APPENDIX B

Appendix B

Whittier Narrows Splash Pad – Construction Plans
Dated 10/23/25

COUNTY OF LOS ANGELES DEPARTMENT OF PARKS & RECREATION

WHITTIER NARROWS RECREATION AREA
REGIONAL SPLASH PAD PROJECT

CONSTRUCTION PLANS

CAPITAL PROJECT NO. 69539

811 Know what's BELOW. CALL before you dig.

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: **TITLE SHEET**

OWNER: COUNTY OF LOS ANGELES DEPARTMENT OF PARKS & RECREATION 1000 SOUTH FREMONT AVE. ALHAMBRA, CA 91803

PROJECT TITLE: **WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT**
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

REVISIONS / DATE

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DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	23 OCT 2025

LICENSED LANDSCAPE ARCHITECT — LARRY M. WITHERS 3933
Signature
31 AUG 2027
License date
23 OCT 2025
Date
STATE OF CALIFORNIA

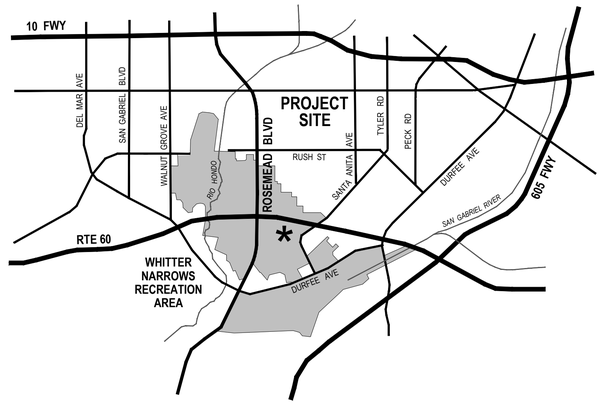
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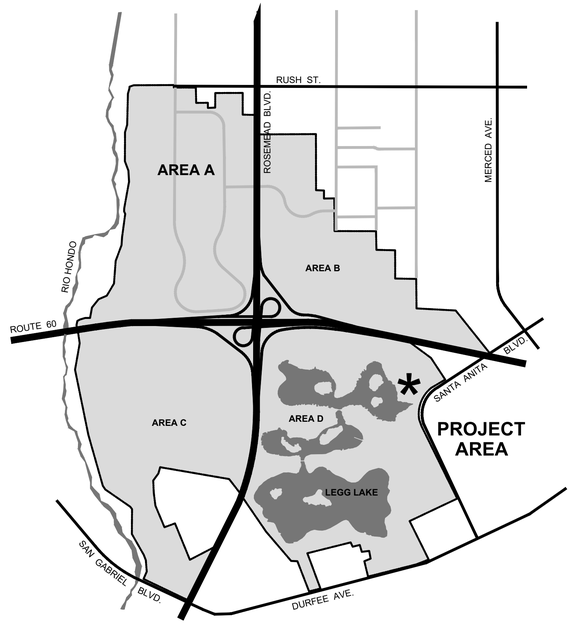
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LANDSCAPE GENERAL NOTES

1. CONTRACTOR MUST VERIFY ALL DIMENSIONS IN FIELD AT START OF PROJECT. REPORT ANY DISCREPANCY IMMEDIATELY TO CONSTRUCTION MANAGER.
2. THESE NOTES SHALL BE USED IN CONJUNCTION WITH THE PLANS AND SPECIFICATIONS, ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER.
3. ALL WORK SHALL BE PERFORMED ACCORDING TO CBC, CMC, CPC, CEC, ASTM D1557, ASTM D1556, ALL APPLICABLE COUNTY OF LOS ANGELES STANDARDS, COUNTY ORDINANCE, CALIFORNIA ENERGY STANDARDS AND THE 2023 STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AND ANY SUPPLEMENTS.
4. THIS WORK SHALL BE INSTALLED BY A LICENSED CONTRACTOR A OR B WHO SHALL CARRY WORKER'S COMPENSATION, PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE AS REQUIRED BY THE COUNTY OF LOS ANGELES.
5. CHECK FOR EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION WORK. NOTIFY PERTINENT UTILITIES AND UNDERGROUND SERVICE ALERT AT 8-1-1 TWO WORKING DAYS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR COST INCURRED DUE TO DAMAGE AND REPLACEMENT OF SAID UTILITIES.
6. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY OR SUBSTRUCTURE SHOWN IN THESE PLANS WAS OBTAINED BY A SEARCH OF AVAILABLE RECORDS. NO CERTIFICATION IS MADE AS TO ACCURACY OR THOROUGHNESS OF THESE RECORDS. APPROVAL OF THESE PLANS BY THE COUNTY OF LOS ANGELES DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OF COMPLETENESS, LOCATION, THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY OR SUBSTRUCTURE WITHIN THE LIMITS OF THE PROJECT.
7. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO THE START OF CONSTRUCTION, AND ARRANGE FOR ALL REQUIRED DEPUTY OR SPECIAL INSPECTIONS.
8. CONTRACTOR SHALL PROVIDE PRELIMINARY AND FINAL LIEN RELEASES FROM ALL SUB-CONTRACTORS PRIOR TO FINAL PAYMENT.
9. AT START OF PROJECT CONTRACTOR TO PROVIDE A COMPLETE STAGING AND TRAFFIC PLAN FOR APPROVAL BY LA COUNTY REPRESENTATIVE.
10. CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH DEMOLITION OR CONSTRUCTION SHOWN WHEN IT IS OBVIOUS THAT UNKNOWN CONDITIONS, OBJECTS, UTILITIES, OR GRADE CHANGES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING THE PREPARATION OF THIS PLAN. SUCH CONDITIONS, OBJECTS, OR GRADE CHANGES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE COUNTY REPRESENTATIVE. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTICE.
11. THE CONTRACTOR SHALL MAINTAIN THE SITE IN A NEAT, CLEAN, DUST FREE AND SANITARY CONDITION TO THE SATISFACTION OF THE COUNTY. THE ADJACENT PARKING AREAS SHALL BE KEPT CLEAN OF DEBRIS, WITH DUST AND OTHER NUISANCES BEING CONTROLLED AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CLEAN UP ON ADJACENT STREETS AFFECTED BY THE CONSTRUCTION. STOCKPILING OF MATERIALS WITHIN THE PUBLIC RIGHT-OF-WAY IS NOT ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY THE COUNTY.
12. CONTRACTOR SHALL PROVIDE AND SET UP ALL BARRICADES, FENCES OR WARNING SIGNS NECESSARY TO SECURE THE WORK AREA FROM ACCESS BY NON-AUTHORIZED PEDESTRIANS AND VEHICLES FOR THE ENTIRE DURATION OF CONSTRUCTION.
13. UPON COMPLETION OF LANDSCAPE INSTALLATION AND ACCEPTANCE BY THE COUNTY, A 90-DAY ESTABLISHMENT PERIOD SHALL COMMENCE, AND UPON WRITTEN VERIFICATION FROM THE INSPECTOR THAT ESTABLISHMENT IS ACCOMPLISHED, A 60-DAY MAINTENANCE PERIOD SHALL COMMENCE. SAID MAINTENANCE SHALL CONCLUDE ONLY AFTER VERIFICATION OF LEAF-OUT, FLOWER COLOR AND OVERALL PLANT HEALTH, AND WITH COUNTY ACCEPTANCE OF THE IMPROVEMENTS. MAINTENANCE SHALL INCLUDE WEEDING, IRRIGATION, PRUNING, RAISING TREE ROOT BALLS WHICH SETTLE BELOW GRADE, FERTILIZING AND APPLYING SUCH SPRAYS AS ARE NECESSARY FOR PROPER CARE AND UPKEEP. MAINTENANCE ALSO INCLUDES ALL REPAIRS, REPLACEMENT, CLEANING AND ADJUSTING NECESSARY TO KEEP THE IRRIGATION SYSTEM IN GOOD WORKING ORDER WITH PROPER COVERAGE, REQUIRED PRIOR TO FINAL ACCEPTANCE OF THE WORK BY THE COUNTY.
14. CONTRACTOR SHALL KEEP THE PREMISES CLEAN AND FREE OF EXCESS EQUIPMENT, MATERIALS AND RUBBISH INCIDENTAL TO THE WORK. ALL CONSTRUCTION DEBRIS SHALL BE CLEARED FROM THE SITE AT THE END OF EACH DAY.
15. ALL DEMOLISHED ITEMS SHALL BE DISPOSED OF PROPERLY AND IN ACCORDANCE WITH THE PROCEDURES STATED IN THE SPECIFICATIONS.
16. APPLICATION OF ANY CHEMICALS SHALL BE BY STATE LICENSED PERSONNEL. ALL PESTICIDE APPLICATIONS REQUIRE A P.C.A. RECOMMENDATION.
17. PRODUCTS THAT ARE DESIGNATED BY THE MANUFACTURER MAY BE SUBSTITUTED BY EQUAL PRODUCTS SUBJECT TO PRIOR APPROVAL BY THE COUNTY. SUBSTITUTE AND REQUEST FOR INFORMATION (RFI) SHALL BE SUBMITTED TO THE COUNTY FIVE (5) BUSINESS DAYS PRIOR TO BID OPENING. SUBMITTALS RECEIVED AFTER THIS DATE WILL BE DISREGARDED.
18. CONSTRUCTION CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE SAFETY OF ALL PERSONS AND PROPERTY IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT TO BE LIMITED TO NORMAL WORKING HOURS. CONSTRUCTION CONTRACTOR AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONALS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE DESIGN PROFESSIONAL.
19. CONTRACTOR SHALL DEVELOP AND HAVE APPROVED A CONTRACTOR'S STORMWATER MANAGEMENT PLAN (CSMP).
20. **CONTRACTOR SHALL FOLLOW AND PREPARE THE COUNTY-APPROVED STORM WATER POLLUTION PREVENTION PLAN (SWPPP) GUIDELINES PER SPECIFICATIONS, DIVISION 1, SECTION 015700.**
21. PEDESTRIANS SHALL BE PROTECTED DURING DEMOLITION, CONSTRUCTION AND REMODELING ACTIVITIES AS REQUIRED BY LOS ANGELES COUNTY BUILDING CODE CHAPTER 33. (3306)
22. CONSTRUCTION SHALL NOT RESTRICT A FIVE-FOOT CLEAR AND UNOBSTRUCTED ACCESS TO ANY WATER OR POWER DISTRIBUTION FACILITIES (POWER POLES, PULL-BOXES, TRANSFORMERS, VAULTS, PUMPS, VALVES, METERS, APPURTENANCES, ETC.) OR TO LOCATION OF HOOK-UPS. THE CONSTRUCTION SHALL NOT BE WITHIN 10 FEET OF ANY POWER LINES WHETHER THE LINES ARE ON THE PROPERTY OR NOT. FAILURE TO COMPLY MAY CAUSE CONSTRUCTION DELAYS AND/OR ADDITIONAL EXPENSES.
23. A COPY OF THE EVALUATION REPORT AND/OR THE EXISTING CONDITIONS SHALL BE MADE AVAILABLE AT THE JOB SITE.

VICINITY MAP





SURVEY:

NOTE: CONTRACTOR TO PROTECT AND PRESERVE IN PLACE ALL EXISTING SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE RESET BY A LICENSED LAND SURVEYOR AND THE APPROPRIATE CORNER RECORD MUST BE FILED WITH THE COUNTY OF LOS ANGELES.

LOS ANGELES COUNTY BENCHMARK NO. SY9775 — *EL. 225.369 FT (NAVD 88)*

RDBM TAG IN E CB SANTA ANITA AVE 2 FT N/O BCR @ NE COR DURFEE AVE.

CONTACTS:

OWNER:
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

COUNTY OF LOS ANGELES
CONSTRUCTION MANAGEMENT
COURTNEY TOSSOUNIAN,
PROJECT MANAGER
(626) 300-2339
CTossounian@dpw.lacounty.gov

LANDSCAPE ARCHITECT:
WITHERS & SANDGREN, LTD.
20948 TULSA STREET,
CHATSWORTH, CA 91311
LACEY WITHERS, PRINCIPAL
(818) 291-0200
lacey@withersandsandgren.com

AQUATIC DESIGN GROUP:
MICHELLE GABLE
2226 FARADAY AVE.
CARLSBAD, CA 92008
(760) 444.8316
mgable@aquaticdesigngroup.com

CIVIL ENGINEERING:
BARBARA L. HALL, P.E., INC.
318 EVERGREEN AVE.,
MONROVIA, CA 91016
BARBARA HALL, P.E.
(626) 256-3220
barbara_hall@blhallinc.com

ELECTRICAL ENGINEERING:
WEST COAST DESIGN GROUP
383 BAY VIEW TERRACE
COSTA MESA, CA 92627
RUSS OWENS, P.E.
(949) 735-1000
russ@wcdg.biz

IRRIGATION CONSULTANT:
ARROYO IRRIGATION
27762 ANTONIO PARKWAY, L1-308
LADERA RANCH, CA 92694
GARRY COLLINS
(562) 773-2722 MOBILE
(949) 430-7030 OFFICE
Gcollins@arroyoirrigation.com

WATER PURVEYOR:
FOR SPLASH PAD POTABLE WATER & IRRIGATION RECLAIMED WATER

SAN GABRIEL VALLEY WATER COMPANY
WHITTIER OFFICE
11579 HADLEY ST.
WHITTIER, CA 90606
KEITH HUESTON, ENGINEERING
(562) 699-1041

I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package.

15 MAY 2025

SHEET INDEX:

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2	G0.00	PROPERTY PARCEL MAP
3	G0.10	ACCESSIBILITY CODE
4	G0.11	ACCESSIBILITY CODE
5	G0.20	ACCESSIBILITY PLAN & PARKING TOTALS
6	G0.30	FIRE SITE PLAN
7	G0.40	GENERAL SITE PLAN
8	D1.00	LANDSCAPE DEMOLITION PLAN
9	C1.01	GENERAL NOTES
10	C1.02	DEMOLITION PLAN
11	C1.03	HORIZONTAL CONTROL PLAN
12	C2.00	EXCAVATION PLAN
13	C2.01	KEY MAP
14	C2.02	GRADING PLAN
15	C2.03	GRADING PLAN
16	C2.04	GRADING PLAN
17	C2.05	GRADING PLAN
18	C2.06	GRADING PLAN & SECTIONS
19	C2.07	SECTIONS
20	C3.01	UTILITY PLAN
21	C3.02	MECHANICAL PLUMBING PLAN
22	C3,03	SPLASH PAD STORM WATER DIVERSION PLAN
23	C4.01	DETAILS
24	C4.02	DETAILS
25	C4.03	DETAILS
26	C4.04	DETAILS
27	C5.01	EROSION & SEDIMENT CONTROL NOTES
28	C5.02	EROSION & SEDIMENT CONTROL DETAILS
29	C5.03	EROSION & SEDIMENT CONTROL PLAN
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31	C6.01	FIRE HYDRANT PLAN
32	C6.02	FIRE HYDRANT DETAILS
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34	SE1.02	ELECTRICAL PLAN
35	SE1.03	ELECTRICAL PLAN
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39	L1.52	CONSTRUCTION DETAILS
40	L1.53	CONSTRUCTION DETAILS
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42	L1.55	SHOWER AREA DETAILS
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44	L2.50	IRRIGATION LEGEND
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75	MR-3	MECHANICAL ROOM DETAILS
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77	MR-5	MECHANICAL ROOM DETAILS
78	MR-6	MECHANICAL ROOM DETAILS
79	MR-7	MECHANICAL ROOM DETAILS
80	MR-8	MECHANICAL ROOM DETAILS

A COPY OF THE SIGNED SURVEY AVAILABLE FROM COUNTY PROJECT MANAGER.

SHOP DRAWINGS ARE REQUIRED TO BE SUBMITTED AND APPROVED FOR ALL MECHANICAL EQUIPMENT.

PROJECT INFORMATION

ASSESSOR'S ID NOS:	8119-002-902, 8119-003-900, 8119-005-908
ADDRESS:	750 SOUTH SANTA ANITA AVE, SOUTH EL MONTE CA 91733
PROJECT AREA:	55,500 SF
ZONING:	OPEN SPACE
LAND USE:	RECREATION
LANDSCAPE AREA:	17,754 SF
SPLASH PAD AREA:	10,648 SF - DRY & WET ZONES
WET ZONE:	1995 SF

CODE REQUIREMENTS: 2023 LOS ANGELES COUNTY AMENDMENT BUILDING CODE (LABC)
2023 LOS ANGELES COUNTY AMENDMENT GREEN BUILDING CODE (LAGBC)
2023 LOS ANGELES COUNTY AMENDMENT PLUMBING CODE (LAPC)
2023 LOS ANGELES COUNTY AMENDMENT ELECTRICAL CODE (LAEC)
2023 LOS ANGELES COUNTY AMENDMENT MECHANICAL CODE (LAMC)

SEPARATE PERMITS

NEW ROOFED STRUCTURES
(TYPE II-B, NOT SPRINKLERED, METAL ROOF DECK CLASS A FIRE RATED)

	SIZE	HEIGHT
MECHANICAL BUILDING & FOUNDATIONS	576 SF	14'-4"
SHOWER AREA COVER & FOUNDATIONS	120 SF	11'-7"
TOTAL	**696 SF**	

OVERHEAD SAIL STRUCTURES & FOUNDATIONS
(FIRE RISK CATEGORY I, EXPOSURE C)

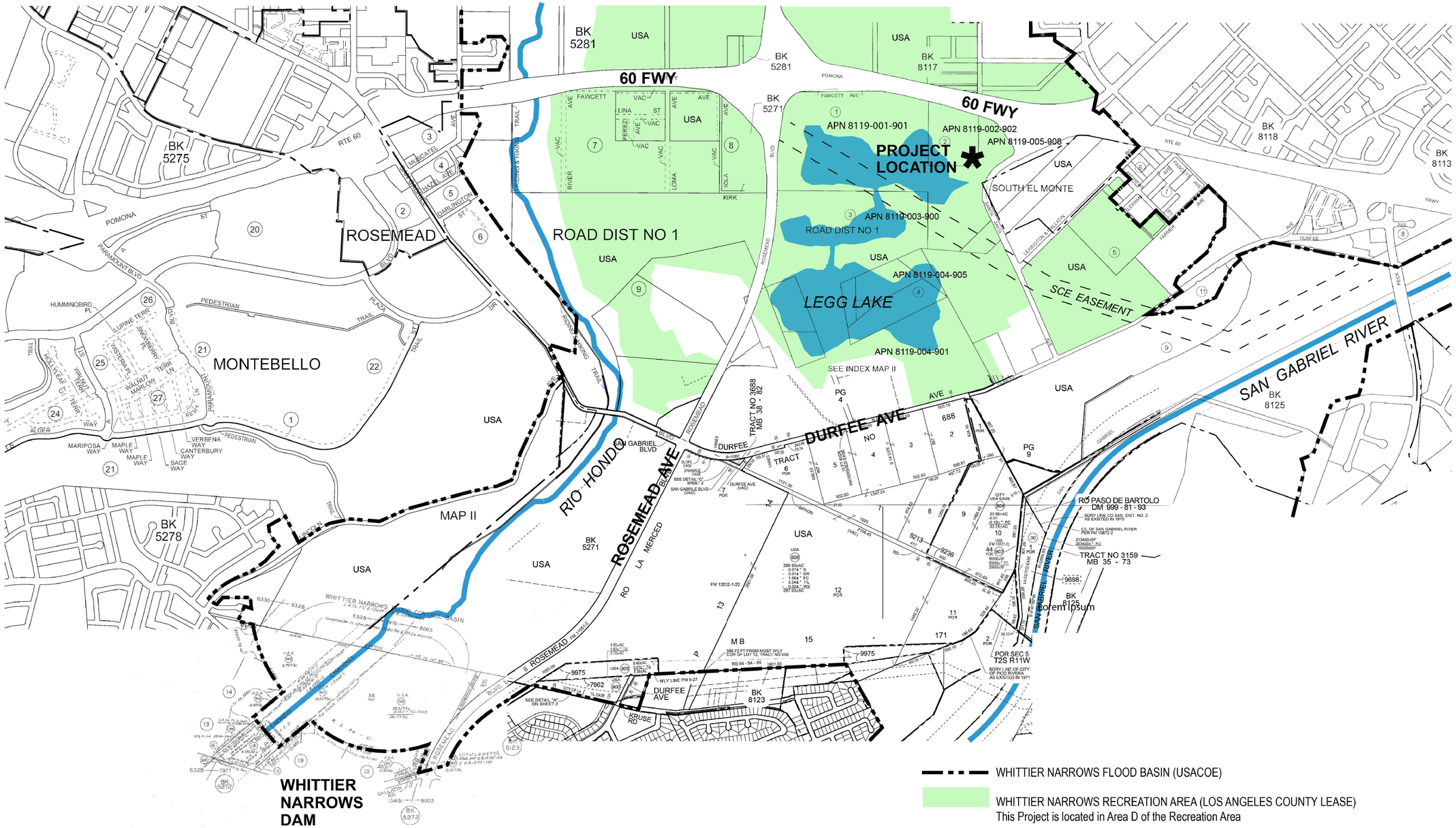
	SIZE	HEIGHT
SHADE SAIL STRUCTURE 1	504 SF	16'-0"
SHADE SAIL STRUCTURE 2	1,240 SF	16'-0"
SHADE SAIL STRUCTURE 3	675 SF	16'-0"
TOTAL	**2,419 SF**	

PROJECT DESCRIPTION

THE PROJECT IS THE CONSTRUCTION OF A NATURE THEMED INTERACTIVE WATER PLAY SPLASH PAD THAT REFLECTS THE NATURAL SURROUNDINGS OF LEGG LAKE. THE NEW SPLASH PAD PROJECT INCLUDES THE FOLLOWING:

- ACCESSIBILITY IMPROVEMENTS TO PARKING AND PATHWAYS.
- INTERACTIVE WATER PLAY FEATURING GROUND SPRAYS AND BUBBLERS.
- SEATING FOR SPLASH PAD USERS.
- SHADE TRELLIS OVER ADJACENT SEATING (ADD. ALTS. 1, 2 & 3)
- COVERED OUTDOOR SHOWERS CONNECTED TO THE SEWER.
- PREFABRICATED MECHANICAL BUILDING HOUSING SPLASH PAD PUMPS AND CHEMICAL SUPPLIES.
- NEW PRIVATE FIRE HYDRANT AND ACCESS ROAD
- LOW IMPACT DEVELOPMENT (LID), AS NEEDED.
- NEW CLIMATE APPROPRIATE LANDSCAPE PLANTINGS AND TREES SURROUNDING THE SPLASH PAD.
- NEW IRRIGATION AND MODIFICATION OF EXISTING SYSTEM TO ACCOMMODATE NEW PLANTINGS.

FUEL MODIFICATION PLAN IS NOT REQUIRED PER JASON LI, LOS ANGELES COUNTY FIRE DEPARTMENT, FUEL MODIFICATION UNIT.
590 SOUTH PARK AVE.
POMONA, CA 91766
(626) 969-5205, Jason.Li@fire.lacounty.gov



WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE
PROJECT PARCEL MAPS

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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8.	

DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	23 OCT 2025

LICENSED LANDSCAPE ARCHITECT
LAREY M. WITHERS 5880
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA

Lorem ipsum

GENERAL PROJECT INFORMATION

PLAN CHECK NO _____ DISTRICT NO _____
JOB ADDRESS _____ CITY _____ ZIP _____

NOTE: Numbers in the parenthesis ( ) refer to sections of the 2023 edition of the Los Angeles County Building Code, Table (T) & Building Code Manual (BCM).

Please blueprint these General Notes on your plans.

The State of California delegates authority to the local jurisdiction to ensure compliance with Title 24, Part 2 of the California Code of Regulations. The following general notes indicate specific areas of Title 24, Part 2 which are applicable to your project. Please be aware that the owner(s) of the building and his/her consultants are responsible for compliance with the most current Federal Regulations contained in the Americans with Disabilities Act (ADA) and Fair Housing Act (FHA). Where the ADA & FHA requirements exceed those contained in Title 24, Part 2, it is the responsibility of the owners and their consultants to ensure compliance with the most current ADA & FHA regulations, as the City is not authorized to review plans or inspect projects for ADA & FHA compliance.

The following, applicable, general notes shall be provided on the plans.

A. APPLICATION AND ADMINISTRATION

1. Features, facilities and equipment required by Chapter 11B to be accessible to and useable by persons with disabilities shall be maintained in operable working condition. Isolated or temporary interruptions in service or accessibility due to maintenance or repairs shall be permitted. **§11B-108**

B. BUILDING BLOCKS

FLOOR OR GROUND SURFACES

1. Floor and ground surfaces shall be stable, firm, and slip resistant. **§11B-302.1**
2. Carpet or carpet tile shall be securely attached and shall have a firm cushion, pad, or backing or no cushion or pad. Carpet or carpet tile shall have a level loop, textured loop, level cut pile, or level cut/uncut pile texture. Pile height shall be ½ inch maximum. **§11B-302.2, Figure 11B-302.2**

CHANGES IN LEVEL

3. Vertical changes in level for floor or ground surfaces may be ¼ inch high maximum and without edge treatment. Changes in level greater than ¼ inch and not exceeding ½ inch in height shall be beveled with a slope not steeper than 1:2. **§11B-303, Figures 11B-303.2 & 11B-303.3**
4. Changes in level greater than ½ inch in height shall be ramped and shall comply with the requirements of 11B-405 Ramps or 11B-406 Curb Ramps as applicable. **§11B-303**
5. Abrupt changes in level exceeding 4 inches in a vertical dimension between walks, sidewalks or other pedestrian ways and adjacent surfaces or features shall be identified by warning curbs at least 6 inches in height above the walk or sidewalk surface or by guards or handrails with a guide rail centered 2 inches minimum and 4 inches maximum above the surface of the walk or sidewalk. These requirements do not apply between a walk or sidewalk and an adjacent street or driveway. **§11B-303.5**

TURNING SPACE

6. Floor or ground surfaces of a turning space shall comply with §11B-302. Changes in level, slopes exceeding 1:48, and detectable warnings shall not be permitted. **§11B-304.2, §11B-305.2, §11B-404.2.4.4**
7. Circular turning spaces shall be a space of 60 inches diameter minimum and may include knee and toe clearance complying with 11B-306 Knee and Toe Clearance. **§11B-304.3.1**

8. T-Shaped turning spaces shall be a T-shaped space within a 60 inch square minimum with arms and base 36 inches wide minimum. Each arm of the T shall be clear of obstructions 12 inches minimum in each direction and the base shall be clear of obstructions 24 inches minimum. **§11B-304.3.2, Figure 11B-304.3.2**

KNEE AND TOE CLEARANCE

9. For lavatories and built-in dining and work surfaces required to be accessible, toe clearance shall be provided that is 30 inches in width and 9 inches in height above the finish floor or ground for a depth of 19 inches minimum. **§11B-306.2.1**
10. Toe clearance shall extend 19 inches maximum under lavatories for toilet and bathing facilities and 25 inches maximum under other elements. **§11B-306.2.2**
11. At lavatories in toilet and bathing facilities, knee clearance shall be provided that is 30 inches in width for a depth of 11 inches at 9 inches above the finish floor or ground and for a depth of 8 inches at 27 inches above the finish floor or ground increasing to 29 inches high minimum above the finish floor or ground at the front edge of a counter with a built-in lavatory or at the front edge of a wall-mounted lavatory fixture. **§11B-306.3.3, Figure 11B-306.3(c)**
12. At dining and work surfaces required to be accessible, knee clearance shall be provided that is 30 inches in width at 27 inches above the finish floor or ground for a depth of at least 19 inches. **§11B-306.3**

PROTRUDING OBJECTS

13. Except for handrails, objects with leading edges more than 27 inches and less than 80 inches above the finish floor or ground shall protrude no more than 4 inches horizontally into the circulation path. Handrails may protrude 4½ inches maximum. **§11B-307.2, Figure 11B-307.2**
14. Freestanding objects mounted on posts or pylons shall overhang circulation paths no more than 12 inches when located from 27 to 80 inches above the finish floor or ground. **§11B-307.3, Figure 11B-307.3(a)**
15. Protruding objects shall not reduce the clear width required for accessible routes. **§11B-307.5**
16. Lowest edge of a sign or other obstruction, when mounted between posts or pylons separated with a clear distance greater than 12 inches, shall be less than 27 inches or more than 80 inches above the finish floor or ground. **§11B-307.3, Figure 11B-307.3(b)**
17. Vertical clearance shall be at least 80 inches high on circulation paths except at door closers and door stops, which may be 78 inches minimum above the finish floor or ground. **§11B-307.4**
18. Guardrails or other barriers with a leading edge located 27 inches maximum above the finish floor or ground shall be provided where the vertical clearance on circulation paths is less than 80 inches high. **§11B-307.4, Figure 11B-307.4**
19. Where a guy support is used within either the width of a circulation path or 24 inches maximum outside of a circulation path, a vertical guy brace, sidewalk guy or similar device shall be used to prevent a hazard or an overhead obstruction. **§11B-307.4.1, Figure 11B-307.4.1**

REACH RANGES

20. Electrical controls and switches intended to be used by the occupant of a room or area to control lighting and receptacle outlets, appliances or cooling, heating and ventilating equipment shall be located within allowable reach ranges. Low reach shall be measured to the bottom of the outlet box and high reach shall be measured to the top of the outlet box. **§11B-308.1.1**
21. Electrical receptacle outlets on branch circuits of 30 amperes or less and communication system receptacles shall be located within allowable reach ranges. Low reach shall be measured to the bottom of the outlet box and high reach shall be measured to the top of the outlet box. **§11B-308.1.2.**
22. High forward reach that is unobstructed shall be 48 inches maximum and the low forward reach shall be 15 inches minimum above the finish floor or ground. **§11B-308.2.1, Figure 11B-308.2.1**
23. High forward reach shall be 48 inches maximum where the reach depth is 20 inches or less and 44 inches maximum where the reach depth exceeds 20 inches. High forward reach shall not exceed 25 inches in depth. **§11B-308.2.2, Figure 11B-308.2.2**

24. High side reach shall be 48 inches maximum and the low side reach shall be 15 inches minimum above the finish floor where the side reach is unobstructed or the depth of any obstruction does not exceed 10 inches. **§11B-308.3.1, Figure 11B-308.3.1**
25. High side reach shall be 46 inches maximum above the finish floor or ground where the high side reach is over an obstruction more than 10 inches but not more than 24 inches in depth. **§11B-308.3.2, Figure 11B-308.3.2**
26. Obstructions for high side reach shall not exceed 34 inches in height and 24 inches in depth. **§11B-308.3.2, Figure 11B-308.3.2**
27. Obstructed high side reach for the top of washing machines and clothes dryers shall be permitted to be 36 inches maximum above the finish floor. **§11B-308.3.2**
28. Obstructed high side reach for the operable parts of fuel dispensers shall be permitted to be 54 inches maximum measured from the surface of the vehicular way where fuel dispensers are installed on existing curbs. **§11B-308.3.2**

OPERABLE PARTS

29. Operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. Force required to activate operable parts shall be 5 pounds maximum. **§11B-309.4**

C. ACCESSIBLE ROUTES

DETECTABLE WARNINGS AND DETECTABLE DIRECTIONAL TEXTURE

1. Circulation paths contiguous to vehicular traffic shall be physically separated from vehicular traffic. Vehicular traffic includes travel through parking facilities, into and out of parking spaces, into and out of electric vehicle charging spaces, and along roadways, driveways and drive aisles. Physical separation shall be provided with circulation paths raised 4 inches minimum above the area where vehicular traffic occurs. See exceptions **§11B-250.1**

1. ***DETECTABLE WARNINGS AND DETECTABLE DIRECTIONAL TEXTURE***Detectable warning surfaces shall be yellow and approximate FS 33538 of SAE AMSSTD-595A. **§11B-705.1.1.3.1**
2. Detectable warning surfaces shall provide a 70 percent minimum visual contrast with adjacent walking surfaces. Contrast in percent shall be determined by:

   Contrast percent = [(B1-B2)/B1] x 100 where

   B1 = light reflectance value (LRV) of the lighter area and

   B2 = light reflectance value (LRV) of the darker area

   §11B-705.1.1.3.2 (See exception)

DOORS, DOORWAYS, AND GATES

3. Doors, doorways, and gates providing user passage shall be provided in accordance with 11B-206.5 Doors, Doorways, and Gates. **§11B-206.5**
4. Doors, doorways and gates that are part of an accessible route shall comply with 11B-404 Doors, Doorways, and Gates. **§11B-404.1**
5. Door openings shall provide a clear width of 32 inches minimum. Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees. Openings more than 24 inches deep shall provide a clear opening of 36 inches minimum. There shall be no projections into the required clear opening width lower than 34 inches above the finish floor or ground. Projections into the clear opening width between 34 inches and 80 inches above the finish floor or ground shall not exceed 4 inches. **§11B-404.2.3**
6. Swinging doors and gates shall have maneuvering clearances complying with Table 11B-404.2.4.1.
7. Doorways less than 36 inches wide without doors or gates, sliding doors, or folding doors shall have

maneuvering clearances complying with Table 11B-404.2.4.2. **§11B-404.2.4.2**

8. Maneuvering clearances for forward approach shall be provided when any obstruction within 18 inches of the latch side an interior doorway, or within 24 inches of the latch side of an exterior doorway, projects more than 8 inches beyond the face of the door, measured perpendicular to the face of the door or gate. **§11B-404.2.4.3**
9. Thresholds, if provided at doorways, shall be ½ inch high maximum. Raised thresholds and changes in level at doorways shall comply with 11B-302 Floor or Ground Surfaces and 11B-303 Changes in Level. **§11B-404.2.5**
10. Handles, pulls, latches, locks, and other operable parts on doors and gates shall comply with 11B-309.4 Operation. Operable parts of such hardware shall be 34 inches minimum and 44 inches maximum above the finish floor or ground. Where sliding doors are in the fully open position, operating hardware shall be exposed and usable from both sides. **§11B-404.2.7**
11. The force for pushing or pulling open a door or gate other than fire doors shall be as follows: **§11B-404.2.9**
    a. Interior hinged doors and gates: 5 pounds maximum.
    b. Sliding or folding doors: 5 pounds maximum.
    c. Required fire doors: the minimum opening force allowable by the appropriate administrative authority, not to exceed 15 pounds.
    d. Exterior hinged doors: 5 pounds maximum.
12. Swinging door and gate surfaces within 10 inches of the finish floor or ground measured vertically shall have a smooth surface on the push side extending the full width of the door or gate. Parts creating horizontal or vertical joints in these surfaces shall be within 1/16 inch of the same plane as the other and be free of sharp or abrasive edges. Cavities created by added kick plates shall be capped. **§11B-404.2.10**

RAMPS

13. Ramp runs shall have a running slope not steeper than 1:12 (8.33%). **§11B-405.2**
14. Cross slope of ramp runs shall not be steeper than 1:48 (2.083%). **§11B-405.3**
15. Floor or ground surfaces of ramp runs shall comply with 11B-302 Floor or Ground Surfaces. Changes in level other than the running slope and cross slope are not permitted on ramp runs. **§11B-405.4**
16. The clear width of a ramp run shall be 48 inches minimum. **§11B-405.5**
17. The rise for any ramp run shall be 30 inches maximum. **§11B-405.6**
18. Ramps shall have landings at the top and the bottom of each ramp run. **§11B-405.7**
19. Landings shall comply with 11B-302 Floor or Ground Surfaces. Changes in level, slopes exceeding 1:48, and detectable warnings shall not be permitted. **§11B-405.7.1**
20. The landing clear width shall be at least as wide as the widest ramp run leading to the landing. **§11B-405.7.2**
21. Top landings shall be 60 inches wide minimum. **§11B-405.7.2.1**
22. The landing clear length shall be 60 inches long minimum. **§11B-405.7.3**
23. Bottom landings shall extend 72 inches minimum in the direction of ramp run. **§11B-405.7.3.1**
24. Ramps that change direction between runs at landings shall have a clear landing 60 inches minimum by 72 inches minimum in the direction of downward travel from the upper ramp run. **§11B-405.7.4**
25. Where doorways are located adjacent to a ramp landing, maneuvering clearances required by 11B-404.2.4 and 11B-404.3.2 shall be permitted to overlap the required landing area. Doors, when fully open, shall not reduce the required ramp landing width by more than 3 inches. Doors, in any position, shall not reduce the minimum dimension of the ramp landing to less than 42 inches. **§11B-405.7.5**
26. Ramp runs shall have compliant handrails per 11B-505 Handrails. **§11B-405.8**
27. Edge protection complying with 11B-405.9.2 Curb or Barrier shall be provided on each side of ramp runs and at each side of ramp landings. **§11B-405.9 (See exceptions)**

28. A curb or barrier shall be provided that prevents the passage of a 4 inch (102 mm) diameter sphere, where any portion of the sphere is within 4 inches (102 mm) of the finish floor or ground surface. To prevent wheel entrapment, the curb or barrier shall provide a continuous and uninterrupted barrier along the length of the ramp. **§11B-405.9.2**
29. Landings subject to wet conditions shall be designed to prevent the accumulation of water. **§11B-405.10**

HANDRAILS

30. Handrails shall be provided on both sides of stairs and ramps. **§11B-505.2**
31. Handrails shall be continuous within the full length of each stair flight or ramp run. Inside handrails on switchback or dogleg stairs and ramps shall be continuous between flights or runs. **§11B-505.3**
32. Top of gripping surfaces of handrails shall be 34 inches minimum and 38 inches maximum vertically above walking surfaces, stair nosings, and ramp surfaces. Handrails shall be at a consistent height above walking surfaces, stair nosings, and ramp surfaces. **§11B-505.4**
33. Clearance between handrail gripping surfaces and adjacent surfaces shall be 1½ inches minimum. Handrails may be located in a recess if the recess is 3 inches maximum deep and 18 inches minimum clear above the top of the handrail. **§11B-505.5**
34. Handrail gripping surfaces shall be continuous along their length and shall not be obstructed along their tops or sides. The bottoms of handrail gripping surfaces shall not be obstructed for more than 20 percent of their length. Where provided, horizontal projections shall occur 1½ inches minimum below the bottom of the handrail-gripping surface. **§11B-505.6**
35. Handrail gripping surfaces with a circular cross section shall have an outside diameter of 1¼ inches minimum and 2 inches maximum. **§11B-505.7.1**
36. Handrail gripping surfaces with a non-circular cross section shall have a perimeter dimension of 4 inches minimum and 6¼ inches maximum, and a cross-section dimension of 2¼ inches maximum. **§11B-505.7.2**
37. Handrail gripping surfaces shall extend beyond and in the same direction of stair flights and ramp runs in accordance with Section 11B-505.10 Handrail Extensions. **§11B-505.10**
38. Ramp handrails shall extend horizontally above the landing for 12 inches minimum beyond the top and bottom of ramp runs. Extensions shall return to a wall, guard, or the landing surface, or shall be continuous to the handrail of an adjacent ramp run. **§11B-505.10.1**
39. At the top of a stair flight, handrails shall extend horizontally above the landing for 12 inches minimum beginning directly above the first riser nosing. Extensions shall return to a wall, guard, or the landing surface, or shall be continuous to the handrail of an adjacent stair flight. **§11B-505.10.2**
40. At the bottom of a stair flight, handrails shall extend at the slope of the stair flight for a horizontal distance equal to one tread depth beyond the last riser nosing. The horizontal extension of a handrail shall be 12 inches long minimum and a height equal to that of the sloping portion of the handrail as measured above the stair nosings. Extension shall return to a wall, guard, or the landing surface, or shall be continuous to the handrail of an adjacent stair flight. **§11B-505.10.3**

STAIRWAYS

41. A stair is defined as a change in elevation, consisting of one or more risers. **§11B-202**
42. All steps on a flight of stairs shall have uniform riser heights and uniform tread depths. Risers shall be 4 inches high minimum and 7 inches high maximum. Treads shall be 11 inches deep minimum. Curved stairways with winder treads are permitted at stairs which are not part of a required means of egress. (See exception) §**11B-504.2**
43. Open risers are not permitted. **§11B-504.3 (See exceptions)**
44. Interior stairs shall have the upper approach and lower tread marked by a stripe providing clear visual contrast. Exterior stairs shall have the upper approach and all treads marked by a stripe providing clear visual contrast. The stripe shall be a minimum of 2 inches wide to a maximum of 4 inches wide placed parallel to, and not more than 1 inch from, the nose of the step or upper approach. The stripe shall extend

the full width of the step or upper approach and shall be of material that is at least as slip resistant as the other treads of the stair. A painted stripe shall be acceptable. Grooves shall not be used to satisfy this requirement. **§11B-504.4.1**

45. The radius of curvature at the leading edge of the tread shall be ½ inch maximum. Nosings that project beyond risers shall have the underside of the leading edge curved or beveled. Risers shall be permitted to slope under the tread at an angle of 30 degrees maximum from vertical. The permitted projection of the nosing shall extend 1¼ inches maximum over the tread below. **§11B-504.5 (See exception for existing buildings)**
46. Stairs shall have handrails complying with Section 11B-505 Handrails. **§11B-504.6**
47. Stair treads and landings subject to wet conditions shall be designed to prevent the accumulation of water. **§11B-504.7**
48. Floor identification signs required by Chapter 10, Section 1022.9 complying with Sections 11B-703.1 Signs General, 11B-703.2 Raised Characters, 11B-703.3 Braille and 11B-703.5 Visual Characters shall be located at the landing of each floor level, placed adjacent to the door on the latch side, in all enclosed stairways in buildings two or more stories in height to identify the floor level. At the exit discharge level, the sign shall include a raised five pointed star located to the left of the identifying floor level. The outside diameter of the star shall be the same as the height of the raised characters. **§11B-504.8**

CURB RAMPS, BLENDED TRANSITIONS AND ISLANDS

49. Perpendicular ramp runs shall have a running slope not steeper than 1:12 (8.33%). **§11B-406.2.1**
50. For perpendicular ramps, where provided, curb ramp flares shall not be steeper than 1:10. **§11B-406.2, Figure 11B-406.2.2**
51. Parallel curb ramps shall comply with §11B-406.3 and §11B-406.5. A parallel curb ramp may be provided with one sloping segment or two opposing sloping segments. **§11B-406.3**
52. The running slope of the curb ramp segments shall be in-line with the direction of sidewalk travel. Ramp runs shall have a running slope not steeper than 1:12 (8.33%). **§11B-406.3.1, Figure 11B-406.3.2**
53. A turning space 48 inches minimum by 48 inches minimum shall be provided at the bottom of the curb ramp. The slope of the turning space in all directions shall be 1:48 maximum (2.083%). **§11B-406.3.2**
54. Blended transition ramps shall have a running slope not steeper than 1:20 (5%). **§11B-406.4.1**
55. Curb ramps and the flared sides of curb ramps shall be located so that they do not project into vehicular traffic lanes, parking spaces, or parking access aisles. Curb ramps at marked crossings shall be wholly contained within the markings, excluding any flared sides. **§11B-406.5.1**
56. The clear width of curb ramp runs (excluding any flared sides), blended transitions, and turning spaces shall be 48 inches minimum. **§11B-406.5.2**
57. Landings shall be provided at the tops of curb ramps and blended transitions (parallel curb ramps shall not be required to comply). The landing clear length shall be 48 inches minimum. The landing clear width shall be at least as wide as the curb ramp, excluding any flared sides, or the blended transition leading to the landing. The slope of the landing in all directions shall be 1:48 (2.083%) maximum. **§11B-406.5.3**
58. Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush. **§11B-406.5.6**
59. The cross slope of curb ramps and blended transitions shall be 1:48 (2.083%) maximum. **§11B-406.5.7**
60. Counter slopes of adjoining gutters and road surfaces immediately adjacent to and within 24 inches of the curb ramp shall not be steeper than 1:20 (5%). The adjacent surfaces at transitions at curb ramps to walks, gutters, and streets shall be at the same level. **§11B-406.5.8**
61. The bottom of diagonal curb ramps shall have a clear space 48 inches minimum outside active traffic lanes of the roadway. Diagonal curb ramps provided at marked crossings shall provide the 48 inches minimum

clear space within the markings. **§11B-406.5.9**

62. Curb ramps and blended transitions shall have detectable warnings complying with 11B-705 Detectable Warnings. **§11B-406.5.12**
63. Raised islands in crossings shall be cut through level with the street or have curb ramps at both sides. The clear width of the accessible route at islands shall be 60 inches wide minimum. Where curb ramps are provided, they shall comply with 11B-406 Curb Ramps, Blended Transitions and Islands. Landings complying with 11B-406.5.3 Landings and the accessible route shall be permitted to overlap. Islands shall have detectable warnings complying with 11B-705 Detectable Warnings and Detectable Directional Texture. **§11B-406.6, Figure 11B-406.6**

D. GENERAL SITE AND BUILDING ELEMENTS

1. Where parking spaces are provided, accessible parking spaces shall be provided in number and kind required per Section 11B-208 Parking Spaces. **§11B-208.1**
2. Where passenger loading zones, drop-off zones, and/or bus stops are provided, accessible passenger loading zones, drop-off zones, and/or bus stops are required.
3. Where Electric vehicle charging stations (EVCS) are provided, they shall comply with Section 11B-812 as required by Section 11B-228.3. Note: Electric vehicle charging provided in newly constructed facilities are also subject to the California Green Building Standards Code.
4. EVCS complying with Section 11B-812 that serve a particular building or facility shall be located on an accessible route to an entrance complying with Section 11B-206.4. Where EVCS do not serve a particular building or facility, EVCS complying with Section 11B-812 shall be located on an accessible route to an accessible pedestrian entrance of the EV charging facility.

E. PLUMBING FIXTURES AND FACILITIES

DRINKING FOUNTAINS AND BOTTLE-FILLING STATIONS

1. Drinking fountains shall comply with Sections 11B-307 Protruding Objects and 11B-602 General Requirements. **§11B-602.1**
2. Units shall have a clear floor or ground space complying with Section 11B-305 Clear Floor or Ground Space positioned for a forward approach and centered on the unit. Knee and toe clearance complying with Section 11B-306 Knee and Toe Clearance shall be provided. **§11B-602.2**
3. Spout outlets shall be 36 inches maximum above the finish floor or ground. **§11B-602.4**
4. The spout shall be located 15 inches minimum from the vertical support and 5 inches maximum from the front edge of the unit, including bumpers. **§11B-602.5**
5. The spout shall provide a flow of water 4 inches high minimum and shall be located 5 inches maximum from the front of the unit. The angle of the water stream shall be measured horizontally relative to the front face of the unit. Where spouts are located less than 3 inches from the front of the unit, the angle of the water stream shall be 30 degrees maximum. Where spouts are located between 3 inches and 5 inches maximum from the front of the unit, the angle of the water stream shall be 15 degrees maximum. **§11B-602.6**
6. Spout outlets of drinking fountains for standing persons shall be 38 inches minimum and 43 inches maximum above the finish floor or ground. **§11B-602.7**
7. Wall and post-mounted cantilevered drinking fountains shall be 18 inches minimum and 19 inches maximum in depth. **§11B-602.8**
8. All drinking fountains shall either be located completely within alcoves, positioned completely between wing walls, or otherwise positioned so as not to encroach into pedestrian ways. The protected area within such a drinking fountain is located shall be 32 inches wide minimum and 18 inches deep minimum, and shall comply with Section 11B-305.7 Maneuvering Clearance. When used, wing walls or barriers shall protect horizontally at least as far as the drinking fountain and to within 6 inches vertically from the floor or ground surface. **§11B-602.9**

9. Bottle-filling stations shall comply with §11B-307 and §11B-309. See exception **§11B-602.10**

TOILET AND BATHING ROOM CLEARANCES

10. Doors to unisex toilet rooms and unisex bathing rooms shall have privacy latches. **§11B-213.2.1**
11. Mirrors located above the lavatories or countertops shall be installed within the bottom edge of the reflecting surface 40 inches maximum above the finish floor or ground. Mirrors not located above the lavatories or countertops shall be installed with the bottom edge of the reflecting surface 35 inches maximum above the finish floor or ground. **§11B-603.3**
12. Coat hooks shall be located within one of the reach ranges specified in Section 11B-308. Shelves shall be located 40 inches minimum and 48 inches maximum above the finish floor. Medicine cabinets shall be located with a usable shelf no higher than 44 inches maximum above the finish floor. **§11B-603.4**
13. Where towel or sanitary napkin dispensers, waste receptacles, or other accessories are provided in toilet facilities, at least one of each type shall be located on an accessible route. All operable parts, including coin slots, shall be 40 inches maximum above the finish floor. Baby changing stations are not required to comply with Section 11B-603.5 (See exception) **§11B-603.5**

WATER CLOSETS AND TOILET COMPARTMENTS

14. Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with Section 11B-309.4 Operation except they shall be located 44 inches maximum above the floor. Flush controls shall be located on the open side of the water closet except in ambulatory accessible compartments complying with Section 11B-604.8.2 Ambulatory Accessible Compartments. **§11B-604.6**
15. Toilet paper dispensers shall comply with Section 11B-309.4 Operation and shall be 7 inches minimum and 9 inches maximum in front of the water closet measured to the centerline of the dispenser. The outlet of the dispenser shall be below the grab bar, 19 inches minimum above the finish floor and shall not be located behind the grab bars. Dispensers shall not be of a type that control delivery or that does not allow continuous paper flow. **§11B-604.7**
16. Sanitary napkin disposal units, if provided, shall comply with Section 11B-309.4 and shall be wall mounted and located on the sidewall between the rear wall of the toilet and the toilet paper dispenser, adjacent to the toilet paper dispenser. The disposal unit shall be located below the grab bar with the opening of the disposal unit 19 inches minimum (483 mm) above the finish floor. **§11B-604.7.2**
17. Urinals shall be the stall-type or the wall-hung type with the rim 17 inches maximum above the finish floor or ground. Urinals shall be 13½ inches deep minimum measured from the outer face of the urinal rim to the back of the fixture. **§11B-605.2**
18. Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with Section 11B-309 Operable Parts except that the flush control shall be mounted at a maximum height of 44 inches above the finish floor. **§11B-605.4**
19. For lavatories and sinks, a clear floor space complying with Section 11B-305 Clear Floor or Ground Surfaces, positioned for a forward approach, and knee and toe clearance complying with Section 11B-306 Knee and Toe Clearance shall be provided. **§11B-606.2**
20. Lavatories and sinks shall be installed with the front of the higher of the rim or counter surface 34 inches maximum above the finish floor or ground. **§11B-606.3**

SIGNS RELATED TO TOILETS AND BATHING FACILITIES

21. Entrances leading to toilet rooms and bathing rooms complying with 11B-603 Toilet and Bathing Rooms shall be identified by a geometric symbol complying with 11B-703.7.2.6 Toilet and Bathing Room Geometric Symbols. Where existing toilet rooms or bathing rooms do not comply with 11B-603 Toilet and Bathing Rooms, directional signs indicating the location of the nearest compliant toilet room or bathing room within the facility shall be provided. Signs shall comply with 11B-703.5 Visual Characters and shall include the International Symbol of Accessibility complying with 11B-703.7.2.1 ISA. Where existing toilet rooms or bathing rooms do not comply with 11B-603 Toilet and Bathing Rooms, the toilet rooms or bathing rooms complying with 11B-603 Toilet and Bathing Rooms shall be identified by the International Symbol of Accessibility complying with 11B-703.7.2.1 ISA. Where clustered single user toilet rooms or bathing facilities

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SHEET TITLE
ACCESSIBILITY CODE

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
1.	
2.	
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8.	

DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	23 OCT 2025

REGISTERED LANDSCAPE ARCHITECT
LARRY M. WITHERS 3889
Signature
30 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA

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are permitted to use exceptions to 11B-213.2 Toilet and Bathing Rooms, toilet rooms or bathing facilities complying with 11B-603 Toilet and Bathing Rooms shall be identified by the International Symbol of Accessibility complying with 11B-703.7.2.1 ISA unless all toilet rooms and bathing facilities comply with 11B-603 Toilet and Bathing Rooms. Existing buildings that have been remodeled to provide specific toilet rooms or bathing rooms for public use that comply with these building standards shall have the location of and the directions to these rooms posted in or near the building lobby or entrance on a sign complying with 11B-703.5 Visual Characters, including the International Symbol of Accessibility complying with 11B-703.7.2.1 ISA. **§11B-216.8**

22. Pictograms shall comply with the following:
    a. Pictograms shall have a field height of 6 inches minimum. Characters and Braille shall not be located in the pictogram field. **§11B-703.6.1**
    b. Pictograms and their field shall have a non-glare finish. Pictograms shall contrast with their field with either a light pictogram on a dark field or a dark pictogram on a light field. **§11B-703.6.2**
    c. Pictograms shall have text descriptors located directly below the pictogram field. Text descriptors shall comply with 11B-703.2 Raised Characters, 11B-703.3 Braille and 11B-703.4 Installation Height and Location. **§11B-703.6.3**
    d. The installation height and location of Pictogram signs shall be per **§11B-703.4.1.**
23. Symbols shall comply with the following:
    a. Doorways leading to toilet rooms and bathing rooms shall be identified by a geometric symbol complying with 11B-703.7.2.6 Toilet and Bathing Facilities Geometric Symbols. The symbol shall be mounted at 58 inches minimum and 60 inches maximum above the finish floor or ground surface measured from the centerline of the symbol. Where a door is provided, the symbol shall be mounted within 1 inch of the vertical centerline of the door. **§11B-703.7.2.6 (See exception)**
    b. A triangle symbol shall be located at entrances to men's toilet and bathing facilities and it shall be identified by an equilateral triangle, ¼ inch thick with edges 12 inches long and a vertex pointing upward. The triangle symbol shall contrast with the door, either light on a dark background or dark on a light background. **§11B-703.7.2.6.1**
    c. A circle symbol shall be located at entrances to women's toilet and bathing facilities and it shall be identified by a circle, ¼ inch thick and 12 inches in diameter. The circle symbol shall contrast with the door, either light on a dark background or dark on a light background. **§11B-703.7.2.6.2**
    d. A combined circle and triangle symbol shall be located at entrances to unisex toilet and bathing facilities and it shall be shall be identified by a circle, ¼ inch thick and 12 inches in diameter with a ¼ inch thick triangle with a vertex pointing upward superimposed on the circle and within the 12-inch diameter. The triangle symbol shall contrast with the circle symbol, either light on a dark background or dark on a light background. The circle symbol shall contrast with the door, either light on a dark background or dark on a light background. **§11B-703.7.2.6.3**

WASHING MACHINE AND CLOTHES DRYERS

24. Washing machines and clothes dryer's operable parts must comply with Section 11B-309 Operable Parts. **§11B-611.3**
25. Top loading machines shall have the door to the laundry compartment located 36 inches maximum above the finish floor. Front loading machines shall have the bottom of the opening to the laundry compartment located 15 inches minim and 36 inches maximum above the finish floor. **§11B-611.4**

F. COMMUNICATION ELEMENTS AND FEATURES

FIRE ALARM SYSTEMS

1. Where fire alarm systems and carbon monoxide alarm systems provide audible alarm coverage, alarms shall comply with 11B-215 Fire Alarm Systems. **§11B-215.1 (See exception)**

2. Alarms in public use areas and common use areas shall comply with 702 Chapter 9, Section 907.5.2.3.1. **§11B-215.2**
3. Where employee work areas have audible alarm coverage, the wiring system shall be designed so that visible alarms complying with 702 Chapter 9, Section 907.5.2.3.2 can be integrated into the alarm system. **§11B-215.3**
4. Fire alarm systems shall have permanently installed audible and visible alarms complying with NFPA 72 (1999 or 2002 edition) (incorporated by reference, see "Referenced Standards" in Chapter 1), except that the maximum allowable sound level of audible notification appliances complying with section 4-3.2.1 of NFPA 72 (1999 edition) shall have a sound level no more than 110 dB at the minimum hearing distance from the audible appliance. In addition, alarms in guest rooms required to provide communication features shall comply with sections 4-3 and 4-4 of NFPA 72 (1999 edition) or sections 7.4 and 7.5 of NFPA 72 (2002 edition), and Chapter 9, Sections 907.5.2.1 and 907.5.2.3. **§11B-702.1**

ASSISTIVE LISTENING SYSTEMS

5. Assistive listening systems shall be provided in assembly areas, including conference and meeting rooms, used for the purpose of entertainment, educational or civic gatherings, or similar purposes. **§202, §11B-219.2**

   Note: Assembly areas include, but are not limited to, classrooms, lecture halls, courtrooms, public meeting rooms, public hearing rooms, legislative chambers, motion picture houses, auditoria, theaters, playhouses, dinner theaters, concert halls, centers for the performing arts, amphitheaters, arenas, stadiums, grandstands, or convention centers. **§202, §11B-219.2**
6. Assistive listening system shall provide an amplification system utilizing transmitters, receivers, and coupling devices to bypass the acoustical space between a sound source and a listener by means of induction loop, radio frequency, infrared, or direct-wired equipment. **§202**
7. Where a building contains more than one assembly area under one management, the total number of required receivers may be calculated using the total number of seats in the assembly areas provided that all receivers are usable with all systems. **§11B-219.3 (See exception)**
8. Twenty-five percent minimum of receivers provided for assistive listening systems, but no fewer than two, shall be hearing-aid compatible except when all seats in an assembly area are served by means of an induction loop. **§11B-219.3**
9. When assistive-listening systems are limited to specific areas or seats, such areas or seats shall be within a 50-foot viewing distance of the stage or playing area and shall have a complete view of the stage or playing area. **§11B-219.4**
10. Permanently installed assistive-listening systems are required in areas if (1) they have fixed seating and (2a) they accommodate at least 50 persons or (2b) they have audio-amplification systems, except those used exclusively for paging and/or background music. **§11B-219.2, §11B-219.5**
11. Portable assistive-listening systems may serve more than one conference or meeting rooms if an adequate number of electrical outlets or other supplementary wiring is provided and permanently installed systems are not required. **§11B-219.5**
12. Receivers required for use with an assistive listening system shall include a 1/8 inch standard mono jack. **§11B-706.2**
13. Receivers required to be hearing aid compatible shall interface with telecoils in hearing aids through the provision of neck loops. **§11B-706.3**
14. Assistive listening systems shall be capable of providing a sound pressure level from 110 – 118 dB with a dynamic range on the volume control of 50 dB. **§11B-706.4**
15. Signal-to-noise ratio for internally generated noise in assistive listening systems shall be 18 dB minimum. **§11B-706.5**
16. Peak clipping shall not exceed 18 dB of clipping relative to the peaks of speech. **§11B-706.6**

TWO-WAY COMMUNICATION SYSTEMS

17. Two-way communication systems that are provided to gain admittance to a building or facility or to restricted areas within a building or facility shall provide both audible and visual signals. Handset cords, if provided, shall be 29 inches long minimum. **§11B-230.1, §11B-708**
18. Common use or public use system interface of communications systems between a residential dwelling unit and a site, building, or floor entrance shall include the capability of supporting voice and TTY communication with the residential dwelling unit interface. **§11B-708.4.1**
19. Residential dwelling unit system interface of communications systems between a residential dwelling unit and a site, building, or floor entrance shall include a telephone jack capable of supporting voice and TTY communication with the common use or public use system interface. **§11B-708.4.2**

TELEPHONES

20. Where coin-operated public pay telephones, coin less public pay telephones, public closed-circuit telephones, public courtesy phones, or other types of public telephones are provided, public telephones shall be provided in accordance with 11B-217 Telephones for each type of public telephone provided. For purposes of this section, a bank of telephones shall be considered to be two or more adjacent telephones. **§11B-217.1**
21. Except drive-up only public telephones, where public telephones are provided, wheelchair accessible telephones complying with 11B-704.2 shall be provided in accordance with Table 11B-217.2. **§11B-217.2**
22. All public telephones shall have volume controls complying with 11B-704.3. **§11B-217.3**
23. TTYs complying with 11B-704.4 shall be provided in accordance with 11B-217.4.
24. Where a bank of telephones in the interior of a building consists of three or more public pay telephones, at least one public pay telephone at the bank shall be provided with a shelf and an electrical outlet in accordance with 11B-704.5. **§11B-217.5 (See exception)**

ADDITIONAL COMMENTS

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
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818-291-0200
mail@withersandsandgren.com

SHEET TITLE
ACCESSIBILITY CODE

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

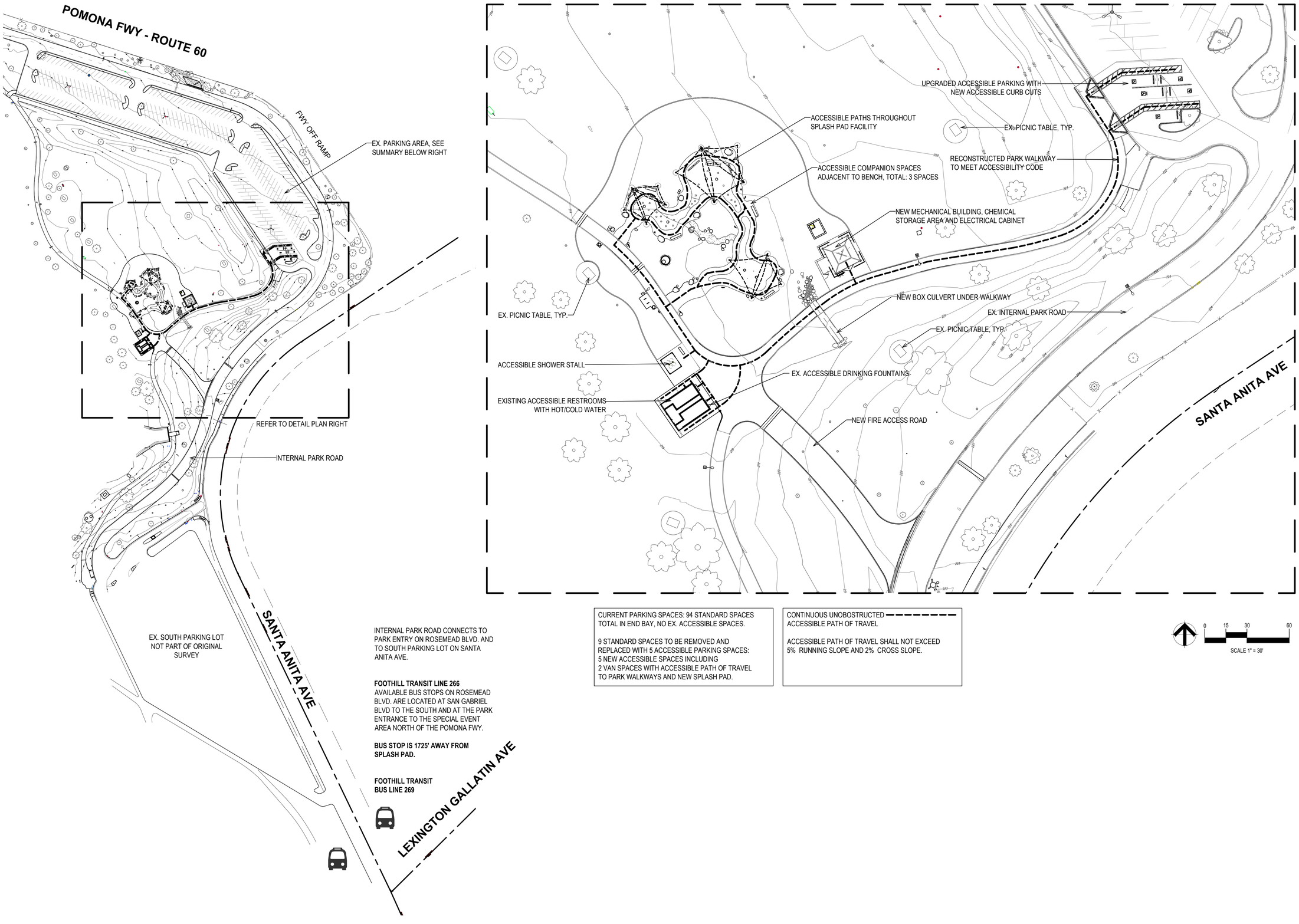
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DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	23 OCT 2025

LICENSED LANDSCAPE ARCHITECT
CASEY M. WITHERS 3652
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA

SHEET 4 OF 80

G0.11



INTERNAL PARK ROAD CONNECTS TO PARK ENTRY ON ROSEMEAD BLVD. AND TO SOUTH PARKING LOT ON SANTA ANITA AVE.

FOOTHILL TRANSIT LINE 266
AVAILABLE BUS STOPS ON ROSEMEAD BLVD. ARE LOCATED AT SAN GABRIEL BLVD TO THE SOUTH AND AT THE PARK ENTRANCE TO THE SPECIAL EVENT AREA NORTH OF THE POMONA FWY.

BUS STOP IS 1725' AWAY FROM SPLASH PAD.

FOOTHILL TRANSIT BUS LINE 269

CURRENT PARKING SPACES: 94 STANDARD SPACES TOTAL IN END BAY, NO EX. ACCESSIBLE SPACES.

9 STANDARD SPACES TO BE REMOVED AND REPLACED WITH 5 ACCESSIBLE PARKING SPACES:
5 NEW ACCESSIBLE SPACES INCLUDING
2 VAN SPACES WITH ACCESSIBLE PATH OF TRAVEL TO PARK WALKWAYS AND NEW SPLASH PAD.

CONTINUOUS UNOBOSTRUCTED ACCESSIBLE PATH OF TRAVEL

ACCESSIBLE PATH OF TRAVEL SHALL NOT EXCEED 5% RUNNING SLOPE AND 2% CROSS SLOPE.

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SHEET TITLE
ACCESSIBILITY PLAN

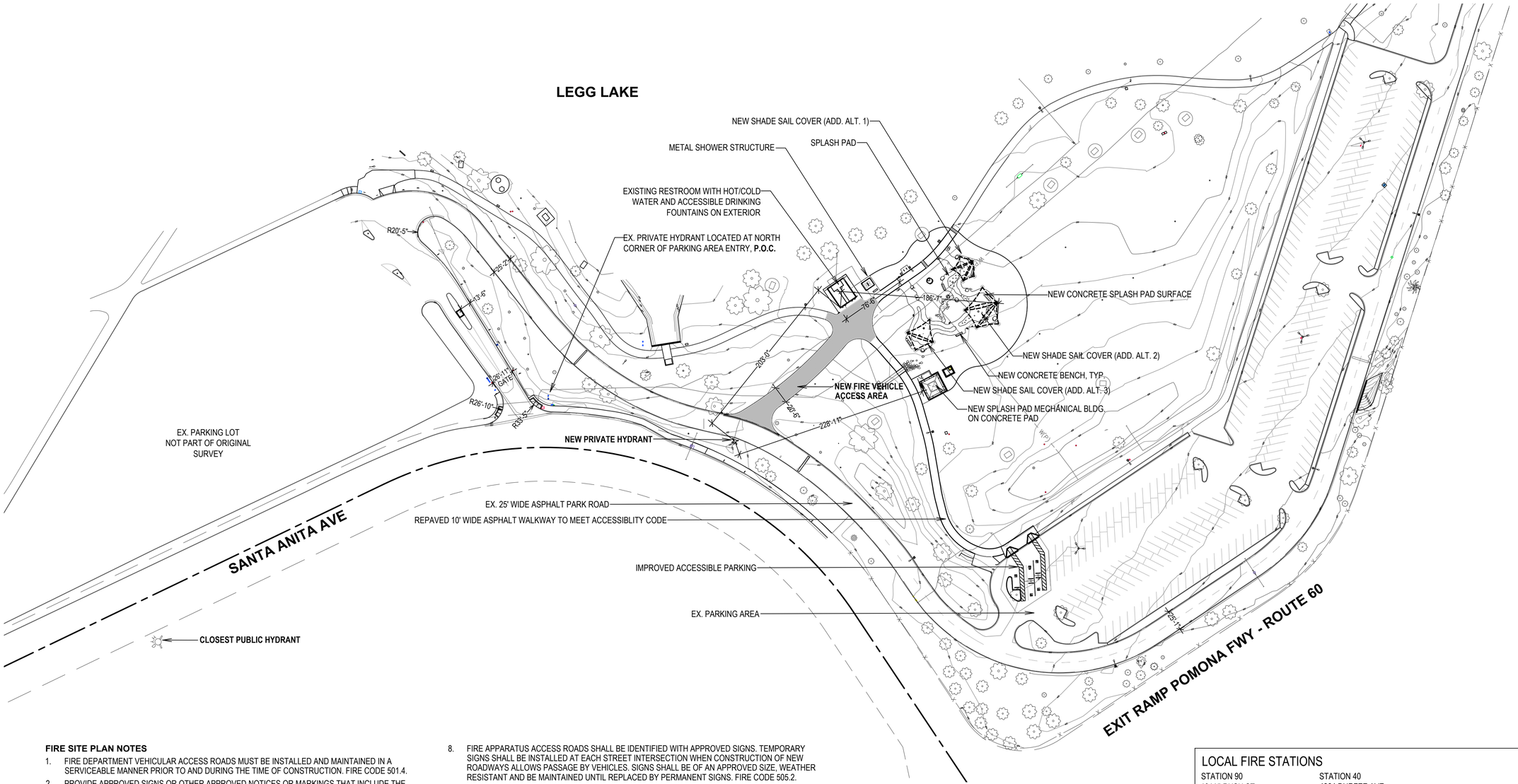
OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

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LICENSED LANDSCAPE ARCHITECT
CASEY M. WITHERS 5890
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA



FIRE SITE PLAN NOTES

1. FIRE DEPARTMENT VEHICULAR ACCESS ROADS MUST BE INSTALLED AND MAINTAINED IN A SERVICEABLE MANNER PRIOR TO AND DURING THE TIME OF CONSTRUCTION. FIRE CODE 501.4.
2. PROVIDE APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS THAT INCLUDE THE WORDS "NO PARKING - FIRE LANE." SIGNS SHALL HAVE A MINIMUM DIMENSION OF 12 INCHES WIDE BY 18 INCHES HIGH AND HAVE RED LETTERS ON A WHITE REFLECTIVE BACKGROUND. SIGNS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS, TO CLEARLY INDICATE THE ENTRANCE TO SUCH ROAD, OR PROHIBIT THE OBSTRUCTION THEREOF AND AND AT INTERVALS, AS REQUIRED BY THE FIRE INSPECTOR. FIRE CODE 503.3.
3. WHEN SECURITY GATES ARE PROVIDED, MAINTAIN A MINIMUM WITH OF 20 FEET. THE SECURITY GATE SHALL BE PROVIDED WITH AN APPROVED MEANS OF EMERGENCY OPERATION, AND SHALL BE MAINTAINED OPERATIONAL AT ALL TIMES AND REPLACED OR REPAIRED WHEN DEFECTIVE. ELECTRIC GATE OPERATORS, WHERE PROVIDED, SHALL BE LISTED IN ACCORDANCE WITH UL325. GATES INTENDED FOR AUTOMATIC OPERATION SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED TO COMPLY WITH THE REQUIREMENTS OF ASTM F220. GATES SHALL BE OF THE SWINGING OR SLIDING TYPE. CONSTRUCTION OF GATES SHALL BE OF MATERIALS THAT ALLOW MANUAL OPERATION BY ONE PERSON. FIRE CODE 503.6.
4. STRUCTURES AND OUTDOOR STORAGE UNDERNEATH HIGH VOLTAGE TRANSMISSION LINES (66 KILOVOLTS OR GREATER) SHALL COMPLY WITH FIRE CODE 316.6 AND COUNTY OF LOS ANGELES FIRE DEPARTMENT REGULATION 27. ANY PROPOSED CONSTRUCTION OR LAND USE WITHIN 100 FEET OF THE DRIP LINE OF HIGH VOLTAGE TRANSMISSION LINES SHALL BE SUBJECT TO REVIEW BY THE FIRE MARSHALL. (SEE PLAN FOR 100' OFF SET LINE. NOTE WORK THAT FALLS WITHIN THIS OFFSET.)
5. THE AREA OF FIRE FIGHTING OPERATIONS, AS DETERMINED BY THE FIRE CODE OFFICIAL, SHALL NOT BE LOCATED UNDERNEATH HIGH VOLTAGE LINES. FIRE CODE 503.2.9.
6. FIRE APPARATUS ACCESS ROADS AND STRUCTURES LOCATED NEAR HIGH-VOLTAGE TRANSMISSION LINES SHALL BE POSTED WITH APPROVED SIGNS STATING "CAUTION OVERHEAD HIGH-VOLTAGE TRANSMISSION LINES AS REQUIRED BY FIRE CODE 503.3.1. SPECIFIC SIGN LOCATIONS SHALL BE DETERMINED BY THE FIRE INSPECTOR.
7. APPROVED BUILDING ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION SHALL BE PROVIDED AND MAINTAINED SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FORM THE STREET FRONTING THE PROPERTY. THE NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND, BE ARABIC NUMERALS OR ALPHABET LETTERS, AND BE A MINIMUM OF 4 INCHES HIGH WITH A MINIMUM STROKE WIDTH OF 0.5 INCHES. FIRE CODE 505.1.
8. FIRE APPARATUS ACCESS ROADS SHALL BE IDENTIFIED WITH APPROVED SIGNS. TEMPORARY SIGNS SHALL BE INSTALLED AT EACH STREET INTERSECTION WHEN CONSTRUCTION OF NEW ROADWAYS ALLOWS PASSAGE BY VEHICLES. SIGNS SHALL BE OF AN APPROVED SIZE, WEATHER RESISTANT AND BE MAINTAINED UNTIL REPLACED BY PERMANENT SIGNS. FIRE CODE 505.2.
9. AN APPROVED KEY BOX, LISTED IN ACCORDANCE WITH UL 1037 SHALL BE PROVIDED AS REQUIRED BY FIRE CODE 506. THE LOCATION OF EACH KEY BOX SHALL BE DETERMINED BY THE FIRE INSPECTOR.
10. THE REQUIRED FIRE FLOW FOR PUBLIC FIRE HYDRANTS AT THIS LOCATION IS 1,500 GPM, AT 20 PSI RESIDUAL PRESSURE, FOR A DURATION OF 2 HOURS OVER AND ABOVE MAXIMUM DAILY DOMESTIC DEMAND. FIRE CODE 507.3 AND APPENDIX B.
11. THE REQUIRED FIRE FLOW FOR A SINGLE PRIVATE ON-SITE FIRE HYDRANT AT THIS LOCATION IS 1,250 GPM AT 20 PSI RESIDUAL PRESSURE. IF MORE THAN ONE ON-SITE FIRE HYDRANT IS REQUIRED, THE ON-SITE FIRE FLOW SHALL BE THE SAME AS REQUIRED FOR PUBLIC FIRE HYDRANTS IN ACCORDANCE WITH APPENDIX TABLE B105.1. FIRE CODE C106.
    FIRE FLOW FOR ALL HYDRANTS SHALL BE 1,500 GPM FOR 2 HOURS AT 20PSI.
12. ALL FIRE HYDRANTS SHALL MEASURE 6"x4"x2-1/2", BRASS OR BRONZE, CONFORMING TO AMERICAN WATER WORKS ASSOCIATION STANDARD C503, OR APPROVED EQUAL.
13. ALL REQUIRED PUBLIC FIRE HYDRANTS SHALL BE INSTALLED, TESTED AND ACCEPTED PRIOR TO BEGINNING CONSTRUCTION. FIRE CODE 501.4. A RECEIPT FROM THE WATER PURVEYOR THAT SHOWS THAT ALL FUNDS HAVE BEEN PAID FOR THE INSTALLATION AND/OR UPGRADE OF THE REQUIRED PUBLIC FIRE HYDRANTS IS REQUIRED. ALSO, A LETTER FORM THE INSTALLING CONTRACTOR THAT INDICATES THE REQUIRED FIRE FLOW (1,500GPM) AND APPROXIMATE DATE THE WORK WILL BE STARTED AND COMPLETED FOR THE FIRE HYDRANTS IS REQUIRED.
14. ALL ON-SITE HYDRANTS SHALL BE INSTALLED, TESTED AND APPROVED PRIOR TO BUILDING OCCUPANCY. FIRE CODE 901.5.1.
15. PLANS SHOWING UNDERGROUND PIPING FOR PRIVATE ON-SITE FIRE HYDRANTS SHALL BE SUBMITTED TO THE SPRINKLER PLAN CHECK UNIT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. FIRE CODE 901.2. COUNTY OF LOS ANGELES FIRE DEPARTMENT REGULATION 7.
16. PORTABLE FIRE EXTINGUISHERS SHALL BE INSTALLED IN LOCATIONS AS REQUIRED BY FIRE CODE 906.
17. EGRESS DOORS SHALL BE READILY OPENABLE FORM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT. BUILDING CODE 1010.1.9.

BUILDING CODE INFORMATION

MECHANICAL BUILDING
CONSTRUCTION TYPE: II-B.
STRUCTURE: Steel posts with perforated metal screen panels
ROOF: Multi-rib steel panels attached to metal frame
The structure does not require Sprinkler System per CBC Chapter 5 table 506.2 (Bldg. Type II-B) under 9,000 S.F. category. The structure gross square footage is 576, and the net square footage is 400.

SHOWER COVER STRUCTURE:
CONSTRUCTION TYPE: II-B.
STRUCTURE: Steel posts
ROOF: Multi-rib steel panels attached to metal frame

SHADE SAIL STRUCTURES:
STRUCTURE: Steel posts
OVERHEAD FABRIC SHADES: Fire Risk Category I / Exposure C
Fabric meets CSFM 1237.1 for CA State and NFPA 701

LOCAL FIRE STATIONS

STATION 90	STATION 40
10115 RUSH ST.	4864 DURFEE AVE.
SOUTH EL MONTE, CA 91733	PICO RIVERA, CA 90660
(626) 444-2581	(562) 699-3268

REFER TO FIRE HYDRANT PLAN, SHEET C6.01.

0 30 120 40
SCALE 1" = 60'

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: **FIRE SITE PLAN**

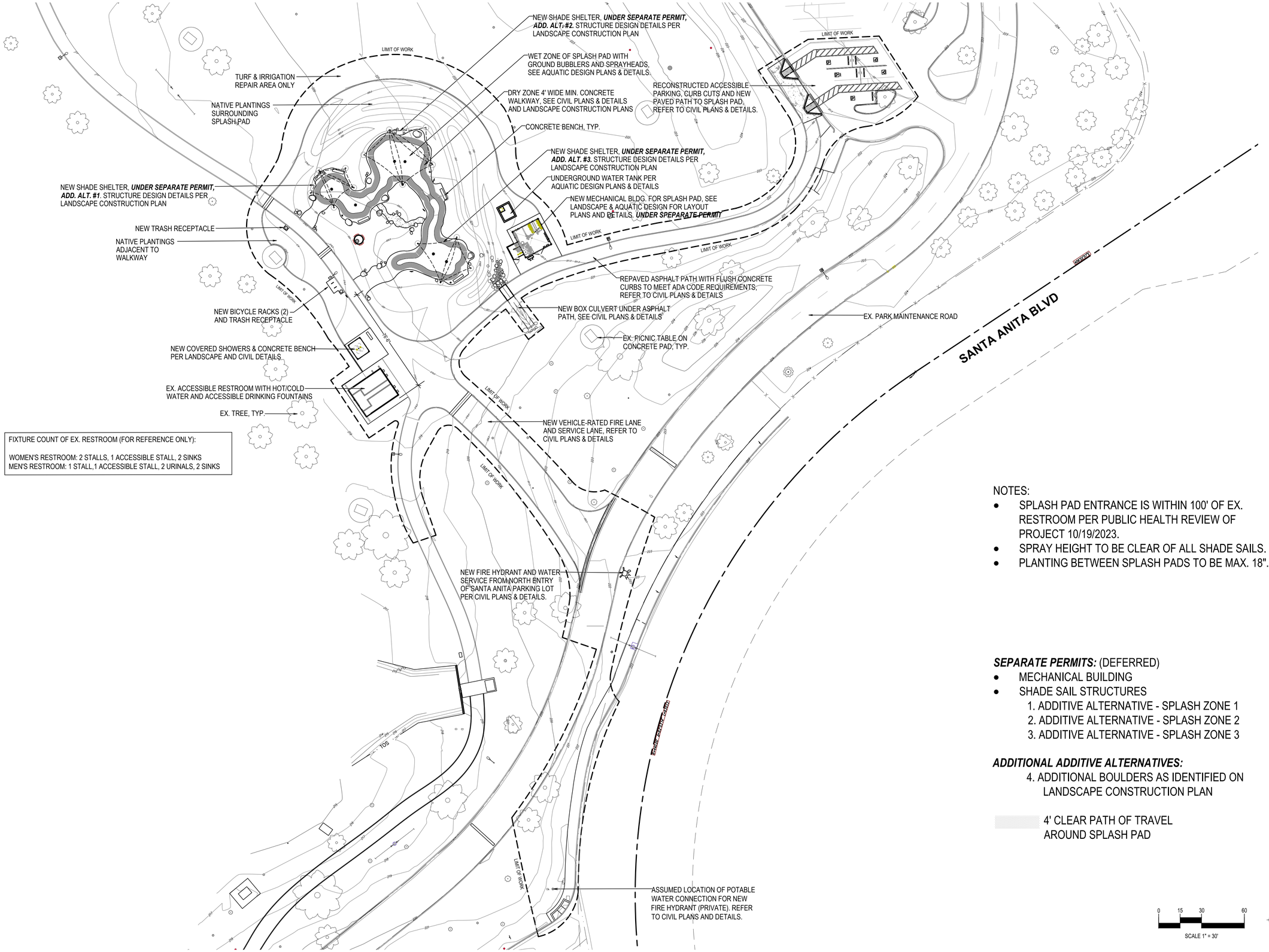
OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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DRAWN BY:	PBN
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PROJECT NO.	1068
DATE:	23 OCT 2025

REGISTERED LANDSCAPE ARCHITECT
LACEY M. WITHERS
No. 5837
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA



NOTES:

- SPLASH PAD ENTRANCE IS WITHIN 100' OF EX. RESTROOM PER PUBLIC HEALTH REVIEW OF PROJECT 10/19/2023.
- SPRAY HEIGHT TO BE CLEAR OF ALL SHADE SAILS.
- PLANTING BETWEEN SPLASH PADS TO BE MAX. 18".

SEPARATE PERMITS: (DEFERRED)

- MECHANICAL BUILDING
- SHADE SAIL STRUCTURES
  1. ADDITIVE ALTERNATIVE - SPLASH ZONE 1
  2. ADDITIVE ALTERNATIVE - SPLASH ZONE 2
  3. ADDITIVE ALTERNATIVE - SPLASH ZONE 3

ADDITIONAL ADDITIVE ALTERNATIVES:

4. ADDITIONAL BOULDERS AS IDENTIFIED ON LANDSCAPE CONSTRUCTION PLAN

4' CLEAR PATH OF TRAVEL AROUND SPLASH PAD

0 15 30 60

SCALE 1" = 30'

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20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
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SHEET TITLE: **GENERAL SITE PLAN**

OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: **WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT**
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

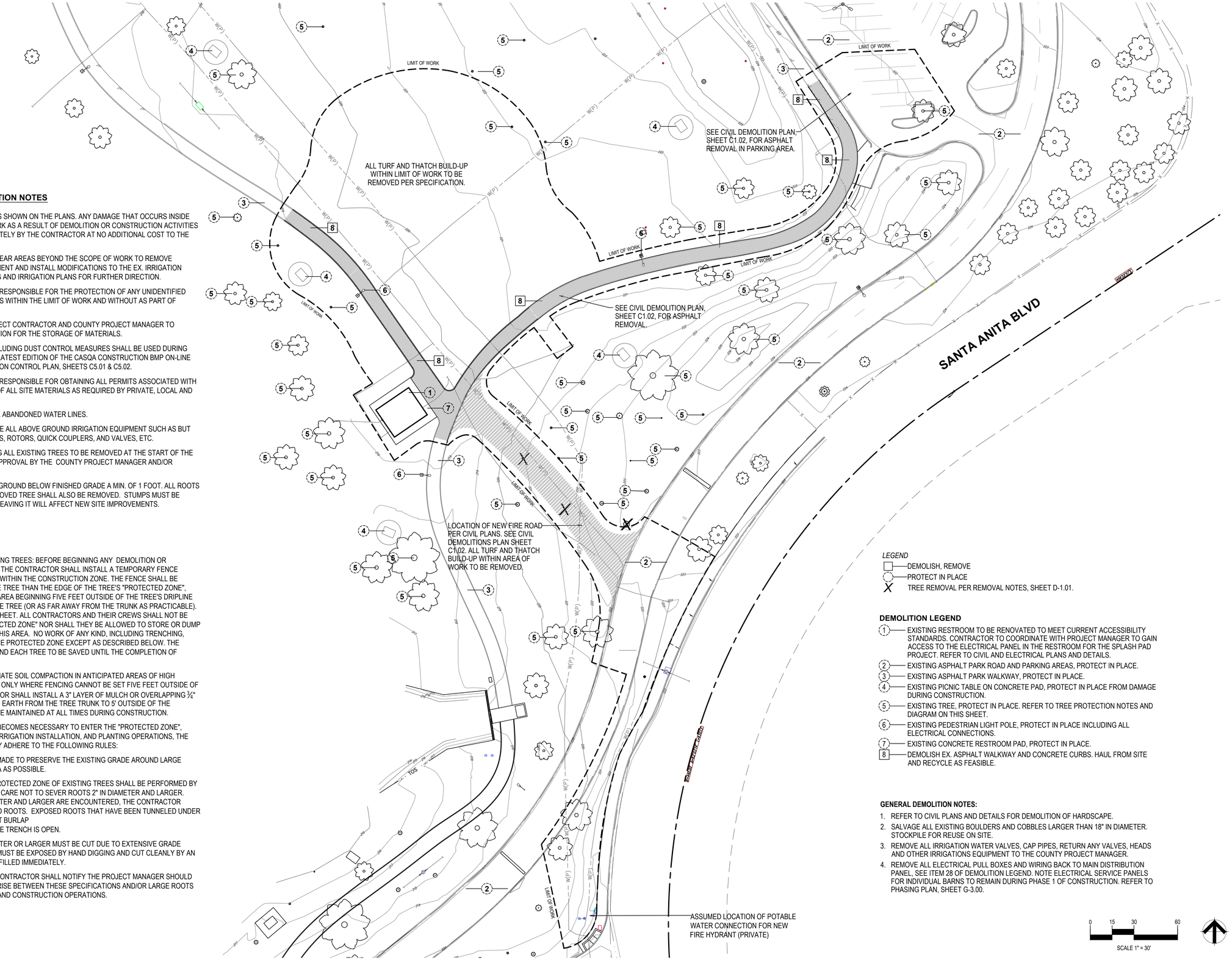
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REGISTERED LANDSCAPE ARCHITECT
CASEY M. WITHERS 3652
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA

SHEET 7 OF 80

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SITE CLEARING & DEMOLITION NOTES

1. LIMIT OF WORK IS DEFINED AS SHOWN ON THE PLANS. ANY DAMAGE THAT OCCURS INSIDE OR OUT OF THE LIMIT OF WORK AS A RESULT OF DEMOLITION OR CONSTRUCTION ACTIVITIES SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE COUNTY.
2. IT WILL BE NECESSARY TO CLEAR AREAS BEYOND THE SCOPE OF WORK TO REMOVE EXISTING IRRIGATION EQUIPMENT AND INSTALL MODIFICATIONS TO THE EX. IRRIGATION SYSTEM. REFER TO PLANTING AND IRRIGATION PLANS FOR FURTHER DIRECTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ANY UNIDENTIFIED UTILITIES AND IMPROVEMENTS WITHIN THE LIMIT OF WORK AND WITHOUT AS PART OF CONSTRUCTION ACTIVITIES.
4. BEFORE THE START OF PROJECT CONTRACTOR AND COUNTY PROJECT MANAGER TO DETERMINE A SECURE LOCATION FOR THE STORAGE OF MATERIALS.
5. ALL APPROPRIATE BMPS, INCLUDING DUST CONTROL MEASURES SHALL BE USED DURING DEMOLITION. REFER TO THE LATEST EDITION OF THE CASQA CONSTRUCTION BMP ON-LINE HANDBOOK. REFER TO EROSION CONTROL PLAN, SHEETS C5.01 & C5.02.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS ASSOCIATED WITH DEMOLITION AND DISPOSAL OF ALL SITE MATERIALS AS REQUIRED BY PRIVATE, LOCAL AND STATE JURISDICTIONS.
7. CONTRACTOR SHALL CAP ALL ABANDONED WATER LINES.
8. CONTRACTOR SHALL SALVAGE ALL ABOVE GROUND IRRIGATION EQUIPMENT SUCH AS BUT NOT LIMITED TO SPRAY HEADS, ROTORS, QUICK COUPLERS, AND VALVES, ETC.
9. THE CONTRACTOR SHALL TAG ALL EXISTING TREES TO BE REMOVED AT THE START OF THE PROJECT FOR REVIEW AND APPROVAL BY THE COUNTY PROJECT MANAGER AND/OR LANDSCAPE ARCHITECT.
10. ALL TREE STUMPS SHALL BE GROUND BELOW FINISHED GRADE A MIN. OF 1 FOOT. ALL ROOTS LARGER THAN 3" OF THE REMOVED TREE SHALL ALSO BE REMOVED. STUMPS MUST BE REMOVED IN AREAS WHERE LEAVING IT WILL AFFECT NEW SITE IMPROVEMENTS.

TREE PROTECTION NOTES

1. "PROTECTED ZONE" FOR EXISTING TREES: BEFORE BEGINNING ANY DEMOLITION OR CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL INSTALL A TEMPORARY FENCE AROUND ALL EXISTING TREES WITHIN THE CONSTRUCTION ZONE. THE FENCE SHALL BE INSTALLED NO CLOSER TO THE TREE THAN THE EDGE OF THE TREE'S "PROTECTED ZONE", GENERALLY DEFINED AS THE AREA BEGINNING FIVE FEET OUTSIDE OF THE TREE'S DRIPLINE AND EXTENDING TOWARDS THE TREE (OR AS FAR AWAY FROM THE TRUNK AS PRACTICABLE). REFER TO DIAGRAM ON THIS SHEET. ALL CONTRACTORS AND THEIR CREWS SHALL NOT BE ALLOWED INSIDE THIS "PROTECTED ZONE" NOR SHALL THEY BE ALLOWED TO STORE OR DUMP FOREIGN MATERIALS WITHIN THIS AREA. NO WORK OF ANY KIND, INCLUDING TRENCHING, SHALL BE ALLOWED WITHIN THE PROTECTED ZONE EXCEPT AS DESCRIBED BELOW. THE FENCING SHALL REMAIN AROUND EACH TREE TO BE SAVED UNTIL THE COMPLETION OF CONSTRUCTION OPERATIONS.
2. TEMPORARY MULCH: TO ALLEVIATE SOIL COMPACTION IN ANTICIPATED AREAS OF HIGH CONSTRUCTION TRAFFIC, AND ONLY WHERE FENCING CANNOT BE SET FIVE FEET OUTSIDE OF THE DRIPLINE, THE CONTRACTOR SHALL INSTALL A 3" LAYER OF MULCH OR OVERLAPPING ¾" PLYWOOD OVER ALL EXPOSED EARTH FROM THE TREE TRUNK TO 5' OUTSIDE OF THE DRIPLINE. THIS LAYER SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
3. NECESSARY WORK: WHEN IT BECOMES NECESSARY TO ENTER THE "PROTECTED ZONE", SUCH AS FOR FINE GRADING, IRRIGATION INSTALLATION, AND PLANTING OPERATIONS, THE CONTRACTOR SHALL STRICTLY ADHERE TO THE FOLLOWING RULES:
   A. EVERY EFFORT SHALL BE MADE TO PRESERVE THE EXISTING GRADE AROUND LARGE TREES IN AS WIDE AN AREA AS POSSIBLE.
   B. TRENCHING WITHIN THE PROTECTED ZONE OF EXISTING TREES SHALL BE PERFORMED BY HAND, AND WITH EXTREME CARE NOT TO SEVER ROOTS 2" IN DIAMETER AND LARGER. WHERE ROOTS 2" IN DIAMETER AND LARGER ARE ENCOUNTERED, THE CONTRACTOR SHALL TUNNEL UNDER SAID ROOTS. EXPOSED ROOTS THAT HAVE BEEN TUNNELED UNDER SHALL BE WRAPPED IN WET BURLAP AND KEPT MOIST WHILE THE TRENCH IS OPEN.
   C. WHERE ROOTS 2" IN DIAMETER OR LARGER MUST BE CUT DUE TO EXTENSIVE GRADE CHANGES, THOSE ROOTS MUST BE EXPOSED BY HAND DIGGING AND CUT CLEANLY BY AN ARBORIST, AND SOIL BACKFILLED IMMEDIATELY.
4. POTENTIAL CONFLICTS: THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER SHOULD ANY POTENTIAL CONFLICTS ARISE BETWEEN THESE SPECIFICATIONS AND/OR LARGE ROOTS ENCOUNTERED IN THE FIELD, AND CONSTRUCTION OPERATIONS.

LEGEND
- DEMOLISH, REMOVE
- PROTECT IN PLACE
- TREE REMOVAL PER REMOVAL NOTES, SHEET D-1.01.

DEMOLITION LEGEND

1. EXISTING RESTROOM TO BE RENOVATED TO MEET CURRENT ACCESSIBILITY STANDARDS. CONTRACTOR TO COORDINATE WITH PROJECT MANAGER TO GAIN ACCESS TO THE ELECTRICAL PANEL IN THE RESTROOM FOR THE SPLASH PAD PROJECT. REFER TO CIVIL AND ELECTRICAL PLANS AND DETAILS.
2. EXISTING ASPHALT PARK ROAD AND PARKING AREAS, PROTECT IN PLACE.
3. EXISTING ASPHALT PARK WALKWAY, PROTECT IN PLACE.
4. EXISTING PICNIC TABLE ON CONCRETE PAD, PROTECT IN PLACE FROM DAMAGE DURING CONSTRUCTION.
5. EXISTING TREE, PROTECT IN PLACE. REFER TO TREE PROTECTION NOTES AND DIAGRAM ON THIS SHEET.
6. EXISTING PEDESTRIAN LIGHT POLE, PROTECT IN PLACE INCLUDING ALL ELECTRICAL CONNECTIONS.
7. EXISTING CONCRETE RESTROOM PAD, PROTECT IN PLACE.
8. DEMOLISH EX. ASPHALT WALKWAY AND CONCRETE CURBS. HAUL FROM SITE AND RECYCLE AS FEASIBLE.

GENERAL DEMOLITION NOTES:

1. REFER TO CIVIL PLANS AND DETAILS FOR DEMOLITION OF HARDSCAPE.
2. SALVAGE ALL EXISTING BOULDERS AND COBBLES LARGER THAN 18" IN DIAMETER. STOCKPILE FOR REUSE ON SITE.
3. REMOVE ALL IRRIGATION WATER VALVES, CAP PIPES, RETURN ANY VALVES, HEADS AND OTHER IRRIGATIONS EQUIPMENT TO THE COUNTY PROJECT MANAGER.
4. REMOVE ALL ELECTRICAL PULL BOXES AND WIRING BACK TO MAIN DISTRIBUTION PANEL, SEE ITEM 28 OF DEMOLITION LEGEND. NOTE ELECTRICAL SERVICE PANELS FOR INDIVIDUAL BARNS TO REMAIN DURING PHASE 1 OF CONSTRUCTION. REFER TO PHASING PLAN, SHEET G-3.00.

0 15 30 60
SCALE 1" = 30'

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: LANDSCAPE DEMOLITION PLAN

OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

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DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
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LICENSED LANDSCAPE ARCHITECT
CASEY M. WITHERS
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA

GENERAL INFORMATION

GRADING PERMIT APPLICATION NO. GRAD2503140001129

EARTHWORK VOLUMES CUT 227 (CY), FILL 222 (CY)
OVER EXCAVATION/ ALLUVIAL REMOVAL & COMPACTION 1142 (CY)
EXPORT 0 (CY), EXPORT LOCATION: N/A

TOTAL DISTURBED AREA 0.293 (ACRES)

TOTAL PROPOSED LANDSCAPE AREA 16,837 SQUARE FEET

PRE-DEVELOPMENT IMPERVIOUS AREA 0 (ACRES)

POST-DEVELOPMENT IMPERVIOUS AREA 0.293 (ACRES)

WASTE DISCHARGE IDENTIFICATION NUMBER (WDID #) N/A

CONSTRUCTION & DEMOLITION DEBRIS RECYCLING AND REUSE PLAN (RPP ID) _____

POST-CONSTRUCTION BMP FEATURE(S) GPS COORDINATES X 34.038450 , Y -118.055980

PROPERTY INFORMATION

PROPERTY ADDRESSES 750 SOUTH SANTA ANITA AVENUE, SOUTH EL MONTE

TRACT MAP NO. 621 LOT NO. POR 120

PROPERTY OWNER COUNTY OF LOS ANGELES DEPT. OF PARKS AND RECREATION

ASSESSORS ID NUMBER(S) 8119-005-908

ZONING, REGIONAL PLANNING, AND OTHER AGENCY INFORMATION

PROPERTY ZONING: O-S

INTENDED LAND USE: RECREATION PARK

CERTIFICATE OF COMPLIANCE: CC NO. N/A

PLOT PLAN NUMBER: PP NO N/A

CONDITIONAL USE PERMIT: CUP NO. N/A EXPIRATION DATE: _____

OAK TREE REMOVAL PERMIT NUMBER: OTP NO. N/A EXPIRATION DATE: _____

COMMUNITY STANDARDS DISTRICT: N/A

CALIFORNIA COASTAL COMMISSION AREA: _____ YES, X NO APPROVED VOLUME: _____ (CY)

COASTAL DEVELOPMENT PERMIT CDP N/A EXPIRATION DATE: _____

FISH & WILDLIFE, ARMY CORP OF ENGINEERS, REGIONAL WATER CONTROL BOARD, AQMD & OTHER AGENCY PERMITS SHOULD BE ADDED AS APPLICABLE. (PERMIT NUMBER N/A, EXPIRATION DATE N/A)

GENERAL NOTES:

1. ALL GRADING AND CONSTRUCTION SHALL CONFORM TO THE 2023 COUNTY OF LOS ANGELES BUILDING CODES AND THE STATE MODEL WATER EFFICIENCY LANDSCAPE ORDINANCE UNLESS SPECIFICALLY NOTED ON THESE PLANS.
2. ANY MODIFICATIONS OF OR CHANGES TO APPROVED GRADING PLANS MUST BE APPROVED BY THE BUILDING OFFICIAL.
3. NO GRADING SHALL BE STARTED WITHOUT FIRST NOTIFYING THE BUILDING OFFICIAL. A PRE-GRADING MEETING AT THE SITE IS REQUIRED BEFORE THE START OF THE GRADING WITH THE FOLLOWING PEOPLE PRESENT: OWNER, GRADING CONTRACTOR, FIELD ENGINEER, SOILS ENGINEER, GEOLOGIST, COUNTY GRADING INSPECTOR(S) OR THEIR REPRESENTATIVES, AND WHEN REQUIRED THE ARCHEOLOGIST OR OTHER JURISDICTIONAL AGENCIES. PERMITTEE OR THEIR AGENT ARE RESPONSIBLE FOR ARRANGING PRE-GRADE MEETING AND MUST NOTIFY THE BUILDING OFFICIAL AT LEAST TWO BUSINESS DAYS PRIOR TO THE PROPOSED PRE-GRADE MEETING.
4. APPROVAL OF THESE PLANS REFLECT SOLELY THE REVIEW OF PLANS IN ACCORDANCE WITH THE COUNTY OF LOS ANGELES BUILDING CODES AND DOES NOT REFLECT ANY POSITION BY THE COUNTY OF LOS ANGELES OR THE DEPARTMENT OF PUBLIC WORKS REGARDING THE STATUS OF ANY TITLE ISSUES RELATING TO THE LAND ON WHICH THE IMPROVEMENTS MAY BE CONSTRUCTED. ANY DISPUTES RELATING TO TITLE ARE SOLELY A PRIVATE MATTER NOT INVOLVING THE COUNTY OF LOS ANGELES OR THE DEPARTMENT OF PUBLIC WORKS.
5. ALL GRADING AND CONSTRUCTION ACTIVITIES SHALL COMPLY WITH COUNTY OF LOS ANGELES CODE, TITLE 12, SECTION 12.12.030 THAT CONTROLS AND RESTRICTS NOISE FROM THE USE OF CONSTRUCTION AND GRADING EQUIPMENT FROM THE HOURS OF 8:00 PM TO 6:30 AM, AND ON SUNDAYS AND HOLIDAYS. (MORE RESTRICTIVE CONSTRUCTION ACTIVITY TIMES MAY GOVERN, AS REQUIRED BY THE DEPARTMENT OF REGIONAL PLANNING AND SHOULD BE SHOWN ON THE GRADING PLANS WHEN APPLICABLE.)
6. CALIFORNIA PUBLIC RESOURCES CODE (SECTION 5097.98) AND HEALTH AND SAFETY CODE (SECTION 7050.5) ADDRESS THE DISCOVERY AND DISPOSITION OF HUMAN REMAINS. IN THE EVENT OF DISCOVERY OR RECOGNITION OF ANY HUMAN REMAINS IN ANY LOCATION OTHER THAN A DEDICATED CEMETERY, THE LAW REQUIRES THAT GRADING IMMEDIATELY STOPS AND NO FURTHER EXCAVATION OR DISTURBANCE OF THE SITE, OR ANY NEARBY AREA WHERE HUMAN REMAINS MAY BE LOCATED, OCCUR UNTIL THE FOLLOWING HAS BEEN MEASURES HAVE BEEN TAKEN:
   A. THE COUNTY CORONER HAS BEEN INFORMED AND HAS DETERMINED THAT NO INVESTIGATION OF THE CAUSE OF DEATH IS REQUIRED, AND
   B. IF THE REMAINS ARE OF NATIVE AMERICAN ORIGIN, THE DESCENDANTS FROM THE DECEASED NATIVE AMERICANS HAVE MADE A RECOMMENDATION FOR THE MEANS OF TREATING OR DISPOSING, WITH APPROPRIATE DIGNITY, OF THE HUMAN REMAINS AND ANY ASSOCIATED GRAVE GOODS.
7. THE LOCATION AND PROTECTION OF ALL UTILITIES IS THE RESPONSIBILITY OF THE PERMITTEE.
8. ALL EXPORT OF MATERIAL FROM THE SITE MUST GO TO A PERMITTED SITE APPROVED BY THE BUILDING OFFICIAL OR A LEGAL DUMPSITE. RECEIPTS FOR ACCEPTANCE OF EXCESS MATERIAL BY A DUMPSITE ARE REQUIRED AND MUST BE PROVIDED TO THE BUILDING OFFICIAL UPON REQUEST.
9. IF CONTAMINATED SOILS ARE ENCOUNTERED AT ANY TIME DURING GRADING ACTIVITIES, PERMITTEE SHALL STOP WORK UNTIL AN OVERSIGHT AGENCY APPROVAL IS RECEIVED. CONTACT LA COUNTY FIRE SIGHT MITIGATION UNIT AT (323) 890-4045 IMMEDIATELY.
10. A COPY OF THE GRADING PERMIT AND APPROVED GRADING PLANS MUST BE IN THE POSSESSION OF A RESPONSIBLE PERSON AND AVAILABLE AT THE SITE AT ALL TIMES.
11. SITE BOUNDARIES, EASEMENTS, DRAINAGE DEVICES, RESTRICTED USE AREAS SHALL BE LOCATED PER CONSTRUCTION STAKING BY FIELD ENGINEER OR LICENSED SURVEYOR, PRIOR TO GRADING, AS REQUESTED BY THE BUILDING OFFICIAL, ALL PROPERTY LINES, EASEMENTS, AND RESTRICTED USE AREAS SHALL BE STAKED.
12. ~~NO GRADING OR CONSTRUCTION SHALL OCCUR WITHIN THE PROTECTED ZONE OF ANY PROTECTED TREE SPECIES AS REQUIRED PER PLANNING APPROVAL.~~
13. ~~THE STANDARD RETAINING WALL DETAILS SHOWN ON THE GRADING PLANS ARE FOR REFERENCE ONLY. STANDARD RETAINING WALLS ARE NOT ENGINEERED, PERMITTED, OR INSPECTED PER THE GRADING PERMIT. A SEPARATE RETAINING WALL PERMIT IS REQUIRED FOR ALL STANDARD RETAINING WALLS.~~
14. A PREVENTIVE PROGRAM TO PROTECT THE SLOPES FROM POTENTIAL DAMAGE FROM BURROWING RODENTS IS REQUIRED PER SECTION J101.8 OF THE COUNTY OF LOS ANGELES BUILDING CODE. OWNER IS TO INSPECT SLOPES PERIODICALLY FOR EVIDENCE OF BURROWING RODENTS AND A FIRST EVIDENCE OF THEIR EXISTENCE SHALL EMPLOY AN EXTERMINATOR FOR THEIR REMOVAL.
15. WHERE A GRADING PERMIT IS ISSUED AND THE BUILDING OFFICIAL DETERMINES THAT THE GRADING WILL NOT BE COMPLETED PRIOR TO NOVEMBER 1, THE OWNER OF THE SITE ON WHICH THE GRADING IS BEING PERFORMED SHALL, ON OR BEFORE OCTOBER 1, FILE OR CAUSE TO BE FILED WITH THE BUILDING OFFICIAL AN ESCP PER SECTION J110.8.3 OF THE COUNTY OF LOS ANGELES BUILDING CODE.
16. TRANSFER OF RESPONSIBILITY: IF THE FIELD ENGINEER, THE SOILS ENGINEER, OR THE ENGINEERING GEOLOGIST OF RECORD IS CHANGED DURING GRADING, THE WORK SHALL BE STOPPED UNTIL THE REPLACEMENT HAS AGREED IN WRITING TO ACCEPT THEIR RESPONSIBILITY WITHIN THE AREA OF TECHNICAL COMPETENCE FOR APPROVAL UPON COMPLETION OF THE WORK. IT SHALL BE THE DUTY OF THE PERMITTEE TO NOTIFY THE BUILDING OFFICIAL IN WRITING OF SUCH CHANGE PRIOR TO THE RECOMMENCEMENT OF SUCH GRADING.

INSPECTION NOTES:

17. THE PERMITTEE OR HIS AGENT SHALL NOTIFY THE BUILDING OFFICIAL AT LEAST ONE WORKING DAY IN ADVANCE OF REQUIRED INSPECTIONS AT FOLLOWING STAGES OF THE WORK: (SECTION J105.7 OF THE BUILDING CODE.)
   (A) PRE-GRADE - BEFORE THE START OF ANY EARTH DISTURBING ACTIVITY OR CONSTRUCTION.
   (B) INITIAL - WHEN THE SITE HAS BEEN CLEARED OF VEGETATION AND UNAPPROVED FILL HAS BEEN SCARIFIED, BENCHED OR OTHERWISE PREPARED FOR FILL. FILL SHALL NOT BE PLACED PRIOR TO THIS INSPECTION. NOTE: PRIOR TO ANY CONSTRUCTION ACTIVITIES, INCLUDING GRADING, ALL STORM WATER POLLUTION PREVENTION MEASURES INCLUDING EROSION CONTROL DEVICES WHICH CONTAIN SEDIMENTS MUST BE INSTALLED.
   (C) ROUGH - WHEN APPROXIMATE FINAL ELEVATIONS HAVE BEEN ESTABLISHED; DRAINAGE TERRACES, SWALES AND BERMS INSTALLED AT THE TOP OF THE SLOPE; AND THE STATEMENTS REQUIRED IN THIS SECTION HAVE BEEN RECEIVED.
   (D) FINAL - WHEN GRADING HAS BEEN COMPLETED; ALL DRAINAGE DEVICES INSTALLED; SLOPE PLANTING ESTABLISHED, IRRIGATION SYSTEMS INSTALLED AND THE AS-BUILT PLANS, REQUIRED STATEMENTS, AND REPORTS HAVE BEEN SUBMITTED AND APPROVED.
18. IN ADDITION TO THE INSPECTION REQUIRED BY THE BUILDING OFFICIAL FOR GRADING, REPORTS AND STATEMENTS SHALL BE SUBMITTED TO THE BUILDING OFFICIAL IN ACCORDANCE WITH SECTION J105 OF THE COUNTY OF LOS ANGELES BUILDING CODE.
19. UNLESS OTHERWISE DIRECTED BY THE BUILDING OFFICIAL, THE FIELD ENGINEER FOR ALL ENGINEERED GRADING PROJECTS SHALL PREPARE ROUTINE INSPECTION REPORTS AS REQUIRED UNDER SECTION J105.11 OF THE COUNTY OF LOS ANGELES BUILDING CODE. THESE REPORTS, KNOWN AS "REPORT OF GRADING ACTIVITIES", SHALL BE SUBMITTED TO THE BUILDING OFFICIAL AS FOLLOWS:
   1. BI-WEEKLY DURING ALL TIMES WHEN GRADING OF 400 CUBIC YARDS OR MORE PER WEEK IS OCCURRING ON THE SITE;
   2. MONTHLY, AT ALL OTHER TIMES; AND
   3. AT ANY TIME WHEN REQUESTED IN WRITING BY THE BUILDING OFFICIAL.

   SUCH "REPORT OF GRADING ACTIVITIES" SHALL CERTIFY TO THE BUILDING OFFICIAL THAT THE FIELD ENGINEER HAS INSPECTED THE GRADING SITE AND RELATED ACTIVITIES AND HAS FOUND THEM IN COMPLIANCE WITH THE APPROVED GRADING PLANS AND SPECIFICATIONS, THE BUILDING CODE, ALL GRADING PERMIT CONDITIONS, AND ALL OTHER APPLICABLE ORDINANCES AND REQUIREMENTS. THIS FORM IS AVAILABLE AT THE FOLLOWING WEBSITE HTTP://DPW.LACOUNTY.GOV/BSD/DO/DEFAULT.ASPX. "REPORT OF GRADING ACTIVITIES" MAY BE SCANNED AND UPLOADED AT THE WEBSITE OR FAXED TO (310) 530-5482. FAILURE TO PROVIDE REQUIRED INSPECTION REPORTS WILL RESULT IN A "STOP WORK ORDER."
20. ALL GRADED SITES MUST HAVE DRAINAGE SWALES, BERMS, AND OTHER DRAINAGE DEVICES INSTALLED PRIOR TO ROUGH GRADING APPROVAL PER SECTION J105.7 OF THE COUNTY OF LOS ANGELES BUILDING CODE.
21. THE GRADING CONTRACTOR SHALL SUBMIT THE STATEMENT TO THE GRADING INSPECTOR AS REQUIRED BY SECTION J105.12 OF THE COUNTY OF LOS ANGELES BUILDING CODE AT THE COMPLETION OF ROUGH GRADING.
22. FINAL GRADING MUST BE APPROVED BEFORE OCCUPANCY OF BUILDINGS WILL BE ALLOWED PER SECTION J105 OF THE COUNTY OF LOS ANGELES BUILDING CODE.
23. A PROPERTY LINE SURVEY, PREPARED BY A CA LICENSED LAND SURVEYOR OR A CIVIL ENGINEER WITH A LICENSE NUMBER BELOW C33966 MAY BE REQUIRED BY THE BUILDING OFFICIAL BASED UPON SITE CONDITIONS IN ACCORDANCE WITH LACBC SECTION 108.1.

DRAINAGE NOTES:

24. ROOF DRAINAGE MUST BE DIVERTED FROM GRADED SLOPES.
25. PROVISIONS SHALL BE MADE FOR CONTRIBUTORY DRAINAGE AT ALL TIMES.
26. ~~ALL CONSTRUCTION AND GRADING WITHIN A STORM DRAIN EASEMENT ARE TO BE DONE PER PRIVATE DRAIN PD NO. _____ OR MISCELLANEOUS TRANSFER DRAIN MTD NO. _____.~~
27. ALL STORM DRAIN WORK IS TO BE DONE UNDER CONTINUOUS INSPECTION BY THE FIELD ENGINEER. STATUS REPORTS REQUIRED UNDER NOTE 18 AND SECTION J105.11 OF THE COUNTY OF LOS ANGELES BUILDING CODE SHALL INCLUDE INSPECTION INFORMATION AND REPORTS ON THE STORM DRAIN INSTALLATION.

AGENCY NOTES:

28. ~~AN ENCROACHMENT PERMIT FROM (COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS) (CALTRANS) (CITY OF _____) IS REQUIRED FOR ALL WORK WITHIN OR AFFECTING ROAD RIGHT OF WAY. ALL WORK WITHIN ROAD RIGHT OF WAY SHALL CONFORM TO (COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS)(CALTRANS) (CITY OF _____) ENCROACHMENT PERMIT.~~
29. ~~AN FLOOD CONSTRUCTION PERMIT/CONNECTION PERMIT IS REQUIRED FROM THE COUNTY OF LOS ANGELES FLOOD CONTROL DISTRICT FOR ALL WORK WITHIN THE COUNTY OF LOS ANGELES FLOOD CONTROL DISTRICT RIGHT OF WAY. ALL WORK SHALL CONFORM TO CONDITIONS SET OF THE PERMIT.~~
30. ~~PERMISSION TO OPERATE IN VERY HIGH FIRE HAZARD SEVERITY ZONE MUST BE OBTAINED FROM THE FIRE PREVENTION BUREAU OR THE LOCAL FIRE STATION PRIOR TO COMMENCING WORK.~~
31. ~~ALL WORK WITHIN THE STREAMBED AND AREAS OUTLINED ON GRADING PLANS SHALL CONFORM TO:~~
   ~~ACOE PERMIT NUMBER: _____~~
   ~~ARMY CORP 404 PERMIT NUMBER: _____~~
   ~~CALIFORNIA FISH & WILDLIFE PERMIT NO.: _____~~
32. ALL CONSTRUCTION/DEMOLITION, GRADING, AND STORAGE OF BULK MATERIALS MUST COMPLY WITH THE LOCAL AQMD RULE 403 FOR FUGITIVE DUST. INFORMATION ON RULE 403 IS AVAILABLE AT AQMD'S WEBSITE HTTP://WWW.AVAQMD.COM.

GENERAL GEOTECHNICAL NOTES:

33. ALL WORK MUST BE IN COMPLIANCE WITH THE RECOMMENDATIONS INCLUDED IN THE GEOTECHNICAL CONSULTANT'S REPORT(S) AND THE APPROVED GRADING PLANS AND SPECIFICATIONS.
34. GRADING OPERATIONS MUST BE CONDUCTED UNDER PERIODIC INSPECTIONS BY THE GEOTECHNICAL CONSULTANTS WITH MONTHLY INSPECTION REPORTS TO BE SUBMITTED TO THE GEOLOGY AND SOILS SECTION. (900 S. FREMONT, ALHAMBRA CA 91803 - 3RD FLOOR)
35. THE SOIL ENGINEER SHALL PROVIDE SUFFICIENT INSPECTIONS DURING THE PREPARATION OF THE NATURAL GROUND AND THE PLACEMENT AND COMPACTION OF THE FILL TO BE SATISFIED THAT THE WORK IS BEING PERFORMED IN ACCORDANCE WITH THE PLAN AND APPLICABLE CODE REQUIREMENTS.
36. ROUGH GRADING MUST BE APPROVED BY A FINAL ENGINEERING GEOLOGY AND SOILS ENGINEERING REPORT. AN AS-BUILT GEOLOGIC MAP MUST BE INCLUDED IN THE FINAL GEOLOGY REPORT. PROVIDE A FINAL REPORT STATEMENT THAT VERIFIES WORK WAS DONE IN ACCORDANCE WITH REPORT RECOMMENDATIONS AND CODE PROVISIONS (SECTION J105.12 OF THE COUNTY OF LOS ANGELES BUILDING CODE). THE FINAL REPORT(S) MUST BE SUBMITTED TO THE GEOTECHNICAL AND MATERIALS ENGINEERING DIVISION FOR REVIEW AND APPROVAL.
37. ~~FOUNDATION, WALL AND POOL EXCAVATIONS MUST BE INSPECTED AND APPROVED BY THE CONSULTING GEOLOGIST AND SOIL ENGINEER, PRIOR TO THE PLACING OF STEEL OR CONCRETE.~~
38. ~~BUILDING PADS LOCATED IN CUT/FILL TRANSITION AREAS SHALL BE OVER-EXCAVATED A MINIMUM OF THREE (3) FEET BELOW THE PROPOSED BOTTOM OF FOOTING.~~

FILL NOTES:

39. ALL FILL SHALL BE COMPACTED TO THE FOLLOWING MINIMUM RELATIVE COMPACTION CRITERIA:
   A. 90 PERCENT OF MAXIMUM DRY DENSITY WITHIN 40 FEET BELOW FINISH GRADE.
   B. 93 PERCENT OF MAXIMUM DRY DENSITY DEEPER THAN 40 FEET BELOW FINISH GRADE, UNLESS A LOWER RELATIVE COMPACTION (NOT LESS THAN 90 PERCENT OF MAXIMUM DRY DENSITY) IS JUSTIFIED BY THE GEOTECHNICAL ENGINEER.
   THE RELATIVE COMPACTION SHALL BE DETERMINED BY A.S.T.M. SOIL COMPACTION TEST D1557-91 WHERE APPLICABLE; WHERE NOT APPLICABLE, A TEST ACCEPTABLE TO THE BUILDING OFFICIAL SHALL BE USED. (SECTION J107.5 OF THE COUNTY OF LOS ANGELES BUILDING CODE.)
   C. 95 PERCENT OF MAXIMUM DRY DENSITY IS REQUIRED FOR ALL FIRE LANES UNLESS OTHERWISE APPROVED BY THE FIRE DEPARTMENT.
40. FIELD DENSITY SHALL BE DETERMINED BY A METHOD ACCEPTABLE TO THE BUILDING OFFICIAL. (SECTION J107.5 OF THE COUNTY OF LOS ANGELES BUILDING CODE.) HOWEVER, NOT LESS THAN 10% OF THE REQUIRED DENSITY TEST, UNIFORMLY DISTRIBUTED, AND SHALL BE OBTAINED BY THE SAND CONE METHOD.
41. SUFFICIENT TESTS OF THE FILL SOILS SHALL BE MADE TO DETERMINE THE RELATIVE COMPACTION OF THE FILL IN ACCORDANCE WITH THE FOLLOWING MINIMUM GUIDELINES:
   A. ONE TEST FOR EACH TWO-FOOT VERTICAL LIFT.
   B. ONE TEST FOR EACH 1,000 CUBIC YARDS OF MATERIAL PLACED.
   C. ONE TEST AT THE LOCATION OF THE FINAL FILL SLOPE FOR EACH BUILDING SITE (LOT) IN EACH FOUR-FOOT VERTICAL LIFT OR PORTION THEREOF.
   D. ONE TEST IN THE VICINITY OF EACH BUILDING PAD FOR EACH FOUR-FOOT VERTICAL LIFT OR PORTION THEREOF.
42. SUFFICIENT TESTS OF FILL SOILS SHALL BE MADE TO VERIFY THAT THE SOIL PROPERTIES COMPLY WITH THE DESIGN REQUIREMENTS, AS DETERMINED BY THE SOIL ENGINEER INCLUDING SOIL TYPES, SHEAR STRENGTHS PARAMETERS AND CORRESPONDING UNIT WEIGHTS IN ACCORDANCE WITH THE FOLLOWING GUIDELINES:
   A. PRIOR AND SUBSEQUENT TO PLACEMENT OF THE FILL, SHEAR TESTS SHALL BE TAKEN ON EACH TYPE OF SOIL OR SOIL MIXTURE TO BE USED FOR ALL FILL SLOPES STEEPER THAN THREE (3) HORIZONTAL TO ONE VERTICAL.
   B. SHEAR TEST RESULTS FOR THE PROPOSED FILL MATERIAL MUST MEET OR EXCEED THE DESIGN VALUES USED IN THE GEOTECHNICAL REPORT TO DETERMINE SLOPE STABILITY REQUIREMENTS. OTHERWISE, THE SLOPE MUST BE REEVALUATED USING THE ACTUAL SHEAR TEST VALUE OF THE FILL MATERIAL THAT IS IN PLACE.
   C. FILL SOILS SHALL BE FREE OF DELETERIOUS MATERIALS.
43. FILL SHALL NOT BE PLACED UNTIL STRIPPING OF VEGETATION, REMOVAL OF UNSUITABLE SOILS, AND INSTALLATION OF SUBDRAIN (IF ANY) HAVE BEEN INSPECTED AND APPROVED BY THE SOIL ENGINEER. THE BUILDING OFFICIAL MAY REQUIRE A "STANDARD TEST METHOD FOR MOISTURE, ASH, ORGANIC MATTER, PEAT OR OTHER ORGANIC SOILS" ASTM D-2974-87 ON ANY SUSPECT MATERIAL. DETRIMENTAL AMOUNTS OF ORGANIC MATERIAL SHALL NOT BE PERMITTED IN FILLS. SOIL CONTAINING SMALL AMOUNTS OF ROOTS MAY BE ALLOWED PROVIDED THAT THE ROOTS ARE IN A QUANTITY AND DISTRIBUTED IN A MANNER THAT WILL NOT BE DETRIMENTAL TO THE FUTURE USE OF THE SITE AND THE SOILS ENGINEER APPROVES THE USE OF SUCH MATERIAL.
44. ROCK OR SIMILAR MATERIAL GREATER THAN 12 INCHES IN DIAMETER SHALL NOT BE PLACED IN THE FILL UNLESS RECOMMENDATIONS FOR SUCH PLACEMENT HAVE BEEN SUBMITTED BY THE SOIL ENGINEER AND APPROVED IN ADVANCE BY THE BUILDING OFFICIAL. LOCATION, EXTENT, AND ELEVATION OF ROCK DISPOSAL AREAS MUST BE SHOWN ON AN "AS BUILT" GRADING PLAN.
45. CONTINUOUS INSPECTION BY THE SOIL ENGINEER, OR A RESPONSIBLE REPRESENTATIVE, SHALL BE PROVIDED DURING ALL FILL PLACEMENT AND COMPACTION OPERATIONS WHERE FILLS HAVE A DEPTH GREATER THAN 30 FEET OR SLOPE SURFACE STEEPER THAN 2:1. (SECTION J107.8 OF THE COUNTY OF LOS ANGELES BUILDING CODE)
46. CONTINUOUS INSPECTION BY THE SOIL ENGINEER, OR A RESPONSIBLE REPRESENTATIVE, SHALL BE PROVIDED DURING ALL SUBDRAIN INSTALLATION. (SECTION J107.2 OF THE COUNTY OF LOS ANGELES BUILDING CODE)
47. ALL SUBDRAIN OUTLETS ARE TO BE SURVEYED FOR LINE AND ELEVATION. SUBDRAIN INFORMATION MUST BE SHOWN ON AN "AS BUILT" GRADING PLAN.
48. FILL SLOPES IN EXCESS OF 2:1 STEEPNESS RATIO ARE TO BE CONSTRUCTED BY THE PLACEMENT OF SOIL AT SUFFICIENT DISTANCE BEYOND THE PROPOSED FINISH SLOPE TO ALLOW COMPACTION EQUIPMENT TO BE OPERATED AT THE OUTER LIMITS OF THE FINAL SLOPE SURFACE. THE EXCESS FILL IS TO BE REMOVED PRIOR TO COMPLETION OF ROUGH GRADING. OTHER CONSTRUCTION PROCEDURES MAY BE USED WHEN IT IS DEMONSTRATED TO THE SATISFACTION OF THE BUILDING OFFICIAL THAT THE ANGLE OF SLOPE, CONSTRUCTION METHOD AND OTHER FACTORS WILL HAVE EQUIVALENT EFFECT. (SECTION J107.5 OF THE COUNTY OF LOS ANGELES BUILDING CODE.)

PLANTING AND IRRIGATION NOTES:

49. PLANTING AND IRRIGATION ON GRADED SLOPES MUST COMPLY WITH THE FOLLOWING MINIMUM GUIDELINES:
   A. THE SURFACE OF ALL CUT SLOPES MORE THAN 5 FEET IN HEIGHT AND FILL SLOPES MORE THAN 3 FEET IN HEIGHT SHALL BE PROTECTED AGAINST DAMAGE BY EROSION BY PLANTING WITH GRASS OR GROUNDCOVER PLANTS. SLOPES EXCEEDING 15 FEET IN VERTICAL HEIGHT SHALL ALSO BE PLANTED WITH SHRUBS, SPACED AT NOT TO EXCEED 10 FEET ON CENTERS; OR TREES, SPACED AT NOT TO EXCEED 20 FEET ON CENTERS, OR A COMBINATION OF SHRUBS AND TREES AT EQUIVALENT SPACING, IN ADDITION TO THE GRASS OR GROUNDCOVER PLANTS. THE PLANTS SELECTED AND PLANTING METHODS USED SHALL BE SUITABLE FOR THE SOIL AND CLIMATIC CONDITIONS OF THE SITE. PLANT MATERIAL SHALL BE SELECTED WHICH WILL PRODUCE A COVERAGE OF PERMANENT PLANTING EFFECTIVELY CONTROLLING EROSION. CONSIDERATION SHALL BE GIVEN TO DEEP-ROOTED PLANTING MATERIAL NEEDING LIMITED WATERING, MAINTENANCE, HIGH ROOT TO SHOOT RATIO, WIND SUSCEPTIBILITY AND FIRE-RETARDANT CHARACTERISTICS. ALL PLANT MATERIALS MUST BE APPROVED BY THE BUILDING OFFICIAL. (SECTION J110.3 OF THE COUNTY OF LOS ANGELES BUILDING CODE)

   NOTE: PLANTING MAY BE MODIFIED FOR THE SITE IF SPECIFIC RECOMMENDATIONS ARE PROVIDED BY BOTH THE SOILS ENGINEER AND A LANDSCAPE ARCHITECT. SPECIFIC RECOMMENDATIONS MUST CONSIDER SOILS AND CLIMATIC CONDITIONS, IRRIGATION REQUIREMENTS, PLANTING METHODS, FIRE RETARDANT CHARACTERISTICS, WATER EFFICIENCY, MAINTENANCE NEEDS, AND OTHER REGULATORY REQUIREMENTS. RECOMMENDATIONS MUST INCLUDE A FINDING THAT THE ALTERNATIVE PLANTING WILL PROVIDE A PERMANENT AND EFFECTIVE METHOD OF EROSION CONTROL. MODIFICATIONS TO PLANTING MUST BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO INSTALLATION.

   B. SLOPES REQUIRED TO BE PLANTED BY SECTION J110.3 SHALL BE PROVIDED WITH AN APPROVED SYSTEM OF IRRIGATION THAT IS DESIGNED TO COVER ALL PORTIONS OF THE SLOPE. IRRIGATION SYSTEM PLANS SHALL BE SUBMITTED AND APPROVED PRIOR TO INSTALLATION. A FUNCTIONAL TEST OF THE SYSTEM MAY BE REQUIRED. FOR SLOPES LESS THAN 20 FEET IN VERTICAL HEIGHT, HOSE BIBS TO PERMIT HAND WATERING WILL BE ACCEPTABLE IF SUCH HOSE BIBS ARE INSTALLED AT CONVENIENTLY ACCESSIBLE LOCATIONS WHERE A HOSE NO LONGER THAN 50 FEET IS NECESSARY FOR IRRIGATION. THE REQUIREMENTS FOR PERMANENT IRRIGATION SYSTEMS MAY BE MODIFIED UPON SPECIFIC RECOMMENDATION OF A LANDSCAPE ARCHITECT OR EQUIVALENT AUTHORITY THAT, BECAUSE OF THE TYPE OF PLANTS SELECTED, THE PLANTING METHODS USED AND THE SOIL AND CLIMATIC CONDITIONS AT THE SITE, IRRIGATION WILL NOT BE NECESSARY FOR THE MAINTENANCE OF THE SLOPE PLANTING. (SECTION J110.4 OF THE COUNTY OF LOS ANGELES BUILDING CODE)

   C. OTHER GOVERNMENTAL AGENCIES MAY HAVE ADDITIONAL REQUIREMENTS FOR LANDSCAPING AND IRRIGATION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE WITH OTHER AGENCIES TO MEET THEIR REQUIREMENTS WHILE MAINTAINING COMPLIANCE WITH THE COUNTY OF LOS ANGELES BUILDING CODE.
50. THE PLANTING AND IRRIGATION SYSTEMS SHALL BE INSTALLED AS SOON AS PRACTICAL AFTER ROUGH GRADING. PRIOR TO FINAL GRADING APPROVAL ALL REQUIRED SLOPE PLANTING MUST BE WELL ESTABLISHED. (SECTION J110.7 OF THE COUNTY OF LOS ANGELES BUILDING CODE)
51. LANDSCAPE IRRIGATION SYSTEM SHALL BE DESIGNED AND MAINTAINED TO PREVENT SPRAY ON STRUCTURES. (TITLE 31, SECTION 5.407.2.1)
52. PRIOR TO ROUGH GRADE APPROVAL THIS PROJECT REQUIRES A LANDSCAPE PERMIT. LANDSCAPE PLANS IN COMPLIANCE WITH THE "MODEL WATER EFFICIENT LANDSCAPE ORDINANCE" TITLE 23, CHAPTER 2.7 OF CALIFORNIA CODE OF REGULATIONS (AB 1881) MUST BE SUBMITTED TO THE DEPARTMENT OF PUBLIC WORKS, LAND DEVELOPMENT DIVISION. (900 S. FREMONT AVE, ALHAMBRA - 3RD FLOOR, CA 91803 (626) 458-4921). TO OBTAIN LANDSCAPE PERMIT APPROVED PLANS AND WATER PURVEYOR ACKNOWLEDGMENT FORM MUST BE SUBMITTED TO THE LOCAL BUILDING AND SAFETY OFFICE.

UTILITIES

53. UTILITIES, SUCH AS WATER, ELECTRICAL, PLUMBING, MECHANICAL, AND SEWER SHOWN ON GRADING PLANS, MAY REQUIRE A SEPARATE PERMIT. ADD NOTE ON GRADING PLANS/UTILITY PLANS WHICH LABELS THE UTILITIES ARE PROVIDED FOR REFERENCE ONLY AND SEPARATE PERMITS MAY BE REQUIRED.

ENGINEER'S NOTES TO CONTRACTOR:

THE LOCATION OF EXISTING UTILITIES WAS MADE BY A SEARCH OF AVAILABLE RECORDS. NO WARRANTY AS TO THE ACTUAL LOCATION OR DEPTH OF THE EXISTING UTILITIES IS EXPRESSED OR IMPLIED.

THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR THE LOCATION AND PROTECTION OF ALL UTILITIES WITHIN THE LIMITS OF THIS PROJECT. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL POINTS OF CONNECTION TO EXISTING UTILITIES. SHOULD ANY LOCATION OR DEPTH SUBSTANTIALLY DEVIATE FROM THE LOCATION AND/OR DEPTH SHOWN ON THE PLANS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF SUCH A DISCREPANCY TO ALLOW FOR REVIEW AND ADJUSTMENT TO BE MADE BY THE ENGINEER TO THE LOCATION AND/OR DEPTH OF THE POINT OF CONNECTION, IF REQUIRED.

THE ESTIMATE OF CUT AND FILL VOLUMES WAS MADE BASED ON THE DIFFERENCE BETWEEN THE DESIGN FINISH GRADES AND THE EXISTING FINISH GRADE FROM THE TOPOGRAPHIC SURVEY. NO ALLOWANCE HAS BEEN MADE FOR FINISH PAVING THICKNESS OR IMPORT OF PLANTING SOIL OR SOIL AMENDMENTS FOR PLANTING AREAS. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN ESTIMATE OF GRADING QUANTITIES, INCLUDING ALLOWANCES FOR PAVING THICKNESS. OR IMPORT OF PLANTER SOIL OR SOIL AMENDMENTS.

CIVIL ENGINEER:

BARBARA L. HALL P.E., INC.
318 W. EVERGREEN AVENUE
MONROVIA, CA 91016
TEL.: (626) 256-3220
FAX: (626) 256-3218

SURVEY ENGINEER:

CALVADA SURVEYING, INC.
411 JENKS CIR., SUITE 205
CORONA, CA 92880
TEL.: (951) 280-9960
FAX: (951) 280-9746
DATE OF FIELD SURVEY: FEBRUARY 16, 2022

GEOTECHNICAL ENGINEER:

GEOTECHNICAL PROFESSIONALS, INC.
5736 CORPORATE AVENUE
CYPRESS, CA 90630
TEL.: (714) 220-2211
FAX: (714) 220-2122
PROJECT NO.: 2780.471
DATED: APRIL 1, 2022
DECEMBER 8, 2023
JULY 10, 2025

REVIEWED FOR CONFORMANCE TO THE REFERENCED GEOTECHNICAL

REGISTERED PROFESSIONAL ENGINEER PAUL R. SCHADE No. 2371 GEOTECHNICAL STATE OF CALIFORNIA

SIGNED/STAMPED 10/23/2025

REGISTERED GEOLOGIST THOMAS G. HILL No. 1100 CERTIFIED ENGINEERING GEOLOGIST STATE OF CALIFORNIA

DATE OF MAINTENANCE AGREEMENT	TYPE OF LID PROJECT					GPS COORDINATES		DESIGN STORM GREATER OF (CIRCLE ONE) 0.75-INCH 85TH PERCENTILE
	DESIGNATED		NON- DESIGNATED - SMALL SCALE	NON- DESIGNATED - LARGE SCALE

LIMIT OF REMOVAL

REROUTE EXISTING WATER LINE THROUGH SPLASH PAD

REROUTE EXISTING WATER LINE THROUGH SPLASH PAD

REROUTE EXISTING WATER LINE THROUGH SPLASH PAD

LIMIT OF SAWCUT

REROUTE EXISTING ELEC. LINE THROUGH SPLASH PAD

REROUTE EXISTING ELEC. LINE THROUGH SPLASH PAD

REROUTE EXISTING WATER LINE THROUGH SPLASH PAD

LIMIT OF SAWCUT

LIMIT OF REMOVAL

LIMIT OF SAWCUT

LIMIT OF SAWCUT

LIMIT OF REMOVAL

N 1836203.2545
E 6544885.1438
LIMIT OF SAWCUT

N 1836137.3269
E 6544860.5834
LIMIT OF SAWCUT

17.36'

5.05'

221.48FS

221.68FS
222.00FS

217.30NG
217.80FS

±2'-3" DEEP

DEMOLITION NOTES:

1. REMOVE EXISTING ASPHALT PAVING & BASE.
2. REMOVE EXISTING MOW STRIP.
3. REMOVE EXISTING CONCRETE CURB
4. REMOVE EXISTING CONCRETE CURB AND GUTTER.
5. PROTECT EXISTING TREE IN PLACE.
6. PROTECT EXISTING CONCRETE PAVEMENT IN PLACE.
7. PROTECT EXISTING CURB IN PLACE.
8. PROTECT EXISTING ASPHALT PAVING & BASE.
9. PROTECT EXISTING LIGHT POLE & BASE CONCRETE PAD IN PLACE.
10. REMOVE EXISTING TREE & ROOTS.
11. REMOVE EXISTING CONCRETE PAVEMENT & BASE.

NOTE:
CONTRACTOR IS RESPONSIBLE FOR REMOVING DEMOLISHED ITEMS OFF SITE AND SHALL DISPOSE OF THESE ITEMS AT A LEGAL DUMPSITE UNLESS OTHERWISE NOTED.

0' 20'

Know what's below. Call before you dig.

BENCHMARK NO. SY9775 EL. 225.369 FT
LOS ANGELES COUNTY

RDBM TAG IN E CB SANTA ANITA AVE 2FT N/O BCR @ NE COR DURFEE AVE.

NAVD 1988

Barbara L. Hall, P.E., Inc.
318 West Evergreen Avenue
Monrovia, CA 91016
Phone: (626) 256-3220
Fax: (626) 256-3218

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE
DEMOLITION PLAN

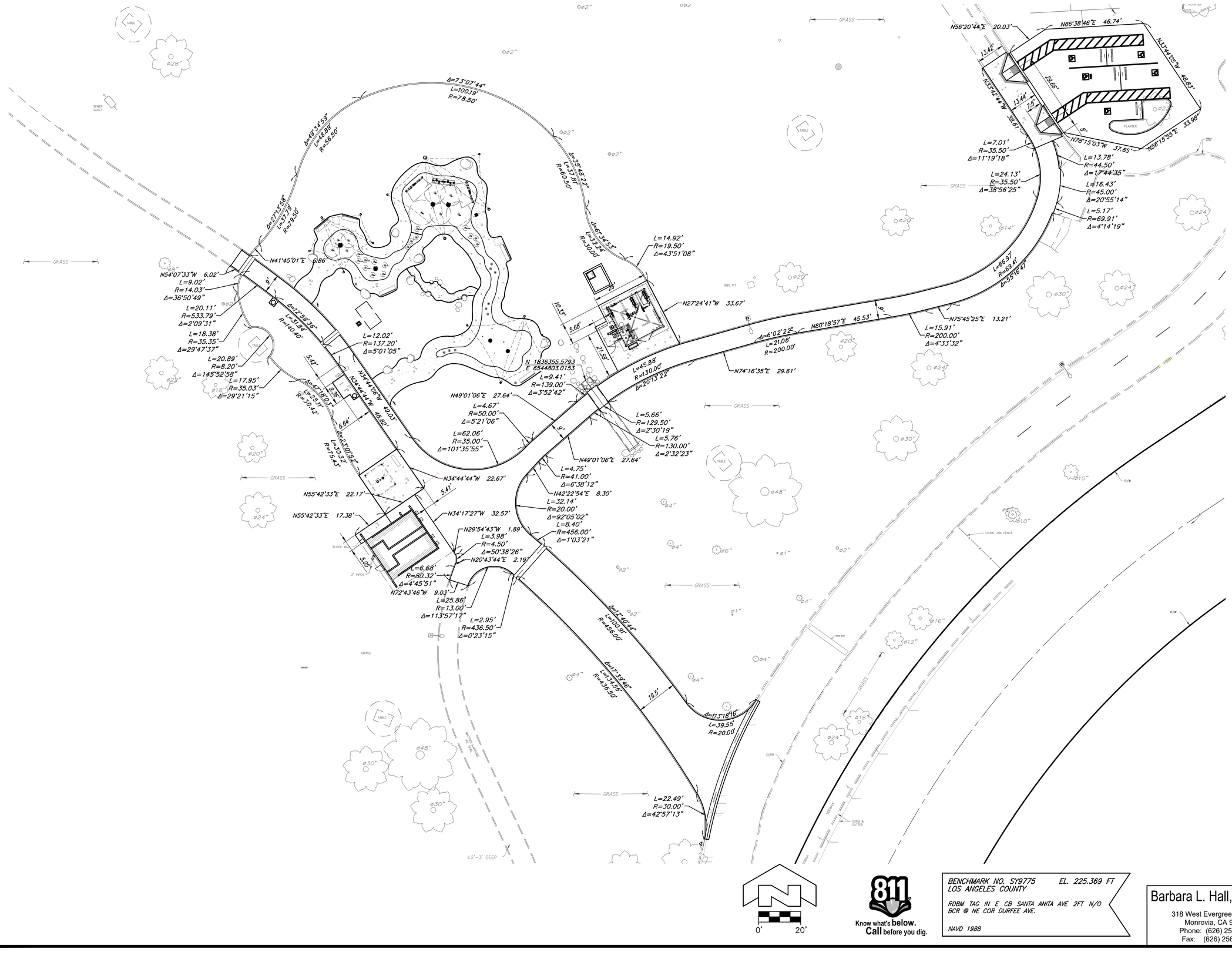
OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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DRAWN BY:	RS
CHECKED BY:	BLH
PROJECT NO.	1068
DATE:	23OCT 2025

REGISTERED PROFESSIONAL ENGINEER
BARBARA L. HALL
No. 42206
Exp. 03/31/26
CIVIL
STATE OF CALIFORNIA



BENCHMARK NO. SY9775 EL. 225.369 FT
LOS ANGELES COUNTY

RDBM TAG IN E CB SANTA ANITA AVE 2FT N/O BCR @ NE COR DURFEE AVE.

NAVD 1988

Know what's **below.** **Call** before you dig.

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CHATSWORTH, CA 91311
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SHEET TITLE
HORIZONTAL CONTROL PLAN

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

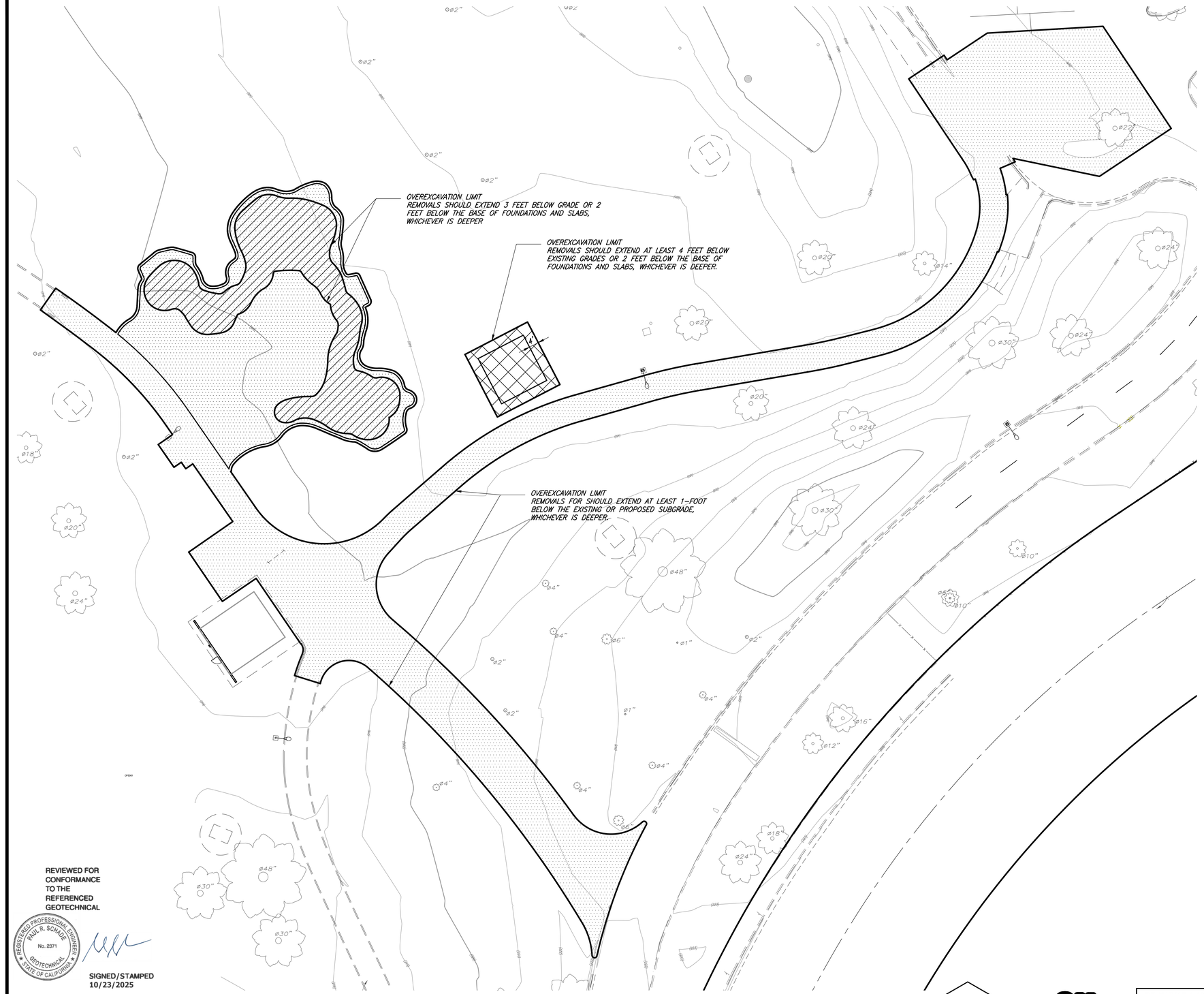
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REGISTERED PROFESSIONAL ENGINEER
BARBARA L. HALL
No. 42206
Exp. 03/31/26
CIVIL
STATE OF CALIFORNIA

SHEET 11 OF 80

C1.03



EXCERPT FROM GEOTECHNICAL INVESTIGATION PROPOSED SPLASH PAD AREA D AND SITE IMPROVEMENTS, 750 S. SANTA ANITA AVENUE, SOUTH EL MONTE, CALIFORNIA, PROJECT NO. 2780.471, DATED APRIL 1, 2022.

EARTHWORK

THE EARTHWORK ANTICIPATED AT THE PROJECT SITE WILL CONSIST OF DEMOLITION OF EXISTING IMPROVEMENTS, CLEARING, EXCAVATION OF UNDOCUMENTED FILLS AND DISTURBED SOILS, SUBGRADE PREPARATION, AND PLACEMENT AND COMPACTION OF FILL.

CLEARING AND GRUBBING

PRIOR TO GRADING, PERFORMING EXCAVATIONS OR CONSTRUCTING THE PROPOSED IMPROVEMENTS, THE AREAS TO BE DEVELOPED SHOULD BE STRIPPED OF VEGETATION AND CLEARED OF EXISTING STRUCTURES, DEBRIS, AND PAVEMENTS. BURIED OBSTRUCTIONS, SUCH AS FOOTINGS, ABANDONED UTILITIES, AND TREE ROOTS SHOULD BE REMOVED FROM AREAS TO BE DEVELOPED. DELETERIOUS MATERIAL GENERATED DURING THE CLEARING OPERATION, INCLUDING ORGANIC TOPSOIL, SHOULD BE REMOVED FROM THE SITE. IF APPROVED BY THE OWNER AND REGULATORY AGENCY, INERT DEMOLITION DEBRIS, SUCH AS CONCRETE AND ASPHALT, MAY BE CRUSHED FOR REUSE IN ENGINEERED FILLS AND IN A STABILIZATION LAYER IN ACCORDANCE WITH THE CRITERIA PRESENTED IN THE "MATERIALS FOR FILL" SECTION OF THIS REPORT.

EXCAVATIONS

EXCAVATIONS AT THIS SITE WILL INCLUDE REMOVALS OF THE UNDOCUMENTED FILLS, REMOVALS OF DISTURBED SOILS AND A PORTION OF NATURAL SOILS, FOUNDATION EXCAVATIONS, AND TRENCHING FOR NEW UTILITY LINES.

PRIOR TO PLACING FILLS OR CONSTRUCTION OF THE STRUCTURES, THE EXISTING UNDOCUMENTED FILL, PORTIONS OF THE UPPER COMPRESSIBLE SOILS, AND SOILS DISTURBED DURING DEMOLITION SHOULD BE REMOVED AND REPLACED AS PROPERLY COMPACTED FILL. FOR PLANNING PURPOSES, WE ANTICIPATE THE FOLLOWING REMOVAL DEPTHS:

FOR THE SINGLE-STORY RESTROOM/EQUIPMENT STORAGE BUILDING AND RETAINING WALLS TALLER THAN 5 FEET, REMOVALS SHOULD EXTEND AT LEAST 4 FEET BELOW EXISTING GRADES OR 2 FEET BELOW THE BASE OF FOUNDATIONS AND SLABS, WHICHEVER IS DEEPER;

FOR MINOR STRUCTURES (E.G. MONUMENT SIGNS, SITE WALLS, PERIMETER SEATING, MECHANICAL PADS, AND THE PEDESTRIAN SPLASH PAD FOOTPRINT, REMOVALS SHOULD EXTEND 3 FEET BELOW GRADE OR 2 FEET BELOW THE BASE OF FOUNDATIONS AND SLABS, WHICHEVER IS DEEPER;

FOR NEW PEDESTRIAN HARDSCAPE OUTSIDE OF THE SPLASH PAD FOOTPRINT, VEHICULAR PAVEMENTS, AND ADA RAMPS, REMOVALS FOR SHOULD EXTEND AT LEAST 1-FOOT BELOW THE EXISTING OR PROPOSED SUBGRADE, WHICHEVER IS DEEPER.

THE ACTUAL DEPTHS OF REMOVALS SHOULD BE DETERMINED IN THE FIELD DURING GRADING BY A REPRESENTATIVE OF GPI. THE SOILS EXPOSED AT THE BASE OF THE OVEREXCAVATION SHOULD BE PROCESSED IN PLACE AS DESCRIBED IN THE 'SUBGRADE PREPARATION' SECTION OF THIS REPORT.

WHERE NOT REMOVED BY THE AFOREMENTIONED EXCAVATIONS, EXISTING UTILITY TRENCH BACKFILL SHOULD BE REMOVED AND REPLACED AS PROPERLY COMPACTED FILL WITHIN THE BUILDING PADS. THIS IS ESPECIALLY IMPORTANT FOR DEEPER FILLS ASSOCIATED WITH EXISTING SEWERS AND STORM DRAINS. WE RECOMMEND THAT KNOWN UTILITIES BE SHOWN ON THE GRADING PLAN. WET UTILITIES LEFT IN-PLACE OUTSIDE BUILDING AREAS SHOULD BE CAPPED TO REDUCE THE POTENTIAL FOR WATER TO INFILTRATE INTO THE BUILDING PAD.

THE UPPER SOILS AT THE SITE ARE EXPECTED TO HAVE A MODERATE CAVING POTENTIAL WHEN EXPOSED IN OPEN CUTS. TEMPORARY CONSTRUCTION EXCAVATIONS MAY BE MADE VERTICALLY INTO THE UNDISTURBED NATURAL SOILS WITHOUT SHORING TO A DEPTH OF 4 FEET BELOW ADJACENT GRADE. FOR CUTS UP TO 10 FEET DEEP, THE SLOPES SHOULD BE PROPERLY SHORED OR SLOPED BACK TO AT LEAST 1:1 OR FLATTER. THE ALLOWABLE SLOPE INCLINATIONS ARE MEASURED FROM THE TOE TO THE TOP OF THE CUT. THE EXPOSED SLOPE FACE SHOULD BE KEPT MOIST (BUT NOT SATURATED) DURING CONSTRUCTION TO REDUCE LOCAL SLOUGHING. SURCHARGE LOADS SHOULD NOT BE PERMITTED WITHIN A HORIZONTAL DISTANCE EQUAL TO THE HEIGHT OF CUT FROM THE TOP OF THE EXCAVATION OR 5 FEET FROM THE TOP OF THE SLOPES, WHICHEVER IS GREATER, UNLESS THE CUT IS PROPERLY SHORED. EXCAVATIONS THAT EXTEND BELOW AN IMAGINARY PLANE INCLINED AT 45 DEGREES BELOW THE EDGE OF ADJACENT EXISTING SITE FACILITIES SHOULD BE PROPERLY SHORED TO MAINTAIN SUPPORT OF ADJACENT ELEMENTS. EXCAVATIONS AND SHORING SYSTEMS SHOULD MEET THE MINIMUM REQUIREMENTS GIVEN IN THE STATE OF CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS.

DEEPER REMOVALS ALONG PROPERTY LINES OR ADJACENT TO EXISTING IMPROVEMENTS WILL REQUIRE SHORING OR SLOT CUTS. REMOVALS THAT WILL UNDERMINE EXISTING ADJACENT PAVEMENTS OR HARDSCAPE MAY UTILIZE "ABC" SLOT CUTS TO DEPTHS NOT GREATER THAN 8 FEET. UNSURCHARGED SLOT CUTS UP TO 8 FEET IN HEIGHT SHOULD NOT BE WIDER THAN 6 FEET AND SHOULD BE BACKFILLED TO FINISHED GRADE PRIOR TO EXCAVATION OF THE ADJACENT FOUR SLOTS (TWO ON EACH SIDE OF THE EXCAVATED SLOT). WE SHOULD BE PROVIDED DETAILS OF THE BUILDING AND EXCAVATION TO PROVIDE FINAL RECOMMENDATIONS BEFORE MAKING THE EXCAVATIONS. A TEST SLOT SHOULD BE PERFORMED PRIOR TO PRODUCTION SLOTS TO CONFIRM THE STABILITY OF THE PLANNED CUTS.

SUBGRADE PREPARATION

PRIOR TO PLACING FILLS, THE SUBGRADE SOILS AT THE BOTTOM OF OVEREXCAVATIONS SHOULD BE SCARIFIED TO A DEPTH OF 8 INCHES, MOISTURE-CONDITIONED, AND COMPACTED TO AT LEAST 90 PERCENT OF THE MAXIMUM DRY DENSITY DETERMINED IN ACCORDANCE WITH ASTM D1557. WHERE THE EXPOSED SOILS ARE WELL OVER THE OPTIMUM MOISTURE CONTENT, SUBGRADE PROCESSING (SCARIFICATION) AND BE OMITTED.

THE SOILS ENCOUNTERED WITHIN THE UPPER 10 FEET BELOW EXISTING GRADES HAVE MOISTURE CONTENTS VARYING FROM SLIGHTLY MOIST TO WET. THE WET SOILS APPEAR TO BE LIMITED TO THIN LAYERS OF FINE- GRAINED SOILS (SILTS AND CLAYS). THEREFORE, LOCALIZED AREAS OF THE SUBGRADE SOILS TO BE EXPOSED AT THE BASE OF EXCAVATIONS ARE ANTICIPATED TO EXHIBIT WELL OVER-OPTIMUM MOISTURE CONDITIONS. SUBJECTING THESE MATERIALS TO HEAVY RUBBER-TIRED EQUIPMENT WILL INDUCE PUMPING/RUTTING, LIKELY REQUIRING DEEPER REMOVALS OR SUBGRADE STABILIZATION. FOR PLANNING PURPOSES, STABILIZATION CAN BE PERFORMED BY PLACING A GEOGRID SUCH AS TENSAR BX1100 OR EQUIVALENT AND 12 INCHES OF CRUSHED MISCELLANEOUS BASE (CMB) PLACED IN ONE LIFT AND COMPACTED TO AT LEAST 90 PERCENT.

REVIEWED FOR CONFORMANCE TO THE REFERENCED GEOTECHNICAL

REGISTERED PROFESSIONAL ENGINEER — PAUL R. SCHADE — No. 2371 — GEOTECHNICAL — STATE OF CALIFORNIA

SIGNED/STAMPED 10/23/2025

REGISTERED GEOLOGIST — THOMAS G. HILL — No. 1100 — CERTIFIED ENGINEERING GEOLOGIST — STATE OF CALIFORNIA

0' 20'

811 Know what's **below.** **Call** before you dig.

BENCHMARK NO. SY9775 EL. 225.369 FT
LOS ANGELES COUNTY
ROBM TAG IN E CB SANTA ANITA AVE 2FT N/O BCR @ NE COR DURFEE AVE.
NAVD 1988

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WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: **EXCAVATION PLAN**

OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: **WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT**
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

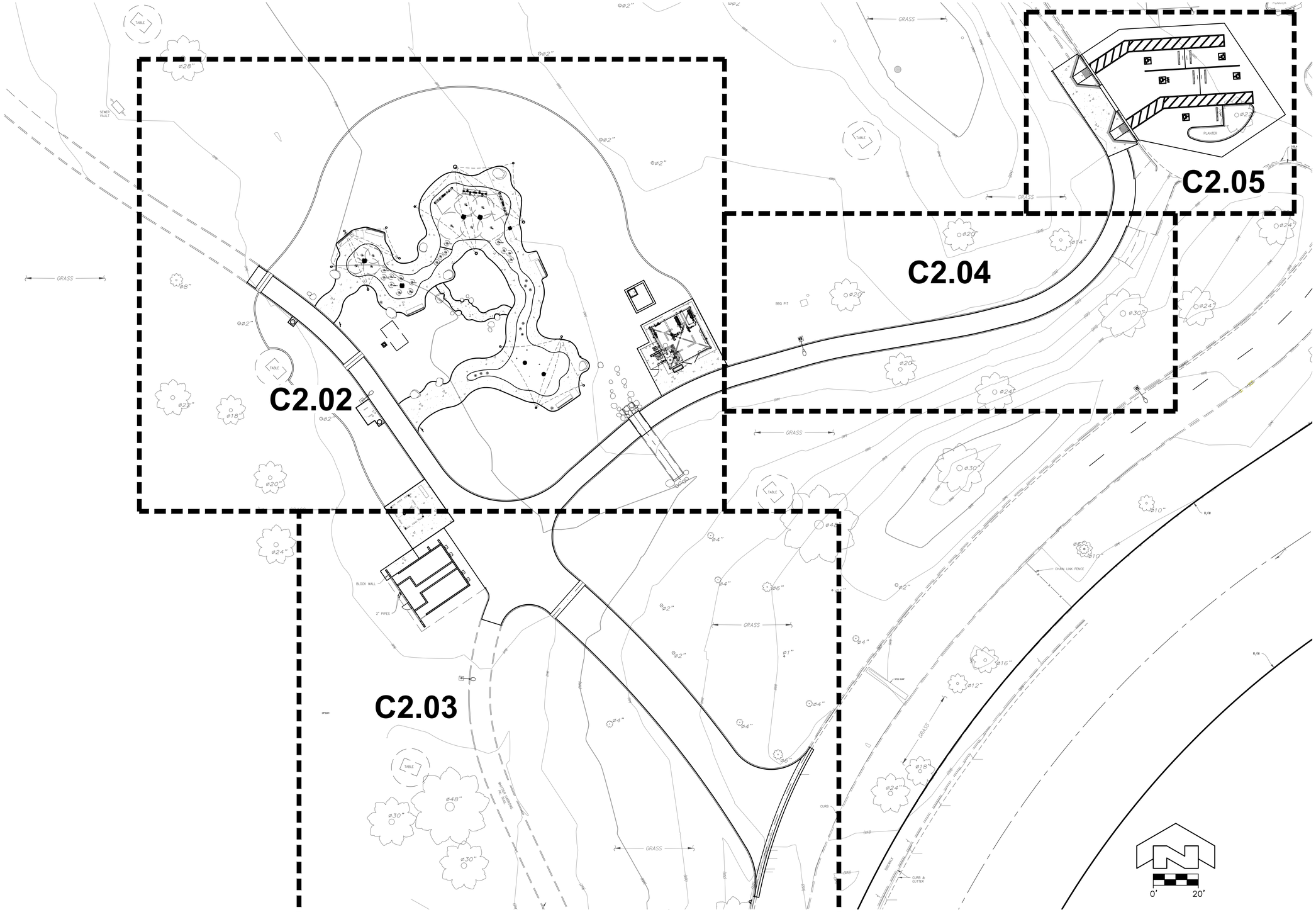
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CHECKED BY:	BLH
PROJECT NO.	1068
DATE:	23OCT 2025

REGISTERED PROFESSIONAL ENGINEER — BARBARA L. HALL — No. 42208 Exp. 03/31/26 — CIVIL — STATE OF CALIFORNIA

SHEET 12 OF 80

C2.00



Know what's below. Call before you dig.

BENCHMARK NO. SY9775 EL. 225.369 FT
LOS ANGELES COUNTY

RDBM TAG IN E CB SANTA ANITA AVE 2FT N/O BCR @ NE COR DURFEE AVE.

NAVD 1988

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CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE
KEY MAP

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

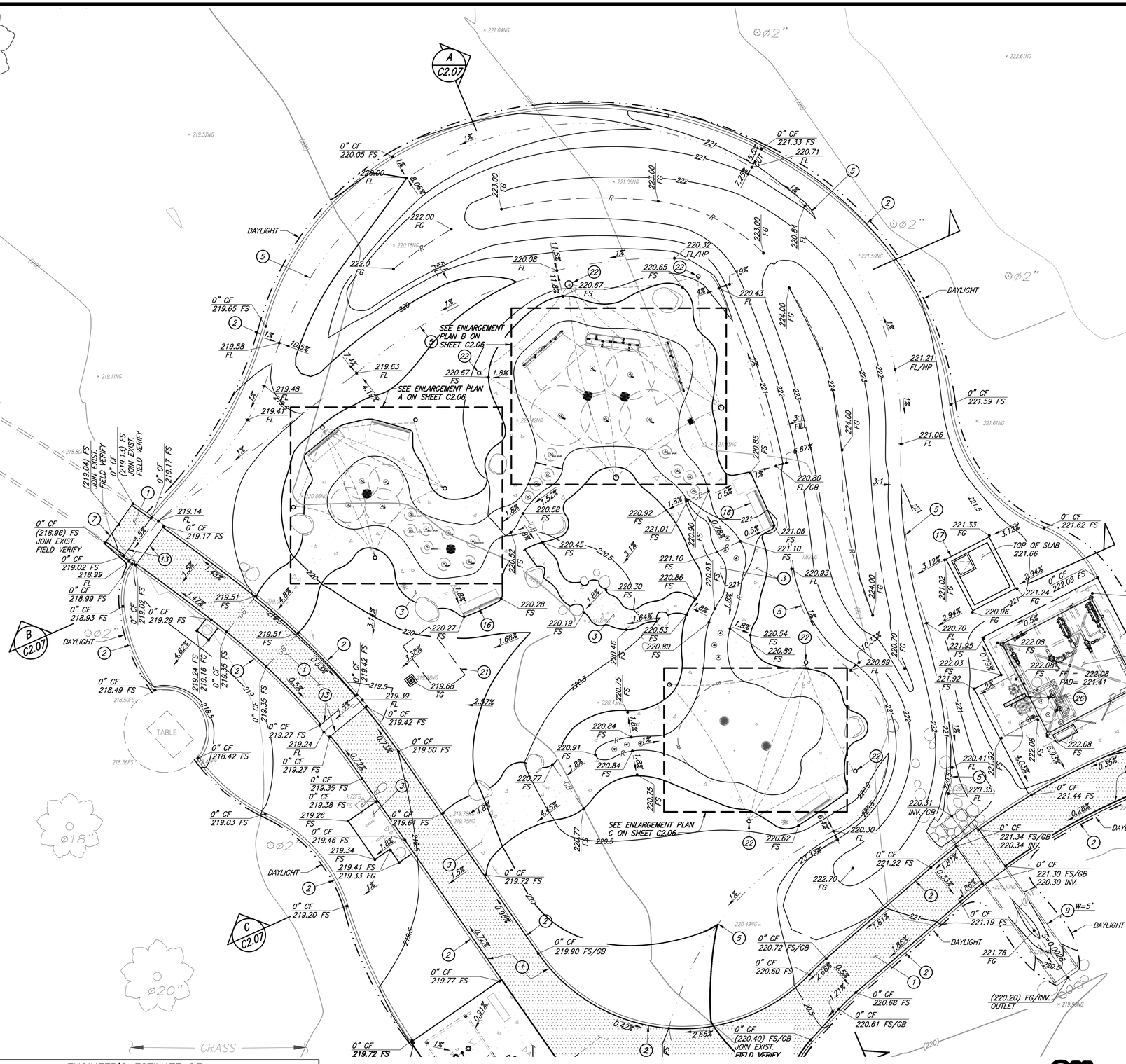
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DRAWN BY:	RS
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PROJECT NO.	1068
DATE:	23 OCT 2025

REGISTERED PROFESSIONAL ENGINEER
BARBARA L. HALL
No. 42206
Exp. 03/31/26
CIVIL
STATE OF CALIFORNIA

SHEET 13 OF 80

C2.01



CONSTRUCTION NOTES:

1. CONSTRUCT AC PAVEMENT & BASE PER DETAIL 3 ON SHEET C4.01.
2. CONSTRUCT 0" CURB FACE PER DETAIL 4 ON SHEET C4.01.
3. CONSTRUCT PEDESTRIAN PCC PAVEMENT PER DETAIL 1 ON SHEET C4.01.
4. CONSTRUCT P.C.C. CURB PER DETAIL 5 ON SHEET C4.01.
5. CONSTRUCT GRASSY SWALE PER DETAIL 6 ON SHEET C4.01.
6. PAINT ACCESSIBLE STALL STRIPING PER DETAIL 2 ON SHEET C4.02.
7. JOIN LINE.
8. INSTALL ACCESSIBLE PARKING SIGN PER DETAIL 1 ON SHEET C4.02.
9. CONSTRUCT CONCRETE CULVERT PER DETAIL 11 ON SHEET C4.01. SEE PLAN FOR W.
10. CONSTRUCT CURB RAMP PER SPPWC STD. PLAN 111-5, TYPE 1. W=4', X=6' & Y=8'.
11. FURNISH AND INSTALL CONCRETE WHEEL STOP PER DETAIL 4 ON SHEET C4.02.
12. CONSTRUCT 0" TO 6" CURB FACE TRANSITION PER DETAIL 7 ON SHEET C4.01.
13. CONSTRUCT DRAINAGE GUTTER PER DETAIL 9 ON SHEET C4.01.
14. CONSTRUCT CONCRETE CURB & GUTTER – MOUNTABLE PER SPPWC STD. PLAN 121-3, B2-6(150), W=1'.
15. AREA DRAIN. SEE SHEET C3.03 AND SPRAY GROUND PIPING PLAN, SHEETS SG-4, SG-6, SG-8. SEE AREA DRAIN DETAIL ON SHEET SG-9.
16. CONCRETE BENCH. SEE LANDSCAPE PLANS.
17. BALANCE TANK. SEE SHEET SG-10.
18. CONSTRUCT CONCRETE RIBBON GUTTER PER DETAIL 8 ON SHEET C4.01.
19. SAWCUT & REMOVE EXISTING AC PAVEMENT & BASE.
20. CONSTRUCT SHOWER AREA DRAIN PER DETAIL 10 ON SHEET C4.01.
21. INFILTRATION TRENCH. SEE SHEET C3.03.
22. CANOPY POST.
23. CONSTRUCT PCC SPLASH PAD SUBGRADE PER DETAIL 11 ON SHEET C4.01.
24. FURNISH AND INSTALL TRUNCATED DOMES PER DETAIL 5 ON SHEET C4.02.
25. SPLASH PAD MECHANICAL BUILDING. DEFERRED SUBMITTAL.
26. SCREEN WALL AT MATERIALS STORAGE AREA PER DETAIL 6 ON SHEET C4.02.
27. OVERFLOW CATCH BASIN. SEE SHEET C3.03.

REVIEWED FOR CONFORMANCE TO THE REFERENCED GEOTECHNICAL

REGISTERED PROFESSIONAL ENGINEER PAUL R. SCHADE No. 2371 GEOTECHNICAL STATE OF CALIFORNIA

SIGNED/STAMPED 10/23/2025

REGISTERED GEOLOGIST THOMAS G. HILL No. 1100 CERTIFIED ENGINEERING GEOLOGIST STATE OF CALIFORNIA

ENGINEER'S ESTIMATE OF EARTHWORK QUANTITIES

(NOT FOR BIDDING PURPOSES – FOR PERMIT ESTIMATION PURPOSES ONLY)

DESCRIPTION	CUT (CU YDS)	FILL (CU YDS)
RAW VOLUMES	227	222
OVEREXCAVATION	1142	1142

NOTES:

1. UTILITIES SHOWN ON PLAN ARE PROVIDED FOR REFERENCE ONLY AND SEPARATE PERMITS MAY BE REQUIRED.

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BENCHMARK NO. SY9775 EL. 225.369 FT
LOS ANGELES COUNTY
RDBM TAG IN E CB SANTA ANITA AVE 2FT N/O BCR @ NE COR DURFEE AVE.
NAVD 1988

0' 10'

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LANDSCAPE ARCHITECTURE + PLANNING
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CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: GRADING PLAN

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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DRAWN BY:	RS
CHECKED BY:	BLH
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REGISTERED PROFESSIONAL ENGINEER BARBARA L. HALL No. 42206 Exp. 03/31/26 CIVIL STATE OF CALIFORNIA

Barbara L. Hall, P.E., Inc.
318 West Evergreen Avenue
Monrovia, CA 91016
Phone: (626) 256-3220
Fax: (626) 256-3218

SEE SHEET C2.02 FOR CONTINUATION

CONSTRUCTION NOTES:

1. CONSTRUCT AC PAVEMENT & BASE PER DETAIL 3 ON SHEET C4.01.
2. CONSTRUCT 0" CURB FACE PER DETAIL 4 ON SHEET C4.01.
3. CONSTRUCT PEDESTRIAN PCC PAVEMENT PER DETAIL 1 ON SHEET C4.01.
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7. JOIN LINE.
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9. CONSTRUCT CONCRETE CULVERT PER DETAIL 11 ON SHEET C4.01. SEE PLAN FOR W.
10. CONSTRUCT CURB RAMP PER SPPWC STD. PLAN 111-5, TYPE 1. W=4', X=6' & Y=8'.
11. FURNISH AND INSTALL CONCRETE WHEEL STOP PER DETAIL 4 ON SHEET C4.02.
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16. CONCRETE BENCH. SEE LANDSCAPE PLANS.
17. BALANCE TANK. SEE SHEET SG-10.
18. CONSTRUCT CONCRETE RIBBON GUTTER PER DETAIL 8 ON SHEET C4.01.
19. SAWCUT & REMOVE EXISTING AC PAVEMENT & BASE.
20. CONSTRUCT SHOWER AREA DRAIN PER DETAIL 10 ON SHEET C4.01.
21. PYRAMID DRYWELL PIT. SEE SHEET C3.03.
22. CANOPY POST.
23. CONSTRUCT PCC SPLASH PAD SUBGRADE PER DETAIL 11 ON SHEET C4.01.
24. FURNISH AND INSTALL TRUNCATED DOMES PER DETAIL 5 ON SHEET C4.02.
25. SPLASH PAD MECHANICAL BUILDING. DEFERRED SUBMITTAL.

REVIEWED FOR CONFORMANCE TO THE REFERENCED GEOTECHNICAL

REGISTERED PROFESSIONAL ENGINEER PAUL R. SCHADE No. 2371 GEOTECHNICAL STATE OF CALIFORNIA

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SHEET TITLE: **GRADING PLAN**

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
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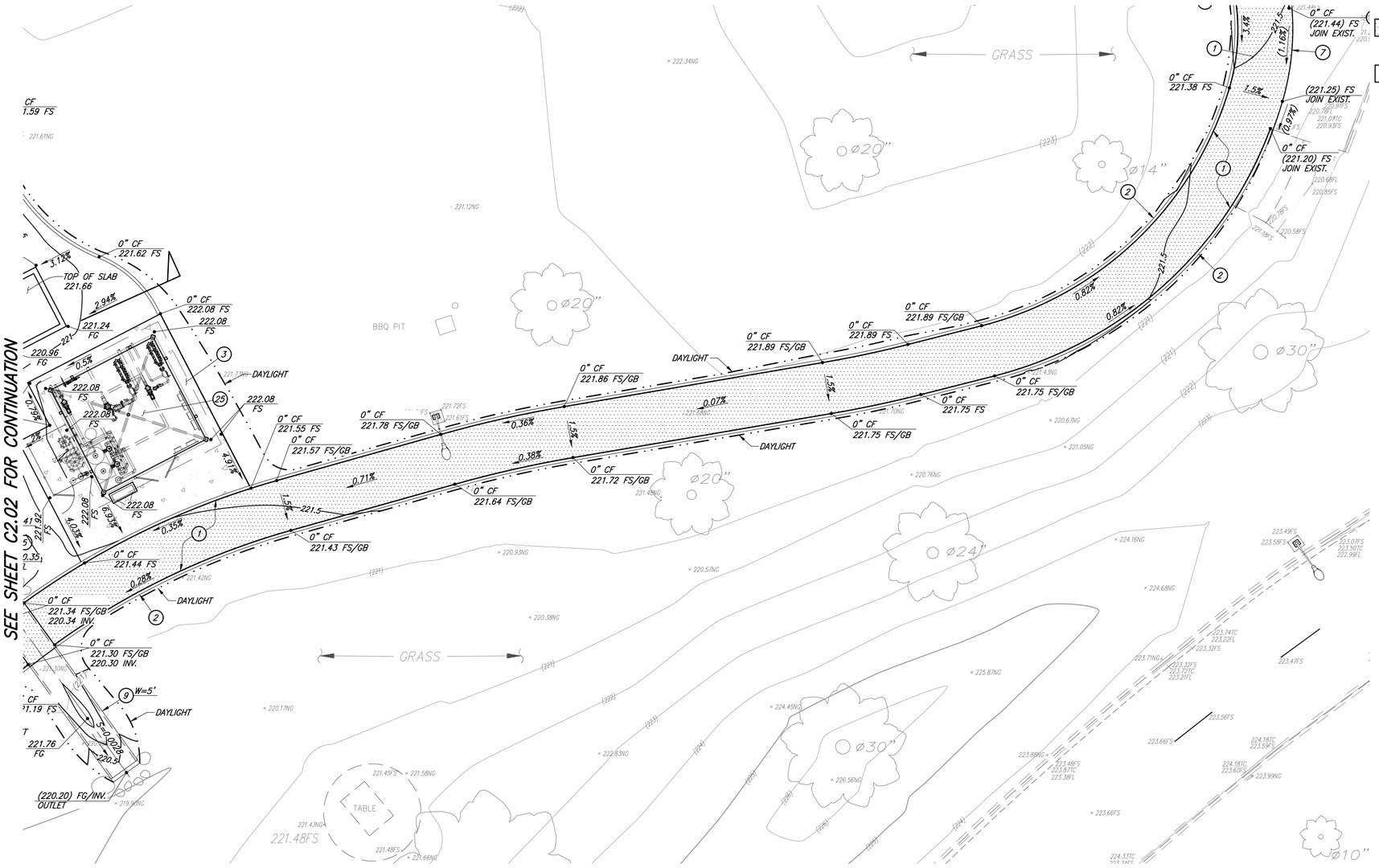
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REGISTERED PROFESSIONAL ENGINEER BARBARA L. HALL No. 42206 Exp. 03/31/26 CIVIL STATE OF CALIFORNIA

SHEET 15 OF 80

C2.03



CONSTRUCTION NOTES:

1. CONSTRUCT AC PAVEMENT & BASE PER DETAIL 3 ON SHEET C4.01.
2. CONSTRUCT 0" CURB FACE PER DETAIL 4 ON SHEET C4.01.
3. CONSTRUCT PEDESTRIAN PCC PAVEMENT PER DETAIL 1 ON SHEET C4.01.
4. CONSTRUCT P.C.C. CURB PER DETAIL 5 ON SHEET C4.01.
5. CONSTRUCT GRASSY SWALE PER DETAIL 6 ON SHEET C4.01.
6. PAINT ACCESSIBLE STALL STRIPING PER DETAIL 2 ON SHEET C4.02.
7. JOIN LINE.
8. INSTALL ACCESSIBLE PARKING SIGN PER DETAIL 1 ON SHEET C4.02.
9. CONSTRUCT CONCRETE CULVERT PER DETAIL 11 ON SHEET C4.01. SEE PLAN FOR W.
10. CONSTRUCT CURB RAMP PER SPPWC STD. PLAN 111-5, TYPE 1. W=4', X=6' & Y=8'.
11. FURNISH AND INSTALL CONCRETE WHEEL STOP PER DETAIL 4 ON SHEET C4.02.
12. CONSTRUCT 0" TO 6" CURB FACE TRANSITION PER DETAIL 7 ON SHEET C4.01.
13. CONSTRUCT DRAINAGE GUTTER PER DETAIL 9 ON SHEET C4.01.
14. CONSTRUCT CONCRETE CURB & GUTTER – MOUNTABLE PER SPPWC STD. PLAN 121-3, B2-6(150), W=1'.
15. AREA DRAIN. SEE SHEET C3.03 AND SPRAY GROUND PIPING PLAN, SHEETS SG-4, SG-6, SG-8. SEE AREA DRAIN DETAIL ON SHEET SG-9.
16. CONCRETE BENCH. SEE LANDSCAPE PLANS.
17. BALANCE TANK. SEE SHEET SG-10.
18. CONSTRUCT CONCRETE RIBBON GUTTER PER DETAIL 8 ON SHEET C4.01.
19. SAWCUT & REMOVE EXISTING AC PAVEMENT & BASE.
20. CONSTRUCT SHOWER AREA DRAIN PER DETAIL 10 ON SHEET C4.01.
21. PYRAMID DRYWELL PIT. SEE SHEET C3.03.
22. CANOPY POST.
23. CONSTRUCT PCC SPLASH PAD SUBGRADE PER DETAIL 11 ON SHEET C4.01.
24. FURNISH AND INSTALL TRUNCATED DOMES PER DETAIL 5 ON SHEET C4.02.
25. SPLASH PAD MECHANICAL BUILDING. DEFERRED SUBMITTAL.

REVIEWED FOR CONFORMANCE TO THE REFERENCED GEOTECHNICAL

REGISTERED PROFESSIONAL ENGINEER PAUL R. SCHAFF No. 2371 GEOTECHNICAL STATE OF CALIFORNIA

SIGNED/STAMPED 10/23/2025

REGISTERED GEOLOGIST THOMAS G. HILL No. 1100 CERTIFIED ENGINEERING GEOLOGIST STATE OF CALIFORNIA

0' 10'

NOTES:

1. UTILITIES SHOWN ON PLAN ARE PROVIDED FOR REFERENCE ONLY AND SEPARATE PERMITS MAY BE REQUIRED.

811 Know what's below. Call before you dig.

BENCHMARK NO. SY9775 EL. 225.369 FT
LOS ANGELES COUNTY

RDBM TAG IN E CB SANTA ANITA AVE 2FT N/O BCR @ NE COR DURFEE AVE.

NAVD 1988

Barbara L. Hall, P.E., Inc.
318 West Evergreen Avenue
Monrovia, CA 91016
Phone: (626) 256-3220
Fax: (626) 256-3218

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: **GRADING PLAN**

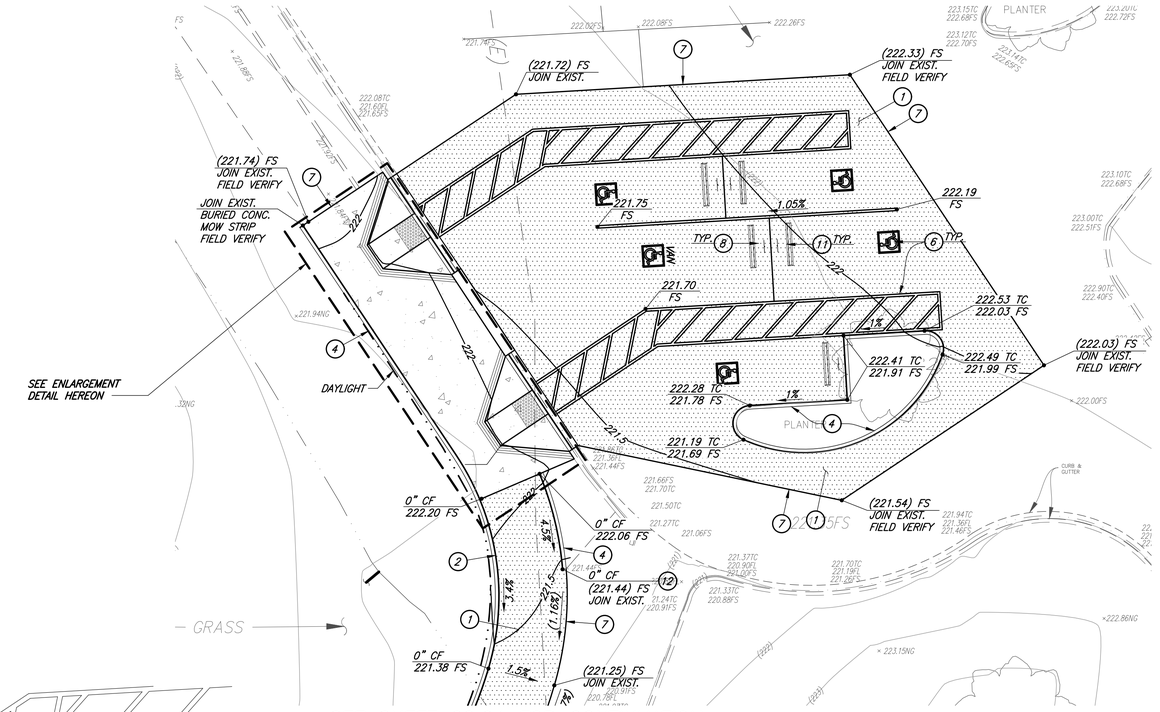
OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

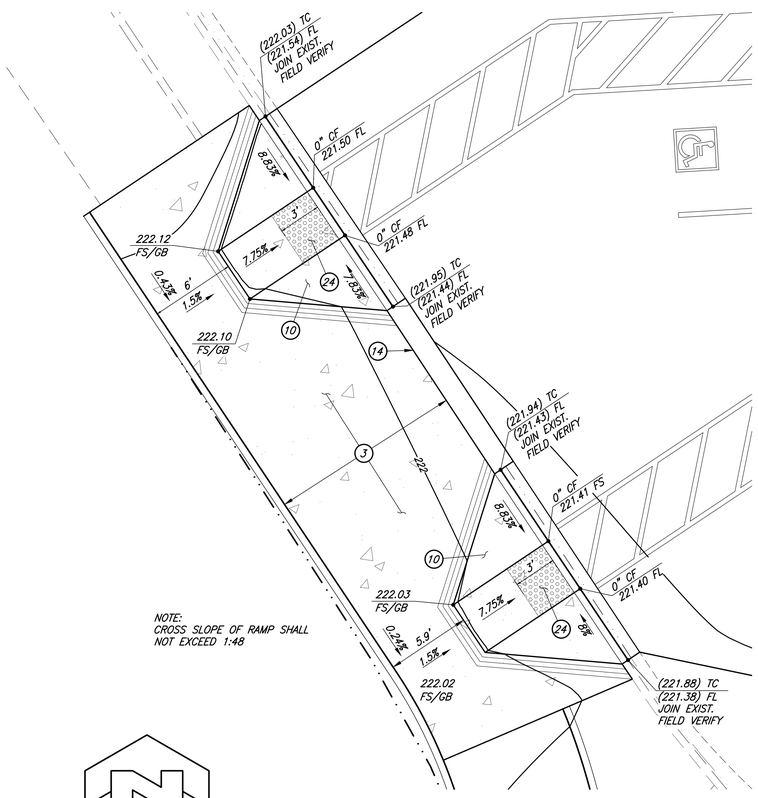
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DRAWN BY:	RS
CHECKED BY:	BLH
PROJECT NO.	1068
DATE:	23OCT 2025

REGISTERED PROFESSIONAL ENGINEER BARBARA L. HALL No. 42206 Exp. 03/31/26 CIVIL STATE OF CALIFORNIA



SEE SHEET C2.04 FOR CONTINUATION



ENLARGEMENT DETAIL

SCALE: 1" = 5'

0' 5'

CONSTRUCTION NOTES:

1. CONSTRUCT AC PAVEMENT & BASE PER DETAIL 3 ON SHEET C4.01.
2. CONSTRUCT 0" CURB FACE PER DETAIL 4 ON SHEET C4.01.
3. CONSTRUCT PEDESTRIAN PCC PAVEMENT PER DETAIL 1 ON SHEET C4.01.
4. CONSTRUCT P.C.C. CURB PER DETAIL 5 ON SHEET C4.01.
5. CONSTRUCT GRASSY SWALE PER DETAIL 6 ON SHEET C4.01.
6. PAINT ACCESSIBLE STALL STRIPING PER DETAIL 2 ON SHEET C4.02.
7. JOIN LINE.
8. INSTALL ACCESSIBLE PARKING SIGN PER DETAIL 1 ON SHEET C4.02.
9. CONSTRUCT CONCRETE CULVERT PER DETAIL 11 ON SHEET C4.01. SEE PLAN FOR W.
10. CONSTRUCT CURB RAMP PER SPPWC STD. PLAN 111-5, TYPE 1. W=4', X=6' & Y=8'.
11. FURNISH AND INSTALL CONCRETE WHEEL STOP PER DETAIL 4 ON SHEET C4.02.
12. CONSTRUCT 0" TO 6" CURB FACE TRANSITION PER DETAIL 7 ON SHEET C4.01.
13. CONSTRUCT DRAINAGE GUTTER PER DETAIL 9 ON SHEET C4.01.
14. CONSTRUCT CONCRETE CURB & GUTTER – MOUNTABLE PER SPPWC STD. PLAN 121-3, B2-6(150), W=1'.
15. AREA DRAIN. SEE SHEET C3.03 AND SPRAY GROUND PIPING PLAN, SHEETS SG-4, SG-6, SG-8. SEE AREA DRAIN DETAIL ON SHEET SG-9.
16. CONCRETE BENCH. SEE LANDSCAPE PLANS.
17. BALANCE TANK. SEE SHEET SG-10.
18. CONSTRUCT CONCRETE RIBBON GUTTER PER DETAIL 8 ON SHEET C4.01.
19. SAWCUT & REMOVE EXISTING AC PAVEMENT & BASE.
20. CONSTRUCT SHOWER AREA DRAIN PER DETAIL 10 ON SHEET C4.01.
21. PYRAMID DRYWELL PIT. SEE SHEET C3.03.
22. CANOPY POST.
23. CONSTRUCT PCC SPLASH PAD SUBGRADE PER DETAIL 11 ON SHEET C4.01.
24. FURNISH AND INSTALL TRUNCATED DOMES PER DETAIL 5 ON SHEET C4.02.
25. SPLASH PAD MECHANICAL BUILDING. DEFERRED SUBMITTAL.

REVIEWED FOR CONFORMANCE TO THE REFERENCED GEOTECHNICAL

REGISTERED PROFESSIONAL ENGINEER
PAUL R. SCHADE
No. 2371
GEOTECHNICAL
STATE OF CALIFORNIA

SIGNED/STAMPED
10/23/2025

REGISTERED GEOLOGIST
THOMAS G. HILL
No. 1100
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

0' 10'

NOTES:

1. UTILITIES SHOWN ON PLAN ARE PROVIDED FOR REFERENCE ONLY AND SEPARATE PERMITS MAY BE REQUIRED.

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BENCHMARK NO. SY9775 EL. 225.369 FT
LOS ANGELES COUNTY

RDBM TAG IN E CB SANTA ANITA AVE 2FT N/O BCR @ NE COR DURFEE AVE.

NAVD 1988

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SHEET TITLE
GRADING PLAN

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

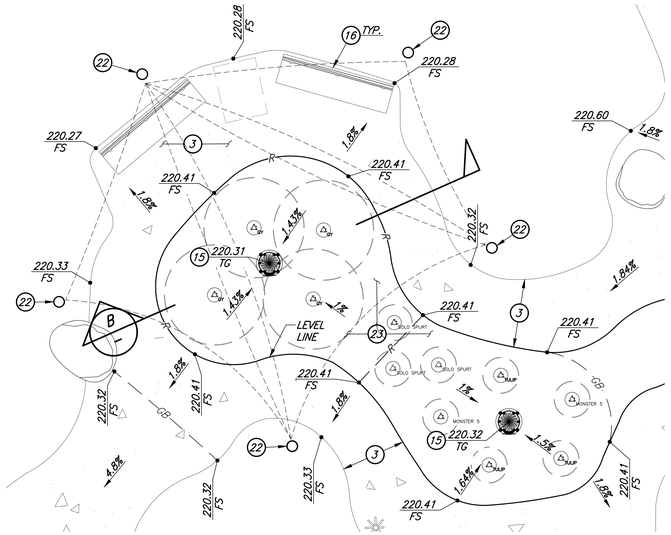
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DRAWN BY:	RS
CHECKED BY:	BLH
PROJECT NO.	1068
DATE:	23OCT 2025

REGISTERED PROFESSIONAL ENGINEER
BARBARA L. HALL
No. 42206
Exp. 03/31/26
CIVIL
STATE OF CALIFORNIA

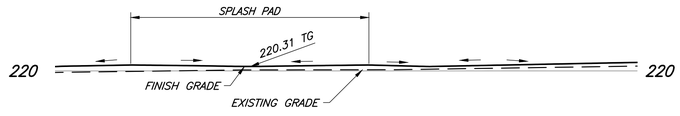
SHEET 17 OF 80

C2.05



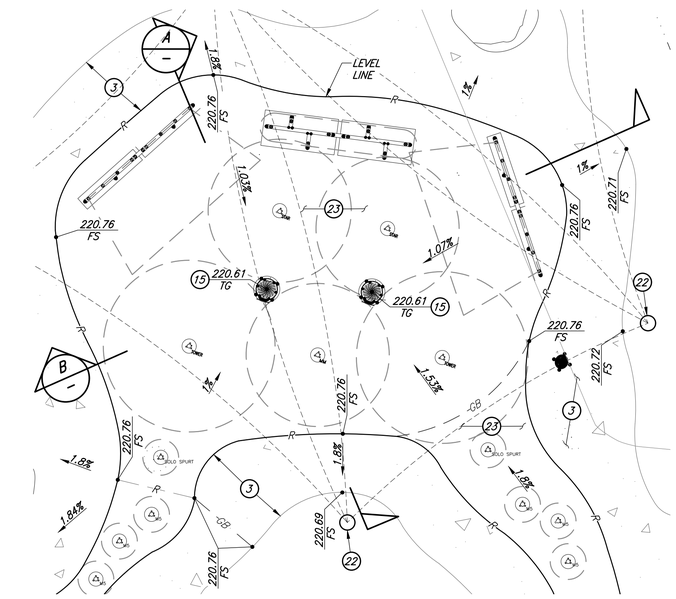
ENLARGEMENT PLAN A

SCALE: 1" = 5'



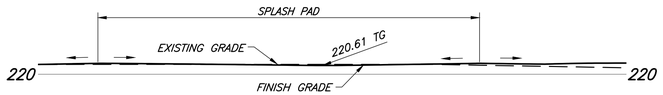
SECTION B

SCALE: HOR: 1" = 5'
VERT: 1" = 5'



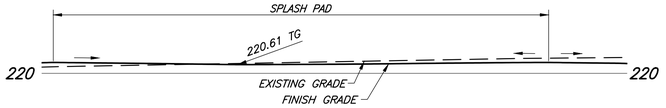
ENLARGEMENT PLAN B

SCALE: 1" = 5'



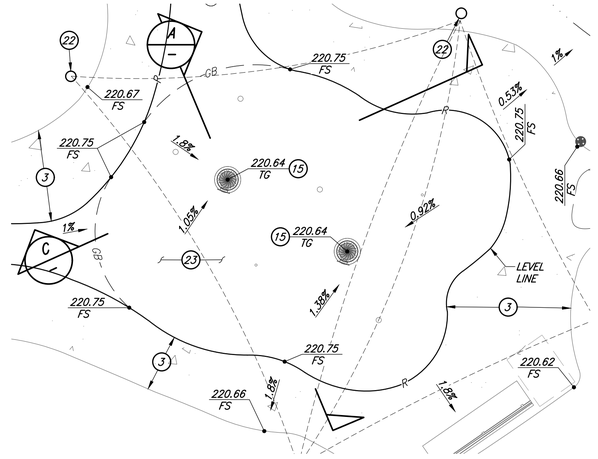
SECTION A

SCALE: HOR: 1" = 5'
VERT: 1" = 5'



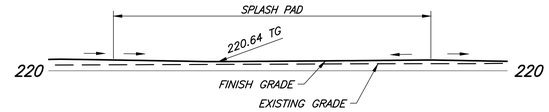
SECTION B

SCALE: HOR: 1" = 5'
VERT: 1" = 5'



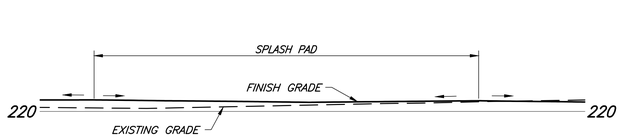
ENLARGEMENT PLAN C

SCALE: 1" = 5'



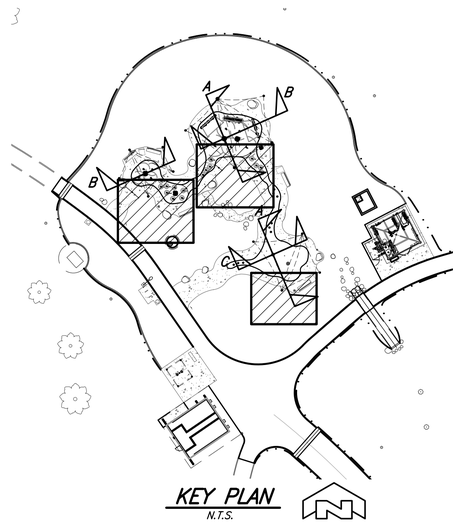
SECTION A

SCALE: HOR: 1" = 5'
VERT: 1" = 5'



SECTION C

SCALE: HOR: 1" = 5'
VERT: 1" = 5'



KEY PLAN

N.T.S.

CONSTRUCTION NOTES:

1. CONSTRUCT AC PAVEMENT & BASE PER DETAIL 3 ON SHEET C4.01.
2. CONSTRUCT 0" CURB FACE PER DETAIL 4 ON SHEET C4.01.
3. CONSTRUCT PEDESTRIAN PCC PAVEMENT PER DETAIL 1 ON SHEET C4.01.
4. CONSTRUCT P.C.C. CURB PER DETAIL 5 ON SHEET C4.01.
5. CONSTRUCT GRASSY SWALE PER DETAIL 6 ON SHEET C4.01.
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15. AREA DRAIN. SEE SHEET C3.03 AND SPRAY GROUND PIPING PLAN, SHEETS SG-4, SG-6, SG-8. SEE AREA DRAIN DETAIL ON SHEET SG-9.
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20. CONSTRUCT SHOWER AREA DRAIN PER DETAIL 10 ON SHEET C4.01.
21. PYRAMID DRYWELL PIT. SEE SHEET C3.03.
22. CANOPY POST.
23. CONSTRUCT PCC SPLASH PAD SUBGRADE PER DETAIL 11 ON SHEET C4.01.
24. FURNISH AND INSTALL TRUNCATED DOMES PER DETAIL 5 ON SHEET C4.02.
25. SPLASH PAD MECHANICAL BUILDING. DEFERRED SUBMITTAL.
26. SCREEN WALL AT MATERIALS STORAGE AREA PER DETAIL 6 ON SHEET C4.02.
27. OVERFLOW CATCH BASIN. SEE SHEET C3.03.

NOTES:

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REVIEWED FOR CONFORMANCE TO THE REFERENCED GEOTECHNICAL

REGISTERED PROFESSIONAL ENGINEER PAUL R. SCHAAF No. 2371 GEOTECHNICAL STATE OF CALIFORNIA

SIGNED/STAMPED 10/23/2025

REGISTERED GEOLOGIST THOMAS G. HILL No. 1100 CERTIFIED ENGINEERING GEOLOGIST STATE OF CALIFORNIA

0' 5'

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LOS ANGELES COUNTY

RDBM TAG IN E CB SANTA ANITA AVE 2FT N/O BCR @ NE COR DURFEE AVE.

NAVD 1988

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SHEET TITLE: GRADING PLAN & SECTIONS

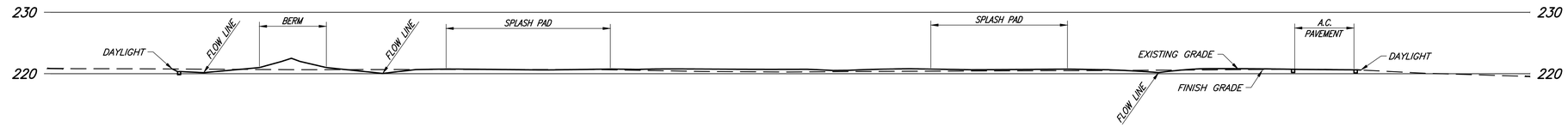
OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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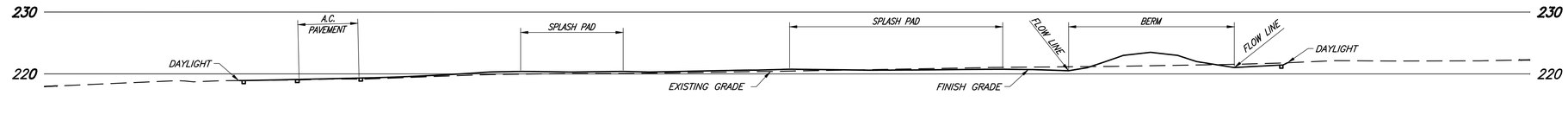
DRAWN BY:	RS
CHECKED BY:	BLH
PROJECT NO.	1068
DATE:	23OCT 2025

REGISTERED PROFESSIONAL ENGINEER BARBARA L. HALL No. 42206 Exp. 03/31/26 CIVIL STATE OF CALIFORNIA



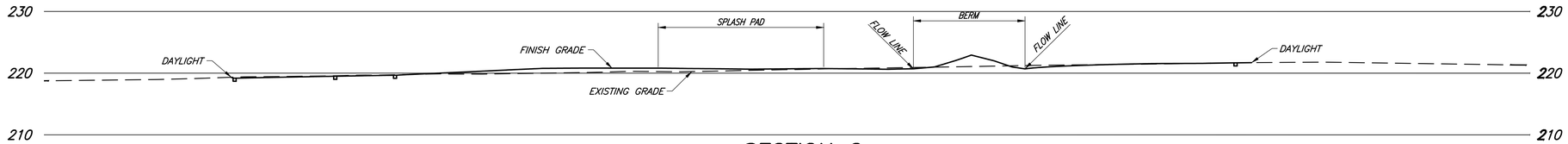
SECTION A

SCALE: HOR: 1" = 10'
VERT: 1" = 10'



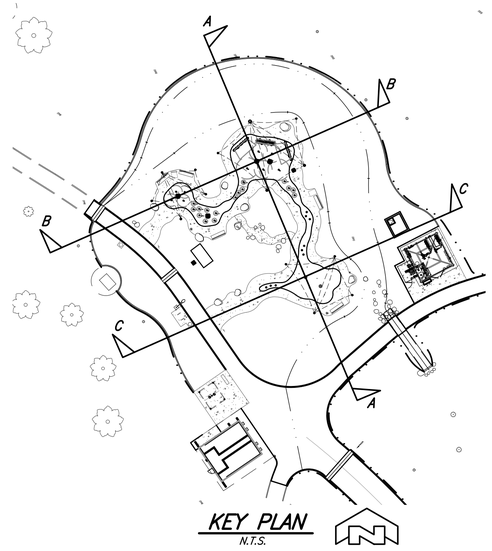
SECTION B

SCALE: HOR: 1" = 10'
VERT: 1" = 10'



SECTION C

SCALE: HOR: 1" = 10'
VERT: 1" = 10'



KEY PLAN

N.T.S.

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318 West Evergreen Avenue
Monrovia, CA 91016
Phone: (626) 256-3220
Fax: (626) 256-3218

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE
SECTIONS

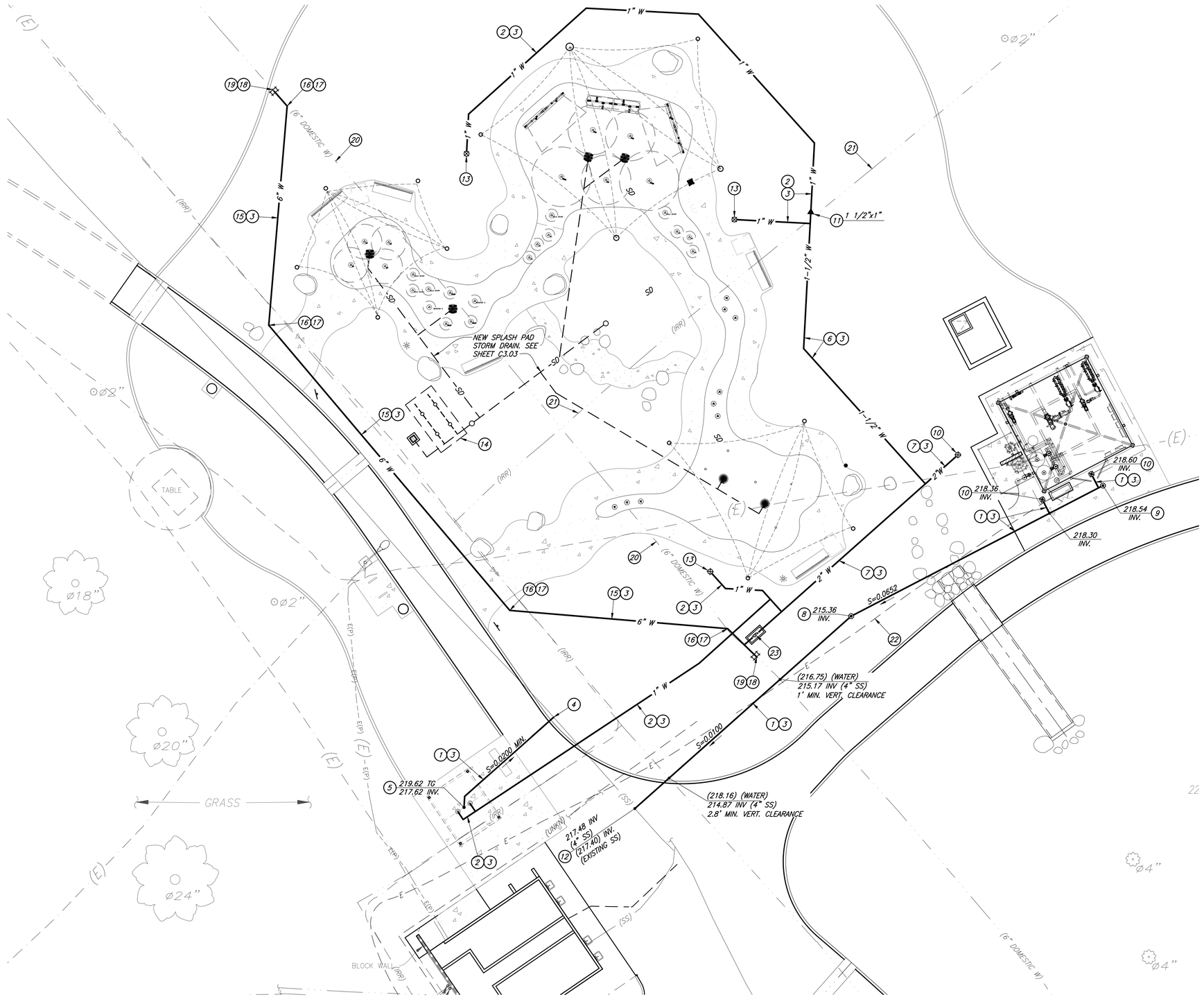
OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

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DRAWN BY:	RS
CHECKED BY:	BLH
PROJECT NO.	1068
DATE:	23 OCT 2025

REGISTERED PROFESSIONAL ENGINEER
BARBARA L. HALL
No. 42206
Exp. 03/31/26
CIVIL
STATE OF CALIFORNIA



CONSTRUCTION NOTES:

1. FURNISH & INSTALL 4"ø SCHEDULE 40 PVC DWV PIPE & FITTINGS.
2. FURNISH & INSTALL 1"ø SCHEDULE 80 PVC PIPE & FITTINGS.
3. BACKFILL TRENCH PER DETAIL 4 ON SHEET C4.03.
4. CONNECT TO EXISTING UTILITY. POTHOLE & FIELD VERIFY SIZE & DEPTH PRIOR TO CONSTRUCTION.
5. CONSTRUCT SHOWER AREA DRAIN PER DETAIL 1 ON SHEET C4.03.
6. FURNISH & INSTALL 1 1/2"ø SCHEDULE 40 PVC DWV PIPE & FITTINGS.
7. FURNISH & INSTALL 2"ø SCHEDULE 40 PVC DWV PIPE & FITTINGS.
8. CONSTRUCT SEWER OR DRAIN CLEANOUT IN LANDSCAPE AREA PER DETAIL 2 ON SHEET C4.03.
9. CONSTRUCT SEWER OR DRAIN CLEANOUT IN PEDESTRIAN PCC PAVEMENT PER DETAIL 3 ON SHEET C4.03.
10. POINT OF CONNECTION. SEE PLUMBING PLANS.
11. FURNISH & INSTALL ECCENTRIC REDUCER.
12. CONNECT TO EXISTING SEWER MAIN PER SPPWC STD. PLAN 222-2. POTHOLE & FIELD VERIFY SIZE, DEPTH & STD. TYPE PRIOR TO CONSTRUCTION.
13. FURNISH & INSTALL HOSE BIBB WITH VACUUM BREAKER IN A BOX PER DETAIL 5 ON SHEET C4.03.
14. INFILTRATION TRENCH. SEE SHEET C3.03.
15. FURNISH & INSTALL 6"ø C900, CLASS 200, PVC PIPE WITH DUCTILE IRON FITTINGS.
16. CONSTRUCT CONCRETE THRUST BLOCK PER DETAIL 5 ON SHEET C4.02.
17. FURNISH & INSTALL 45° D.I. ELBOW.
18. CONNECT TO EXISTING UTILITY. POTHOLE & FIELD VERIFY SIZE & DEPTH PRIOR TO CONSTRUCTION.
19. FURNISH & INSTALL 6" TRANSITION SLEEVE.
20. REMOVE EXISTING WATER LINE.
21. LOCALLY RE-ROUTE INTERFERING PORTIONS OF EXISTING IRRIGATION SYSTEM.
22. ELECTRICAL CONDUIT PER ELECTRICAL PLANS, SHEET. SEE SHEET SE1.01.
23. CONSTRUCT REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY PER DETAIL 7 ON SHEET C4.03.

NOTES:

1. UTILITIES SHOWN ON PLAN ARE PROVIDED FOR REFERENCE ONLY AND SEPARATE PERMITS MAY BE REQUIRED.

NOTE:

THE EXISTENCE & LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THIS DRAWING. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN & ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THIS DRAWING.

0' 10'

Know what's **below.** **Call** before you dig.

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LOS ANGELES COUNTY

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SHEET TITLE: **UTILITY PLAN**

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

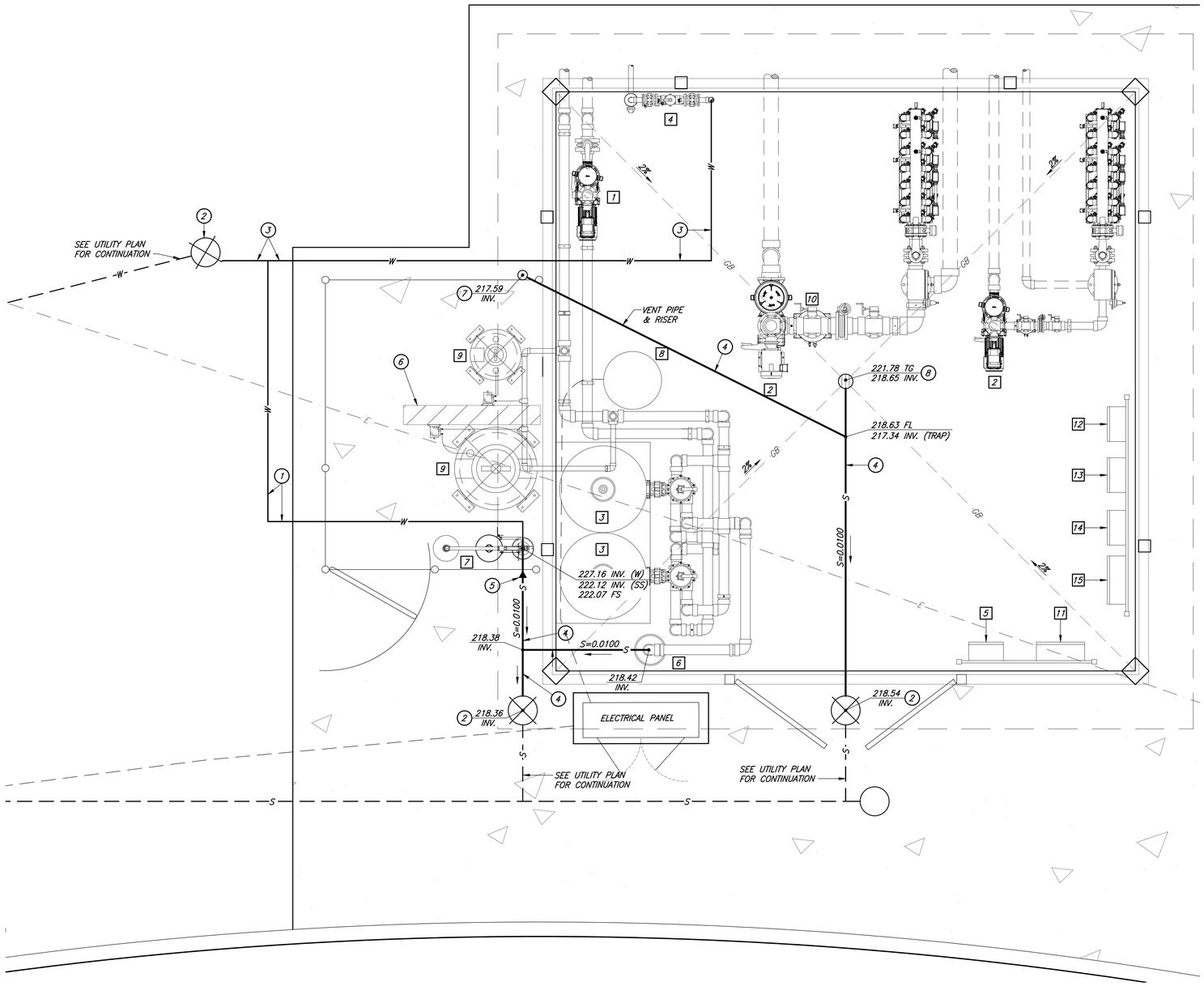
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DRAWN BY:	RS
CHECKED BY:	BLH
PROJECT NO.	1068
DATE:	23 OCT 2025

REGISTERED PROFESSIONAL ENGINEER
BARBARA L. HALL
No. 42206
Exp. 03/31/26
CIVIL
STATE OF CALIFORNIA

SHEET 20 OF 80

C3.01



CONSTRUCTION NOTES:

1. *FURNISH & INSTALL 1 1/4"ø IPS PIPE.*
2. *POINT OF CONNECTION. SEE UTILITY PLANS.*
3. *FURNISH & INSTALL 2"ø SCHEDULE 80 PVC PIPE & FITTINGS.*
4. *FURNISH & INSTALL 4"ø SCHEDULE 40 PVC DWV PIPE & FITTINGS.*
5. *FURNISH & INSTALL 4"x1 1/4" REDUCER.*
6. *SCREEN WALL. SEE GRADING PLAN, SHEET C2.02.*
7. *CONSTRUCT SEWER VENT RISER PER DETAIL 8 ON SHEET C4.03.*
8. *FURNISH & INSTALL SEWER AREA DRAIN WITH TRAP & VENT PER DETAIL 6 ON SHEET C4.03.*

EQUIPMENT LIST

1. *SPRAY GROUND CIRCULATION PUMP. SEE MECHANICAL ROOM LAYOUT PLAN, SHEET MR-1, NOTE 1.*
2. *SPRAY GROUND BOOSTER PUMP. SEE MECHANICAL ROOM LAYOUT PLAN, SHEET MR-1, NOTE 2.*
3. *SPRAY GROUND FILTERS. SEE MECHANICAL ROOM LAYOUT PLAN, SHEET MR-1, NOTE 4.*
4. *SPRAY GROUND BALANCE TANK FILL SYSTEM. SEE MECHANICAL ROOM LAYOUT PLAN, SHEET MR-1, NOTE 10.*
5. *ELECTRICAL PANEL. SEE MECHANICAL ROOM LAYOUT PLAN, SHEET MR-1, NOTE 12.*
6. *BACKWASH. SEE MECHANICAL ROOM LAYOUT PLAN, SHEET MR-1, NOTE 13.*
7. *EYEWASH/SHOWER. SEE MECHANICAL ROOM LAYOUT PLAN, SHEET MR-1, NOTE 14.*
8. *WATER HEATER. SEE MECHANICAL ROOM LAYOUT PLAN, SHEET MR-1.*
9. *CHEMICAL STORAGE. SEE MECHANICAL ROOM LAYOUT PLAN, SHEET MR-1, NOTES 8 AND 9.*
10. *SPRAY GROUND BOOSTER PUMP UV CONTROLLER. SEE MECHANICAL ROOM LAYOUT PLAN, SHEET MR-1, NOTES 5 AND 6.*
11. *SPRAY GROUND BOOSTER PUMP UV CONTROLLER. SEE MECHANICAL ROOM LAYOUT PLAN, SHEET MR-1, NOTE 6.*
12. *SPRAY GROUND WATER CHEMISTRY CONTROLLER. SEE MECHANICAL ROOM LAYOUT PLAN, SHEET MR-1, NOTE 11.*
13. *SPRAY GROUND BOOSTER PUMP. SEE MECHANICAL ROOM LAYOUT PLAN, SHEET MR-1, NOTE 3.*
14. *SPRAY GROUND BOOSTER PUMP MANIFOLDS CONTROLLER. SEE MECHANICAL ROOM LAYOUT PLAN, SHEET MR-1, NOTE 7.*
15. *SPRAY GROUND BOOSTER PUMP UV CONTROLLER. SEE MECHANICAL ROOM LAYOUT PLAN, SHEET MR-1, NOTE 5.*

0' 2'

Know what's below. Call before you dig.

BENCHMARK NO. SY9775 EL. 225.369 FT
LOS ANGELES COUNTY

RDBM TAG IN E CB SANTA ANITA AVE 2FT N/O BCR @ NE COR DURFEE AVE.

NAVD 1988

Barbara L. Hall, P.E., Inc.
318 West Evergreen Avenue
Monrovia, CA 91016
Phone: (626) 256-3220
Fax: (626) 256-3218

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE
MECHANICAL BUILDING PLUMBING PLAN

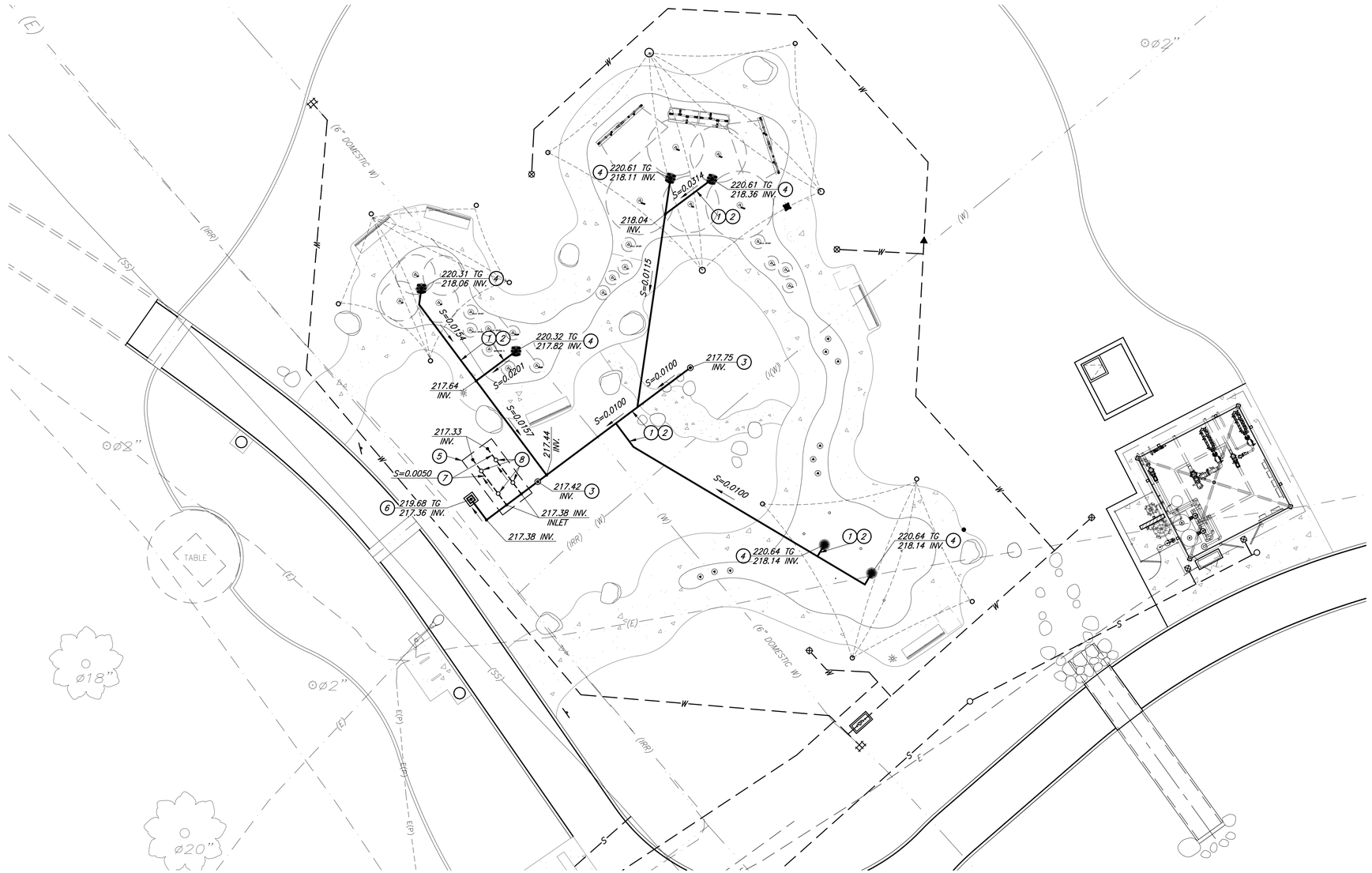
OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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CONSTRUCTION NOTES:

1. *FURNISH & INSTALL 4"ø SCHEDULE 40 PVC DWV PIPE & FITTINGS.*
2. *BACKFILL TRENCH PER DETAIL 4 ON SHEET C4.03.*
3. *CONSTRUCT SEWER OR DRAIN CLEANOUT IN PEDESTRIAN PCC PAVEMENT PER DETAIL 3 ON SHEET C4.03.*
4. *AREA DRAIN PER DETAIL ON SHEET SG-9. SEE SHEETS SG-4, SG-6, SG-8 FOR SPRAY GROUND PIPING.*
5. *CONSTRUCT INFILTRATION TRENCH PER DETAIL 1 ON SHEET C4.04.*
6. *CONSTRUCT OVERFLOW CATCH BASIN PER DETAIL 2 ON SHEET C4.04.*
7. *FURNISH & INSTALL PERFORATED 6"ø SCHEDULE 40 PVC PIPE & FITTINGS.*
8. *CONSTRUCT OBSERVATION WELL PER DETAIL 1 ON SHEET C4.04.*

0' 10'

Know what's **below.** **Call** before you dig.

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LOS ANGELES COUNTY

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CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE
SPLASH PAD STORM WATER DIVERSION PLAN

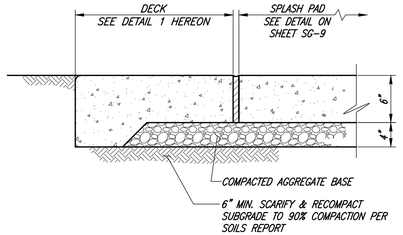
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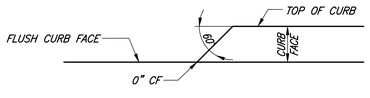
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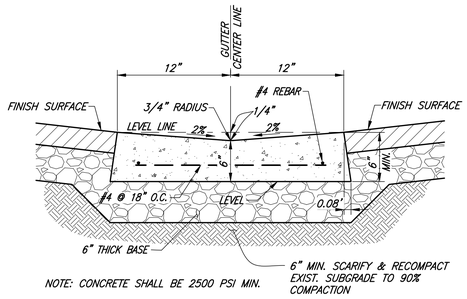


PCC SPLASH PAD SUBGRADE PREPARATION 11
NTS



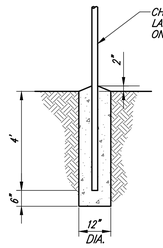
ELEVATION

0"–6" CURB FACE TRANSITION 7
NTS

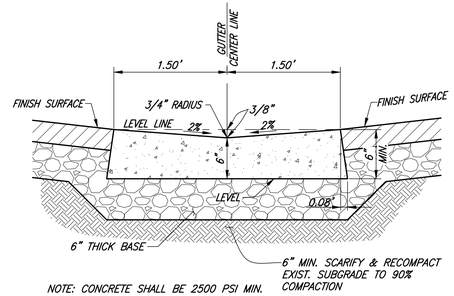


NOTE: CONCRETE SHALL BE 2500 PSI MIN.

RIBBON GUTTER 8
NTS

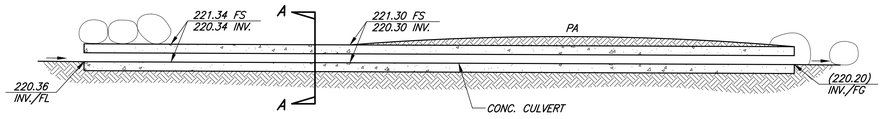


FENCE POST FOOTING 12
NTS

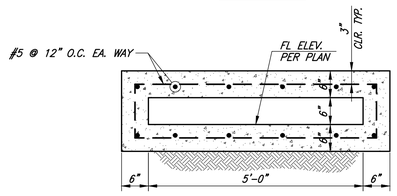


NOTE: CONCRETE SHALL BE 2500 PSI MIN.

DRAINAGE GUTTER 9
NTS



ELEVATION

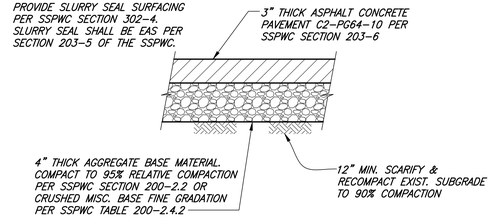


SECTION A–A

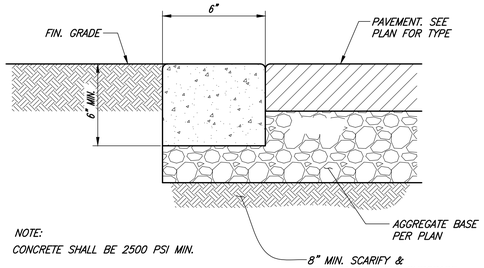
CONRETE CULVERT 10
NTS

NOTE:

PROVIDE SLURRY SEAL SURFACING PER SSPWC SECTION 302-4. SLURRY SEAL SHALL BE EAS PER SECTION 203-5 OF THE SSPWC.

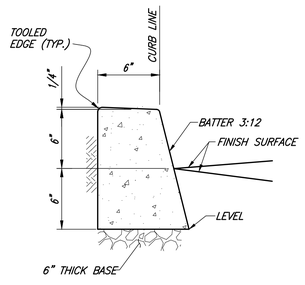


ASPHALT CONCRETE PAVEMENT 3
NTS



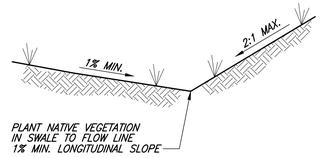
NOTE:
CONCRETE SHALL BE 2500 PSI MIN.

0" CURB FACE 4
NTS

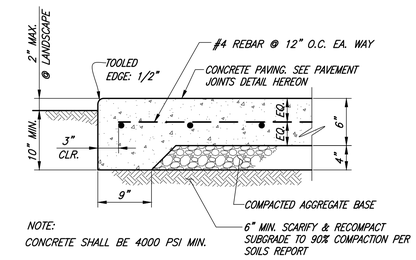


NOTE:
CONCRETE SHALL BE 2500 PSI MIN.

6" CURB 5
NTS



GRASSY DRAINAGE SWALE 6
NTS



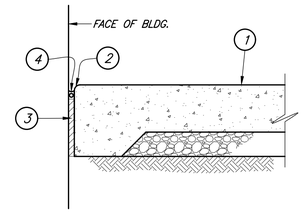
NOTE:
CONCRETE SHALL BE 4000 PSI MIN.

PCC PEDESTRIAN PAVEMENT 1
NTS

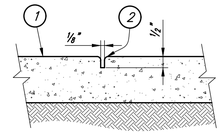
NOTE:

SEE ARCHITECTURAL PLANS FOR SCORING & JOINT PATTERNS.

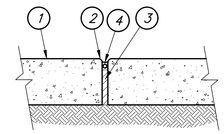
MINIMUM REQUIREMENTS:
- E.J.'S @ 20' O.C. EACH WAY
- C.J.'S @ 5' O.C. EACH WAY FOR PEDESTRIAN
- C.J.'S @ 10' O.C. EACH WAY FOR VEHICULAR



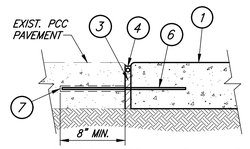
CONCRETE PAVEMENT @ BLDG.



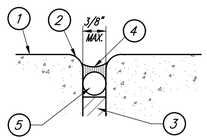
A. CONTROL JOINT



B. EXPANSION JOINT WITH SEALANT



C. DOWELED COLD JOINT
@ JOIN W/EXISTING PCC PAVEMENT



TYPICAL ENLARGEMENT OF JOINT

LEGEND:
1. CONC. PAVING
2. 1/4" TOOLED RADIUS EDGE OR SAWCUT JOINT
3. PREMOLDED BITUMINOUS EXPANSION JOINT FILLER PER SSPWC SECTIONS 201-3.2 WITH TYPE "A" SEALANT 201-3.4
4. SEALANT W/SAND FINISH – COLOR TO BE SELECTED BY ARCH. SUBMIT COLOR SAMPLES PRIOR TO INSTALLATION
5. BACKER ROD
6. #4x18" DOWEL @ 36" O.C., CTR. IN CONC.
7. DRILLED EPOXY DOWEL

PCC PAVEMENT JOINTS 2
NTS

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
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CHATSWORTH, CA 91311
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ALHAMBRA, CA 91803

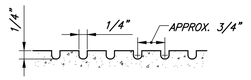
PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

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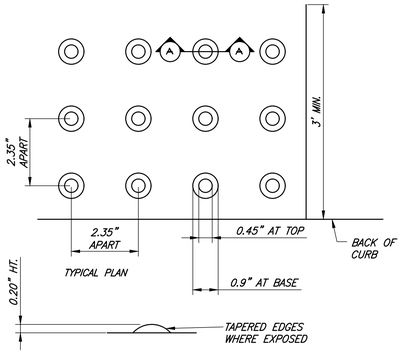
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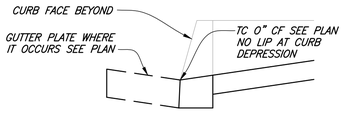


12" WIDE GROOVING BAND



TYPICAL PLAN

SECTION A–A

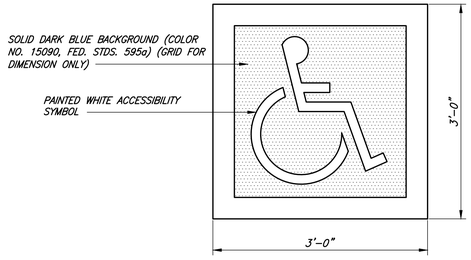


BOTTOM OF RAMP

NOTE:
ALL TRUNCATED DOMES SHALL CAST IN PLACE.

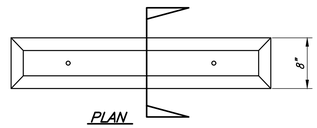
BOTTOM OF RAMP, GROOVE BAND AND TRUNCATED DOMES ON CURB RAMP 5

NTS

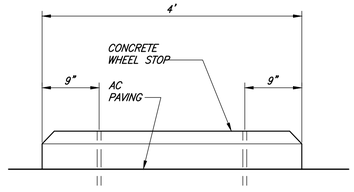


ACCESSIBLE SYMBOL 3

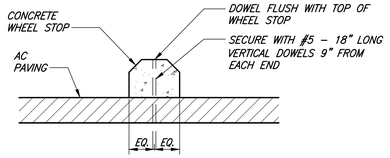
NTS



PLAN



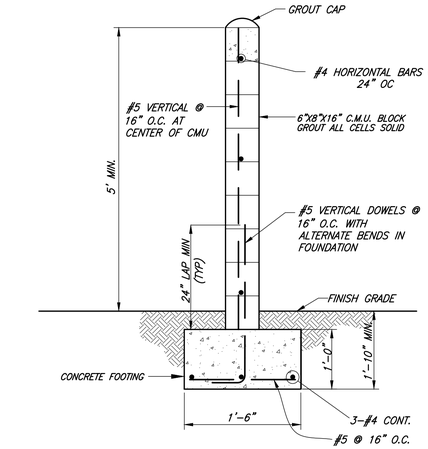
ELEVATION



SECTION

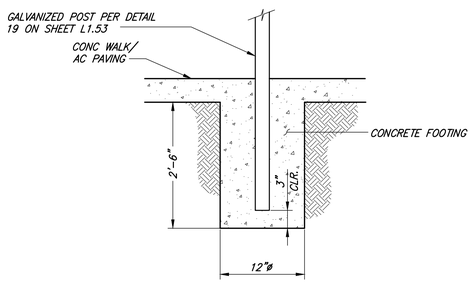
CONCRETE WHEEL STOP 4

NTS



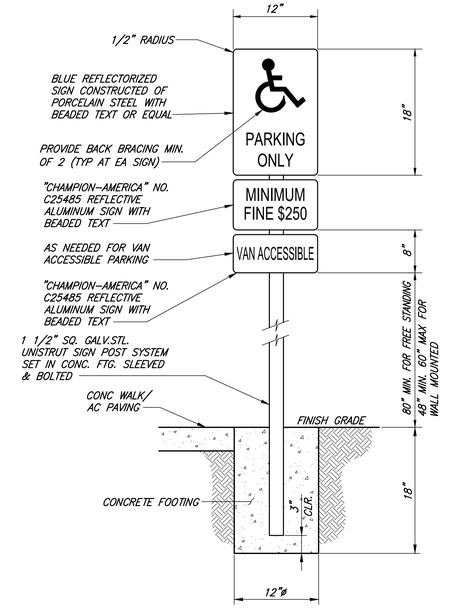
SCREEN WALL 6

NTS



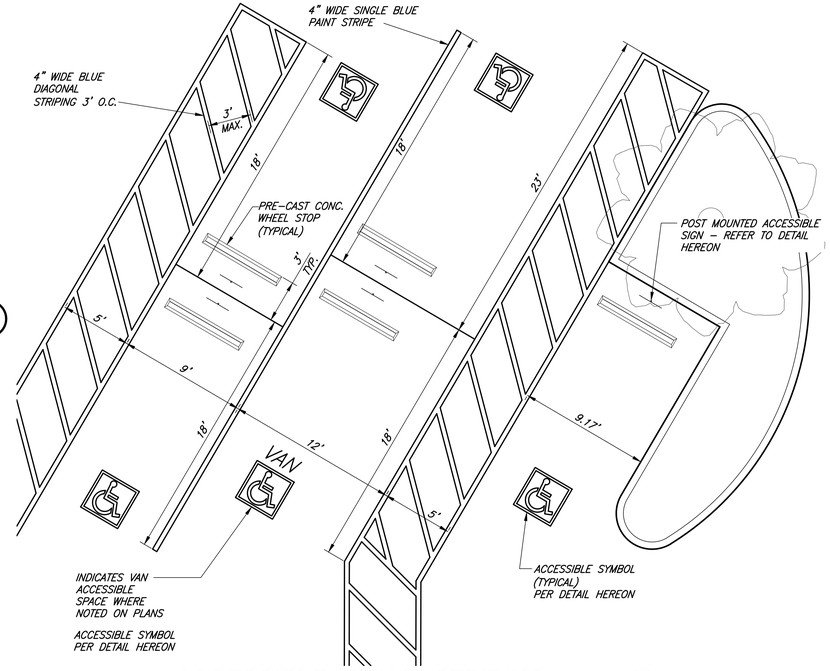
TOWEL RACK FOOTING 7

NTS



ACCESSIBLE PARKING SIGN 1

NTS



ACCESSIBLE STALL STRIPING 2

NTS

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318 West Evergreen Avenue
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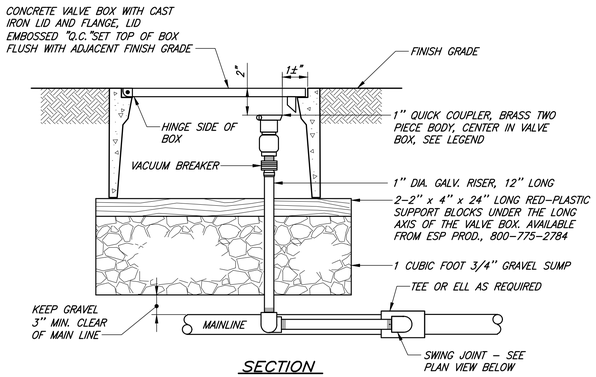
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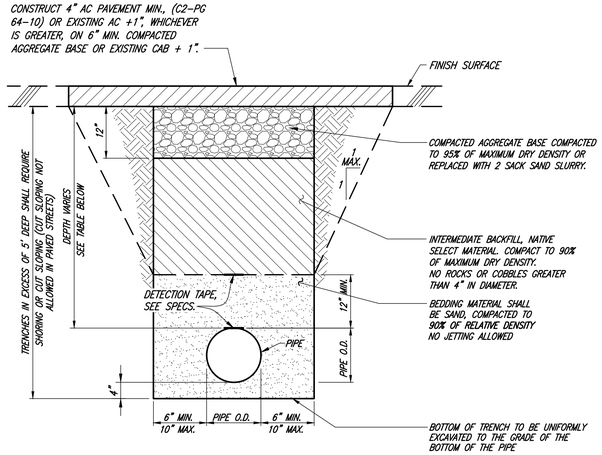
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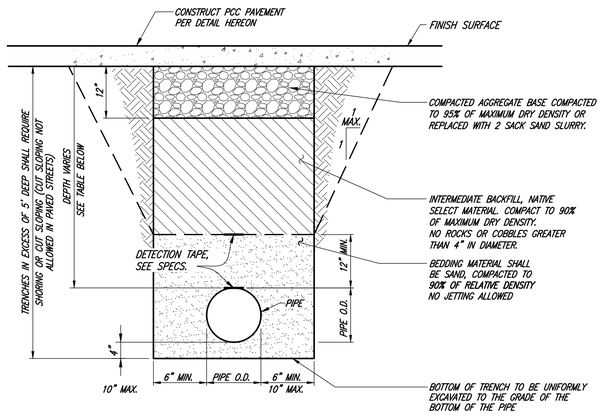
SHEET 24 OF 80

C4.02



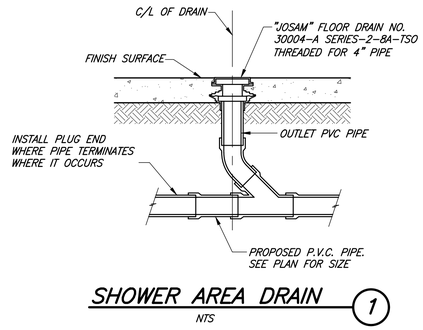
QUICK COUPLER INSTALLATION (5)
NTS



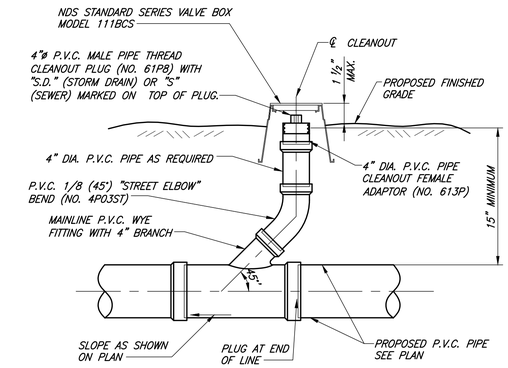


UTILITY	MINIMUM DEPTH OF COVER
SANITARY SEWER	36 INCHES
WATER	30 INCHES

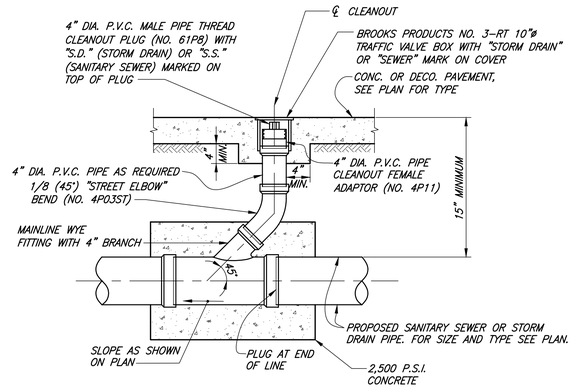
TRENCH BACKFILL (4)
NTS



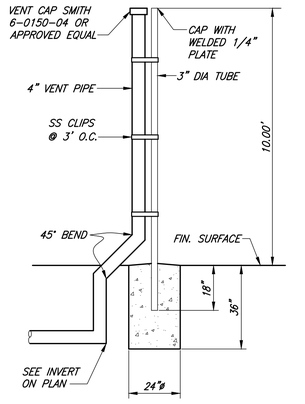
SHOWER AREA DRAIN (1)
NTS



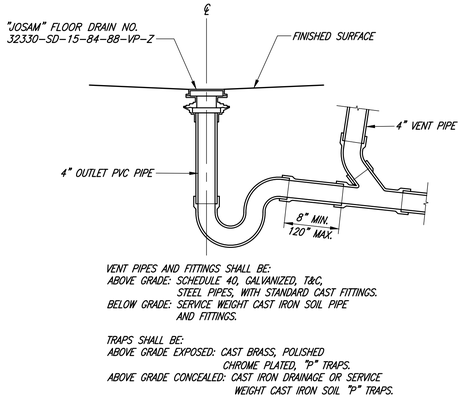
SEWER OR DRAIN CLEANOUT IN LANDSCAPE AREA (2)
NTS



SEWER OR DRAIN CLEANOUT IN PEDESTRIAN PCC PAVEMENT (3)
NTS



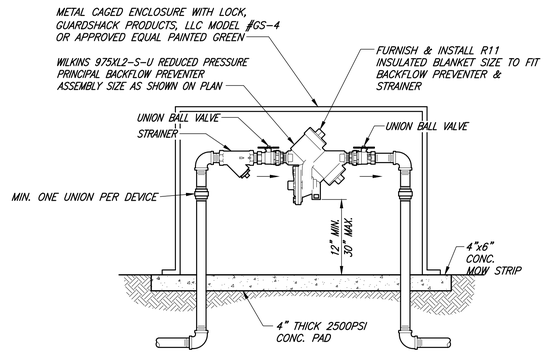
SANITARY SEWER VENT WITH POST (8)
NTS



VENT PIPES AND FITTINGS SHALL BE:
ABOVE GRADE: SCHEDULE 40, GALVANIZED, T&C, STEEL PIPES, WITH STANDARD CAST FITTINGS.
BELOW GRADE: SERVICE WEIGHT CAST IRON SOIL PIPE AND FITTINGS.

TRAPS SHALL BE:
ABOVE GRADE EXPOSED: CAST BRASS, POLISHED CHROME PLATED, "P" TRAPS.
ABOVE GRADE CONCEALED: CAST IRON DRAINAGE OR SERVICE WEIGHT CAST IRON SOIL "P" TRAPS.

SANITARY SEWER AREA DRAIN (6)
NTS



REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTER (5)
NTS

Barbara L. Hall, P.E., Inc.
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Monrovia, CA 91016
Phone: (626) 256-3220
Fax: (626) 256-3218

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: **DETAILS**

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

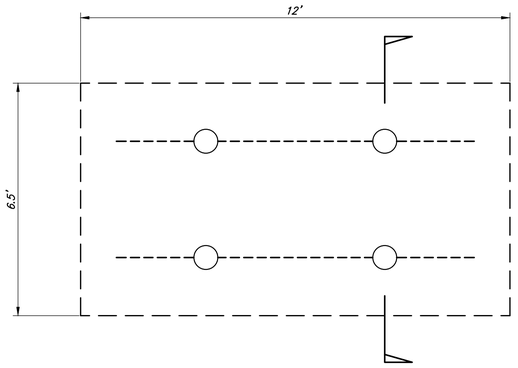
PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
1.	
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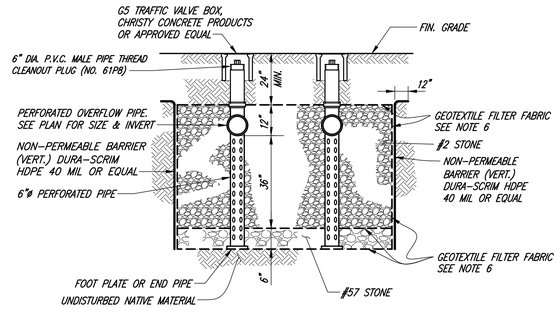
DRAWN BY:	RS
CHECKED BY:	BLH
PROJECT NO.	1068
DATE:	23OCT 2025

REGISTERED PROFESSIONAL ENGINEER
BARBARA L. HALL
No. 42208
Exp. 03/31/26
CIVIL
STATE OF CALIFORNIA

SHEET 25 OF 80
C4.03



PLAN VIEW



SECTION

GRADATION TABLE			
SIEVE SIZE	NO. 2	NO. 57	NO. 8
3"	100		
2 1/2"	90 TO 100		
2"	35 TO 70		
1 1/2"	0 TO 15	100	
3/4"	–	95 TO 100	
1/2"	0 TO 5		100
3/8"		25 TO 60	85 TO 100
NO. 4			10 TO 30
NO. 8		0 TO 10	0 TO 10
NO 16		0 TO 5	0 TO 5

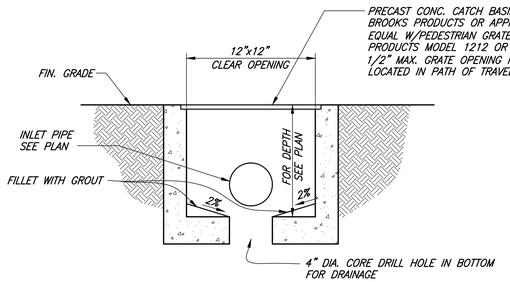
NOTES:

1. PROTECT BASE LAYERS FROM SEDIMENT AT ALL TIMES DURING CONSTRUCTION.
2. KEEP HEAVY EQUIPMENT AWAY FROM EXCAVATED SUBGRADE PRIOR TO PLACING STONE.
3. SPREAD NO. 2 STONE IN 6" MINIMUM LIFTS. THE NO. 57 STONE CAN BE PLACED IN ONE LIFT.
4. COMPACT INDIVIDUAL LAYERS OF STONE WITH AT LEAST 4 PASSES OF A MINIMUM 10 TON STEEL DRUM ROLLER. THE FIRST 2 PASSES CAN BE MADE IN VIBRATORY MODE AND REMAINING PASSES SHALL BE MADE IN STATIC MODE. STONE SURFACES SHALL BE MOISTENED PRIOR TO COMPACTING.
   TRACKED EQUIPMENT IS RECOMMENDED.
5. EQUIPMENT AND VEHICLES SHALL BE KEPT OFF OF THE COMPACTED MATERIAL SURFACE. IF THE MATERIAL SURFACE IS DISTURBED, IT SHALL BE RE-LEVELED AND RE-COMPACTED.
6. GEOTEXTILE FILTER FABRIC: MIRAFI OR APPROVED EQUAL. ROLL FORM, NON-WOVEN, PERVIOUS BLANKET OR CLOTH OF GLASS FIBER OR POLYESTER, RESISTANT TO ULTRAVIOLET AND HEAT DETERIORATION; WILL NOT SUPPORT MARINE OR BIOLOGICAL GROWTH.



INFILTRATION TRENCH (1)

NTS



OVERFLOW CATCH BASIN (2)

NTS

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SHEET TITLE: **DETAILS**

OWNER
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DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
1.	
2.	
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6.	
7.	
8.	

DRAWN BY:	RS
CHECKED BY:	BLH
PROJECT NO.	1068
DATE:	23 OCT 2025

REGISTERED PROFESSIONAL ENGINEER
BARBARA L. HALL
No. 42206
Exp. 03/31/26
CIVIL
STATE OF CALIFORNIA

SHEET 26 OF 80

C4.04

Street Sweeping and Vacuuming SE-7



Categories

EC	Erosion Control	
SE	Sediment Control	☒
TC	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☑
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

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Description and Purpose

Street sweeping and vacuuming includes use of self-propelled and walk-behind equipment to remove sediment from streets and roadways, and to clean paved surfaces in preparation for final paving. Sweeping and vacuuming prevents sediment from the project site from entering storm drains or receiving waters.

Suitable Applications

Sweeping and vacuuming are suitable anywhere sediment is tracked from the project site onto public or private paved streets and roads, typically at points of egress. Sweeping and vacuuming are also applicable during preparation of paved surfaces for final paving.

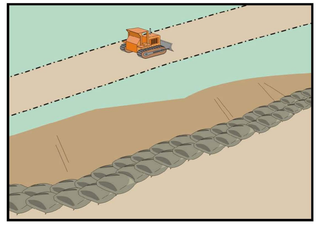
Limitations

Sweeping and vacuuming may not be effective when sediment is wet or when tracked soil is caked (caked soil may need to be scraped loose).

Implementation

- Controlling the number of points where vehicles can leave the site will allow sweeping and vacuuming efforts to be focused, and perhaps save money.
- Inspect potential sediment tracking locations daily.
- Visible sediment tracking should be swept or vacuumed on a daily basis.

Sandbag Barrier SE-8



Categories

EC	Erosion Control	☒
SE	Sediment Control	☑
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence
SE-5 Fiber Rolls
SE-6 Gravel Bag Berm
SE-12 Manufactured Linear Sediment Controls
SE-14 Biofilter Bags

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Description and Purpose

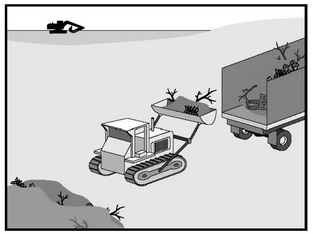
A sandbag barrier is a series of sand-filled bags placed on a level contour to intercept or to divert sheet flows. Sandbag barriers placed on a level contour pond sheet flow runoff, allowing sediment to settle out.

Suitable Applications

Sandbag barriers may be a suitable control measure for the applications described below. It is important to consider that sand bags are less porous than gravel bags and ponding or flooding can occur behind the barrier. Also, sand is easily transported by runoff if bags are damaged or ruptured. The SWPPP Preparer should select the location of a sandbag barrier with respect to the potential for flooding, damage, and the ability to maintain the BMP.

- As a linear sediment control measure:
  - Below the toe of slopes and erodible slopes.
  - As sediment traps at culvert/pipe outlets.
  - Below other small cleared areas.
  - Along the perimeter of a site.
  - Down slope of exposed soil areas.
  - Around temporary stockpiles and spoil areas.
  - Parallel to a roadway to keep sediment off paved areas.
  - Along streams and channels.

Solid Waste Management WM-5



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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Description and Purpose

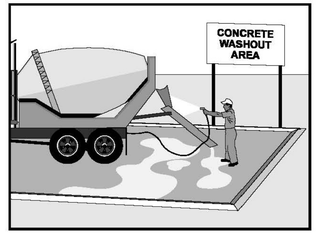
Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.

Suitable Applications

This BMP is suitable for construction sites where the following wastes are generated or stored:

- Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures (rubble), and building construction
- Packaging materials including wood, paper, and plastic
- Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces, and masonry products
- Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes
- Construction wastes including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non-hazardous equipment parts, styrofoam and other materials used to transport and package construction materials

Concrete Waste Management WM-8



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☒
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	☑
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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Description and Purpose

Prevent the discharge of pollutants to stormwater from concrete waste by conducting washout onsite or offsite in a designated area, and by employee and subcontractor training.

The General Permit incorporates Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Many types of construction materials, including mortar, concrete, stucco, cement and block and their associated wastes have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows and raising pH to levels outside the accepted range.

Suitable Applications

Concrete waste management procedures and practices are implemented on construction projects where:

- Concrete is used as a construction material or where concrete dust and debris result from demolition activities.
- Slurries containing portland cement concrete (PCC) are generated, such as from saw cutting, coring, grinding, grooving, and hydro-concrete demolition.
- Concrete trucks and other concrete-coated equipment are washed onsite.

EROSION AND SEDIMENT CONTROL GENERAL NOTES

EROSION CONTROL

EC1 – SCHEDULING
EC2 – PRESERVATION OF EXISTING VEGETATION
EC3 – HYDRAULIC MULCH
EC4 – HYDROSEEDING
EC5 – SOIL BINDERS
EC6 – STRAW MULCH
EC7 – GEOTEXTILES & MATS
EC8 – WOOD MULCHING
EC9 – EARTH DIKES AND DRAINAGE SWALES
EC10 – VELOCITY DISSIPATION DEVICES
EC11 – SLOPE DRAINS
EC12 – STREAMBANK STABILIZATION
EC13 – RESERVED
EC14 – COMPOST BLANKETS
EC15 – SOIL PREPARATION\ROUGHENING
EC16 – NON-VEGETATED STABILIZATION

TEMPORARY SEDIMENT CONTROL

SE1 – SILT FENCE
SE2 – SEDIMENT BASIN
SE3 – SEDIMENT TRAP
SE4 – CHECK DAM
SE5 – FIBER ROLLS
SE6 – GRAVEL BAG BERM
SE7 – STREET SWEEPING AND VACUUMING
SE8 – SANDBAG BARRIER
SE9 – STRAW BALE BARRIER
SE10 – STORM DRAIN INLET PROTECTION
SE11 – ACTIVE TREATMENT SYSTEMS
SE12 – TEMPORARY SILT DIKE
SE13 – COMPOST SOCKS & BERMS
SE14 – BIOFILTER BAGS

WIND EROSION CONTROL

WE1 – WIND EROSION CONTROL

EQUIPMENT TRACKING CONTROL

TC1 – STABILIZED CONSTRUCTION ENTRANCE EXIT
TC2 – STABILIZED CONSTRUCTION ROADWAY
TC3 – ENTRANCE/OUTLET TIRE WASH

NON-STORMWATER MANAGEMENT

NS1 – WATER CONSERVATION PRACTICES
NS2 – DEWATERING OPERATIONS
NS3 – PAVING AND GRINDING OPERATIONS
NS4 – TEMPORARY STREAM CROSSING
NS5 – CLEAR WATER DIVERSION
NS6 – ILLICIT CONNECTION/DISCHARGE
NS7 – POTABLE WATER/IRRIGATION
NS8 – VEHICLE AND EQUIPMENT CLEANING
NS9 – VEHICLE AND EQUIPMENT FUELING
NS10 – VEHICLE AND EQUIPMENT MAINTENANCE
NS11 – PILE DRIVING OPERATIONS
NS12 – CONCRETE CURING
NS13 – CONCRETE FINISHING
NS14 – MATERIAL AND EQUIPMENT USE
NS15 – DEMOLITION ADJACENT TO WATER
NS16 – TEMPORARY BATCH PLANTS

WASTE MANAGEMENT & MATERIAL POLLUTION CONTROL

WM1 – MATERIAL DELIVERY AND STORAGE
WM2 – MATERIAL USE
WM3 – STOCKPILE MANAGEMENT
WM4 – SPILL PREVENTION AND CONTROL
WM5 – SOLID WASTE MANAGEMENT
WM6 – HAZARDOUS WASTE MANAGEMENT
WM7 – CONTAMINATION SOIL MANAGEMENT
WM8 – CONCRETE WASTE MANAGEMENT
WM9 – SANITARY/SEPTIC WASTE MANAGEMENT
WM10 – LIQUID WASTE MANAGEMENT

1. IN CASE OF EMERGENCY, CALL COURTNEY TOSSOUNIAN AT (626) 228-1404 .
   PLEASE FILL IN NAME AND NUMBER
2. TOTAL DISTURBED AREA 0.293 WDID # N/A .
   RISK LEVEL 1 2 3
   (CIRCLE ONE AS DETERMINED BY STATE GENERAL PERMIT FOR SITES GREATER THAN 1 ACRE)
3. A STAND-BY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON (OCTOBER 15 TO APRIL 15). NECESSARY MATERIALS SHALL BE AVAILABLE ON-SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF EMERGENCY DEVICES WHEN RAIN IS IMMINENT.
4. EROSION CONTROL DEVICES SHOWN ON THIS PLAN MAY BE REMOVED WHEN APPROVED BY THE BUILDING OFFICIAL IF THE GRADING OPERATION HAS PROGRESSED TO THE POINT WHERE THEY ARE NO LONGER REQUIRED.
5. GRADED AREAS ADJACENT TO FILL SLOPES LOCATED AT THE SITE PERIMETER MUST DRAIN AWAY FROM THE TOP OF SLOPE AT THE CONCLUSION OF EACH WORKING DAY. ALL LOOSE SOILS AND DEBRIS THAT MAY CREATE A POTENTIAL HAZARD TO OFF-SITE PROPERTY SHALL BE STABILIZED OR REMOVED FROM THE SITE ON A DAILY BASIS.
6. ALL SILT AND DEBRIS SHALL BE REMOVED FROM ALL DEVICES WITHIN 24 HOURS AFTER EACH RAINSTORM AND BE DISPOSED OF PROPERLY.
7. A GUARD SHALL BE POSTED ON THE SITE WHENEVER THE DEPTH OF WATER IN ANY DEVICE EXCEEDS TWO FEET. THE DEVICE SHALL BE DRAINED OR PUMPED DRY WITHIN 24 HOURS AFTER EACH RAINSTORM. PUMPING AND DRAINING OF ALL BASINS AND DRAINAGE DEVICES MUST COMPLY WITH THE APPROPRIATE BMP FOR DEWATERING OPERATIONS.
8. THE PLACEMENT OF ADDITIONAL DEVICES TO REDUCE EROSION DAMAGE AND CONTAIN POLLUTANTS WITHIN THE SITE IS LEFT TO THE DISCRETION OF THE FIELD ENGINEER. ADDITIONAL DEVICES AS NEEDED SHALL BE INSTALLED TO RETAIN SEDIMENTS AND OTHER POLLUTANTS ON SITE.
9. DESILTING BASINS MAY NOT BE REMOVED OR MADE INOPERABLE BETWEEN NOVEMBER 1 AND APRIL 15 OF THE FOLLOWING YEAR WITHOUT THE APPROVAL OF THE BUILDING OFFICIAL.
10. STORM WATER POLLUTION AND EROSION CONTROL DEVICES ARE TO BE MODIFIED, AS NEEDED, AS THE PROJECT PROGRESSES, THE DESIGN AND PLACEMENT OF THESE DEVICES IS THE RESPONSIBILITY OF THE FIELD ENGINEER. PLANS REPRESENTING CHANGES MUST BE SUBMITTED FOR APPROVAL IF REQUESTED BY THE BUILDING OFFICIAL.
11. EVERY EFFORT SHOULD BE MADE TO ELIMINATE THE DISCHARGE OF NON-STORM WATER FROM THE PROJECT SITES AT ALL TIMES.
12. ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON-SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES, OR WIND.
13. STOCKPILES OF EARTH AND OTHER CONSTRUCTION-RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.
14. FUELS, OILS, SOLVENTS, AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOILS AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MUST BE CLEANED UP IMMEDIATELY AND DISPOSED OF IN A PROPER MANNER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM.
15. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON-SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.
16. DEVELOPERS/CONTRACTORS ARE RESPONSIBLE TO INSPECT ALL EROSION CONTROL DEVICES AND BMPS ARE INSTALLED AND FUNCTIONING PROPERLY IF THERE IS A 50% OR GREATER PROBABILITY OF PREDICTED PRECIPITATION, AND AFTER ACTUAL PRECIPITATION. A CONSTRUCTION SITE INSPECTION CHECKLIST AND INSPECTION LOG SHALL BE MAINTAINED AT THE PROJECT SITE AT ALL TIMES AND AVAILABLE FOR REVIEW BY THE BUILDING OFFICIAL (COPIES OF THE SELF-INSPECTION CHECK LIST AND INSPECTION LOGS ARE AVAILABLE UPON REQUEST).
17. TRASH AND CONSTRUCTION-RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND.
18. SEDIMENTS AND OTHER MATERIALS MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEPT UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS.
19. ANY SLOPES WITH DISTURBED SOILS OR DENUDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER.
20. AS THE ENGINEER/QSD OF RECORD, I HAVE SELECTED APPROPRIATE BMPS TO EFFECTIVELY MINIMIZE THE NEGATIVE IMPACTS OF THIS PROJECT'S CONSTRUCTION ACTIVITIES ON STORM WATER QUALITY. THE PROJECT OWNER AND CONTRACTOR ARE AWARE THAT THE SELECTED BMPS MUST BE INSTALLED, MONITORED, AND MAINTAINED TO ENSURE THEIR EFFECTIVENESS.

Barbara Hall — 8/7/2025
CIVIL ENGINEER~~/QSD SIGNATURE~~ DATE

21. THE FOLLOWING NOTES MUST BE ON THE PLAN:

    AS THE PROJECT OWNER OR AUTHORIZED AGENT OF THE OWNER, " I CERTIFY THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH THE SYSTEM DESIGNED TO ENSURE THAT A QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE INFORMATION SUBMITTED IS TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT SUBMITTING FALSE AND/ OR INACCURATE INFORMATION, FAILING TO UPDATE THE ESCP TO REFLECT CURRENT CONDITIONS, OR FAILING TO PROPERLY AND/OR ADEQUATELY IMPLEMENT THE ESCP MAY RESULT IN REVOCATION OF GRADING AND/OR OTHER PERMITS OR OTHER SANCTIONS PROVIDED BY LAW."

Cross — 11/25/2025
OWNER OR AUTHORIZED REPRESENTATIVE (PERMITTEE) DATE

22. DEVELOPERS/CONTRACTORS ARE RESPONSIBLE TO INSPECT ALL EROSION CONTROL DEVICES AND BMPS ARE INSTALLED AND FUNCTIONING PROPERLY AS REQUIRED BY THE STATE CONSTRUCTION GENERAL PERMIT. A CONSTRUCTION SITE INSPECTION CHECKLIST AND INSPECTION LOG SHALL BE MAINTAINED AT THE PROJECT SITE AT ALL TIMES AND AVAILABLE FOR REVIEW BY THE BUILDING OFFICIAL.
23. THE FOLLOWING BMPs FROM THE "CASQA CONSTRUCTION BMP ONLINE HANDBOOK" MUST BE IMPLEMENTED FOR ALL CONSTRUCTION ACTIVITIES AS APPLICABLE. AS AN ALTERNATIVE, DETAILS FROM "CALTRANS STORMWATER QUALITY HANDBOOKS. CONSTRUCTION SITE BEST MANAGEMENT PRACTICES (BMP) MANUAL MAY BE USED. ADDITIONAL MEASURES MAY BE REQUIRED IF DEEMED APPROPRIATE BY THE BUILDING OFFICIAL.

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mail@withersandsandgren.com

SHEET TITLE: EROSION & SEDIMENT CONTROL NOTES

OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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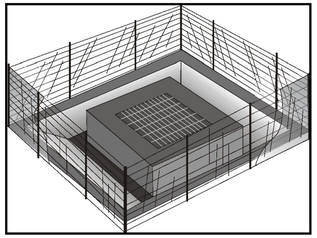
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CHECKED BY:	BLH
PROJECT NO.	1068
DATE:	23OCT 2025

REGISTERED PROFESSIONAL ENGINEER
BARBARA L. HALL
No. 42206
Exp. 03/31/26
CIVIL
STATE OF CALIFORNIA

SHEET 27 OF 80

C5.01

Storm Drain Inlet Protection SE-10



Objectives

EC	Erosion Control	
SE	Sediment Control	☑
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☑
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence
SE-5 Fiber Rolls
SE-6 Gravel Bag Berm
SE-8 Sandbag Barrier
SE-9 Straw Bale Barrier

Description and Purpose

Storm drain inlet protection consists of a sediment filter or an impounding area around or upstream of a storm drain, drop inlet, or curb inlet. Storm drain inlet protection measures temporarily pond runoff before it enters the storm drain, allowing sediment to settle. Some filter configurations also remove sediment by filtering, but usually the ponding action results in the greatest sediment reduction.

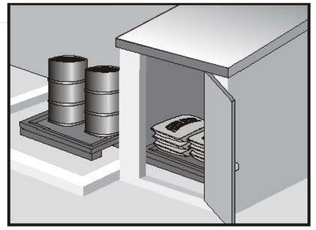
Suitable Applications

Every storm drain inlet receiving sediment-laden runoff should be protected.

Limitations

- Drainage area should not exceed 1 acre.
- Straw bales, while potentially effective, have not produced in practice satisfactory results, primarily due to improper installation.
- Requires an adequate area for water to pond without encroaching into portions of the roadway subject to traffic.
- Inlet protection usually requires other methods of temporary protection to prevent sediment-laden stormwater and non-stormwater discharges from entering the storm drain system.
- Sediment removal may be difficult in high flow conditions or if runoff is heavily sediment laden. If high flow conditions are

Material Delivery and Storage WM-1



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Category**
☐ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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Description and Purpose

Prevent, reduce, or eliminate the discharge of pollutants from material delivery and storage to the stormwater system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in watertight containers and/or a completely enclosed designated area, installing secondary containment, conducting regular inspections, and training employees and subcontractors.

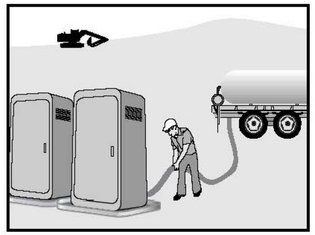
This best management practice covers only material delivery and storage. For other information on materials, see WM-2, Material Use, or WM-4, Spill Prevention and Control. For information on wastes, see the waste management BMPs in this section.

Suitable Applications

These procedures are suitable for use at all construction sites with delivery and storage of the following materials:

- Soil stabilizers and binders
- Pesticides and herbicides
- Fertilizers
- Detergents
- Plaster
- Petroleum products such as fuel, oil, and grease

Sanitary/Septic Waste Management WM-9



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents

Sediment	
Nutrients	☑
Trash	☑
Metals	
Bacteria	☑
Oil and Grease	
Organics	☑

Potential Alternatives

None

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Description and Purpose

Proper sanitary and septic waste management prevent the discharge of pollutants to stormwater from sanitary and septic waste by providing convenient, well-maintained facilities, and arranging for regular service and disposal.

Suitable Applications

Sanitary septic waste management practices are suitable for use at all construction sites that use temporary or portable sanitary and septic waste systems.

Limitations

None identified.

Implementation

Sanitary or septic wastes should be treated or disposed of in accordance with state and local requirements. In many cases, one contract with a local facility supplier will be all that it takes to make sure sanitary wastes are properly disposed.

Storage and Disposal Procedures

- Temporary sanitary facilities should be located away from drainage facilities, watercourses, and from traffic circulation. If site conditions allow, place portable facilities a minimum of 50 feet from drainage conveyances and traffic areas. When subjected to high winds or risk of high winds, temporary sanitary facilities should be secured to prevent overturning.

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SHEET TITLE
EROSION & SEDIMENT CONTROL DETAILS

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

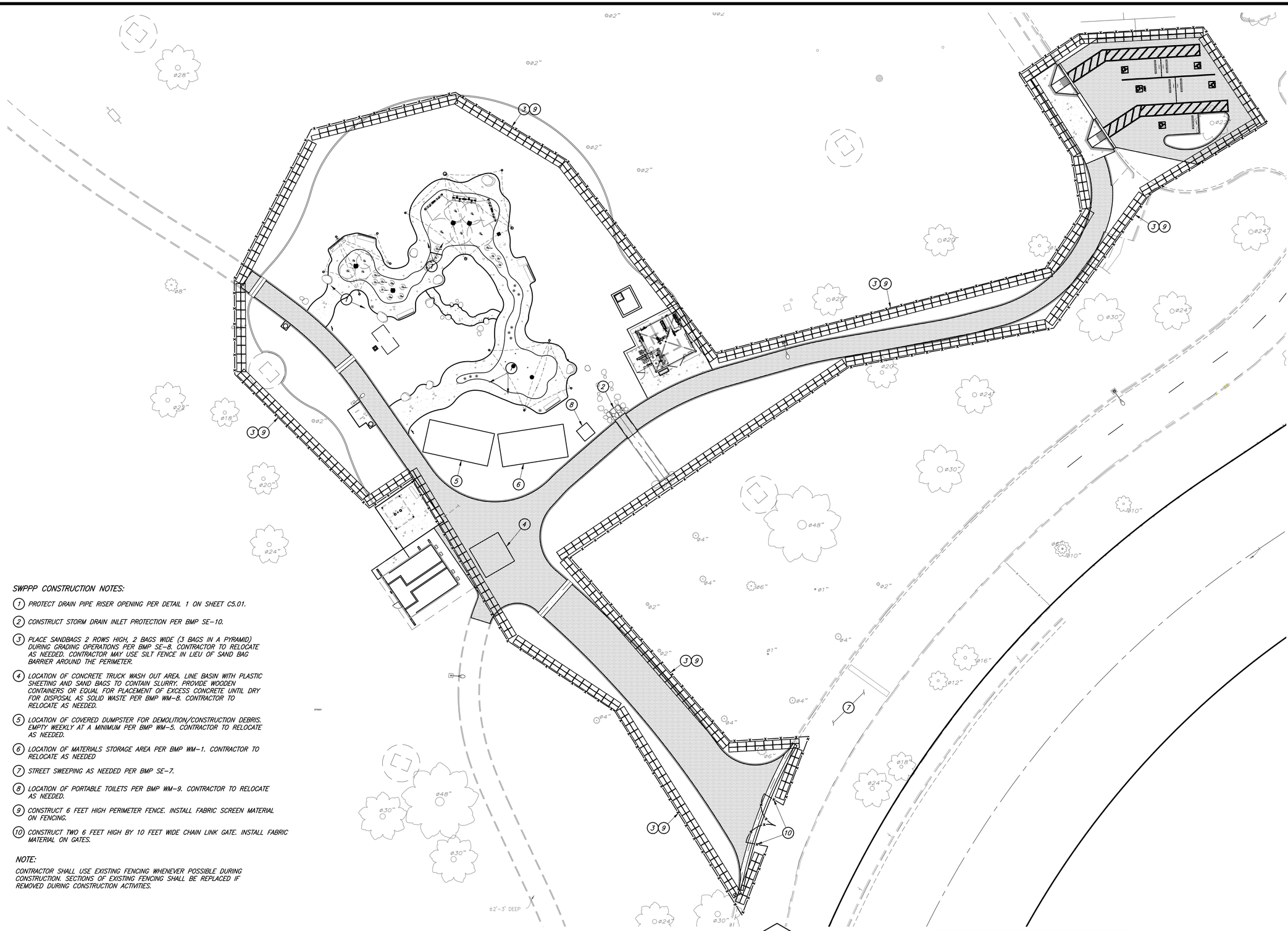
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REGISTERED PROFESSIONAL ENGINEER
BARBARA L. HALL
No. 42206
Exp. 03/31/26
CIVIL
STATE OF CALIFORNIA

SHEET 28 OF 80

C5.02



SWPPP CONSTRUCTION NOTES:

1. *PROTECT DRAIN PIPE RISER OPENING PER DETAIL 1 ON SHEET C5.01.*
2. *CONSTRUCT STORM DRAIN INLET PROTECTION PER BMP SE-10.*
3. *PLACE SANDBAGS 2 ROWS HIGH, 2 BAGS WIDE (3 BAGS IN A PYRAMID) DURING GRADING OPERATIONS PER BMP SE-8. CONTRACTOR TO RELOCATE AS NEEDED. CONTRACTOR MAY USE SILT FENCE IN LIEU OF SAND BAG BARRIER AROUND THE PERIMETER.*
4. *LOCATION OF CONCRETE TRUCK WASH OUT AREA. LINE BASIN WITH PLASTIC SHEETING AND SAND BAGS TO CONTAIN SLURRY. PROVIDE WOODEN CONTAINERS OR EQUAL FOR PLACEMENT OF EXCESS CONCRETE UNTIL DRY FOR DISPOSAL AS SOLID WASTE PER BMP WM-8. CONTRACTOR TO RELOCATE AS NEEDED.*
5. *LOCATION OF COVERED DUMPSTER FOR DEMOLITION/CONSTRUCTION DEBRIS. EMPTY WEEKLY AT A MINIMUM PER BMP WM-5. CONTRACTOR TO RELOCATE AS NEEDED.*
6. *LOCATION OF MATERIALS STORAGE AREA PER BMP WM-1. CONTRACTOR TO RELOCATE AS NEEDED*
7. *STREET SWEEPING AS NEEDED PER BMP SE-7.*
8. *LOCATION OF PORTABLE TOILETS PER BMP WM-9. CONTRACTOR TO RELOCATE AS NEEDED.*
9. *CONSTRUCT 6 FEET HIGH PERIMETER FENCE. INSTALL FABRIC SCREEN MATERIAL ON FENCING.*
10. *CONSTRUCT TWO 6 FEET HIGH BY 10 FEET WIDE CHAIN LINK GATE. INSTALL FABRIC MATERIAL ON GATES.*

NOTE:

CONTRACTOR SHALL USE EXISTING FENCING WHENEVER POSSIBLE DURING CONSTRUCTION. SECTIONS OF EXISTING FENCING SHALL BE REPLACED IF REMOVED DURING CONSTRUCTION ACTIVITIES.

0' 20'

Know what's **below.** **Call** before you dig.

BENCHMARK NO. SY9775 *EL. 225.369 FT*
LOS ANGELES COUNTY

ROBM TAG IN E CB SANTA ANITA AVE 2FT N/O BCR @ NE COR DURFEE AVE.

NAVD 1988

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SHEET TITLE
EROSION & SEDIMENT CONTROL PLAN

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
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CIVIL
STATE OF CALIFORNIA

SHEET 29 OF 80

C5.03

FORM 196
Rev. 04/03

COUNTY OF LOS ANGELES FIRE DEPARTMENT
FIRE PREVENTION DIVISION

Fire Prevention Engineering
5823 Rickenbacker Road
Commerce, CA 90040
Telephone (323) 890-4125 Fax (323) 890-4129

Information on Fire Flow Availability for Building Permit

For All Buildings Other Than Single Family Dwellings (R-3)

INSTRUCTIONS:

Complete parts I, II (A) when:
Verifying fire flow, fire hydrant location and fire hydrant size.

Complete parts I, II (A), & II (B) when:
For buildings equipped with fire sprinkler systems, and/or private on-site fire hydrants.

PROJECT INFORMATION
(To Be Completed By Applicant)

PART I

Building Address: 750 Santa Anita Ave
City or Area: South El Monte
Nearest Cross Street: Lexington Gallatin Rd
Distance of Nearest Cross Street: 300 ft
Applicant: Courtney Tossounian Telephone: (626) 228-1404
Address: 900 S Fremont Ave
City: Alhambra
Occupancy (Use of Building): Mechanical Building Sprinklered: Yes ☐ No ☒
Type of Construction: II-B
Square Footage: 696 Number of Stories: 1
Present Zoning: Open Space

Tossa
Applicant's Signature

6/5/25
Date

PART II-A **INFORMATION ON FIRE FLOW AVAILABILITY**
(To be completed by Water Purveyor)

Location 750 Santa Anita Ave, South El Monte, CA 91733

Hydrant Number 1
Distance from Nearest Property Line ____ Size of Hydrant ____ Size of Water main ____
Static PSI 65 Residual PSI 45 Orifice size 2.5 Pitot 30
Fire Flow at 20 PSI 1424 Duration 5 Flow Test Date / Time 4/22/25 / 9a

Location ____
Hydrant Number ____
Distance from Nearest Property Line ____ Size of Hydrant ____ Size of Water main ____
Static PSI ____ Residual PSI ____ Orifice size ____ Pitot ____
Fire Flow at 20 PSI ____ Duration ____ Flow Test Date / Time ____

Location ____
Hydrant Number ____
Distance from Nearest Property Line ____ Size of Hydrant ____ Size of Water main ____
Static PSI ____ Residual PSI ____ Orifice size ____ Pitot ____
Fire Flow at 20 PSI ____ Duration ____ Flow Test Date / Time ____

PART II-B **SPRINKLERED BUILDINGS/PRIVATE FIRE HYDRANTS ONLY**

Detector Location (check one) ☐ Above Grade ☐ Below Grade ☐ Either
Backflow Protection Required (Fire Sprinklers/Private Hydrant) (check one) ☐ Yes ☐ No
Minimum Type of Protection Required (check one) ☐ Single Check Detector Assembly
☐ Double Check Detector Assembly ☐ Reduced Pressure Principle Detector Assembly

LA County - Private park hydrant
Water Purveyor

Signature

6-13-25
Date

Inspector Barrera, LA County Fire Dept
Title

This Information is Considered Valid for Twelve Months

Fire Department approval of building plans shall be required prior to the issuance of a Building Permit by the jurisdictional Building Department. Any deficiencies in water systems will need to be resolved by the Fire Prevention Division only prior to this department's approval of building plans.

LOS ANGELES COUNTY FIRE DEPARTMENT REG. 7 VERBATIM NOTES

A. IT IS THE RESPONSIBILITY OF THE OWNER TO PROPERLY MAINTAIN THE FIRE PROTECTION SYSTEM IN AN OPERABLE CONDITION AT ALL TIMES.

B. THE FIRE PROTECTION CONTRACTOR SHALL PROVIDE THE OWNER WITH THE NECESSARY INSTRUCTION MANUALS FOR THE UPKEEP OF THE SYSTEM, AS WELL AS A COPY OF NFPA #25.

C. ONLY NEW SPRINKLERS SHALL BE EMPLOYED IN THE INSTALLATION OF THE SPRINKLER SYSTEM.

D. THE FIRE PROTECTION SYSTEM SHALL ONLY EMPLOY THE USE OF LISTED OR APPROVED MATERIALS AND DEVICES.

E. FIRE PROTECTION PLANS SHALL BE APPROVED PRIOR TO THE INSTALLATION OF ANY PIPE. A SET OF APPROVED PLANS SHALL BE MAINTAINED AT ALL TIMES AT THE JOB SITE.

F. AN APPOINTMENT SHALL BE MADE A MINIMUM OF TWO WORKING DAYS IN ADVANCE, WITH THE APPROPRIATE FIRE PREVENTION DIVISION REGIONAL OFFICE FOR ALL INSPECTIONS AND ACCEPTANCE TESTS.

G. ALL UNDERGROUND FIRE LINES AND LEAD-IN CONNECTIONS SHALL BE FLUSHED, AS INDICATED IN NFPA #13 AND #24 PRIOR TO CONNECTING TO THE OVERHEAD PIPING. THE FLUSHING SHALL CONTINUE UNTIL THE WATER IS CLEAR. FLUSHING SHOULD BE PERFORMED AT THE TIME OF THE HYDROSTATIC TEST AND SHALL BE WITNESSED BY A FIRE PREVENTION DIVISION INSPECTOR.

H. SYSTEM PIPING SHALL BE HYDROSTATICALLY TESTED AT 200 PSI FOR TWO HOURS OR AT 50 PSI ABOVE THE MAXIMUM SYSTEM OPERATING PRESSURE, WHICHEVER IS GREATER.

I. FDCS SHALL BE LOCATED ON THE ADDRESS SIDE OF THE BUILDING, FACE THE STREET, BE VISIBLE AND ACCESSIBLE, HAVE NST "FEMALE" INLETS, HAVE PROTECTIVE CAPS, AND AN ACCESSIBLE, APPROVED CHECK VALVE LOCATED IN THE MAIN LINE (AS CLOSE TO THE INLETS AS POSSIBLE).

J. ALL VALVES CONTROLLING THE WATER SUPPLY TO THE SPRINKLER SYSTEM AND FDCS SHALL HAVE PERMANENTLY AFFIXED SIGNS, INDICATING THEIR FUNCTION.

K. SPARE SPRINKLERS AND A SPRINKLER WRENCH SHALL BE LOCATED ON THE PREMISES, NEAR A RISER OR A SIGN AT THE RISER TO INDICATE THE LOCATION OF SPARE SPRINKLERS. SPARE SPRINKLERS SHALL BE ACCESSIBLE TO THE DEPARTMENT AT ALL TIMES.

L. ANY PORTION OF A WET FIRE PROTECTION SYSTEM EXPOSED TO FREEZING TEMPERATURES SHALL BE ADEQUATELY PROTECTED. HEAT TAPE IS NOT AN ACCEPTABLE METHOD OF PROTECTION.

M. WELDING SHALL BE PERFORMED PER NFPA #13 REQUIREMENTS.

N. SPRINKLER SYSTEMS SHALL BE SUPERVISED BY A LISTED/APPROVED CENTRAL, PROPRIETARY, OR REMOTE STATION.

LOS ANGELES COUNTY FIRE DEPARTMENT REG. 7 VERBATIM NOTES

A. ALL PRIVATE ON-SITE FIRE HYDRANTS SHALL HAVE A MINIMUM FIRE FLOW OF 1,250 GPM AT 20 PSI FOR A DURATION OF TWO HOURS. IF MORE THAN ONE PRIVATE ON-SITE HYDRANT IS REQUIRED, THE REQUIRED FIRE FLOW SHALL BE THE LESSER OF EITHER THE REQUIRED FIRE FLOW FOR THE BUILDING, OR 2,500 GPM AT 20 PSI FLOWING 1,250 GPM FROM EACH OF THE TWO MOST HYDRAULICALLY REMOTE HYDRANTS SIMULTANEOUSLY.

B. ALL PRIVATE ON-SITE FIRE HYDRANTS SHALL BE INSTALLED PER THE APPROVED BUILDING PLANS BY THE DEPARTMENT'S BUILDING PLAN CHECK UNIT. ALL PRIVATE ON-SITE HYDRANTS SHALL BE INSTALLED A MINIMUM OF 25 FEET (') FROM A STRUCTURE OR BE PROTECTED BY A TWO- HOUR FIREWALL.

~~EXCEPTION: FOR FULLY SPRINKLERED MULTI-RESIDENTIAL STRUCTURES, ON-SITE HYDRANTS MAY BE INSTALLED A MINIMUM OF 10' FROM THE STRUCTURE.~~

C. EACH PRIVATE FIRE LINE SYSTEM SHALL HAVE A MAIN POST INDICATOR VALVE, OR OTHER APPROVED VALVE, AT THE CITY CONNECTION ON THE SYSTEM SIDE OF THE DETECTOR CHECK VALVE.

D. ALL PRIVATE ON-SITE FIRE HYDRANTS SHALL BE EQUIPPED WITH A SHUT-OFF (GATE) VALVE, WHICH IS LOCATED AT LEAST 10', AND NOT MORE THAN 25', FROM THE FIRE HYDRANT. THE LOCATION MAY BE LESS THAN 10' WHEN THE WATER MAIN IS EXISTING, AND THE 10' MINIMUM DISTANCE CANNOT BE SATISFIED. THE SHUT-OFF VALVE SHALL BE READILY ACCESSIBLE AT ALL TIMES, LOCATING IT WITHIN A PARKING STALL IS NOT ALLOWED.

E. ALL PRIVATE ON-SITE FIRE HYDRANTS SHALL BE INSTALLED TO THE FOLLOWING SPECIFICATIONS, PRIOR TO FLOW TEST AND ACCEPTANCE OF THE SYSTEM:

1) INSTALLED SO THAT THE CENTERLINE OF THE LOWEST OUTLET IS BETWEEN 14" AND 24" ABOVE FINISHED GRADE.

2) INSTALLED SO THAT THE FRONT OF THE RISER IS BETWEEN 12" AND 24" BEHIND THE CURB FACE.

3) INSTALLED SO THAT THE OUTLETS ARE FACING THE CURB AT A 45-DEGREE ANGLE TO THE CURB LINE.

4) OF A TYPE AND CONSTRUCTION WHICH CONFORMS TO CURRENT AMERICAN WATER WORKS ASSOCIATION STANDARD C503.

5) PROVIDED WITH 3" UNOBSTRUCTED CLEARANCE ON ALL SIDES.

6) INSTALLED SO THAT THE FIRE HYDRANT IS CENTERED ON A 3' X 3' X 1' THICK CONCRETE PAD.

7) PROPERLY PREPARED PRIOR TO PAINT APPLICATION AND PAINTED WITH TWO COATS OF PRIMER AND ONE COAT OF "FIRE ENGINE RED" PAINT.

8) PROVIDED WITH APPROVED PLASTIC OUTLET CAPS.

F. ALL PRIVATE ON-SITE WATER MAINS, LATERALS, GATE VALVES, AND RISERS FEEDING PRIVATE FIRE HYDRANTS SHALL BE A MINIMUM OF 6" IN DIAMETER.

G. WHEN SIDEWALKS ARE CONTIGUOUS WITH A CURB AND HAVE A WIDTH OF 5' OR LESS, THE FRONT OF THE FIRE HYDRANT RISER SHALL BE PLACED IMMEDIATELY BEHIND THE SIDEWALK. IN NO CASE SHALL A FIRE HYDRANT BE MORE THAN 6' FROM A CURB FACE.

H. APPROVED FIRE HYDRANT BARRICADES SHALL BE INSTALLED IF CURBS ARE NOT PROVIDED (REFER TO REGULATION 8).

I. ALL ON-SITE FIRE HYDRANTS AND UNDERGROUND FIRE LINE INSTALLATIONS ARE SUBJECT TO INSPECTION OF THE FOLLOWING ITEMS BY A REPRESENTATIVE OF THE FIRE PREVENTION DIVISION:

1) PIPING MATERIALS, THRUST BLOCKS, AND THE BRACING AND SUPPORT THEREOF.

2) PIPING SHALL BE HYDROSTATICALLY TESTED AT 200 PSI FOR TWO HOURS OR AT 50 PSI ABOVE THE SYSTEM OPERATING PRESSURE, WHICHEVER IS GREATER.

3) ADEQUATE (10' PER SECOND VELOCITY) FLUSHING OF THE PIPING, IN ACCORDANCE WITH NFPA #13 AND #24.

4) FLOW TEST TO VERIFY FIRE FLOW REQUIREMENTS.

J. IT SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER, PROPERTY MANAGEMENT COMPANY, OR THE HOMEOWNER'S ASSOCIATION, TO MAINTAIN PRIVATE ON-SITE FIRE HYDRANTS AT ALL TIMES.

LOS ANGELES COUNTY FIRE DEPARTMENT UNDERGROUND NOTES

1. SIGNS SHALL INDICATE THE TYPE OF SYSTEM, ADDRESS, AND BUILDINGS SERVED BY THE FDC, AND SYSTEM PUMPING PRESSURE (IF OVER 150psi). SIGNS SHALL BE PROVIDED AS OUTLINED IN REGULATION 7.

2. ANY PIPING LOCATED UNDER THE BUILDING SHALL BE DUCTILE IRON. LACoFD REGULATION #7.

3. ALL MATERIALS AND DEVICES SHALL BE U.L. LISTED AND/OR FM APPROVED FOR FIRE PROTECTION USE.

4. UNDERGROUND PIPING GREATER THAN 10'-0" IN LENGTH SHALL NOT RUN UNDER A BUILDING. LACoFD REGULATION #7.

5. THE UNDERGROUND FIRE SYSTEM DESIGN AND INSTALLATION SHALL CONFORM TO THE 2022 NFPA 24 AND LACoFD REGULATIONS NO. 7 AND 8.

SYSTEM ACCEPTANCE TESTS

6. HYDROSTATIC TEST (MINIMUM 200 PSI FOR TWO HOURS, OR AT 50 PSI ABOVE THE SYSTEM OPERATING PRESSURE, WHICHEVER IS GREATER) SHALL BE CONDUCTED ON ALL NEW SYSTEMS, UPGRADES, OR PARTIALS THAT INVOLVE THE INSTALLATION OF OVER 20 HEADS. ABOVE GROUND PIPING BE CONDUCTED ON ALL NEW SYSTEMS, UPGRADES, OR PARTIALS THAT INVOLVE THE INSTALLATION OF OVER 20 HEADS. ABOVE GROUND PIPING MODIFICATIONS THAT CANNOT BE ISOLATED SHALL NOT REQUIRE TESTING IN EXCESS OF THE SYSTEM WORKING PRESSURE.

(A) WHEN SPRINKLER HEADS ARE REPLACED AS REQUIRED AFTER 50 YEARS OF SERVICE, IT IS NOT THE INTENT OF THIS REGULATION TO REQUIRE HYDROSTATIC TESTING.

7. UNDERGROUND PIPING AND FITTINGS SHALL NOT BE COVERED OR CONNECTED TO THE OVERHEAD PIPING UNTIL A HYDROSTATIC TEXT AND INSPECTION HAS BEEN COMPLETED. (CENTER LOADING IS PERMISSIBLE.)

8. ABOVE GROUND PIPING AND FITTINGS SHALL NOT BE CONCEALED UNTIL A HYDROSTATIC TEST AND INSPECTION HAS BEEN COMPLETED.

9. A FINAL INSPECTION BY DEPARTMENT PERSONNEL IS REQUIRED ON ALL SYSTEMS.

10. UNDERGROUND PIPING IN TRAFFIC AREAS SHALL HAVE A MINIMUM COVER OF 36" TO TOP OF PIPE.

11. UNDERGROUND PIPING IN FINISH GRADE AREAS SHALL HAVE A MINIMUM COVER OF 30" TO TOP OF PIPE.

NOTES:

1. THE INSTALLING CONTRACTOR SHALL BE A CALIFORNIA LICENSED C-16, 34, 36 OR GENERAL CONTRACTOR A.

2. FIRE DEPARTMENT CONNECTION SHALL BE PAINTED RED ON ANY EXPOSED SURFACES SUBJECT TO REST OR CORROSION. COUPLING THREADS, OPERATION MECHANISMS, ANY COMPONENTS OR PORTION OF THE VALVE WHERE THE APPLICATION OF PAINT WOULD VIOLATE THE LISTING OR HINDER ITS OPERATION SHALL NOT BE PAINTED. 2022 FC, SECTION 912.8.

3. THE INSPECTION, HYDROSTATIC TEST AND FLUSHING OF UNDERGROUND FIRE PROTECTION PIPING SHALL BE WITNESSED BY AN AUTHORIZED FIRE DEPARTMENT REPRESENTATIVE. NO UNDERGROUND PIPING OR THRUST BLOCKS SHALL BE COVERED WITH EARTH OF HIDDEN FROM VIEW UNTIL THEY HAVE BEEN OBSERVED BY AN AUTHORIZED FIRE DEPARTMENT REPRESENTATIVE. CONTACT THE REGIONAL FIRE INSPECTION OFFICE TO SCHEDULE AN INSPECTION NOT LESS THAN 48 HOURS PRIOR TO THE DESIRED INSPECTION TIME. LACoFD REGULATION #7.

FIRE SYSTEM POINT OF CONNECTION:

SITE FIRE HYDRANT SERVICE CONNECTION MADE TO EXISTING 12" DIA. PUBLIC WATER MAIN.

SCOPE OF WORK

INSTALL NEW UNDERGROUND FIRE SYSTEM CONSISTING OF:

FIRE HYDRANT ASSEMBLY
ONSITE PIPING MATERIAL: AWWA C900 PVC PIPE DR-18,
HAZEN-WILLIAMS C FACTOR 150, MINIMUM BURY DEPTH 42".

APPLICABLE CODES:

CITY OF WHITTIER MUNICIPAL CODE
LOS ANGELES COUNTY BUILDING CODE 2023
CALIFORNIA BUILDING CODE 2022
CALIFORNIA ELECTRICAL CODE 2022
CALIFORNIA MECHANICAL CODE 2022
CALIFORNIA PLUMBING CODE 2022

PROJECT DESCRIPTION

CONSTRUCTION OF NEW INTERACTIVE WATER PLAY SPLASH PAD
NEW FIRE HYDRANT AND FIRE ACCESS ROAD.

PREFABRICATED MECHANICAL BUILDING HOUSING SPLASH PAD
PUMPS AND CHEMICAL SUPPLIES (DEFERRED SUBMITTAL)

CONSTRUCTION TYPE:

II-B NOT SPRINKLERED, METAL ROOF DECK CLASS A FIRE RATED
(DEFERRED SUBMITTAL)

Know what's **below.**
Call before you dig.

BENCHMARK NO. SY9775 EL. 225.369 FT
LOS ANGELES COUNTY

ROBM TAG IN E CB SANTA ANITA AVE 2FT N/O BCR @ NE COR DURFEE AVE.

NAVD 1988

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SHEET TITLE
FIRE SERVICE GENERAL NOTES

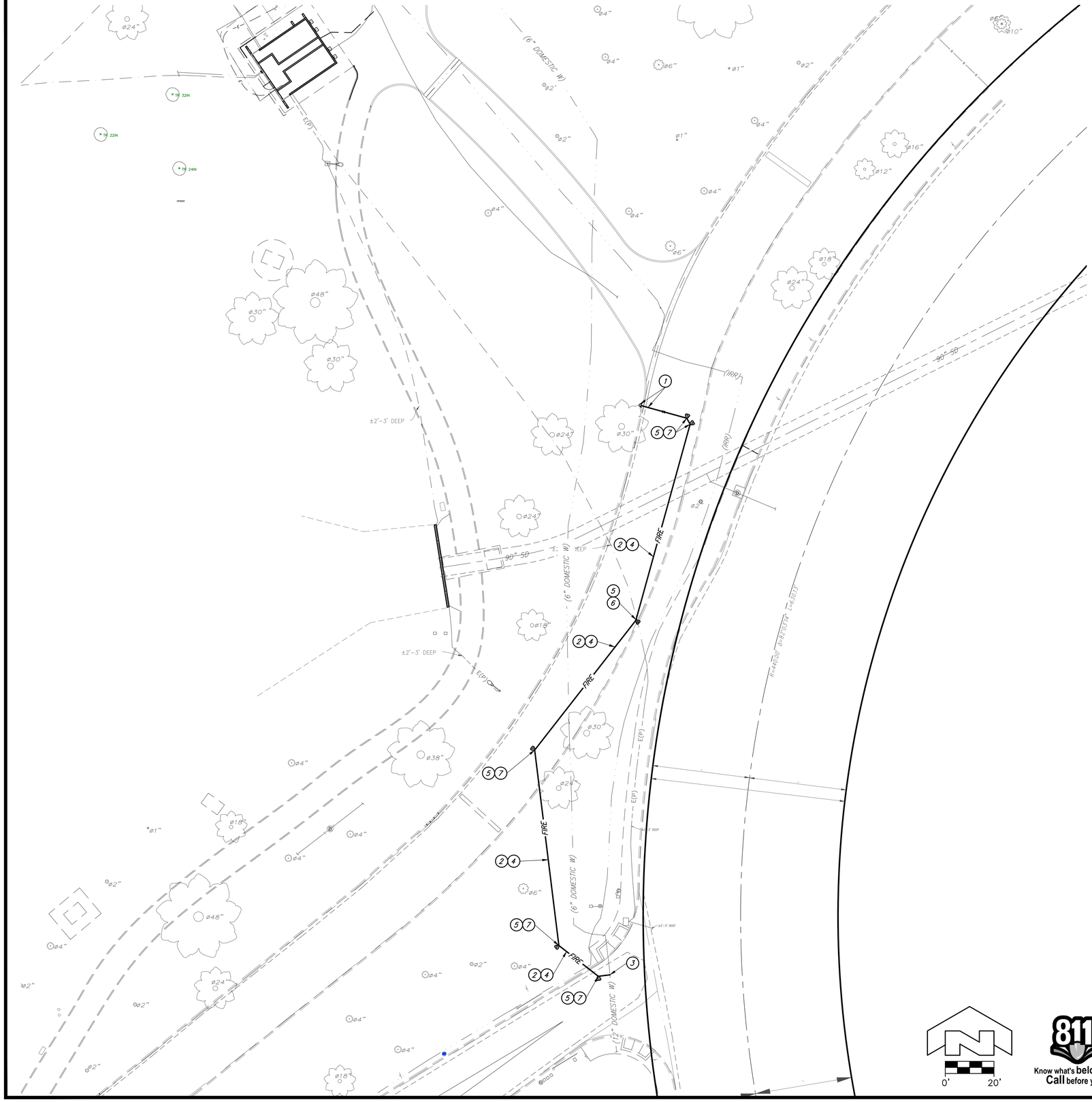
OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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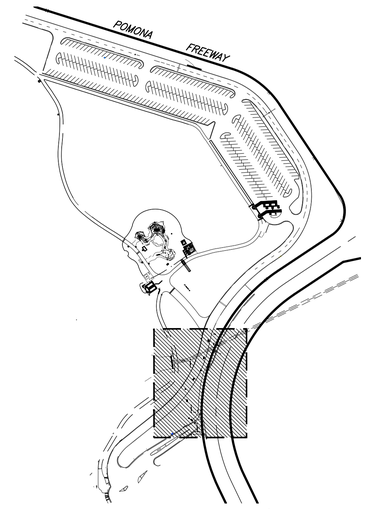
DRAWN BY:	RS
CHECKED BY:	BLH
PROJECT NO.	1068
DATE:	23OCT 2025

REGISTERED PROFESSIONAL ENGINEER
BARBARA L. HALL
No. 42206
Exp. 03/31/26
CIVIL
STATE OF CALIFORNIA



CONSTRUCTION NOTES:

1. FURNISH & INSTALL FIRE HYDRANT ASSEMBLY PER DETAIL 6 ON SHEET C4.02.
2. BACKFILL TRENCH PER DETAIL 4 ON SHEET C4.03.
3. CONNECT TO EXISTING UTILITY. POTHOLE & FIELD VERIFY SIZE, LOCATION & DEPTH PRIOR TO CONSTRUCTION.
4. FURNISH & INSTALL 6"ø C900, CLASS 200, PVC PIPE WITH DUCTILE IRON FITTINGS.
5. CONSTRUCT CONCRETE THRUST BLOCK PER DETAIL 5 ON SHEET C4.02.
6. FURNISH & INSTALL 22 1/2° D.I. ELBOW.
7. FURNISH & INSTALL 45° D.I. ELBOW.
8. FURNISH & INSTALL 90° D.I. ELBOW.



KEY MAP
SCALE: 1" = 200'

0' 20'

Know what's below. Call before you dig.

BENCHMARK NO. SY9775 EL. 225.369 FT
LOS ANGELES COUNTY

RDBM TAG IN E CB SANTA ANITA AVE 2FT N/O BCR @ NE COR DURFEE AVE.

NAVD 1988

Barbara L. Hall, P.E., Inc.
318 West Evergreen Avenue
Monrovia, CA 91016
Phone: (626) 256-3220
Fax: (626) 256-3218

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE
FIRE HYDRANT PLAN

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

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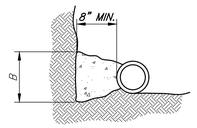
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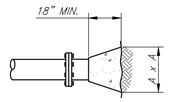
SHEET 31 OF 80

C6.01

SIZE	CROSSES/90° BENDS			45° BENDS			22 1/2° BENDS			TEES & CAPS		
	AREA SQ. FT.	"A"	"B"	AREA SQ. FT.	"A"	"B"	AREA SQ. FT.	"A"	"B"	AREA SQ. FT.	"A"	"B"
4"	3	24"	18"	2	24"	12"	2	24"	12"	2	24"	12"
6"	6	36"	24"	3	24"	18"	2	24"	12"	4	24"	24"
8"	10	48"	30"	5	30"	24"	3	24"	18"	7	42"	24"
10"	16	64"	36"	8	48"	24"	5	30"	24"	12	48"	36"
12"	21	77"	40"	12	48"	36"	6	36"	24"	16	64"	36"
14"	30	90"	48"	16	64"	36"	8	48"	24"	21	77"	40"
16"	38	108"	54"	21	77"	40"	10	48"	30"	27	87"	45"



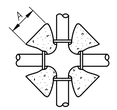
SECTION
BENDS, TEES & CROSSES



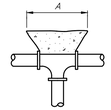
CAPS & BLOW-OFFS

NOTES:

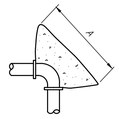
1. THRUST BLOCK BEARING AREA BASED ON 100 PSIG. SIZE THRUST BLOCK FOR TEST PRESSURE OF PIPELINE:
   - FOR 250 PSIG, 2.5 x AREA SHOWN IN CHART
   - FOR 150 PSIG, 1.5 x AREA SHOWN IN CHART
   - FOR 50 PSIG, 0.5 x AREA SHOWN IN CHART.
   - FOR 150 PSI MULTIPLY THE AREA BY 1.5, 75 BY 0.75, ETC.
   - FOR FIRE LINE MIN. 150 PSI
2. DIMENSIONS SHOWN REFER TO THRUST BLOCK TYPES SHOWN ON DETAIL, AND ARE MINIMUM VALUES ONLY.
3. THRUST BLOCKS ON CROSSES SHALL BE USED WHENEVER PIPE SIZES DIFFER OR WHEN ONE OR MORE OPENINGS ARE PLUGGED.
4. REINFORCING STEEL SHALL BE MIN. NO. 4 AND CONFORM TO A.S.T.M. SPECIFICATIONS A615 GRADE 40.
5. FOR USE ON DUCTILE-IRON AND PVC PIPE.
6. CONCRETE MIX SHALL CONFIRM TO SPECIFICATIONS FOR 3000 LBS. STRENGTH AT 28 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C39.
7. THRUST BLOCK SIZES ARE BASED ON A BEARING CAPACITY OF 1500 P.S.F., WITH A MINIMUM SOIL COVER OF 3'-0". FOR SOIL COVER OF 2'-0" TO 3'-0", MULTIPLY BEARING AREA BY A FACTOR OF 1.5. FOR SOIL COVER OF 1'-0" TO 2'-0", MULTIPLY BEARING AREA BY A FACTOR OF 3.
8. ALL THRUST BLOCKS SHALL BE POURED SOLIDLY AGAINST FIRM, UNDISTURBED SOIL.
9. CONCRETE POURED AGAINST PIPE FITTINGS SHALL BE PLACED SO THAT VALVES AND FITTINGS ARE ACCESSIBLE FOR REPAIR.
10. WHERE WATER MAIN DEAD ENDS ARE BLIND FLANGED OR CAPPED, THE THRUST BLOCK SHALL EXTEND A MINIMUM DISTANCE OF 6" INTO BOTH SIDES OF THE TRENCH.
11. ALL PIPES TO BE WRAPPED AT CONCRETE THRUST BLOCKS.



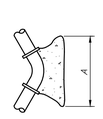
CROSS



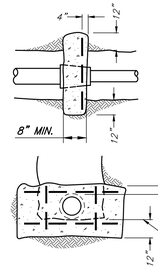
TEE



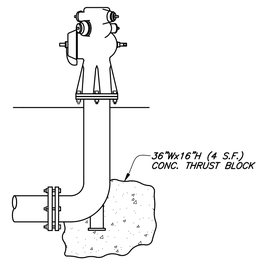
90° BEND



BENDS LESS THAN 90°



REDUCER



FIRE HYDRANT

THRUST BLOCKS (1)
NTS

(1) 6" SOLID BRONZE HEAD 2-1/2" AND 4" OUTLET, JONES NO. J-3700 (EASTBAY TYPE) OR EQUAL - IN COMMERCIAL & INDUSTRIAL AREA USE JONES NO. J-3765. PAINT THE EXTERIOR w/ (2) COATS OF RED PRIMER, RUST-OLEUM NO. 769 AND FINISH w/ ONE COAT OF YELLOW, RUST-OLEUM NO. 659.

(2) 6" FLANGE X M.J. BURY ELBOW, 6H.

(3) 6" DUCTILE IRON PIPE, CLASS 350.

(4) 6" GATE VALVE - FLANGE X M.J., MUELLER A-2360-16 AFC 500, OAE. MINIMUM 10' SEPARATION TO FIRE HYDRANT & 25' MAX.

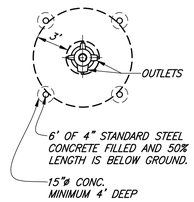
(5) STEEL PIPE AND SLIP JOINT BOX ASSEMBLY.

(6) 6" FLANGED OUTLET ON TEE.

(7) TAPPING SLEEVE FOR D.I.: ROMAC SST WITH D.I. FLANGE, OAE. TAPPING SLEEVE FOR STEEL: WELD ON NOZZLE WITH REINFORCEMENT PLATE.

NOTES:

1. FIRE HYDRANTS INSTALLED ALONG STREETS OR ROADS WITHOUT CURBS SHALL BE PROTECTED WITH GUARD POSTS PER DETAIL.
2. MAXIMUM 150 psi WATER WORKING PRESSURE



GUARD POSTS DETAIL

FIRE HYDRANT ASSEMBLY (2)
NTS

Barbara L. Hall, P.E., Inc.
318 West Evergreen Avenue
Monrovia, CA 91016
Phone: (626) 256-3220
Fax: (626) 256-3218

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: **DETAILS**

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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DRAWN BY:	RS
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PROJECT NO.	1068
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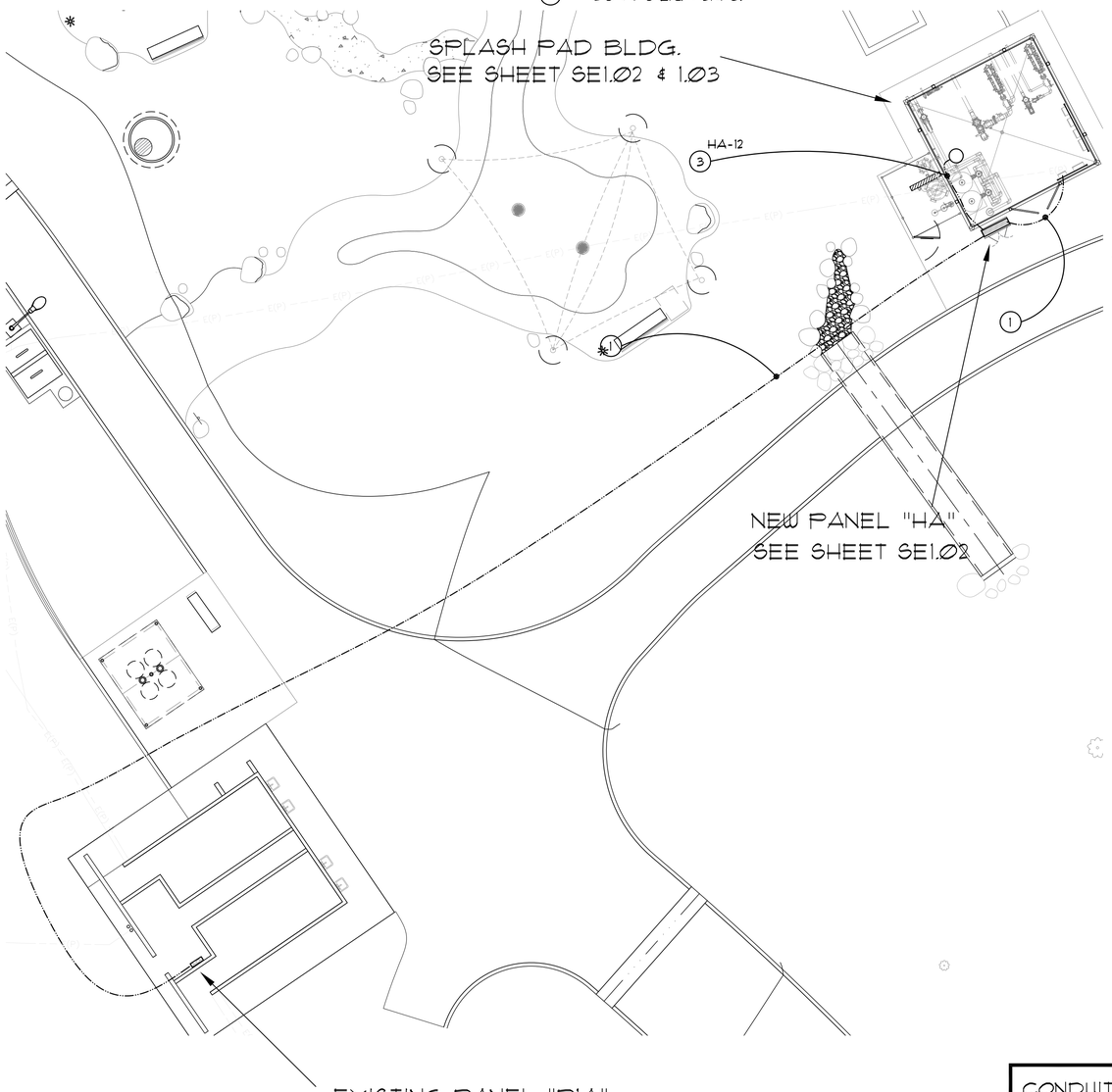
REGISTERED PROFESSIONAL ENGINEER
BARBARA L. HALL
No. 42206
Exp. 03/31/26
CIVIL
STATE OF CALIFORNIA

CONDUIT & WIRE LEGEND

PROVIDE BROWN WIRE FOR PHASE "A"
PROVIDE ORANGE WIRE FOR PHASE "B"
PROVIDE YELLOW WIRE FOR PHASE "C"
NO NEUTRAL IS REQUIRED

ALL CIRCUITS TO BE (1) UNLESS OTHERWISE NOTED

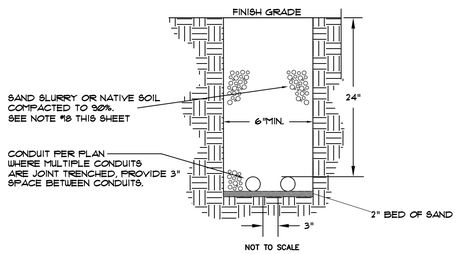
(1) 3#2 & 1 #4 E/G - 2"C.
(2) 2#6 & 1 #8 E/G - 1"C.
(3) 2#8 & 1 #8 E/G - 3/4"C.



PER THE 2021 NEC, SECTION210.19(A) NOTE 4 AND 215.2(A)(3) NOTE 2 THE WIRE SIZE SHOWN FOR THIS PROJECT HAS BEEN CALCULATED TO PROVIDE LESS THAT 3% VOLTAGE DROP TO ALL OUTLETS AND FIXTURES. CONTRACTOR SHALL NOT REDUCE THE SIZE OF ANY CONDUCTOR SHOWN ON THESE PLANS.

GENERAL CONSTRUCTION NOTES

1. PROVIDE ALL MATERIALS AND LABOR AS REQUIRED TO ACHIEVE A COMPLETE AND OPERATING SYSTEM.
2. COORDINATE AND OBTAIN APPROVALS FROM ALL RESPECTIVE UTILITY COMPANIES AS REQUIRED FOR A COMPLETE AND OPERATING INSTALLATION.
3. INSTALL RACEWAY SYSTEMS AS FOLLOWS:
   a. USE P.V.C. SCH 40 CONDUIT UNDERGROUND WITH CODE SIZED GROUND.
4. ALL NEW WIRING SHALL BE STRANDED COPPER TYPE "THHN/THWN" #10 AWG. - U.O.N..
5. THE ELECTRICAL PEDESTAL LOCATION SHALL BE VERIFIED WITH LANDSCAPE ARCHITECT'S DRAWINGS AS WELL AS EQUIPMENT SUPPLIER REQUIREMENTS PRIOR TO ANY ROUGH-IN WORK.
6. THESE DRAWINGS ARE DIAGRAMMATIC AND REPRESENT THE INTENT OF EQUIPMENT, DEVICES, ETC.. TO BE CONNECTED AND THE CIRCUITS TO WHICH THEY ARE TO BE CONNECTED TO. CONTRACTOR SHALL INSTALL ALL MATERIALS AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.
7. ALL EXTERIOR EQUIPMENT SHALL BE U.L. LISTED FOR WET LOCATIONS.
8. ELECTRICAL CONTRACTOR SHALL PERFORM ALL WORK IN STRICT ACCORDANCE WITH ALL LOCAL AND NATIONAL GOVERNING CODES.
9. ALL EQUIPMENT SHALL BE NEW AND BEAR A "UL" LABEL - U.O.N..
10. ELECTRICAL PERMIT SHALL BE PAID FOR BY THE OWNER.
11. COMPLETE ELECTRICAL INSTALLATION SHALL BE GUARANTEED IN WRITING FOR A PERIOD OF (1) YEAR - U.O.N..
12. ELECTRICAL CONTRACTOR SHALL VISIT SITE PRIOR TO BID DATE, TO VERIFY ALL EXISTING CONDITIONS TO BE ENCOUNTERED IN THE INSTALLATION OF ALL NEW EQUIPMENT ETC.. EXACT INSTALLATION METHOD AND REQUIREMENTS SHALL BE VERIFIED AND DETERMINED PRIOR TO BID DATE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THIS ENGINEER OF ANY REQUIRED MODIFICATIONS WHICH ARE NOT SHOWN ON THESE DRAWINGS. SUBMITTAL OF BID INDICATES CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED.
13. ALL EQUIPMENT, ELECTRICAL CHARACTERISTICS, LOCATIONS, AND CONNECTION REQUIREMENTS SHALL BE VERIFIED PRIOR TO ANY ROUGH-IN WORK.
14. ELECTRICAL CONTRACTOR SHALL FURNISH THE FOLLOWING SHOP DRAWINGS FOR PRIOR APPROVAL:
    a. ALL ELECTRICAL SERVICE EQUIPMENT, PANELS, TRANSFORMER AND LIGHTS.
    THESE ITEMS SHALL BE APPROVED BY THE OWNERS AUTHORIZED REPRESENTATIVE PRIOR TO ANY COMMENCEMENT OF PLACING ORDERS OR PERFORMING ANY ROUGH-IN WORK.
15. COMPLETE ELECTRICAL SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH THE PRESENTLY ADOPTED EDITION OF THE N.E.C., ART. 250.
16. PROVIDE THE OWNER AND THIS ENGINEER WITH ONE SET OF ELECTRICAL "AS-BUILTS" AT THE COMPLETION OF JOB.
17. TRENCHES SHALL BE DEEP ENOUGH TO ALLOW FOR 24" OF COVER OVER THE CONDUITS.
18. BACKFILL OF TRENCHES UNDER AREAS WHERE ASPHALT, CONCRETE OR VEHICULAR PAVING WILL BE PLACED, SHALL BE COMPACTED BY THE FOLLOWING MEANS: PROPERLY MOISTEN SOIL, PLACE INTO TRENCHES IN LIFTS OF 8", MAKE THREE (3) PASSES WITH A "STOMPER" TYPE COMPACTION DEVICE, REPEAT TO TOP OF TRENCH. TRENCHES SHALL ACHIEVE 95% RELATIVE COMPACTION.



TYPICAL TRENCH DETAIL
SEE NOTE #17 & 18 NOT TO SCALE

IF JOINT TRENCHED WITH IRRIGATION LINES, KEEP 12" SEPARATION BETWEEN WATER AND ELECTRICAL

CONDUIT IS SHOWN DIAGRAMMATICALLY FOR CLARITY AND IS NOT INTENDED TO BE PRECISE IN THE PLACEMENT. CONTRACTOR SHALL COORDINATE CONDUIT INSTALLATION WITH OTHER TRADES TO AVIOD CONFLICT

CONDUIT SHALL BE A MINIMUM OF 5' FROM CENTER LINE OF TREES

WEST COAST DESIGN GROUP
ELECTRICAL & LIGHTING ENGINEERS
383 BAY VIEW TERRACE
COSTA MESA, CA 92627
(949) 735-1000

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SITE ELECTRICAL

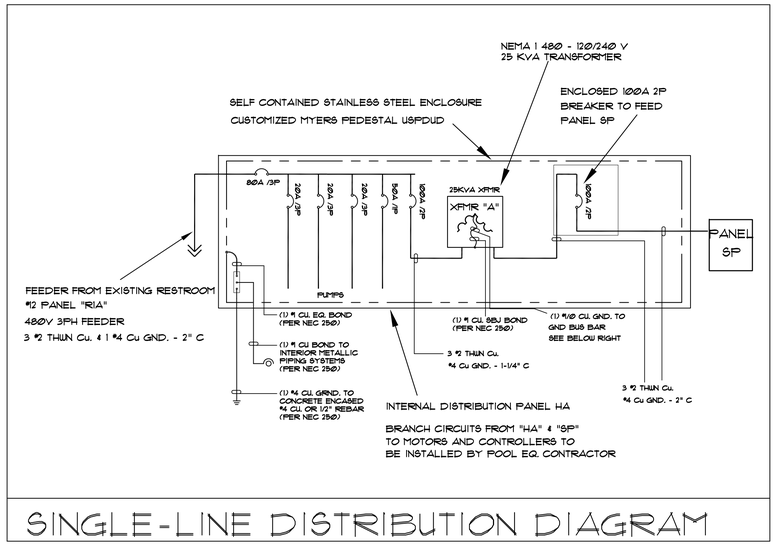
OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

DATE / REVISIONS: 1. 2. 3. 4. 5. 6. 7. 8.

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CHECKED BY:	RO
PROJECT NO.	1068
DATE:	7 AUG 25

REGISTERED PROFESSIONAL ENGINEER
RUSSELL A. OLSEN
No. E11028
Exp. 06/30/27
ELECTRICAL
STATE OF CALIFORNIA



SINGLE-LINE DISTRIBUTION DIAGRAM

PANEL NO. R1A	SECTION: 1 OF 1	Bus: 277 480 Volts	X Main C.B., 175 AMP
Location: RESTROOM 12	Serving: GENERAL POWER	3 PHASE 4 Wire, 200 AMP	Main Lugs Only
Integrated Equipment SC Rating 42,000 RMS SYM AMPS			Flush Mnt. X Surface Mnt. / Top Feed X Bot. Feed

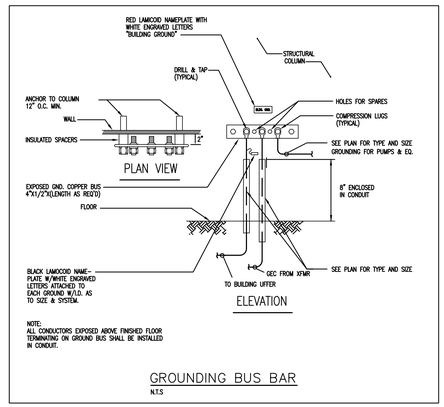
Load Type	Circuit Description	CONN VA	C.B. AMP	Pole	CKT	PH	CKT	Pole	AMP	CONN VA	Circuit Description	Load Type
L	N/A	N/A	15	3	1	A	2	1	20	N/A	SITE LIGHTING	L
L	N/A	N/A	15	3	3	B	4	1	20	N/A	SITE LIGHTING	L
L	N/A	N/A	15	3	5	C	6	1	20		N/A	
L	RESTROOM 12 TRANSFORMER	N/A	20	3	7	A	8			1782	MEASURED EXISTING LOADS	N
L	RESTROOM 12 TRANSFORMER	N/A	20	3	9	B	10			1782	MEASURED EXISTING LOADS	N
L	RESTROOM 12 TRANSFORMER	N/A	20	3	11	C	12			1629	MEASURED EXISTING LOADS	N
L	SPECIAL EVENTS	N/A	50	3	13	A	14	3	100	14958	SPLASH PAD EQUIPMENT	M
L	SPECIAL EVENTS	N/A	50	3	15	B	16	3	100	14958	SPLASH PAD EQUIPMENT	M
L	SPECIAL EVENTS	N/A	50	3	17	C	18	3	100	15512	SPLASH PAD EQUIPMENT	M
L	RESTROOM #13	N/A	100	3	19	A	20	1	20			
L	RESTROOM #13	N/A	100	3	21	B	22	1	20			
L	RESTROOM #12	N/A	100	3	23	C	24	1	20			

Total Receptacle (R) Load @ 180VA/ea., 100% for first 10,000VA, & 50% for remainder: 0.00 KVA
Total Noncoincident (E) Load (Not included in demand load): 0.00 KVA
Total Lighting (L) Load @ 1.25%: 0 KVA — Total NonContinuous (N) Load: 5.19 KVA
Total Motor (M) Load: 45.428 KVA — Largest Motor: (25% added to demand load): HP 0.00 KVA

TOTAL CONNECTED LOAD:	AMP	A	B	C	TOTAL DEMAND LOAD
50.6 KVA	Total / Φ	60	60	62	50.6 KVA 60.9 A

EXACT LOADS ARE UNKNOWN HOWEVER THE 30 DAY LOAD MEASUREMENT PERFORMED BY L.A. ELECTRICAL CONTRACTORS SHOWED A MAX LOAD OF 763 AMPS AT 480Y 3 PHASE

THERE IS CURRENTLY NOT A SINGLE SPACE TO ADD A 3 POLE BREAKER, THEREFORE THE CONTRACTOR SHALL PURCHASE AND INSTALL NECESSARY BUSSING EQUIPMENT TO ADD A 3 POLE 20 AMP BREAKER. REARRANGE THE EXISTING BREAKERS TO FACILITATE THE SPACE NEEDED TO ADD THE NEW BREAKER



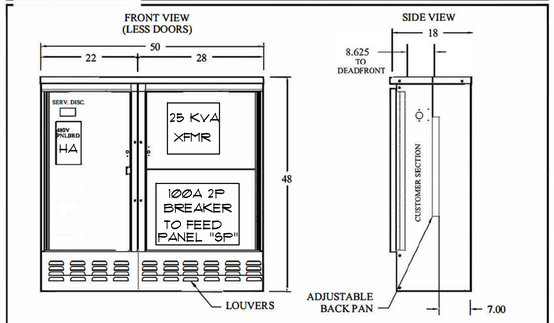
GROUNDING BUS BAR
N.T.S.

BUILDING UFFER, GROUND BUS BAR AND GROUNDING CONNECTIONS, OTHER THAN POOL EQUIPMENT ARE TO BE SUPPLIED AND INSTALLED BY SITE CONTRACTOR.

MYERS Pacific Utility Products

USPDUD MODEL SERIES

0 - 400 AMPERES 0 - 600 VOLTS



UNMETERED SERVICE PEDESTAL

TYPICAL APPLICATIONS INCLUDE LIGHTING CONTROLS FOR COURT AND BALLFIELDS; IRRIGATION AND BOOSTER PUMP CONTROLS

STANDARD FEATURES

CIRCUIT BREAKER INTERIOR/PANEL BOARD SIZED PER JOB SPECIFICATIONS
DEADFRONT CONSTRUCTION WHEN REQUIRED
SPLIT DEADFRONT CAN BE PROVIDED

SPECIFICATIONS

* NEMA 3R CONSTRUCTION
* FABRICATED FROM CORROSION-RESISTANT STAINLESS STEEL
* AVAILABLE OPTIONS:
  - FULL SIZE BACK PAN
  - AUXILIARY CABINET (28W x 48H x 18D)
* RECOMMENDED ANCHOR BOLT SIZE, 5/8"x18"x4"
* ALL FACTORY WIRING 600 VOLT RATED COPPER
* ALL COMPONENTS UL LISTED
* ALL EXTERIOR DOORS AND COVERS PADLOCKABLE

12/15

NEW PEDESTAL FOR "HA"

PANEL NO. HA	SECTION: 1 OF 1	Bus: 277 /480 Volts	X Main C.B., 80 AMP
Location: SPLASH PAD BLDG	Serving: MOTORS	3 PHASE 4 Wire, 100 AMP	Main Lugs Only
Integrated Equipment SC Rating 22,000 RMS SYM AMPS			Flush Mnt. X Surface Mnt. / Top Feed X Bot. Feed

Load Type	Circuit Description	CONN VA	C.B. AMP	Pole	CKT	PH	CKT	Pole	AMP	CONN VA	Circuit Description	Load Type
M	BALANCE TANK MOTOR 3HP	1330	20	3	1	A	2	2	80	8600	25KVA TRANSFORMER	L
M	BALANCE TANK MOTOR 3HP	1330	20	3	3	B	4	2	80	8600	25KVA TRANSFORMER	L
M	BALANCE TANK MOTOR 3HP	1330	20	3	5	C	6	1	20			
M	SPRAY GROUND #1 5HP	2105	20	3	7	A	8	1	20			
M	SPRAY GROUND #1 5HP	2105	20	3	9	B	10	1	20			
M	SPRAY GROUND #1 5HP	2105	20	3	11	C	12	1	50	9000	WATER HEATER	N
M	SPRAY GROUND #2 7.5HP	3050	20	3	13	A	14	1	20			
M	SPRAY GROUND #2 7.5HP	3050	20	3	15	B	16	1	20			
M	SPRAY GROUND #2 7.5HP	3050	20	3	17	C	18	1	20			
			20	1	19	A	20	1	20			
			20	1	21	B	22	1	20			
			20	1	23	C	24	1	20			

Total Receptacle (R) Load @ 180VA/ea., 100% for first 10,000VA, & 50% for remainder: 0.00 KVA
Total Noncoincident (E) Load (Not included in demand load): 0.00 KVA
Total Lighting (L) Load @ 1.25%: 21.5 KVA — Total NonContinuous (N) Load: 9.00 KVA
Total Motor (M) Load: 19.455 KVA — Largest Motor: (25% added to demand load): 7.5 HP 1.88 KVA

TOTAL CONNECTED LOAD:	AMP	A	B	C	TOTAL DEMAND LOAD
45.7 KVA	Total / Φ	54	54	56	51.8 KVA 62.4 A

PANEL NO. SP	SECTION: 1 OF 1	Bus: 120 /240 Volts	X Main C.B., 80 AMP
Location: PEDESTAL	Serving: SPLASH PAD	1 Φ, 3 Wire, 125 AMP	Main Lugs Only
Integrated Equipment SC Rating 10,000 RMS SYM AMPS	Feed Thru Lugs / SubFeed Lugs	X Gnd. Bus	Flush Mnt. X Surface Mnt. / Top Feed Bot. Feed

Load Type	Circuit Description	CONN VA	C.B. AMP	Pole	CKT	PH	CKT	Pole	AMP	CONN VA	Circuit Description	Load Type
m	WATER CHEM RELAY	360	20	1	1	A	2	1	20	360	CIRC. PUMP INTERCONNECT	m
m	WATER CHEM CONTROLLER	1200	20	1	3	B	4	1	20	360	CIRC. PUMP MOTOR CONTROLLER	m
m	WATER PLAY CONTROLLER	960	20	1	5	A	6	1	20	360	BOOSTER PUMP #1 INTERCONNEC	m
m	ACID FEED PUMP	960	20	1	7	B	8	1	20	360	BOOSTER PUMP #1 MOTOR CONT	m
m	CHLORINE FEED PUMP	960	20	1	9	A	10	1	20	360	BOOSTER PUMP #2 INTERCONNEC	m
R	OUTLETS	720	20	1	11	B	12	1	50	360	BOOSTER PUMP #2 MOTOR CONT	m
L	INTERIOR LIGHTS	480	20	1	13	A	14	1	20	1500	UV SYSTEM #1	m
			20	1	15	B	16	1	20	1500	UV SYSTEM #2	m
			20	1	17	A	18	1	20			
			20	1	19	B	20	1	20			

Total Receptacle (R) Load @ 180VA/ea., 100% for first 10,000VA, & 50% for remainder: 0.72 KVA
Total Noncoincident (E) Load (Not included in demand load): 0.00 KVA
Total Lighting (L) Load @ 1.25%: 0.6 KVA — Total NonContinuous (N) Load: 0.00 KVA
Total Motor (M) Load: 9.6 KVA — Largest Motor: (25% added to demand load): 2 HP 0.50 KVA

TOTAL CONNECTED LOAD:	AMP	A	B	TOTAL DEMAND LOAD
10.8 KVA	Total / Φ	45	46	11.4 KVA 47.6 A

PANEL "SP" TO BE PROVIDED BY SITE CONTRACTOR. CONDUIT & WIRE TO "SP" BY SITE CONTRACTOR

WEST COAST DESIGN GROUP
ELECTRICAL & LIGHTING ENGINEERS
383 BAY VIEW TERRACE
COSTA MESA, CA 92627
(949) 735-1000

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SITE ELECTRICAL

OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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DRAWN BY:	ld
CHECKED BY:	RO
PROJECT NO.	1068
DATE:	7 AUG 25

REGISTERED PROFESSIONAL ENGINEER
RUSSELL A. ARNOLD
No. E11028
Exp. 06/30/27
ELECTRICAL
STATE OF CALIFORNIA

SHEET 34 OF 80

SE1.02

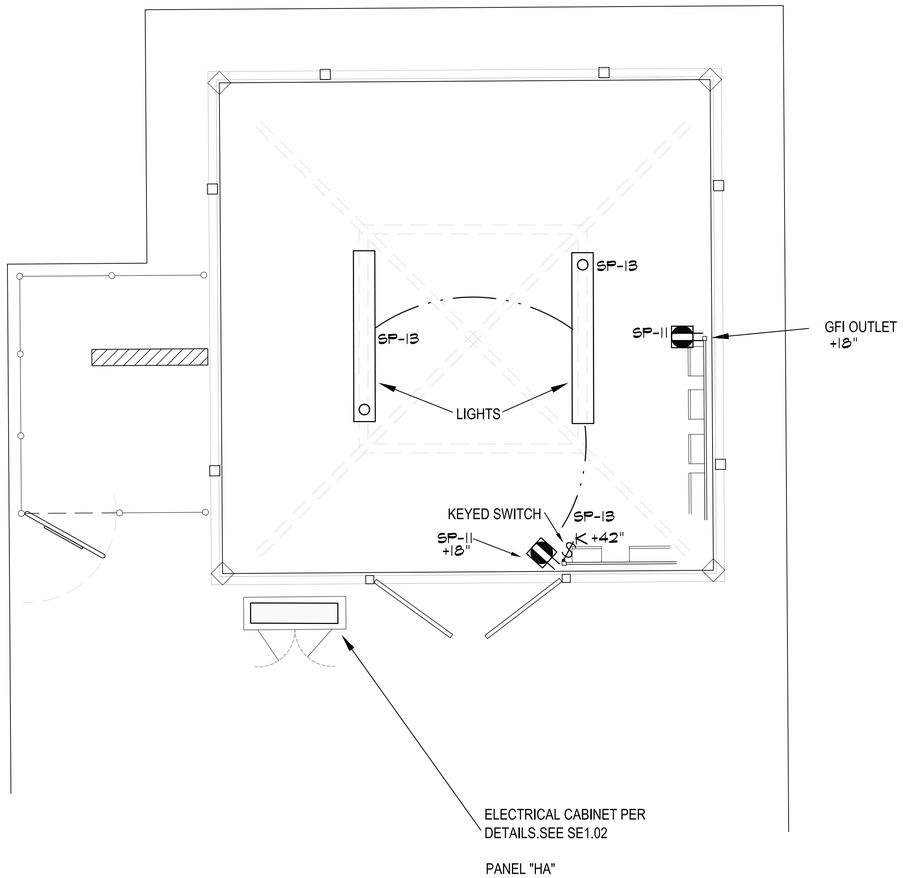
WEST COAST DESIGN GROUP
ELECTRICAL & LIGHTING ENGINEERS
383 BAY VIEW TERRACE
COSTA MESA, CA 92627
(949) 735-1000

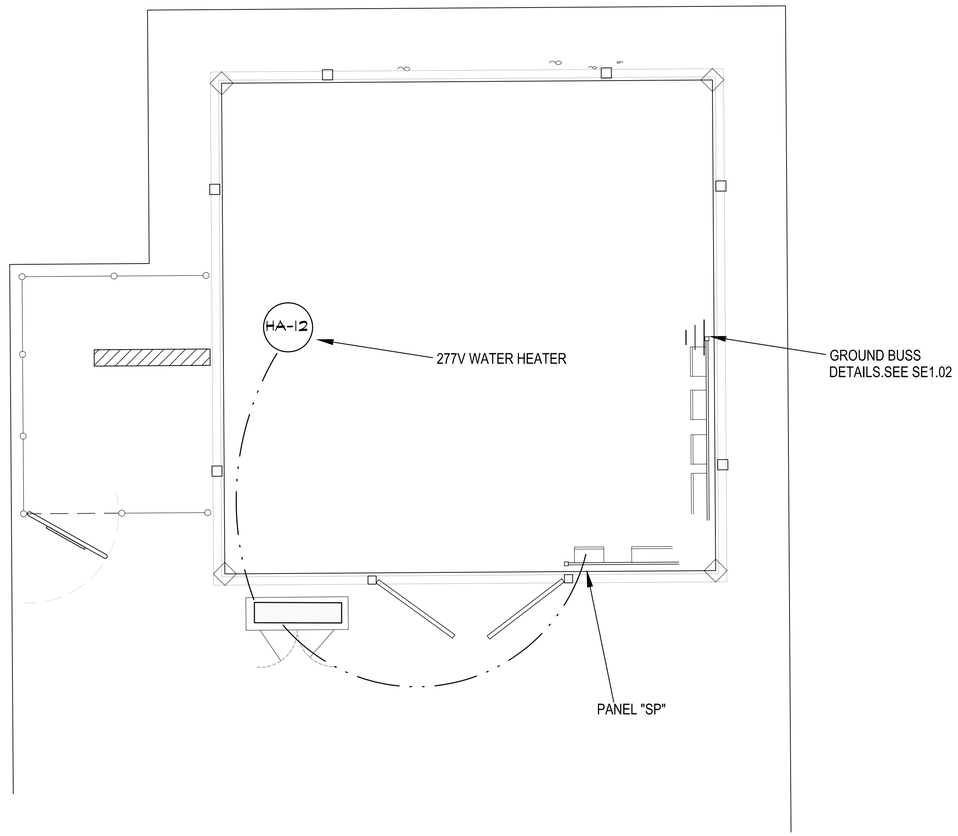
LIGHTS

LITHONIA #FEM L96 12000LM LPAFL WD MVOLT 40K 80CRI STL SBORIO

4K 76 WATT, 120V

MOUNT TO CEILING WITH CHAIN HANG AT 10' A.F.F.





WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE
SITE ELECTRICAL

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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DRAWN BY:	ld
CHECKED BY:	RO
PROJECT NO.	1068
DATE:	7 AUG 25

REGISTERED PROFESSIONAL ENGINEER
RUSSELL A. OLSON
No. E11028
Exp. 06/30/27
ELECTRICAL
STATE OF CALIFORNIA

SHEET 35 OF 80

SE1.03



CONSTRUCTION LEGEND

1. COLORED CONCRETE SPLASH PAD DRY ZONE SURROUNDING SPLASH PAD AREA (WET ZONE). SEE CIVIL PLAN AND DETAILS. FINISH: MEDIUM BROOM. DAVIS CONCRETE COLOR: MESA BUFF
2. COLORED CONCRETE SPLASH PAD WET ZONE WITH SPRAY FEATURES PER AQUATIC DESIGN GROUP PLANS & DETAILS. FINISH: MEDIUM BROOM. DAVIS CONCRETE COLOR: WILLOW GREEN.
3. LARGE BOULDERS FOR SEATING NEAR SPLASH PAD PART OF BASE CONTRACT. AVAILABLE FROM SOUTHWEST BOULDER & STONE, (714) 882-1010, OR EQUAL. TOTAL: 8 LARGE BOULDERS, 60" X 48". SEE DETAIL 14, SHEET L1.53.
4. LANDSCAPE GRANITE BOULDERS INSTALLED UNDER THE DIRECTION OF LANDSCAPE ARCHITECT. AVAILABLE FROM SOUTHWEST BOULDER & STONE, (714) 882-1010, OR EQUAL. FOR BID PURPOSES ASSUME EIGHT 36" X 24", TWELVE 30" X 20" AND FIFTEEN 24" X 18" BOULDERS. SEE DETAIL 15, SHEET L1.53. ***ADDITIVE ALTERNATE NO. #4.***
5. CONSTRUCT ARIZONA RIVER ROCK DRY SWALE BOTTOM, SEE CIVIL GRADING PLAN AND LANDSCAPE DETAIL 17, SHEET L1.53. RIVER ROCK AVAILABLE FROM SOUTHWEST BOULDER & STONE, (714) 882-1010 OR EQUAL. PROVIDE SAMPLES OF RIVER ROCK AND PEA GRAVELS.
6. ADA-ACCESSIBLE COMPANION SPACE, MIN. 36" X 48" CLR. AS SHOWN.
7. QCP CONCRETE BENCH, MODEL Q2-SHR-96B-L, OR EQUAL. AVAILABLE FROM QCP, CONTACT JESSICA STROOTMAN, (866) 703-3434 TOTAL: 5 BENCHES, COLOR: NATURAL, FINISH: STRATA. SEE DETAIL 13, SHEET L1.53.
8. PROVIDE AND INSTALL SHADE SYSTEMS SAIL OVERHEAD STRUCTURE, AVAILABLE THROUGH MIRACLE PLAYGROUND, CONTACT ROB FRYHOFF, (800)-264-7225, EXT. 307, OR EQUAL. MANUFACTURER TO PROVIDE COMPLETE SHOP DRAWINGS INCLUDING FOOTING DESIGN AND STRUCTURAL CALCULATIONS AS NEEDED FOR ***SEPARATE SUBMITTAL***. SEE SHEETS L1.51 & L1.52. ***ADDITIVE ALTERNATE NOS. #1, #2, & #3.***
9. PROVIDE AND INSTALL 55 GAL DRUM TRASH RECEPTACLES WITH PLASTIC DOME LIDS. AVAILABLE FROM THE CARY COMPANY (630) 629-6600, OR EQUAL. TOTAL: 2, COLOR: NAT. STARCH GREEN DRUM. INSTALL ON MIN. 3' SQUARE CONCRETE PAD.
10. PROVIDE AND INSTALL DUMOR BICYCLE LOOP RACK, MODEL #290, OR EQUAL WITH EMBEDMENT MOUNT PER DETAIL 16, SHEET L1.53. AVAILABLE THROUGH RECWEST OUTDOOR PRODUCTS, CONTACT DERRICK SHIMA, (818) 735-3838. COLOR: BRONZE, TOTAL: 2.
11. CONSTRUCT 6" CONCRETE MOW CURB PER DETAIL 13, SHEET L1.53 AND CIVIL HORIZONTAL CONTROL PLAN.
12. RECONSTRUCT VEHICLE-RATED ASPHALT WALKWAY WITH CONCRETE CURBS PER CIVIL PLANS AND DETAIL 4, SEE SHEET C4.01.
13. NOT USED.
14. NEW UNDERGROUND TANK FOR SPLASH PAD PER AQUATIC DESIGN GROUP DETAILS, SHEET SG-10.
15. PROVIDE AND INSTALL ELECTRICAL CABINET ON RAISED CONCRETE PAD PER ELECTRICAL SITE PLAN AND DETAILS. REFER TO DETAIL 2, SHEET L1.50.
16. CONSTRUCT NEW VEHICLE-RATED ASPHALT FIRE SERVICE ROAD PER CIVIL PLANS AND DETAILS.
17. PROVIDE AND INSTALL NEW 24' x 24' POLIGON SHELTER TO HOUSE SPLASH PAD MECHANICAL EQUIPMENT, OR EQUAL. AVAILABLE THROUGH MIRACLE PLAYGROUND, CONTACT ROB FRYHOFF, (800)-264-7225, EXT. 307. SHELTER TO INCLUDE PERFORATED SCREEN PANEL WALLS, DOUBLE FRONT DOORWAY, ELEC. OUTLETS, OVERHEAD INTERIOR LIGHTING. MANUFACTURER TO PROVIDE COMPLETE SHOP DRAWINGS INCLUDING FOOTING DESIGN AND STRUCTURAL CALCULATIONS AS NEEDED FOR ***SEPARATE PERMIT***. SEE SHEET L1.50.
18. CONSTRUCT NEW CONCRETE PAD FOR MECHANICAL BLDG. PER CIVIL PLANS AND DETAILS. SEE SHEET 4.01, DET. 2. COORDINATE WITH AQUATIC DESIGN PLAN FOR SPLASH PAD EQUIPMENT LAYOUT AND UTILITIES.
19. PROVIDE AND INSTALL NEW PRIVATE FIRE HYDRANT PER CIVIL FIRE PLAN AND DETAILS. REFER TO FIRE SITE PLAN, SHEET G0.02.
20. CONSTRUCT BOX CULVERT UNDER NEW ASPHALT WALKWAY PER CIVIL PLANS AND DETAIL 10, SHEET C4.01.
21. EX. PICNIC TABLE & CONCRETE PAD, TYP. PROTECT IN PLACE.
22. PROVIDE AND INSTALL NEW SPLASH PAD CAUTION SIGNAGE PER DETAIL 9, SHEET L1.52. AVAILABLE FROM SQUARESIGNS.COM, OR APPROVED EQUAL. CONTRACTOR TO PROVIDE COMPLETE SHOP DRAWINGS FOR APPROVAL. TOTAL SIGNS: 2
23. CONSTRUCT CONCRETE PATH WITH UNEVEN EDGE UNDER DIRECTION OF LANDSCAPE ARCHITECT. EDGE SHAPE MAY REQUIRE SHOVEL CUTTING TO ACHIEVE DESIRED EFFECT. FINISH: TOP CAST NO. 75. DAVIS CONCRETE COLOR: MESA BUFF. AGGREGATE TO BE DARK BROWN, PROVIDE SAMPLE FOR APPROVAL. REFER TO CIVIL DETAIL 1, SHEET 4.01.
24. CONSTRUCT DRY WELL PER CIVIL PLANS AND DETAILS.
25. CUSTOM METAL TOWEL RACK PER DETAIL 19, SHEET L1.53. PROVIDE COMPLETE SHOP DRAWINGS INCLUDING ALL METAL GAUGES, SIZES, WELDS, FOOTING DESIGN AND STRUCTURAL CALCULATIONS AS NEEDED. TOTAL: 3 RACKS.
26. ELECTRICAL WARM WATER HEATER AND CABINET. REFER TO DETAIL 2, SHEET E1.50. INSTALL PER ELECTRICAL PLANS AND DETAILS.
27. CHAIN LINK ENCLOSURE FOR LIQUID CHEMICAL STORAGE PER DETAIL 2, SHEET L1.50. REFER TO SPLASH PAD MECHANICAL SHEET DETAILS. PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL.
28. CONSTRUCT CONCRETE RIBBON GUTTER PER CIVIL DETAIL 8, SHEET C4.01.
29. PROVIDE AND INSTALL PUMP EQUIPMENT PER SPLASH PAD MECHANICAL ROOM LAYOUT. SEE AQUATIC DESIGN SHEETS MR-1.
30. EXISTING PARK ROAD, PROTECT IN PLACE.
31. PROVIDE AND INSTALL NEW DIRECTIONAL SIGNAGE PER DETAIL 9, SHEET L1.52. AVAILABLE FROM SQUARESIGNS.COM, OR APPROVED EQUAL. CONTRACTOR TO PROVIDE COMPETE SHOP DRAWINGS FOR APPROVAL. TOTAL SIGNS: 4.

CONSTRUCTION LEGEND

- DRY CONCRETE SURFACING
- WET CONCRETE SURFACING (SPLASH PAD)
- FIRE ROAD
- NEW ASPHALT PAVING

SCALE 1" = 16'

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPLASH PAD CONSTRUCTION PLAN

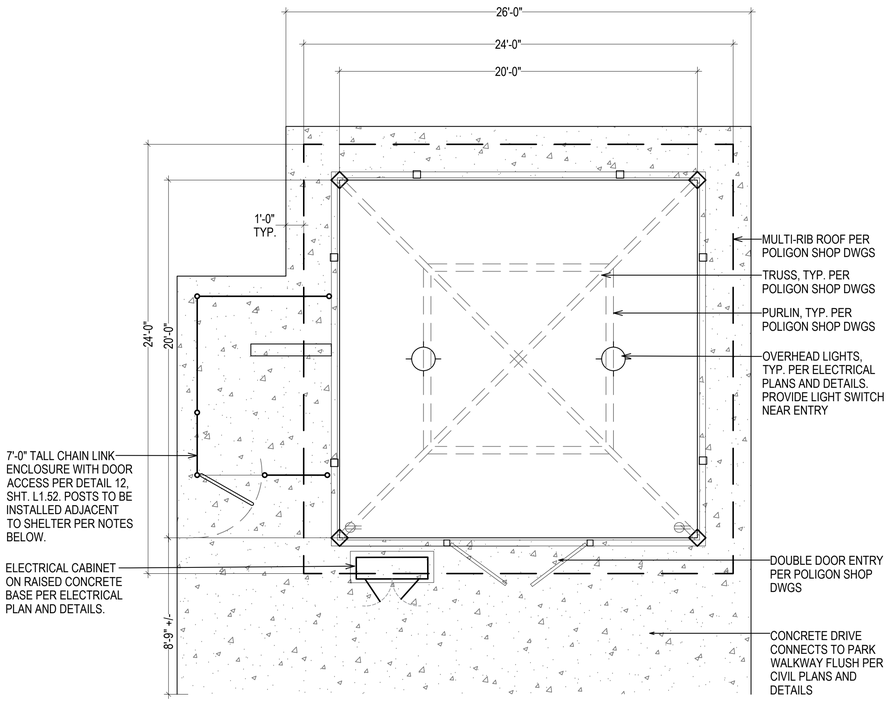
OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: **WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT**
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	23 OCT 2025

LICENSED LANDSCAPE ARCHITECT
LAREY M. WITHERS-3809
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA



NOTE: CHAIN LINK ENCLOSURE TO BE SECURED ON THREE SIDES PLUS TOP/ROOF. POSTS TO BE PLACED AS CLOSE TO SHELTER AS POSSIBLE. IF THERE IS A GAP LARGER THAN 4" NOTIFY PROJECT MANAGER AND LANDSCAPE ARCHITECT TO DETERMINE MEANS OF SECURING GAP. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ANY ADDITIONAL MATERIALS AND LABOR TO CLOSE GAP.

COORDINATE LOCATION OF PIPE WITH SHELTER MANUFACTURER AT START OF PROJECT TO PROVIDE HOLE IN SHELTER PANEL TO LEAD LINE INTO SHELTER.

2 MECHANICAL BUILDING FLOOR PLAN

3 NOT USED

BASIS OF DESIGN: POLIGON, OR EQUAL
UNDER SEPARATE PERMIT

SUBMIT MANUFACTURER'S ARCHITECTURAL DRAWINGS & STRUCTURAL CALCULATIONS FOR DEFERRED APPROVAL OF PERMIT.

PLAN & ELEVATIONS PROVIDED ON THIS SHEET ARE FOR INFORMATION ONLY AND BID REFERENCE ONLY. CONTRACTOR TO COORDINATE WITH MANUFACTURER TO PRODUCE FINAL SET OF SHOP DRAWINGS FOR BUILDING STRUCTURE, FOUNDATION, FOOTINGS AND ALL CONSTRUCTION DETAILS. SUBMIATTAL TO INCLUDE ALL STRUCTURAL ENGINEERING AS REQUIRED BY THE COUNTY OF LOS ANGELES BUILDING & SAFETY FOR PERMITTING. DRAWINGS TO BE SIGNED BY A LICENSED CALIFORNIA CIVIL / STRUCTURAL ENGINEER.

PROJECT:	WNRA ENCLOSURE OPT 2
LOCATION:	SOUTH EL MONTE, CA
BUILDING TYPE:	SQR 24
ROOF TYPE:	MULTI-RIB
BUILDING NUMBER:	P19276
ORDER NUMBER:	79293

CERTIFIACTES:
MIAMI-DADE COUNTY CERTIFICATE OF COMPETENCY NO. 21-0819.13
PCI (POWDER COATING INSTITUTE) 4000 CERIFIED

FABRICATIOR APPROVALS:
CITY OF PHOENIX, AZ APPROVED FABRICATOR #C08-2100
CITY OF LOS ANGELES, CA APPROVED FABRICATOR #FB01596
CITY OF RIVERSIDE, CA APPROVED FABRICATOR #SF_000042
CITY OF HOUSTON, TX APPROVED FABRICATOR #470
CLARK COUNTY, NV APPROVED FABRICATOR #264
STATE OF UTAH APPROVED FABRICATOR 02008-14
AISC APPROVED FABRICATOR C-00018751

GENERAL NOTES:
UNLESS NOTED OTHERWISE, THIS STRUCTURE WAS DESIGNED TO ONLY SUPPORT WHAT IS SHOW ON THESE DRAWINGS. THE MANUFACTURER MUST BE CONTACTED IF ANYTHING ELSE IS TO BE ATTACHED TO THIS STRUCTURE (WALLS, COLUMN WRAPS, RAILING, ETC.) SO THE DESIGN OF THIS STRUCTURE CAN BE REVIEWED AND POSSIBLY REVISED.

UNLESS NOTED OTHERWISE, THIS STRUCTURE WAS DESIGNED ASSUMING A 20' SEPARATION BETWEEN ANY ADJACENT STRUCTURE WITH AN EAVE HEIGHT EQUAL TO OR GREATER TAN THE EAVE HEIGHT OF THIS STRUCTURE. IF THAT SEPARATION DOES NOT EXIST, THE MANUFACTURER MUST BE CONSTACTED SO THE DESIGN OF THIS STRUCTURE CAN BE REVIEWED AND POSSIBLY REVISED.

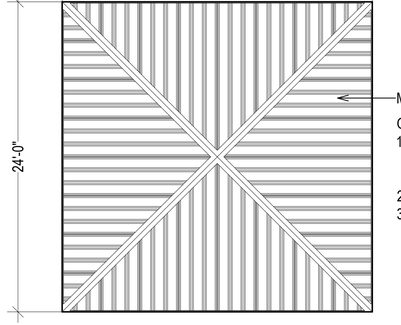
STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)SPECIFICATION MANUAL.

ALL WELDING IS PERFORMED BY AMERICAN WELDING SOCIETY (AWS) CERTIFIED WELDERS AND CONFORMS TO THE LATEST EDITION OF AWS D1.1 OR D1.3 AS REQUIRED.

PARTS SHOW MAY BE UPGRADED DUE TO STANDARDIZED FABRICATION. REFER TO THE SHIPPING BILL OF MATERIALS FOR POSSIBLE SUBSTITUTIONS.

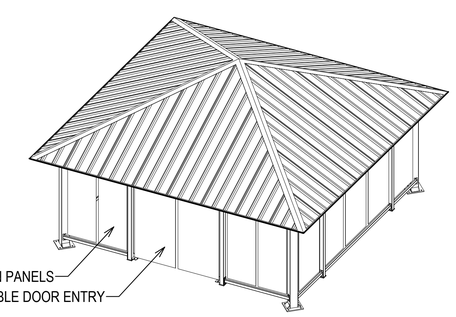
FOR PROPER FIELD INSTALLATION OF THE BUILDING IT IS RECOMMEND THAT THE PRIMARY FRAME INSTALLER AND THE ROOF INSTALLER HAVE A MINIMUM FIVE (5) YEARS DOCUMENTED EXPERIENCE INSTALLING THIS TYPE OF PRODUCT.

FOR PROPER FIELD INSTALLATION FO THE BUILDING IT IS RECOMMENDED THAT ELECTRIC WIRING, IF REQUIRED, BE RUN THROUGH THE STRUCTURAL MEMBERS BEFORE THE BUILDING IS ERECTED.

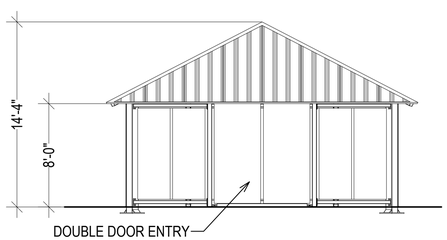


GENERAL ROOF NOTES:
1. METAL ROOFING IS 24 GAUGE, GALVALUME COATED AND KYNAR 500 PAINTED.
2. TRIM COLOR MATCHES ROOF
3. COLOR TO BE: ASH GREY

TOP VIEW



ISOMETRIC VIEW



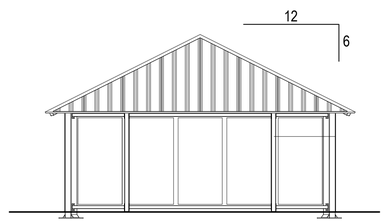
FRONT VIEW

FRAME NOTES:
1. COLOR TO BE: JUNIPER

FINISHED GRADE (ASSUMED AT CONSTANT ELEVATION UNLESS OTHERWISE NOTED

MATERIALS:

DESCRIPTION:	ASTM DESIGNATION:
TUBULAR STEEL	A500 (GRADE B)
SCHEDULE PIPE	A53 (GRADE B)
RMT PIPE	A519
LIGHT GAGE COLD FORMED	A1003 (GRADE 50)
STRUCTURAL STEEL PLATE	A36
ROOF PANELS (STEEL)	A653



SIDE VIEW

1 MECHANICAL BUILDING

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPLASH PAD MECHANICAL BUILDING

OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

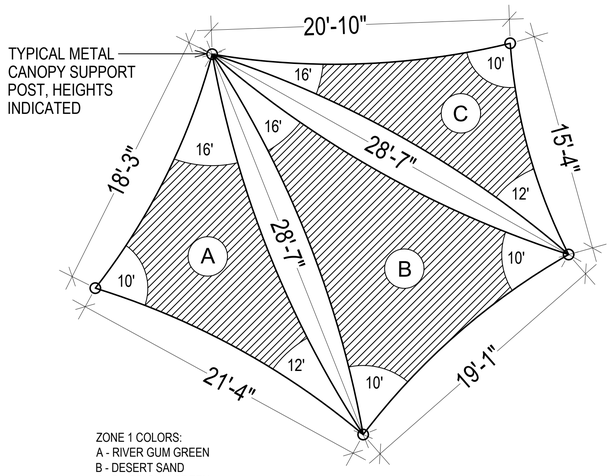
PROJECT TITLE: WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	23 OCT 2025

LICENSED LANDSCAPE ARCHITECT
CASEY M. WITHERS 5857
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA

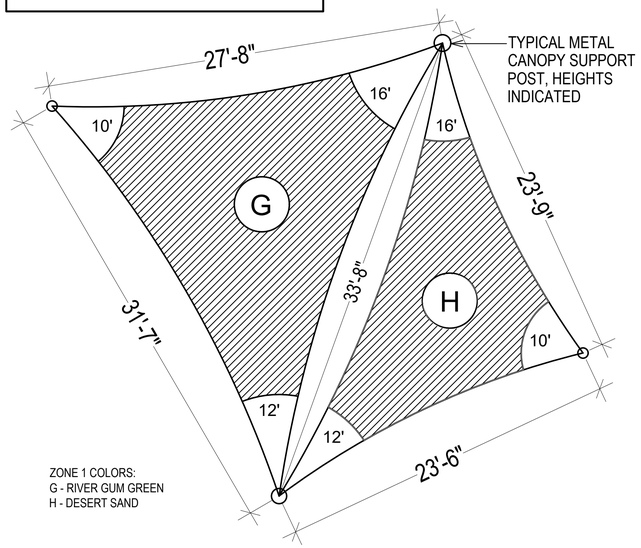
NOTE: ALL POST FOOTINGS SHALL BE INCLUDED WITH THE MANUFACTURER'S FINAL SET OF SHOP DRAWINGS INCLUDING ALL STRUCTURAL CALCULATIONS AS REQUIRED BY THE COUNTY OF LOS ANGELES BUILDING & SAFETY FOR PERMITTING AND THE ARMY CORPS OF ENGINEERS.



ZONE 1 COLORS:
A - RIVER GUM GREEN
B - DESERT SAND
C - RIVER GUM GREEN

6 SHADE SHELTER - ZONE 1 / ADD. ALT #1

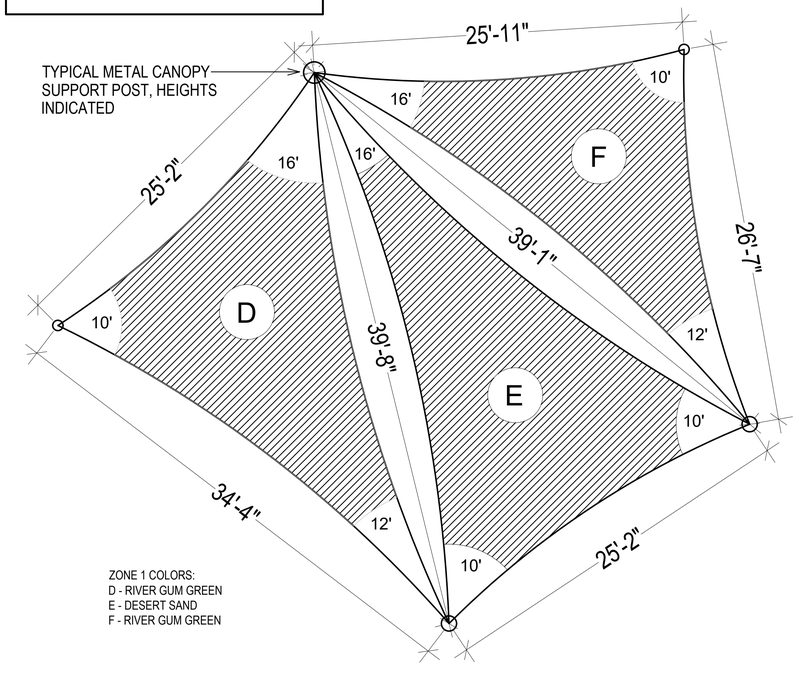
NOTE: ALL POST FOOTINGS SHALL BE INCLUDED WITH THE MANUFACTURER'S FINAL SET OF SHOP DRAWINGS INCLUDING ALL STRUCTURAL CALCULATIONS AS REQUIRED BY THE COUNTY OF LOS ANGELES BUILDING & SAFETY FOR PERMITTING AND THE ARMY CORPS OF ENGINEERS.



ZONE 1 COLORS:
G - RIVER GUM GREEN
H - DESERT SAND

5 SHADE SHELTER - ZONE 3 / ADD ALT. #3

NOTE: ALL POST FOOTINGS SHALL BE INCLUDED WITH THE MANUFACTURER'S FINAL SET OF SHOP DRAWINGS INCLUDING ALL STRUCTURAL CALCULATIONS AS REQUIRED BY THE COUNTY OF LOS ANGELES BUILDING & SAFETY FOR PERMITTING AND THE ARMY CORPS OF ENGINEERS.



ZONE 1 COLORS:
D - RIVER GUM GREEN
E - DESERT SAND
F - RIVER GUM GREEN

7 SHADE SHELTER - ZONE 2 / ADD. ALT. #2

BASIS OF DESIGN: POLIGON, OR EQUAL
UNDER SEPARATE PERMIT

SUBMIT ARCHITECTURAL DRAWINGS & STRUCTURAL CALCULATIONS FOR DEFERRED APPROVAL OF PERMIT.

PLAN & ELEVATIONS PROVIDED ON THIS SHEET ARE FOR INFORMATION ONLY. ALL INFORMATION IN THIS DETAIL IS FOR BID REFERENCE ONLY. CONTRACTOR TO COORDINATE WITH MANUFACTURER TO PRODUCE FINAL SET OF SHOP DRAWINGS INCLUDING ALL STRUCTURAL ENGINEERING REQUIRED BY THE COUNTY OF LOS ANGELES BUILDING & SAFETY FOR PERMITTING AND THE ARMY CORPS OF ENGINEERS.

NOTE: ALL THREE SHELTERS ARE ADDITIVE ALTERNATES AND SHALL BE BID SEPARATELY.

PLEASE NOTE:
MANUFACTURER TO PROVIDE COMPLETE SET OF COMPONENTS TO SITE. GENERAL CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION OF FOOTINGS AND INSTALLATION OF ALL COMPONENTS. ADDITIONAL MATERIALS TO BE SUPPLIED NOTED ON DETAILS.

CENTER-TO-CENTER MEASUREMENTS FOR COLUMN LAYOUT MUST BE MAINTAINED PRECISELY AS SHOWN. AS SAIL COLUMN LOCATIONS SHOW ALLOW LESS THAN 1" OF TOLERANCE, ANY GREATER INSTALLED VARIANCE MAY CAUSE YOUR FABRIC CANOPY TO NOT FIT AS DESIGNED. A LOOSE OR POORLY FITTING CANOPY CAN BE SUSCEPTIBLE TO DAMAGES WHICH WILL NOT BE COVERED UNDER WARRANTY. PLEASE NOTIFY POLIGON IMMEDIATELY IF COLUMN LOCATIONS VARY MORE THAN 1" FROM THE MEASUREMENTS SHOWN ON THIS PLAN.

THE SHADE SAIL STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE 2022 CALIFORNIA STATE BUILDING CODES AND ASCE 7 TO THE FOLLOWING DESIGN CRITERIA:

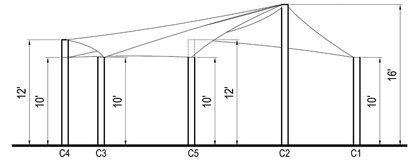
STEEL: GALV. STEEL TUBES MIN Fy=50KSI. STEEL ROUND PIPE SHALL BE ASTM A53 GRADE B. STEEL HSS ROUND AND HSS RECTANGULAR SHALL BE ASTM A500 GRADE B. STEEL PLATE SHALL CONFORM WITH ASTM A36.

ALL PARTS SHALL BE FACTORY-WELDED TO AMERICAN WELDING SOCIETY (AWS) SPECIFICATIONS AND SHALL UTILIZE E70-S6 AND HAVE THE HIGHEST STANDARDS OF QUALITY WORKMANSHIP.

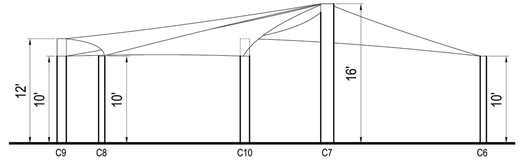
ALL WELDS SHALL BE FILLET WELDS WITH MAXIMUM PERMISSABLE THROAT THICKNESS OR FULL PENETRATION GROOVE WELDS.

SAIL FABRIC: KNITTED HDPE FABRIC HAS A SIEVE FACTOR OF 64%. SHADE FABRICS MEET FIRE STANDARDS FOR SHADE FABRICS INCLUDING CSFM 1237.1 FABRIC IS ATTACHED TO FRAME OR COLUMNS USING VINYL COVERED STAINLESS STEEL CABLES. CABLE FASTENERS ARE ZINC-PLATED COPPER FOR FOR MAXIMUM CORROSION RESISTANCE.

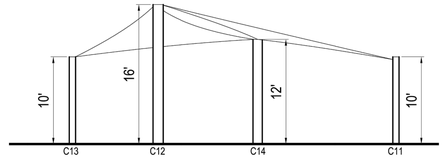
FASTENING SYSTEM: SHADE FABRIC SHALL BE DELIVERED COMPLETE WITH FASTENING SYSTEM INSTALLED. FASTENING SYSTEM TO BE PRE-ATTACHED STAINLESS STEEL PLATES. CABLES TO BE HEMMED INTO FABRIC AT FACTORY. POST SHALL BE EQUIPPED WITH AND ADJUSTABLE 360-DEGREE SWIVEL AND PIVOT ATTACHMENT.



ZONE 1

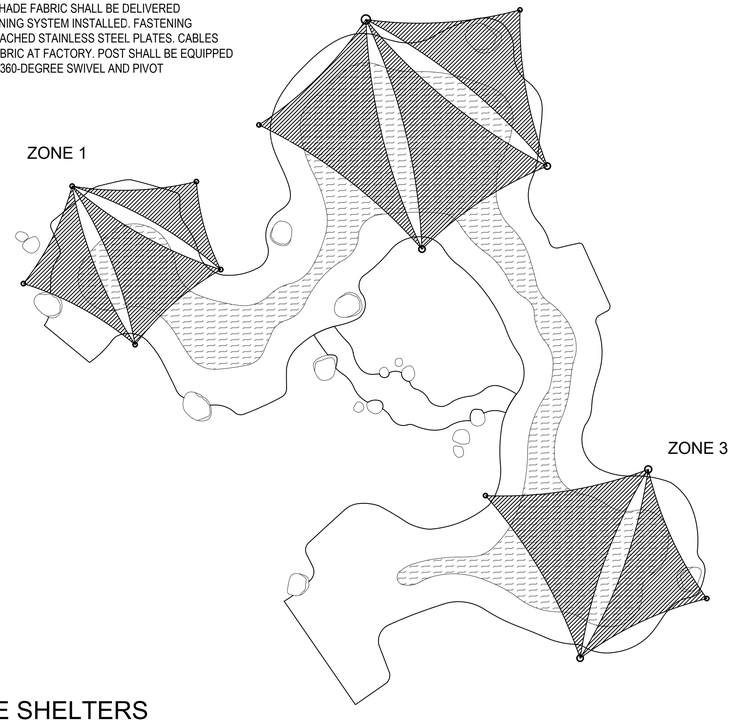


ZONE 2



ZONE 3

ZONE 2



4 SHADE SHELTERS

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsgren.com

SHEET TITLE: SPLASH PAD SHADE SAIL SHELTERS

OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: **WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT**
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

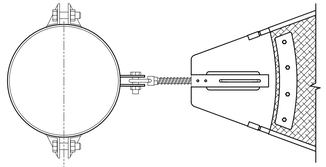
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DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	23 OCT 2025

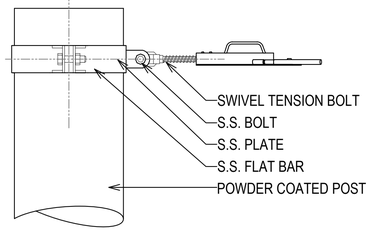
LICENSED LANDSCAPE ARCHITECT
LAREY M. WITHERS 3580
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA

COMPONENTS OF SAIL SHADES PROVIDED BY MANUFACTURER, CONTRACTOR TO ASSEMBLE ON SITE.

TOP VIEW



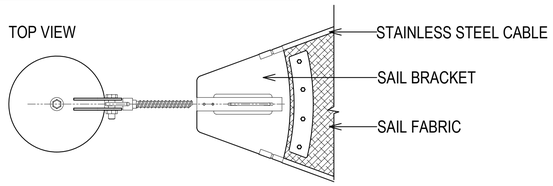
ELEVATION



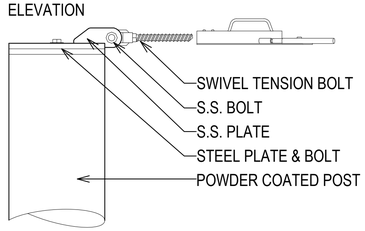
11 SHADE SAIL POST CONNECTION

COMPONENTS OF SAIL SHADES PROVIDED BY MANUFACTURER, CONTRACTOR TO ASSEMBLE ON SITE.

TOP VIEW

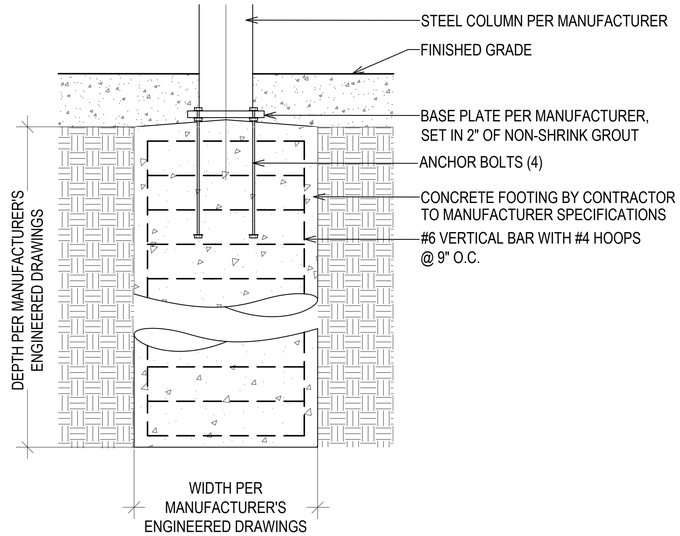


ELEVATION



10 SHADE SAIL TOP CONNECTION

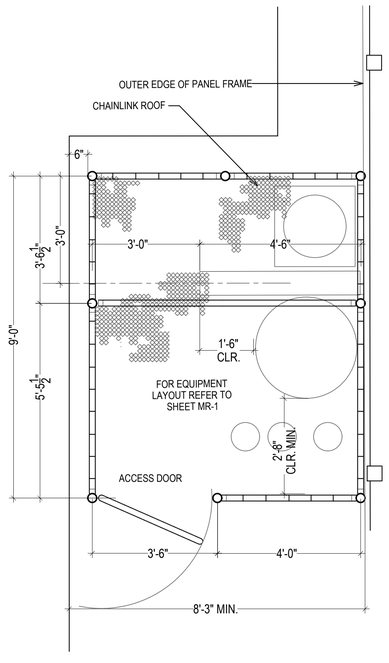
DETAIL PROVIDED FOR ILLUSTRATION PURPOSES ONLY.
MANUFACTURER TO PROVIDE COMPLETE SET OF ENGINEERED SHOP DRAWINGS FOR DEFERRED PERMIT. ENGINEERED FOOTING DESIGN FOR EACH INDIVIDUAL COLUMN TO BE PROVIDED BY MANUFACTURER ONCE UNDER CONTRACT.



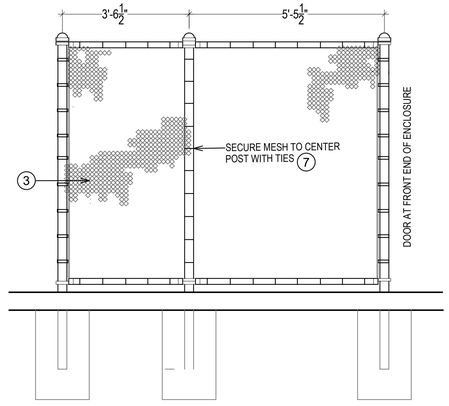
NOTES:
1. GROUT, HOOPS, REBAR AND ANCHOR BOLTS TO BE SUPPLIED BY CONTRACTOR.
2. SPECIAL INSPECTION FOR CONCRETE STRENGTH IS REQUIRED.
3. ALL CONCRETE SHALL BE MIXED AND PLACED IN ACCORDANCE WITH THE LATEST EDITION OF ACI 308 & 318.
4. CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE (fc) STRENGTH OF 3,000 PSI. A CONCRETE MIX HAVING A LISTED STRENGTH OF 3,000 PSI THAT IS MIXED IN ACCORDANCE TO MANUFACTURER'S RECOMMENDATIONS IS ACCEPTABLE FOR USE.
5. RE-ENFORCING STEEL SHALL BE ASTM A-615 GRADE 60 WITH A MINIMUM YIELD STRENGTH (fy) OF 60 KSI.
6. UNLESS OTHERWISE INDICATED, CONCRETE COVER SHALL BE MINIMUM 6".

8 SHADE SAIL FOOTINGS

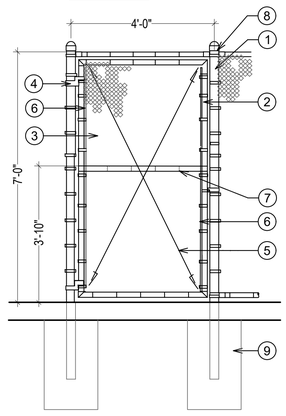
CHEMICAL STORAGE PLAN



SIDE ELEVATION



FRONT ELEVATION



LEGEND:
1. POSTS TO BE SCH. 40 / 3.5" DIA.
2. GATE FRAME, TOP, BOTTOM, MID-RAIL & SIDE MEMBERS TO BE 2-3/8" DIA. MITER GATE FRAME CORNERS, WELD & GRIND SMOOTH.
3. CHAIN LINK FABRIC TO BE VINYL COATED BLACK 1" MINI CHAIN LINK, KNUCKLE TOP & BOTTOM, PLACE ON OUTSIDE OF GATE.
4. HINGES TO BE INDUSTRIAL BULLDOG HINGE WITH 180 DEGREE SWING, TWO HINGES PER GATE, TOP & BOTTOM.
5. TRUSS ROD, 3/8" DIA., THREADED AT BOTH ENDS AND TENSIONED WITH TWO INDUSTRIAL TRUSS TIGHTENERS SECURED TO GATE FRAME.
6. STRETCHER BAR, 3/16" X 3/16" WITH 1/8" X 1" TENSION BANDS @ 1' O.C.
7. TIE WIRES TO BE 11 GAUGE @ 1'-6" O.C. AT TOP, BOTTOM & MID-RAIL OF GATE.
8. POST CAP SHALL BE MALLEABLE IRON OR PRESSED STEEL.
9. CONCRETE FOOTING PER CIVIL DETAIL 12, SHEET C4.01.

CHAINLINK INSTALLATION NOTES:
- PROVIDE COMPLETE SHOP DRAWINGS FOR REVIEW AND APPROVAL.

MATERIALS
- BRACE BANDS & OFFSET TENSION BANDS: 1/8" X 1" HEAVY W/ 3/8" CARRIAGE BOLTS.
- THREADED TRUSS RODS: 3/8" DIAMETER ASTM A36 STEEL, 6" LONG THREAD BOTH ENDS. DOUBLE NUT EACH END. NO SPLICES ALLOWED.
- TRUSS TIGHTENER: 5 3/4" X 1" X 5/16" INDUSTRIAL, 0.59 LB./EACH. (BOTH ENDS OF TRUSS ROD)
- LINE PANEL RAIL END: 1 7/8" OD 1-HOLE OFFSET, PRESSED STEEL, 0.39 LB./EACH.
- SHEAR PANEL RAIL END: 1 7/8" OD 2-HOLE PRESSED STEEL, 0.59 LB./EACH.
- CAPS: CAST IRON, 4 1/2" OD = 2.25 LB.
- POST & RAIL FABRIC TIES, HOG RINGS: 9 GA. STEEL.
- TENSION BARS: 1/4" X 3/4" 132" CONTINUOUS.
- CHAIN LINK FABRIC: SHALL CONFORM TO ASTM A 392, CLASS 2, 1.20 OZ./ SQ. FT. ZINC. FABRIC SHALL BE 9 GAUGE, AND WOVEN IN A 1-1/4" MESH. TOP AND BOTTOM SELVAGES SHALL BE KNUCKLED. SEE ELEVATIONS. PROVIDE SAMPLE OF MESH FOR APPROVAL.
- POST AND RAILS: ASTM A120, SCH. 40 CLASS 1 OR ASTM F1083

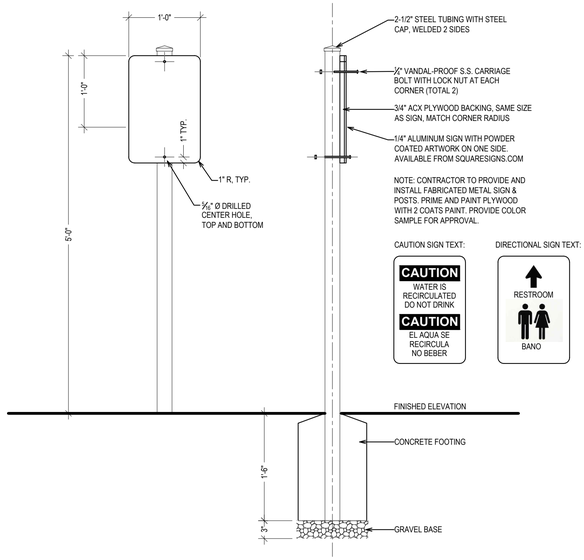
CONCRETE
- FOOTING CONCRETE DESIGN FC'=2000 PSI: FOR DURABILITY THE CONTRACTOR SHALL PROVIDE 520-C-2500, 4" SLUMP CONCRETE. PORTLAND CEMENT SHALL BE TYPE II PER SSPWC 201-1.2; COMBINED AGGREGATE GRADING SHALL CONFORM WITH SSPW 201-1.3.2
- PRIOR TO PROCEEDING WITH INSTALLATION OF FENCE FRAME AND FABRIC, THE CONTRACTOR SHALL ALLOW 7 DAYS FOR THE FOOTING CONCRETE TO CURE.

DESIGN SOIL STRENGTH VALUES
- LATERAL BEARING: 100 PSF/FT TO 1500 PSF MAX. FOR DESIGN OF ISOLATED POLES, THE ALLOWABLE LATERAL BEARING HAS BEEN INCREASED BY 100 PERCENT.

CHAIN LINK FABRIC FIELD INSTALLATION
- FABRIC SHALL BE CONTINUOUS IN THE LONGITUDINAL DIRECTION BY WEAVING CLOSURE TIES, OF THE SAME MATERIAL AS THE FENCE FABRIC, THROUGH BOTH VERTICAL ENDS.
- THE HORIZONTAL SEAM (BETWEEN THE TOP & BOTTOM PANEL) SHALL HAVE A 2" LAP AND SHALL BE FASTENED TOGETHER WITH HOG RINGS 1'-6" OC SPACED EVENLY BETWEEN RAIL TIES.
- FABRIC SHALL BE STRETCHED TIGHTLY AND KNUCKELED TOP AND BOTTOM.
- FABRIC SHALL BE PLACED 1" ABOVE THE FINISHED SURFACE.

FENCE FRAME FIELD INSTALLATION
- POSTS AND RAILS SHALL BE FABRICATED FROM CONTINUOUS PIPE. FITTINGS SHALL BE FABRICATED FROM A36 STEEL EXCEPT AS OTHERWISE INDICATED HEREIN. ALL POSTS SHALL BE INSTALLED IN A VERTICAL POSITION.
- THE BOTTOM RAIL SHALL BE INSTALLED ON A STRAIGHT GRADE TO PROVIDE A UNIFORM 2" CLEARANCE .
- ALL PIPES, POSTS, BRACES AND RAILS SHALL BE ASTM F1083 OR ASTM A120 SCHEDULE 40, WITH A MINIMUM 25 KSI YIELD STRESS OR ASTM A53 GRADE B OR A501 WITH A MIN. 35 KSI YIELD STRESS. ALL PIPE SHALL BE GALVANIZED.
- ALL CONNECTIONS SHALL BE WELDED ALL AROUND.
- WELDING SHALL BE DONE IN THE SHOP BY ELECTRIC ARC PROCESS USING E-70XX ELECTRODES. ALL WELDS SHALL BE UNIFORM IN SIZE AND APPEARANCE AND FREE OF PINHOLES, POROSITY, UNDERCUTTING OR OTHER DEFECTS.
- ALL SHOP WELDS SHALL BE DONE BY AN I.C.B.O. AND LOS ANGELES COUNTY APPROVED FABRICATOR UNLESS NOTED OTHERWISE ON THE PLANS.
- ALL FIELD WELDING SHALL BE PERFORMED BY QUALIFIED WELDERS APPROVED BY THE BUILDING OFFICIAL. ALL FIELD WELDING SHALL BE CONTINUOUSLY INSPECTED BY AN APPROVED DEPUTY INSPECTOR.
- ALL STEEL PIPE SIZES SHOWN ARE THE OUTSIDE DIAMETER.
- MIN. SOIL PRESSURE FOR DESIGN = 1000 PSF

12 CHAIN LINK ENCLOSURE GATE



9 CAUTION SIGN INSTALLATION

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPLASH PAD SHADE SAIL SHELTERS

OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

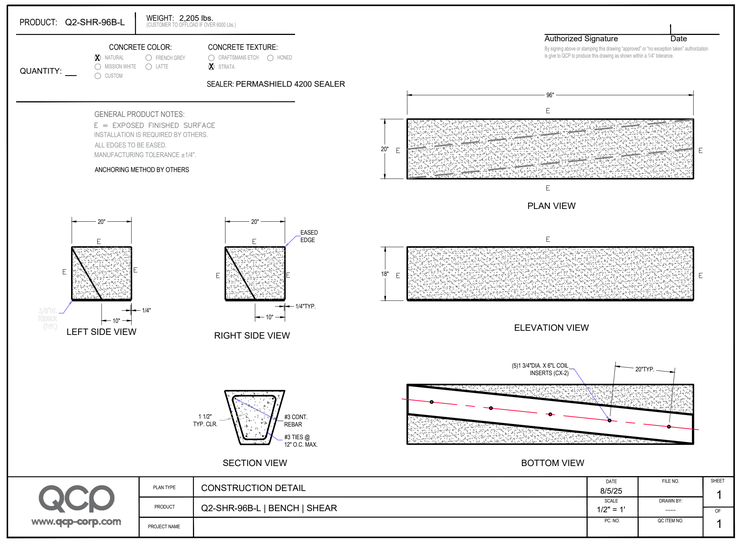
PROJECT TITLE: WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

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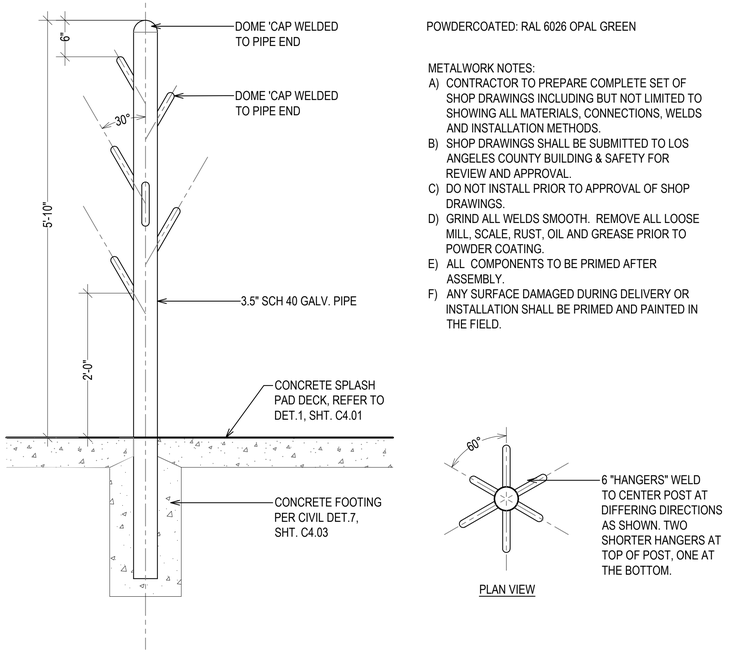
DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	23 OCT 2025

REGISTERED LANDSCAPE ARCHITECT
CARY M. WITHERS
No. 3855
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA

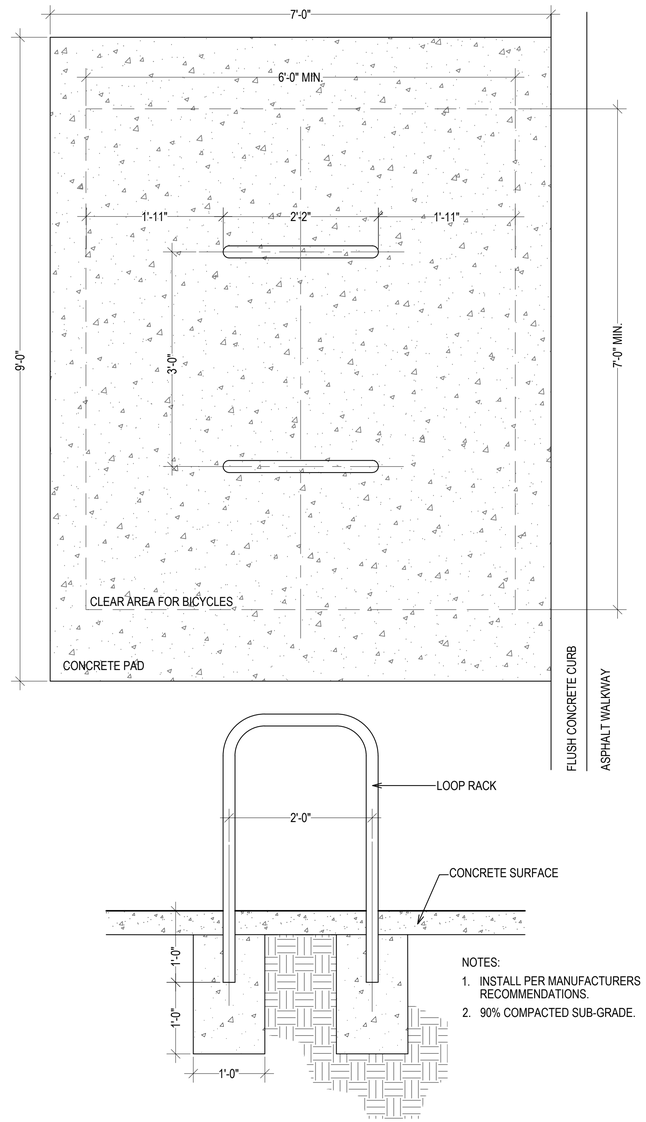
BASIS OF DESIGN: QCP OR EQUAL.



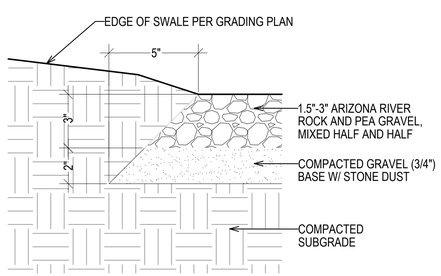
18 CONCRETE BENCH



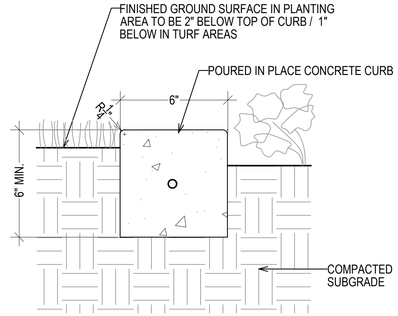
19 CUSTOM TOWEL RACK



16 BICYCLE RACK INSTALLATION

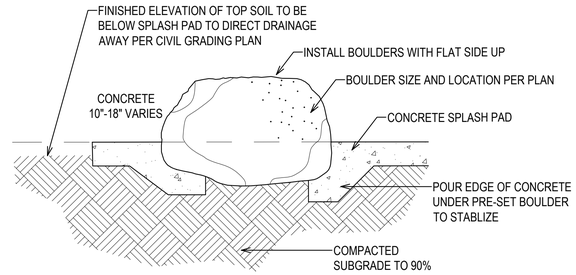


17 RIVER ROCK SWALE BOTTOM @ BOX CULVERT



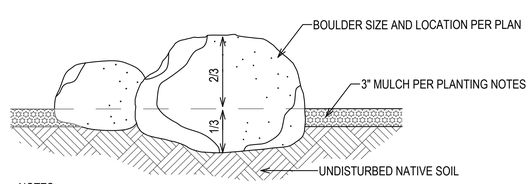
NOTES:
1. EXPANSION JOINTS SHALL BE CONSTRUCTED AT 20' MAX. PROVIDE EXP. JOINT AGAINST PREVIOUSLY CONSTRUCTED FIXED ELEMENTS.

13 CONCRETE MOW CURB



NOTES:
1. BOULDER PER CONSTRUCTION PLAN, RECESS AT LEAST 1/3 OF BOULDER'S DEPTH INTO SUB-GRADE AS SHOWN. LANDSCAPE ARCHITECT TO APPROVE BOULDERS AND SPOT LOCATIONS PRIOR TO INSTALLATION.
2. 90% COMPACTED SUB-GRADE.

14 LARGE SEATING BOULDERS



NOTES:
1. BOULDER PER CONSTRUCTION PLAN, RECESS AT LEAST 1/3 OF BOULDER'S DEPTH INTO SUB-GRADE AS SHOWN. LANDSCAPE ARCHITECT TO APPROVE BOULDERS AND SPOT LOCATIONS PRIOR TO INSTALLATION.
2. 90% COMPACTED SUB-GRADE.

15 LANDSCAPE BOULDERS

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: LANDSCAPE DETAILS

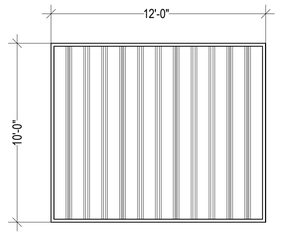
OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

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DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	23 OCT 2025

LICENSED LANDSCAPE ARCHITECT
LINDY M. WITHERS
3654
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA



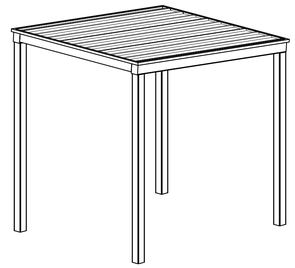
TOP VIEW

MATERIALS:	ASTM DESIGNATION:
TUBULAR STEEL	A500 (GRADE B)
SCHEDULE PIPE	A53 (GRADE B)
RMT PIPE	A519
LIGHT GAGE COLD FORMED	A1003 (GRADE 50)
STRUCTURAL STEEL PLATE	A36
ROOF PANELS	A653

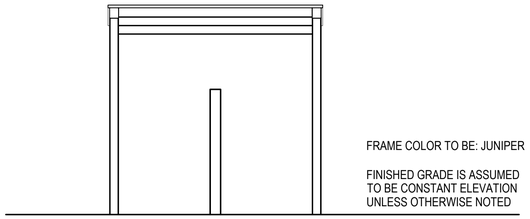
GENERAL ROOF NOTES:

1. METAL ROOFING:
   - 24 GAUGE
   - GALVALUME COATED
   - KYNAR 500 PAINTED
2. TRIM COLOR MATCHES ROOF
3. COLOR TO BE: ASH GREY

NOTES:
POLIGON ENGINEERING SHALL DETERMINE REQUIRED BASE PLATE AFTER CONTRACT IS ORDERED.



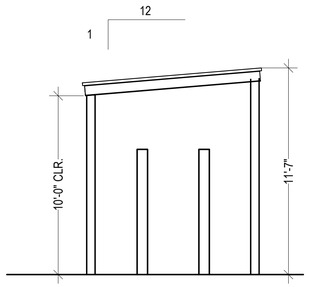
ISOMETRIC VIEW



FRONT VIEW

FRAME COLOR TO BE: JUNIPER

FINISHED GRADE IS ASSUMED TO BE CONSTANT ELEVATION UNLESS OTHERWISE NOTED



SIDE VIEW

BASIS OF DESIGN: SHOWER COVER TO BE POLIGON OR EQUAL.
UNDER SEPARATE PERMIT

PROJECT:	WNRA - MLS OPTION
LOCATION:	SOUTH EL MONTE, CA
BUILDING TYPE:	MLS 12X10
ROOF TYPE:	MULTI-RIB
BUILDING NUMBER:	P19007
ORDER NUMBER:	14126

CERTIFICATES:
MIAMI-DADE COUNTY CERTIFICATE OF COMPETENCY NO. 21-0819.13
PCI (POWDER COATING INSTITUTE) 4000 CERIFIED

FABRICATIOR APPROVALS:
CITY OF PHOENIX, AZ APPROVED FABRICATOR #C08-2100
CITY OF LOS ANGELES, CA APPROVED FABRICATOR #FB01596
CITY OF RIVERSIDE, CA APPROVED FABRICATOR #SF_000042
CITY OF HOUSTON, TX APPROVED FABRICATOR #470
CLARK COUNTY, NV APPROVED FABRICATOR #264
STATE OF UTAH APPROVED FABRICATOR 02008-14
AISC APPROVED FABRICATOR C-00018751

SUBMIT ARCHITECTURAL DRAWINGS & STRUCTURAL CALCULATIONS FOR DEFERRED APPROVAL OF PERMIT.

PLAN & ELEVATIONS PROVIDED ON THIS SHEET ARE FOR INFORMATION ONLY. ALL INFORMATION IN THIS DETAIL IS FOR BID REFERENCE ONLY. CONTRACTOR TO COORDINATE WITH MANUFACTURER TO PRODUCE FINAL SET OF SHOP DRAWINGS INCLUDING ALL STRUCTURAL ENGINEERING REQUIRED BY THE COUNTY OF LOS ANGELES BUILDING & SAFETY FOR PERMITTING AND THE ARMY CORPS OF ENGINEERS.

GENERAL NOTES:
UNLESS NOTED OTHERWISE, THIS STRUCTURE WAS DESIGNED TO ONLY SUPPORT WHAT IS SHOW ON THESE DRAWINGS. THE MANUFACTURER MUST BE CONTACTED IF ANYTHING ELSE IS TO BE ATTACHED TO THIS STRUCTURE (WALLS, COLUMN WRAPS, RAINGLING, ETC.) SO THE DESIGN OF THIS STRUCTURE CAN BE REVIEWED AND POSSIBLY REVISED.

UNLESS NOTED OTHERWISE, THIS STRUCTURE WAS DESIGNED ASSUMING A 20' SEPARATION BETWEEN ANY ADJACENT STRUCTURE WITH AN EAVE HEIGHT EQUAL TO OR GREATER TAN THE EAVE HEIGHT OF THIS STRUCTURE. IF THAT SEPARATION DOES NOT EXIST, THE MANUFACTURER MUST BE CONSTACTED SO THE DESIGN OF THIS STRUCTURE CAN BE REVIEWED AND POSSIBLY REVISED.

STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)SPECIFICATION MANUAL.

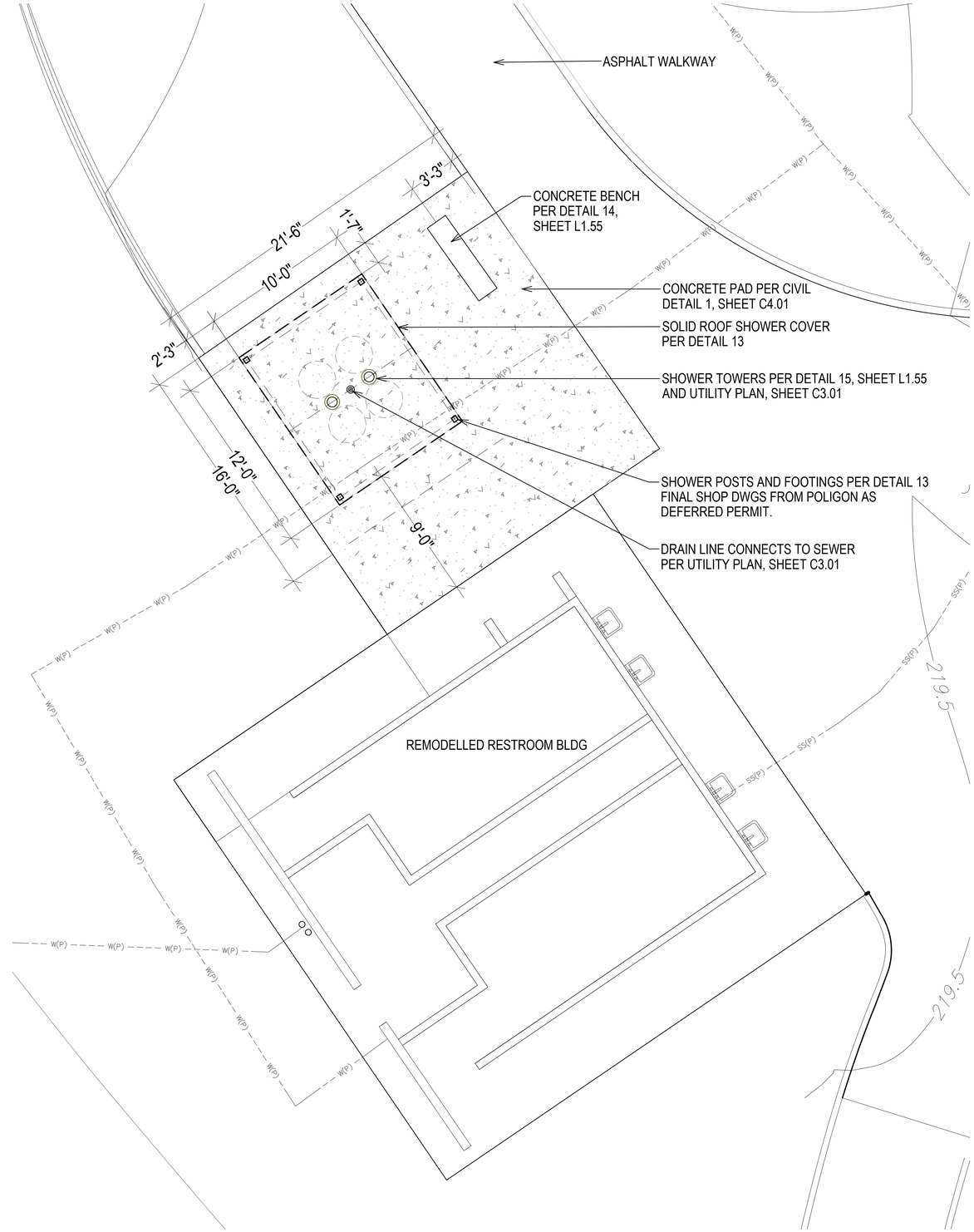
ALL WELDING IS PERFORMED BY AMERICAN WELDING SOCIETY (AWS) CERTIFIED WELDERS AND CONFORMS TO THE LATEST EDITION OF AWS D1.1 OR D1.3 AS REQUIRED.

PARTS SHOWN MAY BE UPGRADED DUE TO STANDARDIZED FABRICATION. REFER TO THE SHIPPING BILL OF MATERIALS FOR POSSIBLE SUBSTITUTIONS.

FOR PROPER FIELD INSTALLATION OF THE BUILDING IT IS RECOMMENDED THAT THE PRIMARY FRAME INSTALLER AND THE ROOF INSTALLER HAVE A MINIMUM FIVE (5) YEARS DOCUMENTED EXPERIENCE INSTALLING THIS TYPE OF PRODUCT.

FOR PROPER FIELD INSTALLATION OF THE BUILDING IT IS RECOMMENDED THAT ELECTRICAL WIRING, IF REQUIRED, BE RUN THROUGH THE STRUCTURAL MEMBERS BEFORE THE BUILDING IS ERECTED.

13 SHOWER COVER



12 SHOWER AREA LAYOUT

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPLASH PAD SHOWER AREA

OWNER:
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE:
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	23 OCT 2025

LICENSED LANDSCAPE ARCHITECT
CASEY M. WITHERS 5857
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA

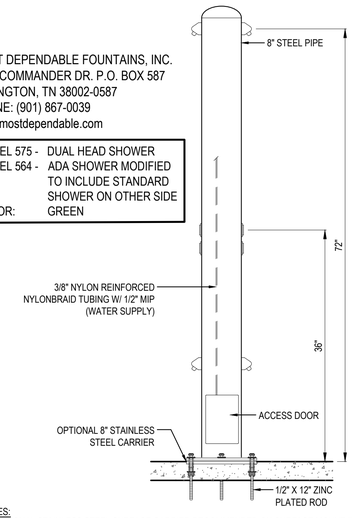
SHEET 41 OF 80

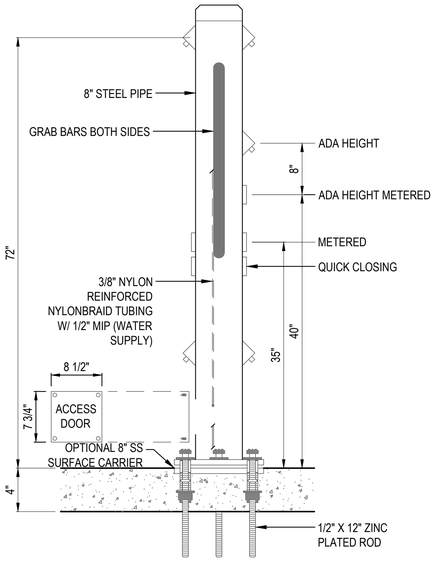
L1.54

BASIS OF DESIGN: SHOWER TOWER TO BE MOST DEPENDABLE FOUNTAINS, INC. OR EQUAL.
SHOWER TO BE PLUMBED FOR HOT AND COLD WATER.

MOST DEPENDABLE FOUNTAINS, INC.
5705 COMMANDER DR. P.O. BOX 587
ARLINGTON, TN 38002-0587
PHONE: (901) 867-0039
www.mostdependable.com

MODEL 575 -	DUAL HEAD SHOWER
MODEL 564 -	ADA SHOWER MODIFIED TO INCLUDE STANDARD SHOWER ON OTHER SIDE
COLOR:	GREEN





NOTES:
1. OPTIONAL STAINLESS STEEL SURFACE CARRIER RECOMMENDED ON SURFACE MOUNT INSTALLATIONS.
2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
3. DO NOT SCALE DRAWING.
4. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION.
5. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.
6. INSTALL ADA SHOWER UNIT ON THE SIDE CLOSEST TO BENCH.
7. OPERABLE PARTS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE OPERABLE PARTS SHALL BE 5 POUNDS (22.2N) MAXIMUM. LA COUNTY CODE 11B-309.4 OPERATION.

DRAWINGS ARE NOT TO SCALE.
ADA DRAWING MODIFIED TO INCLUDE SECOND SHOWER HEAD

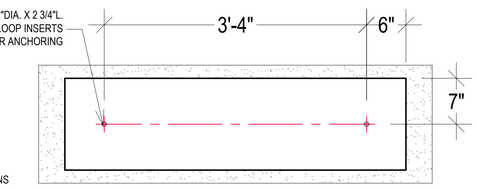
15 SHOWER TOWER

BASIS OF DESIGN: CONCRETE BENCH TO BE QCP PRODUCTS OR EQUAL.

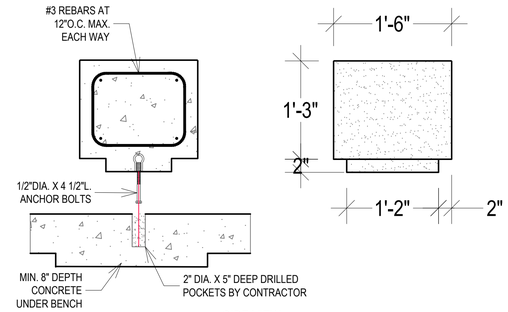
QCP PRODUCT: Q2-SLAB-60B
WEIGHT: 1,451 LBS.
COLOR: NATURAL
TEXTURE: STRATA
SEALER: PERMASHIELD

NOTES: CONTRACTOR TO ANCHOR BENCH IN PLACE PER MANUFACTURER'S RECOMMENDATIONS

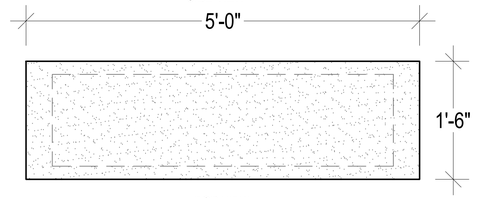
AVAILABLE FROM QCP, CONTACT JESSICA STROOTMAN, (866)



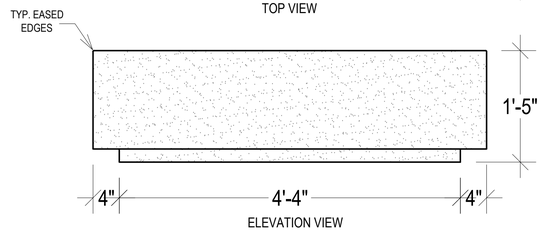
BOTTOM VIEW



SIDE VIEW



TOP VIEW



ELEVATION VIEW

14 CONCRETE BENCH

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPLASH PAD SHOWER DETAILS

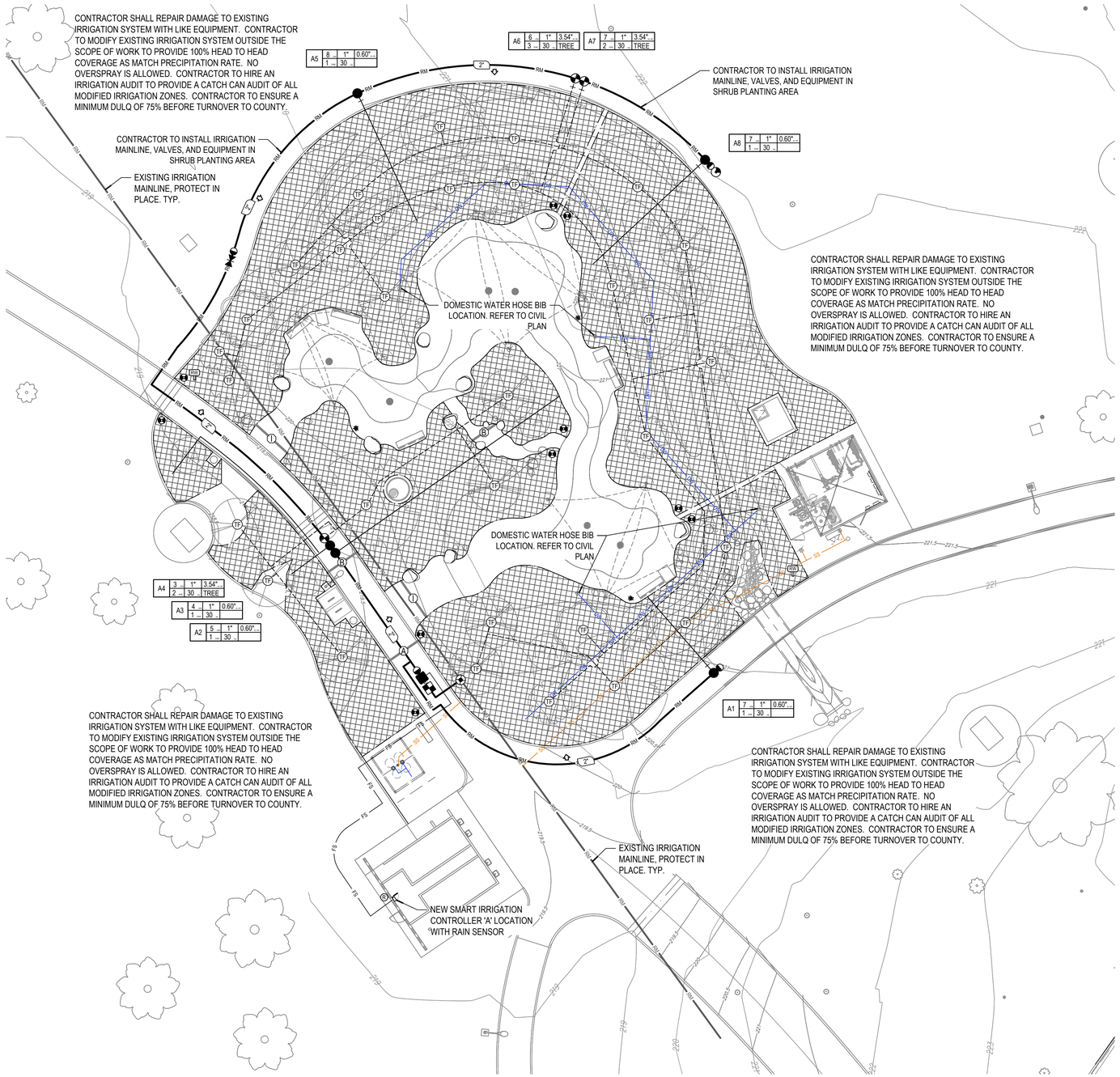
OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	23 OCT 2025

LICENSED LANDSCAPE ARCHITECT
LACEY M. WITHERS 5629
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA



LATERAL PIPE SIZING LEGEND

1/2" PIPE PROHIBITED

- 3/4" MINIMUM
- 1"
- 1-1/4"
- 1-1/2"
- 2"
- 2-1/2"
- 3"

SLEEVE SIZING LEGEND

REFER TO IRRIGATION LEGEND FOR SLEEVE SPECIFICATION AND DETAIL FOR BURIAL REQUIREMENTS.

A	(2) 2"	H	(2) 4"
B	(3) 2"	I	(3) 4"
C	(4) 2"	J	(4) 4"
		K	(5) 4"
D	(2) 3"		
E	(3) 3"	L	(1) 6" + (2) 4"
F	(4) 3"	M	(1) 6" + (3) 4"
		N	(1) 6" + (4) 4"

G — GALVANIZED SLEEVE
MINIMUM 2X DIAMETER OF PIPE OVER V-DITCH

SLEEVING NOTES

- SLEEVES TO BE MINIMUM TWICE THE DIAMETER OF THE PIPE SLEEVED.
- REFER TO LEGEND FOR SLEEVE SPECIFICATION AND PLAN FOR SLEEVE SIZE MATRIX.
- IRRIGATION PIPE AND WIRE / CONDUIT SHALL BE SLEEVED UNDER PAVING.
- PRESSURE MAINLINE SLEEVES SHALL BE ACCOMPANIED WITH A MINIMUM 2" WIRE / CONDUIT SLEEVE.
- SEAL ALL SLEEVE ENDS TO PROHIBIT SOIL FROM ENTERING THE BURIED SLEEVE.
- SLEEVES TO EXTEND MINIMUM 12" BEYOND PAVING.
- IRRIGATION CONTRACTOR TO COORDINATE SLEEVING WITH THE HARDSCAPE CONTRACTOR AND SITE SUPERINTENDENT PRIOR TO INSTALLATION OF ANY HARDSCAPE.

SPARE WIRE NOTE

TWO (2) CONTINUOUS, SPARE WIRES SHALL BE PROVIDED FOR EACH MAINLINE DIRECTION. ALL SPARE WIRES SHALL BE LOOPED IN EACH VALVE BOX WITH 24" COIL. ALL SPARE WIRE SHALL BE ORANGE IN COLOR. COIL ALL SPARE WIRES IN BOTTOM OF CONTROLLER. TERMINATE SPARE WIRES IN THE LAST VALVE BOX.

EQUIPMENT LOCATION NOTES

ALL VALVE BOXES, ABOVE GRADE EQUIPMENT AND PIPING SHALL BE LOCATED IN LANDSCAPE AREAS. IRRIGATION EQUIPMENT SHALL NOT BE LOCATED IN HARDSCAPE / PAVED AREAS OR IN TURF AREAS WITHOUT WRITTEN PERMISSION FROM THE IRRIGATION CONSULTANT. LOCATE ALL VALVE BOXES IN SHRUB AREAS ONLY. CONTRACTOR WILL BE RESPONSIBLE TO RE-LOCATE VALVE BOXES INSTALLED IN TURF AREAS AT NO COST TO THE OWNER.

SEPARATION NOTE

CONTRACTOR SHALL MAINTAIN A MINIMUM OF 10' HORIZONTAL AND 1' VERTICAL SEPARATION BETWEEN ALL DOMESTIC AND RECYCLED WATER LINES. RECYCLED WATER LINES SHALL BE SLEEVED AT ALL DOMESTIC WATER LINE CROSSINGS. REFER TO RECYCLED WATER CROSSING DETAIL FOR ADDITIONAL INFORMATION.

DIGALERT 811

CONTACT DIGALERT BY DIALING 811 A MINIMUM OF (3) WORKING DAYS BEFORE EXCAVATION.

0 8 16 32

SCALE 1" = 16'

IRROYO
IRRIGATION CONSULTING
27762 ANTONIO PARKWAY L1-308
LADERA RANCH, CA 92694
(949) 430-7030

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: IRRIGATION PLAN

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

REVISIONS

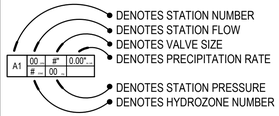
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DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	14 MAR 2025

LICENSED LANDSCAPE ARCHITECT
CASEY M. WITHERS 3809
Signature
31 AUG 2025
Renewal Date
14 MAR 2025
Date
STATE OF CALIFORNIA

IRRIGATION EQUIPMENT LEGEND
RECYCLED WATER

SYMBOL	ITEM	MANUFACTURER - MODEL NUMBER - DESCRIPTION
NOT SHOWN	IRRIGATION WIRE	PAIGE P7001D UL LISTED U.F. 600V DIRECT BURIAL • PILOT WIRE 14 AWG EACH CONTROLLER TO HAVE DIFFERENT COLOR • COMMON 14 AWG WHITE WITH STRIPE TO MATCH PILOT WIRE • EXTRA WIRE 14 AWG ORANGE
NOT SHOWN	WIRE CONNECTORS	3M DBR/Y-6 600 VAC WATERPROOF DIRECT BURY CONNECTORS
NOT SHOWN	MAINLINE FITTINGS	PRESSURE MAINLINE FITTINGS TO BE LASCO SCHEDULE 40 PVC SOLVENT WELD OR LEEMCO DUCTILE IRON FITTINGS WITH JOINT RESTRAINTS. REFER TO MAINLINE PIPE LEGEND CALLOUT FOR TYPE PER PIPE SIZE
	LATERAL FITTINGS	NON-PRESSURE LATERAL LINE FITTINGS TO BE: • BURIED LATERAL: LASCO SCHEDULE 40 PVC SOLVENT WELD • ABOVE GRADE LATERAL: LASCO UVR SCHEDULE 40 PVC SOLVENT WELD
NOT SHOWN	STATION ID TAG	CHRISTY'S ID-MAX-Y1 YELLOW STATION ID TAGS WITH BLACK LETTERING • PER REMOTE CONTROL VALVE
NOT SHOWN	WATER ID TAG	CHRISTY'S ID-MAX-P2-RC006 PURPLE BILINGUAL RECYCLED WATER ID TAG • PER PIECE OF RECYCLED WATER EQUIPMENT
NOT SHOWN	VALVE BOX	**IRRIGATION VALVE BOXES** BOX — LID — SKU NUMBER • 6" ROUND — SNAP ON T-COVER — CARSON 07081138 • 10" ROUND — T-COVER — CARSON 09101043 • 14" x 19" RECTANGULAR — T-COVER — CARSON 14191430 • 12" x 20" JUMBO — T-COVER — CARSON 12201070 BOX / LID COLOR: PURPLE - INCLUDES STANDARD HEX BOLT "RECYCLED WATER - DO NOT DRINK" MOLDED OR EMBOSSED ON THE LID **LOW VOLTAGE IRRIGATION WIRE VALVE BOXES** • 10" ROUND — T-COVER — CARSON 09101037 • 14" x 19" RECTANGULAR — T-COVER — CARSON 14191434 BOX / LID COLOR: BLACK - INCLUDES STANDARD HEX BOLT



- DENOTES STATION NUMBER
- DENOTES STATION FLOW
- DENOTES VALVE SIZE
- DENOTES PRECIPITATION RATE
- DENOTES STATION PRESSURE
- DENOTES HYDROZONE NUMBER

CONTROLLER NOTE

CONTRACTOR SHALL PURCHASE AND INSTALL THE FOLLOWING CONTROLLER AS NOTED BELOW:

CONTROLLER MANUFACTURE:	HYDROPOINT
CONTROLLER MODEL:	WEATHERTRAK ET PRO3
WIRE TYPE:	CONVENTIONAL WIRE
ASSEMBLY TYPE:	WALL MOUNT ENCLOSURE
SERVICE WARRANTY:	10 YEARS
RAIN SENSOR:	YES
FLOW SENSOR MANUFACTURE:	CST
FLOW SENSOR SIZE AND TYPE:	1" PLASTIC

CONTROLLER 'A' - SITEONE GREENTECH MODEL NUMBER:
SA16-WT3-24/AX/GR-K/WRS/GTFS-100P

THE IRRIGATION CONTRACTOR SHALL MAKE FINAL ELECTRICAL CONNECTION TO CONTROLLER PER LOCAL ELECTRICAL CODE.

CONTACT JOSHUA SEIPEL FOR ORDER INFORMATION (909) 240-6887

POC NOTE

BELOW IS SIZING OF THE POC IRRIGATION EQUIPMENT TO BE INSTALLED. CONTRACTOR SHALL REFER TO THE IRRIGATION EQUIPMENT LEGEND FOR SPECIFICATION.

POINT OF CONNECTION '1'

SERVICE LINE:	N/A	BASKET STRAINER:	N/A
WATER METER:	N/A	MASTER VALVE:	1.5"
BACKFLOW DEVICE:	N/A	FLOW SENSOR:	1"
PRESSURE REGULATOR:	N/A		

POINT OF CONNECTION KEYMAP



IRRIGATION EQUIPMENT LEGEND
RECYCLED WATER

SYMBOL	ITEM	MANUFACTURER - MODEL NUMBER - DESCRIPTION
⊗	VALVE MANIFOLD ISOLATION VALVE	TRANSITION FROM DISTRIBUTION MAIN TO SUB-MAIN FOR VALVE MANIFOLD LEEMCO LV SERIES ANGLE VALVE - VALVE SIZE TO MATCH SUB-MAIN
	MASTER VALVE	RAIN BIRD EFB-CP SERIES NORMALLY CLOSED BRASS MASTER VALVE • REFER TO PLAN FOR SIZE
	FLOW SENSOR	CREATIVE SENSOR TECHNOLOGY FSI-T SERIES PLASTIC FLOW SENSOR INCLUDED WITH CONTROLLER ASSEMBLY • REFER TO CONTROLLER NOTE
	GATE VALVE	NIBCO T-113-K BRONZE CROSS TOP GATE VALVE • LINE SIZE UP TO 3"
	CONTROL VALVE	RAIN BIRD EFB-CP-PRS-D SERIES PRESSURE REGULATING CONTROL VALVE • INCLUDE PRS DIAL VALVE PRESSURE REGULATOR • REFER TO PLAN FOR SIZE
	CONTROL VALVE DRIP	RAIN BIRD XCZ-100-PRB-COM 1" CONTROL VALVE WITH BALL VALVE AND 40 PSI PRESSURE REGULATING 200 MESH QUICK CHECK BASKET FILTER RAIN BIRD XCZ-150-LCS 1.5" CONTROL VALVE WITH 40 PSI PRESSURE REGULATOR AND 120 MESH FILTER
	QUICK COUPLER	HUNTER HQ44-LRC-AW-R 1" ACME QUICK COUPLER WITH PURPLE LOCKING COVER • INCLUDE TWO (2) HK-44A KEYS WITH HS1 SWIVEL PER CONTROLLER
	AIR RELIEF	JAIN ARV-2 2" COMBINATION AIR / VACUUM RELIEF VALVE
	LATERAL LINE CHECK VALVE	NDS KSC-S SERIES LINE SIZE SWING CHECK FOR UPHILL FLOW DIRECTION NDS KC-S SERIES LINE SIZE SPRING CHECK FOR DOWNHILL FLOW DIRECTION
TF	TREE IRRIGATION	36" RAIN BIRD RWS-B-C-1401-GRATE-P-RWS-SOCK. REFER TO TREE MATRIX ON TREE DETAIL FOR NUMBER OF ROOT WATERING SYSTEMS BY TREE BOX SIZE.
	FLUSH VALVE	1/2" SCHEDULE 40 PVC BALL VALVE MANUAL DRIP FLUSH VALVE • INCLUDE HUNTER ECO-ID-12-R DRIP OPERATION INDICATOR
	RECYCLED WATER SIGN	CHRISTY'S ID-SIGN-REC1218 (12" X 18") ALUMINUM BILINGUAL RECYCLED WATER WARNING SIGN • INCLUDE 1-1/2" SQUARE ALUMINUM POST
	RW CROSSING	REFER TO RECYCLED WATER CROSSING DETAIL
	LOCATION ARROW	INDICATES MAINLINE INSTALLATION LOCATION
®	RAIN SENSOR	WIRELESS 48-HOUR RAIN DELAY SENSOR AND CONTROLLER INTERFACE • REFER TO CONTROLLER NOTE FOR MODEL NUMBER AND FEATURES
	CONTROLLER	STRONGBOX WALL MOUNTED STAINLESS STEEL CONTROLLER ASSEMBLY • REFER TO CONTROLLER NOTE FOR MODEL NUMBER AND FEATURES
RM	BELOW GRADE PRESSURE MAINLINE	EXISTING RECYCLED WATER BELOW GRADE PRESSURE MAINLINE
RM	BELOW GRADE PRESSURE MAINLINE	PURPLE SCHEDULE 40 PRESSURE MAINLINE FOR PIPE 1" THROUGH 1-1/2" PURPLE CLASS 315 PRESSURE MAINLINE FOR PIPE 2" THROUGH 3" • ALL PIPE TO BE SOLVENT WELD • REFER TO PLAN FOR SIZE • REFER TO TRENCHING DETAIL FOR DEPTHS ALL MAINLINE TO INCLUDE TRACER WIRE SECURED TO MAINLINE 10' O.C. • RED 14 AWG PAIGE P7001D UL LISTED U.F. 600V DIRECT BURIAL
	BELOW GRADE LATERAL LINE	PURPLE SCHEDULE 40 SOLVENT WELD PVC LATERAL LINE • REFER TO PLAN FOR SIZE - 1" MINIMUM • REFER TO TRENCHING DETAIL FOR BURIAL DEPTHS
	TREE IRRIGATION LATERAL	PURPLE SCHEDULE 40 SOLVENT WELD PVC LATERAL LINE • REFER TO PLAN FOR SIZE - 3/4" MINIMUM • REFER TO TRENCHING DETAIL FOR BURIAL DEPTHS
	DRIP EMITTER	HUNTER HEB-20-CV 2GPH 1/2" FEMALE THREAD POINT SOURCE EMITTER • 1 GAL - 1 EMITTER PER PLANT • 5 GAL - 2 EMITTERS PER PLANT • INCLUDE HUNTER IH RISER • REFER TO DETAIL FOR INSTALLATION
	SLEEVE	PURPLE SCHEDULE 40 PVC REFER TO SLEEVING LEGEND FOR QUANTITY AND SIZE
DW	DOMESTIC WATER LINE	DOMESTIC WATER LINES PER CIVIL PLANS - FOR REFERENCE ONLY
RW	RECYCLED WATER LINE	RECYCLED WATER LINES PER CIVIL PLANS - FOR REFERENCE ONLY
SS	SANITARY SEWER LINE	SANITARY SEWER LINES PER CIVIL PLANS - FOR REFERENCE ONLY

IRROYO
IRRIGATION CONSULTING
27762 ANTONIO PARKWAY L1-308
LADERA RANCH, CA 92694
(949) 430-7030

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LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: IRRIGATION LEGEND

OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
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LICENSED LANDSCAPE ARCHITECT
LACEY M. WITHERS 3830
Signature
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IRRIGATION SYSTEM MAINTENANCE SCHEDULE

IRRIGATION SYSTEM ADJUSTMENT/MAINTENANCE (INSTALLATION)

1. FLUSH IRRIGATION SYSTEM THOROUGHLY BEFORE INSTALLING DRIP COMPONENTS / SPRINKLER NOZZLES.
2. ADJUST PRESSURE REGULATOR DOWNSTREAM OF WATER METER TO REQUIRED PRESSURE SETTING.
3. ADJUST CONTROL VALVE FLOW / PRESSURE WITH MAXIMUM FLOW OPERATING PER POINT OF CONNECTION.
4. ADJUST PRESSURE DIAL SETTING ON CONTROL VALVES AS FOLLOWS:
   A. SPRAY HEADS - 35 PSI
   B. MEDIUM RANGE ROTORS AND ROTATORS - 50 PSI
   C. LARGE RANGE ROTORS - 65 PSI
      * INCREASE AS NEEDED FOR ELEVATION CHANGE
5. ACTIVATE VALVE AND ADJUST FLOW CONTROL STEM UNTIL DESIRED FLOW / PRESSURE IS ACHIEVED. VALVE STEM SHALL NOT BE FULLY OPEN PER MANUFACTURER RECOMMENDATIONS.
6. ADJUST SPRAY HEAD PATTERN AND COVERAGE WITH NOZZLE SCREW ADJUSTMENT TO ELIMINATE OVERSPRAY ONTO HARDSCAPE.
7. ADJUST ROTOR PATTERN AND COVERAGE WITH NOZZLE SCREW TO ELIMINATE OVERSPRAY ONTO HARDSCAPE.

IRRIGATION SYSTEM MAINTENANCE (POST INSTALLATION)

1. MAINTENANCE OF THE IRRIGATION SYSTEM IS AN ONGOING PROCESS THAT INVOLVES MONITORING, ADJUSTMENT, AND REPAIR. BY INSTITUTING A MAINTENANCE PROGRAM THAT EMPHASIZES MONITORING AND ADJUSTMENT, YOU CAN MINIMIZE REPAIRS.
2. SEVERAL IRRIGATION SYSTEM MAINTENANCE ACTIVITIES ARE BEST DONE AT REGULAR, PERIODIC INTERVALS; OTHERS REQUIRE PERFORMANCE ON AN AS-NEEDED BASIS. THESE ACTIVITIES ARE SUMMARIZED AS FOLLOWS:
3. **WEEKLY:**
   A. WET CHECK - BRIEFLY ACTIVATE EACH CONTROL VALVE AND OBSERVE FOR MAJOR LEAKING OR BROKEN PIPES AND/OR TUBING.
   B. INSPECT EMITTERS FOR PROPER COVERAGE AND OPERATION. IMMEDIATELY REPAIR OR REPLACE ANY EMITTERS WHICH MAY HAVE BECOME DAMAGED OR CLOGGED BY DEBRIS.
   C. OBSERVE IRRIGATION SYSTEM FOR RUN-OFF AND ADJUST AS NEEDED.
   D. FLUSH DRIP SYSTEMS BY OPENING UP FLUSH VALVE.
   E. BASED ON OBSERVED FIELD CONDITIONS ADJUST IRRIGATION PROGRAMMING OF THE AUTOMATIC IRRIGATION CONTROLLERS. ADJUST WATER APPLICATIONS ACCORDING TO CHANGES IN THE WEATHER. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE RESULTING FROM EITHER OVER OR UNDER-WATERING.
   F. SOIL: AS OFTEN AS NECESSARY THE SOIL SHOULD BE CHECKED WITH A SOIL MOISTURE SENSOR AND/OR AUGER TO EVALUATE SOIL MOISTURE LEVEL IN RESPECT TO THE PLANT MATERIAL'S ROOT ZONE.
   G. RECORDS: THE CONTRACTOR SHALL ESTABLISH A FORM TO RECORD WATER USAGE, WEATHER DATA, SOIL DATA AND SYSTEM OPERATION.
4. **MONTHLY:**
   A. PERFORM A PREVENTATIVE MAINTENANCE REVIEW OF ALL IRRIGATION EQUIPMENT, INCLUDING STRAINERS, CONTROLLERS, VALVES AND EMITTERS. IT IS IMPERATIVE THAT THE SYSTEM BE CHECKED PRIOR TO THE INCREASED SEASONAL WATER NEEDS OF SPRING AND SUMMER.
   B. MAINTAIN AUTOMATIC CONTROLLERS IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS, INCLUDING PERIODIC INSPECTION FOR LOOSE WIRING, ACCUMULATED DEBRIS, AND DETERIORATING HOUSINGS. REPORT ANY MALFUNCTIONS OR NEEDED REPAIRS TO OWNER'S REPRESENTATIVE.
   C. INSPECT AND FLUSH WYE STRAINERS, BASKET STRAINERS AND DRIP FILTERS.
5. **YEARLY:**
   A. CERTIFY IRRIGATION BACKFLOW DEVICE (AS APPLICABLE)
   B. RENEW IRRIGATION CONTROLLER SUBSCRIPTION SERVICE (AS APPLICABLE)
   C. SERVICE IRRIGATION CONTROLLER AND RAIN SENSOR / WEATHER STATION
   D. RE-LEARN STATION FLOWS AND ADJUST IRRIGATION PROGRAMMING
6. **AS NEEDED:**
   A. EXPOSE EMITTERS AS NECESSARY TO ACHIEVE A VISUAL INSPECTION OF OPERATION.
   B. BEFORE PERIODS OF RAINFALL, CHANGE CONTROLLER SETTINGS TO TEMPORARILY PREVENT IRRIGATION WATERING.
   C. MAINTAIN ELECTRIC CONTROL VALVES FREE OF DEBRIS AND ACCUMULATED SILT.

EXISTING IRRIGATION SYSTEM - CONSTRUCTION NOTES

DOCUMENTATION OF EXISTING IRRIGATION SYSTEM - PRIOR TO COMMENCING WORK

1. CONTRACTOR SHALL OBTAIN EXISTING IRRIGATION AS-BUILT RECORD DRAWINGS / CONTROLLER CHARTS FOR ADJACENT IRRIGATED AREAS PRIOR TO STARTING WORK. ALL EXISTING IRRIGATION EQUIPMENT LOCATION, SIZES, AND CONDITIONS SHALL BE VERIFIED IN FIELD WITH OWNER'S AUTHORIZED REPRESENTATIVE AT START OF WORK. CONTRACTOR TO PROVIDE OWNER'S AUTHORIZED REPRESENTATIVE A PUNCH LIST OF REPAIRS NEEDED TO THE EXISTING IRRIGATION SYSTEM.
2. CONTRACTOR SHALL MEET WITH THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO BEGINNING DEMOLITION OR ANY OTHER WORK, AND WALK SITE TO LOCATE EXISTING CONTROLLER, WIRING, PIPES AND OTHER IRRIGATION TO BE PROTECTED IN PLACE.
3. THE CONTRACTOR MUST FAMILIARIZE THEMSELF WITH THE EXISTING IRRIGATION AND PLANTING ON PROPERTY. ANY DAMAGE OR ADJUSTMENTS REQUIRED INCLUDING REPLACING OR RELOCATING IRRIGATION LINES, HEADS, VALVES, WIRES OR ANY UTILITY THAT OCCURS ON THE PARCEL DUE TO THE CONSTRUCTION OF THIS PROJECT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER. THE OWNER'S REPRESENTATIVE MUST REVIEW ANY REQUIRED MODIFICATIONS TO THESE AREAS PRIOR TO COMMENCING WORK. THE CONTRACTOR MUST NOTIFY THE OWNER'S AUTHORIZED REPRESENTATIVE OF THESE CONDITIONS OR ANY DISCREPANCIES PRIOR TO COMMENCING WORK.
4. CONTRACTOR TO DOCUMENT AND PROVIDE SHOP DRAWING OF THE EXISTING IRRIGATION SYSTEM TO LANDSCAPE ARCHITECT. CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS, PROPERTY LINES, DIMENSIONS, ETC. PRIOR TO COMMENCING WORK. ALL EXISTING METERS, SERVICE LINES, BACKFLOW DEVICES, MAINLINES, RCVS, ISOLATION VALVES, QUICK COUPLERS, CONTROLLERS, ETC. SHALL BE VERIFIED IN FIELD. CONTRACTOR TO POT HOLE TO LOCATE BURIED IRRIGATION EQUIPMENT AS NEEDED. ALL EXISTING IRRIGATION EQUIPMENT SHALL BE CLEARLY INDICATED INCLUDING SIZES AND MODEL NUMBERS TO SCALE ON AN ACCURATE BASE DRAWING AND SUBMITTED AS A SHOP DRAWING. SAID SHOP DRAWING SHALL BE SUBMITTED TO THE LANDSCAPE ARCHITECT, AND OWNER'S AUTHORIZED REPRESENTATIVE FOR REVIEW AND APPROVAL. NOTIFY THE OWNER'S AUTHORIZED REPRESENTATIVE IMMEDIATELY IF ANY DISCREPANCIES ARE FOUND. NO WORK SHALL PROCEED WITHOUT APPROVAL OF SAID SHOP DRAWINGS.

MODIFICATION OF EXISTING IRRIGATION SYSTEM

1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE REMOVAL AND DISPOSAL OF ALL EXISTING IRRIGATION EQUIPMENT AFFECTED BY THE PROPOSED IRRIGATION IMPROVEMENTS. CONTRACTOR SHALL VERIFY ALL EQUIPMENT TO BE REMOVED AND DISPOSED OF IN FIELD PRIOR TO COMMENCING WORK. CONTRACTOR TO VERIFY WITH OWNER'S AUTHORIZED REPRESENTATIVE IF ANY EXISTING IRRIGATION EQUIPMENT IS TO BE TURNED OVER TO OWNER. CONTRACTOR TO BACKFILL ALL EXISTING IRRIGATION EQUIPMENT LOCATIONS WITH LIKE SOIL.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR/MODIFICATION OF ALL ADJACENT IRRIGATION SYSTEM EQUIPMENT THAT IS AFFECTED BY PROPOSED IRRIGATION IMPROVEMENTS. CONTRACTOR SHALL REPAIR SAID SYSTEMS TO A LIKE NEW MANNER, PROVIDING COMPLETE 100% HEAD TO HEAD COVERAGE IN ALL AREAS . CONTRACTOR SHALL CONFIRM ALL AREAS REQUIRING MODIFICATION WITH THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO BIDDING WORK AND PRIOR TO COMMENCING WORK.
3. WHERE NEW SCOPE OF WORK DOES NOT ENCOMPASS THE ENTIRE EXISTING IRRIGATION VALVE AREA, CONTRACTOR TO INSTALL ADDITIONAL VALVE(S) AS NEEDED FOR HYDROZONING PURPOSES (PLANTING AND IRRIGATION CONSIDERATIONS).
4. CONTRACTOR SHALL BE RESPONSIBLE FOR UPSIZING THE IRRIGATION CONTROLLER, FURNISHING AND INSTALLING VALVES AND NEW WIRES, PROVIDING TWO-WIRE EQUIPMENT (AS APPLICABLE), ETC FOR MODIFICATION OF THE EXISTING IRRIGATION SYSTEM AT NO COST TO OWNER.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS TO EXISTING IRRIGATION, LANDSCAPE AND HARDSCAPE DAMAGED BY NEW CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
6. CONTRACTOR SHALL FURNISH AND INSTALL BACKFLOW PREVENTION FOR THE IRRIGATION SYSTEM PER CURRENT PLUMBING CODES.
7. CONTRACTOR SHALL FURNISH AND INSTALL A SMART IRRIGATION CONTROLLER WITH FLOW SENSING FEATURES, RAIN SENSOR, MASTER VALVE AND FLOW SENSOR PER CA MWELO ORDINANCE. ALL EQUIPMENT IS TO BE WIRED AND OPERATIONAL AT TIME OF TURNOVER.

WATERING OF EXISTING SITE

1. CONTRACTOR SHALL WATER (AUTOMATIC PROGRAMMED WATERING SCHEDULES, TEMPORARY HIGHLINE, HAND WATER, ETC) THE EXISTING PLANT MATERIAL THROUGHOUT THE CONSTRUCTION PROCESS. ANY DAMAGE DUE TO CONSTRUCTION SHALL BE REPAIRED IMMEDIATELY TO PREVENT ANY LAPSE IN IRRIGATION OF THE EXISTING PLANT MATERIAL. ANY PLANT MATERIAL AND/OR IRRIGATION DAMAGED AS PART OF CONSTRUCTION SHALL BE REPAIRED TO A LIKE NEW CONDITION AS PART OF CONTRACT. ANY PLANT MATERIAL WHICH IS STRESSED OR DIES DUE TO CONSTRUCTION, IS TO BE REPLACED BY THE CONTRACTOR AT NO COST TO OWNER.

IRRIGATION CONTROLLER NOTES

1. ANY EXISTING IRRIGATION CONTROL VALVES CONNECTED TO THE EXISTING IRRIGATION SYSTEM/CONTROLLER SHALL BE RECONNECTED TO THE NEW CONTROLLER. CONTRACTOR SHALL CONNECT ALL BATTERY VALVES LOCATED ONSITE TO THE NEW CONTROLLER TO MEET FLOW SENSING REQUIREMENTS. CONTRACTOR TO RUN NEW WIRES TO EXISTING BATTERY VALVES OR UTILIZE TWO-WIRE RETROFIT DEVICES.
2. IRRIGATION CONTROLLER SHALL BE REPROGRAMMED WITH NEW IRRIGATION SCHEDULE PER NEW IRRIGATION PARAMETERS.
3. ALL EXISTING IRRIGATION VALVES SHALL BE RESEQUENCED TO ACCOMMODATE NEW IRRIGATION VALVES INSTALLED DURING CONSTRUCTION.
4. IRRIGATION WIRES TO MATCH EXISTING COLOR SCHEME FOR PILOT, EXTRA, AND COMMON.

EXISTING TREES / OBSTRUCTIONS

1. WHENEVER ROOTS OF EXISTING TREES ARE ENCOUNTERED DURING TRENCHING OPERATIONS, THE CONTRACTOR SHALL REROUTE MAIN LINE TRENCHES. DO NOT CUT ROOTS OVER 1" IN DIAMETER. ALL CUTS SHALL BE A CLEAN SHARP CUT. IF TRENCHING IS REQUIRED, THE CONTRACTOR SHALL HAND DIG THE TRENCHES OR USE AN AIR SPADE TO NOT DAMAGE ROOTS. NO MECHANICAL TRENCHING WITHIN THE DRIPLINE OF THE EXISTING TREE WILL BE ALLOWED. PROTECT ALL ROOTS EXPOSED TO SUNLIGHT WITH MOIST BURLAP UNTIL COVERED WITH SOIL.

IRRIGATION DESIGN NOTES

1. ITEMS SHOWN IN BLACK REPRESENT PROPOSED RETROFIT. ITEMS SHADED IN GRAY REPRESENT EXISTING IRRIGATION FOR REFERENCE.

IRRIGATION SYSTEM NOTES

DESIGN CLARIFICATIONS:

1. THE IRRIGATION PLANS ARE DIAGRAMMATIC. ALL EQUIPMENT AND PIPING SHOWN WITHIN HARDSCAPED LOCATIONS ARE FOR DESIGN CLARIFICATION ONLY AND SHALL BE INSTALLED IN LANDSCAPED LOCATIONS WHEREVER POSSIBLE.
2. THE IRRIGATION CONTRACTOR SHALL BECOME FAMILIAR WITH ALL GRADE DIFFERENCES AND LOCATION OF ALL WALLS, FENCES, STRUCTURES AND UTILITIES. THE IRRIGATION CONTRACTOR IS RESPONSIBLE FOR REPAIRING OR REPLACING ALL ITEMS DAMAGED BY THEIR WORK. WORK SHALL BE COORDINATED WITH THE SITE SUPERINTENDENT FOR THE LOCATION AND INSTALLATION OF PIPE SLEEVES THROUGH WALLS, UNDER STREETS, PARKING LOTS, AND PAVING, ETC.
3. THE IRRIGATION SYSTEM DESIGN IS BASED ON A MINIMUM OPERATING PRESSURE AS NOTED ON THE PLANS. THE IRRIGATION CONTRACTOR SHALL VERIFY WATER PRESSURE AT THE IRRIGATION POINT OF CONNECTION PRIOR TO START OF CONSTRUCTION. REPORT THE ONSITE MEASURED PRESSURE READING TO THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO START OF WORK.
4. DO NOT PURPOSEFULLY INSTALL THE IRRIGATION SYSTEM AS SHOWN ON THE PLANS WHEN IT IS CLEAR IN THE FIELD THAT UNKNOWN STRUCTURES, UTILITIES, GRADE DIFFERENCES, OR DIFFERENCES IN THE LANDSCAPE AREA EXIST THAT ARE NOT REPRESENTED ON THE PLANS. THE IRRIGATION CONTRACTOR SHALL NOTIFY THE OWNER'S AUTHORIZED REPRESENTATIVE OF THE OBSTRUCTIONS OR DIFFERENCES. IF A NOTIFICATION IS NOT PROVIDED, THE IRRIGATION CONTRACTOR SHALL ACCEPT FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY.
5. ALL IRRIGATION EQUIPMENT NOT DETAILED SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.

INSTALLATION NOTES:

1. THE LANDSCAPE ARCHITECT AND IRRIGATION CONSULTANT SHALL APPROVE THE FINAL LOCATION OF THE IRRIGATION CONTROLLER, BACKFLOW DEVICE, SIGNAGE AND ALL OTHER ABOVE GRADE EQUIPMENT PRIOR TO INSTALLATION.
2. 120 VAC ELECTRICAL SOURCE AT IRRIGATION CONTROLLER LOCATION SHALL BE PROVIDED BY OTHERS. THE IRRIGATION CONTRACTOR SHALL MAKE THE FINAL CONNECTION FROM THE ELECTRICAL SOURCE TO THE IRRIGATION CONTROLLER PER LOCAL ELECTRICAL CODES.
3. INSTALL ALL PIPING BETWEEN THE POINT OF CONNECTION AND THE R.P. BACKFLOW DEVICE AS PER LOCAL CODES.
4. ALL MAINLINE / LATERAL LINE PIPING AND WIRES / CONDUITS UNDER PAVING SHALL BE INSTALLED IN SEPARATE SLEEVES. MAINLINE / LATERAL LINE SLEEVES SHALL BE A MINIMUM OF TWICE (2X) THE DIAMETER OF THE PIPE TO BE SLEEVED. WIRE / CONDUIT SLEEVES SHALL BE OF SUFFICIENT SIZE FOR THE REQUIRED NUMBER OF WIRES UNDER PAVING.
5. PIPE SIZES SHALL CONFORM TO THOSE SHOWN ON THE DRAWING. NO SUBSTITUTIONS OF SMALLER PIPE SIZES SHALL BE PERMITTED, BUT SUBSTITUTIONS OF LARGER SIZES MAY BE APPROVED. ALL DAMAGED PIPE SHALL BE IMMEDIATELY REMOVED FROM THE SITE.
6. ALL SPRINKLER / ROTOR HEADS SHALL BE SET PERPENDICULAR TO FINISH GRADE UNLESS OTHERWISE SPECIFIED.

BOOSTER PUMP NOTES (IF PUMP IS REQUIRED):

1. THE IRRIGATION CONTRACTOR IS RESPONSIBLE FOR VERIFYING ELECTRICAL POWER TYPE (VOLTAGE AND PHASE) FOR IRRIGATION PUMP(S) BEFORE ORDERING / PURCHASING EQUIPMENT. IF ELECTRICAL POWER TYPE DIFFERS FROM THE PUMP SPECIFICATION, THEN IRRIGATION CONTRACTOR SHALL NOTIFY THE OWNER'S AUTHORIZED REPRESENTATIVE AND IRRIGATION CONSULTANT. IF A NOTIFICATION IS NOT PROVIDED, THE IRRIGATION CONTRACTOR SHALL ACCEPT FULL RESPONSIBILITY FOR ALL COSTS.
2. THE IRRIGATION CONTRACTOR IS RESPONSIBLE FOR VERIFYING STATIC AND DYNAMIC PRESSURE (PSI) OF THE PROJECT BEFORE ORDERING / PURCHASING IRRIGATION PUMPS EQUIPMENT. CONTRACTOR SHALL NOTIFY THE OWNER'S AUTHORIZED REPRESENTATIVE AND IRRIGATION CONSULTANT OF PRESSURE READINGS. IF A NOTIFICATION IS NOT PROVIDED, THE IRRIGATION CONTRACTOR SHALL ACCEPT FULL RESPONSIBILITY FOR ALL COSTS.
3. IF PUMP ASSEMBLY DOES NOT INCLUDE A WAFER CHECK VALVE, CONTRACTOR SHALL INSTALL A LINE SIZE WAFER CHECK VALVE IMMEDIATELY DOWNSTREAM OF PUMP.
4. IF PUMP ASSEMBLY DOES NOT INCLUDE PUMP RELAY, PUMP START WIRING AND/OR TWO-WIRE DECODER, CONTRACTOR SHALL FURNISH AND INSTALL IF REQUIRED.
5. INSTALL ALL ABOVE GRADE PUMP PIPING AS:
   A. BRASS PIPE WITH PIPE WRAP FOR PIPING UP TO 3" IN SIZE
   B. DUCTILE IRON PIPE WITH TWO COATS OF PAINT SHALL BE USED FOR PIPING 4"+ IN SIZE

SYSTEM ADJUSTMENT NOTES:

1. THE IRRIGATION CONTRACTOR SHALL FLUSH AND ADJUST ALL VALVES, SPRAY HEADS AND ROTORS FOR OPTIMUM COVERAGE WITH NO OVERSPRAY ONTO WALKS, STREETS, WALLS, ETC.
2. THE IRRIGATION CONTRACTOR SHALL INSTALL CHECK VALVES IN AREAS WHERE FINISH GRADE EXCEEDS 4:1 AND WHERE POST VALVE SHUT-OFF LOW HEAD DRAINAGE OF THE IRRIGATION SYSTEM OCCURS OR AS DIRECTED BY THE OWNER'S AUTHORIZED REPRESENTATIVE.
3. THE CONTRACTOR SHALL PROVIDE PRESSURE COMPENSATION SCREENS (PCS) AS NECESSARY TO ELIMINATE OVERSPRAY ONTO WALKS, STREETS, WALLS, OR OTHER AREAS AS DIRECTED BY THE OWNER'S AUTHORIZED REPRESENTATIVE.
4. SHRUB RISER HEADS MAY BE SUBSTITUTED FOR SHRUB POP-UP HEADS IN LANDSCAPE AREAS EXCEPT WHERE ADJACENT TO PUBLIC AREAS SUCH AS WALKS, CURBS, TURF HEADERS, MONUMENTS, FOUNTAINS, OR SIGNAGE. REFER TO INSTALLATION DETAILS.

IRRIGATION AUDIT FOR CERTIFICATE OF COMPLETION:

1. AN IRRIGATION AUDIT REPORT PREPARED BY A CERTIFIED LANDSCAPE IRRIGATION AUDITOR IS REQUIRED AT THE COMPLETION OF INSTALLATION. CONTRACTOR TO HIRE IRRIGATION AUDITOR AT NO COST TO OWNER. THE AUDIT MUST BE CONDUCTED IN A MANNER CONSISTENT WITH THE IRRIGATION ASSOCIATION'S LANDSCAPE IRRIGATION AUDITOR CERTIFICATION PROGRAM OR OTHER US ENVIRONMENTAL PROTECTION AGENCY 'WATERSENSE' LABELED AUDITING PROGRAM. PROOF OF CERTIFICATION MUST BE PROVIDED WITH THE SIGNED AND DATED REPORT. IRRIGATION AUDIT REPORT TO MEET AGENCY REQUIREMENTS FOR CERTIFICATE OF COMPLETION.

IRRIGATION CONSULTING
27762 ANTONIO PARKWAY L1-308
LADERA RANCH, CA 92694
(949) 430-7030

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
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SHEET TITLE: IRRIGATION NOTES

OWNER:
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE:
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
1.	
2.	
3.	
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7.	
8.	

DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	14 MAR 2025

LICENSED LANDSCAPE ARCHITECT
CASEY M. WITHERS 3858
Signature
31 AUG 2025
Renewal Date
14 MAR 2025
Date
STATE OF CALIFORNIA

WATER AUDIT NOTE

THE CONTRACTOR WILL CONDUCT AN IRRIGATION AUDIT USING A CERTIFIED IRRIGATION AUDITOR, AFTER THE FINAL FIELD OBSERVATION HAS BEEN COMPLETED AND ALL IRRIGATION COMPONENTS ARE INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AND THE IRRIGATION SYSTEM IS ACCEPTED BY THE PROJECT LANDSCAPE ARCHITECT FOR MAINTENANCE.

THE IRRIGATION AUDIT WILL BE CONDUCTED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

1. PLACE FLAGS AT EACH HEAD IN THE ZONE.
2. MEASURE SPACING AND MARK MID-POINTS BETWEEN HEADS.
3. PLACE WATER MEASURING RECEPTACLES.
4. TAKE READINGS OF WATER LEVEL IN RECEPTACLES AND RECORD RESULTS.
5. MEASURE HEAD PRESSURE IN EACH ZONE AND RECORD RESULTS.
6. AFTER COMPLETING ZONE ADVANCE TO NEXT ZONE AND REPEAT PROCEDURE.
7. SUBMIT THE RESULTS OF THE AUDIT TO THE PROJECT ARCHITECT.

THE IRRIGATION MAINTENANCE SCHEDULE TASKS LISTED BELOW ARE INTENDED AS MINIMUM STANDARDS AND MORE FREQUENT ATTENTION MAY BE REQUIRED DEPENDING ON THE PARTICULAR SITE CONDITIONS.

MAINTENANCE TASK	FREQUENCY
1. CONTROLLER CABINET - OPEN CABINET, CLEAN OUT DEBRIS, AND REPLACE BATTERY AS NECESSARY, CHECK WIRING AND REPAIR AS NEEDED. CHECK CLOCK AND RESET, IF NECESSARY.	QUARTERLY
2. IRRIGATION SCHEDULE - ADJUST SCHEDULE FOR SEASONAL VARIATIONS AND OTHER CONDITIONS WHICH MAY AFFECT THE AMOUNT OF WATER NEEDED TO MAINTAIN PLANT HEALTH. ADJUST AS NECESSARY,	MONTHLY
3. POC - VISUALLY INSPECT COMPONENTS FOR LEAKS, PRESSURE SETTINGS, SETTLEMENT OR OTHER DAMAGE AFFECTING THE OPERATION OF A COMPONENT REPAIR AS NEEDED.	QUARTERLY
4. REMOTE CONTROL VALVES, ISOLATION VALVES AND QUICK COUPLER VALVES - VISUALLY INSPECT FOR LEAKS, SETTLEMENT, WIRE CONNECTIONS AND PRESSURE SETTINGS. REPAIR OR ADJUST AS NEEDED.	QUARTERLY
5. MAINLINE AND LATERALS - VISUALLY INSPECT FOR LEAKS OR SETTLEMENT OF TRENCH.	QUARTERLY
6. SPRINKLERS - VISUALLY CHECK FOR ANY BROKEN, MISSALIGNED OR CLOGGED HEADS, HEADS WITH INCORRECT ARC, INADEQUATE COVERAGE OR OVERSPRAY AND LOW HEAD DRAINAGE. REPAIR AS NEEDED.	WEEKLY
7. FILTERS AND STRAINERS - VISUALLY CHECK FOR LEAKS AND BROKEN FITTINGS. CLEAN AND FLUSH SCREENS.	MONTHLY

AUDIT SHALL BE IN ACCORDANCE WITH THE LATEST STATE OF CALIFORNIA LANDSCAPE WATER MANAGEMENT PROGRAM AS DESCRIBED IN THE LATEST LANDSCAPE IRRIGATION AUDITOR HANDBOOK. THE LANDSCAPE IRRIGATION AUDITS TO BE CONDUCTED BY A QUALIFIED INDIVIDUAL AND THE AUDIT SCHEDULE SHALL BE CONDUCTED AT LEAST ONCE EVERY FIVE YEARS IN ACCORDANCE WITH THE REQUIREMENTS OF TITLE 20, DIVISION 1 OF THE LOS ANGELES COUNTY CODE.

Maintenance Schedules:

Maintenance Schedules. A regular maintenance schedule satisfying the following conditions shall be submitted as part of the landscape documentation package.

Landscape shall be maintained to ensure water efficiency. A regular maintenance schedule shall include, but not be limited to, checking, adjusting, and repairing irrigation equipment, resetting the automatic controller, aerating and dethatching turf areas, replenishing mulch, fertilizing, pruning, and weeding in all landscape areas.

Whenever possible, repair of irrigation equipment shall be done with the originally specified materials or their equivalents.

A landscape irrigation audit schedule as required in chapter 20.09 of Title 20 may be recommended. The maximum period between audits shall be five years.

Irrigation Audit Schedules:

Landscape Irrigation Audit Schedules. A schedule of landscape irrigation audits of at least every five years must be established, for all but single-family residences, and other projects with a landscape area less than 1 acre (0.405 ha). As required in Chapter 20.09 of Title 20 (Utilities Codes), an audit satisfying the following conditions shall be submitted to the County as part of the landscape documentation package.

At a minimum, audits shall be in accordance with the latest State of California Landscape Water Management Program as described in the Landscape Irrigation Auditor Handbook, prepared for the California Department of Water Resources, Water Conservation Office, the entire document, which is hereby incorporated by reference.

The schedule shall provide for landscape irrigation audits to be conducted by a qualified individual as determined by the Director at least once every five years in accordance with the requirements of Title 20, Division 1 of the Los Angeles County Code.

Monument Note:

CONTRACTOR TO PROTECT AND PRESERVE IN PLACE ALL EXISTING SURVEY MONUMENTS. ANY DISTURBED MONUMENTS SHALL BE RESET BY A LICENSED LAND SURVEYOR AND THE APPROPRIATE CORNER RECORD MUST BE FILED WITH LOS ANGELES COUNTY.

TREE PROTECTION SPECIFICATIONS

TREE PROTECTION SPECIFICATIONS

THESE TREE PROTECTION SPECIFICATIONS SHALL BE FOLLOWED TO PROTECT ALL TREES WHOSE DRIPLINE IS ENCROACHED UPON EITHER DIRECTLY OR INDIRECTLY BY CONSTRUCTION WITHIN PROJECT LIMITS.

ANY FAILURE BY THE CONTRACTOR TO ADHERE TO THE REQUIREMENTS SPECIFIED BELOW WILL RESULT IN THE SUSPENSION OF ALL CONSTRUCTION ACTIVITIES, TO BE DONE AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF OR PAYMENT FOR ANY TREES DAMAGED THROUGH NON-COMPLIANCE WITH THESE SPECIFICATIONS. THE MONETARY OR REPLACEMENT VALUE OF IMPACTED TREES WILL BE DETERMINED BY THE OWNER'S ARBORIST OR BY AN APPROVED ISA CERTIFIED ARBORIST.

THE OWNER'S ARBORIST SHALL BE INVITED TO THE JOB START MEETING AND ALSO NOTIFIED 48-HOURS PRIOR TO CONSTRUCTION.

TREE PROTECTION:

ALL TREES THAT OCCUR WITHIN THE AREA OF WORK, AS SHOWN ON THE PLANS, AND NOT SPECIFICALLY DESIGNATED FOR REMOVAL, SHALL BE PROTECTED BY THE FOLLOWING MEANS:

1. DEFINING THE TREE PROTECTION ZONE (TPZ) - THE RADIUS (NOT THE DIAMETER) OF THE TPZ, MEASURED FROM THE OUTSIDE OF THE TREE TRUNK, SHALL BE CALCULATED ACCORDING TO THE FOLLOWING:
   - SINGLE TRUNK TREES - MULTIPLY THE TRUNK DIAMETER IN INCHES, MEASURED 4.5' ABOVE GRADE, BY 1.5 FEET.
   - MULTI TRUNK TREES - MULTIPLY THE SUM OF THE DIAMETERS OF ALL TRUNKS IN INCHES, MEASURED 4.5' ABOVE GRADE, BY 1.5 FEET.
   - PALM TREES - 5' FROM THE BASE OF THE TRUNK.
   - IF A TPZ IS DELINEATED ON THE PLANS, THE SIZE AND SHAPE SHOWN ON THE PLANS SHALL SUPERCEDE THE ABOVE REQUIREMENTS.
2. THE CONTRACTOR SHALL INSTALL A 5' HIGH TEMPORARY FENCE WITH ONE PEDESTRIAN ACCESS GATE ALONG THE BOUNDARY OF THE TPZ.
3. THE CONTRACTOR SHALL PROVIDE ONE SIGN PER EACH 20 LINEAL FT. OF FENCE SURROUNDING THE TPZ INDICATING THAT FENCING SHALL NOT BE REMOVED.
4. NO WORK IS PERMITTED WITHIN THE TPZ WITHOUT THE APPROVAL OF: 1) THE PROJECT LANDSCAPE ARCHITECT, 2) THE PROJECT MANAGER, AND 3) OWNER'S ARBORIST. ANY WORK AUTHORIZED BY THE OWNER'S ARBORIST WITHIN THE TPZ MUST BE DONE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE OWNER'S ARBORIST AND UNDER THE SUPERVISION OF A MONITORING ARBORIST. THE MONITORING ARBORIST SHALL BE SUPPLIED BY THE CONTRACTOR AT HIS OWN EXPENSE, AND BE AN ISA CERTIFIED ARBORIST OR A REGISTERED CONSULTING ARBORIST WITH VERIFIABLE EXPERIENCE IN PROTECTING TREES. THE MONITORING ARBORIST MUST BE APPROVED BY THE OWNER PRIOR TO COMMENCEMENT OF WORK.
5. WITHIN THE TPZ, THE CONTRACTOR SHALL ADHERE TO THE FOLLOWING REQUIREMENTS, INCLUDING, BUT NOT LIMITED TO:
   - NO STOCKPILING OR STORAGE OF ANY MATERIAL, DEBRIS, OR SOIL.
   - NO STORAGE OF ANY CONSTRUCTION EQUIPMENT.
   - NO VEHICULAR ACCESS.
   - NO UN-APPROVED TRENCHING, EXCAVATION OR DISTURBANCE OF SOIL WILL BE ALLOWED.
   - NO OBJECTS OF ANY KIND SHALL BE ATTACHED TO TREE TRUNKS.
   - FOR ANY APPROVED EXCAVATION OR TRENCHING, NO CUTTING OF ROOTS OVER 2" DIAMETER WILL BE ALLOWED. CONTRACTOR SHALL USE A PNEUMATIC DRILL (A.K.A. "AIR SPADE") TO EXCAVATE UNDER WOODY ROOTS LARGER THAN 2" IN DIAMETER. IF ANY ROOTS ARE UNINTENTIONALLY SEVERED, REMEDIAL CUTS ARE TO BE MADE UNDER THE SUPERVISION THE MONITORING ARBORIST, AND SOIL BACKFILLED IMMEDIATELY.
6. WITHIN THE BOUNDARIES OF THE CONSTRUCTION ZONE (INCLUDING THE TPZ), THE CONTRACTOR SHALL BE RESPONSIBLE FOR MITIGATING CONSTRUCTION-RELATED DUST ACCUMULATION ON ALL TREES BY SPRAYING THE TRUNKS, LIMBS, AND FOLIAGE WITH WATER TO A MAXIMUM HEIGHT OF 30 FEET DURING THE MONTHS OF APRIL THROUGH NOVEMBER, AT MONTHLY INTERVALS.
7. BEYOND THE TPZ, THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PROTECTING ALL EXISTING TREES TO REMAIN IN PLACE WITHIN THE BOUNDARIES OF THE CONSTRUCTION ZONE, INCLUDING VEHICULAR ACCESS AREAS, LAY DOWN AREAS, AND ANY OTHER AREAS IMPACTED BY CONSTRUCTION ACTIVITIES. ANY DAMAGE TO TREES IN THESE AREAS SHALL ALSO BE SUBJECT TO THE SAME MONETARY OR REPLACEMENT REQUIREMENTS SPECIFIED BELOW. ANY NECESSARY ROOT CUTTING IN THIS AREA MUST BE APPROVED IN ADVANCE BY EITHER THE OWNER'S ARBORIST OR BY AN APPROVED ISA CERTIFIED ARBORIST EMPLOYED BY THE CONTRACTOR.
8. IRRIGATION TO ALL EXISTING TREES NOT SPECIFICALLY DESIGNATED FOR REMOVAL SHALL BE KEPT IN OPERATION FOR THE DURATION OF THE PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR HAND WATERING ALL IMPACTED TREES IF NECESSITATED BY TEMPORARY SHUTDOWNS TO OR DEMOLITION OF EXISTING IRRIGATION SYSTEMS. TREES ARE TO BE IRRIGATED DEEPLY AND AS OFTEN AS REQUIRED SUCH THAT SOIL MOISTURE IS DETECTABLE AT A MINIMUM DEPTH OF 18" USING A SOIL PROBE.
9. UPON COMPLETION OF ALL TRENCHING, GRADING, EXCAVATION AND SOIL PREPARATION WORK, CONTRACTOR SHALL REMOVE ALL ITEMS INSTALLED TO PROTECT TREES DURING THE CONSTRUCTION PROCESS WITH APPROVAL OF THE PROJECT MANAGER.

DAMAGES

IF A TREE THAT IS DESIGNATED TO REMAIN IS REMOVED OR CAUSED TO BE IRREVERSIBLY DAMAGED AS DETERMINED BY THE OWNER'S ARBORIST, INSTALL A REPLACEMENT TREE MATCHING IN SIZE, QUALITY AND VARIETY USING AN INSTALLER DESIGNATED BY THE OWNER'S ARBORIST. IF AN ACCEPTABLE REPLACEMENT TREE IS NOT AVAILABLE, PAY DAMAGES TO THE COUNTY FOR THE VALUE OF THE DAMAGED TREE AS ASSESSED BY THE TREE VALUE FORMULA IN THE ISA GUIDE FOR ESTABLISHING VALUE OF TREES AND OTHER PLANTS.

IRRIGATION CONSULTING
27762 ANTONIO PARKWAY L1-308
LADERA RANCH, CA 92694
(949) 430-7030

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: IRRIGATION NOTES

OWNER:
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE:
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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2.	
3.	
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8.	

DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	14 MAR 2025

LICENSED LANDSCAPE ARCHITECT
LACEY M. WITHERS 5858
Signature
31 AUG 2025
Renewal Date
14 MAR 2025
Date
STATE OF CALIFORNIA

Irrigation Pressure Calculation

Water Meter #: 1 **Controller ID:** A

Source of Information	Anthony Jacquez
Phone Number	(626)934-3851
Date of Information	August 8, 2024
Basis for Calculation	Longest Run/Highest Elevation/Highest Flow

Water Meter Information

Maximum Flow	15 GPM
Water Type	Recycled Water
Static Pressure	**75 PSI**

Valve Information

Automatic Control Valve	**A8**
Size	1.00"
Demand	7 GPM
Head Type	Drip

Friction Loss

QTY	SIZE (INCHES)	TYPE	ITEM	FLOW (GPM)	PRESSURE LOSS (PSI)
1	1.50"	EFB-CP	Master Valve	15 GPM	2.31 PSI
1	1.00"		Flow Sensor	15 GPM	0.10 PSI
1	2.00"		Isolation Valves	15 GPM	0.00 PSI
300'	2.00"	PVC	Mainline	15 GPM	0.62 PSI
1	1.00"	Drip Small	Automatic Control Valve	7 GPM	4.58 PSI
			Lateral Line Loss		4.00 PSI
			Fitting Loss (10%)		1.37 PSI
			Elevation Change		0.43 PSI
			Total System Losses		15 PSI
			Pressure to Operate Head		30 PSI
			Safety Factor	20%	9 PSI
			Static Pressure at Water Meter		75 PSI
			Residual Pressure / Boost Pressure		20 PSI
			Pressure Required with Safety Factor		**55 PSI**

Water Efficient Landscape Worksheet

Water Meter #: 1 **Controller ID: A**

CIMIS Zone or City: State Zone 6 **Reference Evapotraspiration (ETo):** 49.70 **Landscape Type:** Non-Residential

Landscape Area

Hydrozone #	Plant Type	Plant Factor (PF)	Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Landscape Area Sq. Ft.	Percent %	ETAF x Area	Estimated Total Water Use (ETWU) Gallons
1	Shrub - Low Water Use	0.3	Drip Emitter	81%	0.37				
2	Trees - Low Water Use	0.3	Bubblers	77%	0.39				
3	Trees - High Water Use	0.8	Bubblers	77%	1.04				
					Totals:				

Special Landscape Area

Hydrozone #	Plant Type	Plant Factor (PF)	Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Landscape Area Sq. Ft.	Percent %	ETAF x Area	Estimated Total Water Use (ETWU) Gallons
Recycled Water	THIS SPACE LEFT BLANK PER MWELO				1.00	16,837	100%	16,837	518,815
Active Play									
Edible Garden									
Urban Forest									
					Totals:	**16,837**	**100%**	**16,837**	**518,815**

Total Area (Sq. Ft.)	**16,837**	**Sitewide Estimated Total Water Use (Gallons)**	**518,815**
Landscape Area Average ETAF	**0**	**Maximum Applied Water Allowance (Gallons)**	**518,815**
All Landscape Area Sitewide ETAF	**0**	**ETWU < MAWA**	**COMPLIANT**

2016 Model Water Efficient Landscape Ordinance Formulas

MAWA = Maximum Applied Water Allowance
ETWU = Estimated Total Water Use
LA = Landscape Area (Sq. Ft.)
SLA = Special Landscape Area (Sq. Ft.)
ETo = Reference Evapotranspiration
PF = Plant Water Use Factor
IE = Irrigation Efficiency
ETAF = ET Adjustment Factor

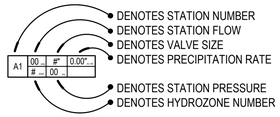
$$MAWA = ETo \times .62 \times [(LA \times ETAF) + SLA \times (1-ETAF)]$$

$$ETWU = \left(\frac{ETo \times 0.62 \times LA \times PF}{IE}\right)$$

HYDROZONE NOTE

THE IRRIGATION PLANS COMPLY WITH THE STATE OF CALIFORNIA'S WATER EFFICIENT LANDSCAPE ORDINANCE PER THE FOLLOWING INFORMATION:

- LANDSCAPE HYDROZONE (NUMBER), PRECIPITATION RATE AND FLOW RATE ARE LOCATED IN THE STATION ID FOR ALL VALVES.
- HYDROZONE NUMBERS ARE ASSIGNED BY PLANT TYPE, PLANT WATER USE, AND IRRIGATION TYPE.
- THE WATER USE CALCULATIONS ARE ORGANIZED BY HYDROZONE CATEGORY NUMBER THAT CORRESPONDS TO THE HYDROZONE NUMBER IN THE STATION ID ON THE PLANS. EACH HYDROZONE CATEGORY SUMMARIZES THE TOTAL AREA OF EACH CATEGORY.
- WATER USE CALCULATIONS ARE PER WATER METER.
- REFER TO THE STATION ID SYMBOL (BELOW) FOR LOCATION OF HYDROZONE AND IRRIGATION DATA PROVIDED.



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Ladera Ranch, CA 92694
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20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: IRRIGATION CALCULATIONS

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
1.	
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8.	

DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	14 MAR 2025

LICENSED LANDSCAPE ARCHITECT
CASEY M. WITHERS 3630
Signature
31 AUG 2025
Renewal Date
14 MAR 2025
Date
STATE OF CALIFORNIA

Irrigation Controller Programming Recommendation

Water Meter #: 1
Controller ID: A

CIMIS Zone: Zone 6
Soil Type: Sandy Loam
Schedule Type: Establishment

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Daily ETo	0.06	0.08	0.11	0.16	0.18	0.21	0.21	0.2	0.16	0.12	0.08	0.06
	Cycles Per Week											
Turf	4	5	7	7	7	7	7	7	7	7	5	4
Shrub	2	3	4	5	6	7	7	6	5	4	3	2
Tree	1	1	2	2	2	3	3	2	2	2	1	1
Supplemental	1	1	1	1	1	1	1	1	1	1	1	1

Station #	Flow (GPM)	Hydrozone #	Aspect Exposure	Plant Type	Peak Landscape Coefficient	Sprinkler Type	Precipitation Rate (In/Hr)	Efficiency	JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC		ANNUAL TOTAL
									MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	GALLONS
1	7	1	South - Full Sun	Shrub - Low	0.30	Drip Emitter	0.6	0.81	9	504	9	756	13	1,456	12	1,680	14	2,352	16	3,136	16	3,136	15	2,520	12	1,680	9	1,008	9	756	9	504	19,488
2	5	1	South - Full Sun	Shrub - Low	0.30	Drip Emitter	0.6	0.81	9	360	9	540	13	1,040	12	1,200	14	1,680	16	2,240	16	2,240	15	1,800	12	1,200	9	720	9	540	9	360	13,920
3	4	1	South - Full Sun	Shrub - Low	0.30	Drip Emitter	0.6	0.81	9	288	9	432	13	832	12	960	14	1,344	16	1,792	16	1,792	15	1,440	12	960	9	576	9	432	9	288	11,136
4	3	2	South - Full Sun	Tree - Low	0.30	Tree Bubbler	3.54	0.9	3	36	4	48	5	120	5	120	5	120	5	180	5	180	5	120	5	120	5	120	4	48	3	36	1,248
5	8	1	South - Full Sun	Shrub - Low	0.30	Drip Emitter	0.6	0.81	9	576	9	864	13	1,664	12	1,920	14	2,688	16	3,584	16	3,584	15	2,880	12	1,920	9	1,152	9	864	9	576	22,272
6	6	3	South - Full Sun	Tree - High	0.80	Tree Bubbler	3.54	0.9	7	168	9	216	12	576	13	624	11	528	13	936	13	936	13	624	13	624	11	528	9	216	7	168	6,144
7	7	2	South - Full Sun	Tree - Low	0.30	Tree Bubbler	3.54	0.9	3	84	4	112	5	280	5	280	5	280	5	420	5	420	5	280	5	280	5	280	4	112	3	84	2,912
8	7	1	South - Full Sun	Shrub - Low	0.30	Drip Emitter	0.6	0.81	9	504	9	756	13	1,456	12	1,680	14	2,352	16	3,136	16	3,136	15	2,520	12	1,680	9	1,008	9	756	9	504	19,488
																															Total:		**96,608**

IRRIGATION SCHEDULES ARE RECOMMENDATIONS ONLY. CONTRACTOR TO ADJUST IRRIGATION SCHEDULES PER SITE CONDITIONS. CONTRACTOR TO ENABLE CYCLE AND SOAK FEATURES AS NEEDED TO PREVENT RUN OFF. OVERHEAD IRRIGATION SHALL BE SCHEDULED BETWEEN 8:00 P.M. AND 10:00 A.M. UNLESS WEATHER CONDITIONS PREVENT IT. IF ALLOWABLE HOURS OF IRRIGATION DIFFER FROM THE LOCAL WATER PURVEYOR, THE STRICTER OF THE TWO SHALL APPLY. OPERATION OF THE IRRIGATION SYSTEM OUTSIDE THE NORMAL WATERING WINDOW IS ALLOWED FOR AUDITING AND SYSTEM MAINTENANCE.

Irrigation Controller Programming Recommendation

Water Meter #: 1
Controller ID: A

CIMIS Zone: Zone 6
Soil Type: Sandy Loam
Schedule Type: Maturity

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Daily ETo	0.06	0.08	0.11	0.16	0.18	0.21	0.21	0.2	0.16	0.12	0.08	0.06
	Cycles Per Week											
Turf	2	3	4	5	6	7	7	6	5	4	3	2
Shrub	2	2	3	4	4	5	5	4	4	3	2	2
Tree	1	1	1	1	1	2	2	1	1	1	1	1
Supplemental	1	1	1	1	1	1	1	1	1	1	1	1

Station #	Flow (GPM)	Hydrozone #	Aspect Exposure	Plant Type	Peak Landscape Coefficient	Sprinkler Type	Precipitation Rate (In/Hr)	Efficiency	JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC		ANNUAL TOTAL
									MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	MINUTES	GALLONS	GALLONS
1	7	1	South - Full Sun	Shrub - Low	0.30	Drip Emitter	0.6	0.81	14	784	15	840	17	1,428	18	2,016	14	1,568	16	2,240	16	2,240	15	1,680	18	2,016	14	1,176	15	840	14	784	17,612
2	5	1	South - Full Sun	Shrub - Low	0.30	Drip Emitter	0.6	0.81	14	560	15	600	17	1,020	18	1,440	14	1,120	16	1,600	16	1,600	15	1,200	18	1,440	14	840	15	600	14	560	12,580
3	4	1	South - Full Sun	Shrub - Low	0.30	Drip Emitter	0.6	0.81	14	448	15	480	17	816	18	1,152	14	896	16	1,280	16	1,280	15	960	18	1,152	14	672	15	480	14	448	10,064
4	3	2	South - Full Sun	Tree - Low	0.30	Tree Bubbler	3.54	0.9	3	36	4	48	5	60	7	84	8	96	9	216	9	216	8	96	7	84	5	60	4	48	3	36	1,080
5	8	1	South - Full Sun	Shrub - Low	0.30	Drip Emitter	0.6	0.81	14	896	15	960	17	1,632	18	2,304	14	1,792	16	2,560	16	2,560	15	1,920	18	2,304	14	1,344	15	960	14	896	20,128
6	6	3	South - Full Sun	Tree - High	0.80	Tree Bubbler	3.54	0.9	7	168	9	216	12	288	17	408	19	456	23	1,104	23	1,104	22	528	17	408	13	312	9	216	7	168	5,376
7	7	2	South - Full Sun	Tree - Low	0.30	Tree Bubbler	3.54	0.9	3	84	4	112	5	140	7	196	8	224	9	504	9	504	8	224	7	196	5	140	4	112	3	84	2,520
8	7	1	South - Full Sun	Shrub - Low	0.30	Drip Emitter	0.6	0.81	14	784	15	840	17	1,428	18	2,016	14	1,568	16	2,240	16	2,240	15	1,680	18	2,016	14	1,176	15	840	14	784	17,612
																															Total:		**86,972**

IRRIGATION SCHEDULES ARE RECOMMENDATIONS ONLY. CONTRACTOR TO ADJUST IRRIGATION SCHEDULES PER SITE CONDITIONS. CONTRACTOR TO ENABLE CYCLE AND SOAK FEATURES AS NEEDED TO PREVENT RUN OFF. OVERHEAD IRRIGATION SHALL BE SCHEDULED BETWEEN 8:00 P.M. AND 10:00 A.M. UNLESS WEATHER CONDITIONS PREVENT IT. IF ALLOWABLE HOURS OF IRRIGATION DIFFER FROM THE LOCAL WATER PURVEYOR, THE STRICTER OF THE TWO SHALL APPLY. OPERATION OF THE IRRIGATION SYSTEM OUTSIDE THE NORMAL WATERING WINDOW IS ALLOWED FOR AUDITING AND SYSTEM MAINTENANCE.

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SHEET TITLE
IRRIGATION SCHEDULE

OWNER
COUNTY OF LOS ANGELES
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1000 SOUTH FREMONT AVE.
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PROJECT TITLE
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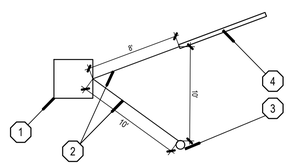
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DRAWN BY: PBN
CHECKED BY: LW
PROJECT NO. 1068
DATE: 14 MAR 2025

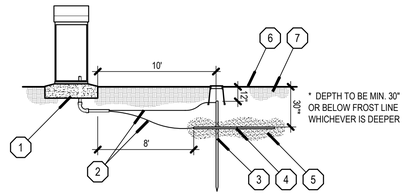
LICENSED LANDSCAPE ARCHITECT
GREY M. WITHERS 3636
Signature
31 AUG 2025
Renewal Date
14 MAR 2025
Date
STATE OF CALIFORNIA

NOTE:
- CONTROLLERS TO BE GROUNDED PER LOCAL ELECTRICAL CODE
- INSTALLATION OF A GROUND ROD TO BE AUTHORIZED BY THE OWNER IN WRITING PRIOR TO INSTALLATION
- ALL GROUND RODS TO BE INSTALLED BY LICENSED ELECTRICIAN
- GROUND PLATES ARE AN ALLOWABLE SUBSTITUTION FOR GROUND RODS
- CONSULT DIG ALERT OR UNDERGROUND SERVICE ALERT (811) PRIOR TO INSTALLATION
- EARTH RESISTANCE SHALL BE MEASURED AND RECORDED AFTER INSTALLATION WITHIN ACCORDANCE WITH THE LATEST REQUIREMENTS OF NFPA 780. READINGS TO BE BETWEEN 5 - 10 OHMS

CONTRACTOR TO INSTALL PER MANUFACTURER'S SPECIFICATIONS. MINIMUM QUANTITY SHOWN ON PLANS, CONTRACTOR TO INSTALL ADDITIONAL ARRESTORS/GROUNDING AS NEEDED, AT NO ADDITIONAL COST TO OWNER, TO MEET MANUFACTURER AND DISTRIBUTOR'S SPECIFICATIONS.

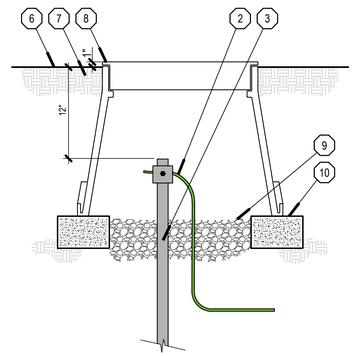


PLAN



SECTION

GROUND ROD



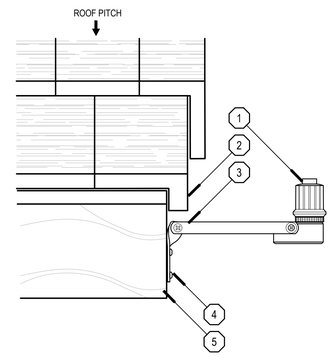
* DEPTH TO BE MIN. 30" OR BELOW FROST LINE WHICHEVER IS DEEPER

1. IRRIGATION CONTROLLER OR SURGE ARRESTOR - REFER TO PLANS
2. #6 AWG SOLID BARE COPPER GROUND WIRE
3. 5/8" X 96" COPPER GROUND ROD - INSTALL PER MANUFACTURER SPECIFICATIONS
4. 4" X 96" GROUNDING PLATE - INSTALL PER MANUFACTURER SPECIFICATIONS
5. 100 POUNDS OF POWERSET EARTH CONTACT MATERIAL MINIMUM
6. FINISH GRADE
7. SUBGRADE
8. BLACK ROUND VALVE BOX - LABEL PER BRANDING DETAIL
9. 3/4" CRUSHED GRAVEL - 6" DEPTH
10. BRICK SUPPORTS - TWO REQUIRED

GROUNDING

NO SCALE

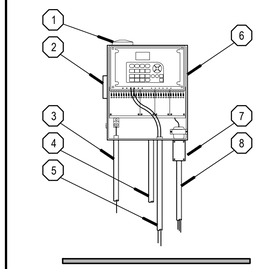
LOCATE RAIN SENSOR AWAY FROM VIEW WITHOUT OBSTRUCTIONS FROM THE SKY



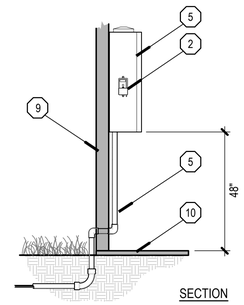
1. RAIN / WEATHER SENSOR
2. ROOF MATERIAL
3. SENSOR MOUNTING BRACKET - SUPPLIED WITH SENSOR
4. STAINLESS STEEL MOUNTING HARDWARE
5. WOOD EAVE EDGE - DO NOT MOUNT ON PLASTER

RAIN / WEATHER SENSOR

NO SCALE



ELEVATION



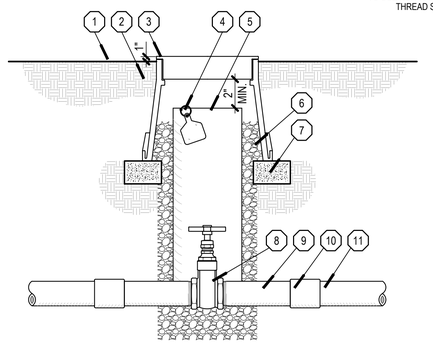
SECTION

1. LOW PROFILE ANTENNA
2. RAIN SENSOR RECEIVER UNIT
3. #6 AWG BARE COPPER GROUND WIRE IN EMT CONDUIT. CONNECT TO BUILDING GROUND AS REQUIRED PER CODE
4. (1) 1-1/4" PVC CONDUIT AND SWEEP ELLS FOR MASTER VALVE WIRE AND FLOW SENSOR CABLE - AS REQUIRED
5. **TWO-WIRE** - (1) 1-1/4" PVC CONDUIT AND SWEEP ELLS FOR TWO-WIRE CABLE
   CONVENTIONAL WIRE - (1) 3" PVC CONDUIT AND SWEEP ELLS FOR CONTROL VALVE WIRES
6. IRRIGATION CONTROLLER - REFER TO LEGEND
7. INDOOR RATED JUNCTION BOX FOR 120VAC POWER - INSTALL PER LOCAL ELECTRICAL CODE
8. 120VAC POWER WIRES IN EMT CONDUIT - INSTALL PER LOCAL ELECTRICAL CODE
9. WALL
10. FLOOR

WALL MOUNT CONTROLLER - INDOOR

NO SCALE

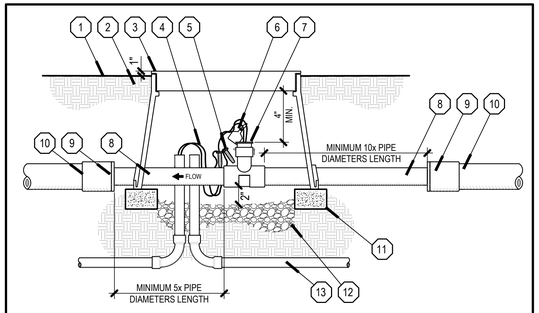
ALL THREADED CONNECTIONS TO USE NON-HARDENING THREAD SEALANT



1. FINISH GRADE
2. SUBGRADE
3. ROUND VALVE BOX - LABEL PER BRANDING DETAIL
4. WATER IDENTIFICATION TAG - REFER TO LEGEND FOR COLOR AND TYPE
5. 6" SCHEDULE 40 PVC PIPE ACCESS SLEEVE
6. 3/4" CRUSHED GRAVEL - 6" DEPTH
7. BRICK SUPPORTS - TWO REQUIRED
8. ISOLATION GATE VALVE - REFER TO LEGEND
9. PVC SCHEDULE 80 TOE NIPPLE - MINIMUM LENGTH 6"
10. PRESSURE MAINLINE FITTING - SLIP COUPLING
11. PRESSURE MAINLINE PIPE

ISOLATION GATE VALVE

NO SCALE

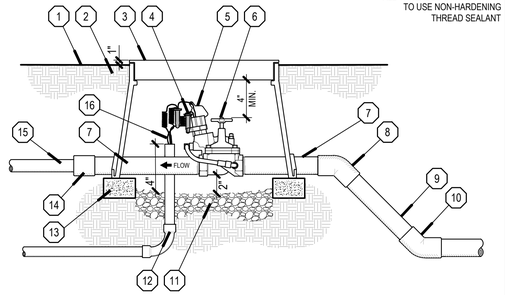


1. FINISH GRADE
2. SUBGRADE
3. RECTANGULAR VALVE BOX - LABEL PER BRANDING DETAIL
4. FLOW SENSOR CABLE 36" MINIMUM EXPANSION LOOP - REFER TO LEGEND
5. WATERPROOF WIRE CONNECTORS - REFER TO LEGEND
6. WATER IDENTIFICATION TAG - REFER TO LEGEND FOR COLOR AND TYPE
7. FLOW SENSOR - REFER TO LEGEND
8. **SLIP FLOW SENSOR** - PRESSURE MAINLINE PIPE
   THREADED FLOW SENSOR - 80 PVC TOE NIPPLE SIZED TO MATCH FLOW SENSOR - LENGTH AS REQUIRED
9. SLIP COUPLING - PRESSURE MAINLINE FITTING WITH BUSHING TO ADAPT PIPE TO FLOW SENSOR SIZE
10. PRESSURE MAINLINE PIPE
11. BRICK SUPPORTS - FOUR REQUIRED
12. 3/4" CRUSHED GRAVEL - 6" DEPTH
13. 1-1/4" TWO-WIRE CABLE CONDUIT WITH SWEEPS IN AND OUT OF EACH VALVE BOX

FLOW SENSOR

NO SCALE

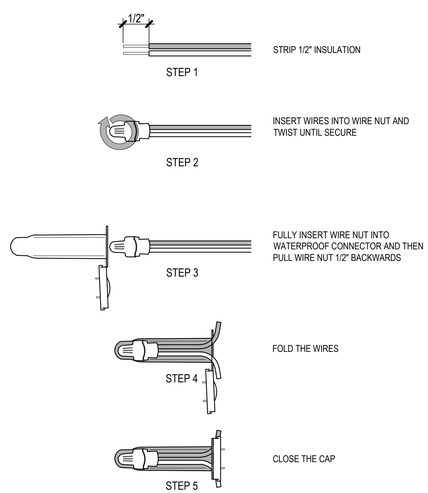
ALL THREADED CONNECTIONS TO USE NON-HARDENING THREAD SEALANT



1. FINISH GRADE
2. SUBGRADE
3. RECTANGULAR VALVE BOX - LABEL PER BRANDING DETAIL
4. WATERPROOF WIRE CONNECTORS - REFER TO LEGEND
5. STATION ID TAG AND WATER IDENTIFICATION TAG - LOCATE ON SOLENOID WIRES
6. MASTER VALVE - REFER TO LEGEND
7. SCHEDULE 80 PVC TOE NIPPLE - LENGTH TO CLEAR VALVE BOX
8. SLIP 45° ELL - PRESSURE MAINLINE FITTING WITH BUSHING TO ADAPT PIPE TO INLET SIZE OF VALVE
9. PRESSURE MAINLINE PIPE
10. PRESSURE MAINLINE FITTING - SLIP 45° ELL
11. 3/4" CRUSHED GRAVEL - 6" DEPTH
12. 1-1/4" MASTER VALVE AND FLOW SENSOR CABLE CONDUIT WITH SWEEPS IN AND OUT OF EACH VALVE BOX
13. BRICK SUPPORTS - FOUR REQUIRED
14. SLIP COUPLING - PRESSURE MAINLINE FITTING WITH BUSHING TO ADAPT PIPE TO PRESSURE MAINLINE SIZE
15. PRESSURE MAINLINE - SIZE OF PIPE TO MATCH FLOW SENSOR (IF SPECIFIED)
16. PAIGE 70001D 14 AWG BLUE AND YELLOW MASTER VALVE WIRE WITH 36" MINIMUM EXPANSION COIL

MASTER VALVE

NO SCALE



WATERPROOF WIRE CONNECTOR

NO SCALE

IRRIGATION CONSULTING
27762 ANTONIO PARKWAY L1-308
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SHEET TITLE: IRRIGATION DETAILS

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

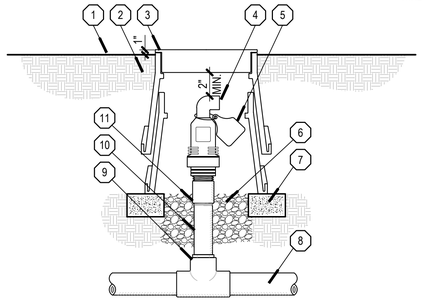
PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

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DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
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LICENSED LANDSCAPE ARCHITECT
LARRY M. WITHERS 3309
Signature
31 AUG 2025
Renewal Date
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Date
STATE OF CALIFORNIA

ALL THREADED CONNECTIONS TO USE NON-HARDENING THREAD SEALANT



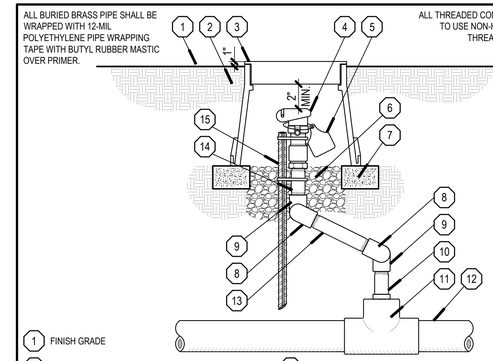
1. FINISH GRADE
2. SUBGRADE
3. ROUND VALVE BOX WITH VALVE BOX EXTENSIONS AS REQUIRED - LABEL PER BRANDING DETAIL
4. AIR / VACUUM RELIEF VALVE - REFER TO LEGEND
5. WATER IDENTIFICATION TAG - REFER TO LEGEND FOR COLOR AND TYPE
6. 3/4" CRUSHED GRAVEL - 6" DEPTH
7. BRICK SUPPORTS - TWO REQUIRED
8. PRESSURE MAINLINE PIPE
9. SLIP TEE OR ELL - PRESSURE MAINLINE FITTING WITH BUSHING TO ADAPT PIPE TO INLET SIZE OF AIR RELIEF
10. PVC SCHEDULE 80 PVC TOE NIPPLE - LENGTH AS REQUIRED
11. SCHEDULE 80 PVC TxT COUPLING

AIR RELIEF VALVE

NO SCALE

ALL BURIED BRASS PIPE SHALL BE WRAPPED WITH 12-MIL POLYETHYLENE PIPE WRAPPING TAPE WITH BUTYL RUBBER MASTIC OVER PRIMER.

ALL THREADED CONNECTIONS TO USE NON-HARDENING THREAD SEALANT

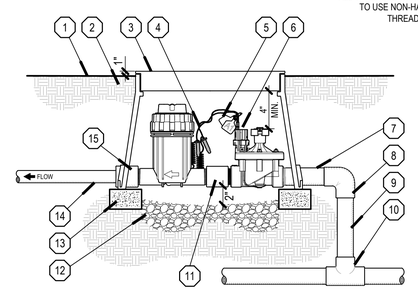


1. FINISH GRADE
2. SUBGRADE
3. ROUND VALVE BOX - LABEL PER BRANDING DETAIL
4. QUICK COUPLER VALVE - REFER TO LEGEND
5. WATER IDENTIFICATION TAG - REFER TO LEGEND FOR COLOR AND TYPE
6. 3/4" CRUSHED GRAVEL - 6" DEPTH
7. BRICK SUPPORTS - TWO REQUIRED
8. BRASS STREET ELBOW - INLET SIZE
9. BRASS ELBOW - INLET SIZE
10. PVC SCHEDULE 80 PVC TOE NIPPLE - LENGTH AS REQUIRED
11. PRESSURE MAINLINE TEE OR ELL FITTING WITH BUSHING TO ADAPT PIPE TO INLET SIZE OF QUICK COUPLER
12. PRESSURE MAINLINE PIPE
13. BRASS NIPPLE - INLET SIZE x 12" LENGTH
14. BRASS NIPPLE - INLET SIZE x 2" LENGTH
15. #4 REBAR - MINIMUM 18" LENGTH - SECURE TO QUICK COUPLER WITH (2) STAINLESS STEEL HOSE CLAMPS

QUICK COUPLER VALVE

NO SCALE

ALL THREADED CONNECTIONS TO USE NON-HARDENING THREAD SEALANT

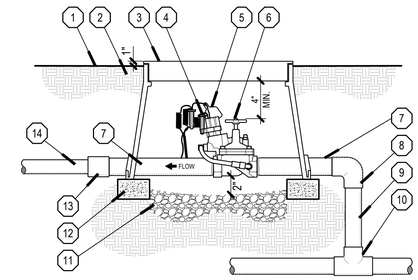


1. FINISH GRADE
2. SUBGRADE
3. RECTANGULAR VALVE BOX - LABEL PER BRANDING DETAIL
4. VALVE WIRE AND COMMON WIRE WITH WATERPROOF WIRE CONNECTORS - PROVIDE 24" MIN. EXPANSION COIL
5. STATION ID TAG AND WATER IDENTIFICATION TAG - LOCATE ON SOLENOID WIRES
6. REMOTE CONTROL VALVE DRIP KIT - REFER TO LEGEND
7. SCHEDULE 80 PVC TOE NIPPLE - LENGTH TO CLEAR VALVE BOX
8. SLIP ELL - PRESSURE MAINLINE FITTING WITH BUSHING TO ADAPT PIPE TO INLET SIZE OF VALVE
9. PRESSURE MAINLINE PIPE
10. PRESSURE MAINLINE FITTING - SLIP TEE OR ELL
11. SCHEDULE 80 T X T COUPLING WITH SCHEDULE 80 CLOSE NIPPLE - AS REQUIRED
12. 3/4" CRUSHED GRAVEL - 6" DEPTH
13. BRICK SUPPORTS - FOUR REQUIRED
14. LATERAL PIPE
15. SLIP X THREAD COUPLING - LATERAL FITTING WITH BUSHING TO ADAPT PIPE TO LATERAL SIZE

CONTROL VALVE

NO SCALE

ALL THREADED CONNECTIONS TO USE NON-HARDENING THREAD SEALANT

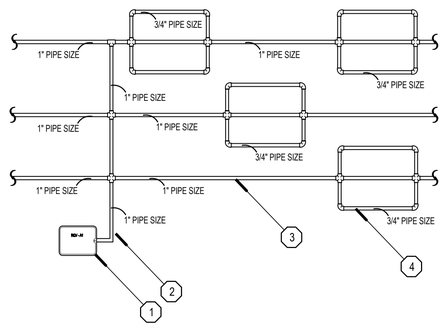


1. FINISH GRADE
2. SUBGRADE
3. RECTANGULAR VALVE BOX - LABEL PER BRANDING DETAIL
4. VALVE WIRE AND COMMON WIRE WITH WATERPROOF WIRE CONNECTORS - PROVIDE 24" MIN. EXPANSION COIL
5. STATION ID TAG AND WATER IDENTIFICATION TAG - LOCATE ON SOLENOID WIRES
6. REMOTE CONTROL VALVE - REFER TO LEGEND
7. SCHEDULE 80 PVC TOE NIPPLE - LENGTH TO CLEAR VALVE BOX
8. SLIP ELL - PRESSURE MAINLINE FITTING WITH BUSHING TO ADAPT PIPE TO INLET SIZE OF VALVE
9. PRESSURE MAINLINE PIPE
10. PRESSURE MAINLINE FITTING - SLIP TEE OR ELL
11. 3/4" CRUSHED GRAVEL - 6" DEPTH
12. BRICK SUPPORTS - FOUR REQUIRED
13. SLIP COUPLING - LATERAL FITTING WITH BUSHING TO ADAPT PIPE TO LATERAL SIZE
14. LATERAL PIPE

CONTROL VALVE

NO SCALE

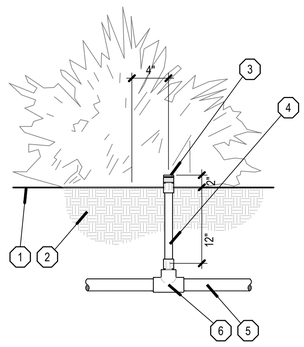
NOTE:
ALL SHRUB PVC BUBBLER LATERALS TO BE 1" SCHEDULE 40 PVC MINIMUM IN SIZE



1. REMOTE CONTROL BUBBLER VALVE ASSEMBLY
2. 1" DISTRIBUTION LATERAL PIPE
3. 1" SUB-DISTRIBUTION LATERAL PIPE
4. 3/4" LATERAL PIPE TO BUBBLER EMITTERS

SHRUB EMITTER LATERAL SIZING

NO SCALE



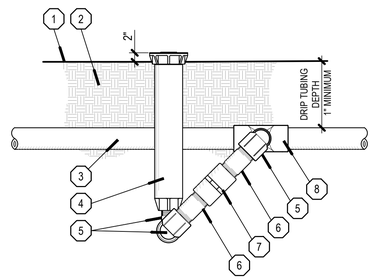
1. FINISH GRADE
2. SUBGRADE
3. DRIP EMITTER. REFER TO LEGEND FOR TYPE
4. FLEXIBLE PVC RISER ASSEMBLY. REFER TO LEGEND FOR TYPE.
5. SCHEDULE 40 SxSxT 1/2" TEE OR ELL
6. 1" SCHEDULE 40 PVC LATERAL LINE - REFER TO LEGEND

DRIP EMITTER ON RISER

NO SCALE

DRIP INDICATORS

- (1) INDICATOR TO BE INSTALLED ADJACENT TO EACH FLUSH VALVE.
- DRIP SYSTEM WITH (1) FLUSH VALVE TO HAVE AN ADDITIONAL INDICATOR LOCATED AT THE OPPOSITE END OF THE SYSTEM TO IDENTIFY THE EXTENT OF THE DRIP ZONE.

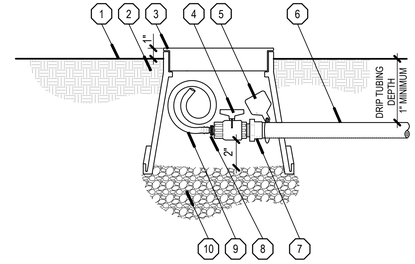


1. FINISH GRADE
2. SUBGRADE
3. SCHEDULE 40 PVC DRIP FOOTER
4. DRIP INDICATOR POP-UP SPRAY HEAD - REFER TO LEGEND
5. MARLEX 90 DEGREE STREET ELBOW - INLET SIZE
6. PVC SCHEDULE 80 NIPPLE - 4" LENGTH
7. PVC SCHEDULE 40 FPT x FPT CHECK VALVE
8. PVC SCHEDULE 40 SxSxT TEE OR SxT ELL

DRIP INDICATOR

NO SCALE

DRIP FLUSH VALVES SHOWN ON IRRIGATION PLANS ARE THE MINIMUM NUMBER OF FLUSH VALVES REQUIRED. CONTRACTOR SHALL PROVIDE ADDITIONAL FLUSH VALVES AS REQUIRED.



1. FINISH GRADE
2. SUBGRADE
3. 6" ROUND VALVE BOX - LABEL PER BRANDING DETAIL
4. FULL PORT PVC T x T BALL VALVE
5. WATER IDENTIFICATION TAG - REFER TO LEGEND FOR COLOR AND TYPE
6. SCHEDULE 40 PVC DRIP FOOTER
7. SCHEDULE 40 MALE ADAPTER
8. MPT X BARBED DRIP FITTING
9. 24" BLANK DRIP TUBING
10. 3/4" CRUSHED GRAVEL - 6" DEPTH

DRIP FLUSH VALVE

NO SCALE

IRRIGATION CONSULTING
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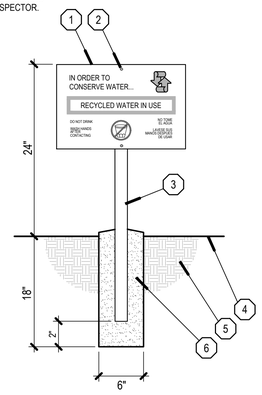
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LARRY M. WITHERS 3309
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NOTE:
CONTRACTOR SHALL FURNISH AND INSTALL TWO SIGNS PER CONTROLLER MINIMUM. CONTRACTOR SHALL FURNISH AND INSTALL ADDITIONAL SIGNS AS REQUIRED BY WATER DISTRICT INSPECTOR.

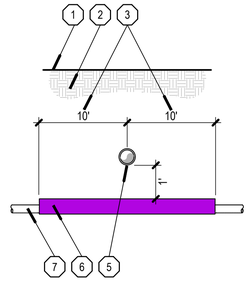


1. RECYCLED WATER SIGN - REFER TO LEGEND
2. ATTACH SIGN TO POST WITH (2) STAINLESS STEEL BOLTS
3. 1-1/2" SQ (1/16" WALL) X 36" LONG ALUMINUM POST
4. FINISH GRADE
5. SUBGRADE
6. CONCRETE SIGN BASE - SLOPE 2% FOR DRAINAGE

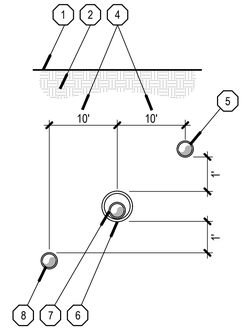
RECYCLED WATER SIGN

NO SCALE

CROSSING CONDITION



PARALLEL CONDITION



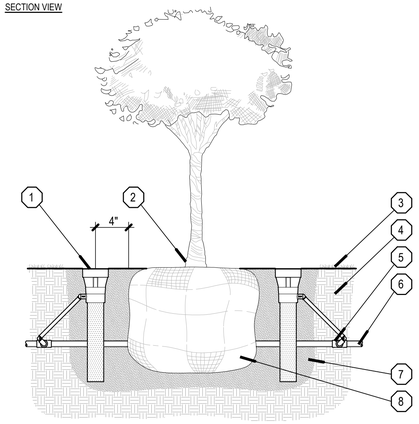
NOTE:
CONTRACTOR TO COORDINATE CROSSINGS WITH WATER DISTRICT INSPECTOR PRIOR TO TRENCHING

1. FINISH GRADE
2. SUBGRADE
3. RECYCLED WATER MAINLINE TO BE SLEEVED WITHIN 10' OF POTABLE WATER CROSSING
4. RECYCLED WATER MAINLINE PIPE TO BE SLEEVED WITHIN 10' OF POTABLE WATER PIPE / EQUIPMENT
5. POTABLE WATER PIPE
6. RECYCLED WATER MAINLINE SLEEVE
7. RECYCLED WATER MAINLINE PIPE
8. SANITARY SEWER PIPE

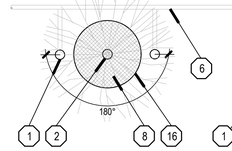
DW / RW PIPE CROSSING

NO SCALE

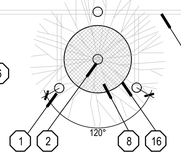
SECTION VIEW



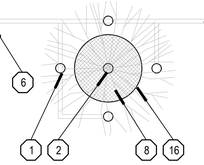
PLAN VIEW: 15 GALLON, 24" BOX & 36" BOX TREES



PLAN VIEW: 48" BOX



PLAN VIEW: 48" BOX, 60" BOX & 72" BOX TREES

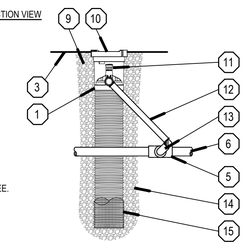


TREE MATRIX

TREE BOX SIZE	NUMBER OF HEADS	FLOW (GPM)	TOTAL FLOW (GPM)
15 GALLON	2	0.25	0.50
24"	2	0.25	0.50
36"	2	0.25	0.50
48"	3	0.25	0.75
60"	4	0.25	1.00
72"	4	0.25	1.00

NOTE: 60" BOX TREES AND SMALLER SHALL BE VALVED SEPARATELY FROM 72" BOX TREES AND LARGER

SECTION VIEW



NOTES:
- SPACE BUBBLERS AND TREE WELL INSPECTION TUBE EQUALLY AROUND TREE.
- ROOT WATERING BUBBLERS TO BE 90 DEGREES FROM TREE LODGE POLES
- COORDINATE INSTALLATION OF IRRIGATION SYSTEM WITH TREE PLANTING
- CROSS REFERENCE WITH TREE PLANTING DETAIL.

1. ROOT ZONE WATERING SYSTEM - REFER TO LEGEND
2. TREE
3. FINISH GRADE
4. SUBGRADE
5. PVC SCHEDULE 40 5xSxT TEE OR 90 DEGREE ELBOW
6. LATERAL PIPE
7. AMENDED SOIL
8. ROOT BALL
9. PEA GRAVEL - EVENLY DISTRIBUTE AROUND ROOT WATERING SYSTEM IN CLAY SOILS
10. 4" GRATE
11. THREADED BUBBLER - REFER TO LEGEND FOR GPM
12. SWING JOINT, 12" PIPE SWING ASSEMBLY
13. PVC SCHEDULE 40 STREET ELL - INLET SIZE
14. 4"X36" LONG RIGID BASKET WEAVE CANISTER, FILL WITH PEA GRAVEL IN HEAVY SOILS
15. INSTALL SOCK IN SANDY SOILS
16. EDGE OF TREE PIT

ROOT ZONE WATERING SYSTEM

NO SCALE

STEP 1

CUTTING PIPE
- CUT PVC PIPE WITH PVC CUTTER OR FINE TOOTH SAW
- REMOVE BURRS FROM INSIDE AND OUTSIDE OF PIPE USING A DEBURRING TOOL OR FILE
- BEVEL END OF PIPE AT A CONSISTENT 10° - 15° ANGLE USING CHAMFERING TOOL
- DRY FIT PIPE AND FITTING

STEP 2

PRIMER
- APPLY PRIMER TO FITTING
- APPLY PRIMER TO PIPE TO MATCH DEPTH OF FITTING SOCKET
- REAPPLY PRIMER TO FITTING
- REPEAT PROCESS 2 - 3 TIMES
- WHILE THE PRIMER IS WET, APPLY SOLVENT CEMENT

STEP 3

SOLVENT CEMENT
- APPLY SOLVENT CEMENT TO PIPE TO MATCH DEPTH OF FITTING SOCKET IN A CIRCULAR MOTION
- APPLY SOLVENT CEMENT TO FITTING - AVOID PUDDLING AND APPLYING CEMENT IN OTHER SOCKET OR THREADS
- REAPPLY SOLVENT CEMENT TO PIPES LARGER THAN 1-1/4" TO THE DEPTH OF THE FITTING SOCKET IN A CIRCULAR MOTION

STEP 4

JOINT ASSEMBLY
- IMMEDIATELY AFTER APPLYING SOLVENT CEMENT, INSERT PIPE INTO FITTING SOCKET WHILE ROTATING PIPE QUARTER TURN
- ALIGN FITTING TO PROPER ORIENTATION
- ENSURE PIPE BOTTOMS OUT AT FITTING STOP

STEP 5

SET AND CURE TIMES
- HOLD ASSEMBLY FOR 30 SECONDS TO ENSURE INITIAL BOND AND TO PREVENT PIPE BACKING OUT OF FITTING
- VERIFY A BEAD OF CEMENT IS PRESENT AROUND THE ENTIRE PIPE AND FITTING JOINT
- DO NOT HANDLE JOINT UNTIL INITIAL SET TIME HAS PASSED - 30 MINUTES FOR PIPES < 8" @ 60° -100° F
- DO NOT PRESSURIZE IRRIGATION SYSTEM UNTIL CURE TIME HAS PASSED - 24 HOURS FOR PIPES < 8" @ 60° -100° F

NOTE:
- APPLY PRIMER AND SOLVENT CEMENT TO PIPE AND FITTING WITH AN APPLICATOR 1/2 THE PIPE DIAMETER

SOLVENT CEMENT JOINTS

NO SCALE

1. VEHICULAR PAVING OR HARDSCAPE
2. SUBGRADE
3. COMPACTED BACKFILL
4. ROCK AND DEBRIS FREE BACKFILL - MINIMUM 2" SURROUNDING PIPING / SLEEVE
5. LATERAL PIPE IN SLEEVE
6. PRESSURE MAINLINE PIPE IN SLEEVE
7. CONTROL VALVE WIRE BUNDLE IN SLEEVE - MINIMUM 2"

NOTES
1. ALL SLEEVES TO BE TWICE THE DIAMETER OF PIPE / CONDUIT
2. ALL SLEEVES SHALL EXTEND MINIMUM 12" BEYOND EDGE OF HARDSCAPE / PAVING AND ENDS COVERED
3. NON-DOMESTIC WATER PIPE SLEEVES SHALL BE IDENTIFIED PER WATER DISTRICT STANDARDS

PIPE SLEEVING

NO SCALE

1. FINISH GRADE
2. SUBGRADE
3. SHRUB HEAD
4. COMPACTED BACKFILL
5. HARDSCAPE OR STRUCTURE
6. TURF HEAD
7. LATERAL PIPE
8. ROCK AND DEBRIS FREE BACKFILL - MINIMUM 2" SURROUNDING PIPING
9. PRESSURE MAINLINE PIPE
10. VALVE WIRE BUNDLE - ATTACH TO PIPE AT 10' O.C. PROVIDE 24" EXPANSION LOOP AT CHANGE IN DIRECTIONS

PIPE TRENCHING

NO SCALE

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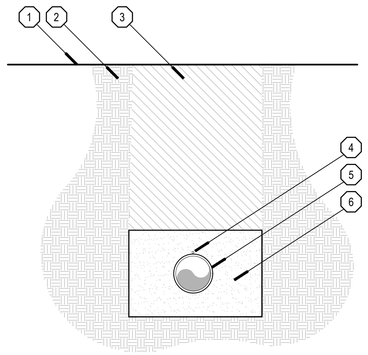
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Date
STATE OF CALIFORNIA

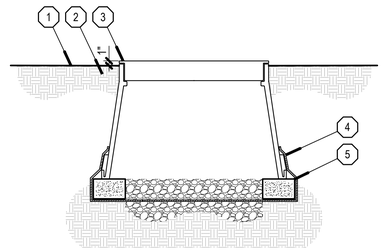


1. FINISH GRADE
2. SUBGRADE
3. COMPACTED BACKFILL
4. PAIGE 70001D 14 AWG RED TRACER WIRE - ATTACH TO PIPE AT 10' O.C. PROVIDE 24" EXPANSION LOOP AT CHANGE IN DIRECTIONS
5. PRESSURE MAINLINE PIPE
6. ROCK AND DEBRIS FREE BACKFILL - REFER TO SPECIFICATIONS

TRACER WIRE

NO SCALE

CONTRACTOR SHALL WRAP VINYL COATED WIRE MESH UP SIDES OF VALVE BOX TO COVER ALL VALVE BOX OPENINGS

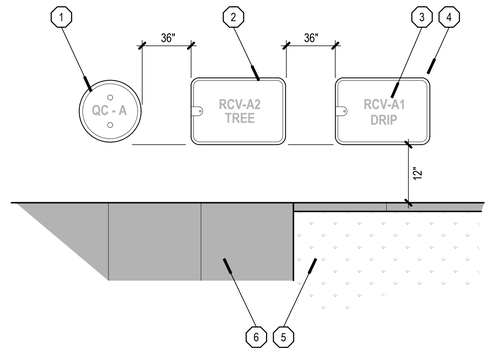


1. FINISH GRADE
2. SUBGRADE
3. VALVE BOX
4. VINYL COATED 1/4" X 1/4" WIRE MESH - 23 GAUGE
5. BRICK SUPPORTS

VANDALISM PROTECTION

NO SCALE

NOTE:
VALVE BOXES SHALL NOT BE LOCATED IN TURF AREAS, IN HEDGES OR ADJACENT TO TREES

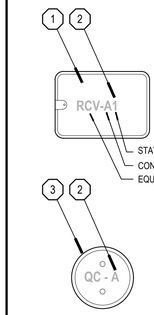


1. ROUND VALVE BOX
2. RECTANGULAR VALVE BOX
3. 2" VALVE BOX BRAND - REFER TO BRANDING DETAIL
4. ALIGN VALVE BOXES PARALLEL TO LANDSCAPE EDGE HARDSCAPE
5. TURF LANDSCAPE AREA
6. HARDSCAPE OR STRUCTURE

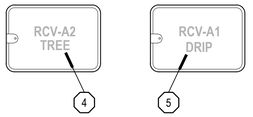
VALVE BOX LAYOUT

NO SCALE

NOTE:
CONTRACTOR TO USE 2" BRANDING KIT FOR BRANDING VALVE BOXES



BOX COLOR	EQUIPMENT:	CONTROLLER:	BRANDING:
REFER TO LEGEND	AIR RELIEF VALVE	A	AR - A
	BALL VALVE	A	BV - A#
	BASKET STRAINER	A	BS - #
	CONTROL VALVE	A	RCV - A#
	DRIP AIR RELIEF	A	AR - #
	DRIP FLUSH VALVE	A	FV - #
	FERTILIZER INJECTOR	A	FI - A
	FLOW SENSOR	A	FS - A
	GATE VALVE	A	GV - A
	MASTER VALVE	A	MV - A
	PRESSURE REGULATOR	A	PR - A
	QUICK COUPLER	A	QC - A
BLACK	GROUND ROD	A	GR - A
	PULL BOX	A	PB - A
	SURGE ARRESTOR	A	SA - A



1. RECTANGULAR VALVE BOX
2. 2" VALVE BOX BRAND - REFER TO BRANDING TABLE
3. ROUND VALVE BOX
4. IF RCV IS A TREE VALVE, THEN BRAND "TREE" BELOW RCV-A# BRANDING
5. IF RCV IS A DRIP VALVE, THEN BRAND "DRIP" BELOW RCV-A# BRANDING

VALVE BOX BRANDING

NO SCALE

NOTE:
ALL DUCTILE IRON ITEMS TO BE WRAPPED WITH POLYETHYLENE ENCASEMENT PER AWWA C105

1. FINISH GRADE
2. SUBGRADE
3. ROUND VALVE BOX - LABEL PER BRANDING DETAIL
4. WATER IDENTIFICATION TAG - REFER TO LEGEND FOR COLOR AND TYPE
5. PVC PIPE ACCESS SLEEVE - SIZE TO MATCH LEEMCO LV VALVE SHROUD SIZE
6. BRICK SUPPORTS - TWO REQUIRED
7. 3/4" CRUSHED GRAVEL - 6" DEPTH
8. PRESSURE MAINLINE PIPE
9. LEEMCO LH SERIES RESTRAINT KIT - SIZE TO MATCH MAINLINE PIPE SIZE - AS REQUIRED
10. LEEMCO LT SERIES DUCTILE IRON TEE - SIZE TO MATCH MAINLINE PIPE SIZE
11. LEEMCO LV SERIES ANGLE VALVE - SIZE TO MATCH SUB-MAINLINE PIPE SIZE
12. PRESSURE SUB-MAINLINE PIPE

TRANSITION TO SUB-MAINLINE

NO SCALE

IRRIGATION CONSULTING
27762 ANTONIO PARKWAY L1-308
LADERA RANCH, CA 92694
(949) 430-7030

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: IRRIGATION DETAILS

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

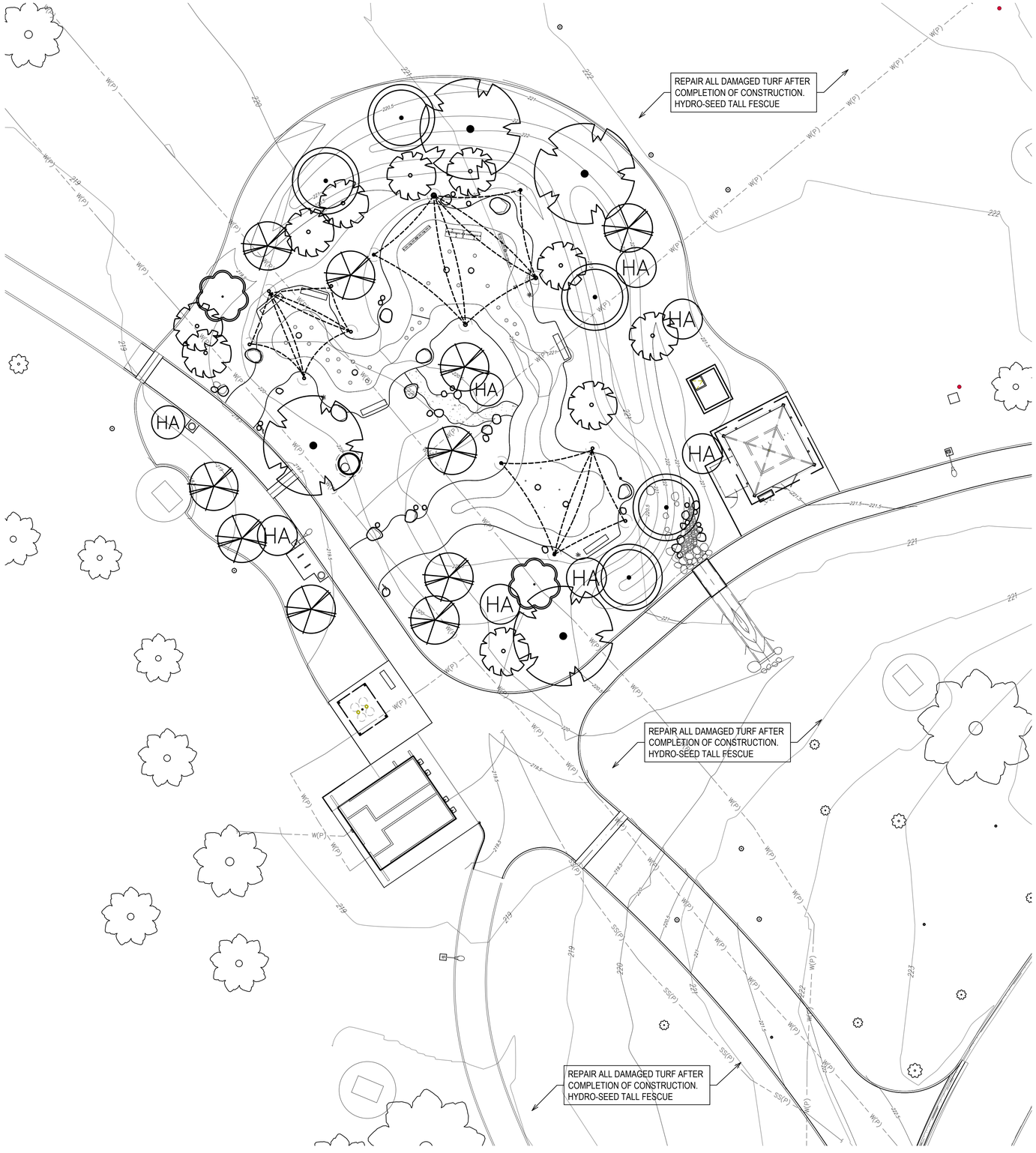
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DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	14 MAR 2025

LICENSED LANDSCAPE ARCHITECT
LACEY M. WITHERS 3830
Signature
31 AUG 2025
Renewal Date
14 MAR 2025
Date
STATE OF CALIFORNIA

SHEET 48 OF 75

L2.58



PLANTING LEGEND

BOTANICAL NAME / COMMON NAME	SIZE	QTY.	WUCOLS	SPACING	REMARKS
TREES					
LYONOTHAMNUS FLORIGUNDUS / CATALINA IRONWOOD	24 BOX	6	L	20' O.C.	
QUERCUS AGRIFOLIA / COAST LIVE OAK	24 BOX	4	VL	30' O.C.	
CERCIS OCCIDENTALIS / WESTERN REDBUD	24 BOX	8	L	20' O.C.	
SALIX LASIOLEPIS /ARROYO WILLOW	15 GAL	2	H	12' O.C.	
CORNUS SERICEA / RED OSIER DOGWOOD	24 BOX	9	M	10' O.C.	
HA HETEROMELES ARBUTIFOLIA / TOYON	24 BOX	5	L	10'-0" O.C.	

0 8 16 32

SCALE 1" = 16'

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SHEET TITLE
TREE PLANTING PLAN

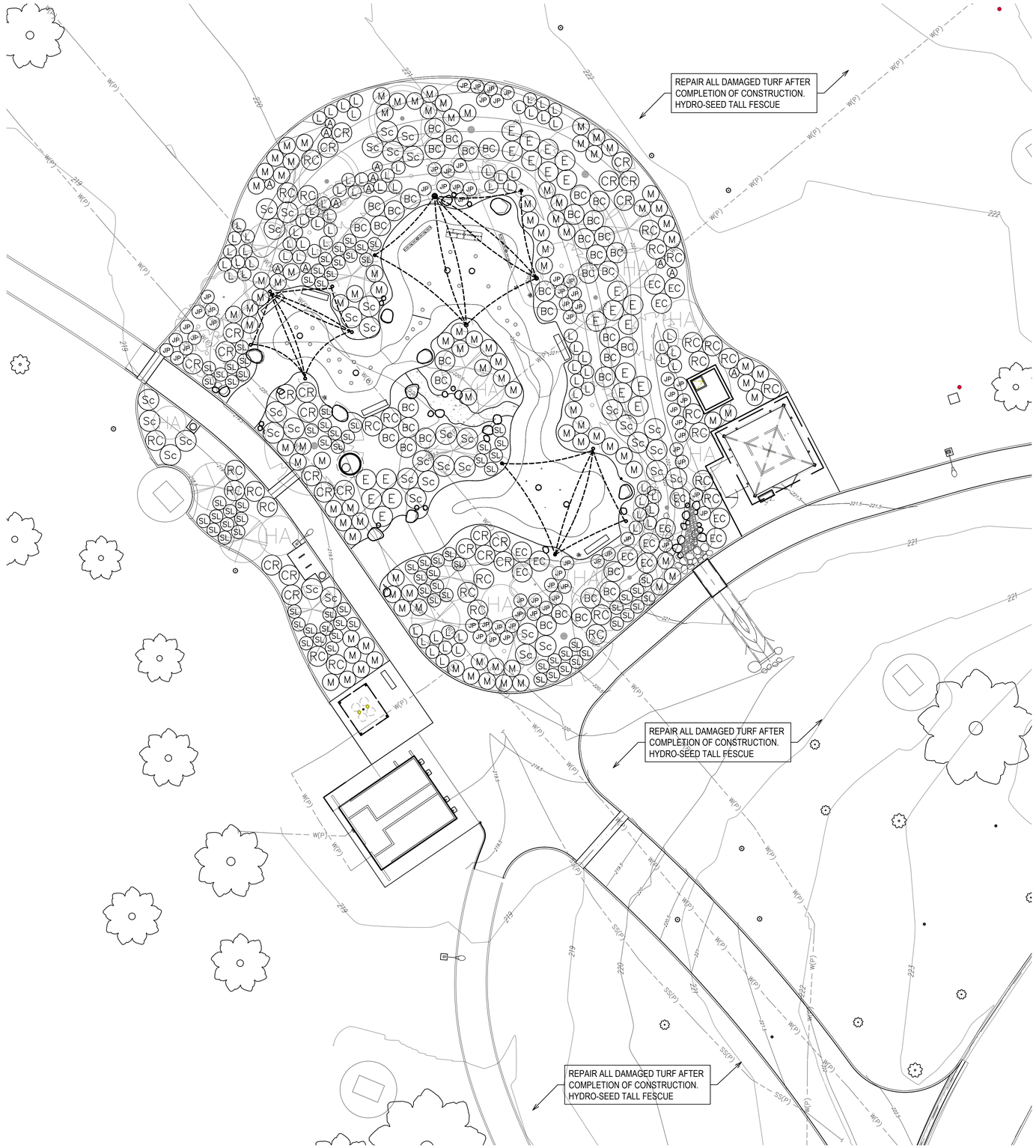
OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	23 OCT 2025

LICENSED LANDSCAPE ARCHITECT
LAREY M. WITHERS 5803
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA



PLANTING LEGEND

	BOTANICAL NAME / COMMON NAME	SIZE	QTY.	WUCOLS	SPACING	REMARKS
	LANDSCAPE PLANTS					
RC	RHAMNUS CALIFORNICA 'EVE CASE' / EVE CASE COFFEEBERRY	5 GAL	29	L	6'-0" O.C.	
CR	CEANOTHUS RIGIDA 'SNOWBALL' / CALIFORNIA LILAC	5 GAL	23	L	6'-0" O.C.	
BC	BACCHARIS 'PIGEON POINT' / PIGEON POINT COYOTE BRUSH	5 GAL	39	L	6'-0" O.C.	
EC	ENCELIA CALIFORNICA / BUSH SUNFLOWER	5 GAL	13	L	6'-0" O.C.	
M	MUHLENBERGIA LINDHEIMERI 'AUTUMN GLOW' / AUTUMN GLOW MUHLY	5 GAL	102	L	5'-0" O.C.	
Sc	SALVIA CLEVELANDII 'WINIFRED GILMAN' / BLUE SAGE	5 GAL	38	L	5'-0" O.C.	
SL	SALVIA MELLIFERA 'TERRA SECA' / TERRA SECA SAGE	5 GAL	84	L	4'-0" O.C.	
E	ERIOGONUM FASCICULATUM VAR. FOLIOLOSUM / BUCKWHEAT	5 GAL	22	L	6'-0" O.C.	
L	LEYMUS CONDENSATUS 'CANYON PRINCE' / WILD RYE	5 GAL	77	L	4'-0" O.C.	
A	ASCLIPIAS FASCICULATA / NARROW MILKWEED	1 GAL	12	L	3"-0" O.C.	
JP	JUNCUS PATENS / COMMON RUSH	1 GAL	63	L	4'-0" O.C.	

TURF REPAIR

100% TALL FESCUE	SEED	8,000 SF	FOR BID PURPOSES

NOTE: CONTRACTOR IS RESPONSIBLE FOR ALL TURF REPAIR RESULTING FROM CONSTRUCTION ACTIVITY.

0 8 16 32

SCALE 1" = 16'

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SHEET TITLE
SHRUB PLANTING PLAN

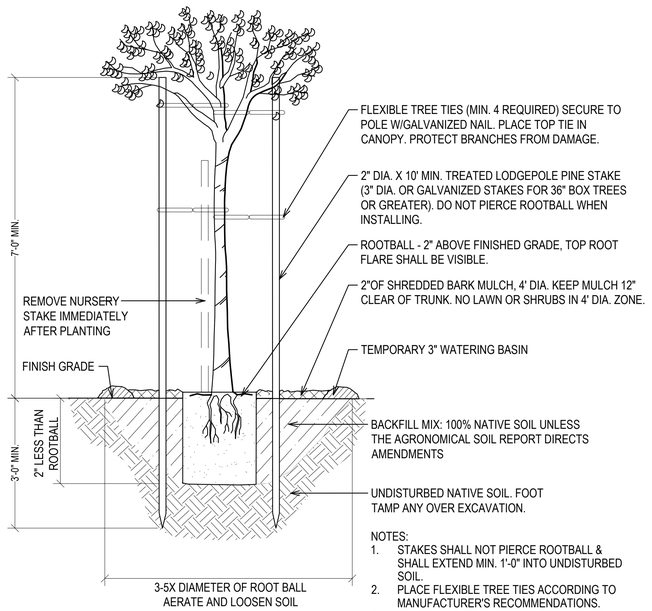
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SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
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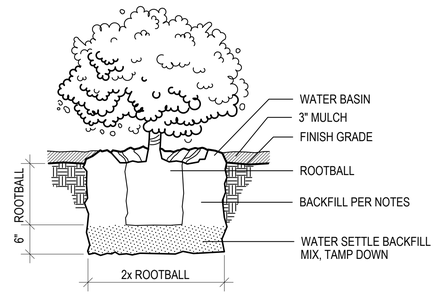
DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	23 OCT 2025

REGISTERED LANDSCAPE ARCHITECT
LACEY M. WITHERS
No. 5554
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA



NOTES:
1. STAKES SHALL NOT PIERCE ROOTBALL & SHALL EXTEND MIN. 1'-0" INTO UNDISTURBED SOIL.
2. PLACE FLEXIBLE TREE TIES ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
3. ALL EXCESS SOIL SHALL BE REMOVED FROM THE TOP OF THE ROOT BALL EXPOSING THE ROOT FLARE.
4. ROOT PRUNE 1/2" OFF ALL SIDES OF ROOT BALL WITH A SHARP KNIFE

2 TREE PLANTING



3 SHRUB PLANTING

GENERAL REQUIREMENTS

1. THE PLAN(S) ARE DIAGRAMMATIC. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND NOTIFY THE PROJECT ENGINEER/LANDSCAPE ARCHITECT OF ANY DISCREPANCIES PRIOR TO THE START OF WORK.
2. QUANTITIES:
   PLANT MATERIAL NUMERICAL QUANTITIES SHOWN ARE FOR CONVENIENCE ONLY. CONTRACTOR IS RESPONSIBLE FOR QUANTITY OF PLANTS SHOWN ON THE DRAWING.
3. PLANT AVAILABILITY:
   THE ACT OF PROVIDING A BID FOR THIS PROJECT ESTABLISHES THE CONTRACTORS UNDERSTANDING THAT THE PLANTS SPECIFIED HEREIN MAY BE UNUSUAL AND MORE DIFFICULT TO LOCATE THAN THE INDUSTRY STANDARD AND THAT THE CONTRACTOR AGREES TO THE FOLLOWING:
   A. THE CONTRACTOR SHALL SEARCH FOR EACH PLANT SPECIFIED. IF ANY CALIFORNIA NURSERY HAS THE SPECIFIED SPECIES THE CONTRACTOR IS OBLIGATED TO PURCHASE HEALTHY CONTAINERS OF THE SPECIES.
   B. WITHIN 21 DAYS AFTER THE AWARD OF CONTRACT, THE CONTRACTOR SHALL SUBMIT A PLANT SUBMITTAL WITH NURSERY SOURCES, PLANT QUANTITIES, PLANT SIZES AND PHOTOS OF THE PLANTS BEING SUPPLIED. THE PLANT LIST SHALL INDICATE ALL UNAVAILABLE PLANTS AND WHICH NURSERIES WERE CONTACTED DURING THE CONTRACTOR'S SEARCH.
4. TOPSOIL/SOILS REPORT:
   THE CONTRACTOR SHALL OBTAIN AN AGRICULTURAL SUITABILITY REPORT FOR THE ON-SITE SOIL AFTER THE COMPLETION OF GRADING. TAKE A MINIMUM OF 3 TEST SAMPLES AS DIRECTED BY THE LANDSCAPE ARCHITECT OR PROJECT MANAGER, PRIOR TO THE INSTALLATION OF IRRIGATION AND PLANTING. SUBMIT REPORT TO LANDSCAPE ARCHITECT FOR CONFIRMATION OF AMENDMENT QUANTITIES OUTLINED IN THESE NOTES.
5. PERCOLATION TEST:
   A MINIMUM OF THREE (3) SOILS PERCOLATION TESTS SHALL BE PERFORMED BY FILLING TREE PLANTING PITS WITH WATER, WAITING 12 HOURS AND THEN COMPLETELY REFILLING THE PIT WITH WATER. IF THE WATER IS NOT ABSORBED WITHIN 12 HOURS OF THE SECOND FILLING IT HAS FAILED THE TEST. UPON FAILURE, CONTACT THE PROJECT MANAGER AND LANDSCAPE ARCHITECT FOR REMEDIAL MEASURES. BID PRICE SHALL BE BASED ON STANDARD TREE PLANTING PIT DETAILS.
6. CLEARING AND GRUBBING:
   THE CONTRACTOR SHALL CLEAR AND GRUB ALL IMPROVEMENT AREAS PRIOR TO THE INSTALLATION OF THE IRRIGATION SYSTEM. SEE SPECIFICATIONS.
7. PROTECTION OF EXISTING PLANT MATERIAL:
   A. THE PROJECT MANAGER SHALL IDENTIFY EXISTING TREES AND SHRUBS THAT ARE TO BE PRESERVED AND PROTECTED WITHIN THE PROJECT LIMITS PRIOR TO THE START OF WORK.
   B. THE CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING TREES AS NOTED ON THE PLANS OR AS DIRECTED BY THE PROJECT MANAGER. THE CONTRACTOR SHALL NOT STORE ANY CONSTRUCTION MATERIALS INCLUDING EQUIPMENT OR EXCAVATED SOILS NOR OPERATE ANY MACHINERY THAT MIGHT COMPACT THE EXISTING SOIL WITHIN THE DRIP LINE OF A TREE'S CANOPY.
   C. THE CONTRACTOR SHALL PROVIDE CONTINUOUS IRRIGATION AND MAINTENANCE TO ALL EXISTING PLANT MATERIALS THAT ARE TO REMAIN. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE IN SIZE, KIND, AND TO THE SATISFACTION OF THE PROJECT MANAGER ANY EXISTING PLANT MATERIAL THAT IS TO BE PROTECTED AND IS DAMAGED DURING THE CONSTRUCTION PERIOD.
   D. NO PRUNING SHALL BE DONE EXCEPT BY THE APPROVAL OF THE PROJECT MANAGER.

TURF REMOVAL & WEED ABATEMENT

1. THE CONTRACTOR SHALL SUBMIT A WEED ABATEMENT PROGRAM TO THE PROJECT MANAGER FOR APPROVAL 30 DAYS PRIOR TO THE START OF PLANTING OPERATIONS. NO PLANTING OPERATIONS WILL BE ALLOWED UNTIL ALL PLANTING AREAS ARE CLEARED OF ALL TURF AND WEEDS IN ACCORDANCE WITH THE WEED ABATEMENT PROGRAM AND TO THE SATISFACTION OF THE PROJECT MANAGER / LANDSCAPE ARCHITECT. MAINTAIN ALL PLANTING AREAS FREE OF WEEDS FOR THE DURATION OF THE CONTRACT.
2. CONTRACTOR SHALL IDENTIFY AND REMOVE ALL EXISTING IRRIGATION EQUIPMENT AT THE START OF THE PROJECT. ANY EQUIPMENT TO REMAIN SHALL BE FLAGGED TO PREVENT DAMAGE.
3. ALL TURF AND THATCH SHALL BE STRIPPED WITHIN THE PROJECT AREA AND HAULED FROM SITE.

FINAL GRADES

1. MINOR MODIFICATIONS TO THE GRADES MAY BE REQUIRED TO ESTABLISH THE FINAL GRADE.
2. CLEAN ALL PLANTING AREAS TO A DEPTH OF TWELVE (12) INCHES, REMOVING ALL WEEDS, DEBRIS, ROCKS, OR OTHER DELETERIOUS MATTER 1" DIAMETER OR LARGER
3. ALL UNDULATIONS AND IRREGULARITIES IN THE PLANTING SURFACES RESULTING FROM TILLAGE, ROTO-TILLING, AND ALL OTHER OPERATIONS SHALL BE LEVELED AND FLOATED OUT BEFORE PLANTING.
4. THE CONTRACTOR SHALL TAKE EVERY PRECAUTION TO PROTECT AND AVOID DAMAGE TO SPRINKLER HEADS, IRRIGATION LINES, AND OTHER UNDERGROUND UTILITIES DURING GRADING AND CONDITIONING OPERATIONS.
5. CONTRACTOR SHALL COORDINATE ALL DRAINAGE WORK WITH ALL OTHER TRADES. ESTABLISHED SITE DRAINAGE SHALL BE MAINTAINED BY CONTRACTOR DURING ALL PHASES OF LANDSCAPE CONSTRUCTION.
6. FINAL FINISH GRADES SHALL INSURE POSITIVE DRAINAGE OF THE SITE WITH ALL SURFACE DRAINAGE AWAY FROM BUILDINGS, WALLS, AND TOWARD DRAINS AND CATCH BASINS.

GENERAL PLANTING

1. IF THE MOISTURE CONTENT OF THE SOIL SHOULD REACH SUCH A LEVEL THAT WORKING IT WOULD DESTROY THE SOIL STRUCTURE, SPREADING AND GRADING OPERATIONS SHALL BE SUSPENDED UNTIL THE MOISTURE CONTENT IS INCREASED OR REDUCED TO ACCEPTABLE LEVELS AND THE DESIRED RESULTS ARE LIKELY TO OBTAINED.
2. ACTUAL PLANING SHALL BE PERFORMED DURING THOSE PERIODS WHEN THE WEATHER AND SOIL CONDITIONS ARE SUITABLE IN ACCORDANCE WITH LOCALLY ACCEPTED HORTICULTURAL PRACTICE AND APPROVED BY THE PROJECT MANAGER.
3. THE CONTRACTOR SHALL ONLY INSTALL AS MANY PLANTS PER DAY AS CAN BE WATERED ON THAT SAME DAY. ALL PLANTS SHALL BE THOROUGHLY WATERED INTO THE FULL DEPTH OF EACH PLANTING HOLE IMMEDIATELY AFTER PLANTING.
4. LAYOUT:
   THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER 48 HOURS PRIOR TO PLANTING OPERATIONS TO CONFIRM THE LOCATION OF PLANT MATERIALS. LOCATIONS AND QUANTITIES OF PLANT MATERIALS ON THE PLANS ARE APPROXIMATE AND ARE PROVIDED TO SHOW GENERAL INTENT. PLANT LOCATION ADJUSTMENTS SHALL BE PERFORMED BY THE CONTRACTOR AS DIRECTED BY THE PROJECT MANAGER / LANDSCAPE ARCHITECT AT NO ADDITIONAL COST TO THE CITY.
5. SOIL CONDITIONING:
   ALL PLANTING AREAS SHALL HAVE THE FOLLOWING AMENDMENTS TILLED INTO THE TOP 8" OF THE SOIL PER 1000 SQUARE FEET:
   A. THREE (3) CUBIC YARDS OF NITROGEN FORTIFIED WOOD COMPOST (TYPE 1 ORGANIC SOIL AMENDMENT).
   B. 15 POUNDS OF AGRICULTURAL GYPSUM
   C. 20 LBS. GRO-LIFE SOIL INOCULUM.
   THESE QUANTITIES ARE FOR BID BASIS ONLY. REFER TO SOILS REPORTS FOR RECOMMENDED QUANTITIES (SEE SPECIFICATIONS). CONTRACTOR SHALL SUBMIT COPIES OF RECEIPTS FOR ALL BULK MATERIALS TO SHOW PROOF OF QUANTITIES.
3. BACKFILL MIX:
   ALL PLANTING HOLES, EXCLUDING PLANTING HOLES SMALLER THAN 1 GALLON SHALL HAVE THE FOLLOWING BACKFILL MIXTURE:
   - 80% EXISTING TOPSOIL
   - 20% NITROGEN FORTIFIED WOOD COMPOST (TYPE 1 ORGANIC SOIL AMENDMENT)
   - AND THE FOLLOWING AMOUNT OF PLANTING TABLETS:
     15 GAL. PLANT = FIVE (5)TABLETS
     5 GAL. PLANT = THREE (3) TABLETS
     1 GAL. PLANT = ONE (1) TABLET
     ONE(1) TABLET PER 4" BOX SIZE
4. EACH TREE OR SHRUB SHALL BE PLACED IN THE CENTER OF THE HOLE AND SHALL BE SET PLUMB AND HELD RIGIDLY IN POSITION UNTIL THE PLANTING BACK FILL HAS BEEN TAMPED DOWN AROUND EACH ROOT BALL.
5. ALL PLANTS SHALL BE SET AT SUCH A LEVEL THAT AFTER SETTLING THEY ARE 1" HIGHER THAN THE SURROUNDING FINISH GRADE, UNLESS OTHERWISE NOTED ON THE PLANTING LEGEND.
6. MULCH:
   APPLY 3" OF SUPREME WALK-ON BARK MULCH IN ALL PLANTING AREAS.
7. FERTILIZER:
   THE CONTRACTOR SHALL APPLY AN 8-8-4 COMMERCIAL SLOW RELEASE FERTILIZER TO ALL PLANTING AREAS AT A RATE OF 20 POUNDS PER 1000 SQUARE FEET UPON COMPLETION OF THE GROUND COVER PLANTING AND AT THIRTY DAY INTERVALS THEREAFTER UNTIL THE END OF THE PLANT ESTABLISHMENT PERIOD. THOROUGHLY WATER ALL PLANTING AREAS FOLLOWING THE APPLICATION OF THE FERTILIZER. ALL FERTILIZER APPLICATIONS SHALL BE PERFORMED UNDER INSPECTION BY THE PROJECT MANAGER.
8. ROOT BARRIERS:
   TREE ROOT CONTROL BARRIERS SHALL BE INSTALLED WHERE INDICATED ON THE PLANTING PLAN. INSTALL ROOT BARRIERS ADJACENT AND PARALLEL TO THE EDGE OF THE HARDSCAPE PER MANUFACTURERS RECOMMENDATION. ROOT BARRIERS ARE TO BE LINEAR, DO NOT ENCIRCLE THE ROOT BALL. MIN. LENGTH OF BARRIER TO BE 20', CENTERED ON TREE TRUNK.
9. INSPECTIONS:
   ALL WORK AND MATERIALS ARE SUBJECT TO INSPECTION AND APPROVAL IN ADDITION TO INSPECTIONS REQUIRED BY THE STANDARD PLANS SPECIFICATIONS. THE FOLLOWING INSPECTIONS ARE REQUIRED:
   - IRRIGATION SYSTEM PRESSURE TESTING
   - IRRIGATION COVERAGE TEST
   - IRRIGATION SYSTEM OPERATIONS TEST
   - TAGGING OF PLANT MATERIAL 15 GALLON AND LARGER AT THEIR SOURCE.
   - APPROVAL OF ALL PLANT MATERIAL AT THE SITE PRIOR TO PLANTING OPERATIONS.
   - CONFIRMATION AND APPROVAL OF PLANT MATERIAL LOCATION AND SPACING PRIOR TO PLANTING.
   - PRE-MAINTENANCE FINAL LANDSCAPE INSPECTION.
   - POST-MAINTENANCE FINAL LANDSCAPE INSPECTION.
7. RECYCLING:
   THE CONTRACTOR SHALL RECYCLE ON- OR OFF-SITE ALL VEGETATIVE WASTE.

MAINTENANCE PERIOD

1. PLANT ESTABLISHMENT PERIOD
   THE CONTRACTOR SHALL PROVIDE A PLANT ESTABLISHMENT PERIOD FOR A LENGTH OF 90 CALENDAR DAYS. ARRANGE FOR A PRE-MAINTENANCE FINAL INSPECTION TO START THE PLANT ESTABLISHMENT PERIOD BY CONTACTING THE PROJECT MANAGER AND THE LANDSCAPE ARCHITECT.
2. PLANT REPLACEMENT:
   THE CONTRACTOR SHALL REPLACE AS SOON AS POSSIBLE, ANY PLANT THAT SHOWS SIGNS OF FAILURE TO GROW AT ANY TIME DURING THE CONTRACT PERIOD OR THOSE PLANTS THAT ARE INJURED OR SO DAMAGED AS TO RENDER THEM UNSUITABLE FOR THE PURPOSE INTENDED. PROVIDE REPLACEMENT PLANTS OF THE SAME TYPE AND SIZE, AND INSTALL THEM PER THE PLANTING SPECIFICATION.
3. RESTORATION OF DAMAGED AREAS:
   THE CONTRACTOR SHALL RESTORE ALL LANDSCAPED AREAS TO THEIR ORIGINAL CONDITION THAT ARE NOT SPECIFICALLY PROVIDED FOR BY THESE PLANS, BUT HAVE BEEN IMPACTED BY CONSTRUCTION. PROVIDE ALL NECESSARY MATERIAL, INCLUDING IRRIGATION EQUIPMENT, SOIL, SOIL AMENDMENTS, PLANTS, TURF GRASS OF THE SAME SPECIES, KINDS, AND SIZED, ETC. TO THE SATISFACTION OF THE PROJECT MANAGER AND THE LANDSCAPE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.
4. GUARANTEES:
   THE CONTRACTOR SHALL WARRANT ALL TREES 15 GALLON SIZED AND LARGER FOR ONE YEAR AND ALL SHRUBS SHALL BE WARRANTED FOR A PERIOD OF SIX MONTHS. THE WARRANTY PERIOD SHALL BEGIN UPON THE DATE OF THE FINAL POST MAINTENANCE ACCEPTANCE. THIS WARRANTY DOES NOT INCLUDE ITEMS DAMAGED DUE TO THE COUNTY'S NEGLECT AND/OR TO ACTS OF GOD.

1 PLANTING NOTES

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
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mail@withersandsandgren.com

SHEET TITLE: PLANTING DETAILS

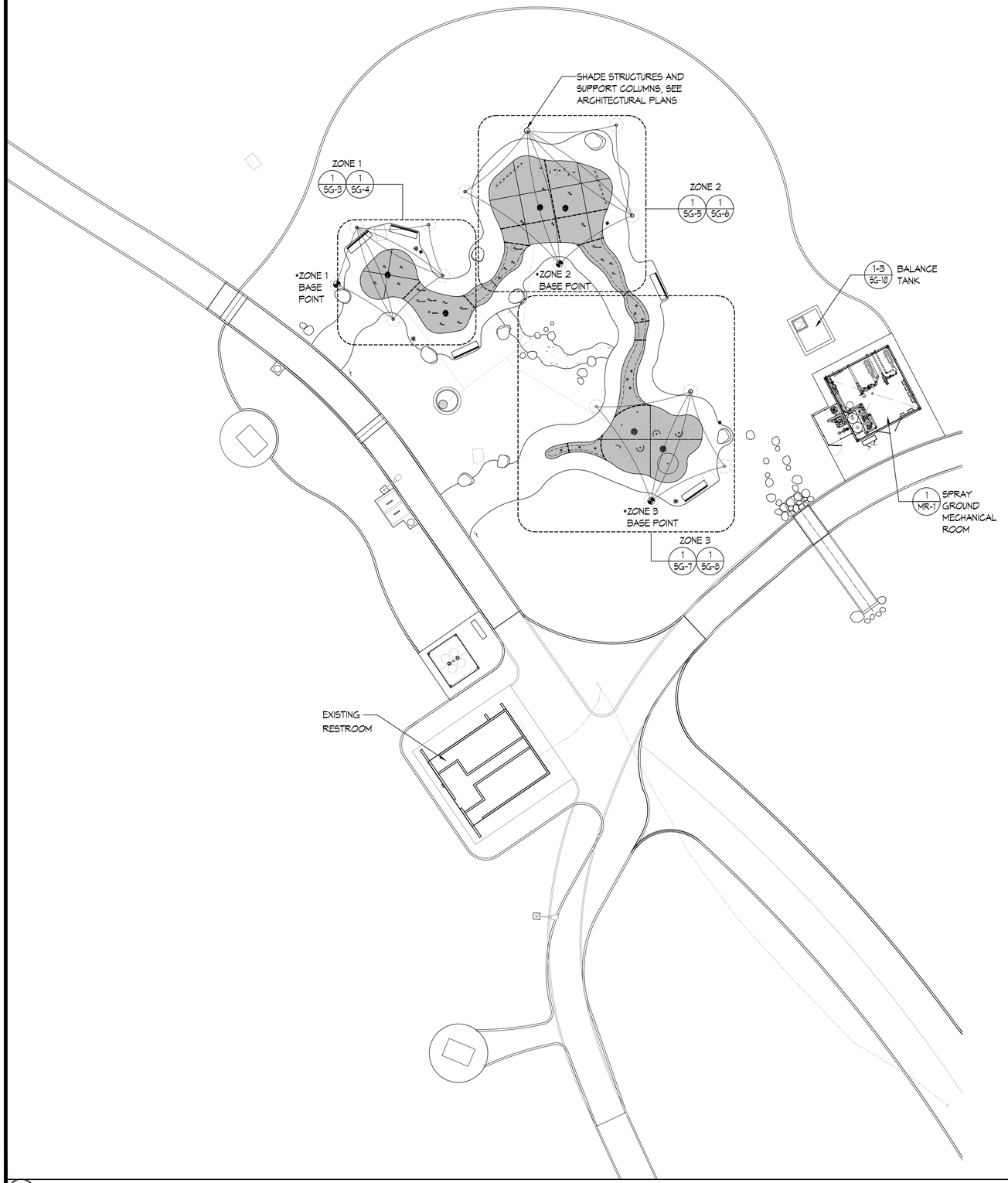
OWNER: COUNTY OF LOS ANGELES
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PROJECT TITLE: WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
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DRAWN BY:	PBN
CHECKED BY:	LW
PROJECT NO.	1068
DATE:	23 OCT 2025

LICENSED LANDSCAPE ARCHITECT
GREY M. WITHERS 5662
Signature
31 AUG 2027
Renewal Date
23 OCT 2025
Date
STATE OF CALIFORNIA



SPRAY GROUND DATA (ZONES 1-3)

SURFACE AREA	=	1,994 SQ. FT.
PERIMETER	=	434 FT.
VOLUME	=	4,800 GAL.
30 MIN. TURNOVER	=	160 GPM

LEGEND

= BOUNDARY OF SPRAY GROUND

SPECIAL REQUIREMENTS FOR SPRAY GROUNDS

SPRAY GROUND SHALL COMPLY WILL ALL REQUIREMENTS OF 2022 CALIFORNIA BUILDING CODE SECTION 3106B SPECIAL REQUIREMENTS FOR SPRAY GROUNDS:

3106B SPRAY GROUNDS. ALL APPLICABLE PROVISIONS OF THIS CHAPTER SHALL APPLY TO A SPRAY GROUND UNLESS SPECIFICALLY ADDRESSED IN THIS SECTION.

3106B.1 ALL PARTS OF THE SPRAY GROUND SHALL BE DESIGNED AND CONSTRUCTED SO THAT THERE ARE NO SAFETY HAZARDS.

3106B.2 WALKING SURFACE. A MINIMUM 4-FOOT WIDE WALKING SURFACE SHALL EXTEND AROUND THE PERIMETER OF THE SPLASH ZONE OF A SPRAY GROUND.

3106B.3 THE RECIRCULATION SYSTEM SHALL BE IN OPERATION AT ALL TIMES THAT THE SPRAY GROUND IS OPEN FOR USE AND SHALL HAVE A MINIMUM OF FOUR TURNOVER CYCLES PRIOR TO OPENING FOR PROPER DISINFECTION AND FILTRATION.

3106B.4 THERE SHALL BE NO STANDING WATER WITHIN THE SPLASH ZONE.

3106B.5 NOZZLES THAT SPRAY FROM THE GROUND LEVEL SHALL BE FLUSH WITH THE GROUND WITH OPENINGS NO GREATER THAN ½ INCH. SPRAY GROUND WATER FEATURES THAT EXTEND ABOVE THE GROUND MUST BE CLEARLY VISIBLE.

3106B.6 THE SPLASH ZONE SHALL BE SLOPED SO THAT ONLY WATER FROM THE SPRAY GROUND WATER FEATURE FLOWS BACK TO THE SURGE BASIN. AREAS ADJACENT TO THE SPLASH ZONE SHALL BE SLOPED AWAY FROM THE SPRAY GROUND TO DECK DRAINS OR OTHER SURFACE WATER DISPOSAL SYSTEMS.

3106B.7 ALL FOGGERS AND MISTERS THAT PRODUCE FINELY ATOMIZED MISTS SHALL BE SUPPLIED DIRECTLY FROM A POTABLE WATER SOURCE AND NOT FROM THE SURGE BASIN.

3106B.8 WHEN MULTIPLE PUMPS ARE USED THE CONTROL SYSTEMS FOR THE SPRAY GROUND WATER FEATURE PUMP AND RECIRCULATION SYSTEM PUMP SHALL BE ELECTRICALLY INTERCONNECTED SO THAT WHEN THE RECIRCULATION PUMP IS OFF THE SPRAY GROUND WATER FEATURE PUMP ALSO IS OFF.

3106B.9 THE SPRAY GROUND SHALL HAVE A SURGE BASIN OR TREATMENT TANK CONSTRUCTED OF MATERIALS WHICH ARE INERT, CORROSION RESISTANT, NONTOXIC AND WATERTIGHT INCLUDING MATERIALS SUCH AS CONCRETE, FIBERGLASS, HIGH DENSITY POLYETHYLENE, STAINLESS STEEL OR OTHER MATERIALS AS APPROVED BY THE ENFORCING AGENT WHICH CAN WITHSTAND ALL ANTICIPATED LOADINGS UNDER FULL AND EMPTY CONDITIONS AS DETERMINED BY AN ENGINEER OR ARCHITECT WHO HAS EXPERIENCE WORKING ON PUBLIC POOLS.

3106B.10 THE TOTAL VOLUME OF THE SURGE BASIN SHALL BE AT LEAST 4,000 GALLONS OR A MINIMUM OF THREE TIMES THE GALLONS PER MINUTE FLOW RATE OF ALL THE SPRAY GROUND PUMPS AND THE RECIRCULATION PUMP COMBINED, WHICHEVER IS HIGHER.

3106B.11 THE TURNOVER TIME SHALL BE ONE-HALF HOUR OR LESS.

3106.12 THE SUCTION INTAKE FOR THE SPRAY GROUND OR WATER FEATURE PUMP IN THE SURGE BASIN SHALL BE LOCATED ADJACENT TO THE RECIRCULATION RETURN LINE.

3106.13 WHEN SEPARATE PUMPS ARE USED, THE SUCTION INTAKE FOR THE RECIRCULATION PUMP SHALL BE LOCATED IN THE LOWEST PORTION OF THE SURGE BASIN AND ON THE OPPOSITE SIDE FROM THE SUCTION INTAKE FOR THE SPRAY GROUND PUMP.

3106.14 THE SURGE BASIN SHALL BE DESIGNED TO HAVE EASY ACCESS FOR CLEANING AND INSPECTION. THE BASIN SHALL HAVE AT LEAST ONE LADDER ACCESS AND SHALL HAVE AT LEAST ONE 3-FOOT BY 3-FOOT ACCESS OPENING. LIDS SHALL BE LOCKED OR REQUIRE A TOOL TO OPEN.

3106.15 THE SURGE BASIN SHALL BE EQUIPPED WITH AN AUTOMATIC MAKE UP WATER FILL DEVICE THROUGH AN AIR GAP OR BE PROTECTED BY AN APPROVED BACKFLOW PREVENTION DEVICE IN ACCORDANCE WITH CHAPTER 6 OF THE CALIFORNIA PLUMBING CODE.

3106.16 ULTRAVIOLET LIGHT DISINFECTION SHALL BE USED TO SUPPLEMENT DISINFECTION METHODS REQUIRED IN THIS CHAPTER UNLESS ANOTHER TREATMENT PROCESS IS PROVIDED THAT HAS BEEN DETERMINED BY A NATIONALLY RECOGNIZED TESTING LABORATORY TO BE CAPABLE OF PROVIDING AT LEAST THE EQUIVALENT LEVEL OF REDUCTION OF CRYPTOSPORIDIUM AS THE ULTRAVIOLET LIGHT DISINFECTION SYSTEM SPECIFIED IN THIS SECTION. THE ULTRAVIOLET LIGHT DISINFECTION UNIT SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS ESTABLISHED BY THE NSF/ANSI 50-2010 PERFORMANCE STANDARD EFFECTIVE AUGUST 2010.

3106.17 AN ACCURATELY CALIBRATED ULTRAVIOLET LIGHT INTENSITY METER THAT HAS BEEN PROPERLY FILTERED TO RESTRICT ITS SENSITIVITY TO THE DISINFECTION SPECTRUM SHALL BE INSTALLED IN THE WALL OF THE DISINFECTION CHAMBER AT THE POINT OF GREATEST WATER DEPTH FROM THE LIGHT SOURCE.

3106.18 THE ULTRAVIOLET LIGHT UNIT SHALL BE LOCATED ON THE RECIRCULATION SYSTEM AND SHALL BE INSTALLED TO PROVIDE TREATED WATER DIRECTLY TO THE SPRAY FEATURES.

3106.19 THE ULTRAVIOLET LIGHT DISINFECTION SYSTEM MUST BE EQUIPPED WITH AN AUTOMATIC SHUTDOWN SYSTEM THAT INACTIVATES THE WATER FEATURE PUMP IF THE ULTRAVIOLET DOSAGE RATE DROPS BELOW 40 mJ/cm^2.

3106.20 ARTIFICIAL LIGHTING SHALL BE PROVIDED AT ALL SPRAY GROUND PAD'S WHICH ARE USED AT NIGHT OR WHICH DO NOT HAVE ADEQUATE NATURAL LIGHTING SO THAT ALL PORTIONS OF THE SPRAY PAD AND DECK MAY BE SEEN EASILY. LIGHTING THAT MAY BE EXPOSED TO THE FEATURE POOL WATER SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND THE CALIFORNIA ELECTRICAL CODE.

3106.21 A MEANS OF DIVERTING RUNOFF FROM THE SPLASH ZONE SHALL BE INSTALLED ON THE SPRAY GROUND DRAINAGE PIPING BEFORE THE SURGE BASIN TO DIVERT WATER TO THE STORM DRAINAGE SYSTEM WHEN THE SPRAY GROUND IS NOT IN OPERATION.

3106.22 A REMOVABLE AND CLEANABLE CATCH SCREEN OR BASKET SHALL BE INSTALLED ON THE SPRAY GROUND DRAINAGE SYSTEM BEFORE IT ENTERS THE RESERVOIR TO PREVENT LARGER DEBRIS FROM COLLECTING IN THE SURGE BASIN.

1 **SPRAY GROUND AREA PLAN** 1/16"=1'-0"

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPRAY GROUND AREA PLAN

OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

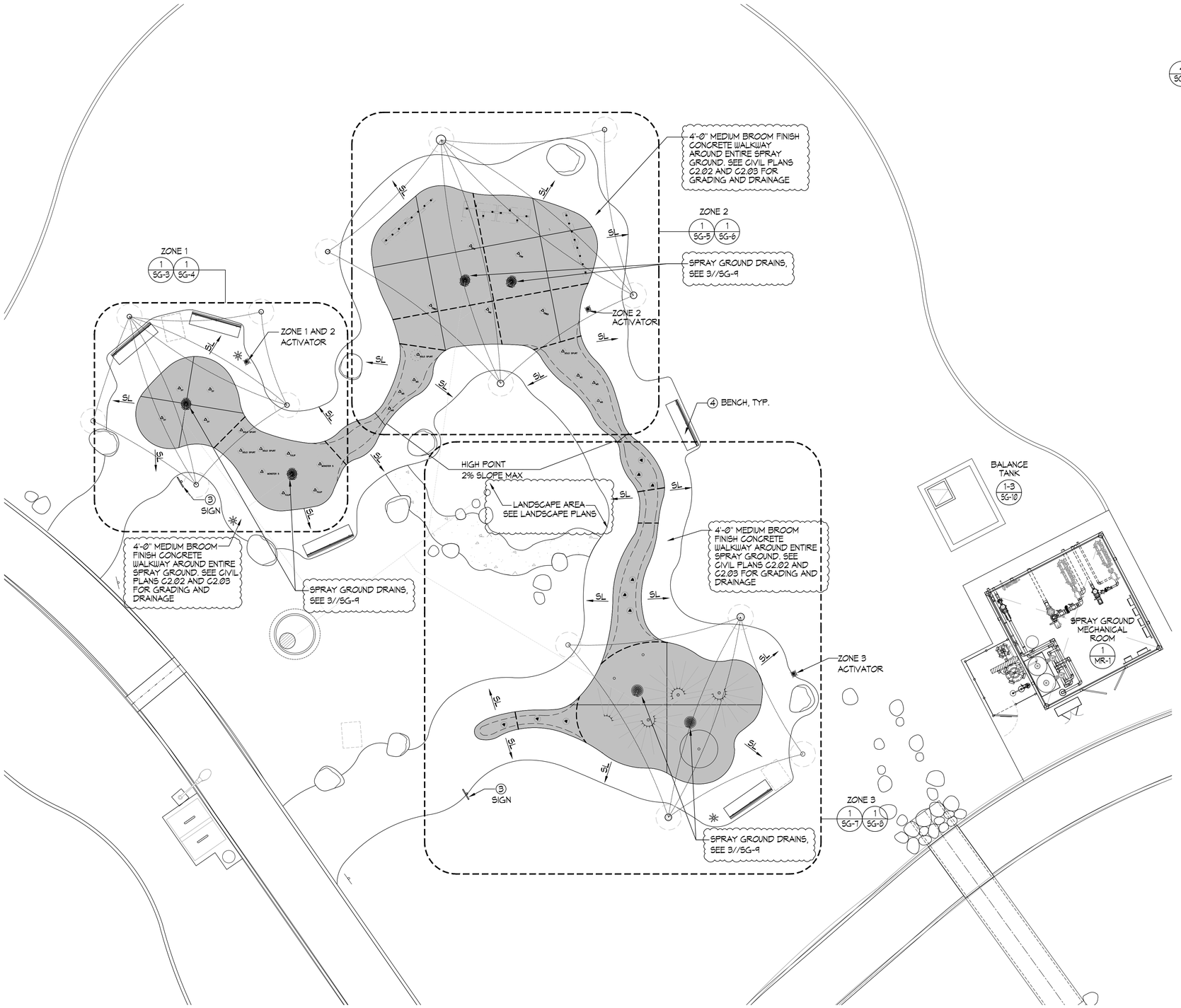
REVISIONS	DATE
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DRAWN BY:	KK
CHECKED BY:	AP
PROJECT NO.	0900
DATE:	23 OCTOBER 2025

LICENSED ARCHITECT GREGORY S. ANDERSEN C-35802 REN. 07/31/27 STATE OF CALIFORNIA

SHEET 56 OF 80

SG-1



GENERAL NOTES

1. SPRAY GROUND DECK SHALL HAVE NON-SLIP FINISH AND SHALL HAVE 1% MIN. SLOPE AND 2% MAX. SLOPE TO DRAINS.
2. SEE CIVIL PLANS FOR DECK ELEVATIONS AND DRAINAGE OUTSIDE OF SPRAY GROUND. ALL DECKS SHALL SLOPE PER CODE WITH A MIN. 1.8% AND MAX. 2% DECK SLOPE.
3. (4 / 5G-9) CONTRACTOR SHALL PROVIDE SIGNAGE REQUIRED BY CODE AND AT A MINIMUM SHALL STATE 'DO NOT DRINK, WATER IS RECIRCULATED.' FINAL LOCATION SHALL BE VISIBLE FROM SPRAY GROUND AND SHALL BE FIELD COORDINATED WITH OWNER AND LANDSCAPE ARCHITECT.
4. SEE LANDSCAPE CONSTRUCTION PLAN L1.00 FOR BENCH DETAILS.
5. SEE CIVIL UTILITY PLAN C3.01 FOR HOSE BIBB LOCATIONS.
6. SEE INDIVIDUAL ZONES FOR DIMESIONS.
7. SEE CIVIL GRADING PLANS FOR DECK ELEVATIONS.

LEGEND

= BOUNDARY OF SPRAY GROUND. 6" THK. CONCRETE W/ #4 @ 12" O.C.E.W. AND MEDIUM BROOM FINISH. SEE SPECIFICATIONS.

SHOTCRETE/CONCRETE NOTES

SHOTCRETE NOTES:

A. SHOTCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS. SHOTCRETE MATERIAL SHALL HAVE A WATER/CEMENT RATIO OF 0.40-0.50 PER ACI 506R, CHAPTER 6, PROPORTIONING AND PRECONSTRUCTION TESTING; SECTION 6.3.3, WET-MIX PROCESS.

B. CONTINUOUS INSPECTION BY AN APPROVED INSPECTOR IS REQUIRED OF ALL SHOTCRETE PLACEMENT.

C. ALL CEMENT USED SHALL CONFORM TO A.S.T.M. C-150 TYPE V.

D. FINE AND COARSE AGGREGATE SHALL CONFORM TO A.S.T.M. C-33. MAXIMUM SIZE OF AGGREGATE TO BE ⅜".

E. SHOTCRETE MIX DESIGNS SHALL BE PER CBC SECTION 1908.2.

F. SHOTCRETE SHALL BE TESTED AND INSPECTED PER CBC SECTION 1908.5 AND 1908.10 AND 1705.3.

G. ANCHOR BOLTS, ANCHORS, DOWELS, INSERTS, ETC. SHALL BE SECURELY TIED IN PLACE PRIOR TO PLACING OF SHOTCRETE.

H. ALL REINFORCEMENT WITHIN SHOTCRETE SHALL MAINTAIN MINIMUM 2" CLEAR NON-CONTACT SPLICES.

I. THE FILM OF LAITANCE WHICH FORMS ON THE SURFACE OF THE SHOTCRETE SHALL BE REMOVED WITHIN APPROXIMATELY TWO HOURS AFTER APPLICATION BY BRUSHING WITH A STIFF BROOM. IF THIS IS NOT REMOVED WITHIN TWO HOURS, IT SHALL BE REMOVED BY THOROUGH WIRE BRUSHING OR SAND BLASTING. CONSTRUCTION JOINTS OVER EIGHT HOURS OLD SHALL BE THOROUGHLY CLEANED WITH AIR AND WATER PRIOR TO RECEIVING SHOTCRETE.

J. ALL REINFORCING SHALL BE ASTM A-615, GRADE 60, UNLESS OTHERWISE NOTED. LAPS SHALL BE 64 BAR DIA.

CONCRETE NOTES:

A. THE MINIMUM ULTIMATE COMPRESSIVE STRENGTH AT 28 DAYS WITH A 0.40-0.50 WATER/CEMENT RATIO
POOL = 4000 PSI
SLAB-ON-GRADE = 4000 PSI

B. CONTINUOUS INSPECTION BY AN APPROVED INSPECTOR IS REQUIRED OF ALL CONCRETE PLACEMENT.

C. ALL CEMENT USED SHALL CONFORM TO A.S.T.M. C-150 TYPE V

D. FINE AND COARSE AGGREGATE SHALL CONFORM TO A.S.T.M. C-33. MAXIMUM SIZE OF AGGREGATE TO BE 1".

E. CONCRETE MIX DESIGNS SHALL BE BASED UPON CBC SECTION 1905.

F. CONCRETE SHALL BE TESTED AND INSPECTED PER SECTION CBC 1705.3 AND 1905.

G. REMOVAL OF FORMS SHALL COMPLY WITH CBC SECTION 1905.

H. ALL REINFORCING SHALL BE ASTM A-615, GRADE 60, UNLESS OTHERWISE NOTED. LAPS SHALL BE 64 BAR DIA.

NORTH

1 **SPRAY GROUND LAYOUT PLAN** 1/8"=1'-0"

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPRAY GROUND LAYOUT PLAN

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

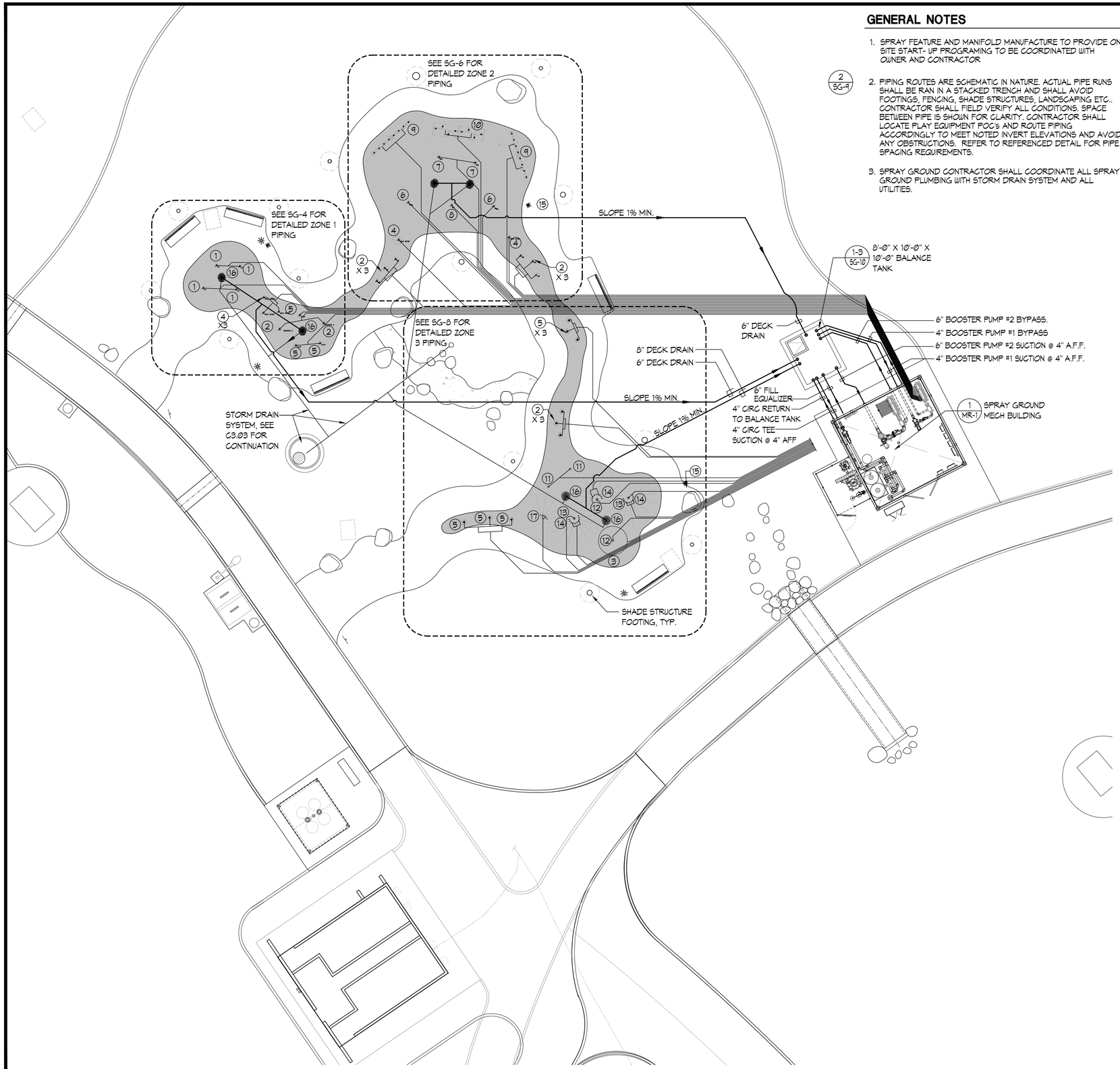
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DRAWN BY:	KK
CHECKED BY:	AP
PROJECT NO.	0900
DATE:	23 OCTOBER 2025

LICENSED ARCHITECT GREGORY S. ANDRUS C-35802 REN. 07/31/27 STATE OF CALIFORNIA

SHEET 57 OF 80

SG-1.1



GENERAL NOTES

1. SPRAY FEATURE AND MANIFOLD MANUFACTURE TO PROVIDE ON SITE START- UP PROGRAMING TO BE COORDINATED WITH OWNER AND CONTRACTOR
2. PIPING ROUTES ARE SCHEMATIC IN NATURE. ACTUAL PIPE RUNS SHALL BE RAN IN A STACKED TRENCH AND SHALL AVOID FOOTINGS, FENCING, SHADE STRUCTURES, LANDSCAPING ETC.. CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS. SPACE BETWEEN PIPE IS SHOWN FOR CLARITY. CONTRACTOR SHALL LOCATE PLAY EQUIPMENT POC's AND ROUTE PIPING ACCORDINGLY TO MEET NOTED INVERT ELEVATIONS AND AVOID ANY OBSTRUCTIONS. REFER TO REFERENCED DETAIL FOR PIPE SPACING REQUIREMENTS.
3. SPRAY GROUND CONTRACTOR SHALL COORDINATE ALL SPRAY GROUND PLUMBING WITH STORM DRAIN SYSTEM AND ALL UTILITIES.

SPRAY GROUND DATA

SURFACE AREA	=	1,994 SQ. FT.
PERIMETER	=	434 FT.
VOLUME	=	4,800GAL.
30 MIN. TURNOVER	=	160 GPM

SPRAY GROUND BALANCE TANK DATA

BOOSTER PUMP #1 RATE	=	170 GPM
BOOSTER PUMP #2 RATE	=	450 GPM
CIRCULATION PUMP RATE	=	160 GPM
TOTAL WATER FLOW	=	780 GPM
780 GPM x 3	=	2,340 GAL.
8'-0" x 10'-0" x 10'-0" BALANCE TANK	=	4,800 GAL.

∴ 4,800 GAL.> 2,340 GAL. OK

PRODUCT LEGEND

	PRODUCT CODE	QTY	INLET	TOTAL FLOW	
①	GEYSER 0010-7478 WATERPLAY'	4	1"	24 GPM	1 5G-12
②	MONSTER 5 0010-7480 WATERPLAY'	11	1"	60 GPM	1 5G-12
③	SPRAY RING (NS5600) 'CRYSTAL FOUNTAINS'	1	3"	132 GPM	5 5G-12
④	SOLO SPURT 0010-7481 WATER PLAY'	5	1"	3 GPM	1 5G-12
⑤	TULIP 0010-7489 WATERPLAY'	9	1"	42 GPM	1 5G-12
⑥	TOWER SPRAY 0010-7488 WATER PLAY'	2	1"	18 GPM	1 5G-12
⑦	STARLET SPRAY 0010-7483 WATER PLAY'	2	1"	10 GPM	1 5G-12
⑧	MISTY MOUNTAIN 0010-7479 WATERPLAY'	1	1"	2 GPM	1 5G-12
⑨	SPRAY TUNNEL 8 (THE WAVE) 0010-7497 WATER PLAY'	2	1½" (2)	48 GPM	3 5G-11
⑩	TEAM EFFECT 0010-9816 WATER PLAY'	1	1½" (2)	8 GPM	4 5G-11
⑪	GROUND JET (NLG202) 'CRYSTAL FOUNTAINS'	2	2"	50 GPM	2 5G-12
⑫	CROWN JET (WMF076) 'CRYSTAL FOUNTAINS'	2	1"	20 GPM	2 5G-12
⑬	COLUMN JET (NLG075) 'CRYSTAL FOUNTAINS'	2	1"	20 GPM	2 5G-12
⑭	2FT DIA. CUSTOM HALF CIRCLE W/ (10) STREAM JETS (WMD100) 'CRYSTAL FOUNTAINS'	2	(2) 2"	100 GPM	1 5G-13
⑮	PLAYPHASE POST ACTIVATOR 0010-1854 WATER PLAY'	2			4 5G-12
⑯	DRAIN CIRCULAR SS 0010-4133 WATER PLAY'	6			3 5G-9
⑰	2FT DIA. CUSTOM QUARTER CIRCLE W/ (5) STREAM JETS (WMD100) 'CRYSTAL FOUNTAINS'	1	(2) 1½"	25 GPM	2 5G-13
	TOTAL			612 GPM	

1 SPRAY GROUND OVERALL PIPING PLAN 1"=10'-0"

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPRAY GROUND OVERALL PIPING PLAN

OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

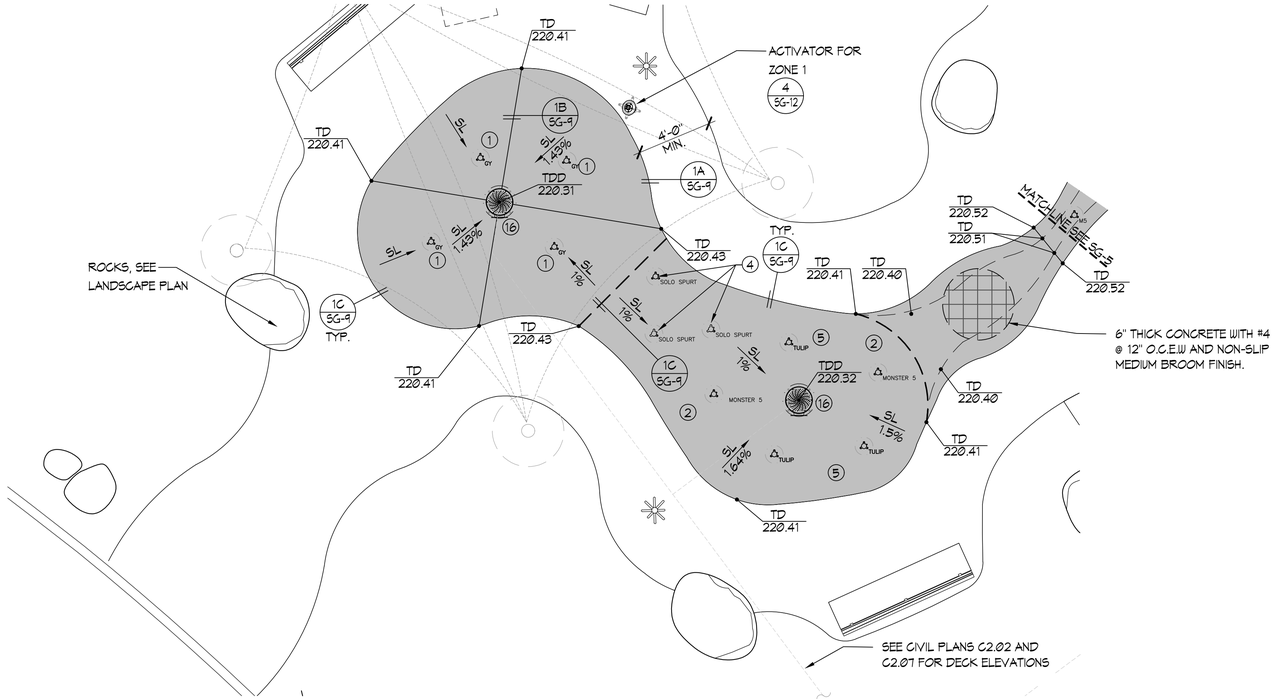
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DRAWN BY: KK
CHECKED BY: AP
PROJECT NO. 0900
DATE: 23 OCTOBER 2025

LICENSED ARCHITECT GREGORY S. ANDERSON C-35802 REN. 07/31/27 STATE OF CALIFORNIA

SHEET 58 OF 80
SG-2.1

PRODUCT LEGEND				
	PRODUCT CODE	QTY	TOTAL FLOW	
①	GEYSER 0010-7478 WATERPLAY'	4	24 GPM	1 / 5G-12
②	MONSTER 5 0010-7480 WATERPLAY'	2	10 GPM	1 / 5G-12
④	SOLO SPURT 0010-7481 WATER PLAY'	3	3 GPM	1 / 5G-12
⑤	TULIP 0010-7489 WATERPLAY'	3	14 GPM	1 / 5G-12
⑯	DRAIN CIRCULAR 55 0010-4133 WATER PLAY'	2		3 / 5G-9
	TOTAL		51 GPM	



GENERAL NOTES

1. SPRAY GROUND DECK SHALL HAVE NON-SLIP FINISH AND SHALL HAVE 1% MIN. SLOPE AND 2% MAX. SLOPE TO DRAINS.
2. SEE CIVIL PLANS FOR ELEVATIONS AND DRAINAGE OUTSIDE OF SPRAY GROUND. ALL DECKS SHALL SLOPE PER CODE WITH A MIN. 1% AND MAX. 2% DECK SLOPE.
3. (4 / 5G-9) CONTRACTOR SHALL PROVIDE SIGNAGE REQUIRED BY CODE AND AT A MINIMUM SHALL STATE 'DO NOT DRINK, WATER IS RECIRCULATED.' FINAL LOCATION SHALL BE VISIBLE FROM SPRAY GROUND AND SHALL BE FIELD COORDINATED WITH OWNER AND LANDSCAPE ARCHITECT.
4. SEE LANDSCAPE CONSTRUCTION PLAN L1.00 FOR BENCH DETAILS.
5. SEE CIVIL UTILITY PLAN C3.01 FOR HOSE BIBB LOCATIONS.

LEGEND

- EJ = EXPANSION JOINT (1C / 5G-9)
- CJ = CONTROL JOINT (1B / 5G-9)
- TDD = TOP OF DECK DRAIN (3 / 5G-9)
- SL = SLOPE DIRECTION
- TD = TOP OF DECK

NORTH

1 SPRAY GROUND LAYOUT PLAN (ZONE 1) 1/4"=1'-0"

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPRAY GROUND LAYOUT PLAN (ZONE 1)

OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

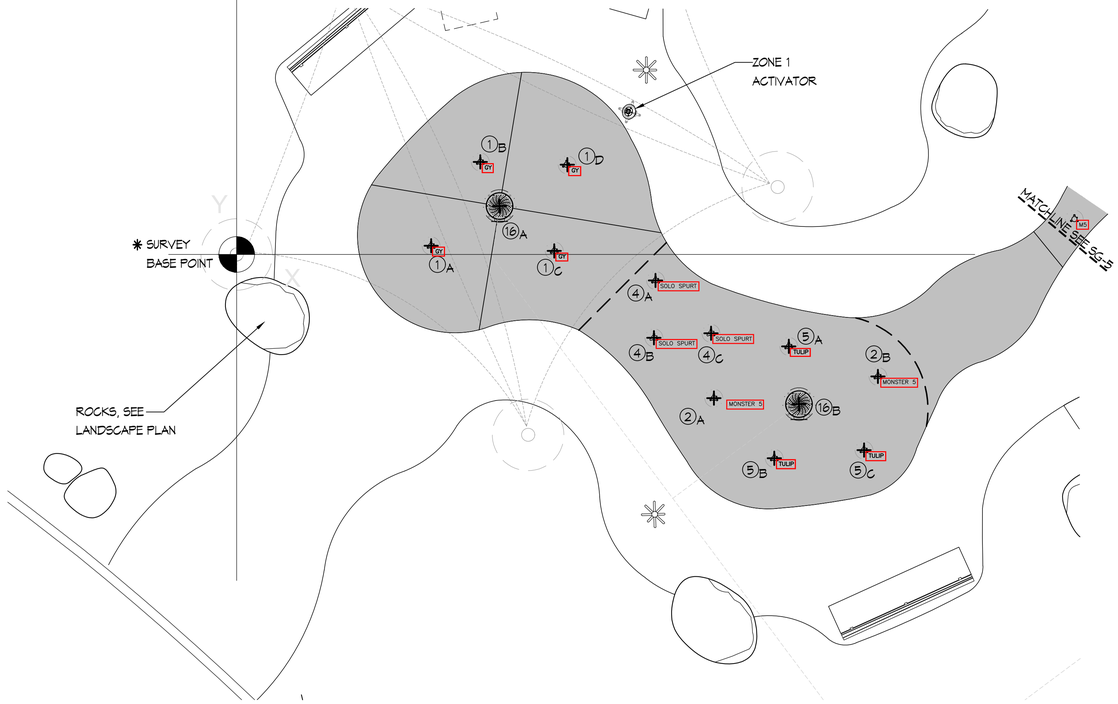
PROJECT TITLE: WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

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CHECKED BY:	AP
PROJECT NO.	0900
DATE:	23 OCTOBER 2025

LICENSED ARCHITECT GREGORY S. PALMER C-35802 REN. 07/31/27 STATE OF CALIFORNIA

PRODUCT LEGEND					
#	X	Y	#	X	Y
1 A	10'-10"	0'-6"	B	23'-3"	-(4'-8")
B	13'-7"	5'-2"	C	26'-6"	-(4'-5")
C	17'-9"	0'-2"	5 A	30'-10"	-(5'-2")
D	18'-6"	5'-0"	B	30'-0"	-(11-5")
2 A	26'-8"	-(0'-0")	C	35'-1"	-(10'-11")
B	35'-10"	-(6'-10")	16 A	14'-8"	2'-9"
4 A	23'-5"	-(1'-5")	B	31'-5"	-(8'-4")



NORTH

1 SPRAY GROUND FEATURE LOCATION PLAN (ZONE 1)

1/4"=1'-0"

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE
SPRAY GROUND FEATURE LOCATION PLAN (ZONE 1)

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

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REVISIONS 1 2 3 4 5 6 7 8

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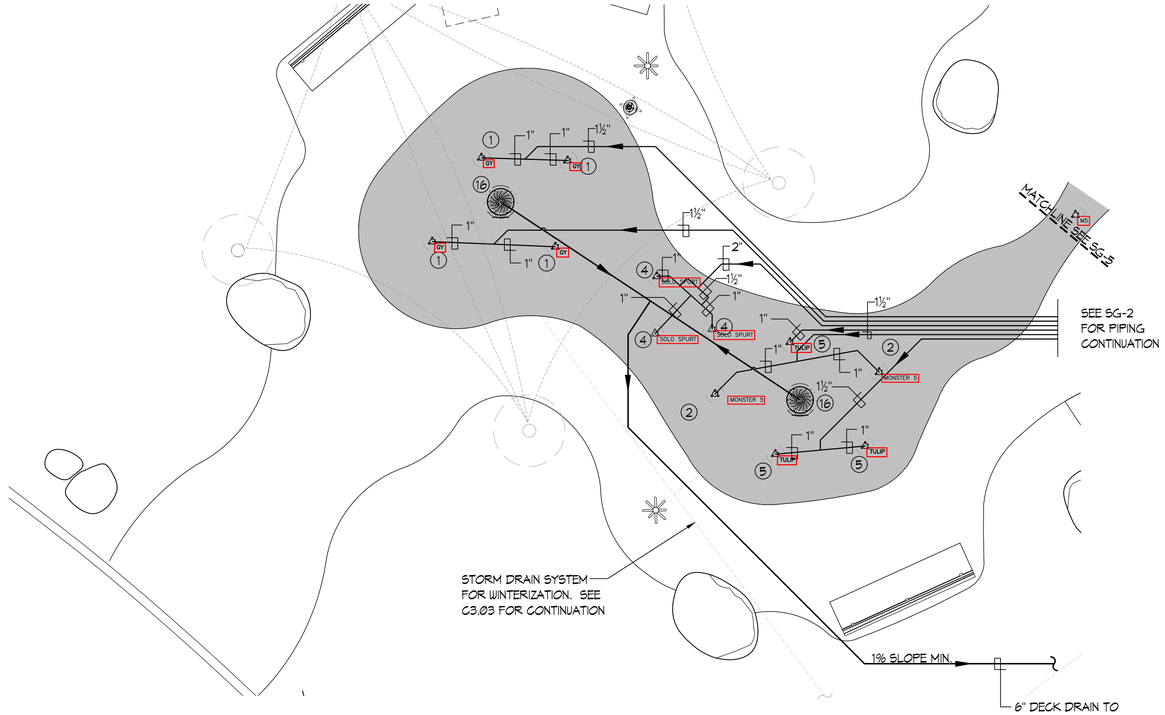
LICENSED ARCHITECT
GREGORY S. SANDGREN
C-35802
REN. 07/31/27
STATE OF CALIFORNIA

SPRAY GROUND DATA

SURFACE AREA	=	1,994 SQ. FT.
PERIMETER	=	434 FT.
VOLUME	=	4,787 GAL.
30 MIN. TURNOVER	=	160 GPM

PRODUCT LEGEND

	PRODUCT CODE	QTY	INLET	TOTAL FLOW	
①	GEYSER 0010-7478 WATERPLAY'	4	1"	24 GPM	1 / SG-12
②	MONSTER 5 0010-7480 WATERPLAY'	2	1"	10 GPM	1 / SG-12
④	SOLO SPURT 0010-7481 WATER PLAY'	3	1"	3 GPM	1 / SG-12
⑤	TULIP 0010-7489 WATERPLAY'	3	1"	14 GPM	1 / SG-12
⑯	DRAIN CIRCULAR SS 0010-4133 WATER PLAY'	2			3 / SG-9
	TOTAL			51 GPM	



GENERAL NOTES

1. SPRAY FEATURE AND MANIFOLD MANUFACTURE TO PROVIDE ON SITE START- UP PROGRAMING TO BE COORDINATED WITH OWNER AND CONTRACTOR
2. PIPING ROUTES ARE SCHEMATIC IN NATURE. ACTUAL PIPE RUNS SHALL BE RAN IN A STACKED TRENCH AND SHALL AVOID FOOTINGS, FENCING, SHADE STRUCTURES, LANDSCAPING ETC., CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS. SPACE BETWEEN PIPE IS SHOWN FOR CLARITY. CONTRACTOR SHALL LOCATE PLAY EQUIPMENT POC's AND ROUTE PIPING ACCORDINGLY TO MEET NOTED INVERT ELEVATIONS AND AVOID ANY OBSTRUCTIONS. REFER TO REFERENCED DETAIL FOR PIPE SPACING REQUIREMENTS.
3. SPRAY GROUND CONTRACTOR SHALL COORDINATE ALL SPRAY GROUND PLUMBING WITH STORM DRAIN SYSTEM AND ALL UTILITIES.

2 / SG-9

NORTH

1 SPRAY GROUND PIPING PLAN (ZONE 1)

1/4"=1'-0"

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPRAY GROUND PIPING PLAN (ZONE 1)

OWNER:
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE:
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

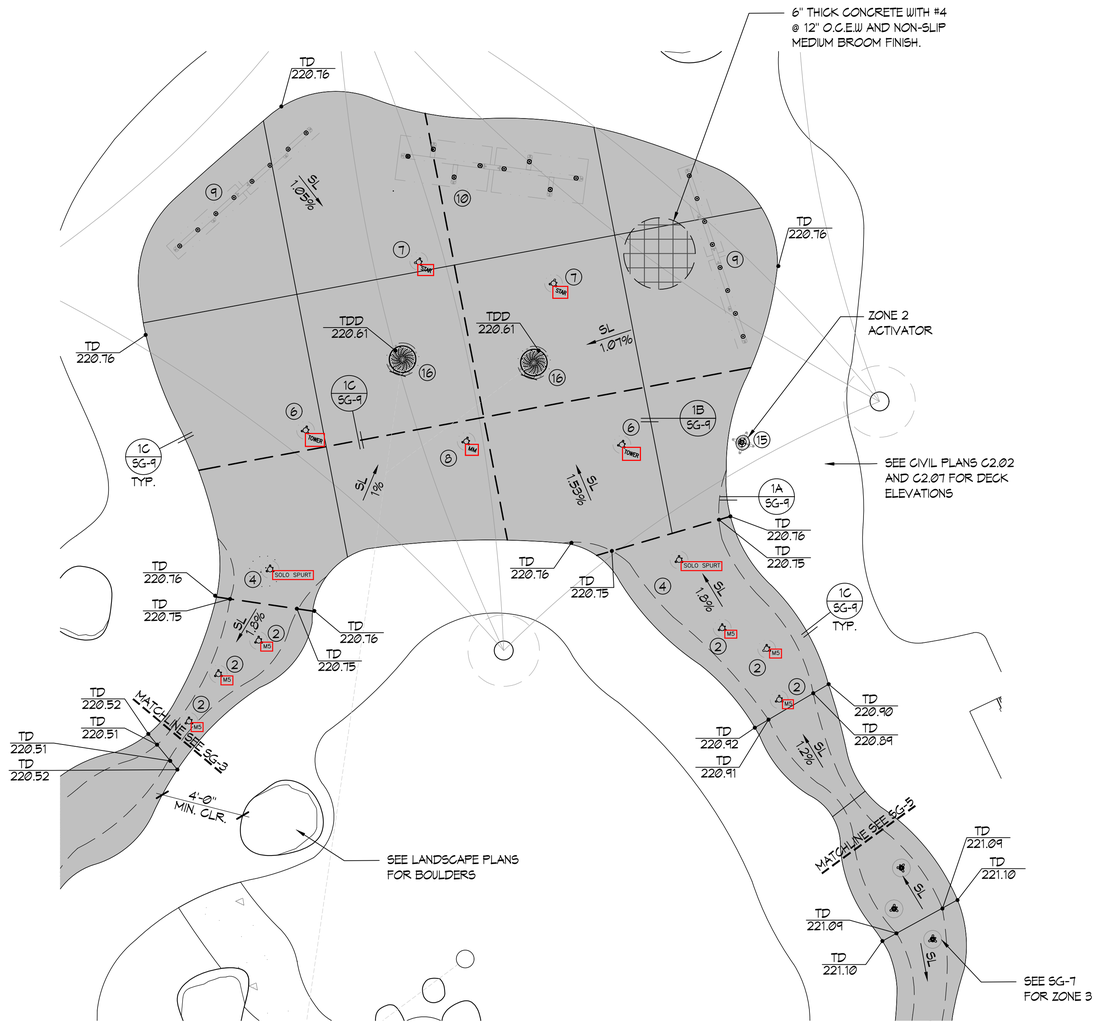
DATE	REVISIONS
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DRAWN BY:	KK
CHECKED BY:	AP
PROJECT NO.	0900
DATE	23 OCTOBER 2025

LICENSED ARCHITECT
GREGORY S. ANDERSEN
C-35802
REN. 07/31/27
STATE OF CALIFORNIA

SHEET 61 OF 80

SG-4



SPRAY GROUND DATA

SURFACE AREA	=	1,994 SQ. FT.
PERIMETER	=	434 FT.
VOLUME	=	4,800 GAL.
30 MIN. TURNOVER	=	160 GPM

PRODUCT LEGEND

	PRODUCT CODE	QTY	TOTAL FLOW	
②	MONSTER 5 0010-7480 WATERPLAY'	6	30 GPM	1 / 5G-12
④	SOLO SPURT 0010-7481 WATER PLAY'	2	3 GPM	1 / 5G-12
⑥	TOWER SPRAY 0010-7488 WATER PLAY'	2	18 GPM	1 / 5G-12
⑦	STARLET SPRAY 0010-7483 WATER PLAY'	2	10 GPM	1 / 5G-12
⑧	MISTY MOUNTAIN 0010-7479 WATERPLAY'	1	2 GPM	3 / 5G-11
⑨	SPRAY TUNNEL 8 (THE WAVE) 0010-7497 WATER PLAY'	2	48 GPM	4 / 5G-11
⑩	TEAM EFFECT 0010-9816 WATER PLAY'	1	8 GPM	2 / 5G-12
⑮	PLAYPHASE POST ACTIVATOR 0010-1854 WATER PLAY'	1		4 / 5G-12
⑯	DRAIN CIRCULAR SS 0010-4133 WATER PLAY'	2		3 / 5G-9
	TOTAL		119 GPM	

GENERAL NOTES

1. SPRAY GROUND DECK SHALL HAVE NON-SLIP FINISH AND SHALL HAVE 1% MIN. SLOPE AND 2% MAX. SLOPE TO DRAINS.
2. SEE CIVIL PLANS FOR ELEVATIONS AND DRAINAGE OUTSIDE OF SPRAY GROUND. ALL DECKS SHALL SLOPE PER CODE WITH A MIN. 1% AND MAX. 2% DECK SLOPE.
3. (4 / 5G-9) CONTRACTOR SHALL PROVIDE SIGNAGE REQUIRED BY CODE AND AT A MINIMUM SHALL STATE 'DO NOT DRINK, WATER IS RECIRCULATED.' FINAL LOCATION SHALL BE VISIBLE FROM SPRAY GROUND AND SHALL BE FIELD COORDINATED WITH OWNER AND LANDSCAPE ARCHITECT.
4. SEE LANDSCAPE PLANS FOR BENCH DETAILS.
5. SEE LANDSCAPE PLANS FOR HOSE BIBB LOCATIONS.

LEGEND

- EJ — EXPANSION JOINT (1C / 5G-9)
- CJ — CONTROL JOINT (1B / 5G-9)
- TDD — TOP OF DECK DRAIN (3 / 5G-9)
- SL — SLOPE DIRECTION
- TD — TOP OF DECK

NORTH

1 SPRAY GROUND LAYOUT PLAN (ZONE 2) 1/4"=1'-0"

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPRAY GROUND LAYOUT PLAN (ZONE 2)

OWNER: COUNTY OF LOS ANGELES, DEPARTMENT OF PARKS & RECREATION, 1000 SOUTH FREMONT AVE. ALHAMBRA, CA 91803

PROJECT TITLE: WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS: DATE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8

DRAWN BY:	KK
CHECKED BY:	AP
PROJECT NO:	0900
DATE:	23 OCTOBER 2025

LICENSED ARCHITECT — GREGORY S. SANDGREN — C-35802 — REN. 07/31/27 — STATE OF CALIFORNIA

SHEET 62 OF 80

SG-5

PRODUCT LEGEND

#	X	Y
2 A	-(17'-7")	-(3'-11")
2 B	-(15'-11")	-(1'-4")
2 C	-(13'-8")	0'-7"
2 D	12'-2"	1'-3"
2 E	14'-8"	0'-2"
2 F	15'-4"	-(2'-9")
4 A	-(13'-1")	4'-6"
4 B	9'-9"	5'-0"
6 A	-(11'-1")	12'-4"
6 B	6'-8"	11'-6"
7 A	-(4'-9")	21'-9"
7 B	2'-9"	20'-6"
8	-(2'-1")	11'-8"
9 A	-(14'-7")	25'-9"
9 B	11'-11"	22'-1"
10	-(0'-8")	27'-0"
15	13'-0"	11'-2"
16 A	-(5'-8")	16'-4"
16 B	1'-8"	16'-4"



NORTH

1 SPRAY GROUND FEATURE LOCATION PLAN (ZONE 2) 1/4"=1'-0"

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPRAY GROUND LAYOUT PLAN (ZONE 2)

OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

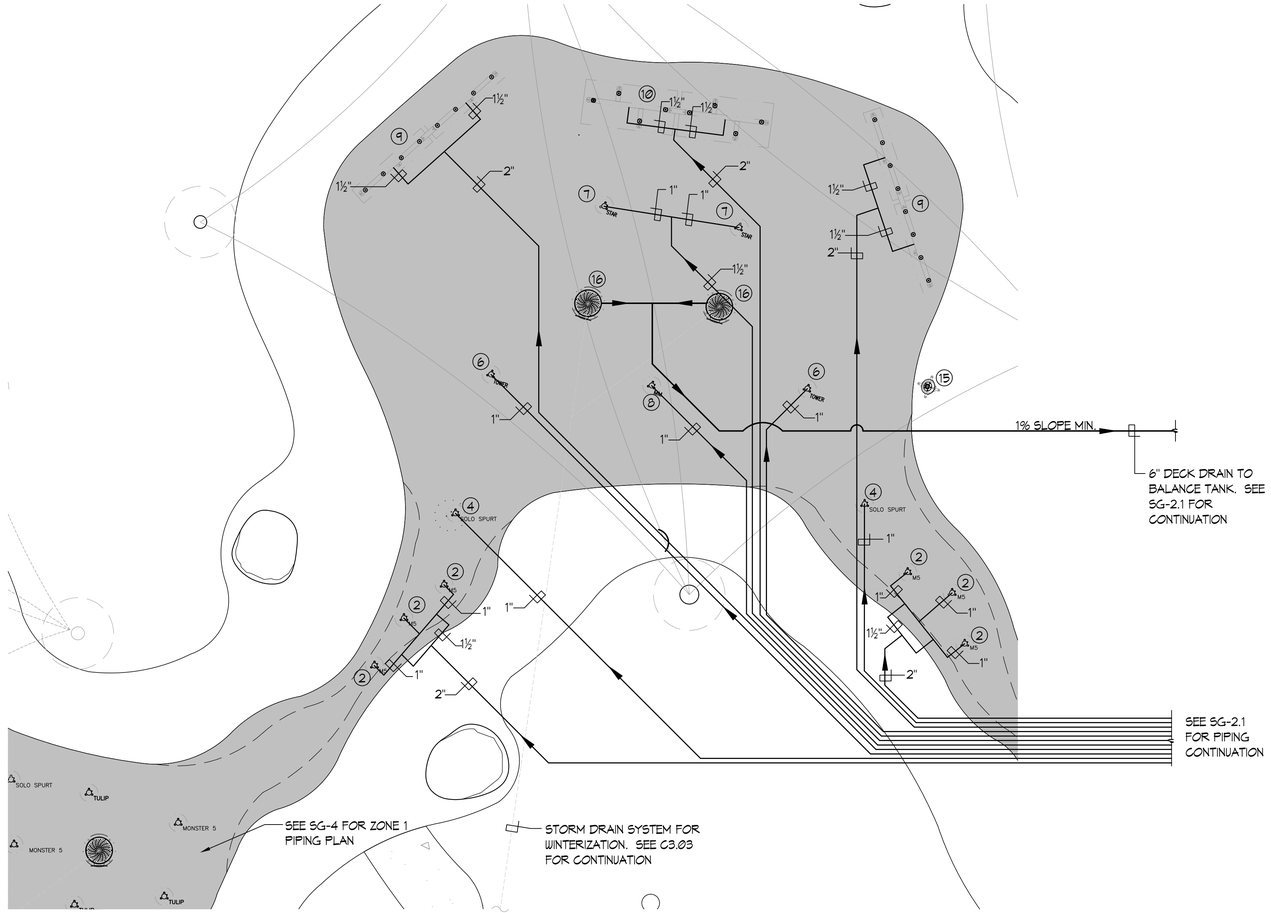
PROJECT TITLE: WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

DATE:

REVISIONS: 1 2 3 4 5 6 7 8

DRAWN BY:	KK
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PROJECT NO:	0900
DATE:	23 OCTOBER 2025

LICENSED ARCHITECT GREGORY S. SANDGREN C-35802 REN. 07/31/27 STATE OF CALIFORNIA



PRODUCT LEGEND

	PRODUCT CODE	QTY	INLET	TOTAL FLOW	
②	MONSTER 5 0010-7480 WATERPLAY'	6	1"	30 GPM	1 / SG-12
④	SOLO SPURT 0010-7481 WATER PLAY'	2	1"	3 GPM	1 / SG-12
⑥	TOWER SPRAY 0010-7488 WATER PLAY'	2	1"	18 GPM	1 / SG-12
⑦	STARLET SPRAY 0010-7483 WATER PLAY'	2	1"	10 GPM	1 / SG-12
⑧	MISTY MOUNTAIN 0010-7479 WATERPLAY'	1	1"	2 GPM	3 / SG-11
⑨	SPRAY TUNNEL 8 (THE WAVE) 0010-7497 WATER PLAY'	2	1½" (2)	48 GPM	4 / SG-11
⑩	TEAM EFFECT 0010-9816 WATER PLAY'	1	1½" (2)	8 GPM	2 / SG-12
⑮	PLAYPHASE POST ACTIVATOR 0010-1854 WATER PLAY'	1			4 / SG-12
⑯	DRAIN CIRCULAR SS 0010-4133 WATER PLAY'	2			3 / SG-9
	TOTAL			119 GPM	

GENERAL NOTES

1. SPRAY FEATURE AND MANIFOLD MANUFACTURE TO PROVIDE ON SITE START- UP PROGRAMING TO BE COORDINATED WITH OWNER AND CONTRACTOR
2. PIPING ROUTES ARE SCHEMATIC IN NATURE. ACTUAL PIPE RUNS SHALL BE RAN IN A STACKED TRENCH AND SHALL AVOID FOOTINGS, FENCING, SHADE STRUCTURES, LANDSCAPING ETC.. CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS. SPACE BETWEEN PIPE IS SHOWN FOR CLARITY. CONTRACTOR SHALL LOCATE PLAY EQUIPMENT POC'S AND ROUTE PIPING ACCORDINGLY TO MEET NOTED INVERT ELEVATIONS AND AVOID ANY OBSTRUCTIONS. REFER TO REFERENCED DETAIL FOR PIPE SPACING REQUIREMENTS.
3. SPRAY GROUND CONTRACTOR SHALL COORDINATE ALL SPRAY GROUND PLUMBING WITH STORM DRAIN SYSTEM AND ALL UTILITIES.

(2 / SG-4)

NORTH

1 **SPRAY GROUND PIPING PLAN (ZONE 2)** 1/4"=1'-0"

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPRAY GROUND PIPING PLAN (ZONE 2)

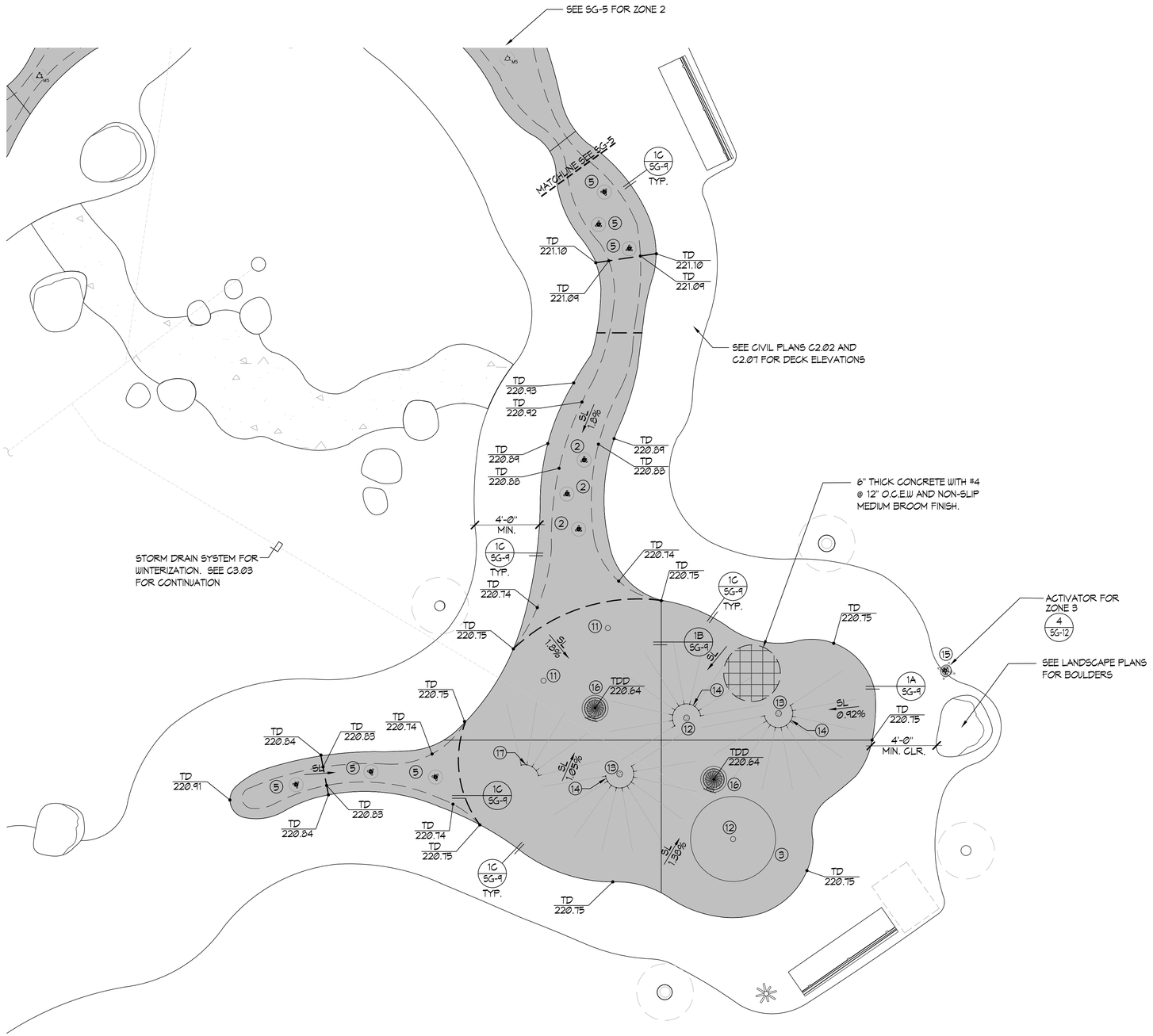
OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

DATE / REVISIONS: 1. 2. 3. 4. 5. 6. 7. 8.

DRAWN BY:	KK
CHECKED BY:	AP
PROJECT NO.	0900
DATE:	23 OCTOBER 2025

LICENSED ARCHITECT GREGORY S. ANDREN C-35802 REN. 07/31/27 STATE OF CALIFORNIA



SPRAY GROUND DATA

SURFACE AREA	=	1,994 SQ. FT.
PERIMETER	=	434 FT.
VOLUME	=	4,800 GAL.
30 MIN. TURNOVER	=	160 GPM

PRODUCT LEGEND

	PRODUCT CODE	QTY	INLET	TOTAL FLOW	
②	MONSTER 5 0010-7480 'WATERPLAY'	3	1"	15 GPM	1 / 5G-12
③	SPRAY RING (NSS600) 'CRYSTAL FOUNTAINS'	1	3"	132 GPM	5 / 5G-12
⑤	TULIP 0010-7489 'WATERPLAY'	6	1"	30 GPM	1 / 5G-12
⑪	GROUND JET (NLG202) 'CRYSTAL FOUNTAINS'	2	2"	50 GPM	2 / 5G-12
⑫	CROWN JET (WMF076) 'CRYSTAL FOUNTAINS'	2	1"	20 GPM	2 / 5G-12
⑬	COLUMN JET (NLC075) 'CRYSTAL FOUNTAINS'	2	1"	20 GPM	2 / 5G-12
⑭	2FT DIA. CUSTOM HALF CIRCLE W/ (10) STREAM JETS (WMD100) 'CRYSTAL FOUNTAINS'	2	(2) 2"	100 GPM	1 / 5G-13
⑮	PLAYPHASE POST ACTIVATOR 0010-1854 'WATER PLAY'	1			4 / 5G-12
⑯	DRAIN CIRCULAR SS 0010-4133 'WATER PLAY'	2			3 / 5G-9
⑰	2FT DIA. CUSTOM QUARTER CIRCLE W/ (5) STREAM JETS (WMD100) 'CRYSTAL FOUNTAINS'	1	(2) 1½"	25 GPM	2 / 5G-13
	TOTAL			442 GPM	

GENERAL NOTES

1. SPRAY GROUND DECK SHALL HAVE NON-SLIP FINISH AND SHALL HAVE 1% MIN. SLOPE AND 2% MAX. SLOPE TO DRAINS.
2. SEE CIVIL PLANS FOR ELEVATIONS AND DRAINAGE OUTSIDE OF SPRAY GROUND. ALL DECKS SHALL SLOPE PER CODE WITH A MIN. 1% AND MAX. 2% DECK SLOPE.
3. (4 / SG-9) CONTRACTOR SHALL PROVIDE SIGNAGE REQUIRED BY CODE AND AT A MINIMUM SHALL STATE 'DO NOT DRINK, WATER IS RECIRCULATED.' FINAL LOCATION SHALL BE VISIBLE FROM SPRAY GROUND AND SHALL BE FIELD COORDINATED WITH OWNER AND LANDSCAPE ARCHITECT.
4. SEE LANDSCAPE PLANS FOR BENCH DETAILS.
5. SEE LANDSCAPE PLANS FOR HOSE BIBB LOCATIONS.

LEGEND

EJ	=	EXPANSION JOINT (1C / SG-9)
CJ	=	CONTROL JOINT (1B / SG-9)
TDD	=	TOP OF DECK DRAIN (3 / SG-9)
SL	=	SLOPE DIRECTION
TD	=	TOP OF DECK

NORTH

1 **SPRAY GROUND LAYOUT PLAN (ZONE 3)** 1/4"=1'-0"

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPRAY GROUND LAYOUT PLAN (ZONE 3)

OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

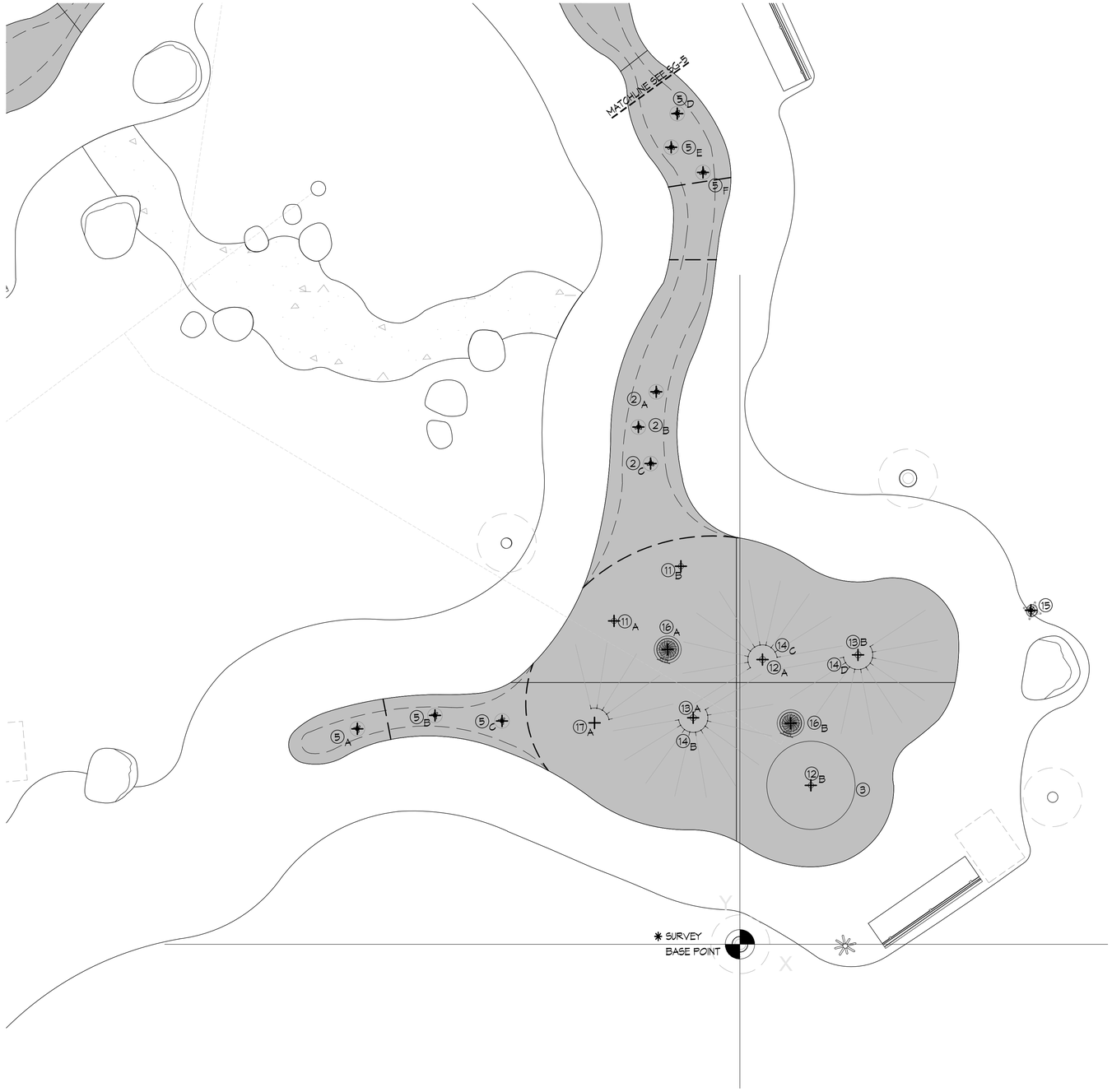
PROJECT TITLE: WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS / DATE: 1. 2. 3. 4. 5. 6. 7. 8.

DRAWN BY:	KK
CHECKED BY:	AP
PROJECT NO.	0900
DATE:	23 OCTOBER 2025

LICENSED ARCHITECT — GREGORY S. WITHERS — C-35802 — REN. 07/31/27 — STATE OF CALIFORNIA

SG-7



SPRAY GROUND DATA

SURFACE AREA	=	1,994 SQ. FT.
PERIMETER	=	434 FT.
VOLUME	=	4,800 GAL.
30 MIN. TURNOVER	=	160 GPM

PRODUCT LEGEND

#	X	Y	#	X	Y
2 A	-(5'-8")	37'-6"	12 A	1'-6"	19'-4"
B	-(6'-11")	35'-2"	B	4'-10"	10'-10"
C	-(6'-1")	32'-8"	13 A	-(3'-2")	15'-5"
3	4'-10"	10'-10"	B	8'-0"	19'-8"
5 A	-(26'-0")	14'-7"	14 * A	-(9'-10")	15'-1"
B	-(20'-9")	15'-6"	B	-(3'-2")	15'-5"
C	-(16'-2")	15'-2"	C	1'-6"	19'-4"
D	-(4'-3")	56'-5"	D	8'-0"	19'-8"
E	-(4'-8")	54'-2"	15	19'-9"	22'-8"
F	-(2'-6")	52'-5"	16 A	-(4'-11")	20'-1"
11 A	-(8'-7")	21'-11"	B	3'-5"	15'-0"
B	-(4'-0")	25'-8"			

* TOYS SPREAD 18-23° APART AROUND RADIUS POINTS
14 A - 5 TOYS
14 B - 10 TOYS
14 C - 10 TOYS
14 D- 10 TOYS

GENERAL NOTES

1. SPRAY GROUND DECK SHALL HAVE NON-SLIP FINISH AND SHALL HAVE 1% MIN. SLOPE AND 2% MAX. SLOPE TO DRAINS.
2. SEE CIVIL PLANS FOR ELEVATIONS AND DRAINAGE OUTSIDE OF SPRAY GROUND. ALL DECKS SHALL SLOPE PER CODE WITH A MIN. 1% AND MAX. 2% DECK SLOPE.
3. (4 SG-9) CONTRACTOR SHALL PROVIDE SIGNAGE REQUIRED BY CODE AND AT A MINIMUM SHALL STATE 'DO NOT DRINK, WATER IS RECIRCULATED.' FINAL LOCATION SHALL BE VISIBLE FROM SPRAY GROUND AND SHALL BE FIELD COORDINATED WITH OWNER AND LANDSCAPE ARCHITECT.
4. SEE LANDSCAPE PLANS FOR BENCH DETAILS.
5. SEE LANDSCAPE PLANS FOR HOSE BIBB LOCATIONS.

LEGEND

- EJ = EXPANSION JOINT (1C SG-9)
- CJ = CONTROL JOINT (1B SG-9)
- TDD = TOP OF DECK DRAIN (3 SG-9)
- SL = SLOPE DIRECTION
- TD = TOP OF DECK

NORTH

1 SPRAY GROUND FEATURE LOCATION PLAN (ZONE 3) 1/4"=1'-0"

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPRAY GROUND FEATURE LOCATION PLAN (ZONE 3)

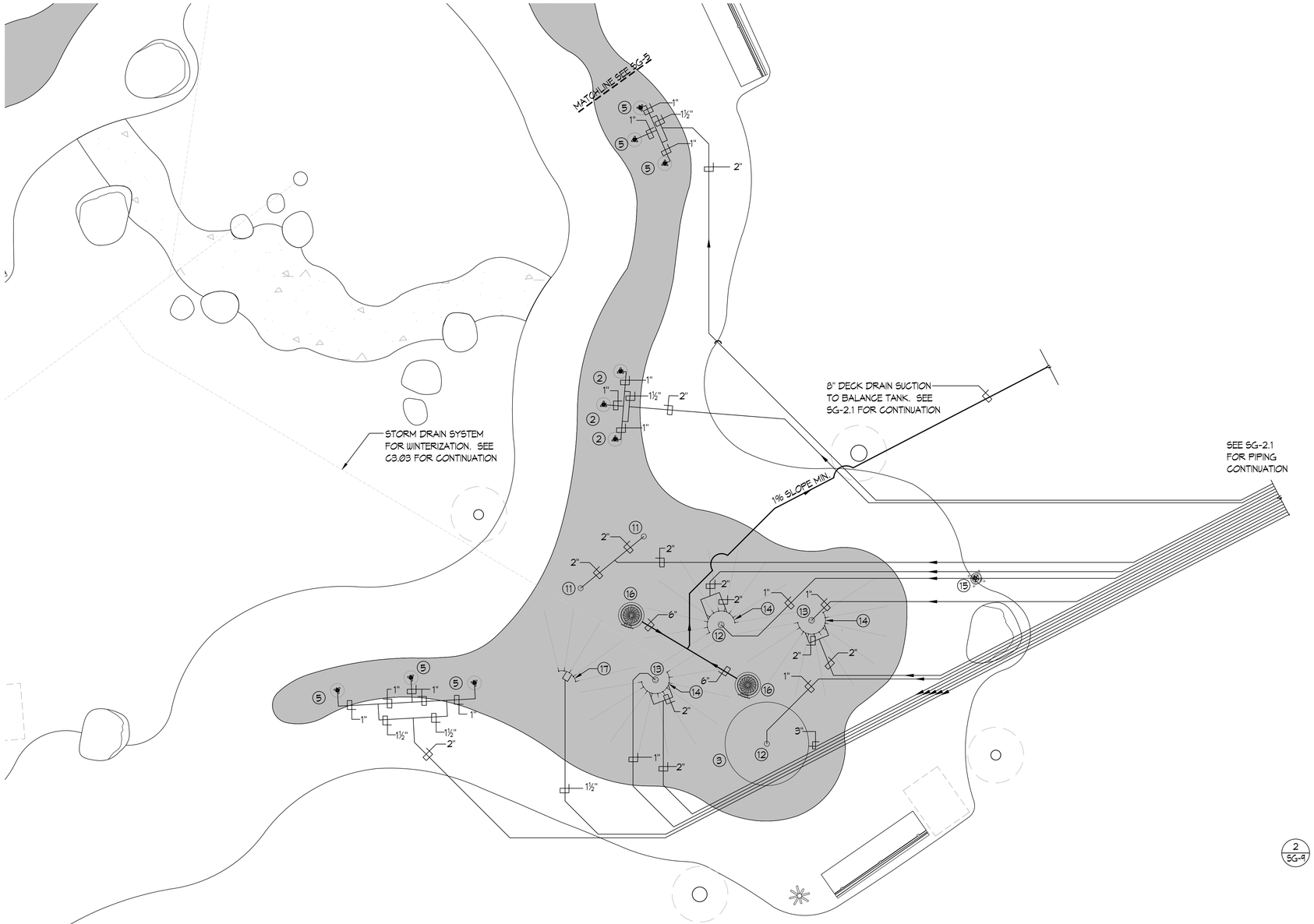
OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

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DRAWN BY:	KK
CHECKED BY:	AP
PROJECT NO.	0900
DATE:	23 OCTOBER 2025

LICENSED ARCHITECT GREGORY S. PALEN C-35802 REN. 07/31/27 STATE OF CALIFORNIA



SPRAY GROUND DATA

SURFACE AREA	=	1,994 SQ. FT.
PERIMETER	=	434 FT.
VOLUME	=	4,787 GAL.
30 MIN. TURNOVER	=	160 GPM

PRODUCT LEGEND

	PRODUCT CODE	QTY	INLET	TOTAL FLOW	
②	MONSTER 5 0010-7480 'WATERPLAY'	3	1"	15 GPM	1 / SG-12
③	SPRAY RING (NS5600) 'CRYSTAL FOUNTAINS'	1	3"	132 GPM	5 / SG-12
⑤	TULIP 0010-7489 'WATERPLAY'	6	1"	30 GPM	1 / SG-12
⑪	GROUND JET (NLG202) 'CRYSTAL FOUNTAINS'	2	2"	50 GPM	2 / SG-12
⑫	CROWN JET (WMF076) 'CRYSTAL FOUNTAINS'	2	1"	20 GPM	2 / SG-12
⑬	COLUMN JET (NLG075) 'CRYSTAL FOUNTAINS'	2	1"	20 GPM	2 / SG-12
⑭	2FT DIA. CUSTOM HALF CIRCLE W/ (10) STREAM JETS (WMD100) 'CRYSTAL FOUNTAINS'	2	(2) 2"	100 GPM	1 / SG-13
⑮	PLAYPHASE POST ACTIVATOR 0010-1854 'WATER PLAY'	1			4 / SG-12
⑯	DRAIN CIRCULAR SS 0010-4133 'WATER PLAY'	2			3 / SG-9
⑰	2FT DIA. CUSTOM QUARTER CIRCLE W/ (5) STREAM JETS (WMD100) 'CRYSTAL FOUNTAINS'	1	(2) 1½"	25 GPM	2 / SG-13
	TOTAL			442 GPM	

GENERAL NOTES

1. SPRAY FEATURE AND MANIFOLD MANUFACTURE TO PROVIDE ON SITE START- UP PROGRAMING TO BE COORDINATED WITH OWNER AND CONTRACTOR
2. PIPING ROUTES ARE SCHEMATIC IN NATURE. ACTUAL PIPE RUNS SHALL BE RAN IN A STACKED TRENCH AND SHALL AVOID FOOTINGS, FENCING, SHADE STRUCTURES, LANDSCAPING ETC., CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS. SPACE BETWEEN PIPE IS SHOWN FOR CLARITY. CONTRACTOR SHALL LOCATE PLAY EQUIPMENT POC's AND ROUTE PIPING ACCORDINGLY TO MEET NOTED INVERT ELEVATIONS AND AVOID ANY OBSTRUCTIONS. REFER TO REFERENCED DETAIL FOR PIPE SPACING REQUIREMENTS.
3. SPRAY GROUND CONTRACTOR SHALL COORDINATE ALL SPRAY GROUND PLUMBING WITH STORM DRAIN SYSTEM AND ALL UTILITIES.

2 / SG-9

NORTH

1 **SPRAY GROUND PIPING PLAN (ZONE 3)** 1/4"=1'-0"

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: SPRAY GROUND PIPING PLAN (ZONE 3)

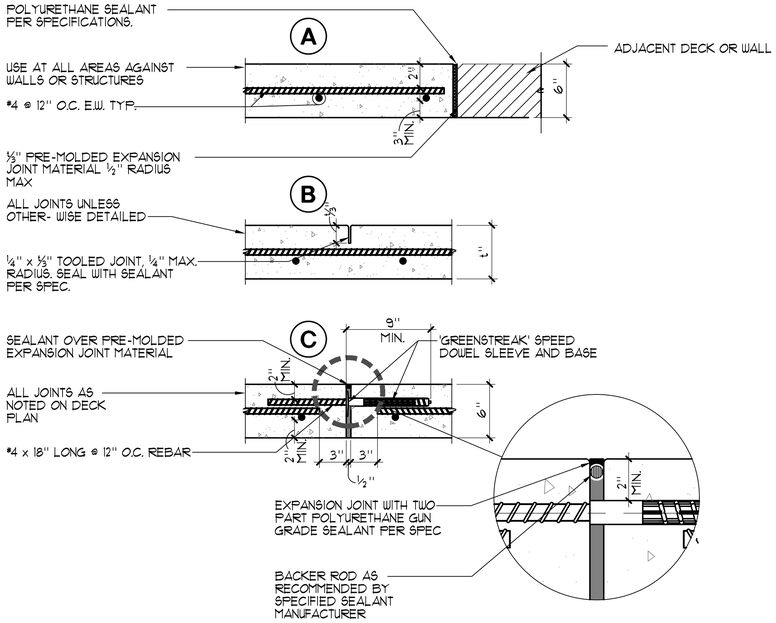
OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

REVISIONS / DATE: 1. 2. 3. 4. 5. 6. 7. 8.

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CHECKED BY:	AP
PROJECT NO.	0900
DATE:	23 OCTOBER 2025

LICENSED ARCHITECT GREGORY S. WITHERS C-25802 REN. 07/31/27 STATE OF CALIFORNIA

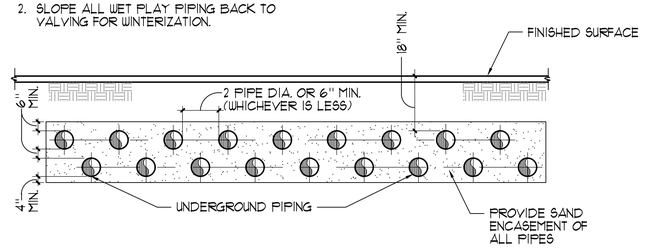


SEE SPECIFICATION SECTION 13 11 Ø2 FOR SPRAY GROUND CONCRETE

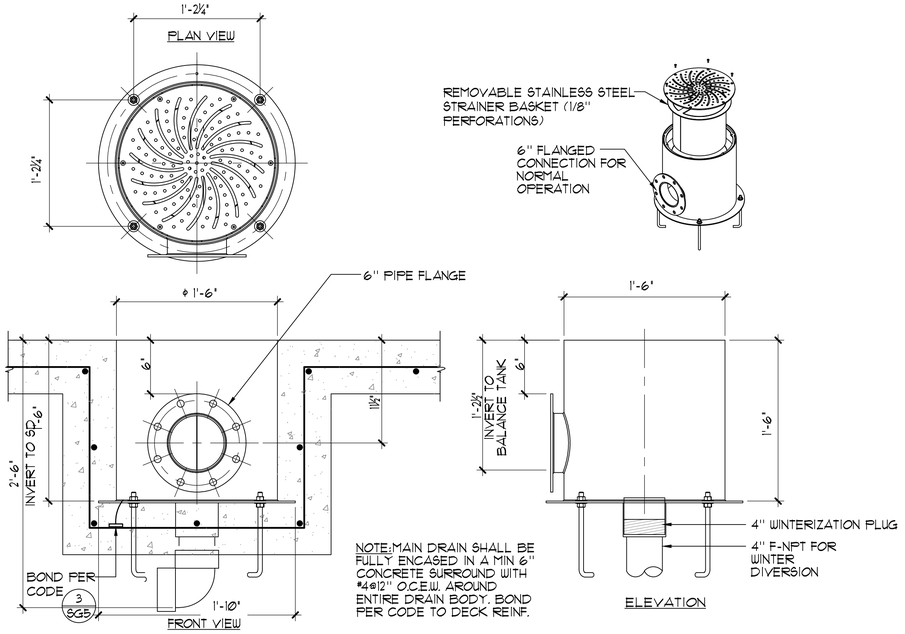
1 DECK DETAILS 1½"=1'-Ø"

NOTES:

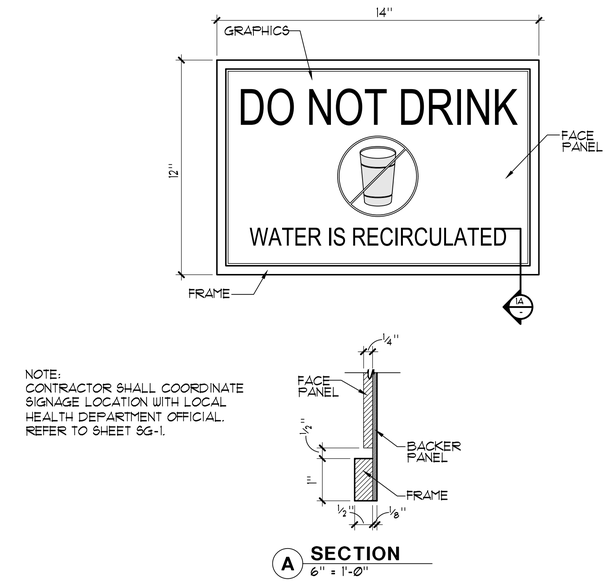
1. COORDINATE ALL PIPING WITH SITE UTILITIES INCLUDING PIPING, CONDUITS/STRUCTURES AND THE LIKE. COORDINATE ALL PIPING ELEVATIONS WITH ALL SITE UTILITIES.
2. SLOPE ALL WET PLAY PIPING BACK TO VALVING FOR WINTERIZATION.



2 TYPICAL UNDERGOUND PIPING 1"=1'-Ø"



3 DRAIN DETAIL 1½"=1'-Ø"



4 SPRAY GROUND SIGNAGE DETAIL ¾"=1'-Ø"

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: DETAILS

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

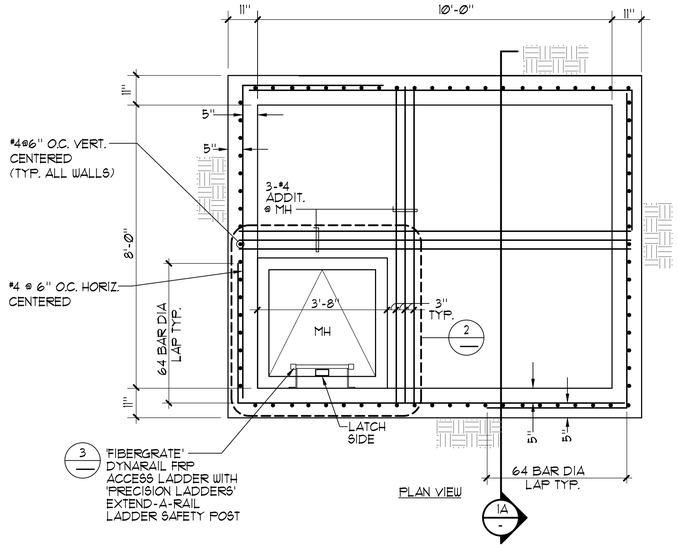
PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

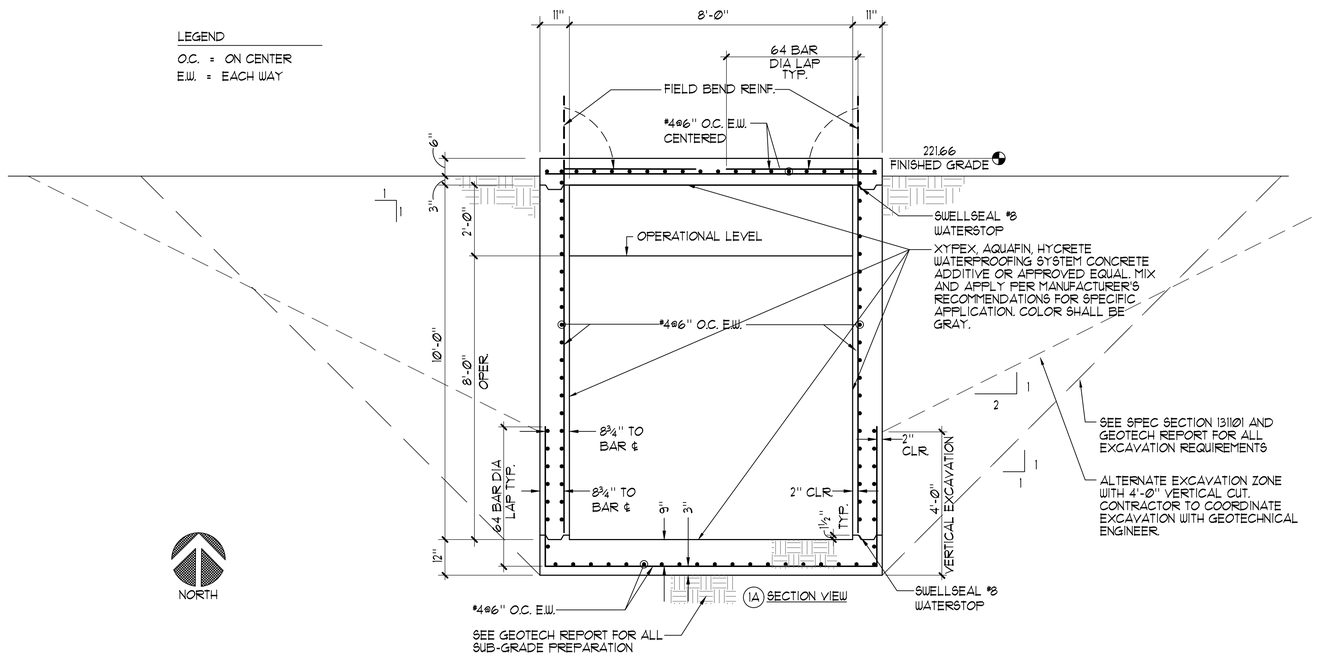
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PROJECT NO.	0900
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LICENSED ARCHITECT
GREGORY S. ABBOTT
C-35802
REN. 07/31/27
STATE OF CALIFORNIA

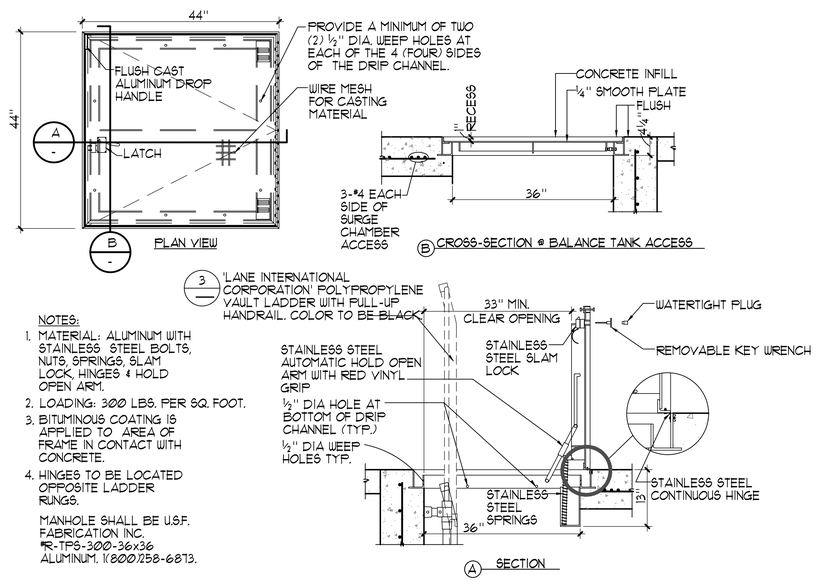
SHEET 68 OF 80
SG-9





1 WET PLAY BALANCE TANK

½"=1'-0"



NOTES:

1. MATERIAL: ALUMINUM WITH STAINLESS STEEL BOLTS, NUTS, SPRINGS, SLAM LOCK, HINGES & HOLD OPEN ARM.
2. LOADING: 300 LBS. PER SQ. FOOT.
3. BITUMINOUS COATING IS APPLIED TO AREA OF FRAME IN CONTACT WITH CONCRETE.
4. HINGES TO BE LOCATED OPPOSITE LADDER RUNGS.

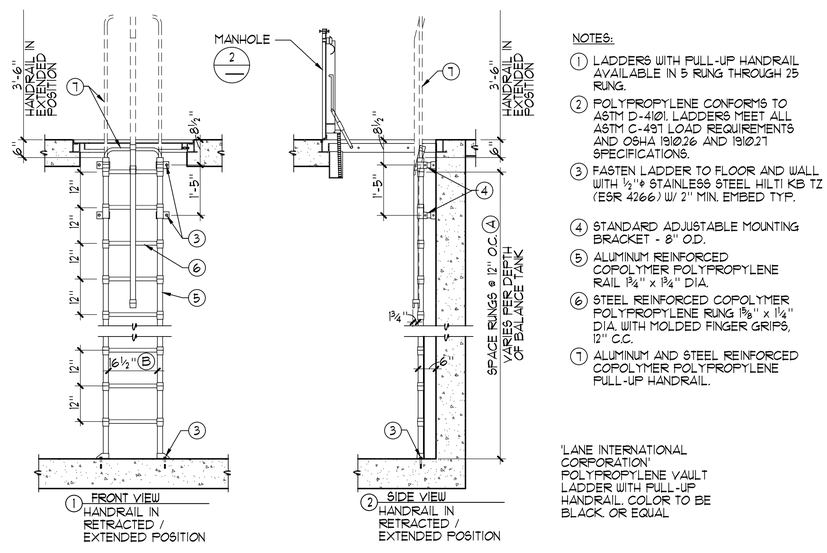
MANHOLE SHALL BE U.S.F. FABRICATION INC. #R-TPS-300-36x36 ALUMINUM. 1(800)258-6873.

2 BALANCE TANK ACCESS COVER

1"=1'-0"

CONTRACTOR TO VERIFY:

- (A) OVERALL LADDER HEIGHT
- (B) LADDER WIDTH



NOTES:

1. LADDERS WITH PULL-UP HANDRAIL AVAILABLE IN 5 RUNG THROUGH 25 RUNG.
2. POLYPROPYLENE CONFORMS TO ASTM D-4101. LADDERS MEET ALL ASTM C-497 LOAD REQUIREMENTS AND OSHA 1910.26 AND 1910.27 SPECIFICATIONS.
3. FASTEN LADDER TO FLOOR AND WALL WITH ½"ø STAINLESS STEEL HILTI KB TZ (ESR 4266) W/ 2" MIN. EMBED TYP.
4. STANDARD ADJUSTABLE MOUNTING BRACKET - 8" O.D.
5. ALUMINUM REINFORCED COPOLYMER POLYPROPYLENE RAIL 1¾" x 1¾" DIA.
6. STEEL REINFORCED COPOLYMER POLYPROPYLENE RUNG 1⅜" x 1¼" DIA. WITH MOLDED FINGER GRIPS, 12" C.C.
7. ALUMINUM AND STEEL REINFORCED COPOLYMER POLYPROPYLENE PULL-UP HANDRAIL.

'LANE INTERNATIONAL CORPORATION' POLYPROPYLENE VAULT LADDER WITH PULL-UP HANDRAIL. COLOR TO BE BLACK. OR EQUAL

3 BALANCE TANK ACCESS LADDER

½"=1'-0"

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: DETAILS

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

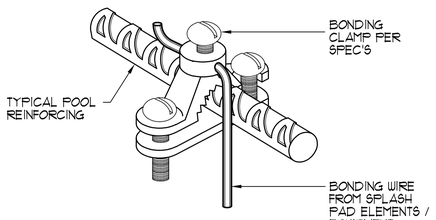
PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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CHECKED BY:	AP
PROJECT NO.	0900
DATE:	23 OCTOBER 2025

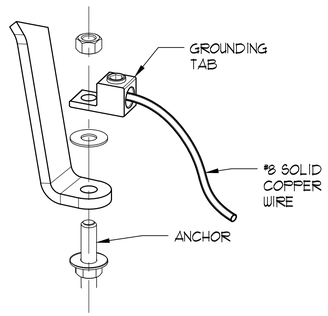
LICENSED ARCHITECT
GREGORY S. ANDRZEJEWSKI
C-35802
REN. 07/31/27
STATE OF CALIFORNIA

SHEET 69 OF 80
SG-10



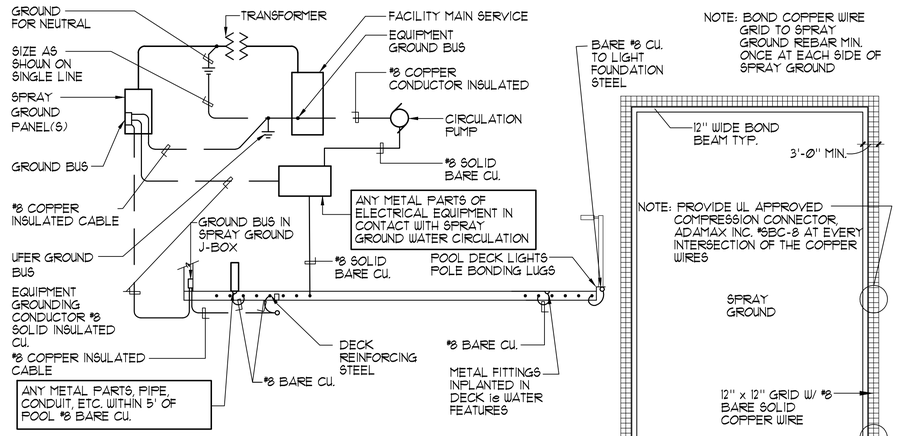
BONDING CLAMP

NO SCALE



PLAYPHASE ANCHOR BONDING

NO SCALE

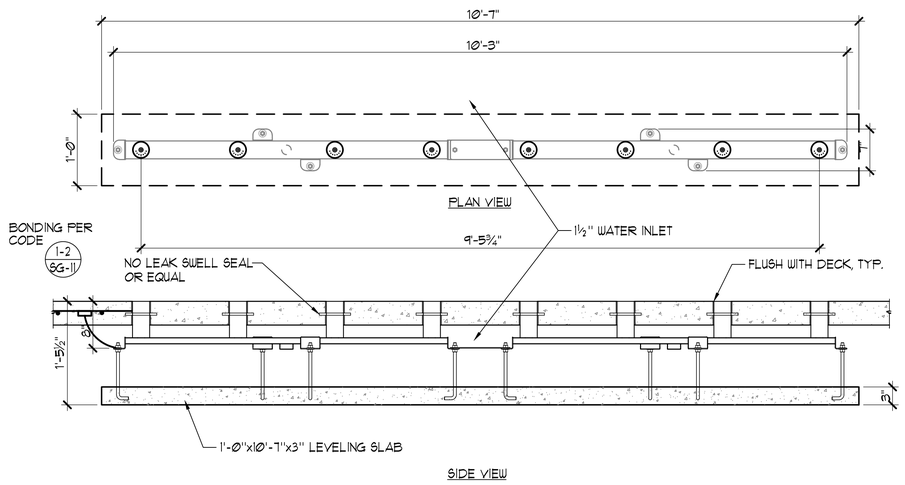


NOTE:

1. STRUCTURAL STEEL IN DECK SHALL BE BONDED TOGETHER (TIGHTLY MADE STEEL TIE-WIRES ARE APPROVED FOR BONDING STRUCTURAL ELEMENTS).
2. BONDING CONNECTOR TO COMMON GRID. (POOL STEEL MAY BE USED FOR THAT PURPOSE) SHALL BE MADE BY PRESSURE CONNECTORS OR CLAMPS OF BRASS, COPPER, OR COPPER ALLOY.
3. ALL GROUND BUSES SHALL BE SIZED FOR CONNECTION TO AWG SIZE 8 WIRE PROVIDING ONE SPARE TERMINAL.
4. GROUND AND BOND IN ACCORDANCE WITH ARTICLE 680 OF THE CALIFORNIA ELECTRICAL CODE. ie. LADDERS, FENCING, POLE LIGHTS, DIVING & STARTING STANCHIONS, DISABLED LIFT ETC.

1 BONDING DETAIL

NO SCALE

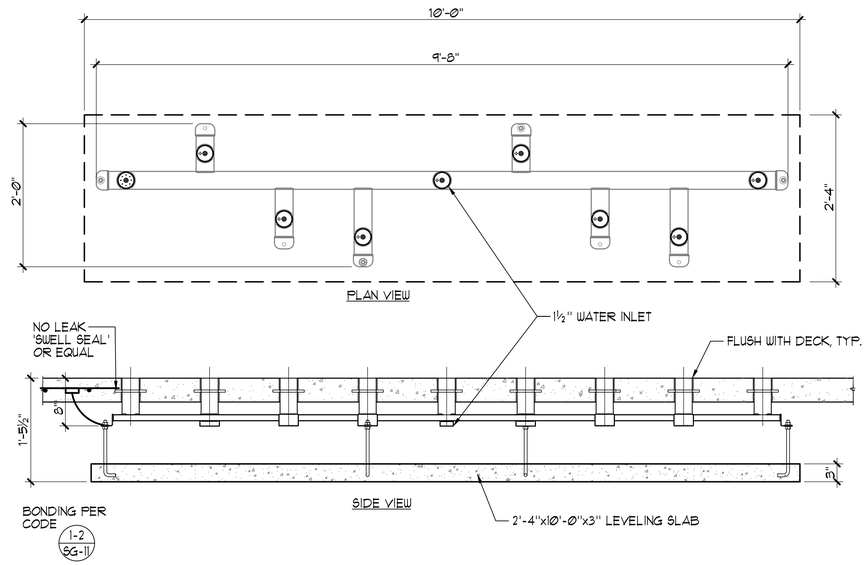


3 SPRAY TUNNEL 8

1"=1'-0"

2 TYPICAL POOL BONDING AND GROUND DETAIL

NO SCALE



4 GROUND SPRAY TEAM EFFECT

1"=1'-0"

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20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
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COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

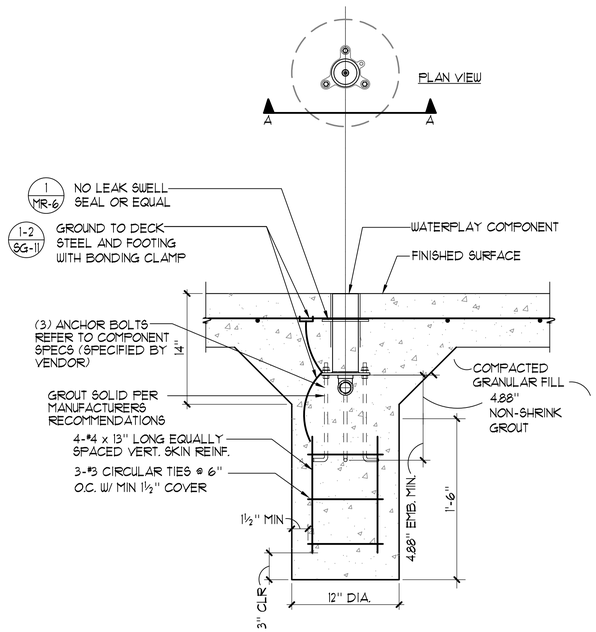
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LICENSED ARCHITECT
GREGORY S. ATWELL
C-35802
REN. 07/31/27
STATE OF CALIFORNIA

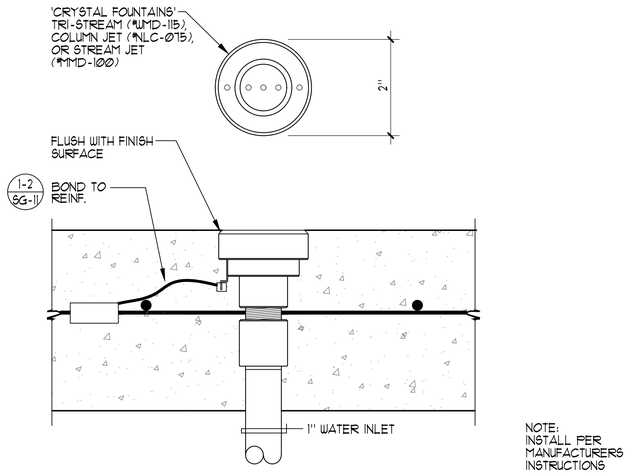
SHEET 70 OF 80

SG-11



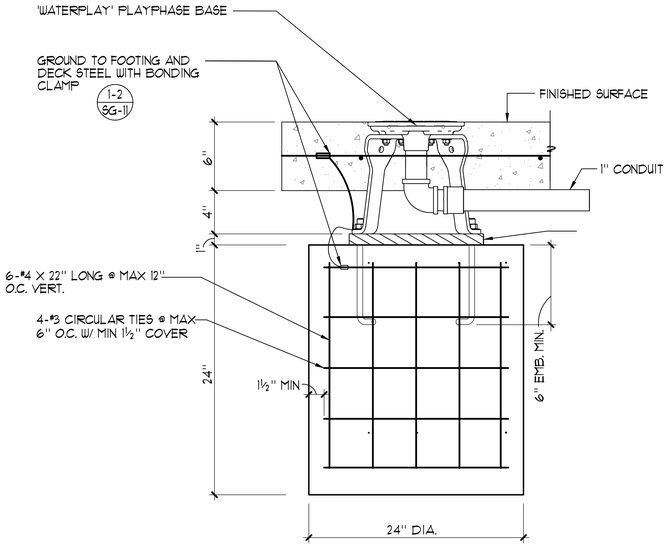
SECTION VIEW 'A'

1 WATERPLAY GROUND SPRAYS 1½"=1'-Ø"

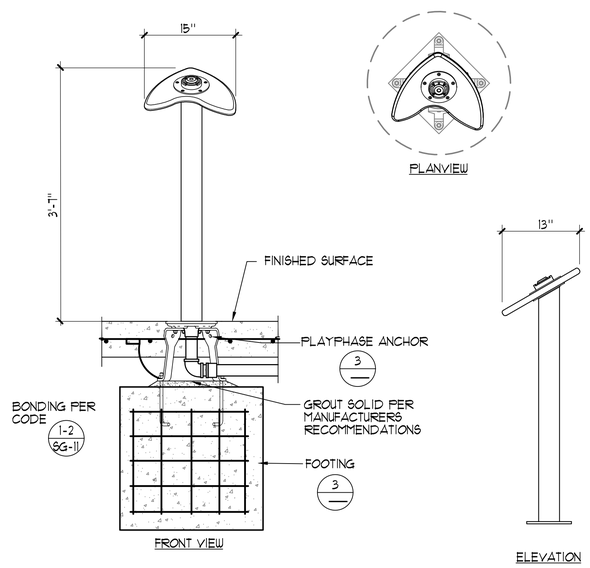


NOTE:
INSTALL PER MANUFACTURERS INSTRUCTIONS

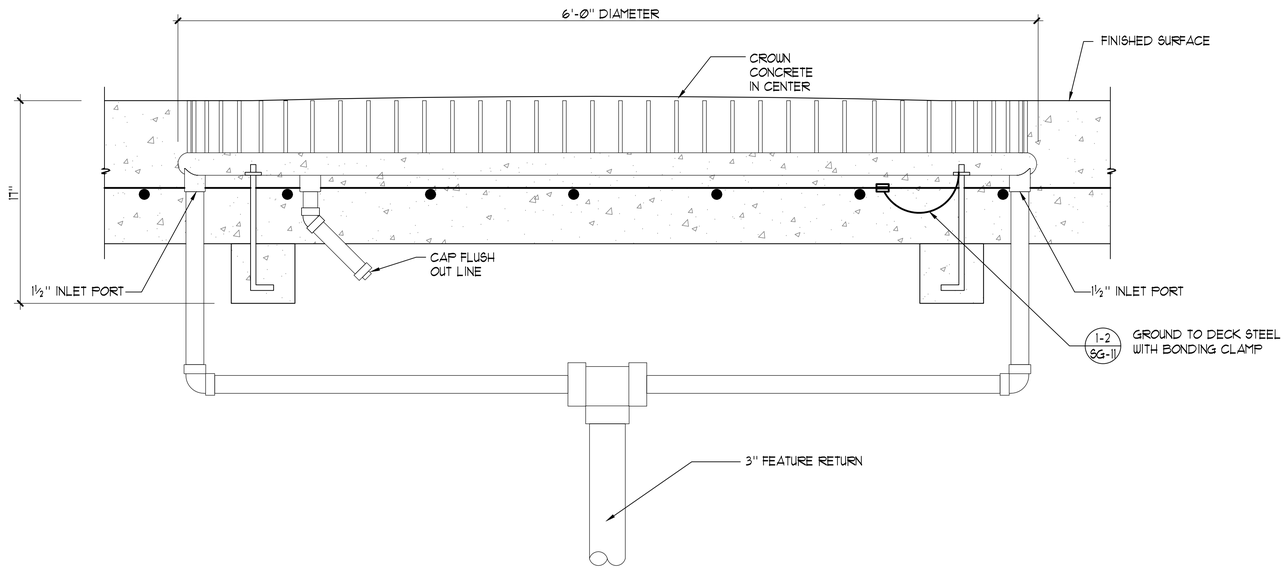
2 CRYSTAL FOUNTAINS GROUND SPRAYS 6"=1'-Ø"



3 ACTIVATOR FOOTING N.T.S.



4 SPROUT ACTIVATOR 1"=1'-Ø"



5 SPRAY RING 2"=1'-Ø"

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20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
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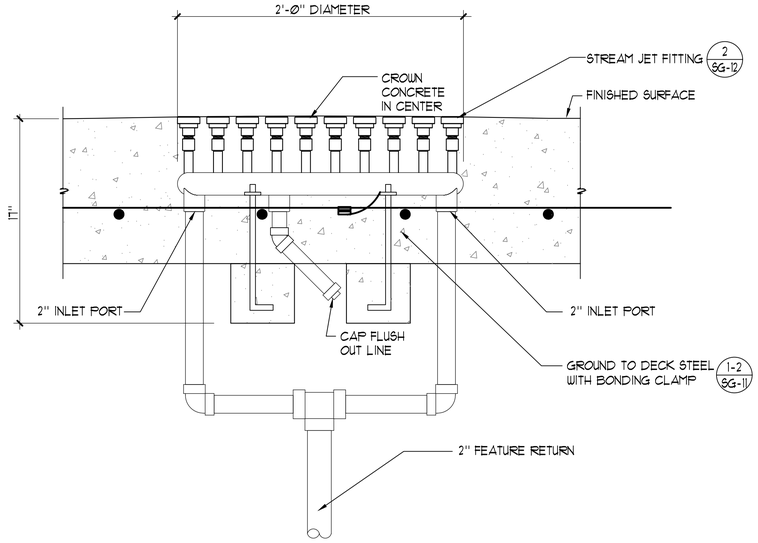
PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS / DATE
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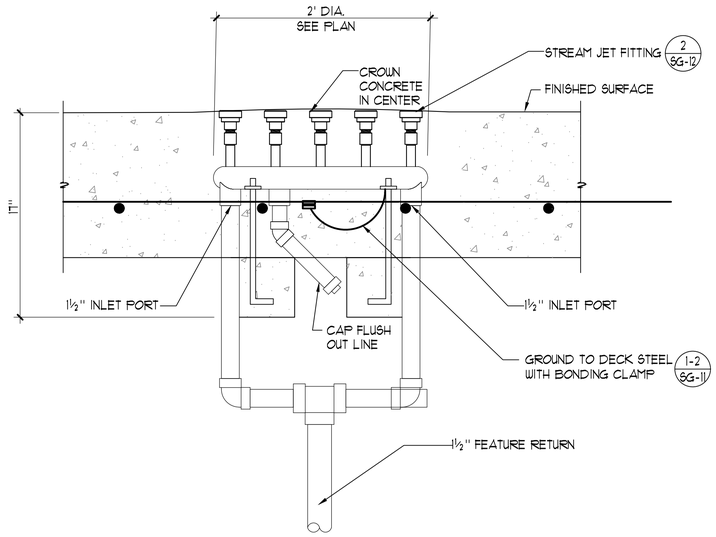
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LICENSED ARCHITECT
GREGORY S. ABBELL
C-35802
REN. 07/31/27
STATE OF CALIFORNIA

SHEET 71 OF 80
SG-12



1 CUSTOM 10 NOZZLE STREAM JET RING 2"=1'-Ø"



2 CUSTOM 5 NOZZLE STREAM JET QUARTER CIRCLE 2"=1'-Ø"

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20948 TULSA STREET
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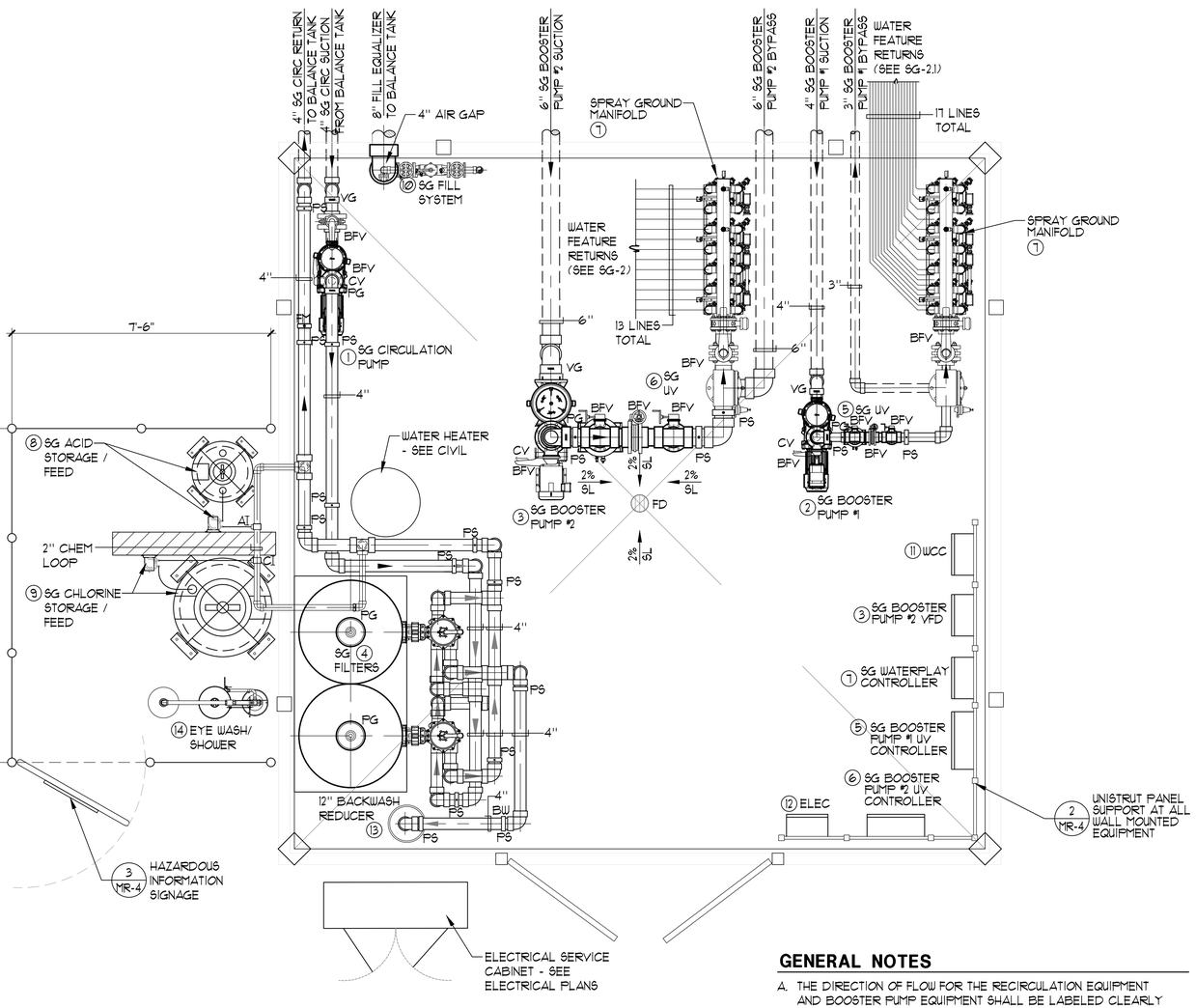
PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE,
SOUTH EL MONTE, CA 91733

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LICENSED ARCHITECT
GREGORY S. WITHERS
C-35802
REN. 07/31/27
STATE OF CALIFORNIA

SHEET 72 OF 80
SG-13



EQUIPMENT LIST

(2 MR-2) (1 MR-8) 1. SPRAY GROUND CIRCULATION PUMP: 'PENTAIR' WHISPERFLO XFVS *Ø22Ø35 5HP, 1PH PUMP; 24ØV, 5HP WITH INTEGRAL VARIABLE FREQUENCY DRIVE AND STRAINER; SELF PRIMING PUMP, 3,45Ø RPM RATED AT 2ØØ GPM AT 6Ø FT. TDH. ONE (1) TOTAL. (95 lbs.) INTERLOCK CIRCULATION PUMP WITH BOOSTER PUMP TO ONLY ALLOW BOOSTER PUMP OPERATION WHEN CIRCULATION SYSTEM IS OPERATIONAL. PROVIDE PUMP W/ TWO (2) STRAINER BASKETS.

(2 MR-2) (1 MR-8) 2. SPRAY GROUND BOOSTER PUMP (ZONE 1 & 2): 'PENTAIR' WHISPERFLO XFVS *Ø22Ø35 5HP, 1PH PUMP; 24ØV, 5HP WITH INTEGRAL VARIABLE FREQUENCY DRIVE AND STRAINER; SELF PRIMING PUMP, 3,45Ø RPM RATED AT 2ØØ GPM AT 6Ø FT. TDH. ONE (1) TOTAL. (95 lbs.) INTERLOCK BOOSTER PUMP WITH CIRCULATION PUMP TO ONLY ALLOW BOOSTER PUMP OPERATION WHEN CIRCULATION SYSTEM IS OPERATIONAL. PROVIDE PUMP W/ TWO (2) STRAINER BASKETS.

(1 MR-2) (1 MR-8) 3. SPRAY GROUND BOOSTER PUMP (ZONE 3): 'PENTAIR' EQ *34ØØ32, 1PH PUMP; 23ØV, 7.5 HP WITH PENTAIR ACCUDRIVE ADØ75X-23Ø3-N4X 7.5HP VARIABLE FREQUENCY DRIVE; SELF PRIMING PUMP, 3,51Ø RPM RATED AT 45Ø GPM AT 5Ø FT. TDH, WITH INTEGRAL STRAINER. ONE (1) TOTAL. (2Ø1 lbs.) INTERLOCK BOOSTER PUMP WITH CIRCULATION PUMP TO ONLY ALLOW BOOSTER PUMP OPERATION WHEN CIRCULATION SYSTEM IS OPERATIONAL. PROVIDE PUMP W/ TWO (2) STRAINER BASKETS.

(3 MR-2) 4. SPRAY GROUND FILTERS: 'PENTAIR' TRITON TR-14ØC3 HI-RATE PERMANENT MEDIA FILTERS WITH 14Ø4 SQ. FT. OF FILTER AREA RATED AT 21Ø GPM AT 15 GPM/SQ. FT. COMPLETE WITH 3" FLANGES AND TANDEM FILTER PIPING MANIFOLD KIT, 4" BACKWASH, SEISMIC ANCHORAGE. PROVIDE ALL UTILITIES, PIPING, VALVING, ETC. TWO (2) TANKS TOTAL. (1ØØ1LBS.) EACH

(4 MR-2) (1 MR-8) 5. SPRAY GROUND ULTRAVIOLET SYSTEM: EVOQUA * UE-115-3-N: 1x1.5 kW 2Ø8V 1PH WITH 2Ø AMP BREAKER, RATED AT 242 GPM AT 4Ømj/cm² COMPLETE WITH STRAINER, VALVING AND CONTROL PANEL, ONE (1) SYSTEM COMPLETE.

(4 MR-2) (1 MR-8) 6. SPRAY GROUND ULTRAVIOLET SYSTEM: EVQQUA * UE-125-6-N: 1x2.5 kW 2Ø8V 1PH WITH 2Ø AMP BREAKER, RATED AT 66Ø GPM AT 4Ømj/cm² COMPLETE WITH STRAINER, VALVING AND CONTROL PANEL, ONE (1) SYSTEM COMPLETE.

(1 MR-4) (5 MR-5) 7. 6" SPRAY GROUND MANIFOLDS: (2) 6' 'WATER PLAY' MANIFOLDS INCLUDING (1) AUTOMATION CONTROLLER EACH MANIFOLD PROVIDED WITH FLOOR MOUNTED WATER DISTRIBUTION MANIFOLDS, WITH THIRTY (3Ø) OUTLETS, SOLENOID VALVES, TRUE UNION BALL VALVES, PROPORTIONAL VALVES, CLAVAL PRESSURE SUSTAINING BYPASS VALVES, TIME CLOCK OPERATED ACTIVATION, COMPLETE. PROVIDE WINTER DRAIN POINTS ADJACENT TO MANIFOLD EQUIPMENT AREA FOR ALL MANIFOLD LINES. TWO (2) MANIFOLDS TOTAL. COORDINATE MANIFOLD OUTLETS WITH PLUMBING PLAN.

(12 MR-3) (4.3 MR-3) (1 MR-8) 8. ACID STORAGE/FEED SYSTEMS: PROVIDE 'CHEM-TAINER' 55 GALLON TC12Ø381A VERTICAL BULK STORAGE TANK WITH LID SEISMICALLY RESTRAINED; OPERATING WEIGHT = (458 LBS.) COMPLIES WITH FED. REG. *4ØCFR-264-193. FEED PUMP SHALL BE BLUE AND WHITE AIN2ØX-4T 8GPD @ 15 PSI WITH FRP SHELF BRACKETS. HARD PIPE TO POINT OF INJECTION. ONE (1) PUMP TOTAL.

(1 MR-3) (3-5 MR-3) (1 MR-8) 9. CHLORINE STORAGE/FEED SYSTEM: PROVIDE 'CHEM-TAINER' 15Ø GALLON TC43498DC DUAL STORAGE/CONTAINMENT TANK WITH LID SEISMICALLY RESTRAINED; OPERATING WEIGHT = (125Ø LBS.) COMPLIES WITH FED. REG. *4ØCFR-264-193. FEED PUMP SHALL BE BLUE AND WHITE AIN2ØX-4T 8GPD @ 15 PSI WITH FRP SHELF BRACKETS. HARD PIPE TO POINT OF INJECTION. ONE (1) PUMP TOTAL.

(4 MR-5) 10. SPRAY GROUND BALANCE TANK FILL SYSTEM: 2" 'CLA-VAL' FILL SYSTEM TO INCLUDE 2" 'CLA-VAL' SOLENOID CONTROL VALVE *136-Ø1BY, 2" BRONZE OR STAINLESS STEEL BODY WITH STAINLESS STEEL DISC RETAINER AND DIAPHRAGM WASHER, BRONZE TRIM, FLANGED GLOBE PATTERN, 12ØV AT 6Ø-HZ SOLENOID WIRING SHALL BE WIRED TO WATER CHEMISTRY CONTROLLER. PROVIDE 6" AIR GAP AT FILL POINT .

(1-4 MR-7) (1 MR-8) 11. SPRAY GROUND WATER CHEMISTRY CONTROLLER: PROVIDE ONE (1) BECSysRCM COMMUNICATION MODULE AND DEDICATED ETHERNET LINE FOR ONE (1) 'BECSys7-X6IGPIXØLLBX'. TO BE PROVIDED WITH WATER LEVEL CONTROL. PROVIDE WITH SIGNET 5B3Ø-PX FLOWSENSOR WITH DIGITAL READOUT. INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. ONE (1) TOTAL. CONTRACTOR TO CONNECT CONTROLLER TO NEW NETWORK CONNECTION AND COORDINATE IP SIGNATURE W/ CITY REPRESENTATIVE.

(2 MR-4) (1-2 MR-8) 12. ELECTRICAL: PROVIDE ALL ELECTRICAL WIRING, CONDUIT, PANEL(S), STARTER/DISCONNECT INTERCONNECT(S) ETC. AS REQUIRED FOR PROPER EQUIPMENT INSTALLATION PER MANUFACTURERS RECOMMENDATIONS AND SHOP DRAWINGS. COORDINATE ALL WORK WITH OTHER TRADES AS REQUIRED. REFER TO ELEC. PLANS FOR ALL ADDITIONAL INFO.

(3 MR-5) 13. BACKWASH: PROVIDE 12"ø PVC BELL RECEPTOR AT +3'-Ø" AFF. WITH 6" P-TRAP OUTLET TO SANITARY SEWER. PROVIDE 2x PIPE SIZE AIR GAP AT BELL RECEPTOR.

(3 MR-8) 14. EYEWASH/SHOWER: HAWS MODEL *8300-8308CRP BARRIER FREE COMBINATION SHOWER AND EYE/FACE WASH WITH CORROSION RESISTANT PROTECTION. SEE MEP SHEETS FOR SUPPLY PIPING. TWO (2) TOTAL.

SINGLE PHASE MOTOR LOADS AT 240V

BALANCE TANK CIRCULATION PUMP: 5 HP @ 240V	=	28 AMPS
SPRAY GROUND BOOSTER PUMP #1: 5 HP @ 240V	=	28 AMPS
SPRAY GROUND BOOSTER PUMP #2: 7.5 HP @ 240V	=	40 AMPS
TOTAL AMPS	=	106 AMPS

GENERAL NOTES

A. THE DIRECTION OF FLOW FOR THE RECIRCULATION EQUIPMENT AND BOOSTER PUMP EQUIPMENT SHALL BE LABELED CLEARLY WITH DIRECTIONAL SYMBOLS SUCH AS ARROWS ON ALL PIPING IN THE EQUIPMENT AREA.

B. VALVES AND PLUMBING LINES SHALL BE LABELED CLEARLY WITH THE SOURCE OR DESTINATION DESCRIPTIONS..

C. PREFABRICATED BUILDING AND PENETRATIONS FOR EQUIPMENT LOCATION SHALL BE FINALIZED WITH BUILDING MANUFACTURER. EQUIPMENT LOCATIONS WITHIN ROOM ARE SHOWN FOR OVERALL SCHEMATIC AND SYSTEM FLOW PURPOSES. FINAL LOCATIONS OF EQUIPMENT MAY BE SUBJECT TO ADJUSTMENT FOR STRUCTURAL INTEGRITY OF PREFABRICATED BUILDING.

D. CONTRACTOR SHALL SEISMICALLY ANCHOR PIPES WITH PIPE STANDS OR UNISTRUT BRACING TO BUILDING WALL OR ANY MEANS NECESSARY TO PROPERLY SUPPORT PIPE SYSTEM. DISTANCES SHALL NOT EXCEED 6FT ON SUPPORT.

E. FLOOR SHALL SLOPE 2% TO FLOOR DRAINS AND HAVE A MEDIUM BROOM NON-SLIP FINISH.

F. PUBLIC POOLS SHALL HAVE A FLOW DIAGRAM OF THE POOL'S PIPING SYSTEM WITH OPERATION INSTRUCTIONS.

G. ALL PLUMBING BELOW GRADE SHALL BE SCH. 4Ø PVC AND ALL PLUMBING ABOVE GRADE SHALL BE SCH. 8Ø PVC PIPE, UNLESS OTHERWISE NOTED.

H. MECHANICAL ROOM AND PLUMBING IS SCHEMATIC IN NATURE. POOL CONTRACTOR TO COORDINATE MECHANICAL EQUIPMENT PLACEMENT, UTILITIES, EQUIPMENT PADS, DISCONNECTS, EQUIPMENT INTERCONNECTIONS, PLUMBING SUPPORTS AND ALL NECESSARY APPURTENANCES FOR A FULLY FUNCTIONAL, CODE COMPLIANT SYSTEM.

I. ALL PLUMBING SHALL BE INSTALLED WITH 8Ø" MIN. OVERHEAD CLEARANCE.

J. ALL PANELS OR CONTROLS ARE NOT TO BE MOUNTED DIRECTLY TO EQUIPMENT ENCLOSURE. PROVIDE UNISTRUT PANEL SUPPORT AT ALL LOCATIONS (SEE 2/MR-4).

WEDGE OR EXPANSION ANCHOR EMBEDMENT DEPTH AND TEST LOAD

SIZE	HILTI KB TZ 2 (SS) ANCHORS IN CONCRETE (ESR-4266)		KB TZ 2 (SS) ANCHORS IN CMU (ESR-4561)	
	MIN. EMBED (heff)	TORQUE LOAD (FT-LBS)	MIN. EMBED (heff)	TORQUE LOAD (FT-LBS)
¼" DIA.	1½"	6	1½"	6
⅜" DIA.	2½"	30	2½"	15
½" DIA.	3¼"	40	3¼"	25
⅝" DIA.	4"	60	4"	35
¾" DIA.	4¾"	125	4¾"	50

ALL VALUES PER 2022 CBC 1910A.5.4

LEGEND

SG	=	SPRAY GROUND
BFV	=	BUTTERFLY VALVE
CV	=	CHECK VALVE
FM	=	FLOWMETER (2 MR-5)
BW	=	BACKWASH
FS	=	FLOOR SINK
FD	=	FLOOR DRAIN
PS	=	PIPE SUPPORT (3 MR-6)
VG/PG	=	VACUUM / PRESSURE GAUGE (4 MR-6)
CI	=	CHLORINE INJECTION
AI	=	ACID INJECTION

1 MECHANICAL ROOM LAYOUT PLAN ½"=1'-Ø"

10/23/2025 3:38 PM

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LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
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SHEET TITLE: MECHANICAL ROOM LAYOUT PLAN

OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

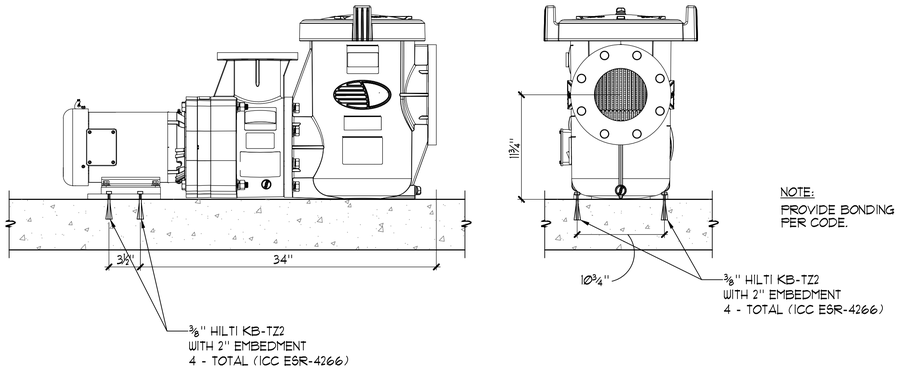
PROJECT TITLE: WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS: 1. 2. 3. 4. 5. 6. 7. 8. DATE

DRAWN BY:	KK
CHECKED BY:	AP
PROJECT NO.	0900
DATE:	23 OCTOBER 2025

LICENSED ARCHITECT GREGORY S. WITHERS C-35802 REN. 07/31/27 STATE OF CALIFORNIA

(95 LBS.)
(201 LBS.)

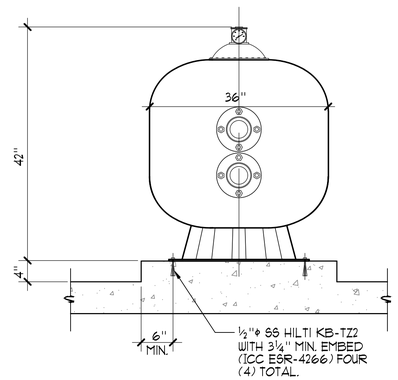


NOTE:
PROVIDE BONDING PER CODE.

1 PUMP ANCHORAGE NO SCALE

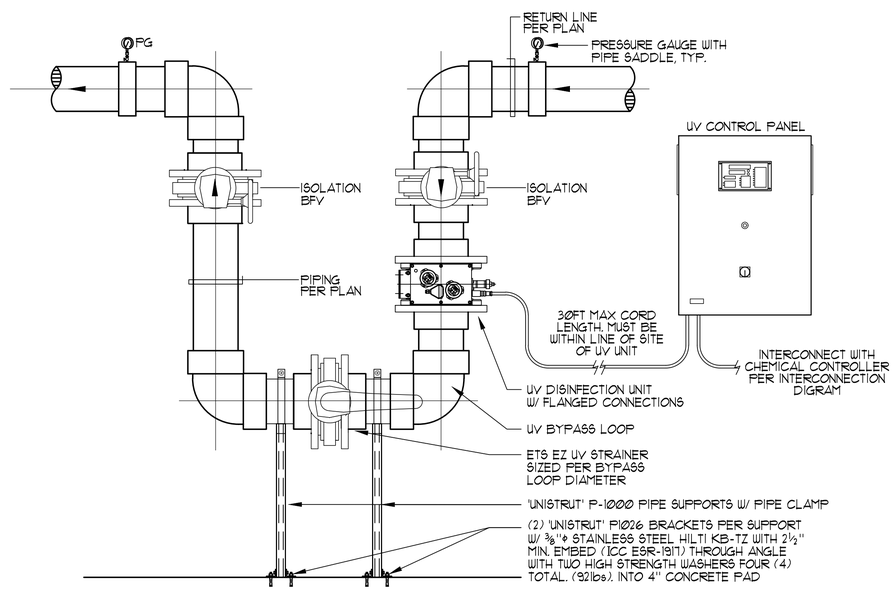
2 NOT USED

TR140C3 = 1,007 lbs.



FRONT ELEVATION

3 FILTER ANCHORAGE NO SCALE



4 ECF U.V. DISINFECTION UNIT INSTALLATION DETAIL NO SCALE

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LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: DETAILS

OWNER
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

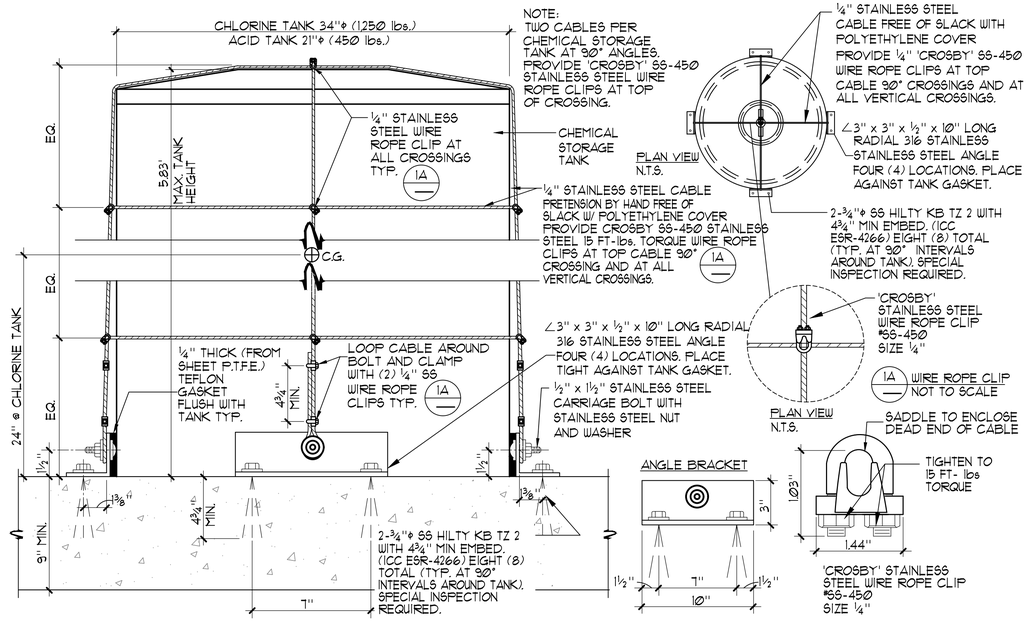
PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS

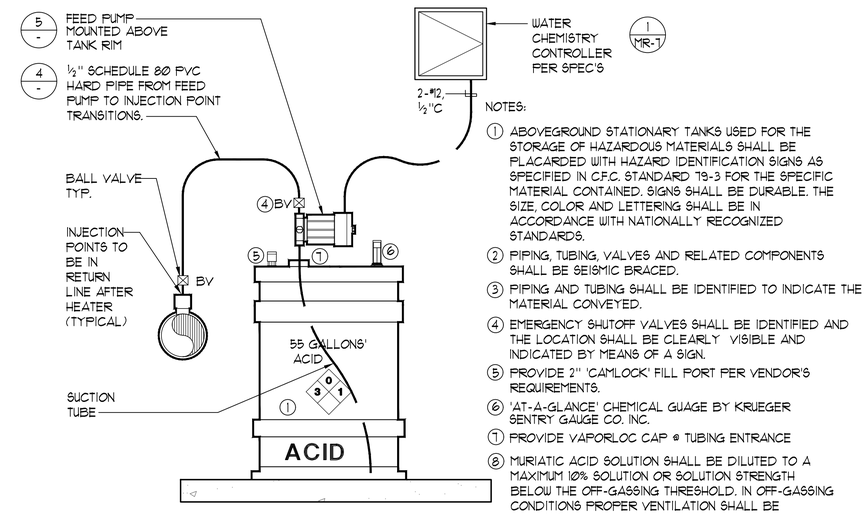
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DRAWN BY:	KK
CHECKED BY:	AP
PROJECT NO.	0900
DATE:	23 OCTOBER 2025

LICENSED ARCHITECT
GREGORY S. ABBELL
C-35802
REN. 07/31/27
STATE OF CALIFORNIA



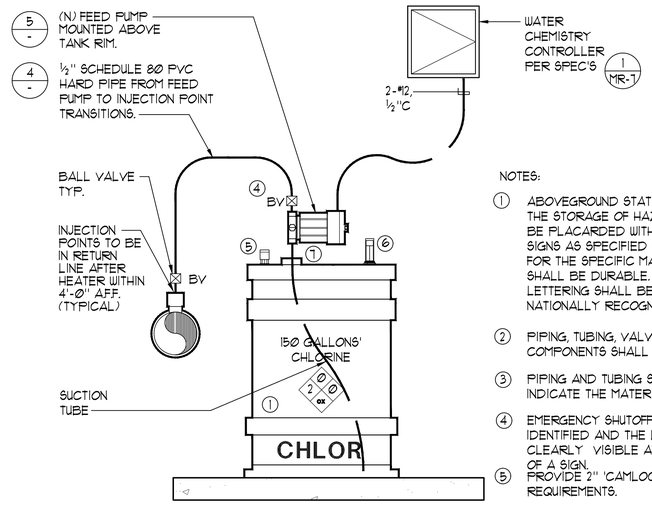
1 CHEMICAL TANK ANCHORAGE NO SCALE



NOTES:

1. ABOVEGROUND STATIONARY TANKS USED FOR THE STORAGE OF HAZARDOUS MATERIALS SHALL BE PLACARDED WITH HAZARD IDENTIFICATION SIGNS AS SPECIFIED IN C.F.C. STANDARD 79-3 FOR THE SPECIFIC MATERIAL CONTAINED. SIGNS SHALL BE DURABLE. THE SIZE, COLOR AND LETTERING SHALL BE IN ACCORDANCE WITH NATIONALLY RECOGNIZED STANDARDS.
2. PIPING, TUBING, VALVES AND RELATED COMPONENTS SHALL BE SEISMIC BRACED.
3. PIPING AND TUBING SHALL BE IDENTIFIED TO INDICATE THE MATERIAL CONVEYED.
4. EMERGENCY SHUTOFF VALVES SHALL BE IDENTIFIED AND THE LOCATION SHALL BE CLEARLY VISIBLE AND INDICATED BY MEANS OF A SIGN.
5. PROVIDE 2" 'CAMLOCK' FILL PORT PER VENDOR'S REQUIREMENTS.
6. 'AT-A-GLANCE' CHEMICAL GUAGE BY KRUEGER SENTRY GAUGE CO. INC.
7. PROVIDE VAPORLOC CAP @ TUBING ENTRANCE
8. MURIATIC ACID SOLUTION SHALL BE DILUTED TO A MAXIMUM 10% SOLUTION OR SOLUTION STRENGTH BELOW THE OFF-GASSING THRESHOLD. IN OFF-GASSING CONDITIONS PROPER VENTILATION SHALL BE PROVIDED.

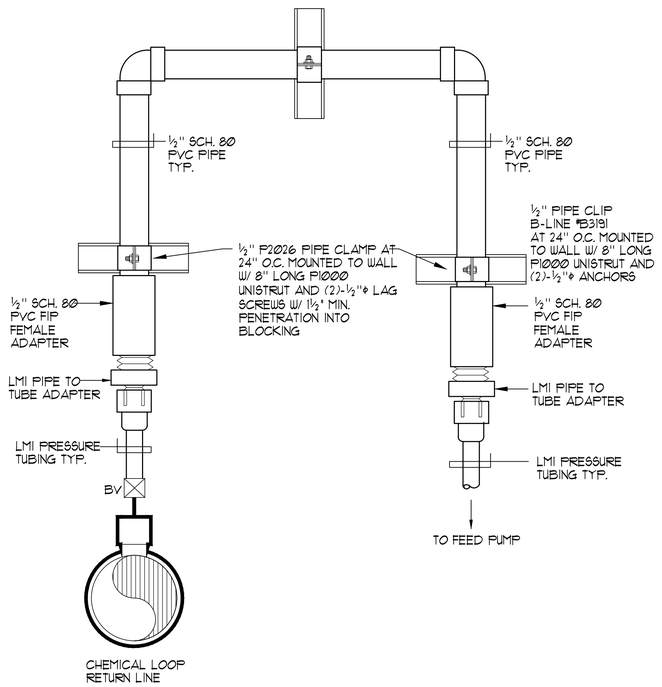
2 MURIATIC ACID FEED SCHEMATIC NO SCALE



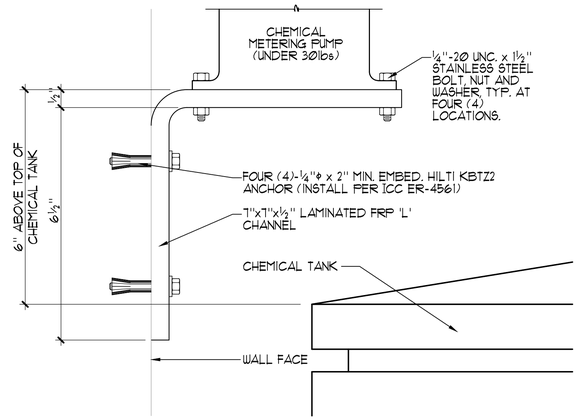
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7. PROVIDE VAPORLOC CAP @ TUBING ENTRANCE

3 SODIUM HYPOCHLORITE FEED SCHEMATIC NO SCALE



4 CHEMICAL FEED PIPING DETAIL NO SCALE



5 CHEMICAL PUMP SHELF 6"=1'-0"

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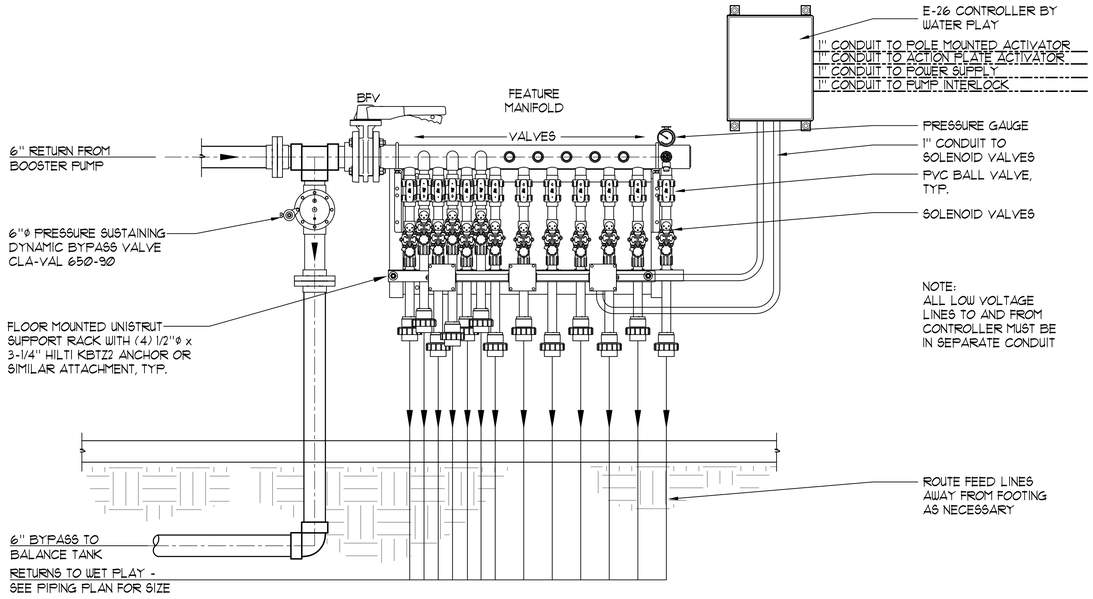
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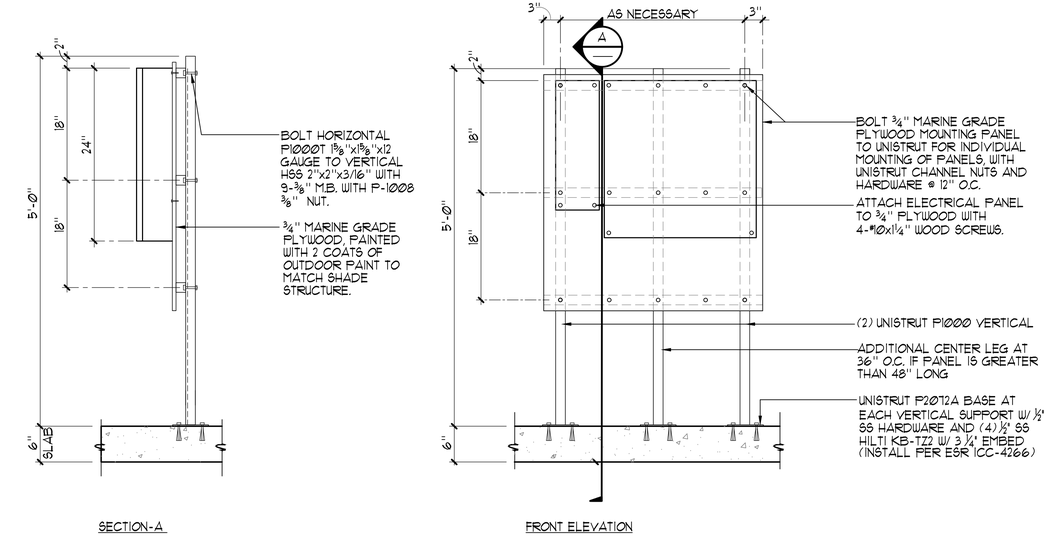
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LICENSED ARCHITECT
GREGORY S. ATHELL
C-35802
REN. 07/31/27
STATE OF CALIFORNIA

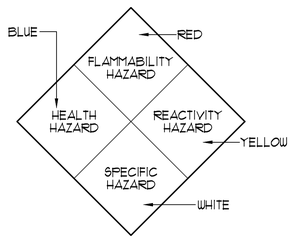
SHEET 75 OF 80
MR-3



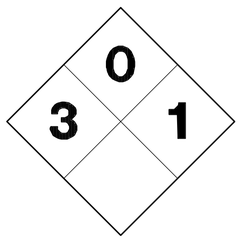
1 **WALL MOUNTED COMMAND CENTER AND MANIFOLD** 3/4"=1'-Ø"



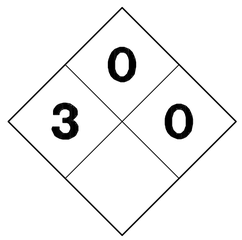
2 **UNISTRUT PANEL SUPPORT SYSTEM** 1"=1'-Ø"



LEGEND



SODIUM HYPOCHLORITE



MURIATIC ACID

RATING EXPLANATION GUIDE					
RATING	HEALTH HAZARD	FLAMMABILITY HAZARD	REACTIVITY HAZARD	SPECIFIC HAZARD	
4	CAN BE LETHAL	EXTREMELY FLAMMABLE. IGNITES AT BELOW 73° F.	MAY EXPLODE AT NORMAL TEMPERATURES AND PRESSURES	OXIDIZER:	OX
				ACID:	ACID
3	CAN CAUSE SERIOUS OR PERMANENT INJURY	IGNITES AT ABOVE 73° F, BELOW 100° F.	MAY EXPLODE AT HIGH TEMPERATURES OR SHOCK	CORROSIVE:	COR
2	CAN CAUSE TEMPORARY INCAPACITATION OR RESIDUAL INJURY	IGNITES AT ABOVE 100° F, BELOW 200° F.	VIOLENT CHEMICAL CHANGE AT HIGH TEMPERATURES OR PRESSURES	ALKALI:	ALK
				USE NO WATER:	Ψ
1	CAN CAUSE SIGNIFICANT IRRITATION	IGNITES AT ABOVE 200° F.	NORMALLY STABLE, HIGH TEMPERATURES MAKE UNSTABLE	RADIATION HAZARDS:	☢
				POLYMERIZES:	P
Ø	NO HAZARD	WILL NOT BURN	STABLE		

NOTES:
1. CONFIRM SIGNAGE WITH LOCAL FIRE MARSHALL AND/OR BUILDING CODES PRIOR TO INSTALLATION. SIGNS SHALL CONFORM TO NFPA 704.
2. SIGNS SHALL BE SIZES AND COLORS PER CODE MOUNTED AT 60" A.F.F. ON DOORS AT CHEMICAL ROOMS.

CHEMICAL CLASSIFICATION TABLE										
COMMON NAME	CHEMICAL NAME	% COMP.	CAS #	FORM	QUANT. STORED (NOT USED)	QUANT. IN USE (USE-CLOSED)	MAXIMUM ALLOWABLE QUANTITY	LOCATION STORAGE USE)	HAZ. CLASSES	JUSTIFICATION
SODIUM HYPOCHLORITE	SODIUM HYPOCHLORITE	12.5%	7681-52-9	LIQUID	Ø GAL.	150 GAL.	500 GAL.	CHEM. ENCLOSURE	IRRITANT LIQUID	MSDS
MURIATIC ACID	HYDROCHLORIC ACID	25%	7647-01-Ø	LIQUID	Ø GAL.	60 GAL.	500 GAL.	CHEM. ENCLOSURE	CORROSIVE LIQUID	MSDS

QUANTITIES OF CHEMICALS DO NOT EXCEED THE QUANTITIES LISTED IN NBC TABLES 3Ø7.1 (1) AND 3Ø7.1 (2).

3 **HAZARDOUS INFORMATION SIGNAGE** NO SCALE

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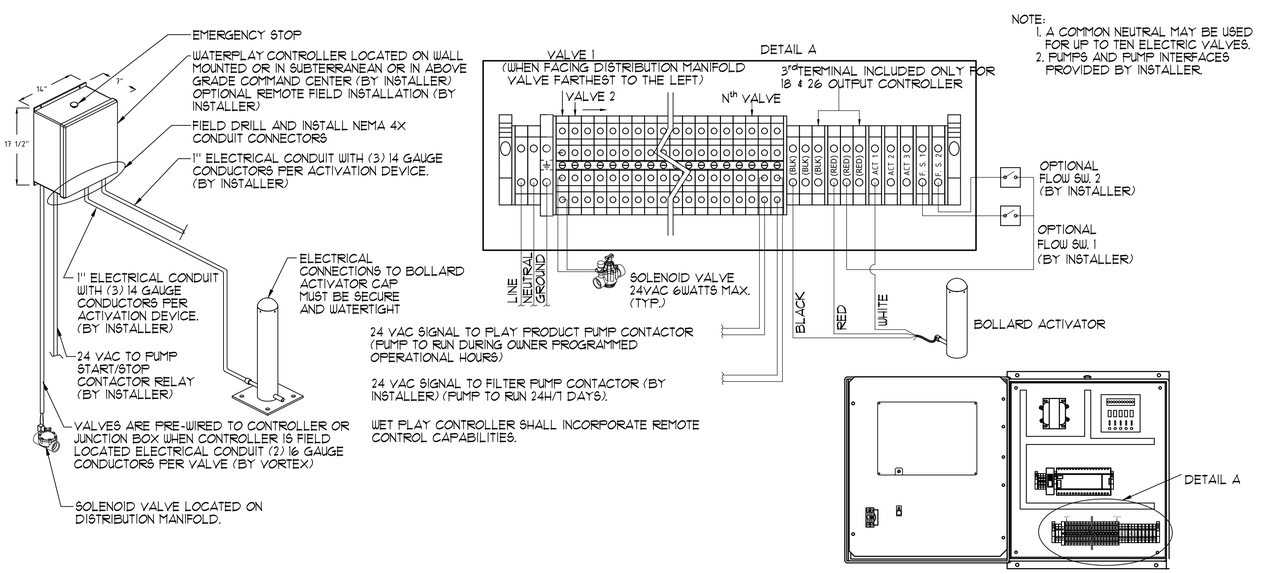
OWNER: COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE: WHITTIER NARROWS RECREATION AREA SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS / DATE: 1. 2. 3. 4. 5. 6. 7. 8.

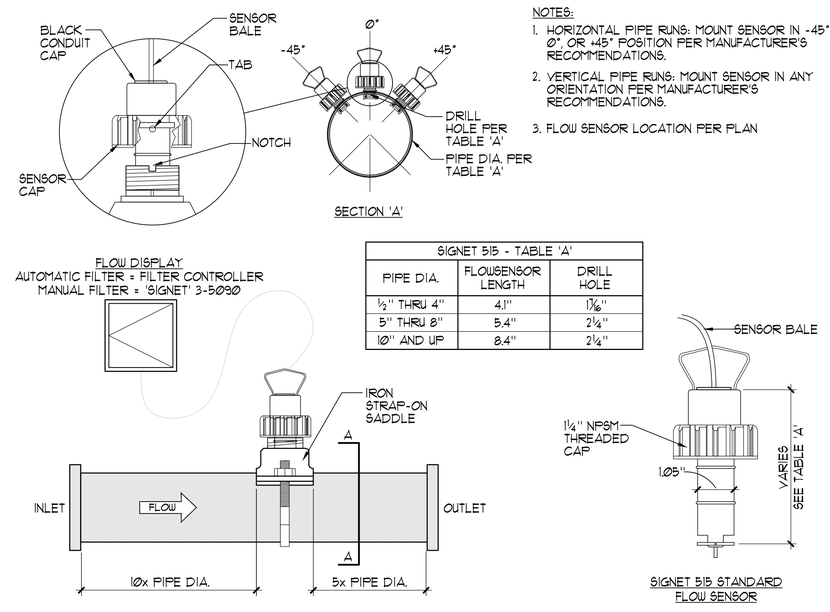
DRAWN BY:	KK
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PROJECT NO.	0900
DATE:	23 OCTOBER 2025

LICENSED ARCHITECT GREGORY S. ATHELL C-35802 REN. 07/31/27 STATE OF CALIFORNIA



1 WATERPLAY CONTROLLER INSTALLATION DETAIL

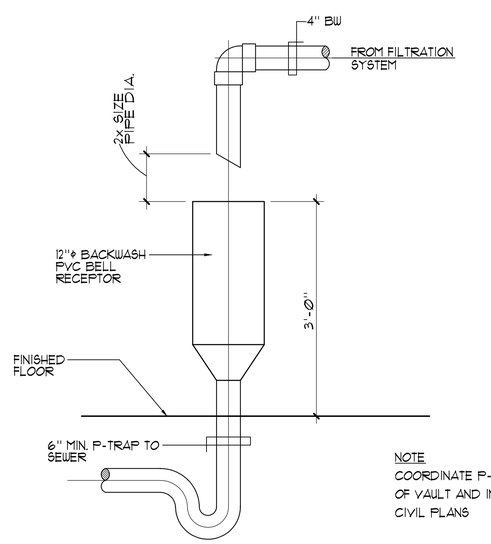
NO SCALE



SIGNET 515 - TABLE 'A'		
PIPE DIA.	FLOWSENSOR LENGTH	DRILL HOLE
½" THRU 4"	4.1"	1⅞"
5" THRU 8"	5.4"	2¼"
1Ø" AND UP	8.4"	2¼"

2 SIGNET FLOWMETER

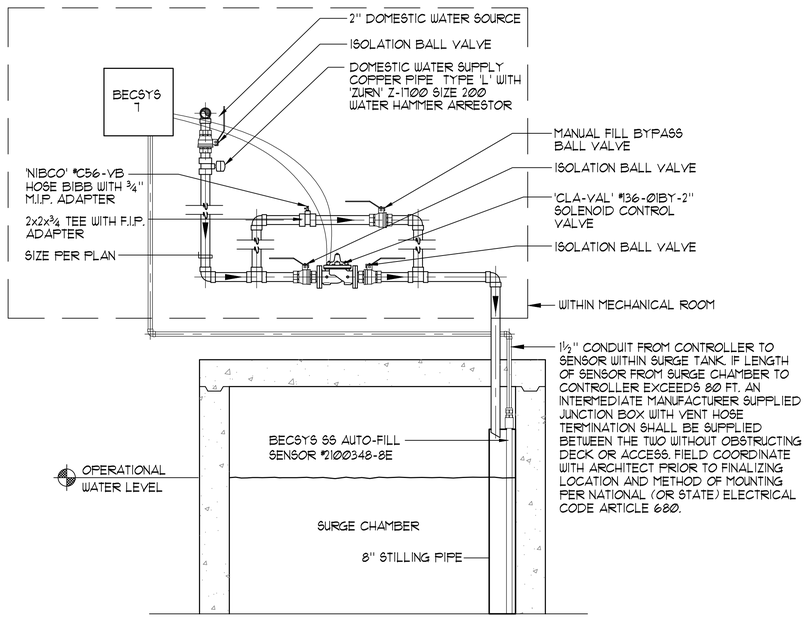
NO SCALE



NOTE
COORDINATE P-TRAP LOCATION OUTSIDE OF VAULT AND INVERT ELEVATION WITH CIVIL PLANS

3 BELL RECEPTOR DETAIL

1"=1'-Ø"



4 AUTOMATIC/MANUAL WATER MAKE-UP SCHEMATIC

NO SCALE

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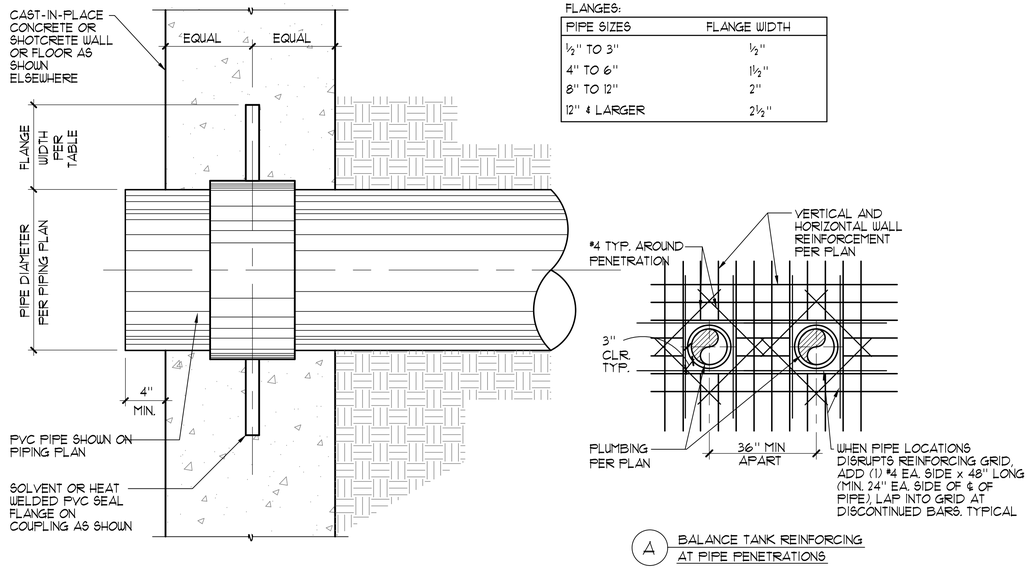
PROJECT TITLE
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

REVISIONS	DATE
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CHECKED BY:	AP
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LICENSED ARCHITECT
GREGORY S. ANDRZEJEWSKI
C-35802
REN. 07/31/27
STATE OF CALIFORNIA

SHEET 77 OF 80
MR-5



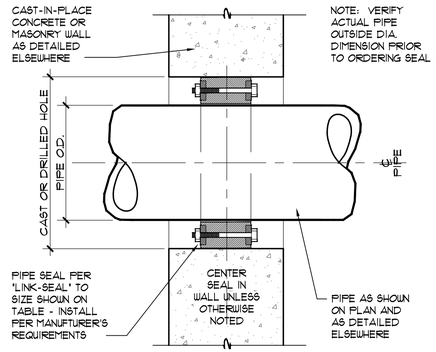
FLANGES:

PIPE SIZES	FLANGE WIDTH
½" TO 3"	½"
4" TO 6"	1½"
8" TO 12"	2"
12" & LARGER	2½"

A BALANCE TANK REINFORCING AT PIPE PENETRATIONS.

1 WATER STOP DETAIL

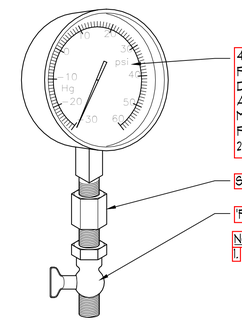
NO SCALE



PIPE SIZE (NOMINAL)	OUTSIDE DIAMETER (PIPE O.D.)	CAST OR DRILLED CONCRETE HOLE NOM. DIA. (I.D.)	LINK SEAL SIZE NO.	NO. OF LINKS PER SEAL
½"	Ø.84Ø	2.Ø	LS-2ØØ	4
¾"	1.Ø5Ø	2.5	LS-275	5
1"	1.315	3.Ø	LS-3ØØ	4
1¼"	1.66Ø	3.Ø	LS-275	7
1½"	1.9ØØ	3.5	LS-3ØØ	5
2"	2.375	4.Ø	LS-3ØØ	6
2½"	2.875	4.Ø	LS-2ØØ	9
3"	3.5Ø	5.Ø	LS-3ØØ	8
3½"	4.ØØ	6.Ø	LS-325	5
4"	4.5Ø	6.Ø	LS-3ØØ	1Ø
5"	5.563	8.Ø	LS-425	6
6"	6.625	1Ø.Ø	LS-415	1Ø
8"	8.625	12.Ø	LS-415	12
1Ø"	1Ø.75	14.Ø	LS-4ØØ	1Ø
12"	12.75	16.Ø	LS-4ØØ	12
14"	14.ØØ	16.Ø	LS-325	15
16"	16.ØØ	18.Ø	LS-325	17
18"	18.ØØ	23.Ø	LS-5ØØ	16
2Ø"	2Ø.ØØ	25.Ø	LS-5ØØ	18
22"	22.ØØ	27.Ø	LS-5ØØ	19
24"	24.ØØ	29.Ø	LS-5ØØ	21
26"	26.ØØ	31.Ø	LS-5ØØ	23
28"	28.ØØ	33.Ø	LS-5ØØ	24
3Ø"	3Ø.ØØ	35.Ø	LS-5ØØ	26
32"	32.ØØ	37.Ø	LS-5ØØ	28
34"	34.ØØ	39.Ø	LS-5ØØ	29
36"	36.ØØ	41.Ø	LS-5ØØ	3Ø

2 PIPE SEAL TO WALL / FLOOR

NO SCALE



3 PIPE FLOOR STAND SUPPORT

NO SCALE

NOTES:

1. PRESSURE GAUGES SHALL BE INSTALLED BY MEANS OF DRILLING AND TAPPING PIPE TO BE MONITORED. THE GAUGE SHALL THEN BE THREADED INTO THE PIPE. PROVIDE WITH SNUBBER AND PET COCK.
2. GAUGE MAY BE USED WHEREVER CRUCIAL VACUUM OR PRESSURE READINGS ARE ESSENTIAL.

4 PRESSURE/VACUUM GAUGE

6"=1'-Ø"

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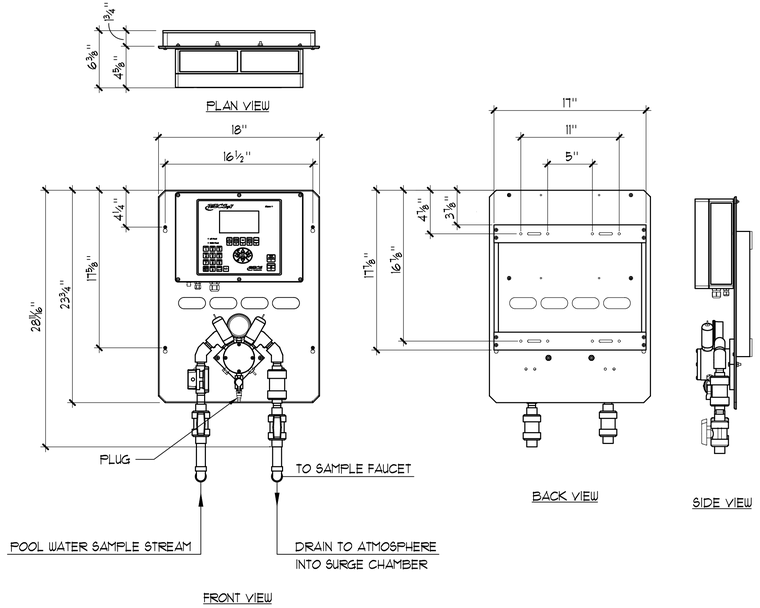
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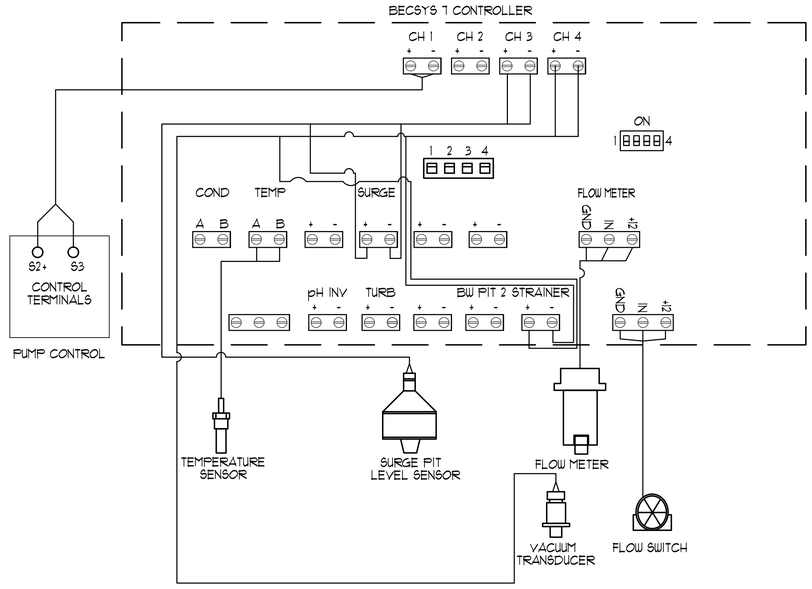
LICENSED ARCHITECT GARY S. ANDGREN C-25802 REN. 07/31/27 STATE OF CALIFORNIA

SHEET 78 OF 80
MR-6



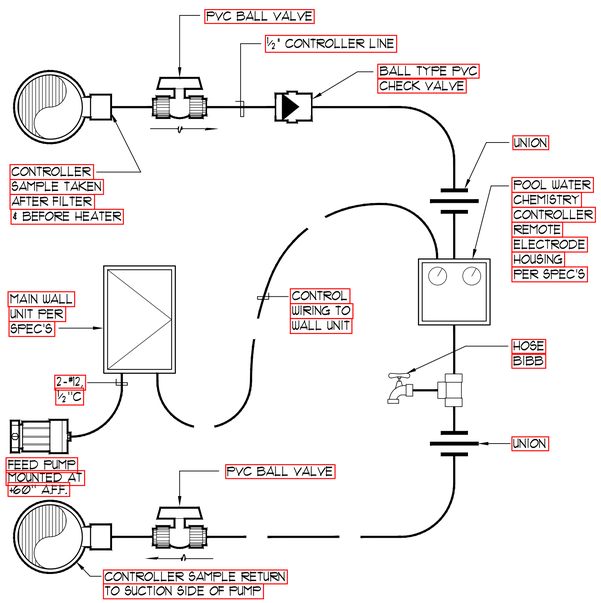
1 BECSYS 7 WATER CHEMISTRY CONTROLLER

1½"=1'-0"



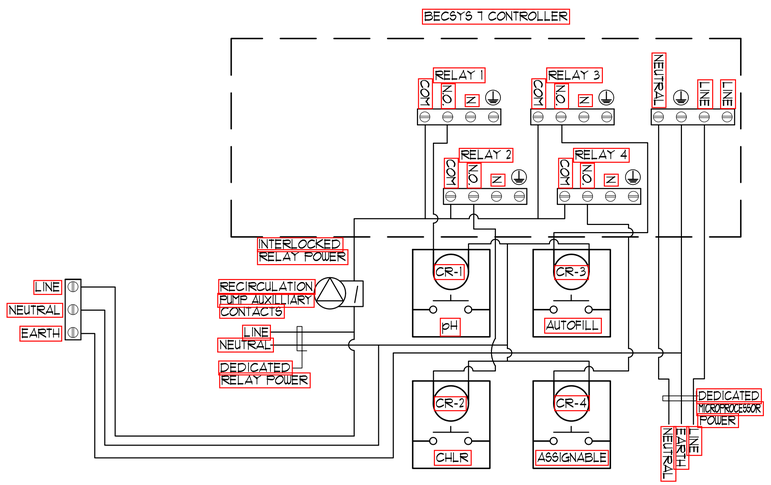
2 WATER CHEMISTRY CONTROLLER RELAY INPUTS

NO SCALE



3 WATER CHEMISTRY CONTROLLER SCHEMATIC

NO SCALE



4 WATER CHEMISTRY CONTROLLER RELAY OUTPUTS

NO SCALE

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SHEET 79 OF 80

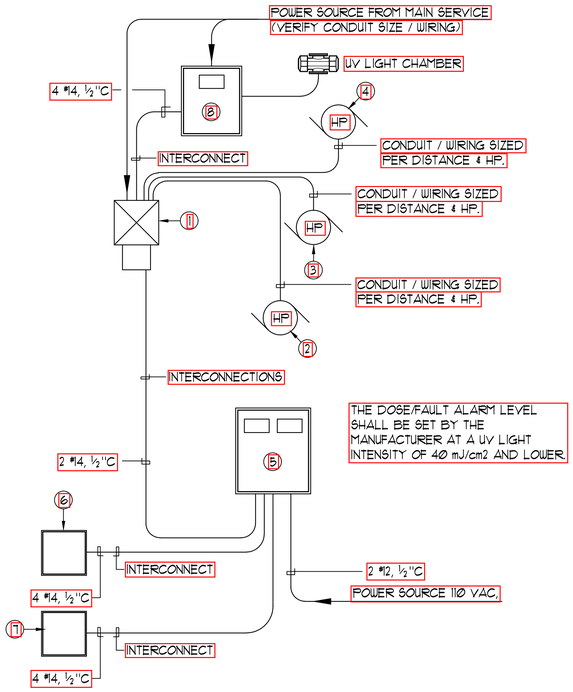
MR-7

LEGEND

(11) COMBINATION MAG. STARTER
(2) CIRCULATION PUMP
(3) BOOSTER PUMP #1
(4) BOOSTER PUMP #2
(5) WATER CHEMISTRY CONTROLLER
(6) CHLORINE FEED SYSTEM
(7) ACID FEED SYSTEM
(8) UV CONTROL PANEL X2

NOTES:

1. INSTALL 1 #12 GROUND CONDUCTOR IN ALL CONDUITS
2. ALL CONDUITS SHALL BE RIGID OR INTERMEDIATE GALVANIZED METAL.
3. REFER TO FILTER 'OWNER'S MANUAL' FOR INSTALLATION/ OPERATING INSTRUCTIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR A FULLY OPERATIONAL SYSTEM.
4. ALL WORK SHALL BE IN ACCORDANCE WITH 2019 C.E.C. FURNISH ALL LABOR, MATERIALS AND COORDINATION OF WORK HERE ON SHOWN/IMPLIED.
5. THE UV LIGHT DISINFECTION SYSTEM MUST BE EQUIPPED WITH AN AUTOMATIC SHUTDOWN SYSTEM THAT INACTIVATES THE WATER FEATURE PUMP IF THE UV DOSAGE RATE DROPS BELOW 40 mJ/cm^2.
6. AUTOMATIC DISINFECTANT FEEDERS AND FILTRATION PUMP SHALL BE INTERLOCKED SO THAT WHEN FILTRATION PUMP SHUTS OFF THE WHOLE SYSTEM SHUTS DOWN.



1 **ELECTRICAL INTERCONNECTION SINGLE LINE DIAGRAM** NO SCALE

VOLTAGE: 120/240, 1PH, 3W A.I.C. RATING: 10000A PANEL: 'SP' MOUNTING: SURFACE ☒ FLUSH ☐
MAIN: LUGS ONLY ☐ MAIN BREAKER ☒ 225A BUS AMP: 225 ISOLATED GROUND: ☐

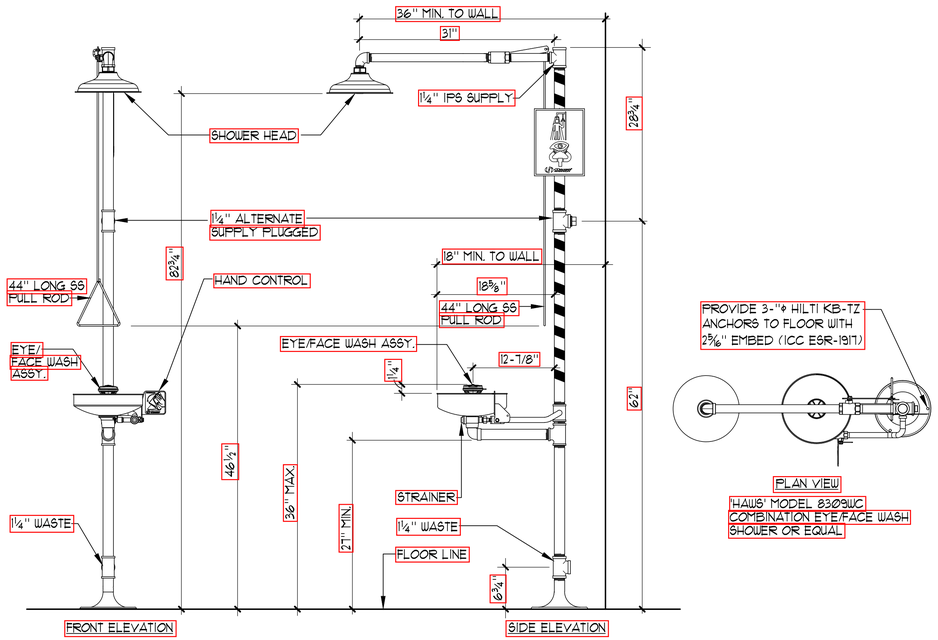
REMARKS	VOLTAMPS A	VOLTAMPS C	OUTLETS LTG	OUTLETS REC	OUTLETS MISC	BRKR AMPS/ POLES	A	B	BRKR AMPS/ POLES	OUTLETS LTG	OUTLETS REC	OUTLETS MISC	VOLTAMPS A	VOLTAMPS C	REMARKS
WTR CHEM RELAY	360					20/1	1	2	20/1			1	360		CIRC PUMP INTERCON.
WTR CHEM CONTROLLER		1200			1		3	4				1		360	CIRC PUMP MTR CONT.
WTR PLAY CONTROLLER	960				1		5	6				1	360		BSTR #1 PUMP INTERCON.
ACID FEED PUMP		960			1		7	8				1		360	BSTR #1 PUMP MTR CONT.
CHLORINE FEED PUMP	960				1		9	10				1	360		BSTR #2 PUMP INTERCON.
							11	12				1		360	BSTR #2 PUMP MTR CONT.
							13	14				1	1500		UV SYSTEM #1 1.5kW
							15	16				1		1500	UV SYSTEM #2 1.5kW
							17	18							
							19	20							
							21	22							
							23	24							
							25	26							
							27	28							
							29	30							
							31	32							
							33	34							
							35	36							
							37	38							
							39	40							
							41	42							
SUB TOTALS	2,280	2,160											2,580	2,580	

CONNECTED LINE VA: A= 4,860 C= 4,740
PANEL TOTAL CONNECTED VA= 9,600
LCL VA= 7,680 X.25= 1,920
FEEDER VOLTAMPS = 11,520
FEEDER AMPS = 96

(1) GFI CIRCUIT
(2) NEMA 4X

SHOWN FOR REFERENCE ONLY - SEE ELECTRICAL PLANS FOR PANEL SCHEDULE AND ADDITIONAL ELECTRICAL REQUIREMENTS
PANEL TO BE PROVIDED BY DIV 26.
POOL CONTRACTOR TO PROVIDE CONNECTIONS TO ALL POOL EQUIPMENT

2 **PANEL SCHEDULE** NO SCALE



NOTE: EYEWASH/SHOWER DOES NOT REQUIRE GRASPING OR TWISTING. ALL OPERABLE PARTS SHALL COMPLY WITH CBC 11B-309.

3 **TYPICAL EYEWASH/SHOWER DETAIL** NO SCALE

4 **NOT USED**

WITHERS & SANDGREN
LANDSCAPE ARCHITECTURE + PLANNING
20948 TULSA STREET
CHATSWORTH, CA 91311
818-291-0200
mail@withersandsandgren.com

SHEET TITLE: DETAILS

OWNER:
COUNTY OF LOS ANGELES
DEPARTMENT OF PARKS & RECREATION
1000 SOUTH FREMONT AVE.
ALHAMBRA, CA 91803

PROJECT TITLE:
WHITTIER NARROWS RECREATION AREA
SPLASH PAD PROJECT
750 SOUTH SANTA ANITA AVE.
SOUTH EL MONTE, CA 91733

DATE:
REVISIONS: 1 2 3 4 5 6 7 8

DRAWN BY: KK
CHECKED BY: AP
PROJECT NO. 0900
DATE 23 OCTOBER 2025

LICENSED ARCHITECT
GREGORY S. ABBOTT
C-35802
REN. 07/31/27
STATE OF CALIFORNIA

SHEET 80 OF 80
MR-8

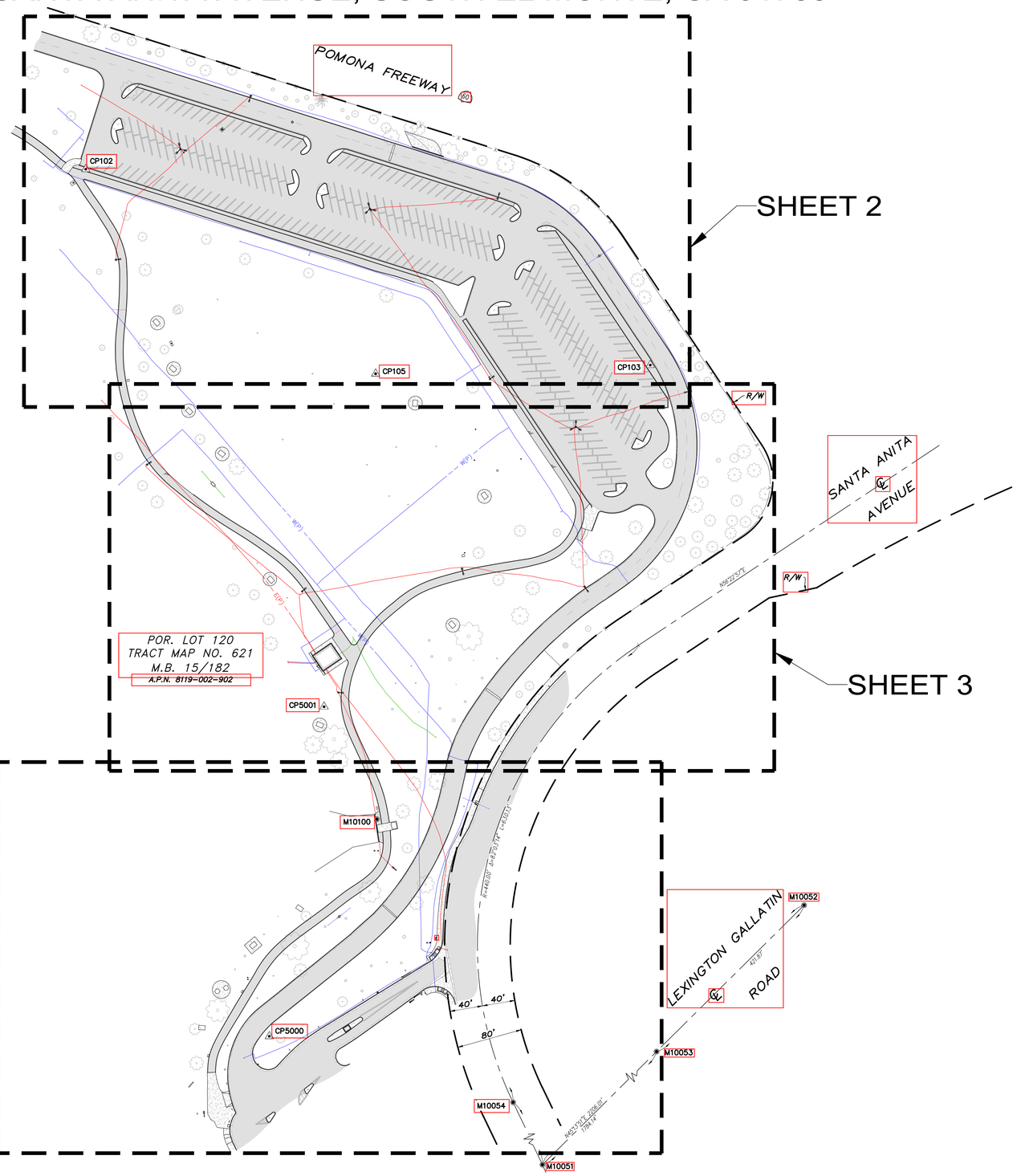
Appendix B

Whittier Narrows Splash Pad – Topographic Survey
Dated 02/22/22

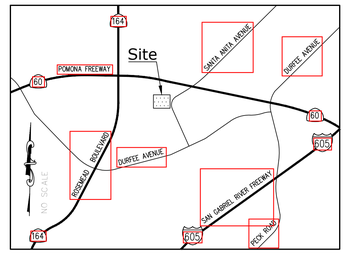
TOPOGRAPHIC SURVEY

WHITTIER NARROWS RECREATION AREA
836 SANTA ANITA AVENUE, SOUTH EL MONTE, CA 91733

GRAPHIC SCALE
60 0 30 60
FEET



VICINITY MAP



CONTROL POINTS				
CP#	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP102	1836872.05'	6544421.60'	221.30'	SET MAGNETIC NAIL/SHINER
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M10054	FD SPIKE & WASHER LACO-DWP FLUSH, PER R.S. 320/76
M10100	FD SPIKE & WASHER ILLEGIBLE FLUSH, PER R.S. 320/76

LEGEND

ASPHALT PAVEMENT	FS	FINISH SURFACE
CONCRETE PAVEMENT	FL	FLOW LINE
CONTROL POINT	HCP	HANDICAP RAMP
DOOR	INV	INVERT
FLOW DIRECTION	ICV	IRRIGATION CONTROL VALVE
FOUND MONUMENT AS NOTED	NG	NATURAL GROUND
GATE	R/W	RIGHT OF WAY
GUARD POST	POS	POINT ON SLOPE
IRRIGATION CONTROL VALVE	TC	TOP OF CURB
MONITORING WELL	TOS	TOP OF SLOPE
PALM TREE	TW	TOP OF WALL
SEWER CLEAN OUT	TYP	TYPICAL
SEWER MANHOLE	CENTERLINE	
SIGN	CHAIN LINK FENCE	
STORM DRAIN MANHOLE	CONCRETE/RETAINING WALL	
STREET LIGHT	EDGE OF PAVEMENT	
TREE (TYPICAL)	E(P)	ELECTRIC LINE PAINTED
TREE STUMP	FLOW LINE	
WATER VALVE	G(P)	GAS LINE PAINTED
ASSESSOR'S PARCEL NUMBER	RIGHT-OF-WAY	
CATCH BASIN	SS	SANITARY SEWER LINE
CENTERLINE	SS(P)	SANITARY SEWER LINE PAINTED
DIAMETER OF EXISTING TREE	SD	STORM DRAIN LINE
ELECTRIC PULL BOX	TOS	TOP OF SLOPE
ELECTRIC VAULT	UNK(P)	UNKNOWN LINE PAINTED
	W(P)	WATER LINE PAINTED

REVISIONS			
NO.	DATE	REVISIONS	BY
0	02/22/22	SUBMITTAL	DM

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227-2600
(BEFORE YOU DIG)

PREPARED FOR

BRANDOW & JOHNSTON
700 S. FLOWER ST, SUITE 1800
LOS ANGELES, CA 90017
PHONE: (213) 596-4550

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THE COMBINATION FACTOR FOR THIS PROJECT WAS APPLIED AT THE FOLLOWING POINT:
NORTHING = 1835601.29' EASTING = 6544583.60'

MAPPING ANGLE = -0°01'56" SCALE FACTOR = 1.00000607

BENCHMARK

ELEVATIONS SHOWN HEREON ARE BASED UPON LOS ANGELES COUNTY BENCHMARK SY9775, ELEVATION 225.369 FEET (NAVD 88).

DESCRIPTION:
RDBM TAG IN E CB SANTA ANITA AVE 2FT N/O BCR @ NE COR DURFEE AVE.

SITE INFORMATION

SITE NAME: WHITTIER NARROWS RECREATION AREA
SITE ADDRESS: 836 SANTA ANITA AVENUE, SOUTH EL MONTE, CA 91733

SURVEYOR OF RECORD

FIELD COMPLETION DATE: FEBRUARY 16, 2022.

LICENSED LAND SURVEYOR — Armando D. DuFont — L.S. 7780 — Date Signed: 02/22/2022 — STATE OF CALIFORNIA

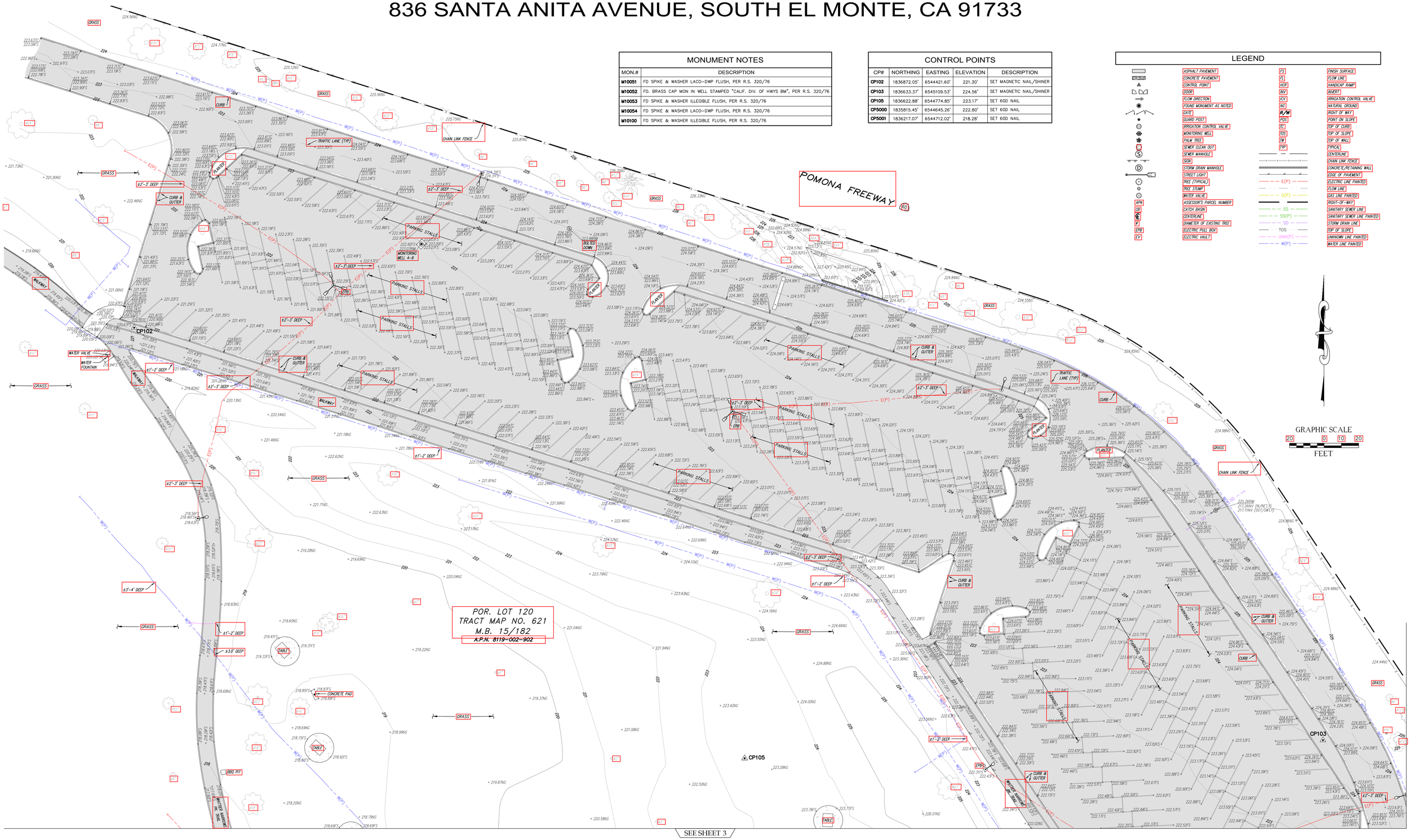
Armando D. DuFont
Registration No. 7780

CALVADA SURVEYING, INC.
411 Jenks Cir., Suite 205, Corona, CA 92880
Phone: 951-280-9960 Fax: 951-280-9746
Toll Free: 800-CALVADA www.calvada.com
EST. 1989

JOB NO. 22067-PW

TOPOGRAPHIC SURVEY

WHITTIER NARROWS RECREATION AREA
836 SANTA ANITA AVENUE, SOUTH EL MONTE, CA 91733



MONUMENT NOTES

MON.#	DESCRIPTION
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DOOR	INV	INVERT
FLOW DIRECTION	ICV	IRRIGATION CONTROL VALVE
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SIGN		CHAIN LINK FENCE
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REVISIONS

NO.	DATE	REVISIONS	BY
0	02/22/22	SUBMITTAL	DM

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(TWO WORKING DAYS BEFORE YOU DIG)

PREPARED FOR

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FIELD COMPLETION DATE: FEBRUARY 16, 2022.

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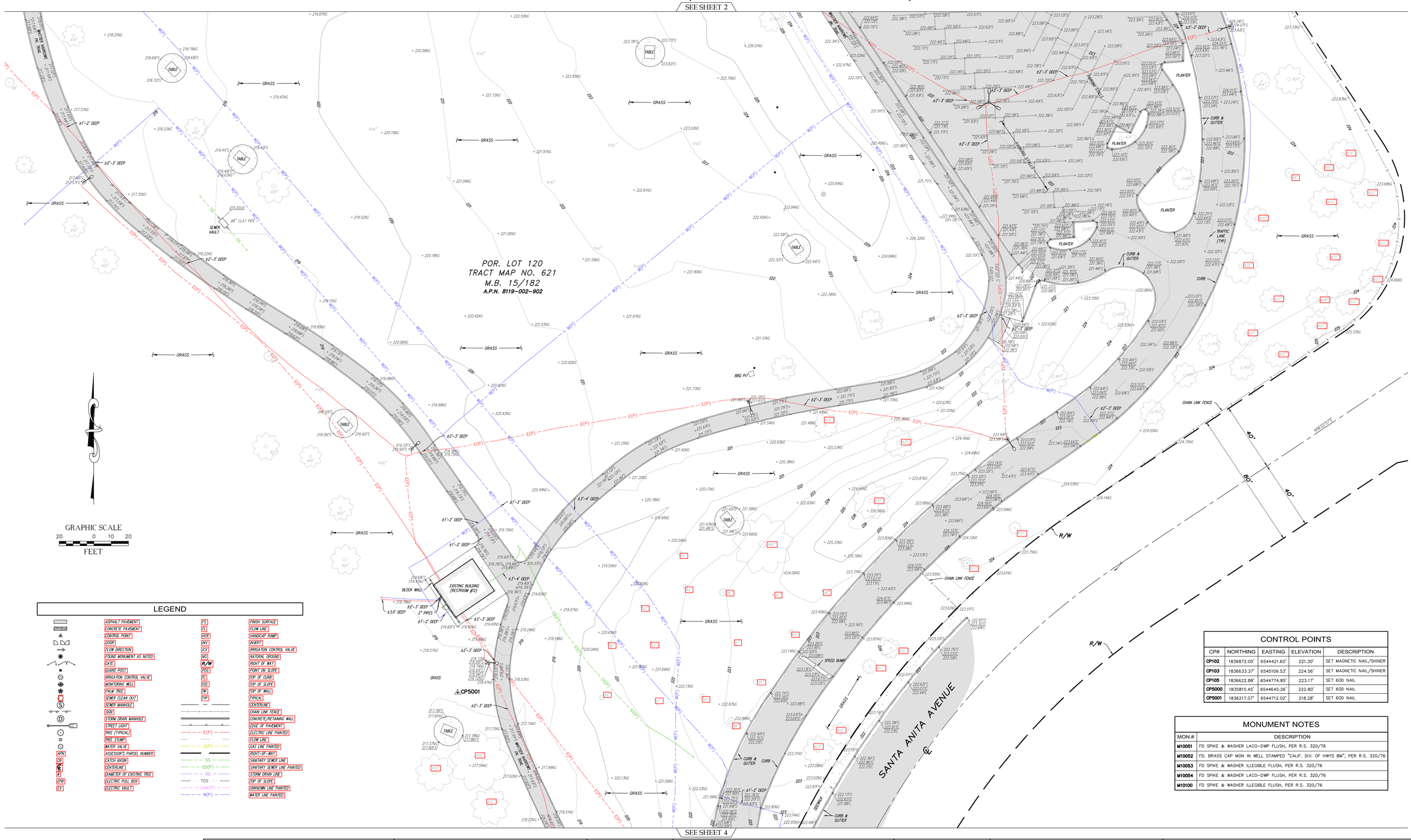
CALVADA
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411 Jenks Cir., Suite 205, Corona, CA 92880
Phone: 951-280-9960 Fax: 951-280-9746
Toll Free: 800-CALVADA www.calvada.com
EST. 1989 JOB NO. 22067-PW

Armando D. DuPont
Registration No. 7780

TOPOGRAPHIC SURVEY

WHITTIER NARROWS RECREATION AREA
836 SANTA ANITA AVENUE, SOUTH EL MONTE, CA 91733

SEE SHEET 2



GRAPHIC SCALE
20 0 10 20
FEET

LEGEND

	ASPHALT PAVEMENT	FS	FINISH SURFACE
CP5000	CONCRETE PAVEMENT	FL	FLOW LINE
	CONTROL POINT	HCR	HANDICAP RAMP
	DOOR	INVERT	INVERT
	FLOW DIRECTION	ICV	IRRIGATION CONTROL VALVE
	FOUND MONUMENT AS NOTED	NG	NATURAL GROUND
	GATE	R/W	RIGHT OF WAY
	GUARD POST	POS	POINT ON SLOPE
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	SEWER CLEAN OUT	TYP	TYPICAL
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	SIGN		CHAIN LINK FENCE
D	STORM DRAIN MANHOLE		CONCRETE/RETAINING WALL
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APN	ASSESSOR'S PARCEL NUMBER		RIGHT-OF-WAY
CB	CATCH BASIN	SS	SANITARY SEWER LINE
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SEE SHEET 4

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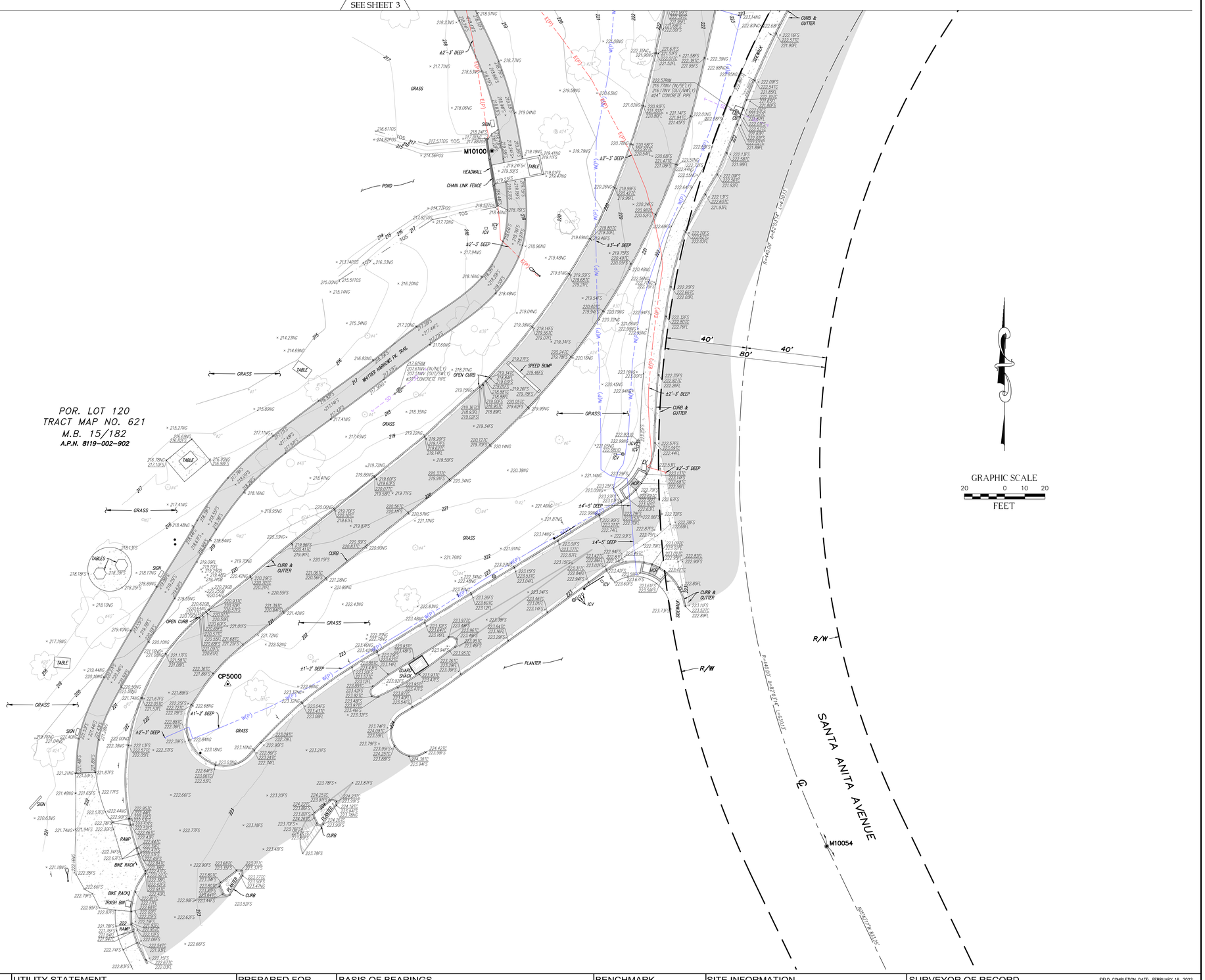
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TOPOGRAPHIC SURVEY

WHITTIER NARROWS RECREATION AREA
836 SANTA ANITA AVENUE, SOUTH EL MONTE, CA 91733

SEE SHEET 3



LEGEND

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	CONTROL POINT	HCR	HANDICAP RAMP
	DOOR	INV	INVERT
	FLOW DIRECTION	ICV	IRRIGATION CONTROL VALVE
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0	02/22/22	SUBMITTAL	DM

UTILITY STATEMENT

BURIED UTILITIES AND/OR PIPELINES SHOWN HEREON ARE PER VISIBLE AND APPARENT SURFACE EVIDENCE, RECORD DRAWINGS OF THE CONSTRUCTED UTILITY LINES OBTAINED FROM RELIABLE AND RESPONSIBLE SOURCES NOT CONNECTED WITH CALVADA SURVEYING, INC. OR MARKINGS PROVIDED BY AN INDEPENDENT LOCATING CONTRACTOR. NO GUARANTEE OR WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY OR THOROUGHNESS OF SUCH INFORMATION. IF MORE ACCURATE LOCATIONS OF UNDERGROUND UTILITIES OR PIPE LINES ARE REQUIRED, THE UTILITY OR PIPELINE WILL HAVE TO BE VERIFIED BY FIELD POTHOLING. CALVADA SURVEYING, INC. AND THE SURVEYOR OF RECORD SHALL NOT BE HELD LIABLE FOR THE LOCATION OF OR THE FAILURE TO NOTE THE LOCATION OF NON-VISIBLE UTILITIES OR PIPELINES.

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Call: TOLL FREE
1-800 227-2600
TWO WORKING DAYS BEFORE YOU DIG

PREPARED FOR

BRANDOW & JOHNSTON

700 S. FLOWER ST, SUITE 1800
LOS ANGELES, CA 90017
PHONE: (213) 596-4550

BASIS OF BEARINGS

THE BEARINGS SHOWN HEREON ARE BASED UPON THE CALIFORNIA COORDINATE SYSTEM OF 1983, CCS83, ZONE 5, (2017.50) IN ACCORDANCE TO THE CALIFORNIA PUBLIC RESOURCES CODE SECTIONS 8801-8819; SAID BEARINGS ARE DETERMINED LOCALLY UPON FIELD-OBSERVED TIES TO THE FOLLOWING CALIFORNIA SPATIAL REFERENCE CENTER (C.S.R.C.) CONTINUOUSLY OPERATING REFERENCE STATIONS (C.O.R.S.):

C.S.R.C. RHCL:
NORTHING = 1829315.58' EASTING = 6553739.69'

C.S.R.C. BKMS:
NORTHING = 1808660.12' EASTING = 6532953.85'

THE COMBINATION FACTOR FOR THIS PROJECT WAS APPLIED AT THE FOLLOWING POINT:
NORTHING = 1835601.29' EASTING = 6544583.60'

MAPPING ANGLE = -0°01'56" SCALE FACTOR = 1.00000607

BENCHMARK

ELEVATIONS SHOWN HEREON ARE BASED UPON LOS ANGELES COUNTY BENCHMARK SY9775, ELEVATION 225.369 FEET (NAVD 88).

DESCRIPTION:
RDBM TAG IN E CB SANTA ANITA AVE 2FT N/O BCR @ NE COR DURFEE AVE.

SITE INFORMATION

SITE NAME: WHITTIER NARROWS RECREATION AREA
SITE ADDRESS: 836 SANTA ANITA AVENUE, SOUTH EL MONTE, CA 91733

SURVEYOR OF RECORD

FIELD COMPLETION DATE: FEBRUARY 16, 2022.

LICENSED LAND SURVEYOR — L.S. 7780 — Date Signed: 10/22/2022 — STATE OF CALIFORNIA

Armando D. DuFont
Registration No. 7780

CALVADA SURVEYING, INC.
411 Jenks Cir., Suite 205, Corona, CA 92880
Phone: 951-280-9960 Fax: 951-280-9746
Toll Free: 800-CALVADA www.calvada.com
EST. 1989 JOB NO. 22067-PW

Appendix B

Whittier Narrows Splash Pad – Structural Calculations
Dated 10/24/24

LA COSTA
ENGINEERING
2226 FARADAY AVENUE
CARLSBAD, CALIFORNIA 92008
TEL 760-931-0290 FAX 438-5251
marty_montgomery@yahoo.com
CIVIL • STRUCTURAL
MECHANICAL • PETROLEUM

STRUCTURAL CALCULATIONS AND DETAILS

FOR

SPLASH PAD DESIGN

PROJECT: WHITTIER NARROWS RECREATION AREA
750 SOUTH SANTA ANITA AVENUE
SOUTH EL MONTE, CA 91733

ENGINEER: MARTELL B. MONTGOMERY
R.C.E. 50344 EXP. 6-30-25

DATE: OCTOBER 24, 2024

DESIGN LOADS: CBC 2022





STRUCTURAL CALCULATION – INDEX

1	Cover Sheet
2	Index Sheet
3	Splash Pad Deck Design
4-6	Splash Pad Slab Design
7	Balance Tank Design
8-19	Balance Tank Wall, Foundation Designs
20-23	Balance Tank Roof, Roof Hatch Beam Designs
24-35	Balance Tank/Pump Pit Access Ladder Anchorage
36	Pool Equipment
37-38	ASCE 7 Hazards Report
39	Seismic Loads on Equipment
40-51	Small Pump Anchorage
52-63	Small Filter Anchorage
64-78	Chemical Tank Anchorages
79	Geotechnical References
80-90	GPI Geotechnical Professionals, Inc., geotechnical reference sheets

SPLASH PAD DECK DESIGN

SPLASH PAD DECK DESIGN:

CBC 2022, ACI 318-19

Dead Load:	DL =	75	psf (6" Conc. Slab)
Live Load:	LL =	100	
Factored Load: w_u = 1.2*DL + 1.6*LL =		250	psf

Soil Pressure P_s: 2500 psf > 250 psf (per Geotechnical Investigation by GPI Geotechnical Professionals, Inc.)

1) Slab Foundation Data:

H=	6	in (Design reinf./ft.)
b=	12	in (Design reinf./ft.)
Rebar cover:	2.75	in

2) Determine the shrinkage and temperature reinforcement:

Perimeter: t: A_s =0.0018b*h =	0.13	in^2		24.4.3.2
Try #4 @12" o.c.:	0.20	in^2 >	0.13 in^2	**OK**
Horiz: A_s = 0.0018b*h =	0.13	in^2		24.4.3.2
Try #4 @12" o.c.:	0.20	in^2 >	0.13 in^2	**OK**
Max spacing = 18" or 5*h =	18	" o.c.		24.4.3.3

Design: **Construct 6" CONC. SLAB w/ #4 @12" o.c., ea. way at mid-depth.**

CHECK REBAR SPLICE DEVELOPMENT LENGTH:

CBC 2022, ACI 318-19

f'_c= 4000 psi

f_y= 60000 psi

25.4.2.3: $$l_d = \left[\frac{f_y \Psi_t \Psi_e \Psi_g}{25\lambda\sqrt{f'_c}}\right] d_b$$

25.4.2.4: $$l_d = \left[\frac{3f_y}{40\lambda\sqrt{f'_c}} * \frac{\Psi_t \Psi_e \Psi_s \Psi_g}{\left(\frac{c_b + k_{tr}}{d_b}\right)}\right] d_b$$

FOR #4 REBAR:

d_b=0.5"

SET $\left(\frac{c_b + k_{tr}}{d_b}\right)$ =2.5

λ=1.0 (NORMAL WT. CONC.)

Ψ_s=0.8 (#6 OR SMALLER)

Ψ_e=1.0 (UNCOATED BARS)

Ψ_g=1.0 (GRADE 60 REINFORCING BARS)

Ψ_t=1.3 (>12" CONC. BELOW HORIZ. REINF.)

$$l_d = \left[\frac{(60{,}000)(1.3)(1)(1)}{25(1)\sqrt{4000}}\right](0.5) = \quad 24.7 \text{ in} \quad \textbf{GOVERNS}$$

$$l_d = \left[\frac{3(60{,}000)}{40(1)\sqrt{4000}} * \frac{(1.3)(1)(0.8)(1)}{(2.5)}\right](0.5) = \quad 14.8 \text{ in}$$

CLASS B SPLICE = 1.3(24.7")= **32 in = 64 BAR DIA.**

FOR #5 REBAR:

d_b=0.625"

SET $\left(\frac{c_b + k_{tr}}{d_b}\right)$ =2.5

λ=1.0 (NORMAL WT. CONC.)

Ψ_s=0.8 (#6 OR SMALLER)

Ψ_e=1.0 (UNCOATED BARS)

Ψ_g=1.0 (GRADE 60 REINFORCING BARS)

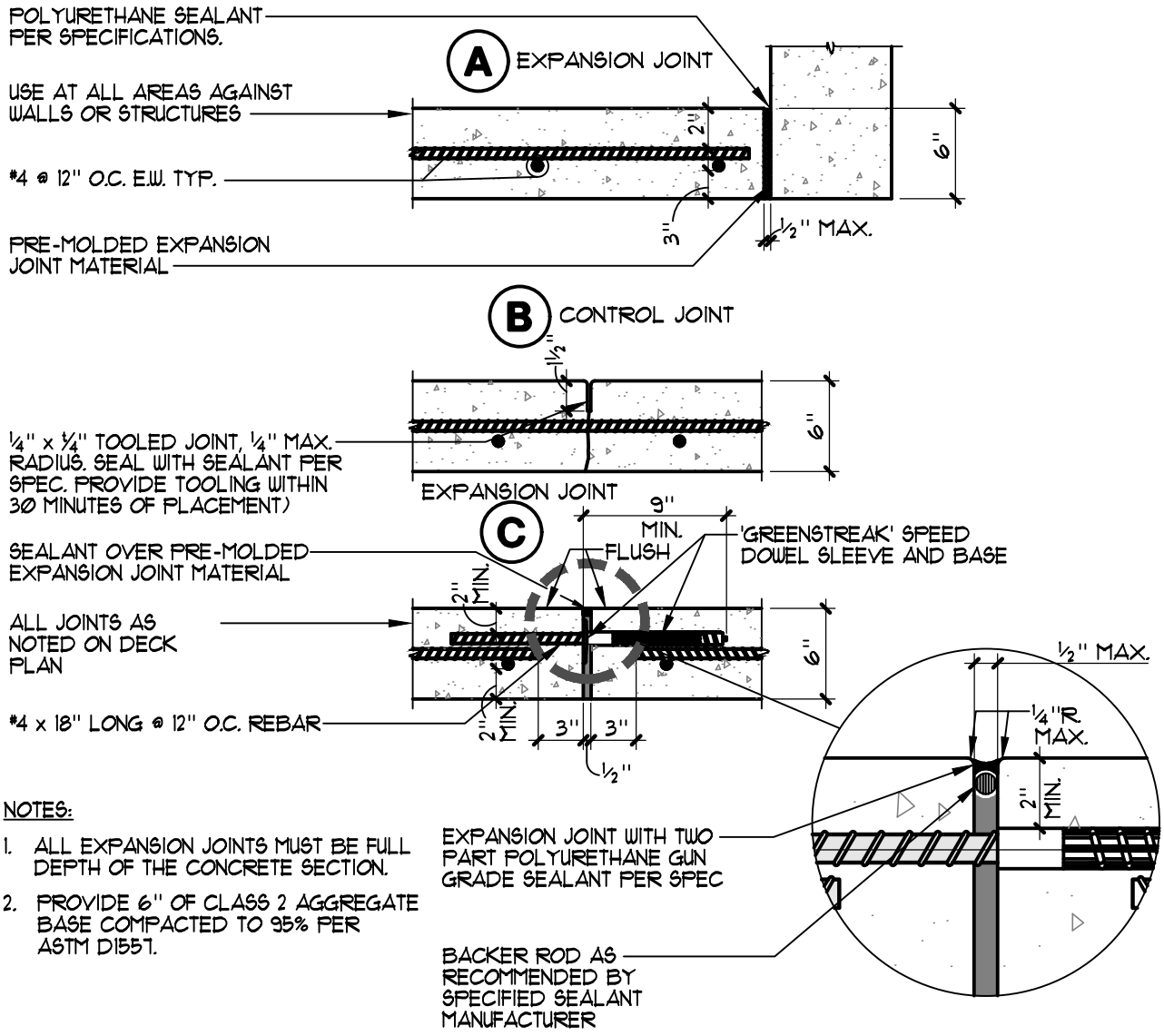
Ψ_t=1.3 (>12" CONC. BELOW HORIZ. REINF.)

$$l_d = \left[\frac{(60{,}000)(1.3)(1)(1)}{25(1)\sqrt{4000}}\right](0.625) = \quad 30.8 \text{ in} \quad \textbf{GOVERNS}$$

$$l_d = \left[\frac{3(60{,}000)}{40(1)\sqrt{4000}} * \frac{(1.3)(1)(0.8)(1)}{(2.5)}\right](0.625) = \quad 18.5 \text{ in}$$

CLASS B SPLICE = 1.3(30.8")= **40 in = 64 BAR DIA.**

FOR #4 REBAR: USE MIN. 32" LAP SPLICE
FOR #5 REBAR: USE MIN. 40" LAP SPLICE



NOTES:

1. ALL EXPANSION JOINTS MUST BE FULL DEPTH OF THE CONCRETE SECTION.
2. PROVIDE 6" OF CLASS 2 AGGREGATE BASE COMPACTED TO 95% PER ASTM D1557.

(N) CONCRETE DECK JOINT DETAILS

1½"=1'-0"

BALANCE TANK DESIGN

SPLASH PAD BALANCE TANK

RESTRAINED WALL DESIGN:

PER SOILS RPT:

AT-REST PRESSURE	P_o=	55	pcf
ACTIVE PRESSURE	P_a=	38	pcf
HYDROSTATIC PRESSURE		47	pcf
PASSIVE PRESSURE	P_p=	200	pcf
COEFF. OF FRICTION	μ=	0.3	
ALLOW. BEARING PRESS.	P_S=	2500	psf
SOIL UNIT WT	γ_s=	120	pcf
SEISMIC PRESSURE	P_E=	25	pcf

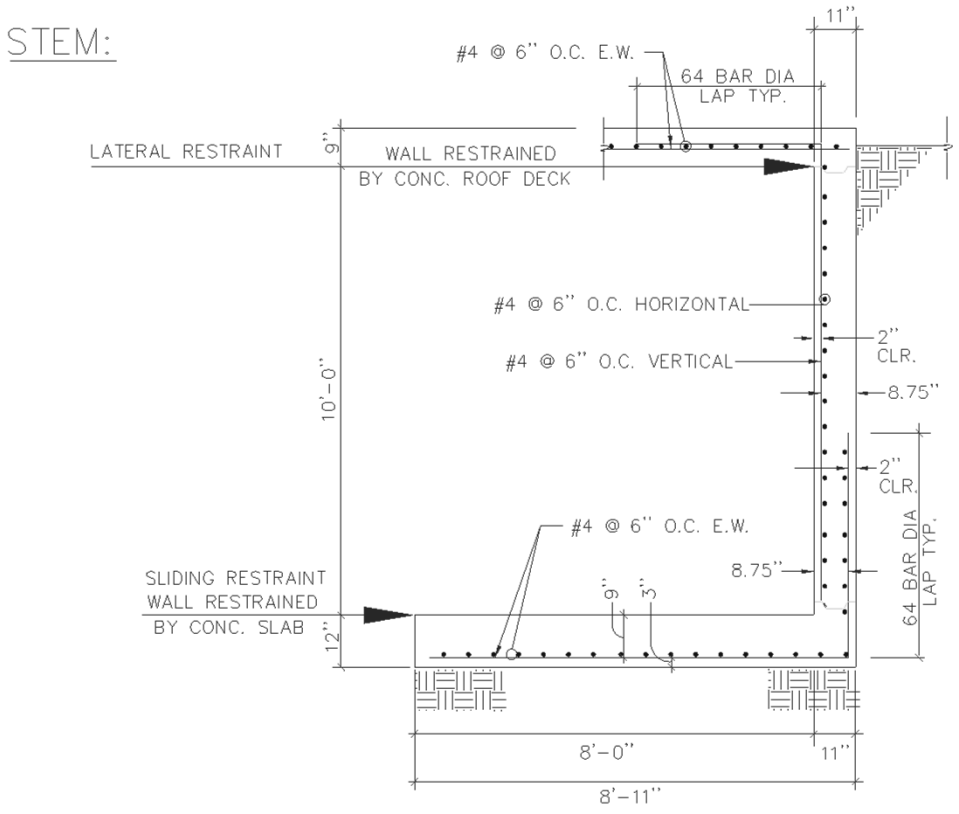
where k_h = 0.2083

CONDITIONS:

EMPTY CHAMBER

CONC. ROOF DL = (0.75')(1')(150 pcf)(8'/2 + 11"/12) = 553 lb

CONC. ROOF LL = (100 psf)(1')(8'/2 +11"/12) = 492 lb



Stem Design:

USE t=11", ds=5", #4 @ 6" o.c. VERTICAL, EDGE #4 @ 6" o.c., HORIZ.

LA COSTA ENGINEERING
2226 Faraday Avenue
Carlsbad, CA 92008
(760) 931-0290

Project Title: Whittier Narrows Splash Pad
Engineer: Martell B. Montgomery
Project ID:
Project Descr: Balance Tank

Restrained Retaining Wall

Project File: Whittier Narrows Splash Pad.ec6

LIC# : KW-06019364, Build:20.23.08.30 LA COSTA ENGINEERING (c) ENERCALC INC 1983-2023

DESCRIPTION: Surge Chamber, Restrained Wall: At-Rest + Hydrostatic Pressure Condition

Code Reference

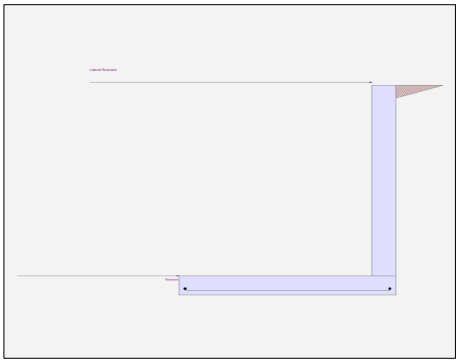
Calculations per IBC 2021 1807.3, ASCE 7-16

Criteria

Retained Height	=	10.0 ft
Wall height above soil	=	ft
Total Wall Height	=	10.0 ft
Top Support Height	=	10.0 ft
Slope Behind Wall	=	0
Height of Soil over Toe	=	in

Soil Data

Allow Soil Bearing	=	2,500.0 psf
Equivalent Fluid Pressure Method		
At-Rest Heel Pressure	=	102.0 psf/ft
	=	0.0 psf/ft
Passive Pressure	=	200.0 psf/ft
Soil Density	=	120.0 pcf
Footing||Soil Frictior	=	0.30 psf
Soil height to ignore for passive pressure	=	in



Surcharge Loads

Surcharge Over Heel	=	100.0 psf
>>>Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	psf
Used for Sliding & Overturning		

Axial Load Applied to Stem

Axial Dead Load	=	544.0 lbs
Axial Live Load	=	483.0 lbs
Axial Load Eccentricity	=	in

Earth Pressure Seismic Load

Uniform Lateral Load Applied to Stem

Lateral Load	=	#/ft
...Height to Top	=	ft
...Height to Bottom	=	ft
Load Type	=	Earth (H) (Service Level)
Wind on Exposed Stem	=	0.00 psf (Strength Level)

Wind acts left-to-right toward retention side.

Adjacent Footing Load

Adjacent Footing Load	=	lbs
Footing Width	=	ft
Eccentricity	=	in
Wall to Ftg CL Dist	=	ft
Footing Type		Line Load
Base Above/Below Soil at Back of Wall	=	ft
Poisson's Ratio	=	0.3

K_h Soil Density Multiplier = 0.2 g Added seismic per unit area = 0.0 psf

Design Summary

Total Bearing Load	=	3,745.0 lbs	
...resultant ecc.	=	-30.851 in	
Soil Pressure @ Toe	=	0.0 psf	OK
Soil Pressure @ Heel	=	1,321.61 psf	OK
Allowable	=	psf	
Soil Pressure Less Than Allowable			
ACI Factored @ Toe	=	0.0 psf	
ACI Factored @ Heel	=	1,654.12 psf	
Footing Shear @ Toe	=	10.472 psi	OK
Footing Shear @ Heel	=	0.0 psi	OK
Allowable	=	94.868 psi	
Reaction at Top	=	2,123.92 lbs	
Reaction at Bottom	=	4,981.0 lbs	

Sliding Calcs
Lateral Sliding Force = 4,981.0 lbs

Vertical component of active lateral soil pressure IS NOT considered in the calculation of soil bearing

Load Factors

Building Code	
Dead Load	1.200
Live Load	1.600
Earth, H	1.600
Wind, W	1.000
Seismic, E	1.000

Concrete Stem Construction

Thickness = 11.04 in
Wall Weight = 138.0 psf
Stem is FREE to rotate at top of footing

		@ Top Support	Mmax Between Top & Base	@ Base of Wall
		Stem OK	Stem OK	Stem OK
Design Height Above Ftg	=	10.0 ft	4.378 ft	0.00 ft
Rebar Size	=	# 4	# 4	# 4
Rebar Spacing	=	6.00 in	6.00 in	6.00 in
Rebar Placed at	=	Edge	Edge	Edge
Rebar Depth 'd'	=	8.540 in	8.540 in	8.540 in
Design Data				
fb/FB + fa/Fa	=		0.816	
Moment....Actual	=	0.0 ft-#	12,110.2 ft-#	0.0 ft-#
Moment.....Allowable	=	14,841.0 ft-#	14,841.0 ft-#	14,841.0 ft-#
Shear Force @ this height	=	3,405.46 lbs		6,120.0 lbs
Shear.....Actual	=	33.231 psi		59.719 psi
Shear.....Allowable	=	59.748 psi		59.748 psi

LA COSTA ENGINEERING
2226 Faraday Avenue
Carlsbad, CA 92008
(760) 931-0290

Project Title: Whittier Narrows Splash Pad
Engineer: Martell B. Montgomery
Project ID:
Project Descr: Balance Tank

Restrained Retaining Wall

Project File: Whittier Narrows Splash Pad.ec6

LIC# : KW-06019364, Build:20.23.08.30 LA COSTA ENGINEERING (c) ENERCALC INC 1983-2023

DESCRIPTION: Surge Chamber, Restrained Wall: At-Rest + Hydrostatic Pressure Condition

Footing Strengths & Dimensions

Toe Width	=	8.0 ft
Heel Width	=	0.920
Total Footing Width	=	8.920
Footing Thickness	=	12.0 in
Key Width	=	in
Key Depth	=	in
Key Distance from Toe	=	ft

f'c = 4,000.0 psi Fy = 60000 psi
Footing Concrete Density = 150 pcf
Min. As % = 0.0018
Cover @ Top = 2 in @ Btm.= 3 in

Footing Design Results

		Toe	Heel	
Factored Pressure	=	0.0	1,654.12	psf
Mu' : Upward	=	5,204.53		ft-#
Mu' : Downward	=	5,760.0		ft-#
Mu: Design	=	-555	0	ft-#
Actual 1-Way Shear	=	10.472		psi
Allow 1-Way Shear	=	94.868	94.868	psi

Other Acceptable Sizes & Spacings:

Toe: # 4 @ 6.00 in	-or-	#4@ 9.25 in, #5@ 14.35 in, #6@ 20.37 in, #7@ 27.7
Heel: None Spec'd	-or-	phiMn = phi * 5 * lambda * sqrt(fc) * Sm
Key: # 0 @ 0.00 in	-or-	No key defined

Min footing T&S reinf Area 2.31 in2
Min footing T&S reinf Area per foot 0.26 in2 /ft

If one layer of horizontal bars:	If two layers of horizontal bars:
#4@ 9.26 in	#4@ 18.52 in
#5@ 14.35 in	#5@ 28.70 in
#6@ 20.37 in	#6@ 40.74 in

Summary of Forces on Footing : Slab RESISTS sliding, stem is PINNED at footing

Forces acting on footing soil pressure

(taking moments about front of footing to find eccentricity)

Surcharge Over Heel	=	0.0 lbs	8.920 ft	0.0 ft-#
Axial Dead Load on Stem	=	1,027.0 lbs	8.460 ft	8,688.42 ft-#
Soil Over Toe	=	0.0 lbs	0.0 ft	0.0 ft-#
Adjacent Footing Load	=	0.0 lbs	0.0 ft	0.0 ft-#
Surcharge Over Toe	=	0.0 lbs	0.0 ft	0.0 ft-#
Stem Weight	=	1,380.0 lbs	8.460 ft	11,674.8 ft-#
Soil Over Heel	=	0.0 lbs	8.920 ft	0.0 ft-#
Footing Weight	=	1,338.0 lbs	4.460 ft	5,967.48 ft-#
Total Vertical Force	=	3,745.0 lbs	Moment =	26,330.7 ft-#

Vertical component of active lateral soil pressure IS NOT considered in the calculation of Sliding Resistance.

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Carlsbad, CA 92008
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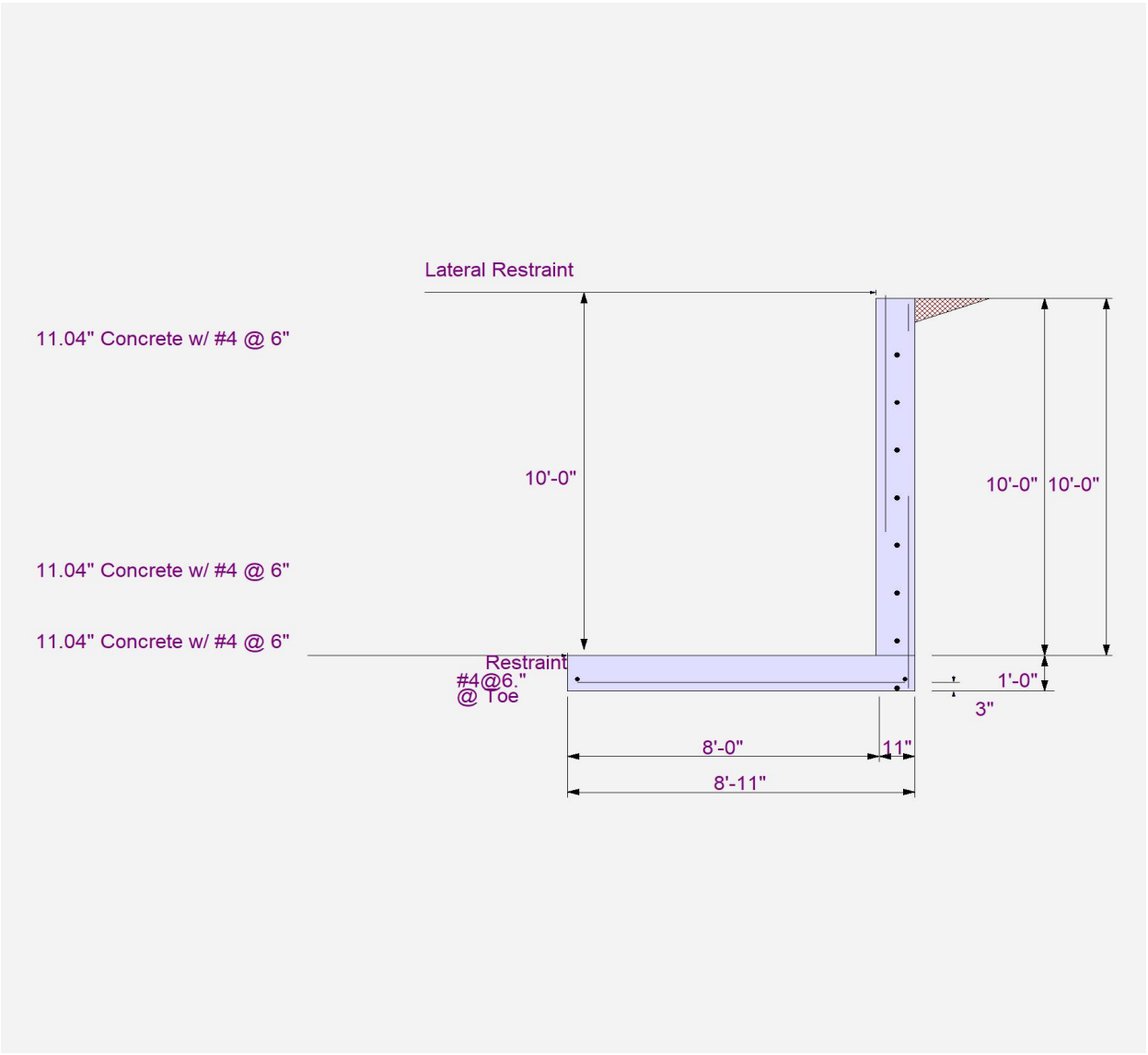
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Restrained Retaining Wall

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LIC# : KW-06019364, Build:20.23.08.30 LA COSTA ENGINEERING (c) ENERCALC INC 1983-2023

DESCRIPTION: Surge Chamber, Restrained Wall: At-Rest + Hydrostatic Pressure Condition



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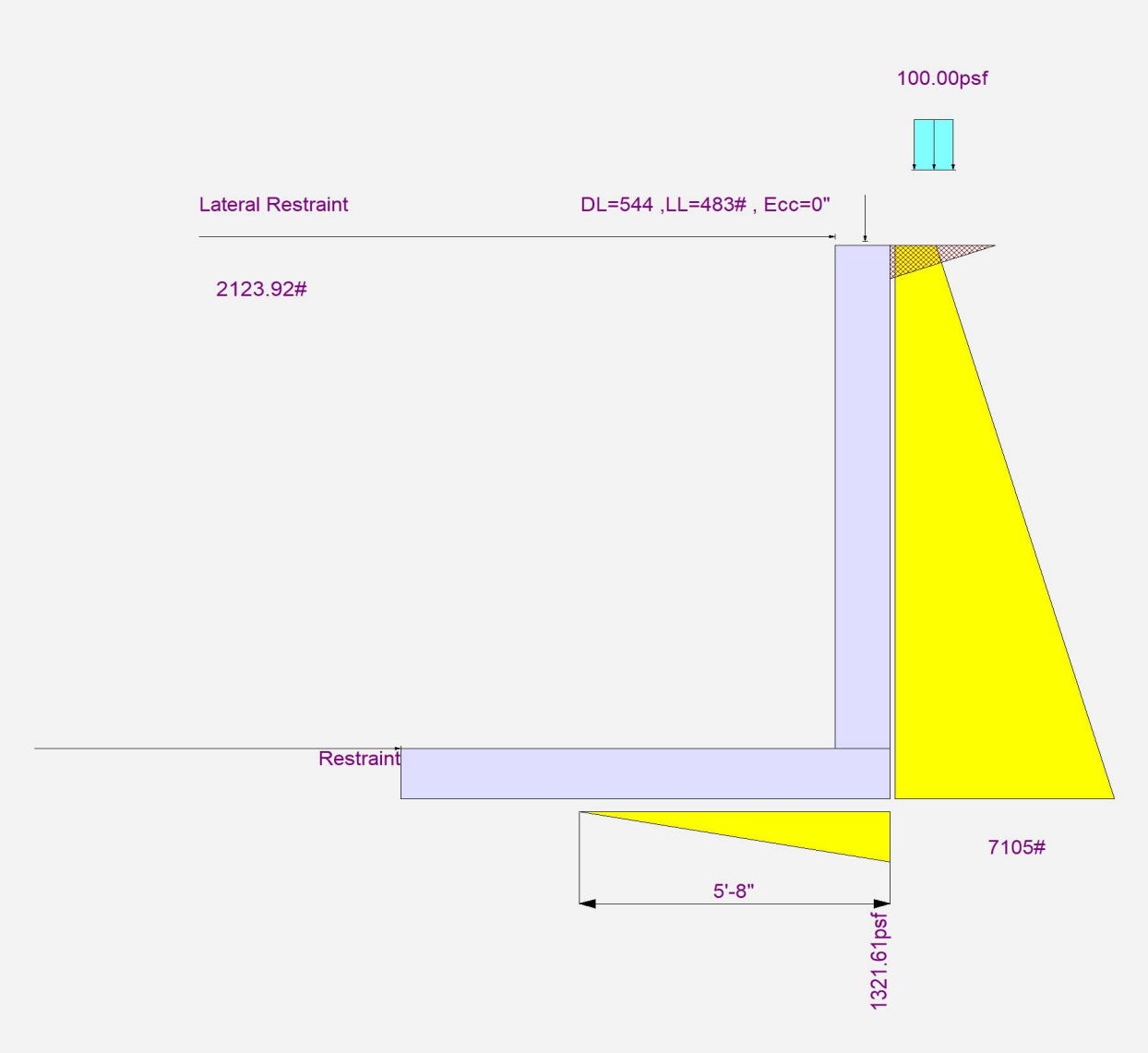
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LIC# : KW-06019364, Build:20.23.08.30 LA COSTA ENGINEERING (c) ENERCALC INC 1983-2023

DESCRIPTION: Surge Chamber, Restrained Wall: Active + Hydrostatic + Seismic Pressure Condition

Code Reference

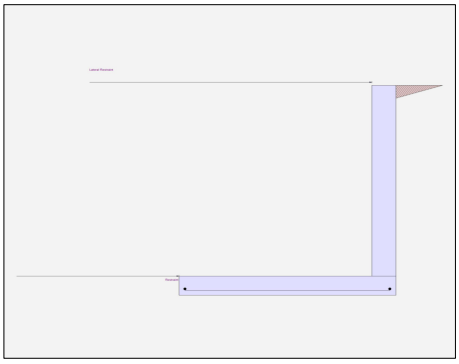
Calculations per IBC 2021 1807.3, ASCE 7-16

Criteria

Retained Height	=	10.0 ft
Wall height above soil	=	ft
Total Wall Height	=	10.0 ft
Top Support Height	=	10.0 ft
Slope Behind Wall	=	0
Height of Soil over Toe	=	in

Soil Data

Allow Soil Bearing	=	2,500.0 psf
Equivalent Fluid Pressure Method		
At-Rest Heel Pressure	=	85.0 psf/ft
	=	0.0 psf/ft
Passive Pressure	=	200.0 psf/ft
Soil Density	=	120.0 pcf
Footing||Soil Frictior	=	0.30 psf
Soil height to ignore for passive pressure	=	in



Surcharge Loads

Surcharge Over Heel	=	0.0 psf
>>>Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	psf
Used for Sliding & Overturning		

Axial Load Applied to Stem

Axial Dead Load	=	553.0 lbs
Axial Live Load	=	492.0 lbs
Axial Load Eccentricity	=	in

Earth Pressure Seismic Load

Uniform Lateral Load Applied to Stem

Lateral Load	=	0.0 #/ft
...Height to Top	=	0.0 ft
...Height to Bottom	=	ft
Load Type	=	Earth (H) (Service Level)
Wind on Exposed Stem	=	0.00 psf (Strength Level)

Wind acts left-to-right toward retention side.

Adjacent Footing Load

Adjacent Footing Load	=	lbs
Footing Width	=	ft
Eccentricity	=	in
Wall to Ftg CL Dist	=	ft
Footing Type		Line Load
Base Above/Below Soil at Back of Wall	=	ft
Poisson's Ratio	=	0.3

K_h Soil Density Multiplier = 0.2083 g Added seismic per unit area = 192.469 psf

Design Summary

Total Bearing Load	=	3,757.50 lbs	
...resultant ecc.	=	-30.914 in	
Soil Pressure @ Toe	=	0.0 psf	OK
Soil Pressure @ Heel	=	1,330.92 psf	OK
Allowable	=	psf	
Soil Pressure Less Than Allowable			
ACI Factored @ Toe	=	0.0 psf	
ACI Factored @ Heel	=	1,666.82 psf	
Footing Shear @ Toe	=	10.534 psi	OK
Footing Shear @ Heel	=	0.0 psi	OK
Allowable	=	94.868 psi	
Reaction at Top	=	2,370.21 lbs	
Reaction at Bottom	=	4,688.18 lbs	

Sliding Calcs
Lateral Sliding Force = 4,688.18 lbs

Vertical component of active lateral soil pressure IS NOT considered in the calculation of soil bearing

Load Factors

Building Code	
Dead Load	1.200
Live Load	1.600
Earth, H	1.600
Wind, W	1.000
Seismic, E	1.000

Concrete Stem Construction

Thickness = 11.00 in
Wall Weight = 137.50 psf
Stem is FREE to rotate at top of footing

		@ Top Support	Mmax Between Top & Base	@ Base of Wall
		Stem OK	Stem OK	Stem OK
Design Height Above Ftg	=	10.0 ft	4.458 ft	0.00 ft
Rebar Size	=	# 4	# 4	# 4
Rebar Spacing	=	6.00 in	6.00 in	6.00 in
Rebar Placed at	=	Center	Edge	Edge
Rebar Depth 'd'	=	5.50 in	8.50 in	8.50 in
Design Data				
fb/FB + fa/Fa	=		0.819	
Moment....Actual	=	0.0 ft-#	12,100.6 ft-#	0.0 ft-#
Moment.....Allowable	=	9,369.0 ft-#	14,769.0 ft-#	14,769.0 ft-#
Shear Force @ this height	=	3,641.45 lbs		5,908.11 lbs
Shear.....Actual	=	55.173 psi		57.923 psi
Shear.....Allowable	=	69.186 psi		59.841 psi

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Restrained Retaining Wall

Project File: Whittier Narrows Splash Pad.ec6

LIC# : KW-06019364, Build:20.23.08.30 LA COSTA ENGINEERING (c) ENERCALC INC 1983-2023

DESCRIPTION: Surge Chamber, Restrained Wall: Active + Hydrostatic + Seismic Pressure Condition

Footing Strengths & Dimensions

Toe Width	=	8.0 ft
Heel Width	=	0.8333
Total Footing Width	=	8.917
Footing Thickness	=	12.0 in
Key Width	=	in
Key Depth	=	in
Key Distance from Toe	=	ft

f'c = 4,000.0 psi Fy = 60000 psi
Footing Concrete Density = 150 pcf
Min. As % = 0.0018
Cover @ Top = 2 in @ Btm.= 3 in

Footing Design Results

		Toe	Heel	
Factored Pressure	=	0.0	1,666.82	psf
Mu' : Upward	=	5,205.78		ft-#
Mu' : Downward	=	5,760.0		ft-#
Mu: Design	=	-554	0	ft-#
Actual 1-Way Shear	=	10.534		psi
Allow 1-Way Shear	=	94.868	0.0	psi

Other Acceptable Sizes & Spacings:

Toe: # 4 @ 6.00 in	-or-	#4@ 9.25 in, #5@ 14.35 in, #6@ 20.37 in, #7@ 27.7
Heel: None Spec'd	-or-	phiMn = phi * 5 * lambda * sqrt(fc) * Sm
Key: # 0 @ 0.00 in	-or-	No key defined

Min footing T&S reinf Area 2.31 in2
Min footing T&S reinf Area per foot 0.26 in2 /ft

If one layer of horizontal bars:	If two layers of horizontal bars:
#4@ 9.26 in	#4@ 18.52 in
#5@ 14.35 in	#5@ 28.70 in
#6@ 20.37 in	#6@ 40.74 in

Summary of Forces on Footing : Slab RESISTS sliding, stem is PINNED at footing

Forces acting on footing soil pressure

(taking moments about front of footing to find eccentricity)

Surcharge Over Heel	=	0.0 lbs	0.0 ft	0.0 ft-#
Axial Dead Load on Stem	=	1,045.0 lbs	8.458 ft	8,838.96 ft-#
Soil Over Toe	=	0.0 lbs	0.0 ft	0.0 ft-#
Adjacent Footing Load	=	0.0 lbs	0.0 ft	0.0 ft-#
Surcharge Over Toe	=	0.0 lbs	0.0 ft	0.0 ft-#
Stem Weight	=	1,375.0 lbs	8.458 ft	11,630.2 ft-#
Soil Over Heel	=	0.0 lbs	8.917 ft	0.0 ft-#
Footing Weight	=	1,337.50 lbs	4.458 ft	5,963.02 ft-#
Total Vertical Force	=	3,757.50 lbs	Moment =	26,432.2 ft-#

Vertical component of active lateral soil pressure IS NOT considered in the calculation of Sliding Resistance.

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Carlsbad, CA 92008
(760) 931-0290

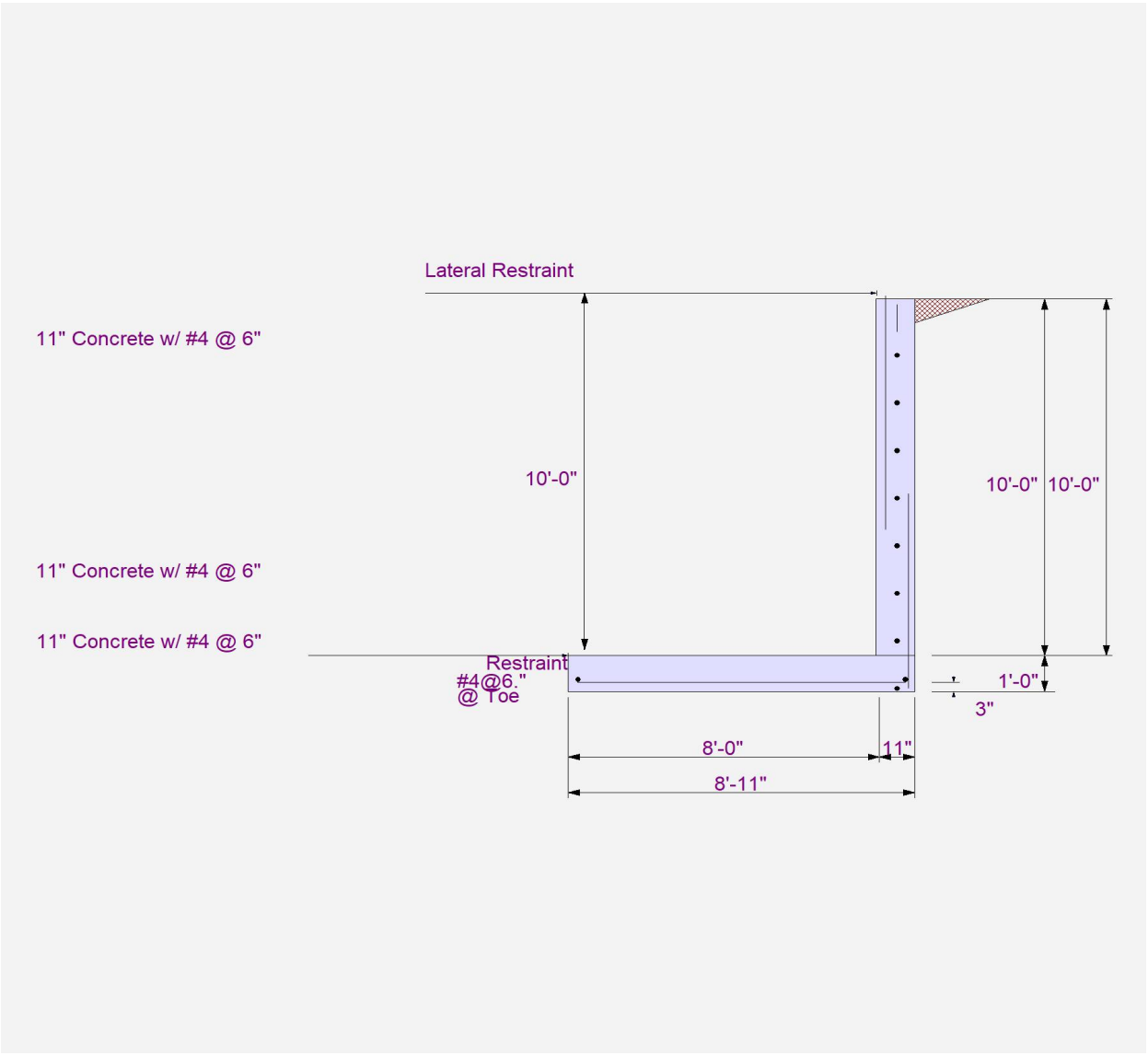
Project Title: Whittier Narrows Splash Pad
Engineer: Martell B. Montgomery
Project ID:
Project Descr: Balance Tank

Restrained Retaining Wall

Project File: Whittier Narrows Splash Pad.ec6

LIC# : KW-06019364, Build:20.23.08.30 LA COSTA ENGINEERING (c) ENERCALC INC 1983-2023

DESCRIPTION: Surge Chamber, Restrained Wall: Active + Hydrostatic + Seismic Pressure Condition



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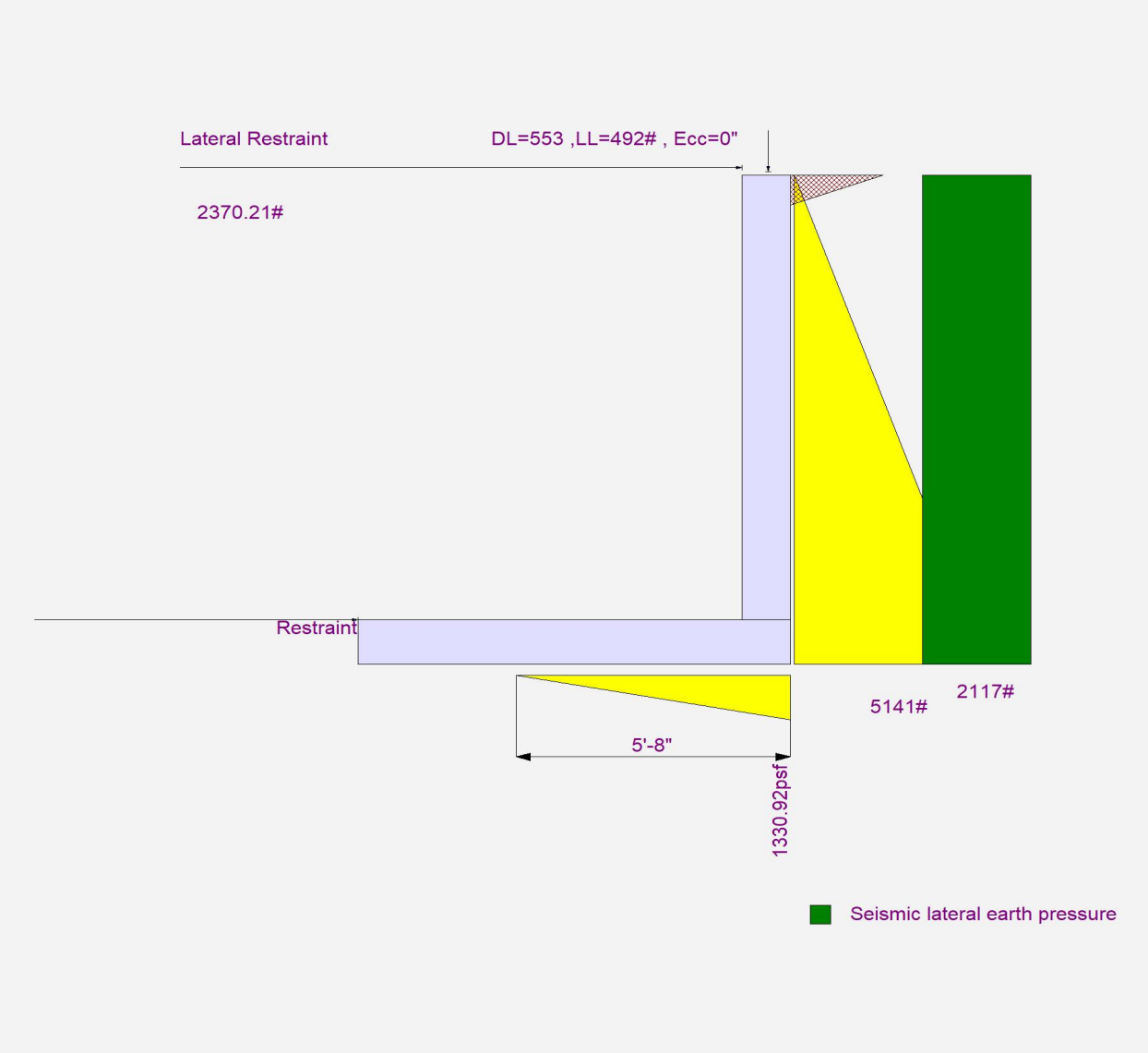
Project Title: Whittier Narrows Splash Pad
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LIC# : KW-06019364, Build:20.23.08.30 LA COSTA ENGINEERING (c) ENERCALC INC 1983-2023

DESCRIPTION: Surge Chamber, Restrained Wall: Active + Hydrostatic + Seismic Pressure Condition



BALANCE TANK FLOOR SLAB DESIGN:

2022 CBC, ACI 318-19

WATER DEPTH	SLAB (t)	W_{H20}	W_{SLAB}	W_{TOT}
10'-0"	12"	624 psf	150 psf	774 psf

ASSUMPTIONS: 1) FULL POOL, WATER = 62.4 pcf
2) CONCRETE WT = 150 pcf

P_s= 2500 psf > 774 psf OK

USE MIN. 12" CONC. SLAB W/ #4 @ 6" O.C. EA. WAY

1) Slab Foundation Data:

H=	12	in (Design reinf./ft.)
b=	12	in (Design reinf./ft.)
Rebar cover:	3	in

2) Determine the shrinkage and temperature reinforcement:

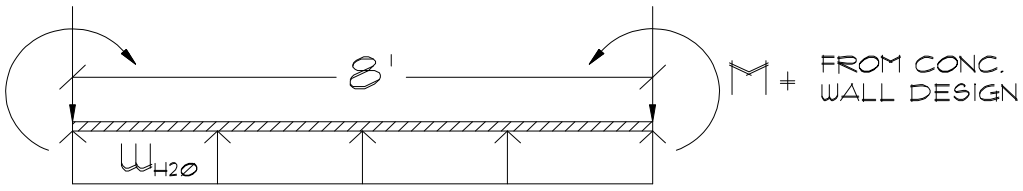
Transverse: A_s =0.0018b*h =	0.19	in^2		
Try #4 @ 6" o.c.:	0.40	in^2 >	0.19 in^2	**OK**
Horizontal: A_s = 0.0018b*h =	0.19	in^2		
Try #4 @ 6" o.c.:	0.40	in^2 >	0.19 in^2	**OK**
Max spacing = 18" or 5*h =	18	" o.c.		

Design: **Construct 12" CONC. SLAB w/ #4 @ 6" o.c., ea. way, 3" from bot.**

BALANCE TANK FLOOR DESIGN

PERCHED WATER CONDITION

FBD:



$w_{INCIDENTAL\ PERCHED\ GROUNDWATER}$ = (62.4 pcf)(1')(1') = 62.4 plf

M_{uc} = 1.6(62.4 plf)(8')^2/8 = 799 lb-ft

M+ FROM WALL GOVERNS

USE FOOTING/SLAB DESIGN FROM
RESTRAINED WALL CALCS.

USE t=12", ds=3", MIN. #4 @ 6" o.c. EA. WAY

CHECK REBAR SPLICE DEVELOPMENT LENGTH:

CBC 2022, ACI 318-19

f'_c= 4000 psi

f_y= 60000 psi

25.4.2.3: $$l_d = \left[\frac{f_y \Psi_t \Psi_e \Psi_g}{25\lambda\sqrt{f'_c}}\right] d_b$$

25.4.2.4: $$l_d = \left[\frac{3f_y}{40\lambda\sqrt{f'_c}} * \frac{\Psi_t \Psi_e \Psi_s \Psi_g}{\left(\frac{c_b + k_{tr}}{d_b}\right)}\right] d_b$$

FOR #4 REBAR:

d_b=0.5"

SET $\left(\frac{c_b + k_{tr}}{d_b}\right)$ =2.5

λ=1.0 (NORMAL WT. CONC.)

Ψ_s=0.8 (#6 OR SMALLER)

Ψ_e=1.0 (UNCOATED BARS)

Ψ_g=1.0 (GRADE 60 REINFORCING BARS)

Ψ_t=1.3 (>12" CONC. BELOW HORIZ. REINF.)

$$l_d = \left[\frac{(60{,}000)(1.3)(1)(1)}{25(1)\sqrt{4000}}\right](0.5) = \quad 24.7 \text{ in} \quad \textbf{GOVERNS}$$

$$l_d = \left[\frac{3(60{,}000)}{40(1)\sqrt{4000}} * \frac{(1.3)(1)(0.8)(1)}{(2.5)}\right](0.5) = \quad 14.8 \text{ in}$$

CLASS B SPLICE = 1.3(24.7")= **32 in = 64 BAR DIA.**

FOR #5 REBAR:

d_b=0.625"

SET $\left(\frac{c_b + k_{tr}}{d_b}\right)$ =2.5

λ=1.0 (NORMAL WT. CONC.)

Ψ_s=0.8 (#6 OR SMALLER)

Ψ_e=1.0 (UNCOATED BARS)

Ψ_g=1.0 (GRADE 60 REINFORCING BARS)

Ψ_t=1.3 (>12" CONC. BELOW HORIZ. REINF.)

$$l_d = \left[\frac{(60{,}000)(1.3)(1)(1)}{25(1)\sqrt{4000}}\right](0.625) = \quad 30.8 \text{ in} \quad \textbf{GOVERNS}$$

$$l_d = \left[\frac{3(60{,}000)}{40(1)\sqrt{4000}} * \frac{(1.3)(1)(0.8)(1)}{(2.5)}\right](0.625) = \quad 18.5 \text{ in}$$

CLASS B SPLICE = 1.3(30.8")= **40 in = 64 BAR DIA.**

FOR #4 REBAR: USE MIN. 32" LAP SPLICE
FOR #5 REBAR: USE MIN. 40" LAP SPLICE

Balance Tank Roof Longitudinal Reinforcement Design

ACI 318-19

Max. Span: 8 ft

1) Estimate the thickness of slab:

Try t= 9 in
assume cover: 4.25 in
assume No. 4 bars: 0.25 in
d = t - (cover +r) = 4.5 in
Check minimum depth requirement:
simply supported: l/20= 4.8 in Table 7.3.1.1
< Slab thickness: Deflection calcs are not required

2) Compute the trial factored loads:

Live Load: LL = 100 psf

Dead Load:

Element:	w_d	unit
Conc.:	112.5	psf
Earth:	0	psf
Pavers:	0	psf
Misc:	12.5	psf
Total:	125	psf

DL =

Factored Load: $w_u = 1.2*DL + 1.6*LL$ = 310 psf

Load per 1 ft strip: w_u = 1 ft * factored load = 310 plf

3) Check the thickness required for moment:

M_u = 2.48 kip-ft/ft
b = 12 in
f_y = 60000 psi
f_c' = 4500 psi
$\rho_{min} = 200/f_y$ = 0.00333
$\rho_{max} = 0.75[(0.85*f_c'/f_y)*0.85*(87000/(87000+f_y))]$
ρ_{max} = 0.02405
φ = 0.9

From: $\omega = \rho f_y/f_c'$ =
$\varphi k_n = \varphi[f_c'\omega(1-0.59\omega)]$ =
$bd^2/12000 = M_u/\varphi k_n$

Set Quadratic equation:

$(fy2/fc)*\varphi*\rho 2 + (-\varphi fy)*\rho + (Mu*12000/bd2) = 0$

a= $0.59*\varphi*(fy2/fc)$= 424800
b= $-\varphi*fy$= -54000
c= 12000*Mu/bd2= 122.47

$\rho = [-b +/- \sqrt{(b^2 - 4ac)}]/2a$= 0.0023

Is $\rho min < \rho < \rho max$? No

Is $\rho min < \rho$? Yes, Use ρmin

Use total slab depth of 9 in

4) Check if thickness is adequate for shear:

$V_{u=}$	1240	lbs/ft	
$V_c = [2\lambda\sqrt{(f_c')}+N_u/6A_g]b_wd =$	7245	lbs/ft	Table 22.5.5.1 where $N_u/6A_g = 0$ (No axial load)
			$\lambda_s = \sqrt{[2/(1+d/10)]}=$ 1.17 <= 1.0
$V_n = V_c =$	7245	lbs/ft	(22.5.1.1) Ignore V_s
$\varphi V_n =$	5434	lbs/ft	
Is $\varphi V_n > V_u$?	Yes		
$\varphi V_c = 0.75[2\lambda\sqrt{(f_c')}+N_u/6A_g]b_wd =$	5434	lbs/ft	

For Slabs: Is $V_u < \varphi V_c$? YES, additional shear reinforcement is NOT required

5) Design reinforcement:

Flexural reinforcement:

$\rho =$ 0.0033 (If $\rho <$ ρ_{min}, Set $\rho = \rho_{min}$)

$A_s = \rho bd =$ 0.18 in^2

Try #4 @ 6" o.c.: $A_s =$ 0.40 in^2 > 0.18 in^2 GOVERNS VERT.

Determine the minimum flexural reinforcement per ACI 318-19, 7.6.1.1:

$A_{smin} = 0.0018bh =$ 0.19 in^2

Max. spacing = 3h or 18": 18 " o.c. 7.7.2.3

Try #4 @ 6" o.c.: $A_s =$ 0.40 in^2 >= 0.19 in^2 GOVERNS HORIZ.

Determine the shrinkage and temperature reinforcement per ACI 318-19, 24.4.3.2:

$A_s = 0.0018b*h =$ 0.19 in^2

Max. spacing = 5h or 18": 18 " o.c. 24.4.3.3

Try #4 @ 6" o.c.: $A_s =$ 0.40 in^2 > 0.19 in^2

Design: **Provide #4 @ 6" o.c. each at center of 9" deep slab as flexural, shrinkage and temperature reinforcement.**

Balance Tank Roof Beam Longitudinal Reinforcement Design at Manhole

ACI 318-19

Span: 8 ft

1) Estimate the thickness of slab:

Try d=		9	in
assume cover:		4.25	in
assume No. 4 bars:	r=	0.25	in
d = t - (cover +r) =		4.5	in

Check minimum depth requirement:

simply supported: l/20= 4.8 in Table 7.3.1.1

> actual depth: deflection calcs are not required

2) Compute the trial factored loads:

Live Load: LL = 100 psf

Dead Load:

Element:	w_d	unit
Slab:	112.5	psf
Earth:	0	psf
Pavers:	0	psf
Misc:	12.5	psf
DL = Total:	125	psf

Factored Load: $w_u = 1.2*DL + 1.6*LL$ = 310 psf

Load per 3.67 ft strip: w_u = 3.67 ft * factored load = 1138 plf

3) Check the thickness required for moment:

M_u =	9.1016	kip-ft/ft
b =	12	in
f_y =	60000	psi
f_c' =	4000	psi
$\rho_{min} = 200/f_y$ =	0.00333	
$\rho_{max} = 0.75[(0.85*f_c'/f_y)*0.85*(87000/(87000+f_y))]$		
ρ_{max} =	0.02138	
φ =	0.9	

From: $\omega = \rho f_y/f_c'$ =

$\varphi k_n = \varphi[f_c'\omega(1-0.59\omega)]$ =

$bd^2/12000 = M_u/\varphi k_n$

Set Quadratic equation:

$(fy2/fc)*\varphi*\rho2 + (-\varphi fy)*\rho + (Mu*12000/bd2) = 0$

a=	$0.59*\varphi*(fy2/fc)$=	477900
b=	$-\varphi*fy$=	-54000
c=	12000*Mu/bd2=	449.461728

$\rho = [-b +/-\sqrt{(b2 - 4ac)}]/2a$= 0.00905

Is $\rho min < \rho < \rho max$? Yes, Use ρ

Is $\rho < \rho min$? No

Use total slab depth of 9 in

4) Check if thickness is adequate for shear in roof slab beam:

V_{u} = 4551 lbs/ft

$V_c = [2\lambda\sqrt{(f_c')}+N_u/6A_g]b_w d$ = 6831 lbs/ft Table 22.5.5.1 where $N_u/6A_g$ = 0 (No axial load)

$\lambda_s = \sqrt{[2/(1+d/10)]}$ = 1.17 <= 1.0

φV_c = 5123 lbs/ft

For Slabs: Is $\varphi V_c > V_u$? OK no additional shear reinforcement is required 7.6.3.1

5) Design reinforcement:

Flexural reinforcement:

ρ = 0.0090

$A_s = \rho bd$ = 0.49 in^2

Try (3)- #4: A_s= 0.60 in^2 > 0.49 in^2 GOVERNS

Determine the minimum flexural reinforcement per ACI 318-19, 7.6.1.1:

A_{smin}= 0.0018bh= 0.19 in^2

Max. spacing = 3h or 18": 18 " o.c. 7.7.2.3

Try (3)- #4: A_s= 0.60 in^2 > 0.19 in^2

Determine the shrinkage and temperature reinforcement per ACI 318-19, 24.4.3.2:

A_s = 0.0018b*h = 0.19 in^2

Max. spacing = 5h or 18": 18 " o.c. 24.4.3.3

Try (3)- #4: A_s= 0.60 in^2 > 0.19 in^2

Design: **Provide (3) - #4 @ center of beam for flexural reinforcement.**

ACCESS LADDER CONNECTION DESIGN:

BALANCE TANK DESIGN **2022 CBC, ACI 318-19**

ASSUME: 1) 1 PERSON STANDING ON 1 RUNG, W=300 lb

2) DISTANCE FROM WALL TO PERSON CENTER OF MASS, d_p = 1.25 FT.

3) WALL CONNECTION BRACKET INTERVAL, d_{cb} = 4.25 FT MAX.

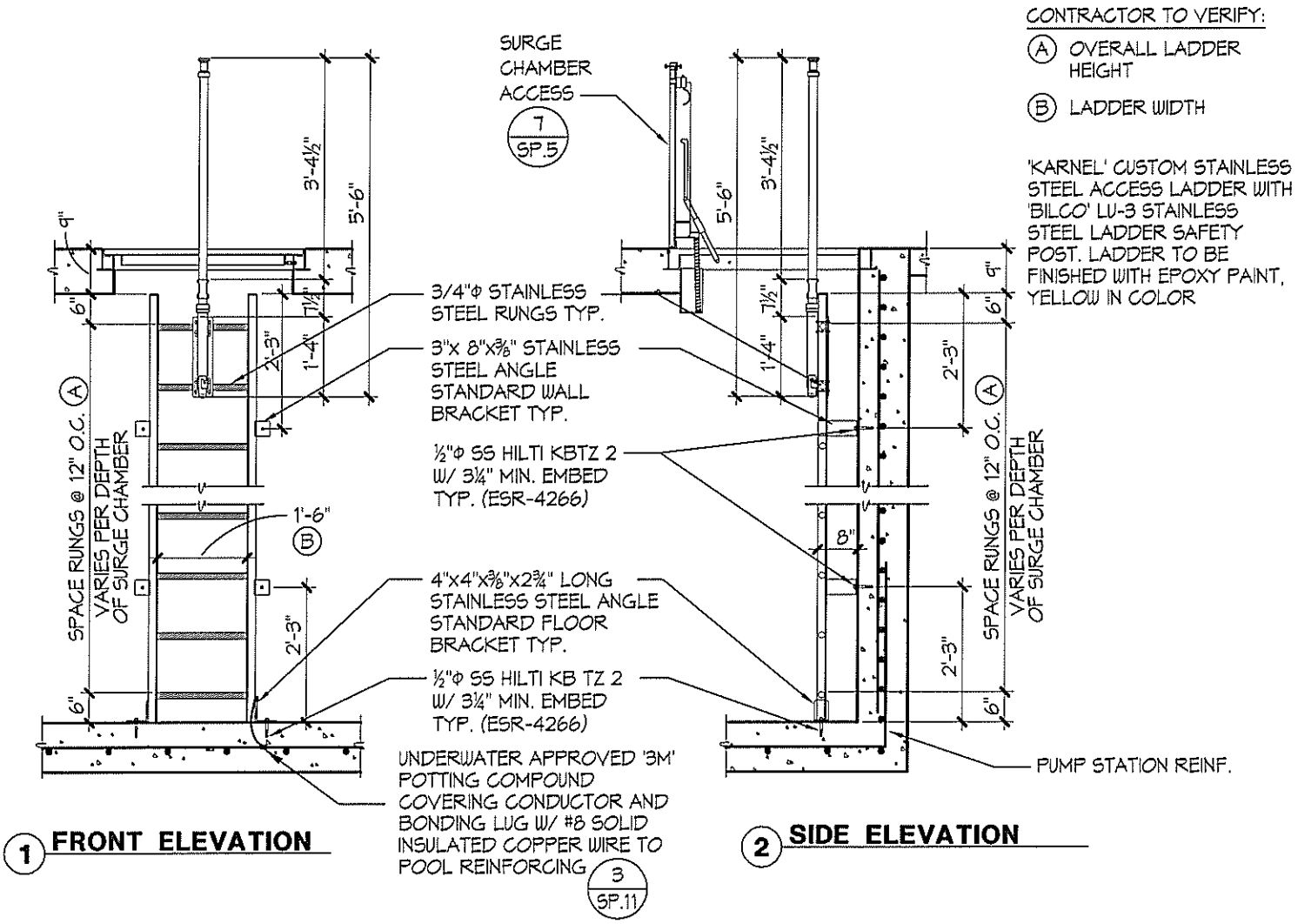
Load Comb: 1.2D + 1.6L:

Shear: For 4 wall brackets in shear, V_u= 1.6(300 lb)/4 = **120 lb/bracket**

Tension: For pryout on 1 upper bracket, T_u= 1.6(300 lb/2)(1.25')/(4.25')= **71 lb/bracket**

TRY HILTI KWIK BOLT-TZ2, ESR-4266, w/ 1/2" Ø SS x 3-1/4" EMBED. FOR ATTACHMENT OF LADDER BRACKETS TO BALANCE TANK CONCRETE WALL

SEE ATTACHED HILTI ANCHORAGE REPORT:



BALANCE TANK ACCESS LADDER

½" = 1'-0"

Company:	La Costa Engineering	Page:	1
Address:	2226 Faraday Ave., Carlsbad, CA 92008	Specifier:	Martell Montgomery
Phone I Fax:	7609310290 |	E-Mail:	marty_montgomery@yahoo.com
Design:	Access Ladder - Concrete - Oct 24, 2024	Date:	10/25/2024
Fastening point:	Access Ladder Connection to side of 11" Conc. Wall		

Specifier's comments:

1 Input data



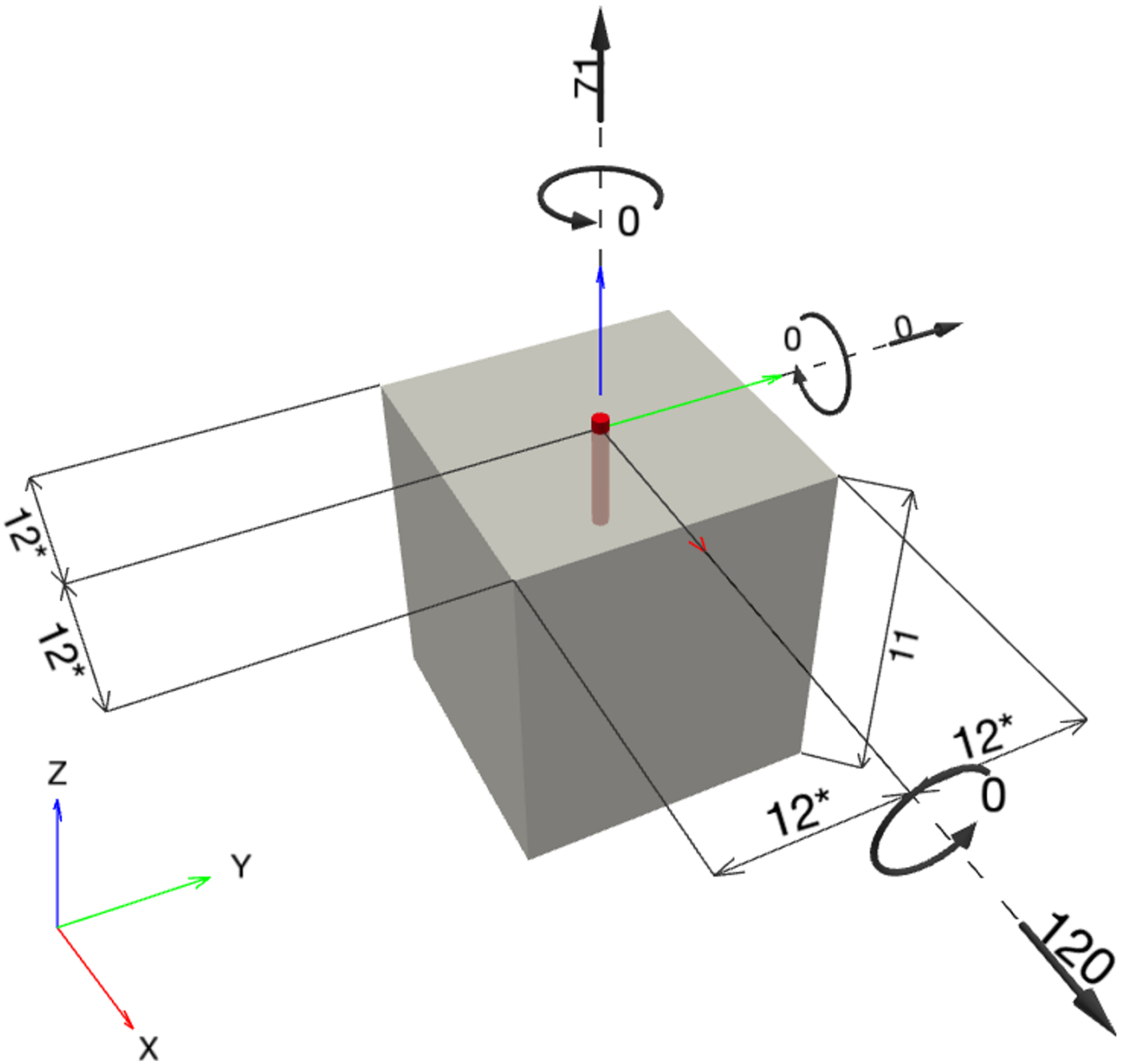
safe set

Anchor type and diameter:	**Kwik Bolt TZ2 - SS 304 1/2 (3 1/4) hnom3**
Item number:	2210261 KB-TZ2 1/2x4 1/2 SS304
Specification text:	Hilti KB-TZ2 stud anchor with 3.75 in embedment, 1/2 (3 1/4) hnom3, Stainless steel, installation per ESR-4266
Effective embedment depth:	$h_{ef,act}$ = 3.250 in., h_{nom} = 3.750 in.
Material:	AISI 304
Evaluation Service Report:	ESR-4266
Issued I Valid:	12/1/2023 | 12/1/2025
Proof:	Design Method ACI 318-19 / Mech
Stand-off installation:	
Profile:	
Base material:	cracked concrete, 2500, f_c' = 2,500 psi; h = 11.000 in.
Installation:	**Hammer drilled hole, Installation condition: Dry**
Reinforcement:	tension: not present, shear: not present; no supplemental splitting reinforcement present edge reinforcement: none or < No. 4 bar

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Geometry [in.] & Loading [lb, in.lb]



Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Fastening point:	Access Ladder Connection to side of 11" Conc. Wall		

1.1 Design results

Case	Description	Forces [lb] / Moments [in.lb]	Seismic	Max. Util. Anchor [%]
1	Combination 1	N = 71; V_x = 120; V_y = 0; M_x = 0; M_y = 0; M_z = 0;	no	3

2 Load case/Resulting anchor forces

Anchor reactions [lb]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	71	120	120	0

3 Tension load

	Load N_{ua} [lb]	Capacity ϕ N_n [lb]	Utilization $\beta_N = N_{ua}/\phi$ N_n	Status
Steel Strength*	71	8,906	1	OK
Pullout Strength*	N/A	N/A	N/A	N/A
Concrete Breakout Failure**	71	3,237	3	OK

* highest loaded anchor **anchor group (anchors in tension)

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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3.1 Steel Strength

N_{sa} = ESR value — refer to ICC-ES ESR-4266

$\phi\ N_{sa} \geq N_{ua}$ — ACI 318-19 Table 17.5.2

Variables

$A_{se,N}$ [in.^{2}]	f_{uta} [psi]
0.10	120,404

Calculations

N_{sa} [lb]
11,875

Results

N_{sa} [lb]	ϕ_{steel}	$\phi\ N_{sa}$ [lb]	N_{ua} [lb]
11,875	0.750	8,906	71

3.2 Concrete Breakout Failure

$N_{cb} = \left(\frac{A_{Nc}}{A_{Nc0}}\right) \psi_{ed,N}\ \psi_{c,N}\ \psi_{cp,N}\ N_b$ — ACI 318-19 Eq. (17.6.2.1a)

$\phi\ N_{cb} \geq N_{ua}$ — ACI 318-19 Table 17.5.2

A_{Nc} see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)

$A_{Nc0} = 9\ h_{ef}^2$ — ACI 318-19 Eq. (17.6.2.1.4)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5h_{ef}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.6.2.4.1b)

$\psi_{cp,N} = \text{MAX}\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5h_{ef}}{c_{ac}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.6.2.6.1b)

$N_b = k_c\ \lambda_a\ \sqrt{f'_c}\ h_{ef}^{1.5}$ — ACI 318-19 Eq. (17.6.2.2.1)

Variables

h_{ef} [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$	c_{ac} [in.]	k_c	λ_a	f'_c [psi]
3.250	12.000	1.000	7.500	17	1.000	2,500

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
95.06	95.06	1.000	1.000	4,980

Results

N_{cb} [lb]	$\phi_{concrete}$	$\phi\ N_{cb}$ [lb]	N_{ua} [lb]
4,980	0.650	3,237	71

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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4 Shear load

	Load V_{ua} [lb]	Capacity ϕ V_n [lb]	Utilization $\beta_V = V_{ua}/\phi$ V_n	Status
Steel Strength*	120	5,426	3	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength**	120	6,972	2	OK
Concrete edge failure in direction x+**	120	5,457	3	OK

* highest loaded anchor **anchor group (relevant anchors)

4.1 Steel Strength

V_{sa} = ESR value refer to ICC-ES ESR-4266
ϕ $V_{steel} \geq V_{ua}$ ACI 318-19 Table 17.5.2

Variables

$A_{se,V}$ [in.^{2}]	f_{uta} [psi]
0.10	120,404

Calculations

V_{sa} [lb]
8,348

Results

V_{sa} [lb]	ϕ_{steel}	ϕ V_{sa} [lb]	V_{ua} [lb]
8,348	0.650	5,426	120

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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4.2 Pryout Strength

$V_{cp} = k_{cp} \left[\left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \right]$ ACI 318-19 Eq. (17.7.3.1a)

$\phi V_{cp} \geq V_{ua}$ ACI 318-19 Table 17.5.2

A_{Nc} see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)

$A_{Nc0} = 9 h_{ef}^2$ ACI 318-19 Eq. (17.6.2.1.4)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.4.1b)

$\psi_{cp,N} = MAX \left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.6.1b)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ ACI 318-19 Eq. (17.6.2.2.1)

Variables

k_{cp}	h_{ef} [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$
2	3.250	12.000	1.000

c_{ac} [in.]	k_c	λ_a	f'_c [psi]
7.500	17	1.000	2,500

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
95.06	95.06	1.000	1.000	4,980

Results

V_{cp} [lb]	$\phi_{concrete}$	ϕV_{cp} [lb]	V_{ua} [lb]
9,960	0.700	6,972	120

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Company:	La Costa Engineering	Page:	7
Address:	2226 Faraday Ave., Carlsbad, CA 92008	Specifier:	Martell Montgomery
Phone I Fax:	7609310290 |	E-Mail:	marty_montgomery@yahoo.com
Design:	Access Ladder - Concrete - Oct 24, 2024	Date:	10/25/2024
Fastening point:	Access Ladder Connection to side of 11" Conc. Wall		

4.3 Concrete edge failure in direction x+

$V_{cb} = \left(\frac{A_{Vc}}{A_{Vc0}}\right) \psi_{ed,V} \psi_{c,V} \psi_{h,V} \psi_{parallel,V} V_b$ — ACI 318-19 Eq. (17.7.2.1a)

$\phi V_{cb} \geq V_{ua}$ — ACI 318-19 Table 17.5.2

A_{Vc} see ACI 318-19, Section 17.7.2.1, Fig. R 17.7.2.1(b)

$A_{Vc0} = 4.5 c_{a1}^2$ — ACI 318-19 Eq. (17.7.2.1.3)

$\psi_{ed,V} = 0.7 + 0.3\left(\frac{c_{a2}}{1.5c_{a1}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.7.2.4.1b)

$\psi_{h,V} = \sqrt{\frac{1.5c_{a1}}{h_a}} \geq 1.0$ — ACI 318-19 Eq. (17.7.2.6.1)

$V_b = \left(7\left(\frac{l_e}{d_a}\right)^{0.2}\sqrt{d_a}\right) \lambda_a \sqrt{f'_c}\, c_{a1}^{1.5}$ — ACI 318-19 Eq. (17.7.2.2.1a)

Variables

c_{a1} [in.]	c_{a2} [in.]	$\psi_{c,V}$	h_a [in.]	l_e [in.]
8.000	12.000	1.000	11.000	3.250

λ_a	d_a [in.]	f'_c [psi]	$\psi_{parallel,V}$
1.000	0.500	2,500	1.000

Calculations

A_{Vc} [in.^{2}]	A_{Vc0} [in.^{2}]	$\psi_{ed,V}$	$\psi_{h,V}$	V_b [lb]
264.00	288.00	1.000	1.044	8,143

Results

V_{cb} [lb]	$\phi_{concrete}$	ϕV_{cb} [lb]	V_{ua} [lb]
7,796	0.700	5,457	120

5 Combined tension and shear loads, per ACI 318-19 section 17.8

β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
0.022	0.022	5/3	1	OK

$\beta_{NV} = \beta_N^{\zeta} + \beta_V^{\zeta} <= 1$

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6 Warnings

- The anchor design methods in PROFIS Engineering require rigid anchor plates per current regulations (AS 5216:2021, ETAG 001/Annex C, EOTA TR029 etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Engineering calculates the minimum required anchor plate thickness with CBFEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid anchor plate assumption is valid is not carried out by PROFIS Engineering. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies where the potential concrete failure surfaces are crossed by supplementary reinforcement proportioned to tie the potential concrete failure prism into the structural member. Condition B applies where such supplementary reinforcement is not provided, or where pullout or pryout strength governs.
- Refer to the manufacturer's product literature for cleaning and installation instructions.
- For additional information about ACI 318 strength design provisions, please go to https://submittals.us.hilti.com/PROFISAnchorDesignGuide/
- Hilti post-installed anchors shall be installed in accordance with the Hilti Manufacturer's Printed Installation Instructions (MPII). Reference ACI 318-19, Section 26.7.

Fastening meets the design criteria!

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Fastening point:	Access Ladder Connection to side of 11" Conc. Wall		

7 Installation data

Anchor type and diameter: Kwik Bolt TZ2 - SS 304 1/2 (3 1/4) hnom3

Profile: -

Item number: 2210261 KB-TZ2 1/2x4 1/2 SS304

Hole diameter in the fixture: -

Maximum installation torque: 481 in.lb

Plate thickness (input): -

Hole diameter in the base material: 0.500 in.

Hole depth in the base material: 4.250 in.

Drilling method: Hammer drilled

Minimum thickness of the base material: 5.500 in.

Cleaning: Manual cleaning of the drilled hole according to instructions for use is required.

Hilti KB-TZ2 stud anchor with 3.75 in embedment, 1/2 (3 1/4) hnom3, Stainless steel, installation per ESR-4266

7.1 Recommended accessories

Drilling	Cleaning	Setting
• Suitable Rotary Hammer • Properly sized drill bit	• Manual blow-out pump	• Torque controlled cordless impact tool • Torque wrench • Hammer

Coordinates Anchor in.

Anchor	x	y	c_{-x}	c_{+x}	c_{-y}	c_{+y}
1	0.000	0.000	12.000	12.000	12.000	12.000

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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8 Remarks; Your Cooperation Duties

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POOL MECHANICAL EQUIPMENT

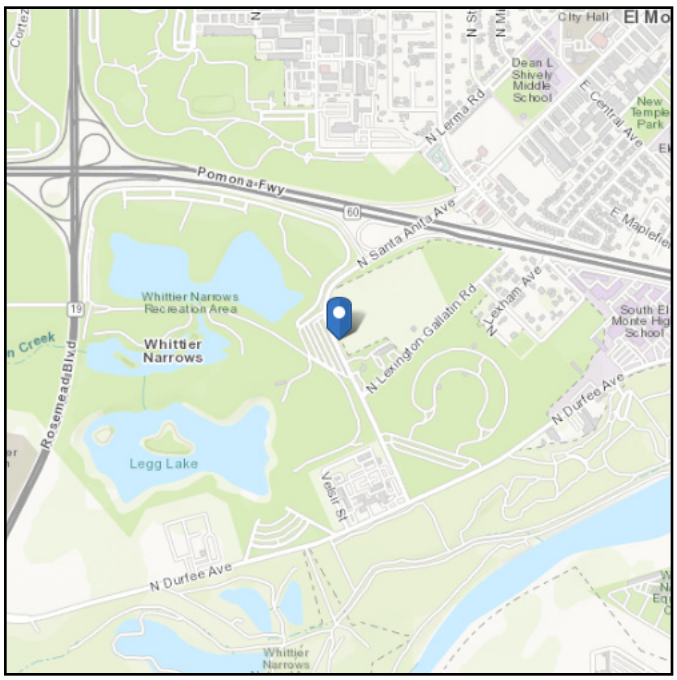
ANCHORAGE CALCULATIONS

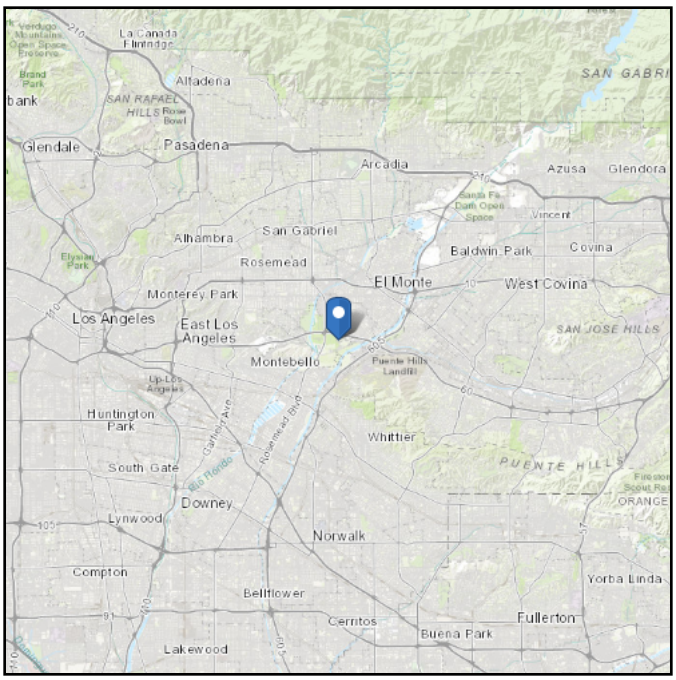
ASCE Hazards Report

Address:
750S Santa Anita Ave
South El Monte, California
91733

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Latitude: 34.036289
Longitude: -118.054847
Elevation: 224.23612255941396 ft (NAVD 88)





Seismic

Site Soil Class: D - Stiff Soil

Results:

S_S :	1.891	S_{D1} :	N/A
S_1 :	0.678	T_L :	8
F_a :	1	PGA :	0.816
F_v :	N/A	PGA_M :	0.897
S_{MS} :	1.891	F_{PGA} :	1.1
S_{M1} :	N/A	I_e :	1
S_{DS} :	1.261	C_v :	1.478

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Wed Oct 23 2024

Date Source: USGS Seismic Design Maps

SEISMIC LOADS ON EQUIPMENT

DESIGN METHOD PER CBC 2022, ASCE 7-16, 13.3.1

$$F_p = \frac{0.4a_pS_{DS}W_p\ (1+2z/h)}{R_p/I_p}$$ 13.3-1 (ASCE 7-16)

Per Table 13.6-1	
a_p=	1.0
R_p=	2.5
I_p=	1.0
Ω_o=	2

Site Class: D

Per Geotechnical Report, Seismic Design Parameters:
S_S= 1.894
S_1= 0.678
S_{DS}= 1.263
S_{D1}= 0.768

z= 0 ft
h= 3.5 ft (Varies 1' to 3.5')

$$= \frac{(0.4)(1.0)(1.263)W_p(1+2*0'/3.5')}{(2.5/1.0)} = 0.20\ W_p$$

SHALL NOT EXCEED:
$F_p = 1.6S_{DS}I_pW_p = (1.6)(1.263)(1.0)W_p =$ 2.02 W_p

SHALL NOT BE LESS THAN:
$F_p = 0.3S_{DS}I_pW_p = (0.3)(1.263)(1.0)W_p =$ 0.38 W_p **GOVERNS**

USE F_p = 0.38 W_p

LOAD COMB: ASCE 7-16, 2.3.6

6.: $1.2D + E_v + E_{mh}$

7.: $0.9D - E_v + E_{mh}$ (USE FOR UPLIFT FORCE)

NOTE 1: ANCHORAGE DESIGN SHALL INCLUDE A CONCURRENT VERT. COMPONENT OF $E_v = +/- 0.2S_{DS}W_p$ 12.4-4a

NOTE 2: ALL CONCRETE ANCHOR LOADS ARE INCREASED BY $\Omega_o = 2$ TO SATIFISY ACI 318-19, 17.10.5.3 (d) AND 17.10.6.3 (c) IN ALL HILTI ANCHORAGE REPORTS.

Check for Exception #2, 11.4.8 for Site-Specific Ground Motion Analysis

Bldg Fundamental Period: $T = C_th_n^x$ 12.8-7

T= 0.09 s
T_L= 8 s Fig. 22-14
$T_s = S_{D1}/S_{DS}$ = 0.61 s
$1.5T_s$= 0.91 s

Is $T < 1.5T_s$? YES, Exception Satisfied

Table 12.8-2:	
C_t=	0.02
h_n=	7.08 ft
x=	0.75

SMALL PUMP ANCHORAGE:

Seismic Load Effects including Overstrength

$E_m = E_{mh} +/- E_v$ 12.4-5,6

$E_{mh} = \Omega_o Q_E$ 12.4-7

$1.0E_m = 1.0E_{mh} = \Omega_o V$ W= 95 lb

$\Omega_o V$= 0.38 $\Omega_o W$ W= 201 lb

$\Omega_o V$= 152 lb

M_{seis}=(V)(11.75"/2/12)= 75 lb-ft

M_{resis}=(0.90)[(W)(10.75"/2)/12] - (0.2)(1.263)(W)(10.75"/2)/12= 58 lb-ft

T=(M_{seis} - M_{resis})/(10.75"/12)= 18 lb

Determine Load to Anchor in Tension

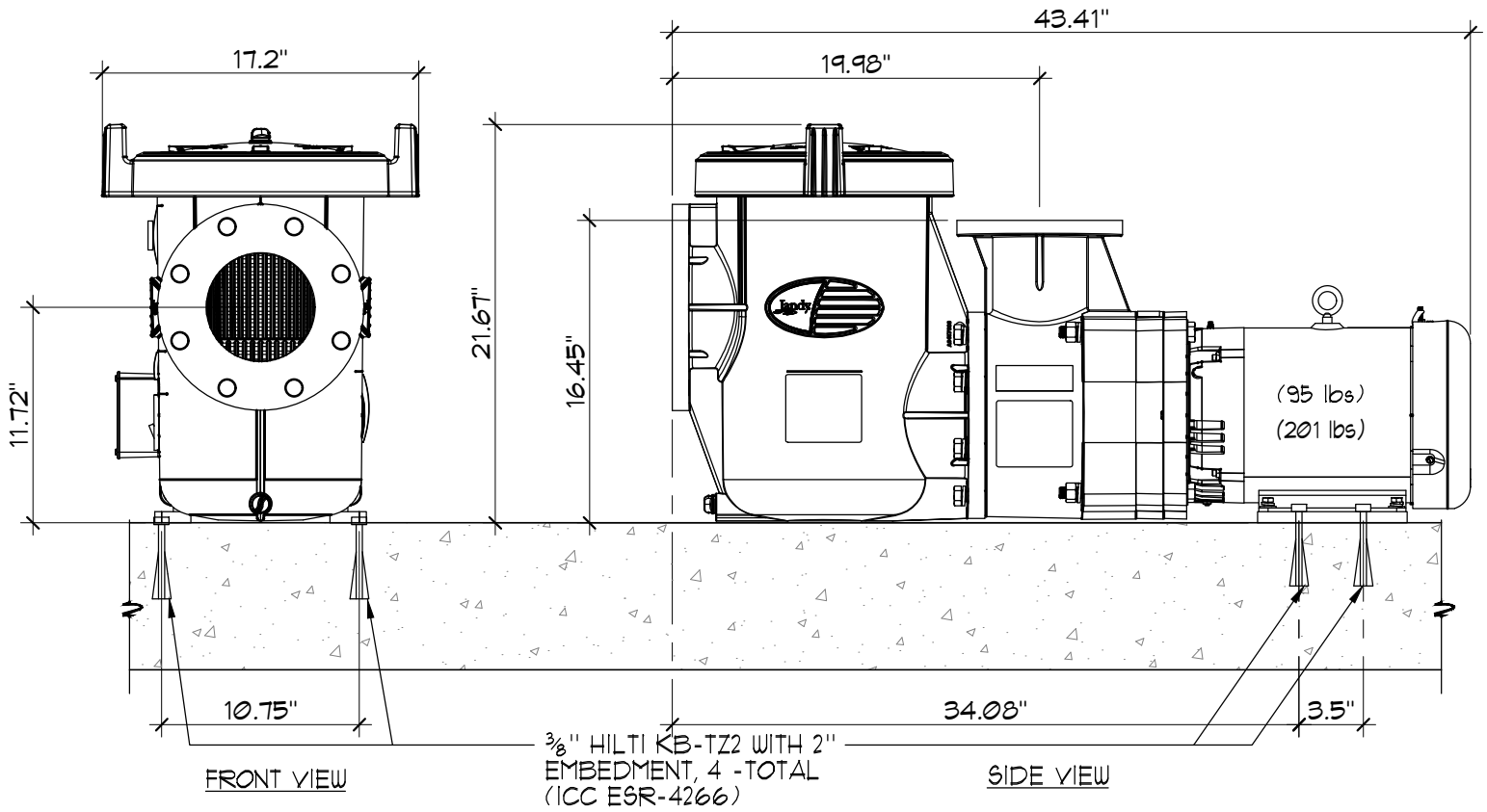
$T_u = T_{BOLT} = T/1$= **18 lb** USE ACI 318-19, 17.10.5.3 (d)

Determine Load to Anchor in Shear (ALL 2 BOLTS FUNCTION IN SHEAR)

$V_u = V_{BOLT} = V/2$= **76 lb** USE ACI 318-19, 17.10.6.3 (c)

TRY HILTI KWIK BOLT KB-TZ2 3/8"ø SS x 2" EMBED:

SEE ATTACHED HILTI ANCHORAGE REPORT



PUMP ANCHORAGE

NO SCALE

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Address:	2226 Faraday Ave., Carlsbad, CA 92008	Specifier:	Martell Montgomery
Phone I Fax:	7609310290 |	E-Mail:	marty_montgomery@yahoo.com
Design:	Small Pump Anchorage - Concrete - Oct 24, 2024	Date:	10/25/2024
Fastening point:	Mechanical Bldg. Conc. Floor		

Specifier's comments:

1 Input data

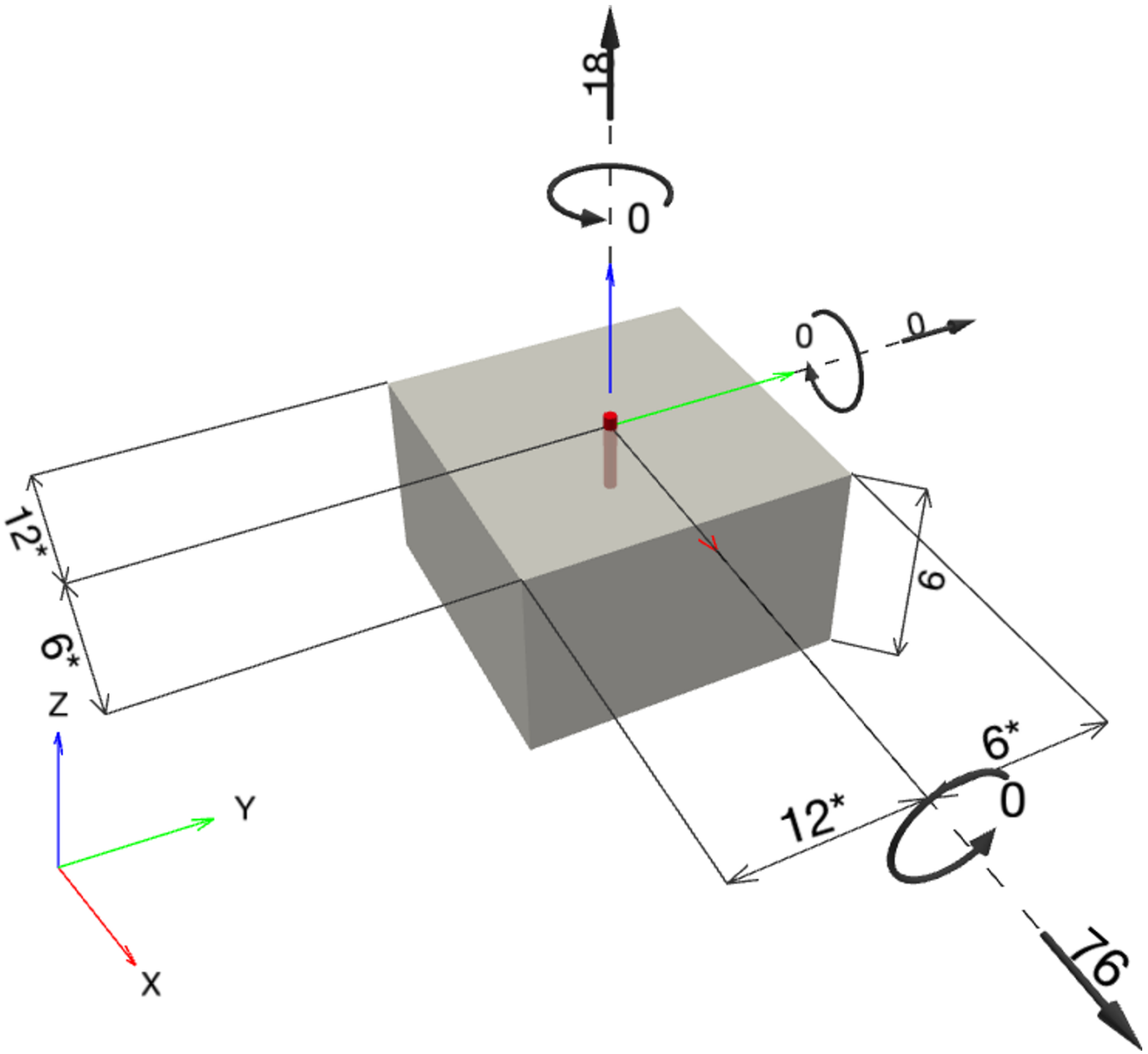


Anchor type and diameter:	**Kwik Bolt TZ2 - SS 304 3/8 (2) hnom2**
Item number:	2210242 KB-TZ2 3/8x3 SS304
Specification text:	Hilti KB-TZ2 stud anchor with 2.5 in embedment, 3/8 (2) hnom2, Stainless steel, installation per ESR-4266
Effective embedment depth:	$h_{ef,act}$ = 2.000 in., h_{nom} = 2.500 in.
Material:	AISI 304
Evaluation Service Report:	ESR-4266
Issued I Valid:	12/1/2023 | 12/1/2025
Proof:	Design Method ACI 318-19 / Mech
Stand-off installation:	
Profile:	
Base material:	cracked concrete, 4000, f_c' = 4,000 psi; h = 6.000 in.
Installation:	**Hammer drilled hole, Installation condition: Dry**
Reinforcement:	tension: not present, shear: not present; no supplemental splitting reinforcement present edge reinforcement: none or < No. 4 bar
Seismic loads (cat. C, D, E, or F)	Tension load: yes (17.10.5.3 (d)) Shear load: yes (17.10.6.3 (c))

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Geometry [in.] & Loading [lb, in.lb]



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Fastening point:	Mechanical Bldg. Conc. Floor		

1.1 Design results

Case	Description	Forces [lb] / Moments [in.lb]	Seismic	Max. Util. Anchor [%]
1	Combination 1	N = 18; V_x = 76; V_y = 0; M_x = 0; M_y = 0; M_z = 0;	yes	4

2 Load case/Resulting anchor forces

Anchor reactions [lb]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	18	76	76	0

3 Tension load

	Load N_{ua} [lb]	Capacity ϕ N_n [lb]	Utilization $\beta_N = N_{ua}/\phi$ N_n	Status
Steel Strength*	18	4,637	1	OK
Pullout Strength*	N/A	N/A	N/A	N/A
Concrete Breakout Failure**	18	1,831	1	OK

* highest loaded anchor **anchor group (anchors in tension)

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Fastening point:	Mechanical Bldg. Conc. Floor		

3.1 Steel Strength

N_{sa} = ESR value — refer to ICC-ES ESR-4266

$\phi\ N_{sa} \geq N_{ua}$ — ACI 318-19 Table 17.5.2

Variables

$A_{se,N}$ [in.^{2}]	f_{uta} [psi]
0.05	120,104

Calculations

N_{sa} [lb]
6,182

Results

N_{sa} [lb]	ϕ_{steel}	$\phi_{nonductile}$	$\phi\ N_{sa}$ [lb]	N_{ua} [lb]
6,182	0.750	1.000	4,637	18

3.2 Concrete Breakout Failure

$N_{cb} = \left(\frac{A_{Nc}}{A_{Nc0}}\right) \psi_{ed,N}\ \psi_{c,N}\ \psi_{cp,N}\ N_b$ — ACI 318-19 Eq. (17.6.2.1a)

$\phi\ N_{cb} \geq N_{ua}$ — ACI 318-19 Table 17.5.2

A_{Nc} see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)

$A_{Nc0} = 9\ h_{ef}^2$ — ACI 318-19 Eq. (17.6.2.1.4)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5h_{ef}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.6.2.4.1b)

$\psi_{cp,N} = MAX\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5h_{ef}}{c_{ac}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.6.2.6.1b)

$N_b = k_c\ \lambda_a\ \sqrt{f'_c}\ h_{ef}^{1.5}$ — ACI 318-19 Eq. (17.6.2.2.1)

Variables

h_{ef} [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$	c_{ac} [in.]	k_c	λ_a	f'_c [psi]
2.000	6.000	1.000	5.500	21	1.000	4,000

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
36.00	36.00	1.000	1.000	3,757

Results

N_{cb} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	$\phi\ N_{cb}$ [lb]	N_{ua} [lb]
3,757	0.650	0.750	1.000	1,831	18

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Fastening point:	Mechanical Bldg. Conc. Floor		

4 Shear load

	Load V_{ua} [lb]	Capacity ϕ V_n [lb]	Utilization $\beta_V = V_{ua}/\phi$ V_n	Status
Steel Strength*	76	3,177	3	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength**	76	2,630	3	OK
Concrete edge failure in direction x+**	76	2,387	4	OK

* highest loaded anchor **anchor group (relevant anchors)

4.1 Steel Strength

$V_{sa,eq}$ = ESR value refer to ICC-ES ESR-4266
ϕ $V_{steel} \geq V_{ua}$ ACI 318-19 Table 17.5.2

Variables

$A_{se,V}$ [in.^{2}]	f_{uta} [psi]	$\alpha_{V,seis}$
0.05	120,104	1.000

Calculations

$V_{sa,eq}$ [lb]
4,887

Results

$V_{sa,eq}$ [lb]	ϕ_{steel}	$\phi_{nonductile}$	ϕ $V_{sa,eq}$ [lb]	V_{ua} [lb]
4,887	0.650	1.000	3,177	76

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Fastening point:	Mechanical Bldg. Conc. Floor		

4.2 Pryout Strength

$V_{cp} = k_{cp} \left[\left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \right]$ ACI 318-19 Eq. (17.7.3.1a)

$\phi V_{cp} \geq V_{ua}$ ACI 318-19 Table 17.5.2

A_{Nc} see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)

$A_{Nc0} = 9 h_{ef}^2$ ACI 318-19 Eq. (17.6.2.1.4)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.4.1b)

$\psi_{cp,N} = MAX \left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.6.1b)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ ACI 318-19 Eq. (17.6.2.2.1)

Variables

k_{cp}	h_{ef} [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$
1	2.000	6.000	1.000

c_{ac} [in.]	k_c	λ_a	f'_c [psi]
5.500	21	1.000	4,000

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
36.00	36.00	1.000	1.000	3,757

Results

V_{cp} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕV_{cp} [lb]	V_{ua} [lb]
3,757	0.700	1.000	1.000	2,630	76

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Fastening point:	Mechanical Bldg. Conc. Floor		

4.3 Concrete edge failure in direction x+

$V_{cb} = \left(\frac{A_{Vc}}{A_{Vc0}}\right) \psi_{ed,V} \psi_{c,V} \psi_{h,V} \psi_{parallel,V} V_b$ — ACI 318-19 Eq. (17.7.2.1a)

$\phi V_{cb} \geq V_{ua}$ — ACI 318-19 Table 17.5.2

A_{Vc} see ACI 318-19, Section 17.7.2.1, Fig. R 17.7.2.1(b)

$A_{Vc0} = 4.5 c_{a1}^2$ — ACI 318-19 Eq. (17.7.2.1.3)

$\psi_{ed,V} = 0.7 + 0.3\left(\frac{c_{a2}}{1.5c_{a1}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.7.2.4.1b)

$\psi_{h,V} = \sqrt{\frac{1.5c_{a1}}{h_a}} \geq 1.0$ — ACI 318-19 Eq. (17.7.2.6.1)

$V_b = \left(7\left(\frac{l_e}{d_a}\right)^{0.2} \sqrt{d_a}\right) \lambda_a \sqrt{f'_c} c_{a1}^{1.5}$ — ACI 318-19 Eq. (17.7.2.2.1a)

Variables

c_{a1} [in.]	c_{a2} [in.]	$\psi_{c,V}$	h_a [in.]	l_e [in.]
6.000	6.000	1.000	6.000	2.000

λ_a	d_a [in.]	f'_c [psi]	$\psi_{parallel,V}$
1.000	0.375	4,000	1.000

Calculations

A_{Vc} [in.^{2}]	A_{Vc0} [in.^{2}]	$\psi_{ed,V}$	$\psi_{h,V}$	V_b [lb]
90.00	162.00	0.900	1.225	5,569

Results

V_{cb} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕV_{cb} [lb]	V_{ua} [lb]
3,410	0.700	1.000	1.000	2,387	76

5 Combined tension and shear loads, per ACI 318-19 section 17.8

β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
0.010	0.032	5/3	1	OK

$\beta_{NV} = \beta_N^{\zeta} + \beta_V^{\zeta} <= 1$

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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6 Warnings

- The anchor design methods in PROFIS Engineering require rigid anchor plates per current regulations (AS 5216:2021, ETAG 001/Annex C, EOTA TR029 etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Engineering calculates the minimum required anchor plate thickness with CBFEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid anchor plate assumption is valid is not carried out by PROFIS Engineering. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies where the potential concrete failure surfaces are crossed by supplementary reinforcement proportioned to tie the potential concrete failure prism into the structural member. Condition B applies where such supplementary reinforcement is not provided, or where pullout or pryout strength governs.
- Refer to the manufacturer's product literature for cleaning and installation instructions.
- For additional information about ACI 318 strength design provisions, please go to https://submittals.us.hilti.com/PROFISAnchorDesignGuide/
- "An anchor design approach for structures assigned to Seismic Design Category C, D, E or F is given in ACI 318-19, Chapter 17, Section 17.10.5.3 (a) that requires the governing design strength of an anchor or group of anchors be limited by ductile steel failure. If this is NOT the case, the connection design (tension) shall satisfy the provisions of Section 17.10.5.3 (b), Section 17.10.5.3 (c), or Section 17.10.5.3 (d). The connection design (shear) shall satisfy the provisions of Section 17.10.6.3 (a), Section 17.10.6.3 (b), or Section 17.10.6.3 (c)."
- Section 17.10.5.3 (b) / Section 17.10.6.3 (a) require the attachment the anchors are connecting to the structure be designed to undergo ductile yielding at a load level corresponding to anchor forces no greater than the controlling design strength. Section 17.10.5.3 (c) / Section 17.10.6.3 (b) waive the ductility requirements and require the anchors to be designed for the maximum tension / shear that can be transmitted to the anchors by a non-yielding attachment. Section 17.10.5.3 (d) / Section 17.10.6.3 (c) waive the ductility requirements and require the design strength of the anchors to equal or exceed the maximum tension / shear obtained from design load combinations that include E, with E increased by ω_0.
- Hilti post-installed anchors shall be installed in accordance with the Hilti Manufacturer's Printed Installation Instructions (MPII). Reference ACI 318-19, Section 26.7.

Fastening meets the design criteria!

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7 Installation data

Anchor type and diameter: Kwik Bolt TZ2 - SS 304 3/8 (2) hnom2

Profile: -

Item number: 2210242 KB-TZ2 3/8x3 SS304

Hole diameter in the fixture: -

Maximum installation torque: 361 in.lb

Plate thickness (input): -

Hole diameter in the base material: 0.375 in.

Hole depth in the base material: 2.750 in.

Drilling method: Hammer drilled

Minimum thickness of the base material: 4.000 in.

Cleaning: Manual cleaning of the drilled hole according to instructions for use is required.

Hilti KB-TZ2 stud anchor with 2.5 in embedment, 3/8 (2) hnom2, Stainless steel, installation per ESR-4266

7.1 Recommended accessories

Drilling	Cleaning	Setting
• Suitable Rotary Hammer • Properly sized drill bit	• Manual blow-out pump	• Torque controlled cordless impact tool • Torque wrench • Hammer

Coordinates Anchor in.

Anchor	x	y	c_{-x}	c_{+x}	c_{-y}	c_{+y}
1	0.000	0.000	12.000	6.000	12.000	6.000

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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8 Remarks; Your Cooperation Duties

- Any and all information and data contained in the Software concern solely the use of Hilti products and are based on the principles, formulas and security regulations in accordance with Hilti's technical directions and operating, mounting and assembly instructions, etc., that must be strictly complied with by the user. All figures contained therein are average figures, and therefore use-specific tests are to be conducted prior to using the relevant Hilti product. The results of the calculations carried out by means of the Software are based essentially on the data you put in. Therefore, you bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by you. Moreover, you bear sole responsibility for having the results of the calculation checked and cleared by an expert, particularly with regard to compliance with applicable norms and permits, prior to using them for your specific facility. The Software serves only as an aid to interpret norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application.
- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.

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SMALL FILTER ANCHORAGE:

Seismic Load Effects including Overstrength

$E_m = E_{mh} +/- E_v$ 12.4-5,6

$E_{mh} = \Omega_o Q_E$ 12.4-7

$1.0E_m = 1.0E_{mh} = \Omega_o V$

$\Omega_o V =$ 0.38 $\Omega_o W$ W= 1007 lb

$\Omega_o V =$ 763 lb

$M_{seis}=(V)(42"/2/12)=$ 1335 lb-ft

$M_{resis}=(0.90)[(W)(30"/2)/12] - (0.2)(1.263)(W)(30"/2)/12=$ 815 lb-ft

$T=(M_{seis} - M_{resis})/(30"/12)=$ 208 lb

Determine Load to Anchor in Tension

$T_u = T_{BOLT} = T/2=$ **104 lb** USE ACI 318-19, 17.10.5.3 (d)

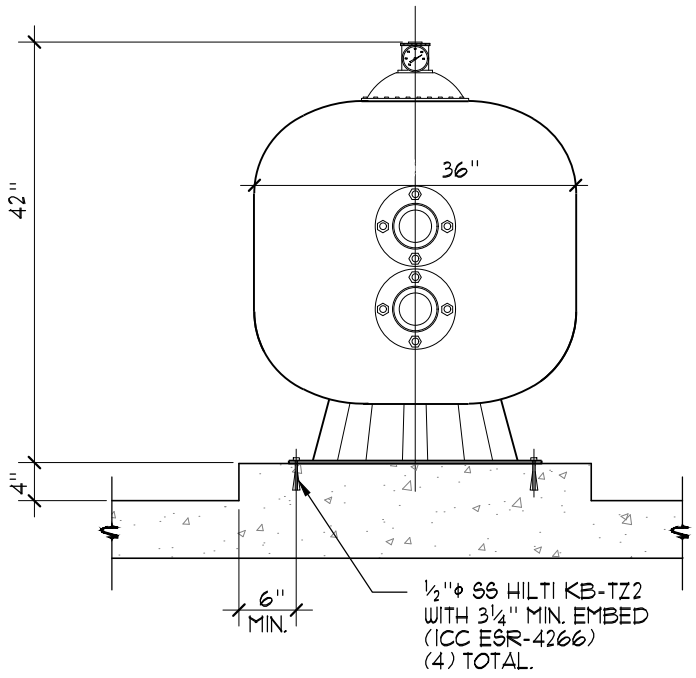
Determine Load to Anchor in Shear (ALL 4 BOLTS FUNCTION IN SHEAR)

$V_u = V_{BOLT} = V/4=$ **191 lb** USE ACI 318-19, 17.10.6.3 (c)

TRY HILTI KWIK BOLT KB-TZ2 1/2"ø SS x 3 1/4" EMBED:

SEE ATTACHED HILTI ANCHORAGE REPORT

TR140C-3 = 1,007 lbs.



FRONT ELEVATION

FILTER ANCHORAGE

NO SCALE

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Fastening point:	Mechanical Bldg. Conc. Floor		

Specifier's comments:

1 Input data

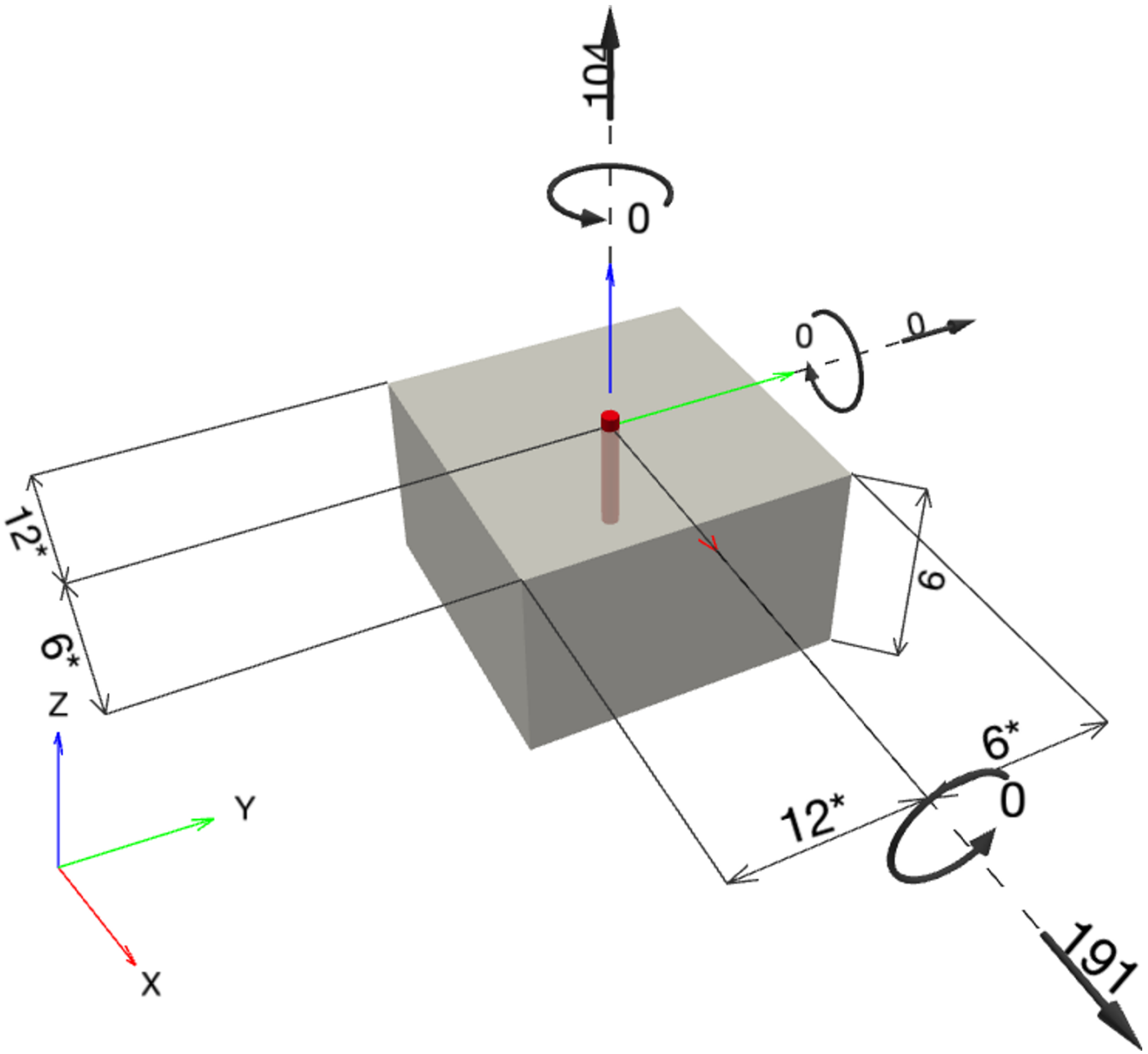


Anchor type and diameter:	**Kwik Bolt TZ2 - SS 304 1/2 (3 1/4) hnom3**
Item number:	2210261 KB-TZ2 1/2x4 1/2 SS304
Specification text:	Hilti KB-TZ2 stud anchor with 3.75 in embedment, 1/2 (3 1/4) hnom3, Stainless steel, installation per ESR-4266
Effective embedment depth:	$h_{ef,act}$ = 3.250 in., h_{nom} = 3.750 in.
Material:	AISI 304
Evaluation Service Report:	ESR-4266
Issued I Valid:	12/1/2023 | 12/1/2025
Proof:	Design Method ACI 318-19 / Mech
Stand-off installation:	
Profile:	
Base material:	cracked concrete, 4000, f_c' = 4,000 psi; h = 6.000 in.
Installation:	**Hammer drilled hole, Installation condition: Dry**
Reinforcement:	tension: not present, shear: not present; no supplemental splitting reinforcement present edge reinforcement: none or < No. 4 bar
Seismic loads (cat. C, D, E, or F)	Tension load: yes (17.10.5.3 (d)) Shear load: yes (17.10.6.3 (c))

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Geometry [in.] & Loading [lb, in.lb]



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1.1 Design results

Case	Description	Forces [lb] / Moments [in.lb]	Seismic	Max. Util. Anchor [%]
1	Combination 1	N = 104; V_x = 191; V_y = 0; M_x = 0; M_y = 0; M_z = 0;	yes	7

2 Load case/Resulting anchor forces

Anchor reactions [lb]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	104	191	191	0

3 Tension load

	Load N_{ua} [lb]	Capacity ϕ N_n [lb]	Utilization $\beta_N = N_{ua}/\phi$ N_n	Status
Steel Strength*	104	8,906	2	OK
Pullout Strength*	N/A	N/A	N/A	N/A
Concrete Breakout Failure**	104	3,071	4	OK

* highest loaded anchor **anchor group (anchors in tension)

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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3.1 Steel Strength

N_{sa} = ESR value — refer to ICC-ES ESR-4266

$\phi\ N_{sa} \geq N_{ua}$ — ACI 318-19 Table 17.5.2

Variables

$A_{se,N}$ [in.^{2}]	f_{uta} [psi]
0.10	120,404

Calculations

N_{sa} [lb]
11,875

Results

N_{sa} [lb]	ϕ_{steel}	$\phi_{nonductile}$	$\phi\ N_{sa}$ [lb]	N_{ua} [lb]
11,875	0.750	1.000	8,906	104

3.2 Concrete Breakout Failure

$N_{cb} = \left(\frac{A_{Nc}}{A_{Nc0}}\right) \psi_{ed,N}\ \psi_{c,N}\ \psi_{cp,N}\ N_b$ — ACI 318-19 Eq. (17.6.2.1a)

$\phi\ N_{cb} \geq N_{ua}$ — ACI 318-19 Table 17.5.2

A_{Nc} see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)

$A_{Nc0} = 9\ h_{ef}^2$ — ACI 318-19 Eq. (17.6.2.1.4)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5h_{ef}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.6.2.4.1b)

$\psi_{cp,N} = MAX\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5h_{ef}}{c_{ac}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.6.2.6.1b)

$N_b = k_c\ \lambda_a\ \sqrt{f'_c}\ h_{ef}^{1.5}$ — ACI 318-19 Eq. (17.6.2.2.1)

Variables

h_{ef} [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$	c_{ac} [in.]	k_c	λ_a	f'_c [psi]
3.250	6.000	1.000	7.500	17	1.000	4,000

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
95.06	95.06	1.000	1.000	6,299

Results

N_{cb} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	$\phi\ N_{cb}$ [lb]	N_{ua} [lb]
6,299	0.650	0.750	1.000	3,071	104

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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4 Shear load

	Load V_{ua} [lb]	Capacity ϕ V_n [lb]	Utilization $\beta_V = V_{ua}/\phi$ V_n	Status
Steel Strength*	191	5,426	4	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength**	191	8,819	3	OK
Concrete edge failure in direction x+**	191	2,868	7	OK

* highest loaded anchor **anchor group (relevant anchors)

4.1 Steel Strength

$V_{sa,eq}$ = ESR value refer to ICC-ES ESR-4266
ϕ $V_{steel} \geq V_{ua}$ ACI 318-19 Table 17.5.2

Variables

$A_{se,V}$ [in.^{2}]	f_{uta} [psi]	$\alpha_{V,seis}$
0.10	120,404	1.000

Calculations

$V_{sa,eq}$ [lb]
8,348

Results

$V_{sa,eq}$ [lb]	ϕ_{steel}	$\phi_{nonductile}$	ϕ $V_{sa,eq}$ [lb]	V_{ua} [lb]
8,348	0.650	1.000	5,426	191

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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4.2 Pryout Strength

$V_{cp} = k_{cp} \left[\left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \right]$ ACI 318-19 Eq. (17.7.3.1a)

$\phi V_{cp} \geq V_{ua}$ ACI 318-19 Table 17.5.2

A_{Nc} see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)

$A_{Nc0} = 9 h_{ef}^2$ ACI 318-19 Eq. (17.6.2.1.4)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.4.1b)

$\psi_{cp,N} = MAX\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.6.1b)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ ACI 318-19 Eq. (17.6.2.2.1)

Variables

k_{cp}	h_{ef} [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$
2	3.250	6.000	1.000

c_{ac} [in.]	k_c	λ_a	f'_c [psi]
7.500	17	1.000	4,000

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
95.06	95.06	1.000	1.000	6,299

Results

V_{cp} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕV_{cp} [lb]	V_{ua} [lb]
12,599	0.700	1.000	1.000	8,819	191

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4.3 Concrete edge failure in direction x+

$V_{cb} = \left(\frac{A_{Vc}}{A_{Vc0}}\right) \psi_{ed,V} \psi_{c,V} \psi_{h,V} \psi_{parallel,V} V_b$ — ACI 318-19 Eq. (17.7.2.1a)

$\phi V_{cb} \geq V_{ua}$ — ACI 318-19 Table 17.5.2

A_{Vc} see ACI 318-19, Section 17.7.2.1, Fig. R 17.7.2.1(b)

$A_{Vc0} = 4.5 c_{a1}^2$ — ACI 318-19 Eq. (17.7.2.1.3)

$\psi_{ed,V} = 0.7 + 0.3\left(\frac{c_{a2}}{1.5c_{a1}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.7.2.4.1b)

$\psi_{h,V} = \sqrt{\frac{1.5c_{a1}}{h_a}} \geq 1.0$ — ACI 318-19 Eq. (17.7.2.6.1)

$V_b = \left(7\left(\frac{l_e}{d_a}\right)^{0.2} \sqrt{d_a}\right) \lambda_a \sqrt{f'_c} c_{a1}^{1.5}$ — ACI 318-19 Eq. (17.7.2.2.1a)

Variables

c_{a1} [in.]	c_{a2} [in.]	$\psi_{c,V}$	h_a [in.]	l_e [in.]
6.000	6.000	1.000	6.000	3.250

λ_a	d_a [in.]	f'_c [psi]	$\psi_{parallel,V}$
1.000	0.500	4,000	1.000

Calculations

A_{Vc} [in.^{2}]	A_{Vc0} [in.^{2}]	$\psi_{ed,V}$	$\psi_{h,V}$	V_b [lb]
90.00	162.00	0.900	1.225	6,690

Results

V_{cb} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕV_{cb} [lb]	V_{ua} [lb]
4,097	0.700	1.000	1.000	2,868	191

5 Combined tension and shear loads, per ACI 318-19 section 17.8

β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
0.034	0.067	5/3	2	OK

$\beta_{NV} = \beta_N^{\zeta} + \beta_V^{\zeta} <= 1$

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Fastening point:	Mechanical Bldg. Conc. Floor		

6 Warnings

- The anchor design methods in PROFIS Engineering require rigid anchor plates per current regulations (AS 5216:2021, ETAG 001/Annex C, EOTA TR029 etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Engineering calculates the minimum required anchor plate thickness with CBFEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid anchor plate assumption is valid is not carried out by PROFIS Engineering. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies where the potential concrete failure surfaces are crossed by supplementary reinforcement proportioned to tie the potential concrete failure prism into the structural member. Condition B applies where such supplementary reinforcement is not provided, or where pullout or pryout strength governs.
- Refer to the manufacturer's product literature for cleaning and installation instructions.
- For additional information about ACI 318 strength design provisions, please go to https://submittals.us.hilti.com/PROFISAnchorDesignGuide/
- "An anchor design approach for structures assigned to Seismic Design Category C, D, E or F is given in ACI 318-19, Chapter 17, Section 17.10.5.3 (a) that requires the governing design strength of an anchor or group of anchors be limited by ductile steel failure. If this is NOT the case, the connection design (tension) shall satisfy the provisions of Section 17.10.5.3 (b), Section 17.10.5.3 (c), or Section 17.10.5.3 (d). The connection design (shear) shall satisfy the provisions of Section 17.10.6.3 (a), Section 17.10.6.3 (b), or Section 17.10.6.3 (c)."
- Section 17.10.5.3 (b) / Section 17.10.6.3 (a) require the attachment the anchors are connecting to the structure be designed to undergo ductile yielding at a load level corresponding to anchor forces no greater than the controlling design strength. Section 17.10.5.3 (c) / Section 17.10.6.3 (b) waive the ductility requirements and require the anchors to be designed for the maximum tension / shear that can be transmitted to the anchors by a non-yielding attachment. Section 17.10.5.3 (d) / Section 17.10.6.3 (c) waive the ductility requirements and require the design strength of the anchors to equal or exceed the maximum tension / shear obtained from design load combinations that include E, with E increased by ω_0.
- Hilti post-installed anchors shall be installed in accordance with the Hilti Manufacturer's Printed Installation Instructions (MPII). Reference ACI 318-19, Section 26.7.

Fastening meets the design criteria!

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Company:	La Costa Engineering	Page:	9
Address:	2226 Faraday Ave., Carlsbad, CA 92008	Specifier:	Martell Montgomery
Phone I Fax:	7609310290 |	E-Mail:	marty_montgomery@yahoo.com
Design:	Small Filter Anchorage - Concrete - Oct 24, 2024	Date:	10/25/2024
Fastening point:	Mechanical Bldg. Conc. Floor		

7 Installation data

Anchor type and diameter: Kwik Bolt TZ2 - SS 304 1/2 (3 1/4) hnom3

Profile: -

Item number: 2210261 KB-TZ2 1/2x4 1/2 SS304

Hole diameter in the fixture: -

Maximum installation torque: 481 in.lb

Plate thickness (input): -

Hole diameter in the base material: 0.500 in.

Hole depth in the base material: 4.250 in.

Drilling method: Hammer drilled

Minimum thickness of the base material: 5.500 in.

Cleaning: Manual cleaning of the drilled hole according to instructions for use is required.

Hilti KB-TZ2 stud anchor with 3.75 in embedment, 1/2 (3 1/4) hnom3, Stainless steel, installation per ESR-4266

7.1 Recommended accessories

Drilling	Cleaning	Setting
• Suitable Rotary Hammer • Properly sized drill bit	• Manual blow-out pump	• Torque controlled cordless impact tool • Torque wrench • Hammer

Coordinates Anchor in.

Anchor	x	y	c_{-x}	c_{+x}	c_{-y}	c_{+y}
1	0.000	0.000	12.000	6.000	12.000	6.000

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Fastening point:	Mechanical Bldg. Conc. Floor		

8 Remarks; Your Cooperation Duties

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- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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34"ø CHEMICAL TANK ANCHORAGE:

For Large Tanks, 150 gal or greater, Use 15.4.1 Design Basis:

Per Geocon, Site Specific Seismic Parameters:

S_1= 0.678 g
S_S= 1.894 g
S_{D1}= 0.768 g
S_{DS}= 1.263 g

Per Table 15.4-2:

R= 3.0
Ω_o= 2
C_d= 2.5
I= 1.5 (Toxic Fluid)

$V = C_s W$ 12.8-1

$C_s = S_{DS}/(R/I)$= 0.63 **GOVERNS**

C_s Shall not be less than: 15.4-1
0.03

If $S_1 > 0.6g$, C_s Shall not be less than: 15.4-2
$0.8S_1/(R/I)$= 0.31

C_s Shall not exceed: Is T<TL? YES T_L= 8 Fig. 22-14
$S_{D1}/T(R/I)$= 6.79

$T = C_t h_n^x$
T= 0.06

Table 12.8-2:	
C_t=	0.02
h_n=	4.00 ft
x=	0.75

V= 0.63 W

SHEAR AND TENSION FROM OVERTURNING OF CONTAINER

CASE 1: **Full Tank**

Seismic Load Effects including Overstrength

$E_m = E_{mh} +/- E_v$ 12.4-5,6

$E_{mh} = \Omega_o Q_E$ 12.4-7

$1.0E_m = 1.0E_{mh} = \Omega_o V$

$\Omega_o V$= 0.63 $\Omega_o W$

$\Omega_o V$= 1577 lb W= 1249 lb (w/TOXIC FLUID)

$M_{seis}=(V)(4.0'/2)=$ 3155 lb-ft

$M_{resis}=(0.90)(W)(34"/2)/12 - (0.2)(1.263)(W)(34"/2)/12=$ 1146 lb-ft

$T=(M_{seis} - M_{resis})/(34"/12)=$ 709 lb

CASE 2: **1/2 Full Tank (Sloshing Effects)**

$1.0E_m = 1.0E_{mh} = \Omega_o V$ *Seismic Load Effects including Overstrength*

$\Omega_o V = \Omega_o(V_i + V_c) =$ 15.7-4, 12.4-7

$V_i =$ 0.63 W

$V_i =$ 394 lb W= 625 lb (1/2 TANK w/TOXIC FLUID)

$V_c = S_{ac} I W_c / 1.5$ $T_L =$ 8 s Fig. 22-14

$T_C =$ 1.28 s 15.7-12

$T_C < T_L$ YES

$S_{ac} = 1.5S_{D1}/T_C =$ 0.90

$V_c =$ 562 lb

$\Omega_o V = \Omega_o(V_i + V_c) =$ 1913 lb

$M_{seis} = \Omega_o[V_i(4.0'/4) + V_c(4.0'/3)] =$ 2288 lb-ft

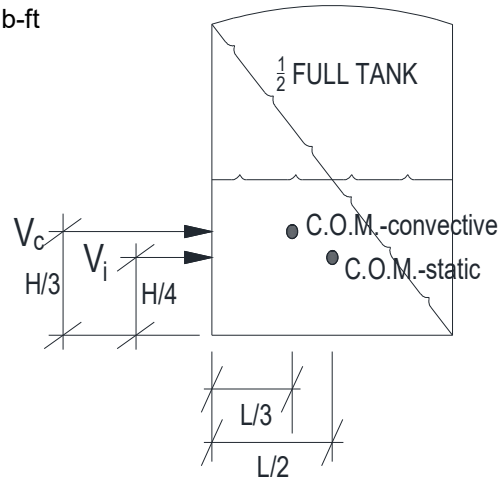
Resisting Center of Convective Mass is approx. L/3:

$M_{resis} = (0.90)(W)(34"/3)/12 - (0.2)(1.263)(W)(34"/3)/12 =$ 382 lb-ft

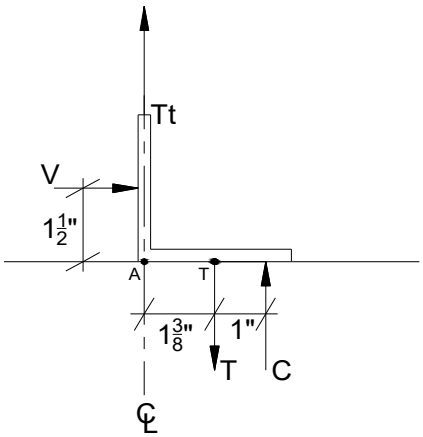
$T_t = (M_{seis} - M_{resis})/(34"/12) =$ 673 lb

CASE 2 GOVERNS

UPLIFT DUE TO SLOSHING IN 1/2 FULL TANK GOVERNS. USE S.S. CABLE RESTRAINTS OVER CHEM. TANK AND CONNECT TO (4) ANCHOR PTS.



TENSION FROM FORCE APPLIED TO UPPER FLANGE



NOTE: DUE TO THE GEOMETRY OF (4) EVENLY SPACED ANCHOR PTS. WRT TANK, APPLY ENTIRE SEISMIC LOAD ON ONLY (1) ANCHOR PT.

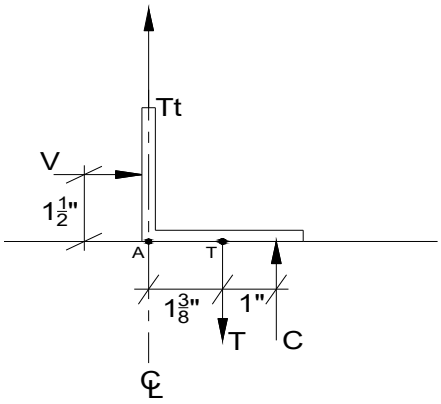
V= 1913 lb (FROM ABOVE)

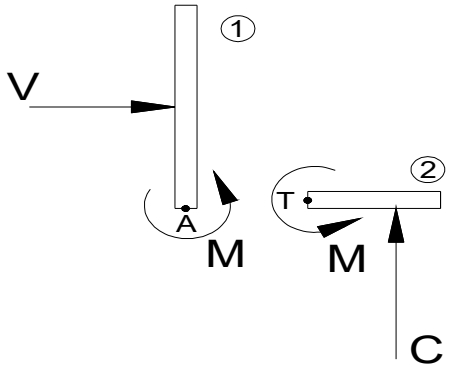
$T_t =$ 673 lb (FROM ABOVE)

$\sum M_c = T(1") - V(1.5") - T_t(2.38") = 0$ **T= 4467 lb**

$\sum F_y = T - C - T_t = 0$ $C = T - T_t$ C= 3794 lb

34"ø CHEMICAL TANK BASE ANGLE CONNECTION:





1). $\sum M_A$=-V(1.5")+M=0 M= 2869 lb-in

2). $\sum M_T$=C(1)+M=0 M= -3794 lb-in **GOVERNS**

TRY L 3x3x1/2x10"L 316 S.S.

WORST CASE: t= 0.5 in.

$s=bt^2/6$ b=10"-2(7/8")= 8.25 in. net

$s=(8.25")(1/2)^2/6$= 0.344 in^3

L BENDING STRESS: $f_b=M/s$= 11037 psi

$F_{b316S.S}$=35000(0.6)=21,000 psi

$F_{bSHORT\ TERM\ SEIS.\ LD.}$=(21,000 psi)(1.33)= 27,930 psi > 11037 psi

USE L 3x3x1/2"x10"L 316 S.S.

34"ø CHEMICAL TANK PUNCHING SHEAR:

W= 1249 lb d= 34 in t_{slab}= 9 in

$v_{punch\ shear}=W/(0.85\pi dt_{slab})$= 1.5 psi

$v_{allow\ pnch\ shear}=4(f'_c)^{1/2}$= 253 psi 253 psi > 1.5 psi

P_s= 2500 psf per Geotechnical Report

$P=W/A+t_{slab}(150\ pcf)$= 311 psf 2000 psf > 311 psf

9" CONC. SLAB WILL RESIST PUNCHING SHEAR OF TANK

34"Ø CHEMICAL TANK ANCHORAGE DESIGN:

Determine Shear Load to 2-Bolt Anchor in L Steel

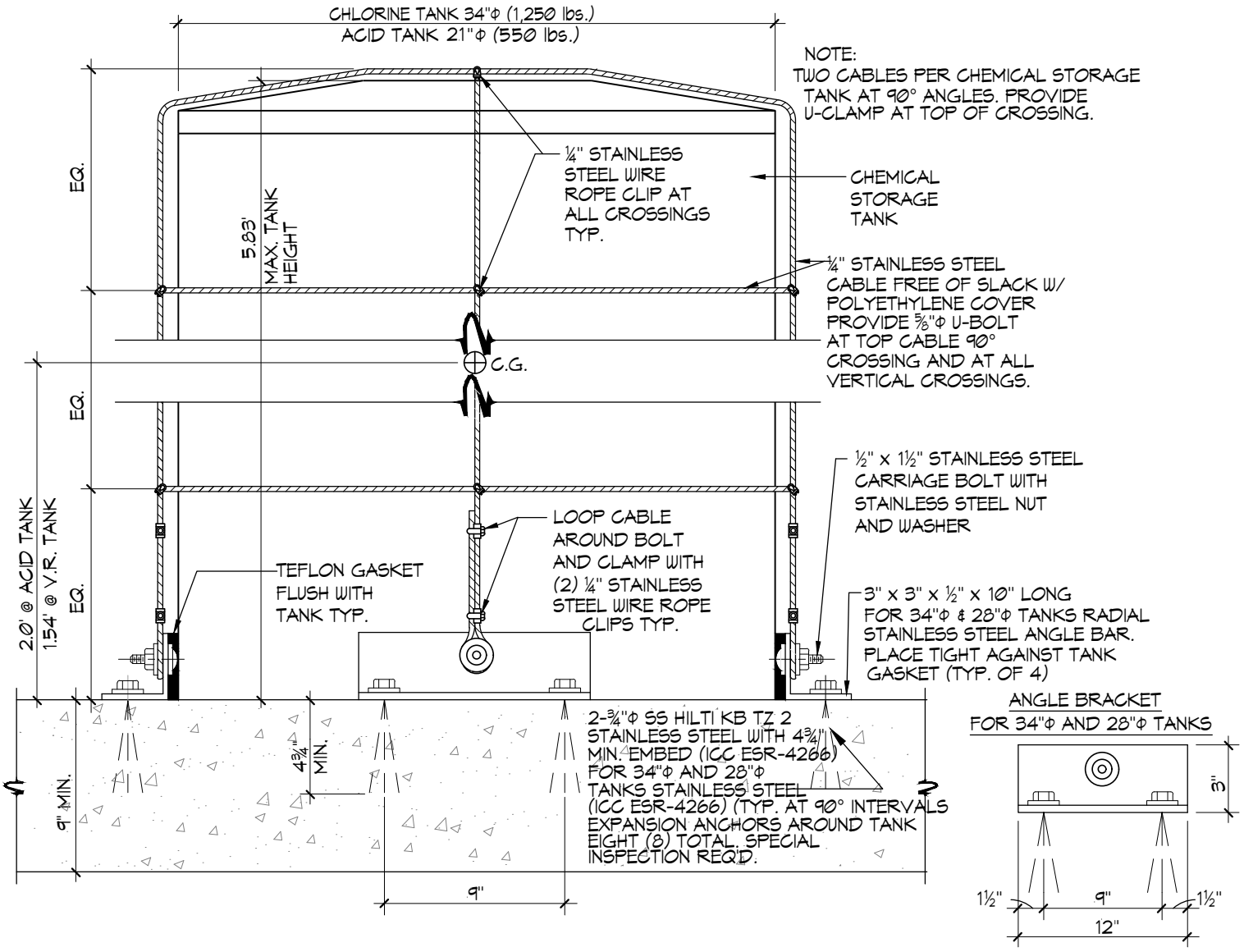
$V_u = V_{ANCHOR\ GROUP}$ = **1913 lb** USE ACI 318-19, 17.10.5.3 (d)

Determine Tensile Load to 2-Bolt Anchor in L Steel

$T_u = T_{ANCHOR\ GROUP}$ = **4467 lb** USE ACI 318-19, 17.10.6.3 (c)

TRY HILTI KWIK BOLT KB-TZ2 3/4"Ø SS x 4 3/4" EMBED:

SEE ATTA SEE ATTACHED HILTI ANCHORAGE REPORT



CHEMICAL TANK ANCHOR (TYP. 2 TANKS)

NO SCALE

Company:	La Costa Engineering	Page:	1
Address:	2226 Faraday Ave., Carlsbad, CA 92008	Specifier:	Martell Montgomery
Phone I Fax:	7609310290 |	E-Mail:	marty_montgomery@yahoo.com
Design:	150g Chemical Tank-Concrete - Oct. 22, 2024	Date:	10/25/2024
Fastening point:	150 gal Chem. Tank Anchorage to Conc.		

Specifier's comments: Fasten 2-bolt anchorage in 4 perimeter locations around tank.

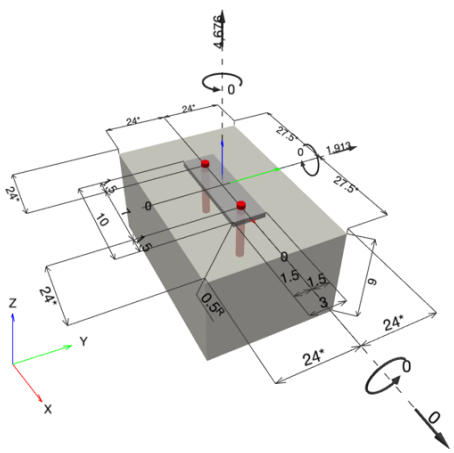
1 Input data



Anchor type and diameter:	**Kwik Bolt TZ2 - SS 304 3/4 (4 3/4) hnom3**
Item number:	2210288 KB-TZ2 3/4x7 SS304
Specification text:	Hilti KB-TZ2 stud anchor with 5.5 in embedment, 3/4 (4 3/4) hnom3, Stainless steel, installation per ESR-4266
Effective embedment depth:	$h_{ef,act}$ = 4.750 in., h_{nom} = 5.500 in.
Material:	AISI 304
Evaluation Service Report:	ESR-4266
Issued I Valid:	12/1/2023 | 12/1/2025
Proof:	Design Method ACI 318-19 / Mech
Stand-off installation:	e_b = 0.000 in. (no stand-off); t = 0.500 in.
Anchor plate[R] :	l_x x l_y x t = 10.000 in. x 3.000 in. x 0.500 in.; (Recommended plate thickness: not calculated)
Profile:	Round bars (AISC), 1/16; (L x W x T) = 0.062 in. x 0.062 in.
Base material:	cracked concrete, 4000, f_c' = 4,000 psi; h = 9.000 in.
Installation:	**Hammer drilled hole, Installation condition: Dry**
Reinforcement:	tension: not present, shear: not present; no supplemental splitting reinforcement present edge reinforcement: none or < No. 4 bar
Seismic loads (cat. C, D, E, or F)	Tension load: yes (17.10.5.3 (d)) Shear load: yes (17.10.6.3 (c))

[R] - The anchor calculation is based on a rigid anchor plate assumption.

Geometry [in.] & Loading [lb, in.lb]



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Address:	2226 Faraday Ave., Carlsbad, CA 92008	Specifier:	Martell Montgomery
Phone I Fax:	7609310290 |	E-Mail:	marty_montgomery@yahoo.com
Design:	150g Chemical Tank-Concrete - Oct. 22, 2024	Date:	10/25/2024
Fastening point:	150 gal Chem. Tank Anchorage to Conc.		

1.1 Design results

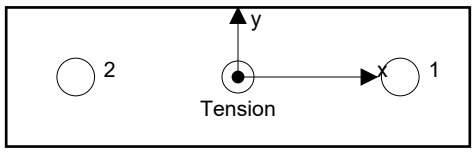
Case	Description	Forces [lb] / Moments [in.lb]	Seismic	Max. Util. Anchor [%]
1	Combination 1	N = 4,676; V_x = 0; V_y = 1,913; M_x = 0; M_y = 0; M_z = 0;	yes	47

2 Load case/Resulting anchor forces

Anchor reactions [lb]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	2,338	957	0	957
2	2,338	957	0	957



Max. concrete compressive strain: - [‰]
Max. concrete compressive stress: - [psi]
Resulting tension force in (x/y)=(-0.000/0.000): 4,676 [lb]
Resulting compression force in (x/y)=(-/-): 0 [lb]

Anchor forces are calculated based on the assumption of a rigid anchor plate.

3 Tension load

	Load N_{ua} [lb]	Capacity ϕ N_n [lb]	Utilization $\beta_N = N_{ua}/\phi$ N_n	Status
Steel Strength*	2,338	18,041	13	OK
Pullout Strength*	2,338	5,426	44	OK
Concrete Breakout Failure**	4,676	9,996	47	OK

* highest loaded anchor **anchor group (anchors in tension)

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Phone I Fax:	7609310290 |	E-Mail:	marty_montgomery@yahoo.com
Design:	150g Chemical Tank-Concrete - Oct. 22, 2024	Date:	10/25/2024
Fastening point:	150 gal Chem. Tank Anchorage to Conc.		

3.1 Steel Strength

N_{sa} = ESR value — refer to ICC-ES ESR-4266
$\phi\ N_{sa} \geq N_{ua}$ — ACI 318-19 Table 17.5.2

Variables

$A_{se,N}$ [in.^{2}]	f_{uta} [psi]
0.24	100,504

Calculations

N_{sa} [lb]
24,055

Results

N_{sa} [lb]	ϕ_{steel}	$\phi_{nonductile}$	$\phi\ N_{sa}$ [lb]	N_{ua} [lb]
24,055	0.750	1.000	18,041	2,338

3.2 Pullout Strength

$N_{pn,f_c'} = N_{p,2500}\ \lambda_a\ (f_c'/2500)^{0.5}$ — refer to ICC-ES ESR-4266
$\phi\ N_{pn,f_c'} \geq N_{ua}$ — ACI 318-19 Table 17.5.2

Variables

f_c' [psi]	λ_a	$N_{p,2500}$ [lb]
4,000	1.000	8,799

Calculations

$(f_c'/2500)^{0.5}$
1.265

Results

$N_{pn,f_c'}$ [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	$\phi\ N_{pn,f_c'}$ [lb]	N_{ua} [lb]
11,129	0.650	0.750	1.000	5,426	2,338

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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3.3 Concrete Breakout Failure

$N_{cbg} = \left(\frac{A_{Nc}}{A_{Nc0}}\right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b$ ACI 318-19 Eq. (17.6.2.1b)

$\phi N_{cbg} \geq N_{ua}$ ACI 318-19 Table 17.5.2

A_{Nc} see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)

$A_{Nc0} = 9 h_{ef}^2$ ACI 318-19 Eq. (17.6.2.1.4)

$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2 e'_N}{3 h_{ef}}}\right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.3.1)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}}\right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.4.1b)

$\psi_{cp,N} = \text{MAX}\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}}\right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.6.1b)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ ACI 318-19 Eq. (17.6.2.2.1)

Variables

h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$
4.750	0.000	0.000	24.000	1.000

c_{ac} [in.]	k_c	λ_a	f'_c [psi]
10.000	21	1.000	4,000

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
302.81	203.06	1.000	1.000	1.000	1.000	13,750

Results

N_{cbg} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕN_{cbg} [lb]	N_{ua} [lb]
20,504	0.650	0.750	1.000	9,996	4,676

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4 Shear load

	Load V_{ua} [lb]	Capacity ϕ V_n [lb]	Utilization $\beta_V = V_{ua}/\phi$ V_n	Status
Steel Strength*	957	8,759	11	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength**	1,913	28,705	7	OK
Concrete edge failure in direction y+**	1,913	17,434	11	OK

* highest loaded anchor **anchor group (relevant anchors)

4.1 Steel Strength

$V_{sa,eq}$ = ESR value refer to ICC-ES ESR-4266
ϕ $V_{steel} \geq V_{ua}$ ACI 318-19 Table 17.5.2

Variables

$A_{se,V}$ [in.^{2}]	f_{uta} [psi]	$\alpha_{V,seis}$
0.24	100,504	0.813

Calculations

$V_{sa,eq}$ [lb]
13,475

Results

$V_{sa,eq}$ [lb]	ϕ_{steel}	$\phi_{nonductile}$	ϕ $V_{sa,eq}$ [lb]	V_{ua} [lb]
13,475	0.650	1.000	8,759	957

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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4.2 Pryout Strength

$V_{cpg} = k_{cp} \left[\left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \right]$ ACI 318-19 Eq. (17.7.3.1b)

$\phi V_{cpg} \geq V_{ua}$ ACI 318-19 Table 17.5.2

A_{Nc} see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)

$A_{Nc0} = 9 h_{ef}^2$ ACI 318-19 Eq. (17.6.2.1.4)

$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2 e'_N}{3 h_{ef}}} \right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.3.1)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.4.1b)

$\psi_{cp,N} = \text{MAX}\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.6.1b)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ ACI 318-19 Eq. (17.6.2.2.1)

Variables

k_{cp}	h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]
2	4.750	0.000	0.000	24.000

$\psi_{c,N}$	c_{ac} [in.]	k_c	λ_a	f'_c [psi]
1.000	10.000	21	1.000	4,000

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
302.81	203.06	1.000	1.000	1.000	1.000	13,750

Results

V_{cpg} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕV_{cpg} [lb]	V_{ua} [lb]
41,008	0.700	1.000	1.000	28,705	1,913

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Company:	La Costa Engineering	Page:	7
Address:	2226 Faraday Ave., Carlsbad, CA 92008	Specifier:	Martell Montgomery
Phone I Fax:	7609310290 |	E-Mail:	marty_montgomery@yahoo.com
Design:	150g Chemical Tank-Concrete - Oct. 22, 2024	Date:	10/25/2024
Fastening point:	150 gal Chem. Tank Anchorage to Conc.		

4.3 Concrete edge failure in direction y+

$V_{cbg} = \left(\frac{A_{Vc}}{A_{Vc0}}\right) \psi_{ec,V}\ \psi_{ed,V}\ \psi_{c,V}\ \psi_{h,V}\ \psi_{parallel,V}\ V_b$ — ACI 318-19 Eq. (17.7.2.1b)

$\phi\ V_{cbg} \geq V_{ua}$ — ACI 318-19 Table 17.5.2

A_{Vc} see ACI 318-19, Section 17.7.2.1, Fig. R 17.7.2.1(b)

$A_{Vc0} = 4.5\ c_{a1}^2$ — ACI 318-19 Eq. (17.7.2.1.3)

$\psi_{ec,V} = \left(\frac{1}{1 + \frac{e'_v}{1.5c_{a1}}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.7.2.3.1)

$\psi_{ed,V} = 0.7 + 0.3\left(\frac{c_{a2}}{1.5c_{a1}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.7.2.4.1b)

$\psi_{h,V} = \sqrt{\frac{1.5c_{a1}}{h_a}} \geq 1.0$ — ACI 318-19 Eq. (17.7.2.6.1)

$V_b = \left(7\left(\frac{l_e}{d_a}\right)^{0.2}\sqrt{d_a}\right)\lambda_a \sqrt{f'_c}\, c_{a1}^{1.5}$ — ACI 318-19 Eq. (17.7.2.2.1a)

Variables

c_{a1} [in.]	c_{a2} [in.]	e_{cV} [in.]	$\psi_{c,V}$	h_a [in.]
16.000	24.000	0.000	1.000	9.000

l_e [in.]	λ_a	d_a [in.]	f'_c [psi]	$\psi_{parallel,V}$
4.750	1.000	0.750	4,000	1.000

Calculations

A_{Vc} [in.^{2}]	A_{Vc0} [in.^{2}]	$\psi_{ec,V}$	$\psi_{ed,V}$	$\psi_{h,V}$	V_b [lb]
495.00	1,152.00	1.000	1.000	1.633	35,495

Results

V_{cbg} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	$\phi\ V_{cbg}$ [lb]	V_{ua} [lb]
24,906	0.700	1.000	1.000	17,434	1,913

5 Combined tension and shear loads, per ACI 318-19 section 17.8

β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
0.468	0.110	5/3	31	OK

$\beta_{NV} = \beta_N^{\zeta} + \beta_V^{\zeta} <= 1$

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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Company:	La Costa Engineering	Page:	8
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Phone I Fax:	7609310290 |	E-Mail:	marty_montgomery@yahoo.com
Design:	150g Chemical Tank-Concrete - Oct. 22, 2024	Date:	10/25/2024
Fastening point:	150 gal Chem. Tank Anchorage to Conc.		

6 Warnings

- The anchor design methods in PROFIS Engineering require rigid anchor plates per current regulations (AS 5216:2021, ETAG 001/Annex C, EOTA TR029 etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Engineering calculates the minimum required anchor plate thickness with CBFEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid anchor plate assumption is valid is not carried out by PROFIS Engineering. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies where the potential concrete failure surfaces are crossed by supplementary reinforcement proportioned to tie the potential concrete failure prism into the structural member. Condition B applies where such supplementary reinforcement is not provided, or where pullout or pryout strength governs.
- Refer to the manufacturer's product literature for cleaning and installation instructions.
- For additional information about ACI 318 strength design provisions, please go to https://submittals.us.hilti.com/PROFISAnchorDesignGuide/
- "An anchor design approach for structures assigned to Seismic Design Category C, D, E or F is given in ACI 318-19, Chapter 17, Section 17.10.5.3 (a) that requires the governing design strength of an anchor or group of anchors be limited by ductile steel failure. If this is NOT the case, the connection design (tension) shall satisfy the provisions of Section 17.10.5.3 (b), Section 17.10.5.3 (c), or Section 17.10.5.3 (d). The connection design (shear) shall satisfy the provisions of Section 17.10.6.3 (a), Section 17.10.6.3 (b), or Section 17.10.6.3 (c)."
- Section 17.10.5.3 (b) / Section 17.10.6.3 (a) require the attachment the anchors are connecting to the structure be designed to undergo ductile yielding at a load level corresponding to anchor forces no greater than the controlling design strength. Section 17.10.5.3 (c) / Section 17.10.6.3 (b) waive the ductility requirements and require the anchors to be designed for the maximum tension / shear that can be transmitted to the anchors by a non-yielding attachment. Section 17.10.5.3 (d) / Section 17.10.6.3 (c) waive the ductility requirements and require the design strength of the anchors to equal or exceed the maximum tension / shear obtained from design load combinations that include E, with E increased by ω_0.
- Hilti post-installed anchors shall be installed in accordance with the Hilti Manufacturer's Printed Installation Instructions (MPII). Reference ACI 318-19, Section 26.7.

Fastening meets the design criteria!

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Fastening point:	150 gal Chem. Tank Anchorage to Conc.		

7 Installation data

Anchor type and diameter: Kwik Bolt TZ2 - SS 304 3/4 (4 3/4) hnom3

Profile: Round bars (AISC), 1/16; (L x W x T) = 0.062 in. x 0.062 in.

Item number: 2210288 KB-TZ2 3/4x7 SS304

Hole diameter in the fixture: d_f = 0.812 in.

Maximum installation torque: 1,505 in.lb

Plate thickness (input): 0.500 in.

Hole diameter in the base material: 0.750 in.

Recommended plate thickness: not calculated

Hole depth in the base material: 5.750 in.

Drilling method: Hammer drilled

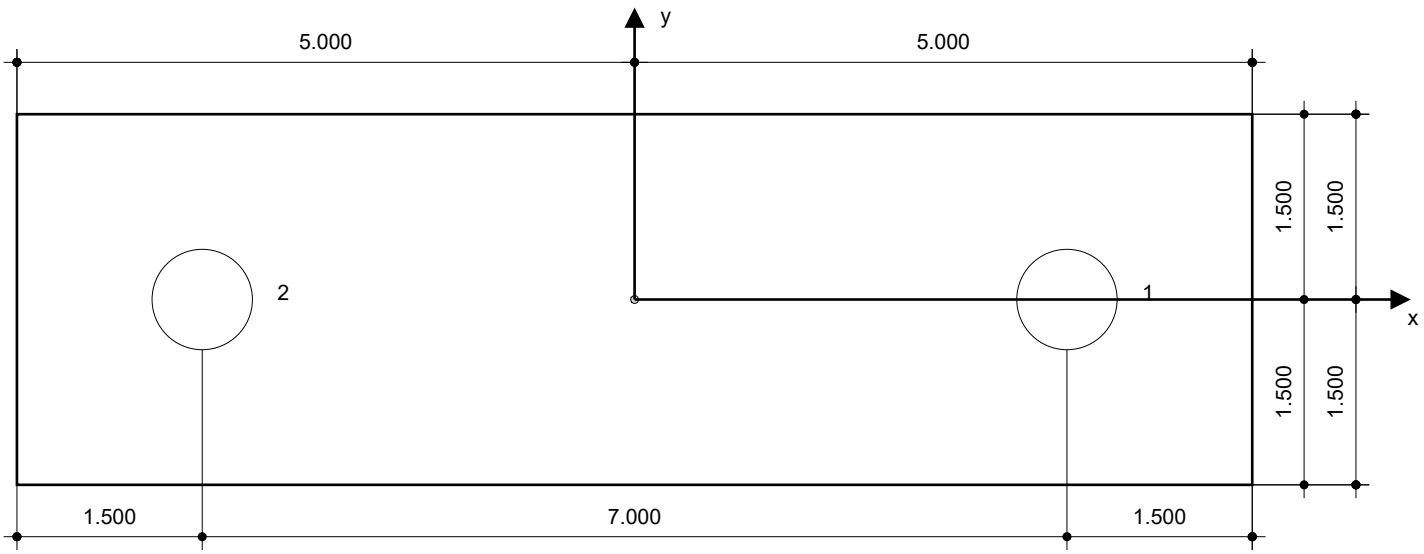
Minimum thickness of the base material: 8.000 in.

Cleaning: Manual cleaning of the drilled hole according to instructions for use is required.

Hilti KB-TZ2 stud anchor with 5.5 in embedment, 3/4 (4 3/4) hnom3, Stainless steel, installation per ESR-4266

7.1 Recommended accessories

Drilling	Cleaning	Setting
• Suitable Rotary Hammer • Properly sized drill bit	• Manual blow-out pump	• Torque controlled cordless impact tool • Torque wrench • Hammer



Coordinates Anchor [in.]

Anchor	x	y	c_{-x}	c_{+x}	c_{-y}	c_{+y}
1	3.500	0.000	31.000	24.000	24.000	24.000
2	-3.500	0.000	24.000	31.000	24.000	24.000

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8 Remarks; Your Cooperation Duties

- Any and all information and data contained in the Software concern solely the use of Hilti products and are based on the principles, formulas and security regulations in accordance with Hilti's technical directions and operating, mounting and assembly instructions, etc., that must be strictly complied with by the user. All figures contained therein are average figures, and therefore use-specific tests are to be conducted prior to using the relevant Hilti product. The results of the calculations carried out by means of the Software are based essentially on the data you put in. Therefore, you bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by you. Moreover, you bear sole responsibility for having the results of the calculation checked and cleared by an expert, particularly with regard to compliance with applicable norms and permits, prior to using them for your specific facility. The Software serves only as an aid to interpret norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application.
- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.

Input data and results must be checked for conformity with the existing conditions and for plausibility!
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GEOTECHNICAL REFERENCES

GEOTECHNICAL PROFESSIONALS INC.

December 8, 2023

County of Los Angeles Department of Public Works
Project Management Division
900 S. Fremont Avenue, 5th Floor
Alhambra, California 91803-1331

Attention: Courtney Tossounian, Architect
Project Manager

Subject: Supplemental Geotechnical Recommendations – Below-Grade Tank
Proposed Splash Pad and Site Improvements
Area D - Whittier Narrows Regional Recreational Area
750 S. Santa Anita Avenue, South El Monte, California
Contract PW-15015
GPI Project No. 2780.47I

Dear Courtney:

As requested, this letter presents supplemental geotechnical recommendations for the subject project related to a below-grade balance tank. We performed our geotechnical investigation for the project and issued our findings and recommendations in a report dated April 1, 2022. Except where specifically appended or modified herein, the conclusions and recommendations presented in our prior report remain applicable and should be used for design and construction of the proposed development.

Based on updated information, a below-grade balance tank is planned for the project with the walls of the tank extending between 8 and 10 feet below the ground surface. Our prior report provided recommendations for retaining walls up to 5 feet in height, and this letter updates those recommendations for walls retaining up to 10 feet of soil. We recommend that walls be backfilled with sandy soils (less than 40 percent passing the No. 200 sieve). Sandy soils are anticipated to be readily available on-site.

Active earth pressures can be used for designing walls that can yield at least ½-inch laterally per 10 feet of wall height under the imposed loads. For level, drained backfill, derived from non-expansive granular soils (EI < 20), a lateral pressure of an equivalent fluid weighing of 38 pounds per cubic foot may be used. At-rest pressures should be used for restrained walls that remain rigid enough to be essentially non-yielding, which are more appropriate for tanks or vaults. For select, non-expansive, level, drained backfill, a lateral pressure of an equivalent fluid weighing 55 pounds per cubic foot can be used for the at-rest pressure. If the wall/tank backfill is not drained, the combined earth and water pressures will be higher, as discussed below.

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A seismic lateral pressure should be used for the design of retaining walls supporting 6 feet or more of backfill. We recommend a seismic lateral pressure of 25 pounds per cubic foot be added to the active earth pressure recommended above. If at-rest pressure is used to design the retaining walls/tank, the total lateral pressure used (at-rest plus seismic) is not required to exceed the total active plus seismic pressure (63 pounds per cubic foot).

Walls subject to surcharge loads should be designed for an additional uniform lateral pressure equal to one-third and one-half the anticipated surcharge pressure for unrestrained and restrained walls, respectively.

The recommended pressures above assume that the supported earth will be fully drained, preventing the build-up of hydro-static pressures. For traditional backfilled retaining walls, a drain consisting of perforated pipe and gravel, wrapped in a suitable filter fabric should be used. As a minimum, one cubic foot of rock should be used for each lineal foot of drain. The fabric (non-woven filter fabric, Mirafi 140N or equivalent) should be lapped at the top. If walls below grade are not drained, we recommend waterproofing and an additional lateral pressure of 47 pounds per cubic foot be added to the above lateral earth pressures.

The Structural Engineer should specify the use of select, granular wall backfill on the plans. Wall footings should be designed as discussed in the "Foundations" section.

Please contact us if you have questions regarding our letter or need further assistance.

Very truly yours,
Geotechnical Professionals Inc.



Paul R. Schade, G.E. 2371
Principal (pauls@gpi-ca.com)

REFERENCE

Geotechnical Professionals Inc. (2022), "Geotechnical Investigation, Proposed Splash Pad and Site Improvements, Area D – Whittier Narrows Regional Recreational Area, 750 S. Santa Anita Avenue, South El Monte, California," GPI Project No. 2780.47I, dated April 1, 2022

GPI GEOTECHNICAL PROFESSIONALS INC.

April 1, 2022

County of Los Angeles Department of Public Works
Project Management Division
900 S. Fremont Avenue, 5th Floor
Alhambra, California 91803-1331

Attention: Courtney Tossounian, Architect
Project Manager

Subject: Geotechnical Investigation
Proposed Splash Pad and Site Improvements
Area D - Whittier Narrows Regional Recreational Area
750 S. Santa Anita Avenue, South El Monte, California
Contract PW-15015
GPI Project No. 2780.47I

Dear Courtney:

Transmitted herewith is our report of geotechnical investigation for the subject project. The report presents the results of our evaluation of the subsurface conditions at the site and recommendations for design and construction.

We are providing this report in an electronic format. Further wet-signed originals of the report can be provided to the County upon request.

We appreciate the opportunity of offering our services on this project and look forward to seeing the project through its successful completion. Feel free to call us if you have questions regarding our report or need further assistance.

Very truly yours,
Geotechnical Professionals Inc.

Paul R. Schade, G.E. 2371
Principal

5736 Corporate Avenue • Cypress, CA 90630 • (714) 220-2211 , FAX (714) 220-2122

3.0 SITE CONDITIONS

3.1 SURFACE CONDITIONS

The existing site is currently occupied by lawn adjacent to restroom number 12. The project area is approximately 10,000 square feet. The site location is bound to the north by the parking lot that is adjacent to the 60 freeway, to the west by a lake, to the south by Whittier Narrows Park Trail, to the east by Santa Anita Avenue.

3.2 SUBSURFACE SOIL CONDITIONS

Our field investigation disclosed a subsurface profile consisting of fill soils overlying natural soils. Detailed descriptions of the conditions encountered are shown on the Logs of Borings in Appendix A.

We encountered fill soils consisting of silty sands and sandy silts extending to depths of approximately 4 feet below the existing ground surface. The fill soils are generally medium dense or very stiff, with variable moisture contents ranging from slightly moist to wet. Documentation is not available regarding the placement and compaction of the fill soils.

The underlying natural materials consist predominately of medium dense silty sands and stiff to very stiff silts and clays to a depth of approximately 10 feet. The moisture content of the upper natural soils is highly variable, ranging from slightly moist to wet. At depths of 10 to 15 feet, the natural soils consist of wet, very stiff silts. The natural soils in the upper 10 feet exhibit low to moderate strength and moderate compressibility characteristics. The upper soils have a very low expansion potential.

3.3 GROUNDWATER AND CAVING

Groundwater was encountered in our boring at a depth of 43 feet below existing grade. The historical high groundwater has been determined to be approximately 0 to 5 feet deep in the vicinity of the site by the State of California (CDMG, 1998).

Caving was not observed in our relatively small diameter, hollow stem auger borings. However, caving may be anticipated in the wet sands and silty sands in the upper 10 feet of the existing soil profile.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 OVERVIEW

Based on the results of our investigation, it is our opinion that from a geotechnical engineering viewpoint it is feasible to develop the site as proposed. Furthermore, in accordance with the County of Los Angeles Statement 111, it is our opinion that the project will be safe for its intended use against hazard from landslide, settlement, or slippage and the project will not have adverse effect on the stability of the site or adjoining properties.

The proposed restroom/equipment storage building can be supported on shallow footing and other improvements can be supported on shallow footings or drilled piles following the mitigation of the geotechnical constraints discussed below. The most significant geotechnical issues that will affect the design and construction of the proposed improvements are as follows:

- Undocumented fills were reported to depths of up to 4 feet below existing grade at the site. The fill soils are not considered to be suitable for direct support of foundations or floor slabs without remedial earthwork. For the proposed improvements, we recommend removal and recompaction of the fill and a portion of the upper low-density natural soils to provide uniform support for the planned foundations and floor slab.

- Proposed shade structures may be supported on drilled pile foundations extending into the undisturbed natural soils or shallow footings supported on properly compacted fill. Remedial grading is not required for drilled pile foundations.

- Current moisture contents of the upper soils vary widely from under to well over optimum moisture content. Earthwork will likely require drying/mixing of the on-site soils prior to placing as properly compacted fill and localized deeper removals or subgrade stabilization should be anticipated.

- The site is located within a zone identified as having a potential for liquefaction by the State. Soil liquefaction is likely to occur at this site during a design earthquake event. The estimated magnitude of induced existing ground surface settlement is on the order of 1¼ inch with differential settlement across 40 feet on the order of ½ inch.

- The upper on-site sandy soils are considered to be susceptible to caving in open cuts and excavations. Care should be taken to maintain support of the soils and structures left in-place adjacent to planned excavations.

Our recommendations related to the geotechnical aspects of the development of the site are presented in the subsequent sections of this report.

4.2 SEISMIC DESIGN

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4.2.1 General

The site is located in a seismically active area typical of Southern California and is likely to be subjected to strong ground shaking due to earthquakes on nearby faults.

We assume the seismic design of the proposed development will be in accordance with the 2019 California Building Code (CBC) criteria. For the 2019 CBC, a Site Class D (stiff soil) may be used. Using the Site Class, which is dependent on geotechnical issues, and the appropriate SEAOC/OSHPD website (OSHPD), the corresponding seismic design parameters from the CBC are as follows:

2019 CBC:

S_S = 1.894g	$S_{MS} = F_a * S_S$ = 1.894g	$S_{DS} = 2/3 * S_{MS}$ = 1.263g
S_1 = 0.678g	$S_{M1} = F_V * S_1$ = 1.153g	$S_{D1} = 2/3 * S_{M1}$ = 0.768g

The seismic design parameters above should be confirmed by the Project Structural Engineer.

In accordance with the 2019 CBC, site-specific response spectra are required for structures located in a Site Class D (with S_1 greater than or equal to 0.2) unless, per the exceptions detailed in Section 11.4 8 of ASCE 7-16 (ASCE, 2017), the structure is designed using seismic response coefficient (Cs) determined by either:

- Equation 12.8-2 for values of $T \leq 1.5\ T_S$,
- 1.5 times the value computed by Equation 12.8-3 for values of $T_L \geq T > 1.5\ T_S$, or
- 1.5 times the value computed by Equation 12.8-4 for values of $T > T_L$.

If this exception is not taken and the structure will still be designed in accordance with the 2019 CBC, GPI should be notified that site-specific response spectra is requested.

The actual method of seismic design should be determined by the Project Structural Engineer.

4.2.2 Strong Ground Motion Potential

Based on published information (USGS, 2008), the most significant fault in the proximity of the site is the East Montebello Fault, which is located about 2 miles from the subject site.

During the life of the project, the site will likely be subject to strong ground motions due to earthquakes on nearby faults. Based on the SEAOC/OSHPD website (OSHPD), we computed that the site could be subject to a peak ground acceleration (PGA_m) of 0.84g for a magnitude 6.87 earthquake. This acceleration has been computed using the mapped Maximum Considered Geometric Mean peak ground acceleration from ASCE 7-16 (ASCE, 2017) and a site coefficient (F_{PGA}) based on Site Class. The structural design of the facility will need to incorporate measures to mitigate the effects of strong ground motion.

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4.2.3 Potential for Ground Rupture

There are no known active faults crossing or projecting through the site. The site is not located in an Alquist-Priolo Earthquake Fault Zone. Therefore, ground rupture due to faulting is considered unlikely at this site.

4.2.4 Liquefaction and Seismic Ground Settlement

Soil liquefaction is a phenomenon in which saturated cohesionless soils undergo a temporary loss of strength during severe ground shaking and acquire a degree of mobility sufficient to permit ground deformation. In extreme cases, the soil particles can become suspended in groundwater, resulting in the soil deposit becoming mobile and fluid-like. Liquefaction is generally considered to occur primarily in loose to medium dense deposits of saturated soils. Thus, three conditions are required for liquefaction to occur: (1) a cohesionless soil of loose to medium density; (2) a saturated condition; and (3) rapid large strain, cyclic loading, normally provided by earthquake motions.

The site is located within an area mapped as having a potential for soil liquefaction (CGS, 1999). Inclusion of a site on the maps does not mean that a hazard actually exists at the site. It simply means that the characteristics of the site require investigation of the hazard.

The California Building Code (CBC), ASCE 7-16 (ASCE, 2017), and Special Publication 117A (CGS, 2008) requires that the ground motion used for liquefaction evaluation be based on the Peak Ground Acceleration (PGA_M) adjusted for site class effects. Accordingly, we used a ground acceleration of 0.84g for a magnitude 6.8 earthquake for our analyses and SPT blow counts obtained from boring B-1. The potential for liquefaction was evaluated using the methods presented by the 2008 Idriss and Boulanger methodology (Idris and Boulanger, 2008) and modifications provided in Special Publication 117A.

To evaluate the potential for liquefaction at the site, we considered recent and historic groundwater levels. Groundwater was encountered at depths of 43 feet in our recent borings. Historical high ground water depth is 0-5 feet. Therefore, we used a groundwater depth of 5 feet below existing grade, which corresponds to the historical high level as determined by the State (CDMG, 1998) for our evaluation.

Based on our evaluations and the anticipated remedial earthwork, the soils within about 8 to 15 feet exhibit a potential for liquefaction if the groundwater rises to historic levels. Should liquefaction of these upper layers occur, the estimated magnitude of induced settlement would be approximately 1¼ inch or less. Differential settlement across 40 feet could be on the order of ½-inch or less.

4.3 EARTHWORK

The earthwork anticipated at the project site will consist of demolition of existing improvements, clearing, excavation of undocumented fills and disturbed soils, subgrade preparation, and placement and compaction of fill.

4.4.2 Conventional Shallow Footings

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Allowable Bearing Pressure

Based on the shear strength and elastic settlement characteristics of the properly compacted fill and natural soils, a static allowable net bearing pressure of up to 2,500 pounds per square foot (psf) may be used for both continuous footings and isolated column footings.

The bearing pressures provided below are for dead-load-plus-live-load, and may be increased one-third for short-term, transient, wind and seismic loading. The actual bearing pressure used may be less than the value presented above and can be based on economics and structural loads to determine the minimum width for footings as discussed below. The maximum edge pressures induced by eccentric loading or overturning moments should not be allowed to exceed these recommended values.

The following minimum footing widths and embedments are recommended for the corresponding allowable bearing pressure for the building.

STATIC BEARING PRESSURE (psf)	MINIMUM FOOTING WIDTH (inches)	MINIMUM FOOTNG* EMBEDMENT (inches)
2,500	24	24
2,000	18	18
1,500	15	15

* Refers to minimum depth below lowest adjacent grade at the time of foundation construction.

A minimum footing width of 15 inches should be used even if the actual bearing pressure is less than 1,500 psf.

Estimated Settlements

We calculated settlements for the restroom/equipment storage building based on the assumed wall loads. Based on our analyses, the total static settlement under a maximum wall load of 1 to 2 kips per lineal foot is expected to be on the order of ¾-inch or less. Differential settlement along a 40-foot span of wall footing is anticipated to be on the order of ½-inch or less.

Total settlements of ½-inch or less are anticipated for any minor at-grade structures supported on properly compacted fill derived from on-site soils. Differential settlement between similarly loaded adjacent footings or along a 40-foot span is anticipated to be on the order of ¼-inch or less.

The above settlements should be included with the anticipated seismic settlement caused by seismic ground subsidence or liquefaction presented previously when evaluating the total and differential settlement of the building or other lightly loaded minor structures.

The above estimates are based on the assumption that the recommended earthwork will be performed and that the footings will be sized in accordance with our recommendations. If the structural loads change as the design of the project progresses, we should be notified in order to confirm the estimated settlement values provided above.

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Lateral Load Resistance

Soil resistance to lateral loads will be provided by a combination of frictional resistance between the bottom of footings and underlying soils and by passive soil pressures acting against the embedded sides of the footings. For frictional resistance, a coefficient of friction of 0.3 may be used for design. In addition, an allowable lateral bearing pressure equal to an equivalent fluid weight of 200 pounds per cubic foot may be used, provided the footings are poured tight against competent natural soils or compacted fill. These values may be used in combination without reduction.

4.4.3 Drilled Pile Foundation Design Parameters

Axial Capacity

Drilled pile foundations will develop their frictional capacity with relatively small displacement (about ¼-inch). The allowable capacities will depend on the drilled pile diameter and the total depth of the drilled pile embedment below the finished grade. The values presented are for static loads and can be increased by one-third for short-term wind and seismic loads. The allowable uplift capacity for a given drilled pile may be taken as one-half of the compressive capacity calculated using the drilled pile parameters provided below.

Based upon the results of our subsurface explorations and laboratory testing, the drilled pile design parameters shown in the following tables may be used for axial pile design:

Recommended Design Parameters - Axial

Depth Below Existing Grade (feet)	Allowable Pile Skin Friction (psf)
0-4	0
4-8	200
8-12	300
12-16	350
>16	500

We utilized a factor of safety of 3 to determine the allowable skin friction values. Due to the difficulties associated with cleaning the bottom of the drilled excavations, we recommend that end bearing should not be used in the design of the drilled piles. The settlement of the drilled piles designed using the above allowable skin friction values only is anticipated to be on the order of ½-inch.

The uplift capacity of the piles may be taken as one-half of the downward capacities derived from skin friction only.

Lateral Capacity

Soil resistance to lateral loads can be provided by the piles. The design of the piles will likely be governed by lateral force considerations. For design by the simplified pole formula presented in Section 1807A.3.2.1 of the 2019 California Building Code, a unit passive resistance of 200 pounds per square may be used for the piles with level ground in lieu of the presumptive lateral bearing values presented in Table 1806A.2. As stated in the code, a passive resistance of 400 pounds per square foot per foot (to a maximum of 4,000 pounds

per square foot) may be used for isolated piles as determined by the Project Structural Engineer. This value incorporates the allowable increase stated in the Section 1806A.3.4 of the code for single poles that can tolerate a ½-inch of deflection under short-term loads. 89

The above piles design parameters for shallow depths assume that the ground surface surrounding the piles will be paved with asphalt concrete. If the surface surrounding the pile is not paved, we recommend the upper 1 foot of soil be ignored in developing axial capacity and lateral resistance. An increased depth should be used where the piles will extend through a planter.

Installation

Since the drilled piles will be designed to derive resistance from soil friction only, rigorous cleaning of the loose materials from the bottom of the excavation prior to placement of steel and concrete is not considered essential. However, effort should be made to clean the bottom with the drill rig-mounted equipment.

Pile excavations should be filled with concrete on the same day that they are drilled. The concrete should be placed with special equipment so that it is not allowed to fall freely more than 5 feet or strike the walls of the excavations. Drilling should not be performed within 5 feet of recently excavated or recently poured piles until the concrete has been allowed to set for at least 6 hours. The piles should be poured in a manner that will not result in concrete flowing into adjacent drilled pile excavations and prevent segregation of aggregate. Drilled pile construction should be performed in accordance with the latest edition of ACI 336.1, "Standard Specifications for the Construction of Drilled Piles."

Pile excavations should be observed by a representative of GPI to confirm and document the depth, diameter, and embedment in suitable materials.

4.4.4 Foundation Concrete

Laboratory testing by HDR indicates that the near surface soils exhibit a soluble sulfate content of 93 mg/kg (0.004 percent by weight). For the 2019 CBC, foundation concrete should conform to the requirements outlined in ACI 318, Section 4.3, for negligible levels of soluble sulfate exposure from the on-site soils, (Category S0). Chloride levels in the on-site soils were found to be low (85 ppm). For concrete exposed to soil moisture, such as footings and floor slabs, we recommend a chloride Category C1.

4.4.5 Foundation Excavation Observation

Prior to placement of concrete and steel, a representative of GPI should be observe and approve foundation excavations including pile excavations. Shallow footing excavations should be moistened immediately prior to concrete placement.

4.5 RETAINING WALLS

Based on information available to us at the time this report was prepared, retaining walls are not anticipated to be taller than 5 feet. The following recommendations are provided for walls less than 5 feet in height. We recommend that walls be properly drained and backfilled with sandy soils (less than 40 percent passing the No. 200 sieve).

Active earth pressures can be used for designing walls that can yield at least ½-inch laterally per 10 feet of wall height under the imposed loads. For level, drained backfill, derived from non-expansive granular soils (EI < 20), a lateral pressure of an equivalent fluid weighing of 38 pounds per cubic foot may be used. At-rest pressures should be used for restrained walls that remain rigid enough to be essentially non-yielding. For select, non-expansive, level, drained backfill, a lateral pressure of an equivalent fluid weighing 55 pounds per cubic foot can be used. If the wall backfill is not drained, the combined earth and water pressures will be much higher. 90

Walls subject to surcharge loads should be designed for an additional uniform lateral pressure equal to one-third and one-half the anticipated surcharge pressure for unrestrained and restrained walls, respectively.

The recommended pressures assume that the supported earth will be fully drained, preventing the build-up of hydro-static pressures. For traditional backfilled retaining walls, a drain consisting of perforated pipe and gravel, wrapped in a suitable filter fabric should be used. As a minimum, one cubic foot of rock should be used for each lineal foot of drain. The fabric (non-woven filter fabric, Mirafi 140N or equivalent) should be lapped at the top.

The Structural Engineer should specify the use of select, granular wall backfill on the plans. Wall footings should be designed as discussed in the "Foundations" section.

4.6 CORROSIVITY

Resistivity testing of a representative sample of the on-site soils indicates that they are corrosive to buried metals. We do not practice corrosion protection engineering. If buried metallic structures or pipe are planned, a Corrosion Engineer such as HDR should be consulted.

4.7 SURFACE DRAINAGE

Positive surface gradients should be provided adjacent to structures so as to direct surface water run-off and roof drainage away from foundations and slabs toward suitable discharge facilities. Long-term ponding of surface water should not be allowed on pavements or adjacent to buildings.

4.8 EXTERIOR CONCRETE FLATWORK

Exterior concrete or masonry pedestrian flatwork and concrete pavers should be supported on non-expansive compacted fill. The use of clayey soils, if encountered at the site, is not recommended within one foot of the flatwork subgrade. Prior to placement of concrete, the subgrade should be prepared as recommended in “Subgrade Preparation” section.

We recommend the Project Civil Engineer design the concrete hardscape and sidewalks, including determination of thickness and reinforcing. For exterior flatwork, hardscape, and sidewalks, we recommend a minimum slab thickness of 4 inches with minimum slab reinforcement of No. 3 rebar placed at 16 inches on-center, in both directions. Control joints to direct shrinkage cracking in exterior slabs and sidewalks should be provided at maximum spacing of 8 and 6 feet on center in two directions, respectively. These recommendations should be considered as minimums based on the geotechnical site conditions, and the Project

Appendix B

Whittier Narrows Splash Pad – Equipment Cut Sheets

Whittier Narrows Spray Ground

Equipment Cut Sheets

AQUATIC™
DESIGN GROUP

GEYSER

Product Legend Number: 1
Qty: 4

0010-7478

Cluster ground sprays together to create exciting water experiences for users of all abilities. Ground sprays are a perfect addition to any play zone and create natural gathering areas for exploration and communal play.

See Specification Sheet for product data.



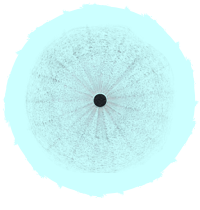
WATER EFFECT
MULTIPLE STREAMS

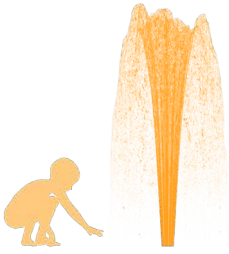
INSTALLATION
ZERO-DEPTH + WADING POOL

MATERIALS
ANTI-GALLING ACETAL NOZZLE

PLAY OPPORTUNITIES:

The Geyser is one of our largest ground sprays and feature a GIANT spray! Perfect for any space looking to make an impact. Provide high play value with low water consumption.





COGNITIVE

PHYSICAL

Play is fundamental in childhood development, health and wellbeing. Waterplay products are designed using research that supports cognitive, social and emotional, creative and physical growth. The above icons represent the leading attributes associated with this play feature.

PLAY ZONES:

DEVELOPMENT

DISCOVERY

EXPLORATION

ADVENTURE

CATEGORY: Classic Sprays

PRODUCT LINE: Ground Sprays & Playable Fountains

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MONSTER 5

Product Legend Number: 2
Qty: 11

0010-7480

Cluster ground sprays together to create exciting water experiences for users of all abilities. Ground sprays are a perfect addition to any play zone and create natural gathering areas for exploration and communal play.





See Specification Sheet for product data.

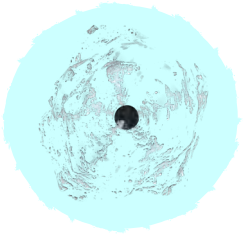
WATER EFFECT
BUBBLER

INSTALLATION
ZERO-DEPTH + WADING POOL

MATERIALS
ANTI-GALLING ACETAL NOZZLE

PLAY OPPORTUNITIES:

The Monster 5 ground spray creates a gentle, bubbling effect—perfect for tactile stimulation and discovery zones.





COGNITIVE

PHYSICAL

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PLAY ZONES:

DEVELOPMENT

DISCOVERY

EXPLORATION

ADVENTURE

CATEGORY: Classic Sprays

PRODUCT LINE: Ground Sprays & Playable Fountains

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SOLO SPURT

Product Legend Number: 4
Qty: 5

0010-7481

Cluster ground sprays together to create exciting water experiences for users of all abilities. Ground sprays are a perfect addition to any play zone and create natural gathering areas for exploration and communal play.





See Specification Sheet for product data.

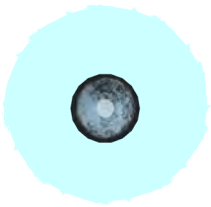
WATER EFFECT
SPRAY

INSTALLATION
ZERO-DEPTH + WADING POOL

MATERIALS
ANTI-GALLING ACETAL NOZZLE

PLAY OPPORTUNITIES:

Featuring ultra low flow, the Solo Spurt is the perfect nozzle for those looking for classic play value that considers water conservation.





COGNITIVE

PHYSICAL

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PLAY ZONES:

DEVELOPMENT

DISCOVERY

EXPLORATION

ADVENTURE

CATEGORY: Classic Sprays

PRODUCT LINE: Ground Sprays & Playable Fountains

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TULIP

0010-7489

Product Legend Number: 5
Qty: 9

Cluster ground sprays together to create exciting water experiences for users of all abilities. Ground sprays are a perfect addition to any play zone and create natural gathering areas for exploration and communal play.



See Specification Sheet for product data.



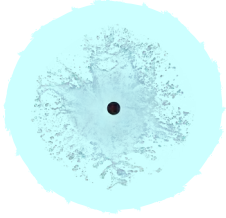
WATER EFFECT
LAMINAR SPRAY

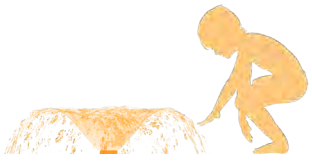
INSTALLATION
ZERO-DEPTH + WADING POOL

MATERIALS
ANTI-GALLING ACETAL NOZZLE

PLAY OPPORTUNITIES:

Soft, laminar sheets of water burst from the Tulip, making a flower-shaped spray that encourages hands-on play.





COGNITIVE

PHYSICAL

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PLAY ZONES:

DEVELOPMENT

DISCOVERY

EXPLORATION

ADVENTURE

CATEGORY: Classic Sprays

PRODUCT LINE: Ground Sprays & Playable Fountains

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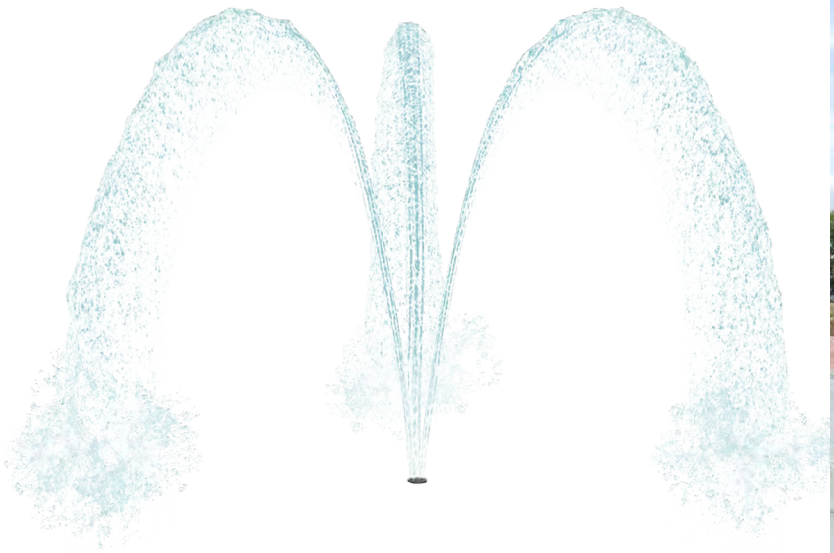
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TOWER SPRAY

Product Legend Number: 6
Qty: 2

0010-7488

Cluster ground sprays together to create exciting water experiences for users of all abilities. Ground sprays are a perfect addition to any play zone and create natural gathering areas for exploration and communal play.





See Specification Sheet for product data.

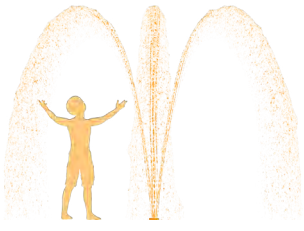
WATER EFFECT
MULTI-DIRECTIONAL

INSTALLATION
ZERO-DEPTH + WADING POOL

MATERIALS
ANTI-GALLING ACETAL NOZZLE

PLAY OPPORTUNITIES:

If you're looking for height, then look no further. The Tower Spray sends water soaring into the sky with an impactful and playful water effect.



COGNITIVE

PHYSICAL

Play is fundamental in childhood development, health and wellbeing. Waterplay products are designed using research that supports cognitive, social and emotional, creative and physical growth. The above icons represent the leading attributes associated with this play feature.

PLAY ZONES:

DEVELOPMENT

DISCOVERY

EXPLORATION

ADVENTURE

CATEGORY: Classic Sprays

PRODUCT LINE: Ground Sprays & Playable Fountains

WATERPLAY BY MAKO

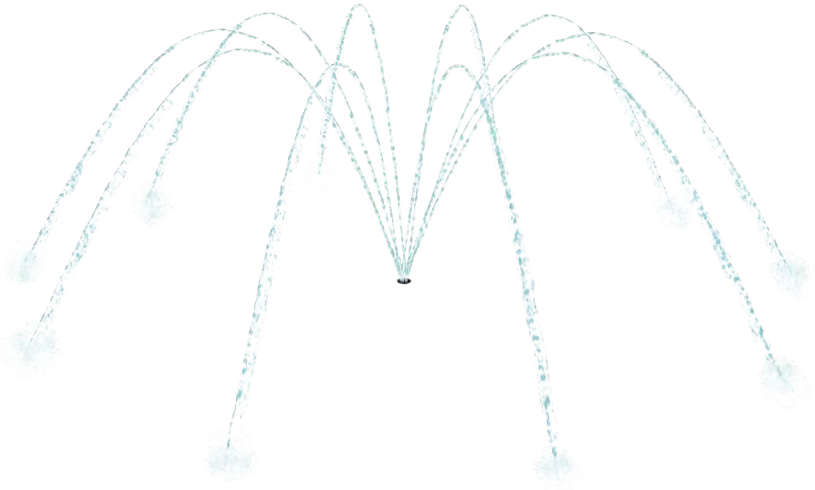
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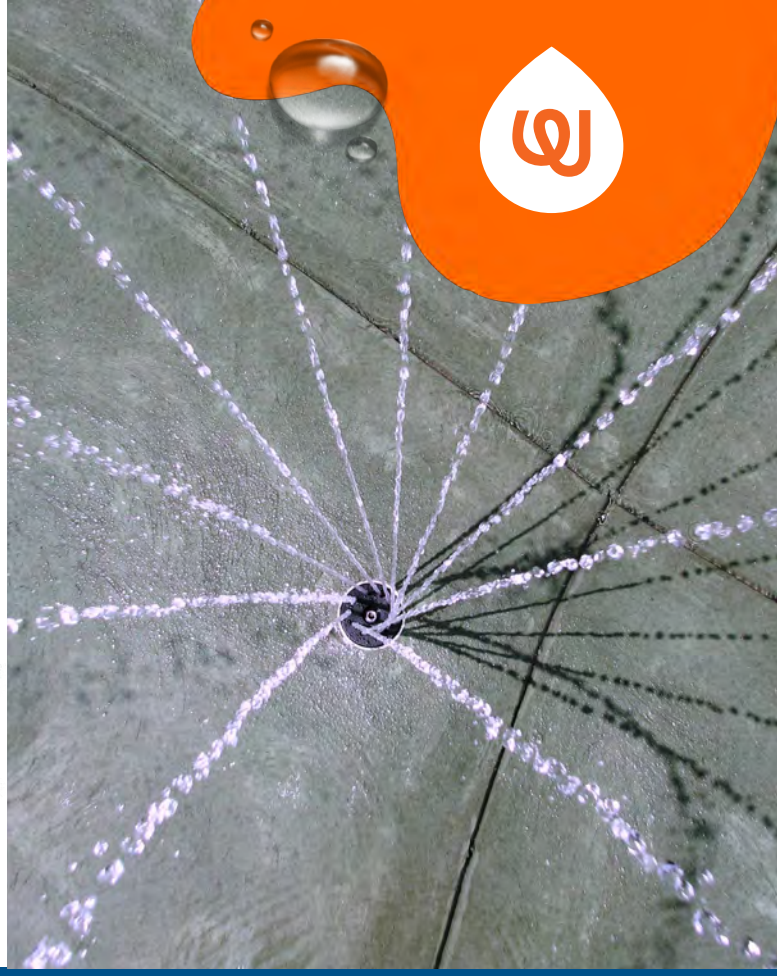
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STARLET SPRAY

0010-7483 Cluster ground sprays together to create exciting water experiences for users of all abilities. Ground sprays are a perfect addition to any play zone and create natural [illegible] for exploration and communal play.

Product Legend Number: 6
Qty: 2





See Specification Sheet for product data.

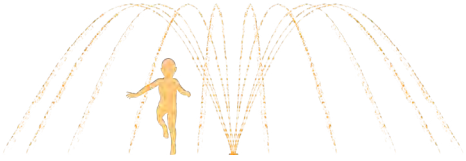
WATER EFFECT
MULTI-DIRECTIONAL, ANGLED

INSTALLATION
ZERO-DEPTH + WADING POOL

MATERIALS
ANTI-GALLING ACETAL NOZZLE

PLAY OPPORTUNITIES:

The Starlet Spray's 10 streams of water create a beautiful and playful water effect that looks like a shimmering star.



COGNITIVE

PHYSICAL

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PLAY ZONES:

DEVELOPMENT

DISCOVERY

EXPLORATION

ADVENTURE

CATEGORY: Classic Sprays

PRODUCT LINE: Ground Sprays & Playable Fountains

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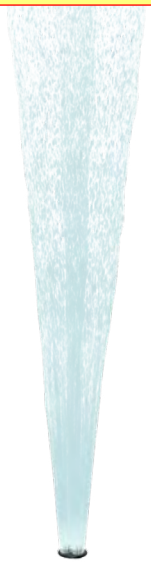
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MISTY MOUNTAIN

0010-7479

Cluster ground sprays together to create exciting water experiences for users of all abilities. Ground sprays are a perfect addition to any play zone and create natural gathering areas for exploration and communal play.

Product Legend Number: 8
Qty: 1



See Specification Sheet for product data.



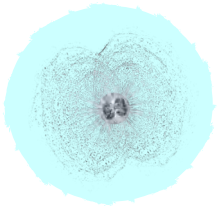
WATER EFFECT
MISTING

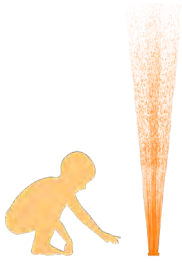
INSTALLATION
ZERO-DEPTH + WADING POOL

MATERIALS
ANTI-GALLING ACETAL NOZZLE

PLAY OPPORTUNITIES:

This ultra low flow nozzle creates a refreshing misting spray effect that tickles the senses. Provides high play value with low water consumption.





COGNITIVE

PHYSICAL

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PLAY ZONES:

DEVELOPMENT

DISCOVERY

EXPLORATION

ADVENTURE

CATEGORY: Classic Sprays

PRODUCT LINE: Ground Sprays & Playable Fountains

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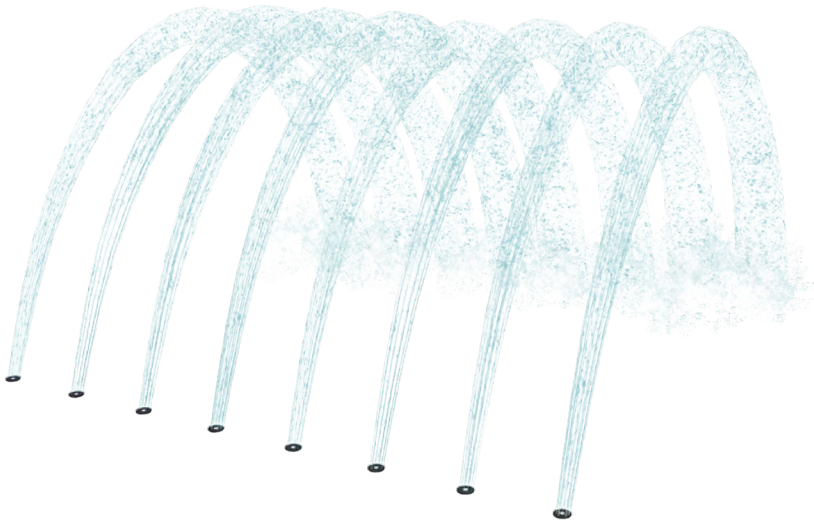
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SPRAY TUNNEL 8

0010-7497

RUN THROUGH OR SNEAK UNDER!

Product Legend Number: 9
Qty: 2





See Specification Sheet for product data.

WATER EFFECT
MULTIPLE, ANGLED SPRAYS

INSTALLATION
ZERO-DEPTH + WADING POOL

MATERIALS
ANTI-GALLING ACETAL NOZZLE

PLAY OPPORTUNITIES:

Eight times the fun! The Spray Tunnel features an angled nozzle for those looking for a water tunnel or upright spray to create a wall of water.

NOZZLE COMPATIBILITY

Compatible with any 2.5" nozzle



COGNITIVE SOCIAL PHYSICAL CREATIVE

Play is fundamental in childhood development, health and wellbeing. Waterplay products are designed using research that supports cognitive, social and emotional, creative and physical growth. The above icons represent the leading attributes associated with this play feature.

PLAY ZONES:

DEVELOPMENT DISCOVERY EXPLORATION ADVENTURE

CATEGORY: Tunnels, Walls & Fortresses

PRODUCT LINE: Ground Sprays & Playable Fountains

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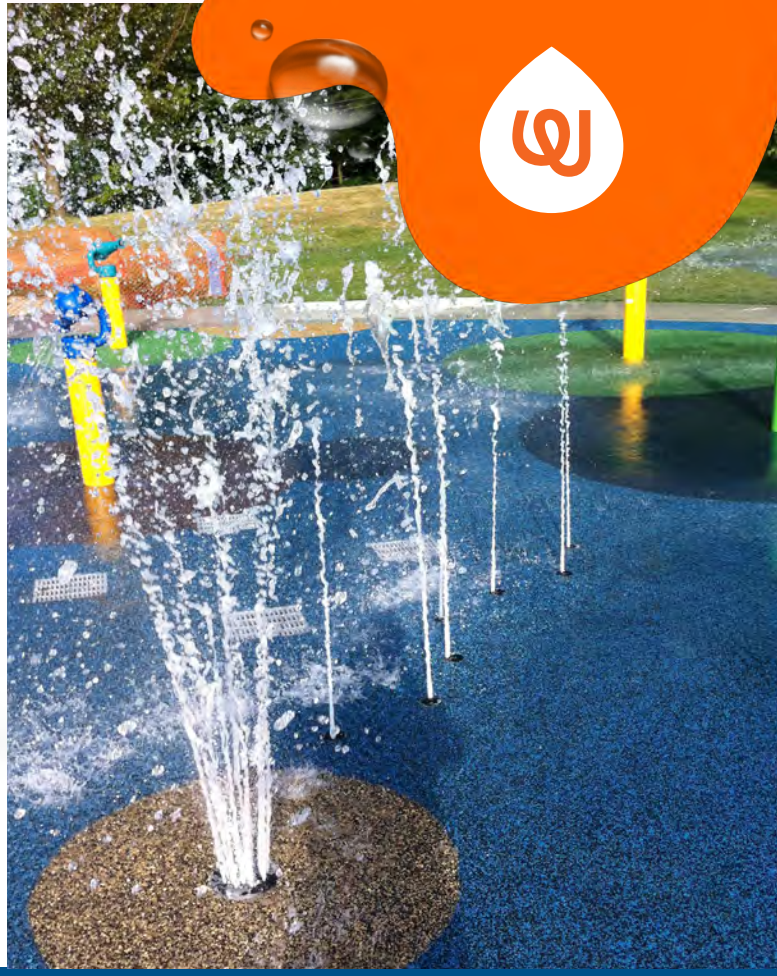
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TEAM EFFECT

0010-9816

Product Legend Number: 10
Qty: 1





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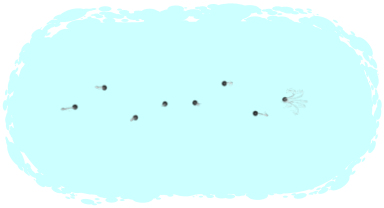
WATER EFFECT
MULTIPLE, INTERACTIVE SPRAYS

INSTALLATION
ZERO-DEPTH

MATERIALS
ANTI-GALLING ACETAL NOZZLE

PLAY OPPORTUNITIES:

It's a team effort! Grab your friends and cover the nozzles of the Team Effect to send the spray higher.





COGNITIVE SOCIAL PHYSICAL CREATIVE

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PLAY ZONES:

DEVELOPMENT DISCOVERY EXPLORATION ADVENTURE

CATEGORY: Tunnels, Walls & Fortresses **PRODUCT LINE:** Ground Sprays & Playable Fountains

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POWER POST (ACTIVATOR)

0010-1854

Product Legend Number: 15
Qty: 2



1.

2.

AQUALUME™ COLOURS:

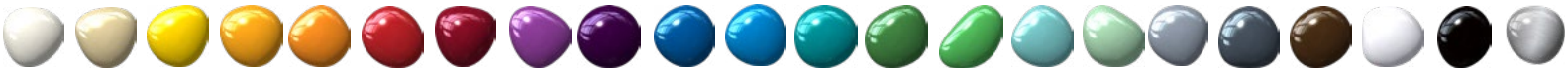


1. Aqualume Ring (Aqualume Colour):
0010-1855

2. Column (Standard RAL Powder Coat):
0010-1416, 0010-3645

STANDARD RAL POWDER COAT

VANILLA RAL 1013	BEIGE RAL 1001	YELLOW RAL 1018	MELON RAL 1028	ORANGE RAL 2011	RED RAL 3001	MAROON RAL 3011	PURPLE RAL 4008	PLUM RAL 4007	ROYAL BLUE RAL 5005	BLUE RAL 5015	TURQUOISE RAL 5018	FOREST RAL 6001	FERN RAL 6018	OCEAN RAL 6027	SAGE RAL 6019	GREY RAL 7040	GRAPHITE RAL 7043	BROWN RAL 8028	WHITE RAL 9003	BLACK RAL 9005	BRUSHED STAINLESS



WATERPLAY BY MAKR

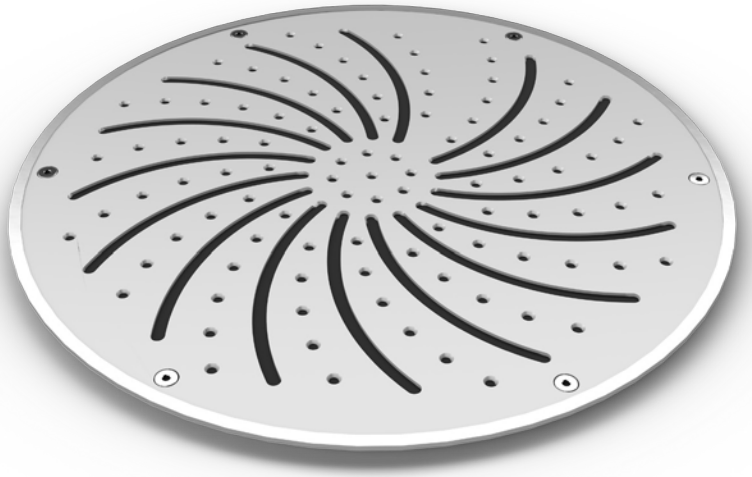
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CIRCULR DRAIN STAINLESS STEEL

0010-4133

Product Legend Number: 16
Qty: 6



See Specification Sheet for product data.

MIX 'N' MATCH!

Create a sustainable play space that is visually appealing with a water smart design!

HIGHLIGHTS:



- High flow rate capacity (140 GPM)
- High quality 306 Stainless Steel proven to stand up in aquatic environments
- Safe design protects against finger and toe entrapment, no pinch points
- Flush-to-grade
- Easy installation and maintenance
- Inclusion of strainer box for added defense against debris

AVAILABLE IN ALL STANDARD WATERPLAY POWDER COATED COLOURS



CATEGORY: Drains

PRODUCT LINE: Water Management

WATERPLAY BY MAKO

1.800.590.5552 (USA & CAN) | +1 (250) 712.3393 (INTL)
info@waterplay.com | www.waterplay.com

For full product specification details, please refer to the product specification document. Due to our continuing product improvement program, Waterplay® reserves the right to change the product specifications without notice. All product designs at all times remain the property of Waterplay or are used under license and cannot be used or reproduced without written permission.

SMARTPLAY™ CONTROLLER

(BY OTHER) 0010-2248



See Specification Sheet for product data.

UPGRADE

WATERPLAY smartACCESS™

Control multiple play spaces from one screen though the intuitive user interface and collect data for analyzing and reporting. Waterplay's smartACCESS connects you to what's happening at your play space anywhere, anytime.

- Ability to sequence and manage water consumption remotely
- Automated data logging options
- Online access to your play space reduces on-site maintenance and operation costs
- Technical videos available to support maintenance staff on the go
- Simple user interface
- Cross-channel access available for PC and Mac, tablet, and smartphones
- Technical support provided

BEST PRACTICES

Work with our in-house support teams to learn more about how to optimize flow rates for the best play experience for your project.

HIGHLIGHTS:

The brains behind the operation—the controller tells the water what it should do and when to do it. Waterplay's smartPLAY™ Controller works together with Waterplay's manifold and activators to create the perfect play experience for your project.

- Programmable 7" PLC features intuitive colour touch screen for easy use
- User configurable sequencing
- Local valve reassignment
- Easy to use programming clock, timer and park calendar
- Ability to program and synchronize 12 water and light features to create a spectacular display with the ability to control up to 44 features (expansion module 0010-2244)
- Features pump, tank level and manifold bypass valve controls
- Features a Nema 4X enclosure

CATEGORY: Controllers

PRODUCT LINE: Water Management

WATERPLAY BY MAKO

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MANIFOLD / 18 VALVE

0010-2591



See Specification Sheet for product data.



MANIFOLD
15 VALVE



MANIFOLD
9 VALVE

Team up with your favourite Waterplay activator and our smartPLAY™ Controller featuring smartACCESS™.

BEST PRACTICES

Work with our in-house support teams to learn more about how to optimize flow rates for the best play experience for your project.

HIGHLIGHTS:

The manifold is the workhorse behind water distribution. Waterplay's high efficiency manifold ensures that water gets to where it needs to be accompanied with the flow rate that you require.

- Reversable, compact design adapts easily into most space requirements
- Features a robust, stainless steel header and sched 80 PVC piping
- Slow-closing solenoid valves prevent water hammer
- Pre-assembled with mounting brackets for easy installation
- Smart design with access to valves allows for easy maintenance access
- Electrical components ULC certified
- Meets local codes & assembled with NSF 50 listed parts

OPTIONS:

Available in 6, 9, 12, 15 and 18 valve configurations to adapt to any project size.

CATEGORY: Manifolds

PRODUCT LINE: Water Management

WATERPLAY BY MAKO

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MANIFOLD / 6 VALVES

0010-2622



See Specification Sheet for product data.



MANIFOLD
18 VALVE



MANIFOLD
9 VALVE

Team up with your favourite Waterplay activator and our smartPLAY™ Controller featuring smartACCESS™.

BEST PRACTICES

Work with our in-house support teams to learn more about how to optimize flow rates for the best play experience for your project.

HIGHLIGHTS:

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CATEGORY: Manifolds

PRODUCT LINE: Water Management

WATERPLAY BY MAKO

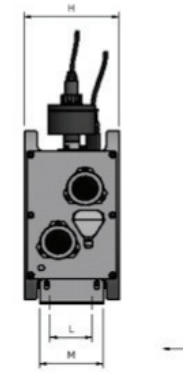
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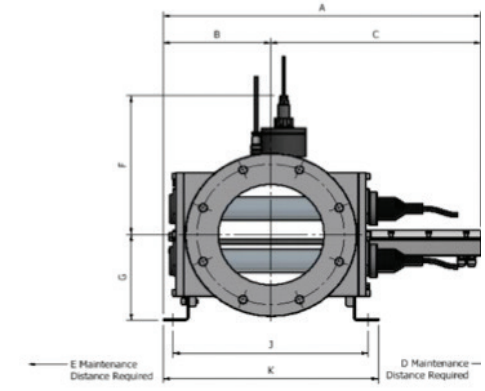
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WAFER™ DATA SHEET

UV Systems
Qty: 2

UV GENERATOR	WF-115-3	WF-115-4	WF-125-6	WF-215-6	WF-215-8	WF-225-8	WF-230-10	WF-430-12
Certification	CE Marked, NSF-50							
Approvals	MET UL							
CHAMBER SPECIFICATION								
Lamp Power Range (kW)	0.45 - 1.5	0.45 - 1.5	0.75 - 2.5	0.45 - 1.5	0.45 - 1.5	0.75 - 2.5	0.90 - 3.0	0.9 - 3.0
Lamp Number	1	1	1	2	2	2	2	4
Minimum Breaker Size	20	20	30	30	30	32	30	40
Lamp Design	TWISTLOK' Quick Release, Enhanced Safety - Medium Pressure							
UV Monitoring	AT-900 - ONorm Validated Probe							
Variable Power	100% to 30% Power (Automatic Dose Pacing)							
Connection Size (inch)	3"	4"	6"	6"	8"	8"	10"	12"
Connection Type	USA (ANSI 150)							
Material Construction	316L Stainless Steel							
Lamp and Wiper Access	Single Ended							
Wiper System	Automatic							
Temperature Probe	AT-487 (PT-100)							
Vent Port	USA (1/2" NPT) / Air Release Valve Supplied for Horizontal Installations							
Drain Port	USA (1/4" NPT)							
Sacrificial Anode	USA (1/2" NPT Included)							
Ingress Protection	IP 55							
Installation	Horizontal or Vertical (Lamps must be Horizontal)							
PANEL SPECIFICATION								
Design	Epoxy Coated Mild Steel - RAL 7035							
Control Type	Microprocessor							
Ingress Protection	IP54							
Ventilation	Forced Air Cooled (Fan)							
Interface	Spectra Membrane (optional 7" touch screen)							
Communication	Modbus (RS-422 / RS-485)							
Power								
1Ph 208V	x	x	x	x	x	x		
1Ph 220V	x	x	x	x	x	x		
1Ph 230V	x	x	x	x	x	x		
1Ph 240V	x	x	x	x	x	x		
3Ph 380V							x	x
3Ph 400V							x	x
3Ph 415V							x	x
3Ph 480V							x	x
Frequency	50 / 60Hz							
Protection	Door Locked MCCB Isolator							
Operation Temperature	Max Working Ambient +113°F							
Digital Inputs	Remote Start/Stop +2 x Selectable (Boost / Low Power / Process Interlock)							
Digital Outputs	2 x Selectable							
Analogue Inputs	1 x Selectable Input (Flow Rate / UVT)							





c UL LISTED NSF

UV GENERATOR	WF-115-3	WF-115-4	WF-125-6	WF-215-6	WF-215-8	WF-225-8	WF-230-10	WF-430-12
A (inches)	20.3	20.3	24.8	24.8	24.8	24.8	31.0	31.0
B (inches)	6.2	6.2	8.4	8.4	8.4	8.4	11.9	11.9
C (inches)	14.1	14.1	16.4	16.4	16.4	16.4	19.1	19.1
D (inches)	14.4	14.4	18.9	18.9	18.9	18.9	24.4	24.4
E (inches)	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8
F (inches)	9.0	9.0	11.4	11.4	11.4	11.4	12.5	13.5
G (inches)	4.8	4.8	7.0	7.0	7.0	7.0	9.1	10.1
H (inches)	6.2	6.2	7.0	7.0	7.0	7.0	7.4	7.4
J (inches)	10.7	10.7	15.2	15.2	15.2	15.2	21.8	21.8
K (inches)	12.3	12.3	16.8	16.8	16.8	16.8	23.8	23.8
L (inches)	3.1	3.1	3.1	3.1	3.1	3.1	5.5	5.5
M (inches)	4.7	4.7	4.7	4.7	4.7	4.7	7.0	7.0
Dry Weight (lbs)	60	57	126	128	117	117	172	194
Wet Weight (lbs)	66	62	148	150	141	141	218	247
CONTROL PANEL								
Width (inches)	20	20	23	23	23	23	23	23
Height (inches)	20	20	31	31	31	31	31	47
Depth (inches)	10	10	12	12	12	12	12	12
Weight (lbs)	66	66	110	110	110	121	121	<165
Cable Length (feet)	30							

evoqua WATER TECHNOLOGIES

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UV Systems
Qty: 2

WAFER™ UV GENERATOR

NEW UV DISINFECTION PRODUCT FOR THE AQUATICS INDUSTRY

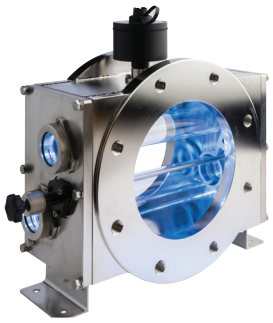
The Wafer™ UV disinfection generator system from Evoqua differs from any other UV generator currently on the market, with a unique UV chamber that offers the most compact UV disinfection generator available today. At about one third of the size of comparative UV offerings, and with a significantly reduced maintenance envelope, the Wafer generator delivers an easy to install and retrofit solution that will fit the tightest of mechanical rooms.

Not only does the Wafer UV generator represent the most compact UV solution available on the market, it features a hydraulically optimized generator design and leading polychromatic lamp technology, making it one of the most efficient and highest performing generators. The Wafer generator is designed to provide 99.9% inactivation of chlorine-resistant microorganisms such as Cryptosporidium and Giardia.

Operators will benefit from the inclusion of the Spectra control system as standard, which includes a wide range of features such as data stream monitoring, process interlocks and programmable set points. A key Spectra control feature includes variable power stepping from 100% to 30% at no extra cost, allowing operators to optimize the operational power of their system to match bather loads and pool operating schedules.

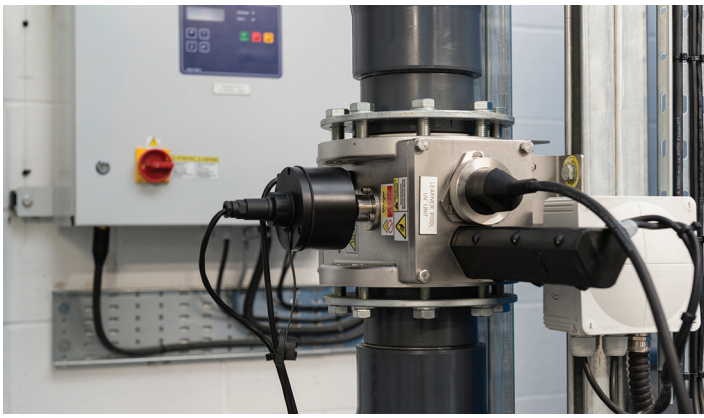
In addition, the Spectra controller features a reactive boost function that automatically operates the lamps at maximum power from a combined chlorine alarm signal, when teamed with a suitable chlorine controller. This is a feature specifically designed for swimming pool applications to break down problematic chloramines as soon as they are detected, significantly improving water quality and eliminating the cause of strong chemical smells, red burning eyes, itchy skin and natatorium corrosion.

THE WAFER UV GENERATOR OFFERS A COMPACT TREATMENT SOLUTION FOR APPLICATIONS REQUIRING 200-3,500 GPM IN A SINGLE HIGH OUTPUT UV GENERATOR.



PERFORMANCE AND INSTALLATION

- Smaller installation footprint
- Horizontal or vertical installation
- More efficient and enhanced power control
- Higher performance
- Simpler and faster to maintain
- Increased safety
- Modbus®



6 Jefferson Drive, Coventry, RI 02816

+1 (800) 832-8002 (toll-free) +1 (401) 821-2200 (toll) www.evoqua.com/ets-uv

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EVOQUA WATER TECHNOLOGIES

WHISPERFLOXF® VS

Recirculation Pump and Booster Pumps
(Zones 1 and 2)
Qty: 3

COMMERCIAL VARIABLE SPEED PUMP - 5HP

The WhisperFloXF VS Commercial Pump is the first five-horsepower variable-speed pool pump that runs on single-phase or three-phase power. It's an economical, combined motor/drive solution for both HMAC (hotel, motel, apartment, condominium) or large residential installations. The WhisperFloXF VS Commercial Pump provides sophisticated, energy-saving pump technology without the high costs typically associated with independent pump/external drive setups.

STANDARD FEATURES

- Integrated 5HP motor/drive; no expensive external drive required.
- Versatile power input capability; runs off a wide range of single- or three-phase power.
- Speed or flow control for maximum efficiency and pool performance*.
- External control capability through automation systems or relays.
- Intuitive programming and operation.
- Meets commercial codes and agency requirements.

*When connected to Pentair's inline 4-20mA flowmeter for 3" plumbing (P/N 97014-4203KIT- sold separately), or similar 4-20mA flowmeters, this pump is capable of maintaining a constant flow based on the needs of your pool system. To connect the flowmeter and pump, the digital input cable provided in the External Control Wiring Kit (P/N 353129Z- sold separately) is required.



KEY TECHNOLOGY INNOVATIONS DRIVE SIGNIFICANT ENERGY SAVINGS.

The WhisperFlo**XF**® VS Commercial Pump combines breakthrough motor and controllable, variable speed technology that combine to drive down energy use and cost. Increased savings potential may be measured in thousands of dollars over its long life.

The WhisperFlo**XF** VS Commercial Pump features variable speed capability, along with digital controls and proprietary software that allow custom programming of optimum pump speeds for specific tasks—filtering, heating, cleaning, spa jets, etc. Traditional pool pump speeds are almost always greater than needed to meet the health department turnover requirements.

The WhisperFlo**XF** VS Commercial Pump has four programmable settings that can be set to any speed ranging from 300 to 3450 RPMs. This allows you to program the exact flow requirements for each task, assuring the lowest energy use possible...adding to your savings. Plus with the WhisperFlo**XF** VS Commercial Pump, you may be able to further reduce energy costs by reducing flow rates during non-pool use hours while maintaining 24 hour-a-day filtration...at a much lower cost. Check with your local health department for requirements in your area.

HERE'S JUST ONE COMPARATIVE EXAMPLE:

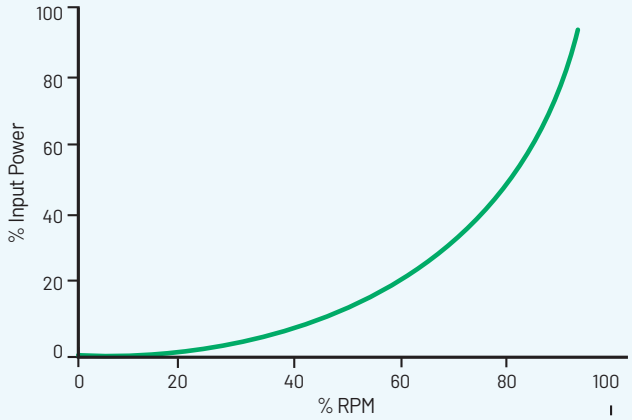
Pump	Annual Energy Use	Annual Electric Cost @ $.16 / kWh	Annual Savings*
Traditional Single Speed Pump	27,681 kWh	$4,429	—
WhisperFloXF VS Commercial Pump**	13,276 kWh	$2,124	$2,305

*Actual savings may vary based on local utility rates, pool size, run time, pump rpm, plumbing size/length and service and other hydraulic factors. Example reflects savings for an avg. 30,000 gallon commercial pool operating 24hrs/day at a flow rate sufficient to perform a min. 6hr turnover.
**WEF: 5.0 THP: 5.0

WHY SLOWER IS BETTER

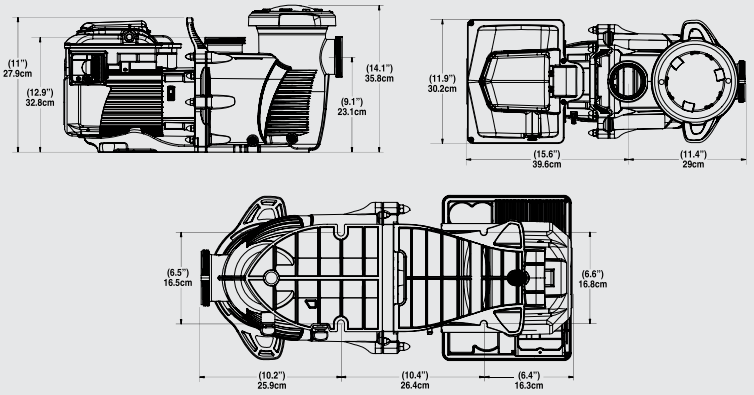
The surprising secret to minimizing pump energy costs is to operate at the lowest speed needed to accomplish a job. It takes far less energy to move water slowly than quickly. Why? Because there's lower resistance in the filter, accessories and plumbing system. Even with only modest pump speed reductions, the effect on electricity usage can be dramatic. In fact, reducing pump motor speed by 25% actually reduces the power needed by 58% of what's consumed at the higher speed. A good analogy is your car: you get much better gas mileage at 30 mph than at 90 mph. The same is true with pool pumps—run slower to reduce energy used.

PUMP MOTOR SPEED VS. POWER CONSUMPTION

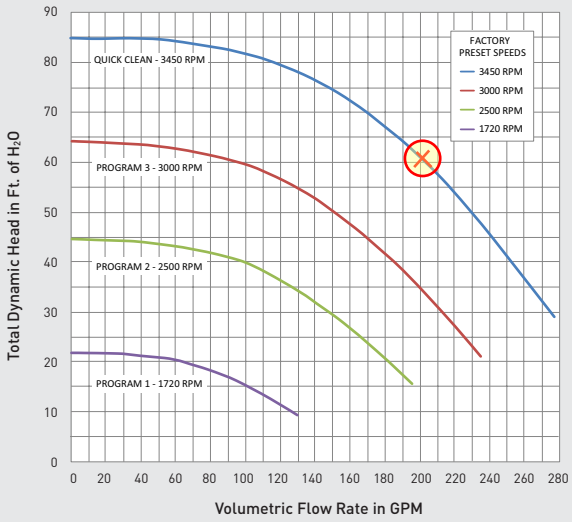


This graph shows the huge increase in energy consumption as pump speed increases. Slow down the pump and you cut energy costs dramatically.

WHISPERFLOXF VS COMMERCIAL PUMP



PERFORMANCE CURVES – WHISPERFLOXF VS COMMERCIAL PUMP



MATERIALS AND DESIGN

Pump Body

Volute type back pull out design for ease of working on impeller, diffuser and seal.

- Port Size
  - Inlet (suction): 2.5" union can be adapted to 3 inches.
  - Outlet (discharge): 2.5" union can be adapted to 3 inches.
- Material
  - 30% glass filled polypropylene materials.
  - 1/4" NPT thermoplastic drain plug of thumbscrew (no tool required) design on the strainer for winterizing.
- Impeller
  - Noryl glass filled PPO resin enclosed design for corrosion prevention and maximum flow efficiency.
  - Threaded brass with stainless steel locking screws.
- Diffuser
  - Glass filled noryl thermoplastic material with bronze impeller wear ring.
  - Hydraulic isolator design for maximum efficiency.
- Seal plate
  - Fiberglass reinforced modified PPE thermoplastic material.
- Mechanical Seal
  - Ceramic and carbon seal.
  - Stainless steel and EPDM materials
- Base
  - Fiberglass reinforced modified PPE thermoplastic with slotted holes for easy mounting.
- Gaskets
  - Buna N rubber compression resistant.
- Bolts, Nuts, and Washers
  - Stainless steel and brass with nickel plating.
- Corrosion Prevention
  - All thermoplastic pump body for maximum hydraulic performance, noise reduction and corrosion prevention.

Hair and Lint Strainer

- Basket
  - HDPE (polyethylene) basket colored white for easy debris removal.
  - Securely positioned below the suction inlet of the trap, with access for inspection and cleaning through the removable lid.
- Lid
  - Clear polycarbonate thermoplastic lid for easy view into the basket area.
- Lid Locking Ring
  - Cam and Ramp™ Lid and Locking Ring allow for quick and easy access to the basket.
  - O-ring seal

Motor

- Frame and Type
  - NEMA Rated 56 Frame totally enclosed fan-cooled construction.
  - Variable speed induction motor.
- Shaft
  - 300 series stainless steel construction.
- Thermal Overload Protection
  - Thermal overload protection provided by the integral motor control.
- Sealed Bearings
  - Lubricated, double sealed, stainless steel, single row ball bearings.

Electrical

- 208-230/277-460V single-phase.
- 208-460V three-phase.
- 50/60Hz.
- WEF 5.0 THP 5.0.
- Single part number to cover all voltage ranges.

Pump Maximum Thermal Limits

- Ambient air temperature: 122° F (50° C).
- Liquid temperature: 104° F (40° C).

WHISPERFLOXF® VS

COMMERCIAL VARIABLE SPEED PUMP - 5HP

ENGINEERING SPECIFICATIONS

Recirculation pump shall be Pentair Series Model No. _____ self-priming centrifugal pump, ____ phase, 60 Hz/50 Hz.

General Notes

- Install pump in a cool, dry, well vented location away from pool heaters, and protected from excessive moisture after storage.
- Pump should be firmly mounted with pipe supported to prevent vibration and undue operational noise.
- Allow 12" minimum clearance above lid for servicing.
- Allow 12" minimum clearance behind motor for servicing.
- Motor overheating may be caused by a voltage drop or excessive voltage. Be sure that wire size and voltage input is properly regulated.
- Follow installation details as found in the operation and installation manual.
- This product has been independently tested and certified to UL 1081 and NSF 50 standards.

Specifications

- The recirculation pump shall be a self-priming, centrifugal design with a hair and lint strainer as shown in the plans.
- The pump body and attached hair and lint strainer shall be constructed of non-corrosive 30% glass filled polypropylene materials, and close-coupled to an electric motor by means of a seal plate. The pump body shall have a single suction port with a 2.5" NPT on the hair and lint strainer. A discharge port of 2.5" NPT and a winterizing drain port of 1/4" NPT shall be a part of the design.
- The pump shall be a back pull-out design to allow servicing without disturbing piping. The pump shall have a 30% glass filled polypropylene diffuser to aid in priming and it shall contain a bronze wear ring for the impeller. The impeller shall be of the closed type and glass filled PPO resin, non-overloading at any point on the performance curve. The mechanical shaft seal shall be constructed of ceramic and carbon seal faces, with stainless steel and EPDM materials in the spring bellows portion. The impeller shall be secured to the motor shaft by means of a molded in brass insert and a stainless steel locking screw into the end of the motor shaft. The pump shall be capable of operating at up to 42 psi, 104° F continuous water temperature, 122° F ambient air temperature.
- The electric motor coupled to the pump shall be of the NEMA Rated 56 Frame induction motor totally enclosed fan cooled series with stainless steel shaft and double shielded, single row, lubricated steel ball bearings. Motors shall be continuous duty rated at 122° F (or better) ambient air temperature and be suitable for outdoor installation.
- The pump shall be rated for____ volt electric supply and for ____ GPM at ____ TDH. The pump shall be tested and certified by a nationally recognized testing laboratory to conform to National Sanitation Foundation Standard 50.

Hair and Lint Strainer

- The strainer shall consist of a polypropylene body, polycarbonate cover with buna-nitrile O-ring seal, Cam and Ramp™ Lid and Locking Ring and a strainer basket of high density polycarbonate material.
- The strainer body shall be 2.5" NPT suction. The strainer body shall have a removable drain plug for winterizing.
- The strainer basket shall be securely positioned below the suction inlet of the trap, with access for inspection and cleaning through a removable trap body lid. The trap body lid shall be secured by means of a Cam and Ramp lid and locking ring.

PENTAIR

400 Regency Forest Dr | Cary, NC 27518 | United States | 800.831.7133 | pentair.com

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EQ SERIES®

Booster Pump (Zone 3)
Qty: 1

HIGH PERFORMANCE COMMERCIAL PUMP

FOR COMMERCIAL SWIMMING POOLS AND OTHER WATER APPLICATIONS

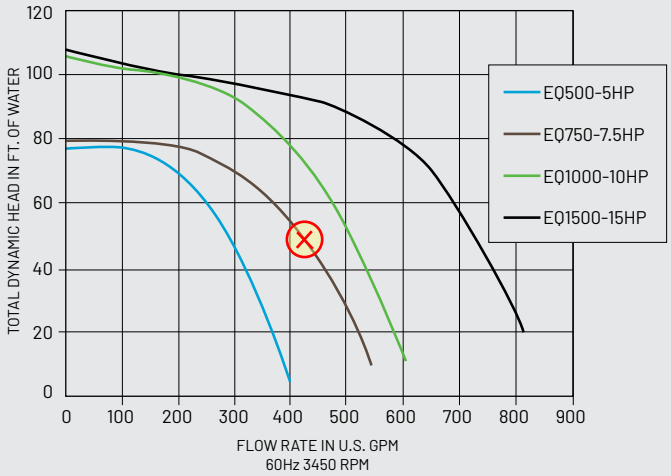
EQ Series Pumps are designed for maximum efficiency and quiet operation in every detail. They are the only non-corrosive, all-plastic pumps designed for the commercial pool and water applications market. The EQ Series Pump impellers are manufactured for true breakthrough performance, allowing for lower loads and longer motor life. The pumps are available with and without the strainer pot and in flows to 800 GPM and from 3–15 HP.

STANDARD FEATURES

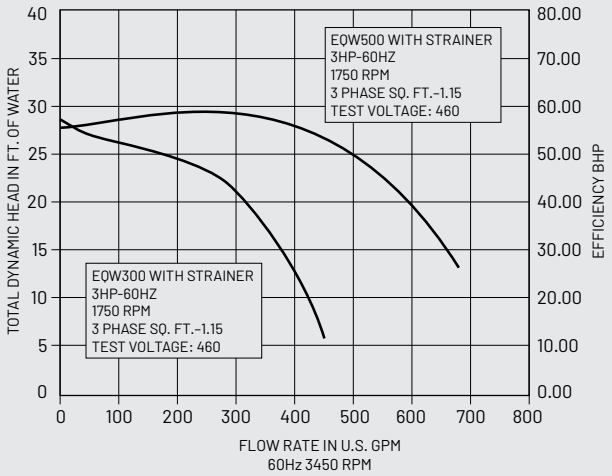
- Close-coupled for quiet, stable flow operation.
- Lightweight for easy, one-man installation.
- Clear Cam and Ramp™ Lid for added service convenience.
- Available in single- and three-phase models. TEFC motor available three-phase only.
- Closed impeller for long life and durability.
- 6" suction and 4" discharge with strainer pot.
- Great for use with Acu Drive™ XS Variable Frequency Drives.
- Self-priming under NSF standards; NSF Certified.



EQ Series Commercial Pump Performance Curve



EQ Series WaterFall Pump Performance Curve



MATERIALS AND DESIGN

PUMP BODY

Volute type, back pull-out design.

- Port Size
  - 6" – ANSI Rated 125 bolted flange suction port[1].
  - 4" – ANSI Rated 125 bolted flange discharge port[1].
- Material - Volute & Motor Adapter
  - PPO Resin
- Impeller
  - PPO Resin
- Base
  - 6061 aluminum design, slotted for mounting ease.
- Corrosion Prevention
  - All-plastic pump for maximum hydraulic performance and corrosion prevention.

HAIR AND LINT STRAINER

- Material
  - Separate bolt-on PPO Resin body with plastic basket, Polycarbonate Resin Thermoplastic lid, and stainless steel bolts.
- Size
  - 6" ANSI Rated 125 bolted flange suction and discharge ports.

PUMP MAXIMUM THERMAL LIMITS

- Ambient air temperature: 104˚ F
- Liquid temperature: 104˚ F

MOTOR

Standard JM type. Premium Efficient ODP Class F insulated.
On TEFC options, JMZ type, Premium Efficient, Class F insulated.

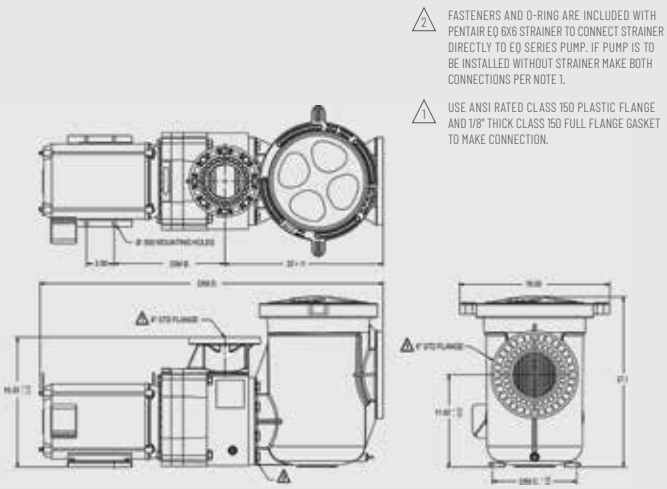
- Frame and Size
  - NEMA Rated "C" flange.
- Shaft
  - 303 stainless steel construction.
- Design
  - 3 to 15 HP, 3500 RPM, JM open drip-proof, continuous duty, three-phase and single-phase (5, 7-1/2 , 10 HP). 5 to 15 HP, 3500 RPM JMZ TEFC, continuous duty three-phase.
- Bearings
  - Double-shielded, single row, deep-groove type, permanently lubricated.
- Thermal Overload Protection
  - All models require external thermal overload protector.

ELECTRICAL

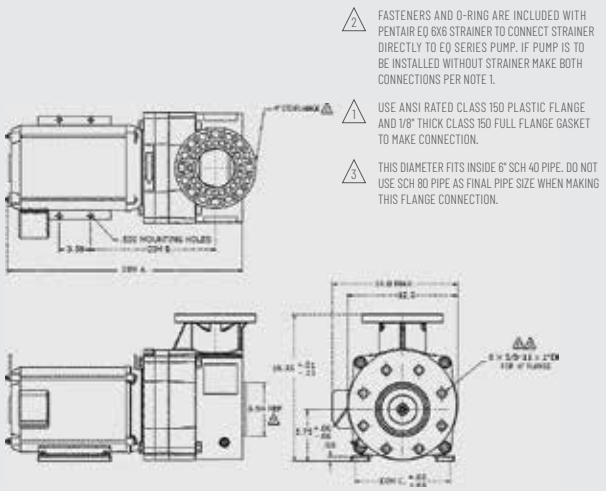
- Power Supply Required
  - Three-phase pumps are 208–230/460. Single-phase models are available in ODP 230v, 60 Hz only.

[1]Use ANSI Rated class 125 plastic flange and 1⁄8" thick class 125 full flange gasket to make connection.

EQ Series Commercial Pump with Strainer Pot 6" x 4"



EQ Series Commercial Pump without Strainer Pot



EQ SERIES COMMERCIAL PUMP WITH STRAINER POT 6" X 4"

Part # ODP Motor	Part # TEFC Motor	Description (ODP Motor/ TEFC Motor)	Voltage	Amps	Phase	HP	Wt	Dim. A-ODP	Dim. A-TEFC	Dim. B	Dim. C	Dim. D-ODP	Dim. D-TEFC
340026	–	EQW 300 WaterFall	208/230	38/19	1	3	126	26.62	N/A	10.03	7.5	43.590	N/A
340027	–	EQWK 300 WaterFall	208–230/460	8.4–7.9/3.9	3	3	106	23.12	N/A	10.16	7.5	40.094	N/A
340028	–	EQW 500 WaterFall	230	23.4	1	5	126	26.62	N/A	13.18	9.7	43.590	N/A
340029	–	EQWK 500 WaterFall	208–230/460	13.6–12.7/6.4	3	5	106	23.12	24.68	13.31	9.7	40.094	41.65
340030	–	EQ500	230	19.6	1	5	126	26.62	N/A	10.03	7.5	43.590	N/A
340031	340604	EQK500/EQKT500	208–230/460	13.5–12.3/6.2	3	5	106	23.12	24.68	10.16	7.5	40.094	41.65
340032	–	EQ750	230	30.4	1	7.5	161	27.53	N/A	10.78	8.5	44.590	N/A
340033	340605	EQK750/EQKT750	208–230/460	20.1–18.3/9.1	3	7.5	116	24.50	28.06	10.16	7.5	41.560	45.12
340034	340606	EQK1000/EQKT1000	208–230/460	27.1–24.3/12.2	3	10	146	26.31	29.81	10.78	8.5	43.290	46.79
340035	340607	EQK1500/EQKT1500	208–230/460	40.0–36.0/17.8	3	15	161	26.31	28.31	10.78	8.5	43.290	45.29
340238	–	EQ1000	230	40.0	1	10	179	29.0	N/A	11.50	8.5	46.29	N/A

340013	Strainer Pot Assembly including Strainer, Lid, Basket and Hardware

EQ SERIES COMMERCIAL PUMP WITHOUT STRAINER POT 6" X 6"

Part # ODP Motor	Part # TEFC Motor	Description	Voltage	Amps	Phase	HP	Wt
340014	–	EQW 300 WaterFall	115/230	38/19	1	3	97
340016	–	EQWK 300 WaterFall	208–230/460	8.4–7.9/3.9	3	3	77
340017	–	EQW 500 WaterFall	230	23.4	1	5	97
340018	–	EQWK 500 WaterFall	208–230/460	13.6–12.7/6.4	3	5	77
340019	–	EQ500	230	19.6	1	5	97
340020	340608	EQK500/EQKT500	208–230/460	13.5–12.3/6.2	3	5	77
340021	–	EQ750	230	30.4	1	7.5	132
340022	340609	EQK750/EQKT750	208–230/460	20.1–18.3/9.1	3	7.5	87
340237	–	EQ1000	230	40.0	1	10	125
340023	340610	EQK1000/EQKT1000	208–230/460	27.1–24.3/12.2	3	10	117
340024	340611	EQK1500/EQKT1500	208–230/460	40.0–36.0/17.8	3	15	132

EQ Series pumps are available in 575V and 50 Hz models. Please contact your local sales representative or Pentair office for details.

EQ SERIES®
HIGH PERFORMANCE COMMERCIAL PUMP



ENGINEERING SPECIFICATIONS

EQ Series Pump

- Recirculation pump shall be Pentair® EQ Series pump Model No. _____ self-priming centrifugal pump, ____ phase, 60 Hz.

General Notes

- Install pump in a cool, dry, well-vented location away from pool heaters and chemical storage.
- Pump should be firmly mounted with pipe supported to prevent vibration and undue operational noise.
- Allow 12" minimum clearance behind motor for servicing.
- Motor overheating may be caused by a voltage drop or excessive voltage. Be sure that wire size and voltage input are properly regulated.

Specifications

- The recirculation pump shall be a self-priming, centrifugal design with a hair and lint strainer as shown in the plans.
- The pump body, seal plate, and attached hair and lint strainer shall be constructed of non-corrosive PPO resin materials and close-coupled to an electric motor by means of an adaptor of the same material. The pump body shall have a single suction port with a 6" ANSI Rated 150 bolt flange to the hair and lint strainer. A centerline discharge port of 4" ANSI Rated 150 bolt flange and a winterizing drain port of 1/4" NPT shall be a part of the design.
- The pump shall be a back pull-out design to allow servicing without disturbing piping. The pump shall have a PPO resin diffuser to aid in priming and it shall contain a replaceable bronze wear ring for the impeller. The impeller shall be of the closed type and PPO resin, non-overloading at any point on the performance curve. The mechanical shaft seal shall be constructed of ceramic and carbon seal faces, with stainless steel and Buna N materials in the spring bellows portion. The impeller shall be secured to the motor shaft by means of a stainless steel key and locking screw into the end of the motor shaft. The pump shall be capable of operating at up to 50 PSI, 104° F continuous water temperature.
- The electric motor coupled to the pump shall be of the NEMA Rated series JM construction with stainless steel shaft inside a removable shaft sleeve of 303 series stainless steel. The motor shall be of an open, drip-proof design (or TEFC JMZ frame) with double-shielded, single row, deep-groove ball bearings. Motors shall be continuous-duty rated at 40° C (or realign better) ambient and be suitable for outdoor installation.
- The pump motor shall be a ____ HP, ____ phase, 60 Hz, 3450 RPM for service on a ____ volt electric supply. The pump shall be rated for _____ GPM at ____ TDH. The pump shall be tested and certified by a nationally recognized testing laboratory to conform to National Sanitation Foundation Standard 50.

Hair and Lint Strainer

- The pump strainer shall consist of a PPO resin body, polycarbonate resin thermoplastic cover with O-ring seal, and Cam and Ramp™ lid, and a strainer basket of mineral-reinforced polypropylene material.
- The strainer body shall be 6" ANSI Rated 150 bolt flanged suction and discharge ports. The strainer body shall have a removable drain plug for winterizing.
- The strainer basket shall be securely positioned below the suction inlet of the trap, with access for inspection and cleaning through a removable trap body lid. The trap body lid shall be secured by means of a locking ring. The strainer basket shall have a perforation which in total open area is 98 square inches.

PENTAIR

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