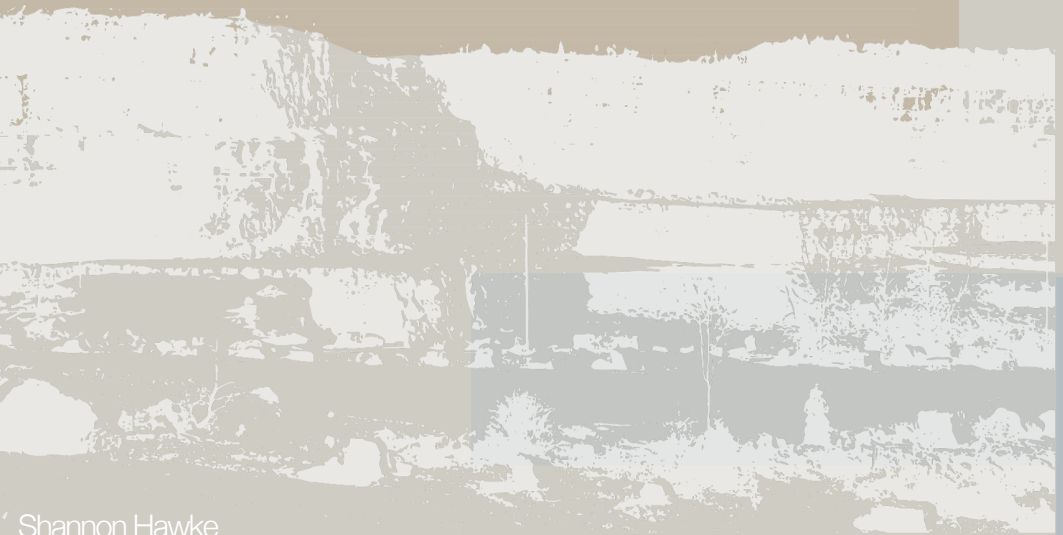


# Immersion: a journey to [re-]



Shannon Hawke





retreat  
restore  
sonate  
connect  
venate  
revive  
retreat  
sonate  
connect  
venate  
revive  
retreat  
restore  
sonate  
connect  
venate  
revive  
retreat  
restore  
used  
again'  
to a  
/ etc.

This project is an investigation  
into the innate connection  
**we** have with water.

*we: humans beings /  
conscious thinkers / decision  
makers / spiritual seekers /  
members of the greater whole*

## Initial Questions

What can be done with quarries once they have been depleted of their usable natural resource?

How can this land be utilized in a functional and beneficial way?

## Quarry Revitalization

Ontario has approximately 4000 abandoned pits and quarries. Abandoned, by definition, refers to all of the pits and quarries that were not licensed after the establishment of the Aggregate Resources Act (ARA) in 1990. These former excavation sites are not in reality abandoned, as individuals, corporations or municipalities own them, but they are no longer in use and are in need of revitalization.

## Rehabilitation

According to the Aggregate Resources Act,

“Rehabilitation is the treatment of land from which aggregate has been excavated so that the use or condition of the land:

- Is restored to its former use or condition, or
- Is changed to another use or condition that is or will be compatible with the use of adjacent land.”

## The Aggregate Resources Act

The purposes of the Act are:

- To provide for the management of the aggregate resources in Ontario
- To control and regulate aggregate operation on both Crown (public) and private land
- To require the rehabilitation of land from which aggregate has been excavated
- To minimize the adverse impact on the environment from aggregate operations.

“Require every licensee and permittee in the Province of Ontario to perform progressive and final rehabilitation in the site in accordance with the act, the regulation, the site plan, and the conditions of the license/permit, to the satisfaction of the Ministry of Natural Resources.”

*The Management of Abandoned Aggregate Properties (MAAP) and The Aggregate Resources Trust* are responsible for the enforcement of the ARA. The MAAP undertakes the rehabilitation and research of pits and quarries deemed abandoned. The Trust is responsible for managing the Abandoned Pits and Quarries Rehabilitation Fund. The rehabilitation process is funded by the aggregate industry through the current annual licence fee structure, where \$0.115/

tonne of removed aggregate goes towards the Fund. Therefore there is no cost to the property owner to have their land revitalized.

Abandoned and depleted quarries are generally located in rural areas surrounded by farmland. Farmers will often use the land as storage sites for their larger equipment. Some of the possible land uses for depleted and abandoned quarries include wetlands, crop/pastoral land for farming, public recreational/park space, ecological education centers, gardens, swimming areas, cliff jumping sites, and dive sites.

### **Scuba Diving Centre**

The method of rehabilitation I chose to explore further is the most unique

approach. There are many examples of depleted quarries that are now being used as scuba diving training centers. In general, the owners will add simple docks to enter and exit the water. Otherwise the land is left as found. The quarries naturally fill with water over time through rainwater and ground water. The owners will sink various boats, airplanes, helicopters, buses, cars, etc. for the divers to explore in this completely new environment. There are rarely any architectural considerations implemented into the design or planning of the facility.

Endnotes

1. <http://www.ontario.ca/environment-and-energy/aggregate-resources>



Image: Zakrzówek Quarry, Kraków, Poland



## Follow Up Questions

What if the underwater environment was designed specifically for the divers experience?

How is space experienced underwater?

How do my ideas of architecture change when applied to the underwater environment?

How is our perception changed underwater? How are our senses reduced or enhanced?

## Water

### Human Connection with Water

Both humans and the planet are approximately 70% water. Without it, we could not survive. Water provides for our basic human needs. We use water heavily in the food production industry, in the manufacturing of the commodities we are now reliant on, to both generate and convert energy, and as a major means of transportation.

We also use water to enhance our quality of life through recreation, entertainment and relaxation. We plan vacations around our desire to lie by the beach, hike to the waterfall, swim in the hot spring, sail through the ocean, and kayak down the river. We want to

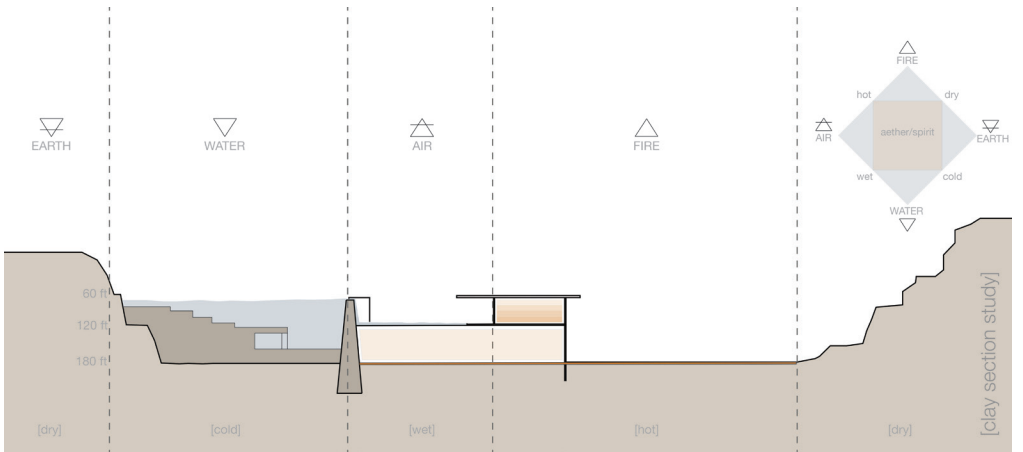
be amazed. We want to feel connected with the natural world, a world we are becoming more and more removed from. We want to surround ourselves in the sublime.

We want to be moved.

### Water, Religion and Spirituality

For thousands of years, water has been a life force. It was and is necessary. But it also has many significant ties to religion and spirituality throughout history. In many major world religions, water symbolizes purification and has cleansing properties. Many bodies of water are considered sacred and have healing abilities associated with them. In many cultures, water is considered one of the basic natural elements. Aristotle determined the four classic elements as Earth, Water, Air and Fire. The mythical qualities of water go back to Greek and Roman mythology.

*To the right is a concept section of how the four classical elements could be used to organize and connect the site. The associated characteristics of the elements connect each element to the next, creating a conceptually seamless transition between each section of the site.*



## **Total Immersion: Kinaesthesia and the Rearrangement of Sensorium**

Although water is inexplicably tied to us and is something that is part of our daily lives, we still do not generally experience it through total immersion. Because we are land beings by nature, we are unable to spend long amounts of time total immersed. This is one of the reasons scuba diving is so popular. The equipment used in scuba diving allows us to drastically extend our stay in this underwater world, and provides us the opportunity to explore one of the most mysterious parts of our planet.

While totally immersed in water, kinaesthesia becomes crucial to understanding the particular sense of space experienced by divers. Kinaesthesia is the awareness of the position and movement of the parts of the body by means of sensory organs (proprioceptors) in the muscles, tendons and joints. In diving, a diver becomes balanced through the intertwining of the vestibular system with buoyancy perception as it picks up bodily orientation and works with other somatic sensations. There must be an understanding of how the body acknowledges and negotiates the space through instinctual, unconscious and cognitive means. For divers to maintain neutral buoyancy in the fluid materiality of water, they must be actively aware of themselves within

this environment. The knowledge and skill to maintain their bodily position within the water is gained over time, eventually becoming almost second nature, just as we can unconsciously navigate the terrestrial environment with ease<sup>2</sup>. Divers experience a sense of space and a tangible connection with the underwater environment through the somatic tensions and pressures felt within and around their bodies<sup>2</sup>.

Being completely immersed in water also requires a total readjustment of our land-based sensorium. The sensorium, as defined by Stephanie Merchant in her paper *Negotiating Underwater Space: The Sensorium, the Body and the Practice of Scuba-diving*, "is defined as the sum of a person's perceptions, or 'the seat of sensation', of their interpretation of an environment. The different 'ratios of sense' that make up the sensuous and perceptual means by which we come to understand and dwell in space are said to be dependent on shared cultural norms and consequently vary according to social context and geographical location. To adapt and succeed in negotiating an environment such as the underwater world involves a reorganization of the land-based or travelling sensorium."<sup>3</sup>



## ***Dis-appearance*** **vs. *Dys-appearance***

Drew Leder put forth the phenomenological argument of dis- vs. dys-appearance, which outlines the two modes of bodily being that occur simultaneously and fluctuatingly in different parts of the body at any one time<sup>3</sup>. These modes refer to the way we are either conscious or unconscious of our bodily functions and perceptions. Dis-appearance is how we function in our every day lives within a land based environment. It has to do with parts or all of our body vanishing, where our body operates seamlessly and functions appropriately for the task at hand without the requirement of conscious thought<sup>3</sup>.

Dys-appearance, on the other hand, has to do with how we experience the underwater environment. It is associated with awareness and an attention to our movements, visceral functions and bodily coordination. It is the process of becoming cognisant of how we are moving within the context of a new, uncomfortable environment<sup>3</sup>. It is how we act in an unusual surrounding where we are required to negotiate our way around space in a new or unrefined way. While dis-appearance allows us to get caught up in external distractions and thoughts of the past or future, dys-appearance requires us to be

completely in tune with the present moment, as well as our immediate surrounding environment.<sup>3</sup>

### Endnotes

2. Touched by Water - The Body in Scuba Diving | E.R. Straughan
3. Negotiating Underwater Space: The Sensorium, the Body and the Practice of Scuba-diving | Stephanie Merchant

## Dive Theories

### Boyle's Law | Pressure and Volume are Inversely Proportional

$PV=k$ , where  
P – Pressure of gas  
V – Volume of gas  
k – constant

When the pressure is increased, the volume decreases, and vice versa. Boyle's Law is often used to describe the ascent and descent of the diver, and how it compensates the pressure in the air spaces on or in the body, those being the BCD (Buoyancy Control Device), the lungs, the Eustachian tubes in the inner ear, and the mask. During the descent, the pressure increases and the volume decreases, therefore the same amount of air takes up less space and the airspaces are compressed. To equalize, more air needs to be let into the airspaces.

### Charles Law | Temperature and Volume are directly Proportional

$T/V=k$ , where  
T – Temperature of gas  
V – Volume  
k – constant

A cooling gas decreases in volume; therefore, if the volume remains a fixed temperature, the pressure must decrease.

### Henry's Law | Gas Pressure and Absorption are directly Proportional

$P=KC$ , where  
P – Partial pressure of the gas solute  
C – concentration of the gas  
K – Henry's Law constant

At a higher pressure, our bodies will absorb more gases; therefore, at greater depths where there is an increased amount of pressure acting on the body, the amount of nitrogen (and other gases) absorbed into our blood and tissue is greater than the amount absorbed at shallow depths.

### Dalton's Law of Partial Pressures | Mixed Gases Compress Equally by Volume

$P = p(1) + p(2) + p(3) \dots + p(n)$ , where  
P – total pressure exerted by the sum of pressure p

All gases tend to compress similarly; therefore, if you have a mixture of nitrogen and oxygen, and add 100lbs of pressure, both gases will compress equally. Mixed gases will stay in the same proportions under pressure. This assures us that our bodies absorb gases in the same proportions at any depth, which allows us to estimate gas levels in our body. This allows us to safely plan repetitive dives and avoid developing decompression sickness.

Endnotes:

4. "Diving Physics and You." TheDiverClinic.com. <<http://www.thediverclinic.com/page/diving/45/>>.





# Scuba Diving

## Sound Transmission

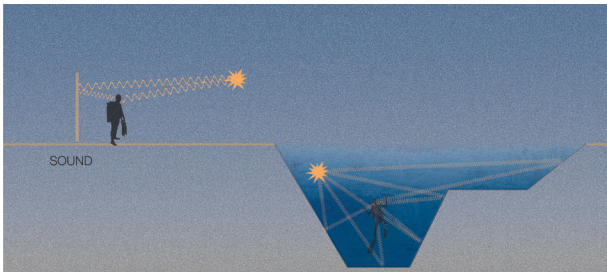
The density of the material sound is traveling through determines its speed. The denser a material is, the faster sound will travel. Water is substantially denser than air, which means sound travels about 4 times faster underwater. This affects our ability to hear underwater greatly. Due to its increased speed, it becomes very difficult to determine the origin of the sound. In air, our brain is able to determine where the sound is coming from by measuring the time delay between the sounds reaching our ears individually. In water, the delay is almost non-existent, and therefore our brains cannot figure out where the sound is coming from.

## The Transcendental Quality of Underwater Sound

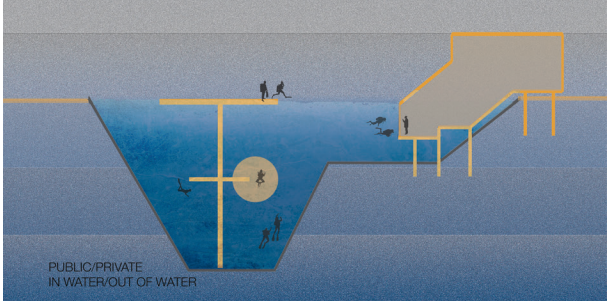
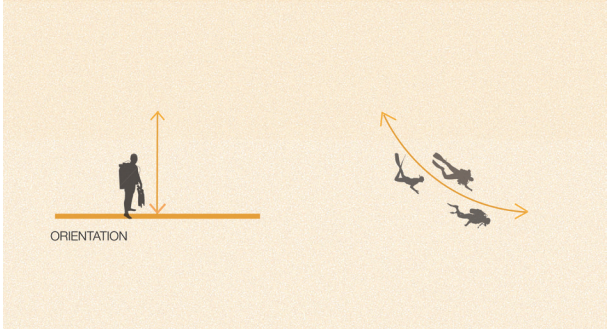
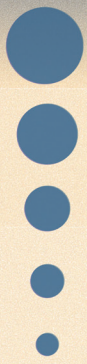
Being unable to determine the origins of sound provides the diver with a very intense otherworldly experience, as it feels like sound is coming from everywhere. It can even feel as if the sound is coming from themselves. The only time we experience anything similar on land is when we are in an acoustically perfect concert hall, or are listening to music while wearing sound cancelling headphones. These experiences have the ability to provide a transcendental quality. It pulls us into the present and startles us. It wakes us up.

*The diagrams to the right illustrate the difference between on land and underwater with regards to sound transmission, bodily orientation, built structure, and public vs. private space.*

*The chart shows how pressure affects the body as the diver reaches greater depths, as understood by Boyle's Law.*



DEPTH (m)	ATMOSPHERES (ATM)	AIR VOLUME
0	1	1
10m	2	1/2
20m	3	1/3
30m	4	1/4
40m	5	1/5



## Meditative Quality of Diving

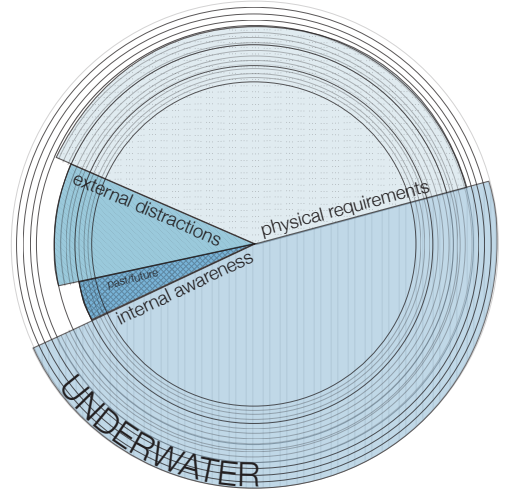
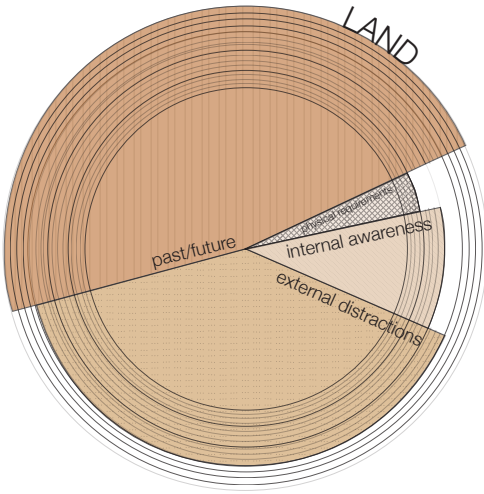
Scuba diving forces us to become completely in tune with ourselves. By entering the foreign underwater environment, our sensorium is completely altered. All of the sudden our focus is forced to shift away from external distractions, and narrows in on our physical movements and breathing. Breath control becomes absolutely essential. Not only is it an extremely important means to control our buoyancy and position within the water, but it allows us to calm down. Breathing is the main reason diving has a very meditative quality. Breathing and mediation are inexplicitly intertwined, as are diving and breath control.

The goal of meditation is to enhance our consciousness. This is achieved through enlightenment, liberation and wisdom. Through meditation, the goal is to become completely aware of ourselves and acknowledge our difficulties, weaknesses and internal obstructions. Through acknowledgement we then have the opportunity to liberate ourselves from them. Scuba diving can be thought of as a way to fast track this exploration of self. It provides an environment where these steps are somewhat forced on the diver. The diver must understand and think about the diving in this manner though. It is up to the individual to view and experience the

act of diving in this way, but if they do, it is an expedited way to experience the goals of meditation in a condensed manner. This provides the diver with an idea of how they should live and feel at all times. It provides them with a taste of what live could be.

While diving, the diver is forced to face fears, make quick decision, and accept whatever situation is at hand. There is nothing to do but handle it. Diving teaches us that we have the ability to overcome these mental obstructions, as they are nowhere but in the mind. When we learn this lesson underwater, we leave our fears in the water and emerge confident, proud and empowered. These lessons have the ability to influence all aspects of our life.





## Awareness Graphs

Because we are by nature land beings, we move throughout our lives not needing to think about our physical requirements (walking, breathing etc.). We are accustomed to life on land, and therefore a disconnect has developed between ourselves and the world we live in. We are able to fill our lives with external distractions, and we have become obsessed with planning out our futures and reflecting on our pasts, which makes it a lot more difficult to get to know ourselves at a deeper level. While scuba diving, our priorities are forced to change. We

immediately becomes very self aware and an internal awareness arises. We are also instantly required to think about our physical needs of survival. The external distractions greatly reduce and our thoughts of anything other than the Now disappear almost completely.

## **Crossing the Threshold: Land vs. Water**

This series represents the moment of transition between the chaotic land environment and the transcendental underwater environment. We live in a world full of chaos. There is a lot of good and a lot of bad happening around us all the time, and it becomes very difficult to separate ourselves from this. We become immersed in the chaos instead of ourselves.

As we look into the water, we largely see this external world reflected back at us, although slightly skewed. We understand there is something beneath the surface of the water, but are more concerned with what we see reflected than what is potentially below.

As we cross the threshold between the land and the water, we enter into a transition realm, where parts of both environments are able to affect us. This can sometimes be the most shocking, as there are both the external stimuli following us in, as well as the new sensations of the underwater environment. We have just experienced a moment of discovery, as we are finally understanding what is happening beneath the surface. In this space, it becomes clear that we have complete control, and it is up to us to push that lingering external chaos away and allow ourselves

to be completely immersed in the underwater environment.

Underwater, the only thing able to penetrate from the external world is the sun. This is fitting, as alongside water, sunlight is another essential aspect of our survival. The sunbeams become visible, illuminating the underwater world and drawing us in further. The bubbles from our exhalations envelop us in a cushion of air. We become completely in tune with ourselves, an internal awareness arises, and we are wholeheartedly seized by the present moment. We must remain aware of our physical requirements and the external world beyond, but for the time being we are able to experience total tranquility and awe.

### **Underwater Environment Defined**

The underwater environment is greatly condensed. It relates strictly to the defined underwater space and the elements within. On land, water is just one part of the natural environment, but underwater, it is the only part. Environment is still defined as the aggregate of surrounding things, conditions, or influences, but at a much smaller and more contained scale.



## **Thesis Statement**

How can the inclusion and focus on water in the design process allow for a deeper understanding of ones internal being and sense of self?

## **Thesis Goal**

To create an environment that provides the opportunity for contemplation, meditation, and diving deep into personal understanding, where total immersion becomes the main way to accomplish this.

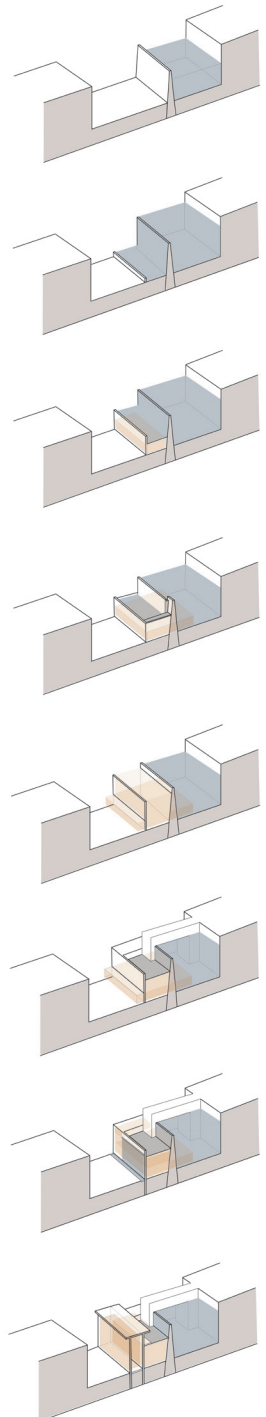












## Volumetric Junctions

This was a study of the relationship between water and land, and their architectural connection. Beginning as a wall and growing from that, the goal was to determine how water and land could be separated, connected, and bridged smoothly. How the line between the two elements could be blurred, how they could influence each other, how designed spaces could be introduced to change their relationship.

## Formal Vocabulary

The Volumetric Junction Study made it apparent that meaning needed to be applied to the various design decisions. By listing the materials and surfaces to be used in the design, common themes were pulled from the definitions.

### Connection

Different materials allow for different levels of connections between divers, themselves, and their immediate environment. Connections such as visual, suggested, implied, and assumed.

### Indication

The various materials provide for different amounts of indication of external movement or activity beyond the individual. Indication applies more to the vertical, where design decisions or materiality choices can suggest activity below water from above, or vice versa.

### Shadow vs. Light

The combination of light penetrating through the material and the shadows the material cast have the ability to create very intriguing and amazing environments. Each material has the ability to change the environment

drastically depending on how much light is able to penetrate the object, how many perforations are present within the material, and the size or amount of the material is present.

### Level of Awareness

Similar to Indication, the level of awareness a material provides changes depending on the surface being used. An opaque material provides for no awareness, indication or connection, while a transparent material allows for complete awareness of external things.

### Ability to Deceive

Each material has the ability to deceive the individual, or inversely has the ability to be honest. The most honest and truthful material is the most transparent, as it has no way to deceive. The more translucent, and ultimately opaque a material becomes, it gains the ability to deceive. It can cover up that which is behind and the viewer would never know. There is a big difference between honesty and deceit though. While honesty is inherently honest and cannot sway from this, deceit has the potential to deceive, but does not have to.

opaque



total privacy, exclusion, impenetrable, stable, solid, impervious to light, separation, shadows

translucent



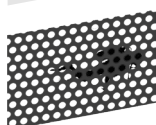
semi-private, indication of external, diffusion, shadows as indication, minimal connection, subtlety, possible deception

transparent



public, pervious to light, clarity, obvious, visual connection, easily understood, free of deceit

perforated



semi-private, screen, indication of external, diffusion, shadows form intrigue, light infiltration vs. internal illumination

mirror



reflection of light, reflection of self, self reflection, image, faithful deception, exemplar

fabric



indication, movement, suggestion, fluidity, true representation of causation, awareness of unknown

void



thruway, transition, subtraction, threshold, apparent moment of change, mysterious

implied



understanding, implication, transition, apparent moment of change, semi-private

stone



connection to natural environment, reminder, unity, respect, indication of past, honesty

bubbles

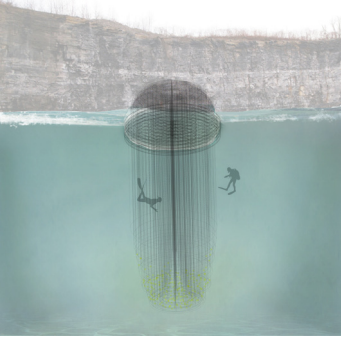
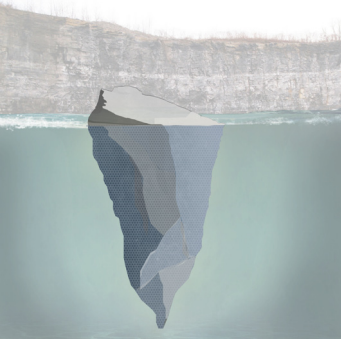


physical connection with water exaggerated, being touched by the environment, cushion, captivating

sunlight



otherworldly, establishes as elusive dimension, wonder, constant, visceral, trustworthy, alluring, enchanting



## Iceberg Study

This was an exploration of how materiality, light, shadow, and human interaction could be utilized cohesively to change the underwater environment. The concept of the iceberg was used as inspiration as a means of indication to the land environment, and a catalyst of change in the underwater environment. From the external world, each installation provides a small amount of indication that something is going on below. There is a small level of awareness and connection felt by people outside of the water. The floating installations act as light sources, illuminating the underwater environment and changing the space depending on their proximity to other surfaces. They also allow for hands on interaction with the divers, which change their location within the water as well as how they are viewed from the land.











## Amherst Quarry

The chosen site is an operating limestone quarry located in the historic township of Amherstburg, Ontario, Canada. The quarry is one of two limestone quarries in the area, and has been supplying quality aggregate to Essex County & Southwestern Ontario for over 50 years<sup>5</sup>.

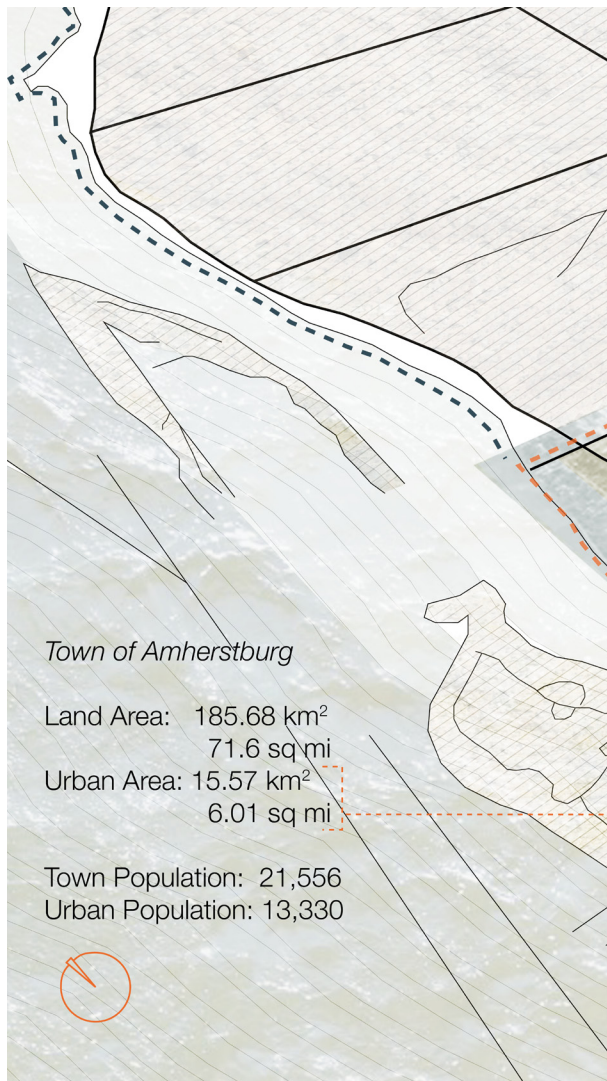
The property was originally a tobacco farm that had a small quarry which supported the construction of Highway 18 in the 1930's<sup>5</sup>. In 1959 Amherst Quarry was officially born and has expanded into what it is today. It has been under the ownership of Walker Aggregates Inc. since 2012<sup>5</sup>.

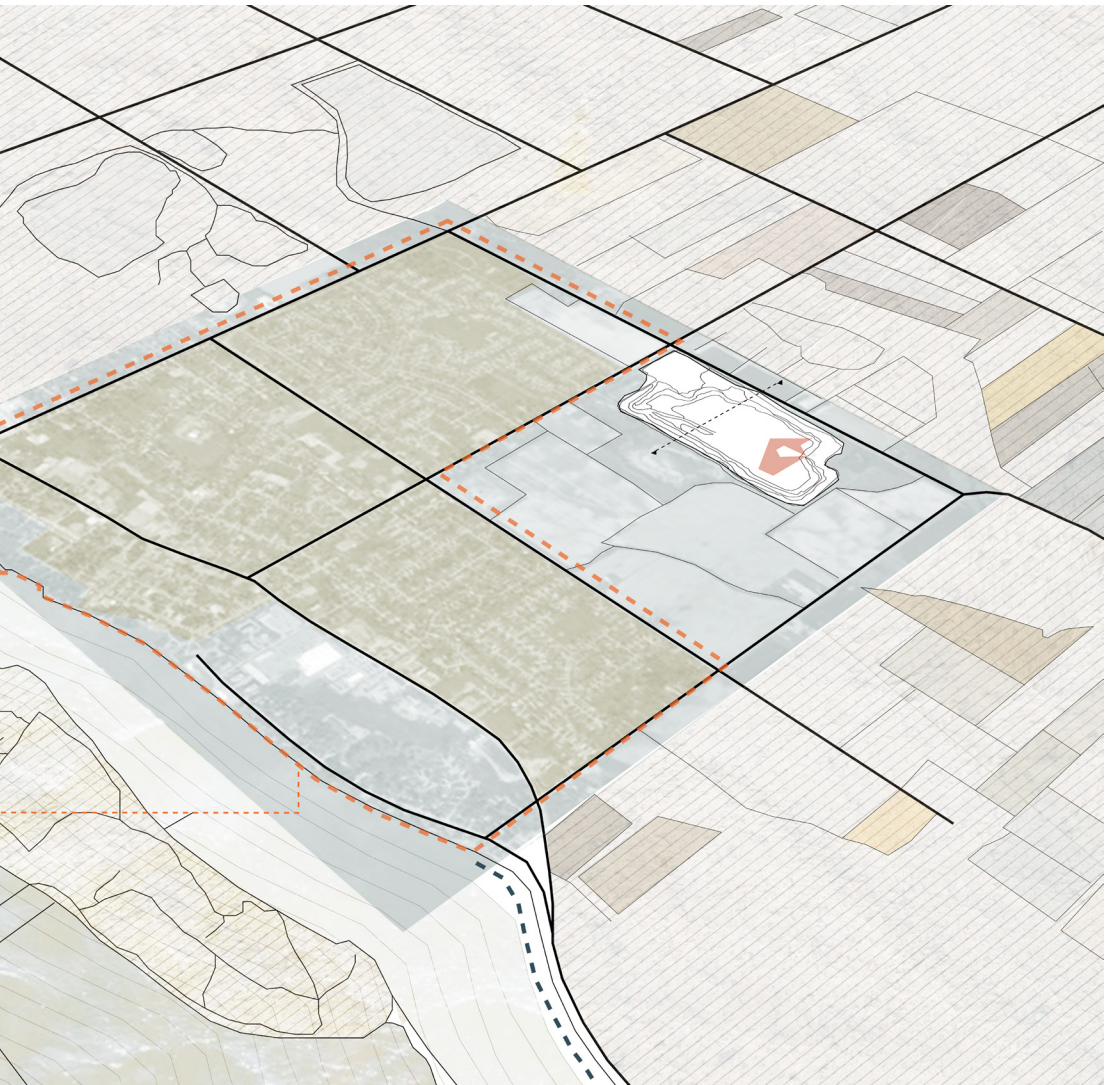
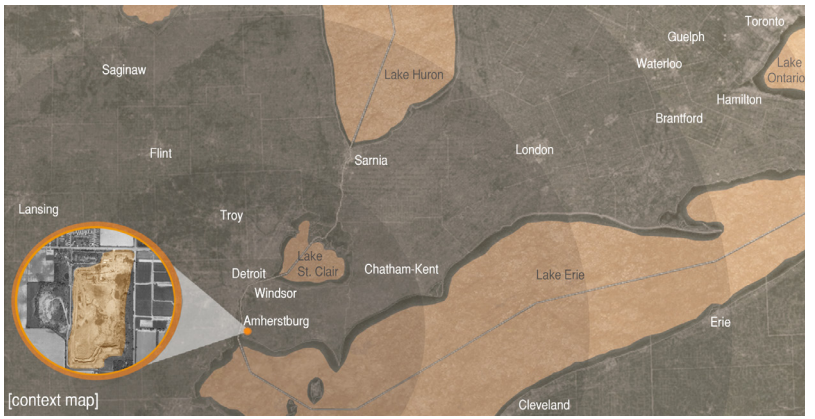
The quarry produces granulars, clear stones, screenings, gabion stone, rip rap and armour stone, which are products ideally suited for general construction, landscaping or erosion/shoreline protection<sup>5</sup>.

Endnotes:

5. "Amherstburg Quarry." Walker Industries Holdings Limited. | <http://www.walkerind.com/walker-aggregates-inc/amherstburg-quarry/>

This map provides an indication of the scale of the site. The area surrounded by the orange dotted line is the urban centre of Amherstburg, which has a population of 13,330 people in an area of 15.57 km<sup>2</sup>. The site in comparison to the total urban area of the township is quite large.









It is immediately felt that the quarry already has the essence the project calls for. The landscape has an aura. It emanates tranquility and peace. The site is removed from the external world that surrounds it. The environment, just like the underwater environment, is greatly reduced to just what is immediately visible. The

quarry is immense in size and grand in presence. It has a weighted fragility. It feels like a return to nature, even though 90% of the site is calculated and planned by man. But nature is working hard to reclaim what has been taken from it. The sound of falling water surrounds us, as the ground water valiantly pushes through





the stone holding it back. Even in an environment of solid, sturdy rock, the fluid, adaptable water overpowers it and nature, in a small way, reminds us of its rightful place.

Entering the quarry is a sublime experience in itself. As we walk down the curved pathway, a sense of awe

overtakes us. Entering the quarry very much mirrors the act of entering the underwater environment. We become immersed. We become still. We become very present in the moment, as the experience overwhelms our senses. In an environment that is rough, and hard, we feel we must be soft and respectful.









## sub·lime

/sə' blīm/

adjective

1.
  - a. lofty, grand, or exalted in thought, expression, or manner
  - b. of outstanding spiritual, intellectual, or moral worth
  - c. tending to inspire awe usually because of elevated quality (as of beauty, nobility, or grandeur) or transcendent excellence
2. taking pleasure in being overwhelmed by sights, sounds, sensations or ideas that are larger, greater, or more powerful than us

synonyms: exalted, elevated, noble, lofty, awe-inspiring, majestic, magnificent, glorious, superb, wonderful, marvelous, splendid, transcendent

# Sacred Geometry

## The Practice of Geometry

The practice of geometry utilizes both the analytical and intuitive aspects of the mind. As we seek to understand the habitual relationships through which natural forms are governed, we bring ourselves into resonance with universal order. As we raise our own level of thought to understanding such archetypal principles, we welcome the force of these levels to influence our mind and thinking. Our intuition largely governs our thought process as we contemplate these underlying truths.

In ancient geometry, the starting point began with the meditation of an incomprehensible Oneness. Sacred geometry is an attempt to understand and symbolize visually the pure, formal order that springs forth through this metaphysical Unity. It is through multiplicity that we can understand unity. Without two, we cannot understand the One. Through both reason and spiritual experience, we must begin at the root. This root is the One, which all of life can be considered a fraction of. Only because these parts can be related proportionally to one another can they be understood.

## Proportion and the Golden Section

The manifested Oneness cannot exist without perception. Through

perception there is relationship, which can be understood through the laws of proportion that are found within pure number and geometric form. The Golden Proportion is the transcendent 'idea-form', a concept that must exist before everything else which progressively follows through time and space. As we come to understand this, we start to see that everything around us is a constant unfolding of the past becoming the manifested present, which is alive with the gestation of what is yet to be unfolded in the future. The Sacred Proportion is an infinite cyclical unfolding of itself. Understanding this substantially alters the way that we perceive and experience the world we live in.

## Sacred Geometry as a Means of Site Organization

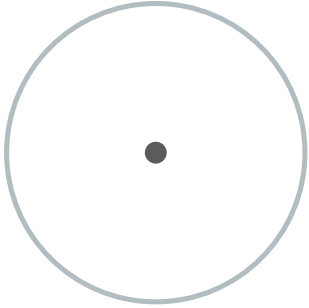
With the understanding that the site has a strong presence of its own, it became very important to find the appropriate proportion for intervention. The site did not need to be overwhelmed by structural additions to achieve the goals of the project. Sacred geometry was utilized as a means of site organization. The principles of sacred geometry strongly mirrored the conceptual aspirations of the project, yet provided a logical means of mathematical proportions to organize the site in a way that was in harmony with the sites scale.

Endnotes:

6. Lawlor, Robert. Sacred Geometry: Philosophy and Practice. New York: Thames and Hudson, 1982. Print.

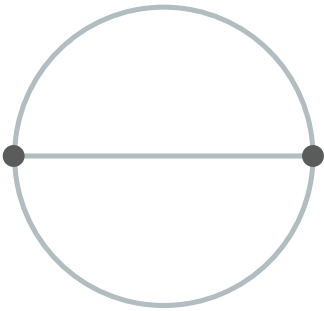
7. Skinner, Stephen. Sacred Geometry: Deciphering the Code. New York: Sterling, 2006. Print.





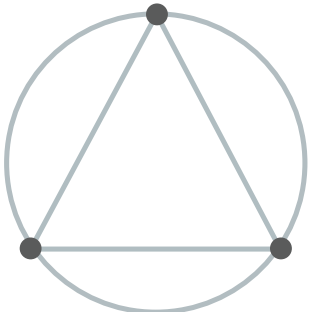
### 1 | The Circle

Unending and unbroken. The point at its centre. It is the oneness that all creation comes from, the realm of infinite possibilities not yet distinguished into separate entities. In sacred geometry, the circle is the foundation from which all other forms are built.



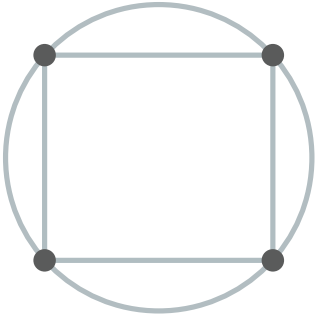
### 2 | The Line

The line was created by the first movement of consciousness away from the single point of source. The line divides the circle, just as cells split in reproduction, and creation begins. The 2 is duality, the perception of otherness through which the one can understand itself.



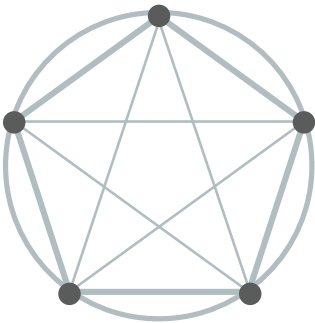
### 3 | The Triangle

The triangle is the first shape to contain space and create a surface. The duality becomes multiplicity, and consciousness expands. There are many examples of the Triad in nature: mind-body-spirit, past-present-future, mother-father-child, length-width-depth.



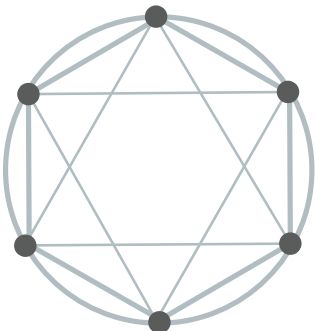
#### 4 | The Square

The square offers support and stability through its even, balanced shape. The square is associated with the Earth, the solid foundation we live on. There are many 4's in the manifest world: 4 seasons, 4 directions, 4 phases of the moon, 4 elements (Earth, Air, Fire, Water)



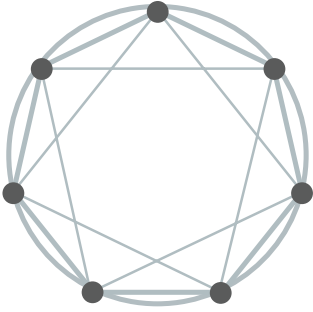
#### 5 | The Pentagon

The pentagon is the ancient symbol of regeneration and transformation. It is also a symbol of the human form, with head, arms, and legs outstretched, welcoming experiences. It is through our 5 senses that we navigate the material world.



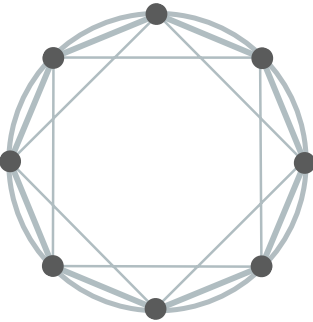
#### 6 | The Hexagon

The Hexagon is the Star of David, which is formed by two perfectly balanced, interlocking equilateral triangles. "As above - so below," the meeting of spiritual reality with the material world. The 6 brings harmony, cooperation, and growth through balance.



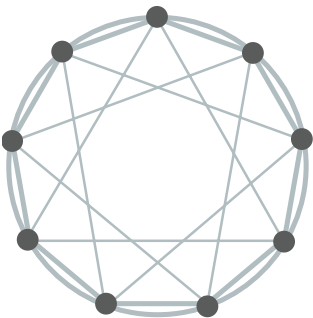
### 7 | The Heptagon

The heptagon is the mystic and the philosopher. It is the number of creative, mental activity and spiritual evolution. The 7 relates to cycles of time and the movement of the sun and the planets as seen from Earth. Many vibrational things, such as chakras, colours, and musical notes come in 7's.



### 8 | The Octagon

The octagon is the intermediate form between the circle (Heaven) and the square (Earth). As the 4 doubled, it is the number of ascensions above the material world through spiritual perspective. The 8th step on the musical scale is the octave, which brings harmonic resonance and a sense of fulfillment.



### 9 | The Enneagon

The enneagon is the completion of the creative cycle. It brings attainment, compassion, and vision for the future through the wisdom gleaned from the journey through the other numbers. However the 9 is not an endpoint, but merely the closing of the circle, carrying us back to 1 to begin the next evolution.



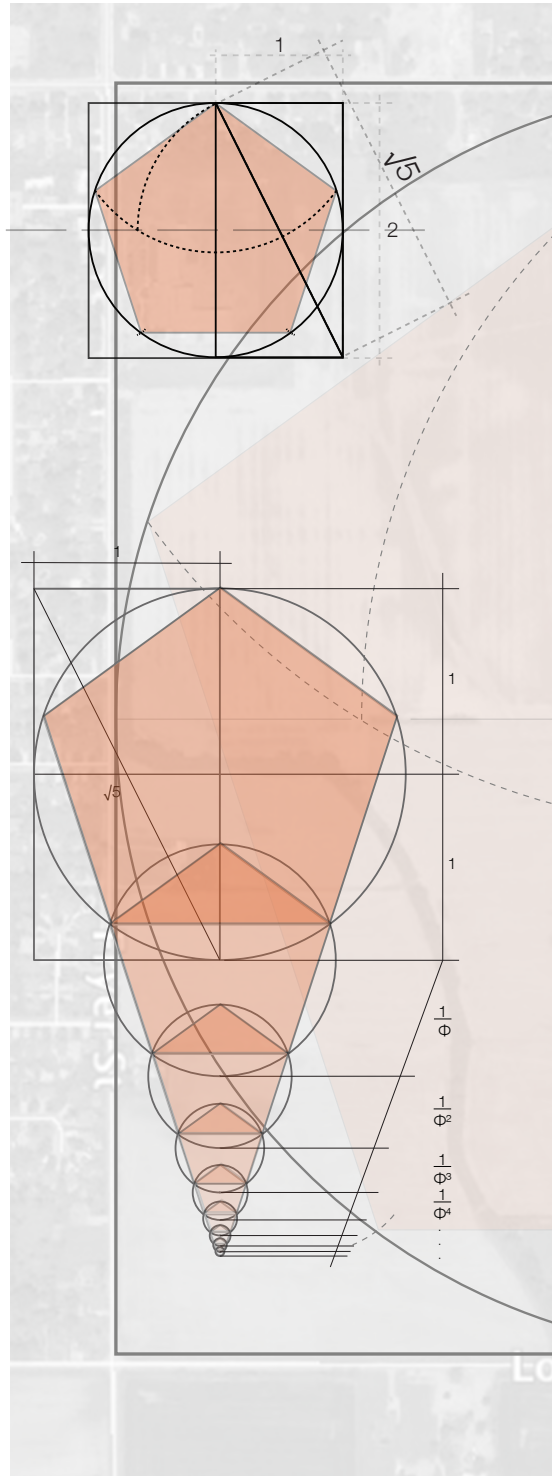


## $\sqrt{5}$ and the Pentagon

The pentagon is the main geometric form used to organize the site. The pentagon is the symbol of life due to its fivefold symmetry that only appears in living organisms. By connecting the 5 points, a star pentagram is created, which represents the human figure with the head, arms and legs outstretched welcoming experience. All the line segments in the star pentagram are derived from the Golden Proportion. This figure is ascribed to the physical and vital aspects of man who perceives the world through their 5 senses, thus bringing it into existence. The formation of a pentagon within a square is meant to symbolize the harmonization of our intuition, indicated by the pentagon, with reason, indicated by the square. Through the squaring of the circle to form the pentagon, the process transverses the world of the spirit and the world of the body.

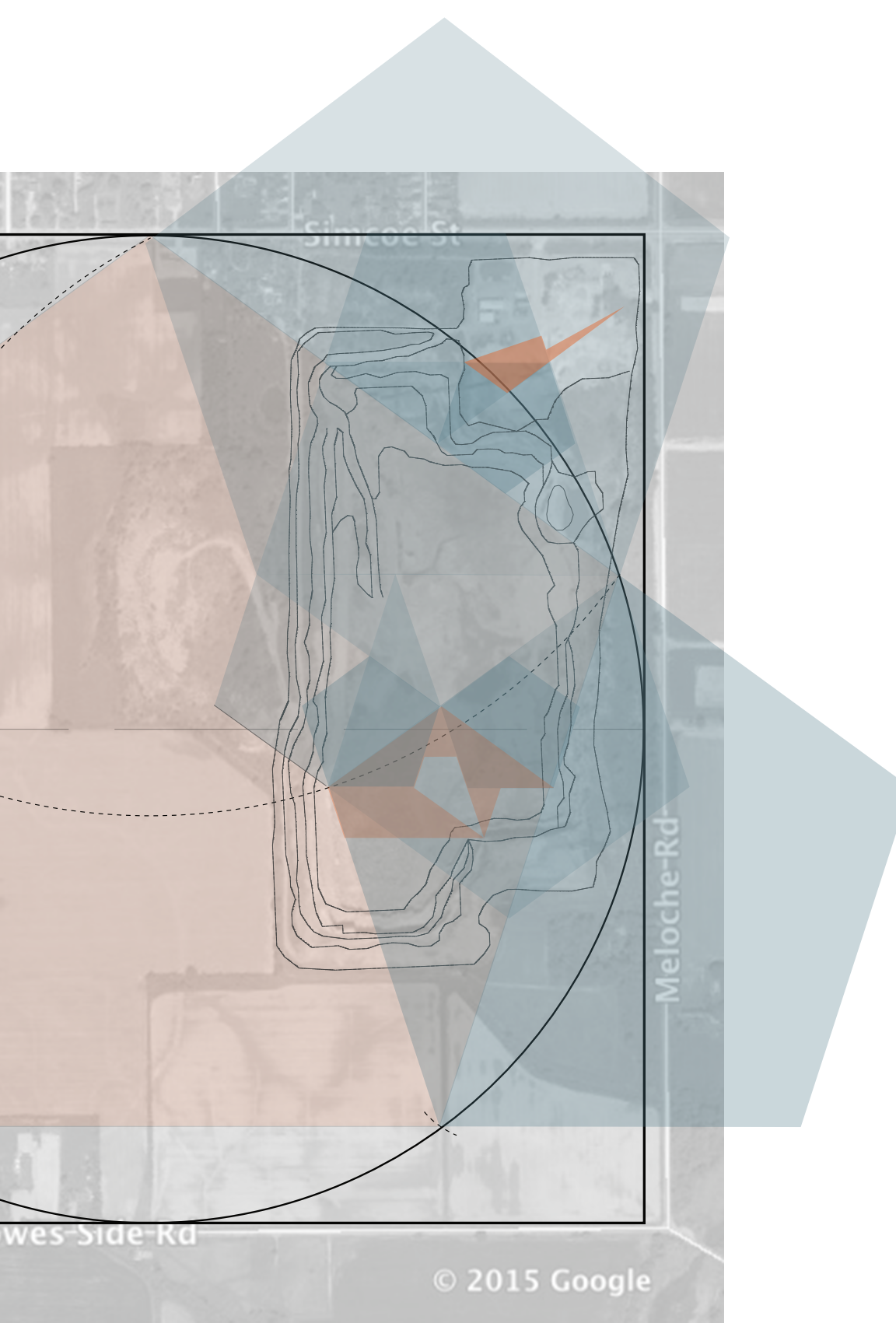
## Ascending Pentagon

The ascending pentagon formation is also utilized in the site organization, as well as the building plan. In the building plan, there are 9 ascending pentagons that represent the 9 sacred geometric shapes and the process of passing through each stage of the journey.



Endnotes:

6. Lawlor, Robert. Sacred Geometry: Philosophy and Practice. New York: Thames and Hudson, 1982. Print.

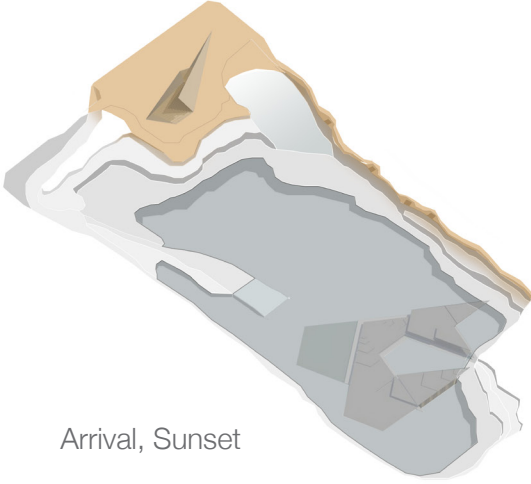


Simcoe St

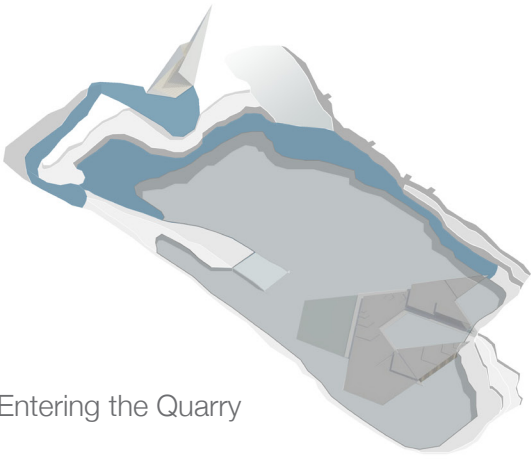
Meloche-Rd

West-Side-Rd

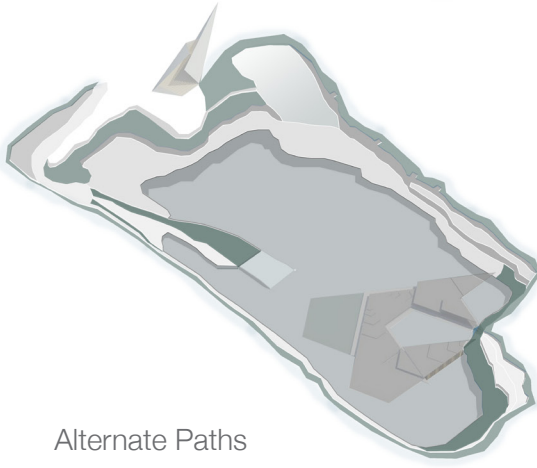
© 2015 Google



Arrival, Sunset



Entering the Quarry



Alternate Paths



## Procession: Entering the Site

The experience of first arriving to the site is a unique experience in itself. Depending on the length of time that is to be spent within the quarry, the experience is curated in different ways.

### Arrival, Sunset:

Visitors who are staying at the quarry for more than 24 hours will arrive at sunset just as the sun is setting as to only have a short time to clearly view the entire site. They will first enter through the 'Reflection Building' and set their intentions for their stay. Once they have set their goals, they are required to remain above the quarry walls until the next morning. They will stay in the visitor rooms accessible from outside the quarry walls. Their first experience with the site is from a removed perspective. This is meant to provide them with the experience of viewing the quarry as a whole. As viewed from above, the site has a profound affect on the individual. Scale cannot yet be understood any further than it's impressive grandeur.

### Entering the Quarry:

The first time visitors enter the site is an important experience. They enter following the main path into the site, which curves around the edge of the quarry. As they follow the path into the site, the quarry opens up to them, and they become immersed within the site itself. As they enter further, they are immediately greeted by water. It can be heard falling from the quarry walls,

and a huge body of water stretches before them, beckoning them further. There are clear indications all around them that something is going on within the depths of the water. Intrigue rises, internal questions are asked, a sense of wonder is planted within their mind. But they cannot go in yet. They must wait. Their perspective changes from an overarching removed view from above, to being a small element within the space. To enter the floating building, they must follow the path to the main entrance on the east side of the quarry. They begin to grasp the scale of the site, as they are able to compare the size of the stone against themselves. It takes longer to walk from place to place than they would have thought when viewing from above, and this is an important lesson. They must learn to be patient. They must fully embrace the act of 'getting there'. Traveling from one location to the next is as much of the experience as being at their intended destination.

### Alternate Paths:

The steps in the quarry walls are accessible to the visitors to be used in any way they wish after their initial entrance into the site. Cut at various depths, they provide the visitor with many different perspectives and ways to experience the elements within the site. At this point they are free to use the space in whatever way feels right to them. They are encouraged to intuitively experience the site, following their inclination as a means of direction.

## Design Decisions

### Flooding the Quarry

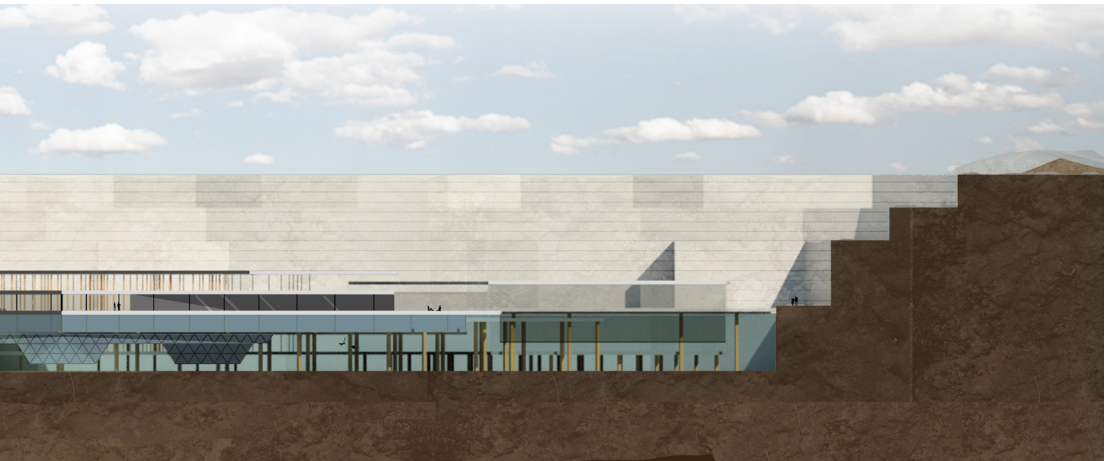
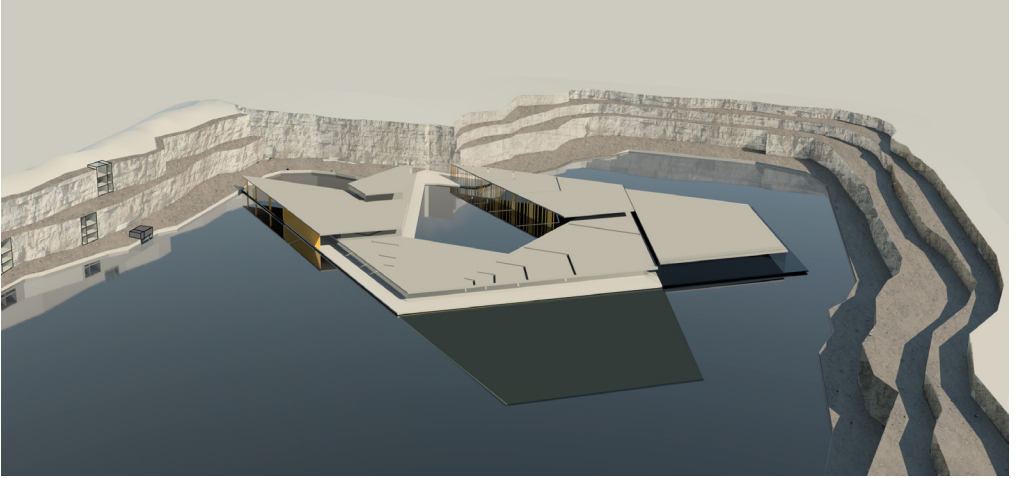
The quarry is completely flooded to a depth of 40 feet, which is level with the first step in the quarry walls. The quarry is flooded completely because the water is the most important element of the project. It is the connection that humans have with water that is being emphasised and learned from while within the site, so the visitor must be in constant contact with the water, visually or physically, at all times.

### Building Form

The building is designed in a way that contradicts the quarry itself, except for the stepped floors, which reflect the steps in the quarry walls. The building is an addition to the site,

which means it must feel different from its surroundings, so as not to compete with its environment. The building is an island in the water, with only two connection points to the solid ground. This allows a direct relationship between the interior space of the building and the underwater environment. The structure is separated into 5 freestanding elements. Columns that extend into the quarry floor structurally support the outer secondary elements. The main building with the largest portion of habitable interior space is floating in the water on a ballast system. In its standard position, there is one level completely immersed underwater, while the other two levels are above the waterline. The ballast system allows the building to descend 12 feet into the water, where two levels are completely immersed in water.





## Conceptual Concepts

### The Quarry as a Man Made Scar

A very important concept for the visitor to understand is that the quarry is man made. It is completely orchestrated and planned. The water that can be heard falling from the cracks in the quarry wall, which seems very natural, is controlled and managed. The cut of the limestone, which forms the walls and the ground that is walked on, was calculated and formed with precision. Being surrounded by stone feels natural, but it is not. That does not mean the site is not strikingly beautiful. Beauty can be found all around us, both in the natural, and in the man made. What is important is that as we experience the beauty of something, we understand how it came to be. Throughout the entire history of the

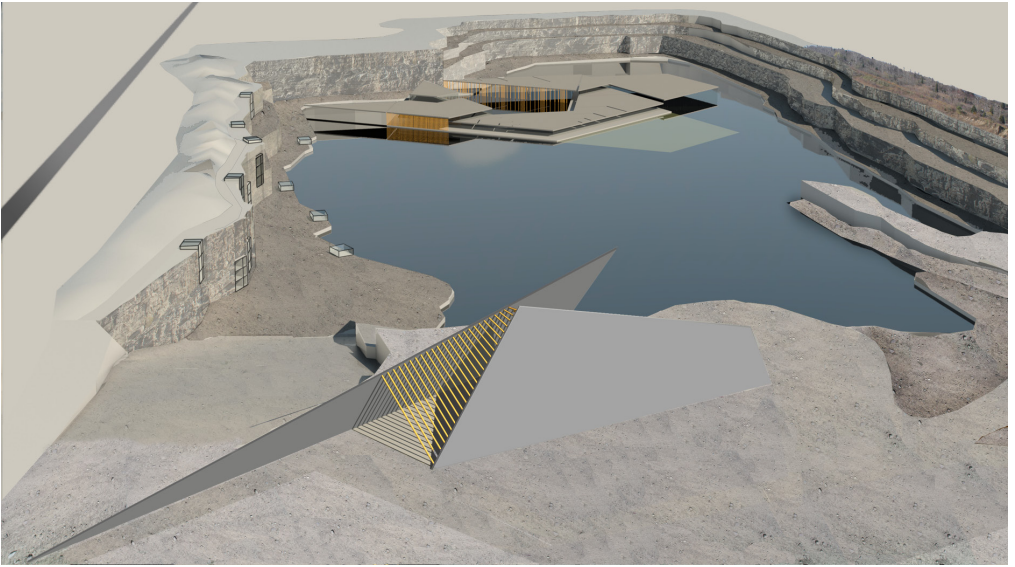
quarry, the operations within were taking away from the natural landscape, extracting the natural essence of the land. Now, it becomes a place to return to ourselves, and bring back some of what was removed.

### Scar on the Scar

The visitor rooms located on the east quarry wall are meant to conceptually be a 'scar on the scar'. The quarry itself, although very beautiful in its own right, is a scar on the landscape. The rooms are simple concrete and glass boxes that have been cut into the quarry walls, which act as another layer of scar on the scar. They are meant to be a reminder to the visitors that this site is not natural, but man made and calculated. This is not necessarily a bad thing, but nonetheless must be acknowledged and understood.







## Reflection Building as Threshold

The 'Reflection Building' is the transition from the external world into the site. From the street, the building blocks the view into the quarry. Visitors must leave their cars and enter through the 'Reflection Building', which conceptually mirrors the threshold between the land and water environments. The 'Reflection Building' is a place to pause. Upon arrival, visitors stop here to set their goals for what they hope to accomplish during their stay. This is where they set their intentions. What they choose to explore is up to the individual, but it

is an important step of the journey to have clear goals to work towards while visiting the site. Upon departure, visitors once again stop here to reflect on their experience. They take a moment to think about what they have learned, and set new goals and intentions as to how they can implement these lessons into their daily lives. This is not to say that every visitor is to have a profound and life changing experience, but it is important to reflect on every experience we have, to make sure we don't miss any lessons we could have learned.

## Underwater Environment

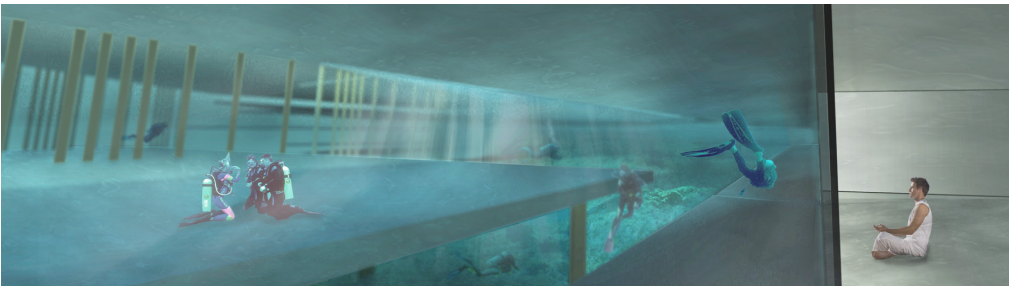
### Relationship Between the Interior Space and Underwater Environment

The interaction between the visitor and the water is extremely important. With reference to the series depicting our connection with water (pg.17), there is a hierarchy between the land-based environment we inhabit and the underwater world we wish to explore. This hierarchy exists because we feel as if the land environment is ours; we believe we understand it, and take claim to the land as the place humans dwell. The underwater world is not as understood. It is a foreign, unknown place, where humans are not able to survive without equipment, and therefore below us.

Through this project, the hierarchy between the two different environments is eliminated. Instead of the vertical hierarchical relationship between the land and the water, the relationship now becomes horizontal.



The environments are brought onto the same, equal plane, and there is a balanced connection between them. The floating building has the ability to sink 12 feet deeper into the water, which allows 85% of the inhabitable interior space to be completely immersed in the water, forming a very strong connection between the interior space and the underwater environment. Now the inhabitants of the interior space can fully understand what the divers underwater are doing. The divers and the people inside can interact and communicate. Now the only divide between the two environments is a piece of glass. The hierarchy is gone, and a harmonious connection between the two worlds is born.





## Water Chimes

The water chimes are an installation placed underwater on the bottom of the quarry floor. They are hollow, plexiglass tubes attached to an anchor that allows them to move side to side. Some have an LED light strand within the tube, which illuminates the water around them. When a diver interacts with the water chimes, they bump into one another, causing different sounds to be produced depending on their thickness and length. Some of the tubes extend to the surface of the water, which provides connection and indication to the people on land, informing them that divers are interacting with the installation below. The people on land

can also hear the tubes bumping into each other, although it sounds a very different underwater versus on land. This intervention was derived from the Iceberg Study and the themes drawn from the Formal Vocabulary. The water chimes are meant to bring a level of exploration for the divers as they are experiencing the underwater environment. They are designed to acknowledge the way that the senses are experienced differently underwater. Sound becomes otherworldly, the light produced is murky yet intriguing, and the transparency of the tubes provides a warped image of what is beyond them.

## Immersion

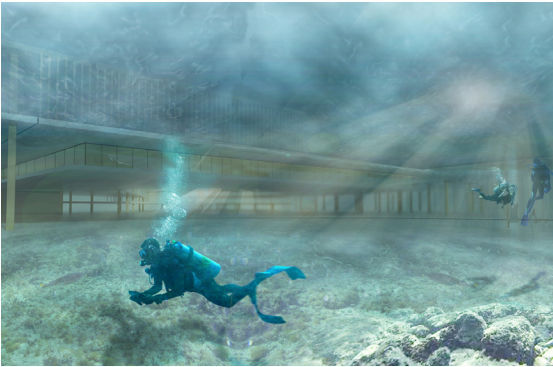
This series represents the final and most important conclusions found within the project throughout the journey of its creation. It is absolutely necessary to take a step back and view the broad, overarching view of our lives. To step out of ourselves and perceive the chaos that surrounds us. In this moment we must reflect of this chaos and how it is affecting us, opposed to letting it take over. Going back and forth between very personal, tight lenses to broad, expansive perspectives, in all aspects of our life, allows us to fully understand ourselves and where we fit within the chaotic world we live in.

As we are standing at the water and looking at the reflection within it, we are no longer simply looking at the external world reflected back, but become part of the reflection. We have an understanding of both what is going on around us, as well as also below the surface where we cannot necessarily see. We can now comfortably dwell in this reflection, as we understand our place within both worlds.

The underwater world is still a place of awe and wonder. Of reflection and complete immersion. The theme of immersion is very important, and comes into play in many different ways. The physical act of total

immersion within the water is the most obvious and straightforward method of immersion. For some, this will be their goal, and the only form of immersion they understand they are experiencing. The more aware visitor will realize that conceptually there are many more layers on immersion occurring. Upon arrival, we are immersed in the sites aura. It has a distinct yet invisible quality, both abstract and perceptible, that is the very essence of the place. As we enter the water, we are physically immersed. As we go deeper and deeper into reflection and self-realization, we are becoming increasingly immersed within ourselves. We are being immersed into an awakened consciousness, and once we reach this level of immersion, we cannot go back. This immersion becomes a part of how we experience and view the world, the chaos that surrounds our lives, and the way we choose to deal with it. We come to the quarry to learn how to be immersed physically, but we leave with a new understanding of what immersion means. No longer is there hierarchy or tension. Now exists harmony and balance between ourselves and the greater context of our lives. As we ascend out of the site, we remain immersed within our awakened consciousness. This is the ultimate goal.





IMMERSION

## stillness

stillness is not quiet,  
but the arresting of thought  
and speech,

it is immense calm,  
tranquility,  
peace.

an immediate embodied  
experience  
of the moment

I am here,  
I am Now.



## Acknowledgements

I would first like to thank my thesis advisor and friend Wladek Fuchs for his consistent encouragement, passion, and ability to read my mind. You have taught me more than you will ever know, and without your support I would not be the person I am today. For this I will forever be grateful.

Veronika Mogyorody, thank you for being my VABE mom from the beginning. Thank you for your unwavering support, advice, and encouragement. You are my mentor and role model.

To my incredible parents, Janet Froot and Peter Hawke; you raised me to be confident in myself, to trust my intuition, and to work hard for the things that I love. I am the perfect balance of both of you, which allowed this project to mould into what it is today.

Thank you to the staff of the Amherst Quarry for allowing me to copy old drawings, take pictures, and have private entrance to the site.

And to my umbrella; thank you for making me think, question, explore, and grow. I would be lost without all of you.





## Endnotes

### Direct Reference

1. "Aggregate Resources." Ontario.ca. 26 June 2014. Web. 24 Apr. 2015. <<http://www.ontario.ca/environment-and-energy/aggregate-resources>>.
2. Straughan, Elizabeth. "Touched by Water: The Body in Scuba Diving." (2012). Print.
3. Merchant, Stephanie. "Negotiating Underwater Space: The Sensorium, the Body and the Practice of Scuba-diving." (2012). Print.
4. "Diving Physics and You." TheDiverClinic.com. <<http://www.thediverclinic.com/page/diving/45/>>.
5. "Amherstburg Quarry." Walker Industries Holdings Limited. | <http://www.walkerind.com/walker-aggregates-inc/amherstburg-quarry/>
6. Lawlor, Robert. Sacred Geometry: Philosophy and Practice. New York: Thames and Hudson, 1982. Print.
7. Skinner, Stephen. Sacred Geometry: Deciphering the Code. New York: Sterling, 2006. Print.

### Indirect Reference:

8. Massion, J., J.C. Fabre, A. Obadia, and L. Mouchnino. "Erect Posture and Center of Gravity Control: A Comparison Between Ground and Underwater Conditions." (1993). Print.
9. Merchant, Stephanie. "Submarine Geographies: The Body, the Senses and the Mediation of Tourist Experience." (2012). Print.
10. Meade, Zachary. "Architecture for Zero-Gravity." (2007). Print.
11. Davidson, Joyce, and Christine Milligan. "Embodying Emotion Sensing Space: Introducing Emotional Geographies." (2004). Print.
12. Botton, Alain. The Architecture of Happiness. New York: Pantheon, 2006. Print.
13. Tolle, Eckhart. The Power of Now: A Guide to Spiritual Enlightenment. Novato, Calif.: New World Library, 1999. Print.



