



Weaver's Knot: Sheet Bend

Delaware River Trail

Public Art Proposal

BALL-NOGUES STUDIO

Previous Work



BALL-NOGUES STUDIO
April, 2020

Delaware River Trail Sculpture
Philadelphia, PA.

Cradle
Santa Monica, CA



BALL-NOGUES STUDIO
April, 2020

Delaware River Trail Sculpture
Philadelphia, PA.

Corner Glory
West Hollywood, CA





BALL-NOGUES STUDIO
April, 2020

Delaware River Trail Sculpture
Philadelphia, PA.

Talus Dome
Edmonton, Canada

Concept

Weaver's Knot: Sheet Bend

Narrative

Situated on the Delaware River Waterfront, this artwork recalls the histories of the textile industry and cargo shipping that dominated the region for hundreds of years. The artwork's title, Weaver's Knot: Sheet Bend is comprised of two names traditionally used to describe the same knot. The "Weaver's knot" name derives from its historic use in textile mills. The "sheet bend" or "sheet knot" was use on sailing vessels for bending ropes to sails (traditionally referred to as sheets).

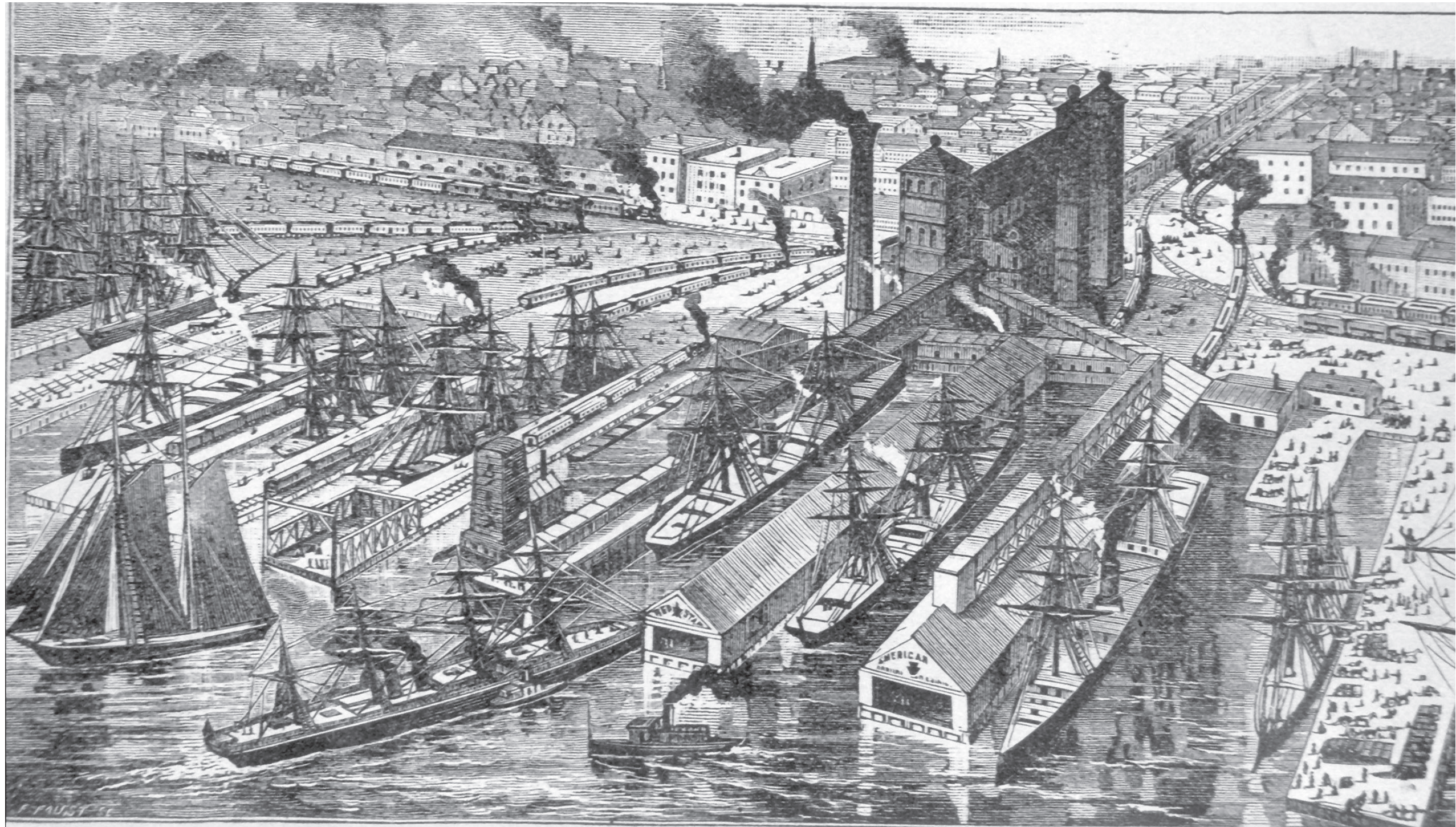
The artwork takes the form of a giant knot constructed in stainless steel spheres that are suspended overhead from tall poles suggestive of the sail and "cargo masts" that once operated on the boats and wharves at the River Trail site.

The work draws a connection between the industrial past and technological present of Philadelphia. Stainless steel (316L grade), polished to a mirrored finish forms the spheres that comprise the knot. This decidedly contemporary material reflects the surrounding landscape as well as the viewer's own image; visitors will see themselves reflected within dozens of spheres.

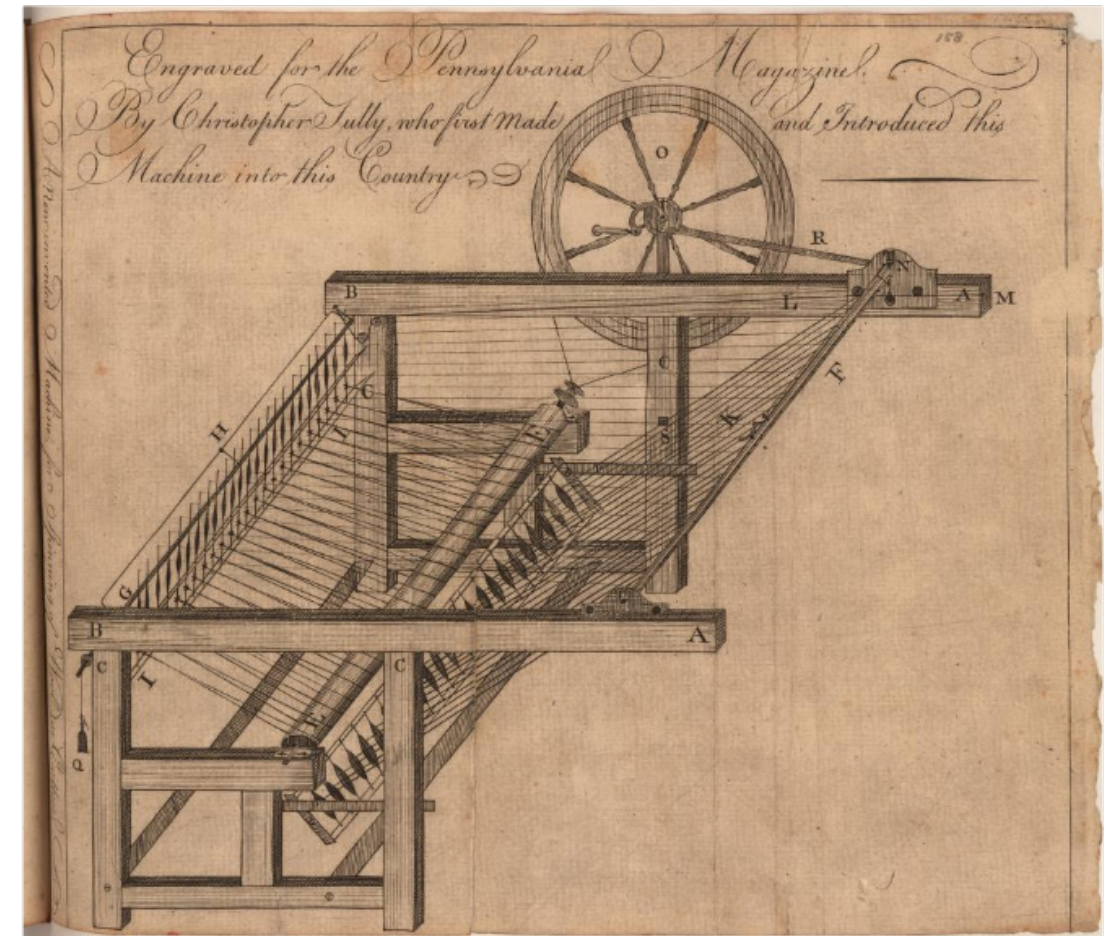
This work relates in material and structure to another successful sculpture by Ball-Nogues entitled Cradle (see images in the proposal deck). Installed over 10 years ago in Santa Monica, California, Cradle is a durable 316L mirrored stainless steel sculpture that has withstood the tests of corrosive salty air and harsh sunshine, requires little maintenance, yet remains in beautiful condition today.

Our aim is to call upon some of the history of the Delaware River site, however, the artwork also evokes themes that are comprehensible to most individuals regardless of their historical knowledge. Weaver's knots and sheet knots are used to connect two different types of cord, the knot in our artwork, therefore, has two sizes of spheres to represent two different cords. While the artwork nods to history, the two knotted cords serve as a reminder of the fabric of individuals that are woven together to make up Philadelphia. Each culture and each history is held together, person to person, one knot at a time





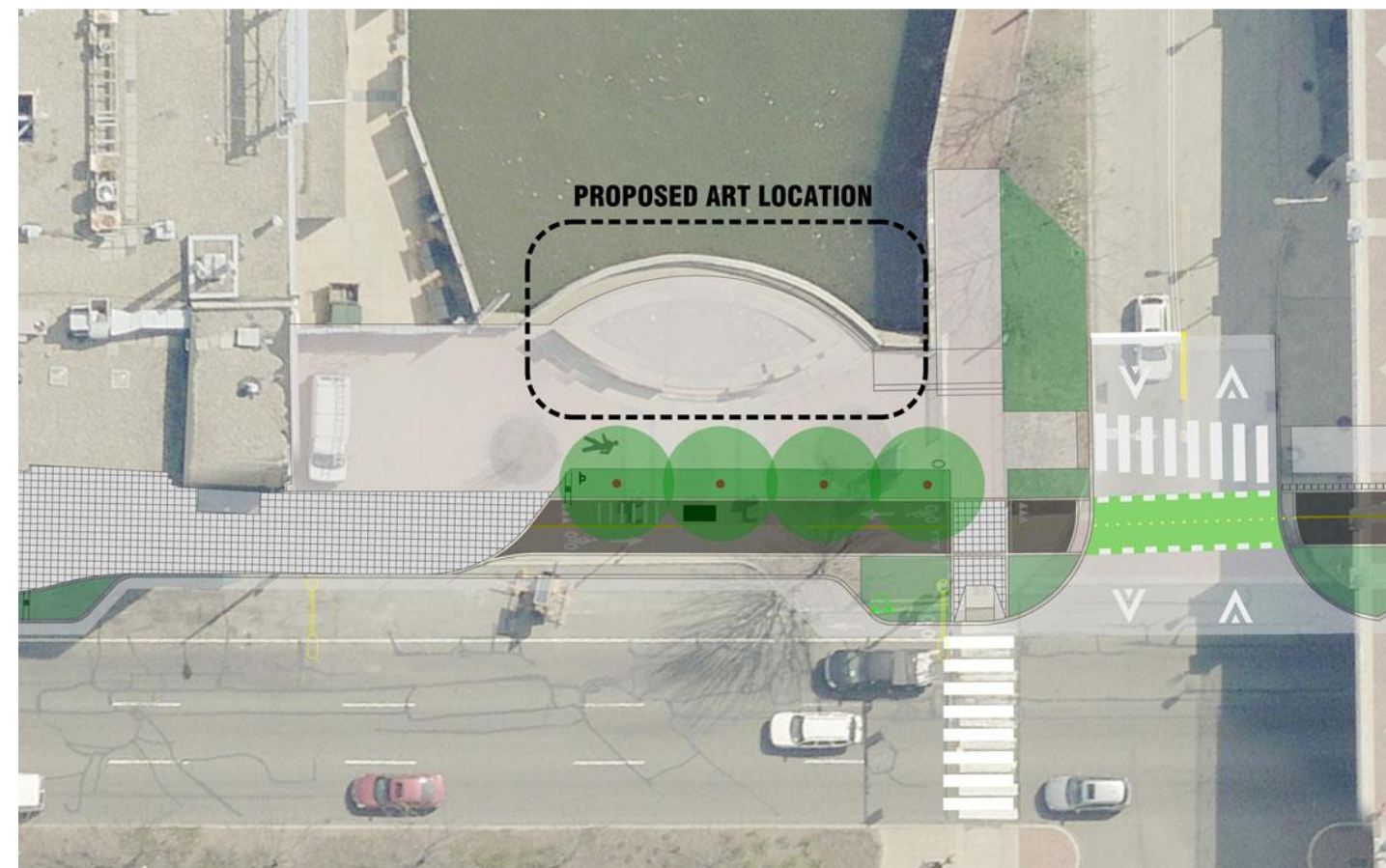
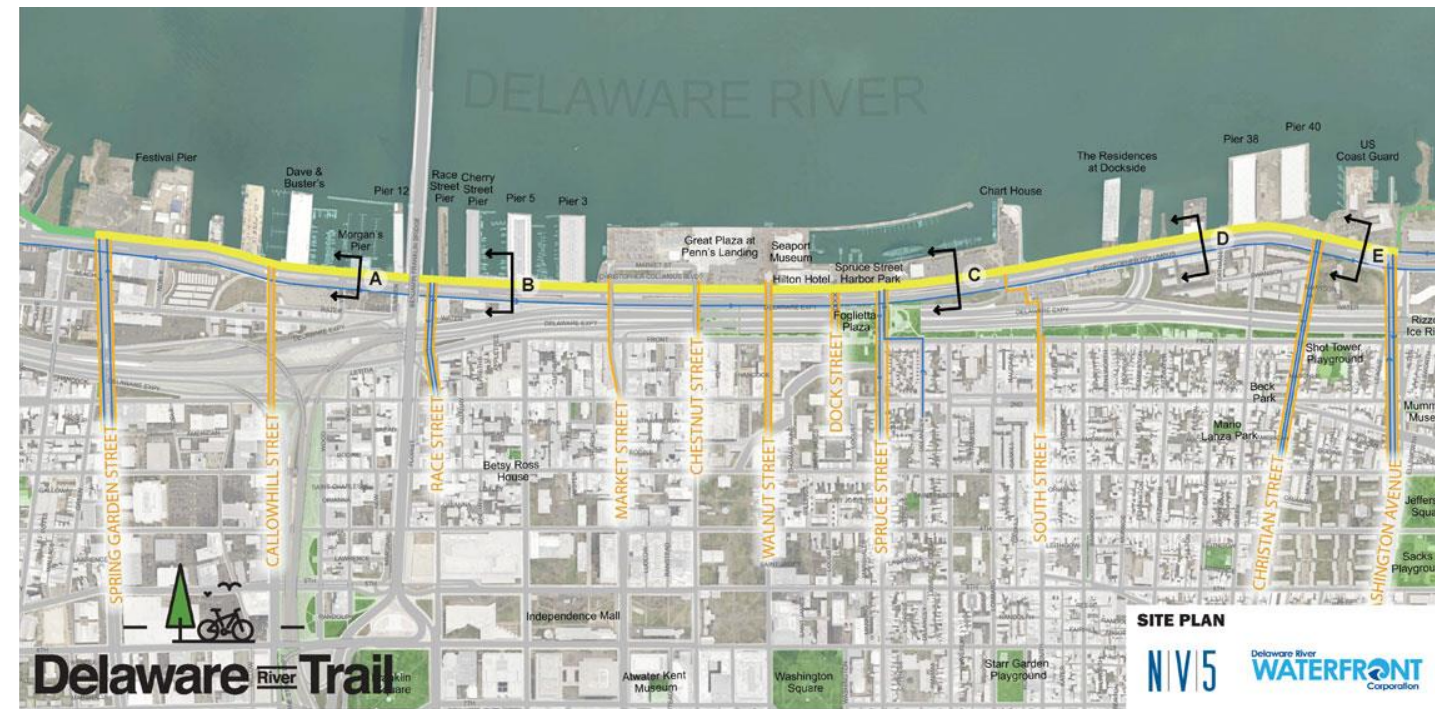


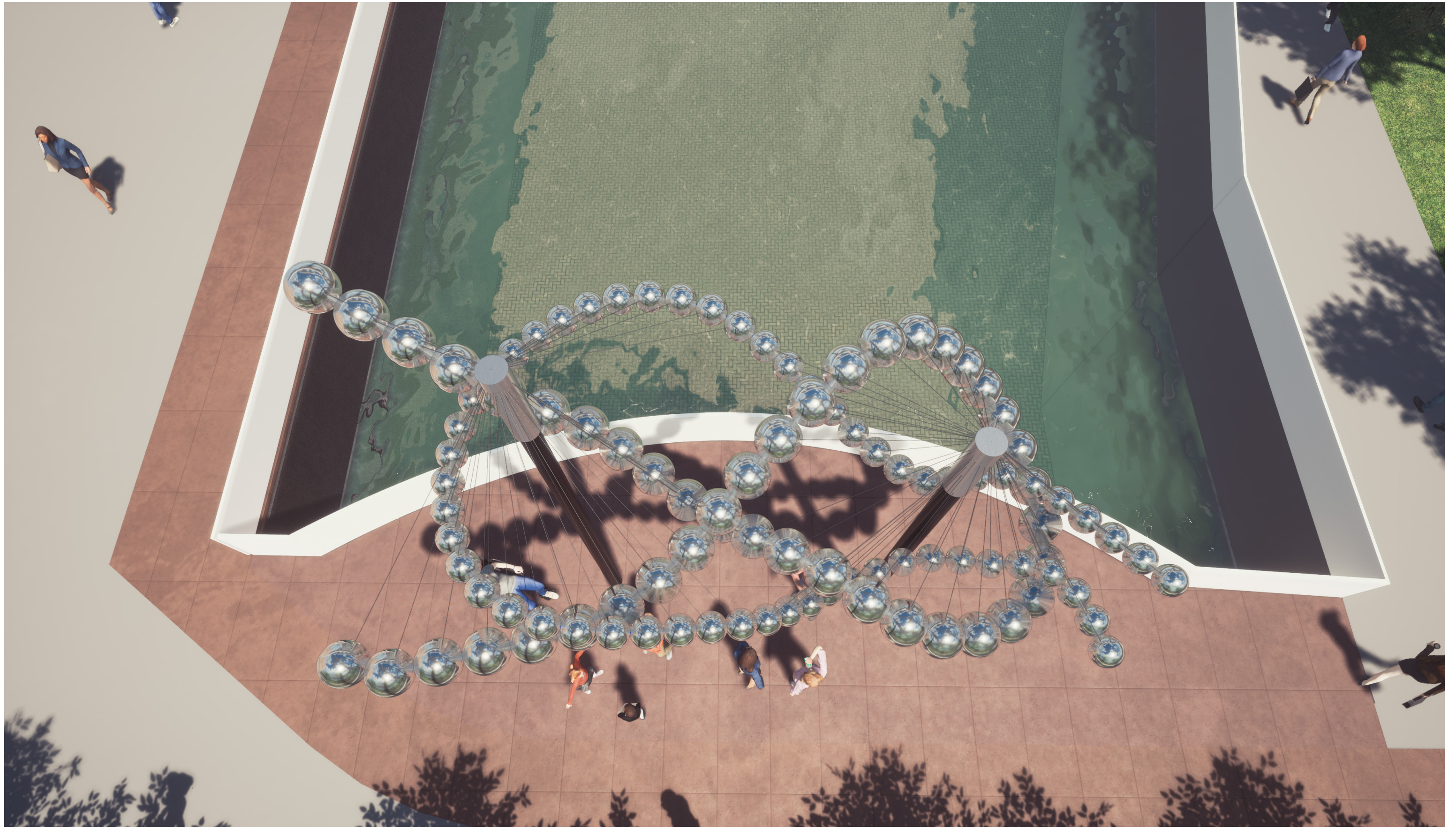




Steamer Keystone State
at Reed St. Wharf.

U.S. Steamers Ironsides, Armored, Mississippi &
Tuscarora off Fortress Monroe.



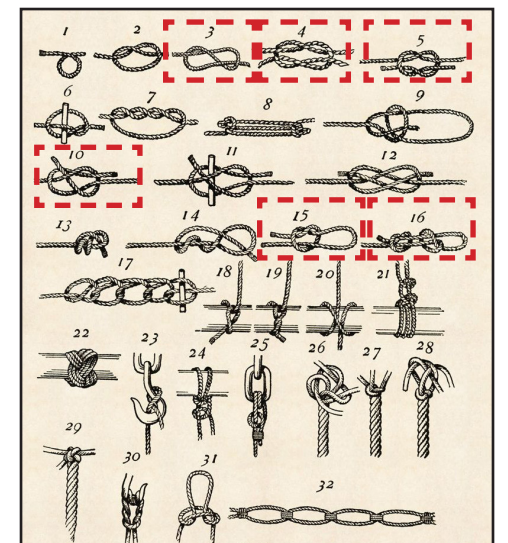
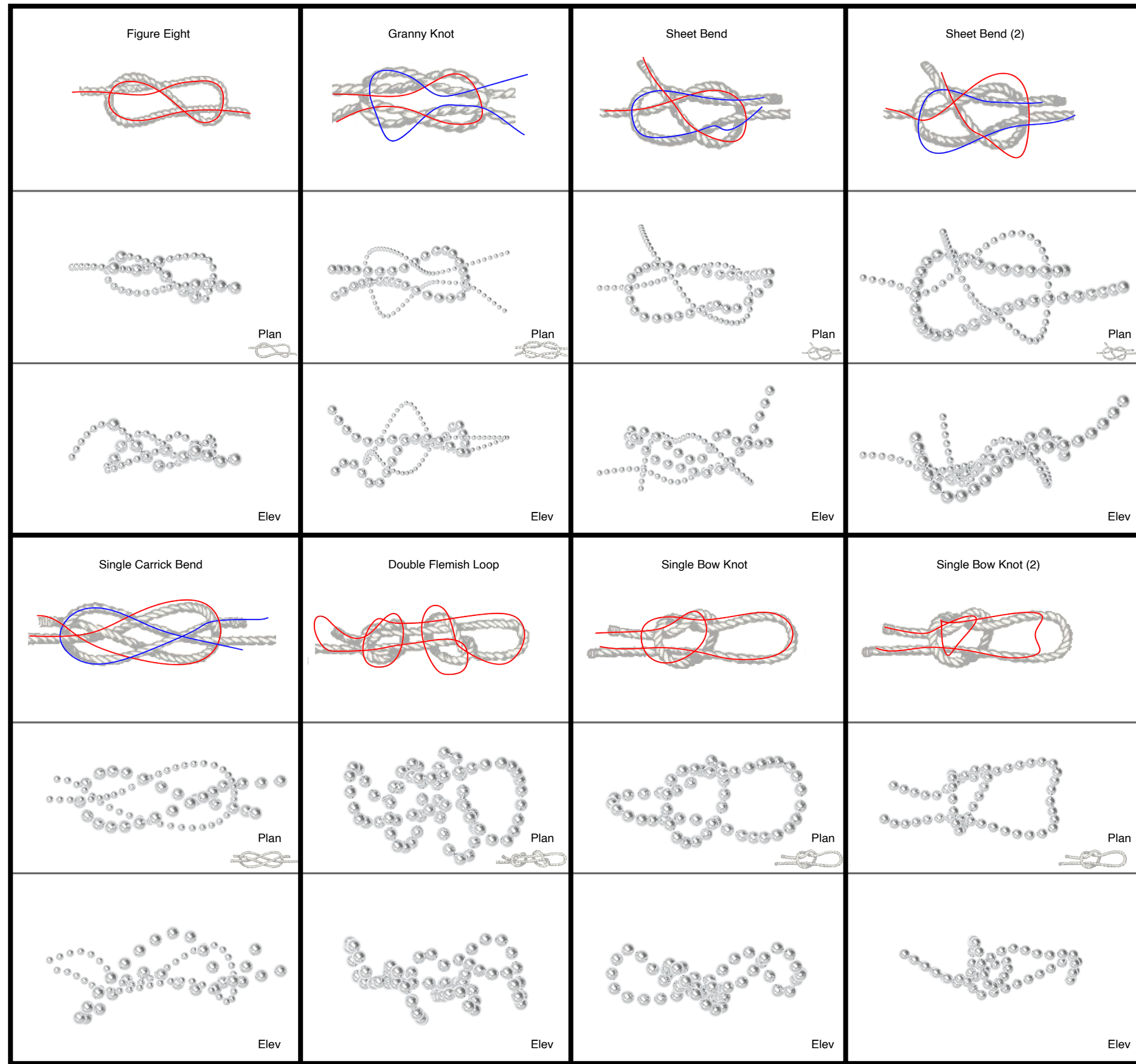


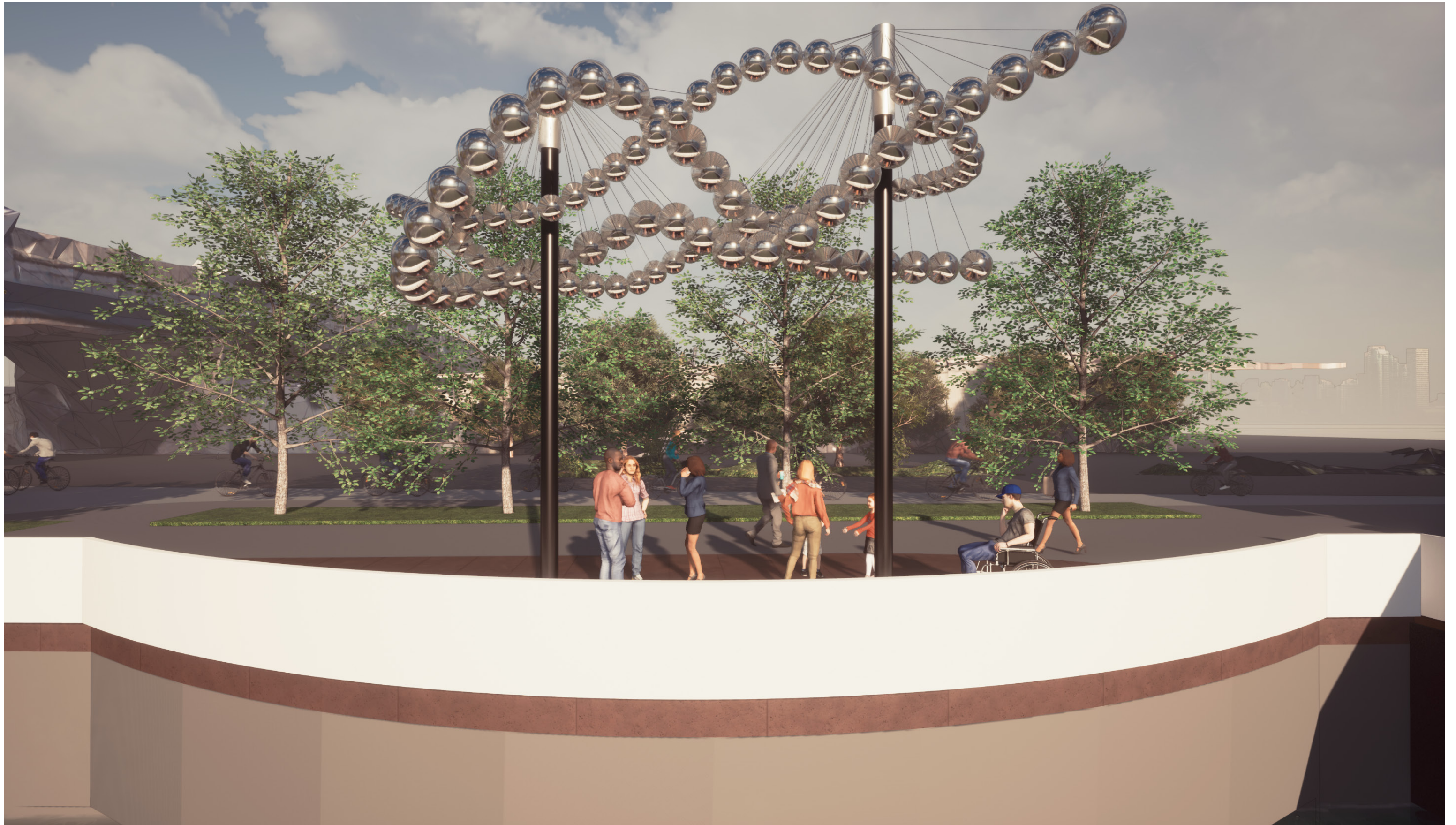


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April, 2020

Delaware River Trail Sculpture
Philadelphia, PA.

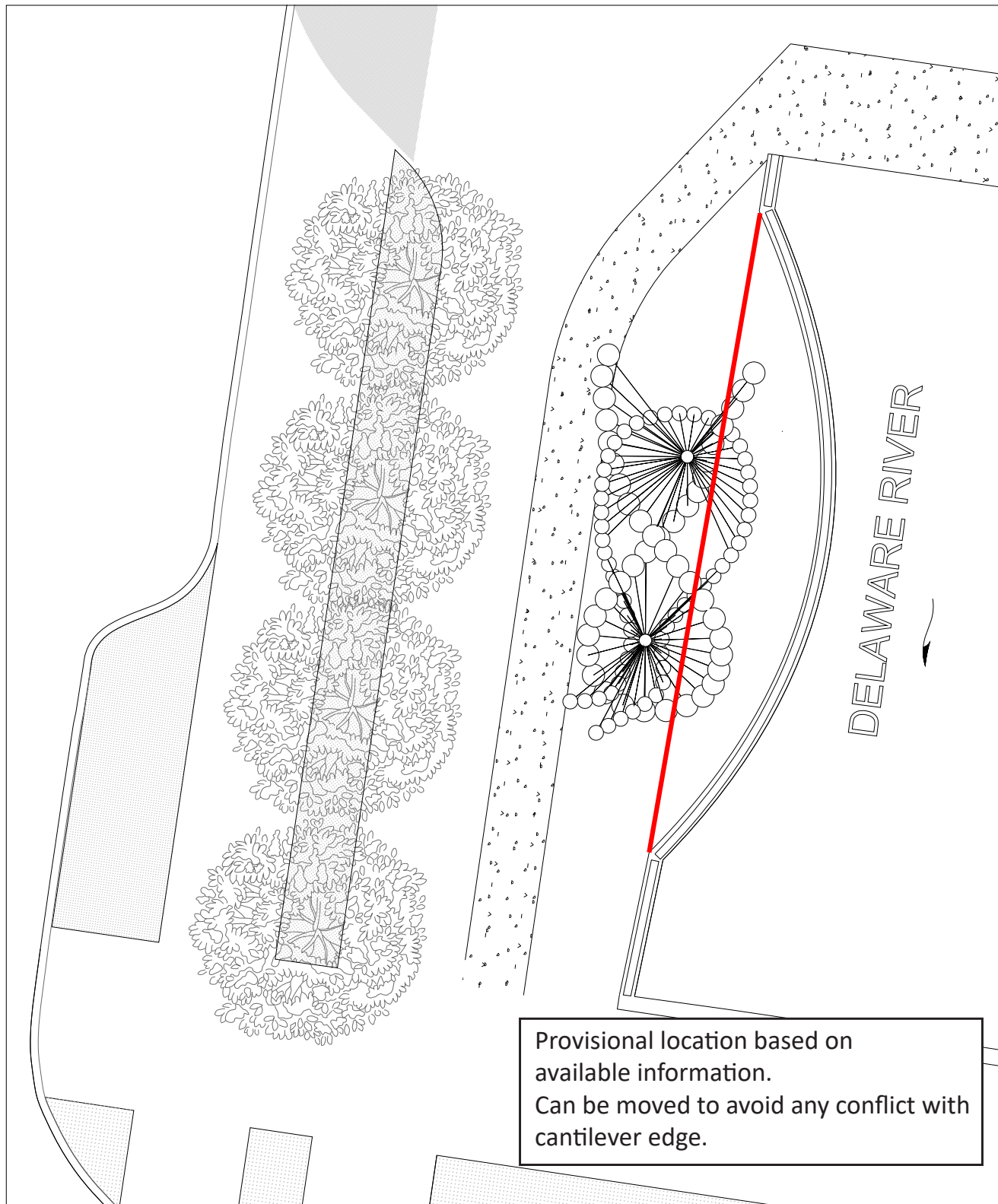
Please Play Movie File:
200415_BNS_Weaver's Knot- Sheet Bend





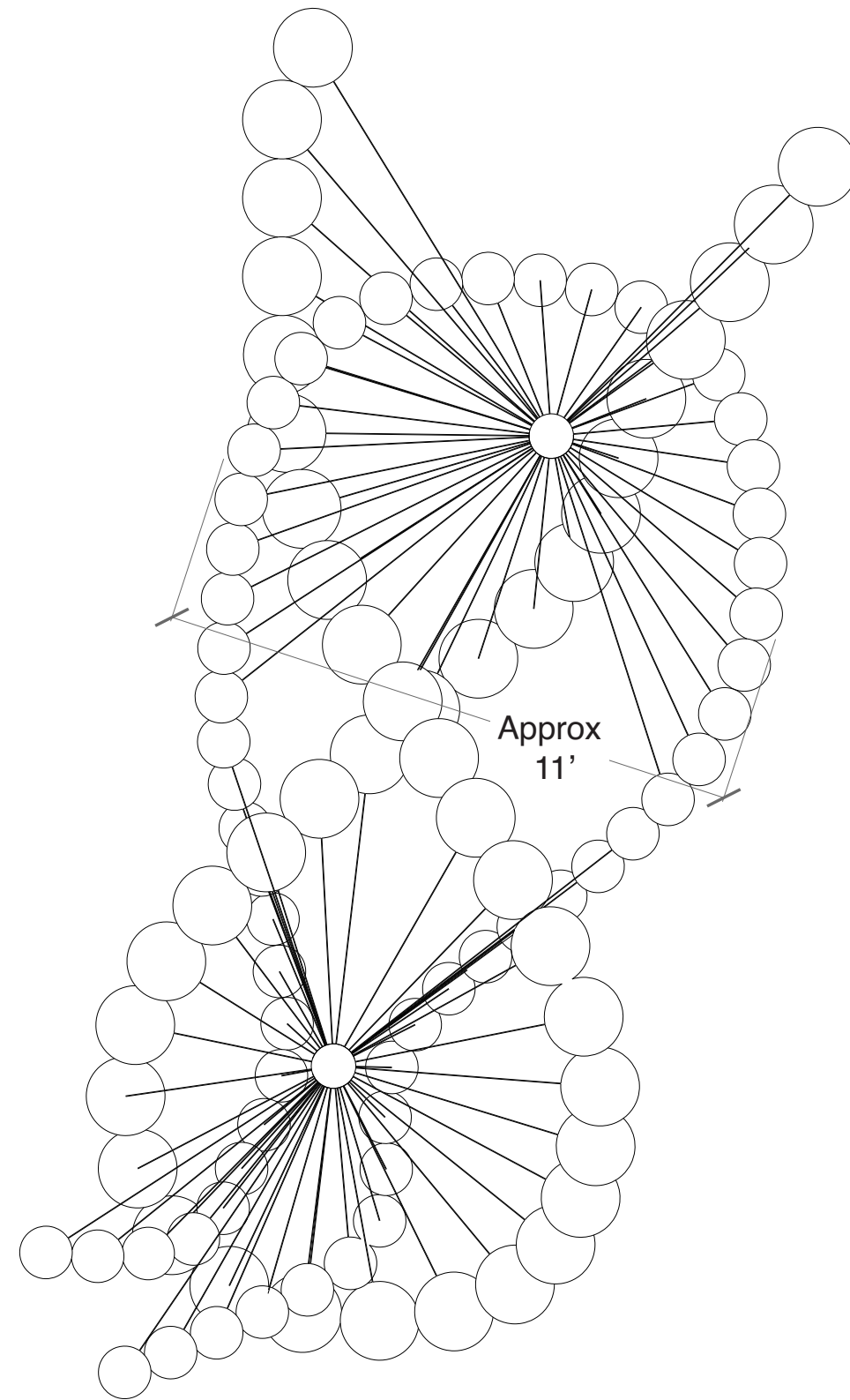
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Delaware River Trail Sculpture
Philadelphia, PA.



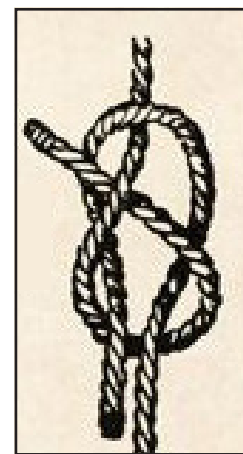
Location Plan
Scale: 1:48

A

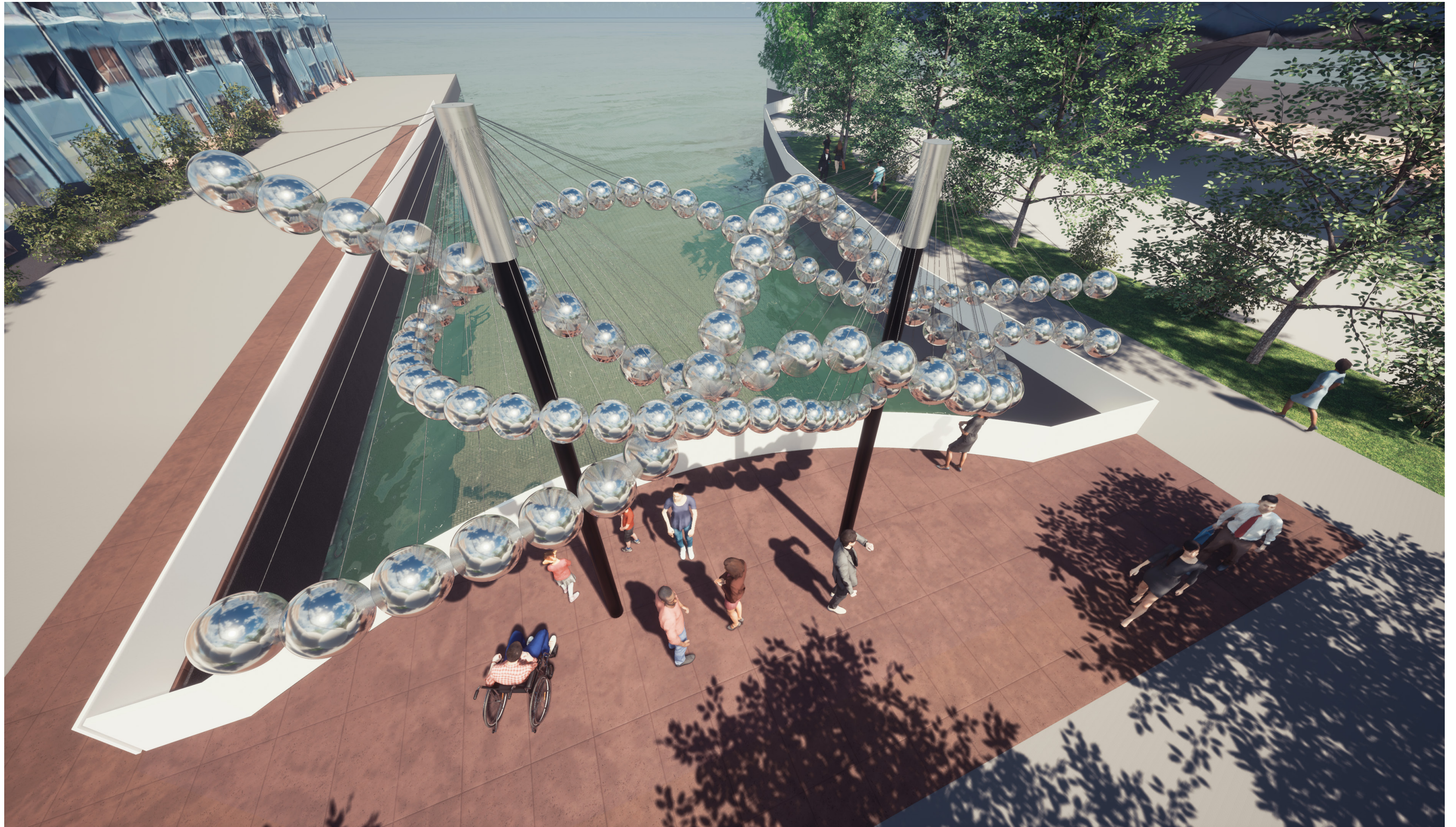


Plan
Scale: 1:12

B



Plan



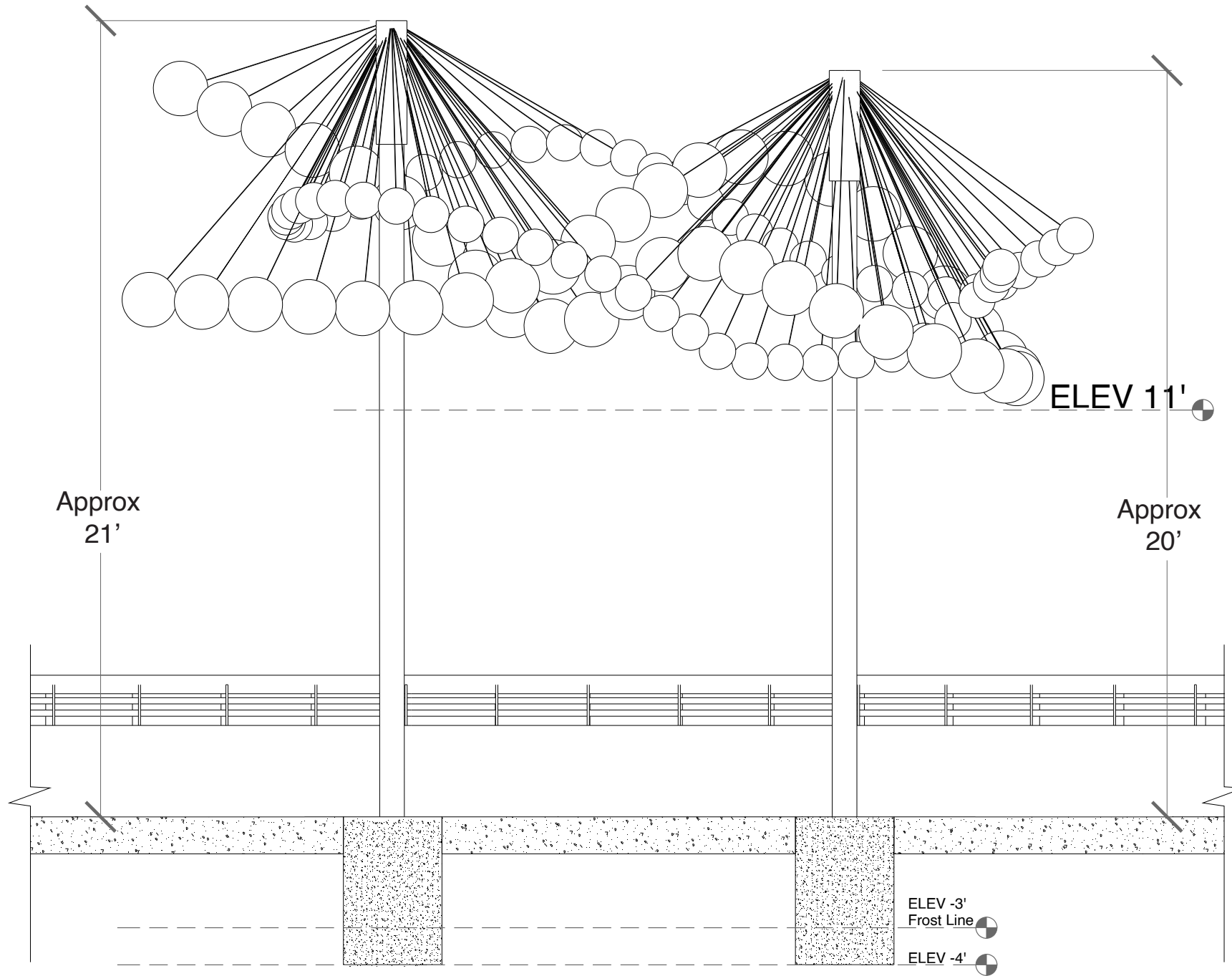
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Delaware River Trail Sculpture
Philadelphia, PA.



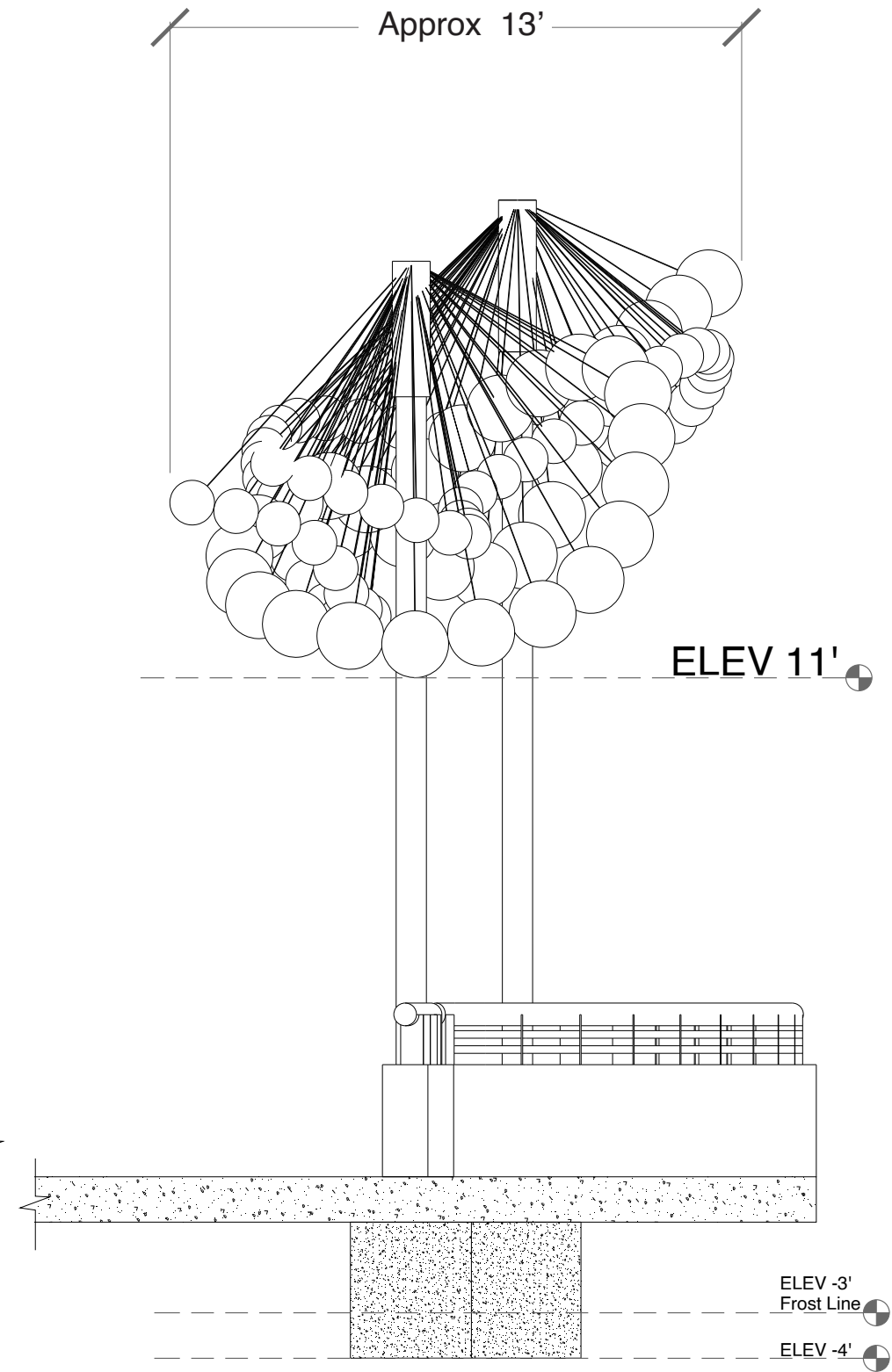
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Philadelphia, PA.



East Elevation
Scale: 1:24

A



North Elevation
Scale: 1:24

B



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Philadelphia, PA.

Process



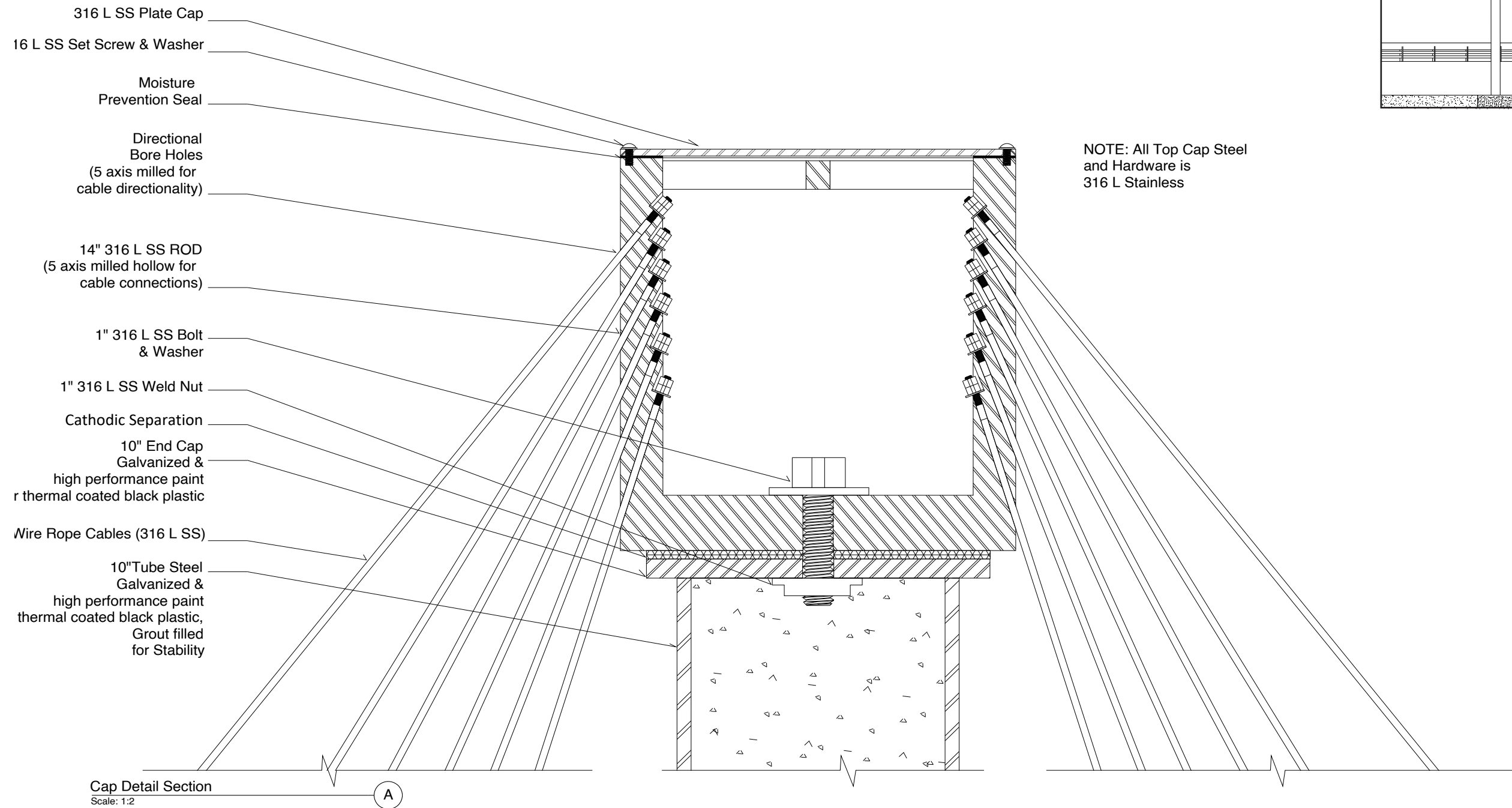
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April, 2020

Delaware River Trail Sculpture
Philadelphia, PA.

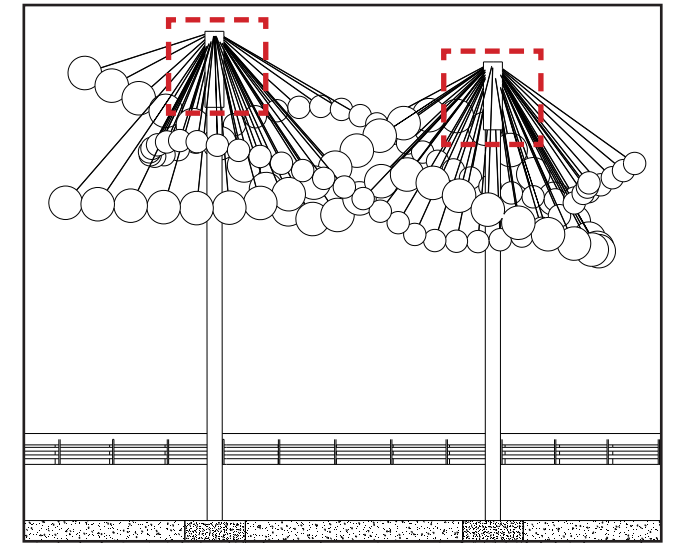
Elevations

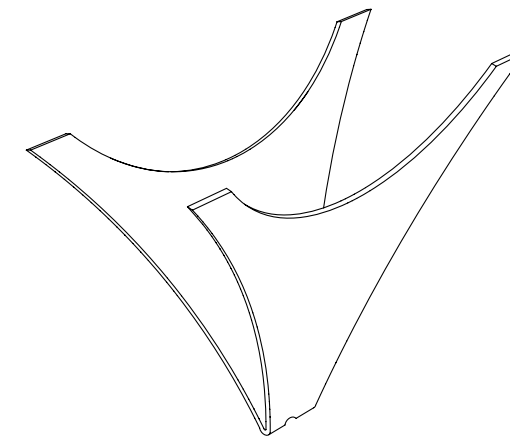
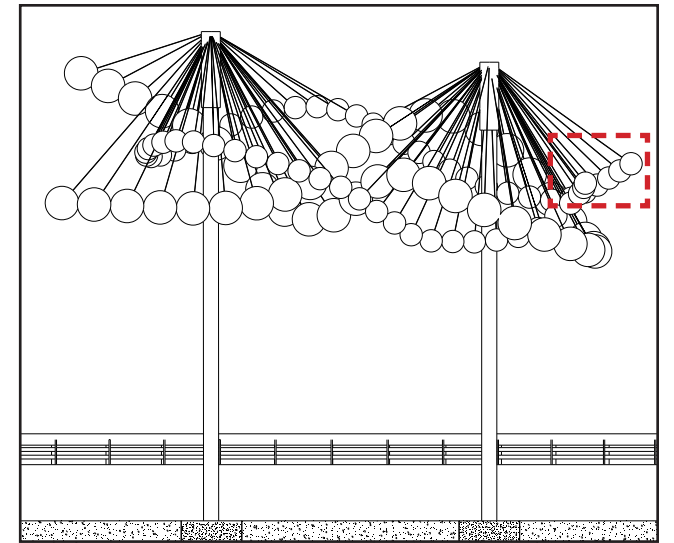
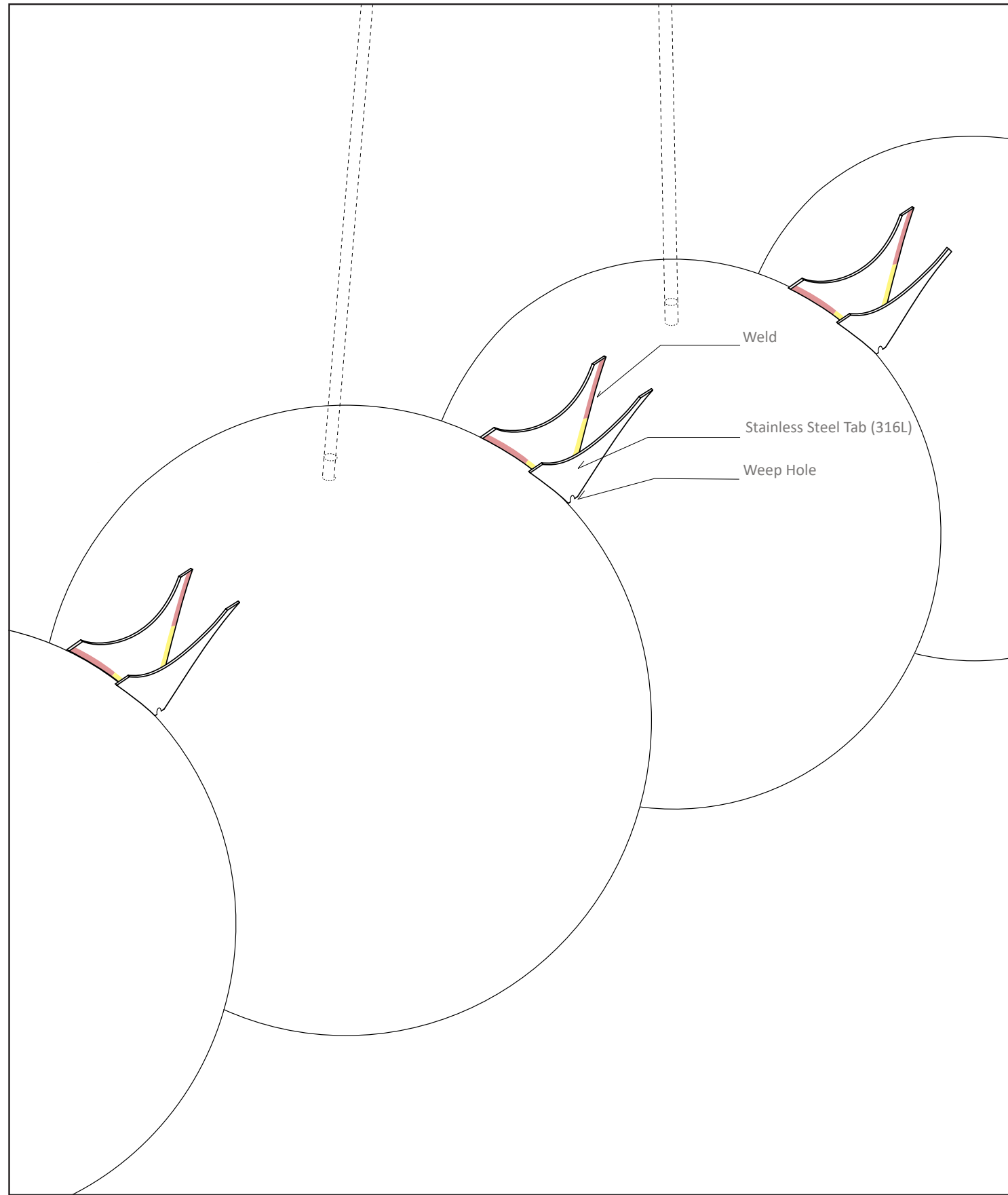
CONCEPT ENGINEERING DESIGN

*Precise dimensions will be developed during DD and engineering analysis



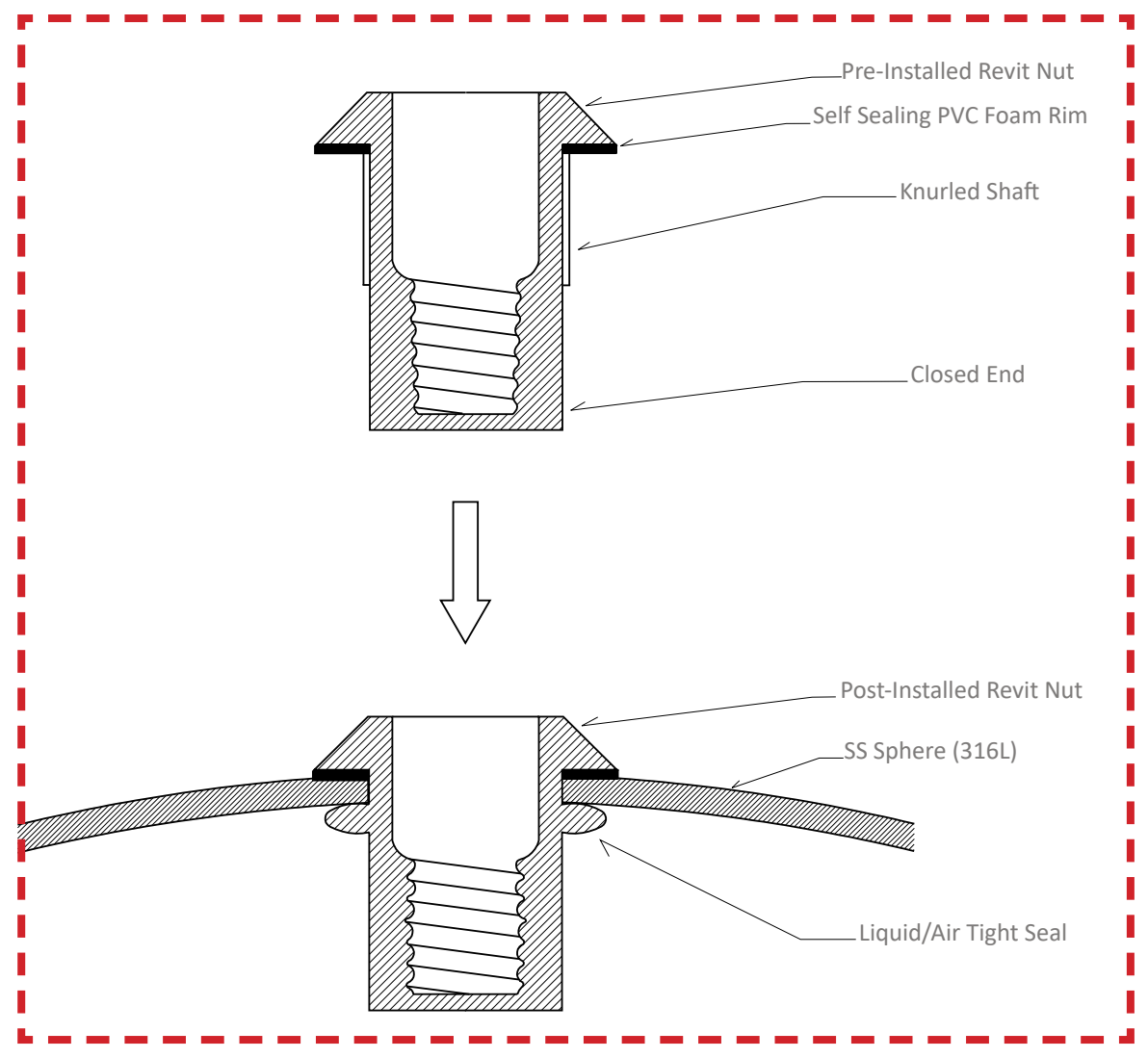
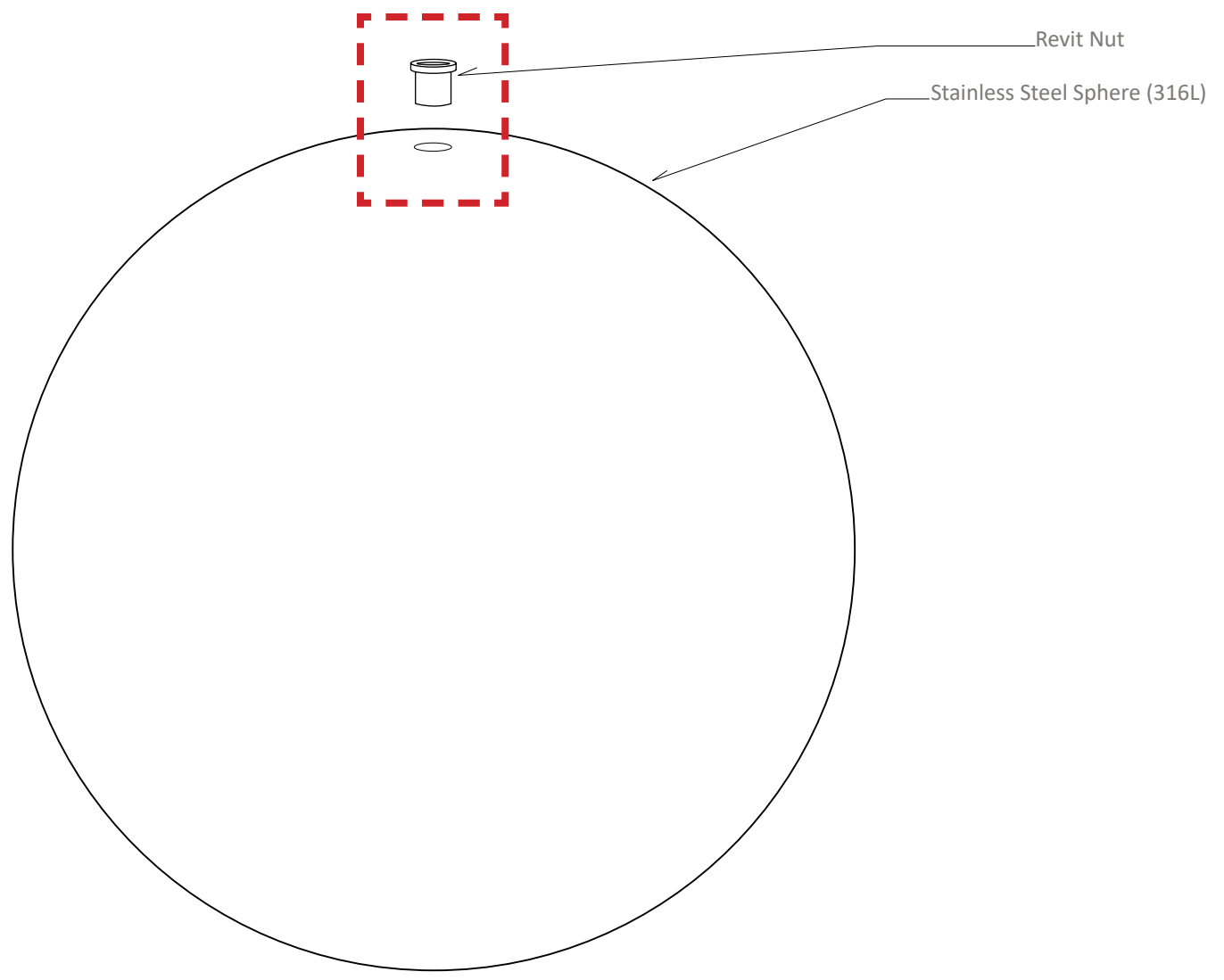
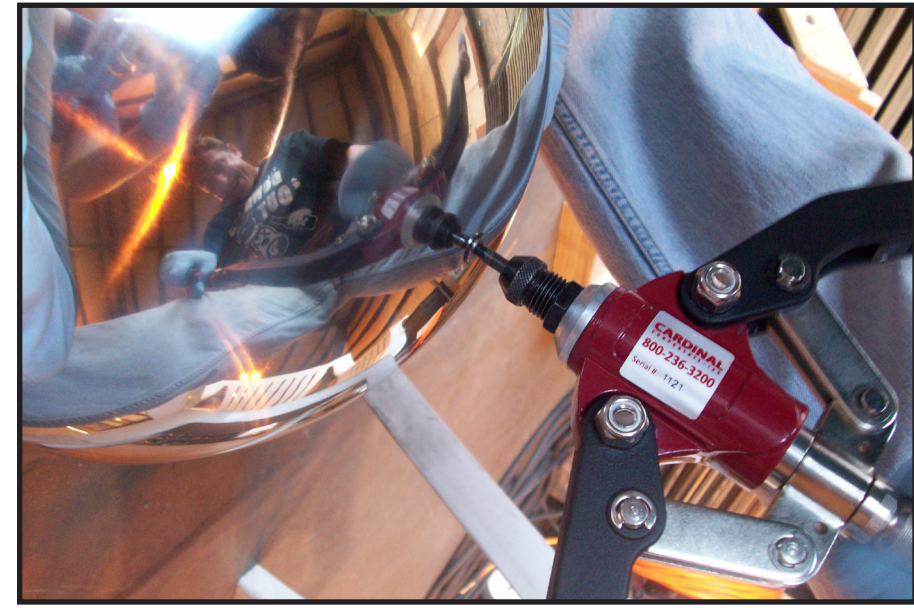
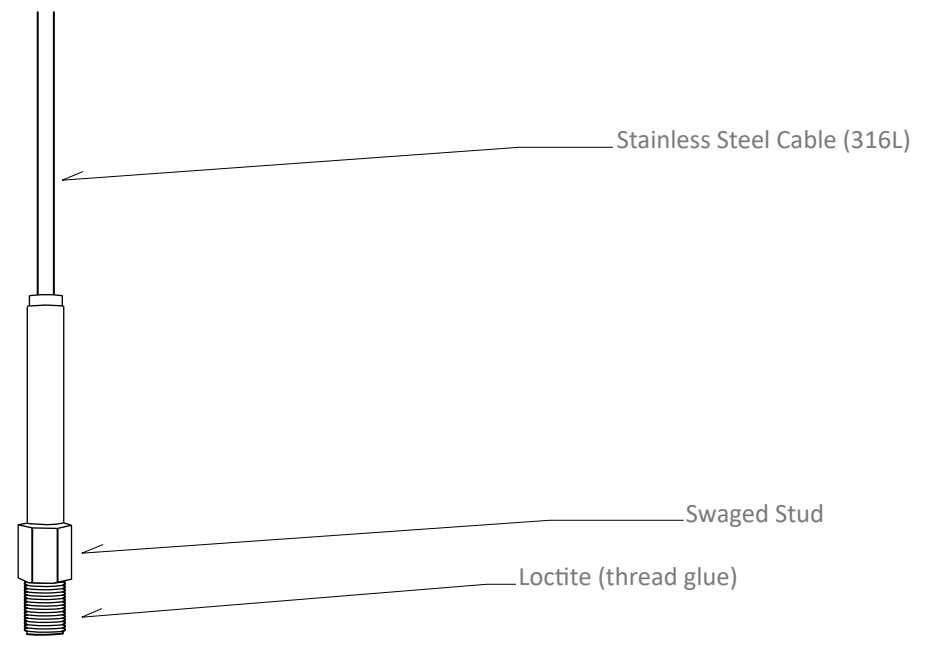
NOTE: All Top Cap Steel and Hardware is 316 L Stainless

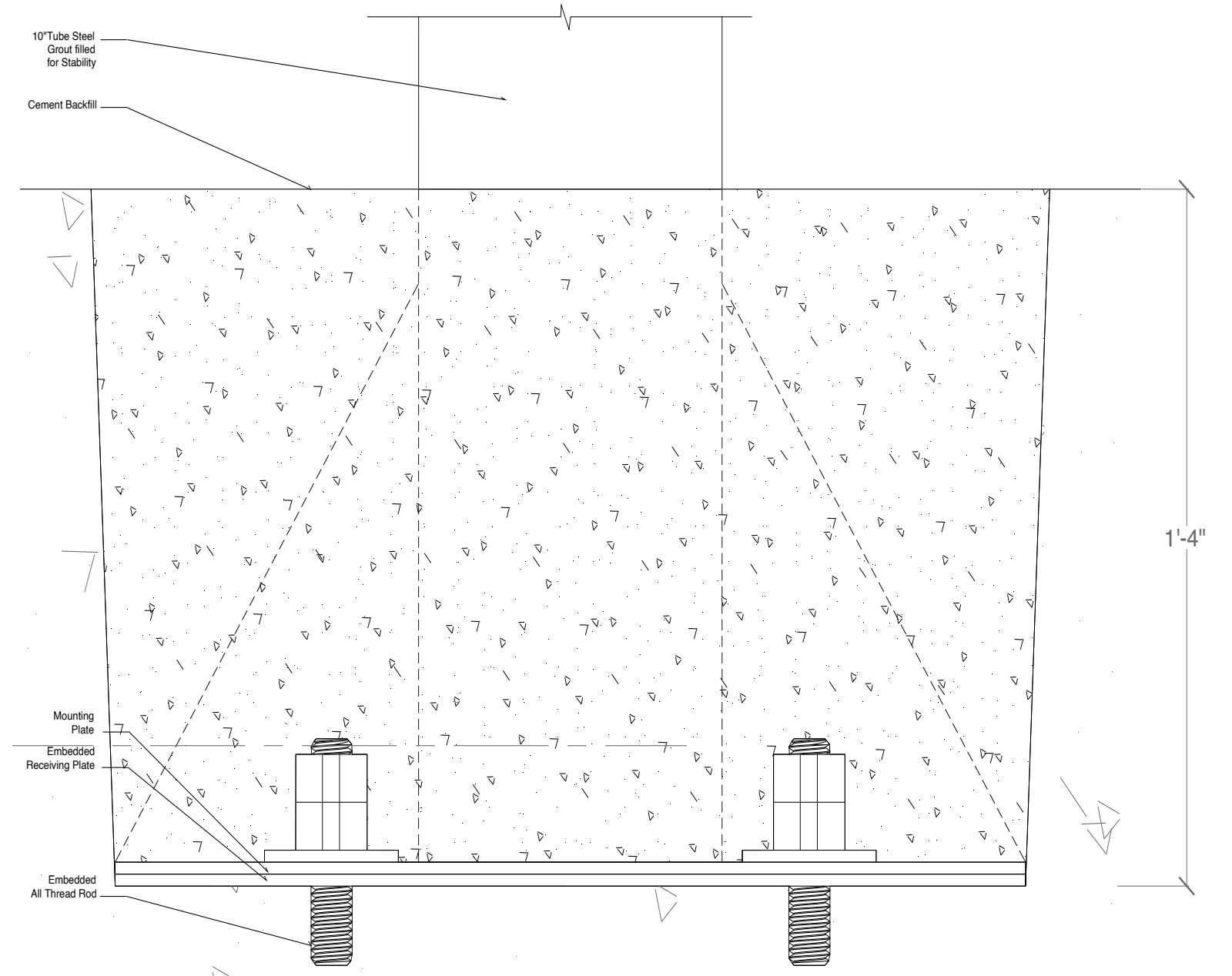
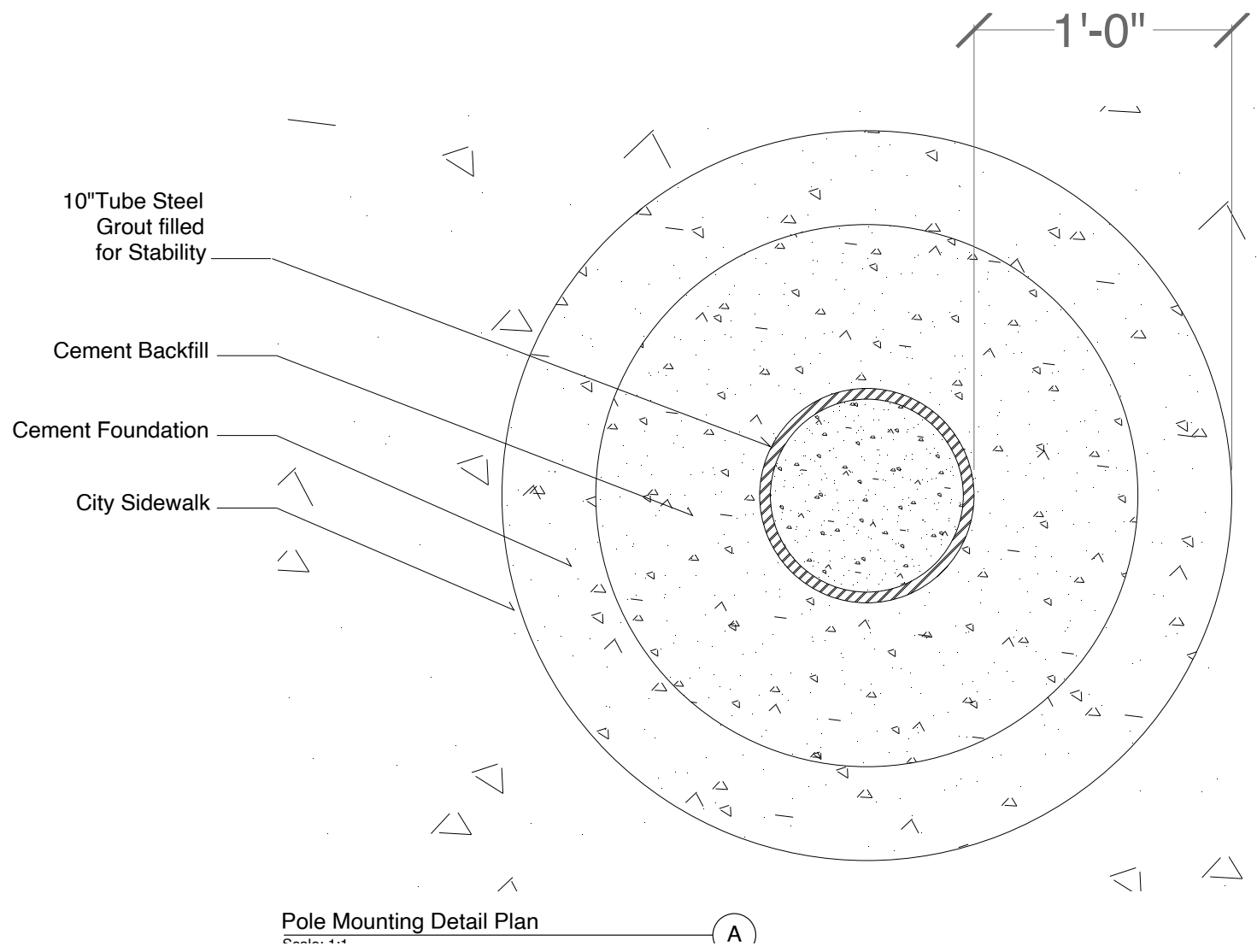


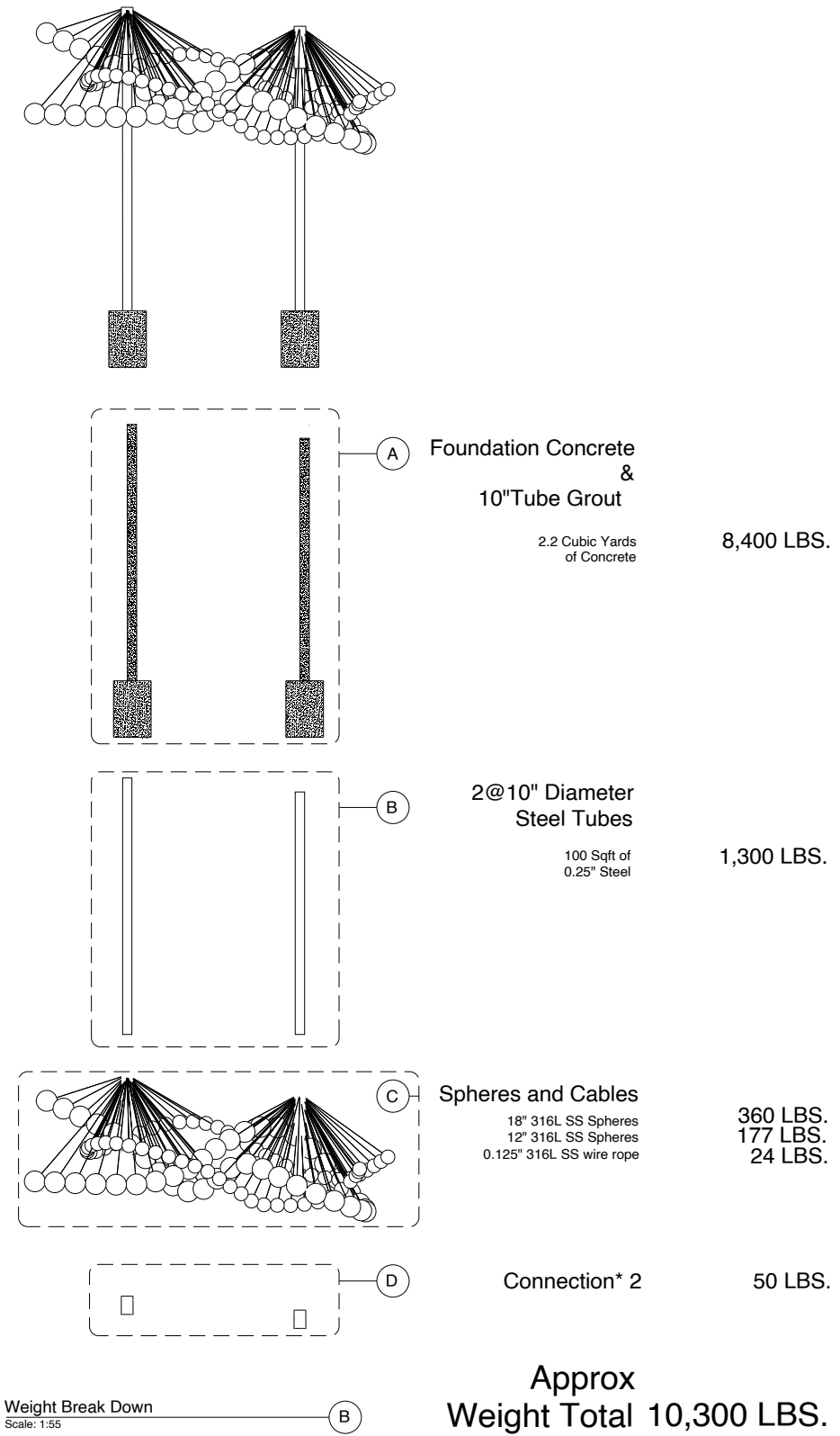
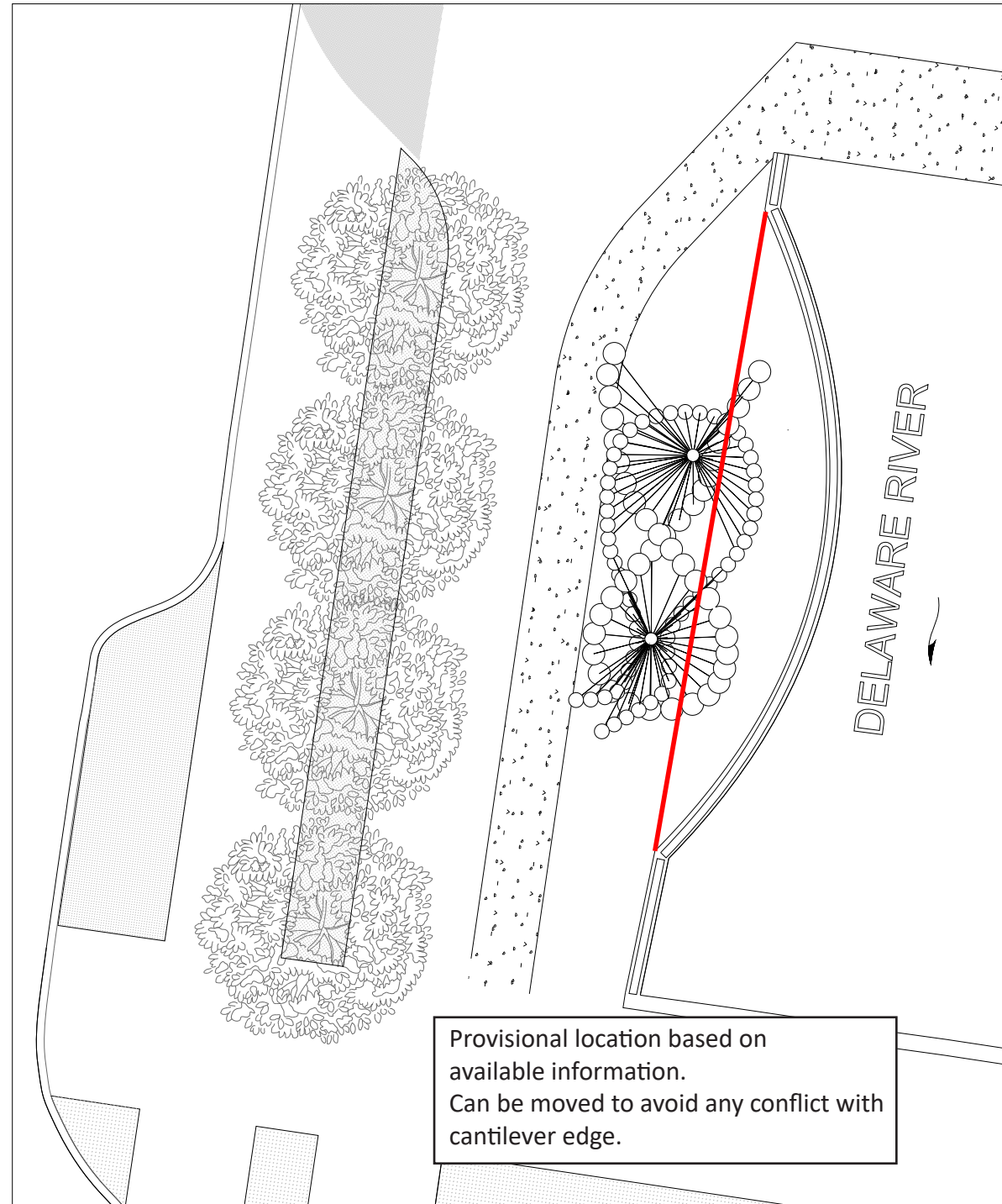


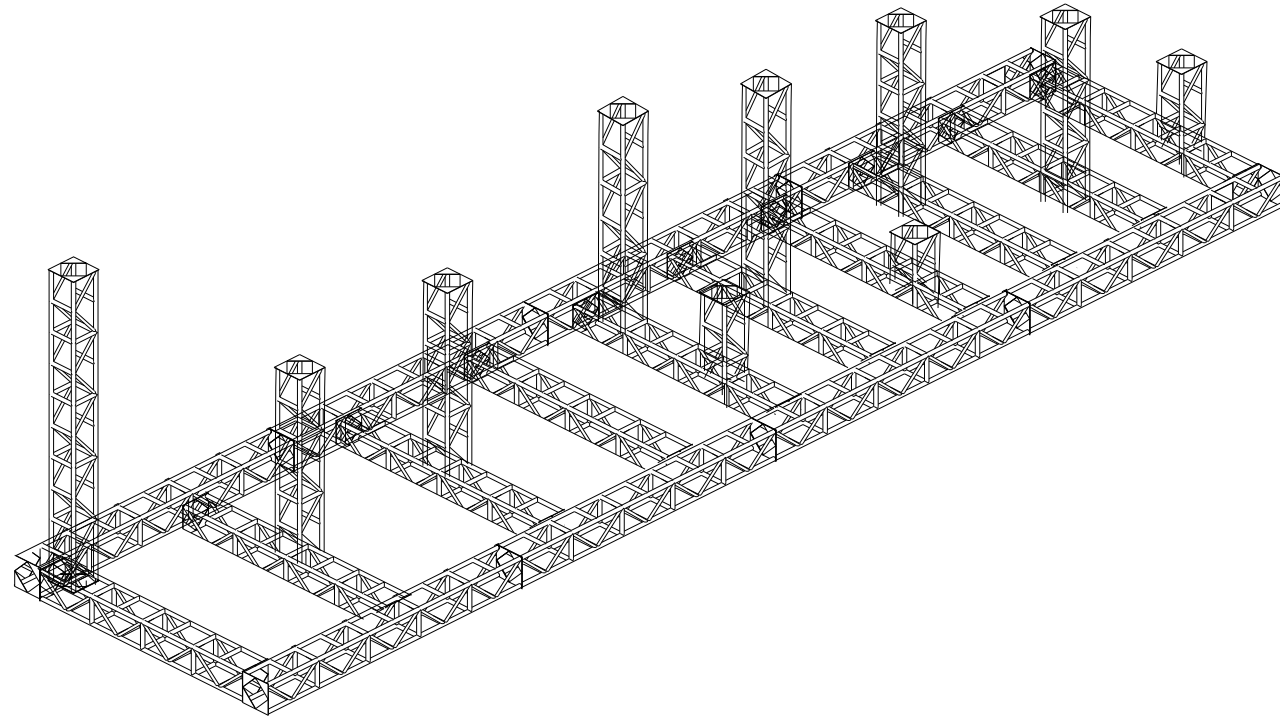
Formed Stainless Steel Tab(316L)











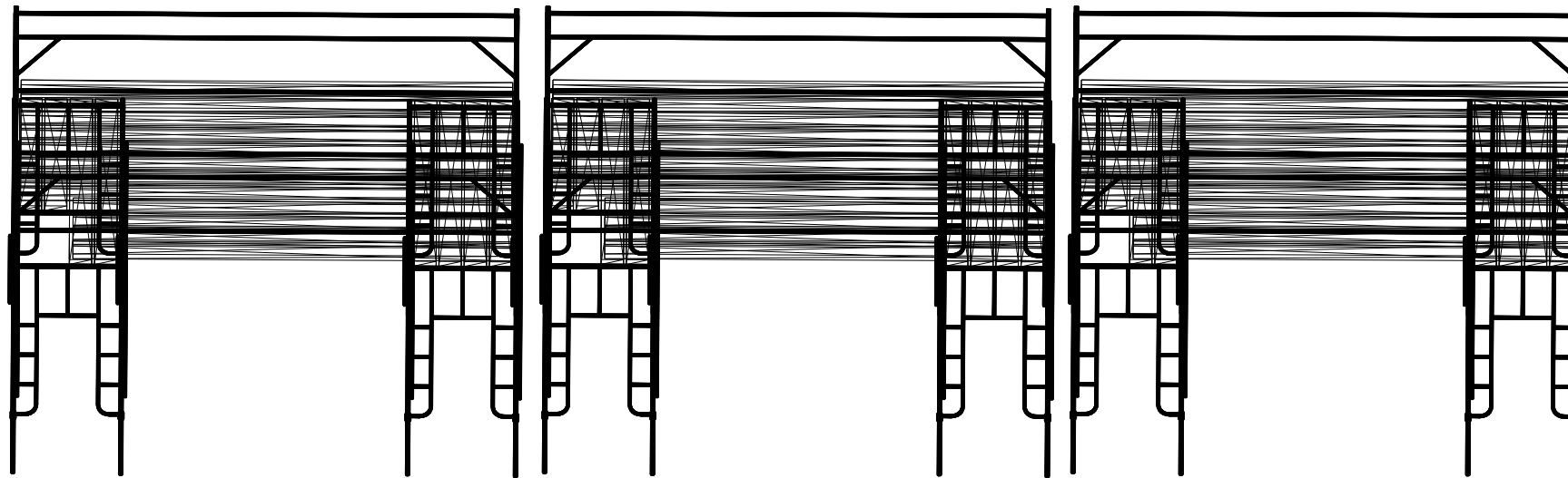
Space frame - Aluminum Truss Cribbing. (A)
Scale: 1:24

Aluminum Truss Cribbing	170 ft	580 LBS.
Spheres and Cables		300 LBS.
3 @ 6'4" High Scaffold Frame - 5' Wide		200 LBS.
Planking		150 LBS.
Guard rails		
Approx. Temp Install Items		1,230 LBS.

Approx Artwork Weight Total 10,300 LBS.

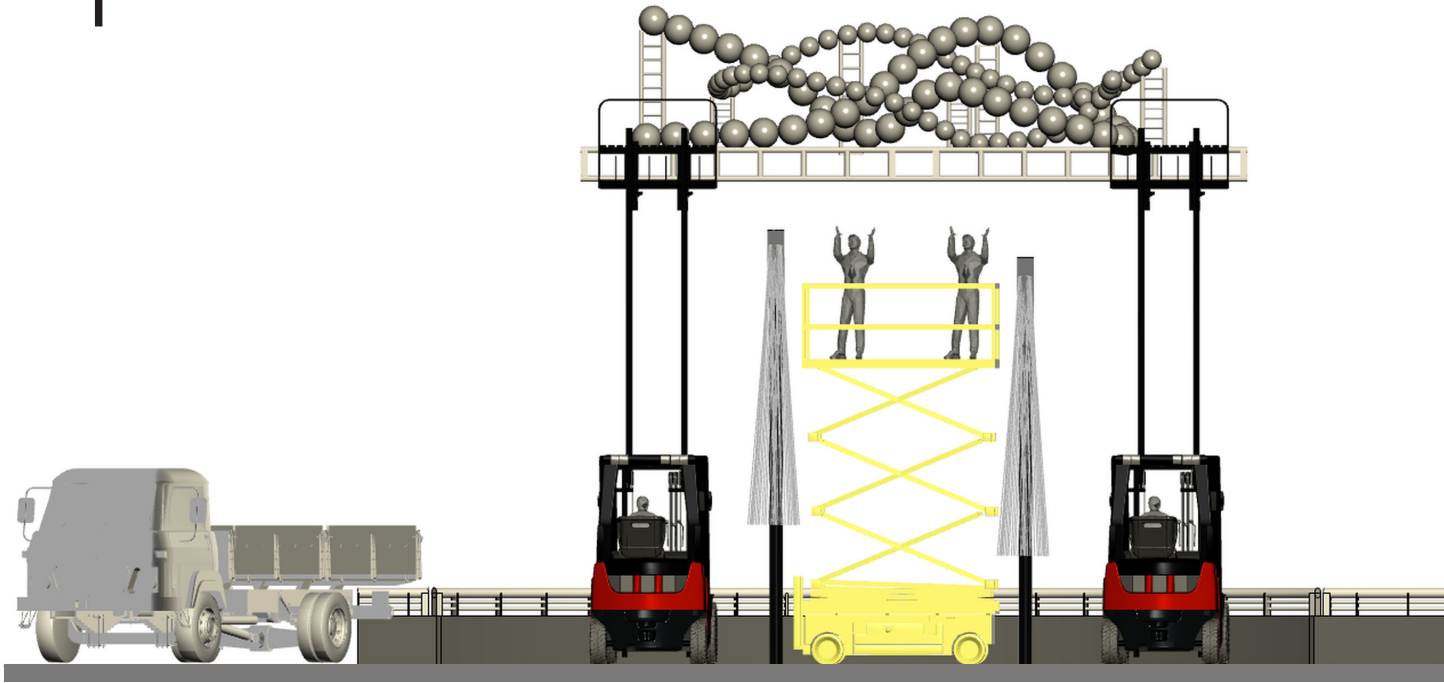
Approx Installation Weight Total 11,530 LBS.

No machinery will be allowed on cantilever.



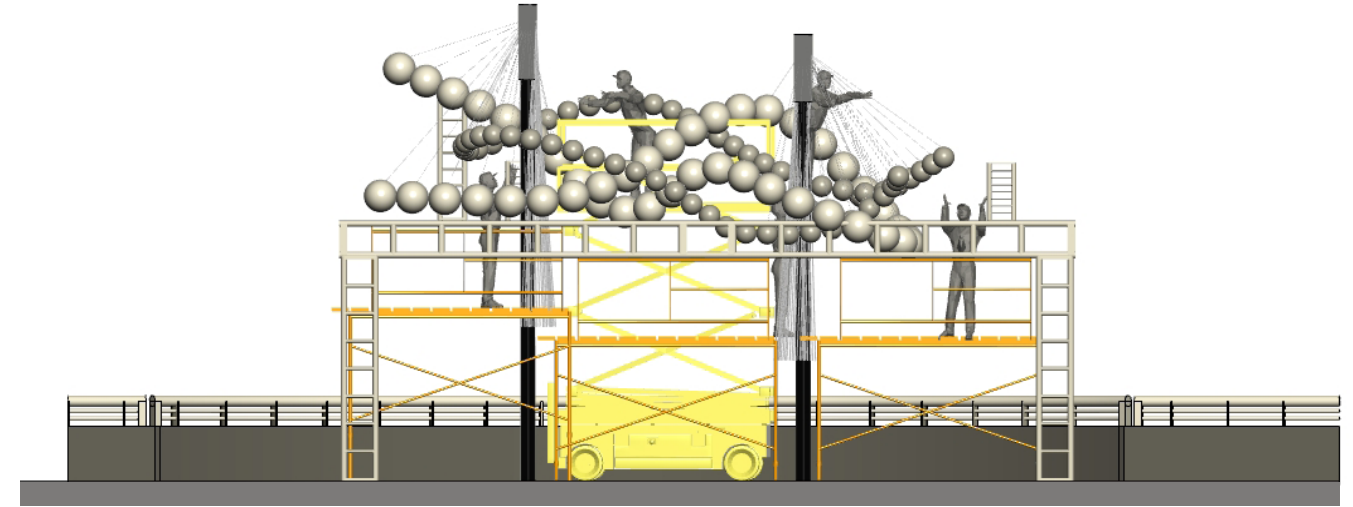
3 @ 6.5' Work Platforms Weight (B)
Scale: 1:24

1



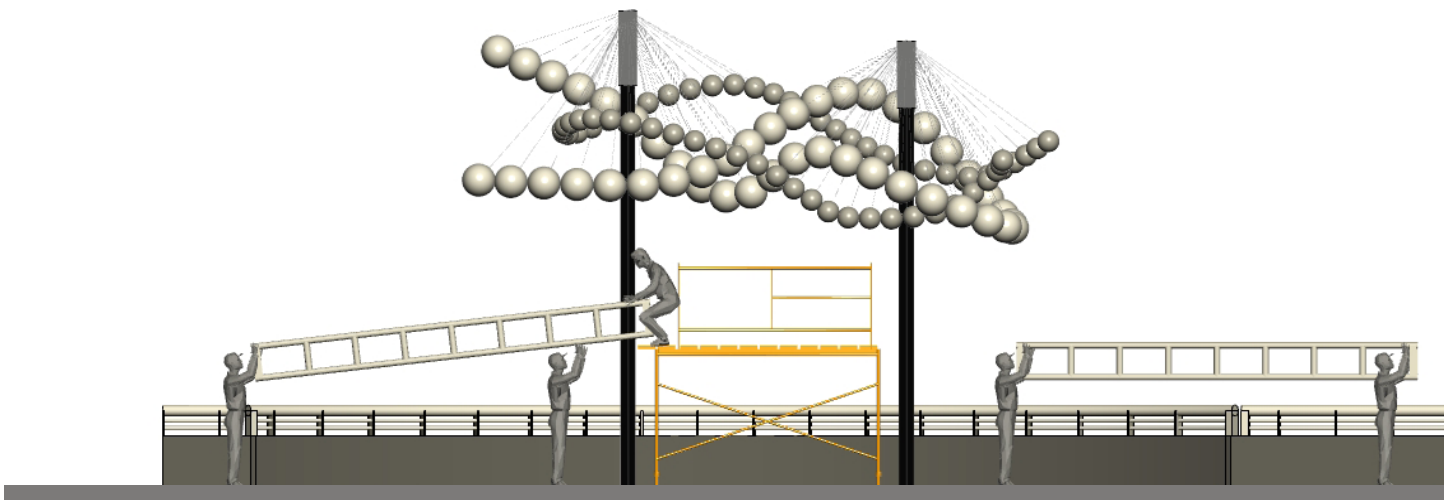
Unloading of finished artwork from truck and lifted above poles

2



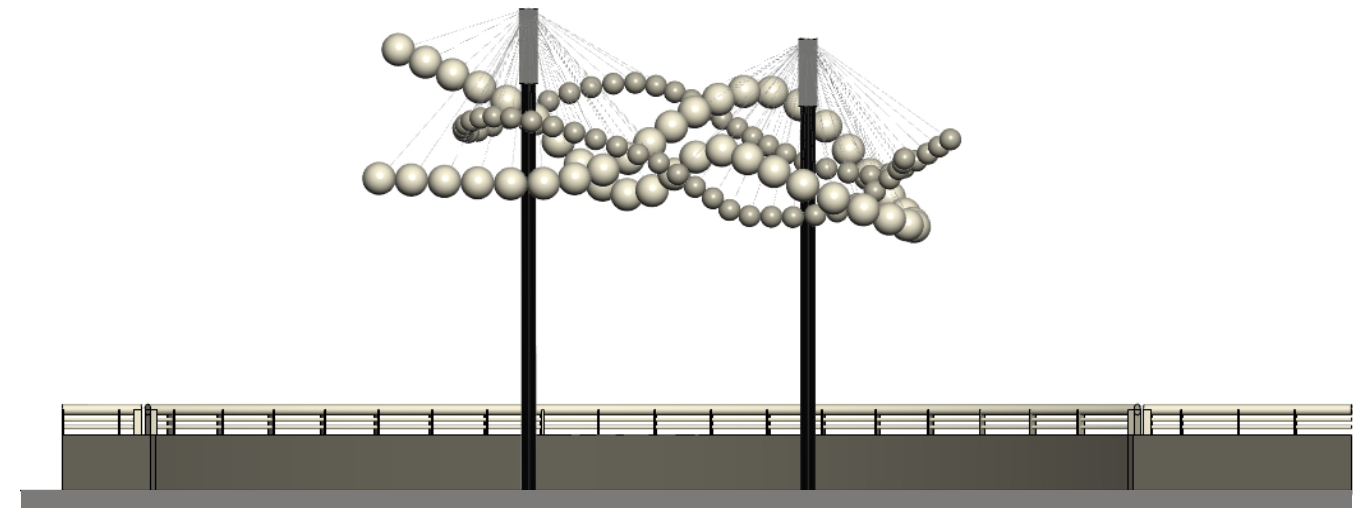
Support truss and work platform assembled, wire connections from pole to spheres

3

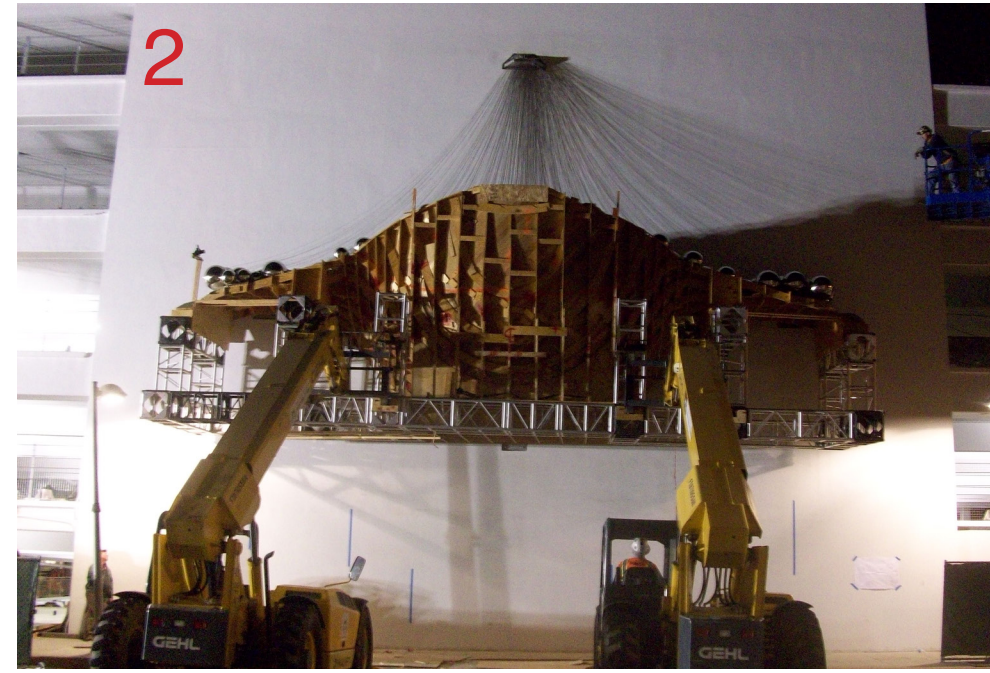


Finish wire attachments and disassembly of support truss and work platform

4



Installation finished in one day



Cradle

Santa Monica

Maintenance schedule and current visual documentation.



11/2010

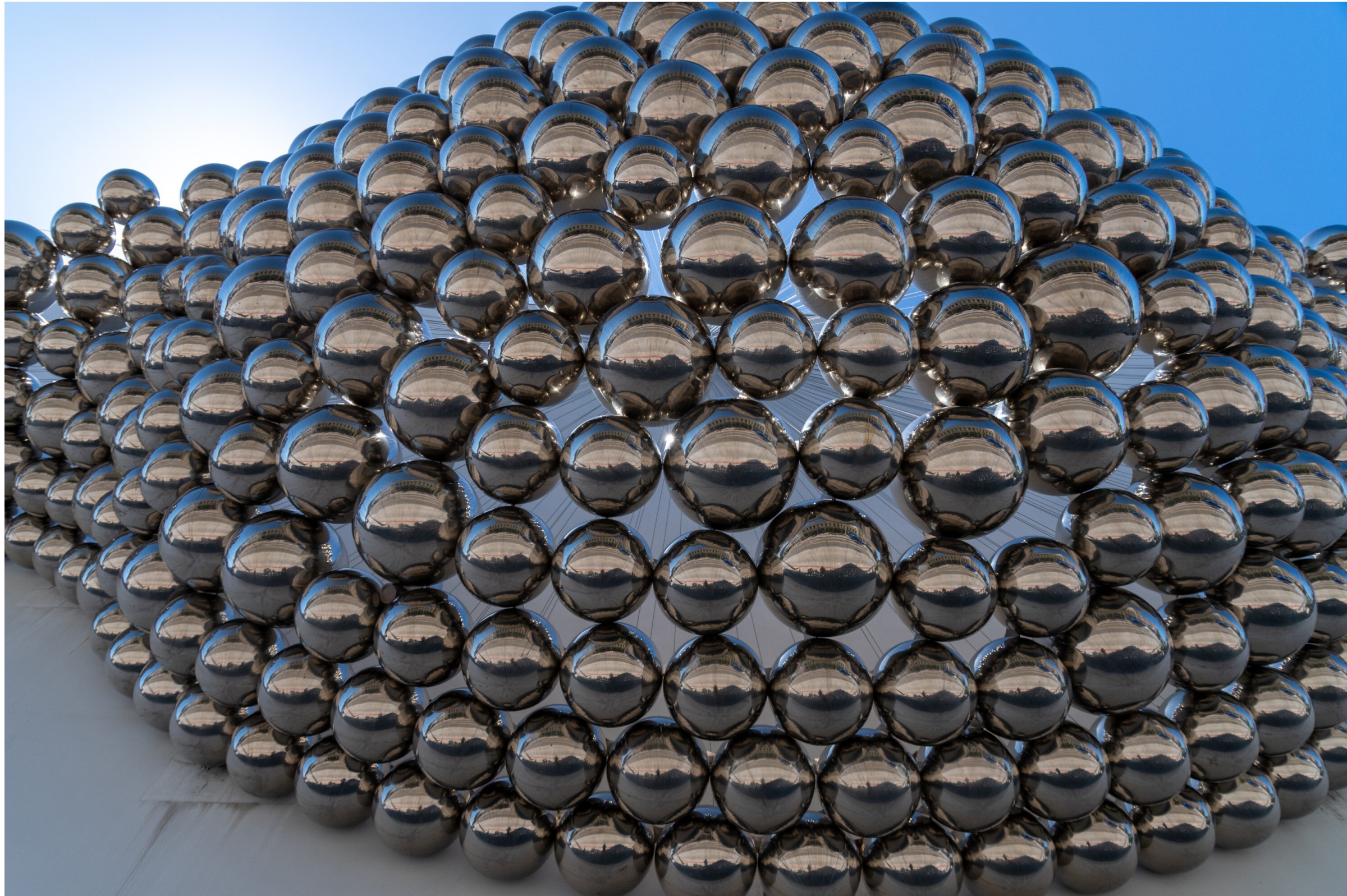
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April, 2020



4/2020

Delaware River Trail Sculpture
Philadelphia, PA.

Cradle
Santa Monica, CA

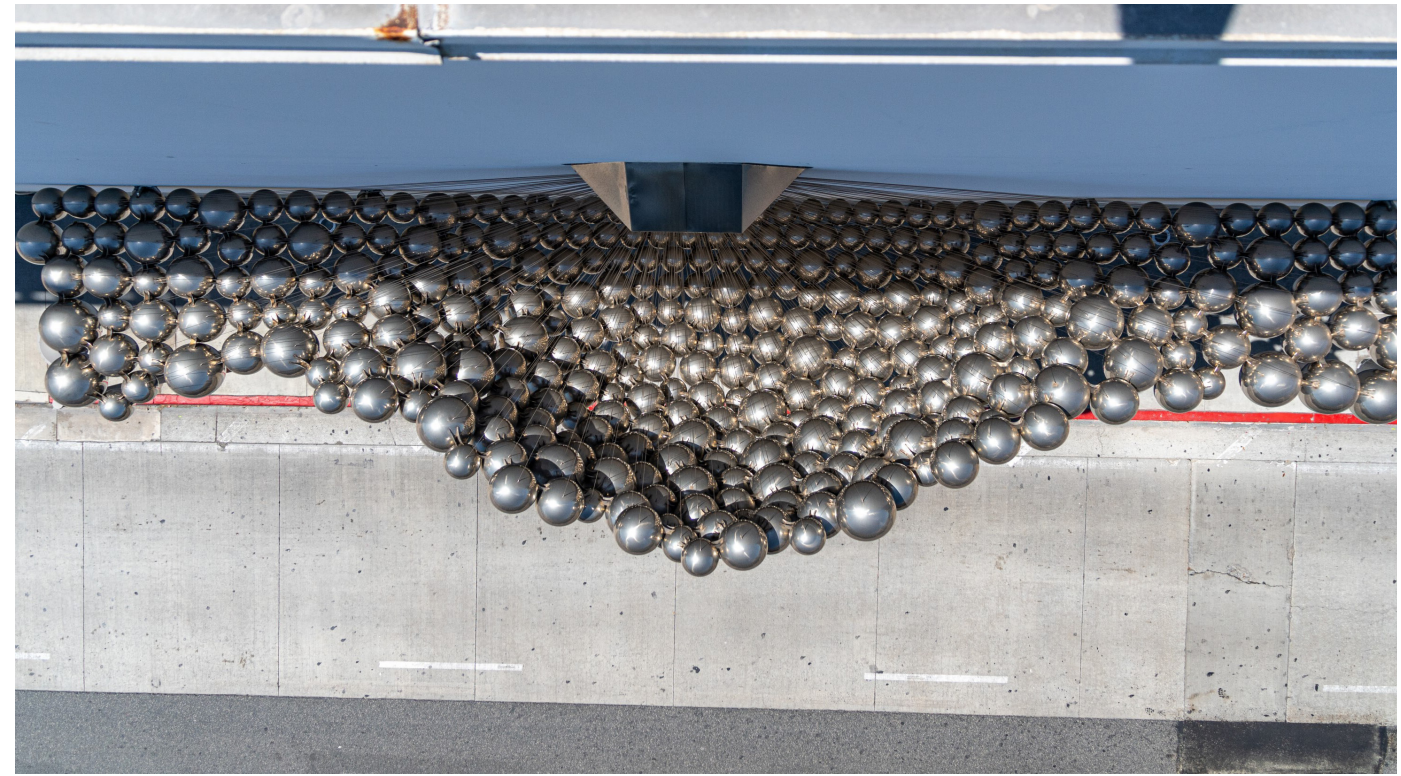


4/2020

BALL-NOGUES STUDIO
April, 2020

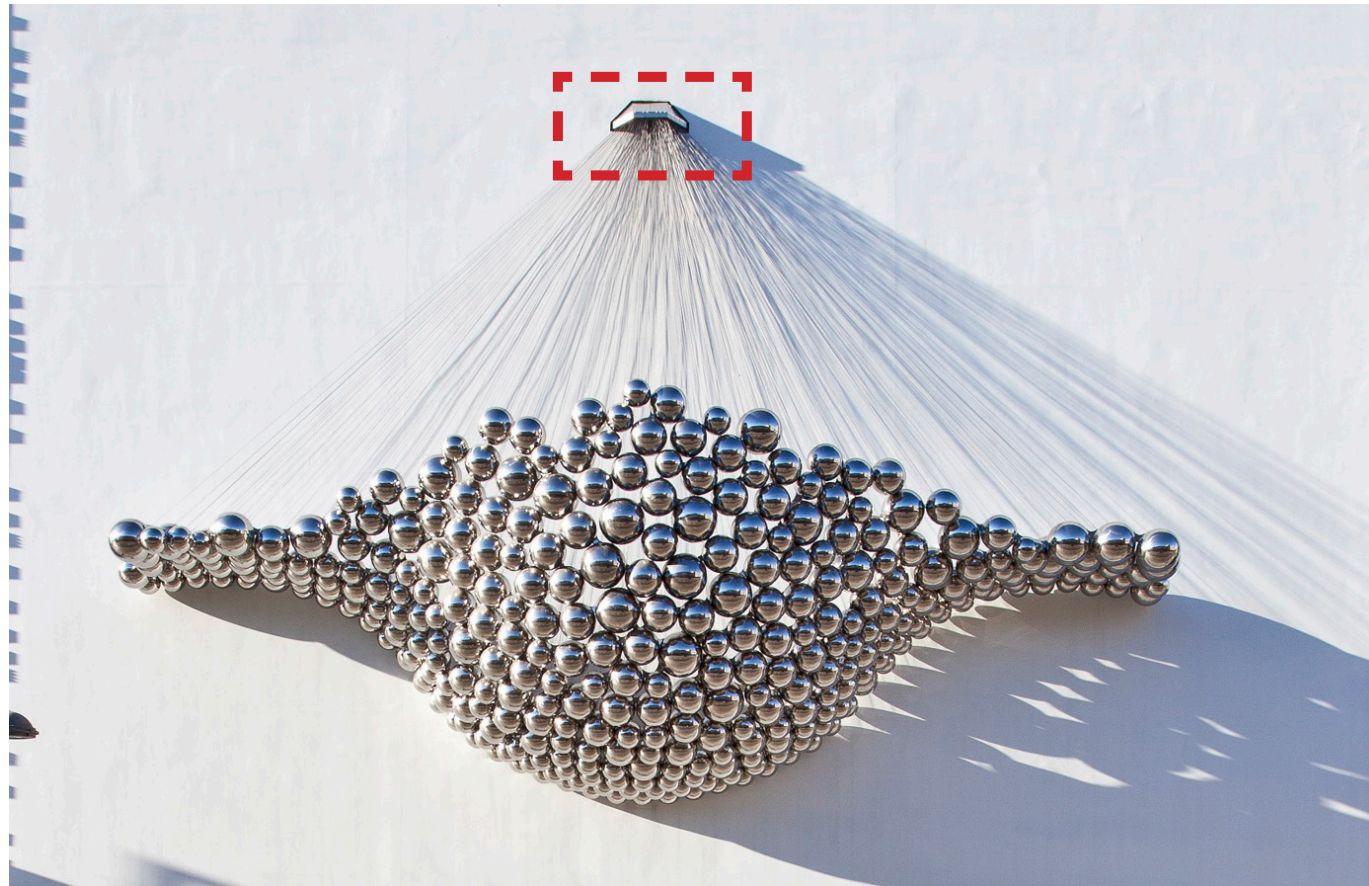
Delaware River Trail Sculpture
Philadelphia, PA.

Cradle (4-2020)
Santa Monica, CA



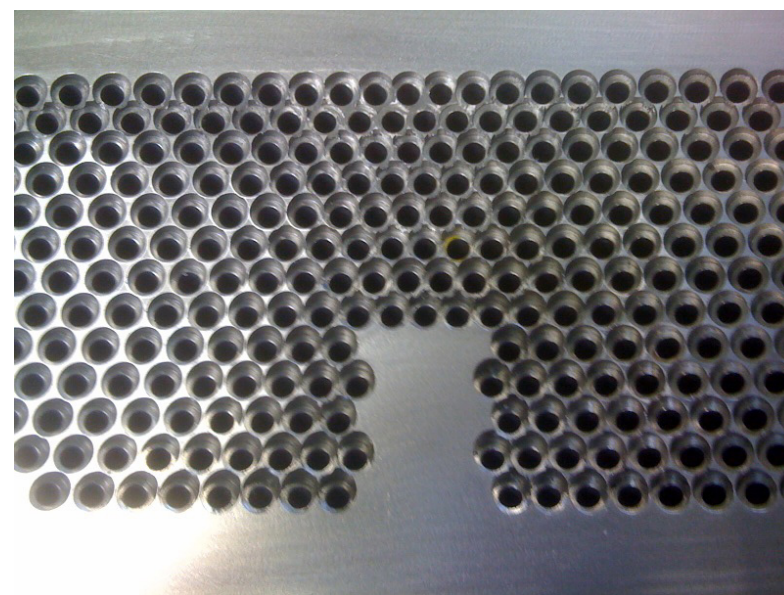
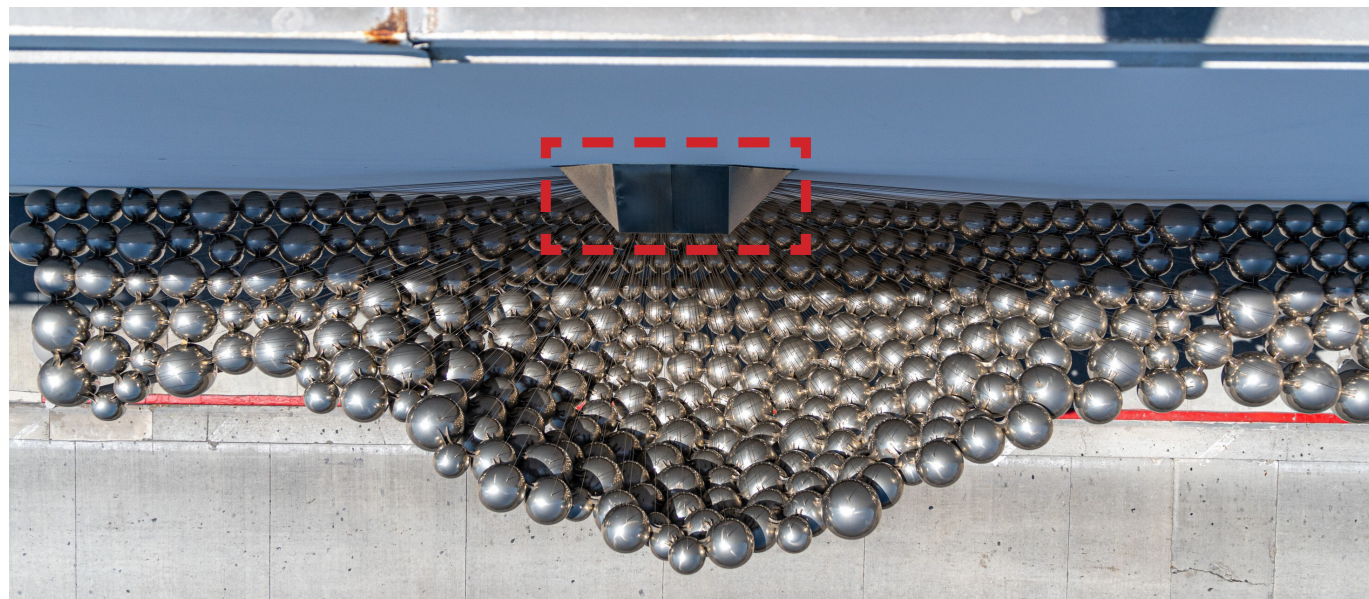
4/2020





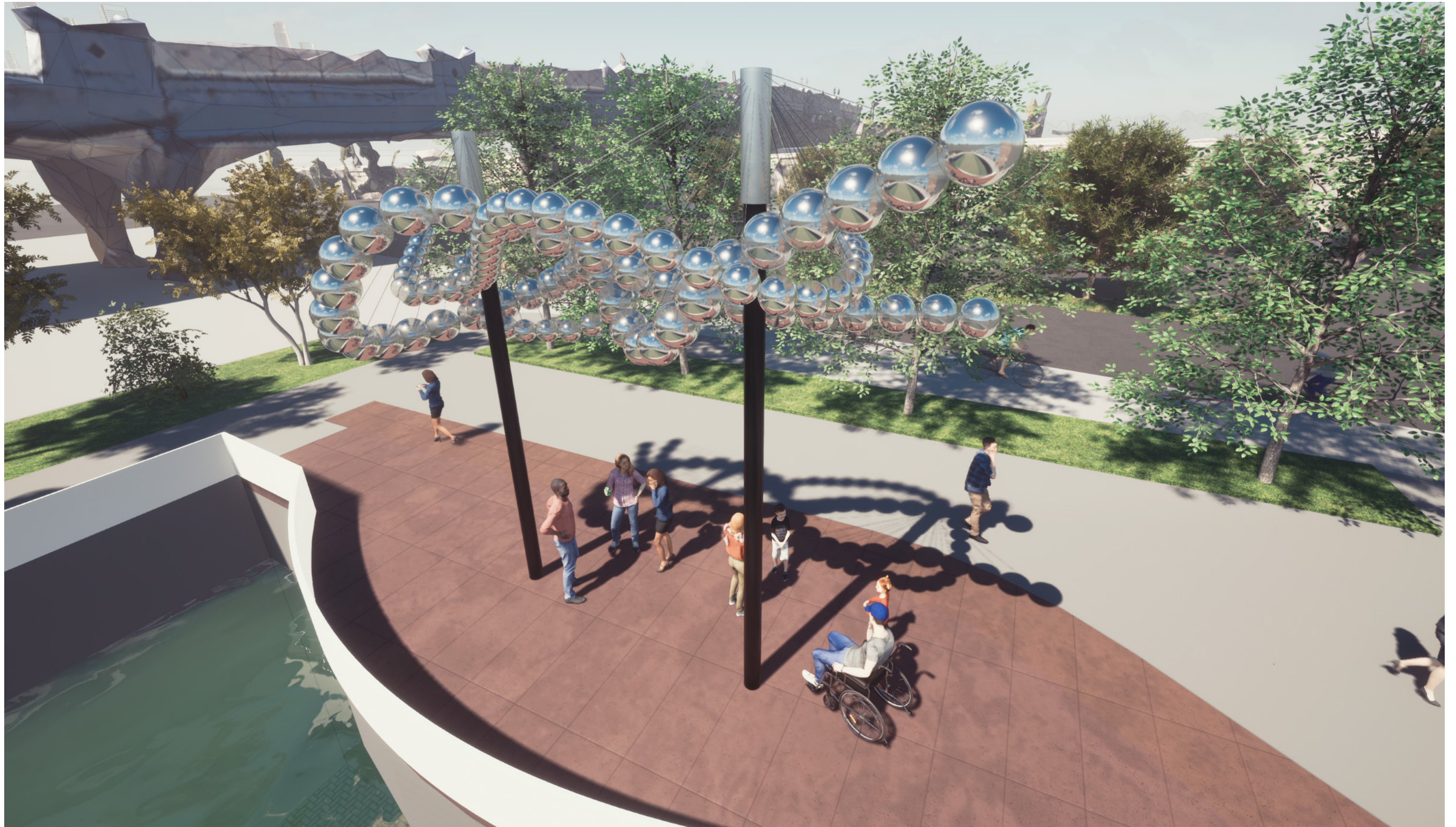
Centroid direction-ally milled holes to ensure all cables are straight and not bent. The same processes will be used to ensure the longevity of the 2 "top caps" for *Weave's Knot - Sheet Bend*

* 300+ directional holes milled from a solid block of 316L SS



* Cover plate not shown

***Cradle* - final engineered cable holder - "aka top caps"**



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April, 2020

Delaware River Trail Sculpture
Philadelphia, PA.

Support Poles - 2 Optional process coating to project against the elements and vandalism.

1.A



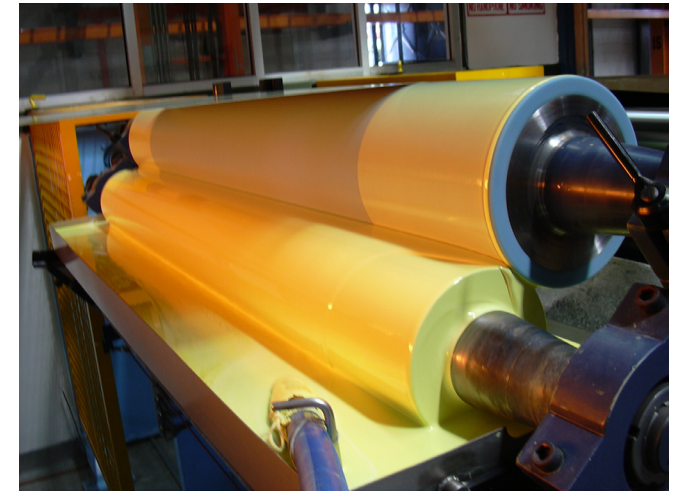
10" Diameter Support Poles - HDG Steel
Hot-dip galvanizing is a process of applying a protective zinc coating by dipping product in bath of molten zinc. Galvanizing is a favored method of protective coating due to its low cost, ease of application, and long maintenance-free service life. More detailed information in the Materials Cut Sheets at the end of this presentation. Pg 6

1.B



High Performance Paint aka Tnemec Paint
Please see full details in the Materials Cut Sheets section. Pg 7-9

2



Thermoplastic is a thicker and more durable than powder coating that has become more widely used in recent years as costs associated with their production have fallen.

Thermoplastic coatings perform at the absolute highest level and ensure that outdoor site furniture will last for years and require very little maintenance.

This strong and flexible coating is often used on bench seats and backs as well as on picnic tabletops because of its thicker, softer coating, and superior durability.

To save on cost, benches or tables coated with thermoplastics can be paired with a powder coated metal frame. Because frames often receive less wear and tear, and are less exposed to the elements there is less need for the thicker more durable thermoplastic coating.

Thermoplastics are resistant to chipping, and any tears or cuts to that do occur can be easily repaired using a heat gun, whereas traditional powder coatings require more intensive repairs.

Thermoplastics are also extremely resistant to corrosion and exposure to chemicals and their slick surface repels mold or other organic material that attempt to cling to it.

Thermoplastics feature UV inhibitors that ensure that all tables and benches coated in it will maintain their bright color and pristine finish for many years to come. The plastic coating also helps keep benches and picnic tables cool on sweltering summer days.

https://www.axalta.com/thermoplasticcoatings_global/en_GB/success-stories.html

Please see case studies at the end of the presentation. Pg 10-11



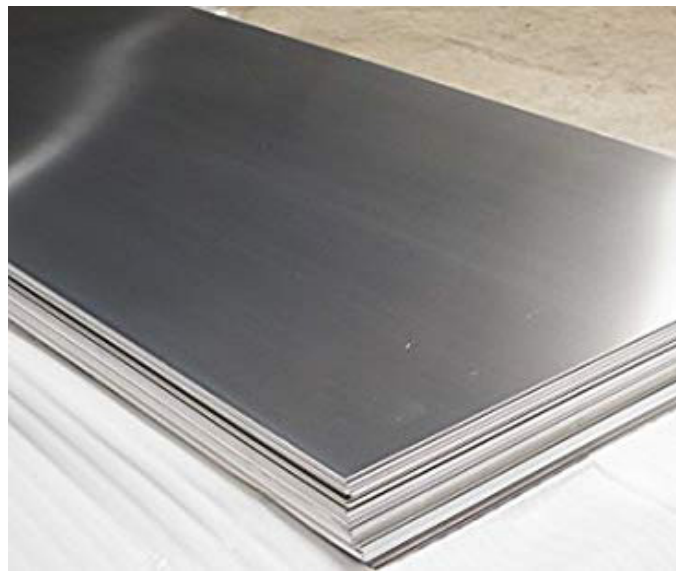
316 L Stainless Spheres Ranging in Diameter



316 L Stainless Fittings, Swags and Studs



316 L Stainless Wire Rope



316 L Stainless Sheet for Tab Connectors



316 L Stainless Tube / Top Connector



10" Diameter Support Poles - Mild - HDG Steel

IMS Metals

<https://www.industrialmetalsupply.com/>
316L Stainless Steel Sheet, Wire Rope,
and Tube

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April, 2020

Delaware River Trail Sculpture
Philadelphia, PA.

Material Overview

Routine Maintenance:

For 316L Stainless Steel: The surface of the stainless steel should naturally repel dirt and stains, but they may accumulate over time.

First try a low-pressure spray of water, and if ineffective, a spray mixture of water and mild neutral soap. Work your way from the top of the art piece to the bottom with a micro fiber rag. Lastly try appliance grade stainless steel spray. Diagram 1

It is recommended that the artwork is cleaned at least once per year using a scissor lift and work from top down on both sides with a water high pressure washer.

Stainless steel surfaces are sensitive to strong acidic or alkaline cleaners such as Bleach, Tile Cleaners, CLR, Vinegar, or Masonry Cleaners and as such these should not be used. They may cause the Stainless Steel to corrode or discolor prematurely.

Long Term Conservation:

The Artwork is made of 316L Stainless Steel. 316L Stainless steel lasts for several decades without a significant loss of vibrancy. 316L Stainless steel is also naturally resistant to oxidation that would weaken it structurally.

Support poles are made of galvanized steel and high performance paint or thermal coated are both a favored method of protective coating due to its long maintenance-free service life.

Recommend Inspection Frequency:

After installation, for the first 6 months inspect every month. Then inspect every 6 months for the duration of the artwork.

Specifically inspect the connection hardware for unthreading of documented tightness. Also inspect cables for any potential sagging. Specs for tightness will be given upon handing over of artwork based on engineering documentation.

To ensure the long-term safety of this installation, it is critical to periodically inspect that all fasteners are in place, and that all nuts, cables, and other connection hardware remain tight and intact. Any damaged or missing attachment hardware should be repaired or replaced immediately by qualified personnel.

A deep cleaning will not be necessary if you follow the above guidelines.

Additional Considerations:

Graffiti:

1. Graffiti should be removed within 24 hours of application. Periods longer than 24 hours will increase the difficulty of removal and the likelihood of damaging the stainless steel surface.
2. Micro fiber cloth should be used to avoid scratching or damaging the sculpture. Diagram 1
3. Mild, non-abrasive solvents such as mineral spirits should be tested first in a non-conspicuous part.
4. Should a stronger solvent be needed, more aggressive solvents such as lacquer thinner, or Matthews Paint reducers can be applied. **TEST FIRST ON A SEPARATE PIECE OF STAINLESS. DO NOT USE IF ANY FADING OF FINISH HAPPENS,** Give it ten minutes after applying to see final result.
5. When removing graffiti, start at the top and gently move downward. Repeat this process as many times as needed to remove the graffiti.
6. Excess rubbing or pressure should be avoided in any one spot to avoid damaging the stainless steel surface.

Bird Nests:

Complete visual checks to identify any birds nests on the sculpture. Although unlikely, should a birds nest be found, contact animal control or a pest removal service to properly address bird nest removal.

Low Pressure hand pump spray bottle for cleaning Using mild soap and micro fiber rags. Lastly try appliance grade stainless steel spray.



