Theo Vuduris

Landscape Construction Methods and Materials

Homework Assignments

Landscape Architecture UCLA Extension

Fall 2020 Instructor Patrick Reynolds

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LA's Sepulveda Dam
Photo Geoffrey Morrison
https://www.forbes.com/sites/geoffreymorrison/2018/12/29/visiting-las-sepulveda-dam-and-wildlife-reserve/?sh=351e38925500

Homework Assignment 1

Watershed Structure Site Study

Sepulveda Dam

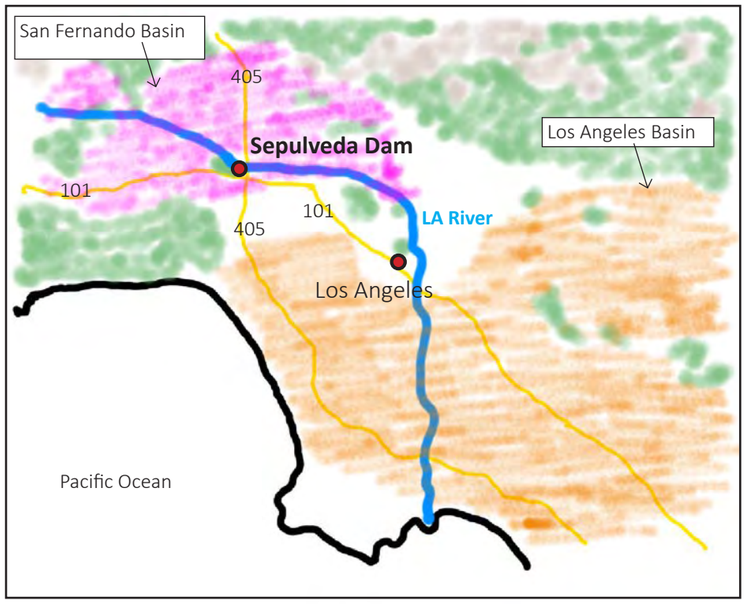
The upstream of Los Angeles River and north side of Sepulveda Dam.

Site Narrative

The Sepulveda Dam is designed to withhold winter flood water along the Los Angeles River. It was completed in 1941 and was built in response to the historic 1938 floods that killed 144 people. The dam controlled flood many times but there were incidents where the LA River overflowed its banks in 1969, 1994 and 2005.

- detention dam
- clontrols flow downstream
- does not produce electricity
- 1 of 19 dams in Los Angeles County's flood control system

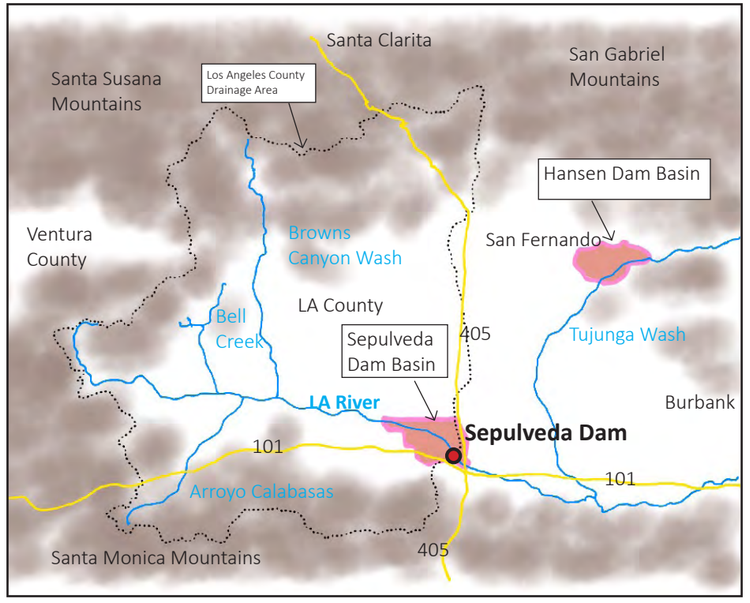
Homework Assignment 1: Watershed Structure Site Study - Sepulveda Dam



Region

6 miles

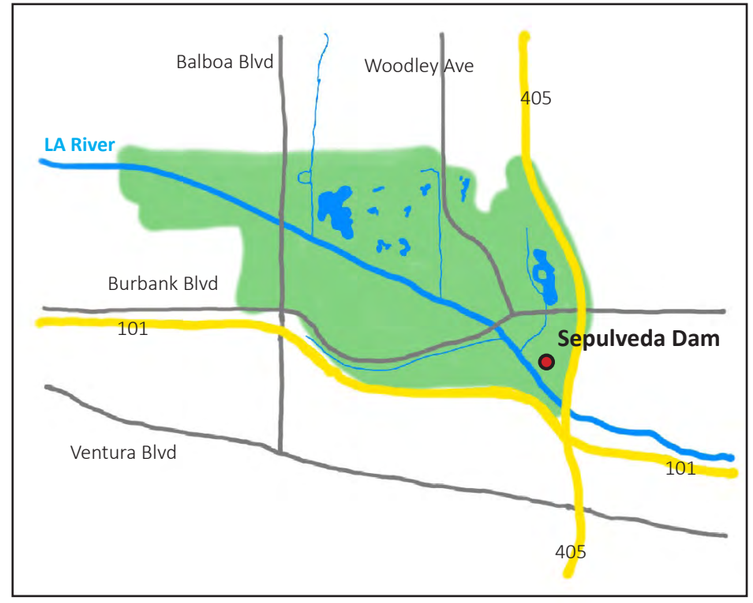
North



San Fernando Basin

4 miles

North



Sepulveda Dam Basin

3000 feet

North

Site Location

The Sepulveda Dam is located in Van Nuys, California, the south center part of San Fernando Valley, north of the intersection of 101 Ventura and 405 Sand Diego Freeways. The dam is in the Sepulveda Basin, part of the San Fernando Basin, a 2,000-acre area, used for wildlife refuge and recreation. The LA River runs through the Sepulveda Basin diagonally from northwest to south east and several interconnected dry washes are part of the basin as well.

Site Plan

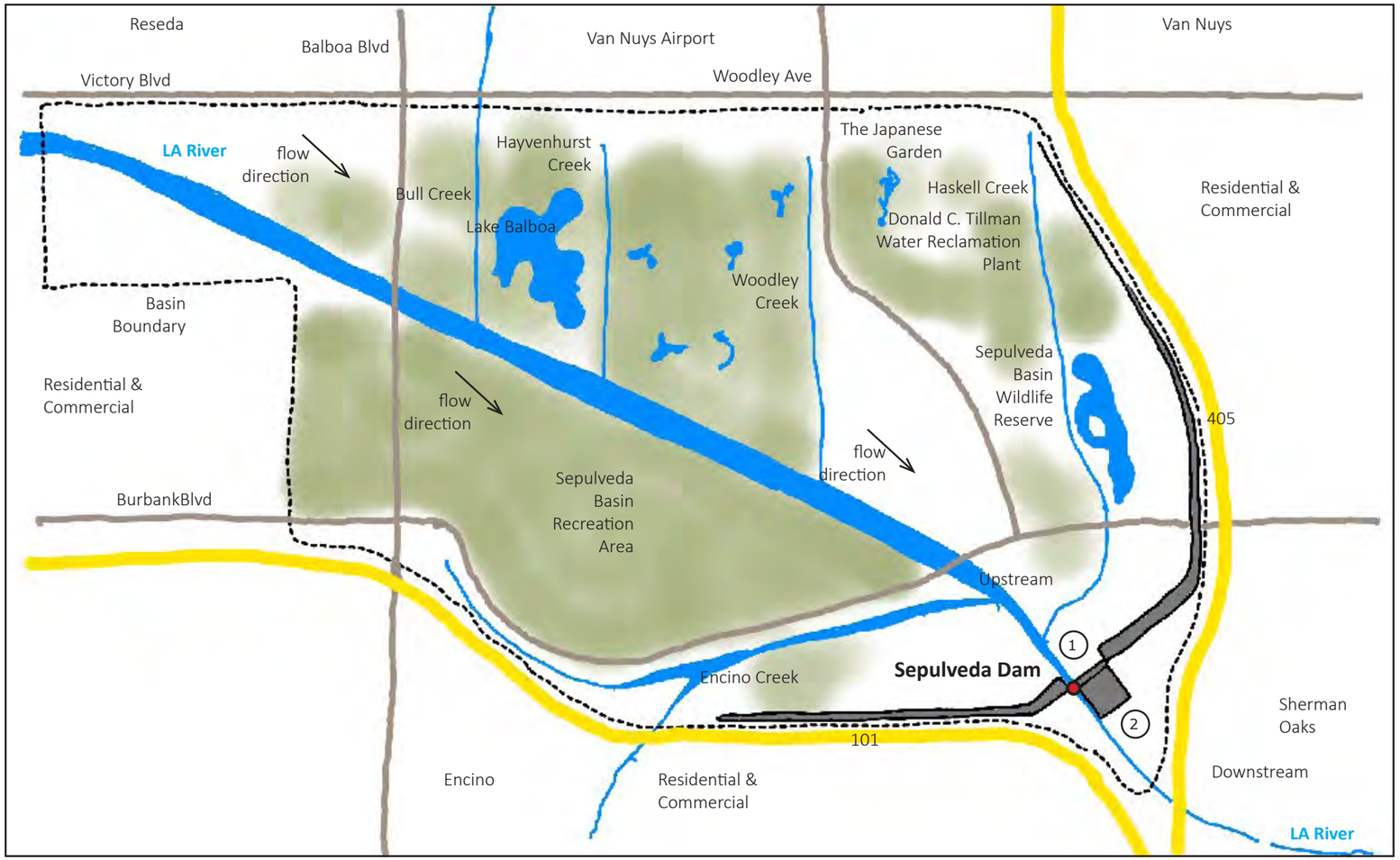
North side of dam looking south.

Embarkment, spillway, control tower and below floodgates and outlet channel.

Closed up of control tower, eight floodgates and outlet channel and embarkment to the right of control tower.

Floodgates north side. Dam keeper operates the gates separately, using hydraulic lifts in steel cylinders inside control house. Each gate can be raised a maximum of nine feet.

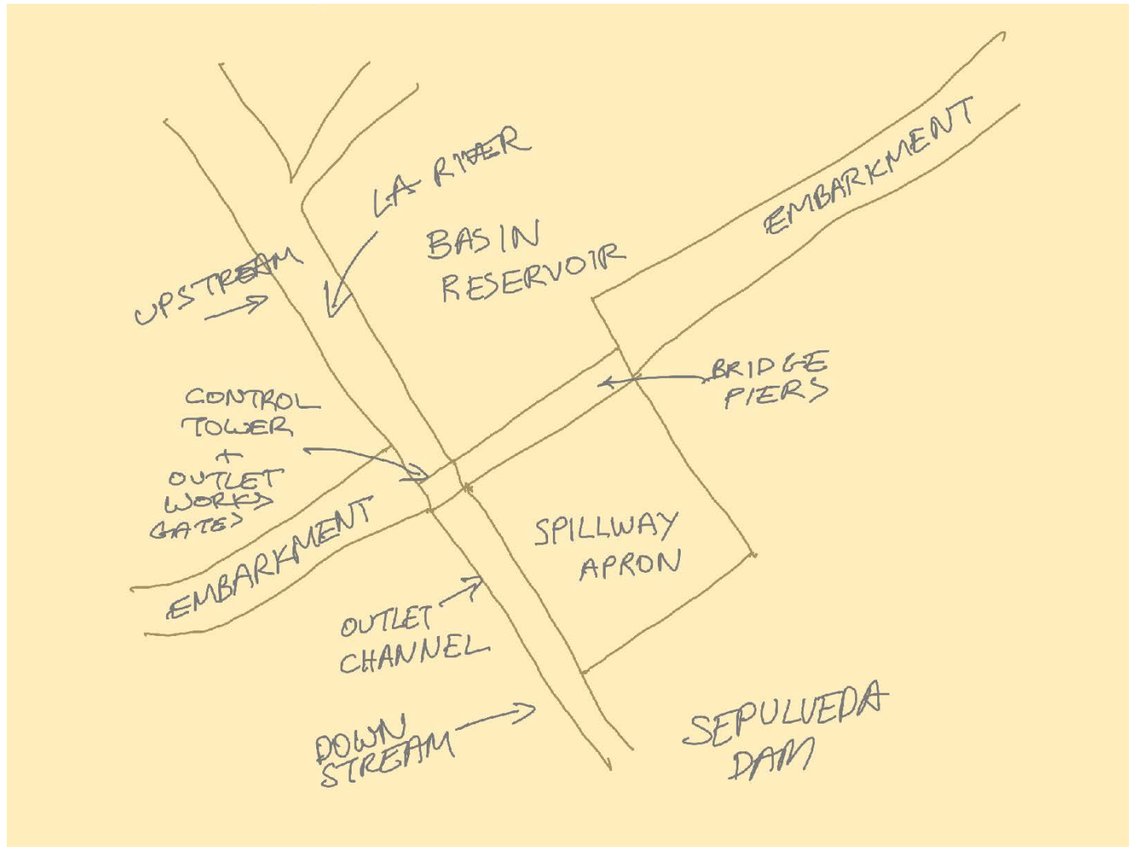
South side of dam looking north.



Sepulveda Dam Basin

1000 feet North

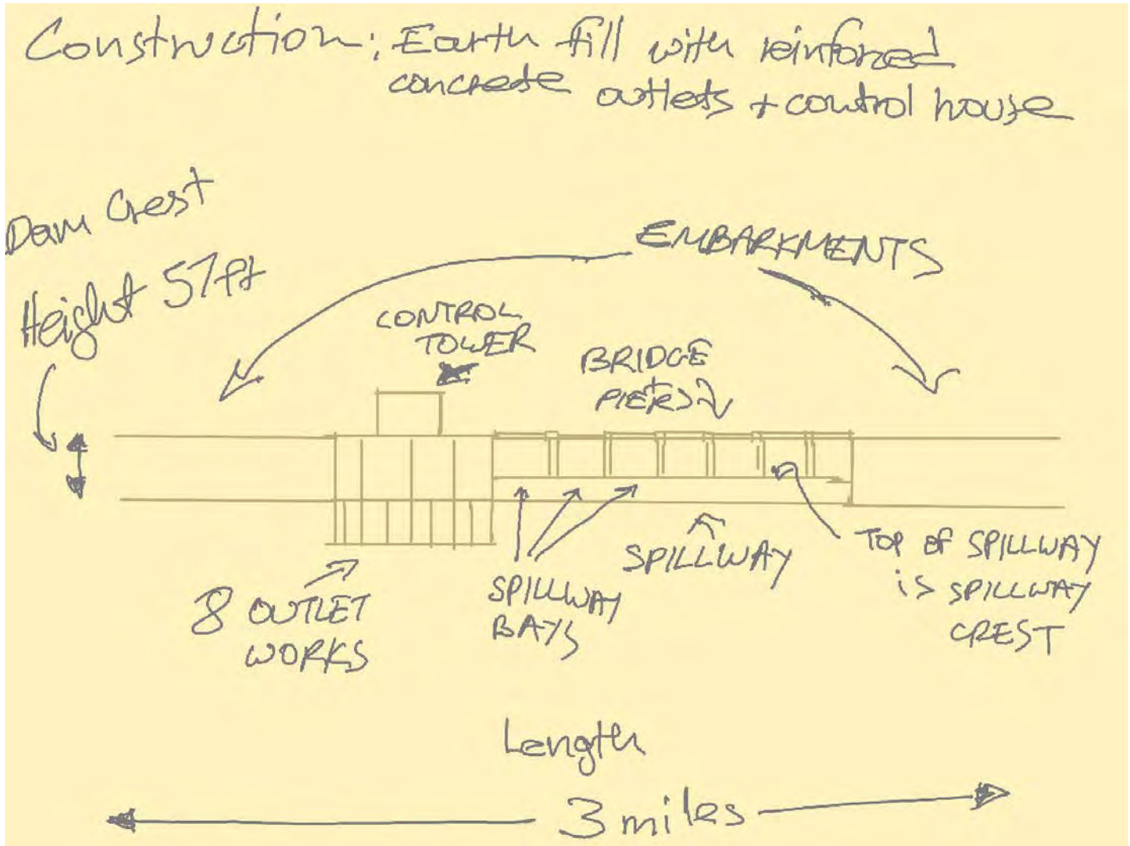
Site plan notes



Not To Scale (NTS) North

Dam Keeper communicates water flow data to U.S. Army Corps of Engineers who operate the dam system downtown and send instructions back to dam keeper for outler and spillway gates.

Dam keeper operates the gates using hydraulic lifts in steel cylinders inside control house. Each gate can be raised a maximum of nine feet.



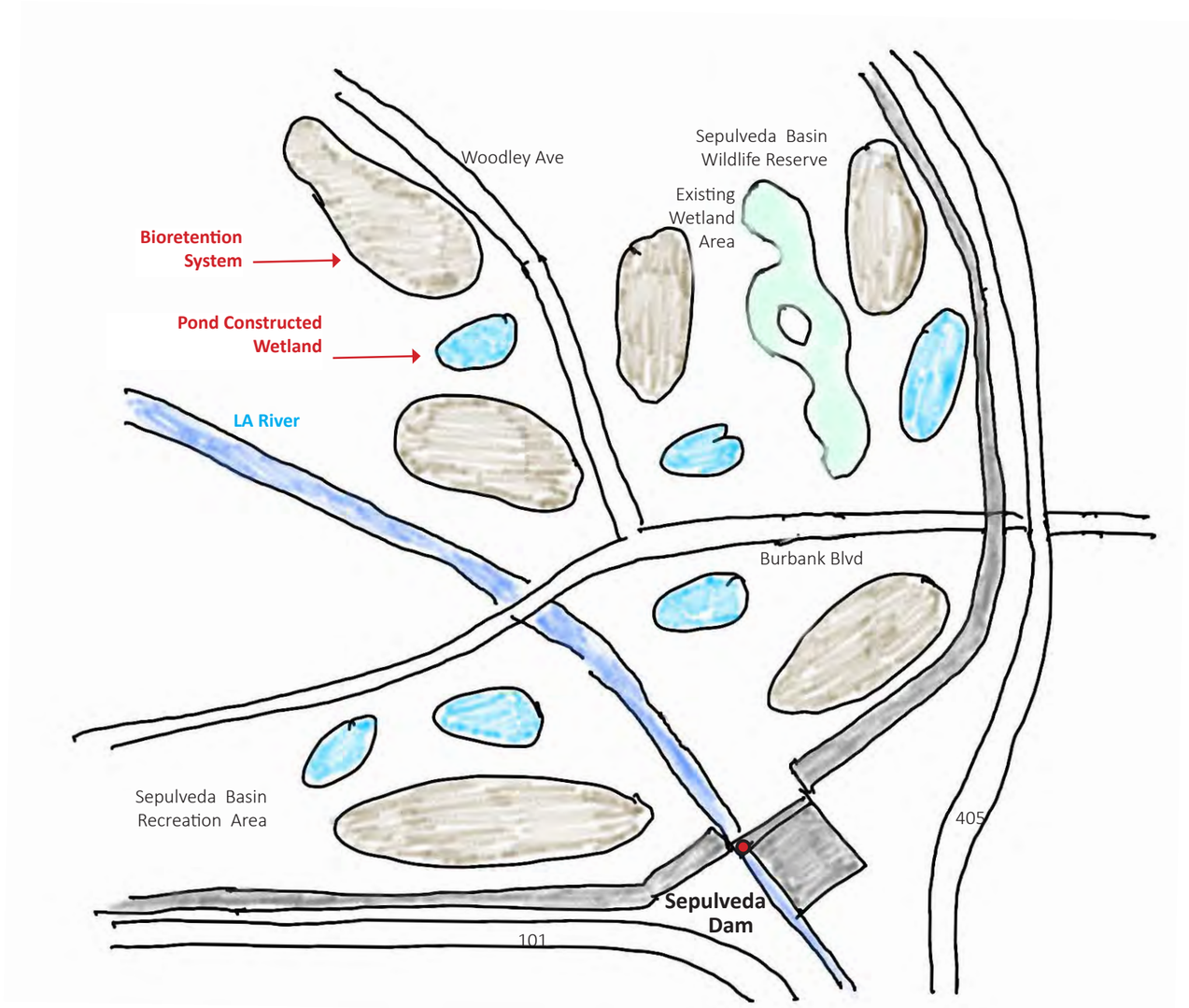
The spillway acts as a relief valve, preventing water from going over the dam embankment. Each spillwaybay has a steel drum gate designed to float in a chamber located in the spillway crest.

A small pond in the Sepulveda Basin Wildlife Reserve.
Photo GEOFFREY MORRISON
https://www.forbes.com/sites/geoffreymorrison/2018/12/29/visiting-las-sepulveda-dam-and-wildlife-reserve/?sh=351e38925500

Homework Assignment 2

Site Drainage & Grading Structures

Sepulveda Dam Redesign



Concept Diagram

Not To Scale (NTS)

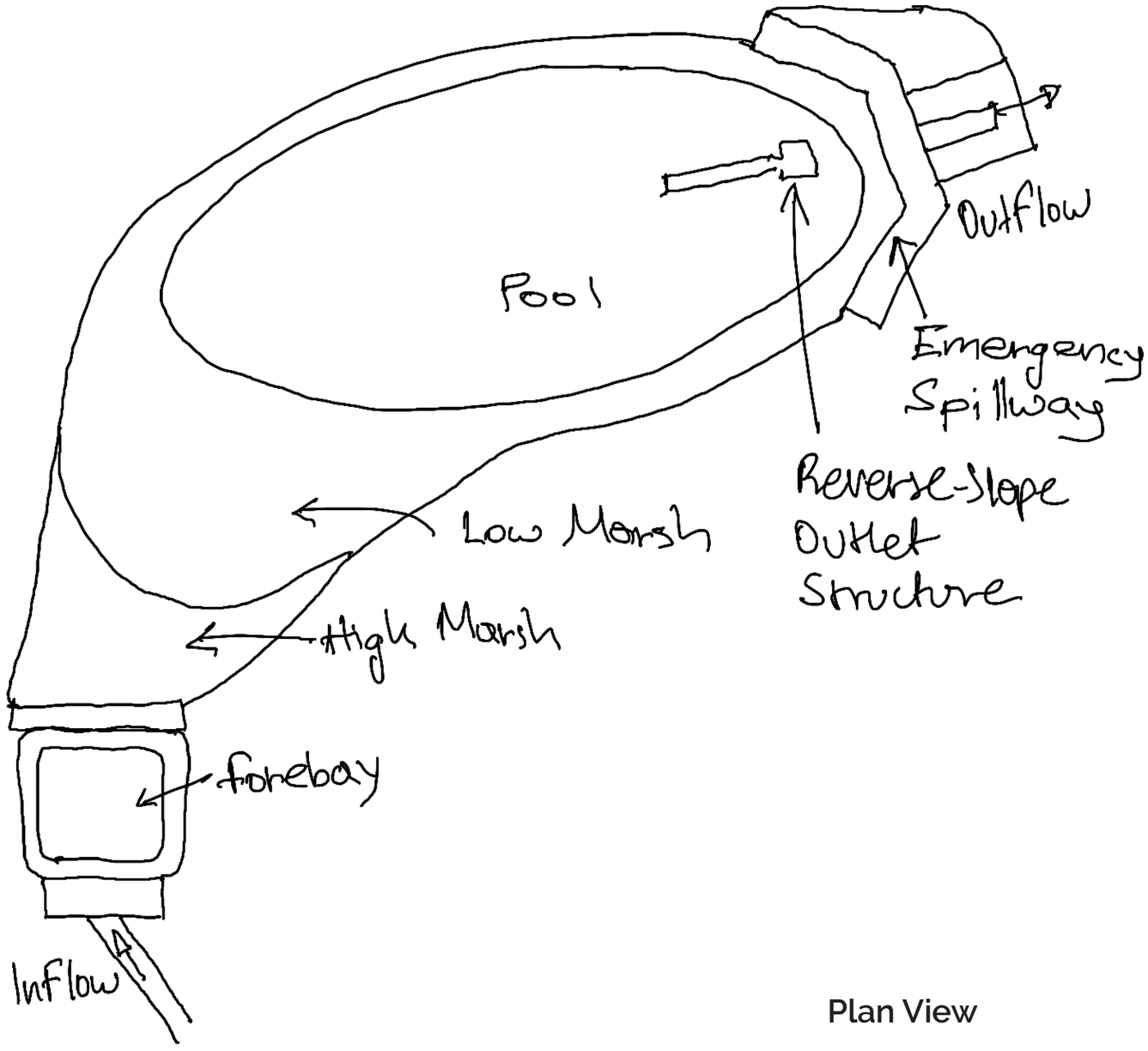
Redesign

The redesign of the Sepulveda dam basin would include stormwater management structures like pond constructed wetlands and bioretention systems to control runoff and clean runoff pollutants. Currently the basin is an open space without any places to walk and experience the site. Trails and paths would connect all these stormwater management systems for people to visit and not only learn about these systems but also enjoy the outdoors and the wildlife they support.

Pond Constructed Wetland

Engineered wetland systems consist of a pre-treatment zone and a combination of a marsh zone and pool zone.

- Maximize removal of pollutants from stormwater runoff
- Direct flow through an engineered open marsh system
- Remove pollutants through settling and vegetative uptake/filtration
- Total suspended solids (TSS) removal rate is 90%
- Support wildlife habitat
- Add to the aesthetics of the site

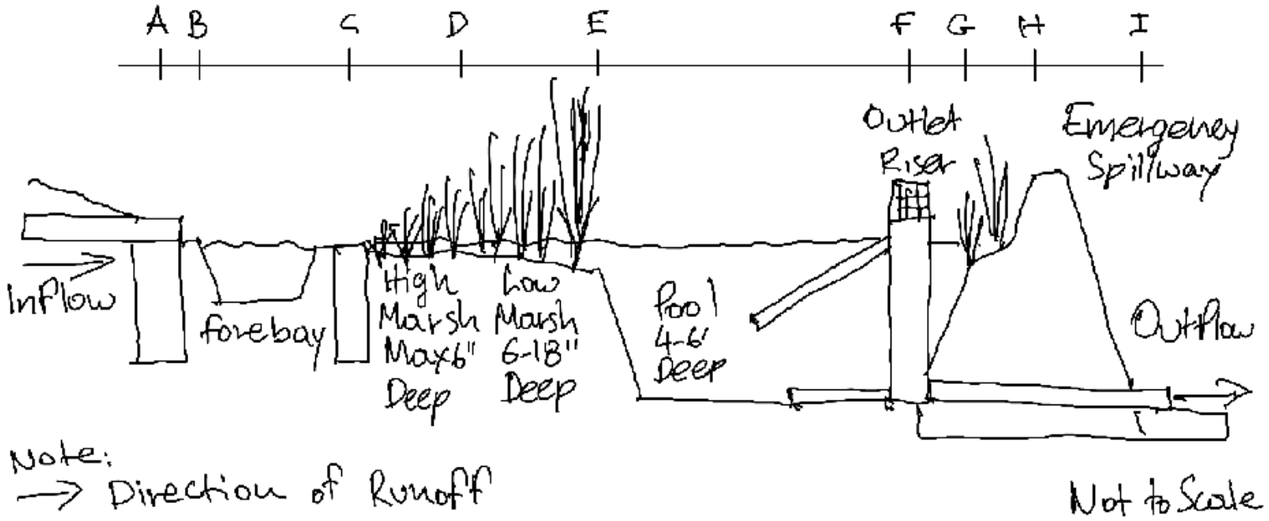


Plan View

Not To Scale (NTS)

Pond Constructed Wetland

- Flow entry A to B into the forebay B to C
- Runoff flows into spillway C and into high marsh C to D, low marsh D to E and pool zone E to F for sediment settling
- Outlet Structure F allows runoff to exit
- Emergency spillway G to I

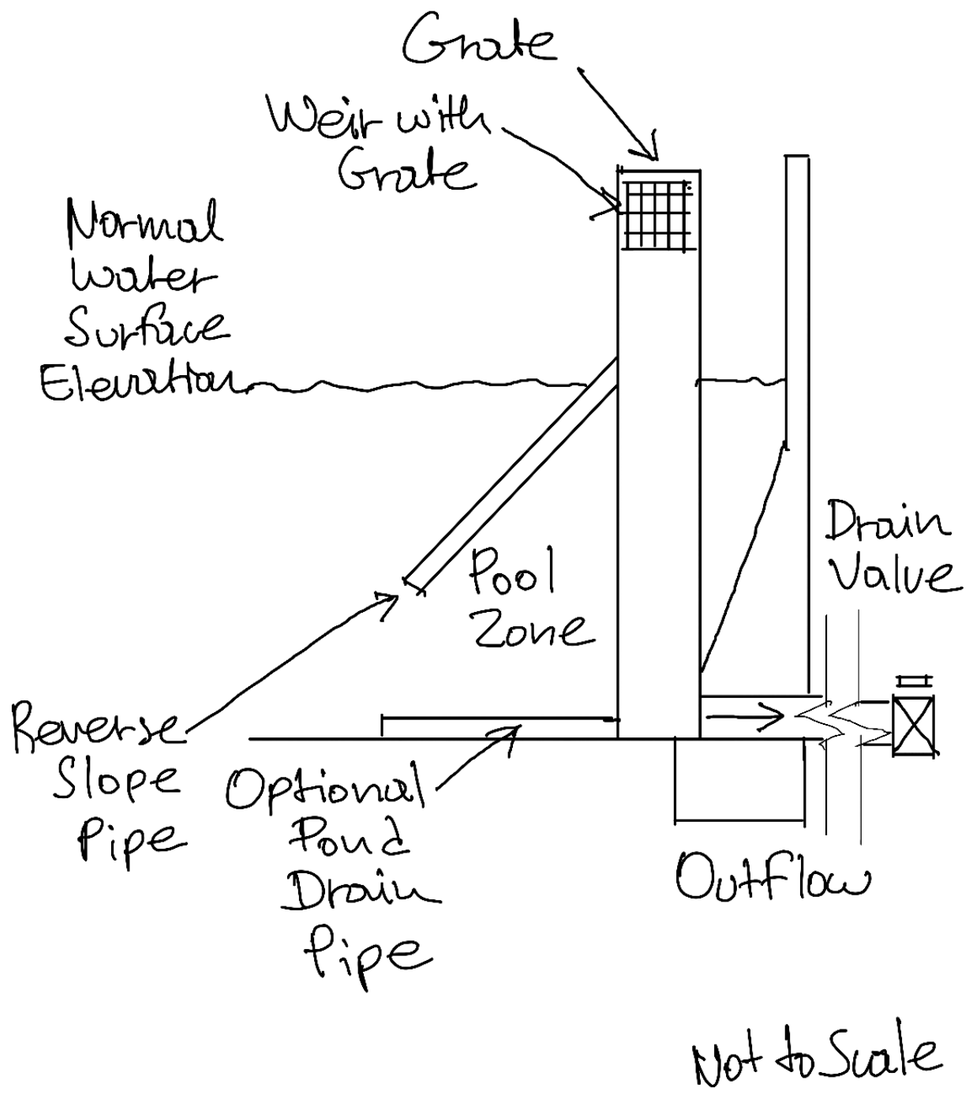


Section

Pond Constructed Wetlands

Reverse-Slope Outlet Structure

Outlet structures are used to discharge cool water from the bottom of the pool. In the summer, the pool can act as a heat sink as water tends to get 10 degrees warmer than the downstream waterway and can have negative effects downstream.

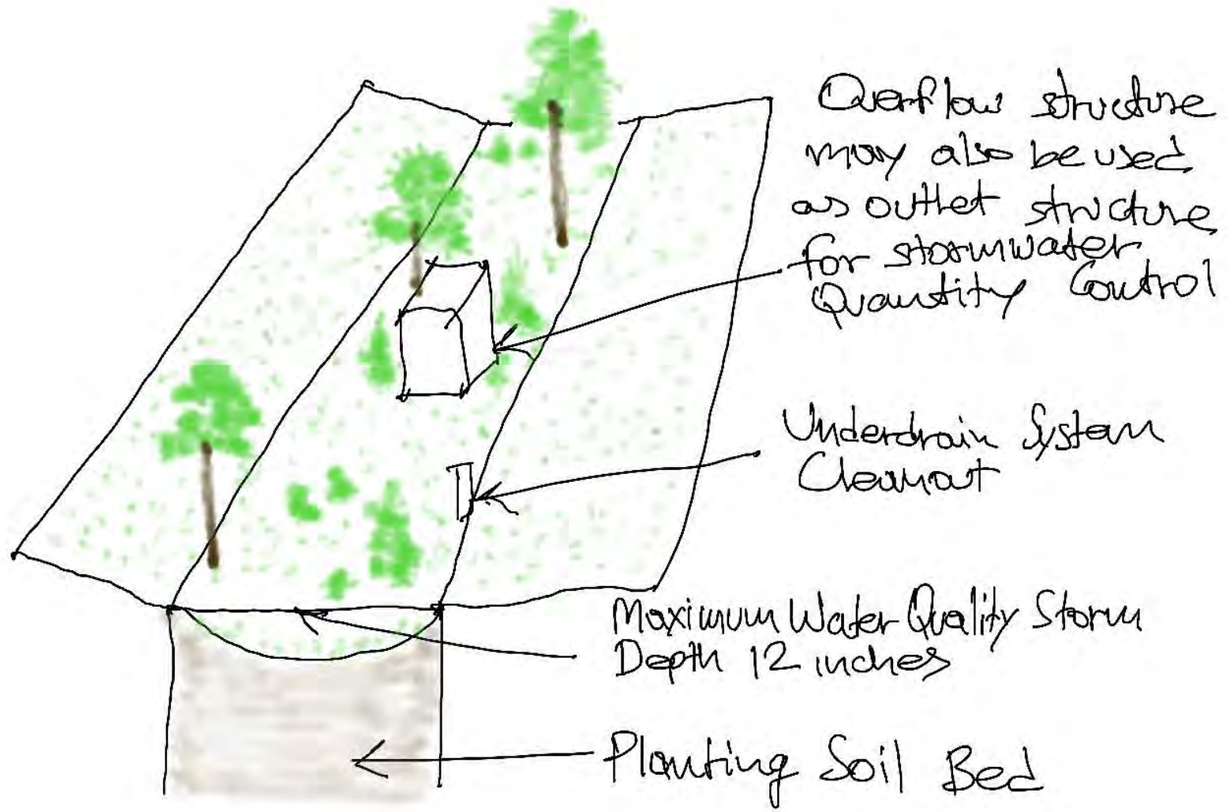


Bioretention System

Native vegetation is planted on the soil bed that absorb pollutants and runoff.

Stormwater runoff is filtered through the soil planting bed before entering downstream by an underdrain system or infiltrated into the existing subsoil below the soil bed.

The system can be build in any shape as a basin or narrower with a flat bottom for basin and sloping when narrower like a swale.



Not To Scale (NTS)

Bioretention System

Planting Soil Bed Detail

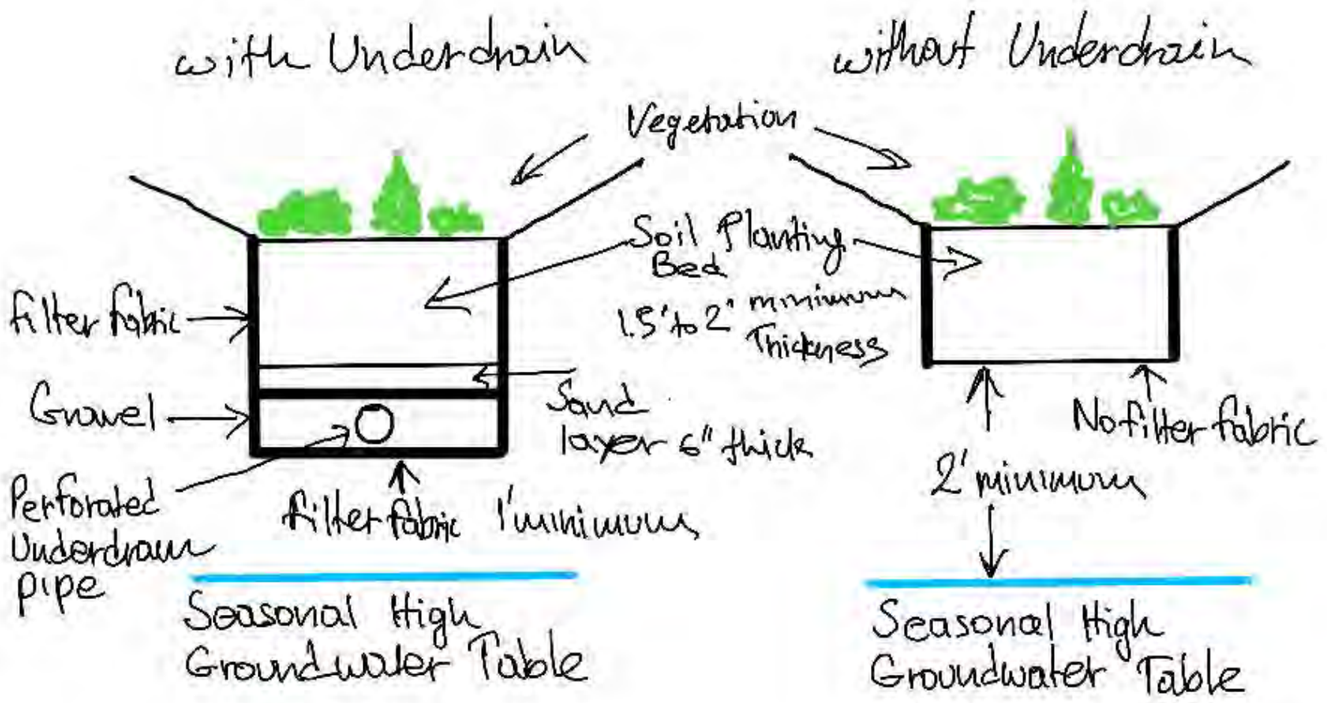
The basic design parameters for bioretention systems are its storage volume, the thickness, character, and permeability rate of its planting soil bed, and either the hydraulic capacity of its underdrain or the permeability of its subsoil.

Permeability rate of the soil bed material must be sufficient to drain the runoff volume within 72 hours.

The gravel layer serves as bedding material for the underdrain pipes.

Underdrain piping beneath the soil planting bed and sand layer must be perforated. All other underdrain piping, including cleanouts which help drain standing water, must be non-perforated.

The underdrain piping must connect to a downstream storm sewer manhole, catch basin, channel, swale, or ground surface at a location that is not subject to blockage by debris or sediment.



Not To Scale (NTS)

UCLA Mira Hershey Hall
Photo from UCLA Library University Archives
https://picturingucla.library.ucla.edu/photos/universityarchives:28973

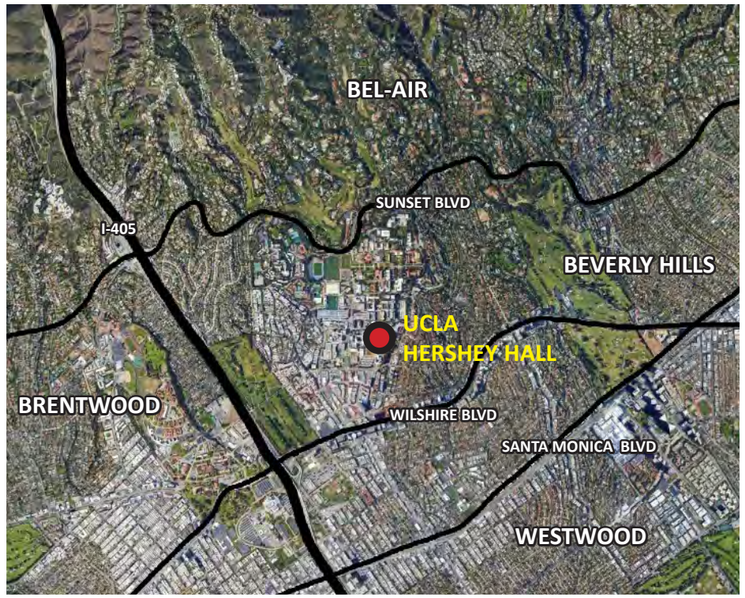
Homework Assignment 3

Draw BARRIER (retaining wall,footing and adjacent materials) studies

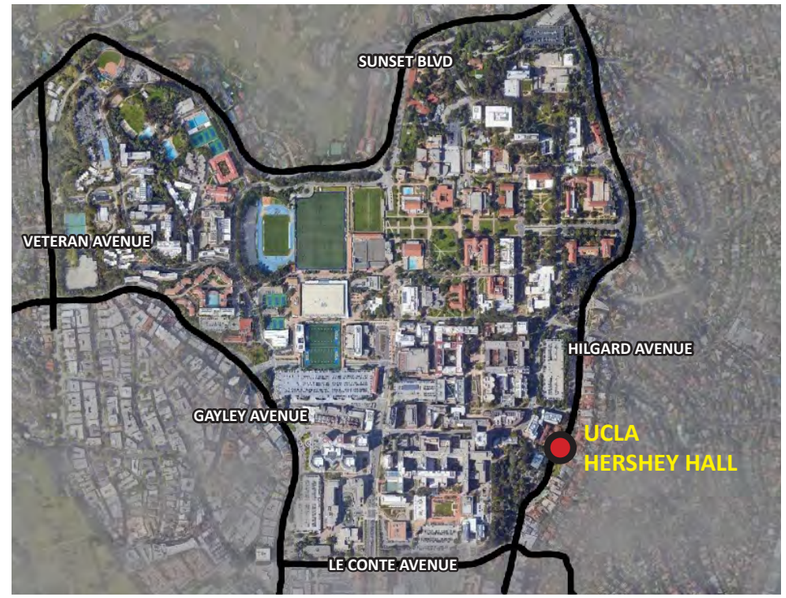
Retaining Wall at UCLA Hershey Hall

Homework Assignment 3: Draw BARRIER (retaining wall,footing and adjacent materials) studies

Region 10 miles North



Context 1 mile North



UCLA Campus 1000 feet North

Site Location

The retaining wall is in UCLA Hershey Hall in the western part of Los Angeles, California.

Nearest major streets are the I-405 San Diego Freeway to the west, Sunset Boulevard to the north, Wilshire Boulevard, and Santa Monica Boulevard to the south.

The campus is in the residential area of Westwood and bordered by Bel-Air to the north, Beverly Hills to the east, and Brentwood to the west.

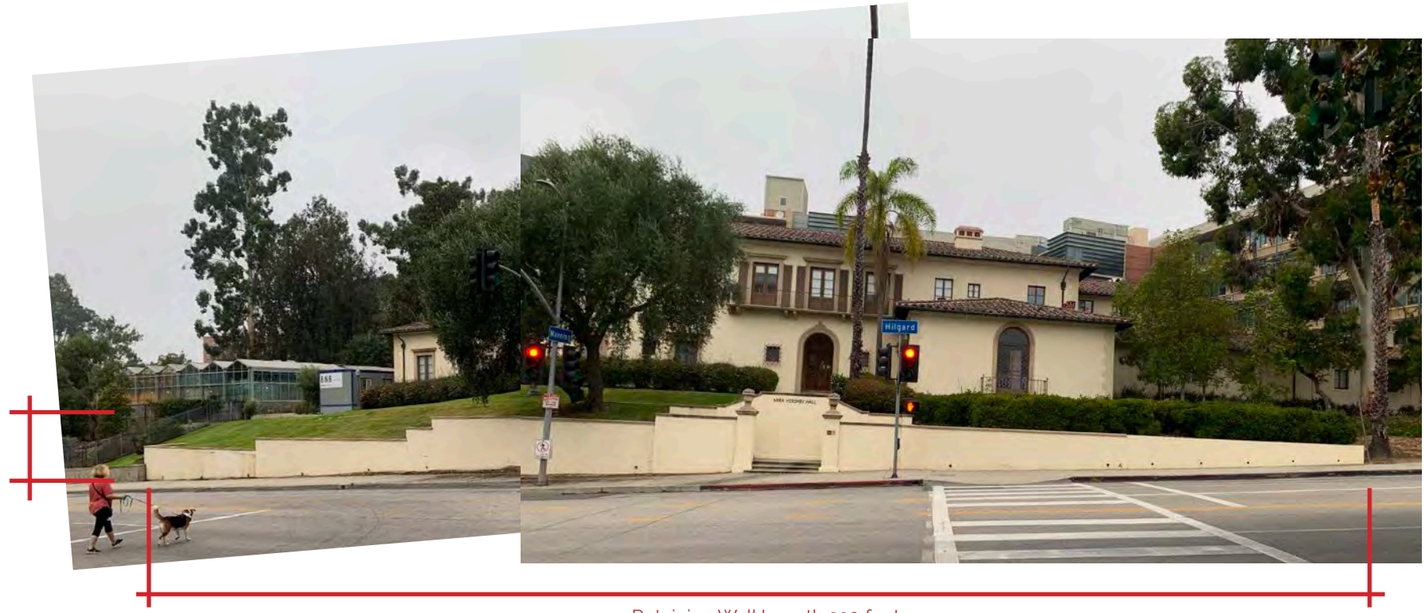
Southeast Elevation, UCLA Mira Hershey Hall, July 1931
Photo from UCLA Library University Archives

History

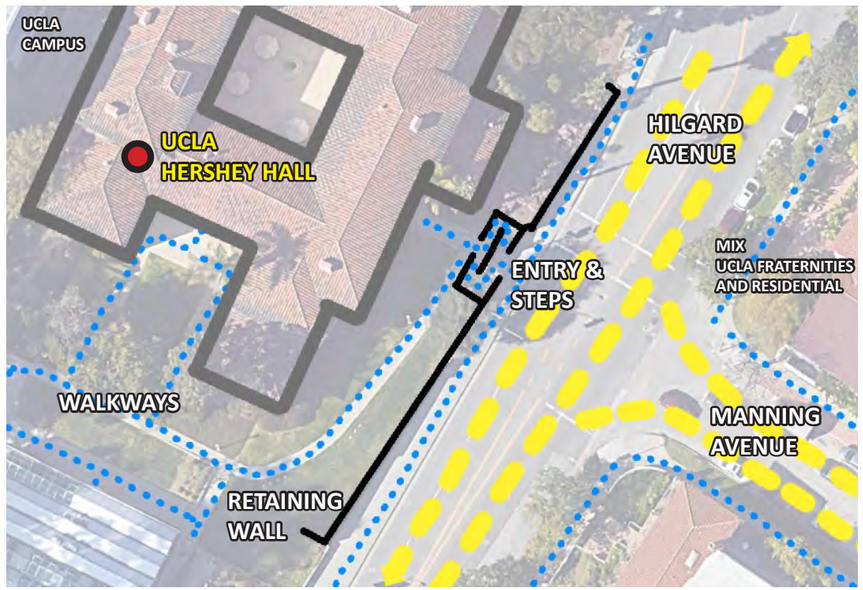
UCLA's first residence hall located on Hilgard Avenue in South Campus. It was named after Mira Hershey, who gave $300,000 to have the all-women dorm built. The original Hershey Hall of the 1930s is still in use today as an academic building.

UCLA, Mira Hershey Hall
Douglas H. McLellan, Architect
George W. Kelham, Super. Architect

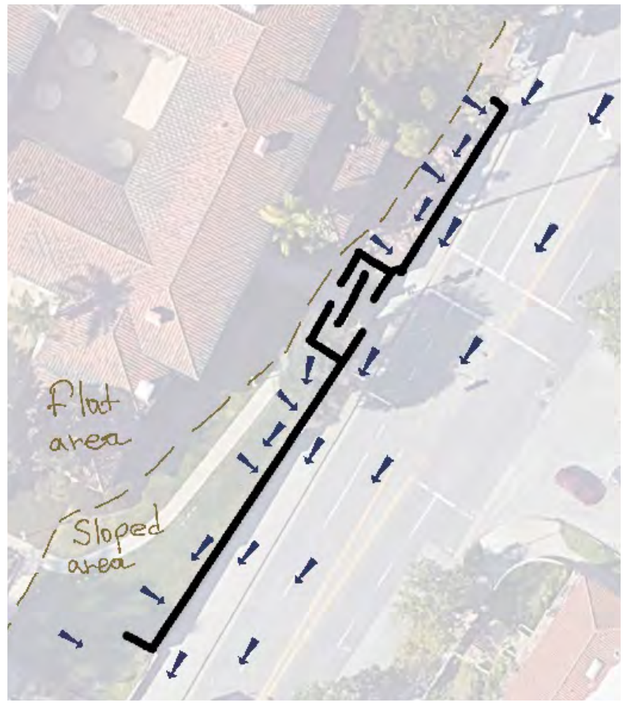
Homework Assignment 3: Draw BARRIER (retaining wall,footing and adjacent materials) studies



Site Analysis



Drainage Patterns and Land Features



Concrete Cantilevered Wall Detail

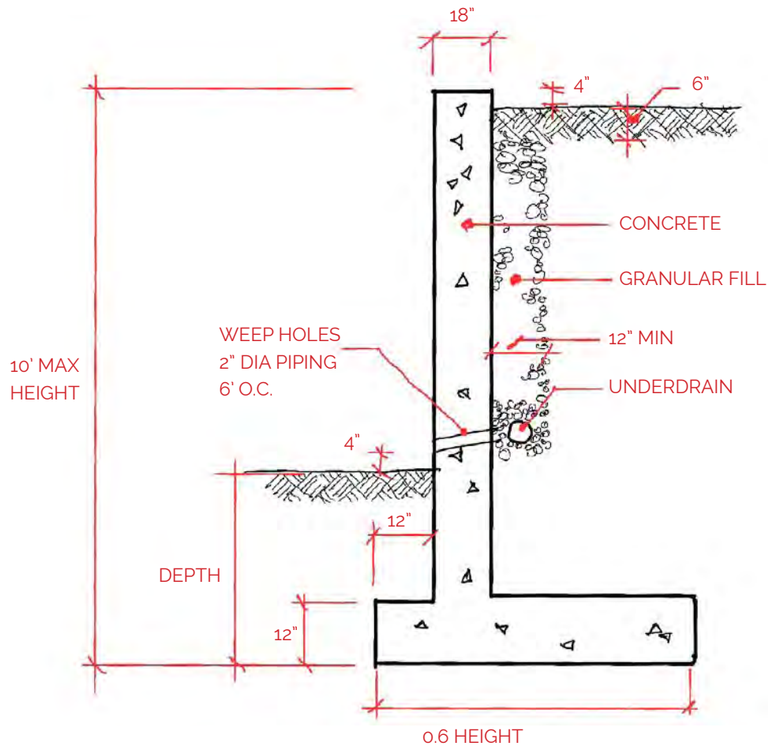
View of lawn and slope behind the south part of wall

View of shrubs behind north part of wall

Front and south side of wall

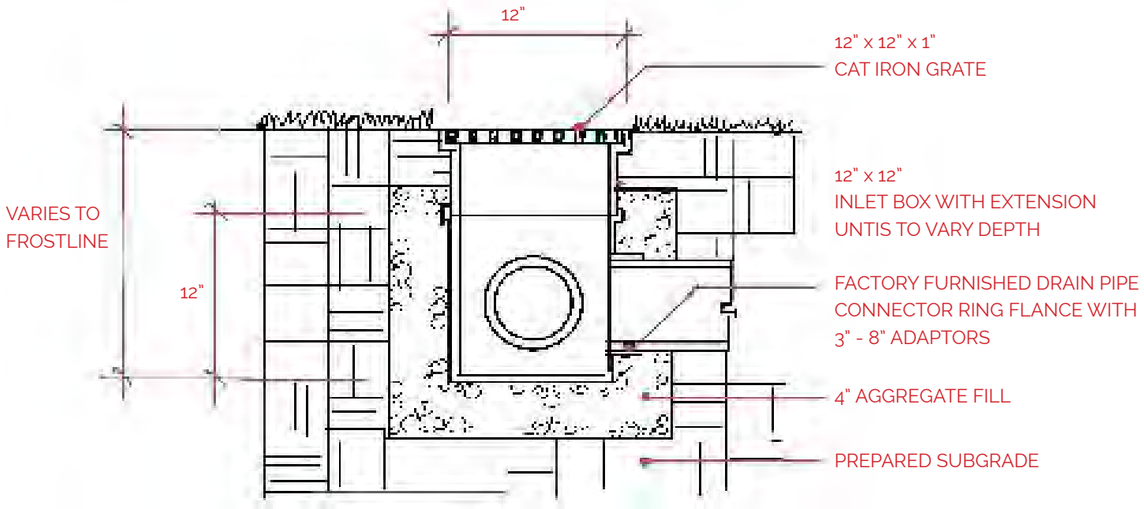
North side of wall

Front and north side of the wall



Section

Drain Detail



Section

Iron Grate next to entry on the north side

Iron Grate on the south end of the retaining wall

Drain holes along the north side of the retaining wall

Drain holes along the south side of the retaining wall

There is appropriate drainage behind the wall but there is evidence of damage from water like cracks in the wall and drain holes that are falling apart.

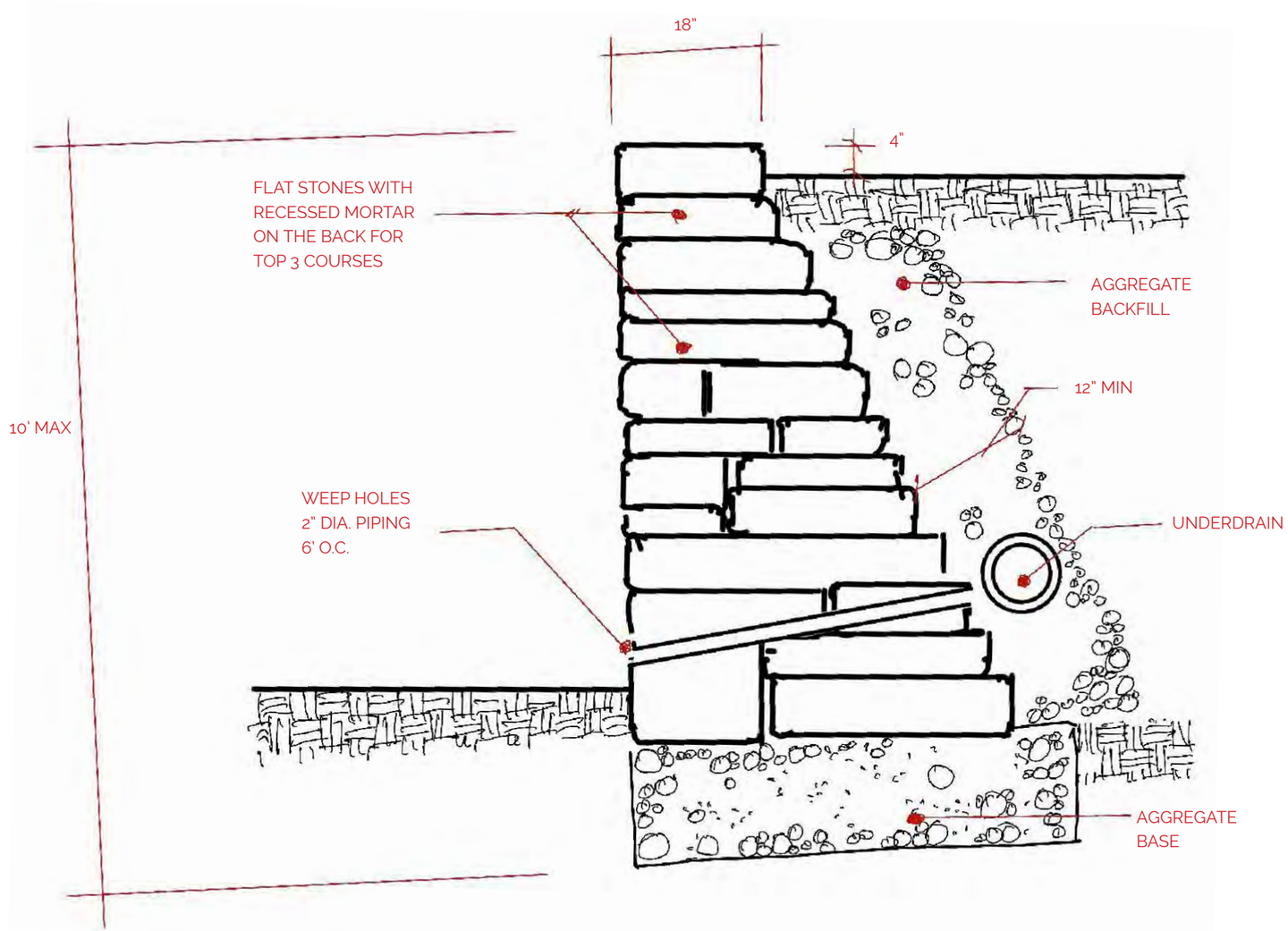
Close image of one of the drain holes

Redesign

Typical dry-laid stone gravity wall

This would be one idea for the retaining wall that varies in height from 2.5 feet to 9 feet and width does not exceed 18".

Aggregate backfill and underdrain or weep holes would help with the water accumulating from watering the lawn and plants nearby.



Homework Assignment 3: Draw BARRIER (retaining wall,footing and adjacent materials) studies

Redesign Sketch

UCLA, Mira Hershey Hall

Homework Assignment 4

PAVING studies

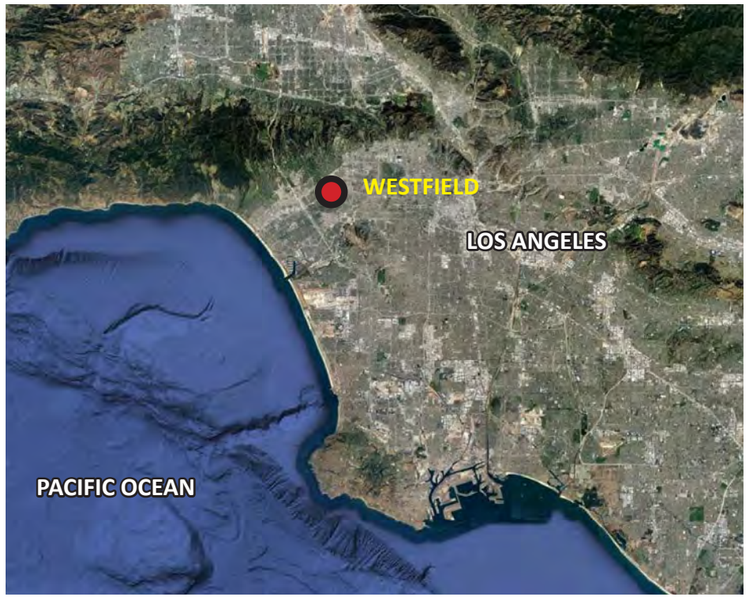
Westfield Century City Mall

Site Location

Westfield Century City is a two-level, 1.3 million-square-foot outdoor shopping mall in the Century City commercial district in Los Angeles, California. It is a mix of retail, restaurant and other services business.

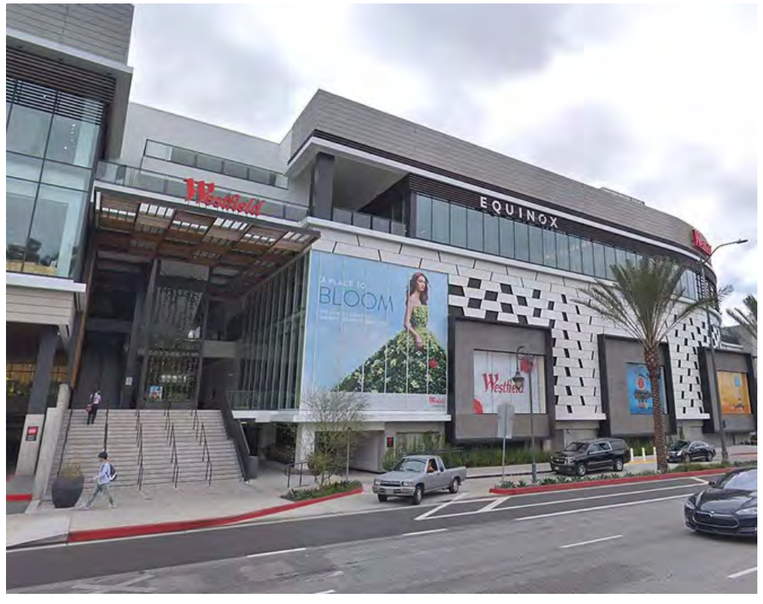
Nearest major streets are the I-405 San Diego Freeway to the west, Santa Monica Boulevard to the north, and W Pico Boulevard to the south.

Project location: 10250 Santa Monica Blvd, Los Angeles, CA 90067



Region 10 miles North

Vicinity 1 mile North



Westfield Century City Mall

History

Opening date	1964
Developer	Del E. Webb Construction Company
Management	Westfield Group
Owner	Westfield Group
Architect	Architect, Minoru Yamasaki / Welton Becket & Associates

No. of stores and services	about 200
No. of anchor tenants	5
Total retail floor area	1,300,000 sq ft
No. of floors	2
Parking	about 3,500 spaces

"Century City" in 1968. This is when the mall was called "Century Square". There used to be train tracks directly in front of this mall on Santa Monica Blvd. Today this is Westfield Shopping Center.
Photo: Mark Susina

Site Analysis

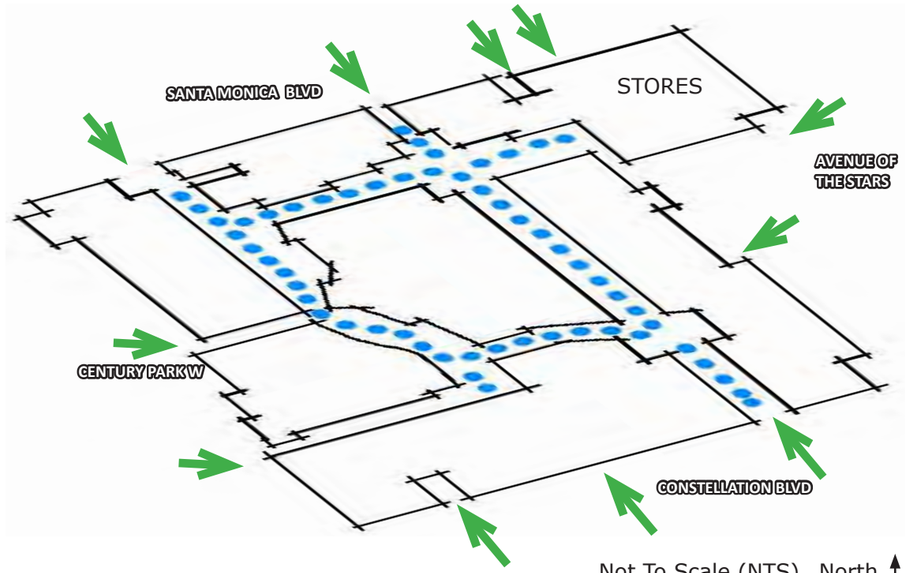
Context

600 feet North

LEGEND

- Property Boundary
- Vehicular Circulation
- Mall Entry
- Main Pedestrian Passage

Out of the 7 levels in Westfiled Mall only 2 include shops and restaurants. The other 5 levels are for parking.



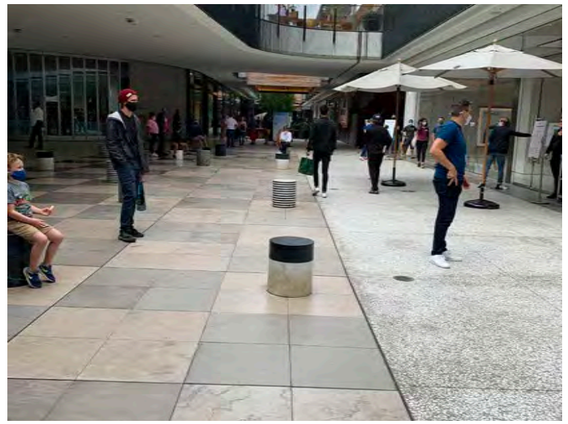
Not To Scale (NTS) North

Site Plan Level 1

Westfield Mall Levels 1 & 2 have almost identical floor plans.

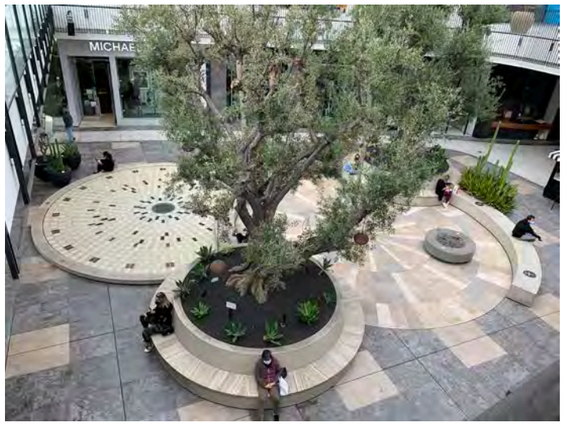
View of Levels 1 and 2.

Stone Detail



Pedestrian path with 3 different types of paving.

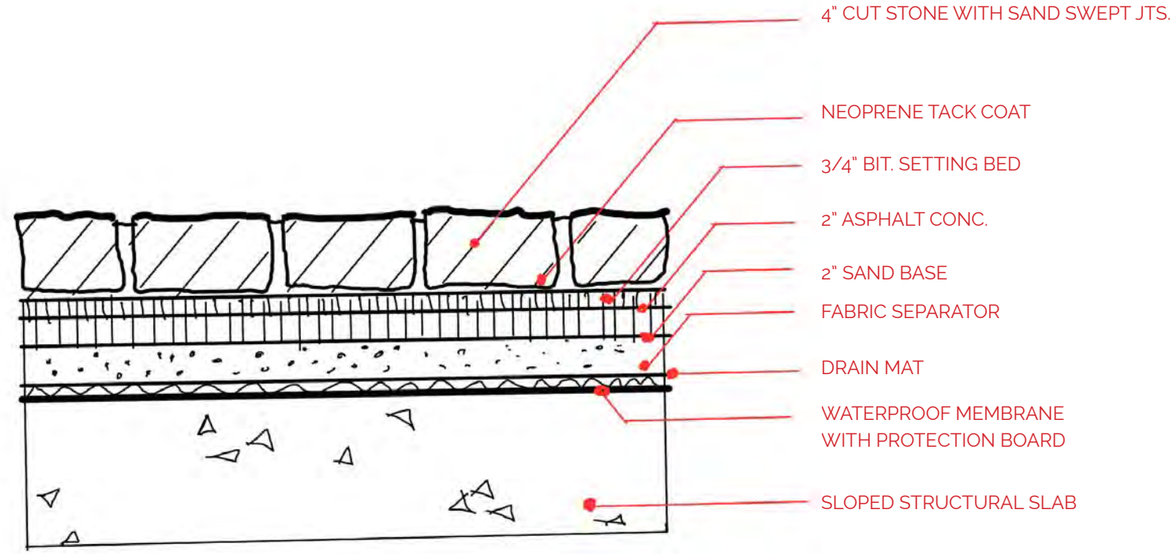
Pedestrian path with 3 different types of paving.



Seating area with stone surfaces for a water feature, benches, planters and remaining floor area.

Pedestrian path, planters and seating area.

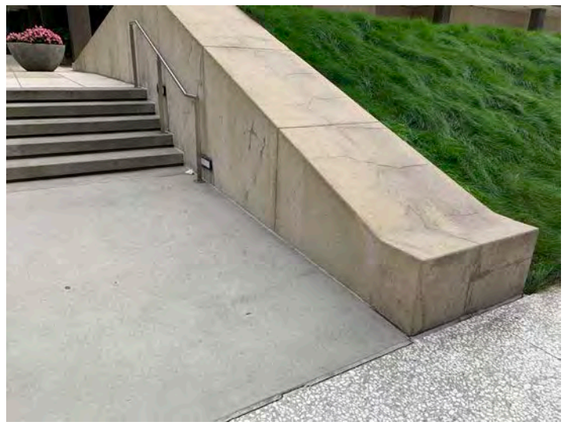
stone area.



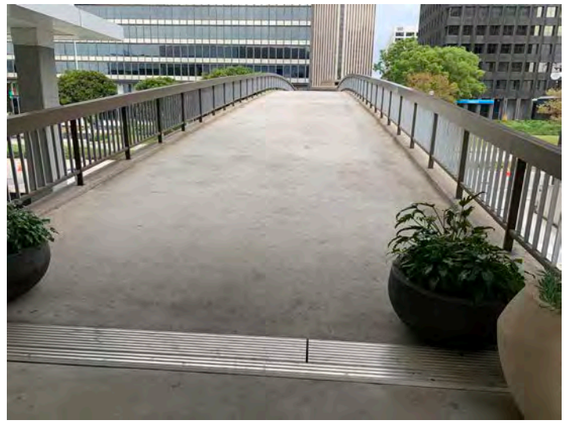
Cut stone pavers on structure

Concrete Detail

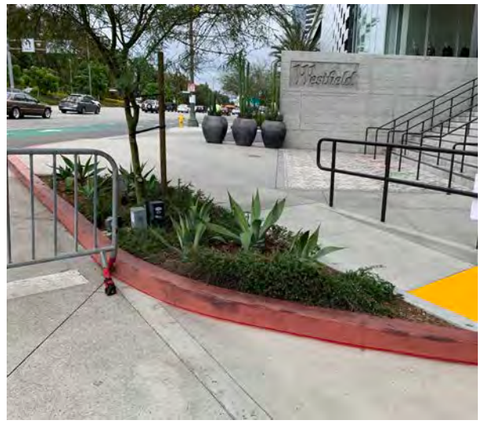
Store floor



Connecting path to a building outside of Westfield Mall to the east.

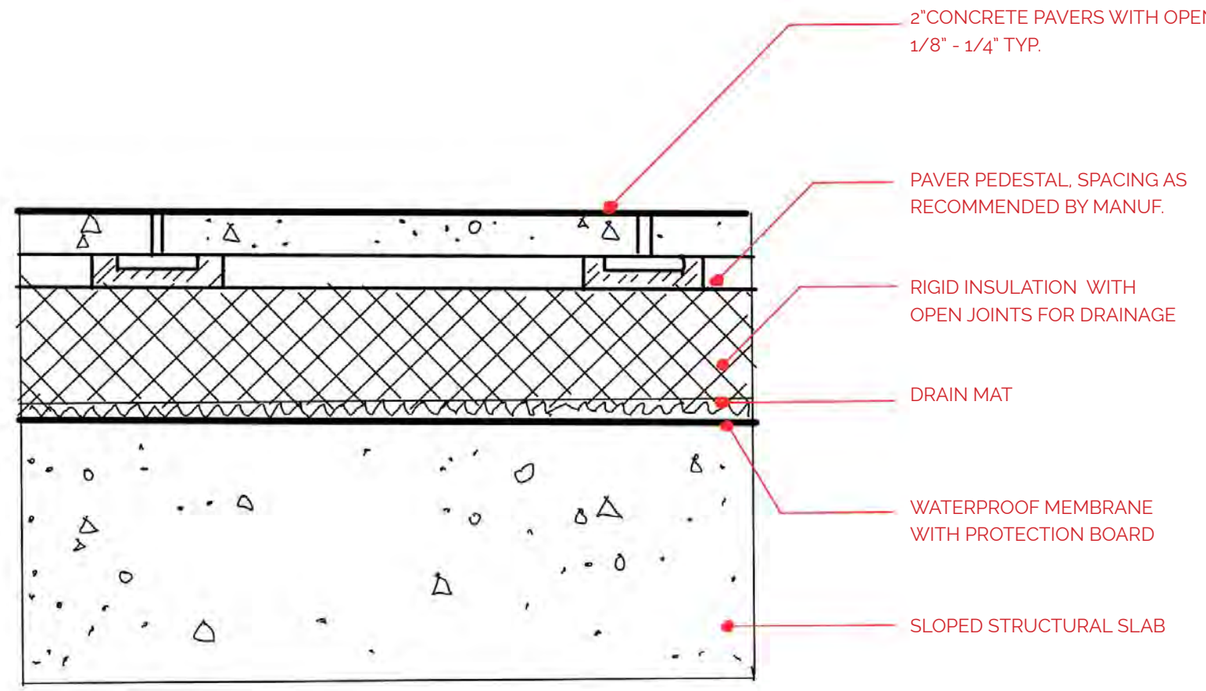


Bridge connecting Westfield Mall to the east with business district.



Sidewalk and exterior surfaces on the north side adjacent to Santa Monica Boulevard.

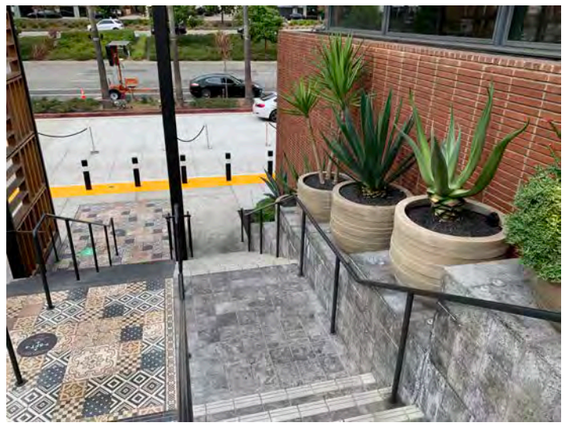
Parking



Concrete pavers with pedestals on structure

Other Detail
Brickwork, Rubber, Planters

Planter with brickwork in stacked bond flatwork.

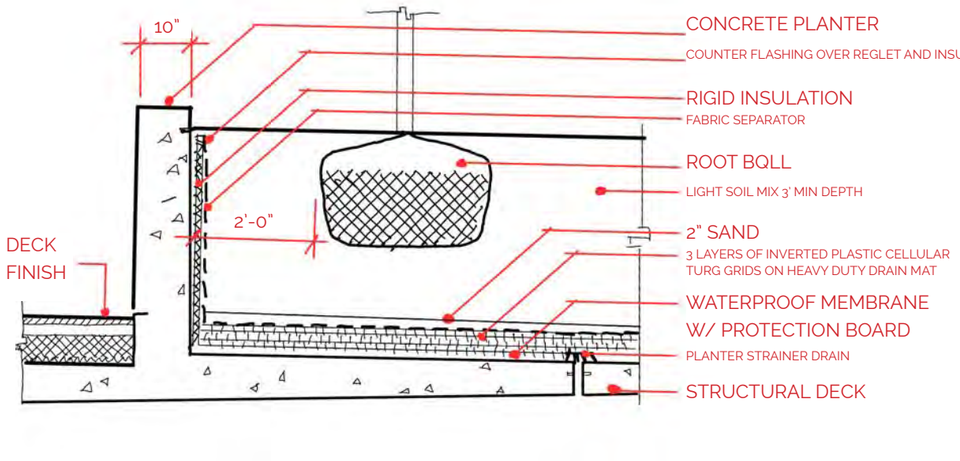


Brickwork area and adjacent areas with stone and concrete paving.

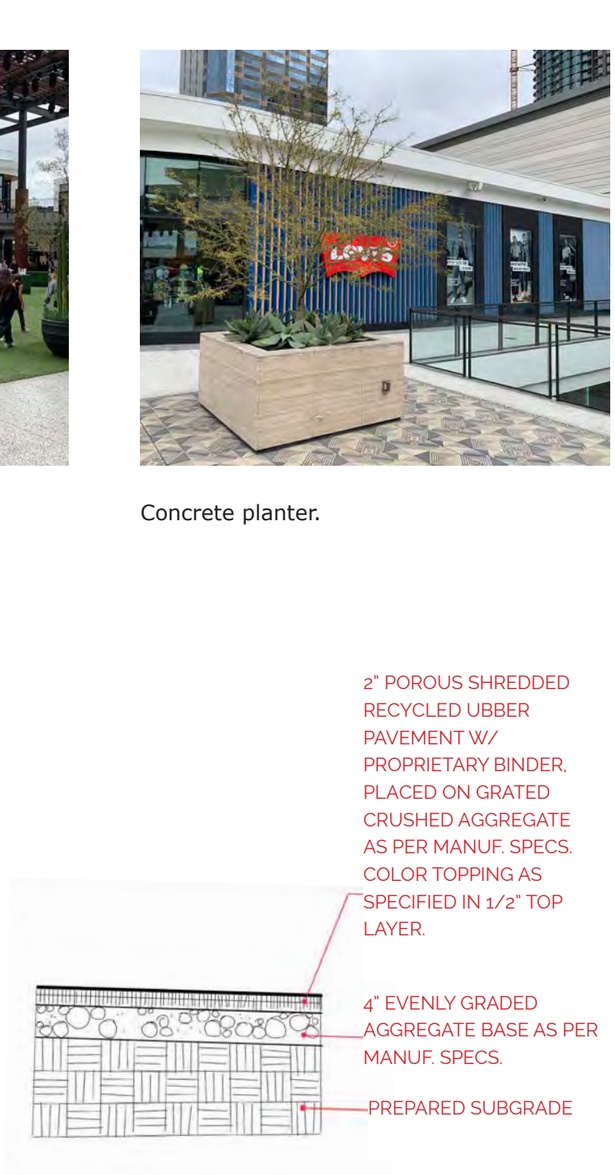
Play area with resilient surfacing.

Event space with artificial lawn.

Concrete planter.



Tree in planter on structure



Resilient rubber emulsion paving on aggregate base

No Redesign required

The successful design of Westfield Century City, a mid-century modern style that uses different kinds of paving and a variety of Mediterranean and native plants, encourages consumers to engage in different outdoor activities and linger around lounging areas and strolling paths and gardens.

Design Teams: OJB Landscape Architecture, Gensler, Kelly Wearstler Design, Selbert Perkins Design, RA Smith National, HLB Lighting Design
Design year: 2014
Year Built: 2017

OJB Landscape Architecture transformed the 1960's mall into an outdoor retail experience where customers are drawn to enjoy eight acres of outdoor space, of plazas, terraces, gardens, water elements and paths of different types of geometric paving and architectural raised and movable planters.

Homework Assignment 5

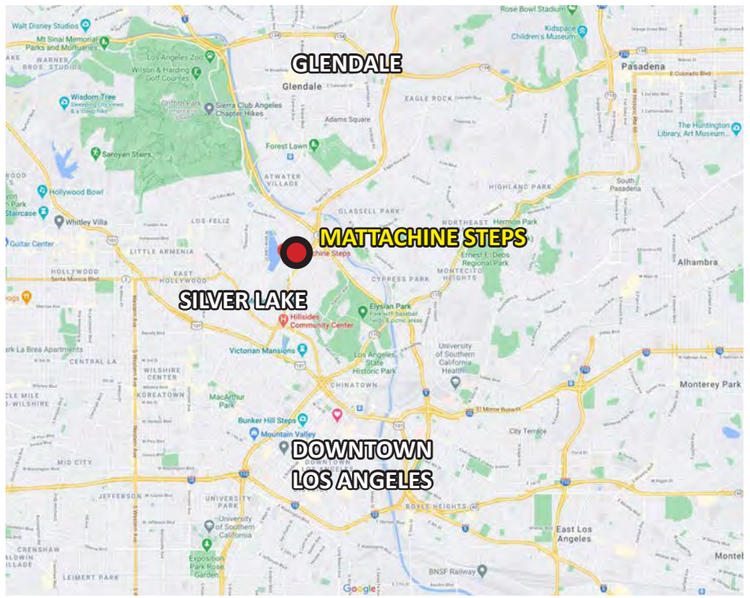
Draw STEPS and adjacent surfaces

Mattachine Steps

Site Location

The Mattachine Steps are an outdoor staircase on Cove Avenue in Silverlake, an east-central region of Los Angeles, California. The steps are east of the Silver Lake reservoirs, between Silver Lake Boulevard and Glendale boulevard. Nearest freeways (Fwy) are to the east Glendale Fwy (2) and Golden State Fwy (5) and to the south Hollywood Fwy (101), and Sunset Blvd.

Nearby address: 2355 Cove Ave, Los Angeles, CA 90039



Map

1 mile North

History

The Mattachine Steps or the Cove Avenue stairway was recognized as a historic site by the City of Los Angeles and dedicated to the Mattachine Society, the pioneering gay rights group founded in 1952 by Harry Hay (1912-2002). The group was one of the first gay rights organizations established in the United States and was enormously influential in the development of the national gay rights movement. The name of the society was taken from a fraternal order of masked performers that traveled the French countryside during the Middle Ages.

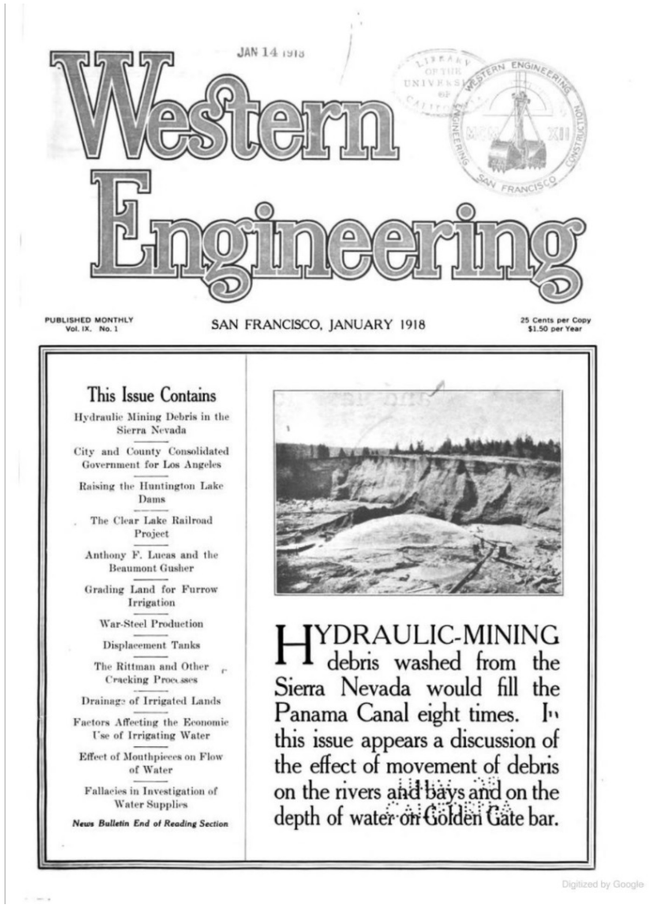
The stairway is near Hay's former residence and location for the group's first secret meeting on Nov. 11, 1950.

Bottom of steps

Top of steps with breathtaking views of the Silver Lake Reservoir

Members of the Mattachine Society in a rare group photograph. Pictured are Harry Hay (upper left), then (l–r) Konrad Stevens, Dale Jennings, Rudi Gernreich, Stan Witt, Bob Hull, Chuck Rowland (in glasses), Paul Bernard. Photo by James Gruber.

History



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This Issue Contains

Hydraulic Mining Debris in the Sierra Nevada

City and County Consolidated Government for Los Angeles

Raising the Huntington Lake Dams

The Clear Lake Railroad Project

Anthony F. Lucas and the Beaumont Gusher

Grading Land for Furrow Irrigation

War-Steel Production

Displacement Tanks

The Rittman and Other Cracking Processes

Drainage of Irrigated Lands

Factors Affecting the Economic Use of Irrigating Water

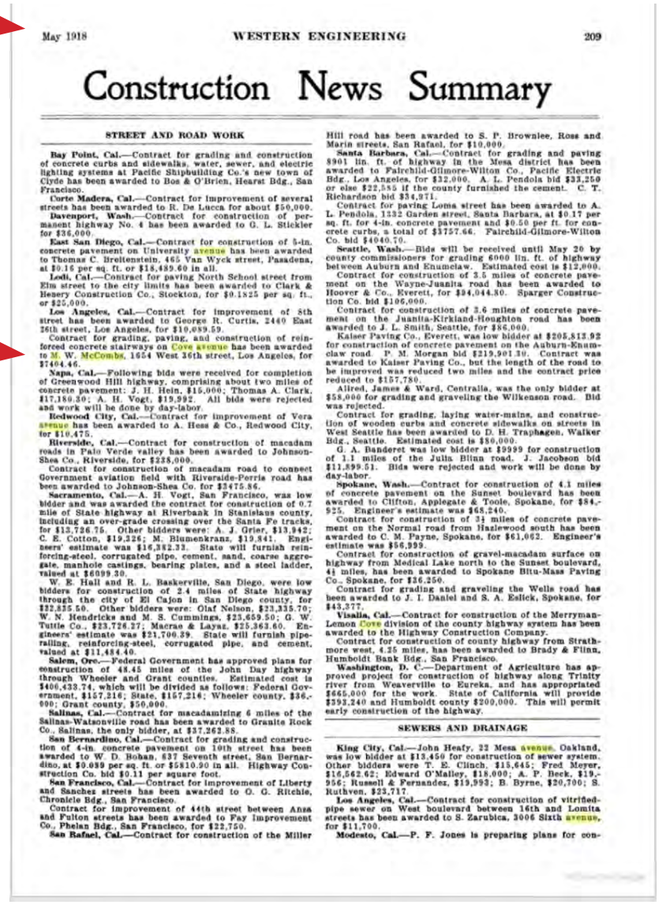
Effect of Mouthpieces on Flow of Water

Fallacies in Investigation of Water Supplies

News Bulletin End of Reading Section

HYDRAULIC-MINING debris washed from the Sierra Nevada would fill the Panama Canal eight times. In this issue appears a discussion of the effect of movement of debris on the rivers and bays and on the depth of water on Golden Gate bar.

Western Engineering Pub. Co., 1912-1918
Document: Journal, magazine, periodical
Language: English
Publisher: San Francisco, California



Construction News Summary

STREET AND ROAD WORK

Bay Point, Cal.—Contract for grading and construction of concrete curbs and sidewalks, water, sewer, and electric lighting systems at Pacific Shipbuilding Co.'s new town of Clyde has been awarded to Bos & O'Brien, Hearst Bdg., San Francisco.

Corte Madera, Cal.—Contract for improvement of several streets has been awarded to R. De Lucca for about $50,000.

Davenport, Wash.—Contract for construction of permanent highway No. 4 has been awarded to G. L. Stickler for $36,000.

East San Diego, Cal.—Contract for construction of 5-in. concrete pavement on University avenue has been awarded to Thomas C. Breitenstein, 465 Van Wyck street, Pasadena, at $0.15 per sq. ft. or $16,485.60 in all.

Lodi, Cal.—Contract for paving North School street from Elm street to the city limits has been awarded to Clark & Henery Construction Co., Stockton, for $0.1825 per sq. ft., or $25,000.

Los Angeles, Cal.—Contract for improvement of 8th street has been awarded to George R. Curtis, 2440 East 26th street, Los Angeles, for $10,039.59.

Contract for grading, paving, and construction of reinforced concrete stairways on Cove avenue has been awarded to M. W. McCombs, 1654 West 36th street, Los Angeles, for $7464.46.

Napa, Cal.—Following bids were received for completion of Greenwood Hill highway, comprising about two miles of concrete pavement: J. H. Hein, $15,000; Thomas A. Clark, $17,180.50; A. H. Vogt, $19,992. All bids were rejected and work will be done by day-laboy.

Redwood City, Cal.—Contract for improvement of Vera avenue has been awarded to A. Hess & Co., Redwood City, for $10,475.

Riverside, Cal.—Contract for construction of macadam roads in Palo Verde valley has been awarded to Johnson-Shea Co., Riverside, for $238,000.

Contract for construction of macadam road to connect Government aviation field with Riverside-Perris road has been awarded to Johnson-Shea Co. for $3475.86.

Sacramento, Cal.—A. H. Vogt, San Francisco, was low bidder and was awarded the contract for construction of 0.7 mile of State highway at Riverbank in Stanislaus county, including an over-grade crossing over the Santa Fe tracks, for $13,726.75. Other bidders were: A. J. Grier, $13,942; C. E. Cotton, $19,326; M. Blumenkranz, $19,841. Engineers' estimate was $16,382.32. State will furnish reinforcing-steel, corrugated pipe, cement, sand, coarse aggregate, manhole castings, bearing plates, and a steel ladder, valued at $6099.30.

W. E. Hall and R. L. Baskerville, San Diego, were low bidders for construction of 2.4 miles of State highway through the city of El Cajon in San Diego county, for $22,335.50. Other bidders were: Olaf Nelson, $23,335.70; W. N. Hendricks and M. S. Cummings, $25,659.50; G. W. Tuttle Co., $23,726.27; Macrae & Layas, $25,363.60. Engineers' estimate was $21,700.39. State will furnish pipe-railing, reinforcing-steel, corrugated pipe, and cement, valued at $11,454.40.

Salem, Ore.—Federal Government has approved plans for construction of 48.45 miles of the John Day highway through Wheeler and Grant counties. Estimated cost is $406,433.74, which will be divided as follows: Federal Government, $157,216; State, $157,216; Wheeler county, $36,-000; Grant county, $50,000.

Salinas, Cal.—Contract for macadamizing 6 miles of the Salinas-Watsonville road has been awarded to Granite Rock Co., Salinas, the only bidder, at $37,262.88.

San Bernardino, Cal.—Contract for grading and construction of 4-in. concrete pavement on 10th street has been awarded to W. D. Hoban, 637 Seventh street, San Bernardino, at $0.089 per sq. ft. or $5810.90 in all. Highway Construction Co. bid $0.11 per square foot.

San Francisco, Cal.—Contract for improvement of Liberty and Sanchez streets has been awarded to O. G. Ritchie, Chronicle Bdg., San Francisco.

Contract for improvement of 44th street between Anza and Fulton streets has been awarded to Fay Improvement Co., Phelan Bdg., San Francisco, for $22,750.

San Rafael, Cal.—Contract for construction of the Miller Hill road has been awarded to S. P. Brownlee, Ross and Marin streets, San Rafael, for $10,000.

Santa Barbara, Cal.—Contract for grading and paving 8901 lin. ft. of highway in the Mesa district has been awarded to Fairchild-Gilmore-Wilton Co., Pacific Electric Bdg., Los Angeles, for $32,000. A. L. Pendola bid $33,250 or else $22,585 if the county furnished the cement. C. T. Richardson bid $34,971.

Contract for paving Loma street has been awarded to A. L. Pendola, 1332 Garden street, Santa Barbara, at $0.17 per sq. ft. for 4-in. concrete pavement and $0.50 per ft. for concrete curbs, a total of $3757.66. Fairchild-Gilmore-Wilton Co. bid $4040.70.

Seattle, Wash.—Bids will be received until May 20 by county commissioners for grading 6000 lin. ft. of highway between Auburn and Enumclaw. Estimated cost is $12,000.

Contract for construction of 3.5 miles of concrete pavement on the Wayne-Juanita road has been awarded to Hoover & Co., Everett, for $94,044.80. Sparger Construction Co. bid $105,000.

Contract for construction of 3.6 miles of concrete pavement on the Juanita-Kirkland-Houghton road has been awarded to J. L. Smith, Seattle, for $86,000.

Kaiser Paving Co., Everett, was low bidder at $205,813.92 for construction of concrete pavement on the Auburn-Enumclaw road. P. M. Morgan bid $219,901.30. Contract was awarded to Kaiser Paving Co., but the length of the road to be improved was reduced two miles and the contract price reduced to $157,780.

Allred, James & Ward, Centralia, was the only bidder at $58,000 for grading and graveling the Wilkeson road. Bid was rejected.

Contract for grading, laying water-mains, and construction of wooden curbs and concrete sidewalks on streets in West Seattle has been awarded to D. H. Traphagen, Walker Bdg., Seattle. Estimated cost is $50,000.

G. A. Banderet was low bidder at $9999 for construction of 1.1 miles of the Juils. Blinn road. J. Jacobson bid $11,899.51. Bids were rejected and work will be done by day-labor.

Spokane, Wash.—Contract for construction of 4.1 miles of concrete pavement on the Sunset boulevard has been awarded to Clifton, Applegate & Toole, Spokane, for $84,-925. Engineer's estimate was $68,240.

Contract for construction of 3½ miles of concrete pavement on the Normal road from Hazlewood south has been awarded to C. M. Payne, Spokane, for $61,062. Engineer's estimate was $56,399.

Contract for construction of gravel-macadam surface on highway from Medical Lake north to the Sunset boulevard, 4½ miles, has been awarded to Spokane Bltu-Mass Paving Co., Spokane, for $36,250.

Contract for grading and graveling the Wells road has been awarded to J. I. Daniel and S. A. Eslick, Spokane, for $43,277.

Visalia, Cal.—Contract for construction of the Merryman-Lemon Cove division of the county highway system has been awarded to the Highway Construction Company.

Contract for construction of county highway from Strathmore west, 4.25 miles, has been awarded to Brady & Flinn, Humboldt Bank Bdg., San Francisco.

Washington, D. C.—Department of Agriculture has approved project for construction of highway along Trinity river from Weaverville to Eureka, and has appropriated $665,000 for the work. State of California will provide $252,240 and Humboldt county $200,000. This will permit early construction of the highway.

SEWERS AND DRAINAGE

King City, Cal.—John Healy, 32 Mesa avenue, Oakland, was low bidder at $13,456 for construction of sewer system. Other bidders were T. E. Clinch, $15,645; Fred Meyer, $16,542.62; Edward O'Malley, $18,000; A. P. Beck, $19,-956; Russell & Fernandez, $19,993; B. Byrne, $20,700; S. Ruthven, $23,717.

Los Angeles, Cal.—Contract for construction of vitrified-pipe sewer on West boulevard between 16th and Lomita streets has been awarded to S. Zarubica, 3006 Sixth avenue, for $11,700.

Modesto, Cal.—P. F. Jones is preparing plans for con-

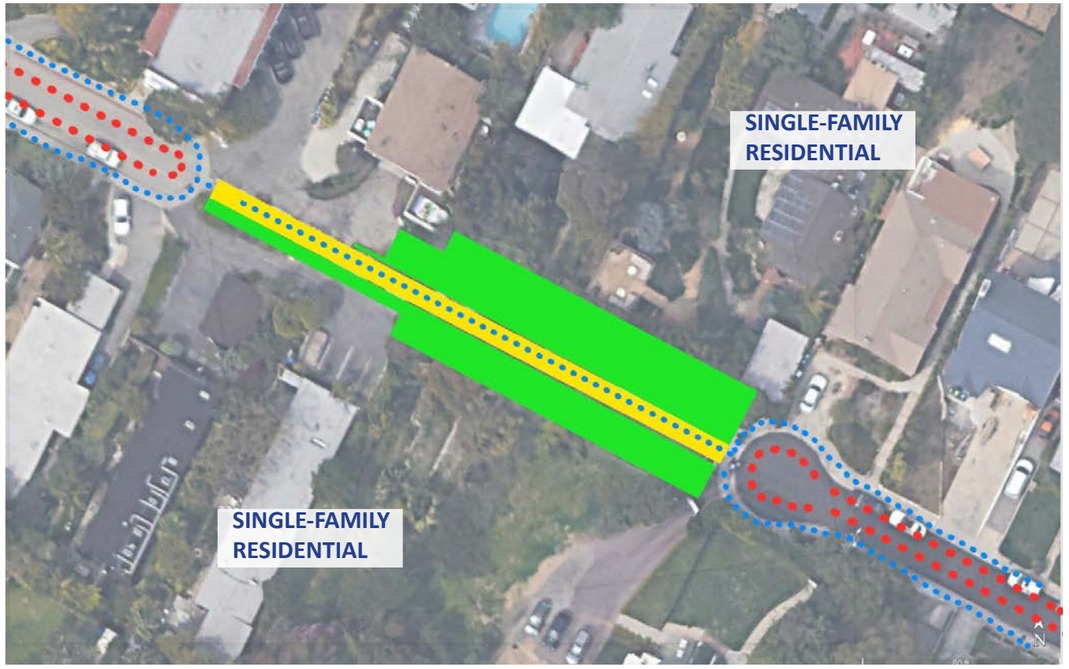
May 1918, Los Angeles, California - Contract for grading, paving and construction of reinforced concrete stairways on Cove avenue has been awarded to M. W. McCombs, 1654 West 36 street, Los Angeles, for $7,404.46.

Photo of contractor's stamp on the stairway still visible today.

Site Analysis

Context

1000 feet North



Site

80 feet North

LEGEND

- Mattachine Steps
- Undeveloped Plant Area
- Vehicular Circulation
- Pedestrian Circulation

View towards the top of the stairs and adjacent plant areas

East cul-de-sac

West cul-de-sac

Defects and Flaws

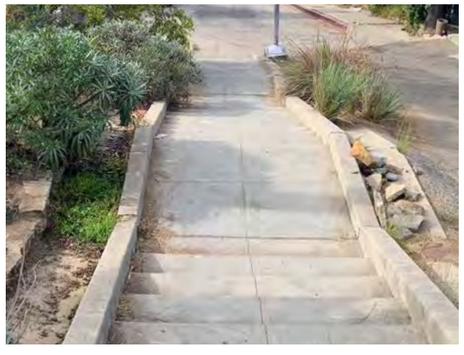
- Stairs cracks and breaks
- Blocked or damaged drainage
- Overgrown, unkept plantings
- Gophers
- Damaged sidewalks and streets







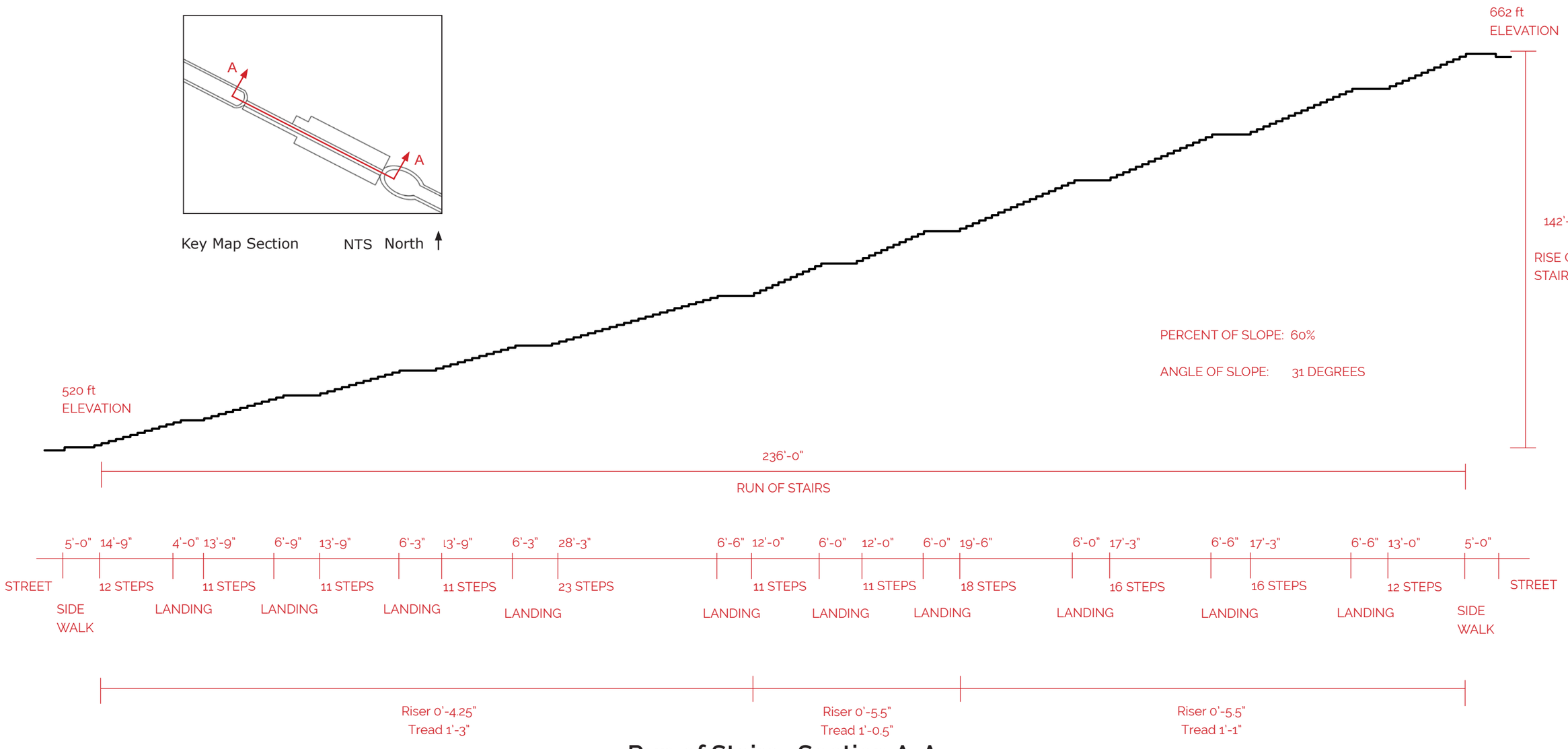




Homework Assignment 5 - Draw STEPS and adjacent surfaces - Mattachine Steps

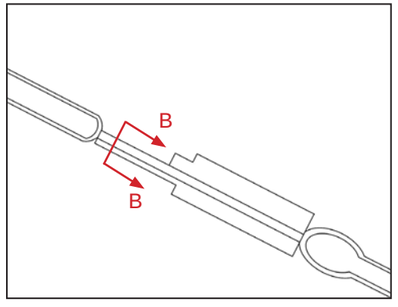
Detail Run of Stairs

Key Map Section NTS North

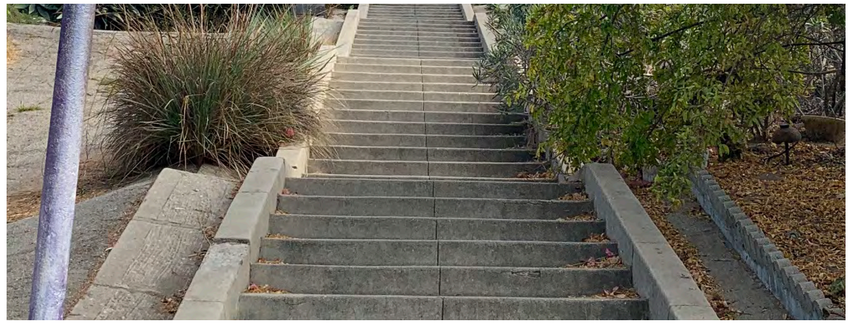


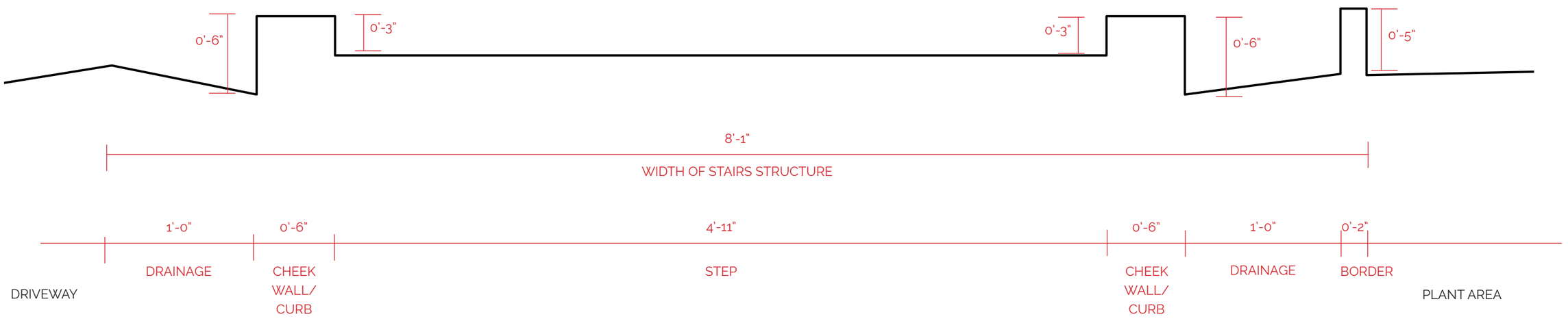
Run of Stairs Section A-A

Detail Width of Stairs



Key Map Section NTS North

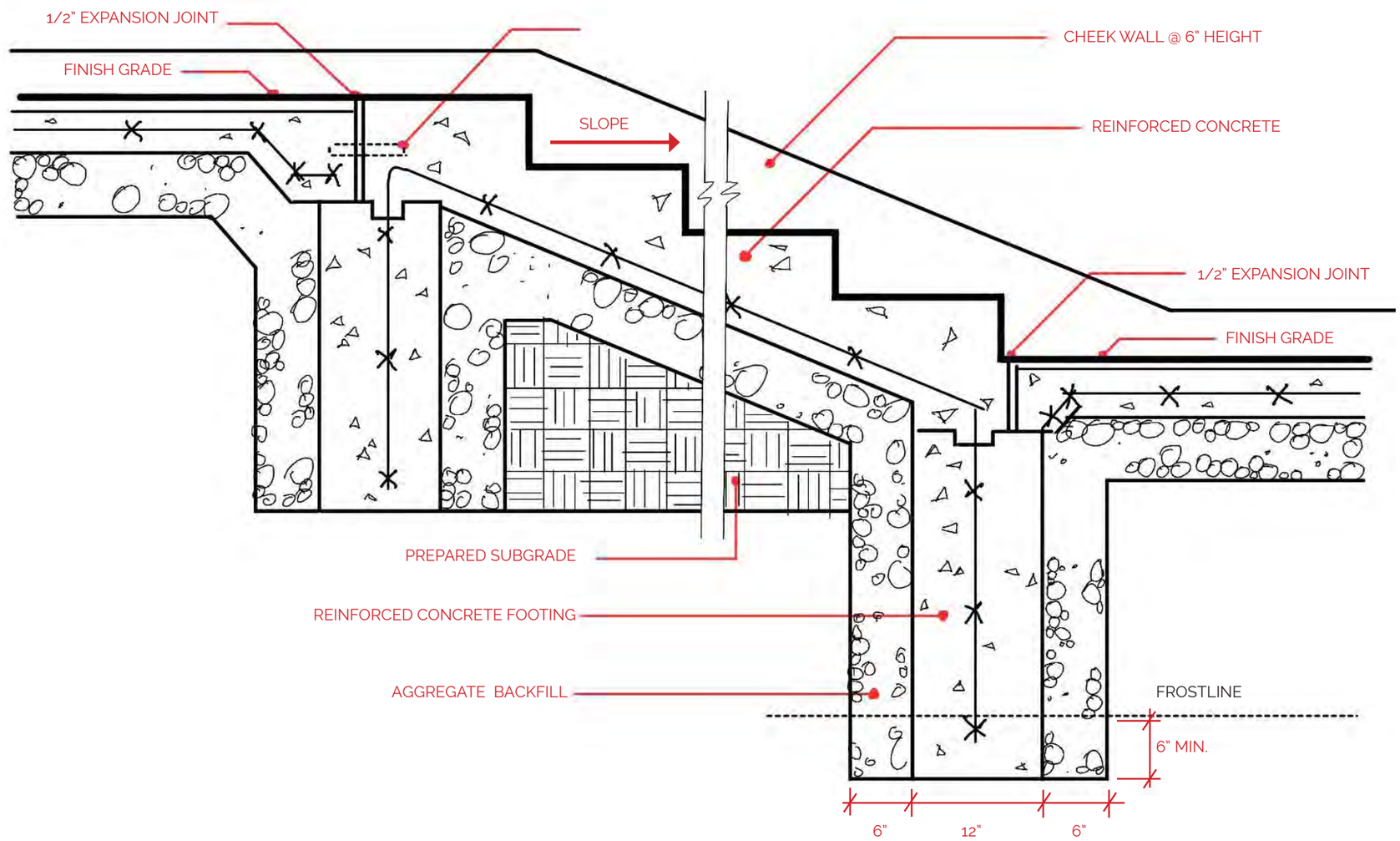




Width of Stairs Structure Section B-B

Homework Assignment 5 - Draw STEPS and adjacent surfaces - Mattachine Steps

Detail Steps



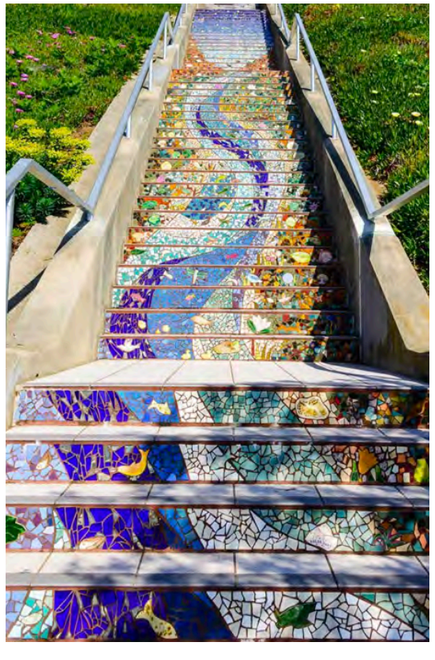
Reinforced Concrete Stairs with Cheek Wall

Inspiration for Redesign or Improvements

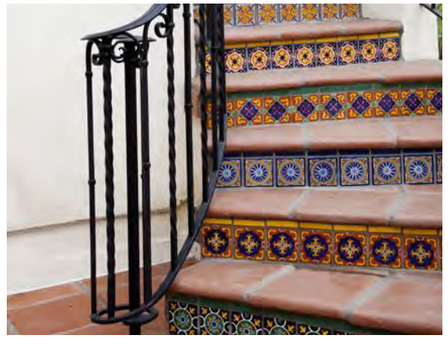
Rio De Jainero, Brazil

Montmartre, France

Sicily, Italy

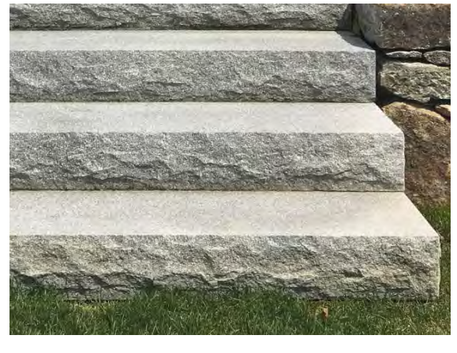


San Francisco, USA



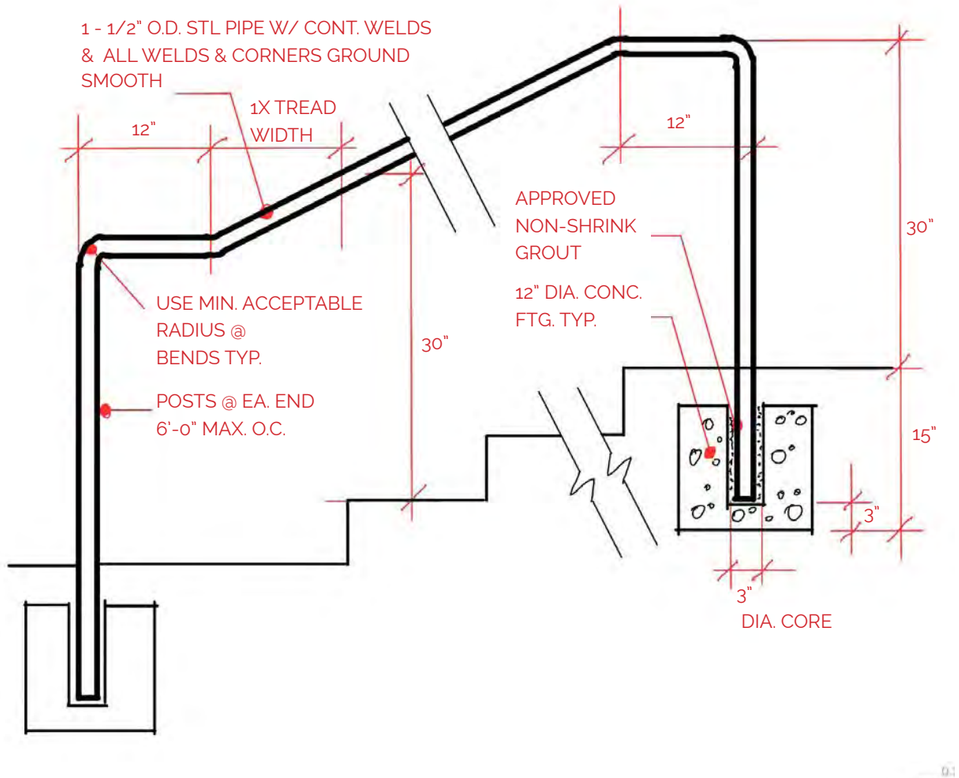
Spanish Tile

Brick

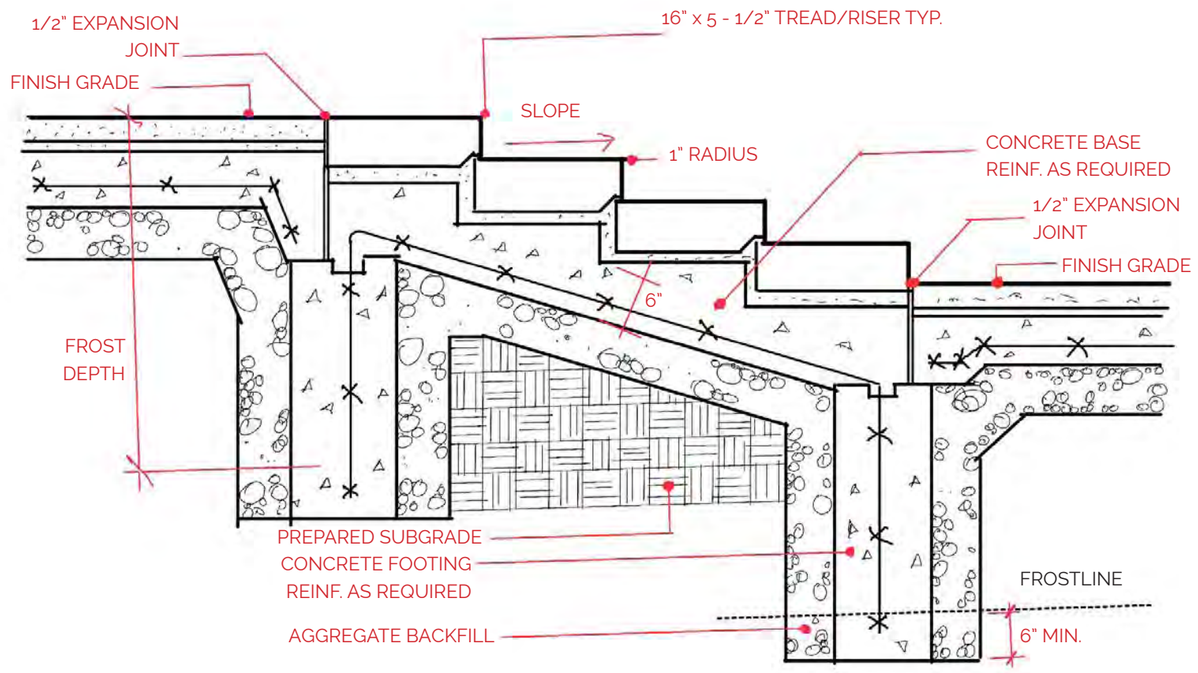


Granite

Improvements



Handrail at Steps

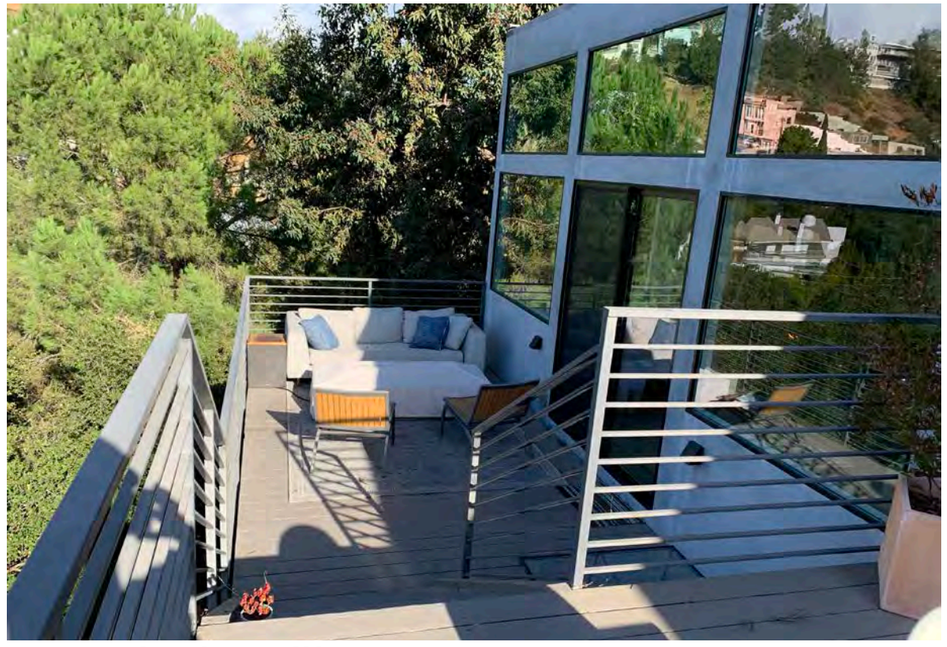


Granite Steps on Concrete base

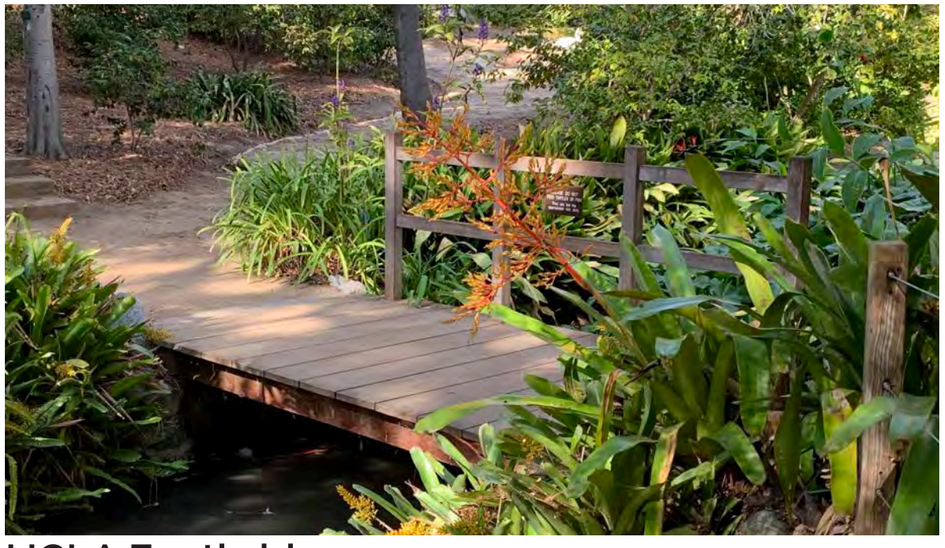
Improvements

- Ligths
- Handrail
- Granite Steps
- Drainage
- Plantings

Home in Virginia



Home in the Hills



UCLA Footbridge

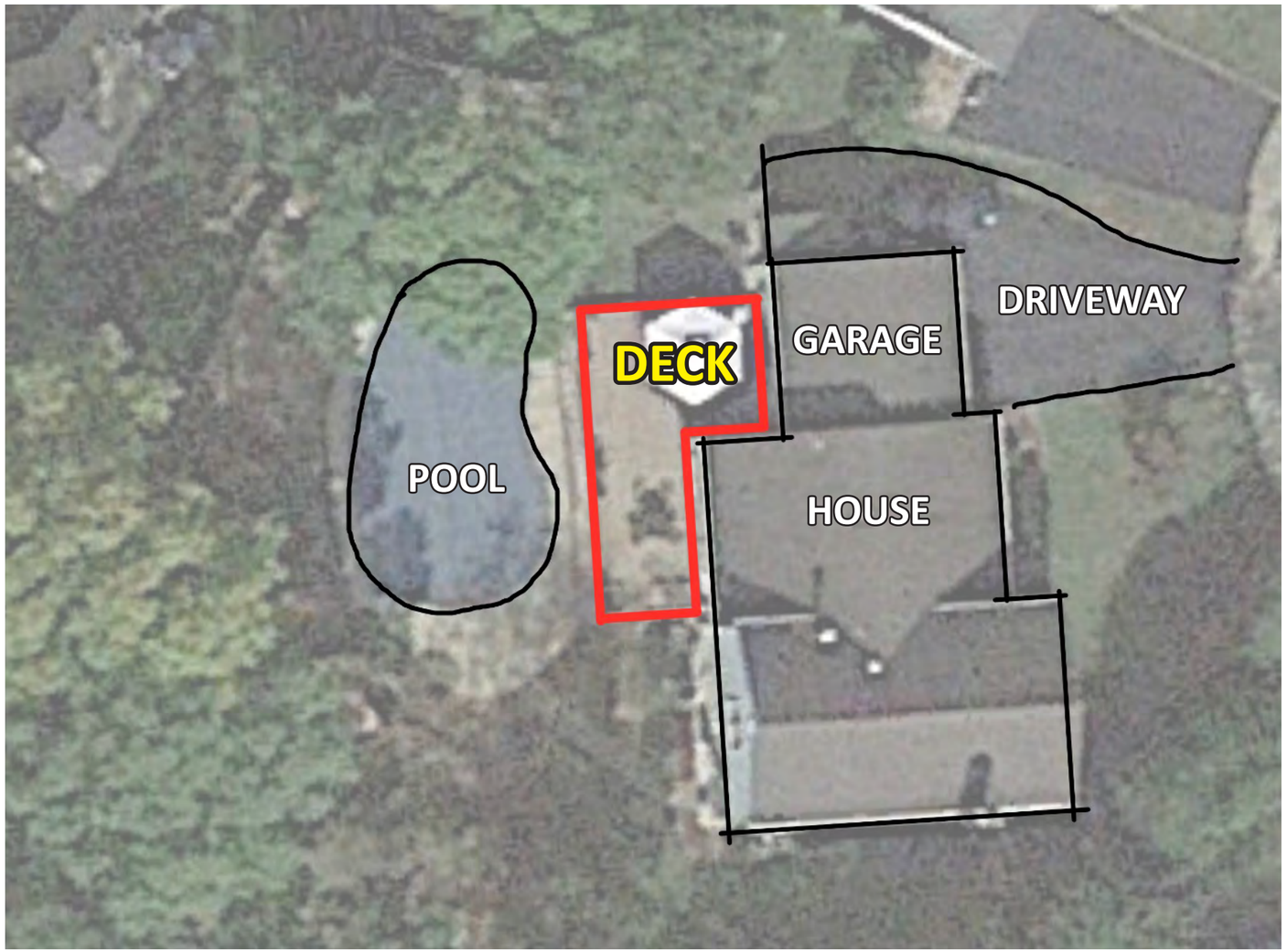
Homework Assignments 6 & 7

Draw STRUCTURES study: Wood Deck and Overhead Structures

Home in Virginia

The home is located in a residential neighborhood in Virginia. In the back of the house the owner build a deck show in in red that faces the pool.. The deck wraps around the back of the garage and part of the back of the house,

View of the deck and the back of the garage and the house, as seen from the northwest corner of the property. To the right is the pool showing only part of the pool cover.



Site

40 feet North

Photos

North side

Front - facing west. There are two set of steps on each side and a long bench in between.

Southwest corner of the deck. Four more smaller wooden benches can be seen on the deck.

Photo was taking during grading part of the site at 2.5% sloping away from the house. There is a concrete patio that was not removed.

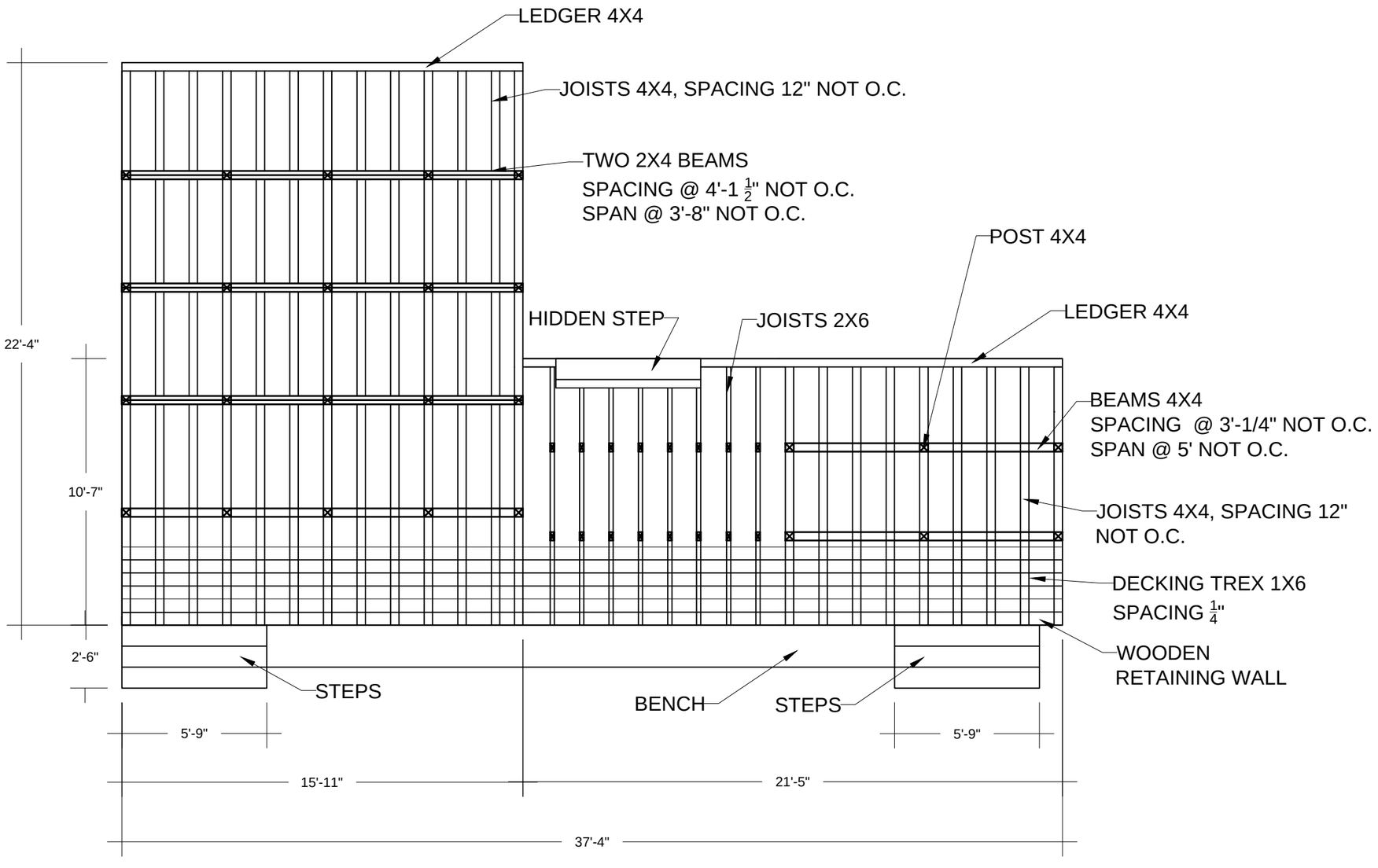
Framing in front of the garage, north side. The joists and beam are on the same plane. Joists look more like blocking.

Showing part of the front and south side of the framing. Here joists rest on top of the beams. Also seen is the blocking.

Detail Top View

All wood except decking is double pressure treated for ground contact.

Decking is Trex Composite (made from 95% recycled materials, including reclaimed wood and sawdust as well as recycled plastic from many common household items).



NTS North

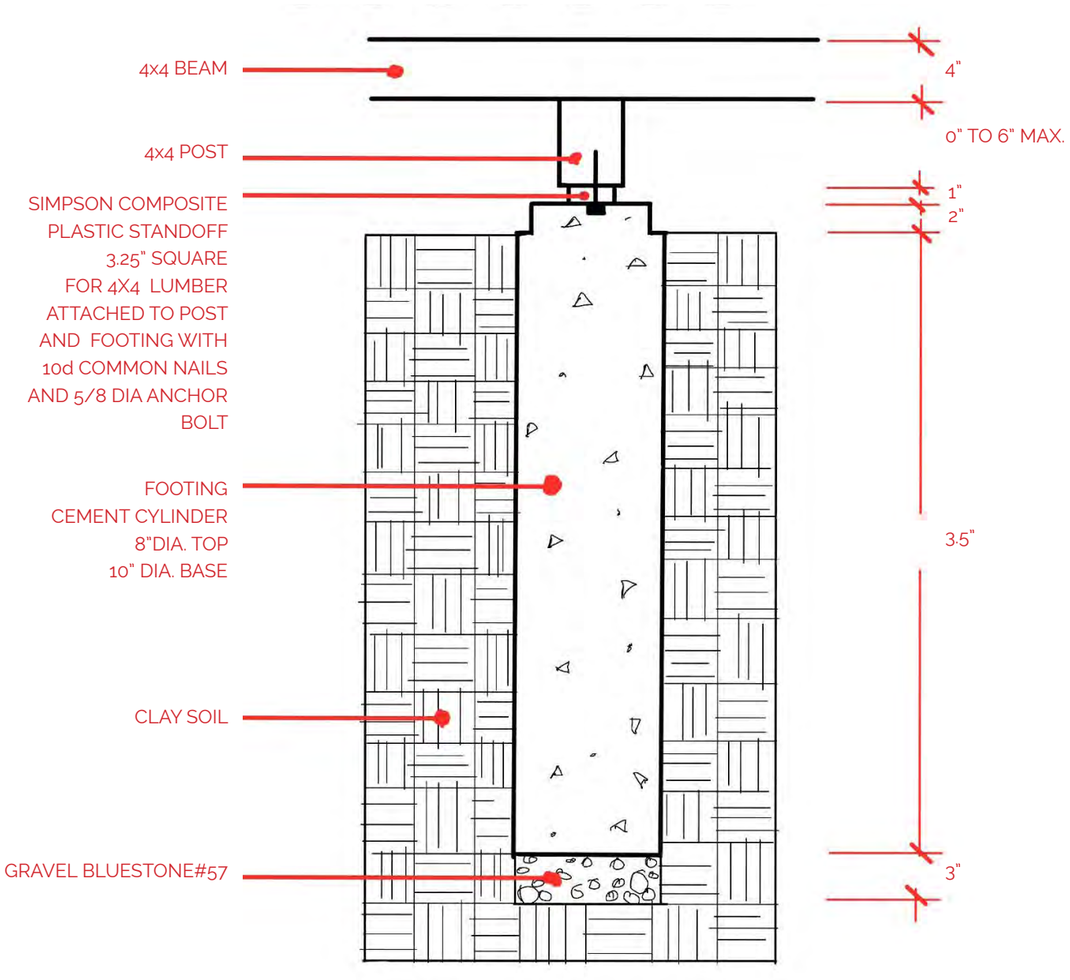
Detail Footing

10” gas powered earth auger used to dig the hole for the cement footing.

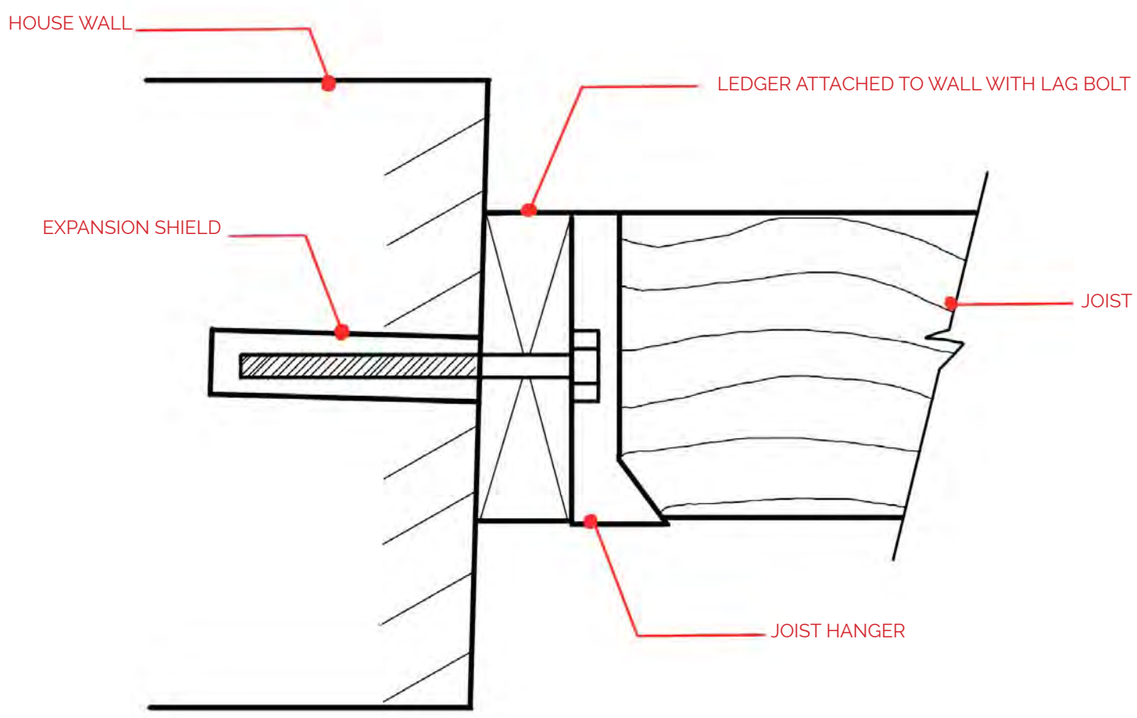
Concrete tube form used to pour in the cement for the footing.

Simpson Strong-Tie connector. The CPS is a composite plastic standoff designed for increased concrete surface area. It also keeps moisture away from the bottom of the post. Install with 10d common nails and 5/8 in. Dia anchor bolt.

Cement footing with composite on top, wooden post and beam.

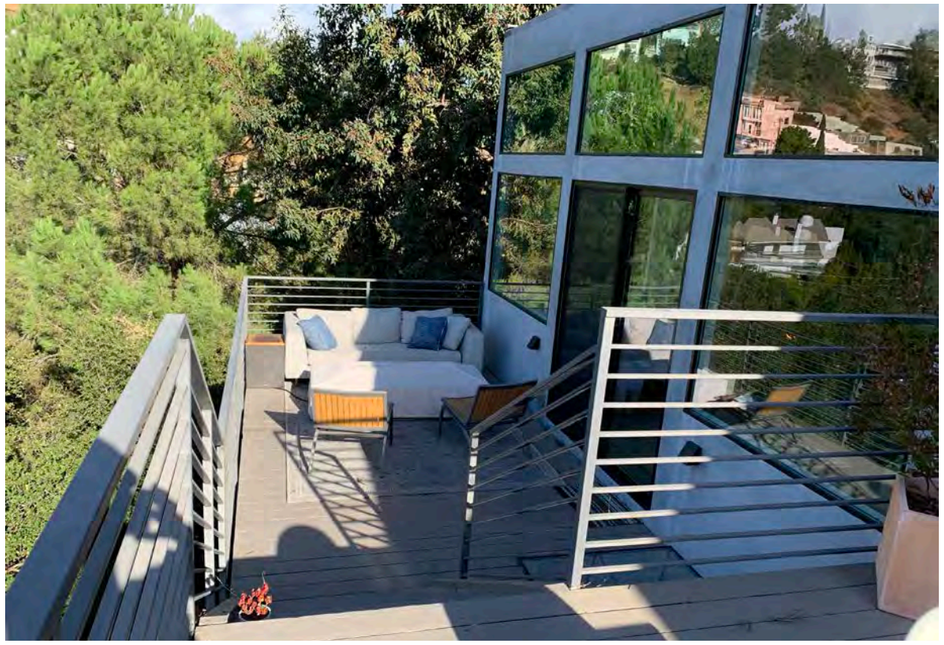


Detail Ledger and Joist Connections



Ledger board used to attach deck framing and the house.

Existing step used to attach another ledger board. Used bottom step as the height of the decking. Also shown the concrete patio that was left and build the deck on top of it.



Home in the Hills

Home Location

The home is located in the Hollywood Hills, Los Angeles, California.

It features thee decks:

1) a lower level deck (**YELLOW**),

2) an upper level deck (**RED**) that is the overhead structure for the lower level deck, and

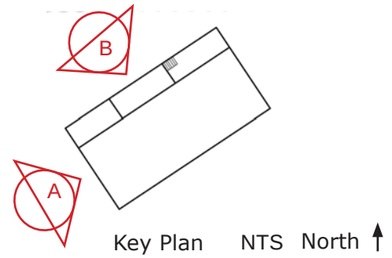
3) a middle level deck (**BLUE**), that is accessible through a set of stairs from the upper level deck.

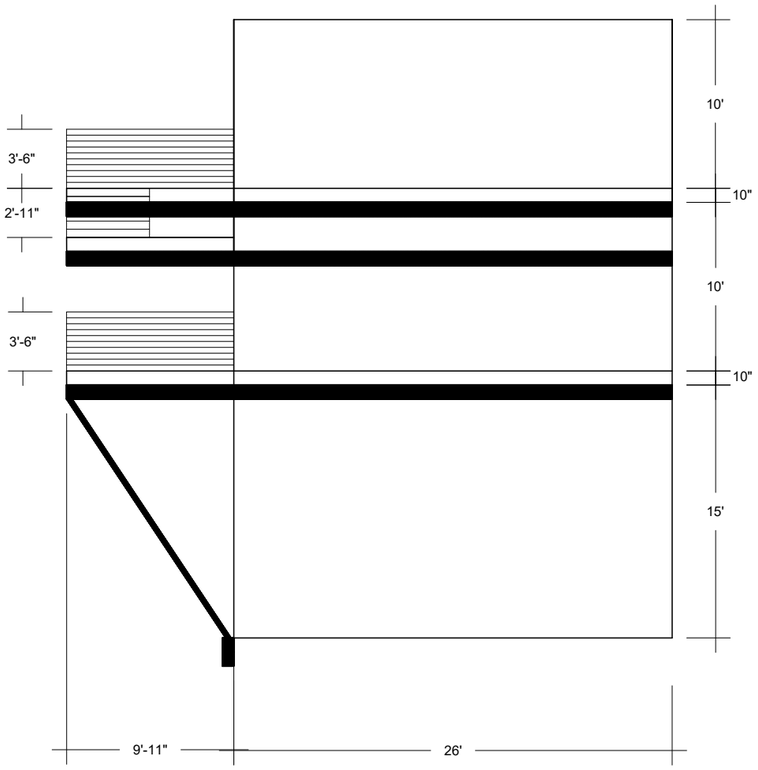
In the photo, top view of the house, north side of the house are the decks in color.
Upper and middle decks in red and blue, and lower deck not very visible on the left.

Site

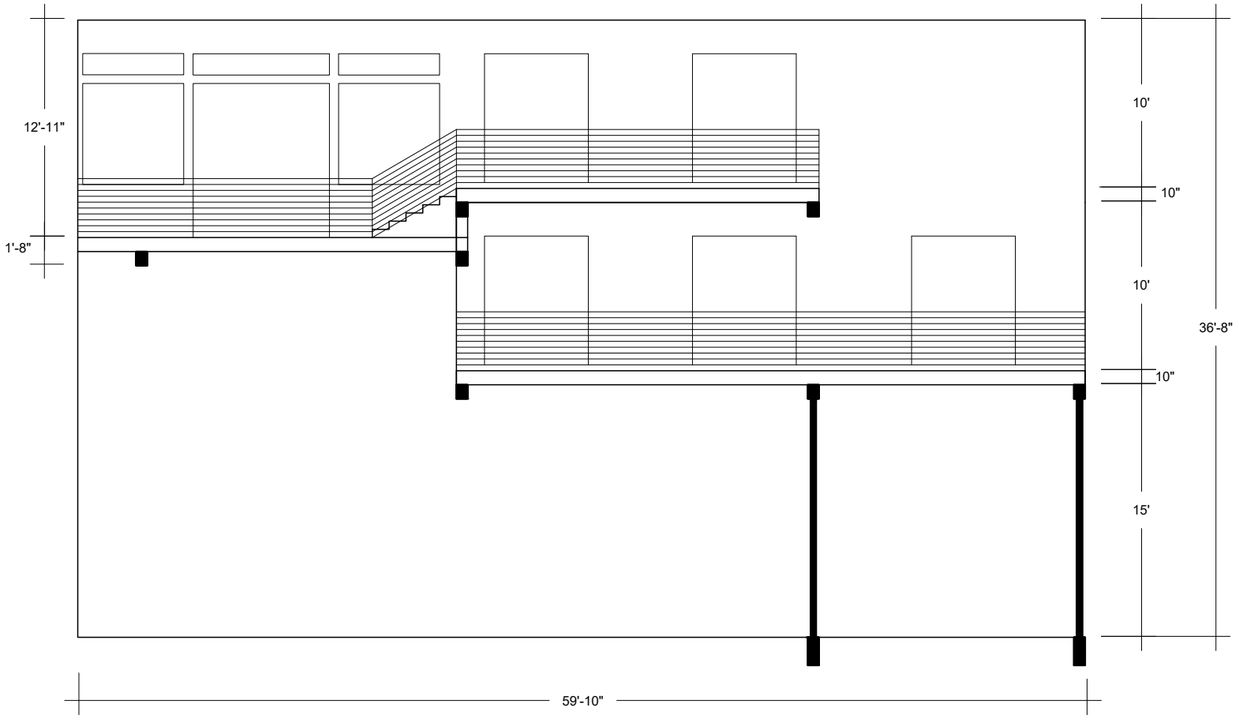
30 feet North

Side and Front Deck Elevations



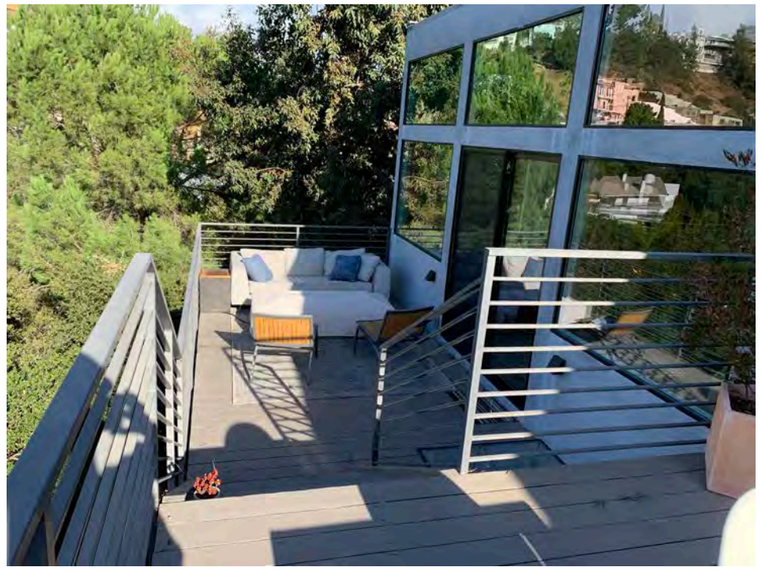


Side Elevation A



Front Elevation B

Three levels of wooden structures

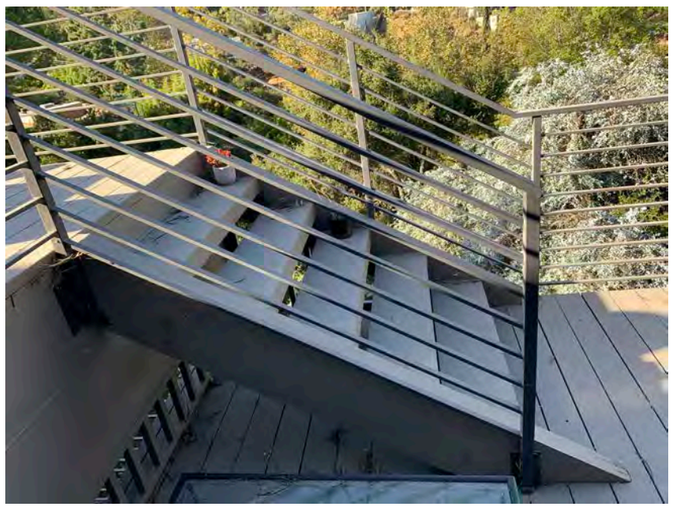


Middle level deck

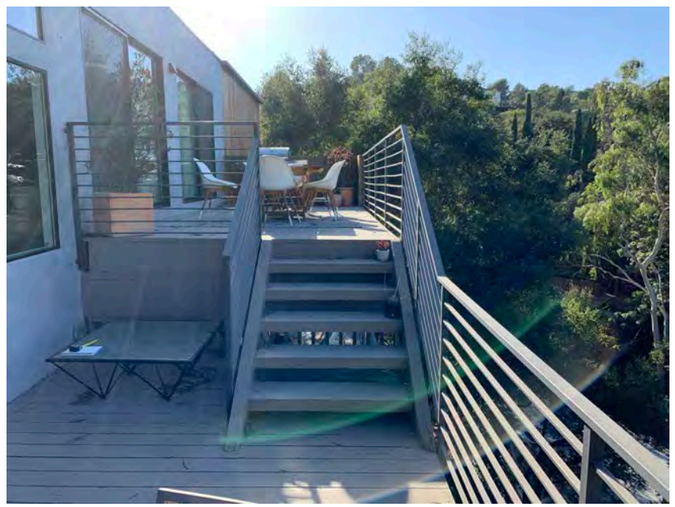
Upper level deck (overhead structure for lower level deck)

Lower level deck

Photos



Stairs connecting the upper and middle decks



Stairs and the upper level deck.
Photo is taken from the middle level deck.

Connection of guard rail with the stairs and upper deck.

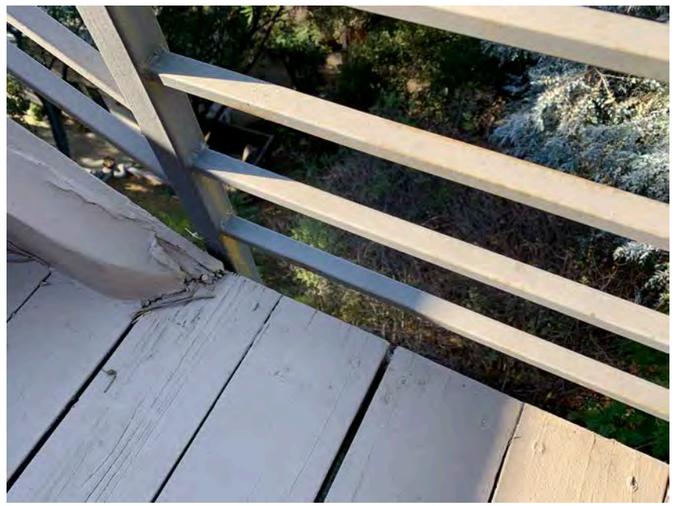
Connection of guard rail at the bottom of the stairs and middle level deck.

Connection of guard rail with the wall and upper. Piece of wood from the upper deck where guard rail was connected is missing.

Connection of guard rail with the wall of the house.

Photos

Spacing in decking and nails.

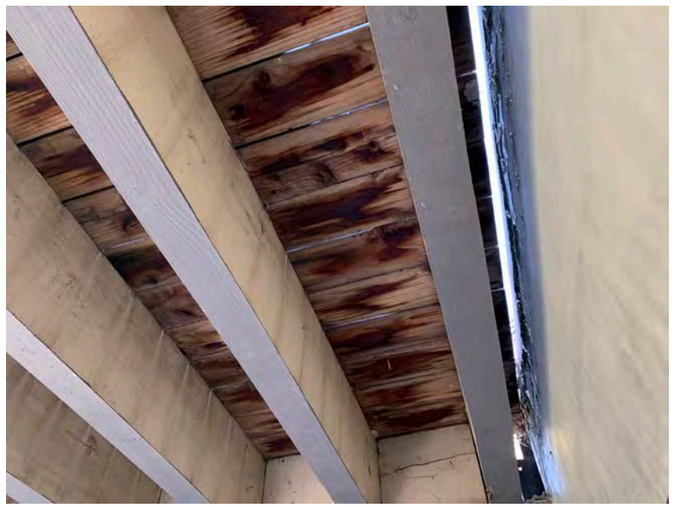


Guard rails bolded outside on the side of the deck.

Guard rails, stairs and middle level deck.

Overhead structure (upper level deck) and wooden guard rail.

Ceiling of the overhead structure (upper level deck).



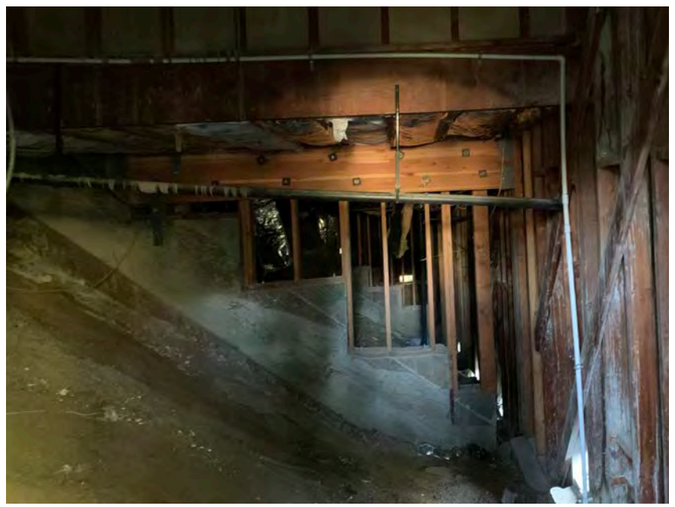
Gap between overhead structure and wall of the house.

Photos

Ceiling of the overhead structure showing beam.

Close view of beam supporting overhead structure.

Partial view outside of the house and middle level deck and guard rail.

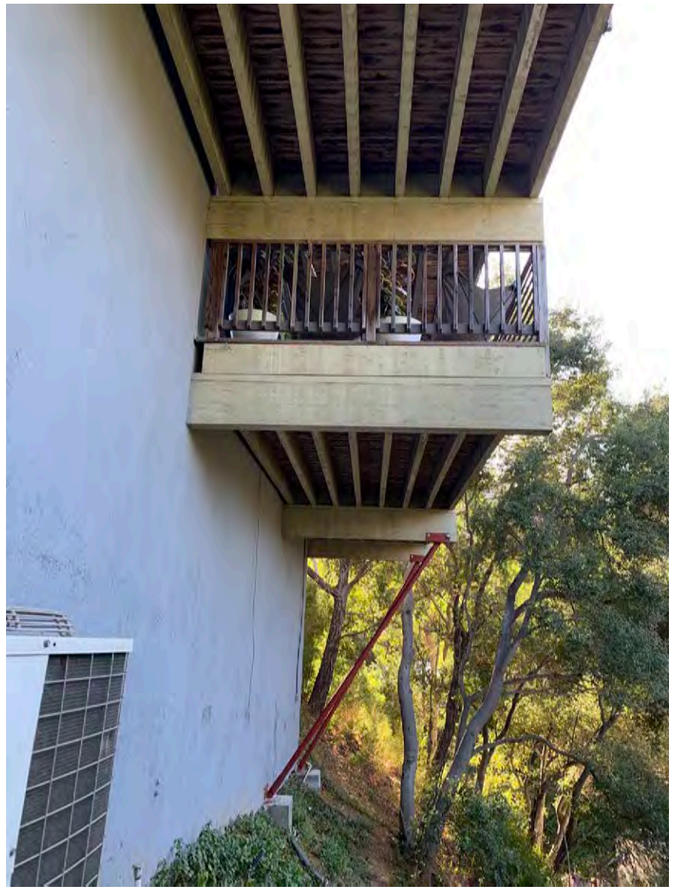


Underneath the house showing beams embeded into the hill rock and step structure to support the house and decks.

Photos

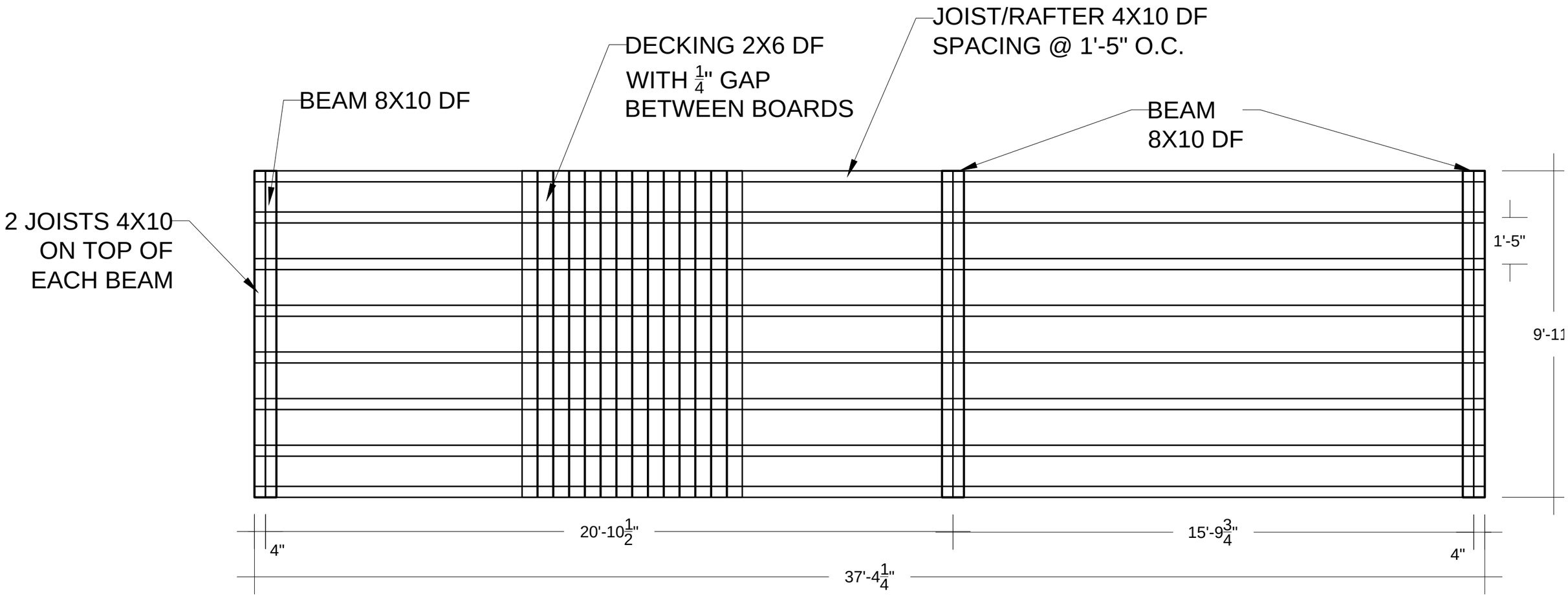
View of the middle level deck, joists, beam and part of the house.

Closer look of middle level deck underneath.

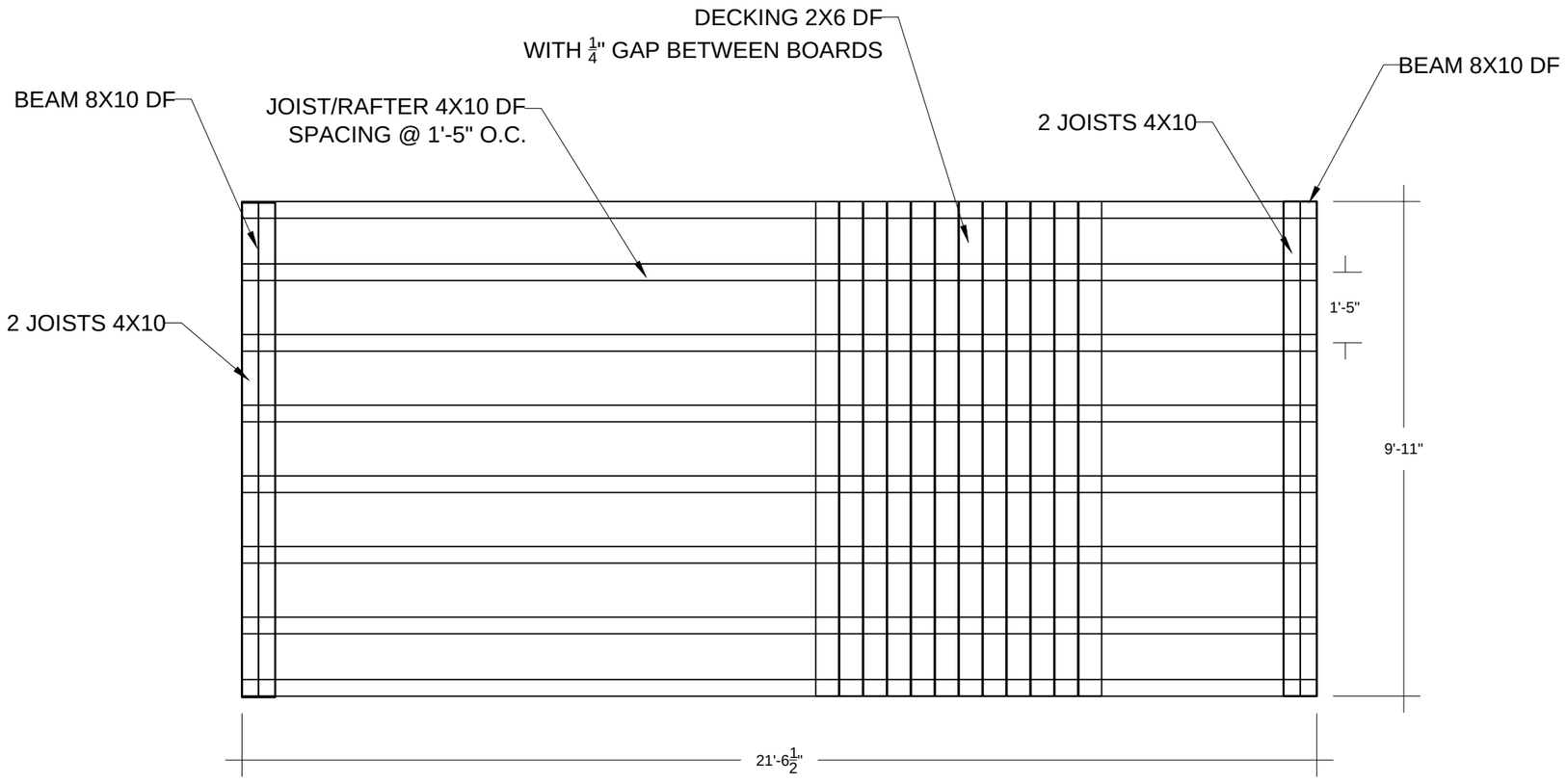


Middle and lower level decks with beams and red rods supporting the deck structure and the house.

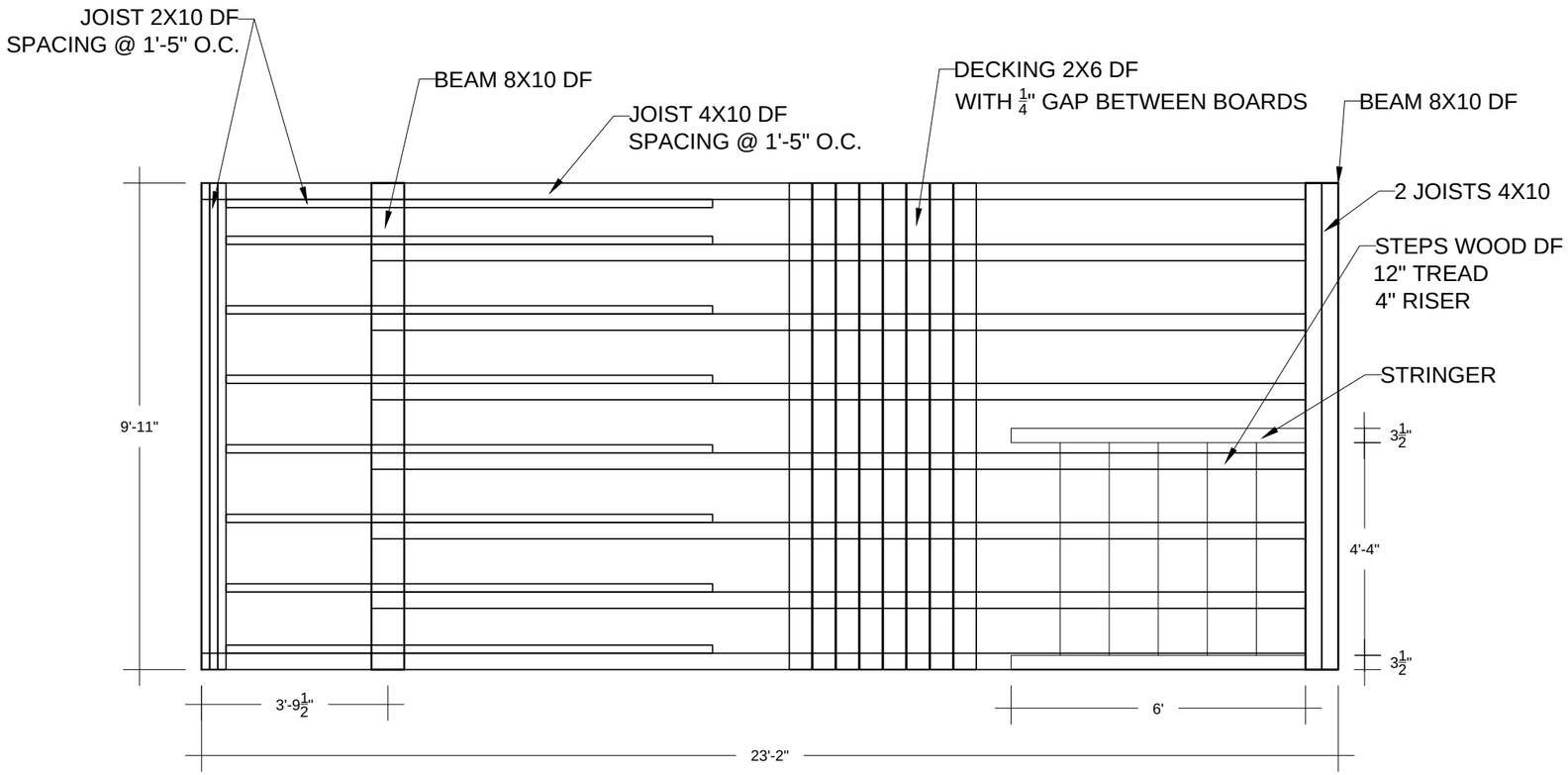
Lower Deck Framing



Upper Deck Framing - Overhead for the Lower Deck



Middle Deck Framing



Detail Connection

Product

SIMPSON Strong-Tie WP/HWP/HWPH/WMU Purlin Top-Flange Hangers

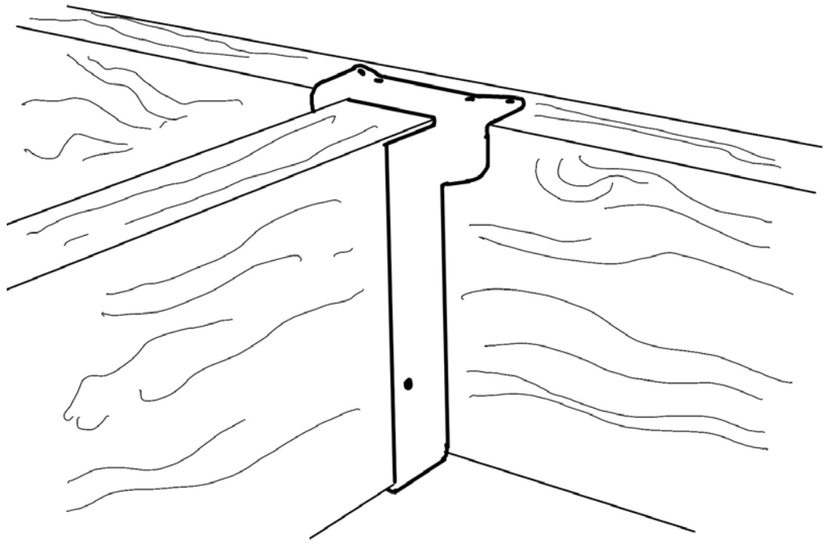
The WP, HWP and HWPH series purlin hangers offer the greatestdesign flexibility and versatility. WMUs are designed for use onstandard 8"-grouted masonry block wall construction.

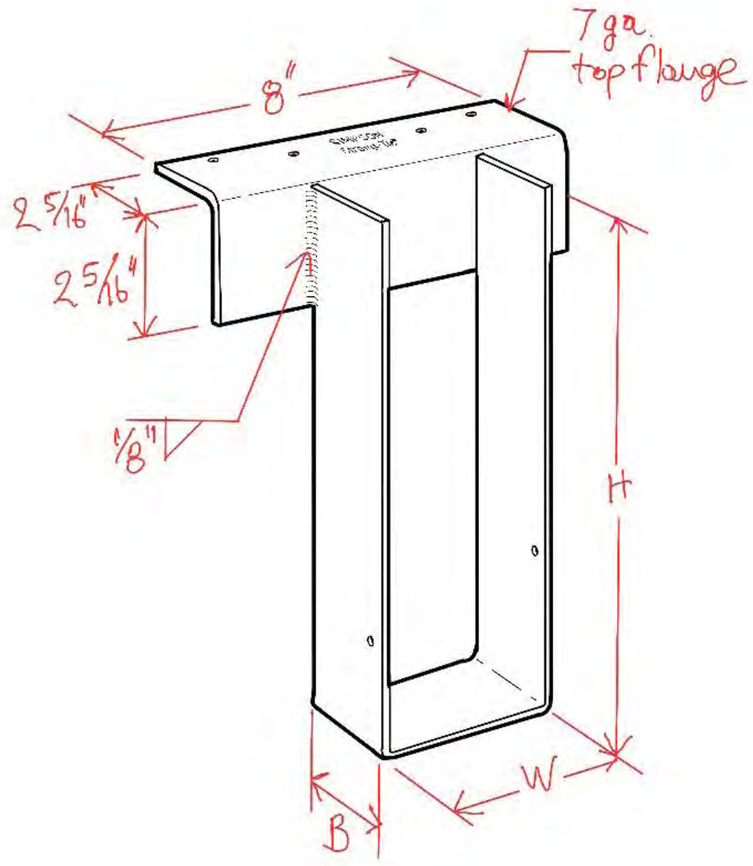
The HWP and HWPH high-wind purlin hangers have enhanceduplift. They are ideal for high-wind applications.

Material: (Top flange /stirrup): WP — 7 /12 gauge; HWP — 7 /12gauge; HWPH — 3 / 7 gauge

Finish: Simpson Strong-Tie gray paint; hot-dip galvanizedavailable: specify HDG, contact Simpson Strong-Tie

https://www.strongtie.com





Homework Assignments 6 & 7 Draw STRUCTURES study: Wood Deck and Overhead Structures: UCLA Footbridge

UCLA Footbridge

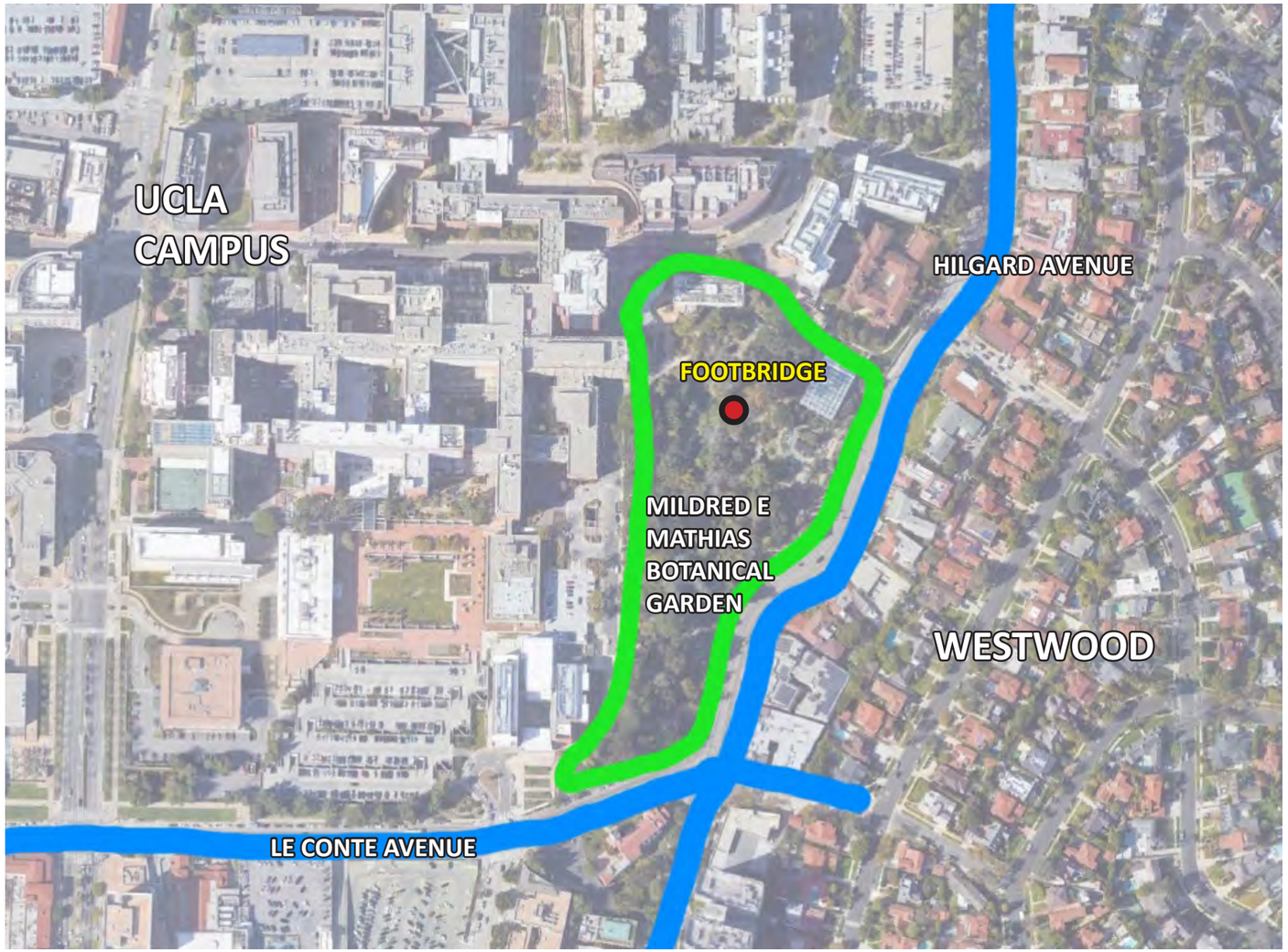
Footbridge Location

The footbridge, built in 2011, is located in the Mildred E Mathias Botanical Garden in the southeastern corner of the UCLA campus, in Los Angeles, California.

The bridge is part of an artificial stream in the north side of the garden, originally a natural arroyo that was on the site.

UCLA's Botanical Garden opened in 1929 as an academic laboratory and was named after Mildred E Mathias, a noted American Botanist.

UCLA professor, botanist and conservationist Mildred Mathias (1906-1995) began her University California work as a research associate at Berkeley.

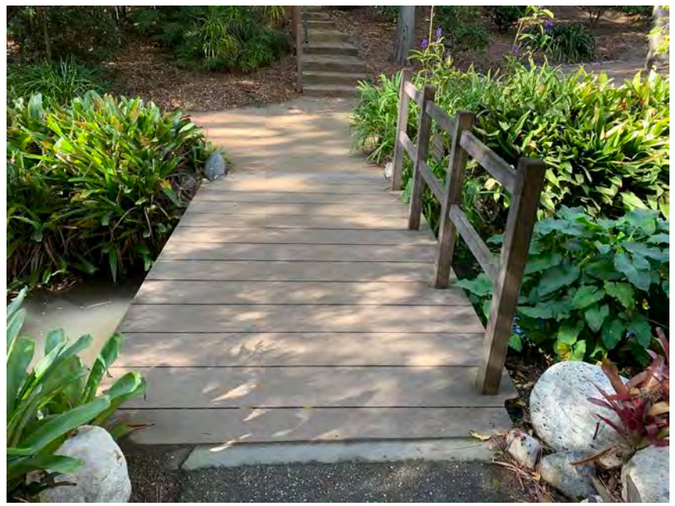


Site

600 feet North

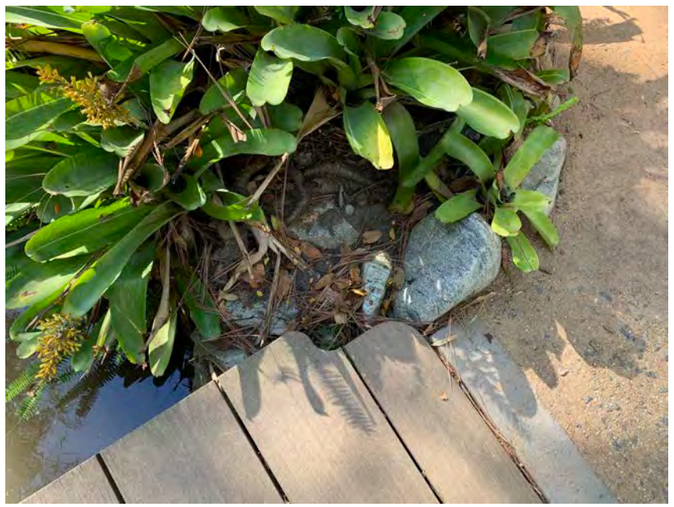
Photos

Facing south side of bridge.



Facing east side of bridge.

Looking at north side of bridge with guard rail.



Edge of bridge with concrete base where the bridge is supported.

Joists with guard rails bolded in.

Close photo of bolds attaching guard rails and joists.

Photos

Decking and spacing.

Guard rail post (top) and rail (bottom) showing cracks and water damage.

View under the decking (top) attached to the joist (bottom) with GRABBER DECKMASTER brackets and screws.

Under the bridge showing concrete base and beam on top where joists are attached.

Beam on top of concrete base and on top joists and decking.

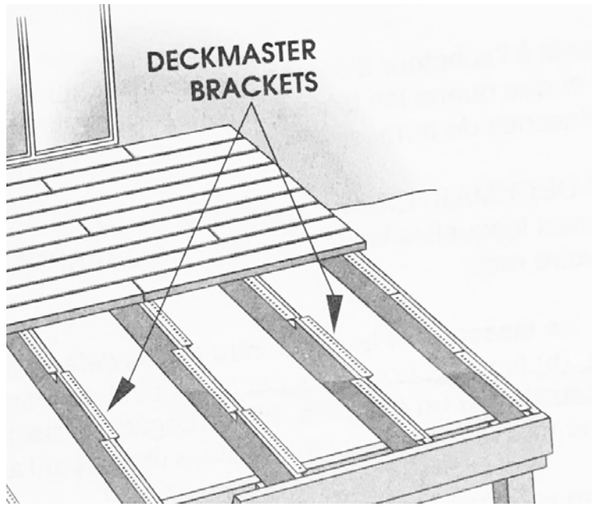
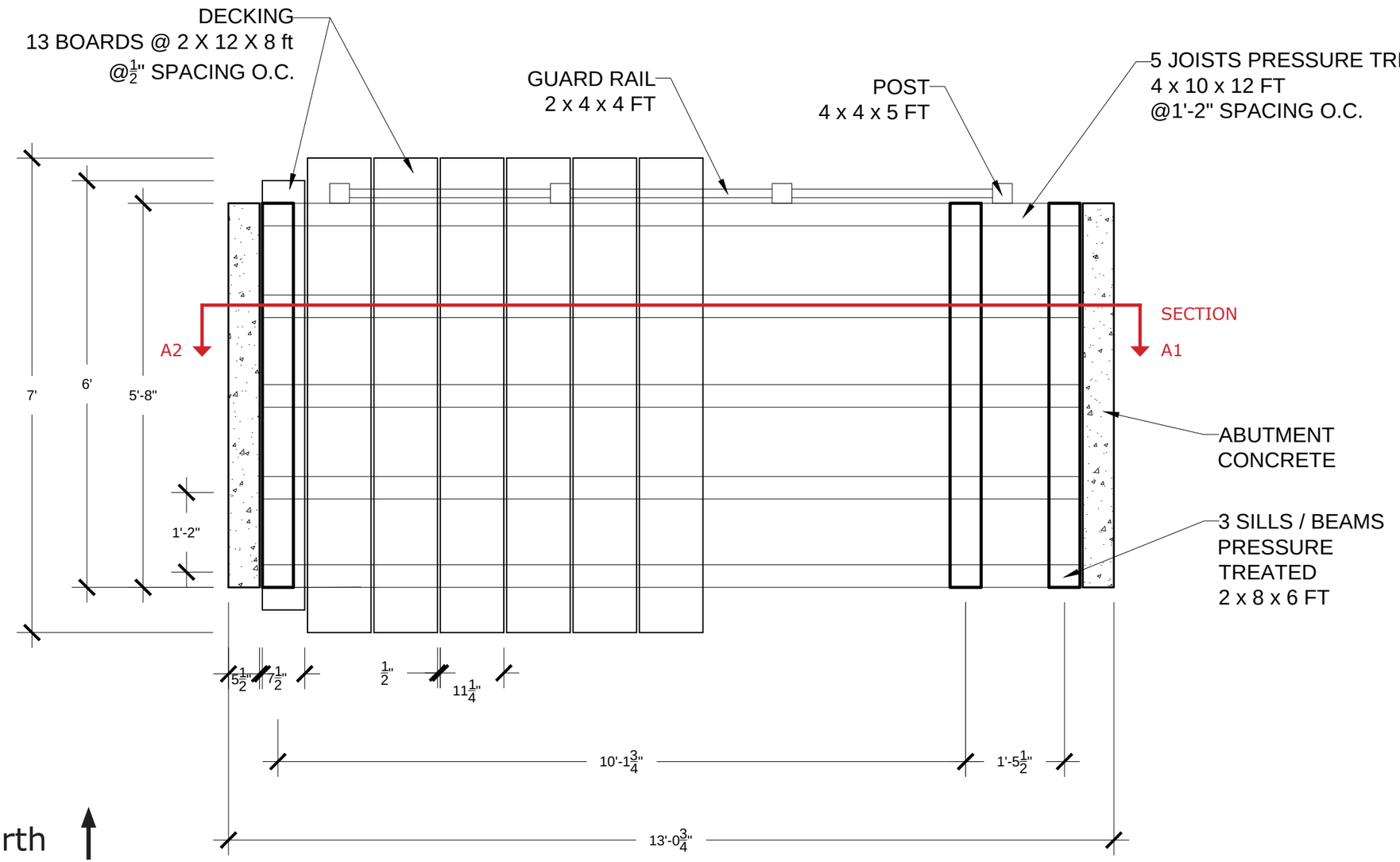


Image from GRABBER DECKMASTER website.

Detail Top View

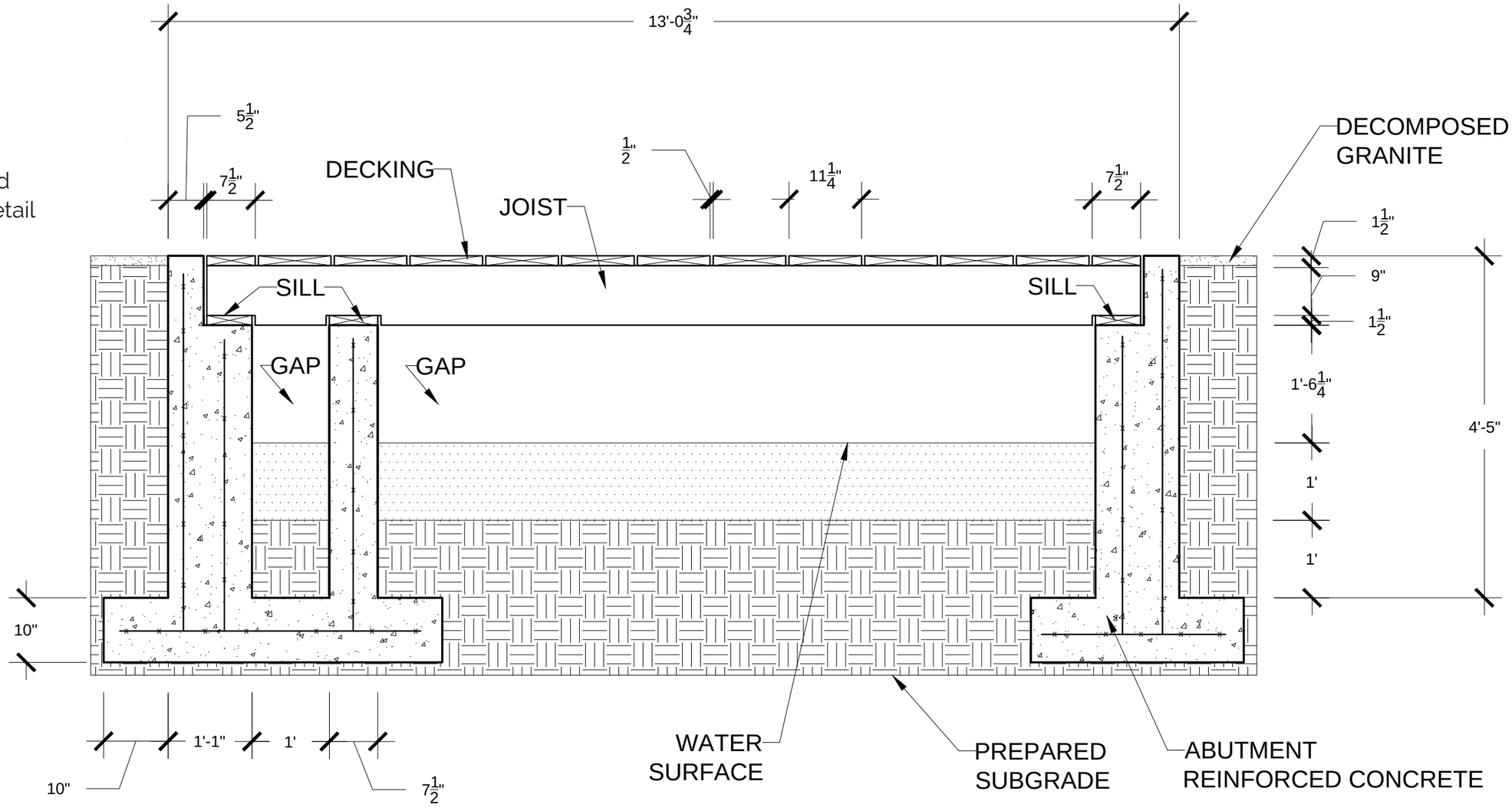


Decking, and guard rails and posts are Mangaris hardwood.

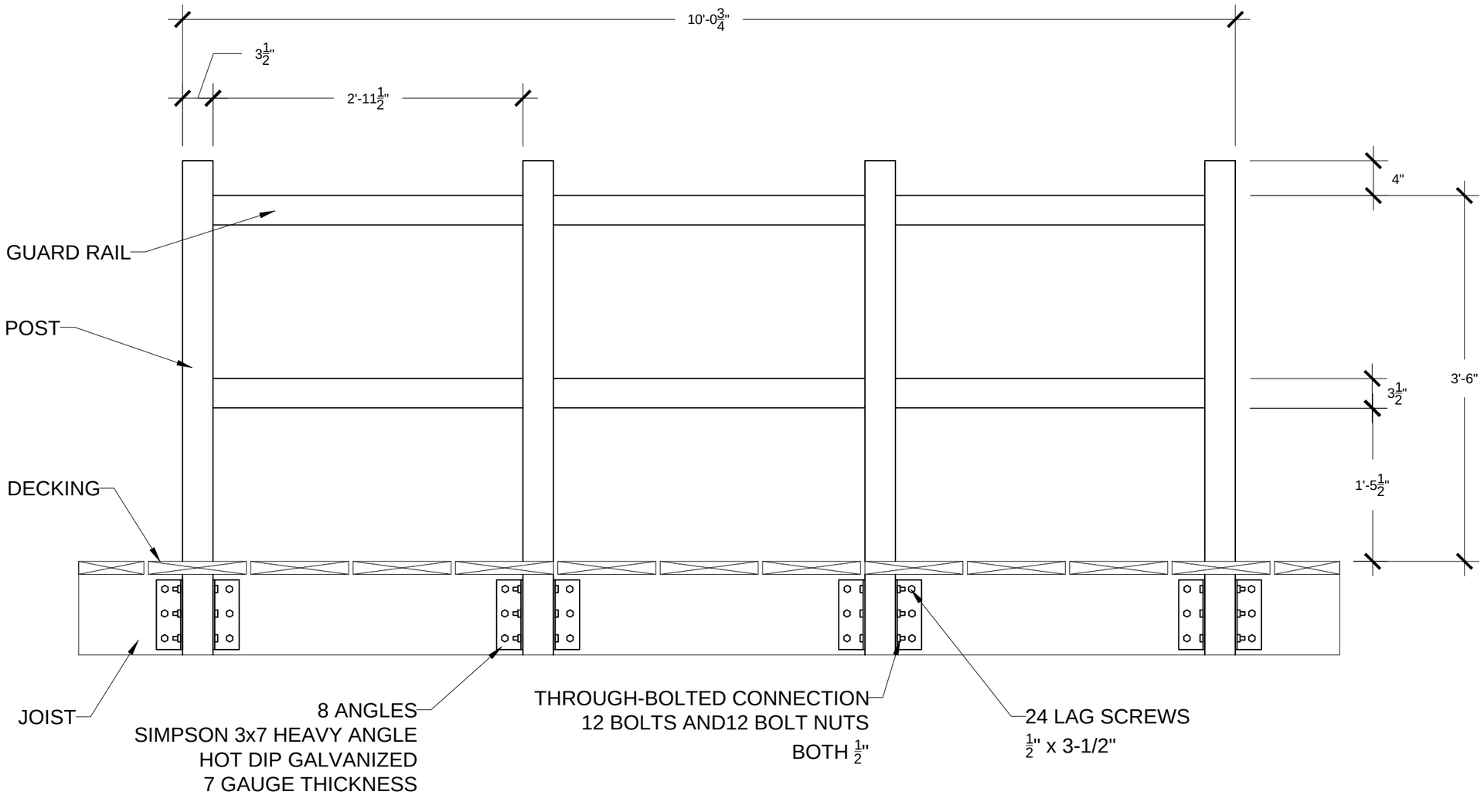
Mangaris is the brand name and the not the species name. It belongs to the Shorea genus of rainforest trees native to Southeast Asia in the family Dipterocarpaceae. One common name of Shorea species is Philippine mahogany.

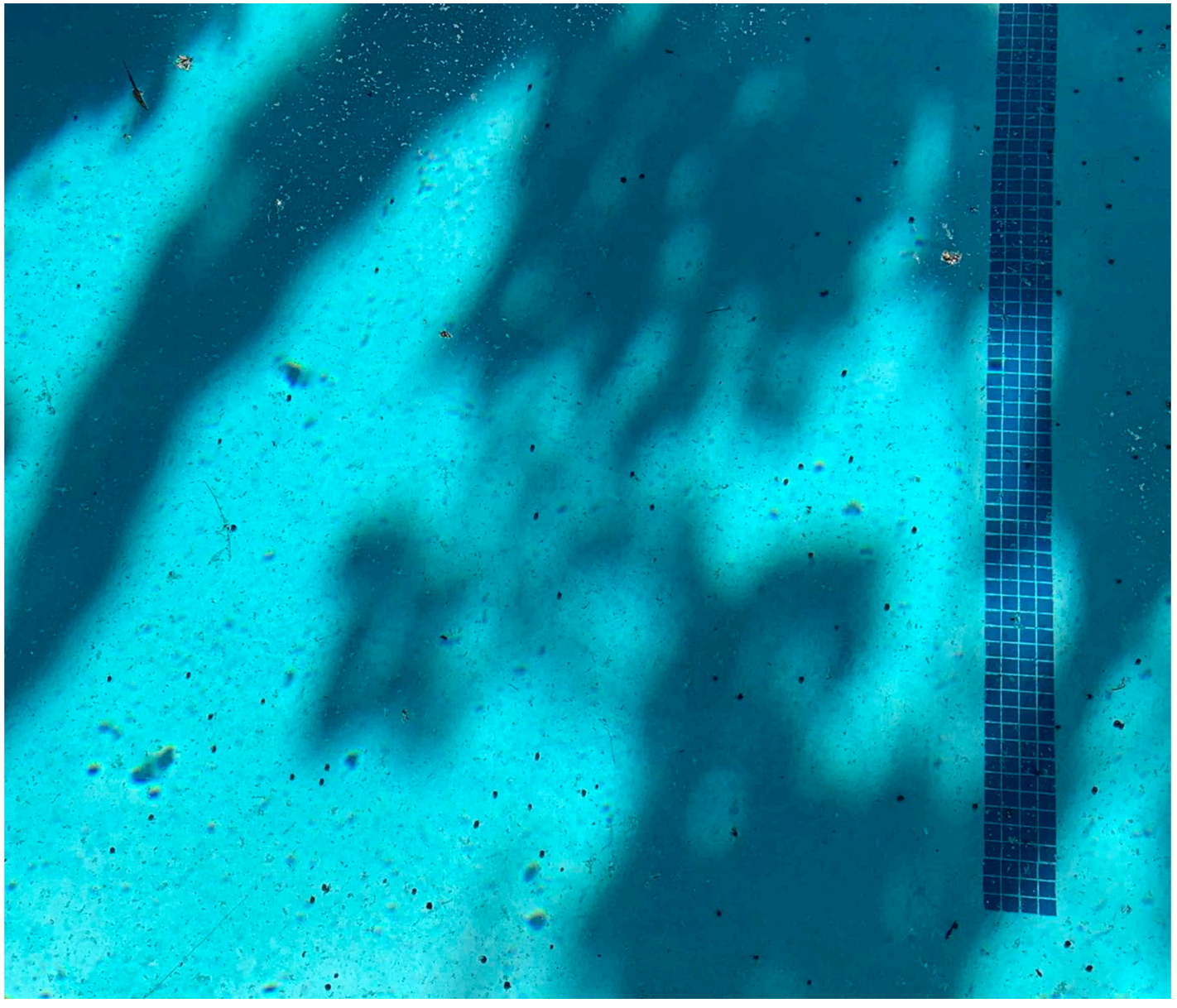
Detail Section A1-A2

Guard rail omitted here. See next detail page.



Detail Guard Rail





Homework Assignment 8

Draw WATER studies

Swimming Pool

Location

I selected my friend's pool in an apartment building located in a residential neighborhood in West Hollywood, California.

This is an outdoor pool in the courtyard of a two-story residential building. The pool is used by the residents and their guests.

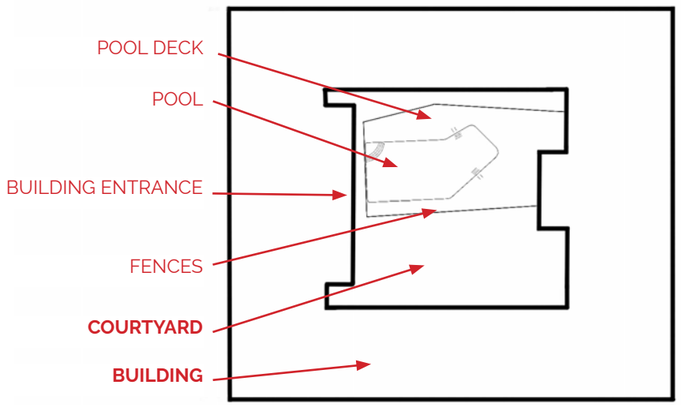
View of the pool and part of the apartment building facing east.

Site

80 feet

North

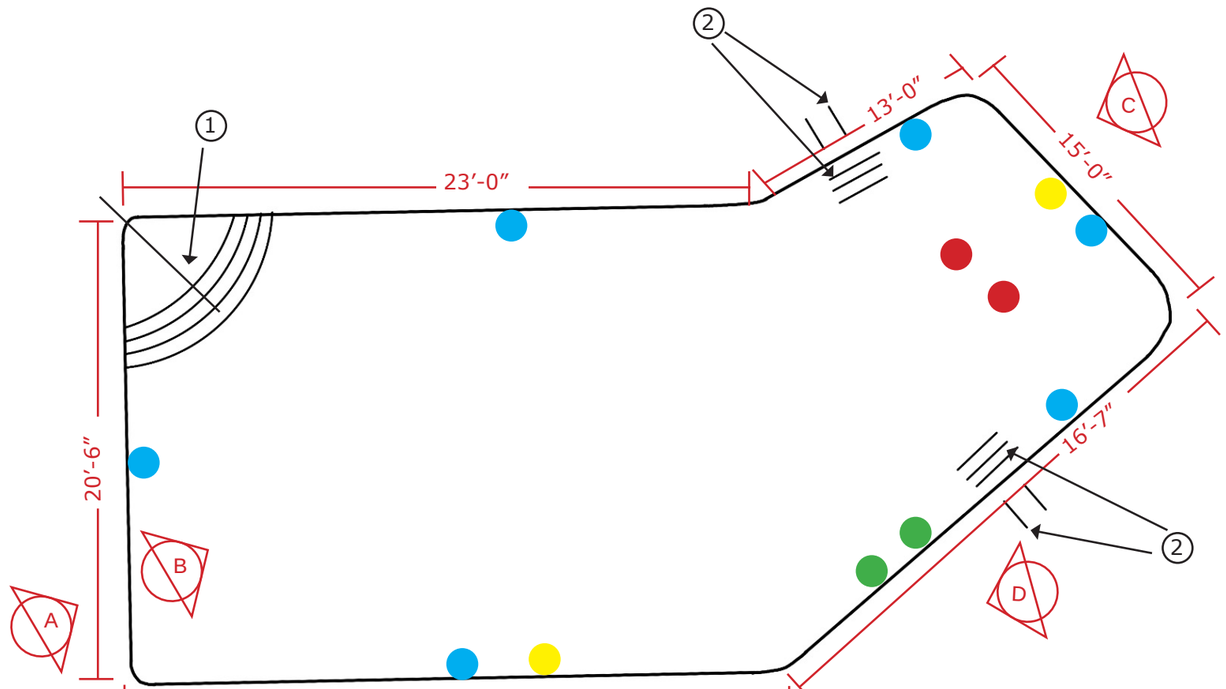
Analysis



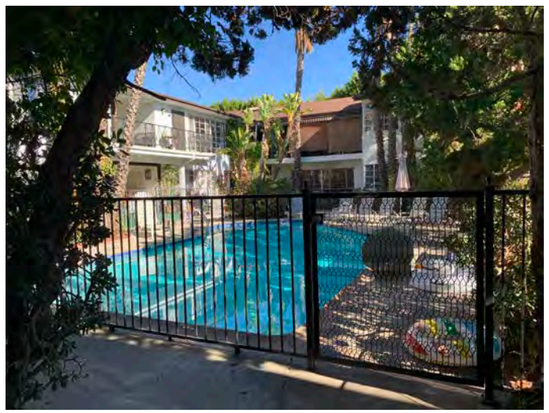
Building with courtyard NTS North

LEGEND

1. Pool entry steps with railing
2. In-wall ladder with railing
- Return jets
- Skimmers
- 2 anti-vortex drains
- Underwater light



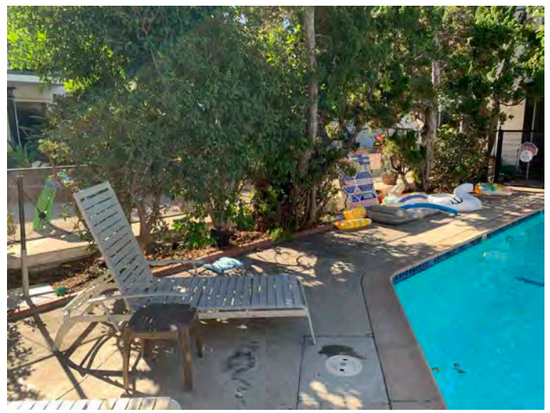
Site Plan Swimming Pool NTS North



A. View from the entrance of the building and facing gate to the pool area and west side of the pool.

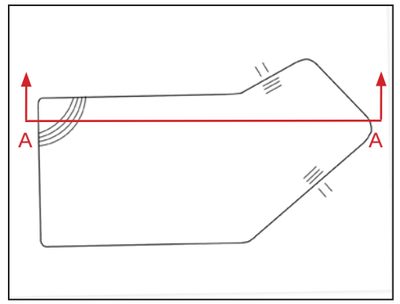
B. West side of the pool inside the pool area and in the back the east side of the pool.

C. East side of the pool and in the back the west side of the pool and building entrance.



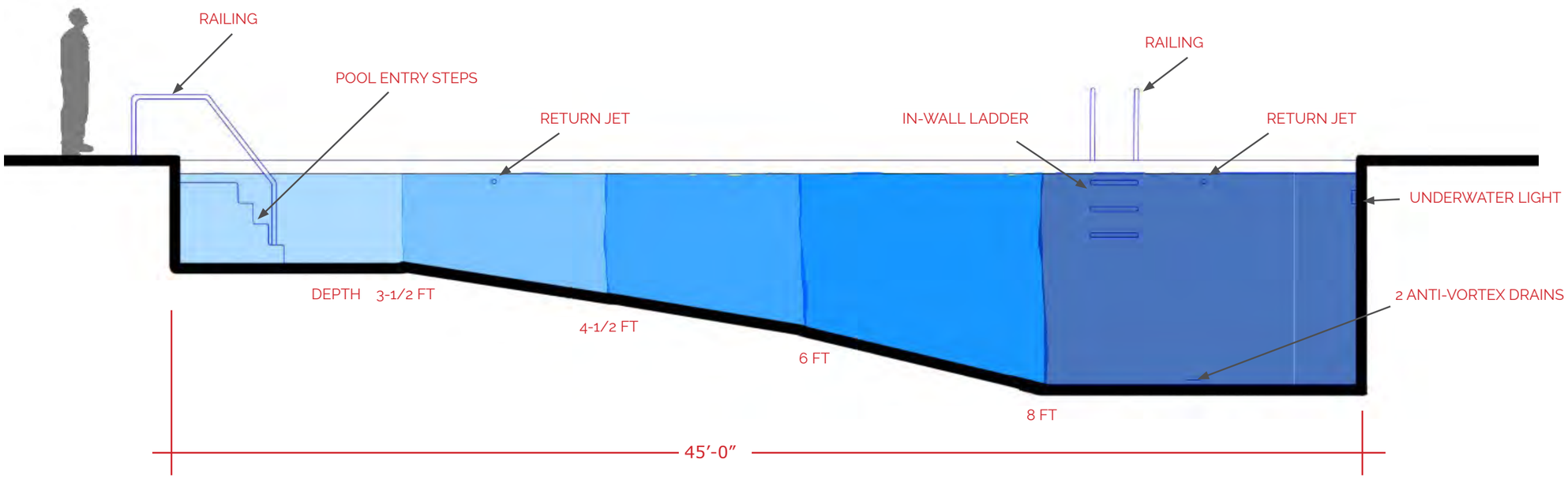
D. Part of the south side of the pool.

Section A-A



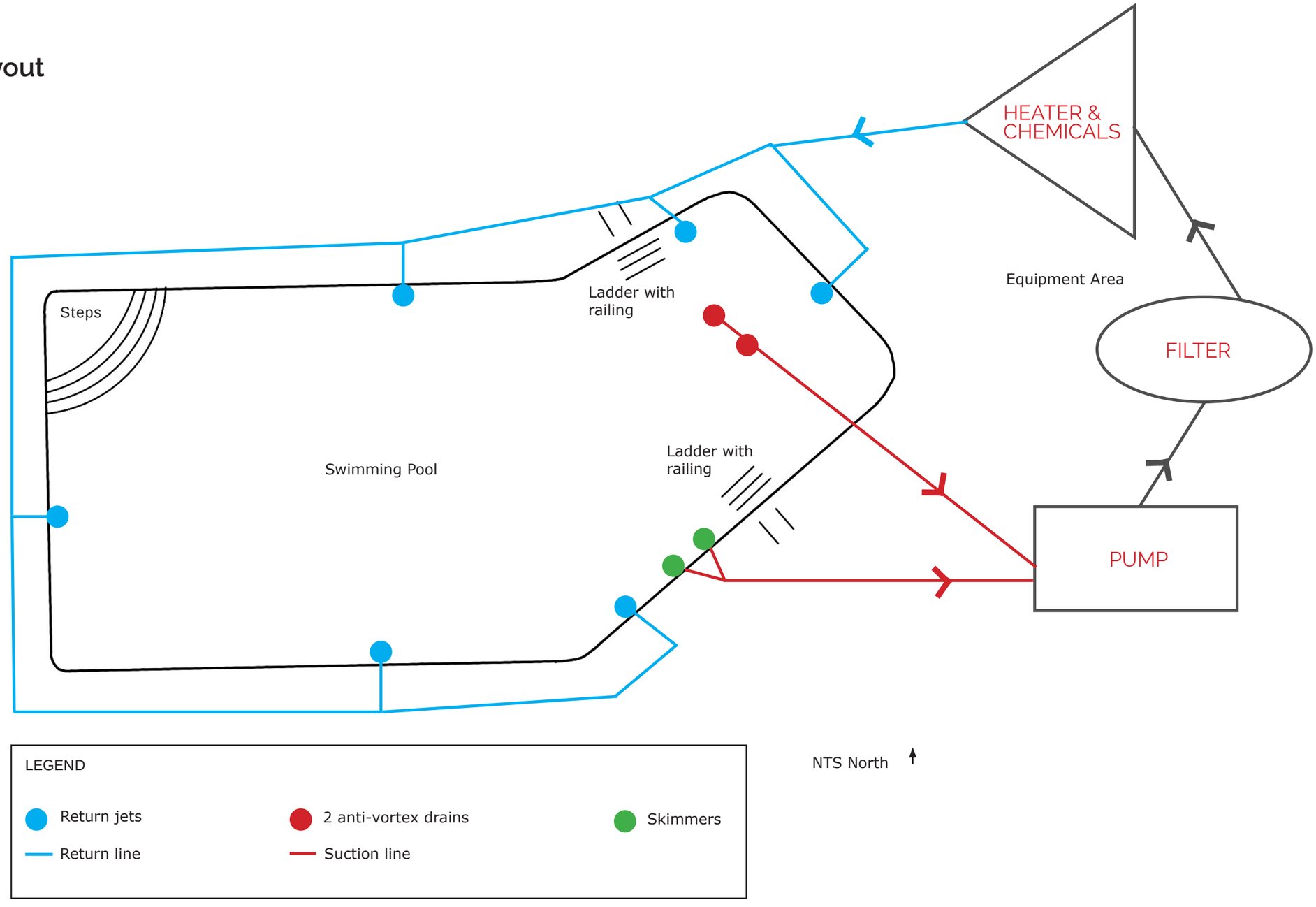
NTS North

Key Plan Swimming Pool

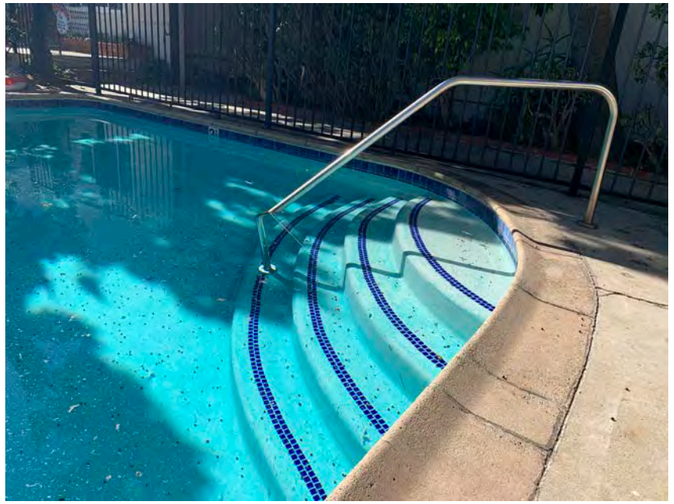


NTS

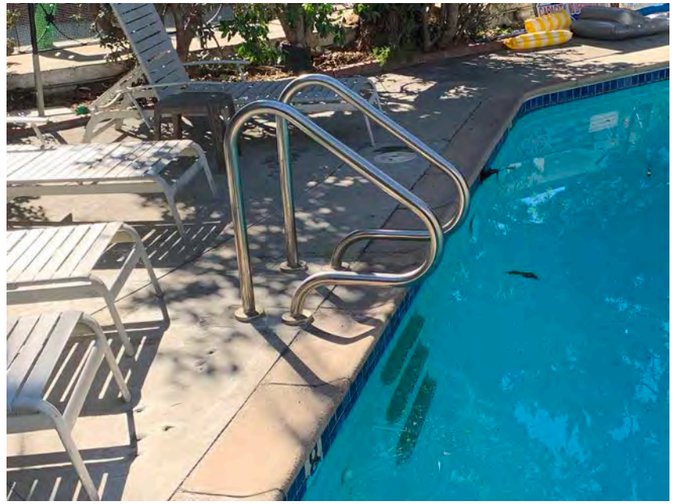
Equipment Layout



Details Photos



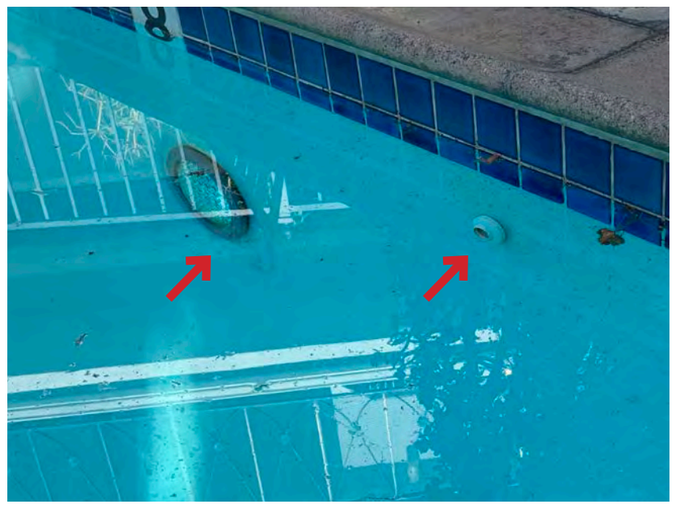
Pool entry steps with railing



South in-wall ladder with railing

Railing of north in-wall ladder and concrete paving around the pool. In the back is the railing for the pool entry steps.

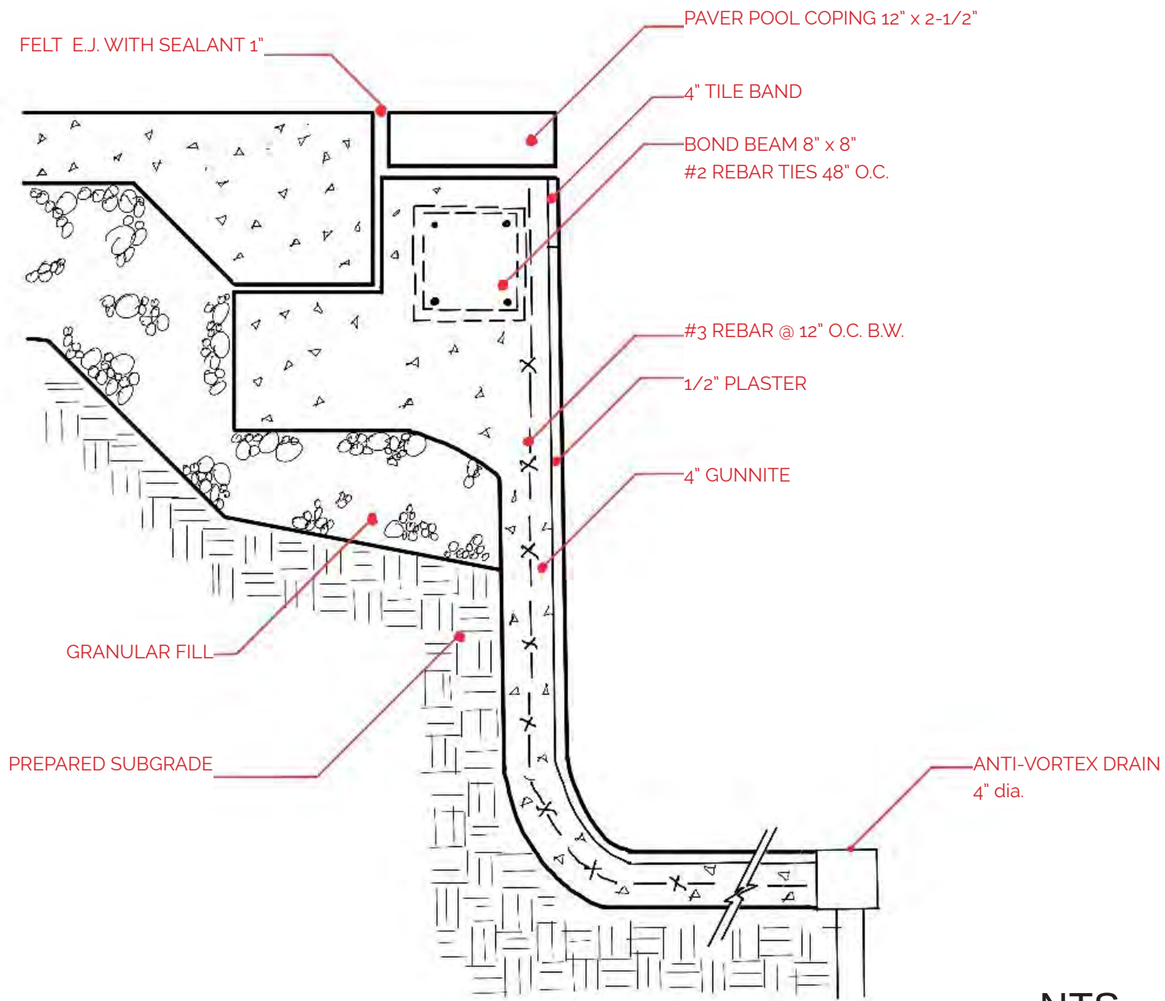
2 anti-vortex drains



Underwater light and return jet

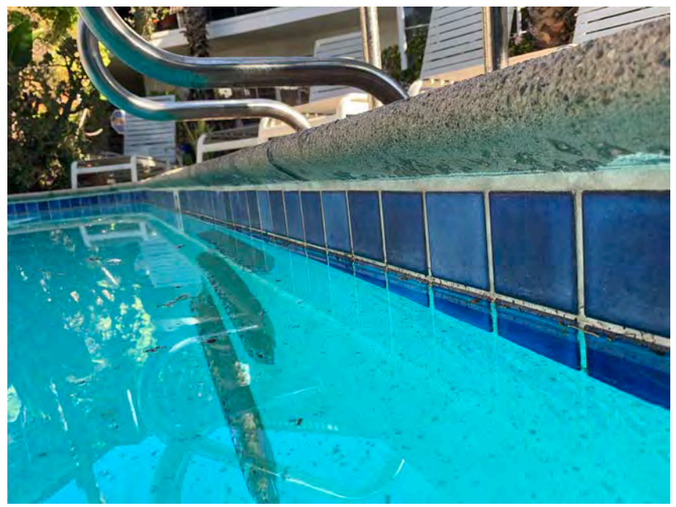
Fence around the pool and pool area.

Detail Pool



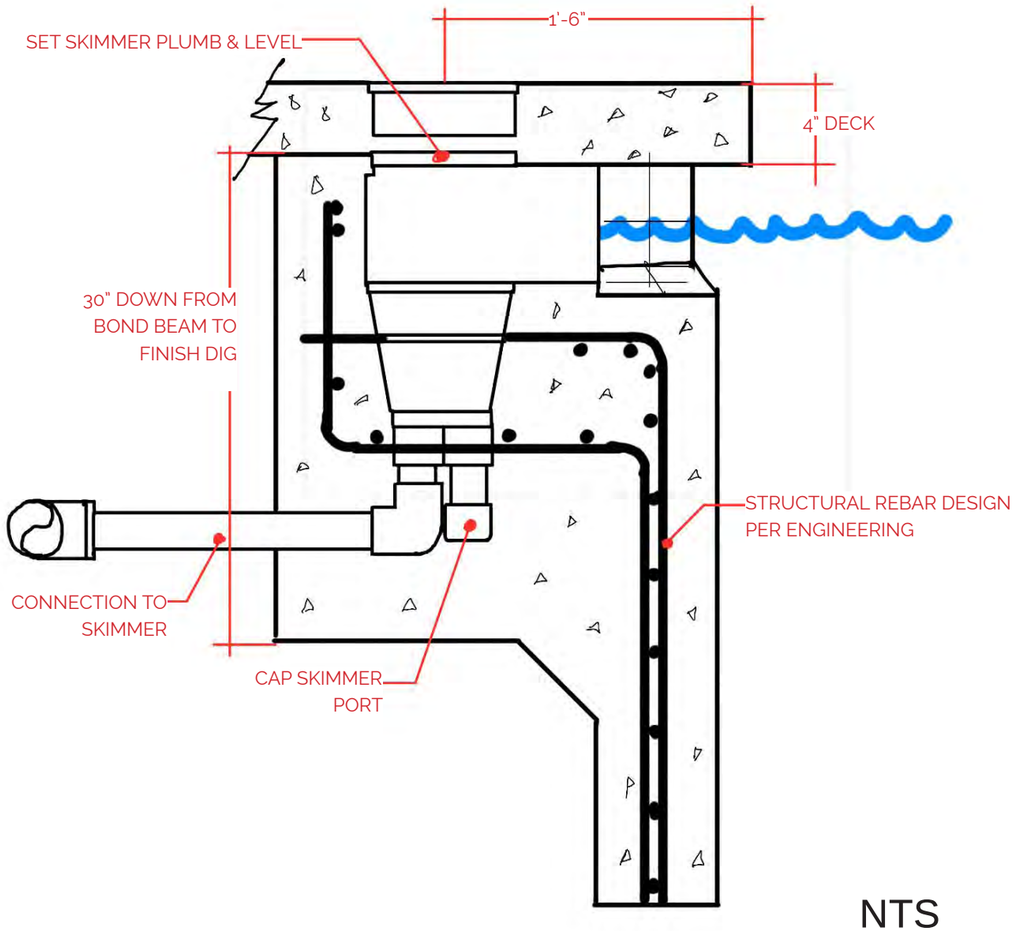
NTS

Top view of concrete paving, felt with sealant, paver pool coping and plaster.



Side view of pool detail with paver pool coping, tile band and plaster.

Detail Pool Skimmer



NTS

Pool Skimmer

Inside pool skimmer from top opening.

https://www.pinterest.es/pin/759983124432128O7/

Homework Assignment 9

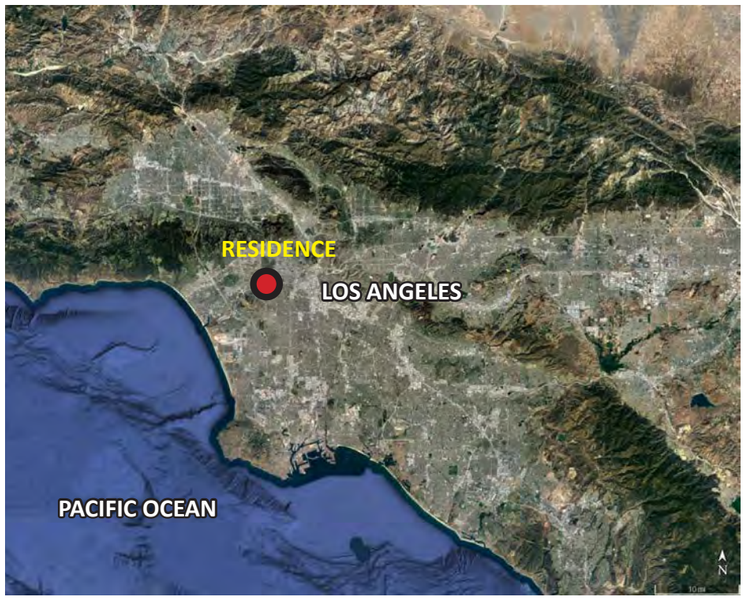
Draw LIGHTING studies: siteplan, details, calculations

Residential

Location

The site is a garden in a residence in West Hollywood, California. The garden is in the front yard of this single-family building in a quiet residential neighborhood.

The garden does not have any lighting other than the two light fixtures by the entrance to the building. The design of a low voltage lighting system would provide lighting for the path, shrub areas next to the building, lawn, and two palm trees.

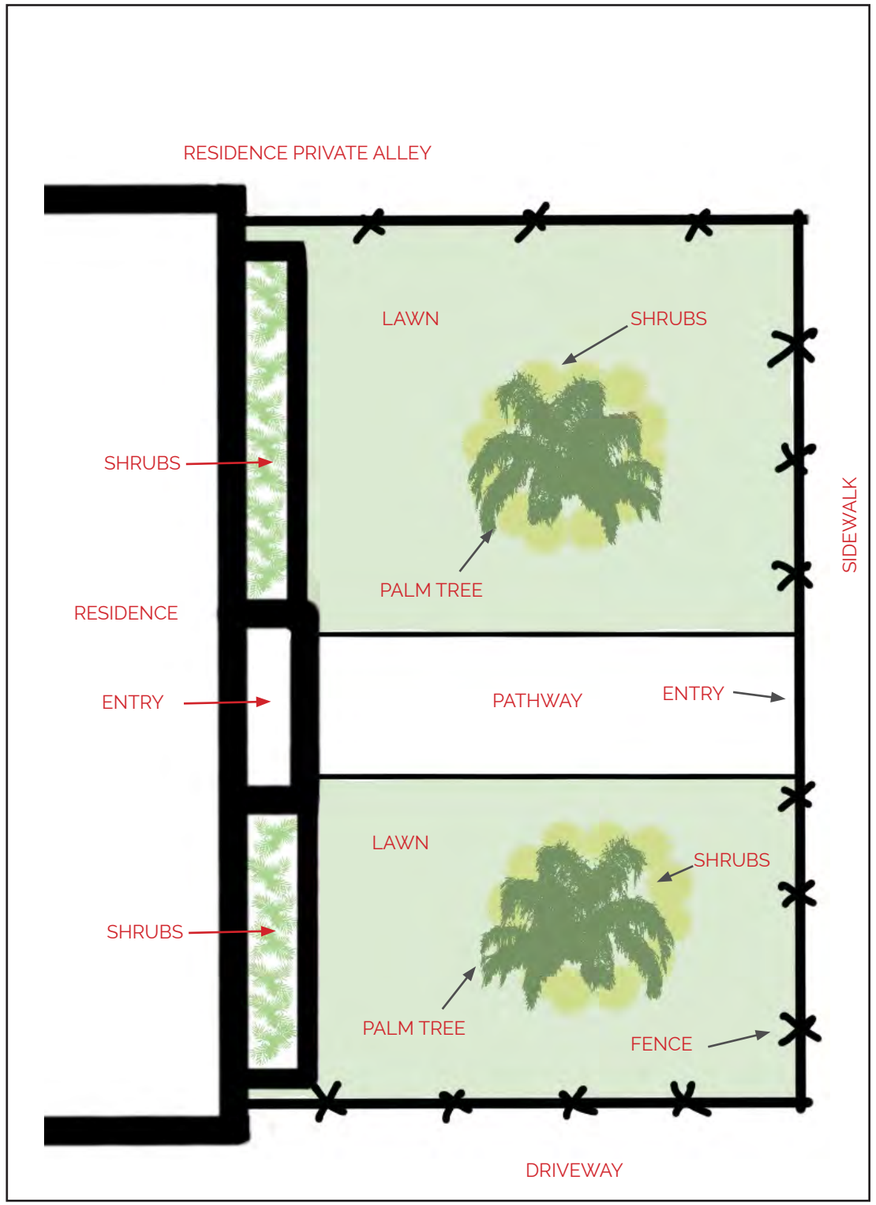


Region 10 miles North

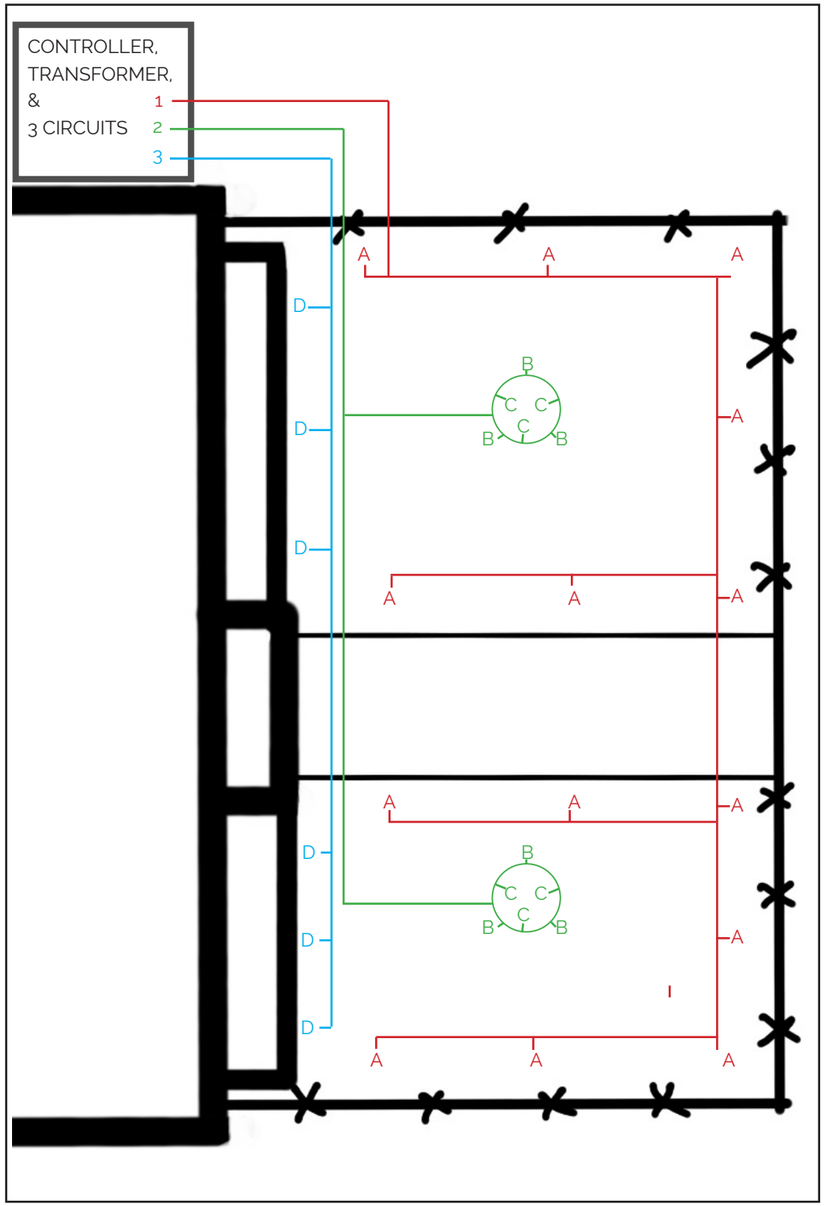
Front yard garden of the West Hollywood residence.

Homework Assignment 9 Draw LIGHTING studies: siteplan, details, calculations: Residential

Site Plan



Lights Design



Circuit Calculations

Voltage Drop = (Total watts on cable x Length of run)
/ Cable size constant

Amps (I) = Watts (W) / Volts (V)

#12 Cable size

7,500 Cable size constant

11 amp Controller capacity

CIRCUIT 1

A: Path and Area Light 1.2W

Total watts on cable = 14 A fixtures x 1.2W= 16.8 W

Length of run = 190 FT

Voltage Drop = (16.8 x 190) / 7,500 = 4.2

I = W / V = 16.8 / 12 = 1.4 Amps

CIRCUIT 2

B: Up Light for palm trees 4.5W

C: Up Light for shrubs 2W

Total watts on cable = (6 B fixtures x 2W) + (6 C fixtures x 4.5W) = 39 W

Length of run = 120 FT

Voltage Drop = (39 x 120) / 7,500 = 6.2

I = W / V = 39 / 12 = 3.2 Amps

CIRCUIT 3

D: Wall Light 2W

Total watts on cable = 6 D fixtures x 2W = 12 W

Length of run = 70 FT

Voltage Drop = (12 x 70) / 7,500 = 1.1

I = W / V = 12 / 12 = 1 Amps

Homework Assignment 9 Draw LIGHTING studies: siteplan, details, calculations: Residential

Up Lights

Daytime

CIRCUIT 2 - For the palms (3 LEDs) and shrubs around the palms (1 LEDs) use the FX Luminaire FB LED Up Light Designer Base. It fits nicely into smaller landscapes and tight spaces. Available in 9 options finishes, aluminum material, input voltage 10-15V.

FX Luminaire

FB DESIGNER PREMIUM

Fixture	Luxor Option		LED Configuration		Compliance		Shroud Option		Finish
FB*	[blank]	Zone	1LED	60 Lumens* 2.0W/2.4VA	[blank]	½" Thread (UL)	[blank]	45° Angled Shroud	BZ DG WI FB SV WG*† FW*† AL*† SV*†
	ZD	Zone/ Dim	3LED	165 Lumens* 4.2W/4.5VA	e	Bracket Mount (CE)			
	ZDC*	Zone/ Dim/ Color	[blank]	ZDC with 90 Lumens* 6.0W/7.2VA					

ORDERING EXAMPLE: ▸ **FB-ZDC-BZ** = FIXTURE-LUXOR OPTION-FINISH

*Includes Super Slot Spike (753900)

Dimensions
Height: 8.1" (206 mm)
Diameter: 2.5" (64 mm)
Lead: 10' (3 m)
Material: Aluminum

ACCESSORIES: Specify Separately

Name	Code	Name	Code	Name	Code
Ground Mount	GM-XX**	Straight Coupling	COUP-XX**	Hex Baffle (MR-16)	250015260000
SJ-Box	SJ-XX**	90° Elbow Fitting	ELBW-050-XX**	Flood Lens	Δ-LEDFLLENS
Straight Riser	YY-R-XX**	T-Mount Fitting	TMNT-050-XX**	Wide Flood Lens	Δ-LEDWFLLENS

e version or GM-XX

FB-3LED-BZ

FB Spec Chart

Number of LEDs	1	3	ZDC
Halogen Lumen Output Equivalent	10 Watt	20 Watt	10 Watt
Useful LED Life (L70)	50,000 hrs avg	50,000 hrs avg	50,000 hrs avg
Input Voltage	10 to 15V	10 to 15V	11 to 15V
VA Total (Use this number to size the transformer)	2.4	4.5	7.2
Watts Used	2	4.2	6.0
Lumens per Watt (Efficacy)	31	40	28
Max Lumens	60	165	90
CRI (Ra)	79	78	81
Center Beam Candle Power (CBCP)	309	1,107	120
CCT			
Amber Filter	2700K	2700K	N/A
Frosted Filter	3900K	3900K	N/A
Green Filter	4500K	4500K	N/A
Blue Filter	5200K	5200K	N/A

Up Lights Detail FB Designer Premium Super Slot Spike

FXLuminaire

DETAIL LEGEND

1. FX Luminaire FB fixture. See plan legend for wattage, beam spread and accessories.
2. Aim fixture a minimum of 10° off vertical to allow water and dirt to drain off lens cap.
3. FX Luminaire Super 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.

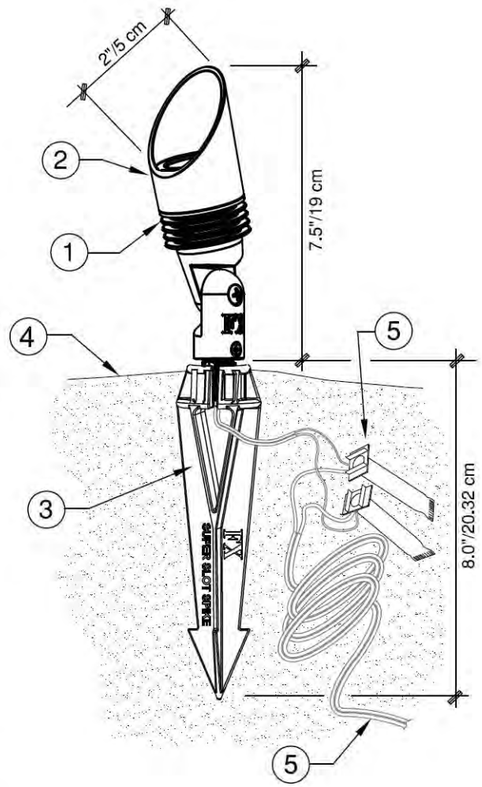
NOTES

A. Installation to be completed in accordance with manufacturer's specifications.

B. Accepts 10-15 volts - AC or DC

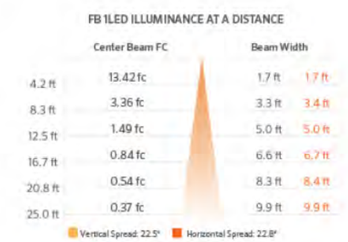
C. See plan legend for LED board option, beam spreads, and accessories.

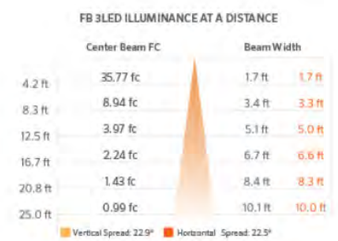
D. Always refer to FX product installation notes prior to installation.

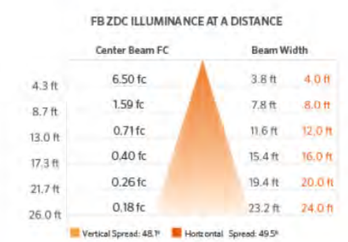


NOT TO SCALE

FB Photometrics







Homework Assignment 9 Draw LIGHTING studies: siteplan, details, calculations: Residential

Wall Lights

Daytime

CIRCUIT 3 - For the built-in planter use the FX Luminaire PO designer premium wall lights available in four shapes. One LED light, 15 options finishes, brass material, input voltage 10-15V.

FX Luminaire

PO DESIGNER PREMIUM

Fixture	Luxor Option		LED Configuration		Shroud Option		Finish
PO[5]	[blank]	Zone	1LED	4-39 Lumens* 2.0W/2.4VA	RD	Round	BZ DG WI FB SB WG*† FW*† AL*† SV*† BS AB* AT* NP*†
	ZD	Zone/Dim			SQ	Square	
					ST	Spot	
					WW	Wall Wash	

ORDERING EXAMPLE: ▸ PO-1LED-ST-FB = FIXTURE-LED-FACEPLATE-FINISH

[5] Includes 1.5" Conduit Sleeve (250018590000)

Dimensions

Height: 2.5" (64 mm)
Diameter: 1.5" (41 mm) conduit
Lead: 10' (3 m)
Material: Brass

ACCESSORIES: Specify Separately

Name	Code	Name	Code	Name	Code
PO Mounting Bracket	POBRKT	Standard Optics Kit	1LEDOPTICSKIT	Wall Light Connection Kit	EKITWALL

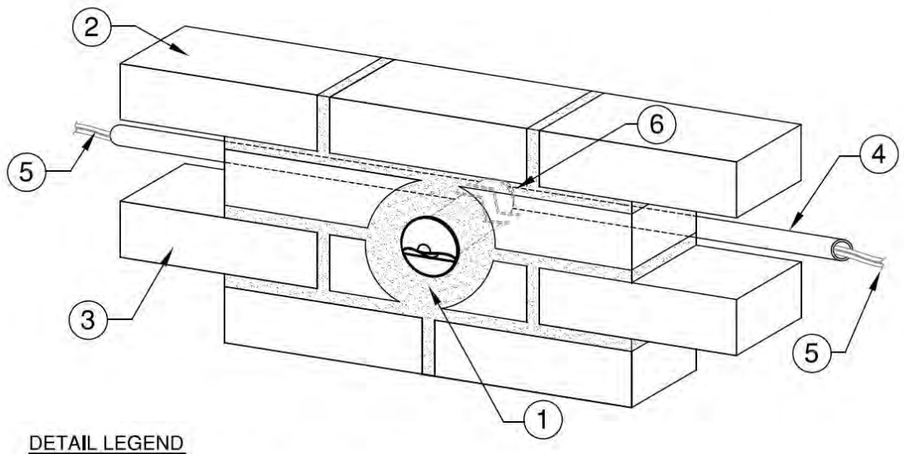
PO Spec Chart

Output	1LED
Total Lumens†‡	4-39
Input Voltage	10 to 15V
Input Power (W)	2.0
VA	2.4
Efficacy (Lumens/Watt)	8
Color Rendering Index (CRI)	80+
Max Candela‡	24
Dimming	PWM, Phase**
RGBW Available	No
Luxor Compatibility	
Default	Zoning
ZD Option	Zoning/Dimming
ZDC Option	--
Minimum Rated Life (L90/B10)	55,000 Hrs

† Measured using the 3,900K CCT lens. Multipliers for other CCTs include 0.80 (2,700K), 0.65 (4,500K), and 0.65 (5,200K).
‡ Measured using the Round (RD) faceplate. Multipliers for other faceplates include: 1.0 (Square), 2.0 (Spot), and 0.4 (Wall Wash).
** For optimal performance, use a trailing-edge, phase-cut dimmer.

Wall Lights Detail PO Designer Premium Brick Wall

FXLuminaire



DETAIL LEGEND

1. FX Luminaire PO-R fixture. See plan legend for wattage, beam spread and accessories.
2. Brick wall within landscape. See plans and landscape details for type of construction material.
3. Standard 8 x 4 x 2.25 brick
4. ¾" electrical conduit per local code.
5. UF/UL, copper, low voltage cable. Splice wires according to FX recommendations.
6. Use FX provided conduit included with fixture or standard 1½" conduit.

NOTES

A. Installation to be completed in accordance with manufacturer's specifications.

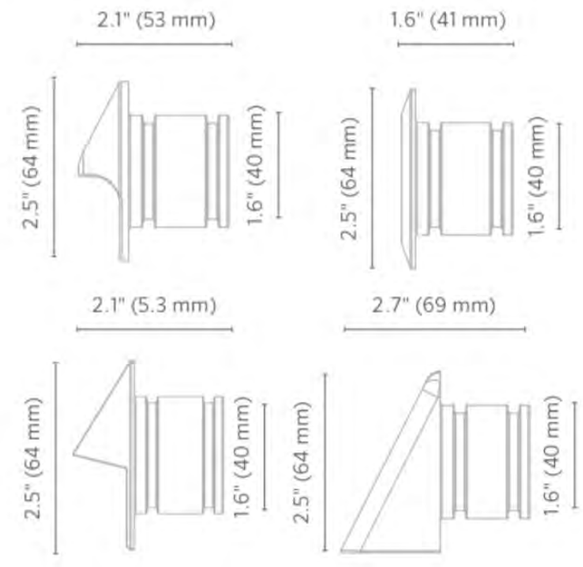
B. Accepts 10-15 volts - AC or DC

C. See plan legend for LED board option, beam spreads, and accessories.

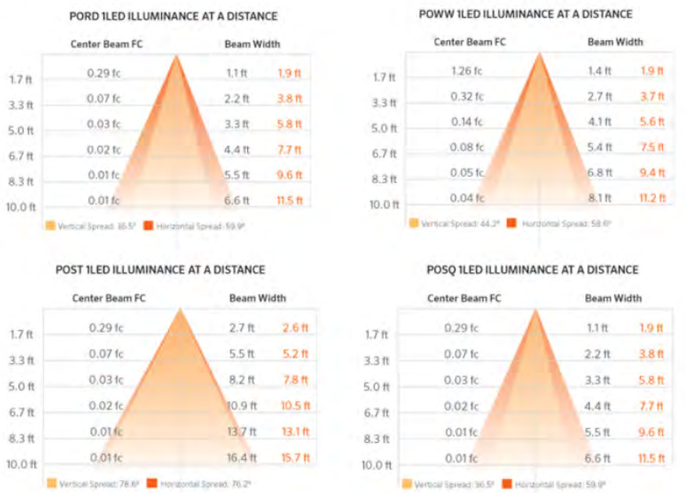
D. Always refer to FX product installation notes prior to installation.

NOT TO SCALE

PO Dimensions

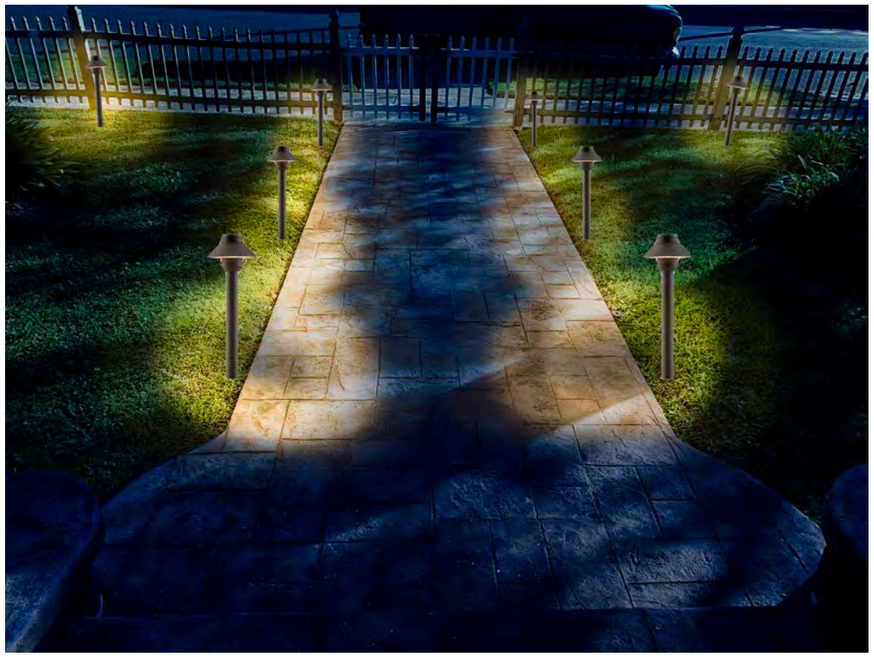


PO Photometrics



Path and Area Lights

Daytime



CIRCUIT 1 - For the path and lawn perimeter use the FX Luminaire SP-A standard fixture. One G4 lamp, 8 options finishes, aluminum material, input voltage 10-15V.

FX Luminaire

SP-A STANDARD

Fixture	Lamp		Riser Option		Finish
SP-A[1]	LED20W	123 Lumen Lamp 1.6W/1.7VA	8R	8" (200 mm)	BZ DG WI FB SB WG*† FW*† AL*† SV*†
			12R	12" (300 mm)	
			18R	18" (450 mm)	
			24R	24" (600 mm)	
			36R	36" (900 mm)	

ORDERING EXAMPLE: ▸ SP-A-LED20W-12R-BZ = FIXTURE-LAMP-RISER-FINISH

[1] Includes Super Slot Spike (753900)

Dimensions

Height: 14.5" (368 mm)[2]
Diameter: 3.6" (91 mm)
Riser Diameter: ¾"
Lamp: G4
Lead: 10' (3 m)
Material: Aluminum

ACCESSORIES: Specify Separately

Name	Code	Name	Code	Name	Code
SJ-Box	SJ-XX**	Ground Mount	GM-XX**	ProAim Ratcheting Spike	PARS
Post Mount	PM-XX**	3-Prong Spike	250020020000		
VersaBox	VB-050-XX**	Copper Riser with Fittings	YY-R-GT-XX**		

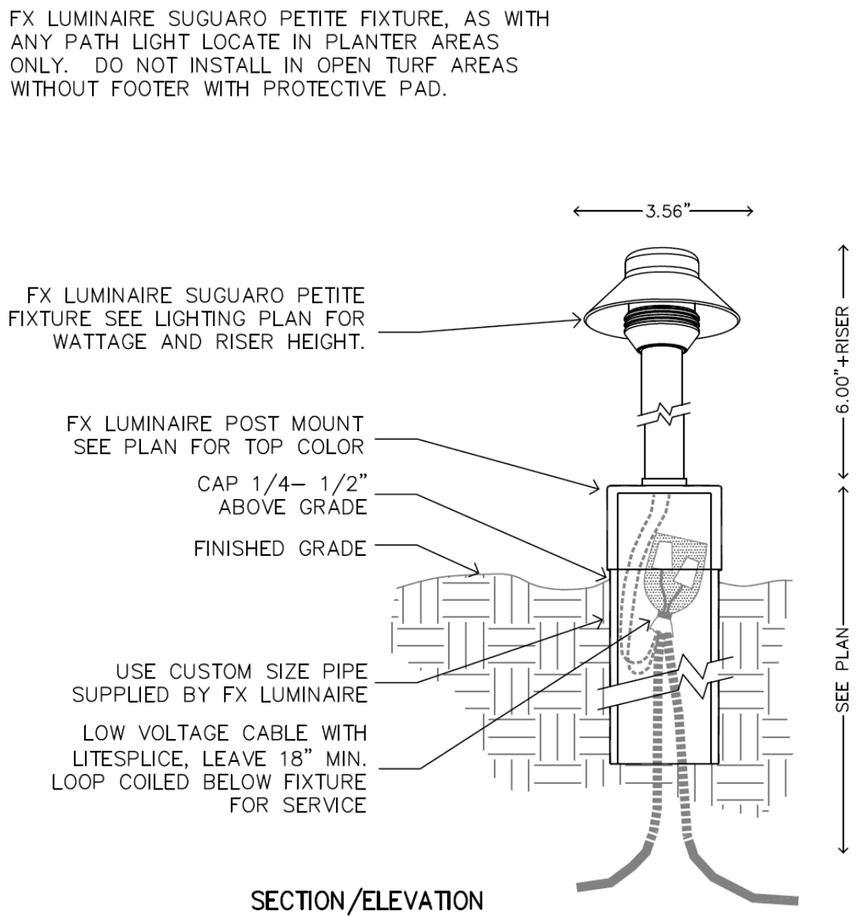
GM-XX SP-A-LED20W-12R-BZ

SPA Spec Chart

Output	NL (No Lamp)	LED20W
Total Lumens		35
Input Voltage	10 to 15v	11 to 15v
Input Power		1.2W
VA (Use this number to size the transformer)		1.7W
Lumens per Watt (Efficacy)		30
CRI (Ra)		81
Dimming	PWM, Phase**	Phase*
Luxor Compatibility		
ZD Option		Use Luxor Cube (LCM-LV)
Minimum Rated Life (Hrs, L70)		33,000 Hrs

**For optimal performance, use trailing edge phase cut dimmer.

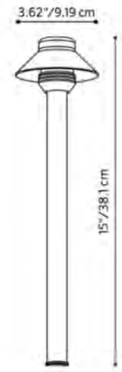
Path and Area Lights Detail Saguaro Petite (SP)-A Standard Post Mount



NOT TO SCALE

FX LUMINAIRE DETAIL

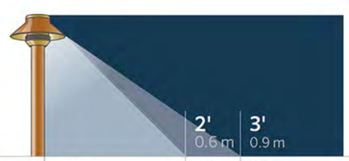
SP Dimensions



Note: Example model shown has a 12" riser.

SP-A Fixture Spacing

SPA-LED20W



fc	5.0	0.5	0.1
lux	50	5.0	1.0

Recommended spacing for area lights
9' Residential applications at 0.1 fc
6' Commercial applications at 0.5 fc

Transformer and Controller

EX

FX Luminaire

Transformer	Wattage	Compliance		Finish
EX	150	[Blank]	120V	SS M
		e 230V (M finish only)	230V	

ORDERING EXAMPLE: ▸ **EX150-M** = CONTROLLER-FINISH

Dimensions

Height: 13.0" (330 mm)
Width: 5.5" (140mm)
Depth: 5.0" (127 mm)

ACCESSORIES: Specify Separately

Name	Code
EXPC	EX Photocell
PXTIMER	PX Timer
PXSYNC	Lighting Synchronizer for 24V Irrigation Controllers
SURGEMOD	Surge Module

Pool and

DX

FX Luminaire

Controller	Wattage	Finish
DX	150	SS M
	300	

ORDERING EXAMPLE: ▸ **DX150-SS** = CONTROLLER-FINISH

Dimensions

Height: 11.4" (289 mm)
Width: 7.1" (181 mm)
Depth: 5.0" (128 mm)

ACCESSORIES: Specify Separately

Item	Description
DXFP	DX Facepack
LXBATT9V	9V Battery Adapter
SURGEMOD	Surge Module

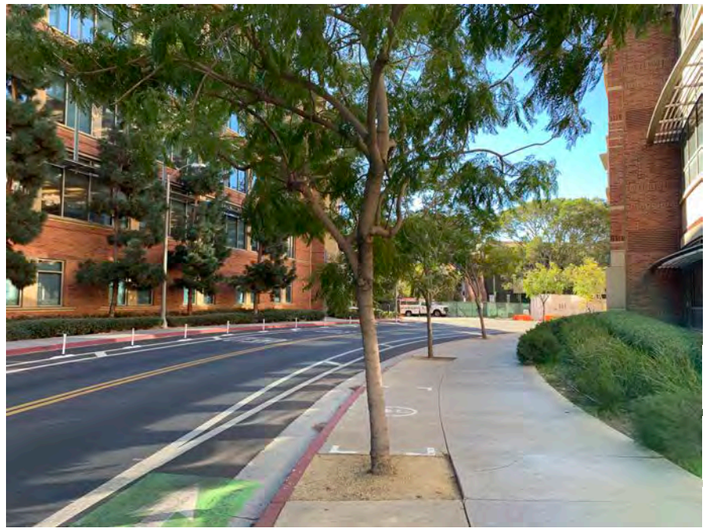
Pool and Spa Rated

Homework Assignment 9

Draw LIGHTING studies: siteplan, details, calculations

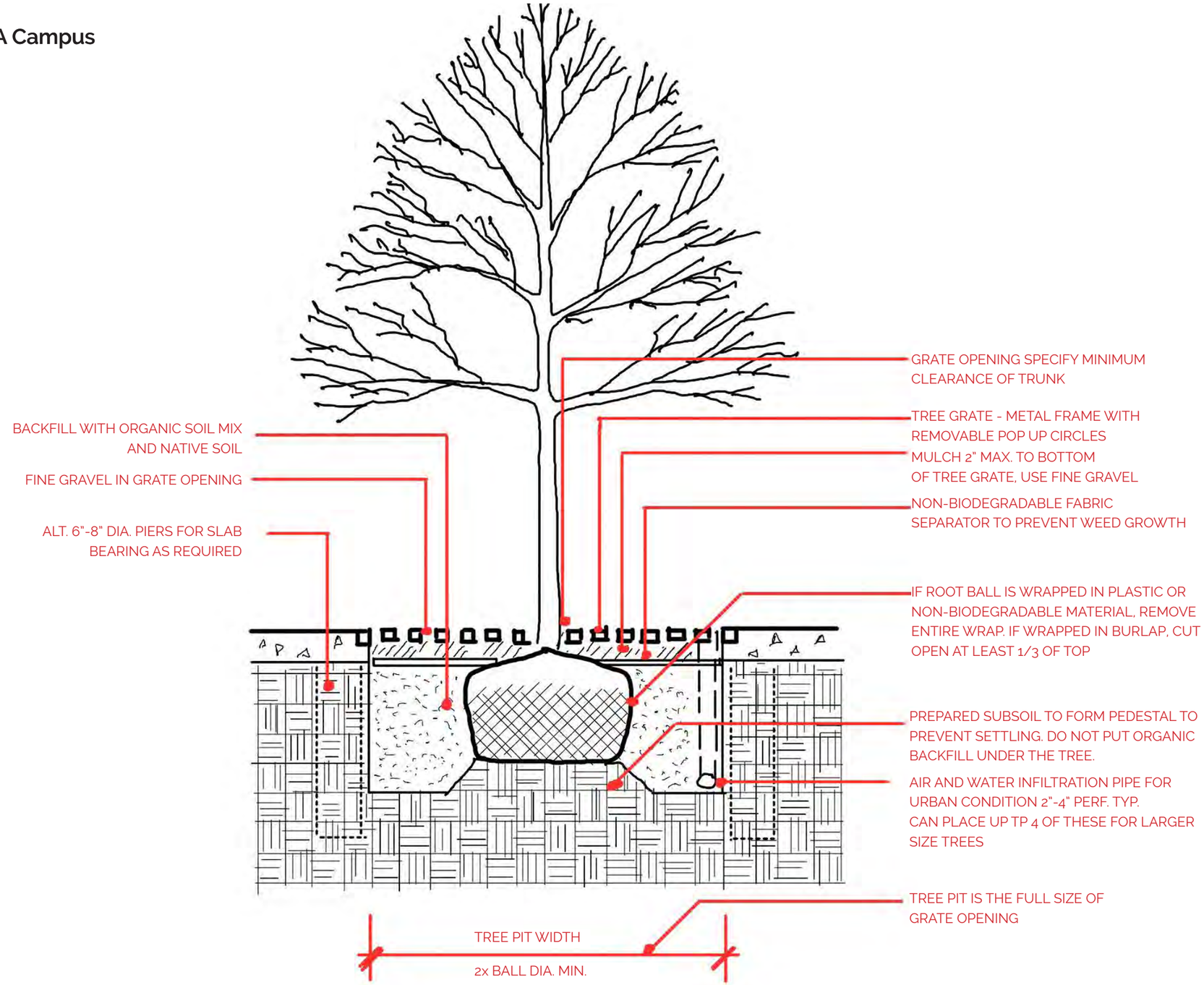
UCLA Campus

Tree planting in PAVEMENT



Street tree too close to the curb, in a 5’x5’ tree well with decomposed granite on top layer on Charles E Young Dr S at UCLA Campus.

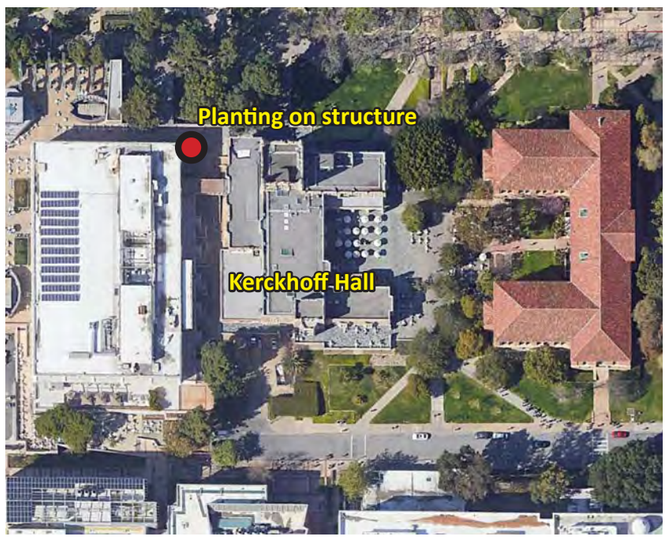
Site 100 feet North



Detail - Tree planting in pavement with metal grate frame with removable pop up circles to accomodate growth of the tree. Any new planted tree above 5 gallons should be double staked with rubber tree ties (any material that will not to damage the tree and allow it to move with the wind). Also, remove any nursery stake becaue it will damage the tree bark.

Small tree / shrub planting on STRUCTURE

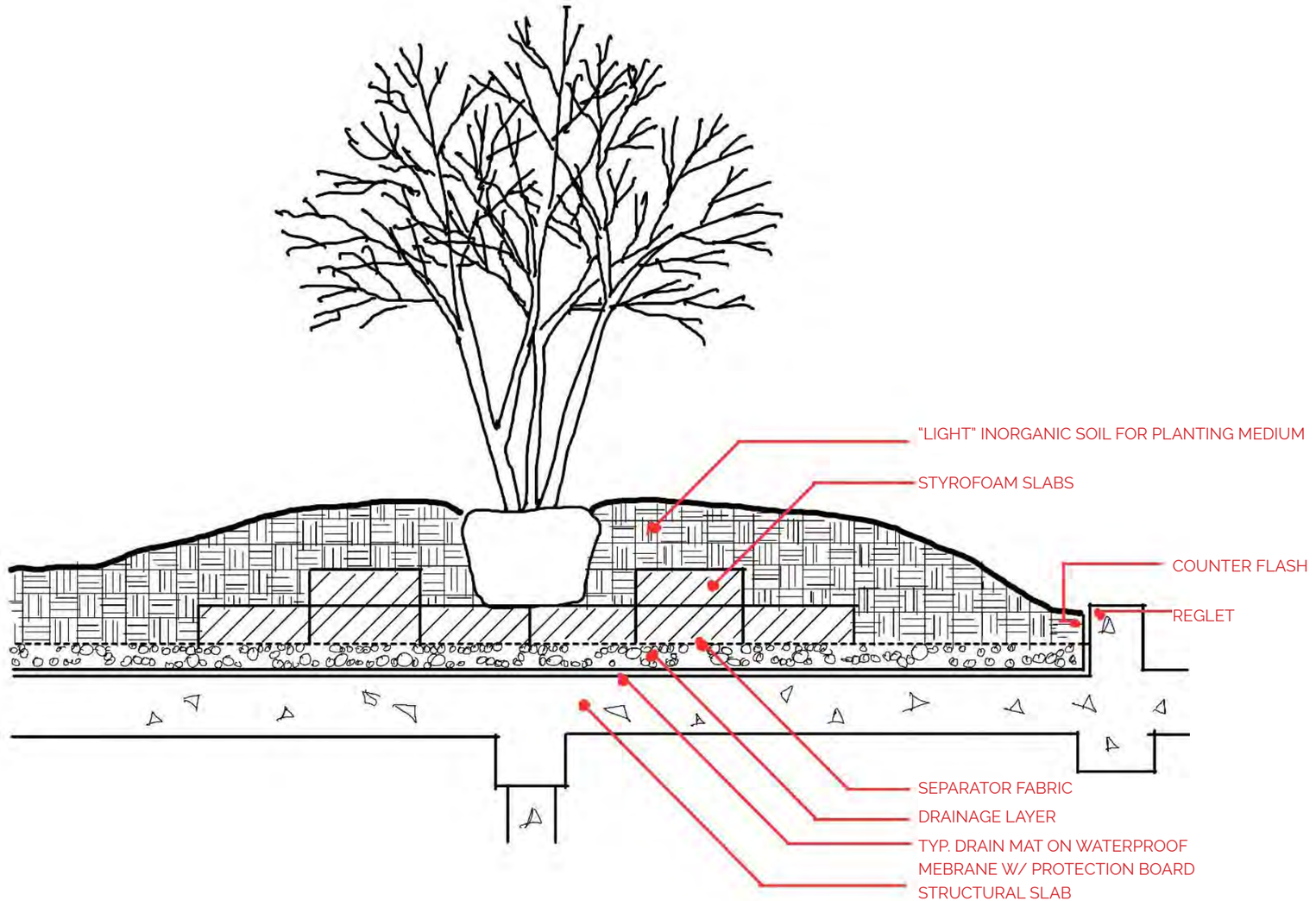
17’x11’ planter on structure (second floor) at Kerckhoff Hall UCLA campus.



Site

100 feet

North

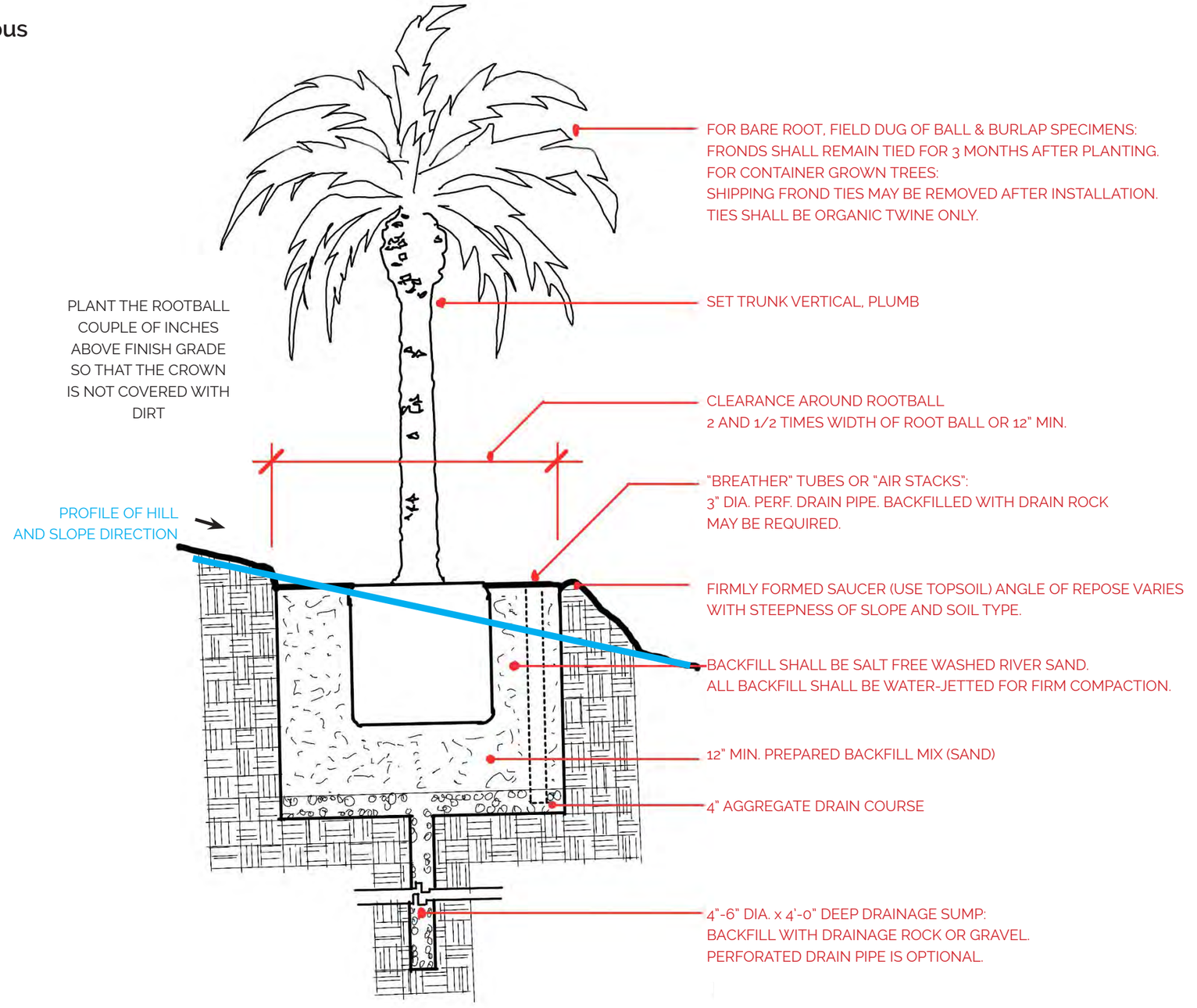


Detail - Small tree / shrub planting on structure

Palm tree planting on HILLSIDE

Palm tree on slope at Kerckhoff Hall UCLA campus.

Site 100 feet North



Detail - Palm tree on slope. If planting oh hills with loose soil above the ground, on the backside of planter hole have a little berm made from couple of stones or retaining wall to stop the amount of dirt coming down the hill and fill up the tree well and cover the crown. Also, for staking, use guywire (with visible PVC pipe around) on 3 sides for a 24” box and up tree, rubber hosing around the tree bark and metal concrete stakes that can go deep into the ground and outside the rootball. Do not use wooden stakes since they get damaged very quickly.

Theo Vuduris

Landscape Construction Methods and Materials
Homework Assignments

Landscape Architecture UCLA Extension
Fall 2020 Instructor Patrick Reynolds