FINAL INSPECTION

Prior to the issuance of any final approval for the completion of permitted construction or remodeling work, the Building Division shall inspect the drowning safety prevention devices required by this act, and if no violations are found, shall give final approval. The contractor and/or the owner shall submit the signed Certificate of Compliance to the Building Inspector prior to final inspection.

NEW CONSTRUCTION REQUIREMENTS. CBC 3109.4.4.8
Whenever a building permit is issued for the construction of a new swimming pool or spa, the pool or spa shall meet all of the following requirements:

(1) The suction outlet of the pool or spa for which the permit is issued shall be equipped to provide circulation throughout the pool or spa as prescribed in paragraph (2) below.

(2) The swimming pool or spa shall have at least 2 circulation drains per pump that shall be hydraulically balanced and symmetrically plumbed through one or more "T" fittings, and that are separated by a distance of at least 3 feet in any dimension between the drains. Suction outlets that are less than 12 112.19.8, that cannot be removed except with the use of tools. Slots or openings in the grates or similar protective devices shall be of a shape, area, and arrangement that would prevent physical entrapment and would not pose any suction hazard to bathers.

(3) Any backup safety system that an owner of a new swimming pool or spa may choose to install in addition to the requirements set forth in Subdivisions (A) and (B) shall meet the standards as published in the document, "Guidelines for Entrapment Hazards: Making Pools and Spas Safer," Publication Number 363, March 2005, U. S. Consumer Product Safety Commission.

POOL STRUCTURE AS A BARRIER. CBC 3109.4.1.9

Where an above-ground pool is used as a barrier or where the barrier is mounted on top of the pool, and the means of access is a ladder or steps, then the ladder or steps either shall be capable of being secured, locked or removed to prevent access, or the ladder or steps shall be surrounded by a barrier which meets the requirements for barriers as stated in CBC Sections 3109.4.1.1 through 3109.4.1.8. When the ladder or steps are secured, locked or removed, any opening created shall not allow the passage of a 4 inch diameter sphere.

BARRIER HEIGHT AND CLEARANCES. CBC 3109.4.1 WITH CALIFORNIA REQUIREMENTS:

(1) The top of the barrier shall be at least 60 inches above grade, and the maximum vertical clearance between grade and the bottom of the barrier shall be 2 inches. Both measurements shall be taken on the side of the barrier that faces away from the swimming pool.

(2) Openings in the barrier shall not allow passage of a 4 inch diameter sphere.

(3) Solid barriers without openings shall not contain indentations or protrusions

(4) Closely Spaced Horizontal Members: where the barrier has horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches, the horizontal members shall be placed on the pool side of the barrier. Spacing between vertical members shall not exceed 1 ¾ inches in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1 ¾" in width.

(5) Widely Space Horizontal Members: where the barrier has horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches or more, spacing between vertical members shall not exceed 4 inches. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1 ¾" in width.

(6) Chain Link Dimensions: Maximum mesh size for chain link fences shall be 2 ¼ inch square unless fence is provided with slats fastened top and bottom which reduce the openings to no more than 1 ¾ inches.

(7) Diagonal Members: where the barrier has diagonal members, the maximum opening they form shall be no more than 1 ¾ inches.

(8) The outside surface shall be free of protrusions, cavities, or other physical characteristics that would serve as handholds or footholds that could enable a child below the age of 5 years to climb over.

(9) Gates: Access doors or gates shall comply with same height and clearances requirements for barriers as listed above and be equipped to accommodate a locking device. Pedestrian doors or gates shall open away from the pool and be self-closing and have a self-latching device. Doors and gates through the enclosure shall open away from the pool and shall have a self-closing and self-latching device placed no lower than 60 inches above the ground with a release mechanism placed no lower than 54 inches above the ground or floor.

AGREEMENTS TO BUILD; NOTICE OF PROVISIONS. CBC SECTION 3109.4.4

(A) Any person entering into an agreement to build a swimming pool or spa, or to engage in permitted work on a pool or spa covered by this article, shall give the consumer notice of the requirements of this article.

(B) Pursuant to existing law, the Department of Health Services shall have approved pool safety information pamphlets for distribution to consumers.
http://www.cdph.ca.gov/healthinfo/injviosafe/pages/poolspasprevention.aspx. Pool contractors are encouraged to use this information with consumers regarding the potential dangers a pool or spa poses to toddlers. Additionally, pool contractors may provide the consumer with swimming pool safety materials produced from organizations such as the U. S. Consumer Product Safety Commission, Drowning Prevention Foundation, National Spa and Pool Institute, International Pool and Spa Workdesks, Association of Pool and Spa Professionals, or the American Academy of Pediatrics.
Reference: Health and Safety Code Section 115920, AB 2977 (96), AB 382 (97).

DWELLING WALL AS A BARRIER. CBC 3109.4.1.8

Where a wall of a Group R, Division 3, Occupancy dwelling unit serves as part of the barrier, one of the following shall apply:

(1) Doors with direct access to the pool through the wall shall be equipped with an alarm that produces an audible warning when the door and/or its screen are opened. The alarm shall be listed and labeled in accordance with UL 2017.

(2) The pool shall be equipped with a power safety cover that complies with ASTM F 1346.

SITE PLAN REVIEWED
for conformance to structural details

Todd L Lacher, P.E.
Pool Engineering, Inc.

Structural details shall take precedence over conflicts with site plan.

Date: 6/1/2022

Note
Pool excavation shall be inspected by soils engineer prior to steel placement. As a condition of the use of Pool Engineering, Inc. structural plans, Soils Engineer shall certify that the pool bottom conforms to Structural Note 1 on Standard Pool Structural Plan.

ALL DOORS /W ACCESS TO THE THE POOL AREA SHALL BE EQUIPPED WITH COMPLYING DOOR ALARMS.
INSTALL DECK ALARM AS SECONDARY ALARM.

SCOPE OF WORK:
NEW POOL & SPA @ 600 SQ FT TOTAL

NOTE:
ALL REFERENCES ARE IN ACCORDANCE WITH THE 2019 EDITION OF THE CALIFORNIA FIRE CODE (CFC) AND THE CALIFORNIA BUILDING CODE (CBC) AS AMENDED BY THE BURBANK MUNICIPAL CODE (BMC).

NOTES

BABYLON POOLS
507 VINE STREET
GLENDALE, CA 91204
LIC# 855670
(855) 88-POOL

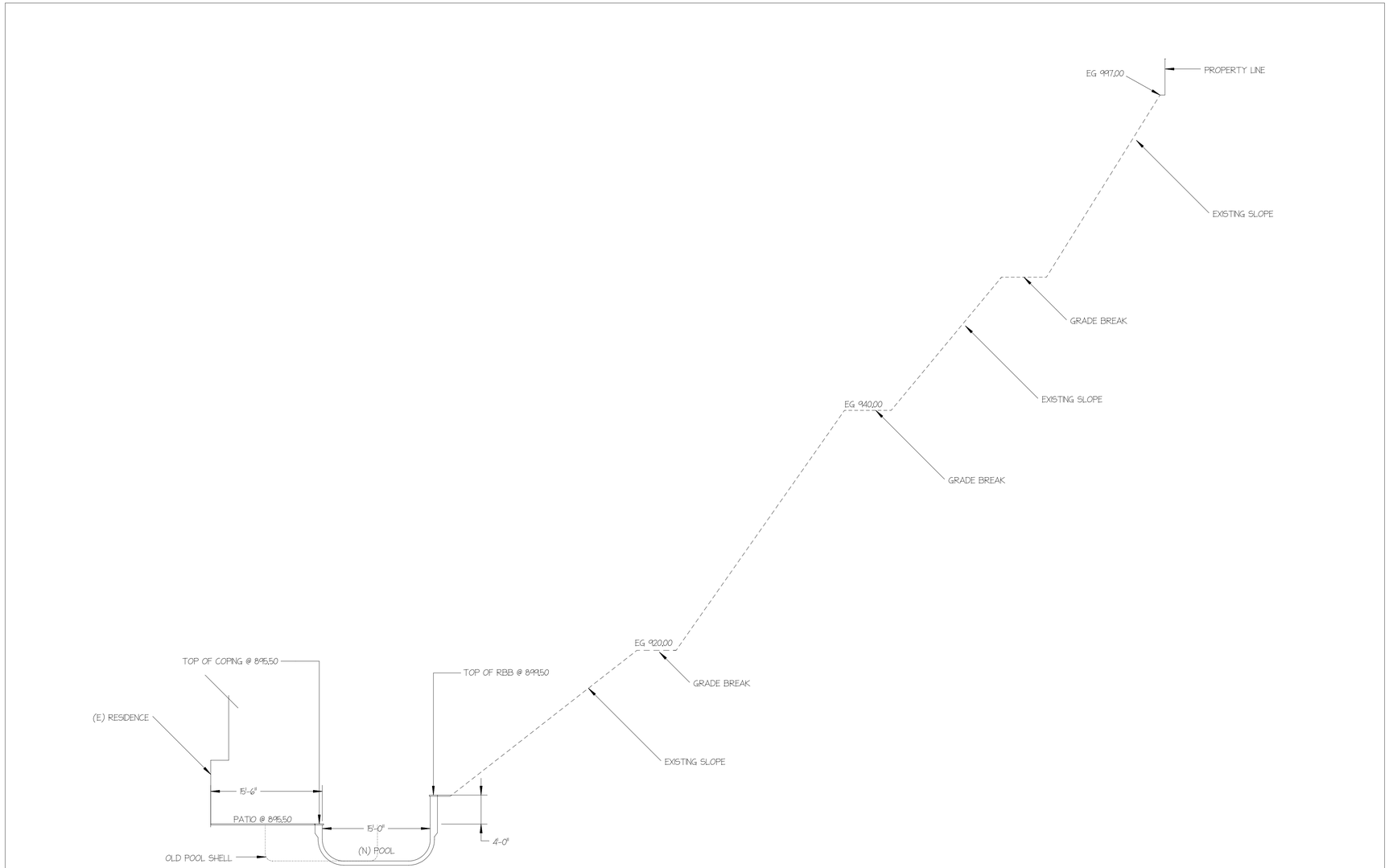
No. Date Description
REVISIONS

SITE PLAN

NAREK ISAKHANYAN
3147 MESA VERDE DRIVE
BURBANK, CA 91504

SCALE 1/8" = 1' - 0"
DRAWN BY
CHECKED BY
DATE
DATE OF PRINT

PROJECT NO.
SHEET NO. 1



CROSS SECTION A - A

SETBACK CERTIFICATION REQUIRED – A California licensed surveyor is required to certify the location and setbacks of the new swimming pool prior to beginning excavation. A copy of the certification shall be available to the Building Inspector prior to the first inspection.

NEW CONSTRUCTION REQUIREMENTS. [HSC 115928]
Whenever a building permit is issued for the construction of a new swimming pool or spa, the pool or spa shall meet all of the following requirements:

a) (1) The suction outlets of the pool or spa for which the permit is issued shall be equipped to provide circulation throughout the pool or spa as prescribed in paragraphs (2) and (3).
(2) The swimming pool or spa shall either have at least two circulation suction outlets per pump that shall be hydraulically balanced and symmetrically plumbed through one or more "T" fittings, and that are separated by a distance of at least three feet in any dimension between the suction outlets, or be designed to use alternatives to suction outlets, including, but not limited to, skimmers or perimeter overflow systems to conduct water to the recirculation pump.
(3) The circulation system shall have the capacity to provide a complete turnover of pool water, as specified in Section 3124B of Chapter 31B of the California Building Standards Code (Title 24 of the California Code of Regulations).

b) Suction outlets shall be covered with antientrapment grates, as specified in the ANSI/APSP-16 performance standard or successor standard designated by the federal Consumer Product Safety Commission, that cannot be removed except with the use of tools. Slots or openings in the grates or similar protective devices shall be of a shape, area, and arrangement that would prevent physical entrapment and would not pose any suction hazard to bathers.

c) Any backup safety system that an owner of a new swimming pool or spa may choose to install in addition to the requirements set forth in subdivisions (a) and (b) shall meet the standards as published in the document, "Guidelines for Entrapment Hazards: Making Pools and Spas Safer," Publication Number 363, March 2005, United States Consumer Product Safety Commission.

SWIMMING POOL STAGE III DROUGHT RESTRICTIONS (City of Burbank Sustainable Water Use Ordinance, Burbank Municipal Code Title 8, Chapter 2, Article 3):
All swimming pools, wading pools and spas must be covered with acceptable protection to decrease water evaporation per the Stage III Drought Restrictions. For additional information visit the Burbank Water and Power web site at https://www.burbankwaterandpower.com/water/water-drought.

ANTI-ENTRAPMENT COVER REQUIREMENT FOR REMODELS. [HSC 115928.5]
Whenever a building permit is issued for the remodel or modification of an existing swimming pool, toddler pool, or spa, the permit shall require that the suction outlet or suction outlets of the existing swimming pool, toddler pool, or spa be upgraded so as to be equipped with antientrapment grates, as specified in the ANSI/APSP-16 performance standard or a successor standard designated by the federal Consumer Product Safety Commission.

AGREEMENTS TO BUILD; NOTICE OF PROVISIONS. [HSC 115924]

a) Any person entering into an agreement to build a swimming pool or spa, or to engage in permitted work on a pool or spa covered by this article, shall give the consumer notice of the requirements of this article.
b) Pursuant to existing law, the Department of Health Services shall have available on the department's Web site, commencing January 1, 2007, approved pool safety information available for consumers to download. Pool contractors are encouraged to share this information with consumers regarding the potential dangers a pool or spa poses to toddlers. Additionally, pool contractors may provide the consumer with swimming pool safety materials produced from organizations such as the United States Consumer Product Safety Commission, Drowning Prevention Foundation, California Coalition for Children's Safety & Health, Safe Kids Worldwide, Association of Pool and Spa Professionals, or the American Academy of Pediatrics.

FINAL INSPECTION
Prior to the issuance of any final approval for the completion of permitted construction or remodeling work, the Building Division shall inspect the drowning safety prevention devices required by this act, and if no violations are found, shall give final approval. The contractor and/or the owner shall submit the signed Certificate of Compliance to the Building Inspector prior to final inspection.

NOTES

BABYLON POOLS
556 RIVERDALE DRIVE
GLENDALE, CA 91204
LIC# 855670
(855) 818-POOL

No.	Date	Description

REVISIONS

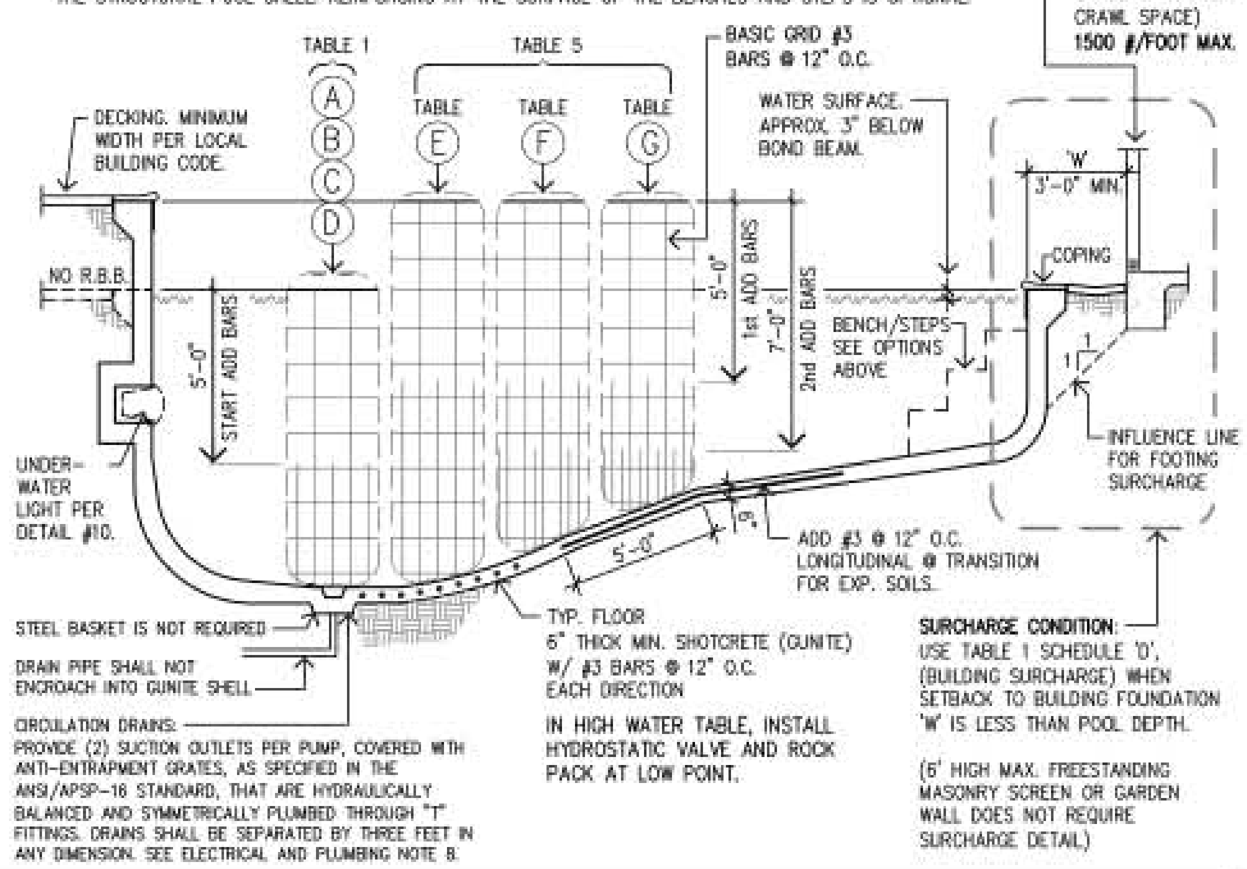
SITE PLAN

NAREK ISAKHANYAN
3147 MESA VERDE DRIVE
BURBANK, CA 91504

SCALE 1/8" = 1' - 0"	PROJECT NO.
DRAWN BY	
CHECKED BY	SHEET NO. 2
DATE	
DATE OF PRINT	

BENCH AND STEP OPTIONS:

1. UNDISTURBED EARTH MAY BE LEFT IN PLACE TO FORM THE STEPS OR BENCHES. REINFORCING STEEL SHOULD BE PLACED AROUND THE STEP OR BENCH SHAPED EARTH (3" CLEAR FROM EARTH).
2. THE EARTH MAY BE REMOVED AND BENCHES AND STEPS MAY BE FORMED OF SHOTCRETE (GUNITE) WITHIN THE STRUCTURAL POOL SHELL. REINFORCING AT THE SURFACE OF THE BENCHES AND STEPS IS OPTIONAL.

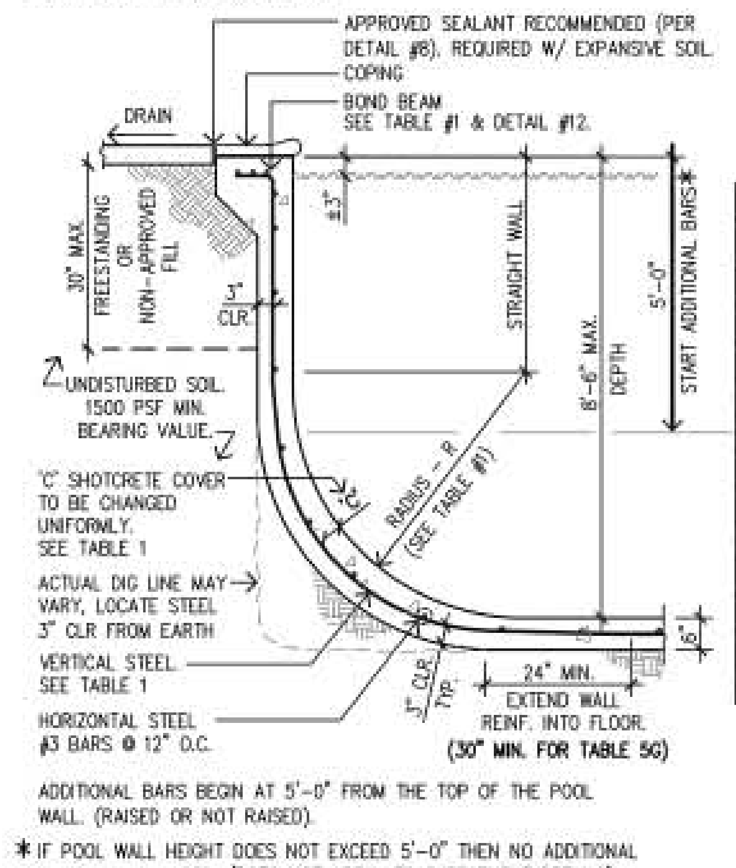


CIRCULATION DRAINS: PROVIDE (2) SUCTION OUTLETS PER PUMP, COVERED WITH ANTI-ENTRAPMENT GRATES, AS SPECIFIED IN THE ANSI/APSP-16 STANDARD, THAT ARE HYDRAULICALLY BALANCED AND SYMMETRICALLY PLUMBED THROUGH "T" FITTINGS. DRAINS SHALL BE SEPARATED BY THREE FEET IN ANY DIMENSION. SEE ELECTRICAL AND PLUMBING NOTE 8.

TYPICAL LONGITUDINAL SECTION — N.T.S. (2)

RADIUS NOTE: FLOOR TO WALL TRANSITION RADIUS MAY VARY DEPENDING ON CONTRACTOR OR OWNER DESIGN INTENT. RADIUS SHALL NOT BE LESS THAN 1-FOOT AND SHALL NOT EXCEED 5-FEET.

NOTE: BOND BEAM HORIZONTAL BARS MAY BE OVER OR UNDER VERTICAL BARS. TYPICAL INCLUDING ALL SPECIAL DETAILS.



ADDITIONAL BARS BEGIN AT 5'-0" FROM THE TOP OF THE POOL WALL. (RAISED OR NOT RAISED).

* IF POOL WALL HEIGHT DOES NOT EXCEED 5'-0" THEN NO ADDITIONAL BARS ARE REQUIRED. **(DOES NOT APPLY TO SUPPLEMENT DETAILS)**

TABLE NO. 1

E.F.P.		NON-EXPANSIVE A (3) #3 BARS. 30 P.C.F.		EXPANSIVE B (4) #3 BARS. 45 P.C.F.		NO DECK/HIGH EXP. C (4) #3 BARS. 62.4 P.C.F.		BUILD'G SURCHARGE D (4) #3 BARS. 45 P.C.F.	
D	R	C	VERTICAL STEEL	C	VERTICAL STEEL	C	VERTICAL STEEL	C	VERTICAL STEEL
3'0"	1'-0"	3"	#3 @ 12"	3"	#3 @ 12"	3"	#3 @ 12"	3"	#3 @ 12"
3'6"	1'-0"	3"		3"		3"		3"	
4'0"	1'-0"	3"		3"		4"		4"	
4'6"	1'-0"	3"		3½"		5"		5"	
5'0"	1'-6"	3"		[illegible]		5"		5"	
5'6"	2'-0"	3"		4"		5"		5½"	
6'0"	2'-6"	3"		4"		6"		5½"	
6'6"	3'-0"	3"		4½"		[illegible]		6½"	
7'0"	3'-6"	3"		[illegible]		[illegible]		[illegible]	
7'6"	4'-0"	3"		5½"		8½"		8½"	
8'0"	4'-6"	3"		6"		9"		8½"	
8'6"	5'-0"	3"		6"		9"		8½"	

ITEM NOT APPLICABLE — POOL ENGINEERING, INC. (stamped over each schedule A, B, C, D)

'D' IS DISTANCE DOWN FROM TOP OF POOL WALL.

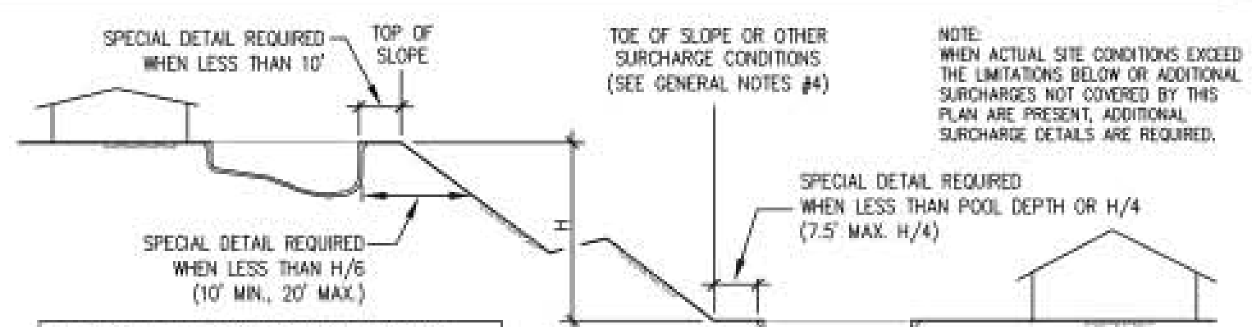
INDICATES TYPICAL RADIUS (ACTUAL RADIUS MAY VARY, SEE RADIUS NOTE AT TOP)

NO DECK OR HIGH EXPANSIVE SOIL

BUILDING FOOTING SURCHARGE (IN COUNTY OF L.A. USE DETAIL 271-60)

STANDARD WALL SECTION — N.T.S. (1)

IN THE COUNTY OF ORANGE REFER TO "UNINCOPORATED COUNTY OF ORANGE SPECIAL NOTES" REGARDING DESIGN E.F.P. FOR POOLS.

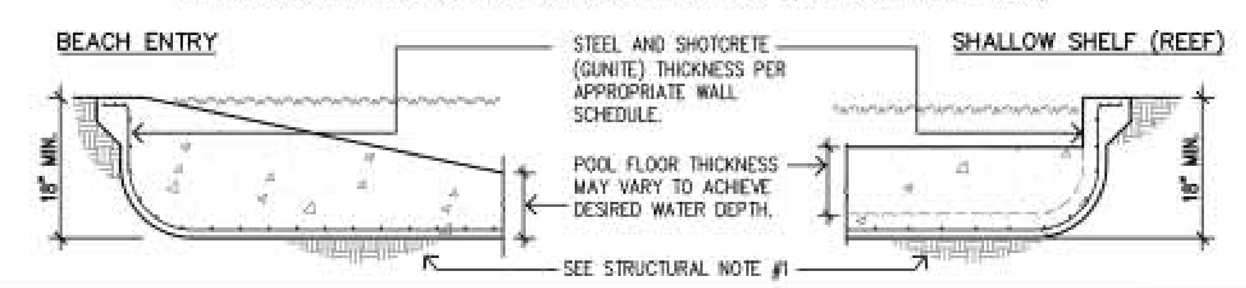


NOTE: WHEN ACTUAL SITE CONDITIONS EXCEED THE LIMITATIONS BELOW OR ADDITIONAL SURCHARGES NOT COVERED BY THIS PLAN ARE PRESENT, ADDITIONAL SURCHARGE DETAILS ARE REQUIRED.

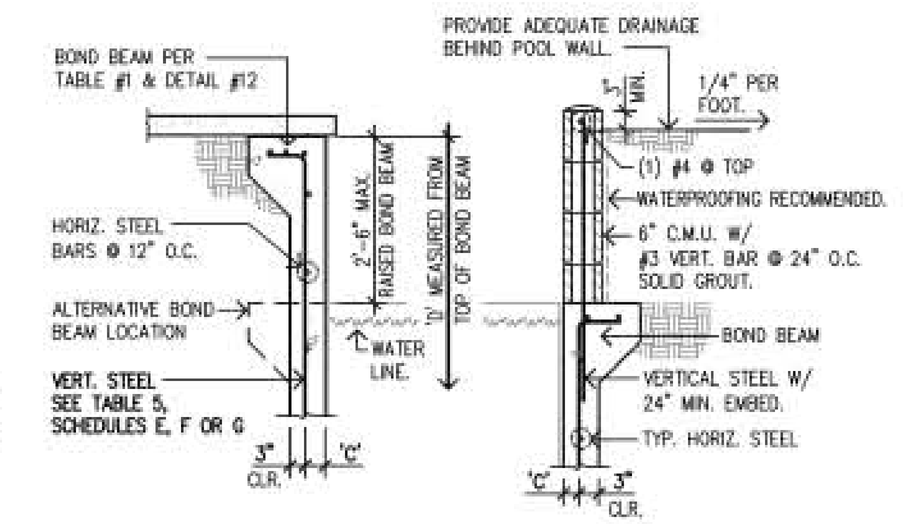
POOLS SHALL COMPLY WITH SLOPE SETBACKS (CBC 1808.7.3 & 1808.7.5)

SURCHARGE CONDITIONS — ADDITIONAL SPECIAL DETAILS REQUIRED FOR CONDITIONS ABOVE — N.T.S. (3)

REFER TO AMERICAN NATIONAL STANDARD FOR RESIDENTIAL IN-GROUND SWIMMING POOLS PUBLISHED BY AMERICAN NATIONAL STANDARD INSTITUTE (ANSI) AND THE NATIONAL SPA & POOL INSTITUTE (APSP)



SHALLOW FEATURES — MAINTAIN 18" MIN. EMBEDMENT INTO UNDISTURBED OR 90% COMPACTED SOIL — N.T.S. (4)



MASONRY NOTES:

1. CONCRETE BLOCK SHALL BE GRADE N (EXPOSED TO WEATHER), TYPE II (NON-MOISTURE CONTROLLED), NORMAL WEIGHT UNITS (135 PCF), CONFORMING TO CBC/IBC SEC. 2103, AND ASTM C 90. ALL CONCRETE BLOCK SHALL HAVE A DESIGN STRENGTH OF f'm = 2000 psi.
2. GROUT SHALL CONFORM TO CBC/IBC SEC. 2103 & ASTM C 476 WITH f'c=2,000 PSI.
3. MORTAR SHALL BE TYPE M WITH f'c = 2500 psi AND SHALL CONFORM TO CBC/IBC SEC. 2103 & ASTM C 270.

TABLE NO. 5 RAISED BOND BEAM

E.F.P.	NON-EXPANSIVE E 30 P.C.F.		EXPANSIVE F 45 P.C.F.		NO DECK/HIGH EXP. G 62.4 P.C.F.	
D	C	VERTICAL STEEL	C	VERTICAL STEEL	C	VERTICAL STEEL
3'6"	3"	#3 @ [illegible]	3"	#3 @ [illegible]	4"	#3 @ [illegible]
4'0"	3"		3"		4"	
4'6"	3"		3½"		5"	
5'0"	3"	#3 @ 6"	3½"	#3 @ 6"	5"	#3 @ 6"
5'6"	3"		4"		6"	
6'0"	3½"		5"		[illegible]	
6'6"	4"		6"		8"	
7'0"	5"		6"	#3 @ 4"	8"	#3 @ 3"
7'6"	5½"		6"		8"	
8'0"	6½"		[illegible]		8½"	
8'6"	[illegible]		[illegible]		[illegible]	
9'0"	[illegible]		[illegible]		10½"	
9'6"	9"		10"		11½"	
10'0"	9"		11"		12"	
11'0"	9"		11"		12½"	

ITEM NOT APPLICABLE — POOL ENGINEERING, INC. (stamped over each schedule E, F, G)

RAISED BOND BEAM — N.T.S. (5)

GENERAL NOTES

1. THIS STANDARD POOL STRUCTURAL PLAN MUST BE ACCOMPANIED BY A CLEAR PLOT PLAN SHOWING POOL AND/OR SPA SHAPE, DEPTH, DISTANCE TO PROPERTY LINE, GRADE CHANGES & SLOPES AND ADJACENT STRUCTURES.
2. REPRESENTATIVES OF POOL ENGINEERING INC. HAVE NOT INSPECTED THE SITE & ARE RELYING ON INFORMATION PROVIDED BY THE CONTRACTOR OR OWNER TO DETERMINE THE ADEQUACY OF THIS STANDARD POOL STRUCTURAL PLAN FOR THE ACTUAL SITE CONDITIONS. SHOULD SITE CONDITIONS VARY FROM THAT COVERED BY THIS STANDARD POOL STRUCTURAL PLAN, IT IS THE RESPONSIBILITY OF THE CONTRACTOR OR THE OWNER TO NOTIFY POOL ENGINEERING INC. AND OBTAIN APPLICABLE SPECIAL ENGINEERING DETAILS PRIOR TO CONSTRUCTION. EXPANSIVE SOIL DETAILS ARE VALID ONLY FOR STATED EQUIVALENT FLUID PRESSURES AND POOL ENGINEERING INC. RECOMMENDS THAT THE OWNER OR CONTRACTOR OBTAIN A SOILS REPORT.
3. POOL ENGINEERING INC. (PEI) RECOMMENDS THAT THE PROPERTY OWNER AND/OR POOL CONTRACTOR RETAIN A LICENSED GEOTECHNICAL CONSULTANT TO OBTAIN GEOTECHNICALLY RELATED DESIGN CRITERIA FOR THE PROPOSED POOL SITE. IT IS THE RESPONSIBILITY OF THE PROPERTY OWNER AND/OR POOL CONTRACTOR TO REQUIRE THAT THE LICENSED GEOTECHNICAL CONSULTANT CONFIRM THAT THE POOL STRUCTURAL PLANS PROVIDED MEET THE REQUIREMENTS OF THE PROJECT SITE AND THE GEOTECHNICAL REPORT. WHEN A GEOTECHNICAL REPORT HAS NOT BEEN PROVIDED TO PEI, IT IS THE OWNER AND/OR CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE SITE GEOTECHNICAL CONDITIONS ARE SUITABLE FOR CONSTRUCTION OF THE PROPOSED POOL BASED ON THE PEI PLANS BEING USED.
4. THIS PLAN IS NOT VALID WITHOUT ADDITIONAL SURCHARGE DETAILS WHEN THE CONDITIONS AS SHOWN IN DETAIL #3 APPLY (PER CBC SECTION 1808.7.3). ALL POOLS SHALL COMPLY WITH SLOPE SETBACKS PER CBC SECTION 1808.7.3.
5. THE STANDARD POOL STRUCTURAL PLAN IS NOT INTENDED TO BE APPLICABLE TO NON-STRUCTURAL ITEMS INCLUDING BUT NOT LIMITED TO PLUMBING, ELECTRICAL, FENCING, CONCRETE DECKING AND POOL GEOMETRICS.
6. DECKING CONSTRUCTION IS SHOWN AS RECOMMENDED MINIMUM CONSTRUCTION AND DOES NOT DEMONSTRATE A SYSTEM THAT WILL RESIST HEAVING DUE TO SOIL EXPANSION.
7. ALL CONSTRUCTION SHALL COMPLY WITH THE 2019 EDITIONS OF THE CALIFORNIA BUILDING CODE (CBC), CALIFORNIA ELECTRICAL CODE (CEC), CALIFORNIA MECHANICAL CODE (CMC), CALIFORNIA PLUMBING CODE (CPC), CALIFORNIA ENERGY CODE, 2019 BUILDING ENERGY EFFICIENCY STANDARDS, 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE, AND LOCAL ORDINANCES.
8. POOLS WITH DIVING BOARDS SHALL MEET DIVING BOARD MANUFACTURER'S POOL GEOMETRIC STANDARDS AND/OR LOCAL CODES.
9. SIGNS & SAFETY EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODES.
10. PUBLIC POOLS REQUIRE COUNTY HEALTH DEPARTMENT APPROVAL AND PROVISIONS FOR ASSISTIVE DEVICES FOR THE DISABLED.
11. CONTRACTOR OR OWNER SHALL VERIFY ALL FIELD CONDITIONS & DIMENSIONS AT JOB SITE. POOL LENGTH, GRADE BREAK LOCATIONS & DEPTH DIMENSIONS AS NOTED ON THE PLOT PLAN SHALL COMPLY WITH APSP SUGGESTED MINIMUM STANDARDS FOR RESIDENTIAL POOLS OR APPLICABLE STATE AND LOCAL HEALTH DEPARTMENTS REGULATIONS AND MANUFACTURERS RECOMMENDATIONS.

ELECTRICAL AND PLUMBING

1. ALL ELECTRICAL SHALL BE IN CONFORMANCE WITH THE 2019 CEC.
2. POOL SHELL AND PERIMETER PAVED AND UNPAVED SURFACES SHALL BE BONDED IN ACCORDANCE WITH CEC 680.26(B). BONDING TO PERIMETER SURFACES SHALL BE PROVIDED AS SPECIFIED IN CEC 680.26(B)(2)(A) OR (2)(B) AND SHALL BE ATTACHED TO THE POOL REINFORCING STEEL OR COPPER CONDUCTOR GRID AT A MINIMUM OF FOUR (4) POINTS UNIFORMLY SPACED AROUND THE PERIMETER OF THE POOL.
3. OBTAIN ELECTRICAL AND PLUMBING PERMITS ALONG WITH POOL BUILDING PERMIT.
4. ALL EQUIPMENT SHALL BE LISTED AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND IN ACCORDANCE WITH LOCAL REGULATIONS.
5. POOLS SHALL BE EQUIPPED WITH A FILTERING SYSTEM.
6. BACKWASH SHALL BE DISPOSED OF IN AN APPROVED MANNER.
7. POOL/SPA WATER HEATER AND GAS PIPING INSTALLATION TO BE IN CONFORMANCE WITH THE CPC.
8. SUCTION OUTLETS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH ANSI/APSP-7 AND 2019 CBC SECTION 3109 (HS CODE §§ 115920-115929).
9. POTABLE WATER SUPPLY TO SWIMMING POOLS, SPAS, AND HOT TUBS SHALL BE PROTECTED FROM BACKFLOW IN ACCORDANCE WITH CPC 603.5.20
10. CHEMICAL DISPENSERS SHALL COMPLY WITH 2019 CPC SECTION 603.5.21 REQUIREMENTS FOR PROTECTION AGAINST BACKFLOW AND COMPLY WITH ASSE 1055.

STRUCTURAL NOTES

1. SOIL SHALL HAVE A MINIMUM BEARING VALUE OF 1500 PSF. CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL OR BUILDING DEPARTMENT APPROVED 90% COMPACT FILL. THIS PLAN IS NOT SUITABLE WHERE POTENTIAL EXISTS FOR DIFFERENTIAL MOVEMENT FROM DISSIMILAR SOIL CONDITIONS UNDER POOL, INCLUDING BUT NOT LIMITED TO CUT-FILL TRANSITIONS.
2. ALL REINFORCING STEEL SHALL BE DEFORMED BARS & CONFORM TO ASTM A615 GRADE 40 FOR #3 BARS AND #4 BARS. SPLICES TO BE LAPPED A MINIMUM OF 24". MINIMUM CLEARANCE BETWEEN PARALLEL BARS IS 2 1/2".
3. (1) #4 BAR IS EQUIVALENT TO AND MAY BE USED IN PLACE OF (2) #3 BARS, WITH THE EXCEPTION THAT IF #4 BARS ARE USED FOR THE BASIC GRID, THE MAXIMUM SPACING IS #4 BARS AT 18" O.C..
4. THE PLAN TABLES SPECIFY THE MINIMUM REQUIRED REINFORCEMENT. FOR CONVENIENCE OF THE INSTALLER, THERE MAY BE MORE REINFORCEMENT THAN SPECIFIED AT ANY GIVEN POINT IN THE POOL STRUCTURE.
5. BONDING/GROUNDING (PER THE CEC) OF THE STRUCTURAL REINFORCING MUST BE INSTALLED PRIOR TO PLACEMENT OF CONCRETE.
6. SHOTCRETE (GUNITE) TO BE IN CONFORMANCE WITH CBC SECTION 1908 & SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI AT 28 DAYS. WHERE APPLICABLE, SHOTCRETE (GUNITE) TO BE IN CONFORMANCE WITH CBC SECTION 1904 DURABILITY REQUIREMENTS. AGGREGATE SHALL NOT EXCEED 3/4-INCH.
7. CEMENT SHALL CONFORM TO CBC SECTION 1903.1, ACI 318 CHAP. 19 & ASTM C 150.
8. SHOTCRETE/GUNITE IN CONTACT WITH SOIL SHALL BE IN ACCORDANCE WITH ACI 318 SECTION 19.3 FOR CONCRETE EXPOSURE TO SULFATE AND AS DIRECTED BY LOCAL BUILDING OFFICIAL.
9. KEEP CONCRETE DAMP CONTINUOUSLY FOR 14 DAYS.
10. ALL INTERIOR SURFACES OF POOL/SPA SHALL BE COATED WITH A WATERPROOF SURFACE.

GLAZING IN HAZARDOUS LOCATIONS

WHEN REQUIRED BY THE BUILDING OFFICIAL, GLAZING SHALL COMPLY WITH THE CBC SECTION 2406.4, INCLUDING LOCALLY ADOPTED AMENDMENTS.

1. GLAZING IN WALLS AND FENCES USED AS A BARRIER SHALL BE SAFETY GLAZING WHEN ALL OF THE FOLLOWING CONDITIONS ARE PRESENT:
   A. THE BOTTOM EDGE OF THE GLAZING IS LESS THAN 60" ABOVE ANY STANDING OR WALKING SURFACE.
   B. THE GLAZING IS WITHIN 5 FEET OF A SWIMMING POOL OR SPA DECK AREA.

CONTINUOUS SHOTCRETE INSPECTION

WHERE REQUIRED BY THE PERMITTING AGENCY, PNEUMATIC CONCRETE PLACEMENT SHALL BE INSPECTED BY A SPECIAL INSPECTOR IN CONFORMANCE WITH CBC SECTION 1704, WHO SHALL SUBMIT A STATEMENT INDICATING COMPLIANCE WITH THE PLANS AND SPECIFICATIONS.

TITLE 24

1. PUMPS SHALL BE SIZED PER SECTION 150(p) OF THE LATEST ADOPTED EDITION OF THE BUILDING ENERGY EFFICIENCY STANDARDS.
2. A LENGTH OF STRAIGHT PIPE GREATER THAN OR EQUAL TO 4 PIPE DIAMETERS SHALL BE INSTALLED BEFORE THE PUMP.
3. ALL ELBOWS SHALL BE SWEEP ELBOWS.
4. MANDATORY REQUIREMENTS FOR POOL & SPA HEATING SYSTEMS & EQUIPMENT:
   - 4.1. SYSTEM IS CERTIFIED WITH: THERMAL EFFICIENCY THAT COMPLIES WITH THE APPLIANCE EFFICIENCY REGULATIONS, READILY ACCESSIBLE ON-OFF SWITCH, WEATHERPROOF OPERATING INSTRUCTIONS ON ENERGY EFFICIENT OPERATIONS, NO ELECTRIC RESISTANCE HEATING AND NO PILOT LIGHT.
   - 4.2. SYSTEM IS INSTALLED WITH:
     A) AT LEAST 36" PIPE BETWEEN FILTER & HEATER FOR FUTURE SOLAR HEATING.
     B) COVER FOR OUTDOOR POOLS OR OUTDOOR SPA.
   - 4.3. POOL SYSTEM HAS DIRECTIONAL INLETS & A CIRCULATION PUMP TIME SWITCH TO PERMIT OFF PEAK OPERATION.

FENCING AND BARRIERS

1. PRIOR TO FILLING, THE POOL AND OR SPA SHALL BE COMPLETELY ENCLOSED BY 5' MIN. HIGH FENCING & GATES WITH NO OPENINGS 4" OR GREATER. GATES TO BE SELF-CLOSING & SELF-LATCHING WITH LATCH A MIN. OF 5' HIGH. ACCESS GATES THROUGH FENCING SHALL OPEN AWAY FROM THE POOL. MAXIMUM VERTICAL CLEARANCE FROM GROUND TO POOL FENCING SHALL NOT EXCEED 2 INCHES. WHERE THIS VARIES FROM LOCAL CODES, THE LOCAL CODES SHALL PREVAIL.
2. BARRIERS SHALL COMPLY WITH CBC SECTION 3109 (HS CODE §§ 115920-115929), INCLUDING LOCALLY ADOPTED AMENDMENTS.
   A. IN THE COUNTY OF LOS ANGELES, BARRIERS REQUIRED BY CHAPTER 11.50 OF THE LOS ANGELES COUNTY HEALTH AND SAFETY CODE AND ORDINANCE 95-0039 SHALL BE REQUIRED. THESE BARRIER REQUIREMENTS SHALL BE ATTACHED TO THE SWIMMING POOL SITE PLAN.

COUNTY OF LOS ANGELES SPECIAL NOTES

1. IN THE COUNTY OF LOS ANGELES, THE DEPARTMENT OF PUBLIC WORKS, BUILDING & SAFETY/LAND DEVELOPMENT DIVISION NOTES TITLED BARRIERS FOR SWIMMING POOL, SPAS, AND HOT TUBS FOR R-3 OCCUPANCIES SHALL BE ATTACHED TO AND MADE A PART OF THE SITE PLAN.
2. CONSTRUCTION TO BE PER THE LATEST ADOPTED EDITION OF THE LOS ANGELES COUNTY BUILDING CODE (LACBC).
3. IN LOS ANGELES COUNTIES SETBACK TO TOE OF ASCENDING SLOPE SHALL NOT BE LESS THAN 1 1/2 FEET & SETBACK TO TOP OF DESCENDING SLOPE SHALL NOT BE LESS THAN 2 1/2 FEET.
4. ALL POOL CONSTRUCTION SHALL BE BASED ON AN EQUIVALENT FLUID PRESSURE EQUAL TO OR GREATER THAN 60 P.C.F., UNLESS A SOILS REPORT IS SUBMITTED FOR REVIEW.

CITY OF SIMI VALLEY SPECIAL NOTES

1. SEE THE ATTACHED "CITY OF SIMI VALLEY RESIDENTIAL SWIMMING POOL NOTES" FOR BUILDING CODE REQUIREMENTS AND DISPOSAL OF POOL WASTEWATER.
2. THE MINIMUM DESIGN EQUIVALENT FLUID PRESSURE (EFP) IS 60 PSF/FT (PCF) FOR POOLS SET IN LEVEL GRADE/LEVEL BACKFILL THAT MEET THE CITY OF SIMI VALLEY SLOPE SETBACK REQUIREMENTS FOR POOL PROJECTS THAT DO NOT SUBMIT OR REQUIRE A SOILS REPORT (CBC TABLE 1610.1).

UNINCORPORATED COUNTY OF ORANGE SPECIAL NOTES

1. WHERE SITE SPECIFIC SOIL TESTING HAS NOT BEEN PERFORMED:
   - 1.1. POOLS SHALL BE DESIGNED FOR A MINIMUM DESIGN EQUIVLENT FLUID PRESSURE (E.F.P.) OF 100 P.S.F.
   - 1.2. ALL CONCRETE IN CONTACT WITH SOIL SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (F'c) EQUAL TO 4,500 P.S.I., TYPE V CEMENT, AND W/C RATIO EQUAL TO 0.45. (THIS SHALL SUPERSEDE ALL OTHER LOWER F'c SPECIFICATIONS SET FORTH).
   - 1.3. DROWNING PREVENTION SAFETY FEATURES SHALL BE PROVIDED PER COUNTY ORDINANCE NO. 19-006 SECTION 7-1-56 SECTION AV100.

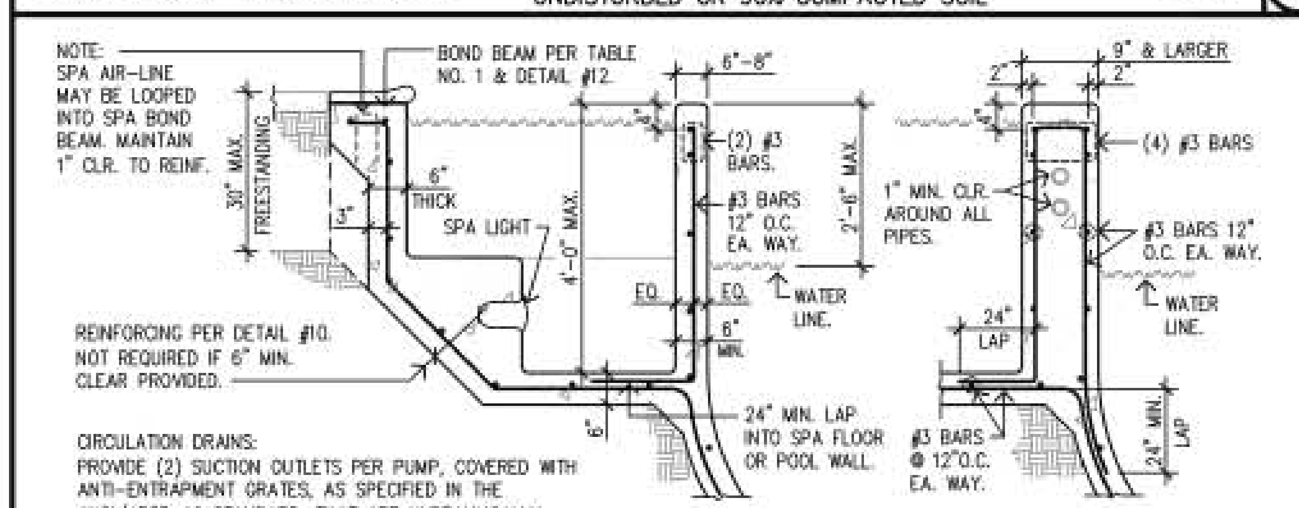
CITY OF SANTA CLARITA SPECIAL NOTES

CONSTRUCTION MATERIALS, CONCRETE, PLASTER, DIRT, GRAVEL, SAND, AND ACIDS AS WELL AS ANY WASH WATERS ARE PROHIBITED FROM ENTERING THE STREET, GUTTER, AND STORM DRAIN SYSTEM PER THE SANTA CLARITA MUNICIPAL CODE.
USE PROPER BEST MANAGEMENT PRACTICES TO PREVENT OR CAPTURE ANY CONSTRUCTION ACTIVITY RUNOFF INTO THE STORM DRAIN SYSTEM.

COUNTY OF SAN BERNARDINO SPECIAL NOTES

1. THESE PLANS ARE FOR PRIVATE RESIDENTIAL USE ONLY.
2. ALL POOL CONSTRUCTION SHALL COMPLY WITH THE 2018 INTERNATIONAL SWIMMING POOL AND SPA CODE (ISPSC) AND COUNTY OF SAN BERNARDINO INFORMATION BULLETIN IB-0007. PERMIT APPLICANT SHALL PROVIDE PLANS SHOWING POOL ARCHITECTURAL DESIGN AND GEOMETRY.
3. IN THE ABSENCE OF SITE SPECIFIC SOIL TESTING: POOL CONSTRUCITON SHALL BE BASED ON AN E.F.P. OF 60 P.C.F. OR GREATER AND ALL CONCRETE IN CONTACT WITH SOIL SHALL HAVE AT MIN: F'c = 4,500 PSI, TYPE V CEMENT AND W/C RATIO = 0.45
4. ENGINEER OF RECORD SHALL PROVIDE SITE PLAN REVIEW STAMP AND SIGNATURE ON SITE PLAN VERIFYING APPROPRIATE PROPOSED POOL LOCATION.

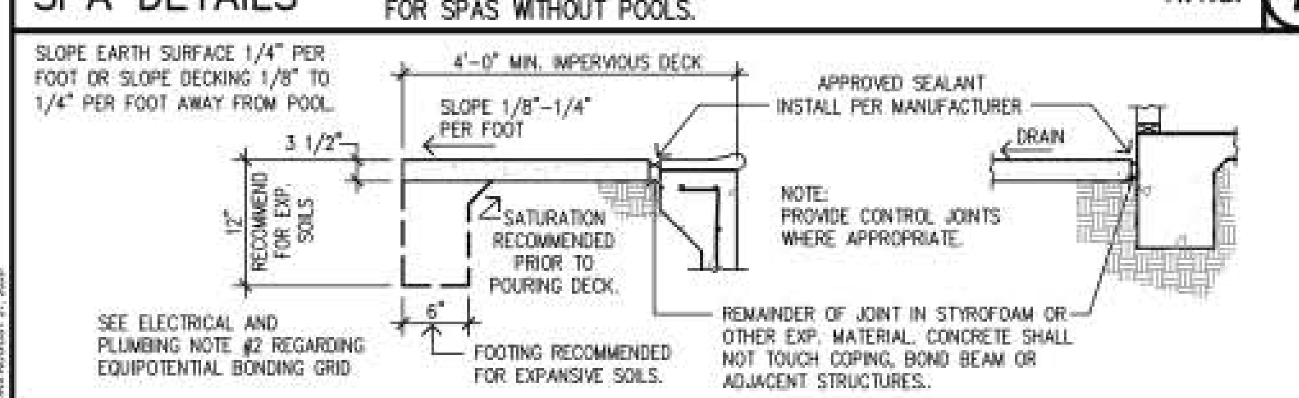
NOTES — BY THE USE OF THIS PLAN, THE USER ACKNOWLEDGES THAT HE HAS READ & UNDERSTANDS ALL OF THE NOTES INCLUDED HEREIN. (6)



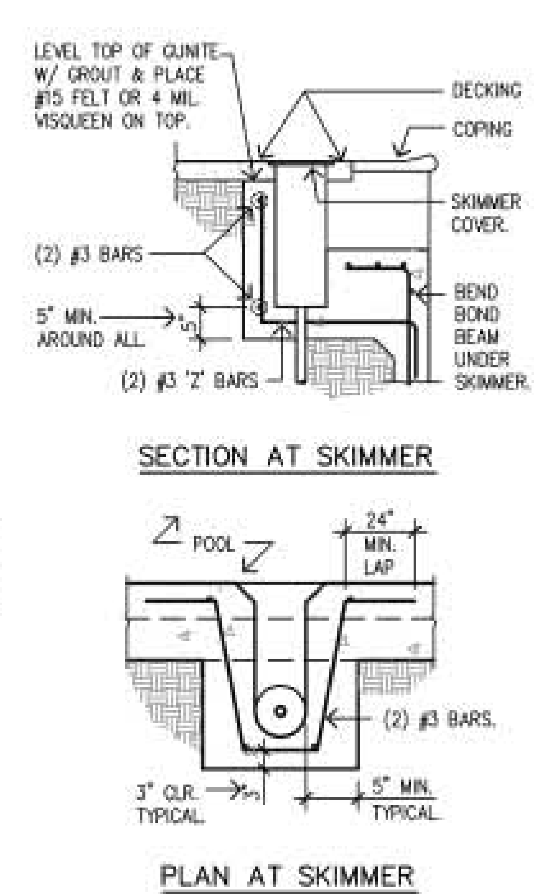
CIRCULATION DRAINS: PROVIDE (2) SUCTION OUTLETS PER PUMP, COVERED WITH ANTI-ENTRAPMENT GRATES, AS SPECIFIED IN THE ANSI/APSP-16 STANDARD, THAT ARE HYDRAULICALLY BALANCED AND SYMMETRICALLY PLUMBED THROUGH "T" FITTINGS. DRAINS SHALL BE SEPARATED BY THREE FEET IN ANY DIMENSION. SEE ELECTRICAL AND PLUMBING NOTE 8.

DAM WALL HORIZ. BAR LAP SPLICE:	6" DAM	– LAP INTO SPA REINF.
	12" DAM	– LAP INSIDE BARS INTO SPA REINF. – LAP OUTSIDE BARS INTO POOL REINF.

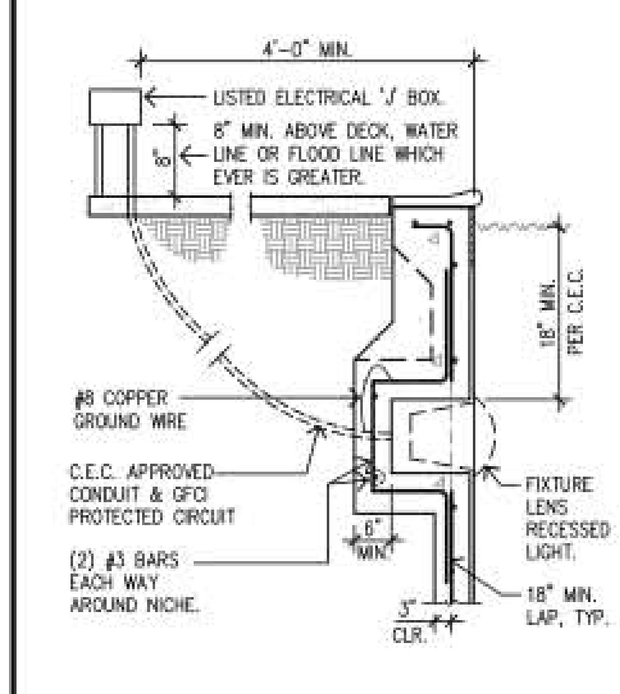
SPA DETAILS — SPA DETAILS MAY BE USED FOR SPAS WITHOUT POOLS. — N.T.S. (7)



EXPANSIVE SOIL DETAILS — IN EXPANSIVE SOILS WHERE MIN DECK REQMTS ARE NOT MET USE TABLE 1, SCHEDULE 'C' — N.T.S. (8)



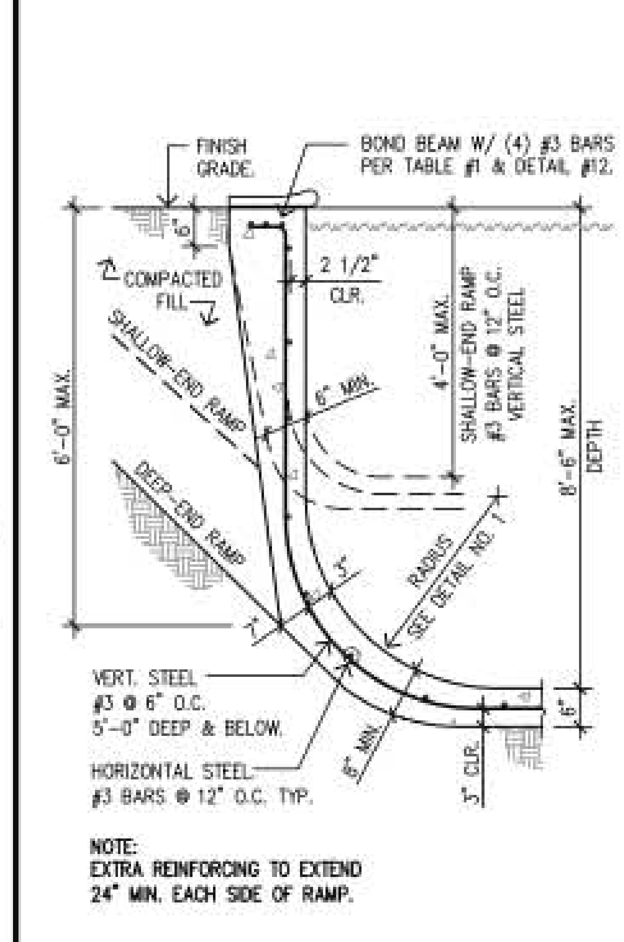
SKIMMER DETAIL — N.T.S. (9)



NOTES:

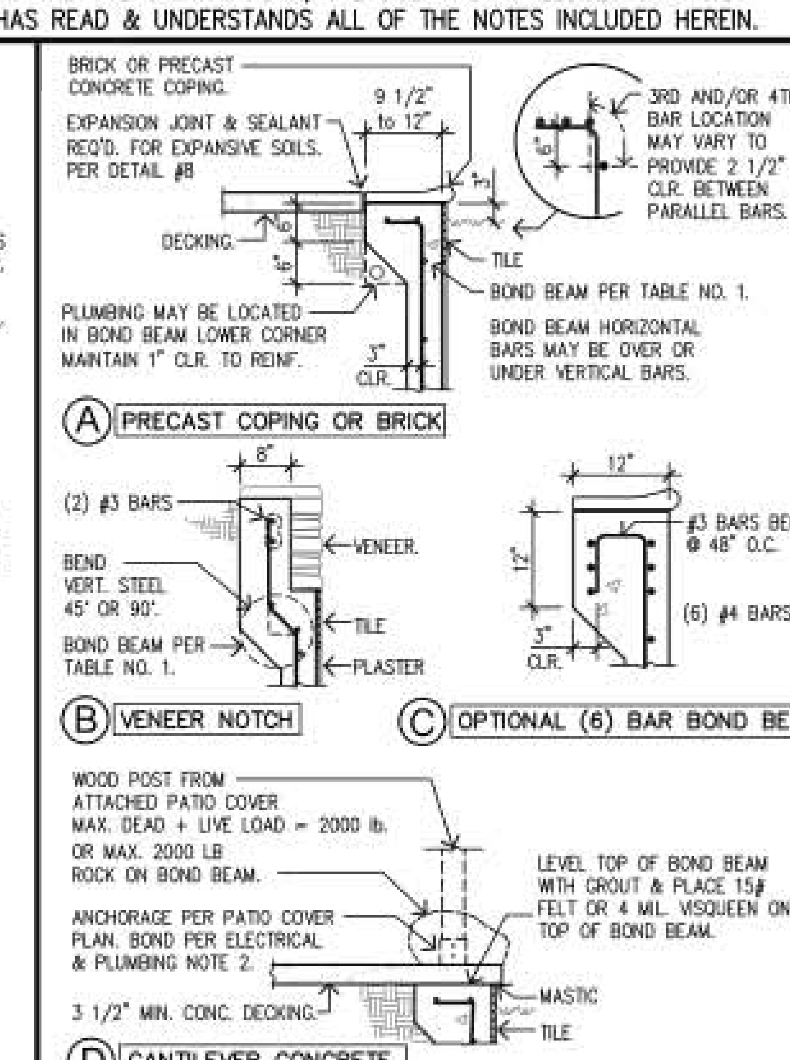
1. **INSTALL NO. 8 COPPER GROUND WIRE FROM LIGHT NICHE TO BRASS CONDUIT TO POOL REBAR, OR NON-METALLIC CONDUIT CAN BE USED WITH INSULATED NO. 8 COPPER WIRE INTERIOR W/ APPROVED POTTING COMPOUND PER THE C.E.C.**
2. **SWIMMING POOL LIGHTING FIXTURES SHALL COMPLY WITH APPLICABLE UNDERWRITERS' LABORATORIES REQUIREMENTS FOR LIGHTING FIXTURES U.L. STANDARD 676.**

SECTION AT LIGHT — N.T.S. (10)



NOTE: EXTRA REINFORCING TO EXTEND 24" MIN. EACH SIDE OF RAMP.

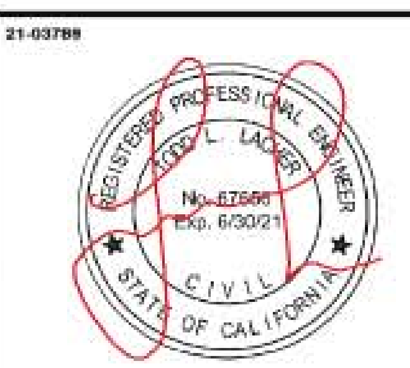
SHALLOW/DEEP END RAMP — (11)



BOND BEAM DETAILS — N.T.S. (12)

FOR USE ONLY AT
3147 Mesa Verde Dr
Burbank CA 91504

21-03789



Date: 3/15/2021

PLAN VALID ONLY WITH WET STAMP & ENGINEER'S SIGNATURE IN RED INK ON PLAN.

AUTHORIZED SIGNATURES:
RONALD L. LACHER, P.E.
TODD L. LACHER, P.E.
CHRIS BIEDENBACH, P.E.
MATTHEW THOMPSON, P.E.

STANDARD PLAN APPROVALS:

CITY OF LOS ANGELES:	#268 (REQUIRES PEI 100-LA)	SAN BERNARDINO:	#POOL-2019-00144	KERN COUNTY:	#K201908764
CITY OF ONTARIO:	#B201904315	RIVERSIDE COUNTY:	#342375	CITY OF FRESNO:	P-00-01 (REQ'S SUPPLEMENTAL NOTES)
SAN DIEGO:	MP #525633	ORANGE COUNTY:	#MB20-0001	FRESNO COUNTY:	REQ'S SUPPLEMENTAL NOTES
SIMI VALLEY:	2019-1	LOS ANGELES COUNTY:	#26077-20	VENTURA COUNTY:	S.P.A. # 6-2017 (REQ'S PEI 100-VCO)
SANTA CLARITA:		CITY OF BEVERLY HILLS:	#13		

STANDARD POOL STRUCTURAL PLAN

PREPARED IN ACCORDANCE WITH THE 2019 CALIFORNIA BUILDING CODE (2018 INTERNATIONAL BUILDING CODE)

pool engineering inc.

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SHEET: **100**

STANDARD POOL STRUCTURAL PLAN

CALCULATIONS

METHODOLOGY:

γ = EQUIVALENT FLUID PRESSURE

CASE I
OTM = 1/6 γ H^3 WHERE γ = 85 pcf
NET MOM = OTM − RESISTING MOMENT

CASE II
OTM = 1/6 γ H^3 WHERE γ = 62.4 pcf
NET MOM = OTM + RESISTING MOMENT

$$fs = \frac{M(12\ in/ft)}{As\ j\ d} = \frac{Mt\ (12)}{As\ (0.887)\ d}$$

$$fc = \frac{M(2)\ 12\ in/ft}{j\ k\ b\ d^2}$$

$$= \frac{Mt\ (2)(12)}{(0.887)(0.339)(12)\ d^2} < 1125\ psi$$

$$vc = \frac{(1/2)\ \gamma\ H^2}{(12\ in/ft)\ j\ d}$$

$$= \frac{\gamma\ H^2}{(2)(12)(0.887)\ d} < 55\ psi$$

f'c = 2,500 psi

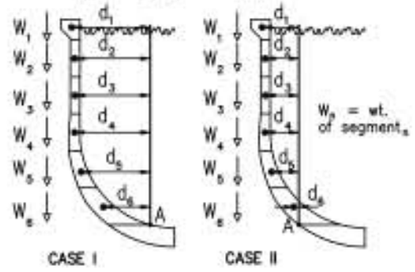
Fs = 20,000 psi

fc = 0.45 f'c = 1125 psi

Vc = 1.1 $\sqrt{f'c}$ = 55 psi

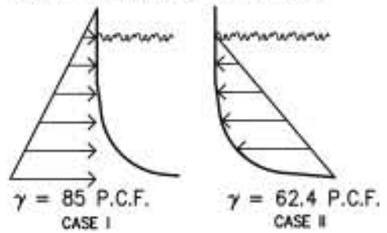
RESISTING MOMENT:

RESISTING MOMENT ABOUT POINT A
RM = $W_1 d_1 + W_2 d_2 + \ldots W_n d_n$



LOADING DIAGRAM:

THIS DETAIL IS DESIGNED FOR EACH OF THE LOAD CASES DEFINED BELOW.

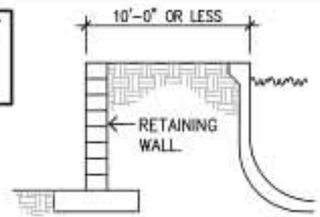


CALCULATION RESULTS:

3'−0" to 4'−0" RAISED BOND BEAM
FREESTANDING WALL
EQUIVALENT FLUID PRESSURE = 85 P.C.F.
RESULTS FOR 4'−0" RAISED BOND BEAM

HEIGHT 'H'	SOIL OTM ft−#	WATER OTM ft−#	SOIL RM ft−#	WATER RM ft−#	NET Mom	CASE I d1 SOIL	CASE II d2 WATER	VERTICAL STEEL	fs p.s.i.	fc p.s.i.	vc p.s.i.
2'−0"	113	0	38	−38	76	3"	3"	#3 @ 12"	2964	82	4.7
2'−6"	221	0	47	−47	174	3"	3"	#3 @ 6"	3506	145	7.4
3'−6"	607	0	66	−66	542	3"	3"	"	10886	451	14.5
4'−6"	1291	1	84	−84	1207	3"	3"	#3 @ 3"	12558	790	23.9
5'−6"	2357	35	105	−138	2252	4"	3"	"	17308	913	26.8
6'−6"	3891	163	133	−184	3757	4½"	3"	add 3 #4	16517	1074	33.3
7'−6"	5977	446	170	−290	5807	6"	3"	"	18843	1027	33.2
8'−6"	8700	948	290	−378	8410	8"	3"	add 3 #5	13964	809	32.0
9'−6"	12146	1730	624	−353	11522	10"	3"	"	15126	765	32.0
10'−6"	16400	2856	1309	−119	15091	10½"	4"	#5 @ 3"	15952	870	37.2
11'−6"	21546	4388	2676	347	18870	11½"	5"	"	18126	956	40.7
12'−6"	27669	6387	8574	−295	19095	11½"	6½"	"	18343	947	48.1

THIS DETAIL TO BE USED WHEN EITHER OF THE FOLLOWING (2) CONDITIONS EXIST:
1. 'A' IS LESS THAN 10'−0".
2. ALTERNATE CONDITION '2'.



ALTERNATE CONDITION '2'

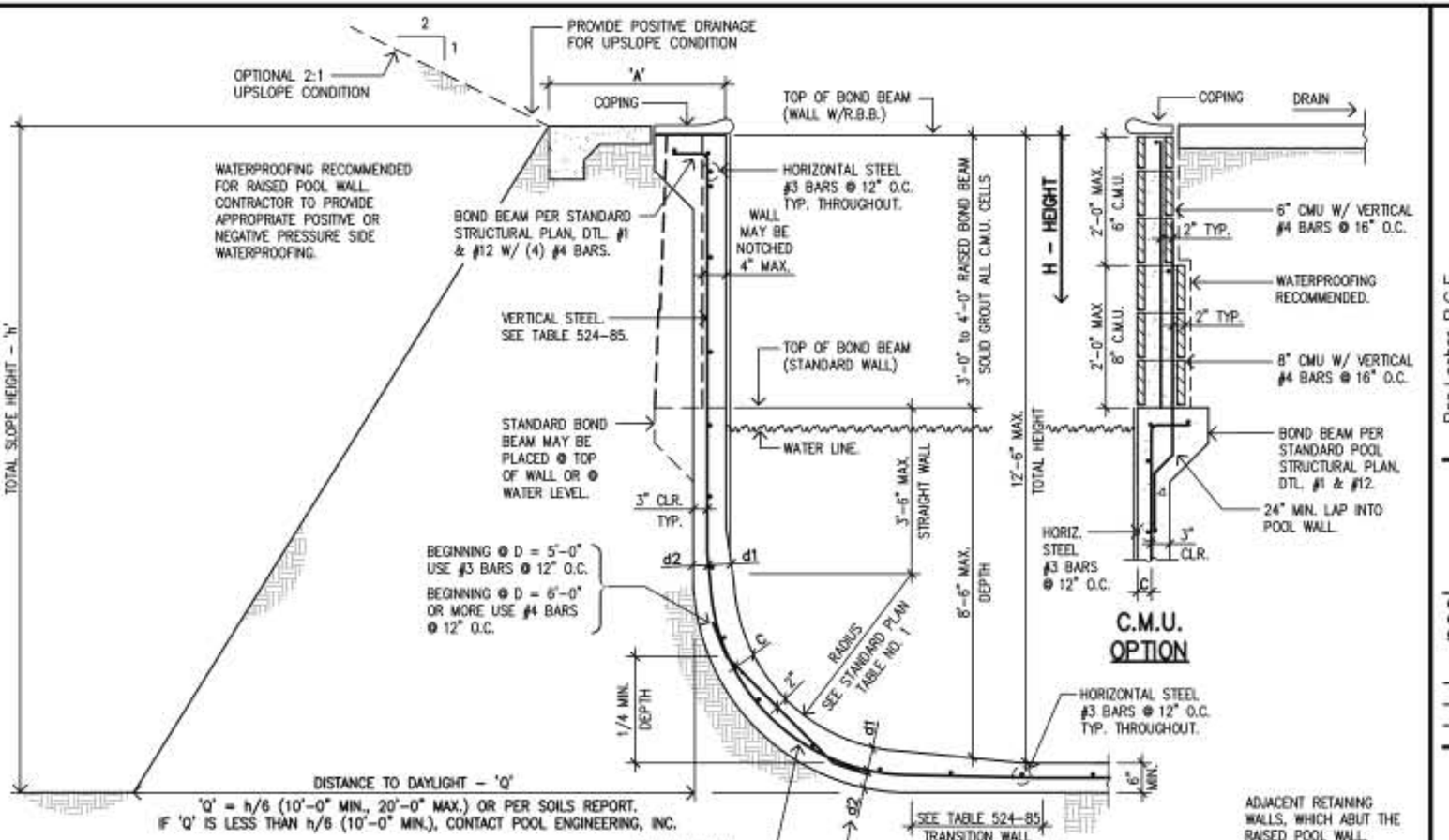


TABLE 524−85

'D' OR 'H' IS DISTANCE FROM TOP OF POOL WALL DOWNWARD. BEGIN SPECIFIED STEEL & GUNITE THICKNESS AT INDICATED 'D' OR 'H' DEPTH (SEE STANDARD STRUCTURAL PLAN, DETAIL #2).

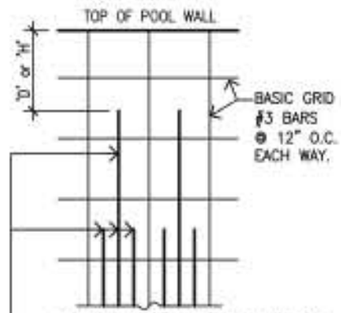
TOTAL HEIGHT	4'−0" MAX. RAISED BOND BEAM			REQ'D TRANS.
H	d1	d2	VERTICAL STEEL	
0 to 2'0"	3"	3"	#3 @ 12"	2'−0"
2'−6"	3"	3"	#3 @ 6"	2'−0"
3'−6"	3"	3"	"	2'−0"
4'−6"	3"	3"	#3 @ 3"	2'−0"
5'−0"	3"	3"	"	2'−0"
5'−6"	4"	3"	"	2'−4"
6'−0"	4½"	3"	"	3'−0"
6'−6"	4½"	3"	add 3 #4	3'−8"
7'−0"	5½"	3"	"	4'−3"
7'−6"	6"	3"	"	4'−10"
8'−6"	8"	3"	add 3 #5	5'−11"
9'−6"	10"	3"	"	6'−0"
10'−0"	10"	3½"	"	6'−3"
10'−6"	10½"	4"	#5 @ 3"	6'−4"
11'−6"	11½"	5"	"	6'−6"
12'−0"	11½"	6"	"	6'−6"
12'−6"	11½"	6½"	"	6'−8"

SEE ADD BARS DIAGRAM

TOTAL HEIGHT	3'−0" MAX. RAISED BOND BEAM			REQ'D TRANS.
H	d1	d2	VERTICAL STEEL	
0 to 2'0"	3"	3"	#3 @ 12"	2'−0"
2'−6"	3"	3"	#3 @ 6"	2'−0"
3'−6"	3"	3"	"	2'−0"
4'−6"	3"	3"	#3 @ 3"	2'−0"
5'−0"	3"	3"	"	2'−0"
5'−6"	4"	3"	"	2'−4"
6'−0"	4½"	3"	"	3'−0"
6'−6"	4½"	3"	add 3 #4	3'−8"
7'−6"	6½"	3"	"	4'−10"
8'−6"	8½"	3"	add 3 #5	5'−0"
9'−6"	9½"	4"	"	5'−3"
10'−6"	10½"	5"	"	5'−5"
11'−0"	10½"	6"	"	5'−6"
11'−6"	10½"	6"	"	5'−8"

SEE ADD BARS DIAGRAM

TYPICAL ADD BAR REINFORCING DIAGRAM



VERTICAL REINFORCEMENT AS SPECIFIED IN TABLE STARTS A DISTANCE 'D' OR 'H' DOWN FROM TOP OF POOL WALL. REINFORCEMENT OTHER THAN BASIC GRID NEED NOT EXTEND TO TOP OF POOL WALL. ADD BARS TO BE EQUALLY SPACED BETWEEN BASIC GRID.

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FOR USE ONLY AT
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Date: 3/15/2021

21-03789

PLAN VALID ONLY WITH ENGINEER'S SIGNATURE IN RED INK ON PLAN.

THIS DETAIL TO BE USED IN CONJUNCTION WITH STANDARD POOL STRUCTURAL PLAN

FREESTANDING WALL
3'−0" to 4'−0" RAISED BOND BEAM
EQUIVALENT FLUID PRESSURE = 85 P.C.F.

DETAIL #524-85

CALCULATIONS

METHODOLOGY:

γ = EQUIVALENT FLUID PRESSURE

CASE I

(SURCHARGE LOADING BASED ON BOUSSINESQ METHOD, MODIFIED BY TERZAGI FOR TYPICAL BUILDING/FOOTING, 1,500 P.S.F. BEARING PRESSURE).

γ = EQUIVALENT FLUID PRESSURE

$OTM = 1/6\ \gamma H^3 + \Sigma[(P_i)(r_i)]$

WHERE γ = 70 p.c.f. AND

$P_i = 1/2(\sigma_z + \sigma_{z-1})(6\text{ in})$

r_i = vertical dist. from P_i to z depth.

NET MOM = OTM − RESISTING MOMENT

$$fs = \frac{M(12\text{ in/ft})}{As\ j\ d} = \frac{Mt\ (12)}{As\ (0.887)\ d}$$

$$fc = \frac{M(2)\ 12\text{ in/ft}}{j\ k\ b\ d^2} = \frac{Mt\ (2)(12)}{(0.887)(0.339)(12)\ d^2} < 1125\text{ psi}$$

$$vc = \frac{(1/2)\ \gamma\ H^2}{(12\text{ in/ft})\ j\ d} = \frac{\gamma\ H^2}{(2)(12)(0.887)\ d} < 55\text{ psi}$$

f'c = 2,500 p.s.i.

Fs = 20,000 p.s.i.

fc = 0.45 f'c = 1125 p.s.i.

$Vc = 1.1\sqrt{f'c}$ = 55 p.s.i.

γ = EQUIVALENT FLUID PRESSURE

CASE II

OTM = 1/6 γ H^3 WHERE γ = 62.4 pcf

NET MOM = OTM + RESISTING MOMENT

$$fs = \frac{M(12\text{ in/ft})}{As\ j\ d} = \frac{Mt\ (12)}{As\ (0.887)\ d}$$

$$fc = \frac{M(2)\ 12\text{ in/ft}}{j\ k\ b\ d^2} = \frac{Mt\ (2)(12)}{(0.887)(0.339)(12)\ d^2} < 1125\text{ psi}$$

$$vc = \frac{(1/2)\ \gamma\ H^2}{(12\text{ in/ft})\ j\ d} = \frac{\gamma\ H^2}{(2)(12)(0.887)\ d} < 55\text{ psi}$$

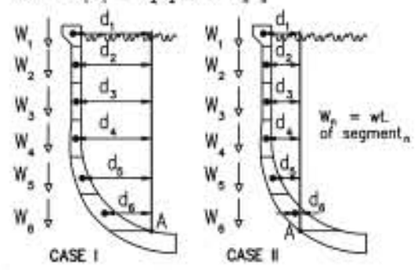
f'c = 2,500 psi fc = 0.45 f'c = 1125 psi

Fs = 20,000 psi $Vc = 1.1\sqrt{f'c}$ = 55 psi

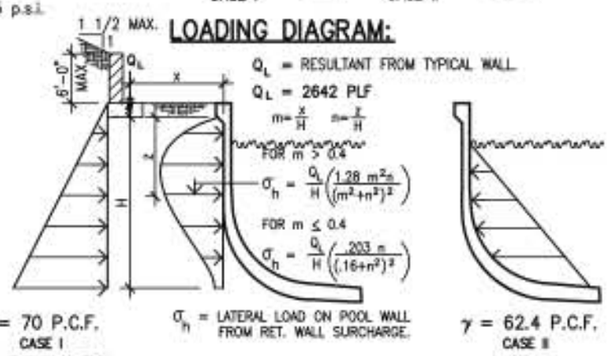
RESISTING MOMENT:

RESISTING MOMENT ABOUT POINT A

$RM = W_1 d_1 + W_2 d_2 + \ldots W_n d_n$



LOADING DIAGRAM:



Q_L = RESULTANT FROM TYPICAL WALL.

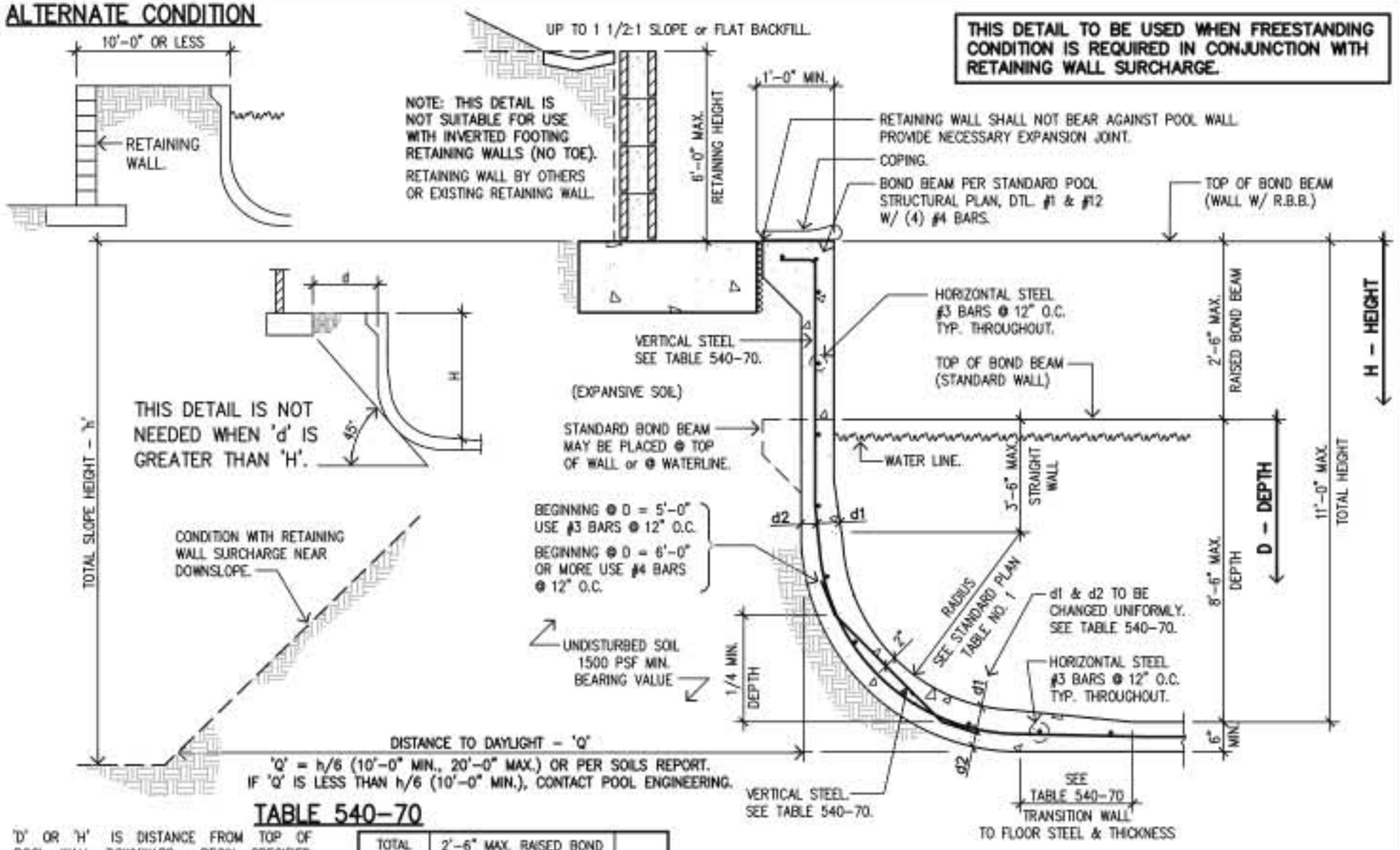
Q_L = 2642 PLF

CALCULATION RESULTS:

FREESTANDING WALL WITH RETAINING WALL SURCHARGE
EQUIVALENT FLUID PRESSURE = 70 P.C.F.
RESULTS FOR 2'-6" MAX. RAISED BOND BEAM

HEIGHT 'H'	SOIL OTM ft-#	LOAD OTM ft-#	WATER OTM ft-#	SOIL RM ft-#	WATER RM ft-#	NET Mom	CASE I d1 SOIL	CASE II d2 WATER	VERTICAL STEEL	fs p.s.i.	fc p.s.i.	vc p.s.i.
1'-6"	39	0	0	69	−16	−16	3"	3"	#3 @ 12"	611	17	2.9
2'-0"	93	33	0	78	−25	48	3"	3"	#3 @ 6"	961	40	6.5
3'-0"	315	237	1	97	−44	455	3½"	3"	"	7785	295	15.3
4'-0"	747	696	35	119	−123	1323	5"	3"	#3 @ 3"	8045	371	19.2
5'-0"	1458	1404	163	161	−234	2701	7"	3"	"	11553	437	20.2
6'-0"	2520	2320	446	226	−362	4613	8"	3½"	add 3 #4	11066	507	23.6
7'-0"	4002	3393	948	373	−468	7021	8½"	5"	"	15805	699	28.0
8'-0"	5973	4584	1730	760	−534	9797	10½"	6"	"	17683	690	27.6
9'-0"	8505	5864	2856	1560	−463	12809	11½"	6½"	add 3 #5	14521	675	30.1
	1667	7211	4388	3167	55	15710	11½"	6½"	"	17810	828	35.3
	5528	8608	6387	9842	−494	14295	11½"	6½"	"	16205	802	41.0

ALTERNATE CONDITION



THIS DETAIL TO BE USED WHEN FREESTANDING CONDITION IS REQUIRED IN CONJUNCTION WITH RETAINING WALL SURCHARGE.

TABLE 540-70

'D' OR 'H' IS DISTANCE FROM TOP OF POOL WALL DOWNWARD. BEGIN SPECIFIED STEEL & GUNITE THICKNESS AT INDICATED 'D' OR 'H' DEPTH (SEE STANDARD STRUCTURAL PLAN, DETAIL #2)

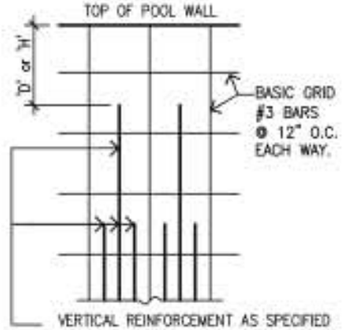
POOL DEPTH	NO RAISED BOND BEAM			REQ'D TRANS.
D	d1	d2	VERTICAL STEEL	
0 to 1'6"	3"	3"	#3 @ 12"	2'-0"
2'-0"	3"	3"	#3 @ 6"	2'-0"
2'-6"	3"	3"	"	2'-0"
3'-0"	3½"	3"	"	2'-0"
3'-6"	4½"	3"	"	2'-0"
4'-0"	5"	3"	#3 @ 3"	2'-3"
4'-6"	6"	3"	"	3'-0"
5'-0"	7"	3"	"	3'-4"
5'-6"	8"	3½"	"	3'-5"
6'-0"	8"	3½"	add 3 #4	3'-9"
6'-6"	8"	4"	"	3'-11"
7'-0"	8½"	5"	"	3'-10"
7'-6"	9½"	5½"	"	3'-8"
8'-0"	10½"	6"	"	3'-6"
8'-6"	11½"	6½"	"	3'-4"

SEE ADD BARS DIAGRAM

TOTAL HEIGHT	2'-6" MAX. RAISED BOND BEAM			REQ'D TRANS.
H	d1	d2	VERTICAL STEEL	
0 to 1'6"	3"	3"	#3 @ 12"	2'-0"
2'-0"	3"	3"	#3 @ 6"	2'-0"
2'-6"	3"	3"	"	2'-0"
3'-0"	3½"	3"	"	2'-0"
3'-6"	4½"	3"	"	2'-0"
4'-0"	5"	3"	#3 @ 3"	2'-4"
4'-6"	6"	3"	"	3'-0"
5'-0"	7"	3"	"	3'-9"
5'-6"	8"	3½"	"	4'-3"
6'-0"	8"	3½"	add 3 #4	4'-10"
6'-6"	8"	4"	"	5'-4"
7'-0"	8½"	5"	"	5'-6"
7'-6"	9½"	5½"	"	5'-4"
8'-0"	10½"	6"	"	5'-2"
8'-6"	11½"	6½"	"	4'-11"
9'-0"	11½"	6½"	add 3 #5	4'-10"
9'-6"	11½"	6½"	"	4'-10"
10'-0"	11½"	6½"	"	4'-10"
11'-0"	11½"	6½"	"	4'-10"

SEE ADD BARS DIAGRAM

TYPICAL ADD BAR REINFORCING DIAGRAM



VERTICAL REINFORCEMENT AS SPECIFIED IN TABLE STARTS A DISTANCE 'D' OR 'H' DOWN FROM TOP OF POOL WALL. REINFORCEMENT OTHER THAN BASIC GRID NEED NOT EXTEND TO TOP OF POOL WALL. ADD BARS TO BE EQUALLY SPACED BETWEEN BASIC GRID.

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Date: 3/15/2021

21-03789

PLAN VALID ONLY WITH ENGINEER'S SIGNATURE IN RED INK ON PLAN.

THIS DETAIL TO BE USED IN CONJUNCTION WITH STANDARD POOL STRUCTURAL PLAN

FREESTANDING WALL
WITH RETAINING WALL SURCHARGE
MAX. FOOTING BEARING PRESSURE = 1,500 P.S.F.
EQUIVALENT FLUID PRESSURE = 70 P.C.F.

DETAIL #540-70

CALCULATIONS

METHODOLOGY:

γ = EQUIVALENT FLUID PRESSURE

CASE I

OTM = 1/6 γ H³ WHERE γ = 70 pcf

NET MOM = OTM − RESISTING MOMENT

CASE II

OTM = 1/6 γ H³ WHERE γ = 62.4 pcf

NET MOM = OTM + RESISTING MOMENT

$$fs = \frac{M(12\ in/ft)}{As\ j\ d} = \frac{Mt\ (12)}{As\ (0.887)\ d}$$

$$fc = \frac{M(2)\ 12\ in/ft}{j\ k\ b\ d^2}$$

$$= \frac{Mt\ (2)(12)}{(0.887)(0.339)(12)\ d^2} < 1125\ psi$$

$$vc = \frac{(1/2)\ \gamma\ H^2}{(12\ in/ft)\ j\ d}$$

$$= \frac{\gamma\ H^2}{(2)(12)(0.887)\ d} < 55\ psi$$

f'c = 2,500 psi

Fs = 20,000 psi

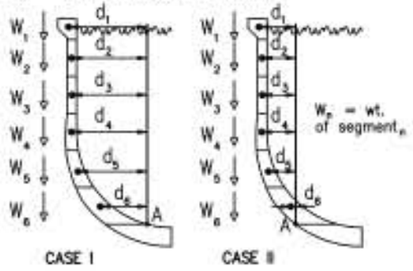
fc = 0.45 f'c = 1125 psi

Vc = 1.1 $\sqrt{f'c}$ = 55 psi

RESISTING MOMENT:

RESISTING MOMENT ABOUT POINT A

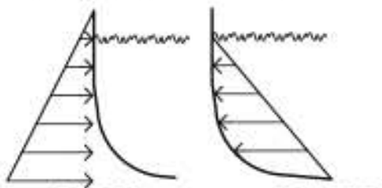
RM = $W_1 d_1 + W_2 d_2 + \ldots W_n d_n$



CASE I CASE II

LOADING DIAGRAM:

THIS DETAIL IS DESIGNED FOR EACH OF THE LOAD CASES DEFINED BELOW.



γ = 70 P.C.F. CASE I

γ = 62.4 P.C.F. CASE II

CALCULATION RESULTS:

FREESTANDING WALL
EQUIVALENT FLUID PRESSURE = 70 P.C.F.
RESULTS FOR NO RAISED BOND BEAM

DEPTH 'D'	SOIL OTM ft-#	WATER OTM ft-#	SOIL RM ft-#	WATER RM ft-#	NET Mom	CASE I d1 SOIL	CASE II d2 WATER	VERTICAL STEEL	fs p.s.i.	fc p.s.i.	vc p.s.i.
3'-6"	500	446	106	−53	460	3"	3"	#3 @ 12"	18049	478	11.9
4'-0"	747	666	124	−55	685	3"	3"	#3 @ 6"	13826	547	15.6
5'-0"	1458	1300	226	−14	1232	3"	3½"	#3 @ 4"	16937	855	24.3
6'-0"	2520	2246	470	74	2513	4"	4½"	#3 @ 3"	17164	808	26.3
7'-0"	4002	3567	982	289	4039	5"	5½"	add 3 #4	14452	795	28.6
8'-0"	5973	5325	2168	771	6095	5"	7"	"	16916	880	37.3
8'-6"	7165	6387	4813	474	6861	5"	7½"	"	17708	807	42.1

RESULTS FOR 2'-6" MAX. RAISED BOND BEAM

HEIGHT 'H'	SOIL OTM ft-#	WATER OTM ft-#	SOIL RM ft-#	WATER RM ft-#	NET Mom	CASE I d1 SOIL	CASE II d2 WATER	VERTICAL STEEL	fs p.s.i.	fc p.s.i.	vc p.s.i.
3'-6"	500	10	106	−53	394	3"	3"	#3 @ 12"	15461	410	11.9
4'-6"	1063	83	130	−105	933	4"	3"	#3 @ 6"	13954	466	14.8
5'-6"	1941	281	156	−131	1785	4"	3"	#3 @ 4"	18133	769	22.1
6'-6"	3204	666	203	−235	3001	6"	3"	"	19944	666	20.5
7'-0"	4002	948	271	−223	3731	6"	3"	#3 @ 3"	18839	745	23.8
8'-0"	5973	1730	550	−171	5424	7½"	3½"	add 3 #4	13999	758	24.9
9'-0"	8505	2856	1129	62	7376	7½"	4½"	"	19037	879	31.5
9'-6"	10003	3567	1604	284	8399	8"	5"	add 3 #5	14032	842	32.9
10'-6"	13506	5325	3374	924	10131	8½"	6½"	"	15876	849	37.8
11'-0"	15528	6387	7219	349	6735	8½"	6½"	"	14017	886	41.5

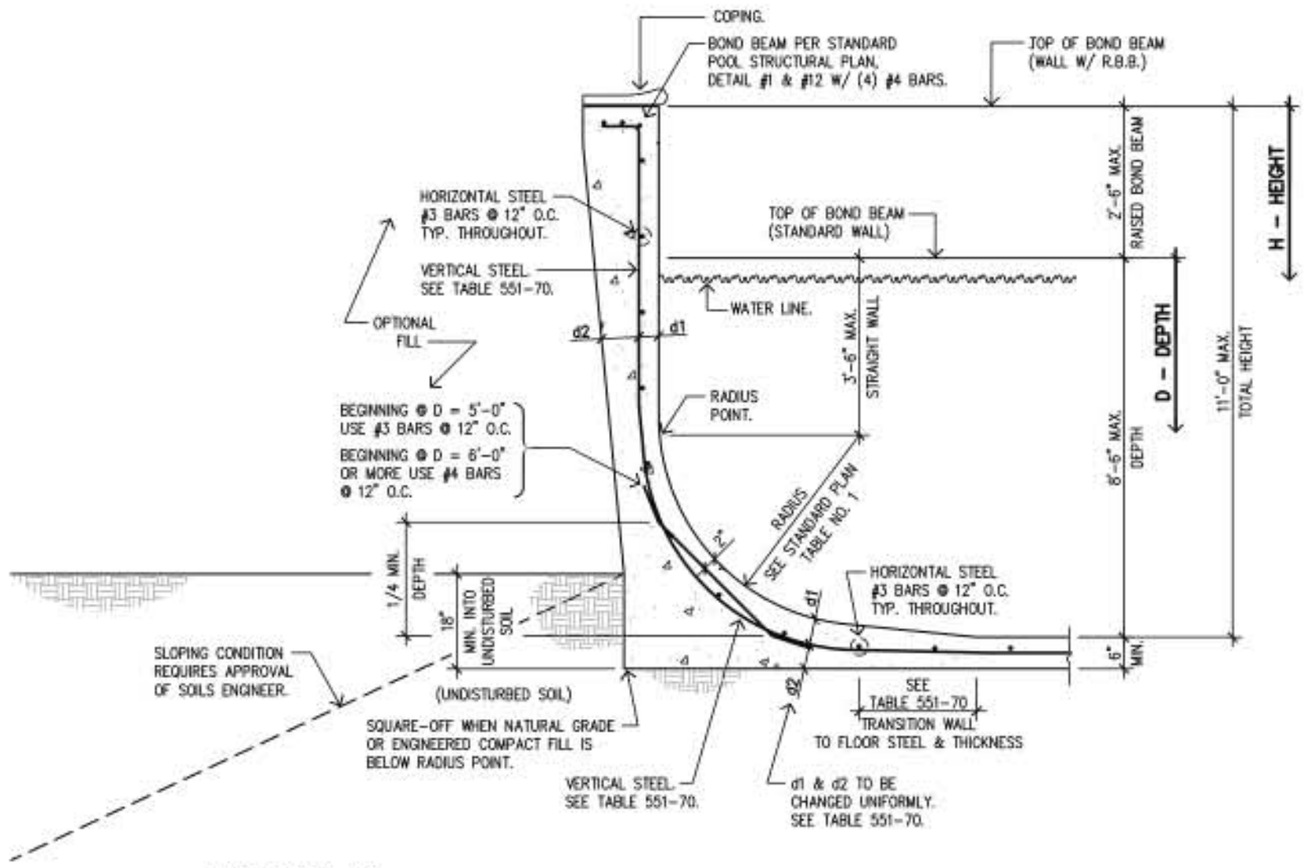


TABLE 551-70

'D' OR 'H' IS DISTANCE FROM TOP OF POOL WALL DOWNWARD.
BEGIN SPECIFIED STEEL & GUNITE THICKNESS AT INDICATED 'D' OR 'H' DEPTH.
(SEE STANDARD STRUCTURAL PLAN, DETAIL #2)

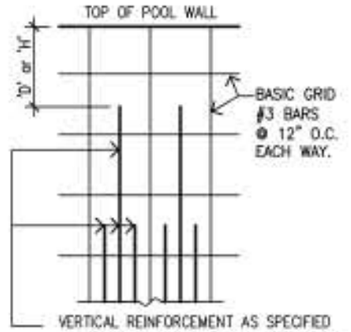
POOL DEPTH	NO RAISED BOND BEAM			REQ'D TRANS.
D	d1	d2	VERTICAL STEEL	
0 to 2'6"	3"	3"	#3 @ 12"	2'-0"
3'-0"	3"	3"	#3 @ 6"	2'-0"
4'-0"	3"	3"	#3 @ 4"	2'-0"
4'-6"	3"	3"	"	2'-0"
5'-0"	3"	3½"	#3 @ 3"	2'-0"
6'-0"	4"	4½"	add 3 #4	2'-0"
7'-0"	5"	5½"	"	2'-0"
7'-6"	5"	6"	"	2'-0"
8'-0"	5"	7"	"	2'-0"
8'-6"	5"	7½"	"	2'-0"

SEE ADD BARS DIAGRAM

TOTAL HEIGHT	2'-6" MAX. RAISED BOND BEAM			REQ'D TRANS.
H	d1	d2	VERTICAL STEEL	
0 to 3'0"	3"	3"	#3 @ 12"	2'-0"
3'-6"	3"	3"	#3 @ 6"	2'-0"
4'-0"	4"	3"	"	2'-0"
4'-6"	4"	3"	#3 @ 4"	2'-0"
5'-6"	4"	3"	"	2'-0"
6'-0"	5"	3"	#3 @ 3"	2'-2"
6'-6"	6"	3"	"	2'-8"
7'-0"	6"	3"	add 3 #4	3'-2"
7'-6"	7"	3"	"	3'-3"
8'-0"	7½"	3½"	"	3'-3"
8'-6"	7½"	4"	add 3 #5	3'-4"
9'-0"	7½"	4½"	"	3'-5"
10'-0"	8½"	5½"	"	3'-8"
10'-6"	8½"	6½"	"	3'-8"
11'-0"	8½"	6½"	"	3'-9"

SEE ADD BARS DIAGRAM

TYPICAL ADD BAR REINFORCING DIAGRAM



VERTICAL REINFORCEMENT AS SPECIFIED IN TABLE STARTS A DISTANCE 'D' OR 'H' DOWN FROM TOP OF POOL WALL. REINFORCEMENT OTHER THAN BASIC GRID NEED NOT EXTEND TO TOP OF POOL WALL. ADD BARS TO BE EQUALLY SPACED BETWEEN BASIC GRID.

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STATE OF CALIFORNIA

Date: 3/15/2021

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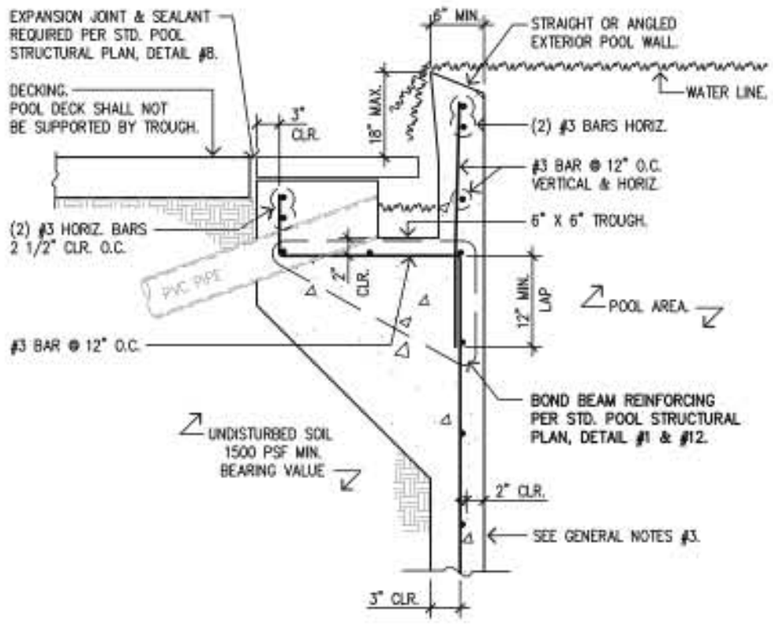
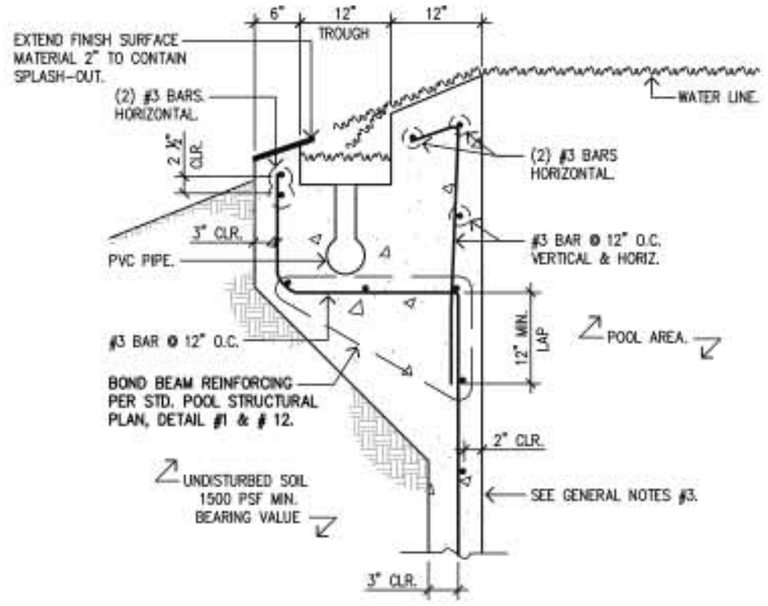
THIS DETAIL TO BE USED IN CONJUNCTION WITH STANDARD POOL STRUCTURAL PLAN

FREESTANDING WALL
EQUIVALENT FLUID PRESSURE = 70 P.C.F.

DETAIL #551-70



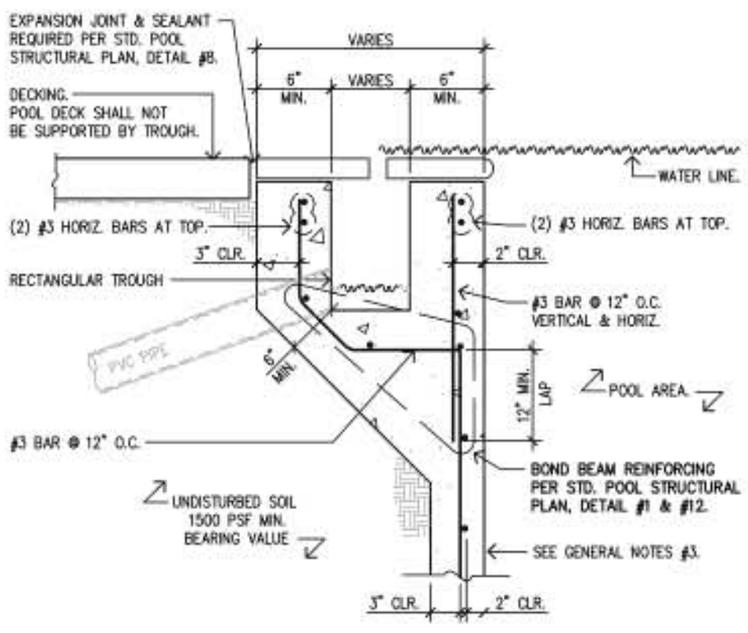
TROUGH AT LEVEL EDGE (A)



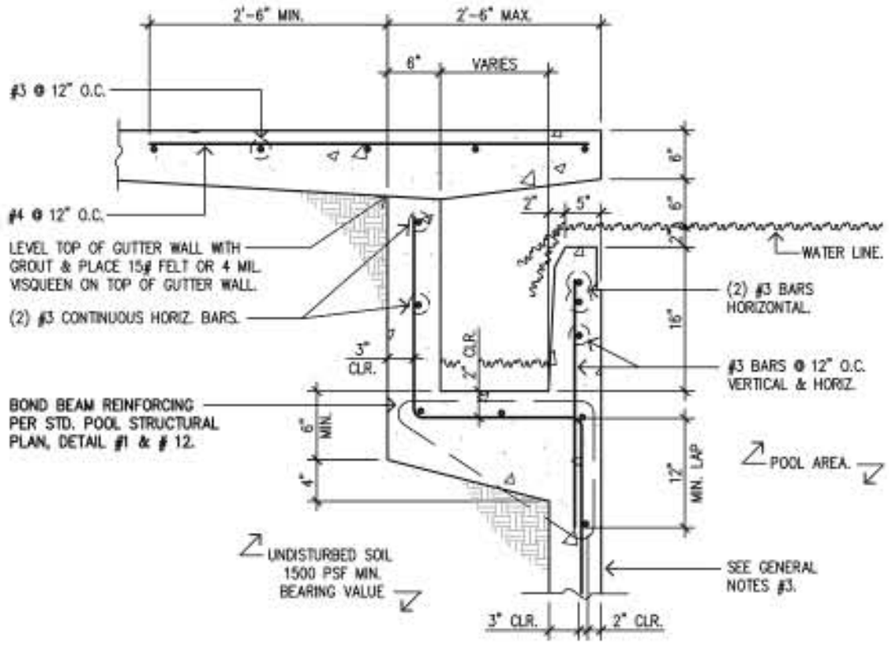
TROUGH AT TOP OF WEIR WALL (B)

GENERAL NOTES:

1. LAP ALL STEEL 24" MIN. UNLESS NOTED OTHERWISE.
2. MAINTAIN 2" CLEARANCE BETWEEN ALL PLUMBING & REINFORCING STEEL.
3. FOR POOL WALL GUNITE THICKNESS & STEEL REINFORCING, SEE STANDARD POOL STRUCTURAL PLAN.
4. FINAL CONFIGURATION OF WEIR AS DIRECTED BY CONTRACTOR.
5. GUTTER TROUGH TO BE WATERPROOFED.
6. SPECIAL PRECAUTIONS MUST BE TAKEN TO WATERPROOF PENETRATIONS INTO TROUGH.



GH AT ZERO EDGE (C)



OVERFLOW GUTTER (D)

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THIS DETAIL TO BE USED IN CONJUNCTION WITH STANDARD POOL STRUCTURAL PLAN

VANISHING OR ZERO EDGE TROUGH & OVERFLOW GUTTER DETAIL

DETAIL #649