City of Palos Verdes Estates
Swimming Pool & Spa Standard Requirements List

Plan Check #________________ Date________________

Address 2357 VIA ANACAPA PALOS VERDES ESTATES, CA 90274

Comments/Notes________________

Approvals REQUIRES PLANNING AND ART JURY APPROVAL

Grading

1. Indicate amount of cubic yards of cut and/or fill for pool/spa
2. Show all existing and new contours
3. Show all elevations pertinent to pool/spa
4. Planning Commission review required
5. ___Geology report ___Soils report ____Minimum - soils site review required

Plumbing

1. Pool to be plumbed for future solar heating (Title 24)
2. Directional water inlet required to prevent stratification of the heated supply water and the colder existing water. (Title 24)
3. 3" P-Trap required for all swimming pools and spas. Indicate location and route to sewer
4. Provide a sediment trap for the gas appliance per section 512.4 of the 2009 Uniform Swimming Pool, Spa & Hot Tub code

Electrical

1. All outdoor receptacles to have ground fault interrupter (G.F.C.I.)
2. Rigid conduit is required for all underground installations
3. 125 V receptacle required 10 to 20 feet from pool
4. Indicate that all metal items within 5' of water's edge of the pool shall be bonded.
5. A minimum conductive surface area of 9 sq in. shall be installed in contact with the pool, outdoor spa, or outdoor hot tub structure water. This water bond is permitted to consist of metal parts that are bonded in 680.26(B).

Mechanical

1. Show location of pool/spa heating equipment (Title 24)
2. Weatherproof plate on heater that provides instructions for the energy efficient operation of the swimming pool. (Title 24)
3. Heater to have on/off switch on heater. (Title 24)
4. 75% thermal efficiency required for gas heater. (Title 24)
5. Pool cover required (Title 24)
6. Time clock required for equipment (Title 24)
7. Note on plans: **Manufacturer's heater specifications to remain on job with approved plans for rough mechanical inspection.**

Fence, Gate & Alarms

1. Pedestrian walkway access gates shall meet minimum fence height requirements of 5' (60") minimum per local ordinance.
2. All gates shall be self-closing and have a self-latching device. The release mechanism of the self-latching device shall be located not less than 60" from the bottom of the gate: (1) The release mechanism shall be located on the swimming pool side of the barrier, (2) A maximum vertical clearance from the ground to the bottom of the enclosure of 2", (3) Gaps or voids, if any, are not to allow a sphere equal to or greater than 4" in diameter to pass through, (4) Any outside surface shall be free of protrusions, cavities or other physical conditions that would serve as a handhold or foothold that could enable a child to climb over.
3. Provide audible door alarms for all or any doors that have direct access to the pool or spa, per the 2010 CBC section 3109.4.4.2 or one of the other seven requirements within this section.

Structural

1. Expansive soil design required.
2. On standard pool/spa plans, cross out details that do not apply to the job.
3. Provide structural calculations.
4. Plans/calculations must follow 2009 Uniform Swimming Pool, Spa & Hot Tub Code.
5. Plans shall be wet stamped by licensed designer and soils consultant.
6. Provide a note on Plan that a Deputy Inspector will be required at and during the gunite process.

Bldg/pooling adopted 1-2011

•CITY OF PALOS VERDES ESTATES•
SELF CERTIFICATION PROGRAM FOR SMOKE AND CARBON MONOXIDE ALARMS

Project Address: 2357 VIA ANACAPA PALOS VERDES ESTATES, CA 90274

Permit Number:________________

Property Owner: MELAYNE YOUCUM

Contractor: WATERWORX POOLS INC

I, the undersigned, hereby certify that I am the owner and occupant of the above referenced property or the acting agent for the owner/occupant. I further certify that smoke alarms and carbon monoxide alarms are present and functional in all the following locations (Note: All boxes below must be checked, retrofitted detectors may be battery operated.)

○ Smoke Alarms and Carbon Monoxide Alarm shall be located: On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms and hallway.

○ Smoke Alarms: In each room used for sleeping purposes.

○ Smoke Alarm and Carbon Monoxide Alarm: In each story, including any habitable basement. (Note: In dwellings or dwelling with split levels and without an intervening door between the adjacent levels, a smoke alarm and a carbon monoxide detector installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.)

Signature: Mario Monge Date: 12/10/20

California Residential Code (CRC) Section R314.1, CRC R315.2 states in part that existing dwellings be "... retrofitted with smoke detectors and carbon monoxide detectors when a building permit is issued for, worked on or in a building that is valued at $1,000 or more." CRC Section R314.3, CRC Section R315.3 defines required locations as indicated above.

NOTE: This Certification is only used when normal access to the interior of the dwelling by the City of Palos Verdes Estates Building Inspector is not achieved during the course of project construction. It is normally used for projects such as re-roofing, re-siding, patio covers, swimming pools and the like.

•CITY OF PALOS VERDES ESTATES•
STANDARD PLAN NOTES

The following notes must be incorporated into the plans.

1. **All work shall conform to the 2016 California Building Code, 2016 California Residential Code, 2016 California Plumbing Code, 2016 California Mechanical Code, and the 2016 California Electrical Code, the current requirements of the Energy and county of Los Angeles Fire Code.**
2. **All General Contractors, Sub-Contractors, Architects, & Engineers conducting business within the City of Palos Verdes Estates are required to maintain a current City Business License as described in the Municipal Code Ordinance No. 092-559 and Resolution No. R92-72.**
3. **Per local requirements, the working hours are between 7:00 AM to 7:00 PM Monday through Thursday; 7:00 AM to 5:30 PM on Friday and 9:00 AM to 5:30 PM on Saturday**
4. **A re-inspection fee may be charged for an inspection which is not accessible, or approved plans are not on site, or job is not ready.**
5. **All special inspectors shall be registered with the City of Palos Verdes Estates prior to performing any inspections and shall also notify the Building Official of each job location thereafter.**
6. **The yard drainage improvements shall be inspected and certified by the engineer of record prior to final approval.**
7. **"Any and all deviations from the Planning Commission approved plans require that revised plans be submitted to the Planning department for review and approval.**
8. **Required swimming pool fencing must be maintained during construction or the pool shall be emptied. (As applicable)**
9. **"General Contractor shall provide a haul route and the size of equipment to the Building Official for review and approval prior to issuance of a building permit."**
10. **All Construction waste and debris must be containerized at all times & must be Athens dumpsters only (call 1-888-336-6100).**
11. **Dust Control Measures shall be maintained throughout the duration of the project.**
12. **All nailing shall be per CRC Table 602.3(1) unless otherwise noted.**
13. **Steel nail plates (18-gauge min.) are to be installed where plastic and/or copper piping material is within 1" of the exposed framing (CPC 312.9)**
14. **Penetrations through the roof or exterior wall assemblies by ducts, pipes and/or other appurtenances shall be made water tight (CPC 312.8)**
15. **As of March 9, 2009, state agency (AQMD) has passed a law that solid fuel burning fireplaces (wood burning) are no longer legal. Construction of such appliances or masonry units may still be constructed as such with the requirements that a complete gas burning assembly be permanently secured/attached in the fire box at final inspection.**

A new [illegible] fee shall be required upon submittal [illegible] Art Jury consideration when one year [illegible] has elapsed since the date of the last submission

RECEIVED DEC 14 2020 RECEIVED

PALOS VERDES ART JURY

Presentation [illegible] does not [illegible] approval is an approval in concept only

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CITY OF PALOS VERDES ESTATES

✣ POOL AND SPA ANTI-ENTRAPMENT COVER CERTIFICATION ✣

Revisions to the **California Health & Safety Code Section 115920**, known as the Swimming Pool Safety Act, came into effect January 1, 2007. Section 115928, subsection (d) states that *"whenever a building permit is issued for the remodel or modification of a single family home with an existing swimming pool, toddler pool, or spa, the permit shall require that the suction outlet of the existing swimming pool, toddler pool or spa be upgraded so as to be equipped with an antientrapment cover meeting current standards of the American Society for Testing and Materials (ASTM) or the American Society of Mechanical Engineers (ASME)."*

For homes that have a swimming pool, toddler pool, or spa, the anti-entrapment device **must be installed prior to final inspection approval**. For homes that do not have a swimming pool, toddler pool, or spa we request that the owner so declare on this form.

Building Permit #: ________________

Property address: 2357 VIA ANACAPA PALOS VERDES ESTATES, CA 90274

I am the Property Owner and certify that: *(CHECK APPROPRIATE BOX BELOW)*

☐ The property does not have a swimming pool, toddler pool or spa.

☐ The property has a swimming pool, toddler pool or spa and I hereby acknowledge that an anti-entrapment suction cover meeting the current standards of the American Society for Testing and Materials or the American Society of Mechanical Engineers is installed at the swimming pool, toddler pool, and/or spa located at the above referenced address; in accordance with the revisions made to the Pool Safety Act as outlined above.

Property Owner's Signature: ________________ Date: ________

Please print name: ________________

ATTENTION PROPERTY OWNER:
PLEASE PRESENT THIS COMPLETED FORM TO THE BUILDING INSPECTOR PRIOR TO THE FINAL INSPECTION

340 PALOS VERDES DRIVE WEST PALOS VERDES ESTATES, CALIFORNIA 90274-1299
(310) 378-0383 FX: (310) 378-7820

INSTALLATION CERTIFICATE		CF-6R-MECH-03
Pool And Spa Heating Systems		(Page 1 of 2)
Site Address: 2357 VIA ANACAPA PALOS VERDES ESTATES, CA 90274	Enforcement Agency:	Permit Number:

Pool and Spa Heating Systems requirements

§114(a): Systems and Equipment.

- ☐ 1. Heater has a thermal efficiency that complies with the Appliance Efficiency Regulations.
- ☐ 2. Has a readily accessible on-off switch mounted outside of the heater.
- ☐ 3. Weatherproof plate or card containing operating instructions for the pool or spa heater.
- ☐ 4. No electric resistance heating except for listed package units that has fully insulated enclosures and tight fitting covers that are insulated to at least R-6. Or if documentation is provided that at least 60 % of the annual heating energy is from site solar energy or recovered energy.
- ☐ 5. Heating system has no pilot light.

§114(b): Installation.

- ☐ 1. System is installed with at least 36" of pipe between the filter and heater, or dedicated suction and return lines, or built-in or built-up connections for future solar heating.
- ☐ 2. A cover for outdoor pools or spas that have a heat pump or gas heater.
- ☐ 3. Pool system has directional inlets to adequately mix the pool water
- ☐ 4. Time switch which will allow the pump to be set or programmed to run during off-peak periods only

§150(p) Pump Sizing and flow rate specification

- ☐ 1. The pump specified is listed in the CEC database of certified pool pumps.
- ☐ 2. The pump flow rate shall be calculated based on pool sizing table below.
- ☐ 3. The pump is capable of operating at 2 or more speeds (not applicable if pump is less than 1 horsepower).
- ☐ 4. Each auxiliary pool load is served by either a separate pump, or the system is served by a multi-speed pump.

Pool sizing (Values are based on a maximum allowable turnover rate of 6- hours)

Max Pool Volume (gallons)	Min Pipe D or Greater (inches)		Min Filter Area or more (square feet)			Max Pump Flow (gpm)
	Return	Suction	Cartridge	Sand	DE	
13,000	1.5	1.5	100	2.4	20	36
17,000	1.5	2	130	3.1	25	47
21,000	2	2	160	3.9	30	58
28,000	2	2.5	210	5.2	40	78
42,000	2.5	3	320	7.8	60	117
48,000	3	3	360	8.9	70	133

Note: *For pumps greater than 1 hp. The maximum Pump Flow is the lowest speed default filtration*

- ☐ 5. Calculated volume of pool 5,000 (gallons).
- ☐ 6. Return Pipe Diameter 2.0IN (inches).
- ☐ 7. Suction Pipe Diameter 2.5IN (inches).
- ☐ 8. Filter Type D.E (Cartridge, Sand, DE).
- ☐ 9. Filter Surface Area 60 (sf).
- ☐ 10. Max Pump Flow 160 (gpm).

2008 Residential Compliance Forms *August 2009*

INSTALLATION CERTIFICATE		CF-6R-MECH-03
Pool And Spa Heating Systems		(Page 2 of 2)
Site Address: 2357 VIA ANACAPA PALOS VERDES ESTATES, CA 90274	Enforcement Agency:	Permit Number:

System Piping

- ☐ 1. The suction side pipe is straight for at least 4 pipe diameters before entering the pump (See table below for the required straight run lengths for various pipe sizes).
- ☐ 2. The design uses low pressure drop fittings (sweep90°s)

Pipe Diameter (inch)	Required Pipe Length leading into pump (inch)
1.5	6
2	8
2.5	10
3	12

Filtration Equipment

- ☐ 1. If a backwash valve is used: The diameter of the backwash multi-port valve is 2 inches or as large as the circulation pipe, whichever is greater

DECLARATION STATEMENT

- I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for construction, or an authorized representative of the person responsible for construction (responsible person).
- I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation) conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the enforcement agency.
- I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.
- I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy.

Company Name: (Installing Subcontractor or General Contractor or Builder/Owner) WATERWORX POOLS INC		
Responsible Person's Name: MARIO MONGE		Responsible Person's Signature: Mario Monge
CSLB License: 1059336	Date Signed: 12/10/20	Position With Company (Title): RMO

2008 Residential Compliance Forms *August 2009*

NOTE: ANY CHANGES TO THE DETAILS OR DESIGNS ON THE EXTERIOR ELEVATIONS TO BE REVIEWED BY THE ART JURY PRIOR TO ANY CHANGES

CONSTRUCTION MUST MATCH DRAWN DETAILS EXACTLY

WATERWORX
DESIGN | BUILD
WATERWORX POOLS INC.
ADDRESS: 202 FASHION LANE #219, TUSTIN, CA 92780
TEL. (714)714-0424
EMAIL: INFO@WATERWORXPOOLS.COM
WEB: WWW.WATERWORXPOOLS.COM
CA LIC. 1059336

CONTRACTOR

WATERWORX POOLS INC
202 FASHION LANE SUITE 219
TUSTIN , CA 92780
TELE: 714-714-0424
EMAIL: INFO@WATERWORXPOOLS.COM
CA LIC: 1059336
CLASS: C-53

CLIENT/OWNER

MELAYNE YOUCUM
310-428-8663
—
2357 VIA ANACAPA
PALOS VERDES ESTATES, CA 90274

PROJECT NAME
YOUCUM RESIDENCE - NEW SWIMMING POOL

PROJECT DESCRIPTION
NEW SWIMMING POOL CONSTRUCTION

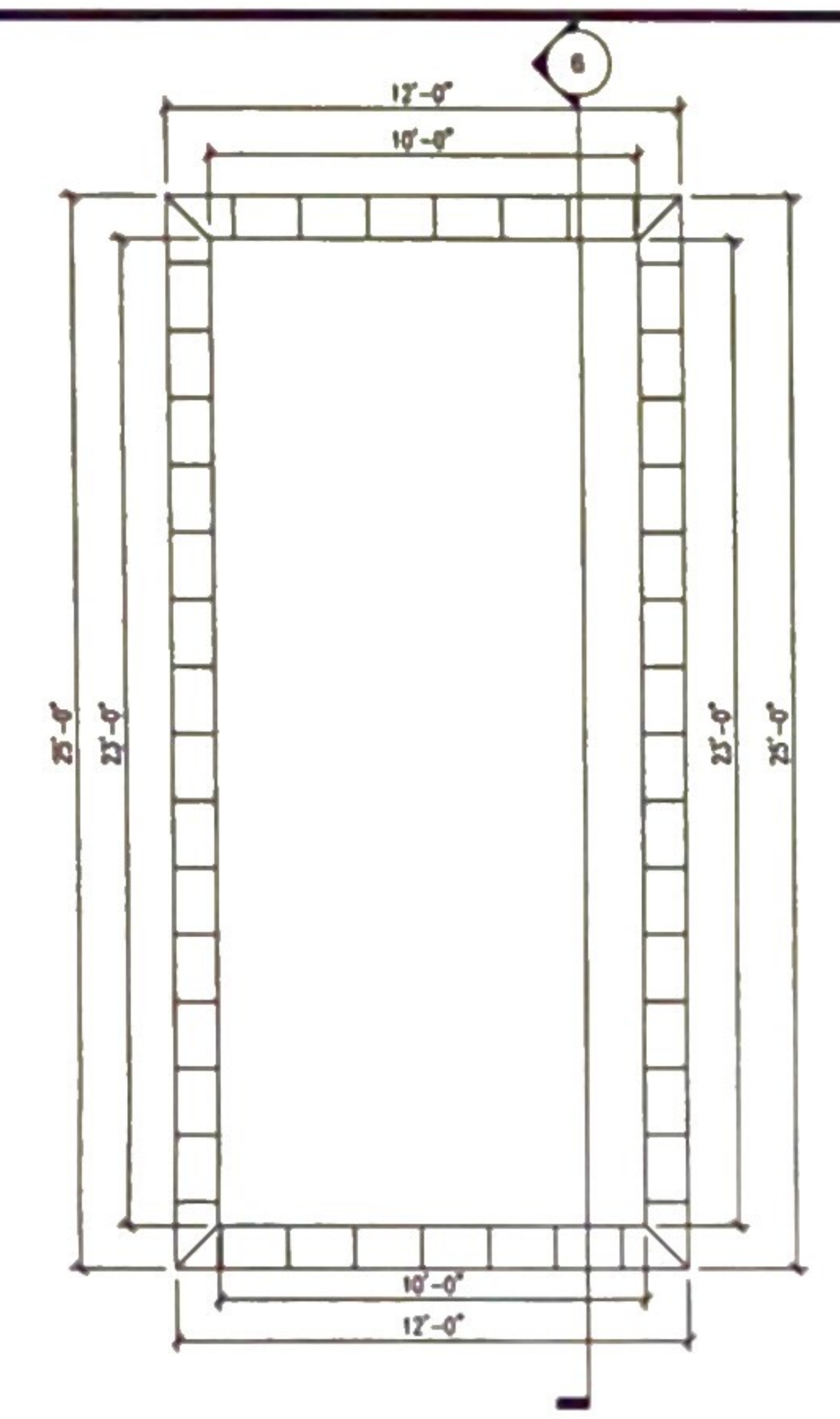
PROJECT ADDRESS
2357 VIA ANACAPA
PALOS VERDES ESTATES, CA 90274

MARK	DATE	DESCRIPTION

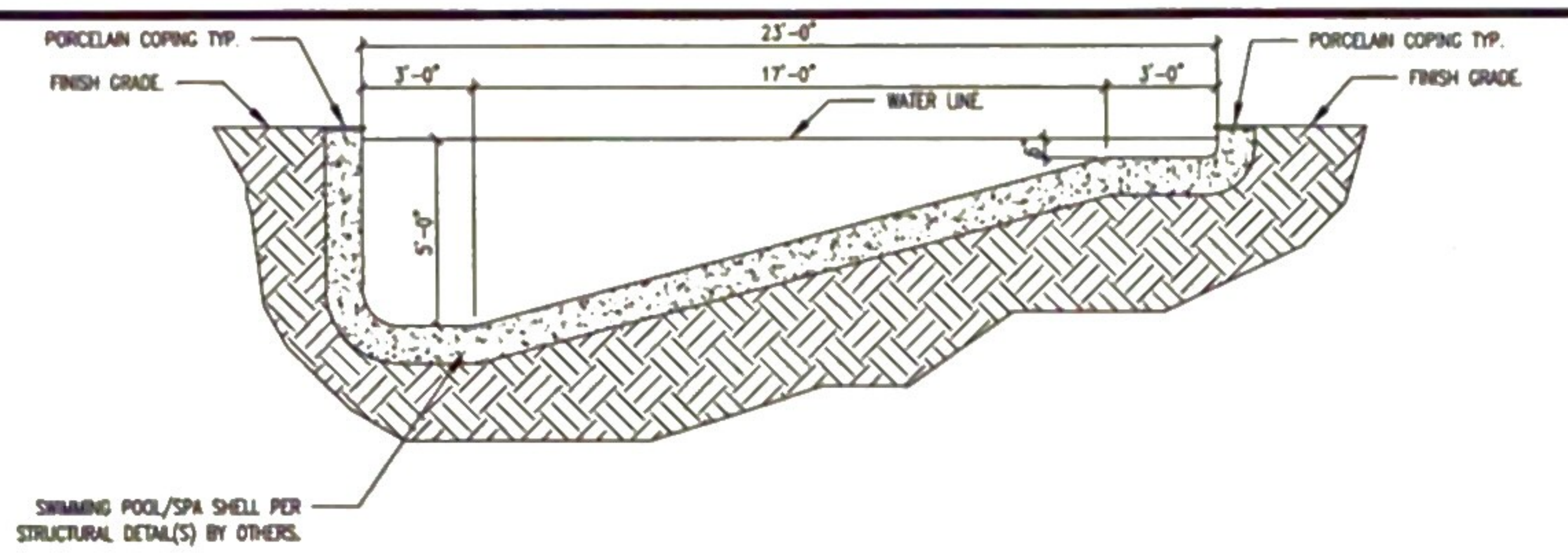
PROJECT NO: 112420
CAD DWG FILE: L-0.1 COVER SHEET.DWG
DRAWN BY: M.M
CHK'D BY: ——
DRAWING DATE: 12/10/20

SHEET TITLE
COVER SHEET

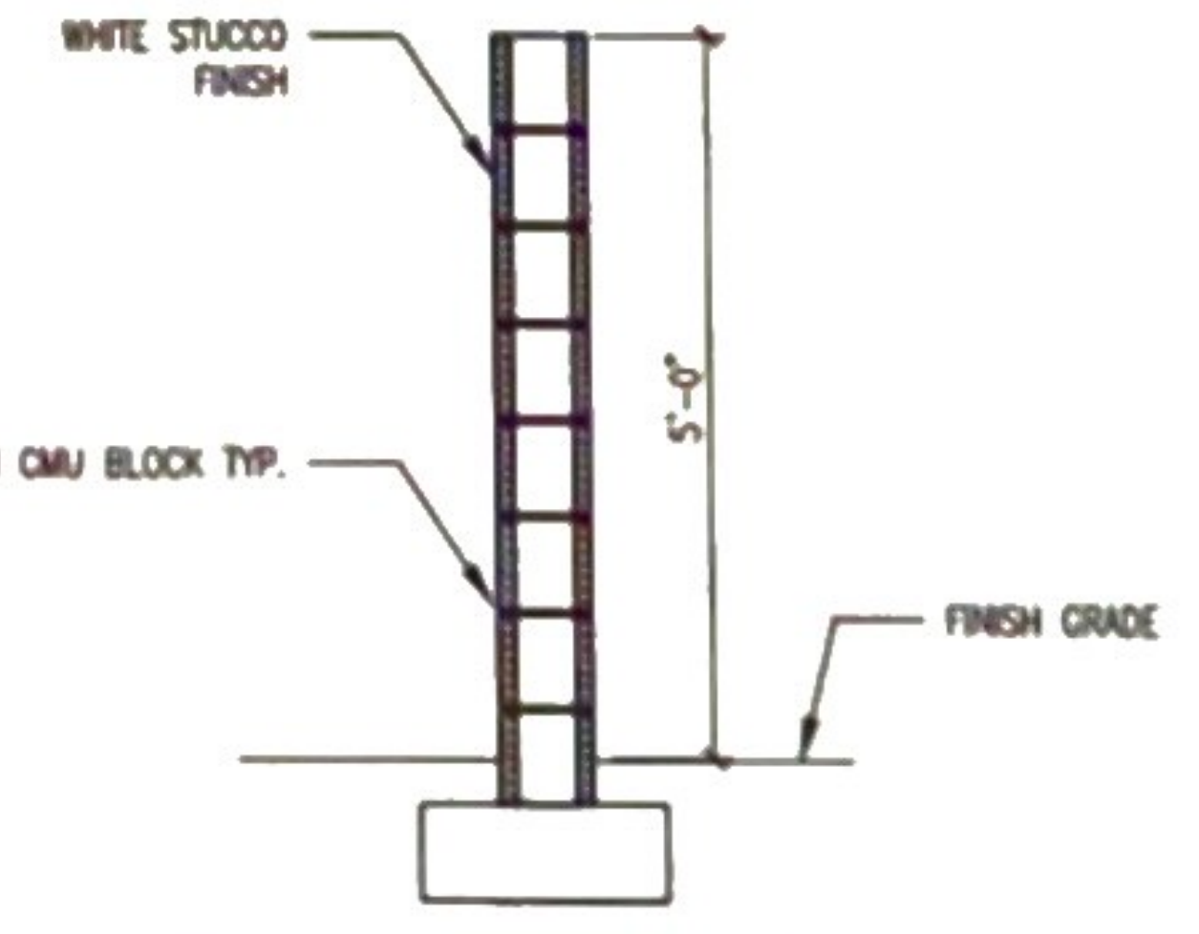
SHEET
L-0.1



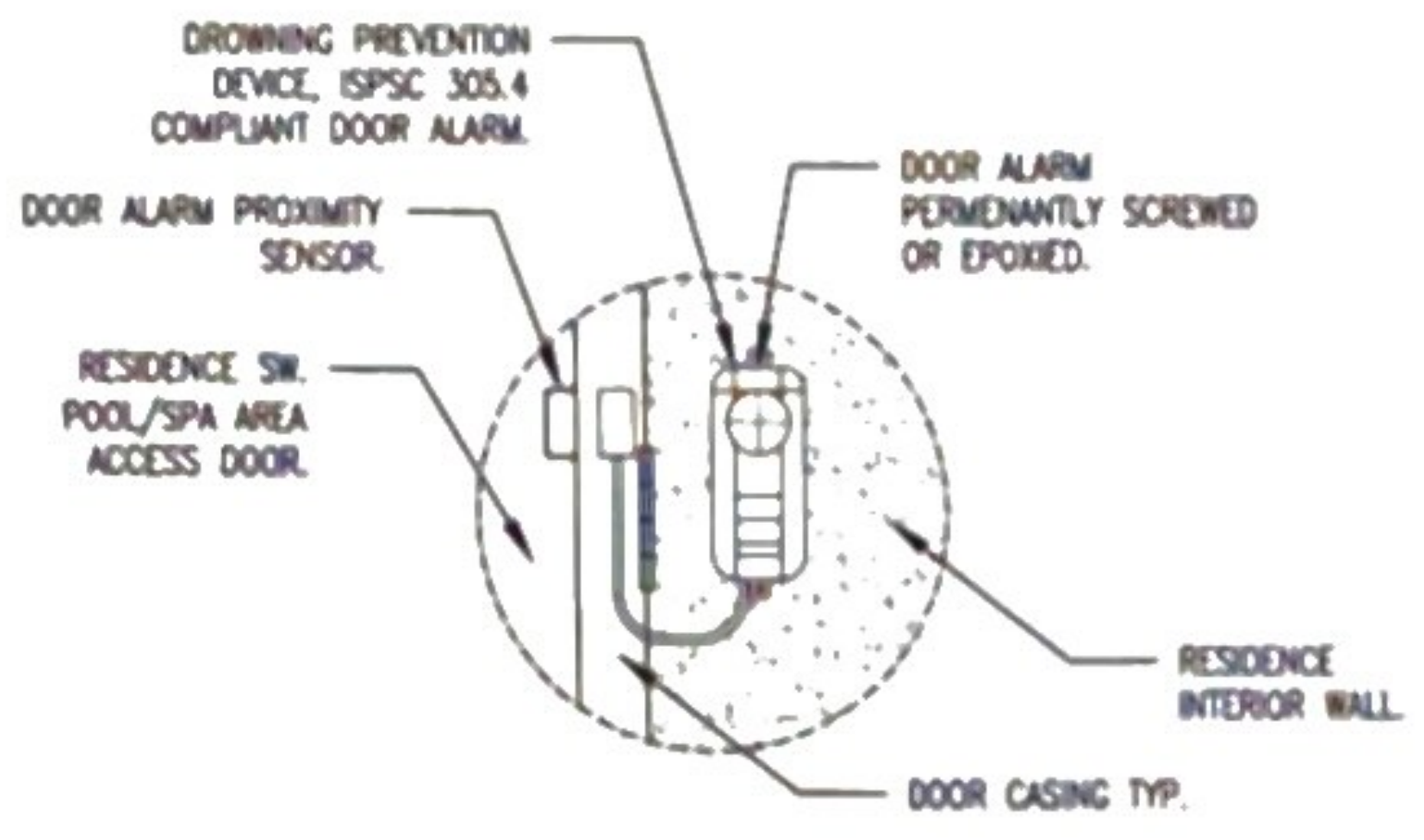
5 SWIMMING POOL & SPA PLAN
1/4" = 1'-0"



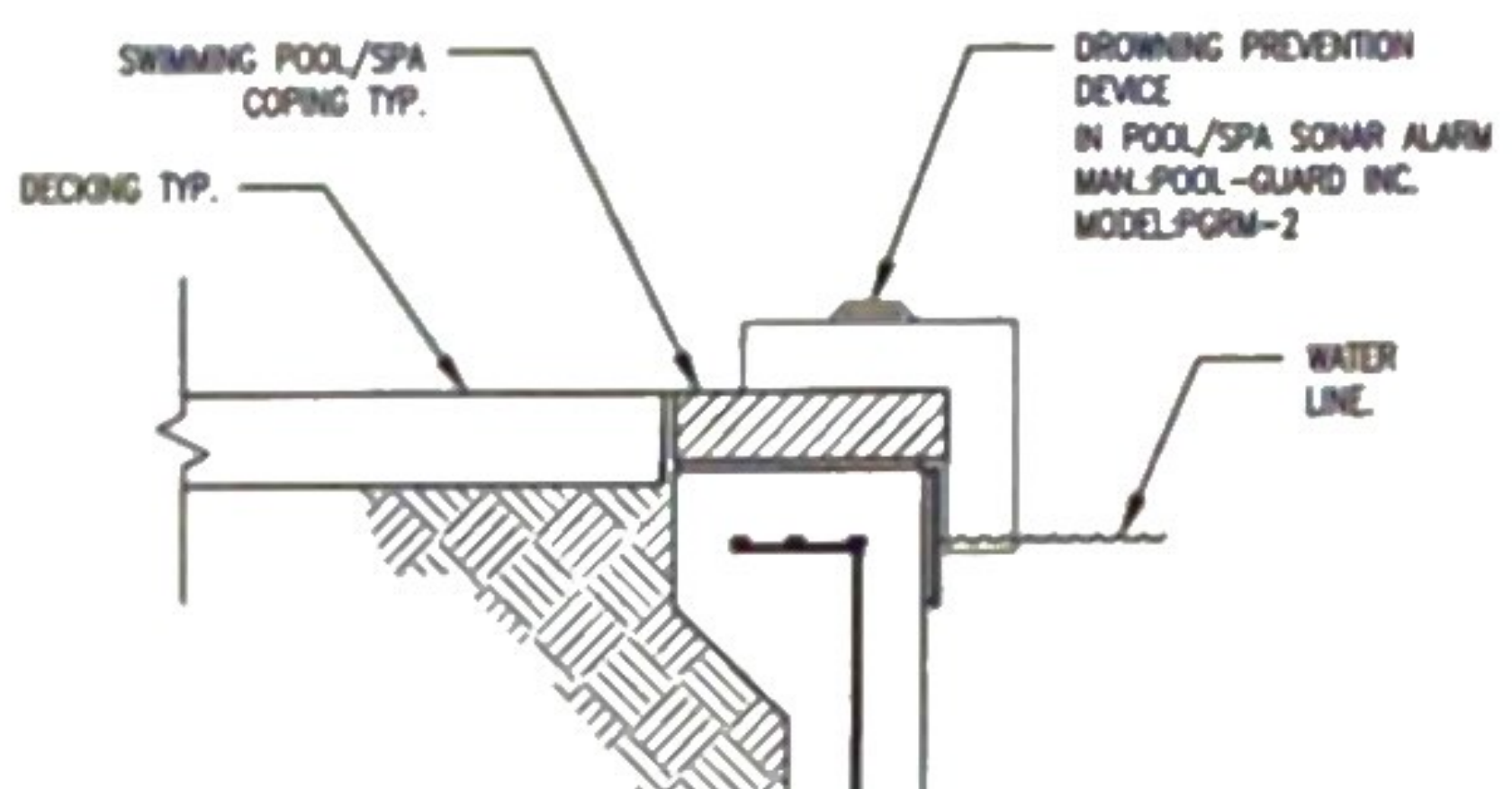
6 SECTION
1/4" = 1'-0"



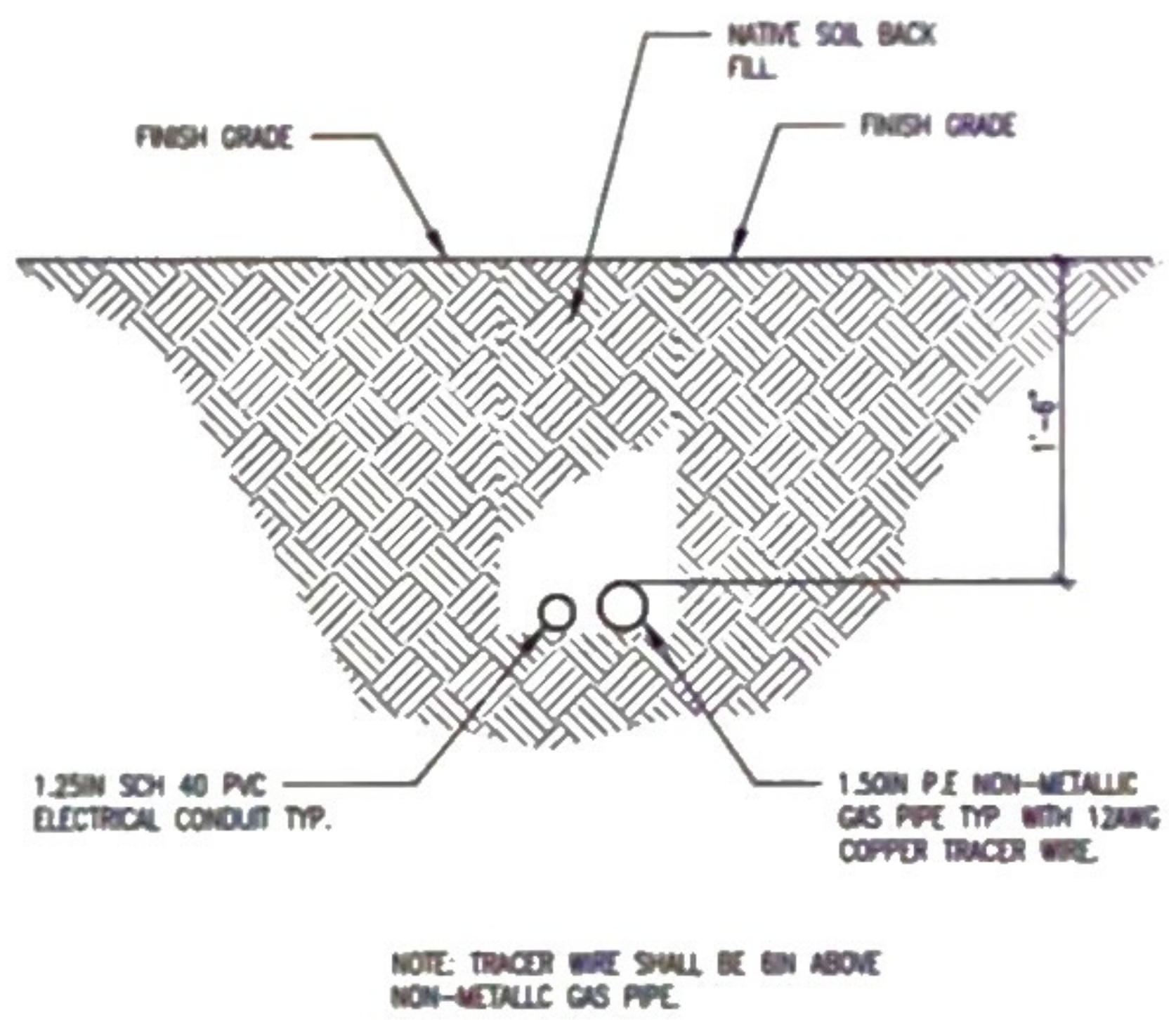
7 SECTION – SW. POOL ENCLOSURE WALL
NTS



2 DROWNING PREVENTION MEASURE – DOOR ALARM
1" = 1'-0"



3 DROWNING PREVENTION MEASURE – SONAR ALARM
1" = 1'-0"

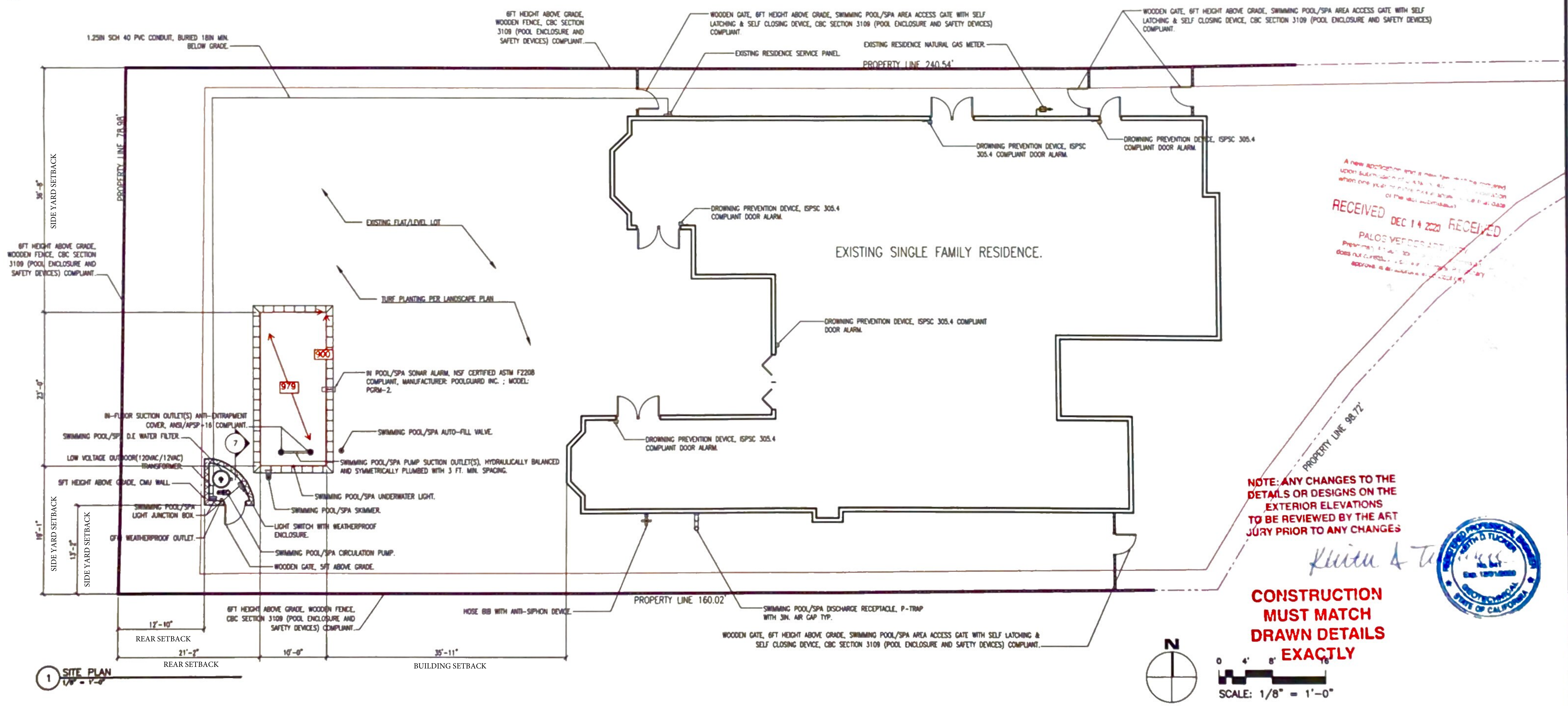


4 UTILITIES – NAT. GAS & ELECTRICAL TRENCHING
1" = 1'-0"

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.

SITE PLAN REVIEWED
for conformance to structural details
Todd L. Lacher, R.C.E.
Pool Engineering, Inc.
Structural details shall take precedence over conflicts with site plan.

SCOPE OF WORK
1 – NEW SWIMMING POOL.(230 SQ.FT.)
2 – NEW 5FT CMU SW. POOL EQUIPMENT SCREENING WALL.
SITE PLAN NOTES
1 – POOL SHALL BE PLUMBED FOR FUTURE SOLAR.
2 – NEW SWIMMING POOL/SPA HEATER SHALL BE INSTALLED.
CUT/FILL CALCULATIONS
SWIMMING POOL CUT(BANK YARDS)....24 CU.YDS.



1 SITE PLAN
1/8" = 1'-0"

A new application and a new fee will be required upon submission of [illegible] when one year or more has lapsed since the date of the last submission
RECEIVED DEC 14 2020 RECEIVED
PALOS VERDES ART JURY
[illegible]

NOTE: ANY CHANGES TO THE DETAILS OR DESIGNS ON THE EXTERIOR ELEVATIONS TO BE REVIEWED BY THE ART JURY PRIOR TO ANY CHANGES

Kevin A T[illegible]

CONSTRUCTION MUST MATCH DRAWN DETAILS EXACTLY

WATERWORX
DESIGN | BUILD
WATERWORX POOLS INC
ADDRESS: 202 FASHION LANE #219 TUSTIN, CA 92780
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CLIENT/OWNER
MELAYNE YOUCUM
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2357 VIA ANACAPA
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PROJECT NAME
YOUCUM RESIDENCE - NEW SWIMMING POOL

PROJECT DESCRIPTION
NEW SWIMMING POOL CONSTRUCTION

PROJECT ADDRESS
2357 VIA ANACAPA
PALOS VERDES ESTATES, CA 90274

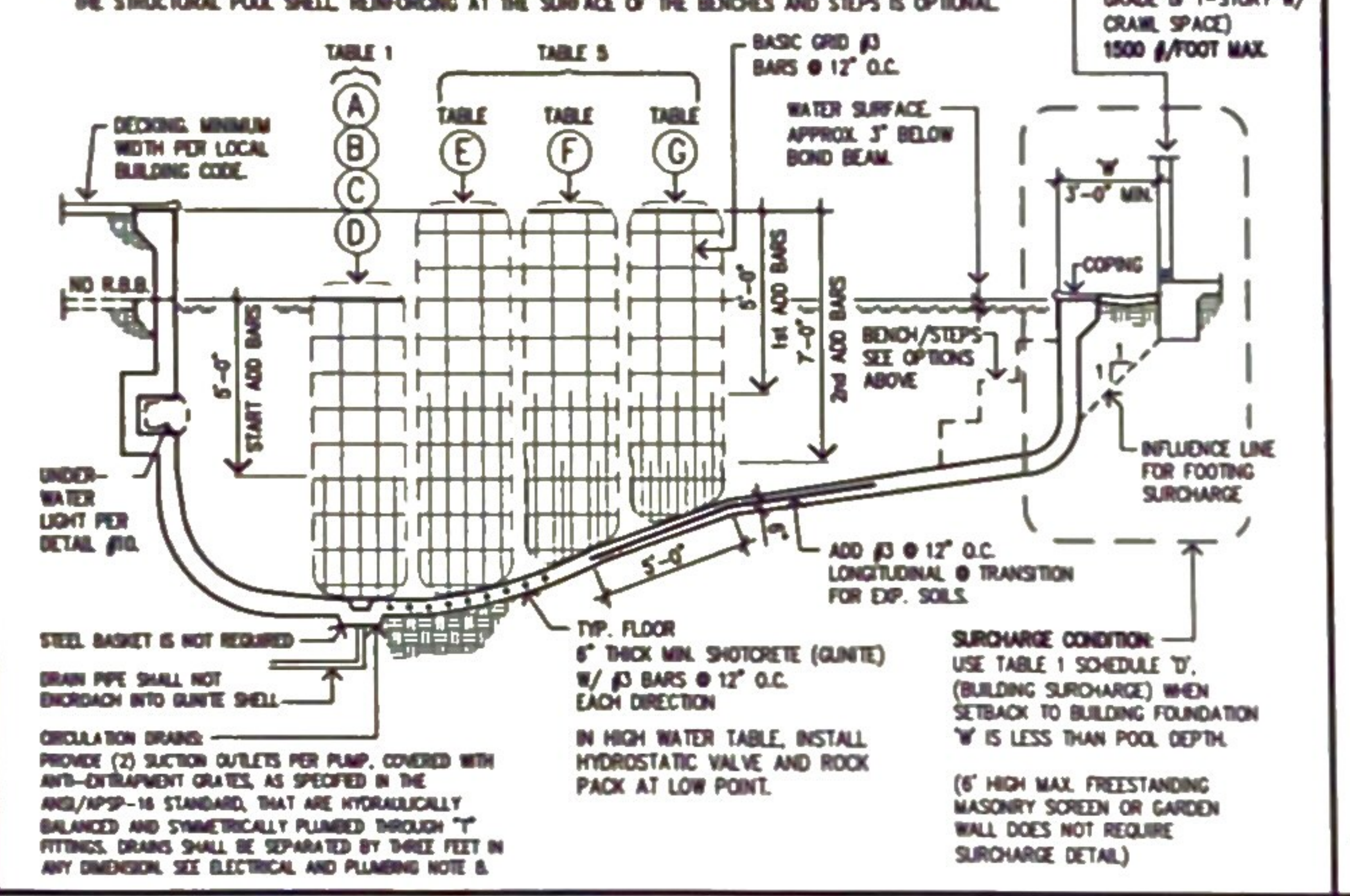
MARK	DATE	DESCRIPTION

PROJECT NO:	112420
CAD DWG FILE:	SPLAN.DWG
DRAWN BY:	M.M
CHK'D BY:	——
DRAWING DATE:	12/9/20

SHEET TITLE
SITE PLAN

SHEET
L-1.1

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.



IN HIGH WATER TABLE, INSTALL HYDROSTATIC VALVE AND ROCK PACK AT LOW POINT.

SURCHARGE CONDITION: USE TABLE 1 SCHEDULE 'D', (BUILDING SURCHARGE) WHEN SETBACK TO BUILDING FOUNDATION 'W' IS LESS THAN POOL DEPTH.

(6' HIGH MAX. FREESTANDING MASONRY SCREEN OR GARDEN WALL DOES NOT REQUIRE SURCHARGE DETAIL)

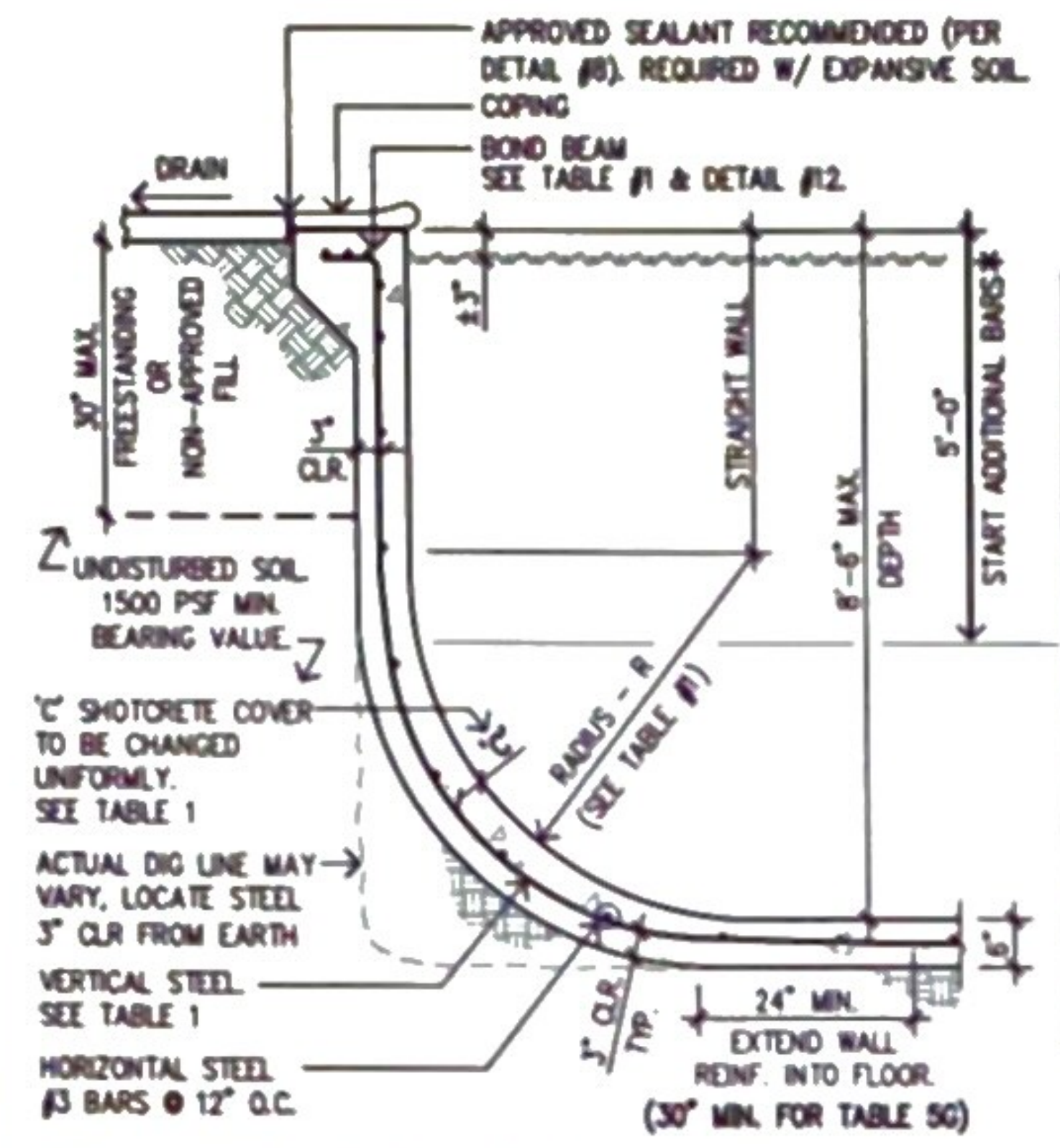
CIRCULATION DRAINS: PROVIDE (2) SUCTION OUTLETS PER PUMP, COVERED WITH ANTI-ENTRAPMENT GRATES, AS SPECIFIED IN THE ANSI/APSP-16 STANDARD, THAT ARE HYDRAULICALLY BALANCED AND SYMMETRICALLY PLUMBED THROUGH "T" FITTINGS. DRAINS SHALL BE SEPARATED BY THREE FEET IN ANY DIMENSION. SEE ELECTRICAL AND PLUMBING 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"	[illegible]	3"	[illegible]	3"	[illegible]	3"	[illegible]
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"	[illegible]		[illegible]		5"		[illegible]	
5'6"	2'-0"	3"		4"		5"		5½"	
6'0"	2'-6"	3"		4"		6"		5½"	
6'6"	3'-0"	[illegible]		4"		[illegible]		6"	
7'0"	3'-6"	[illegible]		[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.

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

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

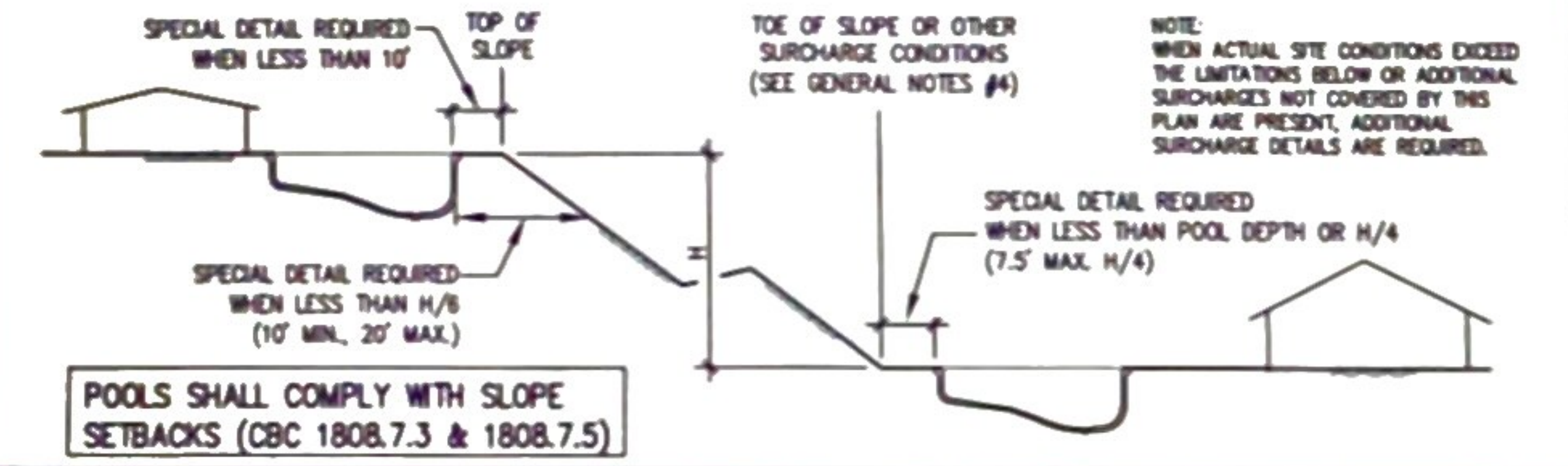
C: NO DECK OR HIGH EXPANSIVE SOIL

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

STANDARD WALL SECTION

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

N.T.S. ①



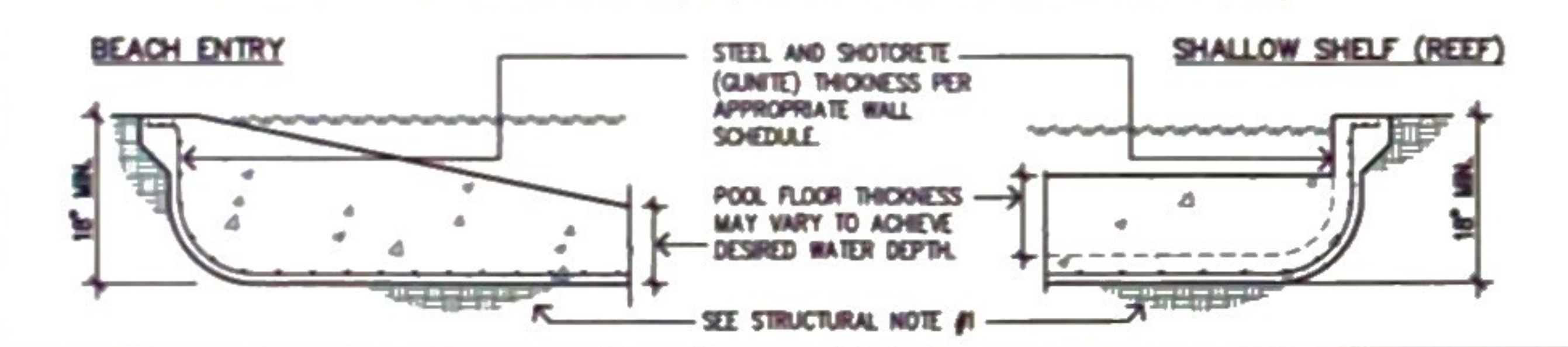
NOTE: WHEN ACTUAL SITE CONDITIONS EXCEED THE LIMITATIONS BELOW OR ADDITIONAL SURCHARGES NOT COVERED BY THIS PLAN ARE PRESENT, ADDITIONAL SURCHARGE DETAILS ARE REQUIRED.

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

SURCHARGE CONDITIONS – ADDITIONAL SPECIAL DETAILS REQUIRED FOR CONDITIONS ABOVE

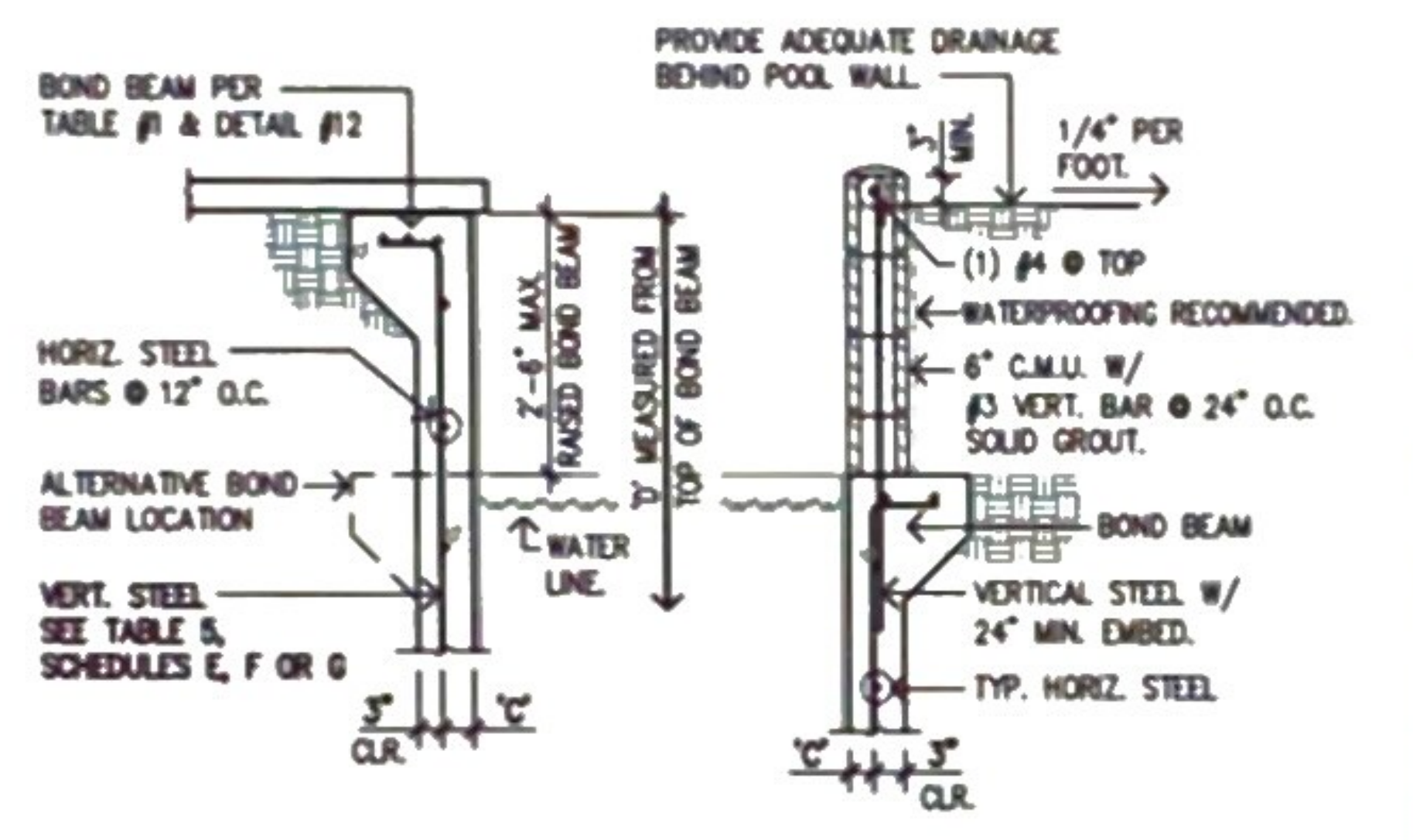
N.T.S. ③

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 I (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 fc=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"	[illegible]	#3 [illegible]	[illegible]	#3 [illegible]	[illegible]	#3 [illegible]
4'0"	3[illegible]		3[illegible]		4[illegible]	
4'6"	3"		3½		5"	
5'0"	3"	6"	3½"	6"	5"	6"
5'6"	3"		4"		6"	
6'0"	3[illegible]		[illegible]		[illegible]	
6'6"	4"		6"		8"	
7'0"	5"	4"	6"	4"	8"	3"
7'6"	5[illegible]		6[illegible]		8[illegible]	
8'0"	6[illegible]		[illegible]		[illegible]	
8'6"	[illegible]		[illegible]		[illegible]	
9'0"	[illegible]		[illegible]		[illegible]	
9'6"	9"		10"		11½"	
10'0"	9"		11"		12"	
11'0"	9"		11"		12½"	

ITEM NOT APPLICABLE POOL ENGINEERING INC.

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 EQUIVALENT 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

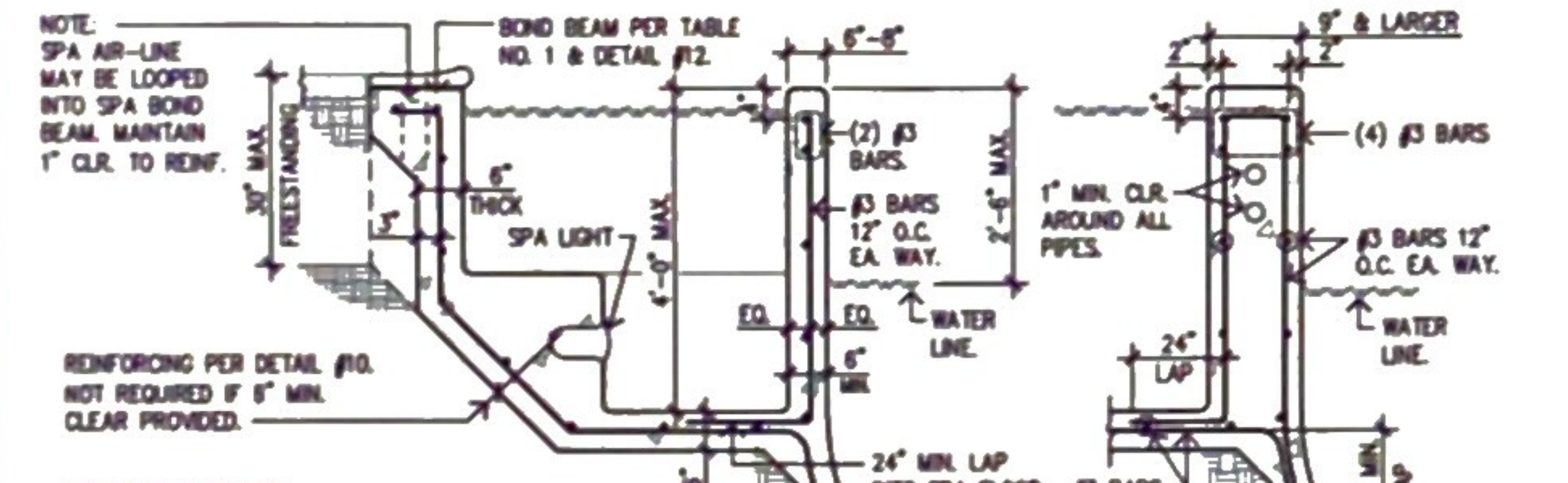
CONSTRUCTION MATERIALS, CONCRETE, PLASTER, DIRT, GRAVEL, SAND, AND ACIDS AS WELL AS ANY WASH WATERS ARE PROHIBITED FROM ENTERING THE STREET, GUTTER, AND STORM DRAIN SYSTEM PER THE SANTA CLARITA MUNICIPAL CODE.
USE PROPER BEST MANAGEMENT PRACTICES TO PREVENT OR CAPTURE ANY CONSTRUCTION ACTIVITY RUNOFF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



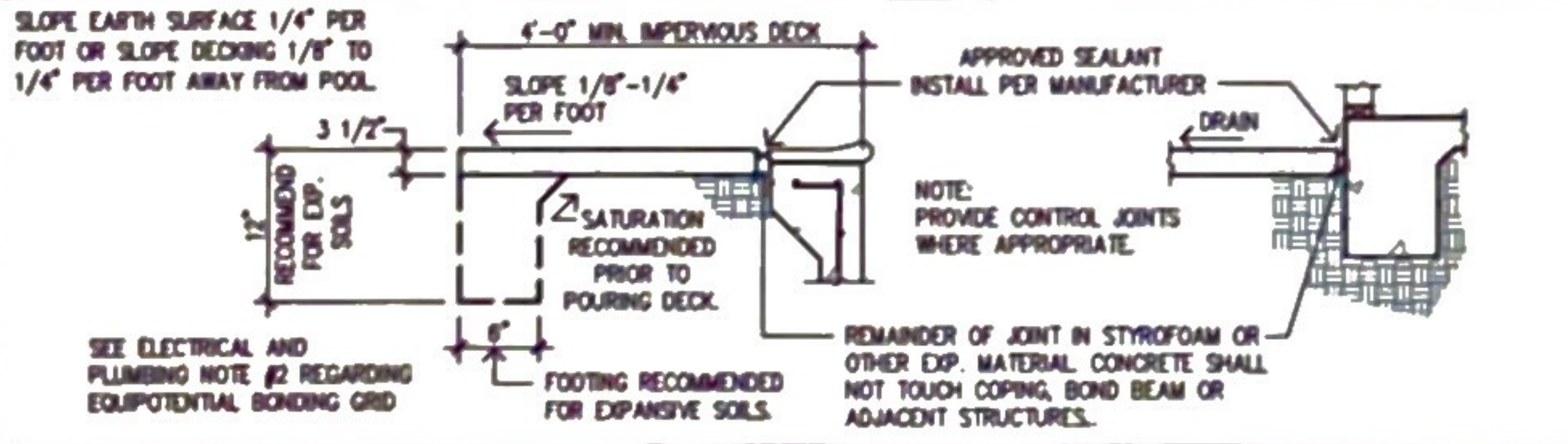
CIRCULATION DRAINS: PROVIDE (2) SUCTION OUTLETS PER PUMP, COVERED WITH ANTI-ENTRAPMENT GRATES, AS SPECIFIED IN THE ANSI/APSP-16 STANDARD, THAT ARE HYDRAULICALLY BALANCED AND SYMMETRICALLY PLUMBED THROUGH "T" FITTINGS. DRAINS SHALL BE SEPARATED BY THREE FEET IN ANY DIMENSION. SEE ELECTRICAL AND PLUMBING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

SLOPE EARTH SURFACE 1/4" PER FOOT OR SLOPE DECKING 1/8" TO 1/4" PER FOOT AWAY FROM POOL.

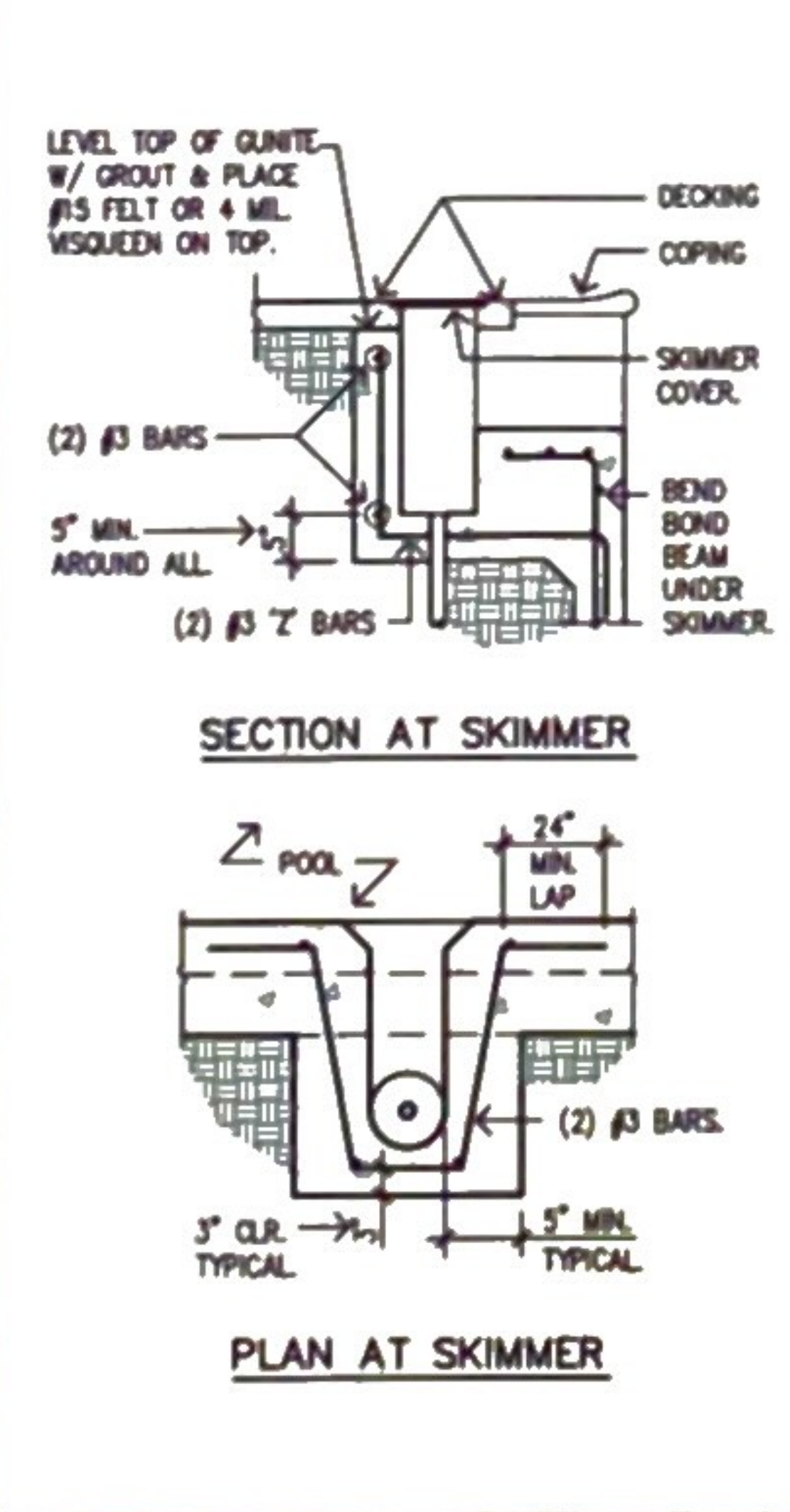


NOTE: PROVIDE CONTROL JOINTS WHERE APPROPRIATE.

REMAINDER OF JOINT IN STYROFOAM OR OTHER EXP. MATERIAL. CONCRETE SHALL NOT TOUCH COPING, BOND BEAM OR ADJACENT STRUCTURES.

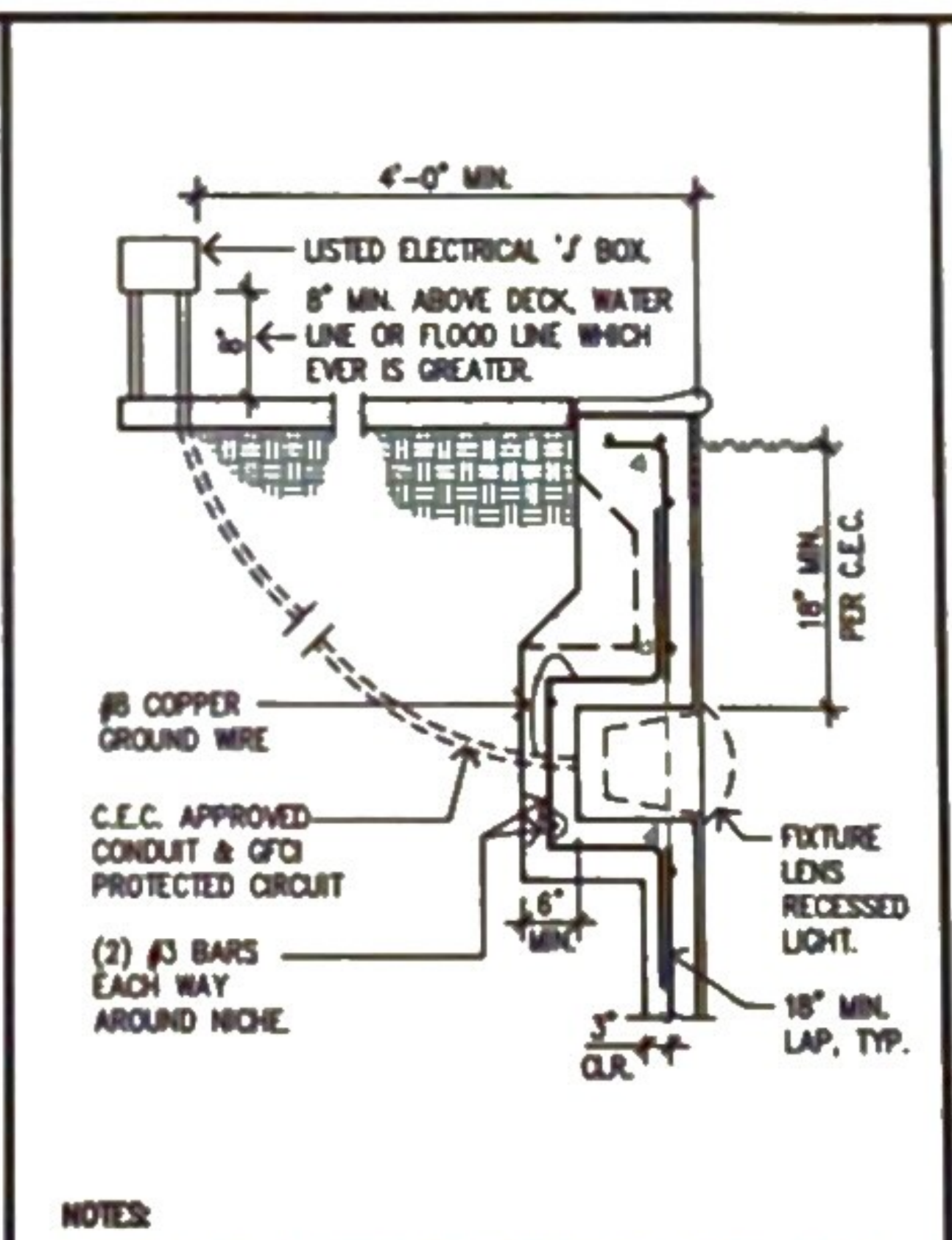
EXPANSIVE SOIL DETAILS | IN EXPANSIVE SOILS WHERE MIN DECK REQMTS ARE NOT MET USE TABLE 1, SCHEDULE 'C'

N.T.S. ⑧



SKIMMER DETAIL

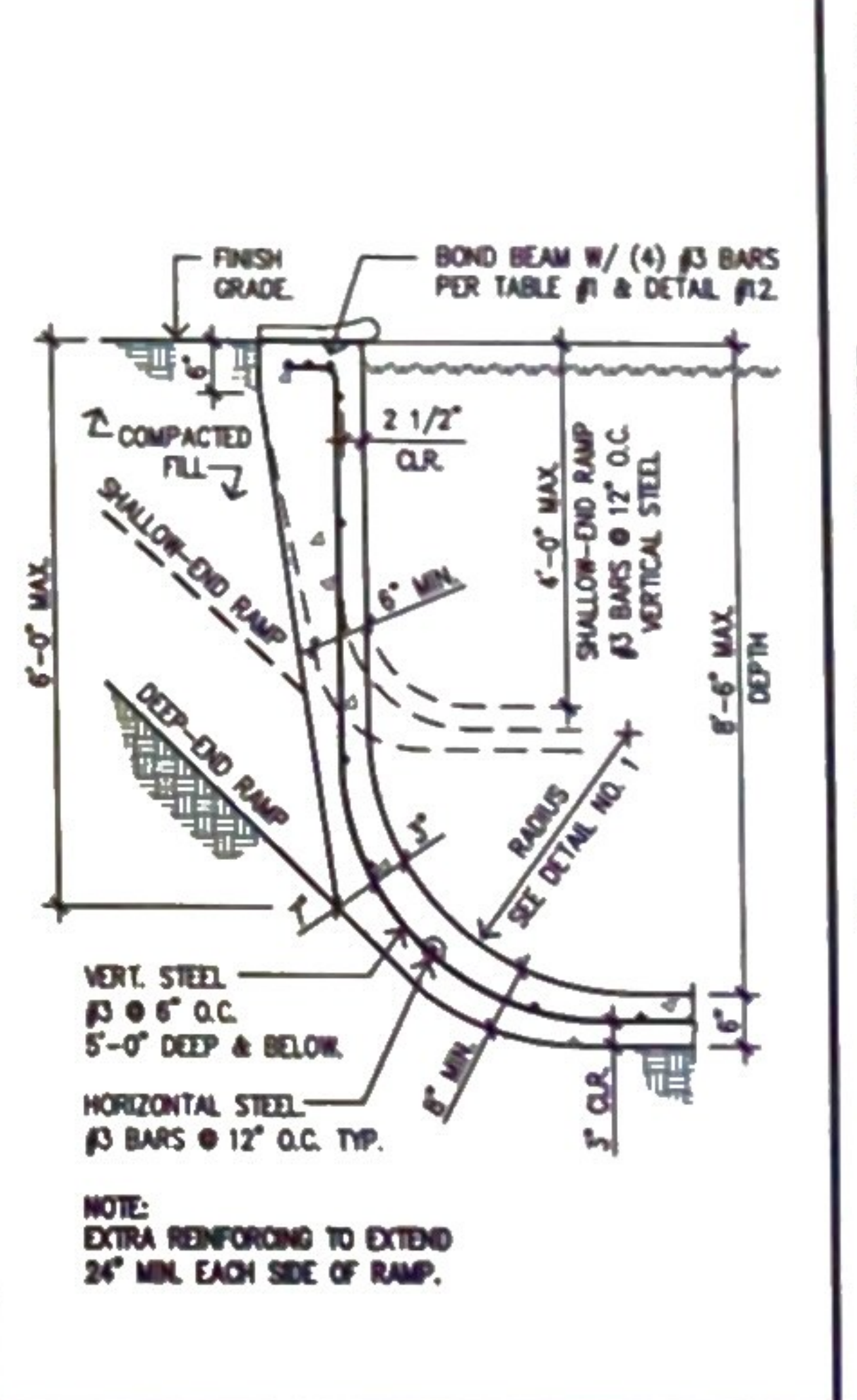
N.T.S. ⑨



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

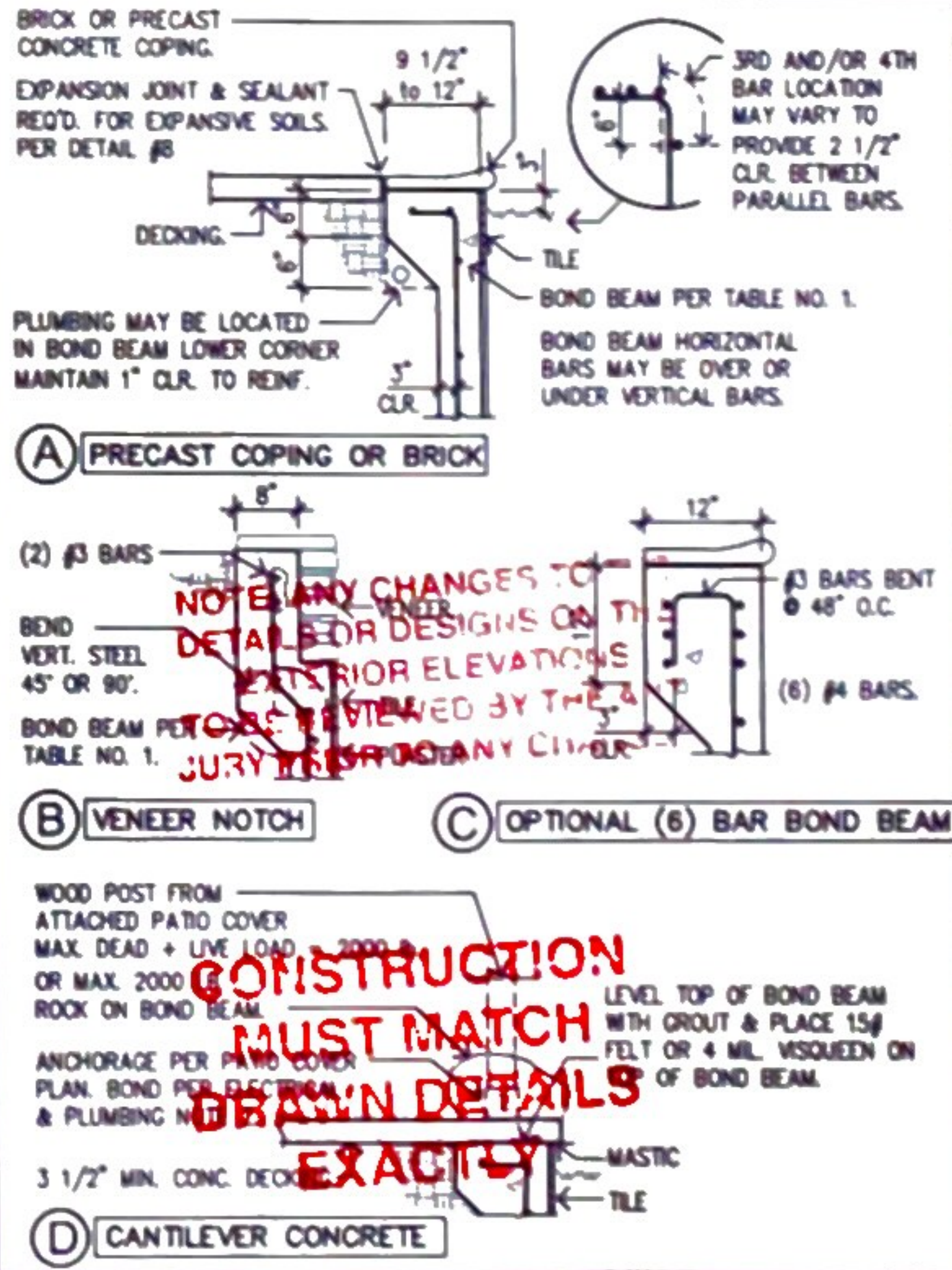
N.T.S. ⑩



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

SHALLOW/DEEP END RAMP

⑪



NOTE: ANY CHANGES TO DETAILS OR DESIGNS ON THE EXTERIOR ELEVATIONS TO BE REVIEWED BY THE ART JURY PRIOR TO ANY CHANGE

CONSTRUCTION MUST MATCH DRAWN DETAILS EXACTLY

BOND BEAM DETAILS

N.T.S. ⑫

FOR USE ONLY AT
2357 Via Anacapa
Palos Verdes Estates CA

TODD L. LACHER
No. [illegible]
Exp. 6/30/2[illegible]

Date 9/23/2020

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.
Ron Lacher, R.C.E.
1201 N. Tustin Ave.
Anaheim, California 92807
Fax: (714) 630-6114
Phone: (714) 630-6100

SHEET:
100

CALCULATIONS

METHODOLOGY:

γ = EQUIVALENT FLUID PRESSURE

CASE I

OTM = 1/6 γ H^3 WHERE γ = 100 pcf

NET MOM = OTM – RESISTING MOMENT

CASE II

OTM = 1/6 γ H^3 WHERE γ = 62.4 pcf

NET MOM = OTM + RESISTING MOMENT

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

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

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

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

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

$f'c$ = 2,500 psi

Fs = 20,000 psi

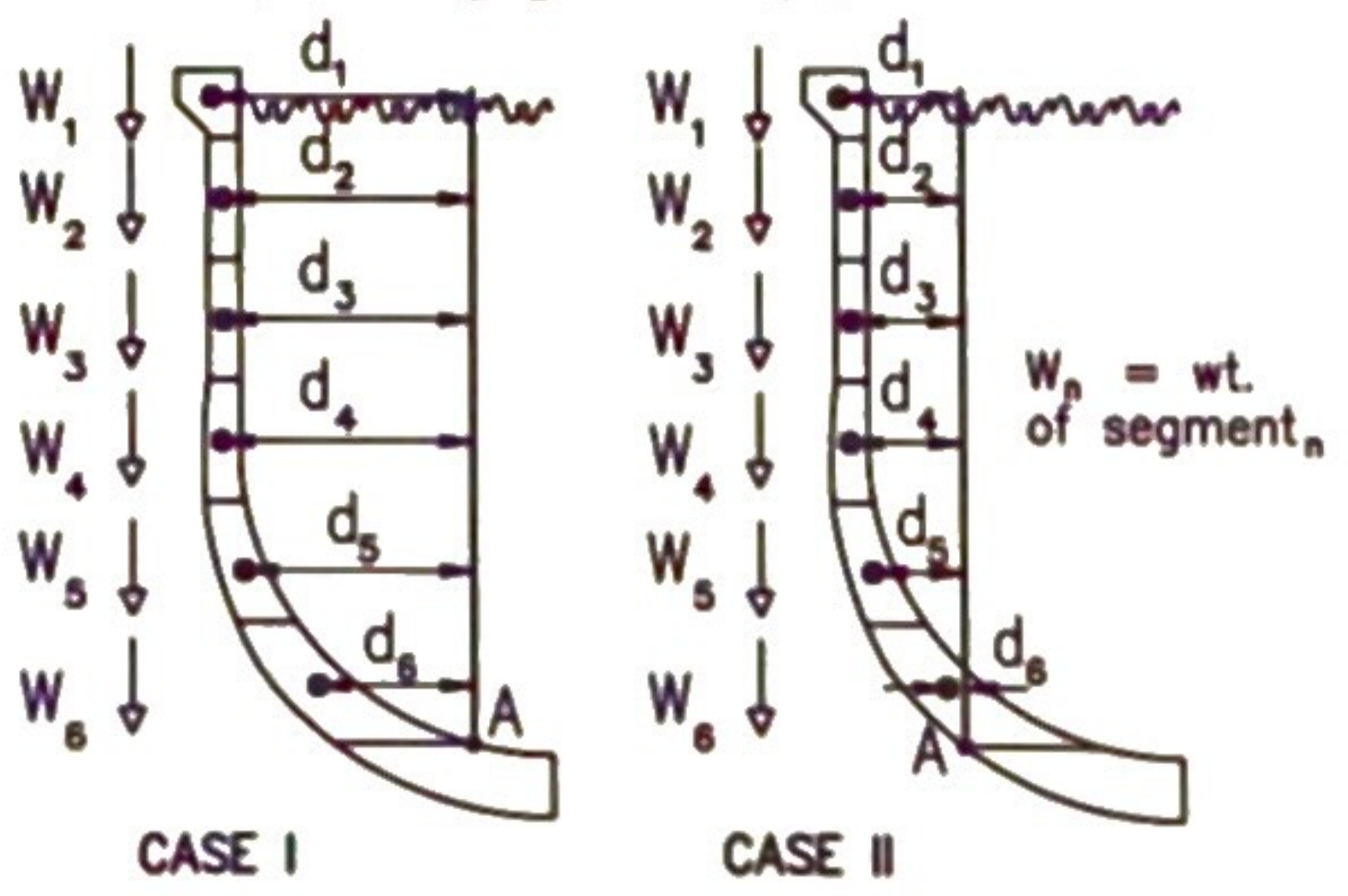
fc = 0.45 $f'c$ = 1125 psi

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

RESISTING MOMENT:

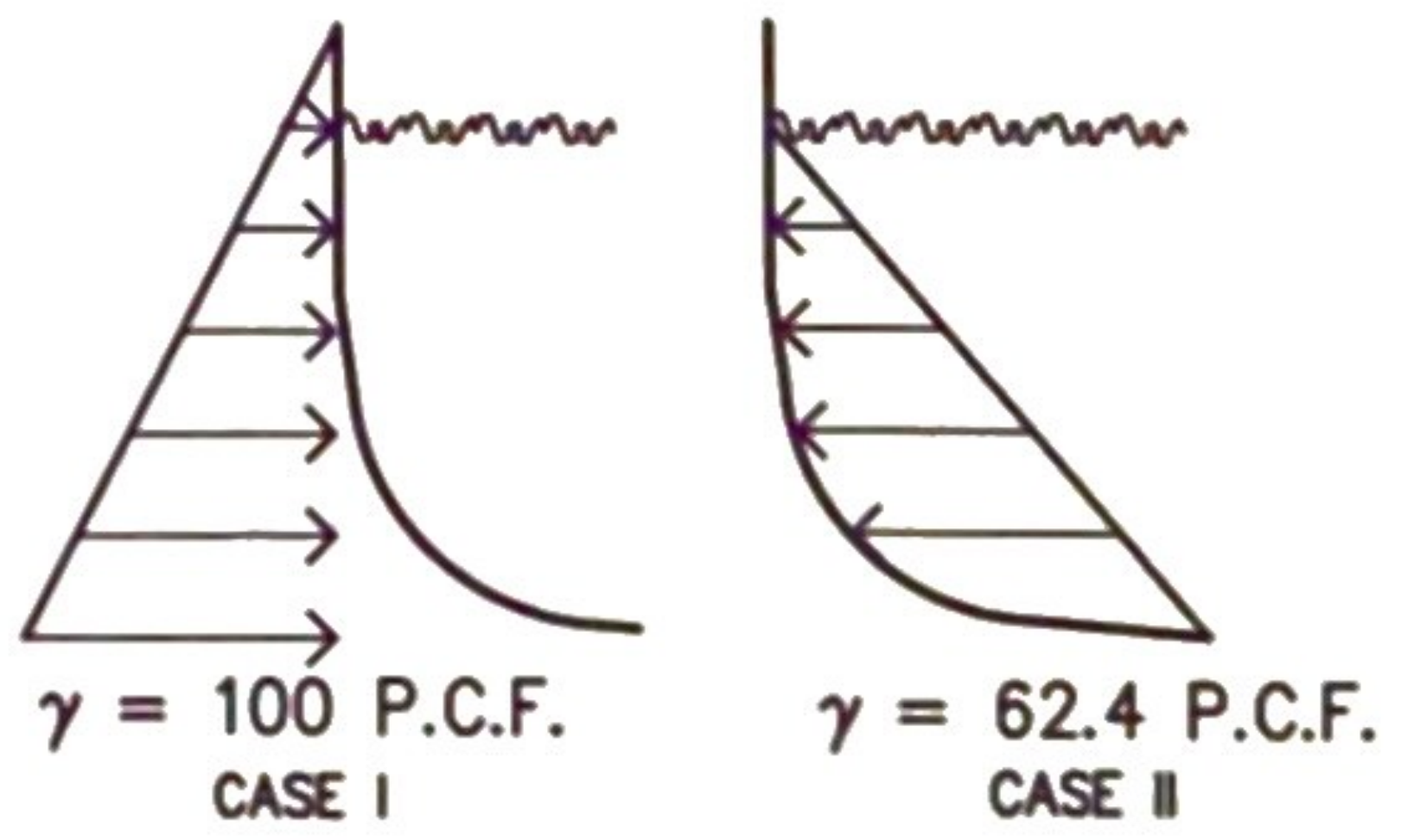
RESISTING MOMENT ABOUT POINT A

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



LOADING DIAGRAM:

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



CALCULATION RESULTS:

STANDARD POOL WALL
EQUIVALENT FLUID PRESSURE = 100 P.C.F.

HEIGHT 'H'	SOIL OTM ft-#	WATER OTM ft-#	SOIL RM ft-#	WATER RM ft-#	NET Mom	t	VERTICAL STEEL	fs p.s.i.	fc p.s.i.	νc p.s.i.
0'-6"	2	1	38	-38	-36	12"	#4 @ 6"	-135	-4	0.1
1'-0"	17	10	75	-75	-65	12"	"	-222	-7	0.5
1'-6"	56	35	113	-113	-77	12"	"	-214	-7	1.1
2'-0"	133	83	150	-150	-67	12"	"	-63	-2	1.9
2'-6"	260	163	188	-188	-25	12"	"	277	9	3.0
3'-0"	450	281	225	-225	56	12"	"	854	27	4.3
3'-6"	715	446	263	-263	183	12"	"	1716	53	5.8
4'-0"	1067	666	300	-300	366	12"	"	2911	91	7.6
4'-6"	1519	948	338	-338	610	12"	"	4485	140	9.6
5'-0"	2083	1300	375	-375	925	12"	"	6486	202	11.9
5'-6"	2773	1730	413	-413	1318	12"	"	8962	279	14.4
6'-0"	3600	2246	450	-450	1796	12"	"	11959	372	17.1
6'-6"	4577	2856	488	-488	2369	12"	"	15527	483	20.1
7'-0"	5717	3567	525	-525	3042	12"	"	19711	613	23.3
7'-6"	7031	4388	712	-494	3893	12"	#4 @ 3"	12359	575	26.8
8'-0"	8533	5325	1923	-502	4823	12"	"	12928	602	30.5

HORIZONTAL BARS MAY BE UNDER OR OVER VERTICAL BARS. ENSURE PROPER CLEARANCES ARE MAINTAINED.

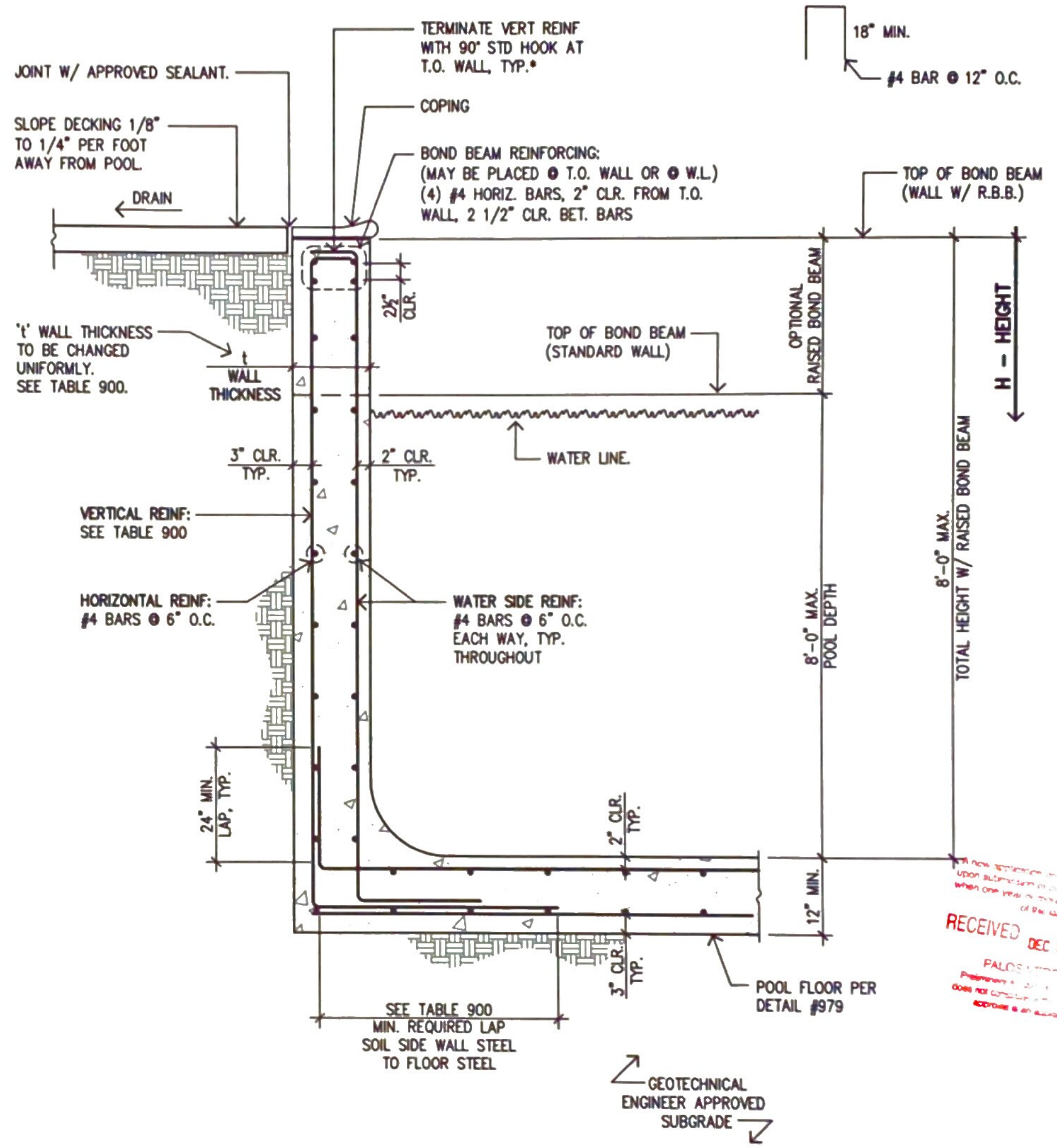


TABLE 900

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

TOTAL HEIGHT	POOL WALL SCHEDULE		MIN. REQ'D LAP.
H	t	VERTICAL STEEL	
0 to 0'6"	12"	#4 @ 6"	2'-0"
1'-0"	12"	"	2'-0"
1'-6"	12"	"	2'-0"
2'-0"	12"	"	2'-0"
2'-6"	12"	"	2'-0"
3'-0"	12"	"	2'-0"
3'-6"	12"	"	2'-0"
4'-0"	12"	"	2'-0"
4'-6"	12"	"	2'-0"
5'-0"	12"	"	2'-0"
5'-6"	12"	"	2'-0"
6'-0"	12"	"	2'-0"
6'-6"	12"	"	2'-0"
7'-0"	12"	"	2'-0"
7'-6"	12"	#4 @ 3"	2'-0"
8'-0"	12"	"	2'-0"

NOTES

1. ALL STEEL SHALL BE 3" CLR. FROM EARTH.
2. ALL LAPS TO BE 24" MIN. UNLESS OTHERWISE NOTED.

NOTE: ANY CHANGES TO THE DETAILS OR DESIGNS ON THE EXTERIOR ELEVATIONS TO BE REVIEWED BY THE ART JURY PRIOR TO ANY CHANGES

CONSTRUCTION MUST MATCH DRAWN DETAILS EXACTLY

FOR USE ONLY AT
2357 Via Anacapa
Palos Verdes Estates CA

TODD L. LACHER
Exp. 6/30/21

Date: 9/23/2020

STANDARD POOL WALL
EQUIVALENT FLUID PRESSURE = 100 P.C.F.

DETAIL #900

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

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

pool engineering inc.

Ron Lacher, R.C.E.
1201 N. Tustin Ave.
Anaheim, CA 92807
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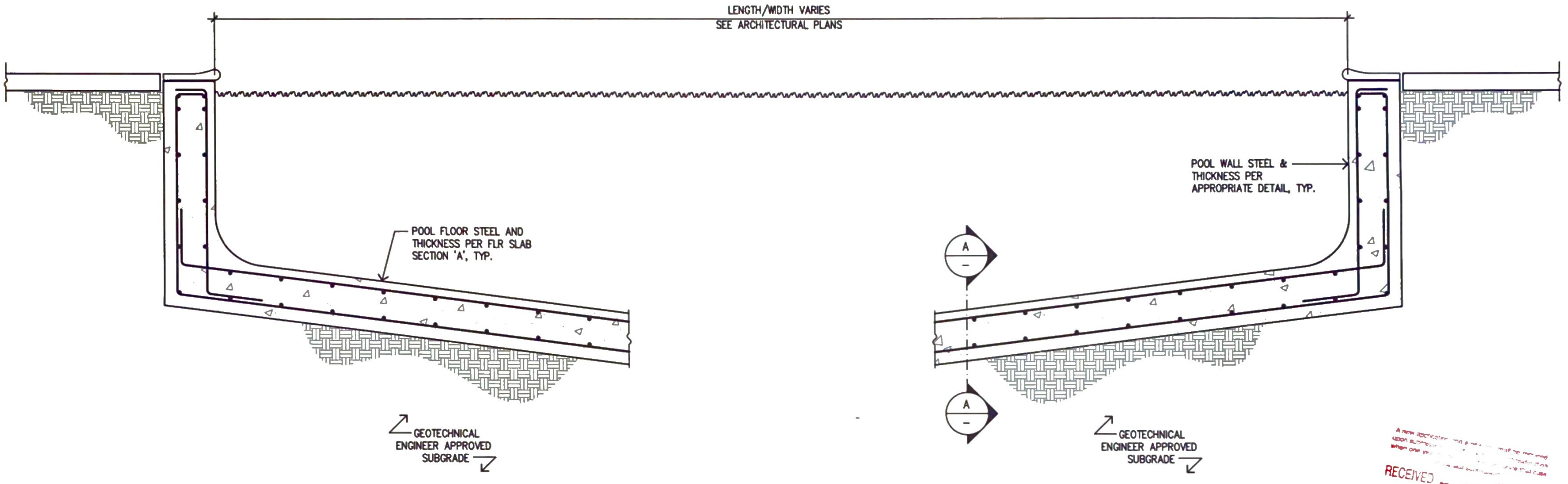
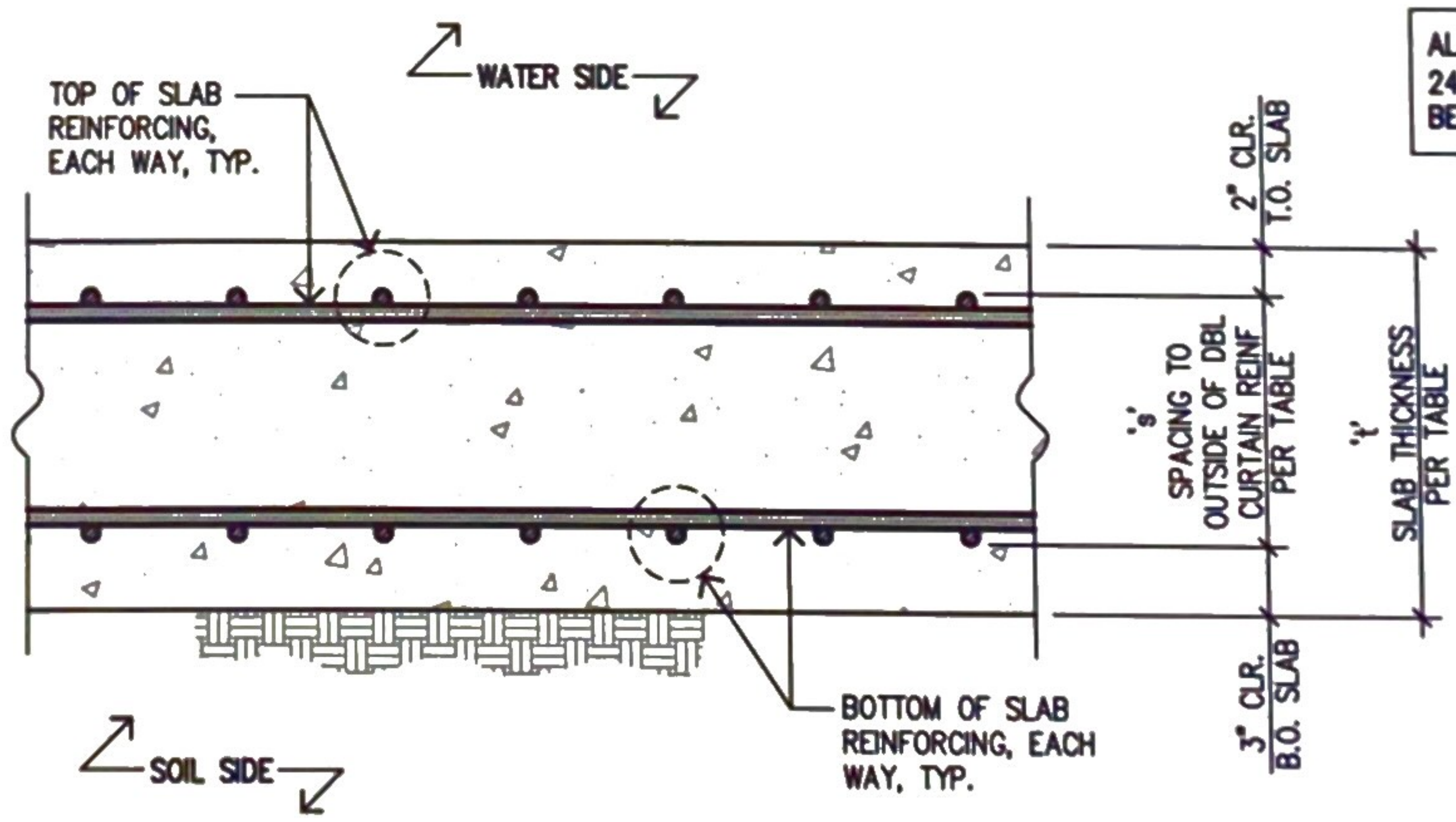


CONC FLR SLAB SCHEDULE

't' THICKNESS	's' CURTAIN SPACING	T.O. SLAB REINFORCING	B.O. SLAB REINFORCING
12"	7"	#4 @ 6" O.C.	#4 @ 6" O.C.



SECTION VIEW Ⓐ
NO SCALE

ALL LAPS SHALL BE 24" MIN. AND SHALL BE WELL STAGGERED.

NOTE: ANY CHANGES TO THE DETAILS OR DESIGNS ON THE EXTERIOR ELEVATIONS TO BE REVIEWED BY THE ART JURY PRIOR TO ANY CHANGES

CONSTRUCTION MUST MATCH DRAWN DETAILS EXACTLY

STANDARD POOL STRUCTURAL PLAN, STRUCTURAL NOTE #1 IS REPEATED HERE FOR EMPHASIS:

1. SOIL SHALL HAVE A MINIMUM BEARING VALUE OF 1500 P.S.F. 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, SUCH AS CUT-FILL TRANSITIONS.

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

12" THICK POOL FLOOR
W/ DOUBLE CURTAIN REINFORCING

DETAIL #979