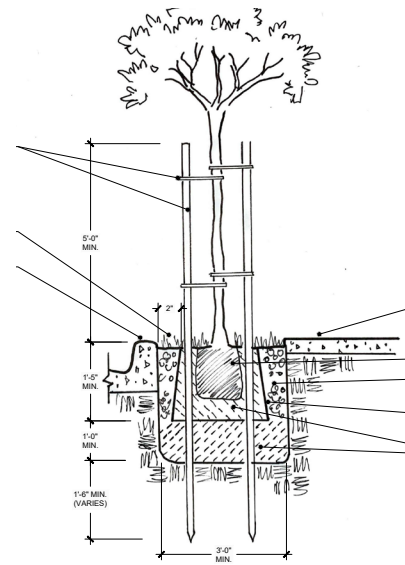


LANDSCAPE CONSTRUCTION METHODS & MATERIALS



AMELIA SNYDER

INSTRUCTOR: PATRICK REYNOLDS
UCLA EXTENSION LANDSCAPE ARCHITECTURE
FALL 2020

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Devil's Gate Dam



Paths for walking, biking, equestrian activities



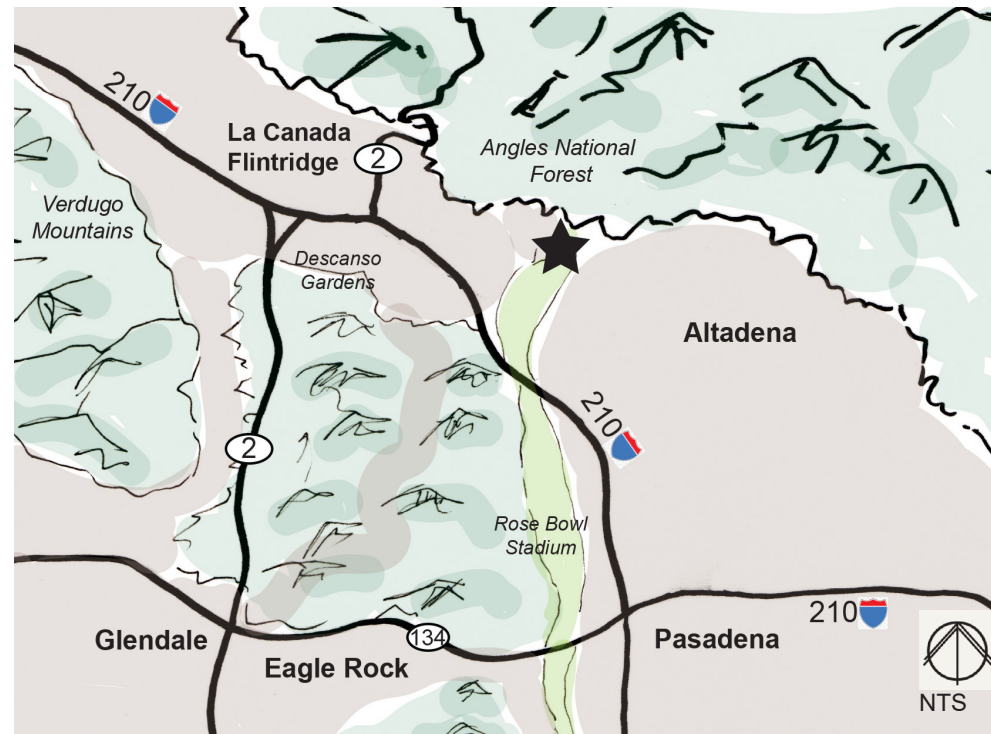
Construction on the Hahamongna Watershed basin

HAHAMONGNA WATERSHED PARK

Nestled between the Angeles national forest and Devil's Gate Dam in Pasadena, Hahamongna Watershed Park serves as the stream drainage of the Arroyo Seco as it exits the San Gabriel Mountains and flows south towards the L.A. River. A gentle stream, periodically punctuated by a flood, flows into this 1300-acre basin, nourishing five unique habitat zones that only exist in alluvial canyons near the mountains. Most sites like this in Southern California have been destroyed. The water is contained by Devil's Gate Dam, the first of the Los Angeles County Flood Control District's dams, built in the 1920's. This site also features an interconnected system of hiking trails, bike paths, equestrian access, and sports fields. Originally the site of a Hahamongna settlement, this vast open space is a rare area where the mountainous watershed meets the urban plain and offers beautiful unobstructed views of the San Gabriel Mountains. In 2014, the Board of Supervisors approved a five-year project to remove 2.4 million cubic yard of sediment, much of which resulted after the flood basin filled with debris brought down from the 2009 Station Fire. Removing the sediment reduces the risk of floods during major storms, but damages existing ecosystems already in place. Construction on the basin began in 2019, despite opposition from the neighborhood.



Regional Map

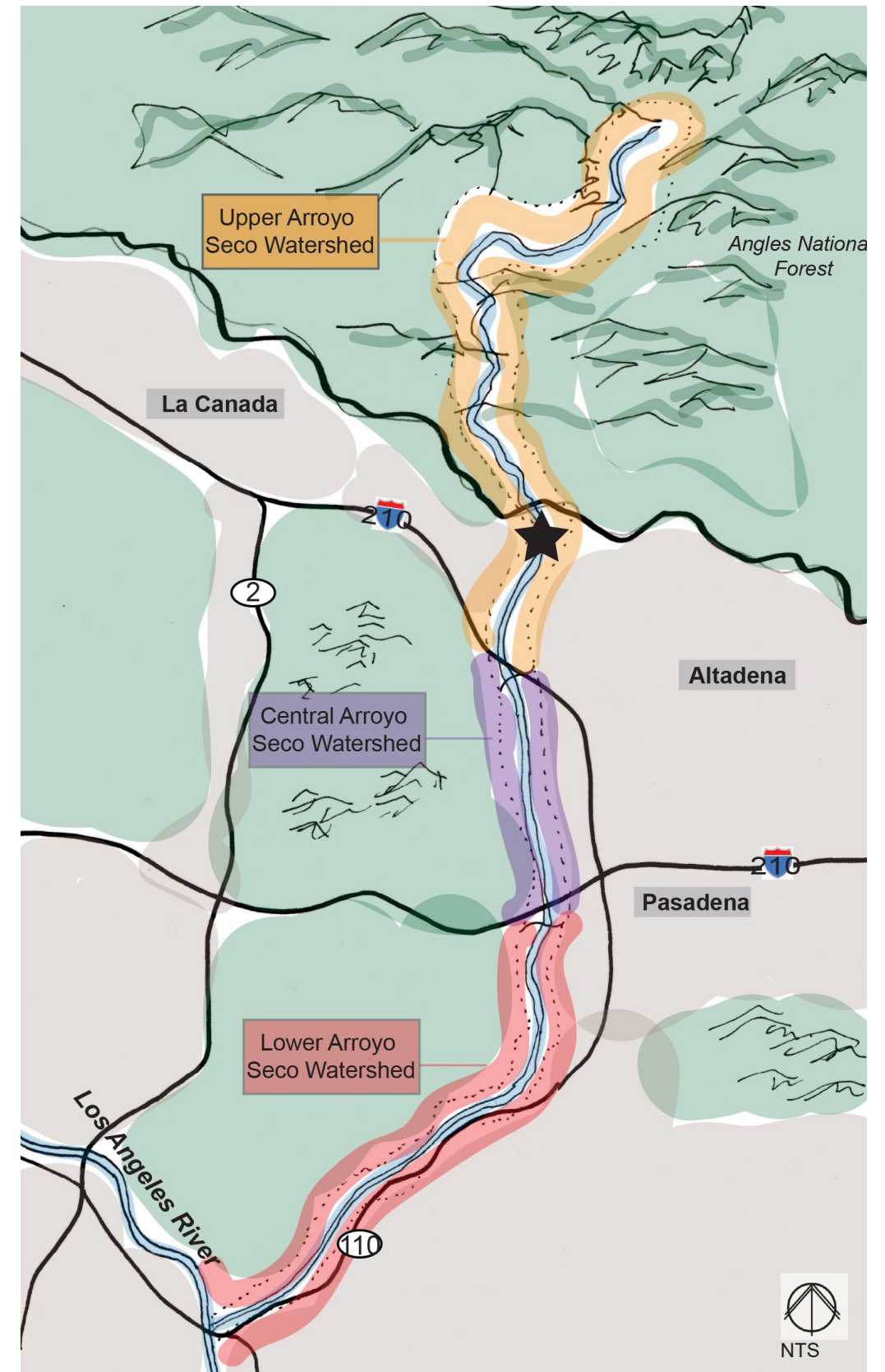


Context Map

The Hahamongna Watershed Park is located north of Los Angeles, inside the city limits of Pasadena, between Altadena and La Canada. It's part of the Arroyo Seco watershed, which stretches from the San Gabriel Mountains in the Angeles National Forest to downtown Los Angeles. It is a sub-watershed of the Los Angeles River watershed. As the Arroyo Seco leaves the mountains and enters the urbanized areas of the watershed, the dry stream flows between La Cañada Flintridge on the west and Altadena on the east. This area, called the Upper Arroyo Seco, is where the Hahamongna watershed park is located. It then passes through Pasadena, where the Arroyo Seco stream helps to replenish the Raymond Basin, an aquifer underlying Pasadena that provides about half of the local water supply. The channel continues along the western boundary of South Pasadena, then into northeast Los Angeles flowing southeast of the Verdugo Mountains and Mount Washington. It ends at the confluence with the Los Angeles River near Elysian Park, north of Dodger Stadium and Downtown Los Angeles. The Arroyo Seco unites a highly diverse region.



(P1) The Arroyo Seco flowing through the Hahamongna watershed after rain



Arroyo Seco Watershed Map



Residential



Jet Propulsion Labs



Park Space



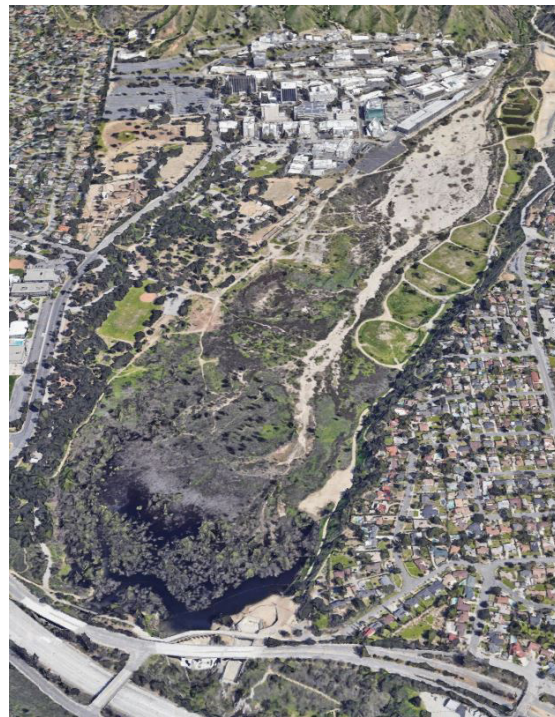
Open Space



Direction of Slope



Direction of Stormwater



Hahamongna Watershed Park, aerial view



A. East Spreading Basins, Exploder Rd, Gabrieleno Trail



B. Hahamongna Watershed Park, conservation pool



C. Devil's Gate Dam Area

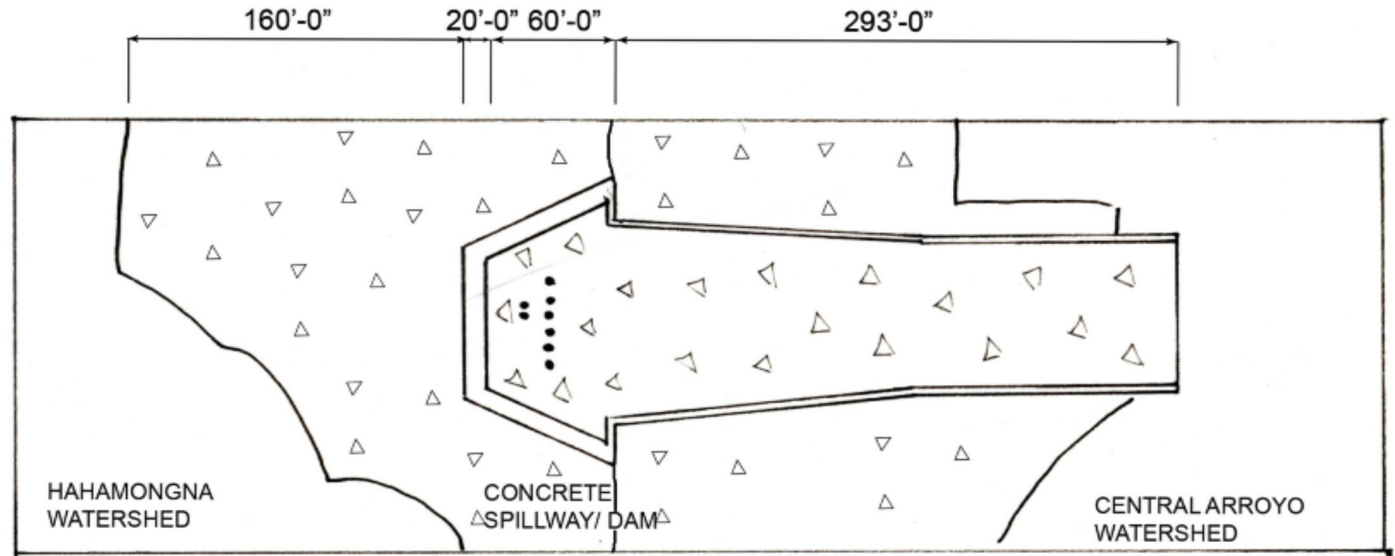
D1

SPILLWAY DETAIL- DEVIL'S GATE DAM

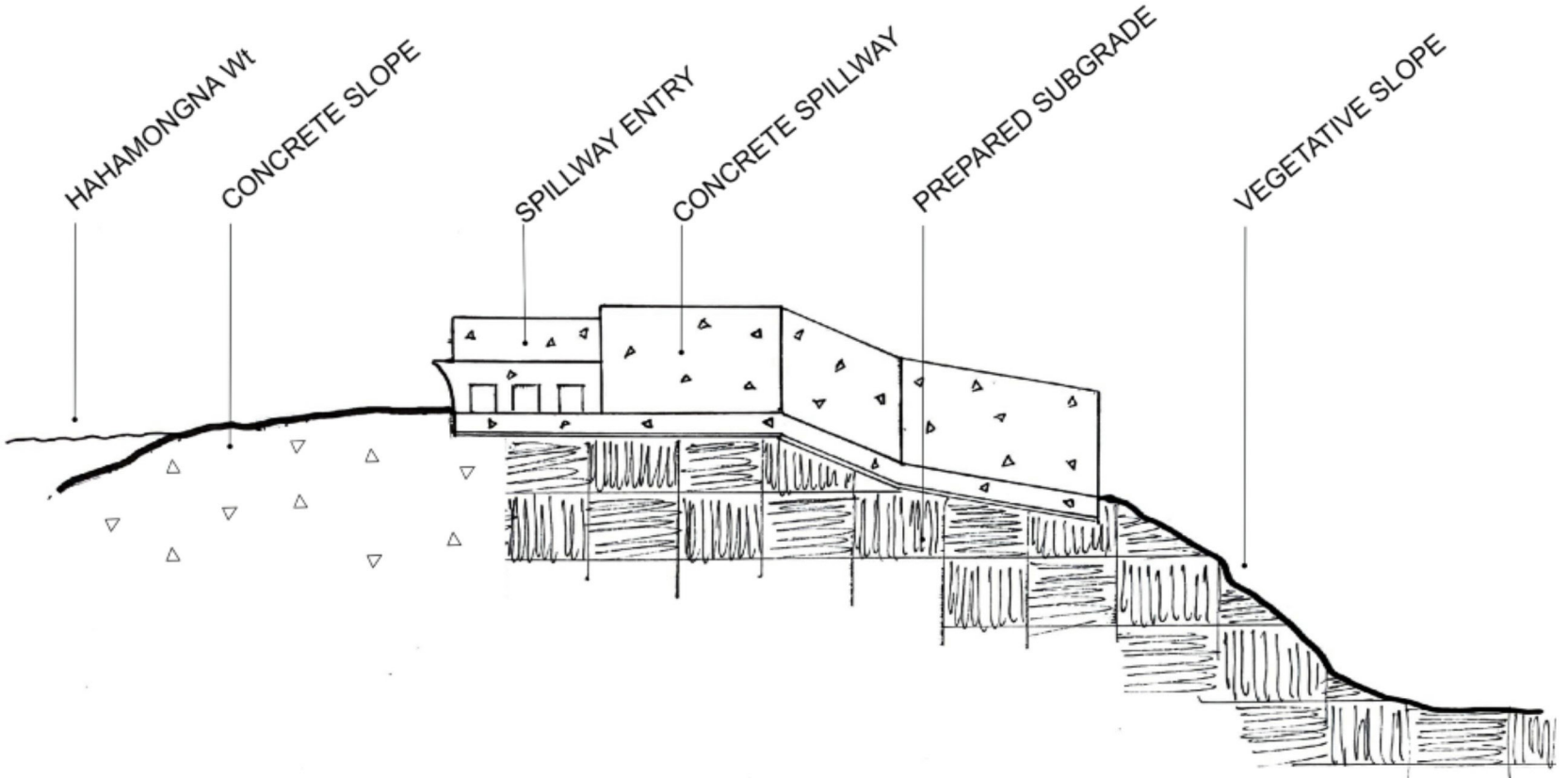
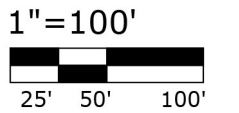
The dam's spillway is a structure used to provide the controlled release of flows from the dammed water of the Hahamongna Watershed into the downstream area, which is the riverbed of the Central Arroyo Watershed. This can be used to regulate downstream flows by releasing water in small amounts before the reservoir is full. Operators can prevent sudden large releases that would happen if the dam were overtopped. The spillway is almost 300' long and constructed of solid concrete with a slight slope away from the dam.



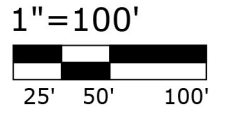
P2- The spillway filling after a rain event



ENLARGEMENT



SECTION



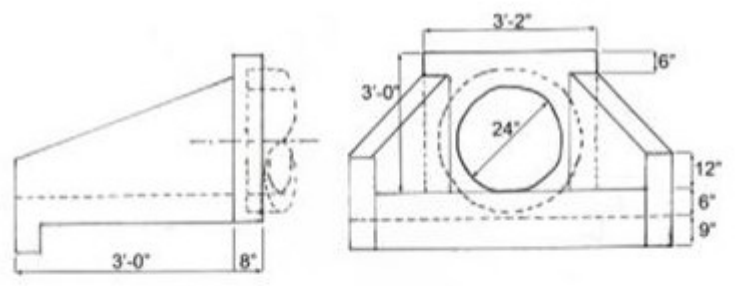
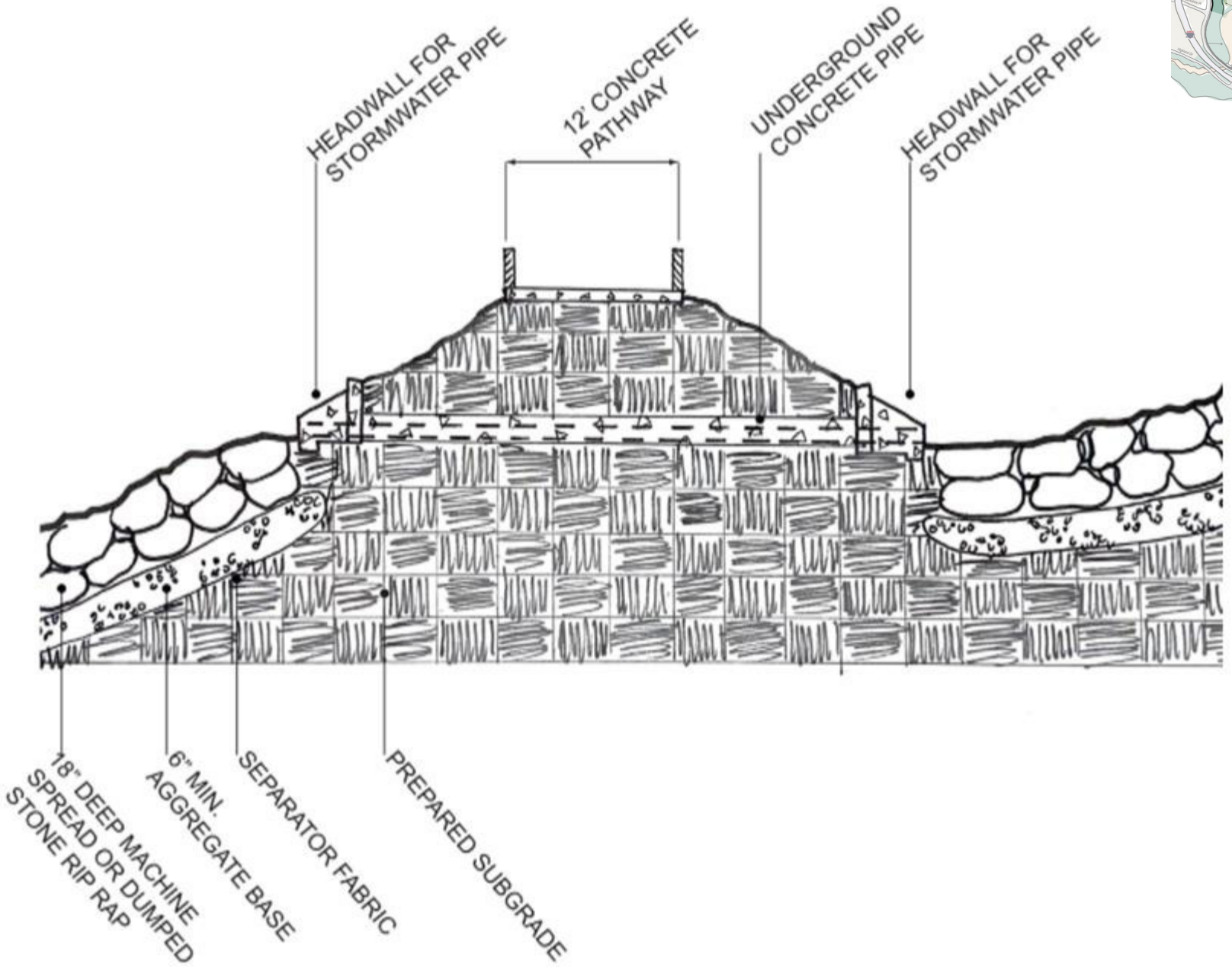
D2

HEADWALL FOR STORMWATER PIPE INTO SWALE DETAIL

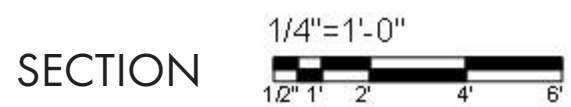
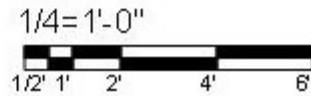
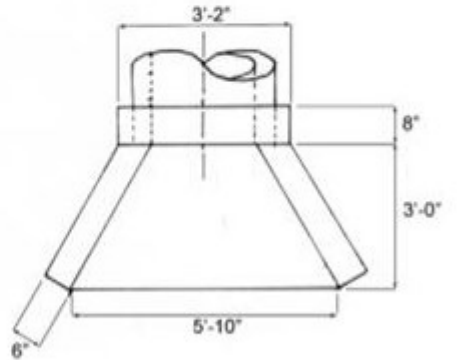
Underneath a concrete paved pedestrian walkway is a headwall at the outlet of a stormwater pipe, that feeds into a stone rip-rap swale. This stone rip-rap swale is rated as heavyduty due to its volume and velocity characteristics. Stone is placed by mechanical means in a roughly trapezoidal section. In deep channels, a fabric separator is recommended to bind aggregate base and inhibit upward migration of fines in colloidal soils.



Keymap



STORMSEWER PIPE
BLOCKOUT HOLES
FOR PIPE
PRECAST CONCRETE
HEADWALL
FOOTING ON
SIZES 30" THRU 36"

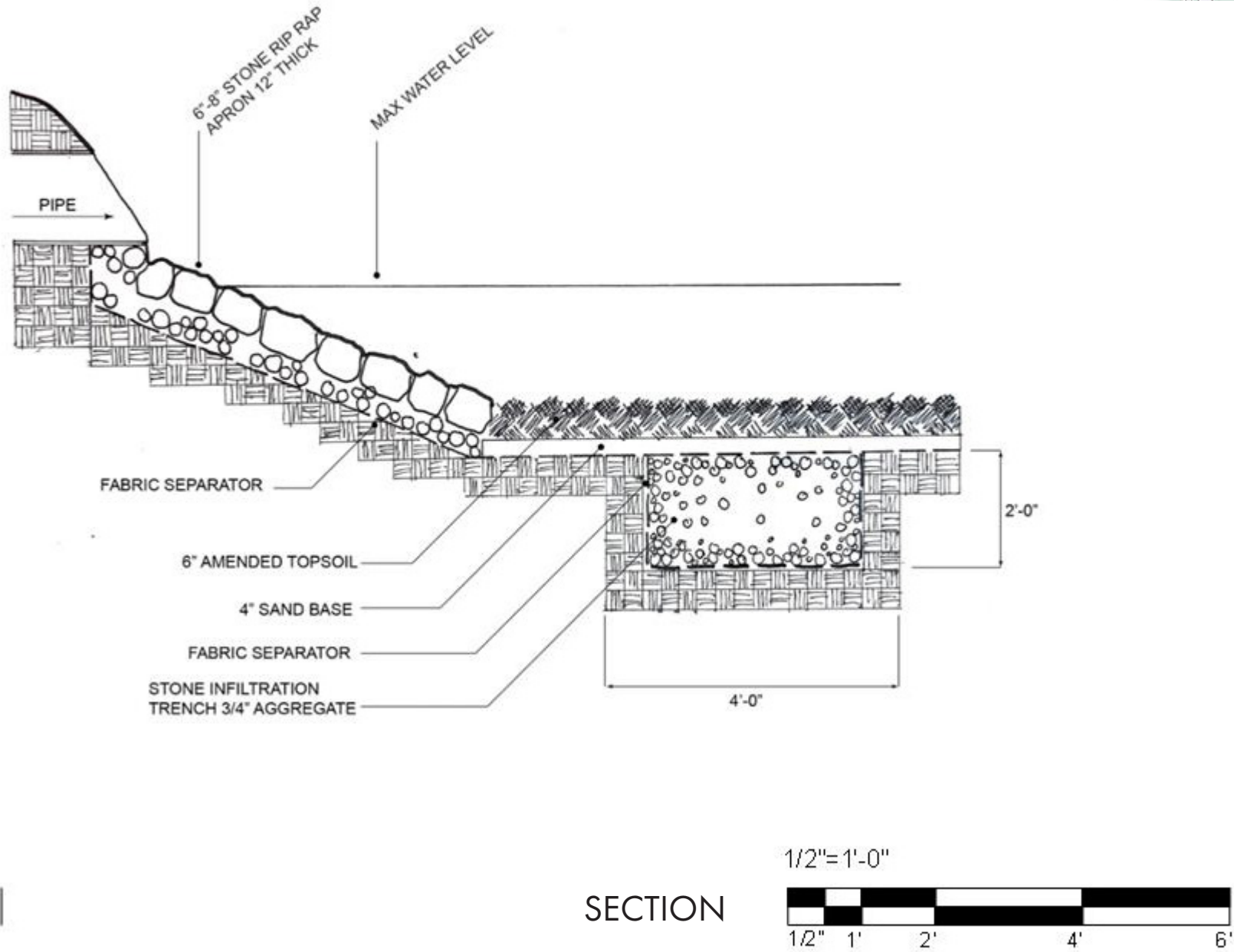


SECTION

D3

INFILTRATION DENTENSION POND DETAIL

The purpose is to slowdown water flow and hold it for a short period of time. Urban areas rely on these structures to reduce peak runoff rates associated with storms, decreasing flood damage. Sediment and associated pathogens, nutrients and metals settle out of stormwater runoff in the ponds. If pollutants enter streams or lakes during storm events, ponds interrupt the transport process. Detention ponds usually hold storm water long enough to settle sands and larger silt particles.



REDESIGN OF HAHAMONGNA WATERSHED PARK EDGE; INTRODUCTION OF BERMS ALONG FLOOD BASIN

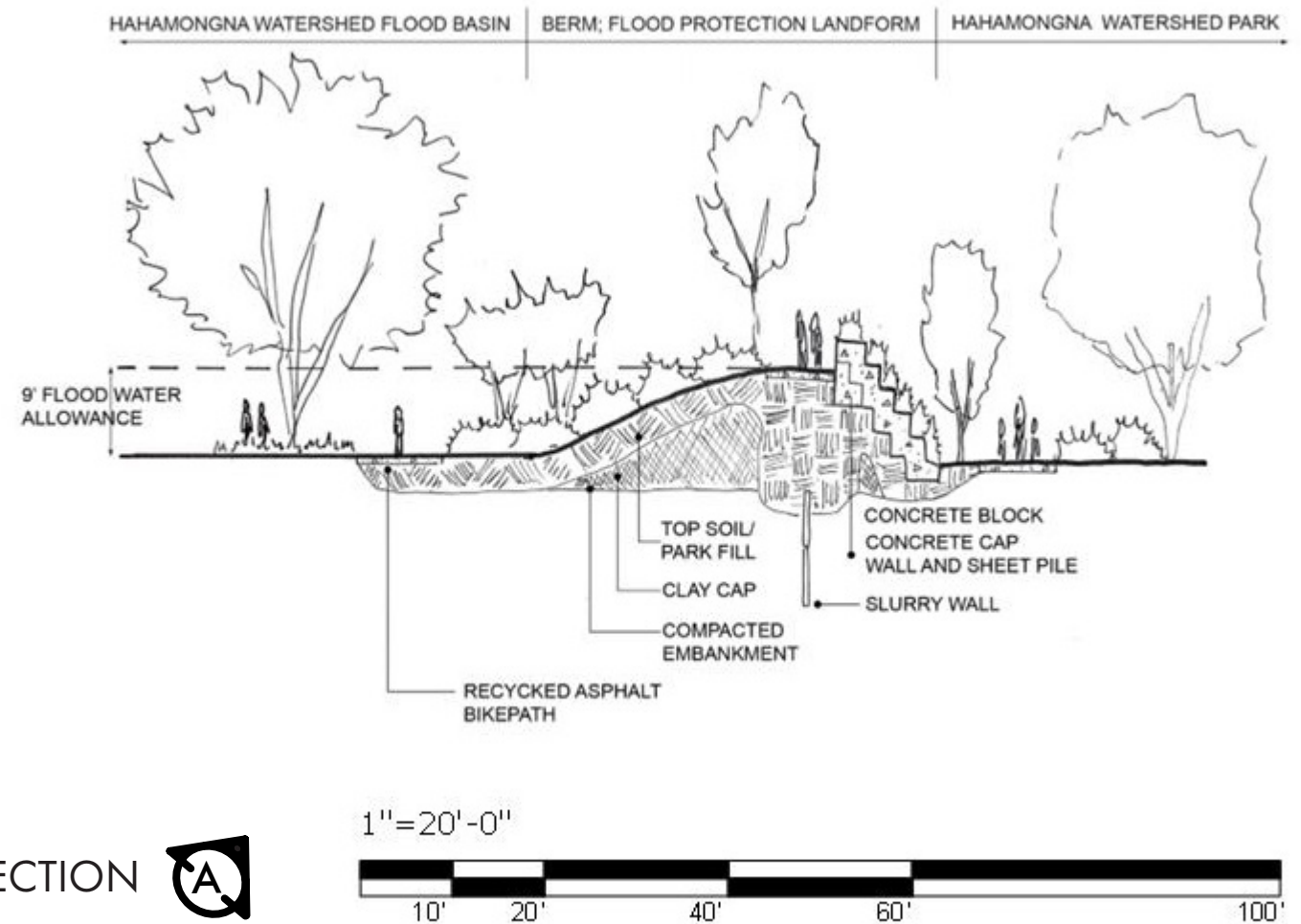
- The Hahamongna Watershed Park is currently undergoing massive reconstruction by Los Angeles County, in an attempt to assist in its flood control. It will take at least four-years, cost \$66 million in dam restoration, and thousands of bulldozers to clear 25 years worth of sediment buildup.
- Bulldozers have already removed trees, bushes, scrub and all green growth within a 50-acre area, which are now being dredged 50 to 80 feet deep, removing about 1.7 million cubic yards of sediment piling up behind the dam, enough to fill the Rosee Bowl four times.
- Environmental communities across the board have agreed that the damages done to the biodiversity of the park will be devastating, and years of restoration work will have to follow the dredging. Another major concern to the public is the amount of pollution put out by the trucks needed to haul away all of the sediment.
- In an attempt to cut down on the amount of sediment and dirt leaving the site, I propose using the rich sediment found on site to create custom soil blends that can then be used to strengthen the flood basin edges. This blend, along with concrete walls, can be used to create berms along popular pedestrian areas that are often washed away and unusable during the winter when the water spreads uncontrollably.



P2- The Hahamongna basin after a flooding event, with water spilling into park space



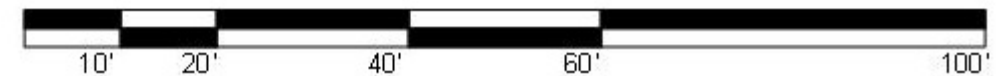
P3- The Hahamongna flood basin currently being dredged to improve the flood channel

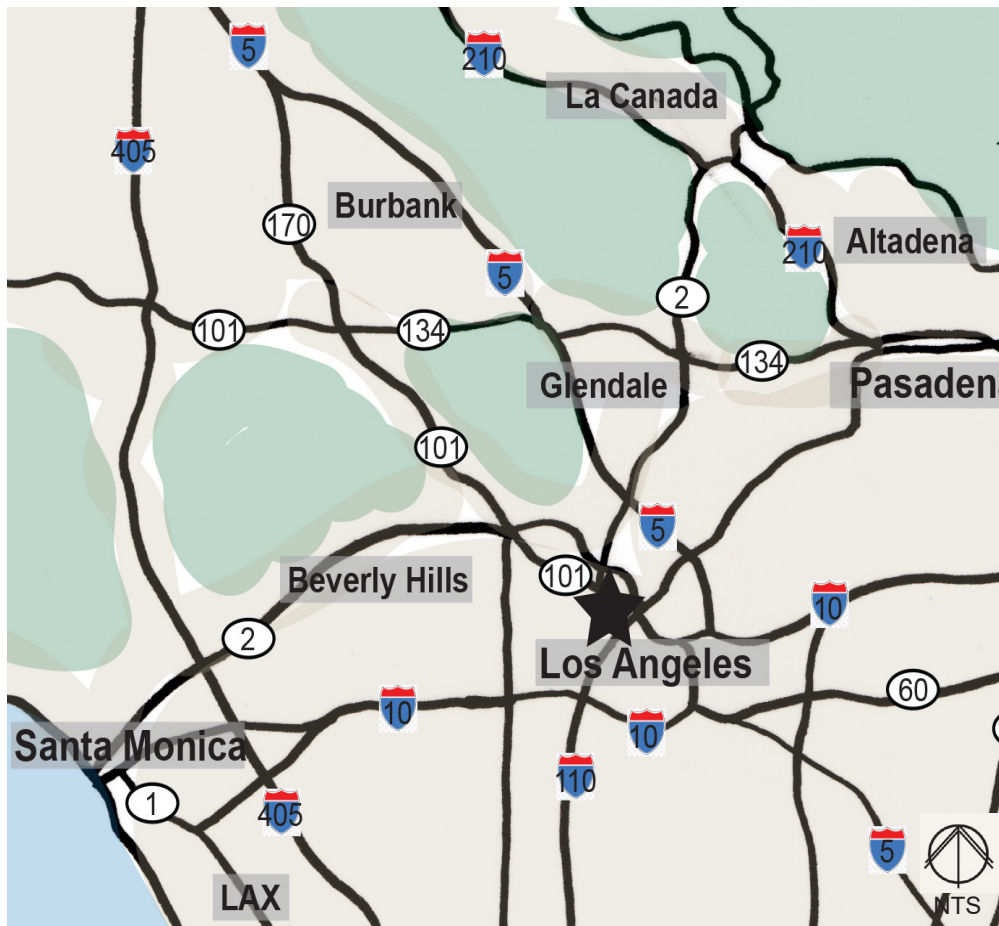


SECTION

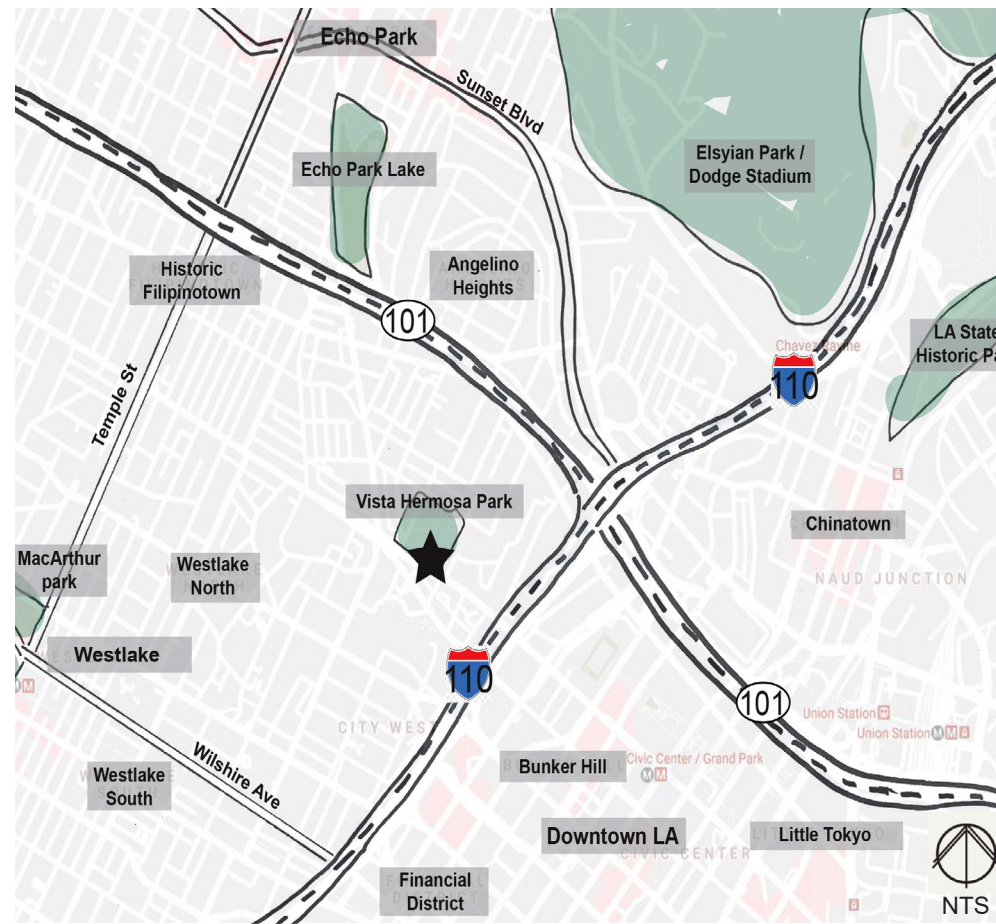


1"=20'-0"

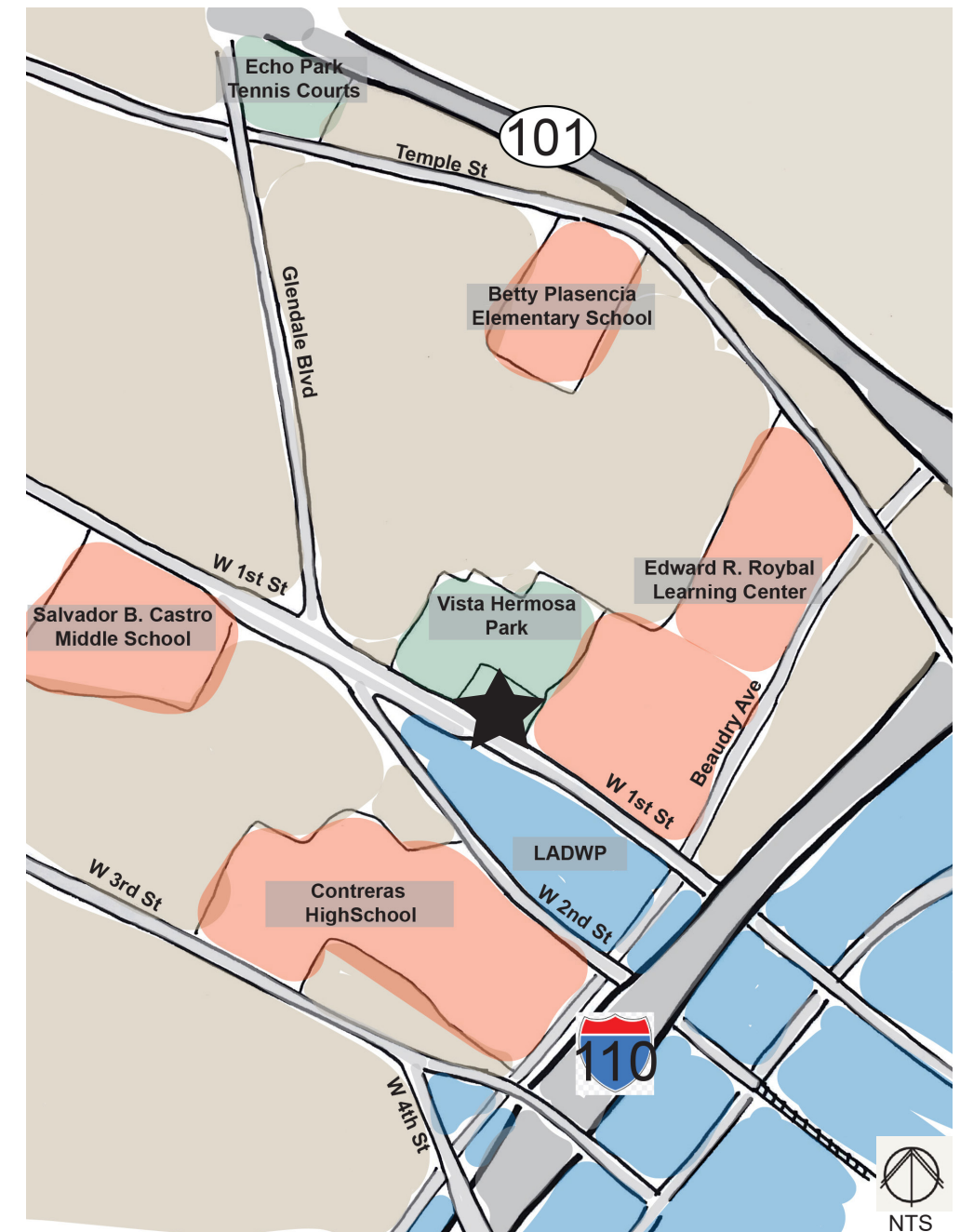




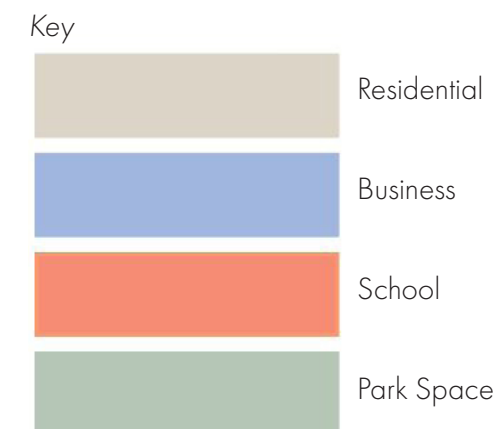
Location Map



Regional Map



Context Map



VISTA HERMOSA NATURAL PARK & SOCCER FIELD

The Vista Hermosa Natural Park is a 10.5 acre Los Angeles urban public park located just south of Echo Park and north of Downtown LA. The park is managed as a partnership among the Los Angeles Unified School District, the City of Los Angeles, and the Mountains Recreation and Conservation Authority (MRCA). The winding hillside park includes walking trails, streams, meadows, oak savannahs, picnic grounds, a nature-themed playground, and a soccer field. The FIFA-regulation soccer field is jointly used by the adjacent Edward R. Roybal Learning Center and the L.A. Department of Recreation and Parks. The retaining walls found along the North edge of the soccer field protect the field from any erosion caused by the steep slopes that lead up to the top of the park.



Vista Hermosa Park and Soccer Field, with retaining walls highlighted



Soccer Field with retaining walls highlighted



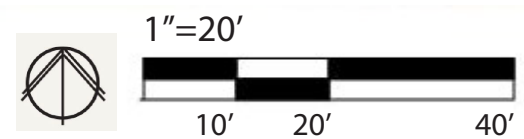
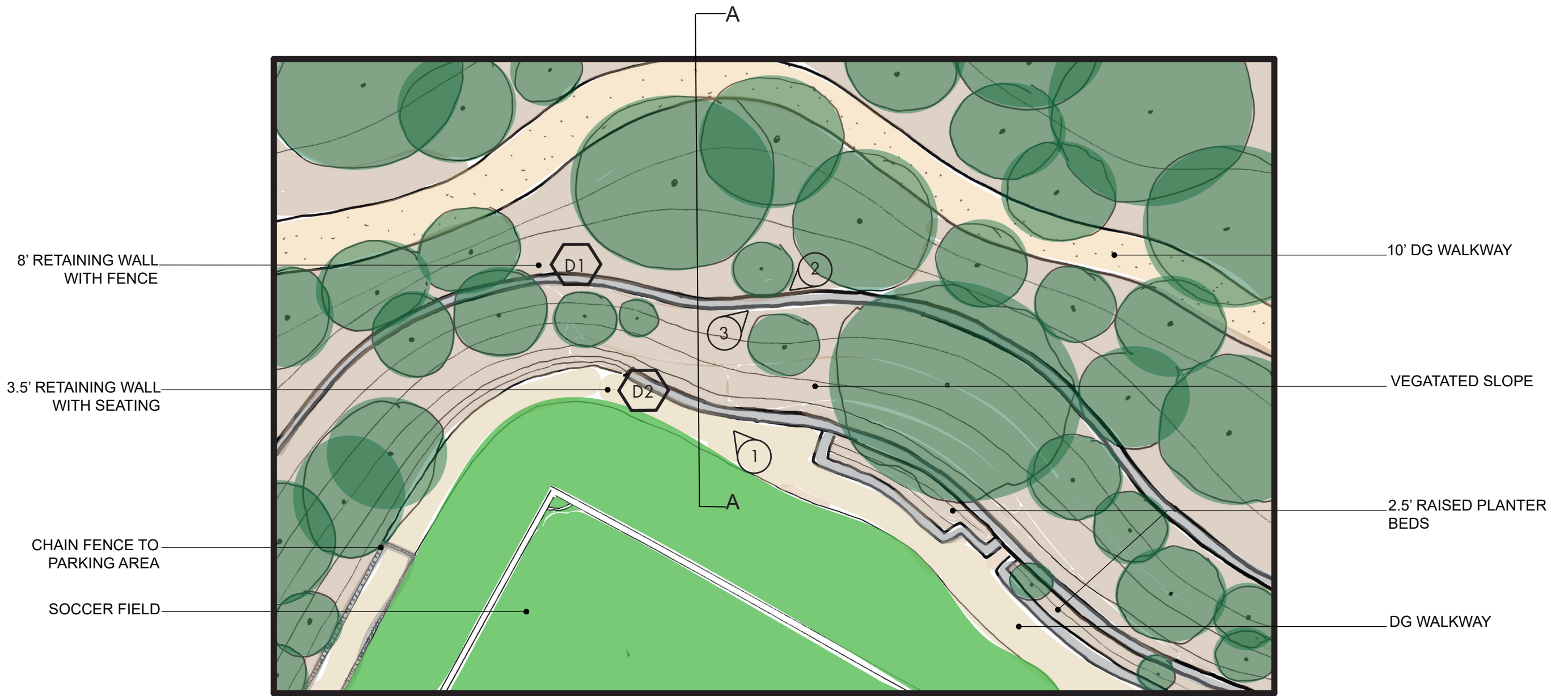
① Double retaining walls, the first 3.5' and the second 8'



② View from above the top wall, along the fence

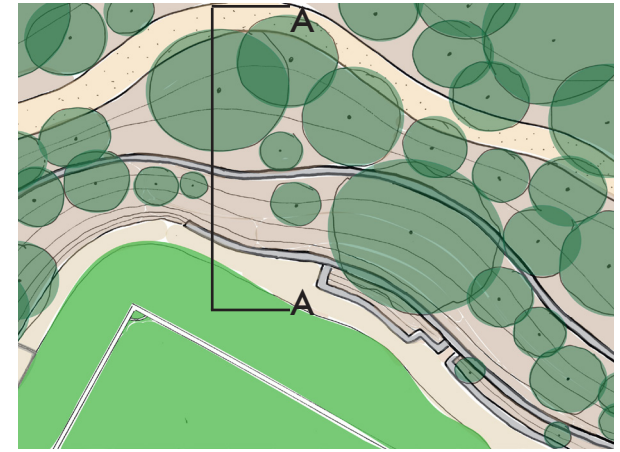


③ Close up of stone veneer retaining wall

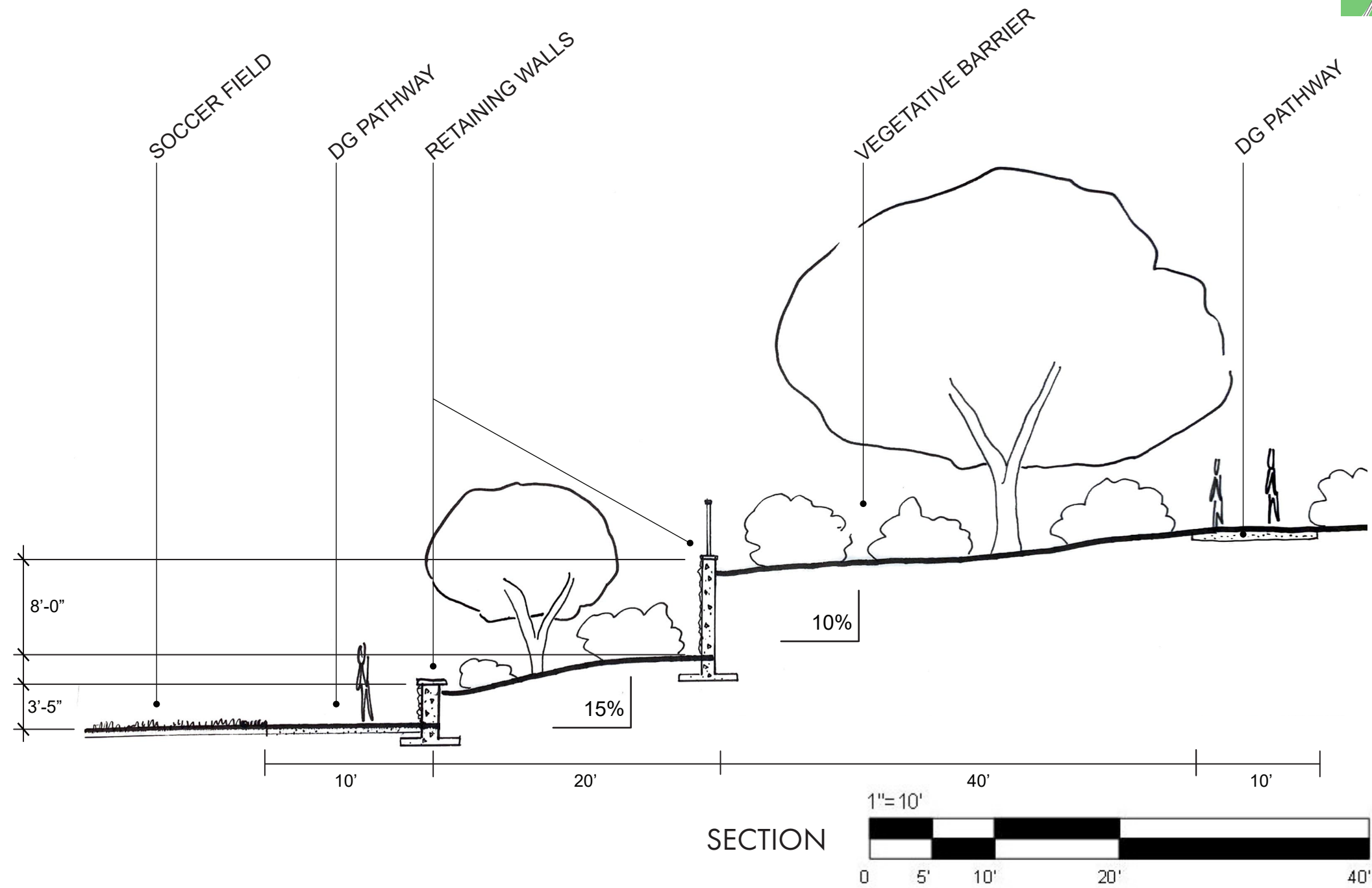


A
A

SECTION A-A'



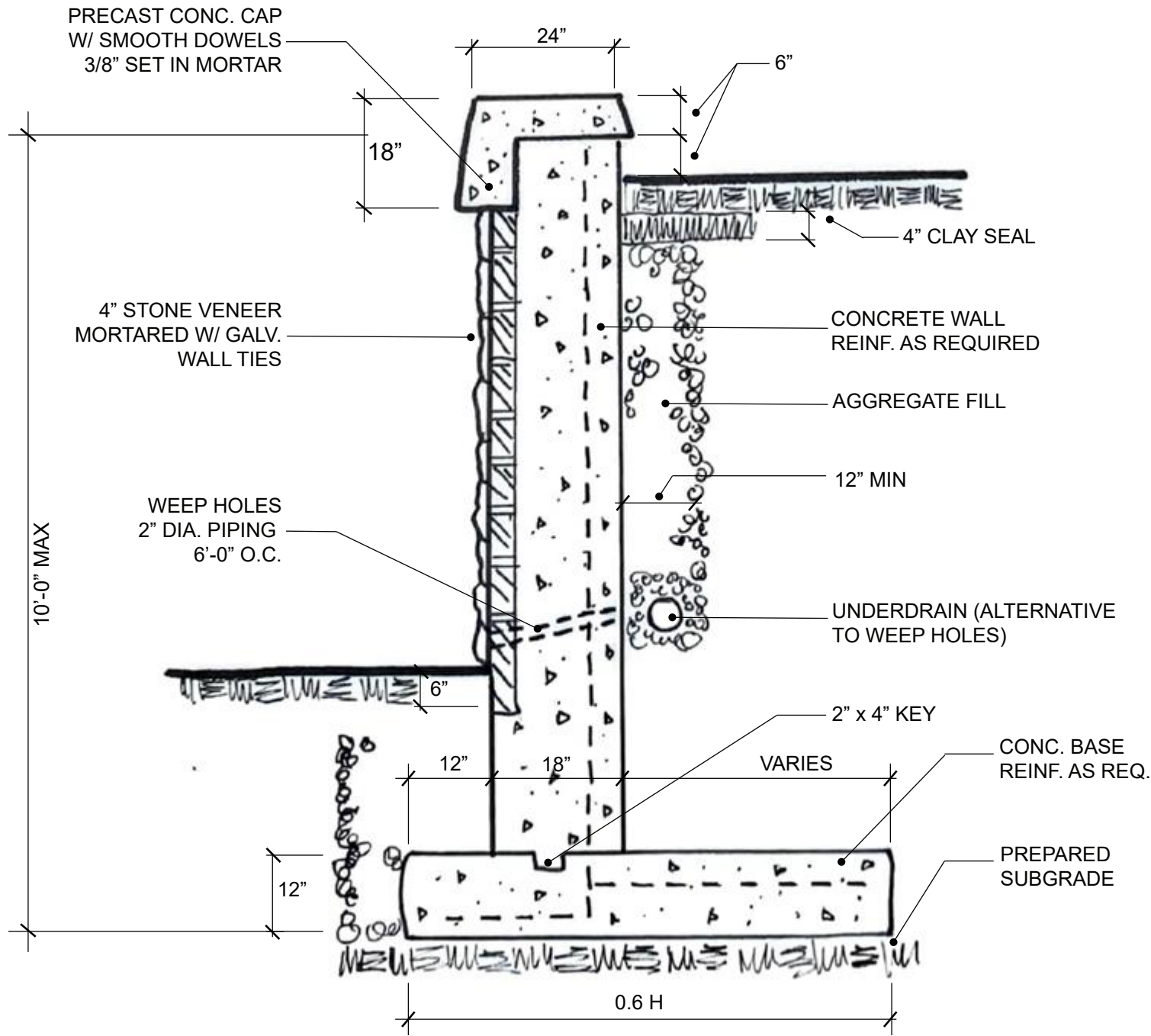
Keymap



D1

CONCRETE CANTILEVERED RETAINING WALL WITH STONE VENEER

This reinforced concrete retaining wall with stone veneer detail is rated as heavy-duty due to its base to height ratio and retention capacity. In heavy clay or wet soils, a base to height ratio of 0.75 is recommended. This wall requires weep-holes to relieve hydrostatic pressure at the back of the wall. Stone veneer rests on a sill and is fastened to wall with metal mortar clips. Walls larger than 10' may require counterfort bracing. Footing may bear directly on prepared subgrade in well drained soils.



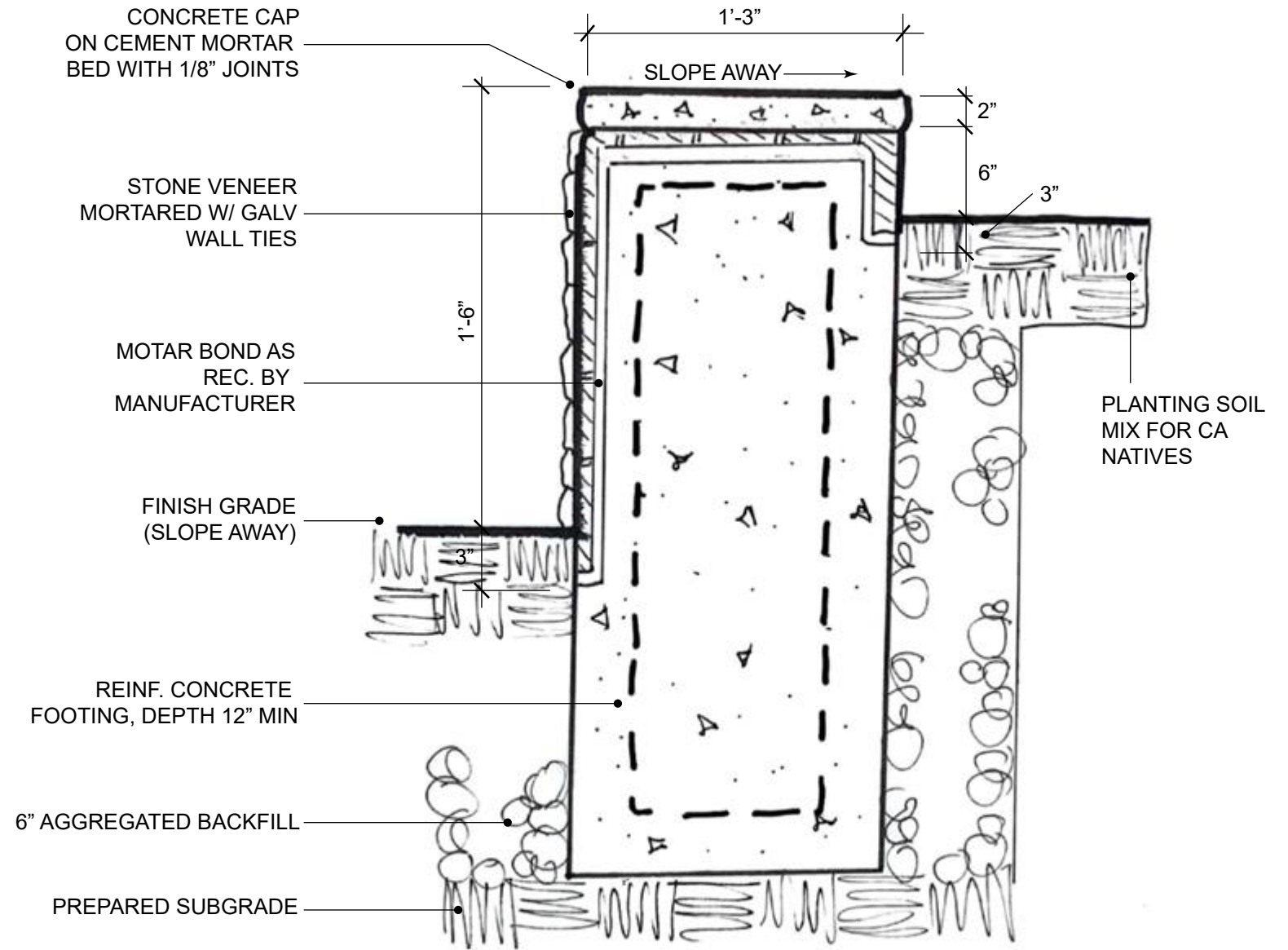
DETAIL 1



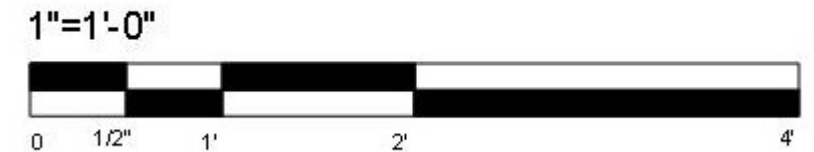
D2

CONCRETE SEATWALL WITH STONE VENEER

This stone veneered concrete seatwall is rated heavy-duty due to its bearing capacity. Concrete base is fully reinforced and typically requires back drainage due to absence of weep-holes. In severe cases, a perforated drain pipe encased in washed stone and fabric separator may be used to relieve extra hydrostatic pressure. Stone veneer rests on a sill and is fastened to wall with metal mortar clips. Coping may be of cut stone or cast concrete.



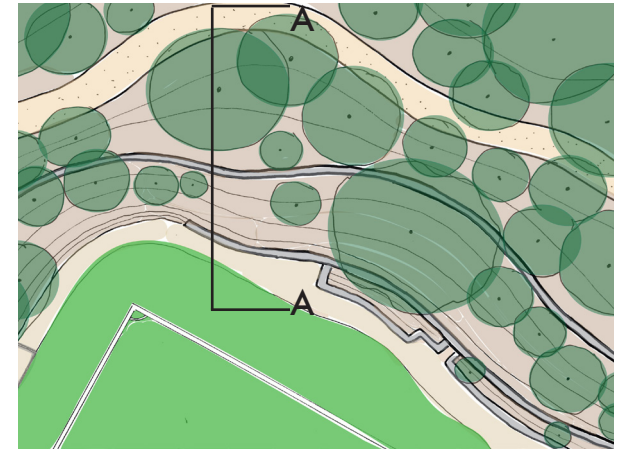
DETAIL 2



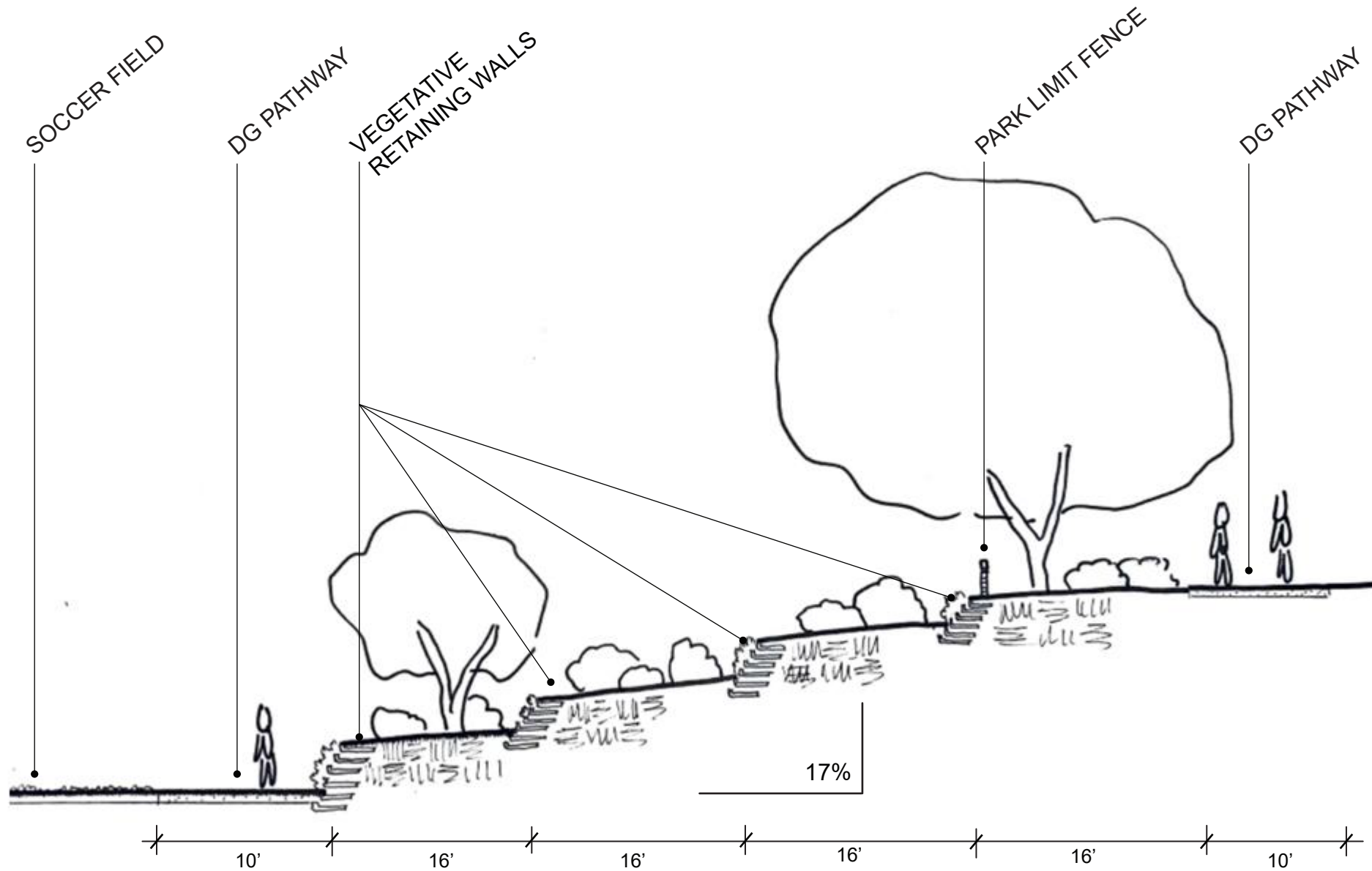
REDESIGN OF SECTION A-A'

INTRODUCTION OF PRECAST CONCRETE VEGETATIVE RETAINING WALLS

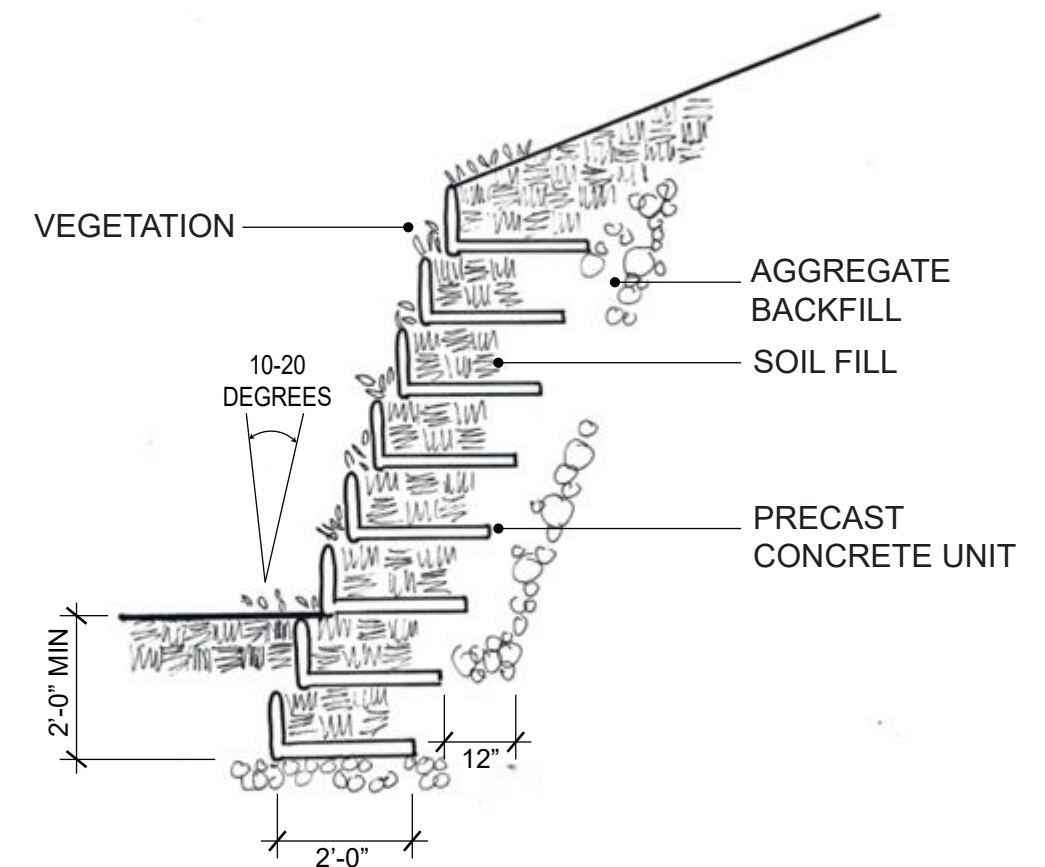
- The introduction of layered vegetative terraces along the hillside creates a natural look to the area and softens the transition between the soccer field and the park.
- This concrete unit vegetative retaining wall is rated as medium-duty due to its height and retention capacity. It is not recommended for heavy clay or wet soils.
- Stacking batter is typically 10-20 degrees. Footing should bear directly on prepared aggregate base in well drained soils.
- This wall can easily be curved, and soil backfill allows planting of ground covers suitable to the site and soil conditions.



Keymap



SECTION
1"=10'
0 5' 10' 20' 40'



DETAIL
3/8"=1'=0"
1' 2' 4'



Location Map



Regional Map











Context Map

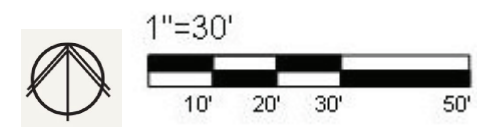


MALIBU VILLAGE

Malibu Village encompasses 6 acres of land in the heart of the Malibu Civic Center, featuring a mix of local boutiques, high-end retail and restaurants located in the close-knit beachfront community of Malibu, California. Its buildings are a mix of architectural styles, displaying Spanish, Mediterranean, modern, and rustic influences. Other features of the property include unique gardens and sculptures, outdoor dining and picnic areas, and a children’s playground. It is located just north of Malibu Lagoon, an estuary at the mouth of Malibu Creek at the Pacific Ocean.



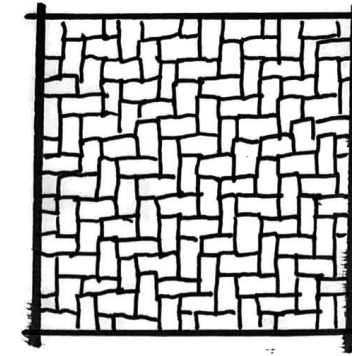
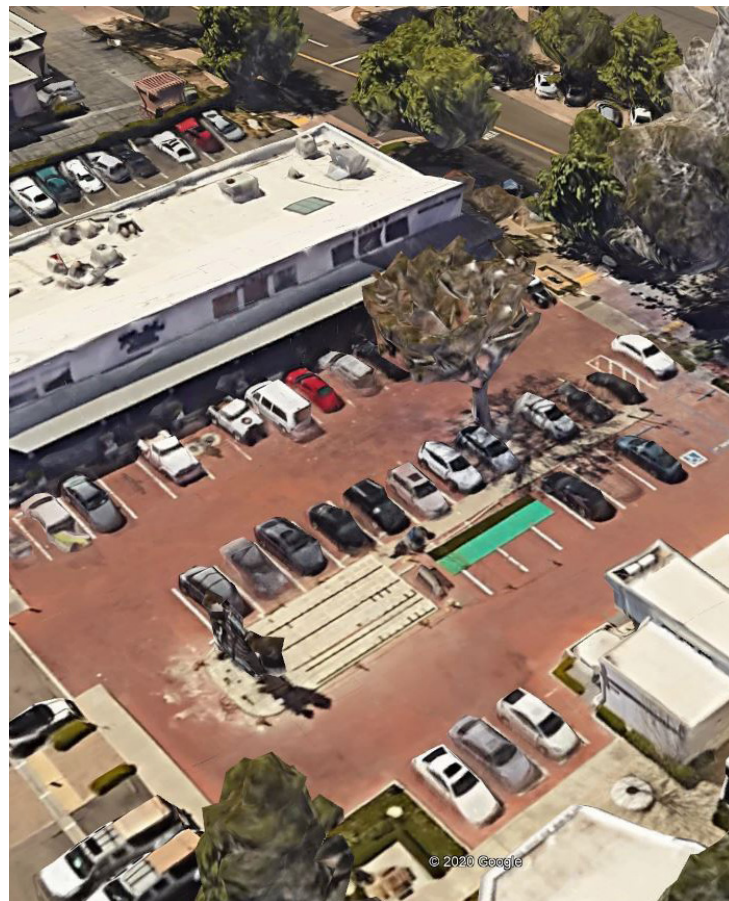
- | | | | |
|---|--------------------|---|---------------------------------------|
|  | BRICK ON AGGREGATE |  | ASPHALT |
|  | BRICK ON CONCRETE |  | CONCRETE |
|  | PERMEABLE PAVING |  | VEGETATION |
|  | TACTILE PAVING |  | CONCRETE PAVERS W. ARTIFICIAL TURF/DG |



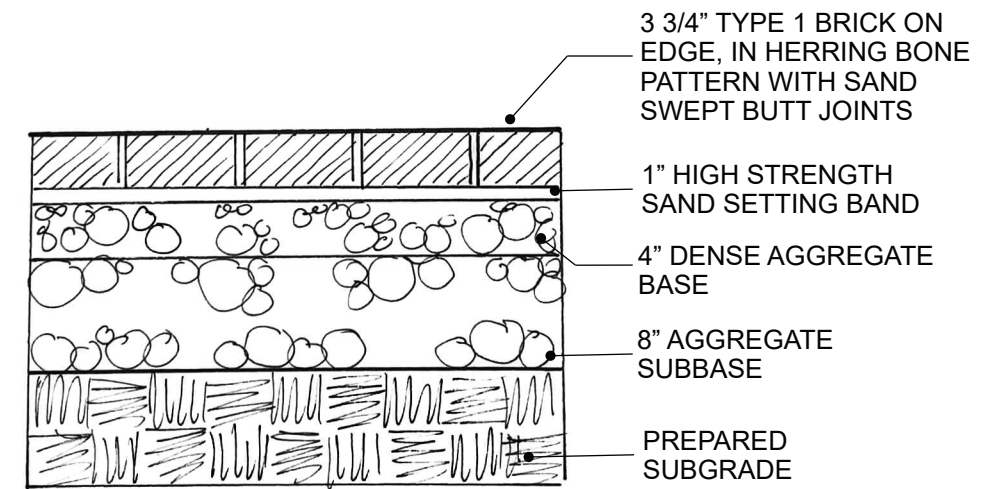
D1

BRICK PAVERS ON EDGE WITH SAND SETTING BED ON AGGREGATE BASE

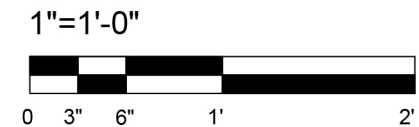
This brick paver on edge detail is rated for heavy-duty applications based on paving course and base thickness, and subgrade bearing. Where persistent vehicular loading occurs, use high silica content sand setting bed rather than stone dust or other such processed material. It is laid in herring-bone pattern to resist multidirectional lateral movement, and to use full dimension of brick strength.



HERRING BONE PATTERN



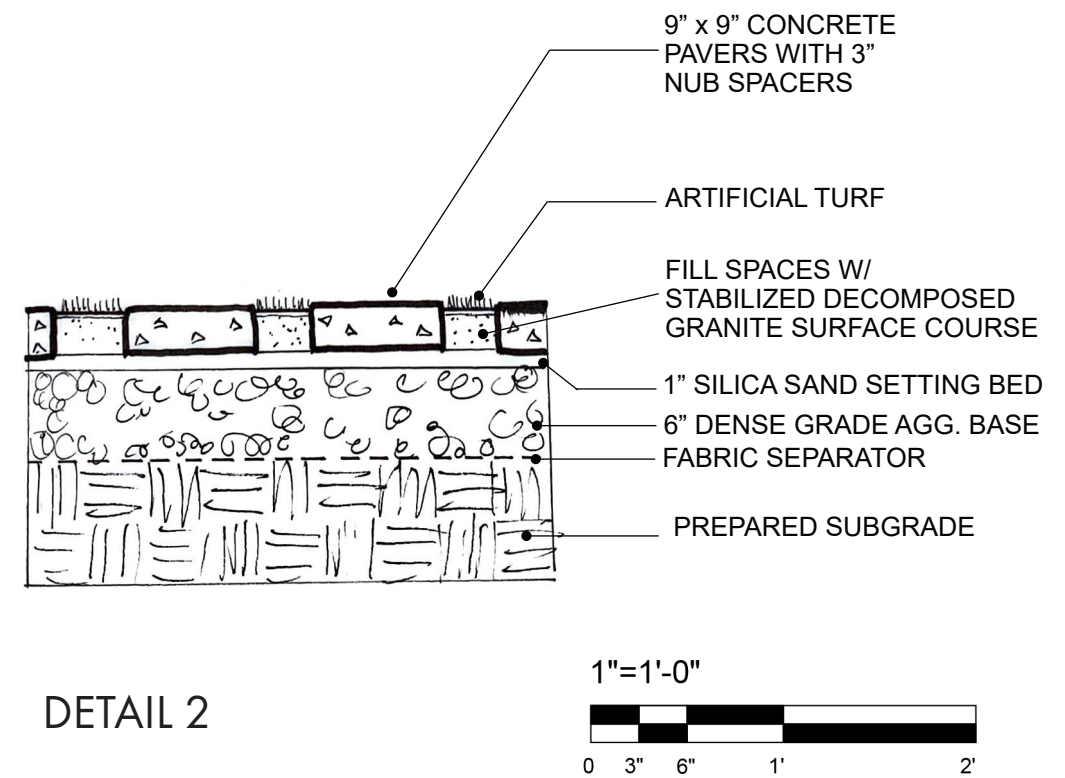
DETAIL 1



D2

CONCRETE PAVERS WITH DECOMPOSED GRANITE JOINTS & ARTIFICIAL TURF

This detail is rated as medium-duty due to aggregate subbase thickness. Precast concrete pavers are spaced by attached nubs to create a (3 ") space between paver units. Spaces are filled with stabilized decomposed granite or a sandy amended soil to serve as a growing medium for seeded turf. Dense-graded aggregate subbase will prevent excessive drainage of the planting medium. In heavy-duty uses, a fabric separator may be placed beneath the aggregate base.

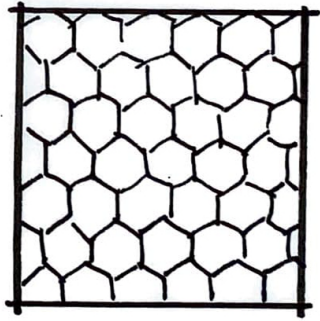
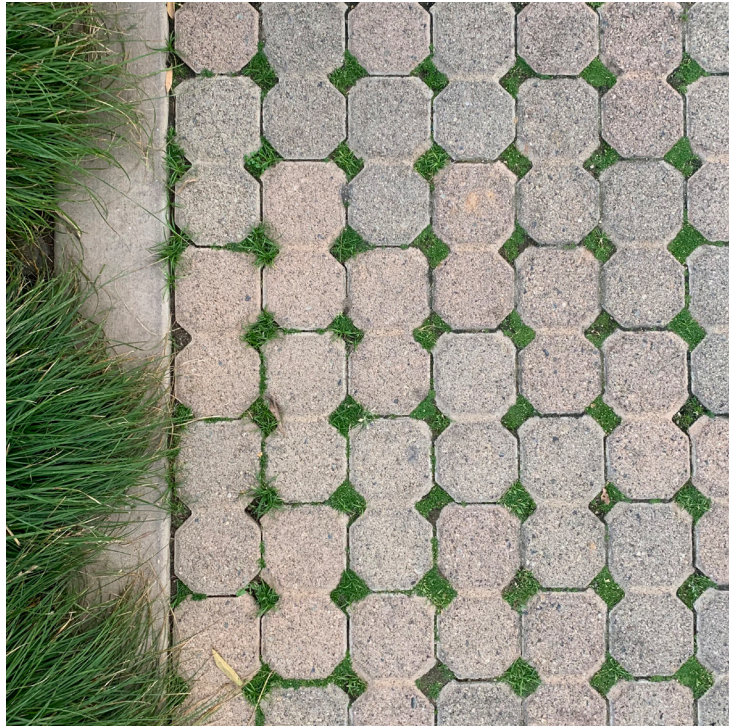


D3

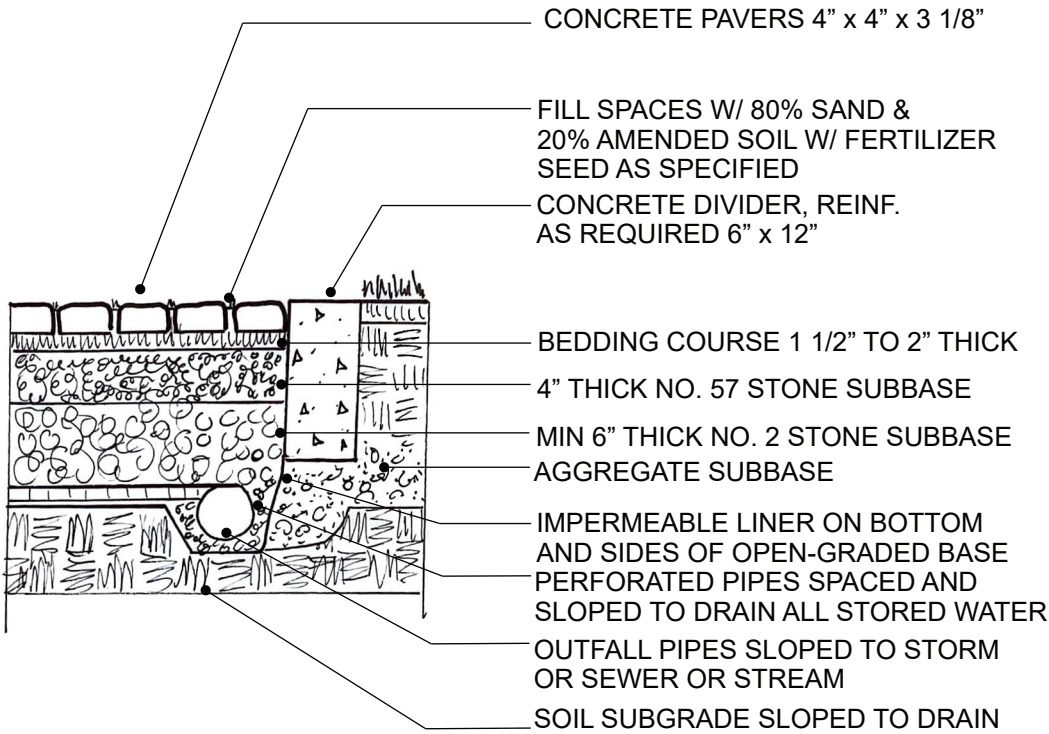
CONCRETE PERMEABLE PAVERS WITH CONCRETE GRADE BEAM PAVING EDGE

A permeable interlocking concrete pavement is comprised of a layer of permeable pavers separated by joints. Spaces are filled with a sandy amended soil to serve as a growing medium for seeded turf. Pavement spaces should be filled with specified soil, mixed with lime and fertilizer, and topped with seed as specified. Water well to settle planting medium. A drainage pipe is specified which must have positive flow away from the aggregate base. This drainage pipe can be directed to auxiliary on site infiltration trenches, rain gardens, bio-swales, detention basins, or nearby storm pipes.

The grade beam is typically a precast unit or may be cast-in-place, installed by backfilling with well-draining aggregate material. The unit is separated from the pavement by expansion joint filler, and is not tied to the concrete pavement base.



HEXAGONAL PATTERN



DETAIL 3

1"=1'-0"

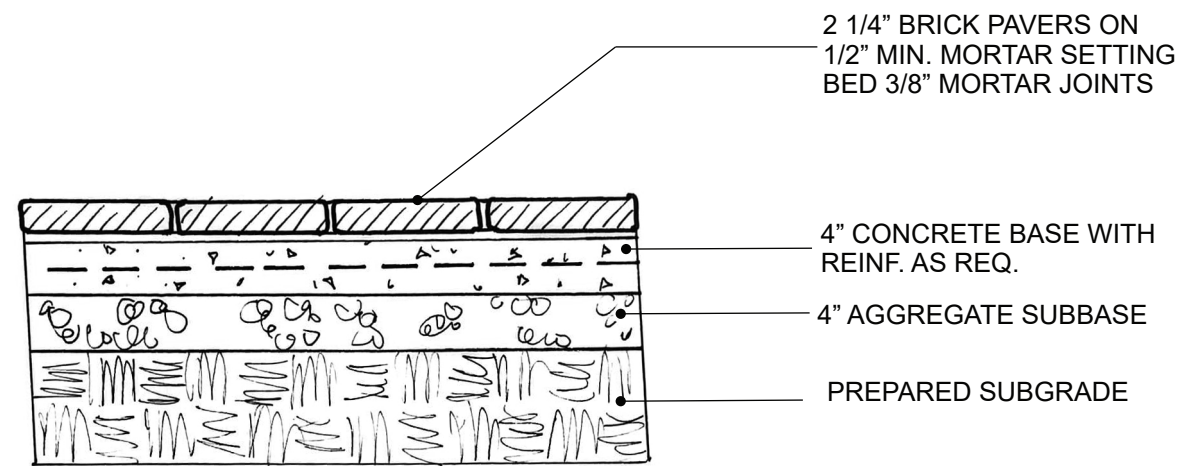


DETAIL 1

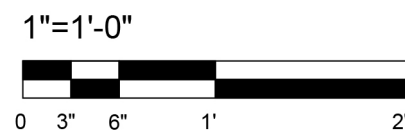
D4

BRICK PAVERS WITH MOTAR SETTING BED ON CONCRETE BASE

This detail is rated for heavy-duty applications based on thickness of concrete and aggregate base, and may support vehicular loading. This detail utilizes the full depth of the brick for strength and exposes the narrow edge surface to the elements and to wear. It is typically laid in a herringbone pattern to accentuate its edge proportions.



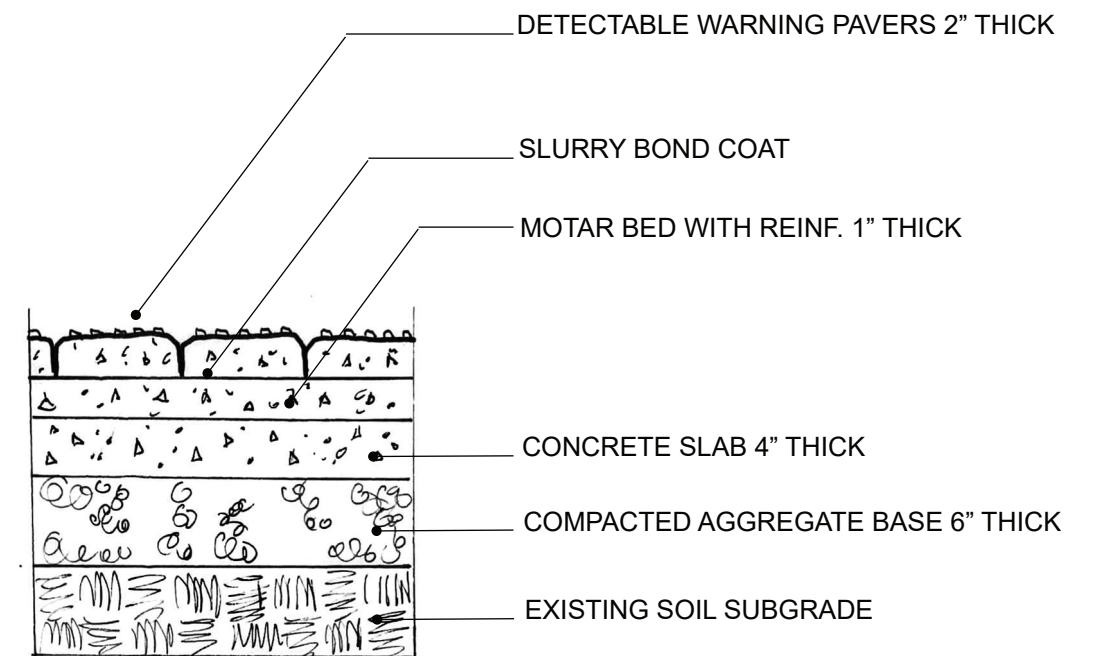
DETAIL 4



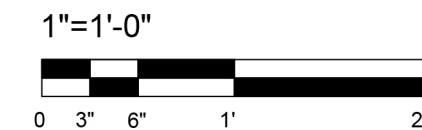
D5

TACTILE PAVING

Concrete slab shall be sloped to provide complete surface drainage. Provide subsurface drainage as required. Slab to have steel trowel and fine broom finish. Do not use curing compounds. Maximum variation in slab 1/4" in 10'. Expansion joints are mandatory. Joints should be swept with sand or grout.



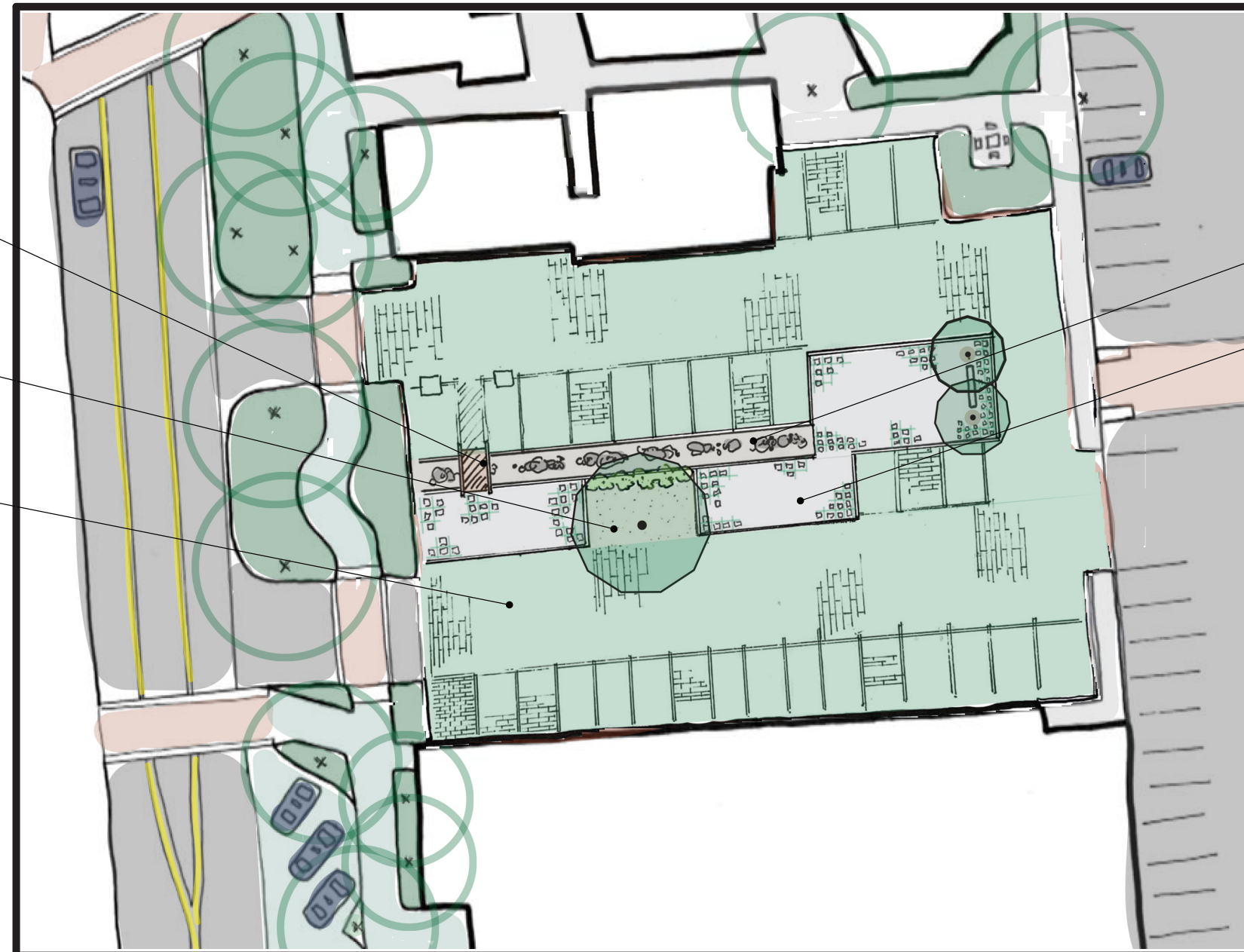
DETAIL 5



REDESIGN: BRICK PAVERS TO GRASSCRETE

INTRODUCTION OF PERMEABLE PAVING AND STABILITY TO THE PARKING LOT

- The current condition of the brick pavers on a sand and aggregate base has left the parking lot with uneven areas and bricks moving out of place.
- The introduction of grasscrete on a concrete base will provide stability while reducing the amount of stormwater runoff, soil erosion, and pollutants.
- Pavement spaces should be filled with specified soil, mixed with lime and fertilizer, and topped with seed as specified. Water well to settle planting medium.
- An introduction of a bioswale down the center of the lot aids with stormwater management while increasing the chance the beauty of the space.
- The expansion of the raised areas made of concrete pavers with vegetation between provide spaces for picnic tables, while also protecting the existing Ficus tree.



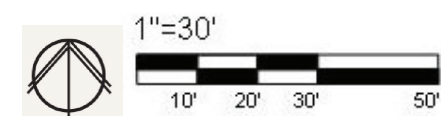
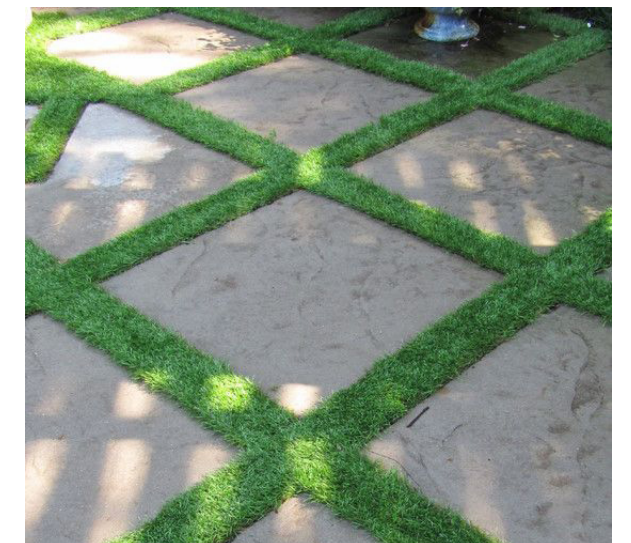
WOOD BRIDGE OVER SWALE

SPECIMEN FICUS TREE

GRASSCRETE PERMEABLE PAVERS

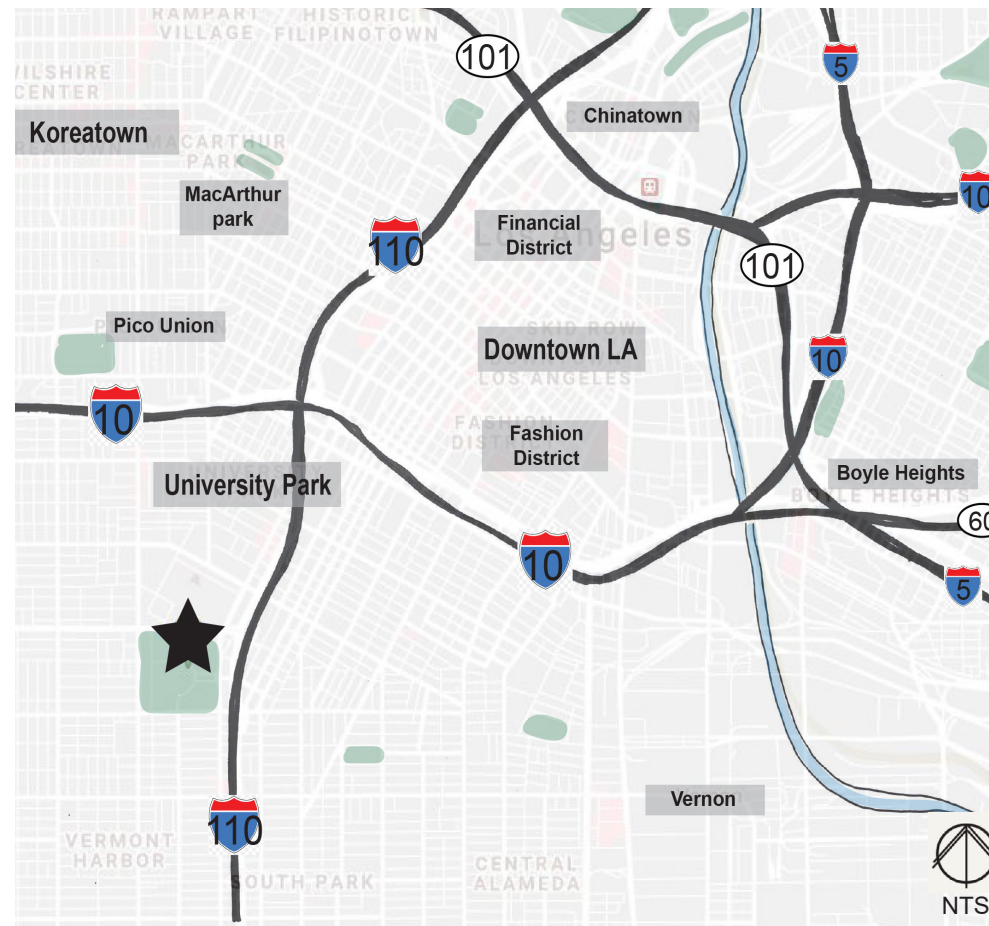
BIOSWALE

CONCRETE PAVERS W/ VEGETATION

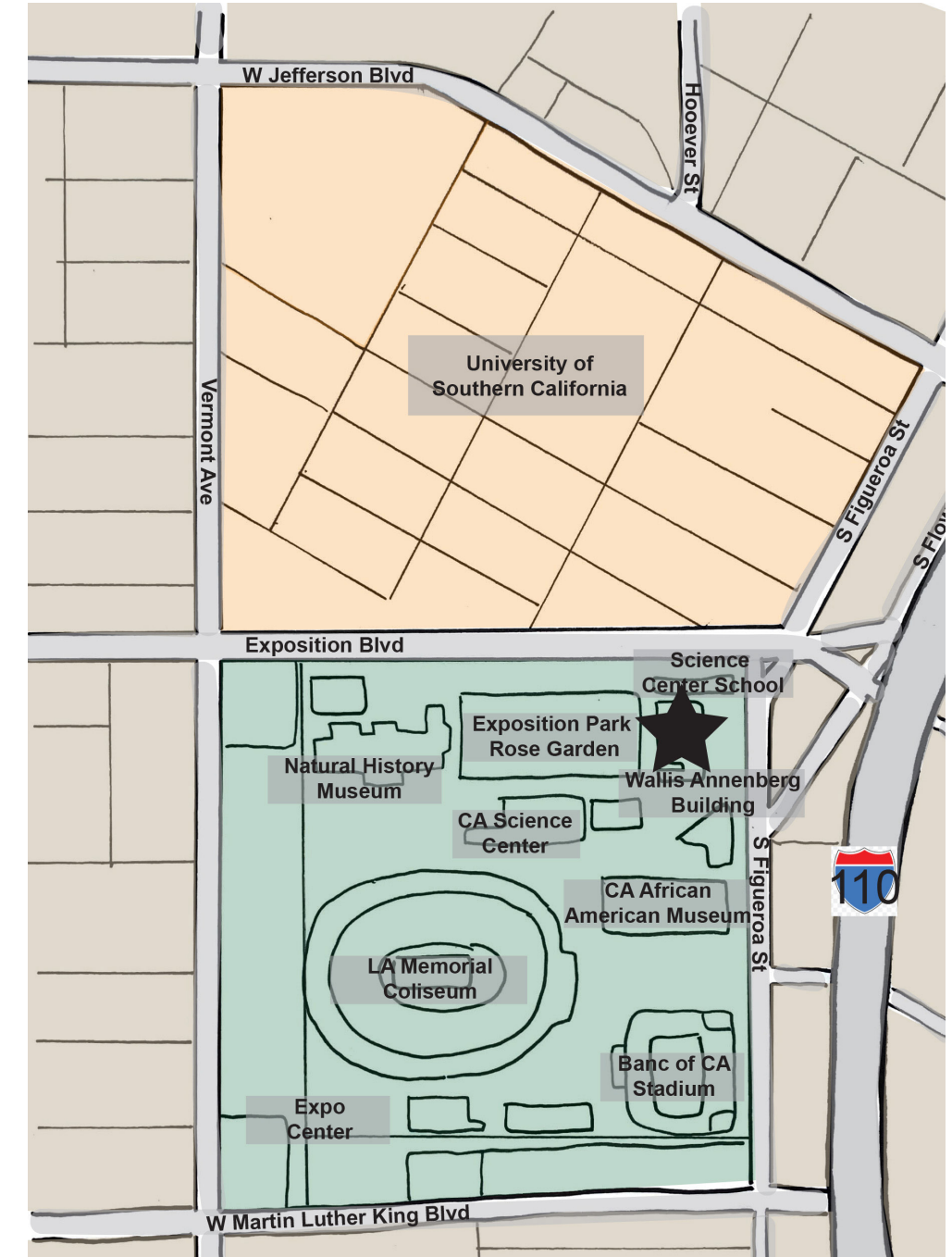




Location Map



Regional Map

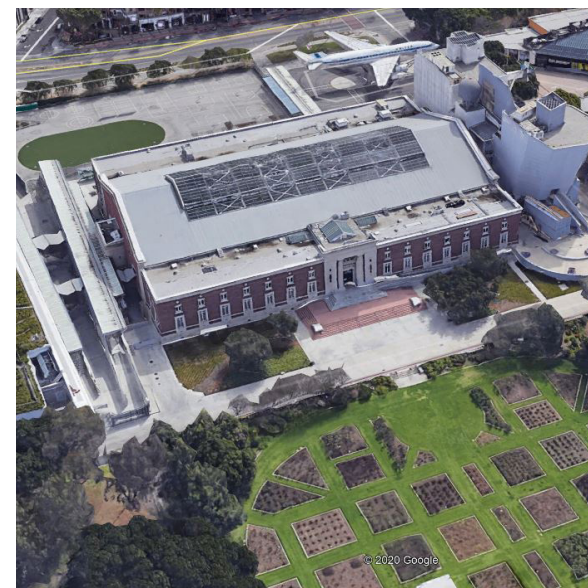


Context Map

- Key
- Exposition Park
 - University of Southern California campus
 - Mixed use- Commercial/residential space

WALLIS ANNENBERG BUILDING AT EXPOSITION PARK

The Wallis Annenberg Building (also known as the California Science Center) is located at the northeastern part of Exposition Park near USC's campus, just south of Downtown LA. Exposition Park hosts many iconic educational facilities; science centers, museums, and stadiums. The Wallis Annenberg Building, located just east of the historic 7-acre Rose Garden, is a science center that hosts students, teachers, and professionals. The building's west entrance has two impressive sets of staircases in brick and granite, and a concrete ADA ramp just to the south.





A (P4)



B (P5)



C (P6)



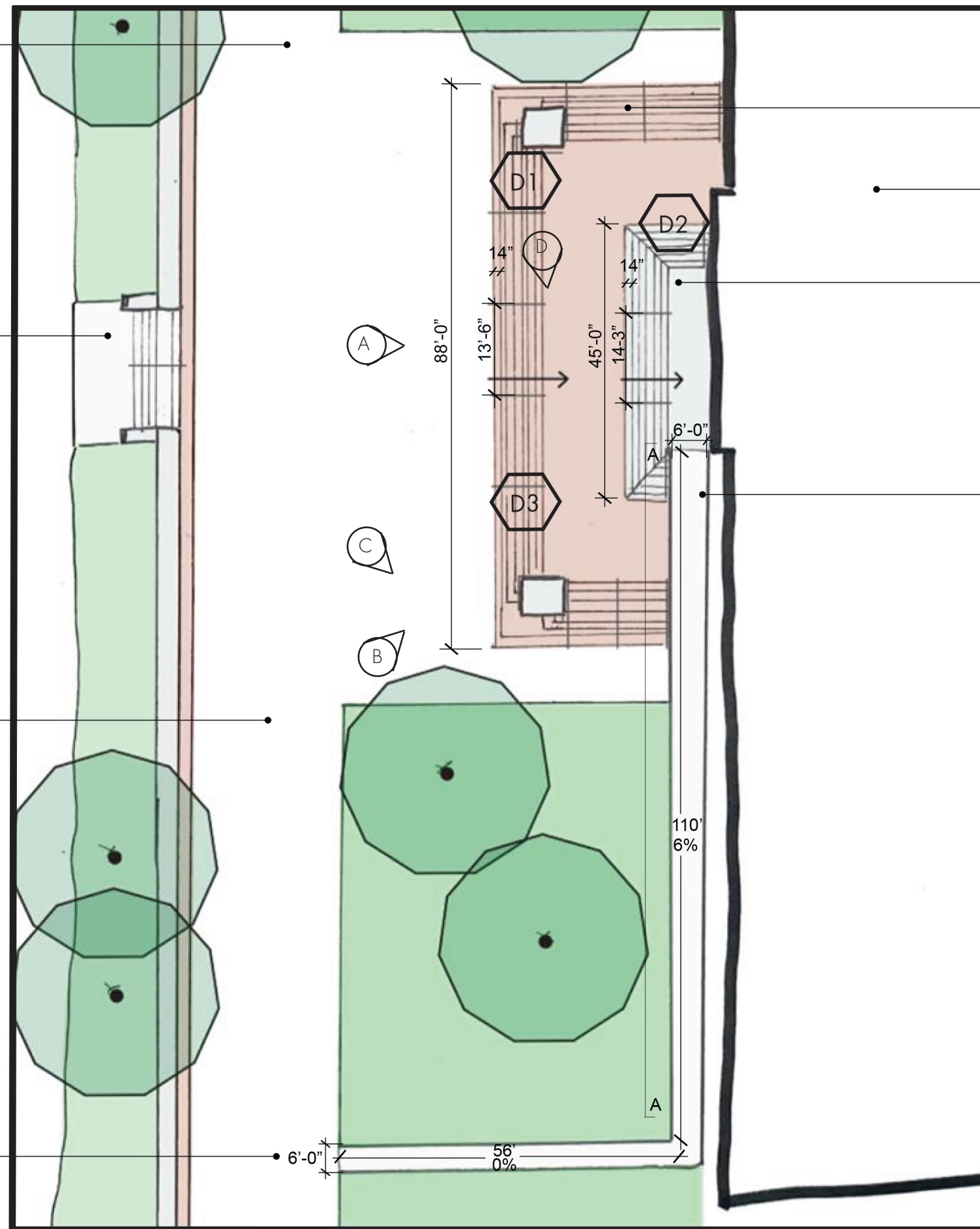
D (P7)

WALKWAY TO EXPOSITION BLVD

STAIRS DOWN TO ROSE GARDEN

WALKWAY TO STATE DR

ADA RAMP ENTRANCE



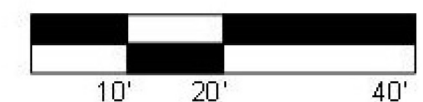
BRICK STEPS- 8 STEPS WITH HANDRAILS

WALLIS ANNENBERG BUILDING

GRANITE STEPS- 7 STEPS WITH HANDRAILS

CONCRETE ADA RAMP WITH HANDRAILS

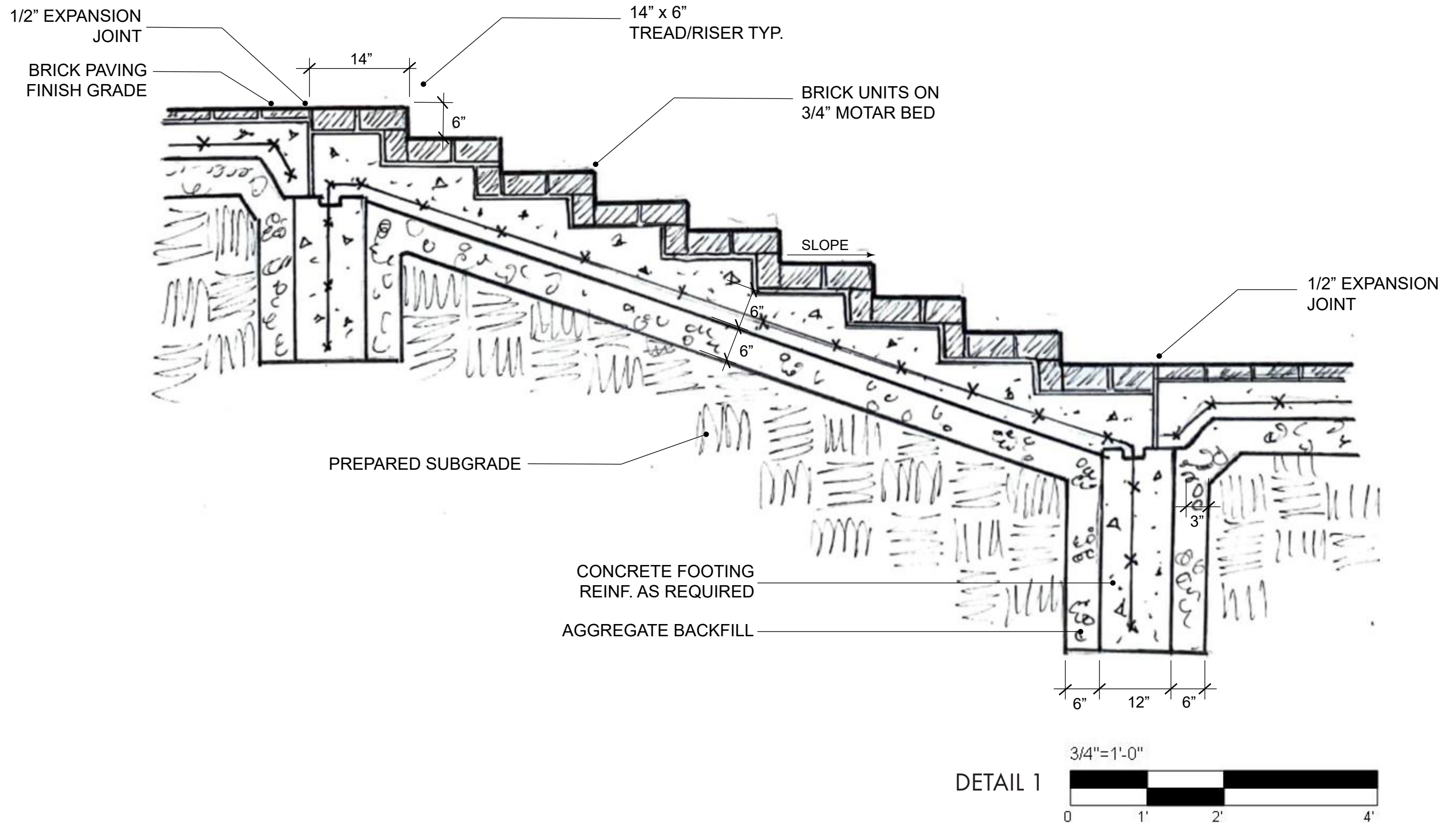
1"=20'-0"



D1

BRICK-VENEERED STEPS ON CONCRETE BASE

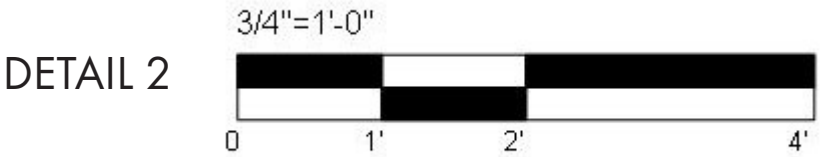
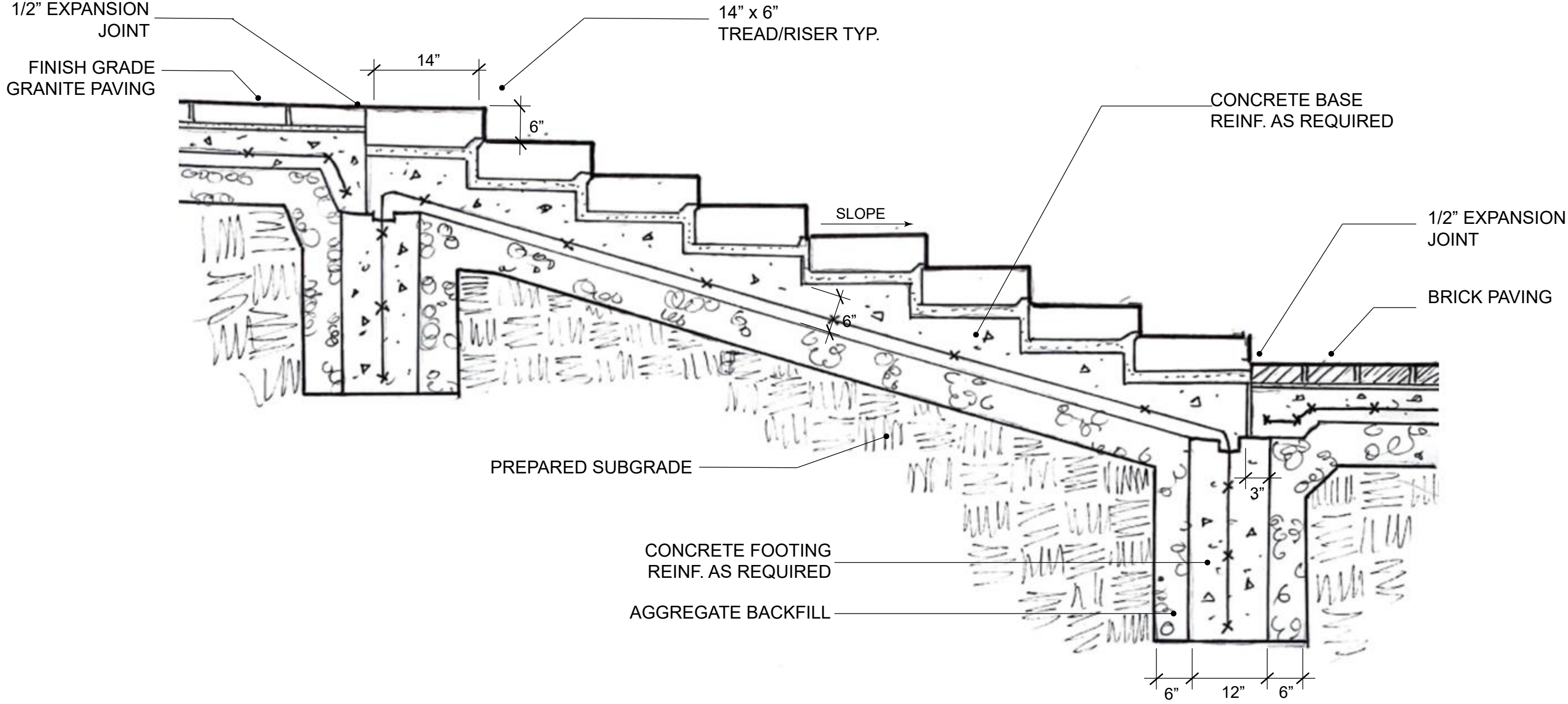
The first flight of stairs consists of eight brick-veneered steps. This mortared brick veneer step detail is rated for heavy-duty applications based on thickness of concrete and aggregate base. Rigid pavement design must accommodate movement of materials by providing adequate expansion and control joints.



D2

GRANITE STEPS ON CONCRETE BASE

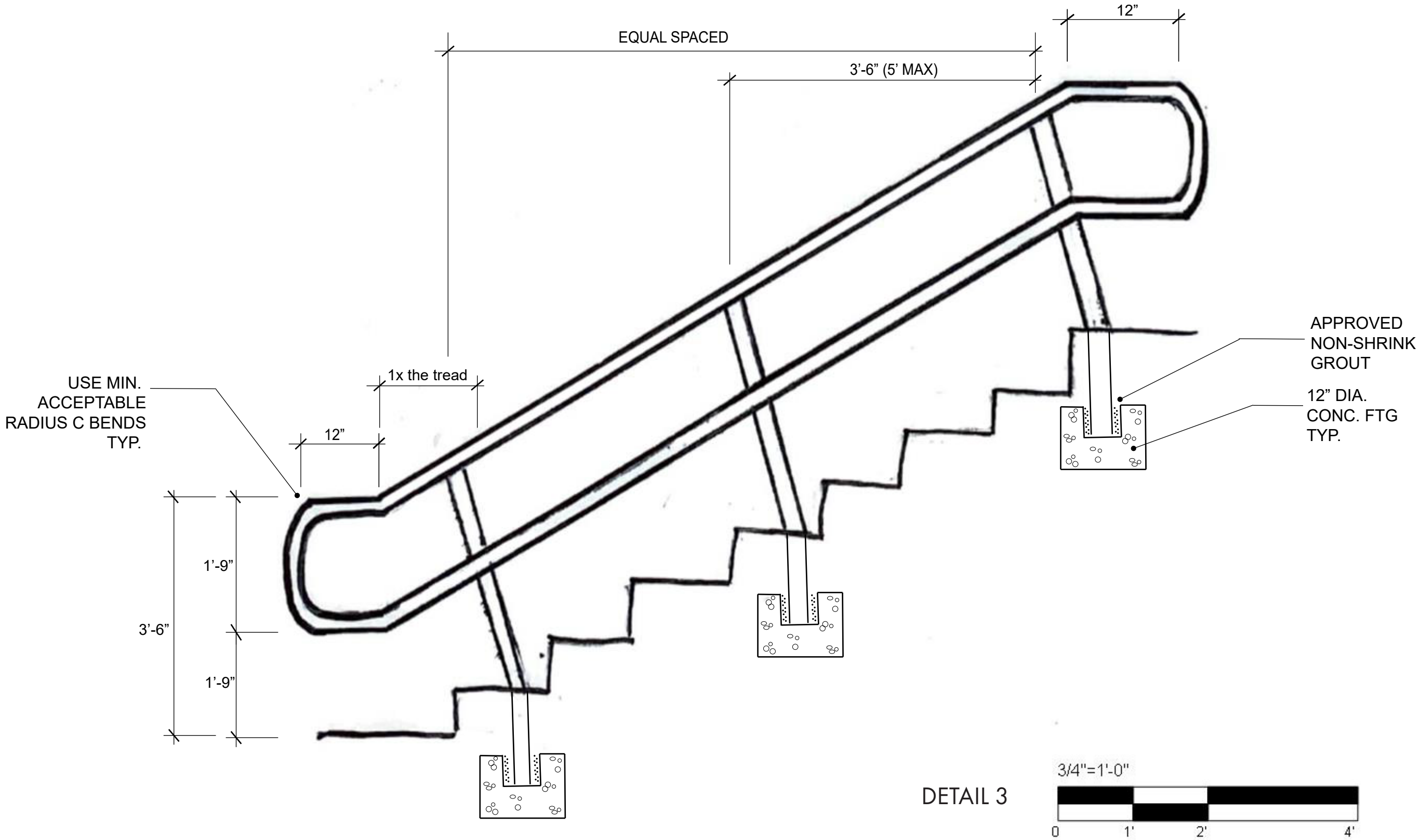
The second set of steps consists of seven granite pavers steps. This granite step detail is rated for heavyduty applications based on thickness of concrete and aggregate base. Rigid pavement design must accommodate movement of materials by providing adequate expansion and control joints.



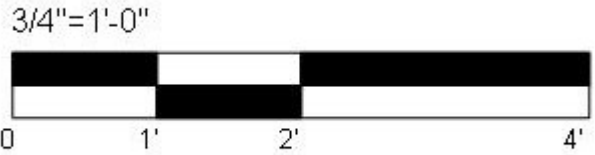


HANDRAIL

Typical handrails are uniformly placed along both brick and granite steps.



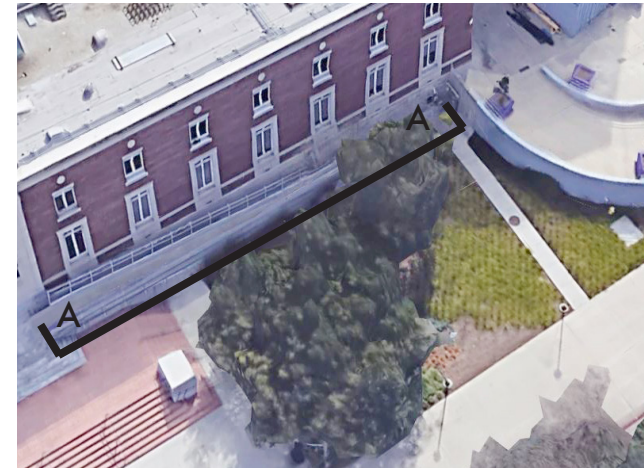
DETAIL 3



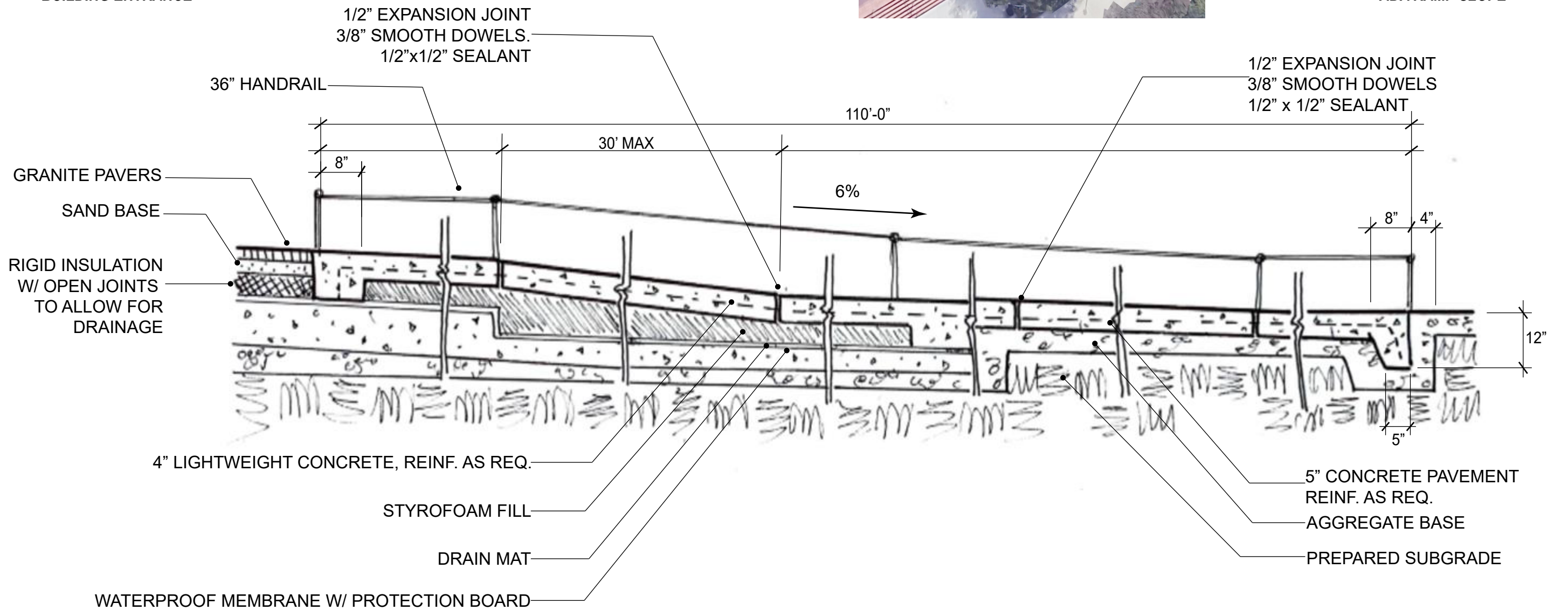
A
A

SECTION A-A'

This section detail shows the 110' ADA ramp leading up to the entrance to the building. At the start of the ramp, the concrete ramp is placed on an aggregate base. This detail shows concrete cheek wall for continuous support of ramp unit. Ramp rests on a sill and abuts the walls with a continuous expansion joint sealed to prevent moisture penetration. As the ramp crosses the stairs, it rests on the existing structure. Ramp base rests on a heavy-duty drain mat resting on protection board and sloping waterproof membrane. Ramp slab is paced on styrofoam fill to reduce weight. Base of styrofoam is typically grooved for drainage over drain mat.



BEGINNING OF
ADA RAMP SLOPE



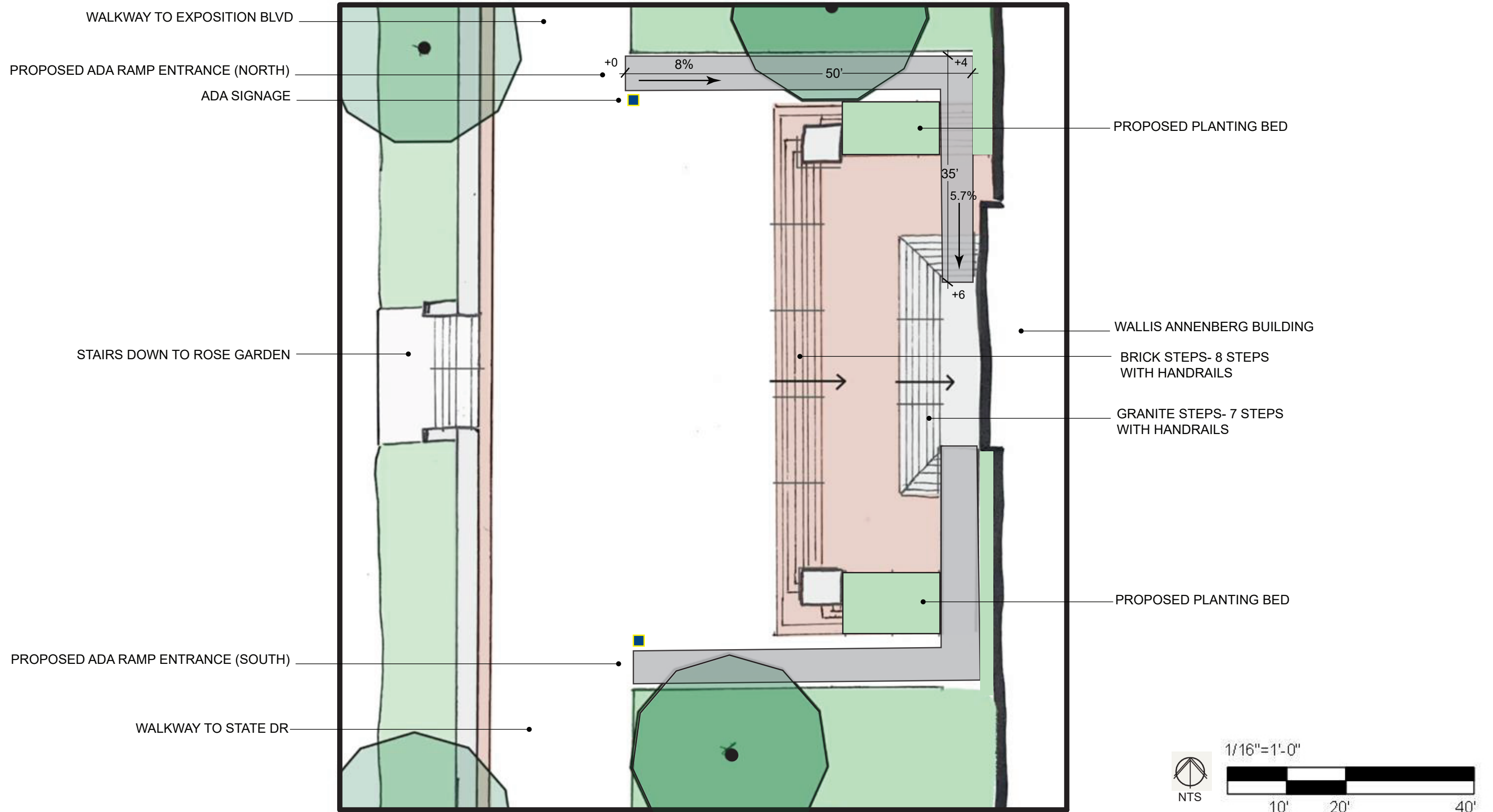
SECTION

1/2"=1'-0"



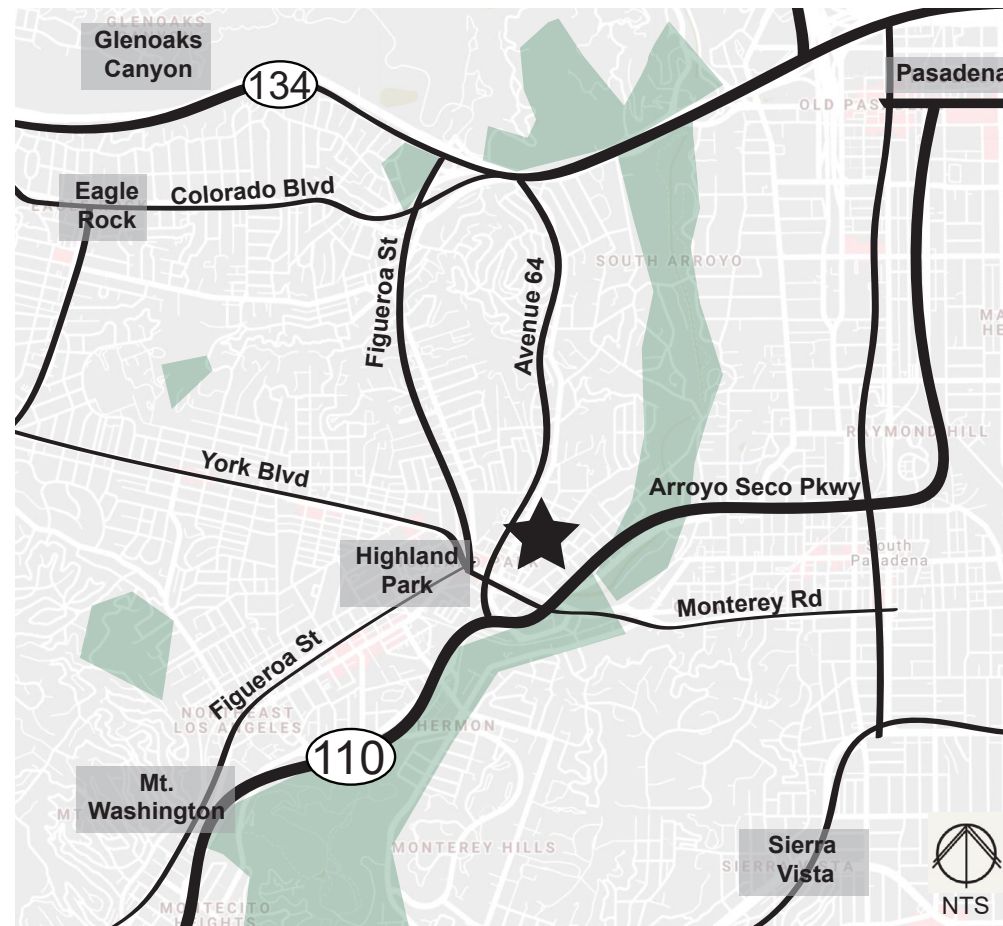
REDESIGN: MIRRORED CONCRETE RAMPS AT ENTRANCE
INTRODUCTION OF TWO CONCRETE RAMPS CLOSER TO THE MAIN ENTRANCE

- Currently, the ADA ramp entrance is placed over 100' away from the entrance to the building. The introduction of two mirrored ramps, on the North and South sides of the staircase, would make the ADA ramps more accessible.
- The proposed ramps would be concrete on concrete and aggregate base. Additional planting beds would beautify the area around the ramps.

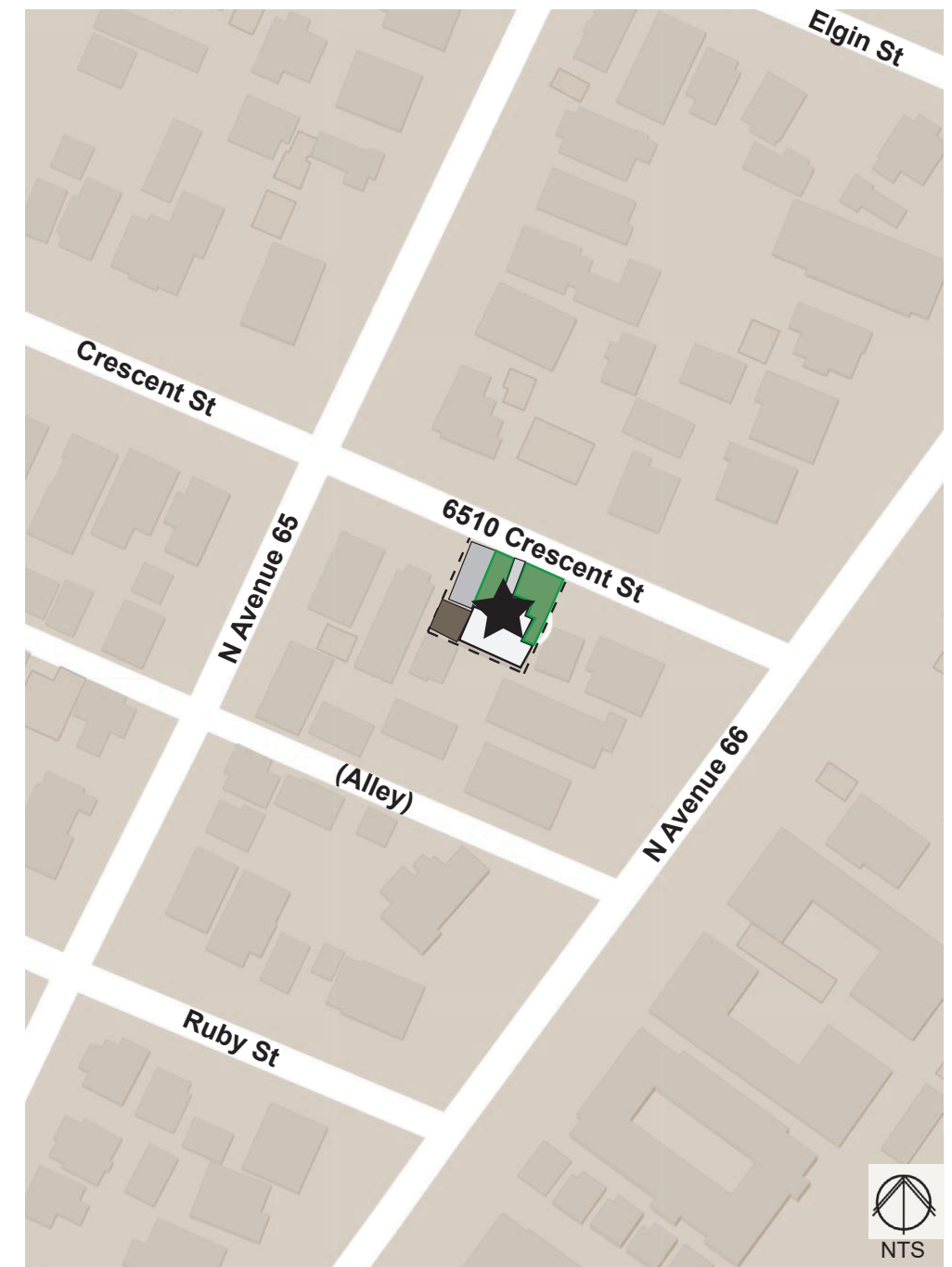




Location Map



Regional Map



Context Map

Key

-  6510 Crescent St
-  Property line
-  Residential

RESIDENTIAL HOME IN HIGHLAND PARK

This property is in the Highland Park area in a residential neighborhood of the Garvanza District. The single family craftsman home is on a 3000 sqft lot, with a manicured yard and small outdoor patio. A renovation proposes to remove the carport, and replace it with a new deck and pergola that comes off the kitchen door. This would create a place to entertain, more landscape space, and an attractive entrance off the driveway.



(P8)



(P9) Complete view of house and adjacent carport



B (P10) Concrete driveway into carport



(P11) Carport with wood fence, side door into kitchen



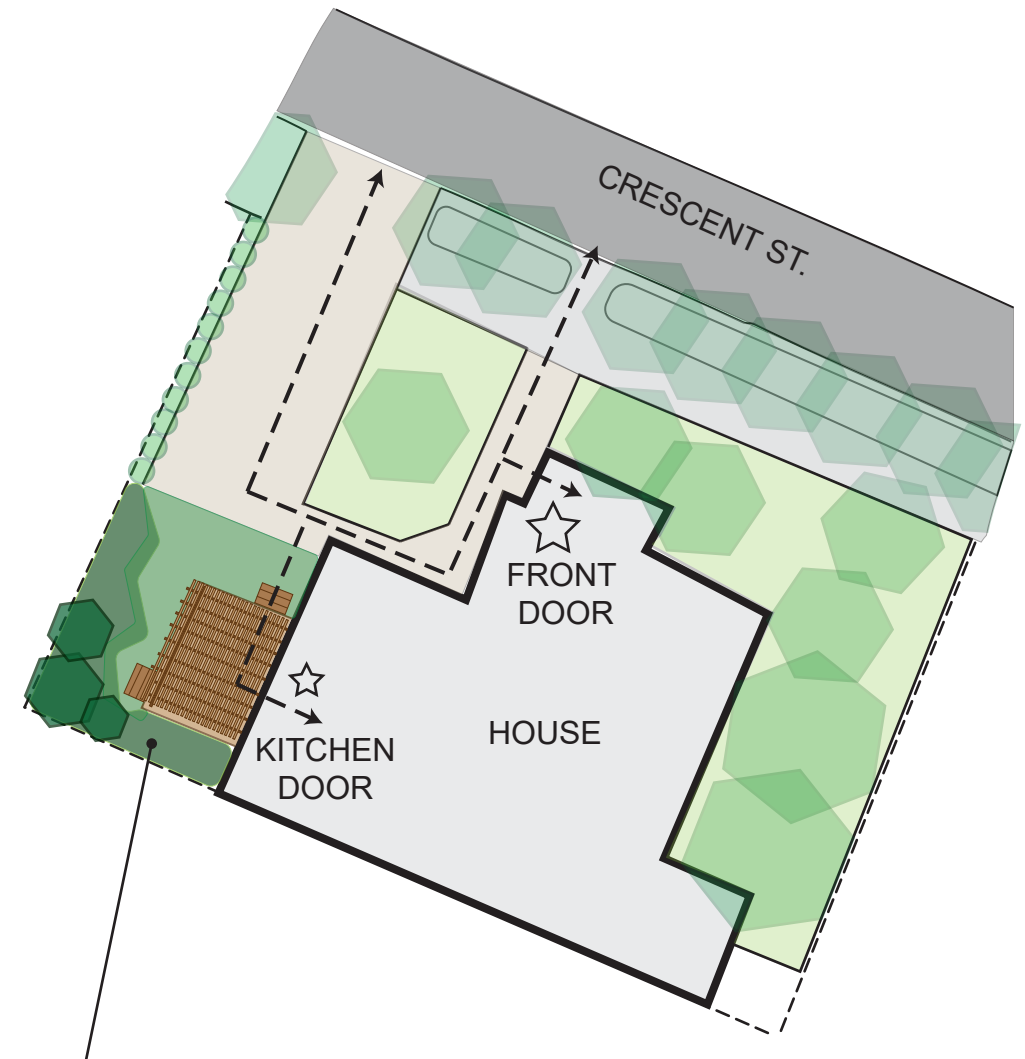
(P12) View from sidewalk

EXISTING SITE- CARPORT

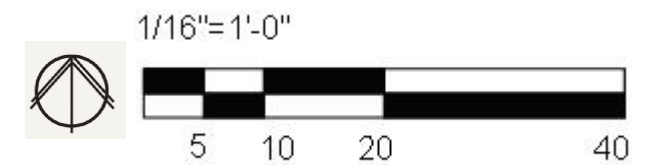


Currently, a concrete driveway leads to a carport that has steps up to the kitchen door. The carport is an old wooden overhead structure, and the posts are mounted poorly to the concrete below. This area is unlike the rest of the property, which is well manicured and inviting.

PROPOSED SITE- DECK & PERGOLA WITH GARDEN

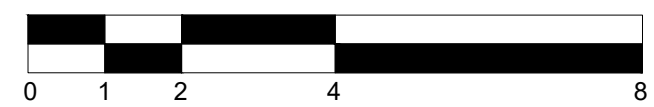
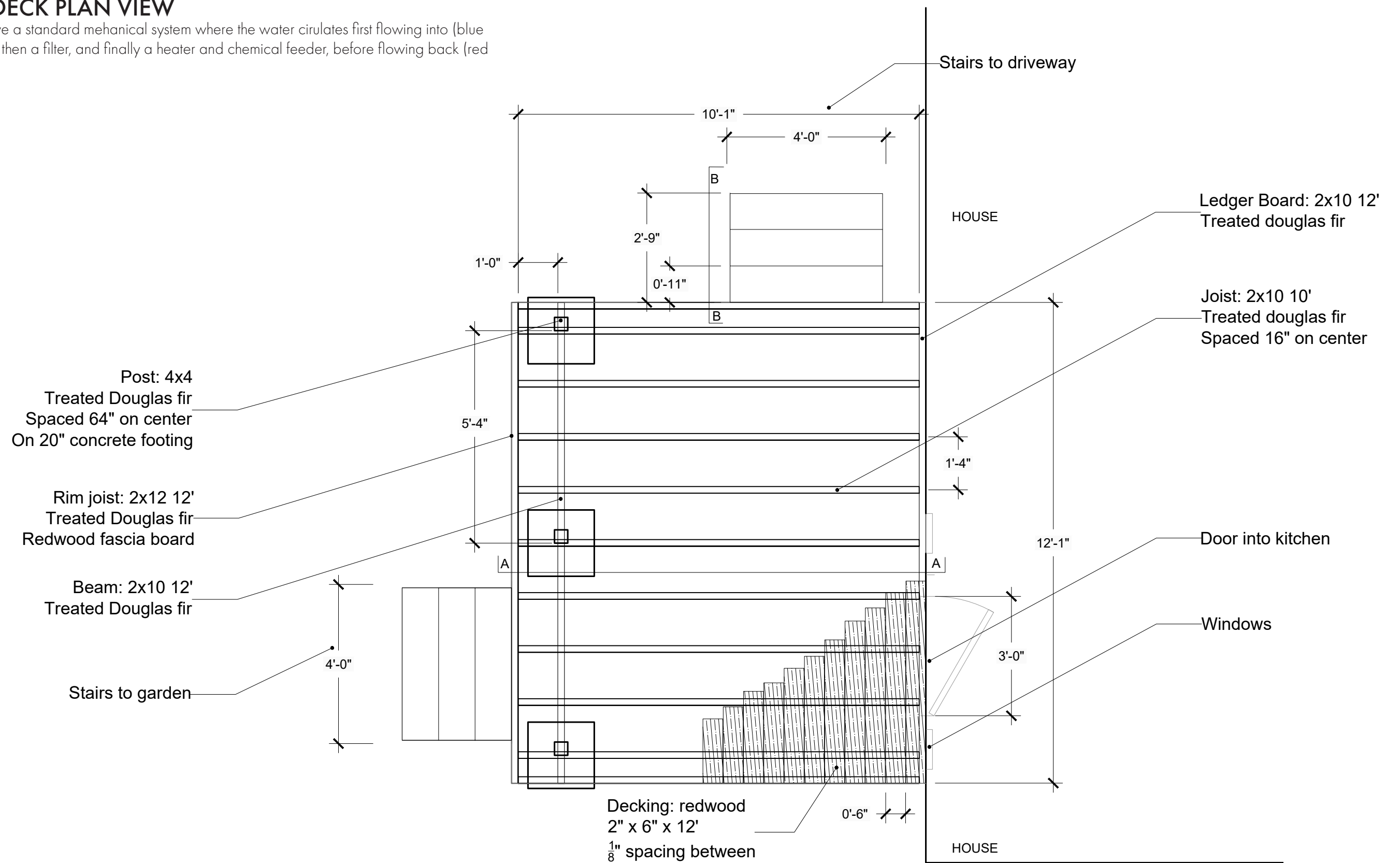


The proposed renovation is to remove the carport and concrete, and add a 10'x12' deck with shade pergola that comes off the kitchen door. This also leaves room for additional landscaping around the new entertainment space. Two staircases allow for easy access from the driveway to the kitchen or down to the garden. This raises the property value by adding an attractive element, while still leaving plenty of room for parking.

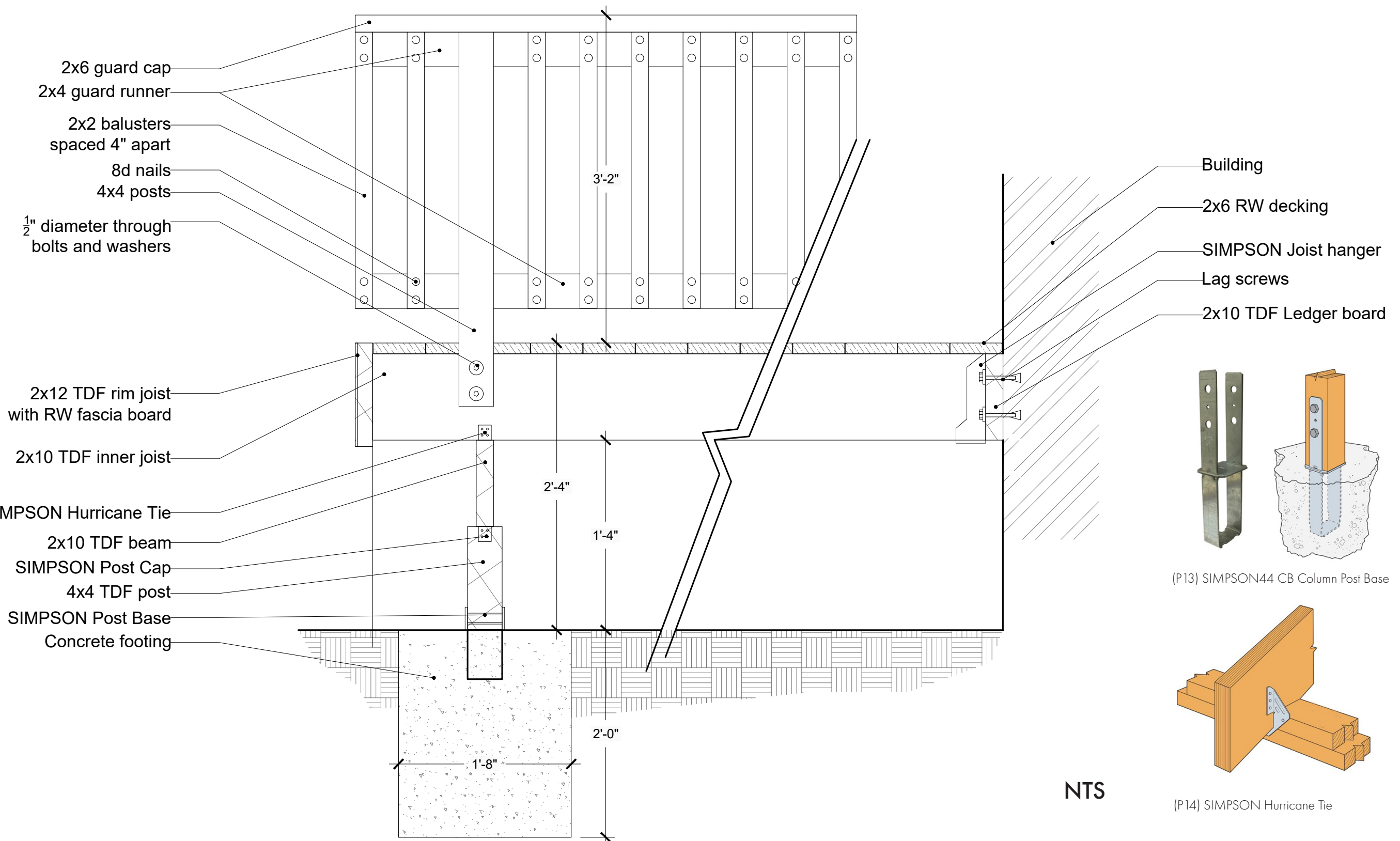


PROPOSED DECK PLAN VIEW

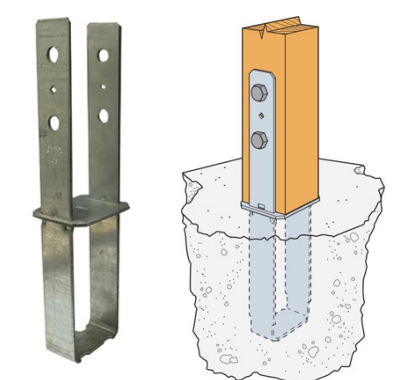
The pool and spa have a standard mechanical system where the water circulates first flowing into (blue line) through a pump, then a filter, and finally a heater and chemical feeder, before flowing back (red line) into the pool.



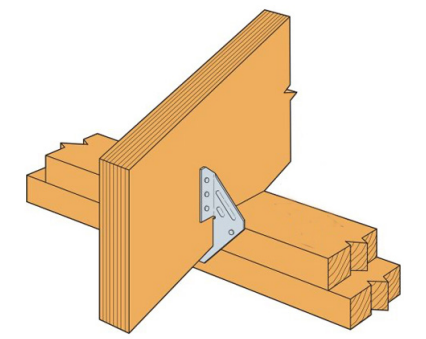
SECTION A-A'



- Building
- 2x6 RW decking
- SIMPSON Joist hanger
- Lag screws
- 2x10 TDF Ledger board



(P13) SIMPSON44 CB Column Post Base

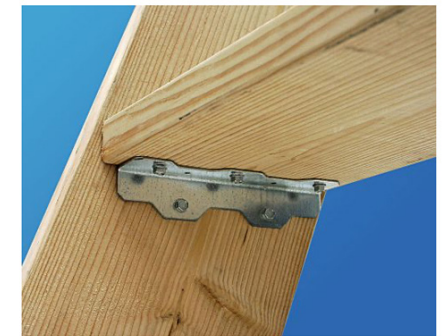
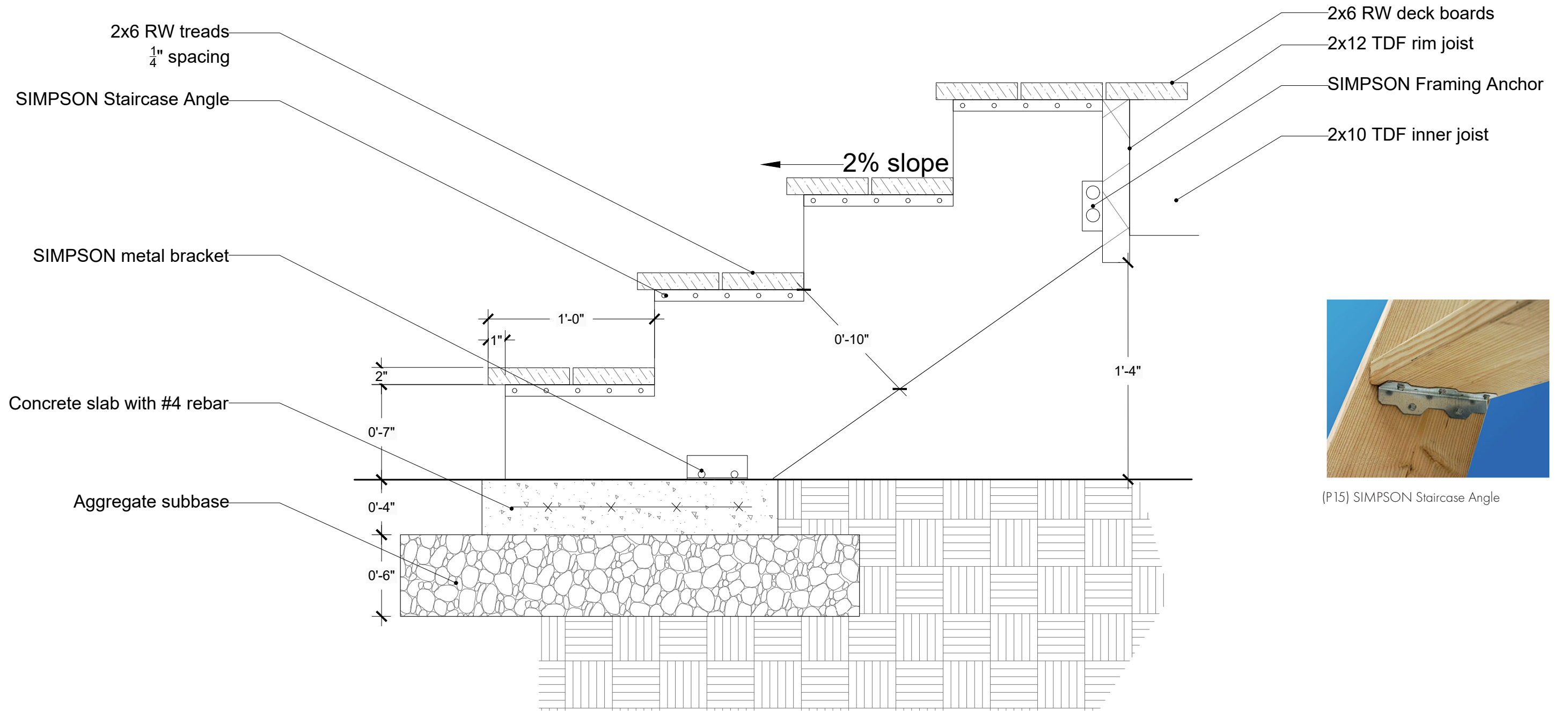


(P14) SIMPSON Hurricane Tie

NTS

B
B

SECTION B-B'

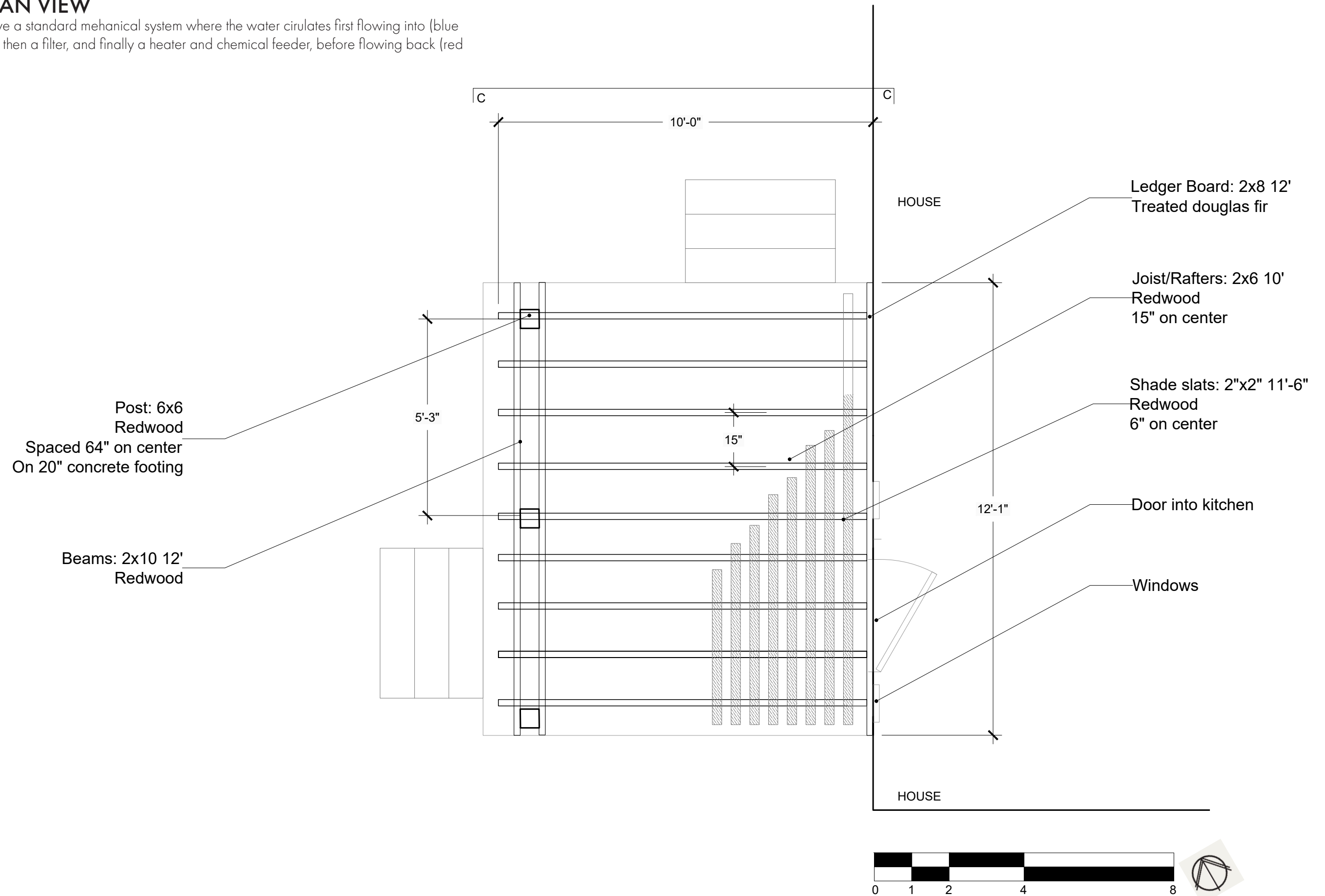


(P15) SIMPSON Staircase Angle

NTS

PERGOLA PLAN VIEW

The pool and spa have a standard mechanical system where the water circulates first flowing into (blue line) through a pump, then a filter, and finally a heater and chemical feeder, before flowing back (red line) into the pool.



SECTION C-C'

2x6 DF ledger

$\frac{3}{8}$ "X6" lag bolt
36" on center

SIMPSON joist hanger

2x6 RW joist

Building

SIMPSON Angle Bracket
w/ wood screws

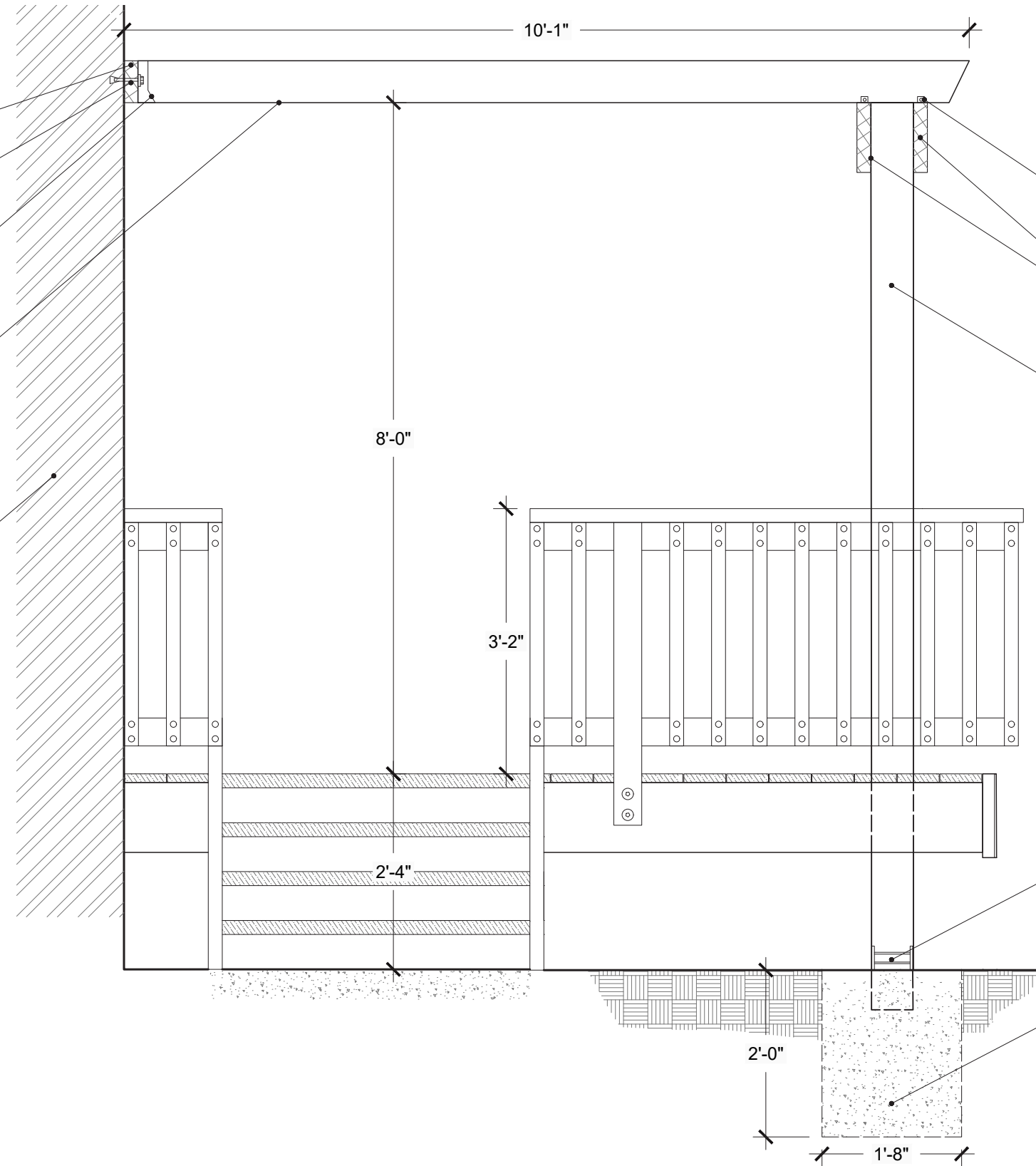
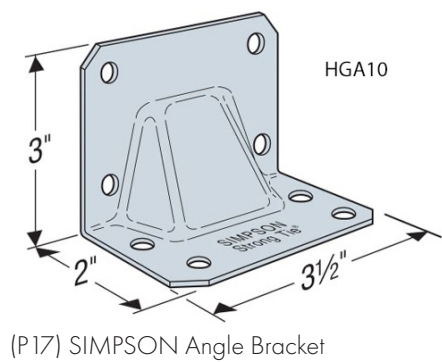
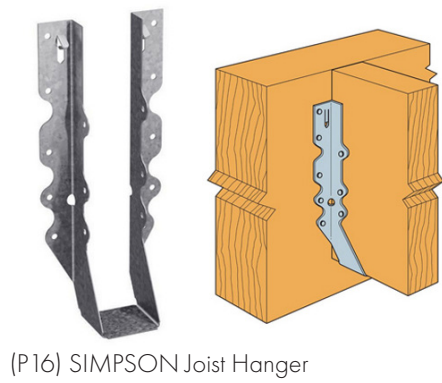
2x10 RDW beams

6x6 RDW post

SIMPSON 44 CB
column base HD

20" concrete footer

NTS

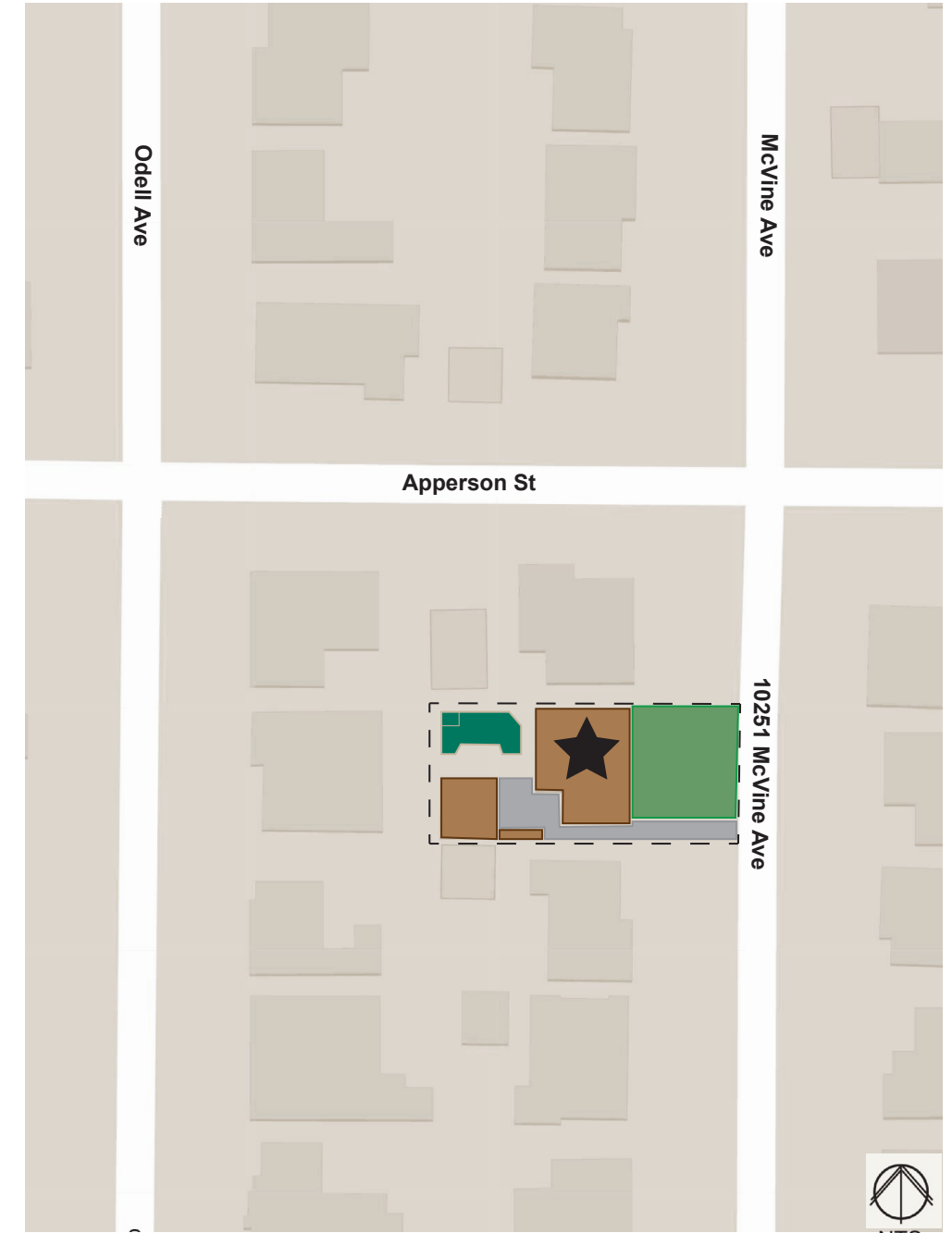




Location Map



Regional Map



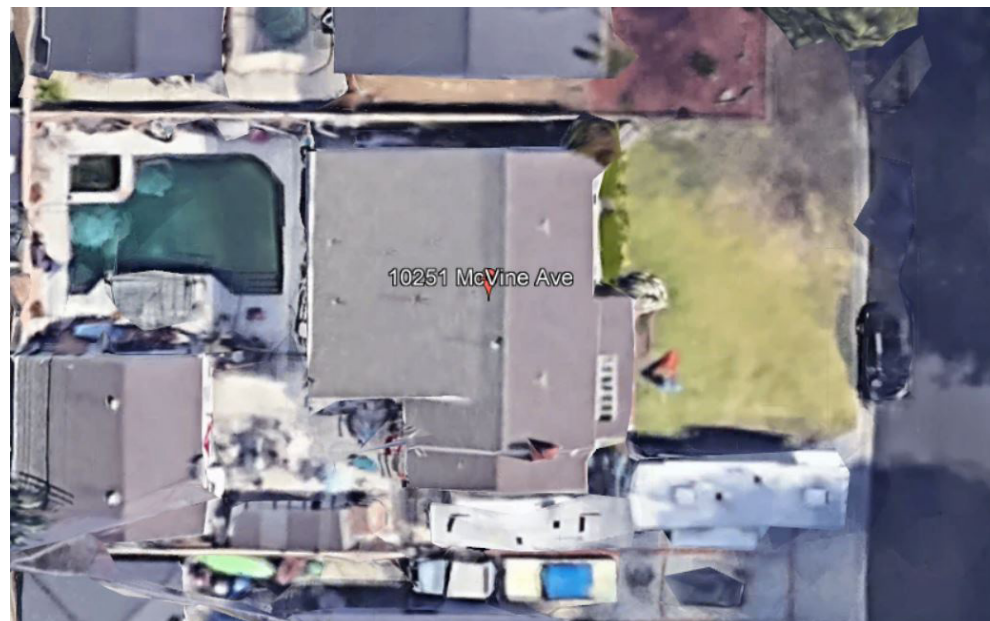
Context Map

Key

- ★ 10251 McVine Ave
- - - Property line
- Residential

RESIDENTIAL HOME IN SUNLAND-TUJUNGA

This property is in the Sunland-Tujunga area in a heavily residential neighborhood. The single family home is on a 6500 sqft lot, with a pool and spa in the backyard next to a detached garage. While the home was built in 1948, the 20' x 30' pool and spa are a more recent edition, and have a sleek look with concrete and stone features.





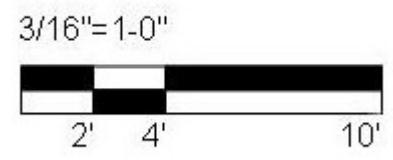
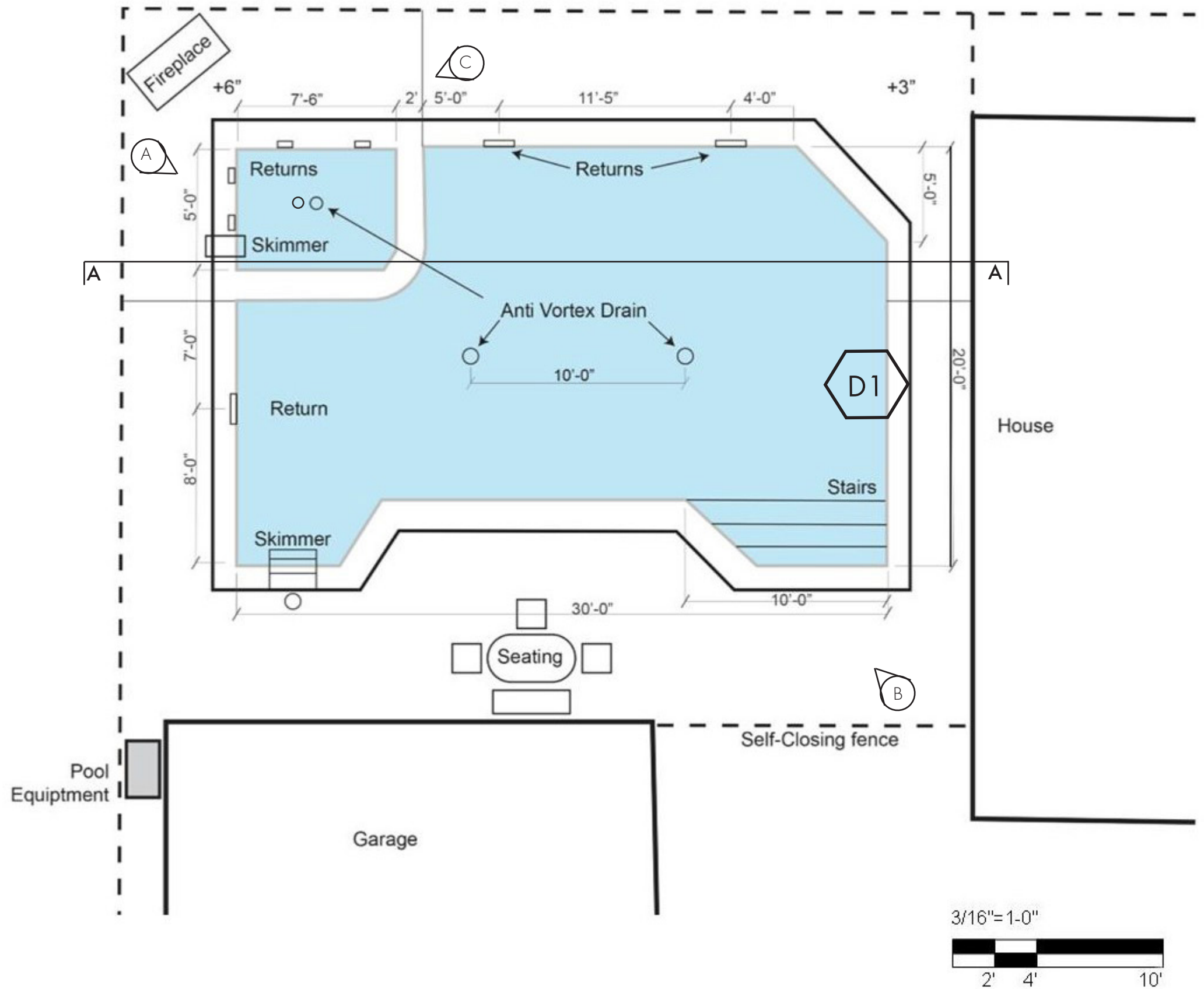
A (P18) View from the spa, elevated 6" above grade



B (P19) Pool area entrance, view of stairs into pool



C (P20) Spa with outdoor fireplace

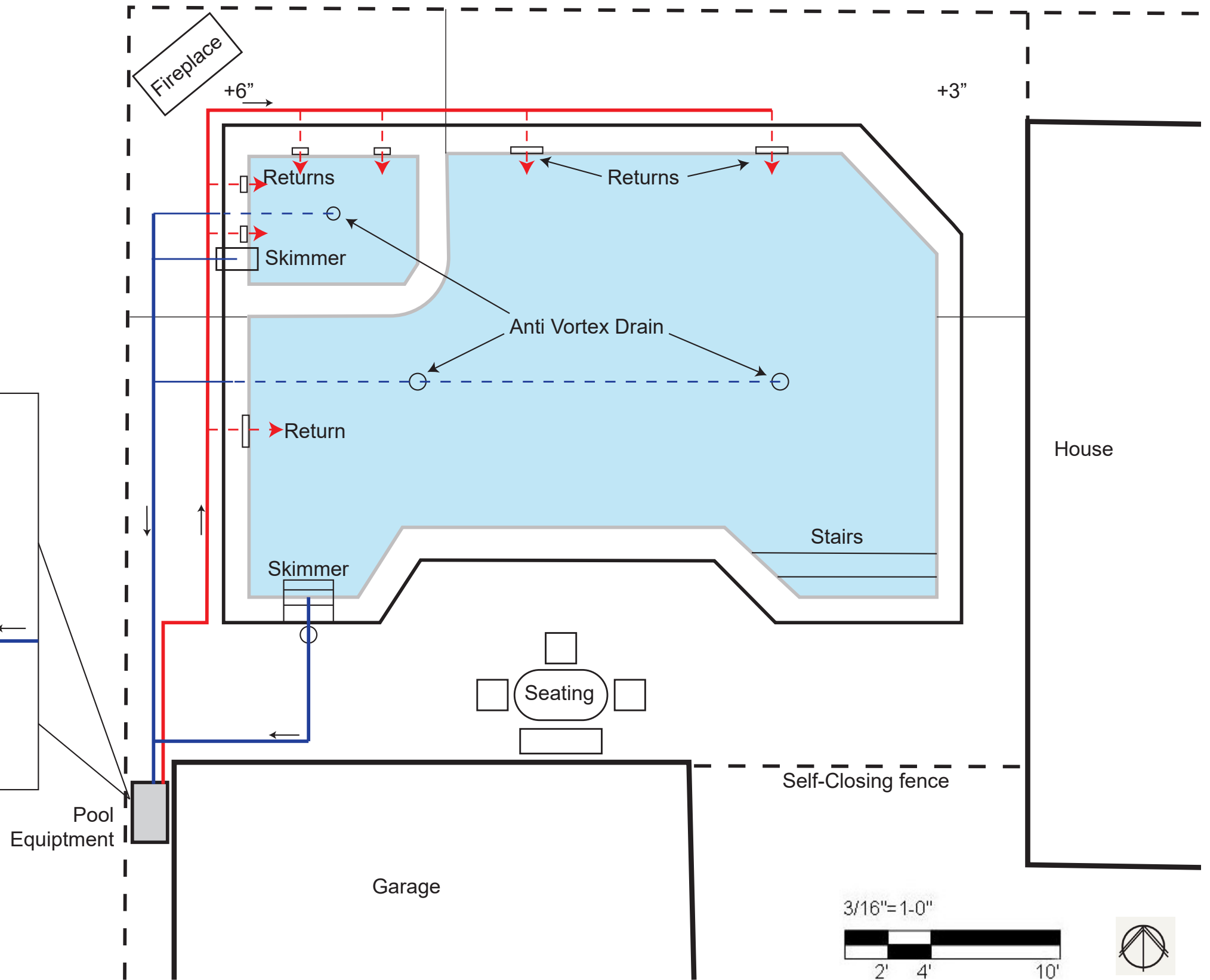
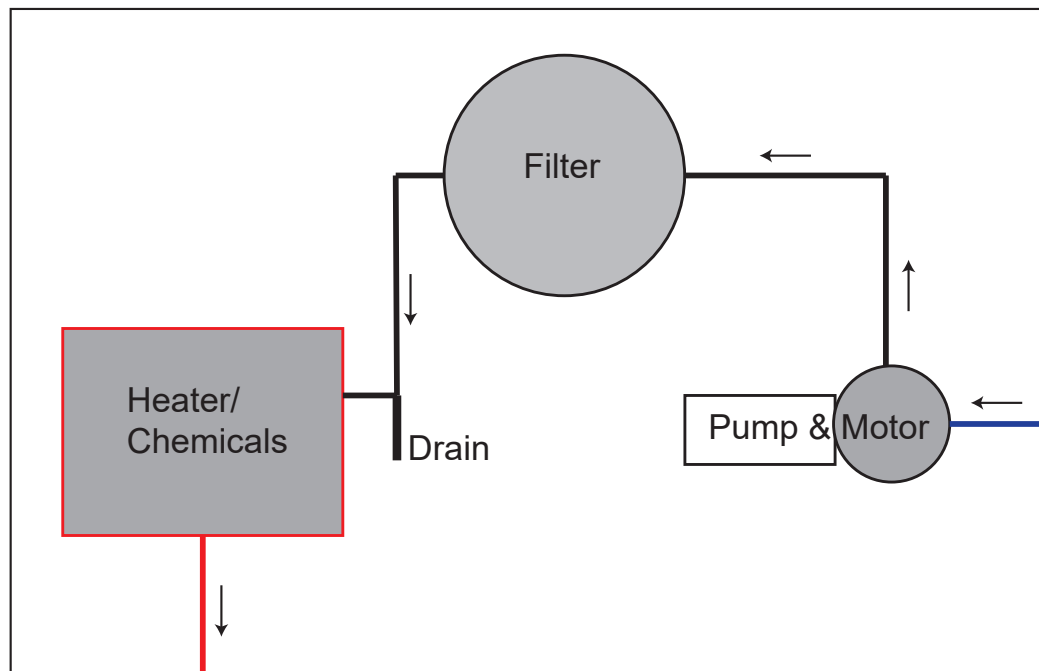


POOL SYSTEM SCHEMATIC

The pool and spa have a standard mechanical system where the water circulates first flowing into (blue line) through a pump, then a filter, and finally a heater and chemical feeder, before flowing back (red line) into the pool.

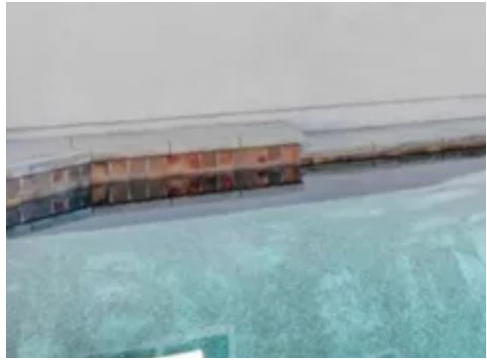


(P21) Pool equipment located behind garage

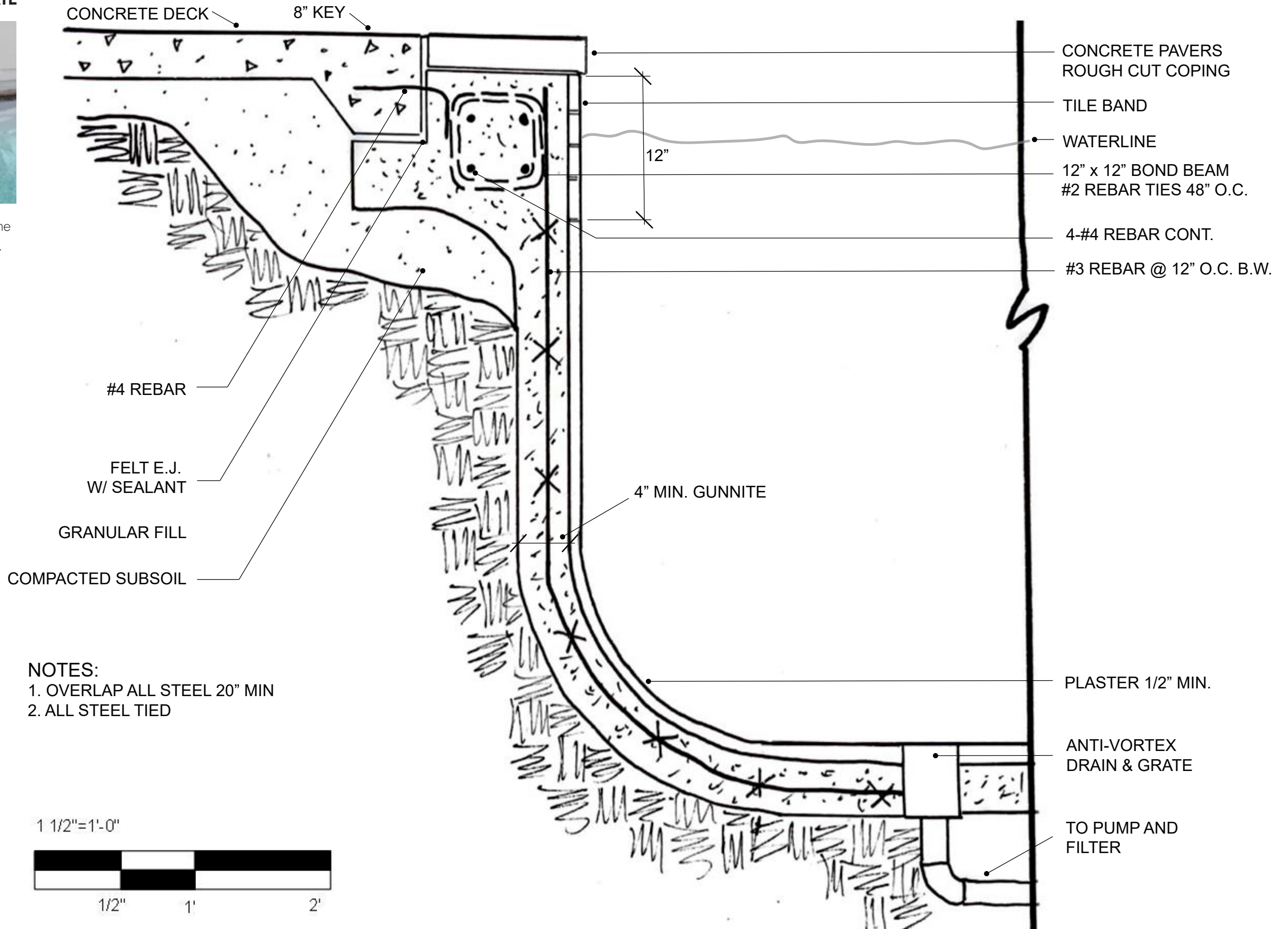


D1

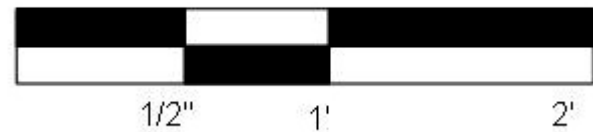
CROSS-SECTION DETAIL



The pool deck is concrete, as well as the pavers which have a rough cut coping.

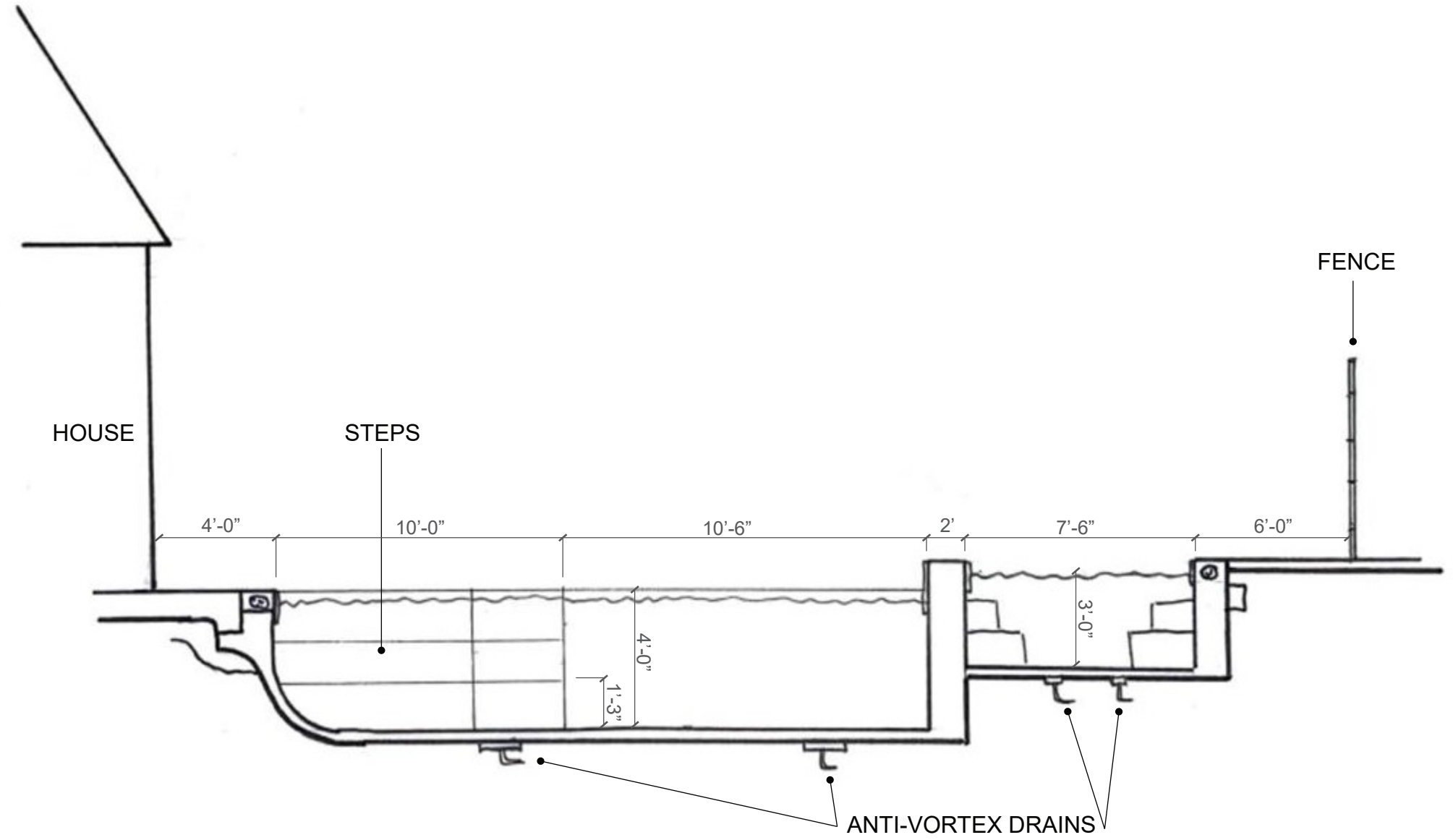
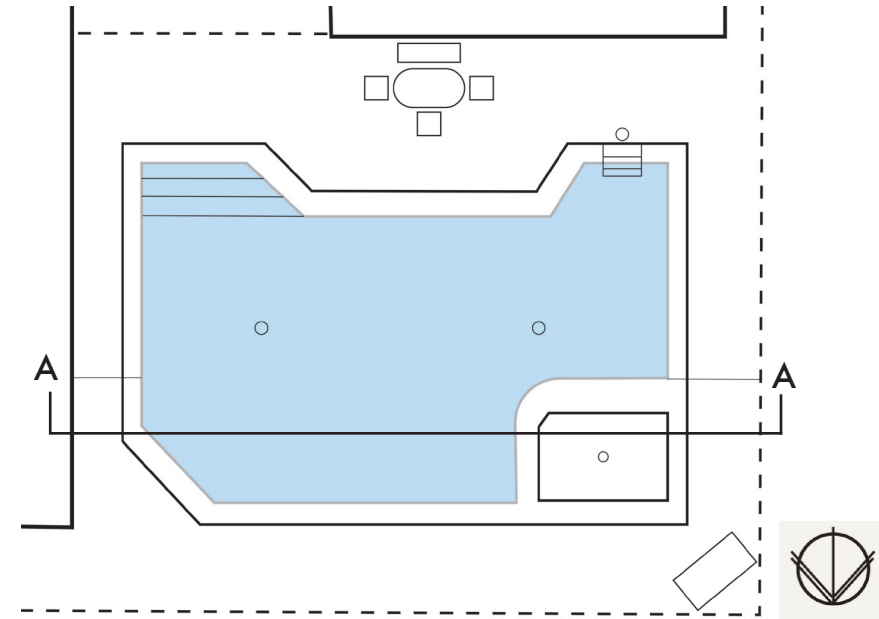


DETAIL 1

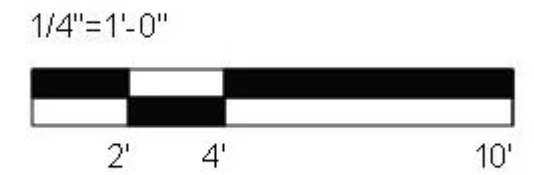


SECTION A-A'

KEY MAP

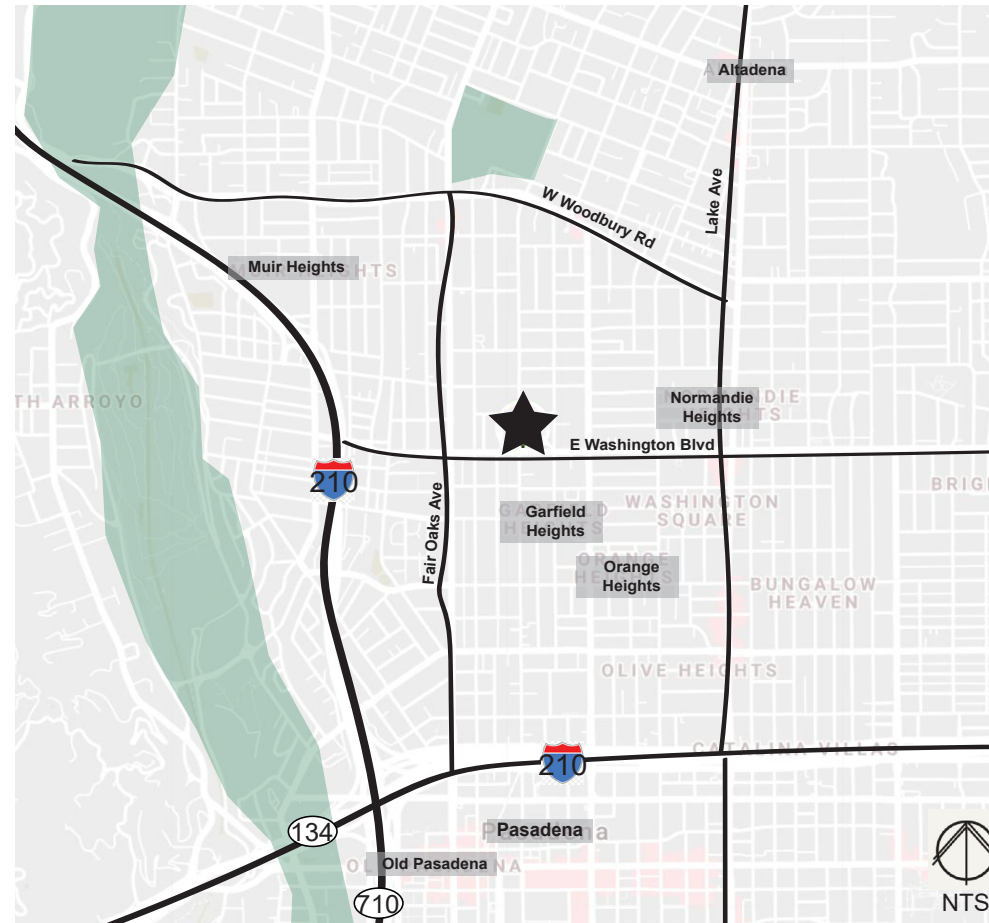


SECTION A-A'

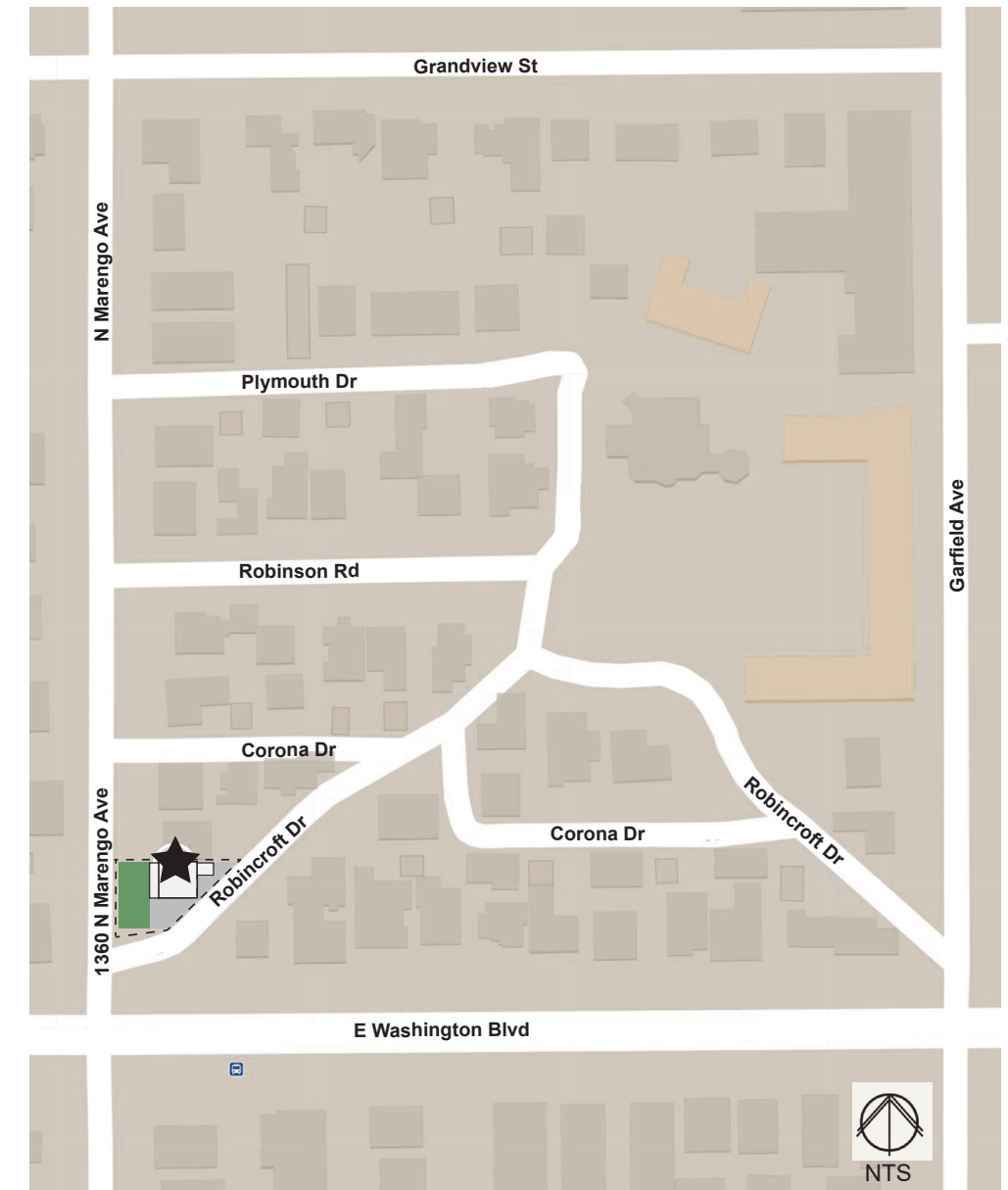




Location Map



Regional Map



Context Map

Key

-  1360 N Marengo Ave
-  Property line
-  Residential

RESIDENTIAL HOME IN PASADENA

This property is in the Pasadena area in a residential neighborhood. The single family home is on a 3100 sqft lot, with a front yard facing N Marengo Ave. To access the house, there is a driveway and a patio off Robincroft Dr. This area lacks street lights and is very dark at night.



(P22)

SITE PLAN / CIRCUIT CALCULATIONS

The proposed lighting design plan highlights the existing plant material and enhances the safety of the home. Fixture A, the path light, outlines the driveway to provide plenty of light when headed to or from the car at night. Fixtures B, the down light, are placed in the larger trees to produce a subtle moonlight effect to the front yard and patio. Fixtures C, the up light, provides some accent lighting for the entertaining area, as well as illuminating the side entrance. There are three circuits; two are located on the front porch and one is on the patio.



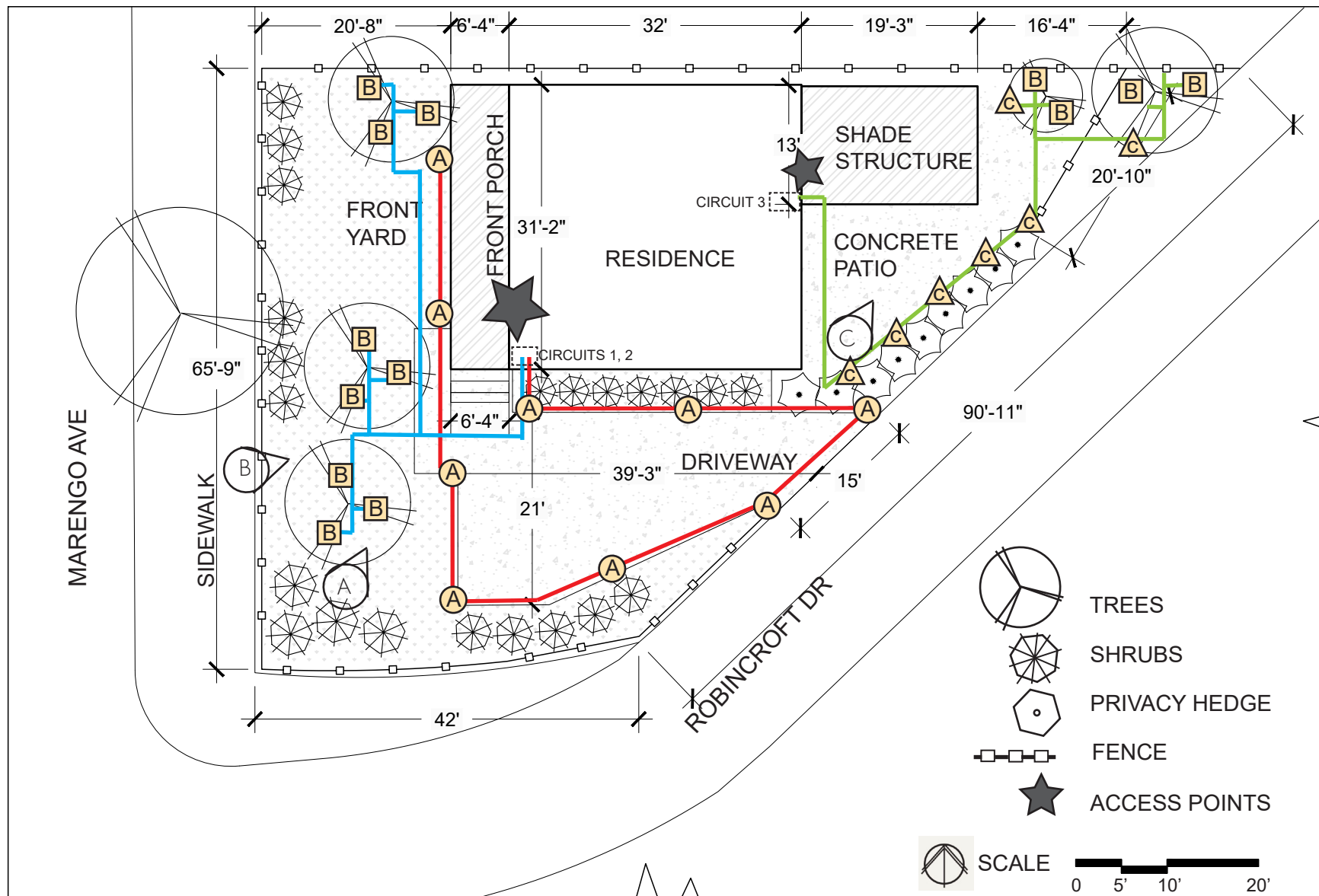
A (P23) View from the front yard, looking at the front porch



B (P24) Aerial view of the front yard and side driveway



C (P25) Patio and privacy hedge blocking Robincroft Dr



CIRCUIT CALCULATIONS

- Ⓐ Path Light: CA, copper/brass, 10 watts
- Ⓑ Down Light: VL, copper/brass, 20 watts
- Ⓒ Up Light: MP, die-cast zinc/aluminum alloy, 10 watts

CIRCUIT 1

- Ⓐ Path light (CA) 10 watts
12' cable, 7500 constant
(10 watts) x (9 fixtures) = 90 watts
(90 watts)/(12 volts) = 7.5 amps
(90 watts x 131') / (7500) = 1.5 voltage drop

CIRCUIT 2

- Ⓑ Down light (VL) 20 watts
12' cable, 7500 constant
(20 watts) x (9 fixtures) = 180 watts
(180 watts)/(11 volts) = 16.3 amps
(180 watts x 87') / (7500) = 2.0 voltage drop

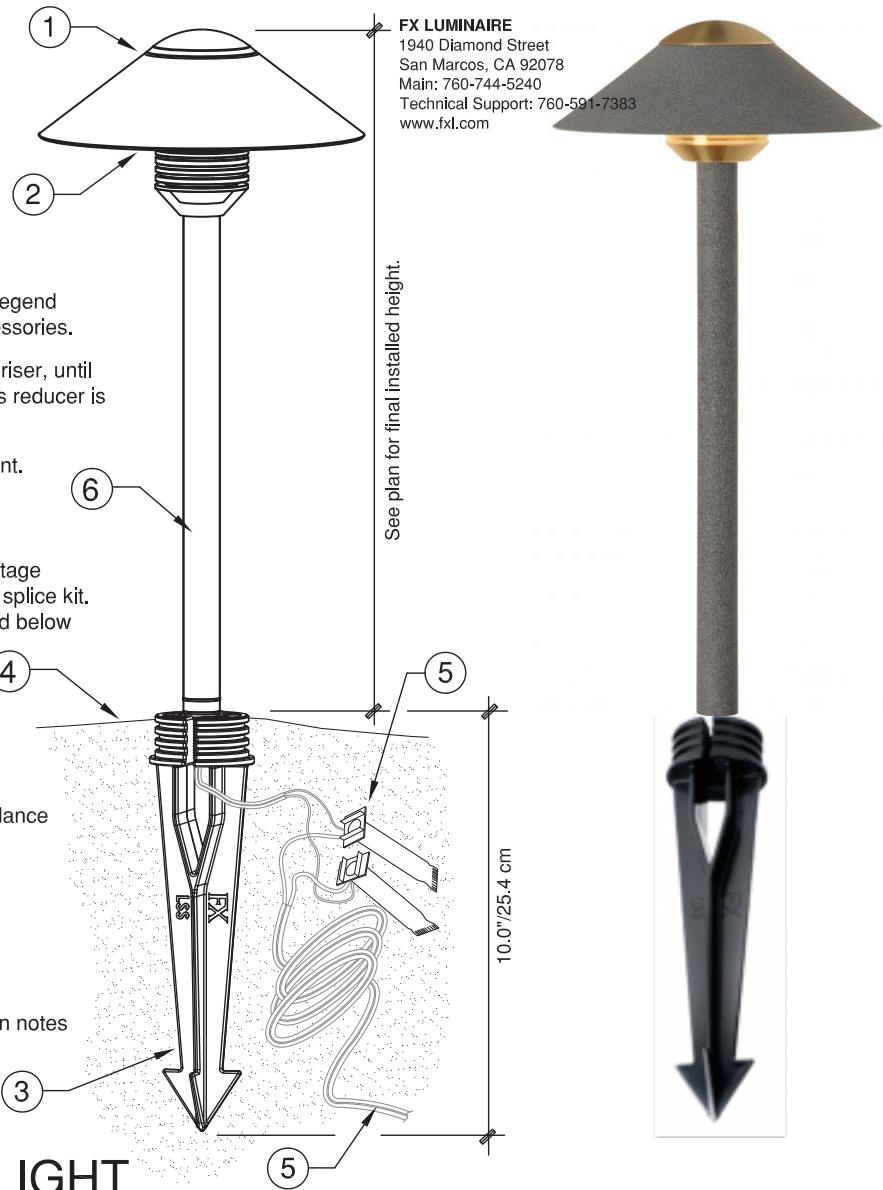
CIRCUIT 3

- Ⓒ Up Light (MP) 10 watts
- Ⓑ Down light (VL) 20 watts
12' cable, 7500 constant
(10 watts x 7 fixtures) + (20 watts x 4 fixtures) = 97 watts
(97 watts)/(11 volts) = 8.8 amps
(97 watts x 77') / (7500) = 1.0 voltage drop

Ⓛ LUXOR Controller, 150 watts

A CA: PATH LIGHT

FXLuminaire.



FX LUMINAIRE
 1940 Diamond Street
 San Marcos, CA 92078
 Main: 760-744-5240
 Technical Support: 760-591-7383
 www.fxl.com

DETAIL LEGEND

- ① FX Luminaire CA fixture. See plan legend for wattage, beam spread and accessories.
- ② Twist top assembly clockwise onto riser, until the gap between the lens and brass reducer is completely sealed.
- ③ FX Luminaire Long Slot Spike mount.
- ④ Finished grade.
- ⑤ Direct bury, UF/UL, copper, low voltage cable with 3M DBR/Y-6 direct bury splice kit. Leave 18" minimum wire loop coiled below fixture for service.
- ⑥ GRA mount, see plan for height.

NOTES

- A. Installation to be completed in accordance with manufacturer's specifications.
- B. Accepts 10-15 volts - AC or DC
- C. See plan legend for LED board and accessories.
- D. Always refer to FX product installation notes prior to installation.


XX CA PATH LIGHT LONG SLOT SPIKE

NOT TO SCALE



LIGHTING THE DRIVEWAY

The CA Path light by FX Luminaire creates a clear pathway from driveway to front door for a safe entryway to the house.

LAMP	COMMENTS	WATTAGE	BEAM ANGLE
	Xenon G4	10	N/A
	10,000 Average Life Hour (for fixtures using 10/15 Watt)	15	N/A
	5,000 Average Life Hour (for fixtures using 20 Watt)		

(P26)

B VL: DOWN LIGHT

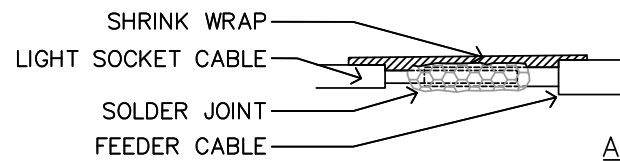
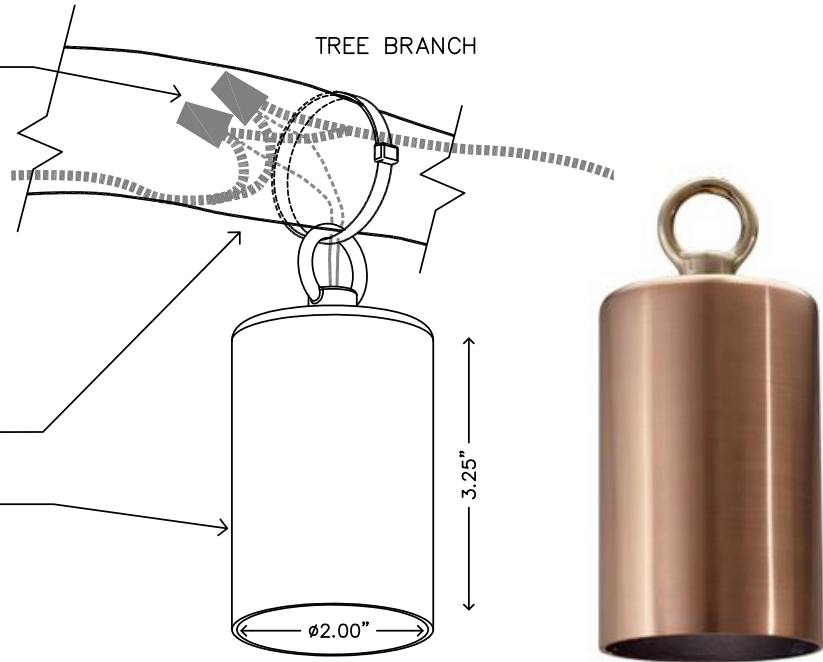
FX LUMINAIRE VITA LUME HANG WITH CABLE TIE. CINCH CABLE SO IT IS LOOSE TO ALLOW TREE GROWTH. REPLACE CABLE TIE EACH TIME LAMP IS REPLACED.

MAKE CONNECTION TO 12-16 GA MAINLINE ON THE BACK SIDE OF BRANCH OUT OF SIGHT, USING WATER PROOF CONNECTORS OR SOLDERED CONNECTION.

USE SUPPLIED CABLE TIES AND WIRE NUTS.

DUAL CONTACT FROSTED 20W MAXIMUM HALOGEN LAMP.

THIS FIXTURE IS DESIGNED FOR DOWN LIGHTING ONLY. DO NOT USE IN AN UPLIGHT POSITION.




SECTION/ELEVATION

ALTERNATIVE WIRE CONNECTION

XX VITA LUME(VL) BRANCH MOUNT

NOT TO SCALE FX LUMINAIRE DETAIL

LAMP	COMMENTS	WATTAGE	BEAM ANGLE
	Halogen AR-11 2,000 Average Life Hour	20	Wide
		20N	Narrow
		20V	Very Narrow

(P27)



FRONT YARD AMBIANCE

The VL Down light by FX Luminaire creates a moonlight effect by attaching directly to the branches of the trees.



MP: UP LIGHT

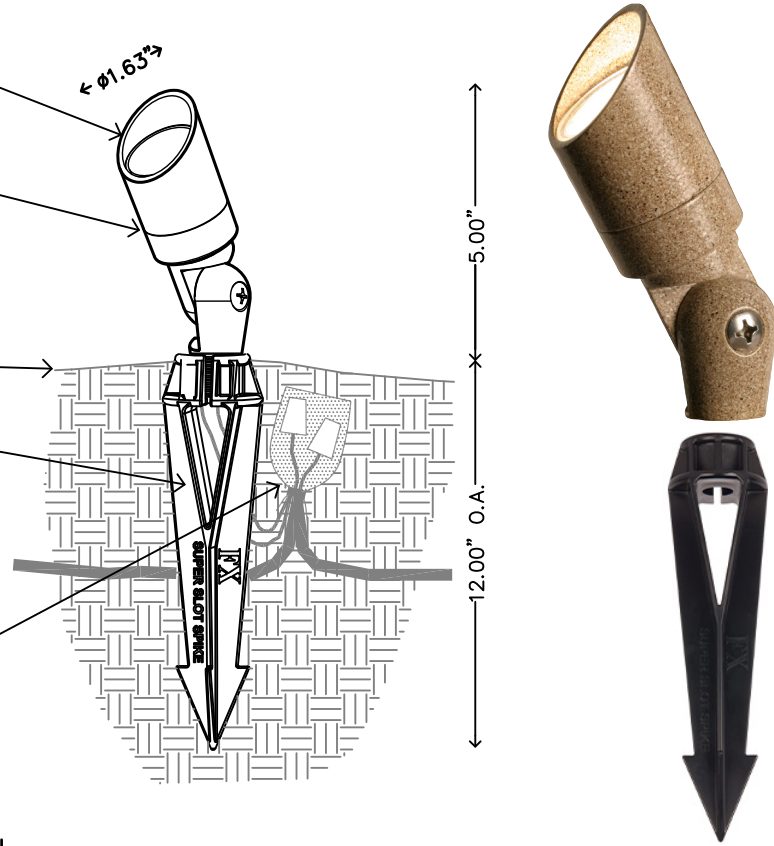
*X LUMINAIRE METALLO PESANTE FIXTURE
SEE PLAN LEGEND FOR WATTAGE, BEAM
SPREAD AND ACCESSORIES

AIM FIXTURE A MINIMUM OF 10°
OFF VERTICAL TO ALLOW WATER
AND DIRT TO DRAIN OFF LENS CAP

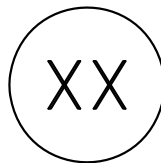
FINISHED GRADE

FX LUMINAIRE
SUPER SLOT SPIKE MOUNT

LOW VOLTAGE CABLE WITH
LITESPLICE, LEAVE 18" MIN.
LOOP COILED BELOW FIXTURE
FOR SERVICE



SECTION/ELEVATION



METALLO PESANTE(MP) SUPER SLOT SPIKE

NOT TO SCALE

FX LUMINAIRE DETAIL

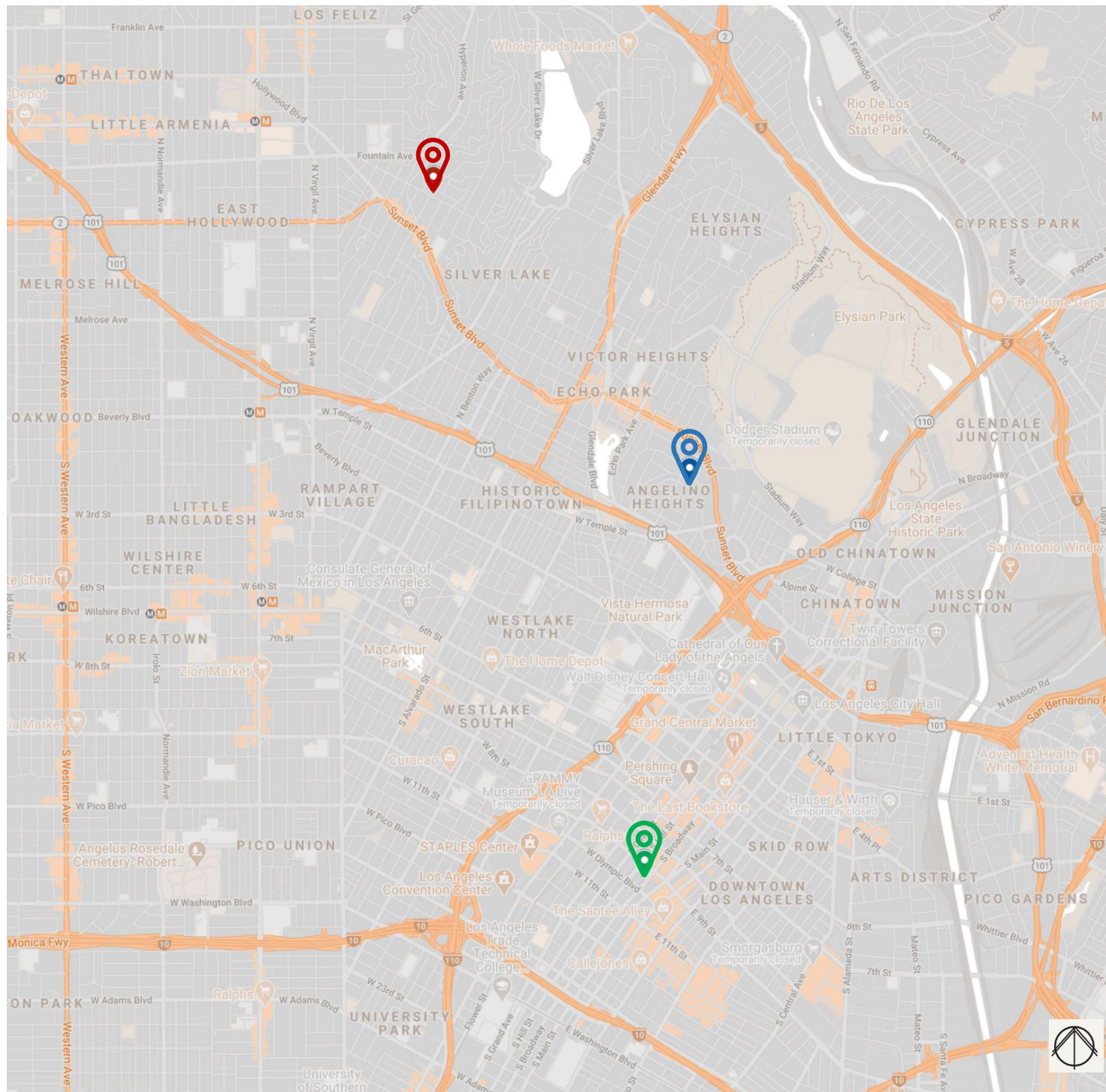


PATIO AND SAFETY

The MP Up Light by FX Luminaire illuminates the structural elements of the privacy hedge while providing soft lighting for the patio and side entrance.

LAMP	COMMENTS	WATTAGE	BEAM ANGLE
	Halogen MR-11 2,000 Average Life Hour	10	Wide
		20	Wide
		35	Wide

(P28)



Regional Map

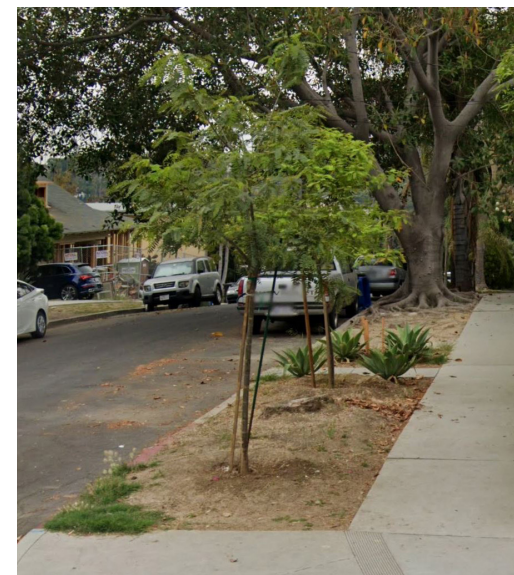
PLANTING SITES IN LOS ANGELES

Three sites on the east side of Los Angeles are chosen to study tree planting situations.



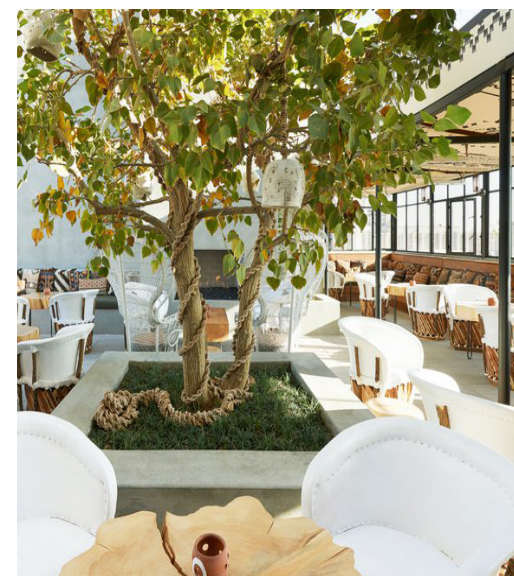
3627 Effie St, Silverlake Slope planting

Site 1 is a slope planting at a residence in Silverlake, Los Angeles. The site is a sloped hill in the front yard of the home. The tree is in need of support and protection from wind and erosion.



952 E Edgeware Rd, Echo Park Street planting

Site 2 is a parkway in a residential neighborhood of Echo Park, Los Angeles. The vegetative parkway is 8' wide and is a buffer between Edgeware Rd and the single family homes.



ACE Hotel, Downtown Los Angeles Planting on structure

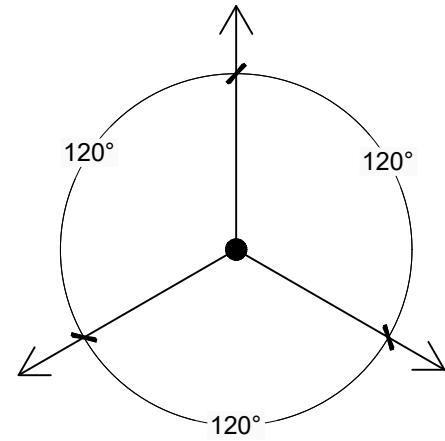
Site 3 is a structure planting at the ACE Hotel in Downtown Los Angeles. The rooftop patio restaurant is on the 14th floor and features one living tree as a centerpiece.

(P29)

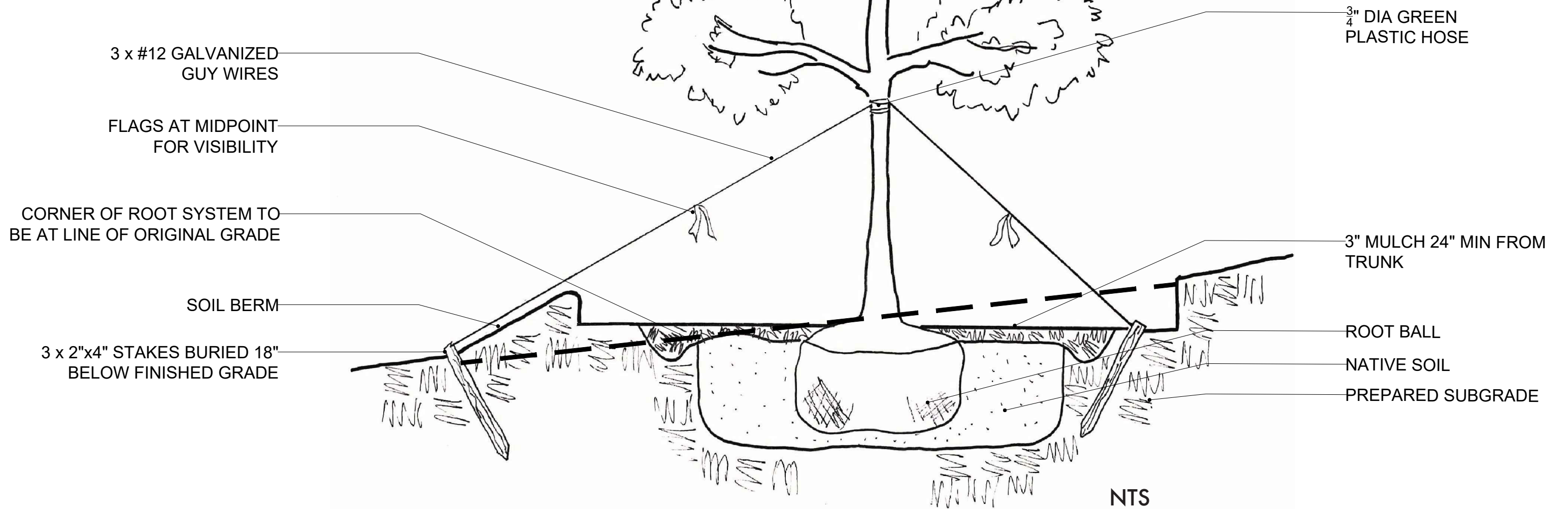


SLOPE PLANTING DETAIL

Guy wires are used to anchor the tree into the ground, providing stability for roots to grow into the soil.



PLAN VIEW:
3 x #12 GALVANIZED
GUY WIRES SPACED
EQUALLY AROUND THE
TREE (120 DEGREES)



3 x #12 GALVANIZED
GUY WIRES

FLAGS AT MIDPOINT
FOR VISIBILITY

CORNER OF ROOT SYSTEM TO
BE AT LINE OF ORIGINAL GRADE

SOIL BERM

3 x 2"x4" STAKES BURIED 18"
BELOW FINISHED GRADE

3/4" DIA GREEN
PLASTIC HOSE

3" MULCH 24" MIN FROM
TRUNK

ROOT BALL

NATIVE SOIL

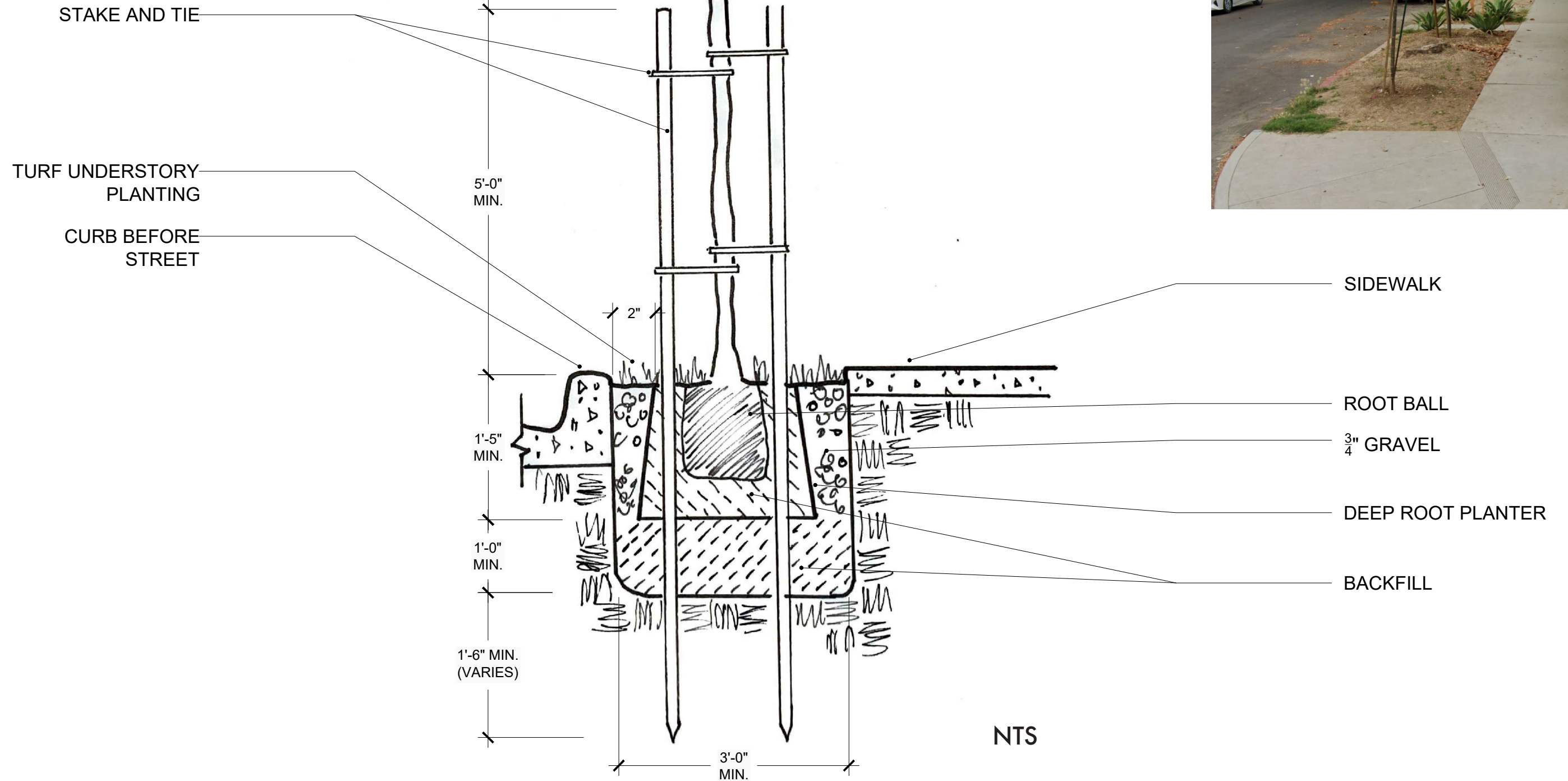
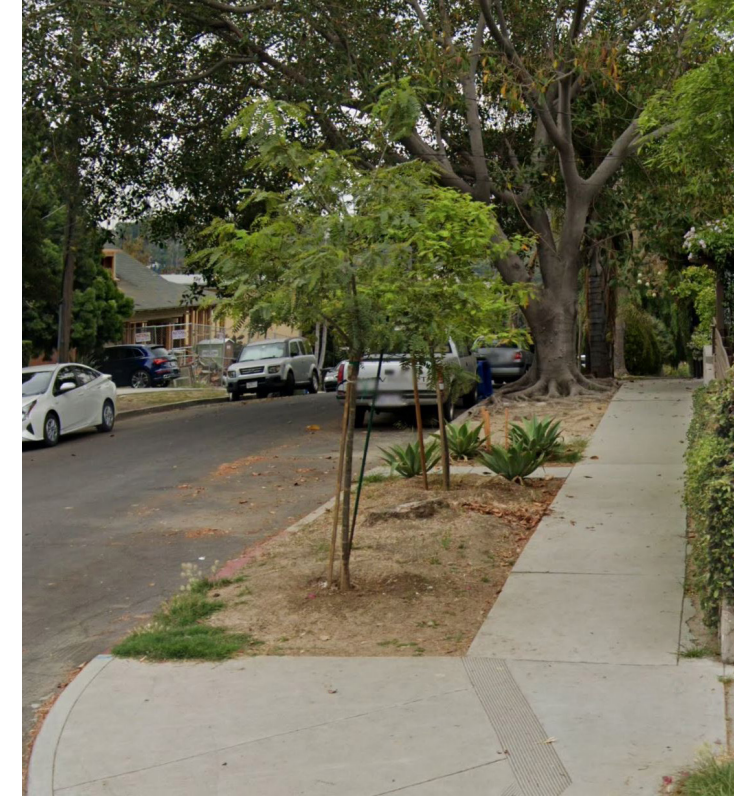
PREPARED SUBGRADE

NTS



STREET PLANTING

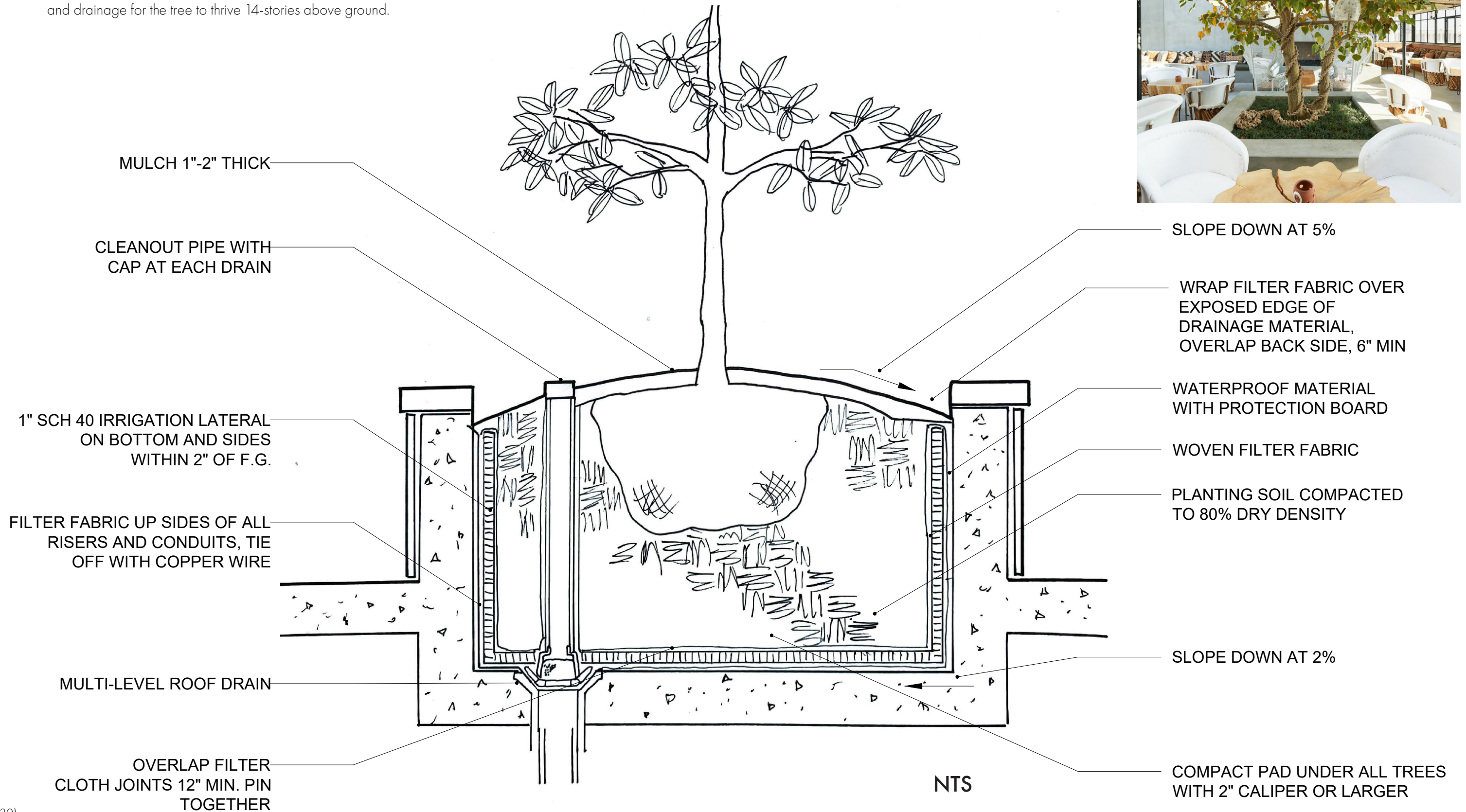
The tree is secured in place with two vertical stakes to keep the trunk from breaking or leaning.





PLANTING ON STRUCTURE

This rooftop planters allows for the proper planting medium and drainage for the tree to thrive 14-stories above ground.



(P30)

WORKS CITED

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