

Sunlit Stone:

Rebuilding Red Hill with Kentish Ragstone

The Kent Surrey Sussex Air Ambulance’s base of operations is situated in the Redhill Aerodrome and houses the air ambulance crew, admin staff and pilots. With emergency operations taking place 24/7, the building should provide a comfortable space for the crew to decompress, but unfortunately this is not the case. This project aims to unpack the ways the current base is failing and via a natural material perspective, look to improve the enviroment these heroes must work in.

This project is a result of interdisciplinary collaboration across a four month period involving multiple groups and working at different scales. From colleague collaboration in the studio to client input from the air ambulance crew and specialist expertise from the Quarry’s masonry workshop, the decisions made throughout my individual design process were unattainable without the information learned through collaboration.

The design process involves programme analysis, informed by a guided site tour led by the air ambulance crew themselves. Understanding of the existing structure comes from the studio collaborated 2x3m 1:20 site model, and a natural material palette stems from research collaboration in the form of a physical japanese-bound material booklet. Experimentation, derived from knowledge and Kentish Ragstone samples provided by Gallagher-Group Quarry staff, resulted in the final design being grounded in a sustainable and material rich framework.

Neve Fairholme

& L6 Interior Architecture, Gallagher Group Hermitage Quarry and Kent Surrey Sussex Air Ambulance Crew

IA676: Design 6 Experience & Systems



Kent Surrey Sussex Air Ambulance Crew



We were incredibly privileged to be invited to the Red Hill Air Ambulance for a site visit/guided tour. Comments made by the crew shaped the programmatic needs, painted a vivid image of the space they desired and highlighted current site circulation issues.

This valuable information was then processed into outlining major spaces to focus development, assessing key sequences to prevent major programme disruption and studying the existing building's circulation efficiency.

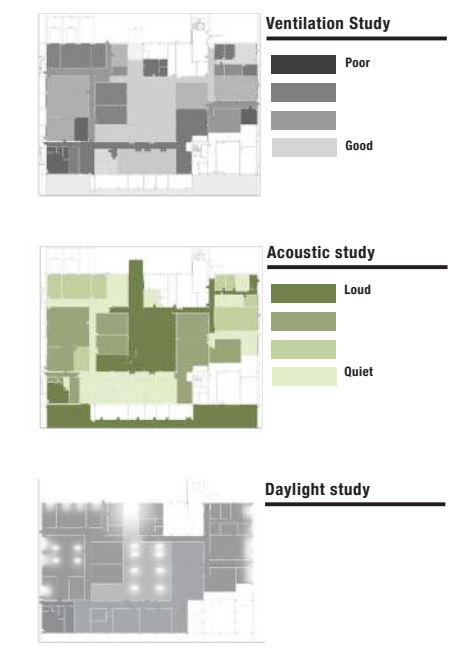
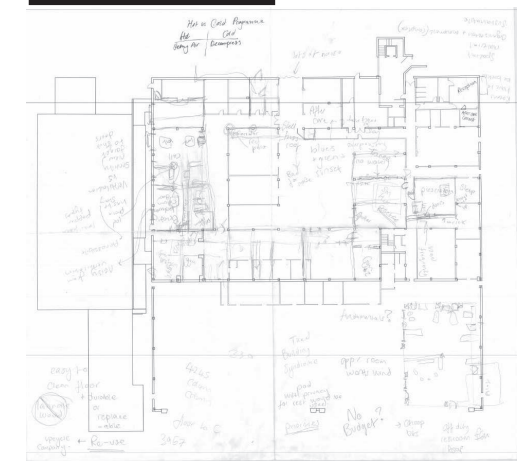
Spatial Layout [ground floor]

Walking through the building alongside the Air Ambulance crew, we were informed of which room was which, how the room was designed to be used versus how the room was actually used and areas in which they wished for some development.

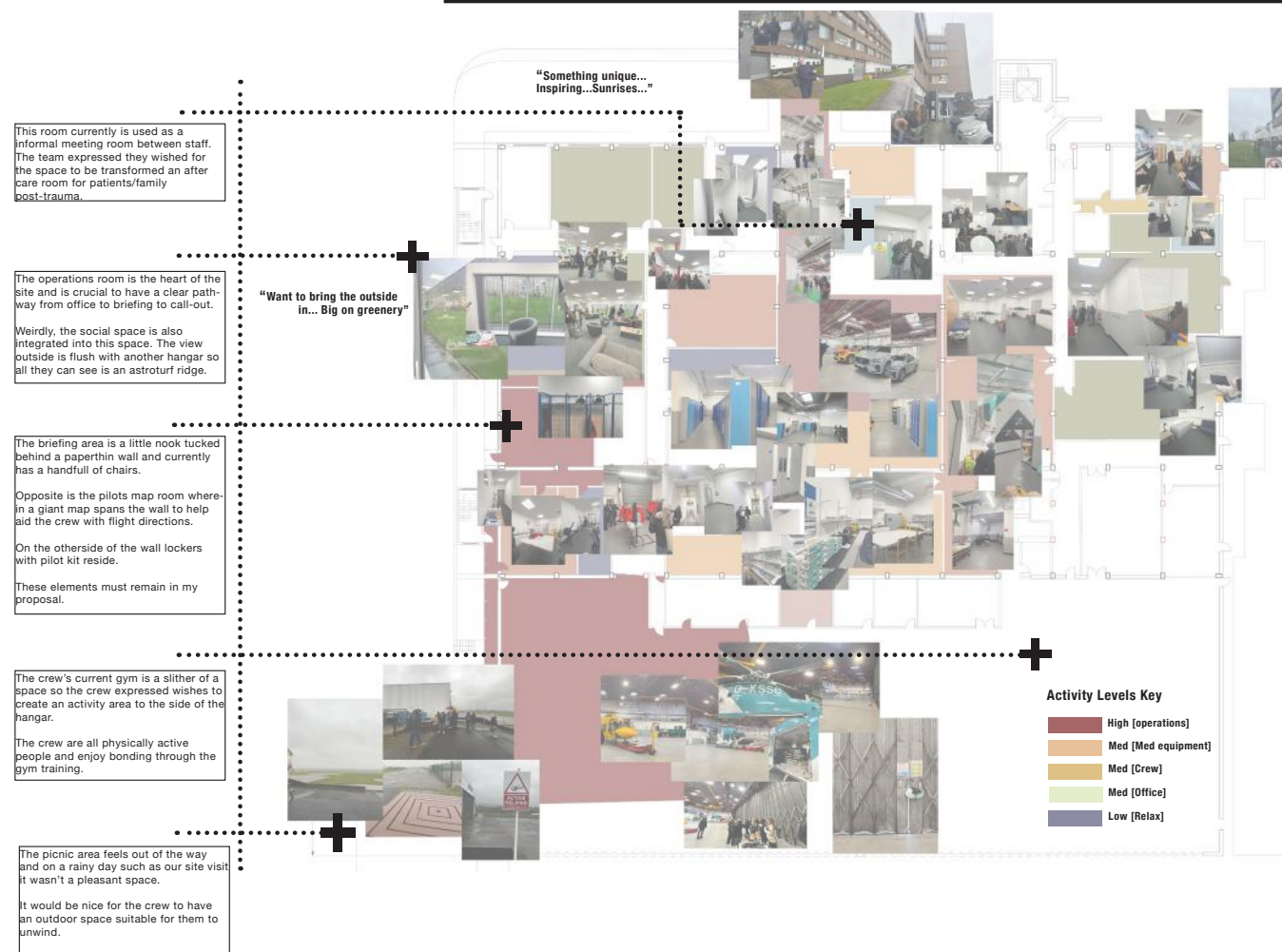
Overall a lot of valuable information was obtained during the visit, little offhand comments about how the crew loved the outdoors and connected via the gym really aided in assessing what programmatic needs I can design for.



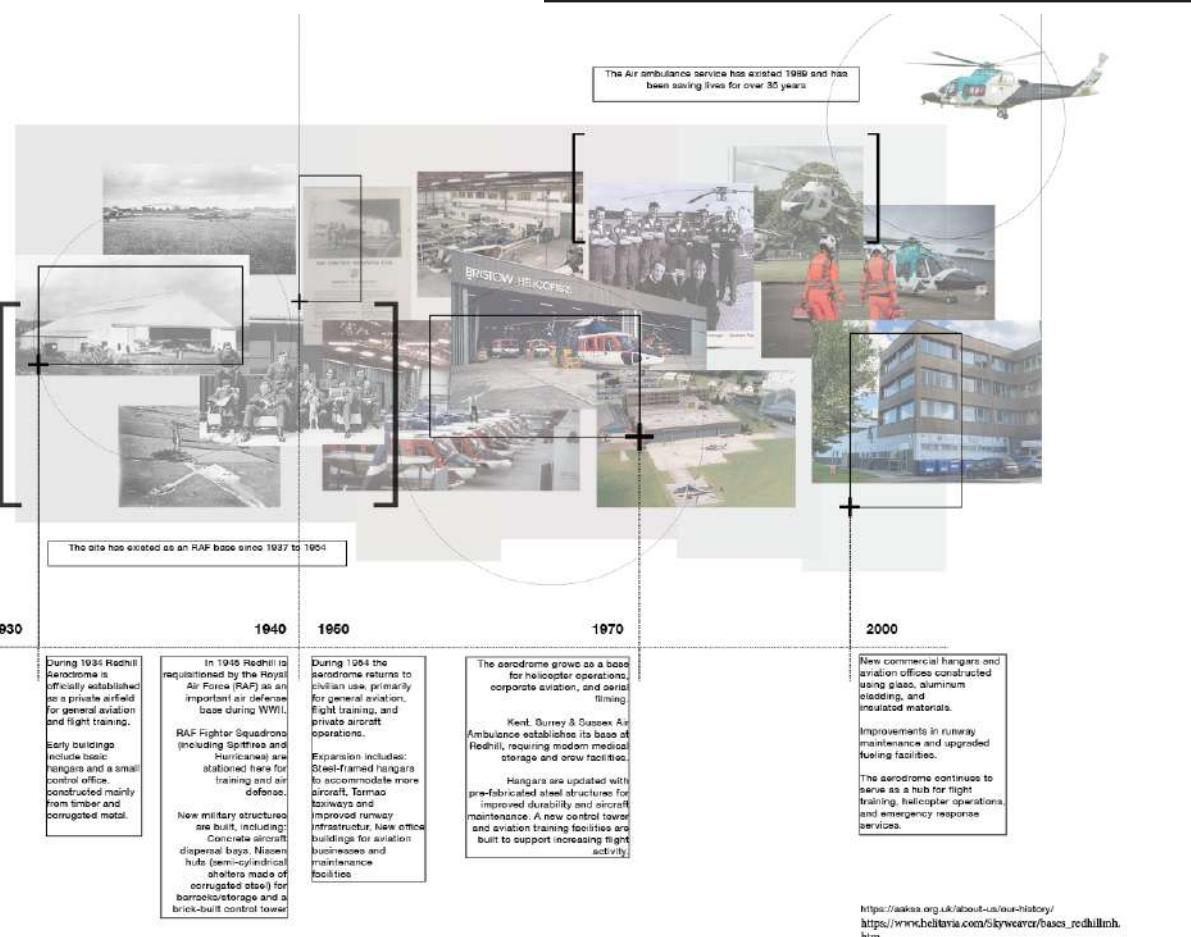
Original Site Recordings



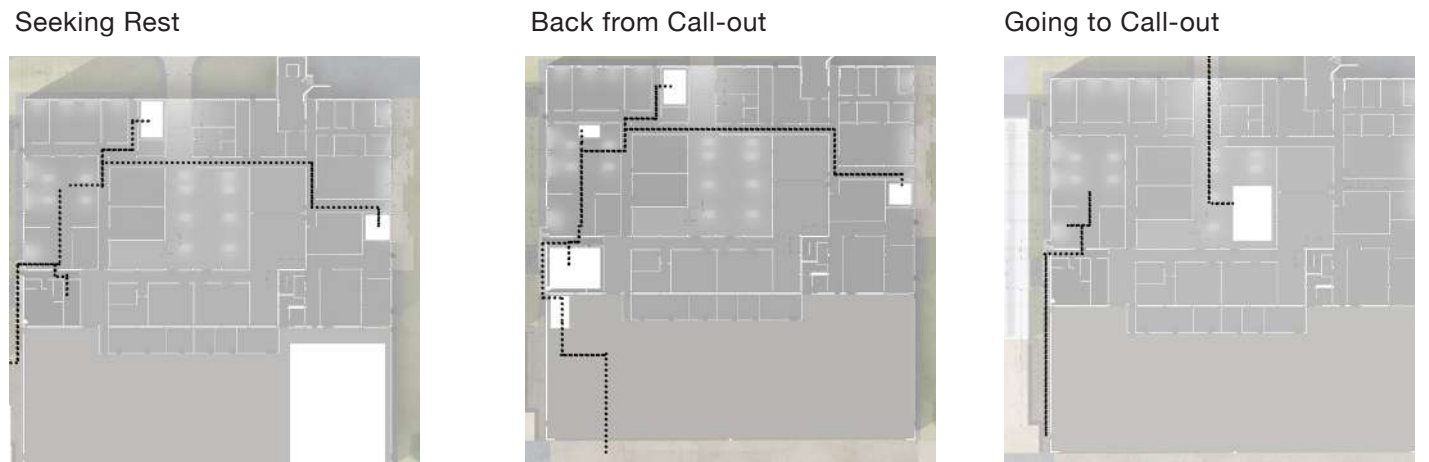
Crew Led Tour Findings[ethnography]



Operations Base Timeline



Key sequences [crew described]



Programme Analysis [crew described]





Photos taken from the masonry workshop featuring [left to right]: polished table slab, Large fragmented blocks, Unfished slabs, Custom cut via machine stone and ashlar finished blocks.

Rock Samples given by Quarry

The Masonry workshop at Gallagher Group were kind enough to provide me with some samples for me to experiment and further analyse.

Many photos were taken to study the rocks under different lighting.

The stones colour changes depending on the finish or depth of impurities.

A rubble finish under overhead lighting makes the texture of these stones pop. Something to achieve in my design?



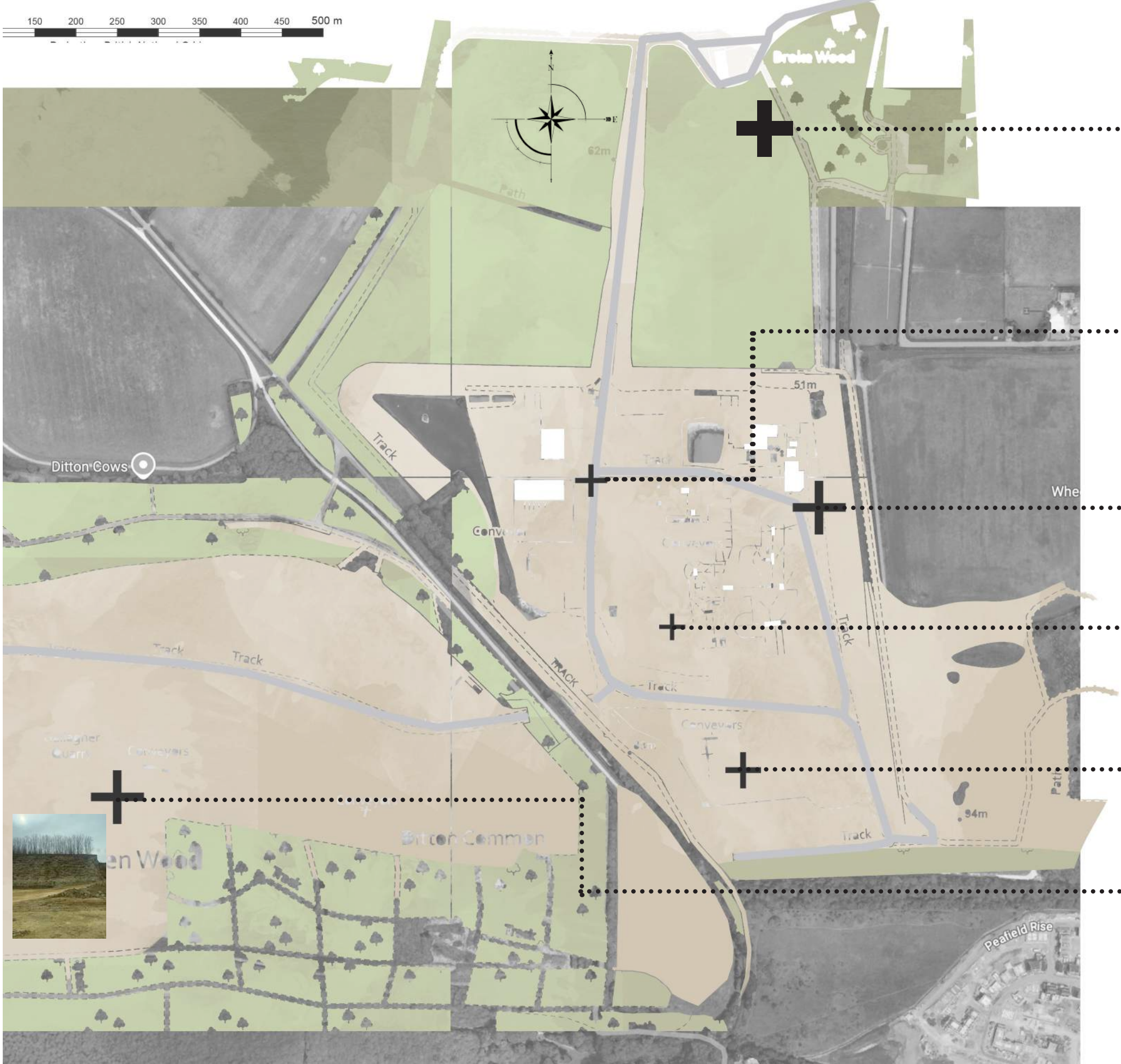
Gallagher-Group Hermitage Quarry

I was granted access to the only distributor of Kentish Ragstone's quarry: Gallagher Hermitage Quarry site.

The quarry is located in Maidstone, about a 46 minute drive from the Red Hill site, and prioritises sustainability in its approach to quarrying which I had previously researched in my material booklet. The Quarry visit involved a guided tour around the site and was very informative as to how the stone was gathered, the kinds of stone finishes achievable and the methods used for extracting. We were able to meet the masonry team and spoke about the potentials of Kentish Ragstone uses. I was also able to acquire some samples of the stone to bring back for experimentation.

To avoid a blocky and conventional design I looked into using stone's unique capability to be carved. I explored these ideas in section sketches and quick collage compositions to envision how the air ambulance crew could be provided a luxurious rest area. I also looked into establishing the more modular aspects of my design such as different types of walls.

Map of Hermitage Quarry



Location of the main office. Built upon restored quarry terrain, demonstrating Gallagher's sustainability pledge.



The company trialed pellets of ash and stored in this area.



Stone masonry workshop. All orders non aggregate related are produced here.



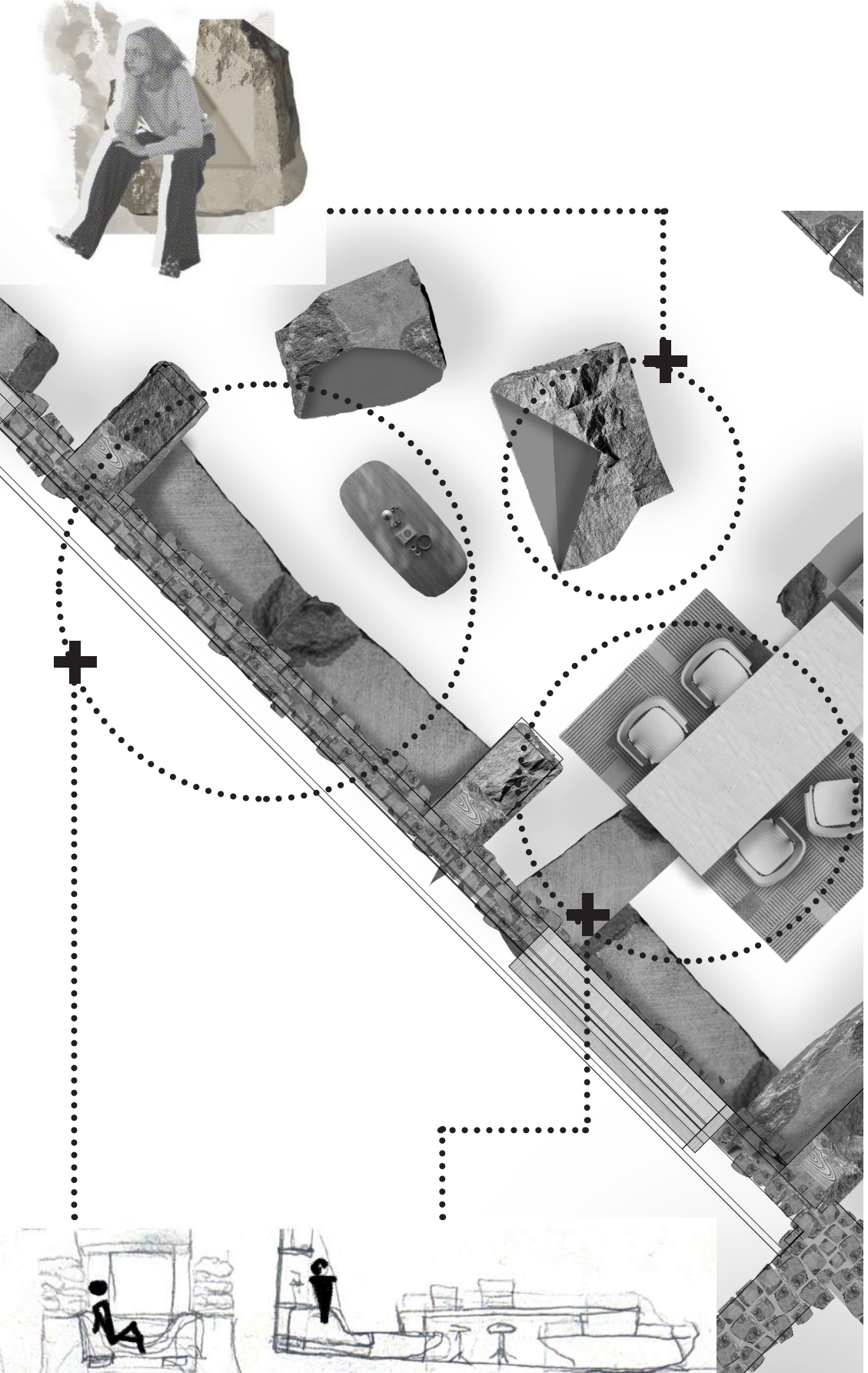
Conveyor Belts for aggregate production

Where they grade the waste from quarrying so everything can be used.



Blasting zone where they explode the rock face every couple days [depending on demand]

Ragstone Exploration

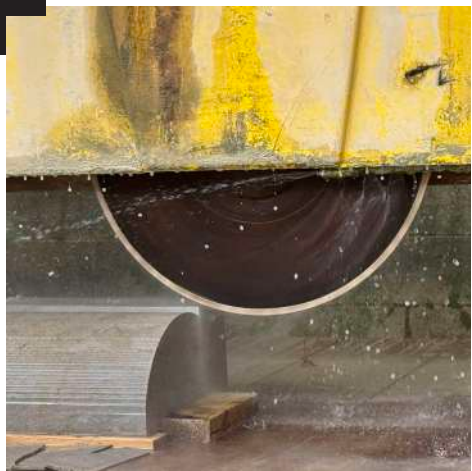


Quick sketchbook section drawing

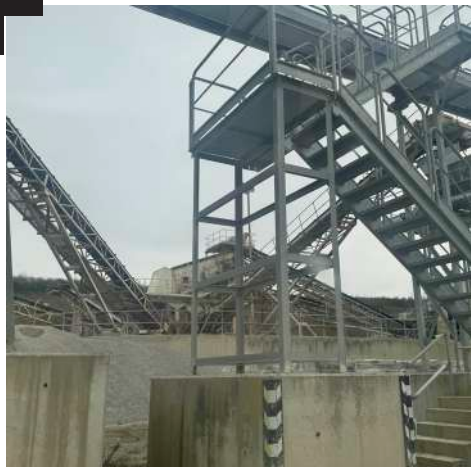
Six Saws, Three Primary.
Depending on order stones may pass through secondary saw and then hand cut by stone masons



This saw uses computer software to cut specific identical shapes.

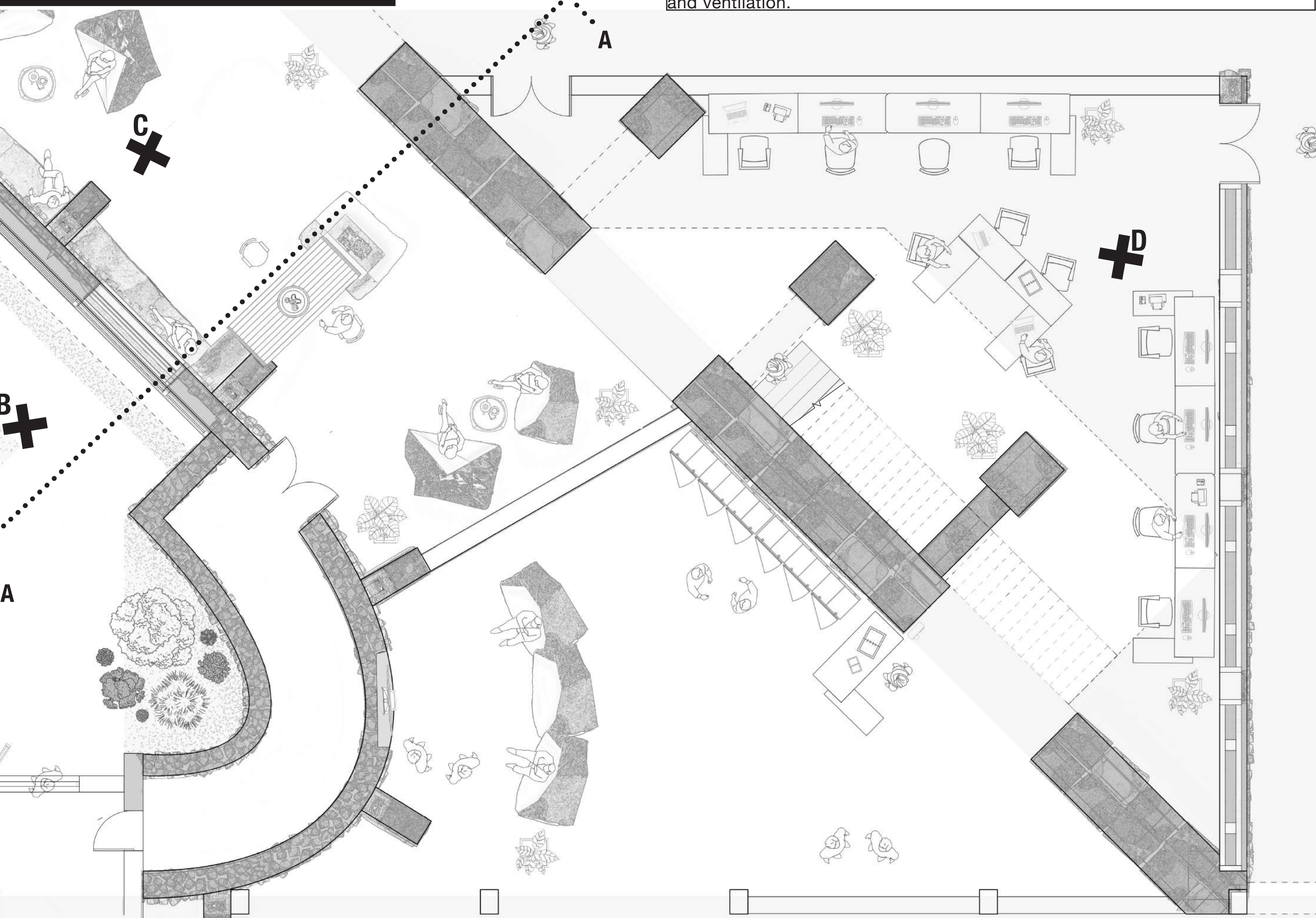


The stone passes through the barrel, gets crushed and impacted by vibrating plates in the sieve and along the conveyor to produce the company's main export: aggregate.



Final Personal Design Outcome

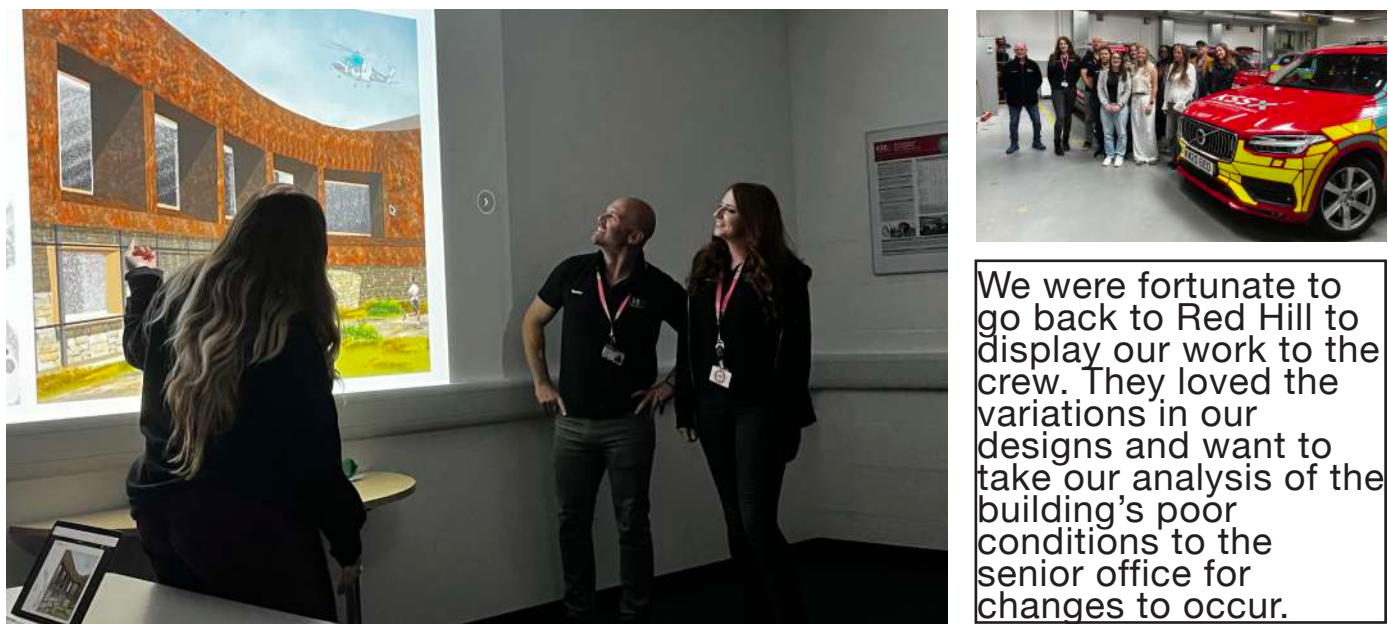
Proposed Operations Room + lounge



As demonstrated by this portfolio, my work has been informed by multiple groups of different disciplines in collaboration. My final design responds to the air ambulance crew inputs, uses the studio work to further understand the potential physical makeup of the space and centres the final design development around material investigation supported by the Gallagher-Group Hermitage Quarry staff.

The result is a complete spatial transformation, compiled of masonry trombe walls, warm timber structural support and recycled zinc roof cladding. The building's circulation slowly diffuses into each programme rather than the previous high amount of programme contrast. The crew is also well equipped with resting areas, gym space and a larger surface area exposed to natural light and ventilation.

Revisiting the Air Ambulance Crew



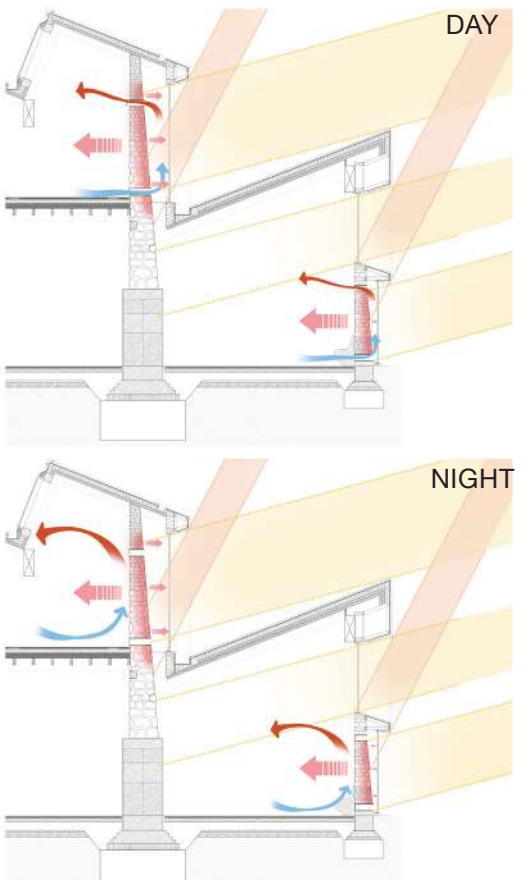
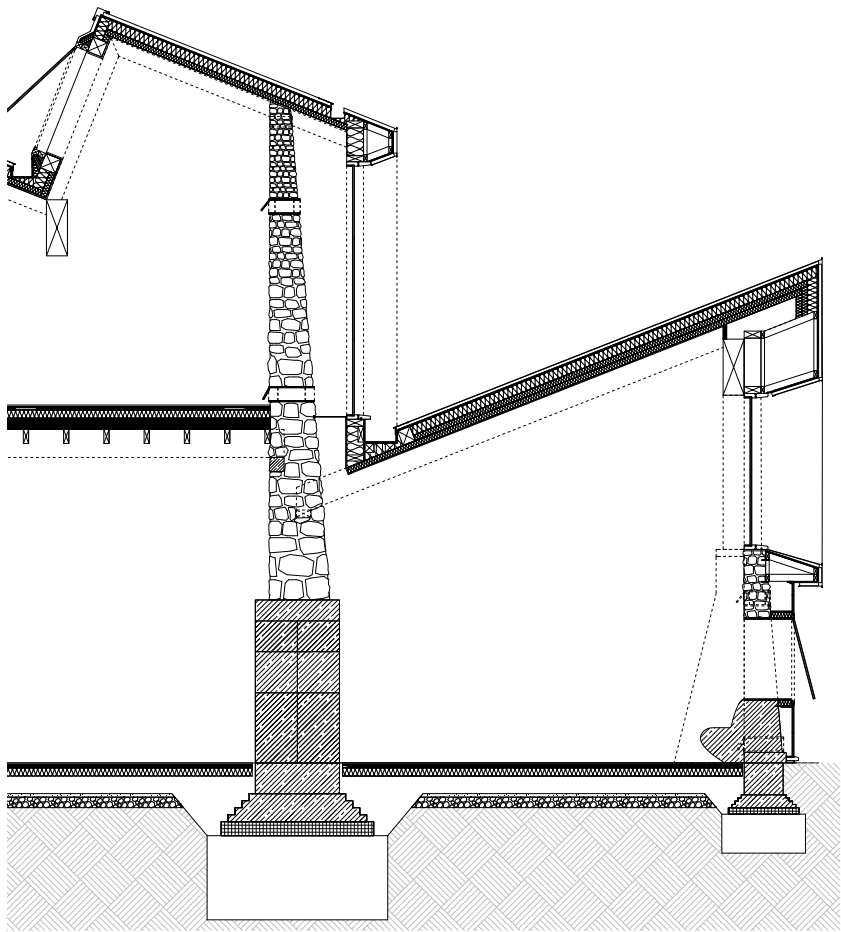
We were fortunate to go back to Red Hill to display our work to the crew. They loved the variations in our designs and want to take our analysis of the building's poor conditions to the senior office for changes to occur.

User Experiences



Full Section A-A [Not to Scale]

Trombe Wall Diagram



Material Palette

With the design concept developed with some natural materials in mind, it is important to fully realise the material palette and maintain a sustainable and circular economy approach. This involves: sourcing materials from local sources, choosing materials that can be sustainably reused and assessing the embodied carbon a material holds.



Kentish Ragstone



WPB Plywood



CLT [Reclaimed]



Glulam [Reclaimed]



Timber [Reclaimed]



Block [Site Reclaimed]



Zinc [Pre-patinated]



Concrete



Lime Plaster [Dyed]



Woodfibre Insulation