

# Rockspinners by Zachary Coffin

City of Alameda Physical Public Art Proposal

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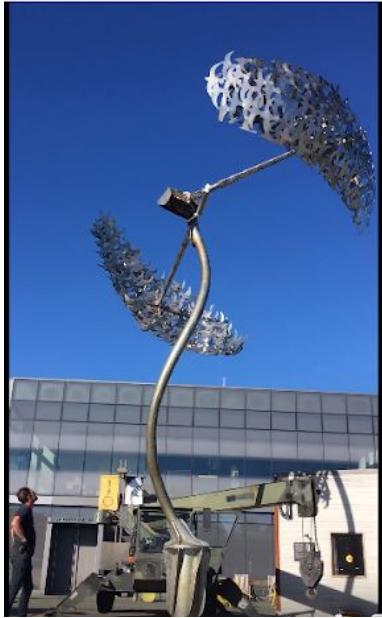
## **What is a Rockspinner?**

A Rockspinner is a multi-ton boulder, which can be spun easily and silently with a single push, compelling viewers to interact and explore while creating a sense of place and an opportunity for fun. I use engineering to make these huge rocks appear weightless, juxtaposing large natural rocks with highly machined technical elements. Rockspinners are physically engaging and playful art pieces that can lower barriers between people, spark friendships, and build community. In addition to being very fun, Rockspinners are also extremely durable and are designed to work without maintenance for at least 50 years.





## Other Works by Zachary Coffin



## **Installation Plan**

Erik Kneer, principle structural engineer at Holmes Structures, will be the engineer of record for this project. The sculpture will be bolted to a heavy concrete foundation as specified by Holmes Structures.

Each Rockspinner will be transported on a flatbed truck to the site in Alameda from American Steel in Oakland. The Rockspinners will be installed onsite using a crane.

## **Maintenance Plan**

Per a consultation with the project's structural engineer (Erik Kneer of Holmes Structures) on the lifespan of the artwork, we can ensure a minimum working lifespan of 50 years. The works are also designed to be fail-safe, meaning they would become non-kinetic sculptures well before (many centuries before) they presented any kind of safety hazard.

While the rock will last millions of years and stainless steel is incredibly durable, one potential issue is the long term corrosion of the bearings and failure of the lubrication. The bearings are rated for at least a million revolutions, a number hard to reach with a human powered sculpture. If maintenance of the bearings is required, the current Rockspinner design has built in rig points, which allow the sculpture to be easily lifted in order to replace/restore the bearing.

These Rockspinners will be made of granite from the Sierra Nevadas, a very strong and impermeable stone. Graffiti can be removed with a simple powerwash.

## **Schedule**

<b>Task</b>	<b>Week #</b>	<b>Notes</b>
<b>Planning &amp; Design</b>		
Complete schematic drawings	Week 4	Similar to a conceptual drawing, but with more context and detail.
Complete design development drawings	Week 8	Should include scale, size, and materials; may also include weight.
Complete 80% construction drawings	Week 14	Near complete construction drawings.
Complete 100% construction drawings	Week 18	Complete construction drawings
Commence permit process	Week 4	
Finalize coordination with the City's site design and permit approval process	Week 26	Planning & design drawings, permits (BCDC, etc.), foundation engineering, structural engineering, soils testing, infiltration testing
<b>Fabrication &amp; Installation</b>		
Commence fabrication	Week 28	Stone acquisition, transportation, machining, rock drilling, bearing fabrication, foundation work, in-shop kinetics testing
Fabrication 50% complete	Week 34	
Fabrication 100% complete	Week 40	
Installation coordination with the City	Week 42	
Installation team scheduling & coordination	Week 42	
Installation	Week 46	
Kinetics testing	Week 48	
Contract closeout	Week 52	

## **Additional Information**

### **1) Is there a design to the rock itself?**

I have sourced Rockspinners from all over the world. I look for a specific geometry that tapers to the base to avoid bumping knees and children. I also search for dramatic shape, texture, and structural integrity. Essentially, I spend weeks combing through rock piles, lifting them up and spinning them to find just the right rock.

### **2) How do you anticipate the marine environment impacting the piece, particularly the ball bearing housing and shaft?**

I have redesigned the bearing for the Rockspinners multiple times. I am now using entirely 316 (or its close and easy to machine cousin 304) stainless steel for all parts with the exception of the bearings and shaft. For the shaft I will either use nickel-plated high strength steel, or a specific high strength stainless steel. The top of the bearing is sealed deep inside the rock. The bottom bearing will have a sliding seal and I will use a tenacious and heavy duty marine grease that will protect the bearings further.

### **3) Provide a detailed proposal with particular focus on foundation and corrosion control in that marine environment.**

The approach to the foundation for the Rockspinners will be the same as any major infrastructure in a marine environment and as specified by Erik Kneer of Holmes Structures. This will include galvanized rebar, specific concrete, proper site drainage, stainless steel hardware, and whatever else is required.

### **4) How will the ball bearings need to be maintained?**

As long as someone spins the Rockspinners periodically, they should require no maintenance for the first 50 years or so. If they ever start squeaking or if they get immersed in salt water, it will be necessary to use the specialized rigging that will be included and documented to lift the rock off the bearing assembly and inspect and re-grease the bearings. Any crane company will be able to perform this task.

### **5) Additional Rockspinner design information.**

See Appendix C for an example cross-section of the bearing housing design from a previous commission.

See Appendix D for example structural engineering analysis and certification from a previous commission.

## **Appendix A**

Site Plans for Bay Farm Island Bridge & Jean Sweeney Open Space Park

## **Appendix B**

Material Safety Data Sheets (SDS) & Technical Data Sheets (TDS)

## **Appendix C**

### Example Cross-section of the Bearing Housing Design

## **Appendix D**

### Example Structural Engineering Analysis and Certification