The Woven Path

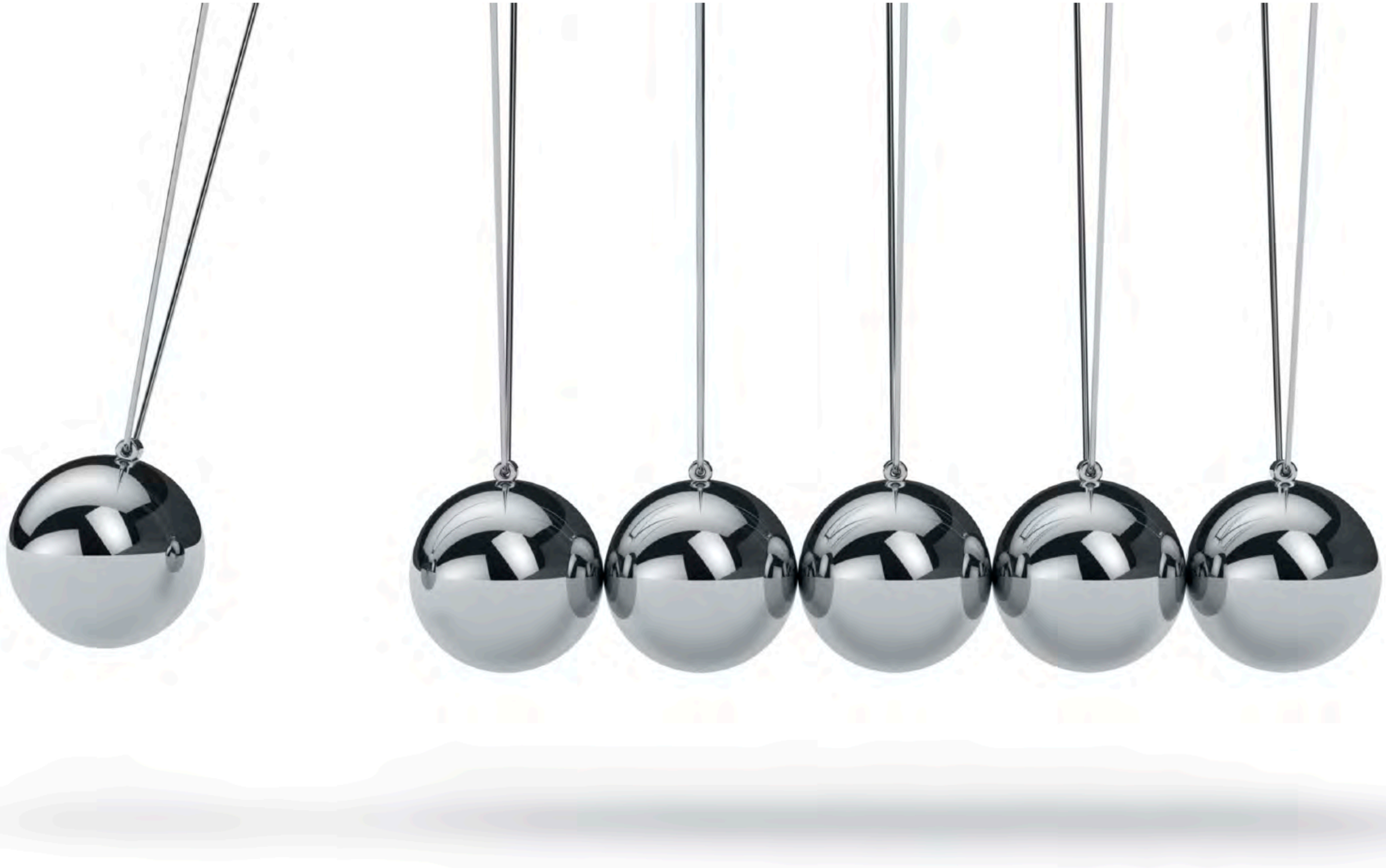
(working title)

Lexington Public Artwork Proposal
Robert Stephens Courthouse Plaza

May 2024

Previous Work

This project relates to another sculpture titled *Cradle* from 2010. Installed in Santa Monica, California.



A Newton’s cradle, the inspiration for the piece, is a device that demonstrates conservation of momentum and energy using a series of swinging spheres and is named after Sir Isaac Newton.

Cradle is made of durable 316 mirrored stainless steel that has withstood years of salty coastal air and harsh sunshine. It requires little maintenance yet remains in beautiful condition today.


EXIT

Concept

The Woven Path (working title)

The Woven Path welcomes citizens of Lexington as a poignant symbol of unity and connection, inviting viewers to contemplate what binds us together as members of a community. It is a lacework of dynamic curves crafted from strings of mirror-polished stainless-steel spheres and supported by an array of thin wire ropes that form an abstract geometric composition.

Passages can be powerful symbols of transition and connection, reminiscent of the iconic Gateway Arch in St. Louis or the Gateway of India in Mumbai. This sculpture is an open passageway that invites viewers to traverse the space beneath it. It stands as a monument framed by the sky. At the heart of The *Woven Path* is a motif of interlacing lines. Like intersecting pathways or roads, these represent the diverse journeys and shared experiences of people of all walks of life who use Main Street each day by car, bike, or on foot. Like knotted threads of a tapestry converging and diverging, they represent a weaving together of cultures and aspirations of those who pass beneath.

The weaving image is a poignant metaphor across cultures. Weaving symbolizes unity and connection and embodies themes of reconciliation and longevity. In America, it often represents commitment and strength. These are just a few examples, but from whatever cultural perspective one looks, they will find positive meanings associated with the form of this piece.

While some citizens of Lexington will see the pathways and weaving that are described above, it is not my aim to firmly fix the meaning of the project for the viewer but to allow each to compose their own narrative. Some may see roadways and fences rolling over Kentucky hills. What is important to me is that the work is a playground for the mind, a place for each person who encounters the work to engage their imagination and momentarily escape the hustle and bustle of city life.

The material of the artwork contributes to its enigma by inviting the participation of the viewer. As viewers walk beneath it, their own reflections greet them, dancing across the shining surfaces of the spheres. Each sphere acts as an anamorphic mirror that captures and reflects the space of Main Street. The reflections serve as another poignant reminder of our interconnectedness, inviting viewers to see themselves and others in the artwork itself. Through its form and evocative symbolism, *The Woven Path* celebrates the diverse tapestry of the Lexington community.

Thin cables individually suspend each sphere from three poles extending above the curves. In aggregate, the cables give a sense of lightness, delicacy, and ascent. This technique relates to another sculpture titled *Cradle* (see images in the proposal deck) from 2010. A Newton's cradle, the inspiration for the piece, is a device that demonstrates conservation of momentum and energy using a series of swinging spheres and is named after Sir Isaac Newton. Installed in Santa Monica, California, *Cradle* is made of durable 316 mirrored stainless steel that has withstood years of salty coastal air and harsh sunshine. It requires little maintenance yet remains in beautiful condition today.

The Woven Path invites viewers to take a journey of introspection and connection with fellow citizens. It reminds us of the importance of embracing our differences and celebrating our shared humanity. Its curved threads embrace the people below it. Each citizen is reflected, bound to their neighbor, person to person, woven together, one weave at a time.

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Gateway Arch, Gateway of India, Brandenburg Gate

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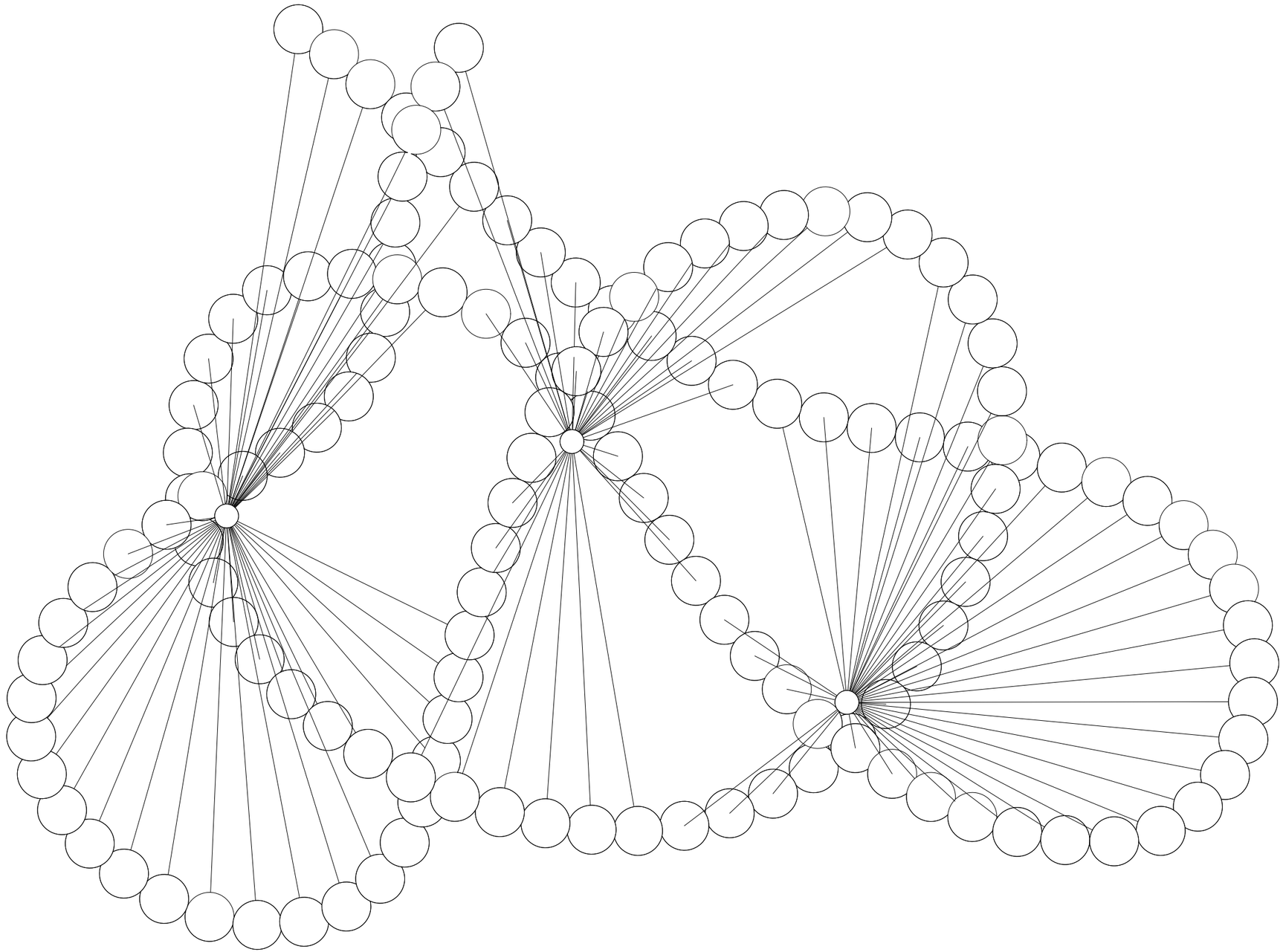
Please Play Movie File:

1_BNS_The Woven Path



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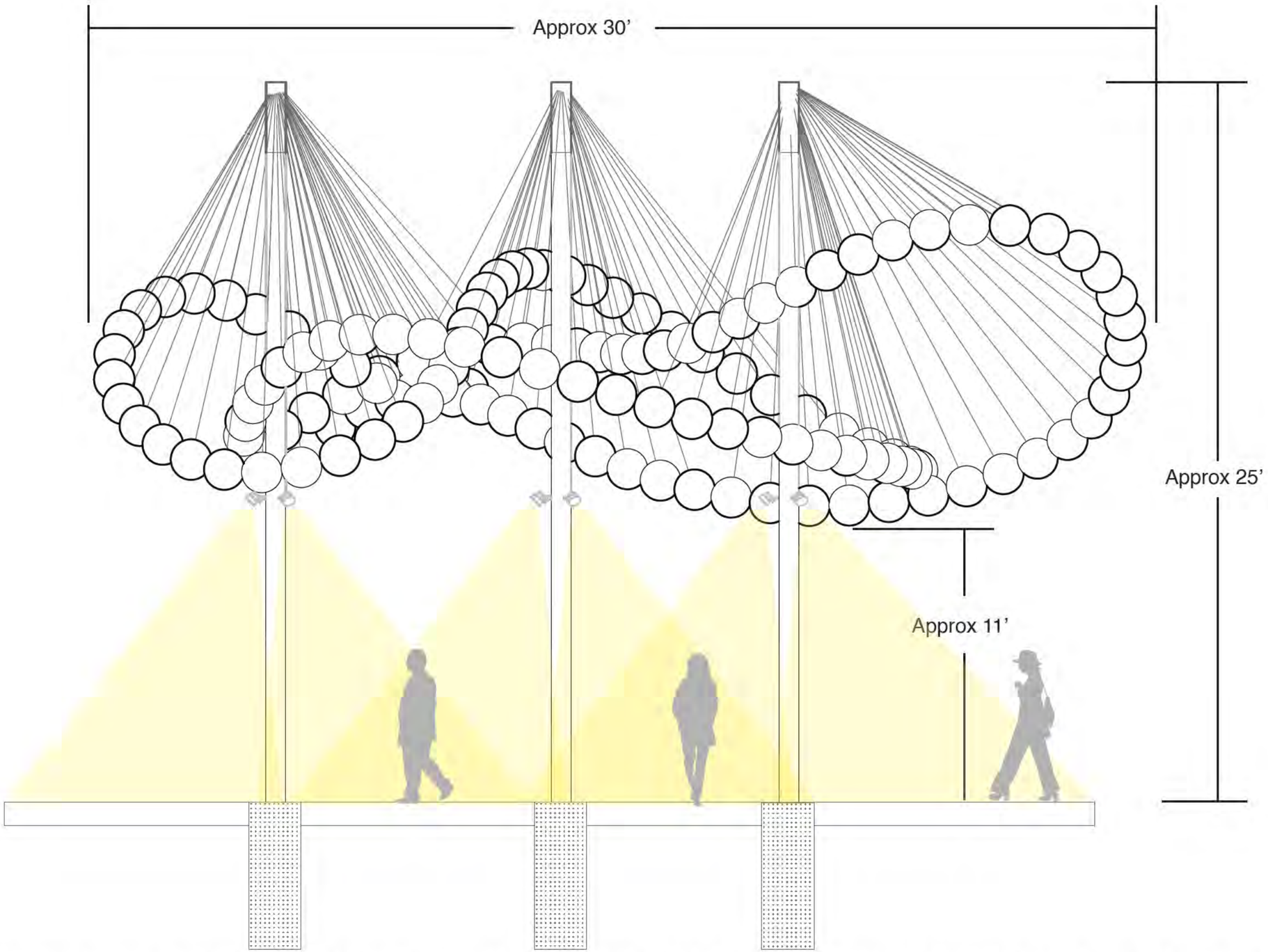
Please Play Movie File:

2_BNS_The Woven Path



Thin cables individually suspend each sphere from three poles extending above the curves. In aggregate, the cables give a sense of lightness, delicacy, and ascent. With the lowest point at 11 foot, the art-work will remain out of reach.

Process

316 Stainless Spheres Ranging in Diameter

316 Stainless Fittings, Swags and Studs

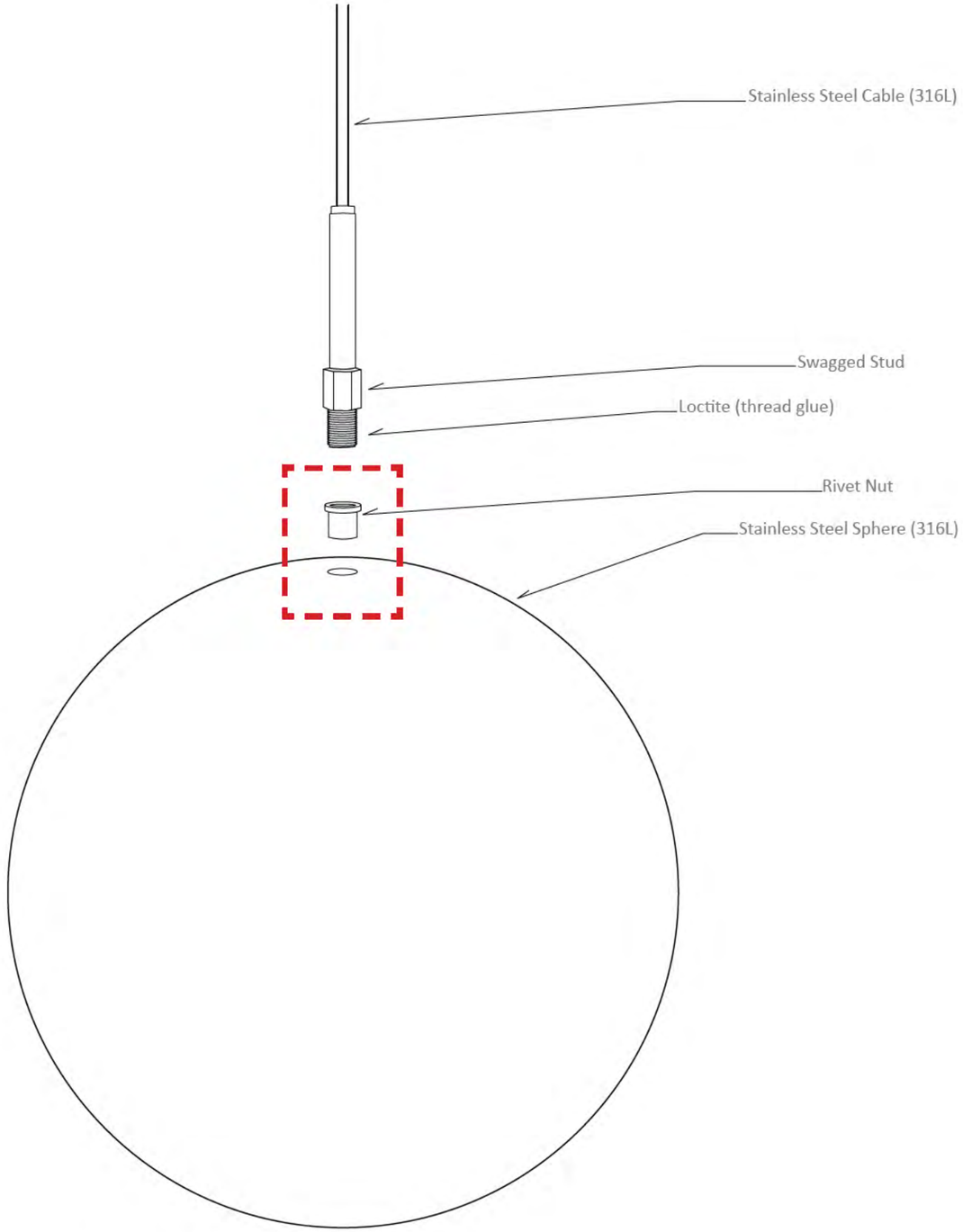
316 Stainless Wire Rope

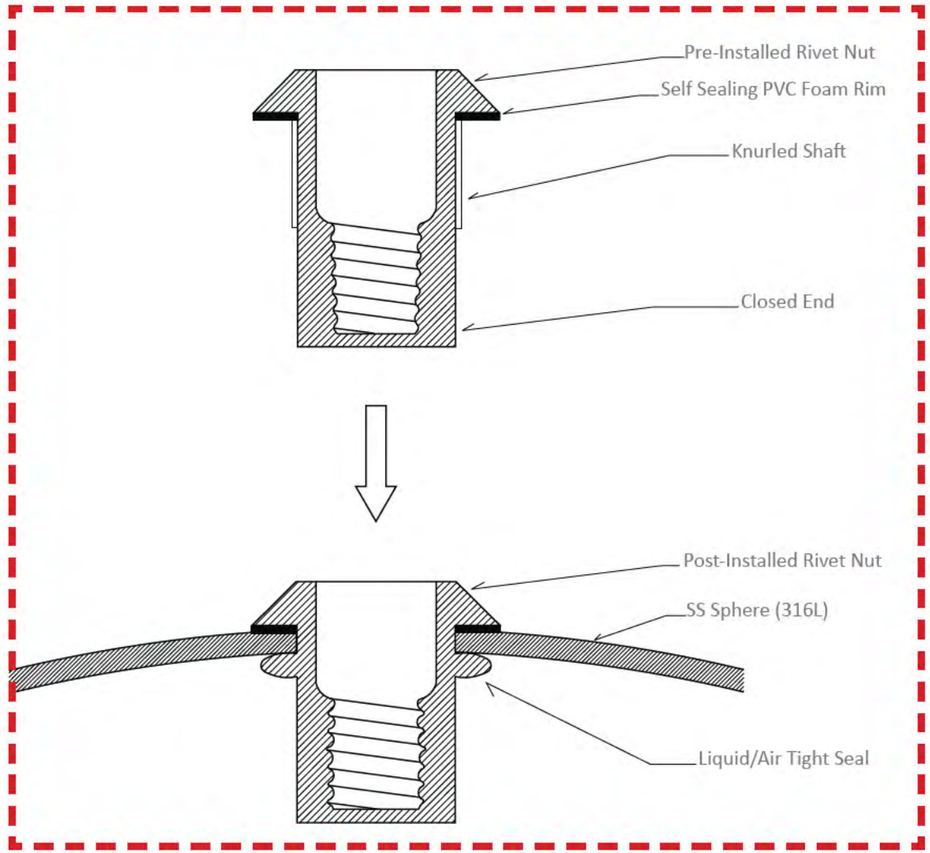
316 Stainless Tube / Top Connector

8” HSS pipe zinc primer and industrial top coat painted, Color TBD

Lighting 3 per pole

Materials overview





Assembly Detail - Cable to Sphere

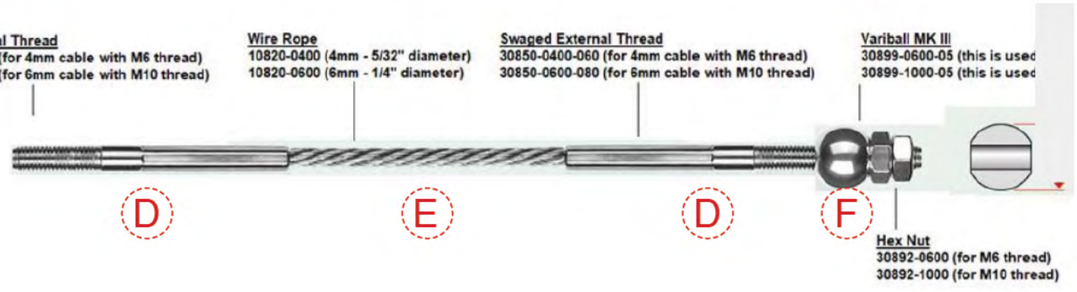
Welding Detail

Similar Falsework.

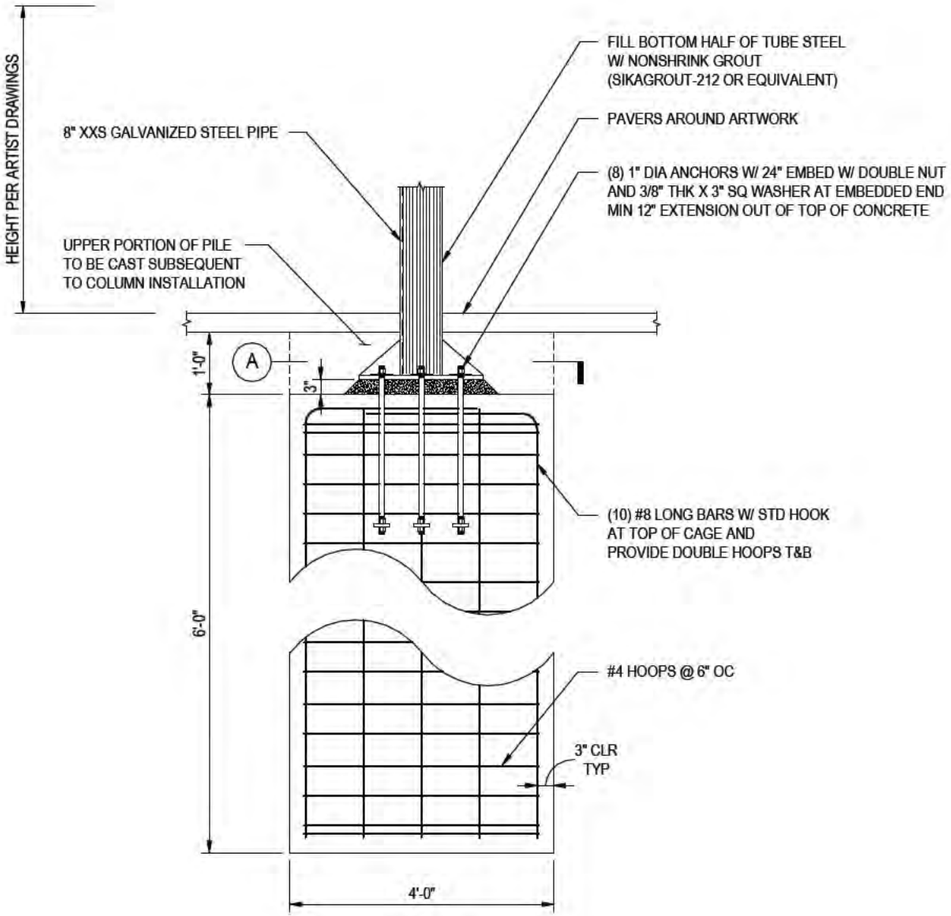
D

E

F



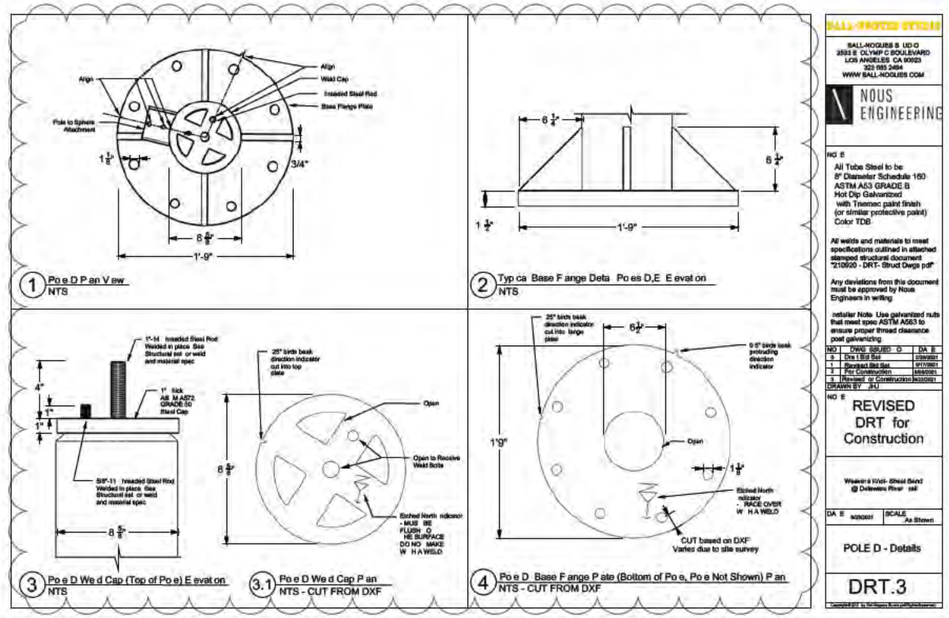
Components

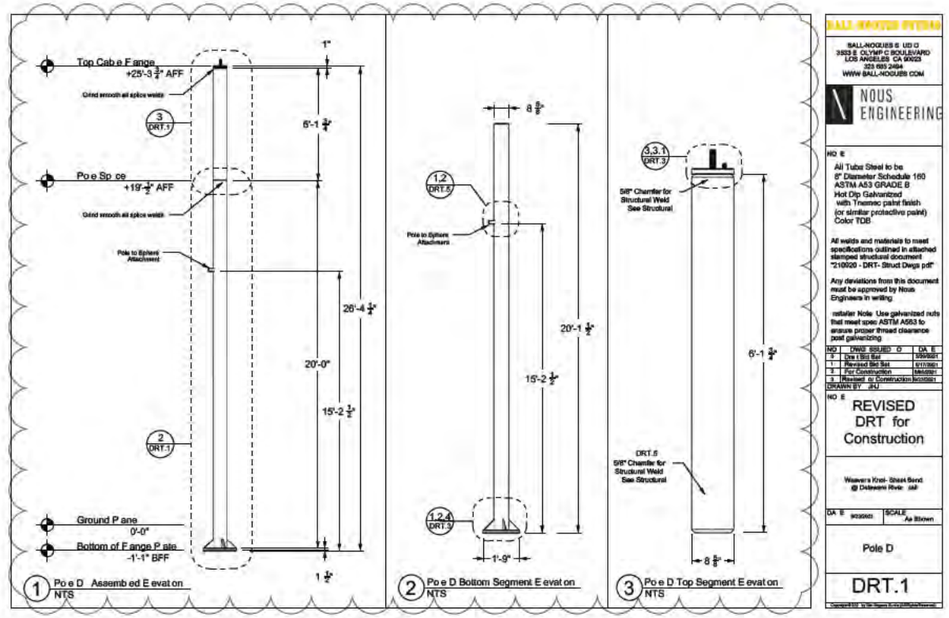


NOTES:
1. SEE ARTIST'S DRAWINGS FOR LOCATION OF SPHERE ATTACHMENT HARDWARE, BENCH HARDWARE AND HOLE FOR LIGHTS.

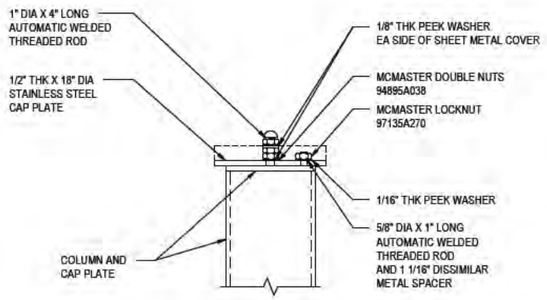
5 PILE REINFORCEMENT & ARTWORK BASE ANCHORAGE

NOT TO SCALE

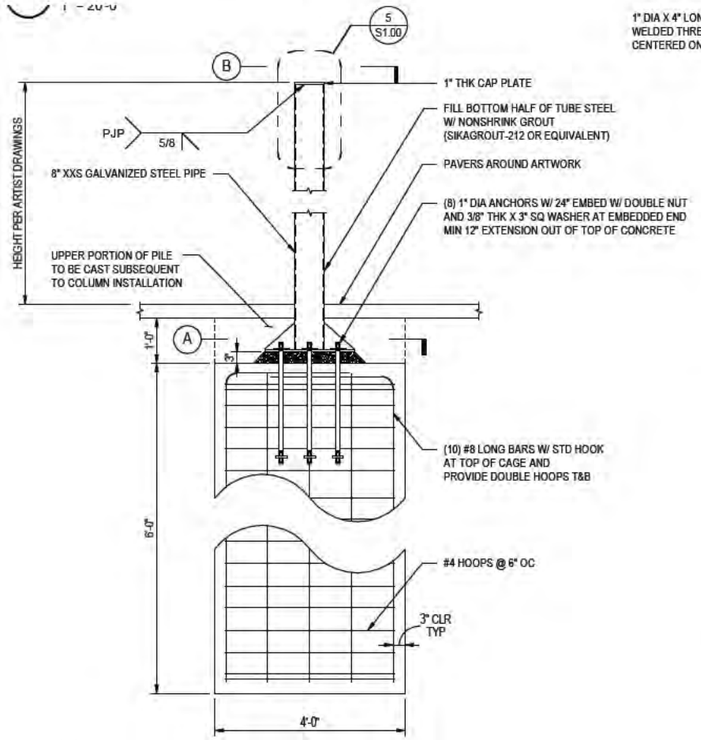




Sub-grade anchorage drawing. Drawings are representational of final pole.



5 CAP CONNECTION
NOT TO SCALE



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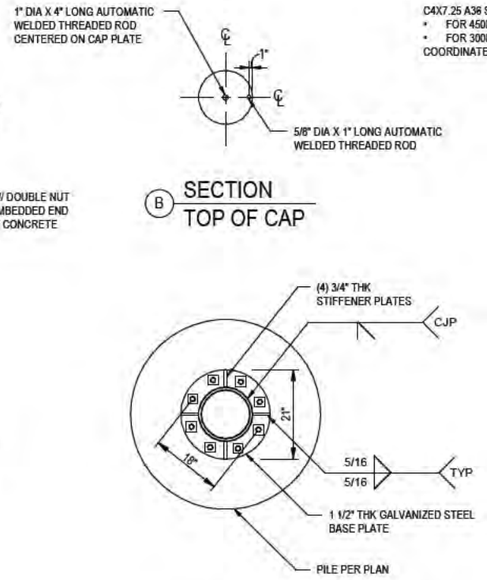
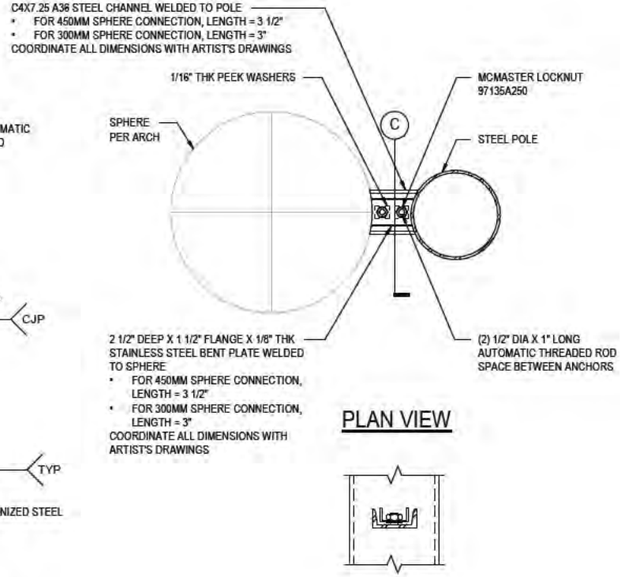
4 PILE REINFORCEMENT & ARTWORK BASE ANCHORAGE
NOT TO SCALE



B SECTION
TOP OF CAP

A SECTION



PLAN VIEW

C SECTION

NOTES:
1. SEE ARTIST'S DRAWINGS FOR LOCATION OF SPHERE ATTACHMENT.

SPHERE CONNECTION DETAIL WHERE OCCURS
3
NOT TO SCALE

Drawings showing artwork connections to pole. Representational of means and method.

Routine Maintenance:

For 316 stainless steel: the surface of the should naturally repel dirt, but it 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.

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 316 stainless Steel and will last for several decades without a significant loss of vibrancy. 316 Stainless steel is also naturally resistant to oxidation that would weaken it structurally.

Support poles are made of HHS zinc primered and high performance paint, a favored method of protective coating due to its long maintenance-free service life.

Additional Considerations:

Graffiti:

1. Graffiti should be removed as soon as possible.

2. Micro fiber cloth should be used to avoid scratching or damaging the sculpture.

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.

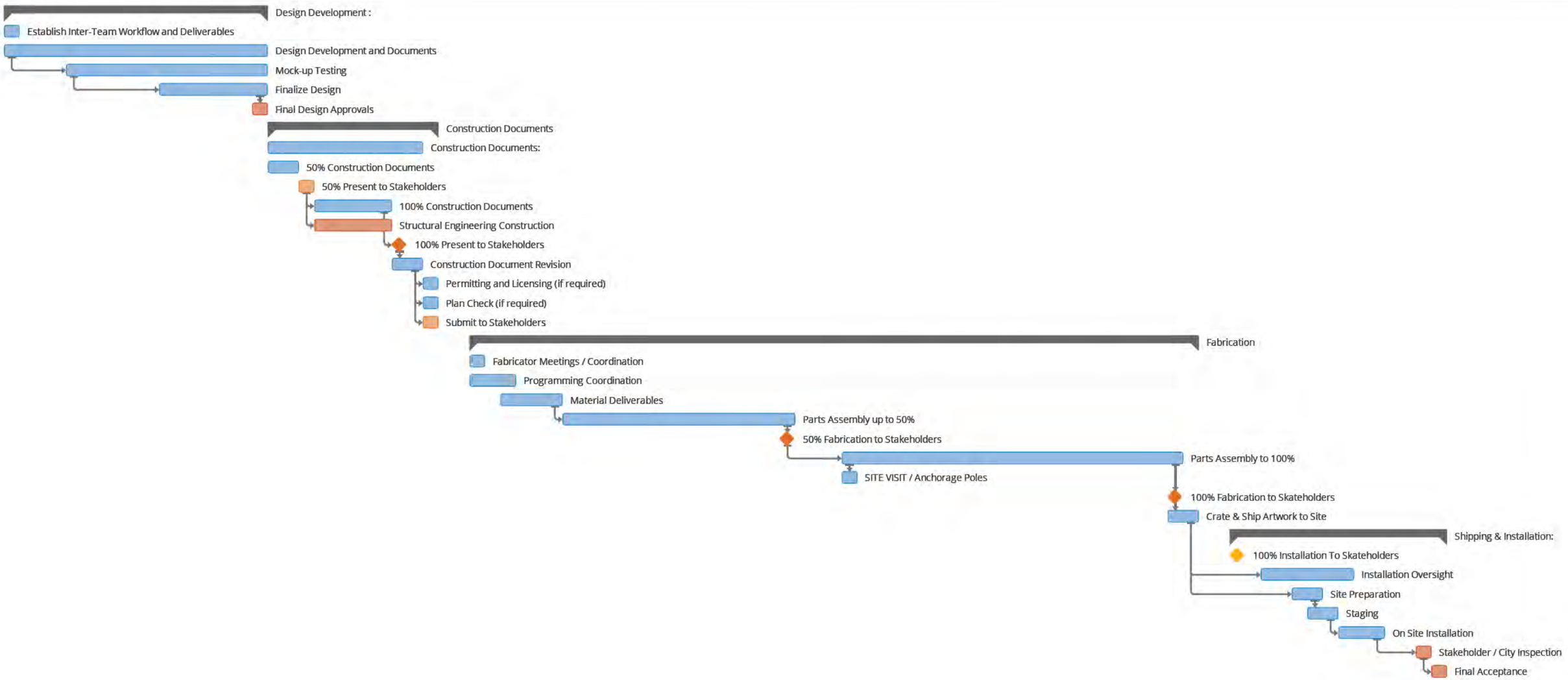
Low Pressure hand pump spray bottle for cleaning Using mild soap and micro fiber rags. Lastly try appliance grade stainless steel spray.

Timeline dependent on executed contract and receipt of payment

Executed Contract

June 2024

Month 14



Lexington Public Artwork
Robert Stephens Courthouse Plaza - Prelimary Budget

$750,000

GENERAL EXPENSES

Modeling, Drafting, and Management – Senior PM Staff, Modeling, Drafting, Admin	$25,000
Professional Consultant Fees - Engineer, Conservator	$15,000
Expenses - Travel	$20,000
Insurance (WC, liability, business auto, umbrella) Fine Art Insurance	$22,000
Documentation – Full Scale Mock Up, Models (Digital & or Physical), Shop Drawings	$3,500

DESIGN FEE

Oversight during Design Development, Meetings, Fabrication and Installation	$112,500

FABRICATION

Labor – Senior PM Staff, Shop Tech, Subcontractors, Welders,	$182,000
Materials – 316ss Spheres, 316ss Plate, 316ssCable, Hardware, Lighting Instruments	$168,500
Space Rental and Storage – If additional space is needed	$25,000
Tools and Equipment Purchases and Rental	$8,500

INSTALLATION

Shipping	$25,000
Installation Labor – Senior Staff, Shop Tech, Subcontractors,	$35,000
Site Preparation – Landscape / Hardscape Protection	$8,000
Equipment Rental	$25,000

CONTINGENCY 10%

$75,000

Total Budget $750,000

BNS Hourly Rates 1/2024

[redacted])	$215	Senior Designer	$143	Designer	$110
Senior PM Staff	$182	Shop Tech	$83	Admin	$72

***There is an additional $100,000 allowance for site prep for the project. And additional $50,000 will be designated to support future conservation and maintenance of the artwork.**

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Cradle

Santa Monica

Maintenance schedule and current visual documentation.

Statement from Santa Monica Public Art

From: Naomi Okuyama <Naomi.Okuyama@smgov.net>
Sent: Thursday, April 23, 2020 12:08 PM
To: james@ball-nogues.com <james@ball-nogues.com>
Cc: joyce.locke@smgov.net; Allison Ostrovsky <Allison.Ostrovsky@SMGOV.NET>
Subject: Re: Cradle Project

Ah, we don't have those departments – for Public Art it's just myself. I reached out to Malina and our current Public Art consultant Lesley, and am waiting to hear back from Lesley. Malina has been gone from the job now for five+ years and she said that in its first five years there was no maintenance. If we had any other specifics they would be buried in paper files, which are un-reachable at the moment.

Malina let me know that Macerich did a power washing and painting of the wall behind it in 2012. We looked into doing a very light conservation of the balls at that time, it looks like we may have gotten a quote from a company to do a bristle brush cleaning, but ended up not doing it because they were in good shape.

It is probably time for us to contract with someone to do a cleaning, but I'm afraid in the current climate it may take a while. We would look for a company to do a light bristle brush treatment with soap and deionized water, and then go in deeper if needed.

I'm sorry I couldn't be more helpful, I can write you something to the effect that they were so well made that they haven't needed any conservation, but I am sure regular maintenance would be ideal.

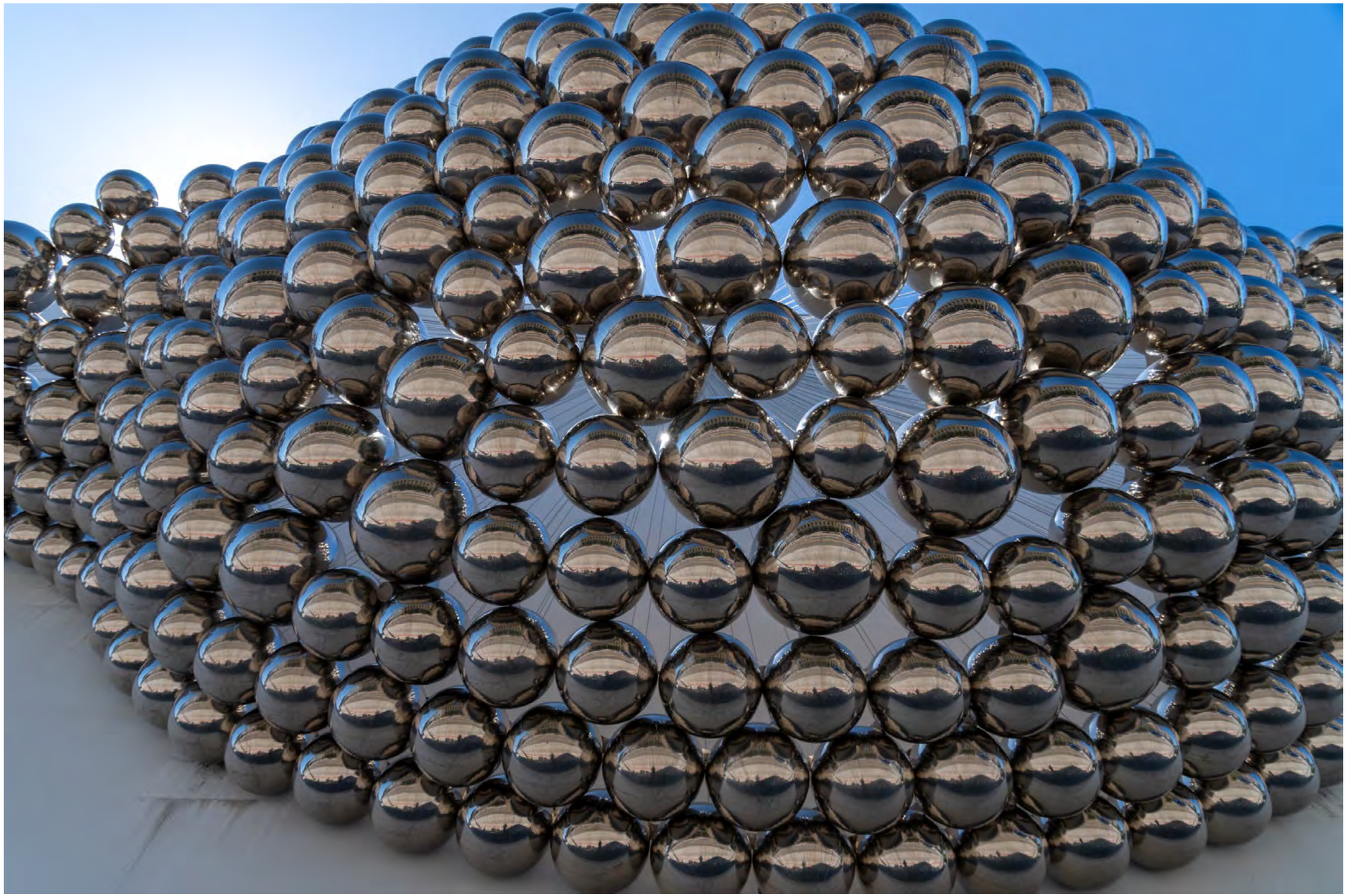
Naomi

Statement from Ball-Nogues Studio

- *Cradle* artwork has performed above and beyond anyone's expectations. It has required no maintenance in ten years.
- We used the highest grade stainless steel (316) available to us. I should note that mirror polished stainless is more corrosion resistant than textured stainless because there is very little surface texture to hold contaminants.
- Because it was subject to salty ocean air, for *Cradle,* we chose 316 stainless for the spheres and every single component including cables, stud swags, rivet nuts, welding rod, etc.
- The entire piece was electro-polished by hand – each and every weld was polished to prevent corrosion and match the polish of the spheres.
  This was our first outdoor work and consequently we were particularly careful in designing, engineering, and constructing it and that same care and the same practices will be carried out here.
- As with Cradle , during our time on site, we will leave our scaffolding or lift in place for a few extras day to enable us to check whether there is any settling in the spheres or the cables need fine tuning. We did this for *Cradle* during installed that was the ONLY time in ten years tuning was necessary.
- Because we design but also build these pieces, our reputation is on the line when we leave a site. We have a great deal of pride in our craftsmanship and engineering which translates into the longevity work. I wouldn't want to design something unless I knew it would hold up over time without the intervention of the owner.

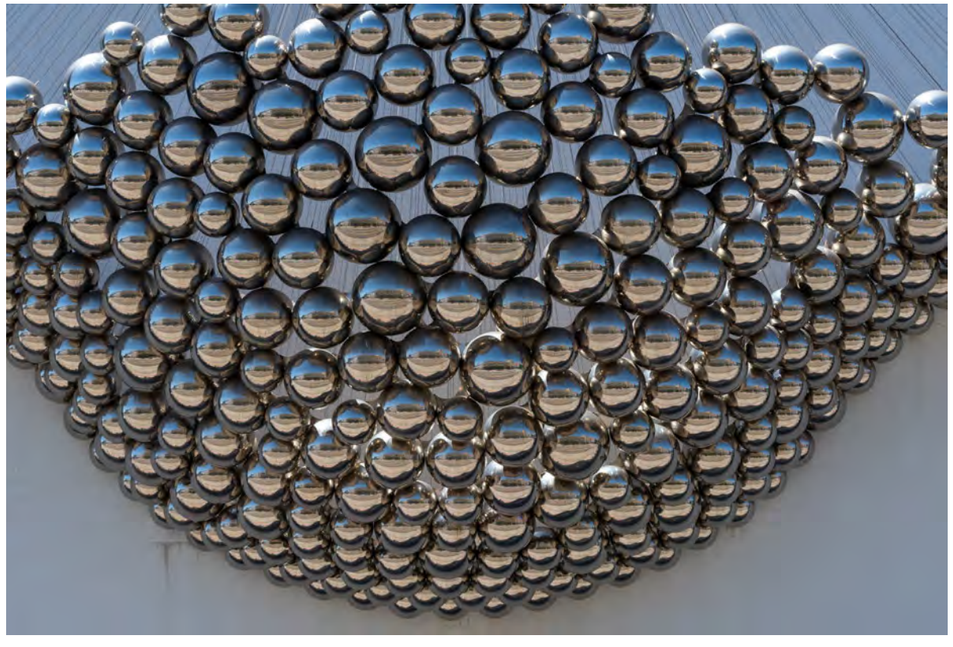
11/2010

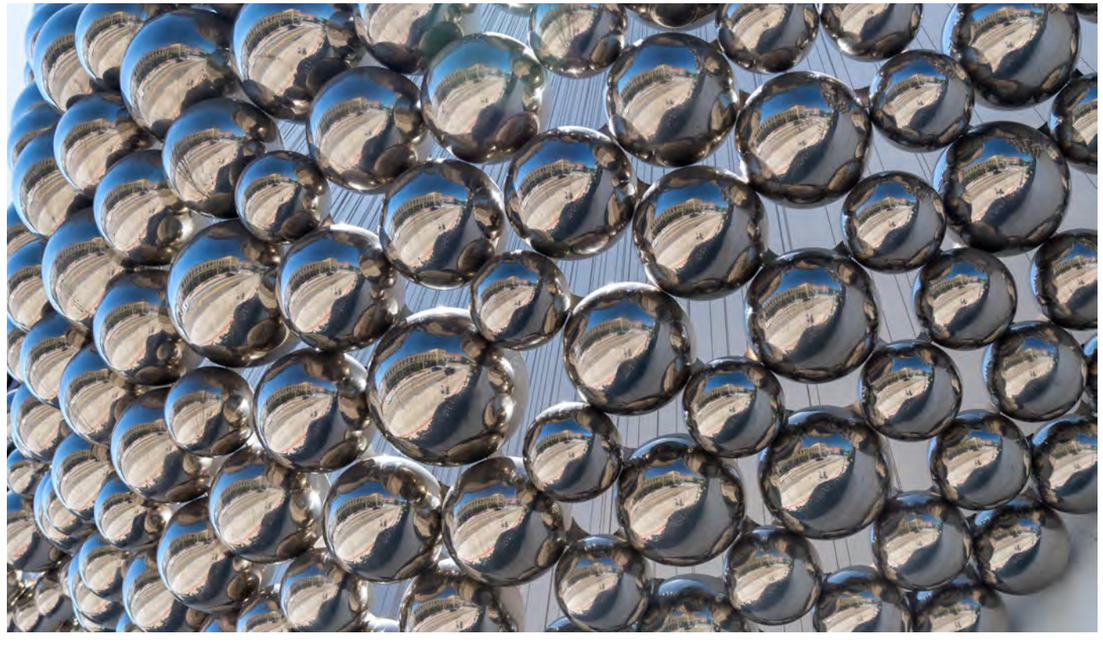
4/2020



4/2020

4/2020





Materials Cut Sheets

Specification Sheet: Alloy 316

(UNS S31600, S31603) W. Nr. 1.4401, 1.4404

An Austenitic Stainless Steel Containing Molybdenum Which is More Corrosion Resistant than the Conventional 304/304L Stainless Steel

Alloy 316/316L (UNS S31600/ S31603) is a chromium-nickel-molybdenum austenitic stainless steel developed to provide improved corrosion resistance to Alloy 304/304L in moderately corrosive environments. It is often utilized in process streams containing chlorides or halides. The addition of molybdenum improves general corrosion and chloride pitting resistance. It also provides higher creep, stress-to-rupture and tensile strength at elevated temperatures.

It is common practice for 316L to be dual certified as 316 and 316L. The low carbon chemistry of 316L combined with an addition of nitrogen enables 316L to meet the mechanical properties of 316.

Alloy 316/316L resists atmospheric corrosion, as well as, moderately oxidizing and reducing environments. It also resists corrosion in polluted marine atmospheres. The alloy has excellent resistance to intergranular corrosion in the as-welded condition. Alloy 316/316L has excellent strength and toughness at cryogenic temperatures.

Alloy 316/316L is non-magnetic in the annealed condition, but can become slightly magnetic as a result of cold working or welding. It can be easily welded and processed by standard shop fabrication practices.

Standards

ASTM ..... A 240
ASME ..... SA 240
AMS 5524/5507
QQ-S 766

Applications

- Chemical and Petrochemical Processing—pressure vessels, tanks, heat exchangers, piping systems, flanges, fittings, valves and pumps
- Food and Beverage Processing
- Marine
- Medical
- Petroleum Refining
- Pharmaceutical Processing
- Power Generation—nuclear
- Pulp and Paper
- Textiles
- Water Treatment

Chemical Analysis

Weight % (all values are maximum unless a range is otherwise indicated)

Element	316	316L
Chromium	16.0 min.–18.0 max.	16.0 min.–18.0 max.
Nickel	10.0 min.–14.0 max.	10.0 min.–14.0 max.
Molybdenum	2.00 min.–3.00 max.	2.00 min.–3.00 max.
Carbon	0.08	0.030
Manganese	2.00	2.00
Phosphorous	0.045	0.045
Sulfur	0.03	0.03
Silicon	0.75	0.75
Nitrogen	0.1	0.1
Iron	Balance	Balance

Physical Properties

Density
0.285 lbs/in^3
7.90 g/cm^3

Specific Heat
0.11 BTU/lb-°F (32–212°F)
450 J/kg-°K (0–100°C)

Modulus of Elasticity
29.0 x 10^6 psi
200 GPa

Thermal Conductivity 212°F (100°C)
10.1 BTU/hr/ft^2/ft/°F
14.6 W/m-°K

Melting Range
2450–2630°F
1390–1440°C

Electrical Resistivity
29.1 Microhm-in at 68°F
74 Microhm-cm at 20°C

Mean Coefficient of Thermal Expansion

Temperature Range °F	Temperature Range °C	in/in/°F	cm/cm °C
68–212	20–100	9.2 x 10^{-6}	16.6 x 10^{-6}
68–932	20–500	10.1 x 10^{-6}	18.2 x 10^{-6}
68–1832	20–1000	10.8 x 10^{-6}	19.4 x 10^{-6}

Mechanical Properties

At Room Temperature

	Typical*	ASTM Type 316	ASTM Type 316L
0.2% Offset Yield Strength, ksi	44	30 min.	25 min.
Ultimate Tensile Strength, ksi	85	75 min.	70 min.
Elongation in 2 inches, %	56	40 min.	40 min.
Reduction in Area, %	69	—	—
Hardness, Rockwell B	81	95 max.	95 max.

**0.375 inch plate*

Corrosion Resistance

ALLOY	Composition (Weight Percent) Cr	Mo	N	PRE$_N$[1]	CCT[2] °F (°C)	CPT[3] °F (°C)
Type 304	18.0	—	0.06	19.0	<27.5 (<-2.5)	— —
Type 316	16.5	2.1	0.05	24.2	27.5 (-2.5)	59 (15.0)
Type 317	18.5	3.1	0.06	29.7	35.0 (1.7)	66 (18.9)
SSC-6MO	20.5	6.2	0.22	44.5	110 (43.0)	149 (65)

[1] *Pitting Resistance Equivalent, Including Nitrogen, PREN = Cr + 3.3Mo + 16N*
[2] *Critical Crevice Corrosion Temperature, CCCT, based on ASTM G-48B (6% FeCl$_3$ for 72 hr, with crevices*
[3] *Critical Pitting Temperature, CPT, based on ASTM G-48A (6% FeCl$_3$ for 72 hr)*

Lowest Temperature (°F) at Which the Corrosion Rate Exceeds 5 mpy

CORROSION ENVIRONMENT	Type 316L	Type 304	2205 (UNS S32205)	2507
0.2% Hydrochloric Acid	>Boiling	>Boiling	>Boiling	>Boiling
1% Hydrochloric Acid	86	86p	185	>Boiling
10% Sulfuric Acid	122	—	140	167
60% Sulfuric Acid	<54	—	<59	<57
96% Sulfuric Acid	113	—	77	86
85% Phosphoric Acid	203	176	194	203
10% Nitric Acid	>Boiling	>Boiling	>Boiling	>Boiling
65% Nitric Acid	212	212	221	230
80% Acetic Acid	>Boiling	212p	>Boiling	>Boiling
50% Formic Acid	104	≥50	194	194
50% Sodium Hydroxide	194	185	194	230
83% Phosphoric Acid + 2% Hydrofluoric Acid	149	113	122	140
60% Nitric Acid + 2% Hydrochloric Acid	>140	>140	>140	>140
50% Acetic Acid + 50% Acetic Anhydride	248	>Boiling	212	230
1% Hydrochloric Acid + 0.3% Ferric Chloride	77p	68p	113ps	203ps
10% Sulfuric Acid + 2000ppm Cl- + N2	77	—	95	122
10% Sulfuric Acid + 2000ppm Cl- + SO2	<<59p	—	<59	104
WPA1, High Cl- Content	≤50	<<50	113	203
WPA2, High F- Content	≤50	<<50	140	167

ps = pitting can occur
ps = pitting/crevice corrosion can occur

WPA	P_2O_5	Cl^-	F^-	H_2SO_4	Fe_2O_3	Al_2O_3	SiO_2	CaO	MgO
1	54	0.20	0.50	4.0	0.30	0.20	0.10	0.20	0.70

In most applications Alloy 316/316L has superior corrosion resistance to Alloy 304/304L. Process environments that do not corrode Alloy 304/304L will not attack this grade. One exception, however, is in highly oxidizing acids such as nitric acid where stainless steels containing molybdenum are less resistant. Alloy 316/316L performs well in sulfur containing service such as that encountered in the pulp and paper industry. The alloy can be used in high concentrations at temperatures up to 120°F (38°C).

Alloy 316/316L also has good resistance to pitting in phosphoric and acetic acid. It performs well in boiling 20% phosphoric acid. The alloy can also be used in the food and pharmaceutical process industries where it is utilized to handle hot organic and fatty acids in an effort to minimize product contamination.

Alloy 316/316L performs well in fresh water service even with high levels of chlorides. The alloy has excellent resistance to corrosion in marine environments under atmospheric conditions.

The higher molybdenum content of Alloy 316/316L assures it will have superior pitting resistance to Alloy 304/304L in applications involving chloride solutions, particularly in an oxidizing environment.

In most instances, the corrosion resistance of Alloys 316 and 316L will be roughly equal in most corrosive environments. However, in environments that are sufficiently corrosive to cause intergranular corrosion of welds and heat-affected zones Alloy 316L should be used because of its low carbon content.

Fabrication Data

Alloy 316/316L can be easily welded and processed by standard shop fabrication practices.

Hot Forming
Working temperatures of 1700–2200°F (927–1204°C) are recommended for most hot working processes. For maximum corrosion resistance, the material should be annealed at 1900°F (1038°C) minimum and water quenched or rapidly cooled by other means after hot working.

Cold Forming
The alloy is quite ductile and forms easily. Cold working operations will increase the strength and hardness of the alloy and might leave it slightly magnetic.

Welding
Alloy 316/316L can be readily welded by most standard processes. A post weld heat treatment is not necessary.

Machining
Alloy 316/316L is subject to work hardening during deformation and is subject to chip breaking. The best machining results are achieved with slower speeds, heavier feeds, excellent lubrication, sharp tooling and powerful rigid equipment.

Operation	Tool	Lubrication	CONDITIONS					
			Depth-mm	Depth-in	Feed-mm/t	Feed-in/t	Speed-m/min	Speed-ft/min
Turning	High Speed Steel	Cutting Oil	6	.23	0.5	.019	11–16	36.1–52.5
			3	.11	0.4	.016	18–23	59.1–75.5
			1	.04	0.2	.008	25–30	82–98.4
	Carbide	Dry or Cutting Oil	6	.23	0.5	.019	70–80	229.7–262.5
			3	.11	0.4	.016	85–95	278.9–312.7
			1	.04	0.2	.008	100–110	328.1–360.9
			Depth of cut-mm	Depth of cut-in	Feed-mm/t	Feed-in/t	Speed-m/min	Speed-ft/min
Cutting	High Speed Steel	Cutting Oil	1.5	.06	0.03–0.05	.0012–.0020	16–21	52.5–68.9
			3	.11	0.04–0.06	.0016–.0024	17–22	55.8–72.2
			6	.23	0.05–0.07	.0020–.0027	18–23	59–75.45
			Drill ø mm	Drill ø in	Feed-mm/t	Feed-in/t	Speed-m/min	Speed-ft/min
Drilling	High Speed Steel	Cutting Oil	1.5	.06	0.02–0.03	.0008–.0012	10–14	32.8–45.9
			3	.11	0.05–0.06	.0020–.0024	12–16	39.3–52.5
			6	.23	0.06–0.09	.0031–.0035	12–16	39.3–52.5
			12	.48	0.09–0.10	.0035–.0039	12–16	39.3–52.5
					Feed-mm/t	Feed-in/t	Speed-m/min	Speed-ft/min
Milling Profiling	High Speed Steel	Cutting Oil			0.05–0.10	.002–.004	10–20	32.8–65.6

ZincGard® 1500

Epoxy Zinc-Rich

Features

- High load epoxy zinc primer
- Provides excellent galvanic protection
- Meets Class "B" slip co-efficient and creep resistance criteria for use on bolted connection faying surfaces
- Excellent undercutting resistance
- VOC compliant
- Easy to topcoat
- Rapid and extended recoat windows
- Excellent adhesion to hand tool cleaned surfaces (SSPC-SP 11)

Typical Uses

ZincGard 1500 epoxy zinc rich primer is a rapid recoat primer that provides excellent corrosion protection and undercutting protection.

Excellent for use in industrial, coastal, marine and freshwater environments. May be used on structural steel, steel tanks, offshore platforms, barges refineries, petrochemical plants, power plants, railcars, pulp & paper mills and other areas as recommended. May also be used to field touch-up inorganic zinc and/or provide galvanic protection for properly prepared steel substrates.

Qualifications

ZincGard 1500 meets Class "B" requirements for slip co-efficient and creep resistance as set forth in the Specification for Structural Joints using A325 or A490 Bolts, in accordance with Research Council on Structural Connections, Appendix A.

Exceed requirements of SSPC-PS 12.00

Performance Data

Salt Spray (ASTM B 117) 7200 hours
Plane blistering or rusting: none

Physical Data

Abrasion Resistance (ASTM D 4060)	
1 kg. Load, 1000 cycles	weight loss
CS 17 wheel	225 mg
Impact Resistance (ASTM D 2794)	
Direct impact	80 in-lbs.
Temperature resistance (dry)	
Continuous	250°F
Non-continuous	300°F
Adhesion (ASTM D 4541)	3912 psi
Theoretical volume solids of mixed material (ASTM D 2697)	66% ±1%
Theoretical coverage of mixed gal. (1 mil)	1060 sq. ft
Volatile Organic Content	
Unthinned	2.4 lbs./gal.
Reducer 1 @ 1 pint/gal.	3.3 lbs./gal.
Reducer 2 @ 1 pint/gal.	3.3 lbs./gal.
Zinc in dry film	80%

Resistance

ZincGard 1500 prevents rusting of steel in a corrosive environment with a pH range of 5 to 9. Topcoats should be used for pH beyond these limits. When topcoated, ZincGard 1500 effectively reduces undercutting from a damaged area. The following is a guide to the proper selection:

Exposure	Immersion	Splash & Spillage	Fumes
Acidic	NR	Good*	Excellent*
Alkaline	NR	Good*	Excellent*
Solvents	NR	Good*	Excellent*
Salt water	Excellent*	Excellent*	Excellent*
Water	Excellent*	Excellent*	Excellent*

NR=Not Recommended
*With suitable topcoat

Film Thickness (per coat)

Dry film thickness: 2 to 4 mils
Wet film thickness: 4 to 6 mils
Theoretical Coverage: 353 sq. ft. @ 3 mils

Substrates

ZincGard 1500 is applied directly to properly prepared steel as the primer. Direct contact with the steel substrate is required to provide optimal galvanic protection to the underlying steel surface.

Topcoats

ZincGard 1500 is an easy to coat primer using either an epoxy or urethane. EpoxyGrip 2000 is the recommended epoxy topcoat for a two-coat application. EpoxyGrip 2100 can be used as an intermediate coat when added protection is required. UreGrip 3300 is recommended as a direct topcoat to ZincGard 1500. UreGrip 3000 is recommended as the final coating over the epoxy or urethane intermediate when a high gloss finish is desired.

Color

ZincGard 1500 is supplied as a yellow Part A, which, when mixed with the zinc dust, produces a dark green color contrasting with gray blasted steel. The gloss is a matte finish.

Shipping Data

Packaging unit	1 gal.	5 gal.
ZincGard 1500 Part A	.36 gals.	1.8 gals.
ZincGard 1500 Part B	.36 gals	1.8 gals.
ZincGard Filler	16 lbs.	80 lbs.
Shipping weights (approx.)		
ZincGard 1500 kit	25 lbs.	125 lbs.
	1 gal.	5 gal.
Reducer 1	8 lbs.	40 lbs.
Reducer 2	9 lbs.	45 lbs.
Flash Point: (Setaflash)		
Part A	33°F	
Part B	81°F	
Reducer 1	53°F	
Reducer 2	113°F	

Shelf Life: 6 months for the Parts A and Part B with 1 years for the Zinc Filler when stored inside at 40°F to 110°F.

Surface Preparation

Remove oil and grease from the steel surface with solvent or a commercial cleaner, which does not leave a residue, according to SSPC-SP1. Abrasive blast to a Commercial finish per SSPC-SP 6 to obtain a 1-3 mil blast profile. For immersion, abrasive blast to a Near-white finish per SSPC-SP 10 to obtain a 1-3 mil blast profile. For field touch-up, prepare the substrate according to SSPC-SP 11.

Mixing

Power mix Part A and Part B components, then slowly blend ZincGard Filler into the Part A and mix until uniform. Avoid forming a dust cloud while adding powder. Do not mix partial kits.

	1 Gal. Kit	5 Gal. Kit
ZincGard 1500 Part A	.36 gallons	1.8 gallons
ZincGard 1500 Part B	.36 gallons	1.8 gallons
ZincGard Filler	16 pounds	80 pounds

Note: The Part B forms a soft crust on the surface, which is readily dispersed with power mixing. After mixing in the zinc filler, strain through a wire screen or cheesecloth.

Thinning

Thinning is not required for most applications. However, in hot windy conditions, ZincGard 1500 may be thinned up to 1 pint/gal. Reducer 1 is recommended for application temperatures below 70°F and Reducer 2 is recommended for application temperatures above 70 °F.

Pot Life

Six hours at 75° and less at higher temperatures.

Applications Conditions

	Material	Surface	Ambient
Minimum	50°F	50°F	50°F
Maximum	90°F	110°F	110°F

Special thinning and application procedures are required outside these temperatures. ZincGard 1500 should be applied to a dry surface. Surface temperature should be 5°F above dew point.

Application Equipment

Conventional Spray: Industrial sprayers such as DeVilbiss MBC gun with 2E or 704E cap, or a Binks18 gun with a 66SSx67PB nozzle setup having a double regulated pressure pot, 3/8 " I.D. minimum material hose, 50' maximum material hose length are recommended. An agitated pressure pot is recommended.
Airless Spray: Sprayer such a Graco's Bulldog with a 30:1 ratio and a .017-.021 tip is recommended. A 30 mesh inline filter is recommended.
Power Mixer: Use only explosion proof power mixers.
Brush and roller: Use medium bristle brush and short nap roller for touchup and small areas only.

Drying Time

The following minimum times are based on a 3 mil DFT and adequate air ventilation. Higher thickness and reduced air ventilation increase drying times.

Surface Temperature	To Touch	To Handle or To Topcoat
50°F	12 hrs.	32 hrs.
60°F	6 hrs.	16 hrs.
70°F	3 hr.	8 hrs.
80°F	2 hrs.	5 hrs.
90°F	1 hr.	3 hrs.

ZincGard 1500 can be applied in a wet-on-wet manner with either EpoxyGrip 2000 or EpoxyGrip 2100, which eliminates the dry time between coats.

Cleanup

Cleanup with Reducer 1 or Reducer 2.

Rev. 7/16/16
CAUTI/ON: Read and follow all caution statements on this product data sheet and on the Material Safety Data Sheet for this product.
CONTAINS FLAMMABLE SOLVENTS. Vapors are heavier than air and will accumulate. Extinguish all flames and prevent all sparks. All electrical equipment and installations should be made and grounded in accordance with the National Electrical Code. Where explosion hazards exist workers are required to use non-sparking tools and wear non-sparking shoes.
HEALTH: In confined spaces workers must wear fresh airline respirators.
WARRANTY: Any recommendation of U.S. Coatings contained herein, covering use, utilization, chemical or physical properties and other qualities of the products sold is believed reliable; however U.S. Coatings makes no warranty or representation with respect thereto. Use or application is at the discretion of the Buyer without liability or obligation whatsoever of U.S. Coatings.

Phone 314-205-1800; Fax 314-205-1519 www.uscoatings.com St. Louis, MO

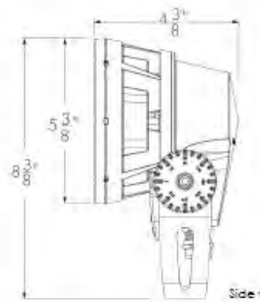
Specification Sheet

lumenbeam
Small
LBS

WHITE AND STATIC COLORS

Project Name _____ **Qty** _____

Type _____ **Catalog / Part Number** _____



Side view

Front view

Photometric Summary

Symmetric

	Delivered output (lm)	Intensity (peak cd)
XN (3°)	1,342	186,978
VN (6°)	906	47,949
NS (10°)	1,419	20,764
NF (20°)	1,238	12,472
M (30°)	1,297	7,185
FL (40°)	1,163	2,960
WFL (60°)	977	762

Asymmetric

NAS	947	14,011 (@2.5°)
WW	1,106	3,013(@5°)

Based on 4000K configuration
Photometric performance is measured in compliance with IESNA LM-79-08.

Description

The Lumenbeam Small is a compact, IP66-rated luminaire for lighting landscapes, trees, columns, monuments, and architectural details. It has numerous options, including optics for flood or accent lighting, a choice of color temperatures and colors, as well as various accessories, spread lenses, and controls. The luminaire also has an anti-corrosion option for use in harsh, chemical, or coastal environments.

Features

Color and Color Temperature	2200K, 2700K, 3000K, 3500K, 4000K, 5700K, Red, Green, Blue
Optics (Nominal Distribution)	XN (3°), VN (6°), NS (10°), NF (20°), M (30°), FL (40°), WFL (60°), NAS (Narrow Asymmetric), WW (Asymmetric Wallwash)
Optical Option	Linear Spread Lens Horizontal Distribution, Linear Spread Lens Vertical Distribution
Mounting Option	Stake Mounting, Knuckle Mounting, Canopy mounting option (for mounting on a standard round junction box)
Option	3G ANSI C136.31-2010 Vibration Rating for Bridge Applications Corrosion-resistant Coating for Hostile Environments
Cable Color	Black, White
Power Consumption	14 W
Warranty	5-year limited warranty

Performance

Maximum Delivered Output	1,419 lm (4000K, NS 10°)
Maximum Delivered Intensity	186,978 cd at nadir (4000K, XN 3°)
Illuminance at Distance	Minimum 1 fc at 434 ft (4000K, XN 3°)
Color Consistency	3 SDCM
Color Rendering	Minimum CRI 80

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