $70, upgraded workstation PC, a Dell OptiPlex 9020. This would be a perfect computer, as it was small, quiet, had a good solid CPU (see glossary) and was cheap. This; however, caused a lot of issues. Not as it was cheap and bad quality, but to my own misdoings. I went through a huge process of logging out of the installed account, installing my own, reinstalling windows and losing display on it. I only stopped when I had a breakdown and accepted, I'd ruined it. The next day came, and with some help from YouTube, some new cables and a new Monitor/ Screen, I got It working.

I put it in the studio, hooked up an external drive, set everything up and it worked perfectly. This was a huge underestimated technical challenge for me, but I learned so much, and the experience was so helpful. Looking back on it, I'm glad it happened as early as It did, and I'm happy I have the experience hopefully to fix whatever happens next. I never thought about how much relies on a consistent PC in a studio, as if anything crashes or stops working the recordings lost.

The PC how it came



The completed setup

Software

The recording software or DAW (digital audio workstation) in a studio is what the producer, or recorder would be interacting with, the majority of the time, whilst recording, mixing and producing songs. For this reason, it's an important aspect to look at, and can be often overlooked. Before this project started, I would make electronic tracks with my laptop, and some cheap headphones. I didn't have any money to spend on a DAW, so I used Garage Band. Using this about 2-3 years ago, introduced me to digital recording, and gave me a basic understanding of how it worked.

About a year later, I found out my sister's boyfriend Harry Nash also made music just using his laptop. He used a pirated version of FL studios or Fruity Loops, a 10-year-old software to make it. He offered to give me the USB with the program, and I took it. I used this for a couple years, recording and making music.

FL studio layout

This helped me gain a much deeper understanding of how DAW's work, and the ins and outs of the software. This project, however, would demand something more recording oriented, as FL was focused more on electronic music. Knowing this, I started doing some research about different software. I understood, most modern-day DAW's, even FL, had similar capabilities, it just depended on what you felt comfortable in, and what you were willing to spend, as DAWs could be expensive. Some popular choices; however, were as follows; Logic Pro, Ableton Live, Pro Tools, Reaper, Presonus Studio One, and FL. When I was exploring the perfect DAW, I realised something that I had forgotten. When I purchased the Presonus mixer/ interface, it came with a free subscription to Studio One 6 Artist addition which retails at $180.

This DAW seemed perfect, as it would both integrate well with my hardware (the mixer) as it was the same brand and was made for recording. The operating system was very intuitive and easy to use, and it felt like a good move from FL to Studio One. One challenge however that faced me, was that I was originally using Studio One on my laptop, and transferring the songs onto my new PC was a difficult task, and resulted in a few missing files, and a lot of trial and error.

Finally, when it was all set up on my PC, it worked amazingly and made my workflow consistent and smooth. The stock plugins, on studio one was also very fleshed out, and it meant I didn't have to spend money on expensive add-ons to make the recording and mixing process easier. The whole experience in the software, led me to gain an understanding around mixing and all the processes a lot easier, especially as Presonus, and other creators, have many videos explaining how to do different things in the DAW.

Having a DAW that I felt comfortable and capable in, helped the process of recording and helped me focus on the important aspects of music, rather than worrying about the limitations of the software. I do still sometimes use FL for some things, especially electronically oriented songs, and I used it in a soundtrack I designed with Honor Robins.

Studio one 6 interface

Recording

Recording was the aspect I was most looking forward to in this project, and unfortunately, it was also the aspect I spent the least amount of time doing. The building of the studio, and all the technicalities made up most of the year, and squeezing in a few recordings was just the icing on the cake. It is also something, however, that I want to continue exploring, and this project has only been the beginning. This project has sparked my journey of sonic exploration in the world of recording sounds.

The recording, producing and sharing of songs were a large portion of my community aspect, and to leave such a small amount of time for this was probably an unwise decision. Saying this, I also believe that the “community aspect” of the project does not end at the end of the year and the end of my year 12 project. This studio will continue to be a resource for the community and will continue to act as a hub for creative expression.

Only halfway through the year did I realise that the studio had become something so much bigger than my project, it became a physical representation of a philosophy, and an inspiration for what I wanted to do with my life. The studio represented my understanding of expression. I wanted it to be a place where you could feel comfortable, where you could make whatever mental, abstract, or straight cut music you want. I also wanted to be a guide in the creation of a song.

I wanted people to be able to come without clear ideas, and for me to be able to facilitate and help people realise how to sonically represent whatever they needed. I did this because that’s what I want. I want a space like that, and after I had created that space for myself, there came a need to share it, I wanted others to have the same opportunities as me, and for them to see that expression is endless, and something you can't get wrong.

To create such a space and opportunity, I needed to incorporate a few key elements. I needed to provide the space and gear required to make sound and record, which I’d just spent my whole year setting up. I needed to ensure I was knowledgeable and remained open to learn and take on others’ ideas, (which is something I am constantly working on). Finally, I needed to ensure that my facilitation and the space, enabled a creative flow, free of pressure, and expectation. These recording sessions would reveal how well I had done these things and highlight areas I need to work on.

Chris' Band

Even though recording was the thing I was most looking forward to, it also presented unknown challenges. The main challenge was working with new people, and this would come up very regularly throughout the project and would ensue if I continue this line of work. Working with Chris' band was my experience of this challenge, and the responsibility was huge. I was relied upon to record, mix and master three songs. The nervousness about recording dissipated soon after they came and set up, and working with them was much easier than I thought, and I actually enjoyed it a lot.

I first had to set the microphones up. Recording and mixing a full instrument track at once seemed the best option, as I found the cohesion to be better when recording as a group, rather than individual parts. Saying this, I wanted the vocals to be recorded separately from the band, as the bleed would be too severe. I wanted separate audio processing on the voice.

I had previously explored mic placement testing with Chris, and I used an SM57, right up against the grill or front of the bass and guitar amplifiers, pointing at the centre of the woofer, to ensure that there wasn't much bleed from the other instruments. It also gave quite a balanced representation of a distorted (see glossary) bass and guitar, which is what I wanted to capture. The drum microphones were already set up and I think they ended up sounding great.

Having everything in place, highlighted how small the space was, and with four people in it, it felted very cramped. However, when everyone found their areas, it felt doable. The actual recording process went quite well, and the only issue was my PC not being setup properly, causing me to use my laptop to record. This was only a minor hiccup, and we got everything recorded in about 3 hours. This included multiple takes, layering instruments, recording multiple vocals for each song, and making decisions about how the band wanted the mixes to sound.

The band recording in the live room

It was then my job to do the rest. Most days after school I would come home, eat some food, and get into the studio to do some mixing. I researched carefully, how to utilise the software when mixing, and I found the operating system very forgiving and user friendly. These songs were my introduction to proper mixing and I used the tracks as experimentation, playing around with the extremes of sound, the software and effects. I could thoroughly explore here the process of the mixing of each song individually which would be too detailed, so instead I'll, briefly explain my process. These were the most common audio processing tools and methods I used throughout each of my recordings.

The mixing panel in Studio one where these adjustments can be made

The first step was leveling and panning, this was simply lowering or raising each tracks volume, and moving the audio tracks left or right sonically, until it's sound was close to what I wanted. This brought some cohesion and space into the sound and allowed me to work on a levelled mix. This allowed me to check for variations on different sections of recordings that needed attention. This was most prevalent in vocals, which varied heavily depending on how far away the singer was and how loud they sang. To compensate for this, I went through each track carefully, if there was one part much louder than another, I would detach the section of vocal audio that I wanted louder or quieter, and individually adjusted that. This helped a lot with parts of the rest of the mix that would smother the vocals rendering them almost non-existent.

The final and most time-consuming aspect of recording were the other processes which contributed to the mix. There were endless effects and processes that could be explored. I have explained here the most basic ones. The first one was compression. This was a very simple process and lowered the volume of the loud parts and amplified the quiet ones. It gave a more balanced sound, and I found it most useful on vocals and some drum parts.

The Studio one Fat Channel compressor

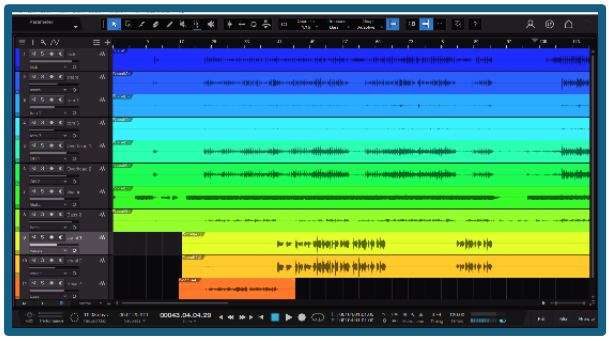
The next process was EQ, which stands for equaliser. This is not a controllable automated software, like compression, but rather a manual controller for the sound. It gave me a visual representation of the soundwaves, and how they sat in a frequency response chart, and I could make changes to that, either changing the low end (100Hz<), mid-range (100Hz - 5kHZ), and top end (5kHz>). This enabled control over sound frequency, allowing me to boost or cut certain frequencies. This meant that if the vocals sounded boomy and had a lot of low end, I would cut some off and add some top end to give it some brightness. I used it a lot on vocals, kick drum, and the snare just to make them sound how I wanted. This could be easily overdone, and my mix would start sounding confusing, so I needed to take care.

The Pro EQ 3 in Studio one

The final procedure I will talk about is giving space in a mix or to induvial instruments. The most common instance of this is using reverb. Reverb can take many forms such as plate, spring, echo, hall, and what I mostly used, room. It can give the mix some depth and softness. It also gives a sense that the instrument is in the room with you. This was most useful, I found, on the drums, where I would make a bus track (see glossary), putting multiple channels such as the drum tracks on one channel then adding effects such as reverb and compression. I also found reverb on vocals very useful to take away harshness which can come with voice, again making it feel more real.

The Room Reverb in studio one

The three songs I recorded and mixed were “Science a cosmetic guide”, “don’t go through my corner” and an untitled track without vocals. I think these mixes were successful and I was happy to finish and mix some tracks.



The final mix showing each individual track

It was a great opportunity to explore who I am as a producer/recorder, and it felt positive to received good feedback. Chris and his band shared how professional the space and my recording felt. This helped me have confidence in my skills and expertise. This was a good starting point, and introduction into music production, involving others.

Becoming Form – Honor Robins' Project

From the start, collaborations within my project and with others in the class was something that I always wanted to include. However, as the year progressed, I found that I couldn't be part of as many as I had hoped. I was very drawn to Honor's project, and when she asked for help to create a soundtrack for her exhibition, I instantly said yes. She wanted the sound to reflect her art and create an atmosphere for the works to sit in.

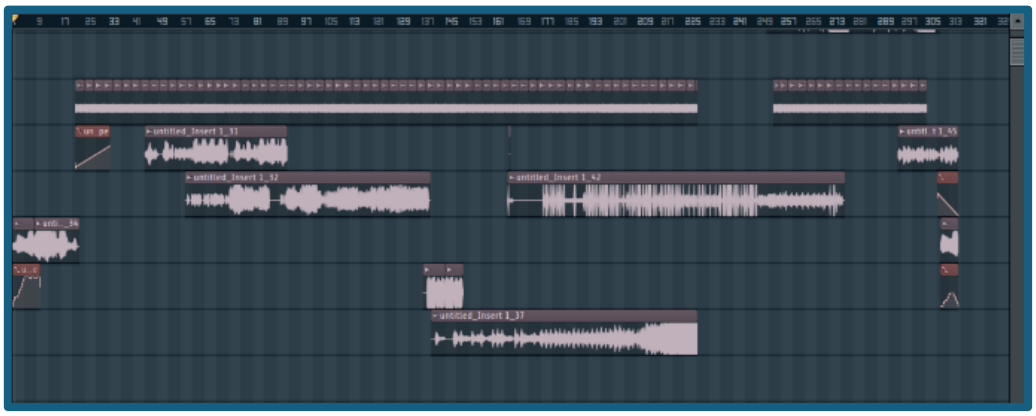
One of Honors Photos

We had a catchup to discuss ideas, and this turned into being a huge turning point for my project. It made me realise why I had chosen sound recording as my focus, and the value it could bring to both me and the community. It also helped me realise how much passion for creativity I had. Working with Honor drove me to want to both help people create, and to create myself. We also talked about many other aspects of creativity and art, and this led to some great ideas for future projects and collaborations that may come to fruition in future. Nevertheless, we formed a great base, and plan to work to create the piece. The next week we met up again and recorded.

We used sampling heavily in the track, using only sounds that we created. To do this we used my mum's 2000's Korg Micro Sampler, which can sample from a mic, edit that sound, and play it on a keyboard. I also used a Korg Volca FM synthesiser, to create a bass drone. I then ran the created samples through my guitar pedals, into my mixing desk and recorded it on my computer. For this song I used FL studios, as its more focused on electronic music, and I wasn't sure if we were going to add more sounds in post-processing (editing or adding to the music after recording)

Honor and I recording the song using the micro sampler and pedals

The samples themselves were predominantly human sounds, such as singing, humming, and making other sounds. We also used a flute and percussive elements. We wanted the soundtrack to feel human and vulnerable, with a simple, changing melodic sound. Additionally, some light percussion in some places supported the mood of the work. Together, we achieved a perfect result for her exhibition. Working with Honor was a great experience, and I had fulfilled an aspect of my project. I helped guide her to create a piece of expressive music which reflected what she wanted to reflect. I made some small changes to the soundtrack like panning and fading out some parts to create some space and cohesion.



The song in FL

Setting up in the hall for her exhibition, and the exhibition itself was also a huge success, and hearing it in the space with the photos, created such an amazing atmosphere, and many people commented on how the sound complimented the art. There was also; however, a sense of disappointment after the exhibition, as previously Honor and I talked about how we wanted some time for people to walk around in silence to experience the space how it was intended. Honor tried to do this by saying for people to let the song play through once uninterrupted, but people just stood still watching a loop of a video. As a response, I told everyone that they should walk around to experience the full exhibition, but people misinterpreted me and started talking, when only three of the ten minutes had played through. This caused me to feel very angry and disappointed with both me and others but looking back I'm just proud of what Honor and I achieved, and the experience was a highlight of this project.

The exhibition

Sam Powells' Song

Sam recording his vocals

Sam approached me quite early in the year, and asked me if he could record a song, for the soundtrack to his short 3D animated film. Naturally I said yes, and later in the year we booked a day to record. He wanted a simple acoustic guitar track, with vocals over the top.

The mic that I thought would work best for this song was the Rode NT-3, so I borrowed it from Chris, along with a Pop Filter (see glossary). The next day Sam and his dad Benjimin Powell came over with his guitar. The initial recording process only took about an hour and was mostly getting the guitar recorded right. It took a few takes to get both the guitar and vocals just how he wanted, and then it was up to me to put it together. He gave me the structure he wanted, and I suggested some things to add.

Me working on his song

The first thing I did after recording, was finding the best vocals and matching them up with the best guitar parts. This took a lot of cutting and pasting of chunks of sound, but when it was done it sounded better. I used reverb and compression on both the tracks, and a room reverb on the master channel to blend the two together, giving the song some space.

I had previously suggested to Sam that percussion might be a good addition. He agreed. I added a simple drum track, over the top, giving it some structure and rhythm. I think the track turned out quite nice, but Sam didn't end up completing his film, so he couldn't use the song for his project. Working with someone new again was a bit daunting, but with Sam it felt easier, and went very smoothly. It was just good to have another opportunity to record and produce a song.

One thing that has been a consistent challenge in the recording; however, has been knowing when I'm finished. This has been a constant concern, both in the physical recording of the music, and the production. This also makes it difficult to give to the artist, as you want it as good as possible, so naturally it brings up a lot of doubt in your abilities. Overcoming these doubts as well as taking feedback has been essential to this process, and it key to making good music, and portraying the songs how they are intended to be viewed.

“Yourself” - Jasmine Lawler’s Song

Jasmine recording her song “yourself”

I can't exactly remember how Jasmine Lawler and I decided to record, but I think it happened when talking about my project. This is how all my recordings have happened, as well as word of mouth. This way of doing things means the studio spreads naturally through the community, and I never had a lack of people wanting to record.

I knew she had recently written a song, and I was excited to have someone record a song for the first time. This was what my project was all about. I was able to facilitate and guide Jasmine to create her song the way she wanted.

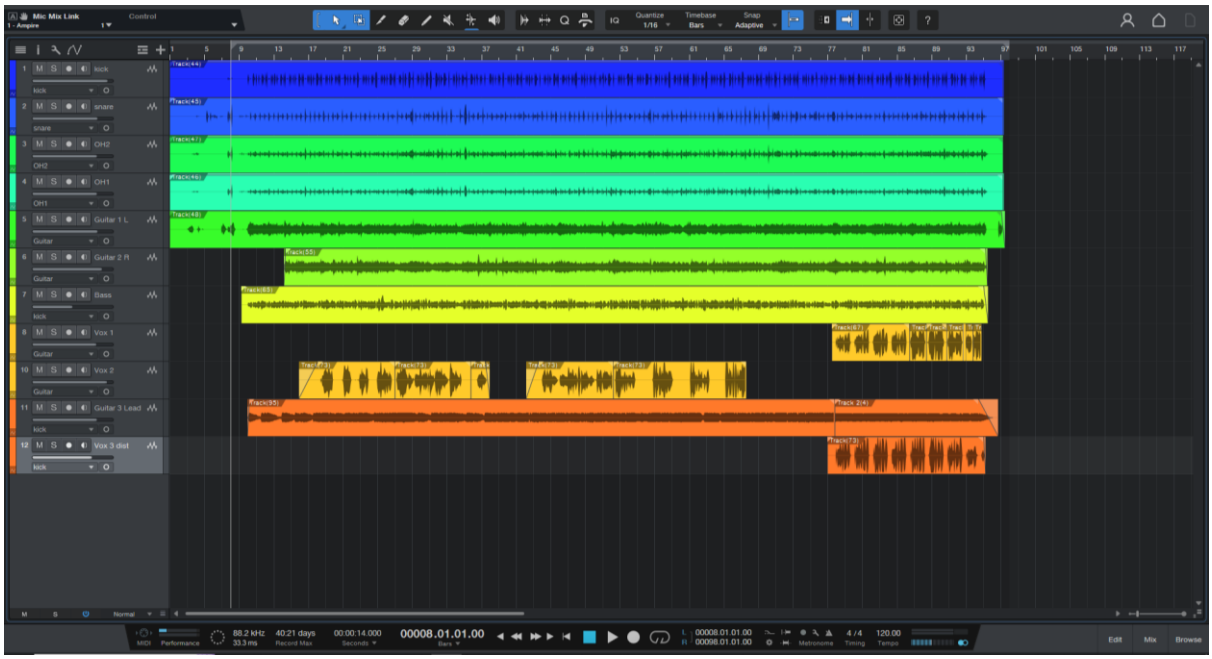
She came with a guitar and vocal part ready. She wanted to add a bass and drum part. To work out the drum part, we just jammed the song together for a while, until I had a clear idea of what I was going to play. It took a while to get the take, but after a few tries, with both of us stuffing up multiple times, we got it, and it sounded great. The song had a great mix of softness and harshness, and I enjoyed the opportunity to both play with and record the artist.

I then suggested to add a second guitar track and pan one to the left and one to the right. She agreed and did an identical guitar part. Double tracking guitars like this makes the guitar sound fuller and thicker, like there are two guitars rather than one

Jasmine then recorded the vocals separately using headphones, listening back to the track. One thing to note when doing this was to add some reverb to the headphone mix, as well as checking in if the singer wants the volume levels to be changed, for them to feel more comfortable recording. she got it done in a few tries, and at the end I had two tracks I was happy with and could use together.

She also recorded a bass part separately doing the same thing, which gave the track some depth and low end. The song without any mixing already sounded great, and I was looking forward to mixing it. Before mixing, however, I did some other things. I first created a double track on the vocals at the end of the song, creating a harmony, and added volume. I then recorded a lead guitar part over the top, using a very simple repetitive melody, following the vocal lines. This added some more layering, and depth.

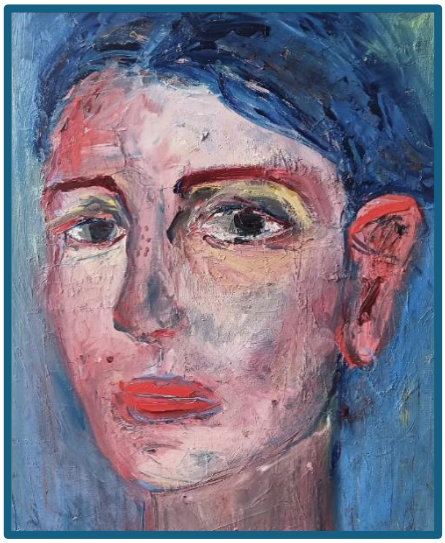
I then mixed it, first by leveling and panning, then compressing, EQing, and adding reverb. I also used bus tracks to add some roominess to the drums. Finally, I added a small but of fuzz distortion (see glossary) to accentuate the vocals, adding some grit to them. This helped them stand out in the mix, especially towards the end. This song turned out to be my favourite and was an amazing project to work on. The song is called “yourself” and I hope she releases it soon. I sent her the song and she was happy with it saying she “F***ed with the lead” referring to the lead guitar that I added. This was the last recording project I did, and it was a great way to end it. finishing it both gave me a huge sense of achievement, as well as a huge daunting feeling that now I had to write all about it.



The finished song in Studio One

Isadore's Song

My sister, Isadore Glockner-Karo's project, was the recording that I probably was the least involved with. She approached me with an idea of a soundtrack for an installation as a part of a project at Adelaide Central School of Art. Similarly to Honor's, she wanted it both to have a vulnerable feel, as well as to incorporate predominantly vocals, and human sounds. She also did not have a super clear idea in mind.



A self portrait by Isadore

We talked a bit about what she might do, and I suggested producing a similar soundtrack to Honor and I's song and use the Korg sampler, with a mic and guitar pedals recording into my computer. She could then layer sounds, and add effects, and cut what she didn't want. I helped her to understand how to use the sampler, along with the recording software (FL studios in this case), and showed her the basics to facilitate creative freedom.

She then spent a couple hours experimenting and recording, with me helping occasionally with technicalities, in addition to creative consultation. The song turned out to be a super simple but intense mix of vocal harmonies and beautiful ambiance. I helped to do a simple cut and mix of the song and then it was finished. She said it sat well in the installation, and people positively commented on the sonic accompaniment.

I again felt a huge sense of fulfilment of my project, as this is what I set out to do. Seeing someone create a beautiful track, and to know I helped make that possible, was the whole goal of this project. It had also been spread to people in a wider community, and it felt good to know that the music I had facilitated the making of, was shared and enjoyed by new people.

Personal Projects/ Other Collaborations

At the very beginning of this project, I had a plan to work collaboratively with people, creating and recording songs together. This ended up happening, but less than I thought, and recording songs that had already been created, took up most of my time. Nevertheless, I wanted to continue with both my personal projects and collaborative ones.

I was especially inspired to start recording my own music when I supported others to record. It compelled my creativity, I just started recording anything and everything, freely. Throughout year I recorded countless songs, jams, and experiments, but these were less finished works than written songs. These were more creative explorations, both with song writing, recording and producing. These creative explorations allowed me to use the space how I wanted others to experience it, and it let me test the studio and how in the workflow, it can best be utilised.

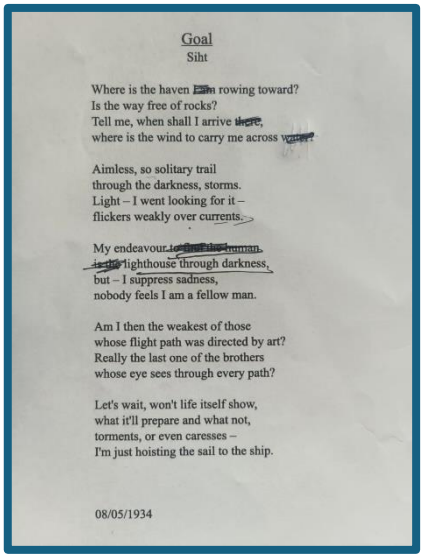
My Soundcloud account

To record this process, I put all the songs I felt were somewhat finished on my Soundcloud account, which I had been previously using for a couple of years. This not only acted as a portfolio of my work, but also a way I could share my music and reach out to the community and spread my message. It felt very scary sharing my music, especially ones which I used my voice in. I felt good; however, when people positively responded to it, and it helped me connect with the people recording with me. These recording sessions gave me so much experience without organising people to record, which meant, when they did, I had a much deeper understanding of what I needed to do to make it run as smoothly as possible.

Some recent songs on my account

In my recordings, I did not stick with any specific genre but would often start with one instrument or vocal part, record that, and just keep layering. I would also, for a simpler approach, just sit down with my guitar, and start playing. Sometimes I would sing while playing and record that, play something first, write some lyrics and record that, or any mix of these steps. This was a very chaotic process, but my goal was just to express and experiment and try and find processes that worked for me. After these songs were recorded, I would then mix them. This is where I learned the most about the different processes and effects, and it let me play around endlessly with the software, without having the pressure of someone else's music. I gained confidence in sonic decision making. It deeply benefited both me and the people I would record.

On the aspect of collaborations however, both of my parents came to me with a want to record something, and my mum Heidi Karo had a clear concept of a song, but without a structure. She wanted a song for an installation, using her Estonian grandfather's translated poems, and musical influences from Estonian Folk music. She wanted my help to write and record this song, and I felt privileged to be able to provide the facilities for that. We first looked over the poems and decided on which one we were going to choose, Siht, or 'Goal' or 'target' in English.



Goal

Siht

Where is the haven [redacted] rowing toward?
Is the way free of rocks?
Tell me, when shall I arrive [redacted],
where is the wind to carry me across [redacted]?

Aimless, so solitary trail
through the darkness, storms.
Light – I went looking for it –
flickers weakly over currents.

My endeavour [redacted] human,
[redacted] lighthouse through darkness,
but – I suppress sadness,
nobody feels I am a fellow man.

Am I then the weakest of those
whose flight path was directed by art?
Really the last one of the brothers
whose eye sees through every path?

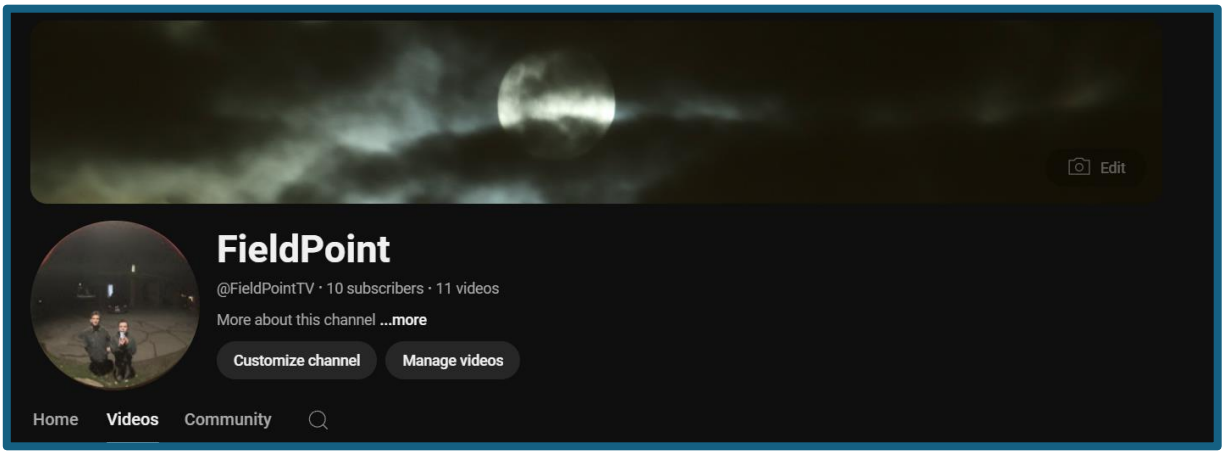
Let's wait, won't life itself show,
what it'll prepare and what not,
torments, or even caresses –
I'm just hoisting the sail to the ship.

08/05/1934

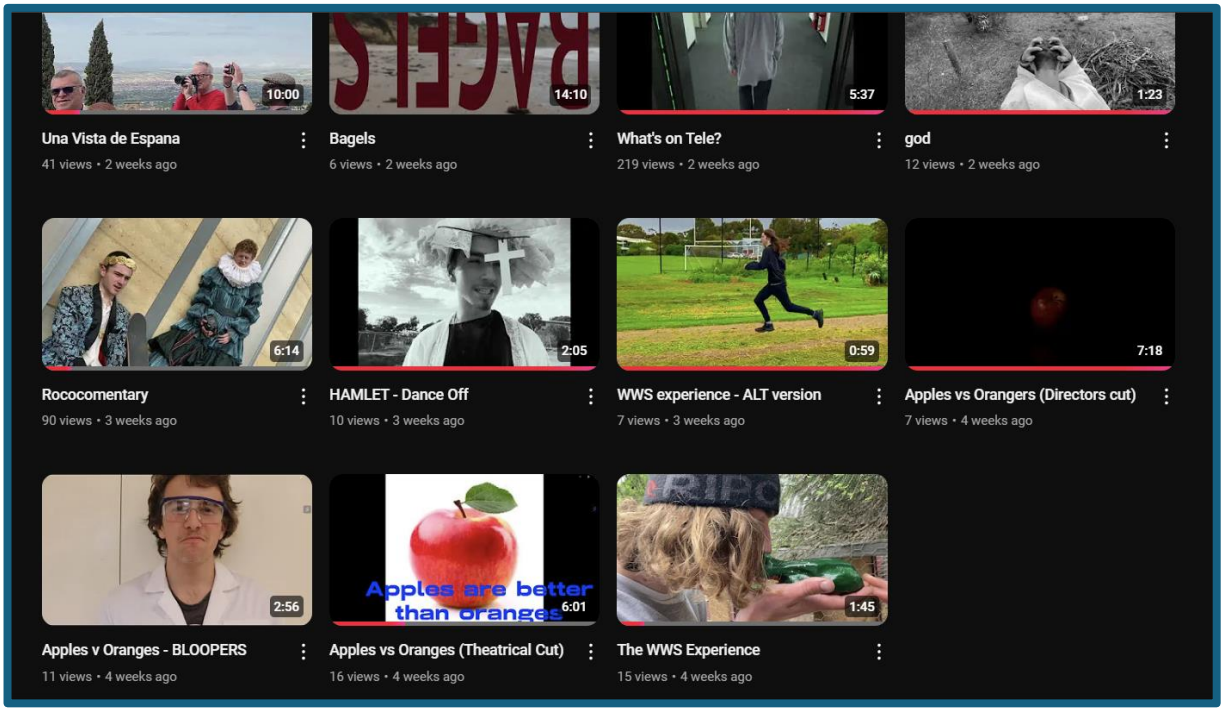
The Poem

The poem was about working towards something important, and it was beautiful. We set to work finding inspirations for a melody, and came across and old folk song, incorporating a simple vocal melody and harmony. I wrote a simple subtly changed version of this on guitar, and looped it, creating the bass for the song. Both myself and Heidi then recorded vocals, using the poem, less as a direct lyric sheet, but a word, and phrase pool, to create interesting points in the music. We layered these vocals, and I added some EQ and reverb to create the sound I wanted. The song turned out to be a simple and strange song, with definite Estonian folk influence. I again felt satisfied with how I was able to help someone achieve their goal, and how I could not only help with recording, but also song writing, and performing.

There are some other collaborations which I also need to mention. Throughout the year Theo Yindi and I have been collaborating extensively. For his project I acted as one of two characters in his film Bagels which was shown at his film night, along with some others from the class. We also worked together to create a short film and soundtrack (What's On Telly – See appendix 3. C.). This film turned out very interesting, and along with soundtrack incorporating our own samples, as well as bird and synth recordings, complimented the film well. It gave an uneasy abstracted feeling. We have also, during this year worked creatively together, planning new films, writing, and just collaborating to create ideas. Additionally, we created a YouTube channel (see appendix 3. C.) to record all our films and creative projects, which has helped spread our creativity to a new community, giving us an outlet.



The YouTube Channel (https://www.youtube.com/@FieldPointTV)



Future Goals

This project has changed my life in a pretty big way. Coming in at the start of the year, this project was obviously something that deeply interested me, but I could not have predicted where it took my future intentions. I grew a huge love for producing songs for myself and others, and from the first couple weeks of actually recording, I knew this was a career I was very interested in. there are many paths you can take in the world of sound engineering/ production, such as doing foley in movies, creating sound tracks, scores, mixing live music, and obviously, recording in a studio to name a few. From this project, I have both discovered these pathways and been absorbed into the world of audio.

Knowing I wanted to continue this course of production, I investigated higher education that would offer me more experience. There were two places where I was the most intrigued, Cert 4 in Music (sound production) at Tafe, which would lead on to a diploma (if I am interested to learn more), and bachelor, or diploma of Audio at SAE University College. These courses were quite different, both in price, and content. The Tafe course offered a very broad overview, giving options, skills, and experience in real world situations.

This was made possible through a series of skill teaching and testing, supporting students to gain a good understanding of how to be an audio tech in any scenario. The course is also relatively cheap at a subsidised fee of $3000, which is easy to get, and a full price of $11000. It is also quite short only being six months.

13 – the Tafe facilities

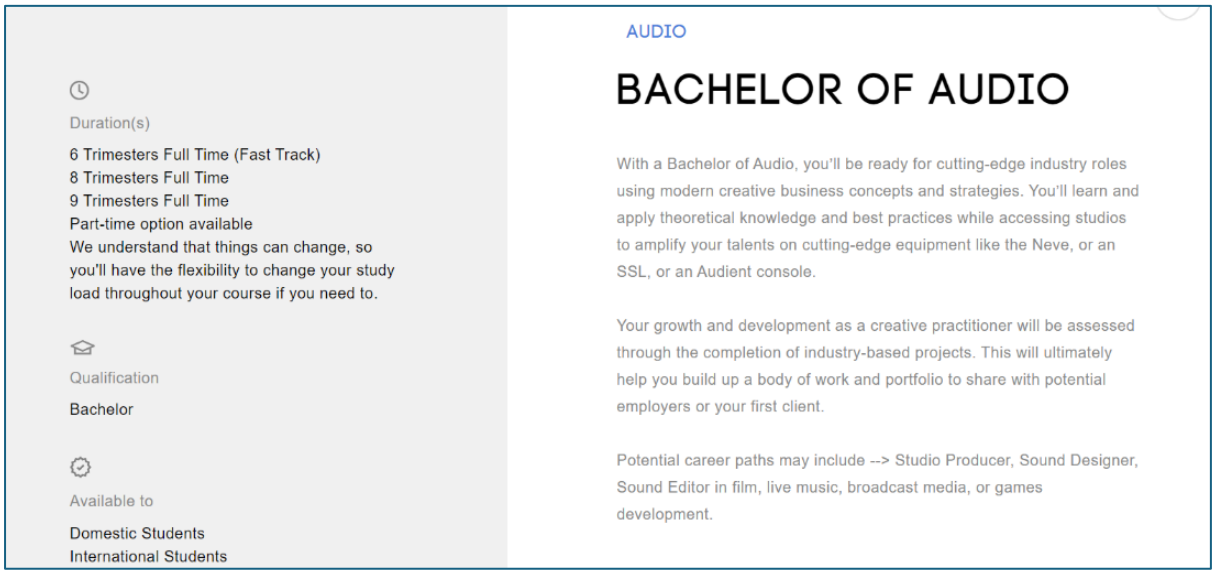
13 - Overview of the Tafe course (TAFESA, 2024)

Description

If you're keen to work in the music industry, your career starts here. Become a professional sound mixer, technician, or studio engineer. Learn how to operate the latest in sound equipment for streaming, web distribution, TV, radio, film, video productions and live performance. Develop your theoretical knowledge and your practical skills as you study in our industry-standard facilities. You'll get hands-on experience and graduate with a solid skill base and the underpinning knowledge to confidently take the next steps towards building a career in the music industry. Learn from experienced music professionals and you'll be getting a nationally recognised qualification and valuable industry contacts.

The SAE course, however, has a very different learning system. Like Tafe, they would equip me with the skills to operate all the gear and software and show me different techniques for recording. But unlike TAFE, the only way they test you is through collaborative projects. This is especially intriguing to me because SAE also offers courses in music, film, creative industries, game development, and animation, and they encourage collaboration, with other students, across other courses. They also encourage students to access their facilities whenever, meaning I could bring in people to record, explore my own music, make films, and just create whatever.

14 - Overview of the SAE course (SAE, 2024)



Their facilities are also incredible. I went to open days at both TAFE and SAE and found the purpose-built nature of SAE, the staff, and the curriculum incredible and very exciting. It would allow me creative freedom in terms of audio, while also providing opportunities in the real world to both work in, gain experience in and build networks.

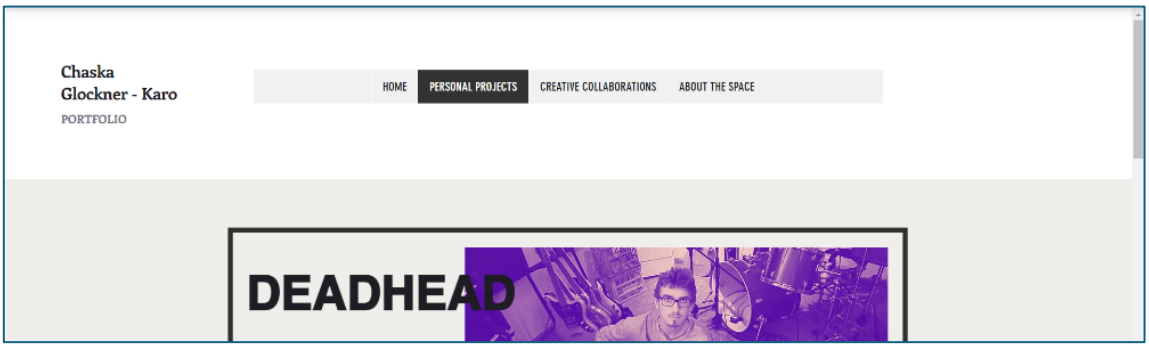
15 - SAE control

The price, however, is the aspect most different, at SAE it is $70000 for the three-year bachelor. There is however FEE HELP, so it would be doable for me. For this reason, I had an interview for SAE, applied and got in. later I also found out that they offer a full $70000 scholarship to one person each intake in each course. All they asked for was a full portfolio and a two-hundred-and-fifty-word application, describing what drives me and why SAE would be a good fit for my career.

This added stress onto my thesis as I would now have to create a full portfolio website and do the writing in the holidays, as thesis and the application were due on the same day. Driven by the thought I may in fact be considered for the scholarship, I pushed through, working every day until I had an application, I was proud of. It has been a positive move to build a portfolio, both for my own work, as well as opening the possibility of turning the studio into a business soon, which would be great. It is also a good resource for my project, and I will have a link to it in my appendix (3.C.).

Being offered a place at SAE gave me so much inspiration and drove me to push to the end of the project, so I could continue the actual production and just start creating. Emmett Todd was also interested in the same course at SAE. This also inspired me to continue down this career path. I'm not sure if I want to defer for six to twelve months yet, and that will also change depending on whether I win the scholarship of not. However, through this project, it has become increasingly clear that this is what I want to do with my life.

Screenshot of my website I made for the application



In the very near future, however, I have some clear plans with what I want to do in the space. I have two recording sessions planned out. The first is happening on the 16th of October and is with Angus Kildare who was the drummer in Chris's band and wants to do some solo recording. This session was planned a few weeks before this date but due to some technical difficulties, was postponed. The second recording was less set in stone but should happen soon. It started when Archie Pickering and his friends Arthur Covington and Jacob Parker, asked to jam in my studio. We had a couple of jams, and I found the music they played to be interesting and of a very high level. For this reason, I asked if they would like to record a couple of songs. They said yes, but they needed some time to get some material ready to record. Both of these recordings are just the start of many more to come, beyond this project.

Conclusion

Drumming in my studio

I set out in this project with a drive for creativity and a want to share both my love for expression through music and to create opportunities for others to join me in that. I was first very open to how I would facilitate these opportunities. Throughout the year, talking with people, and through research, such as reading Rick Rubins “The Creative Act”, I found I wanted to create not just a space for musical creation but one with a feeling of complete freedom. Freedom from money, from limiting equipment and from personal restrictions. I also wanted to be able act as a mentor, both in recording and in song making.

Freedom from money. This was the tricky one, especially if I wanted to make a career out of it. Money, as an artist in the recording industry is essential in the state it is now, especially if you want things to sound amazing. This means many passionate creatives are left without access to recording studios, and if they do get enough money, are often restrained by the pressure of those places, where time is money. This environment does not allow for comfortable creative expression and can lead to the music misrepresenting the artists intention.

This project then, was both about learning for me, and creating a space where others can freely and comfortably express themselves. This meant taking away the aspect of money and focusing on giving to people. The recording process was by far the most rewarding for me, and this project completely changed where I want to go in my life, inspiring me to help people creatively.

This issue with money, however, is not resolved but has led me to think about how I might improve the system. An idea for a sustainable business could be a subscription-based recording system, with a limited number of bands/artists on a small payment system who have access to book in recordings, during the year. This would both give the artists and me, freedom and comfort, both in money and in expression.

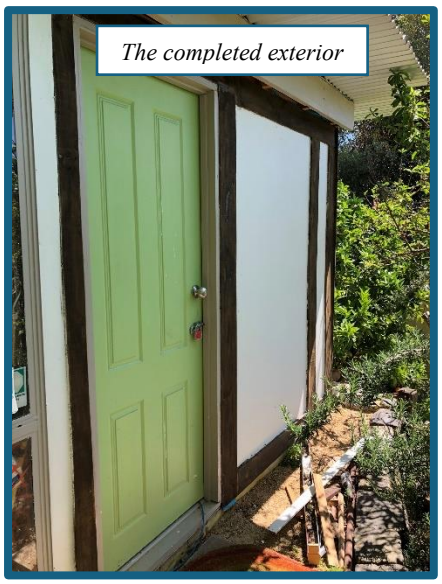
In this project, I think I have achieved that feeling of freedom and comfort for the artist and have been able to facilitate a space where they can create freely, without restriction. I have also created a space where I can experience this, and now, can express musically, whatever, and whenever I wish.

I also set out to learn new things, both in building and audio. Comparing my small knowledge base from before the project to now, highlights how much I have gained. I started off with limited knowledge around recording, only using simple software such as Garage Band and FL, to create very bare electronic music, to now recording bands with seven mics, layering multiple elements, and mixing the whole track. I also learned how to build a small room, which included building a frame, pouring a slab, cladding, sound proofing, electronics and so much more. These skills are ones that I value highly and without this project, I would not have gained.

I also learned about acoustic treatment, and how different materials and surfaces interact with soundwaves, and how I can manipulate these, to acoustically enhance a space.

The community aspect of my project is one which had not been addressed as much as I had intended. Due to the limited remaining time following the build, the recordings I managed to complete were few, yet of high quality. Through sharing my music and creations and helping others share theirs, I have managed to contribute to a broad community. Honor's and Isadore's exhibitions, were good examples of this. I think I have shared myself and my space, widely and I can only hope this continues.

Most of my time in the space, in the last few months has been mixing other artists' songs. I have spent around 50 hours sitting in front of the computer, editing and mixing. I have facilitated the creation of a number of tracks and have helped people realise their creative visions. Knowing this, I am completely satisfied in the outcome of my project. I am inspired and excited to continue my creative journey in sound.



The completed exterior

The completed interior

Acknowledgements

First of all, I would like to acknowledge everyone in the class, their projects and support. Throughout this year, I have been inspired deeply. Each and every person in the class has helped shape this project.

Chris Harrison - a massive thank you to Chris. His kind and gentle nature, as well as his high level of expertise and experience, helped guide me in the creation of the space. He helped make decisions, and frequently contacted me to catch up, talking through any worries, concerns or questions I had. I also want to extend the thank you to his band for giving me the opportunity to record with such easy going and kind people.

Renee McGowan - thank you to Renee. As I previously mentioned, Renee helped me solidify goals, keep positivity, and maintain motivation. This project would have achieved a lot less without the encouragements from her.

Parents - without both my mum Heidi Karo, and my dad Stefan Glockner, this project would not be the same. Their financial, emotional and physical help made all of this possible. So, thank you to them for guiding me in this huge undertaking, and facilitating my creative explorations, so I can do the same for others.

Isadore Glockner-Karo – thank you to my sister for helping me in many ways throughout this year. Your input has been of high value and your constant support and inspiring creativity is deeply appreciated.

Harry Nash – thank you to Harry for introducing me to producing electronic music and inspiring me to make my own music. Without you, I don't think I would've chosen this project.

Honor Robins – thank you to Honor, your creative inputs within both of our projects were highly inspiring for me, and it led me to make the project what it is now.

Theo Yindi – thank you to Theo for helping me creatively express in new ways, letting me act in your film Bagels, and just overall supporting me throughout the year.

Gemtree London – Thank you to Gemtree, your lifelong support is hugely appreciated. Surfing with you, and just talking to you helped me ground myself when I needed it the most. Also thank you for including me in your film, 'A Depth Within'.

Thank you to everyone who recorded in my studio, your inclusion in this project is deeply appreciated, and without all of you, this project wouldn't have happened.

Edie Pickering – finally, thank you to my girlfriend Edie, your constant support throughout the year has been immense, and you have been there whenever I have needed someone.

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Appendix

Glossary

Absorption - the process by which a material, structure, or object takes in sound energy when sound waves are encountered

Acoustic Foam - an open celled foam used for acoustic treatment. It attenuates airborne sound waves, reducing their amplitude

Amplifier - An amplifier is a basic signal processing unit that increases the power of an audio signal.

Analogue - relating to or using signals or information represented by a continuously variable physical quantity such as spatial position, voltage, etc.

Audio interface – a consol which converts microphone and instrument signals into a format your computer and software recognize.

Buss track - a signal path that can be used to combine individual audio signal paths together.

Cymbals – thin round metal disks that when hit produce different sounds. the most common are crash, high hats and ride

DAW - A Digital Audio Workstation (DAW) is a software application used to record, edit, and produce audio.

DAW controller - DAW controllers are MIDI devices that enable control over DAW's such as Pro Tools or Ableton Live. Rather than use a mouse and keyboard

DeYoung's – Local salvage yard

Diffusion - the act of evenly spreading sound waves throughout a space

Distortion - This is when the signal pushes beyond its maximum capability within its sound system.

Double glazed – a window with two layers of glass

Dressed wood - a timber that has been machine finished, resulting in smooth dressed surfaces.

Flutter Echoes - an energy that's trapped between two surfaces and the angle that the sound enters between the two surfaces

Fuzz - a heavily saturated guitar signal, altering the sound to a plain square wave with amazing sustain

High/ rack tom – the smallest Tom drum usually attached to the kick/bass drum

Jam – a group playing music together. A jam room is the space in which to do this

Kick/ Bass drum – the largest drum, rested on its side, and used with a kick pedal

Low/ Floor tom – the largest tom drum which sits on the ground on legs

Mixing desk - a console where sound signals are mixed during recording or broadcasting.

Overhead mics – two microphones pointing down at the drum kit from above

Phantom power - DC electric power equally applied to both signal wires in balanced microphone cables, forming a phantom circuit, to operate microphones that contain active electronic circuitry

Plugins - a software add-on that is installed on a program, enhancing its capabilities

Pop filter - also known as a pop screen or pop shield, is a piece of equipment that reduces popping sounds that occur when you record vocals

Poplin - a plain weave cotton fabric with very fine horizontal “ribs” that results in a strong, crisp fabric with a silky, lustrous surface.

Reflective - when soundwaves bounce back from a surface

Reverb - a persistence of sound after it is produced. Reverberation is created when a sound or signal is reflected. Can be recreated for musical purposes

Shimming – wedging something to fill up a space

Silver Wrap - designed as a roof sarking in residential and commercial buildings in all climate zone regions of Australia and as a wall wrap

Skirting - a wooden board running along the base of an interior wall.

Software - the programs and other operating information used by a computer.

Stud - Wall studs are framing components in timber or steel-framed walls, that run between the top and bottom plates.

Studio Monitors - loudspeakers in speaker enclosures specifically designed for professional audio production applications, such as recording studios, filmmaking, television studios, radio studios and project or home studios, where accurate audio reproduction is crucial.

Tape Machine - also known as a tape deck, tape player or tape machine or simply a tape recorder, is a sound recording and reproduction device that records and plays back sounds usually using magnetic tape for storage.

Tin Snips – scissor like cutters used to cut thin metal sheeting

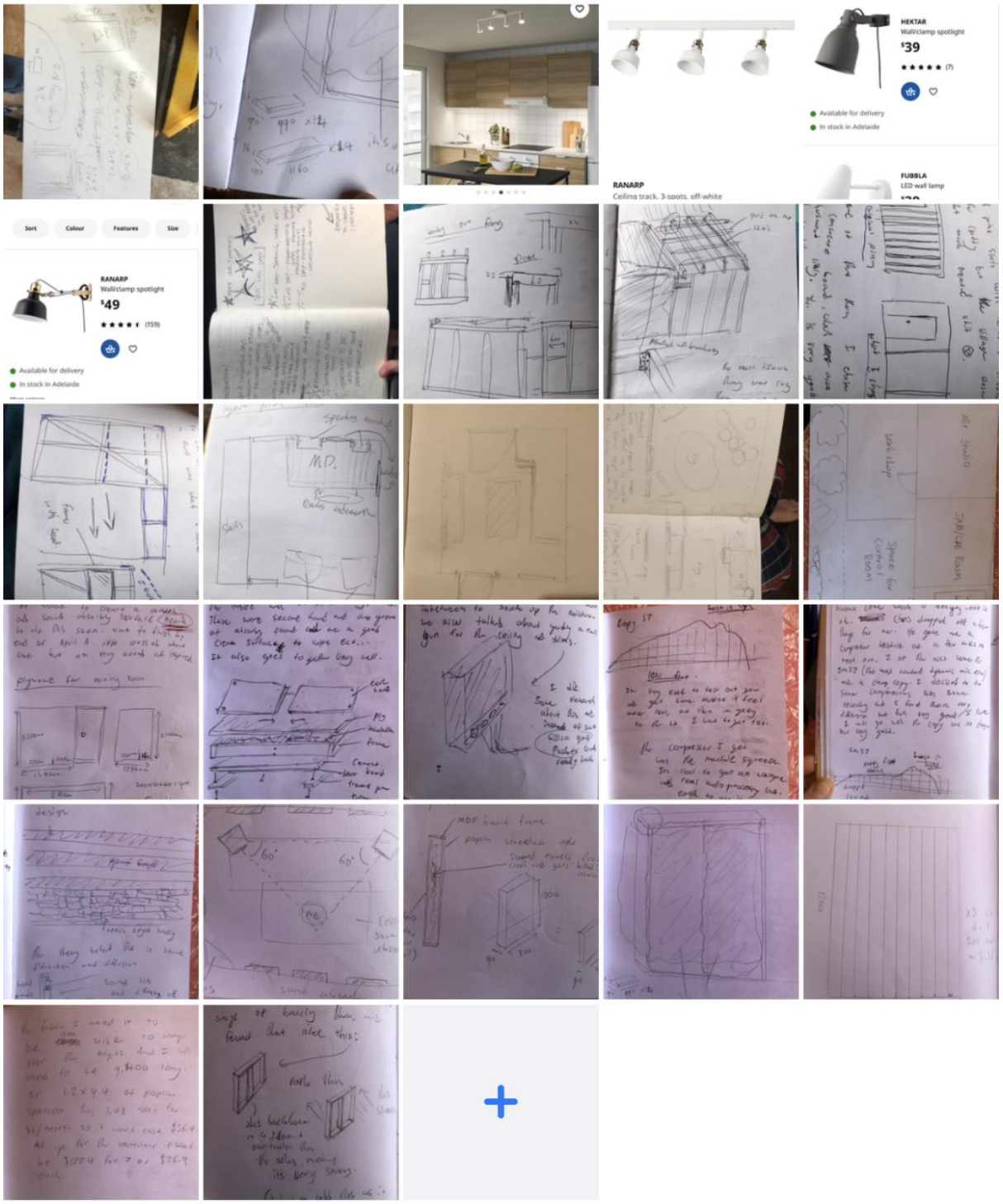
Tom drum - s a cylindrical drum with no snares

Treated pine - pine that has been appropriately treated with preservative chemicals with the intent of prolonging its intended usefulness lifecycle compared to untreated wood.

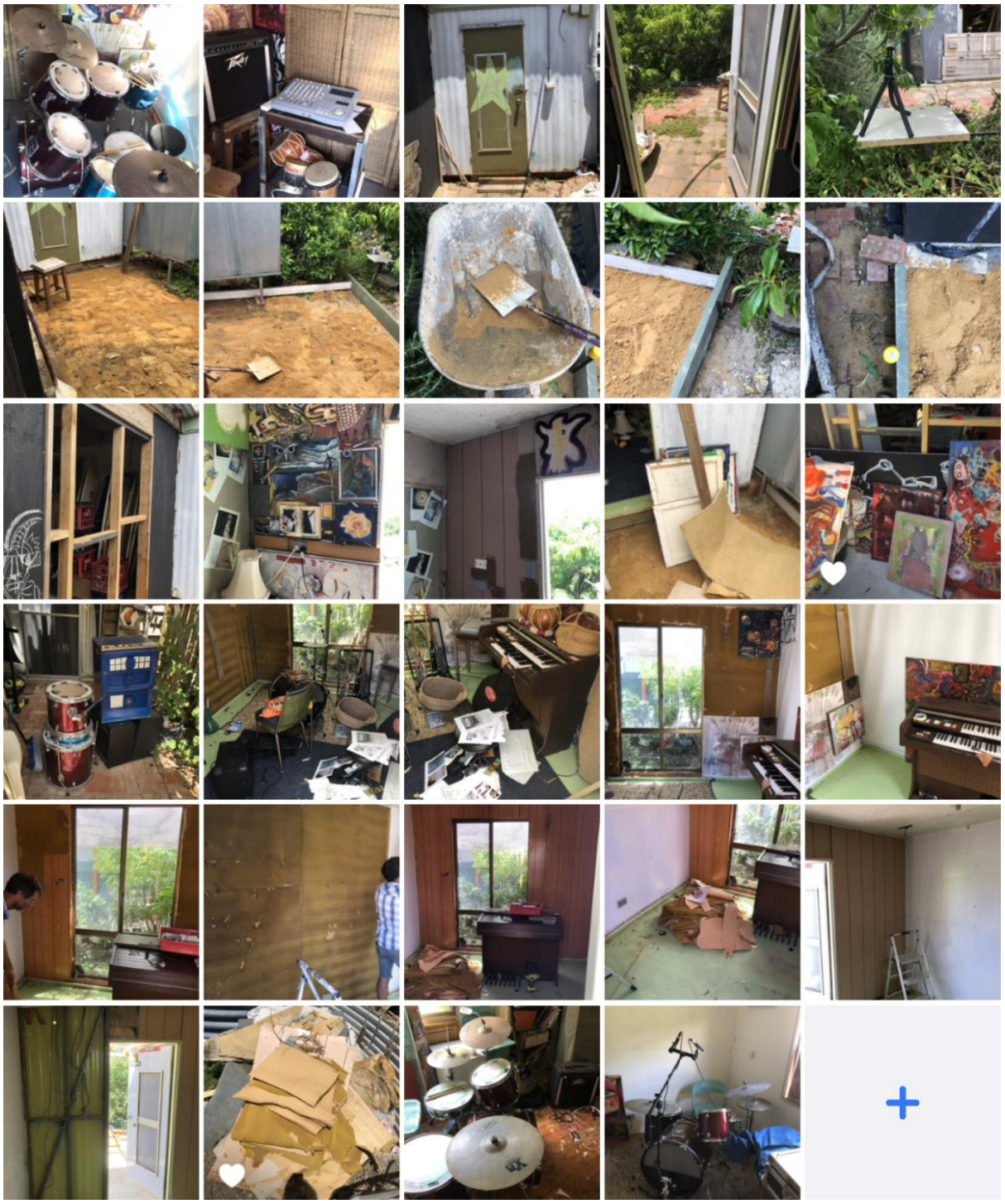
Warm Sound - tends to be a low-pitched or mid-low-pitched sound. It gives a feeling of spectral richness in the mid-low frequencies. It has a rather soft attack, and it is a fairly pleasant sound that gives a sensation of envelopment.

Building

1. A. planning/sketches

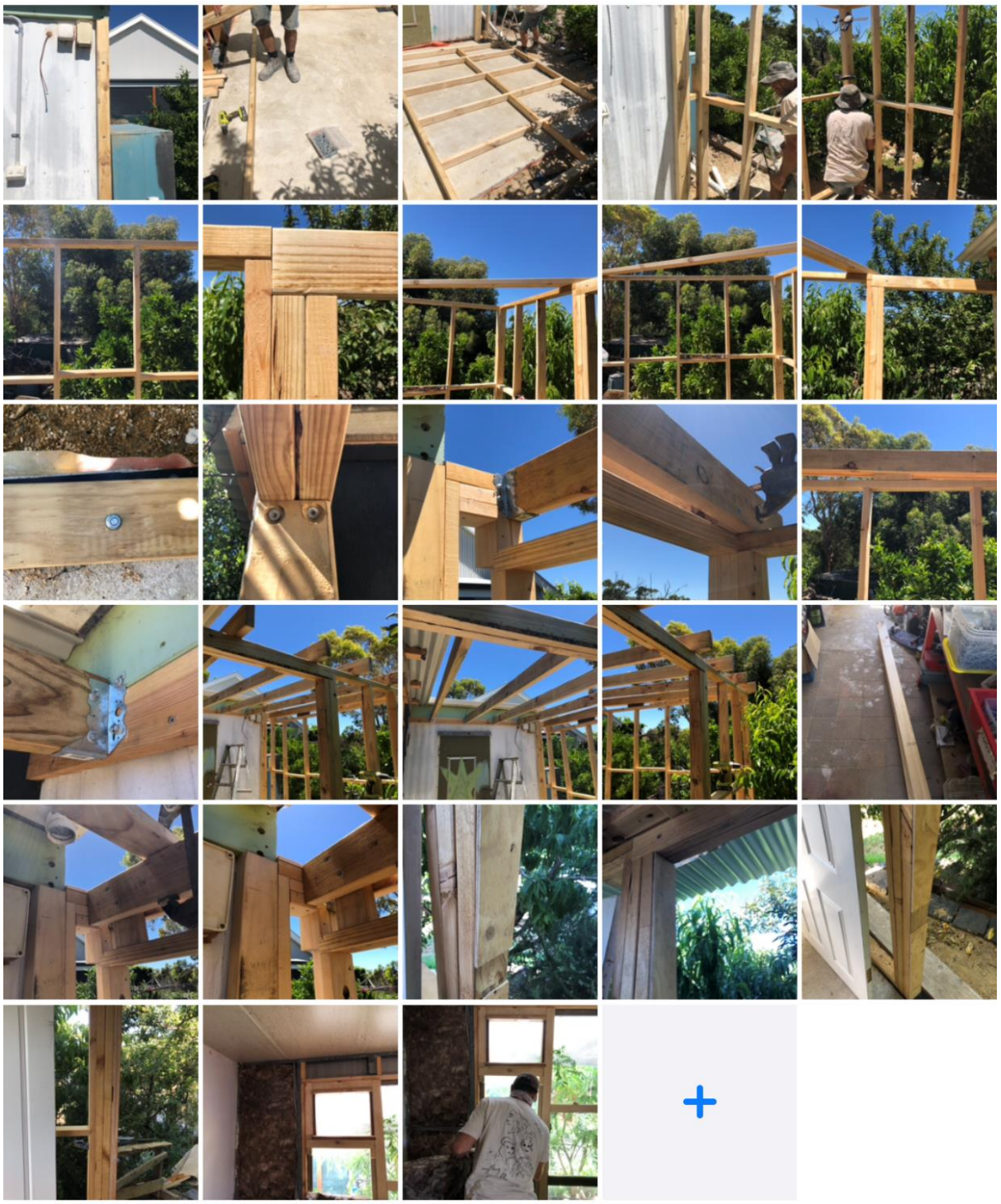


1.B. Clearing

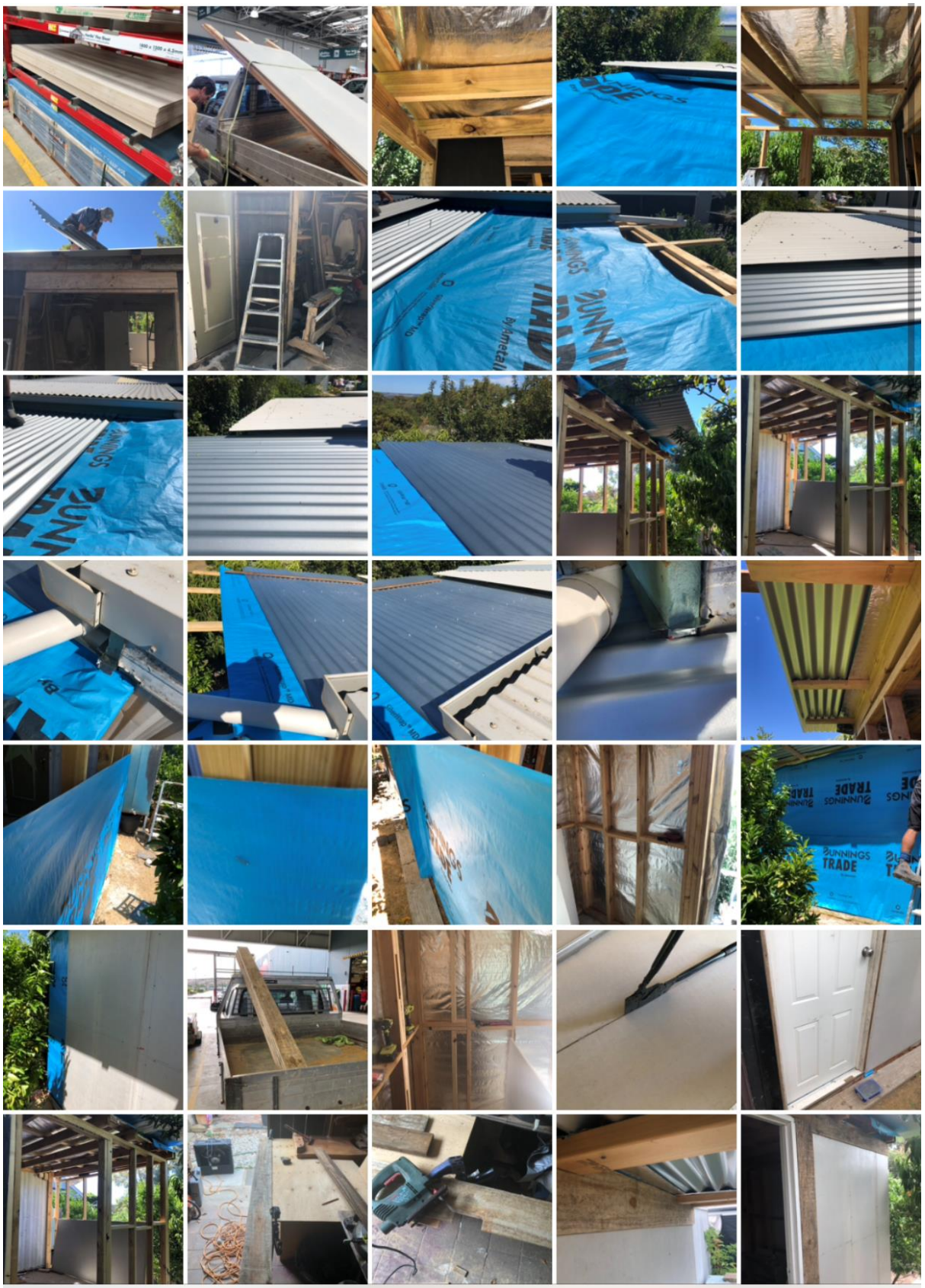


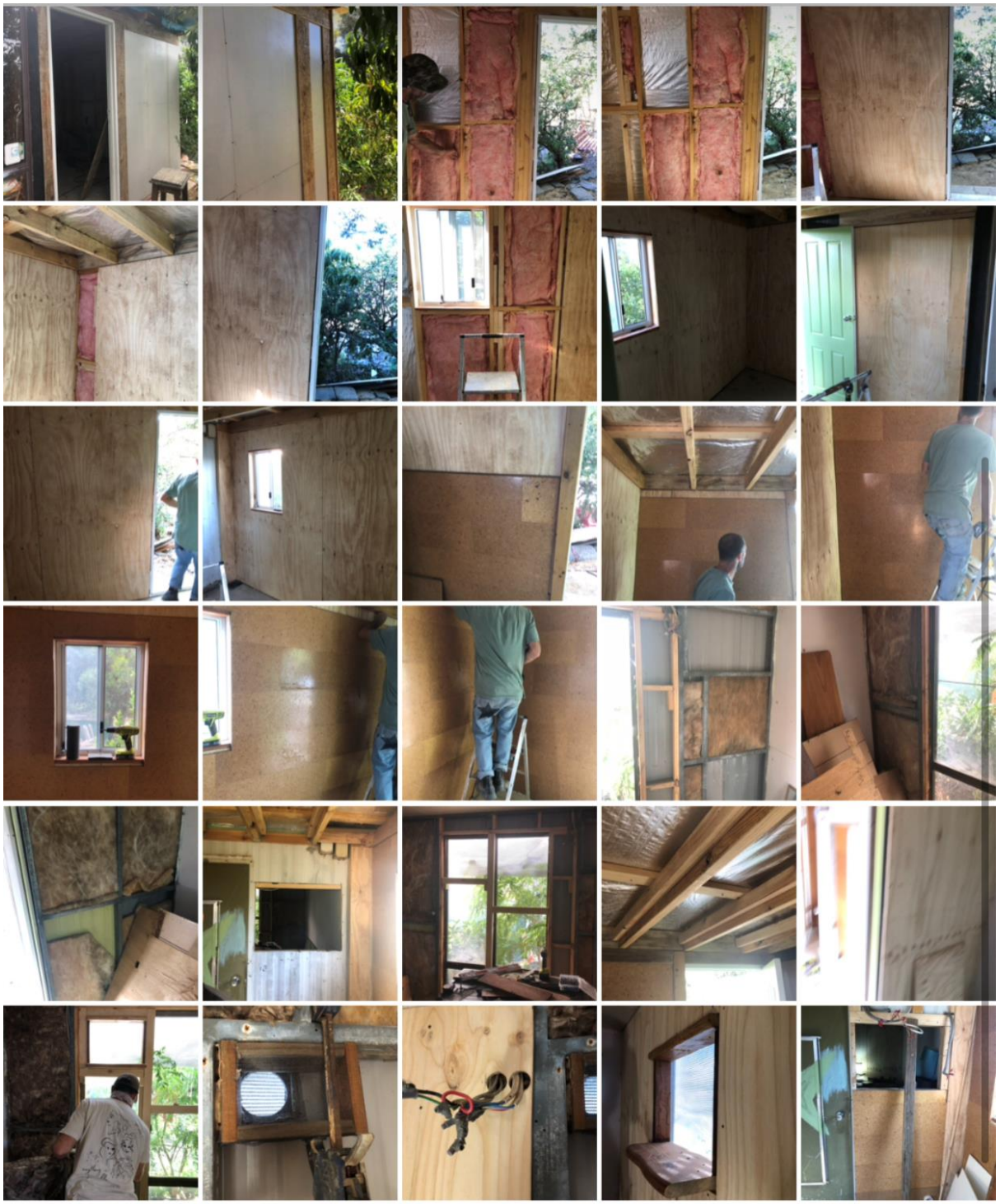
1.C. Slab

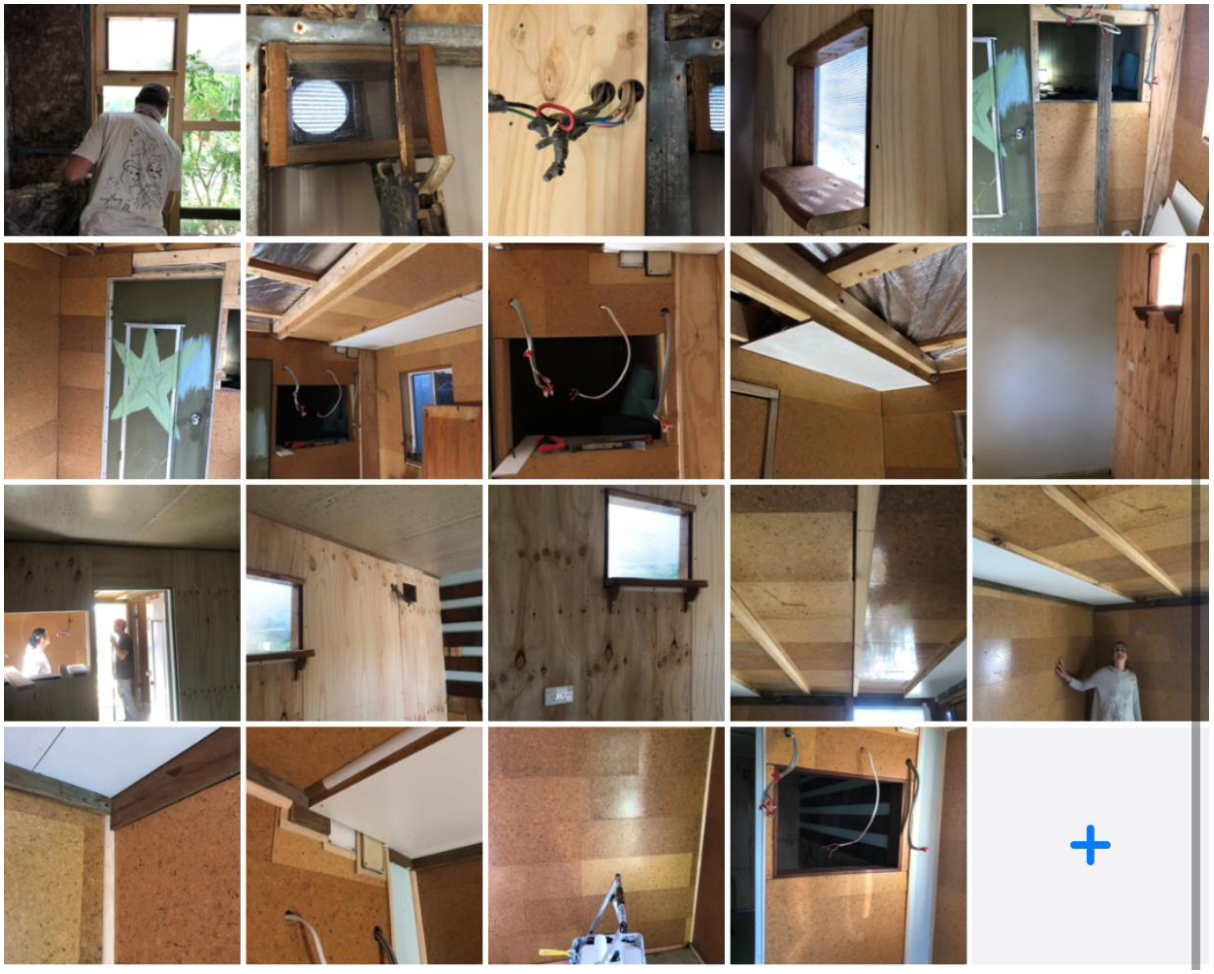
1. D. Frame



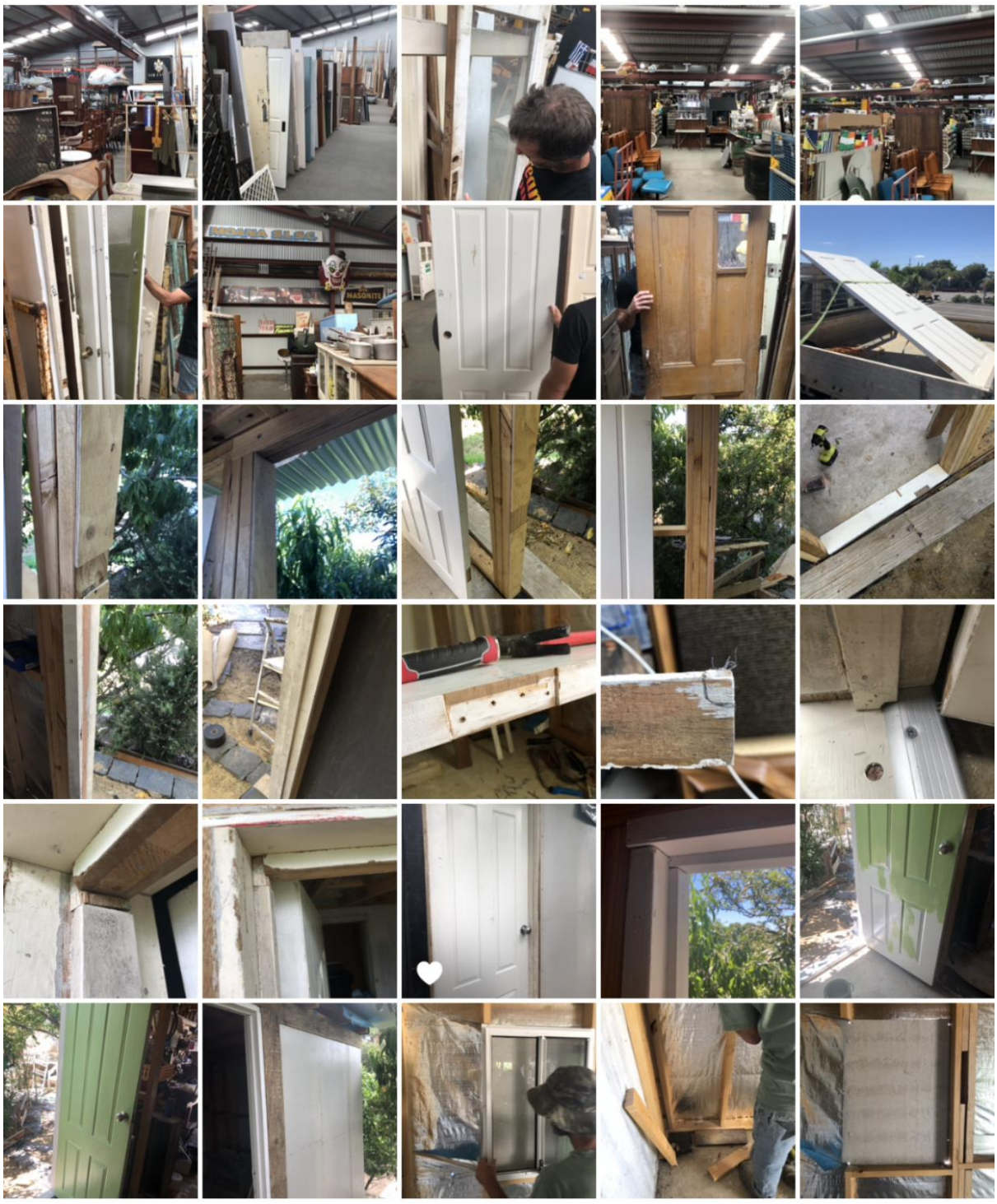
1. E. Cladding

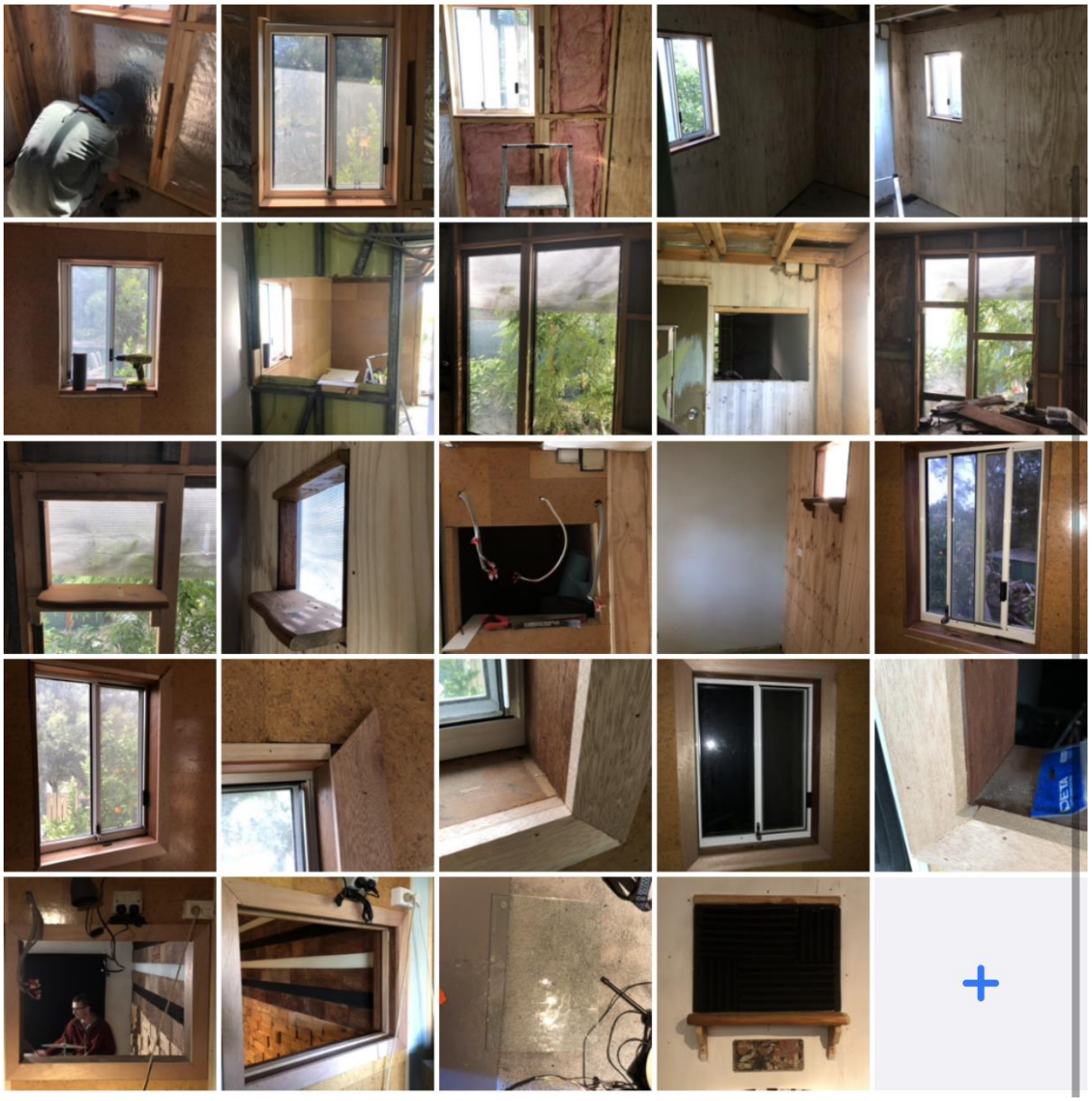




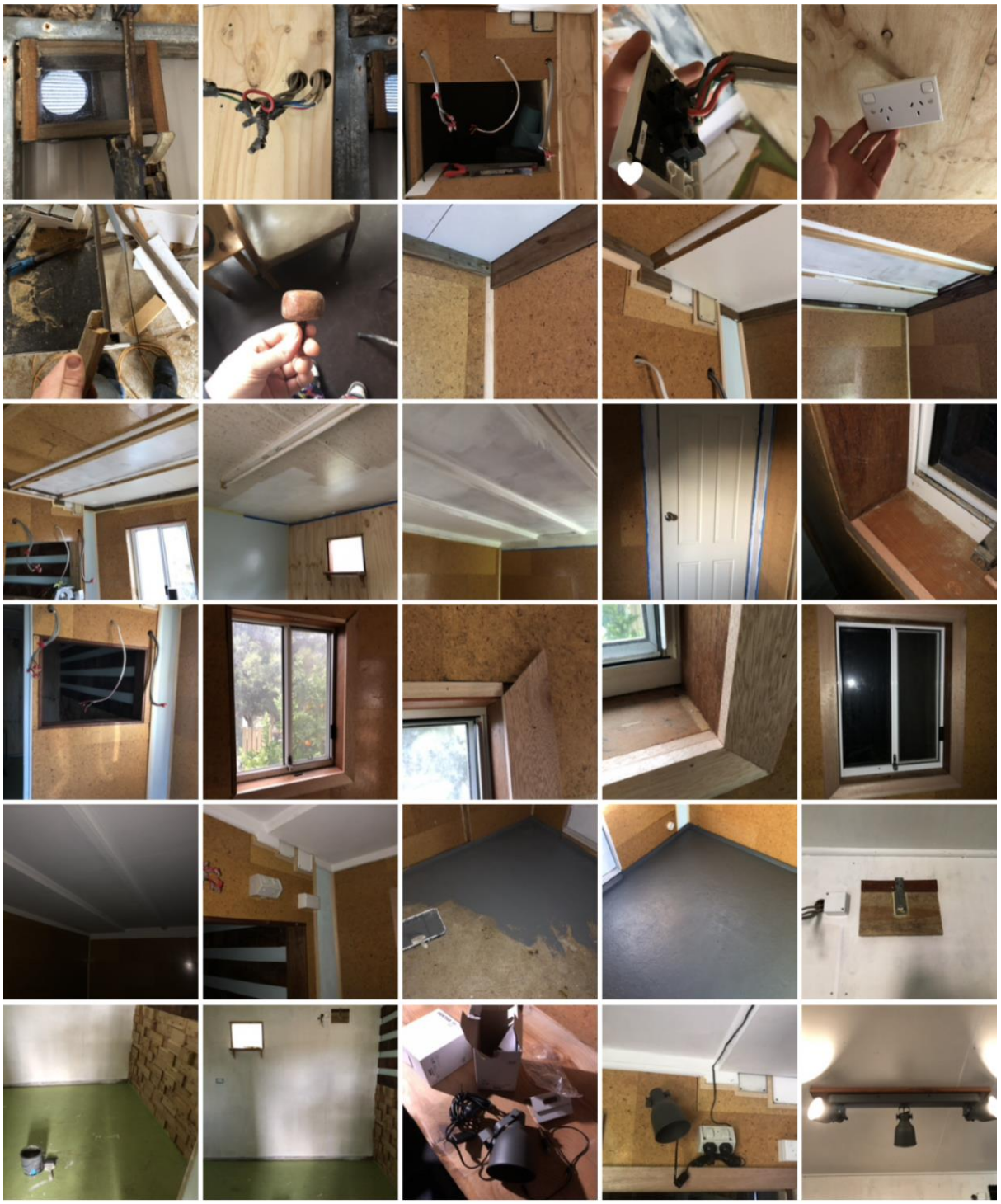


1.F. doors and windows

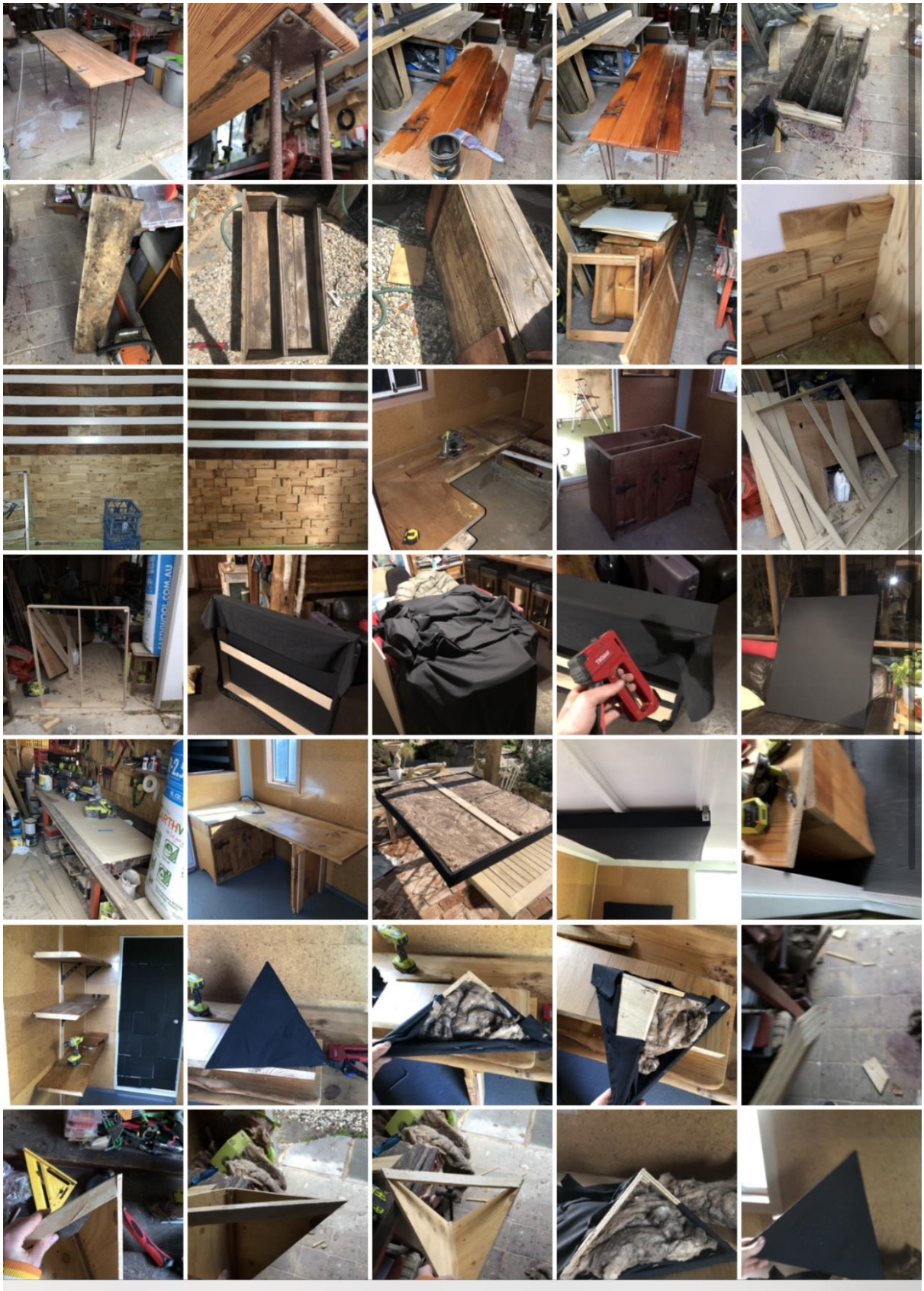


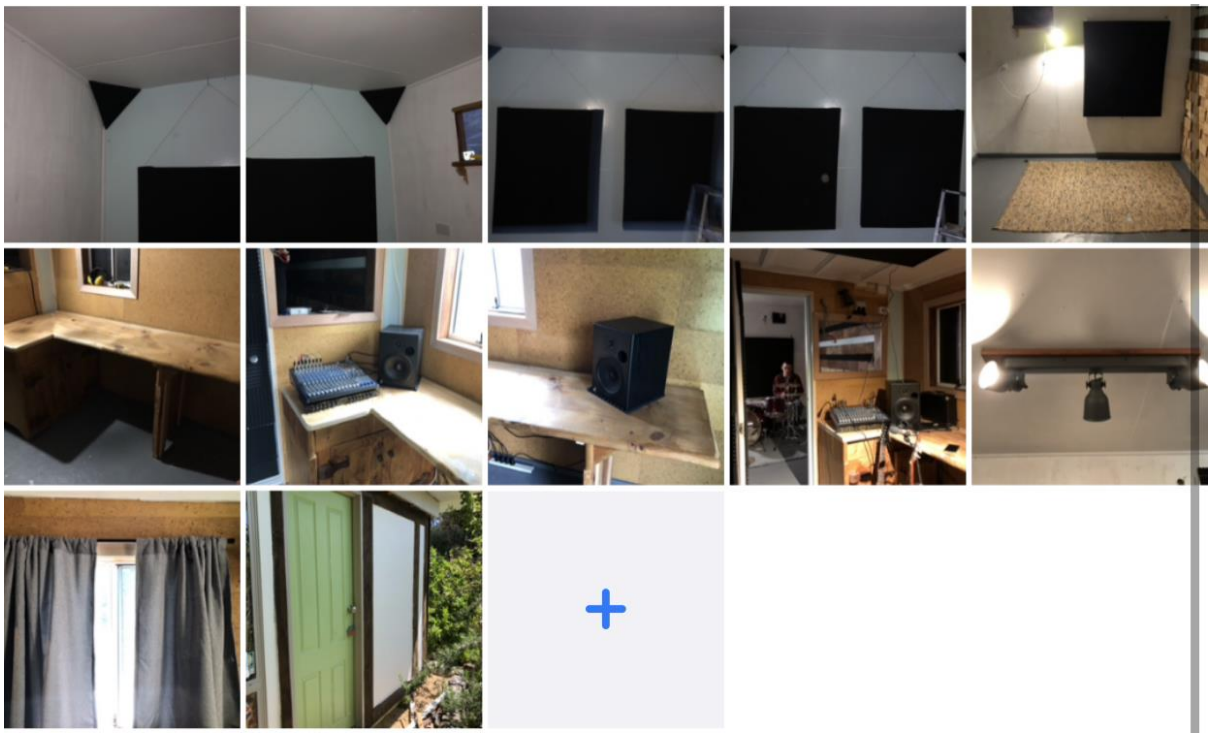


1.G. trims painting and electrical



1.H. furnishings and acoustic treatment



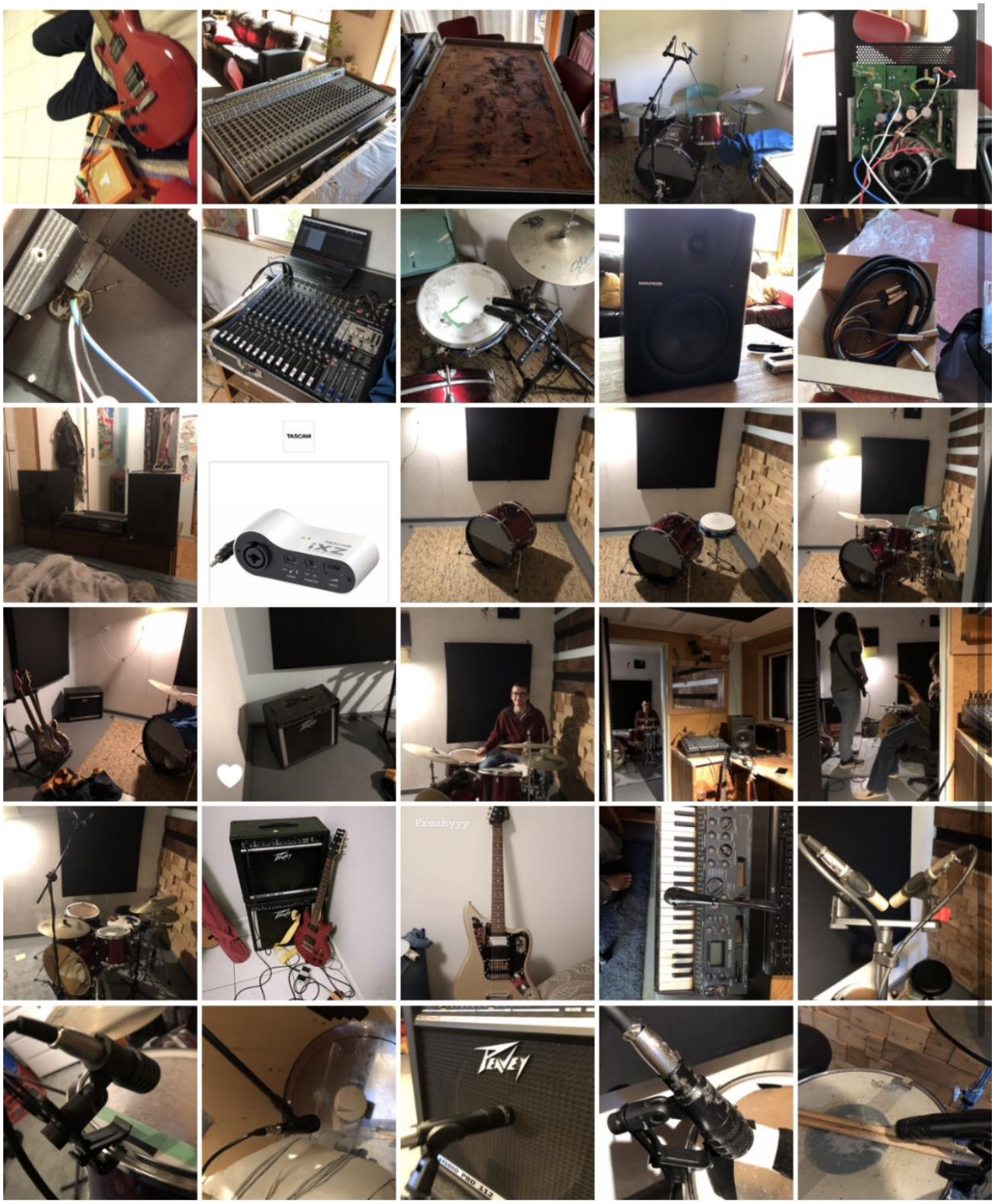


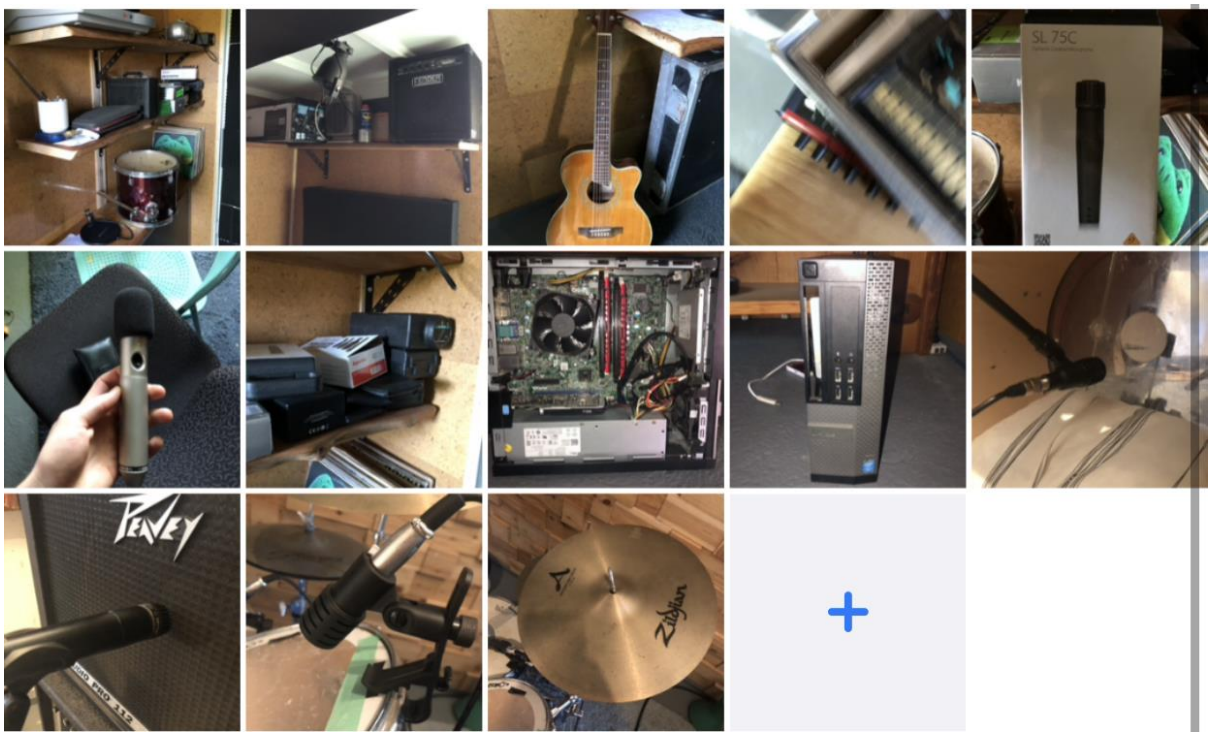
1.I. Cost

The total cost for the fully furnished building was $6433.54

Gear

2. A. Instruments, Mics and accessories





2. B. cost

Microphones - $420

Mixing desk / interface - $1370

PC (inc monitor, cables and PC) - $325

Cables, accessories and adapters - $235

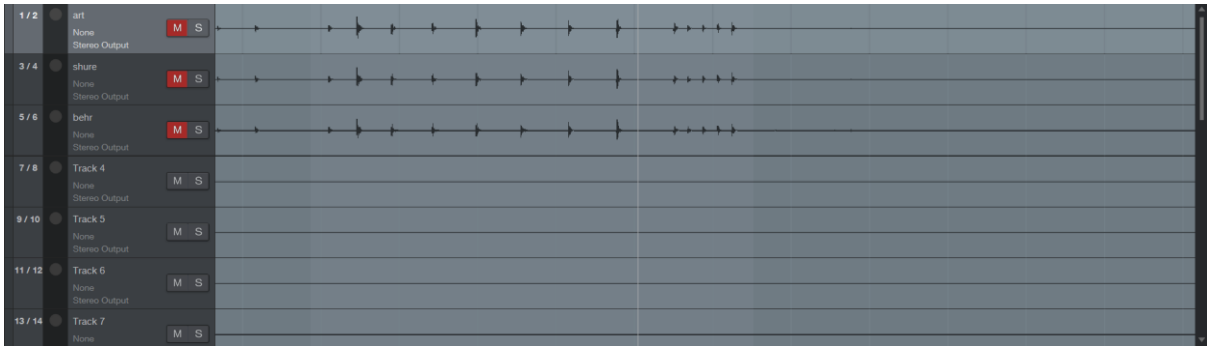
Drum equipment (snare head, sticks, tuner, crash cymbal) - $ 225

Studio monitors - $250

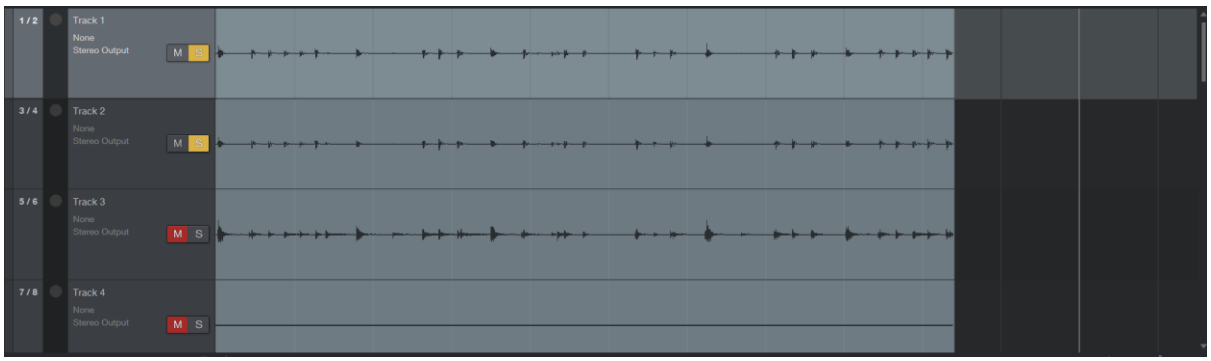
TOTAL: $2825

Recording

3. A. Audio tests



Clap tests and comparing microphones



First recording of drums in Studio one

3.B. Recording, jam sessions, and sharing of music

3. C. Links

Portfolio - chaskaglocknerkaro.com

Soundcloud - https://soundcloud.com/user-885775165

YouTube - https://www.youtube.com/@FieldPointTV