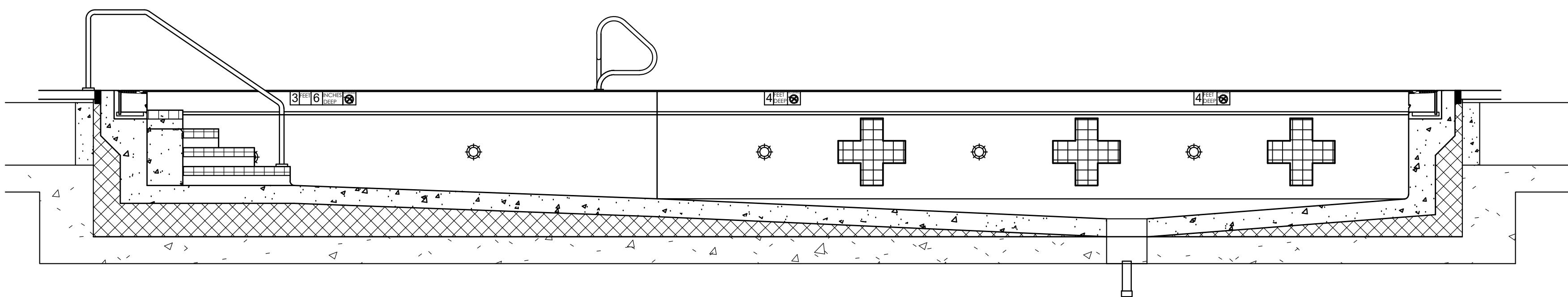


Heatherwood Luxury Rentals

111 Hempstead Turnpike, West Hempstead, NY 11552

Proposed Outdoor Swimming Pool

November 29, 2023



List of Drawings

Cover Sheet

- SP-1 of 9 Overall Site Layout, Schedules & Notes
- SP-2 of 9 Proposed Pool Enclosure
- SP-3 of 9 Pool Layout & Cross Sections
- SP-4 of 9 Pool Piping Plan & Schedule
- SP-5 of 9 Hydraulic Schematic, Filter Equipment Room Layout & Toilet Facilities
- SP-6 of 9 Details
- SP-7 of 9 Details
- SP-8 of 9 Details
- SP-9 of 9 Notes & Specifications

Owner

111 Hempstead Tpke LLC

58 Vanderbilt Motor Parkway - Suite 100
Commack, New York 11725
631-981-2727

Prepared By

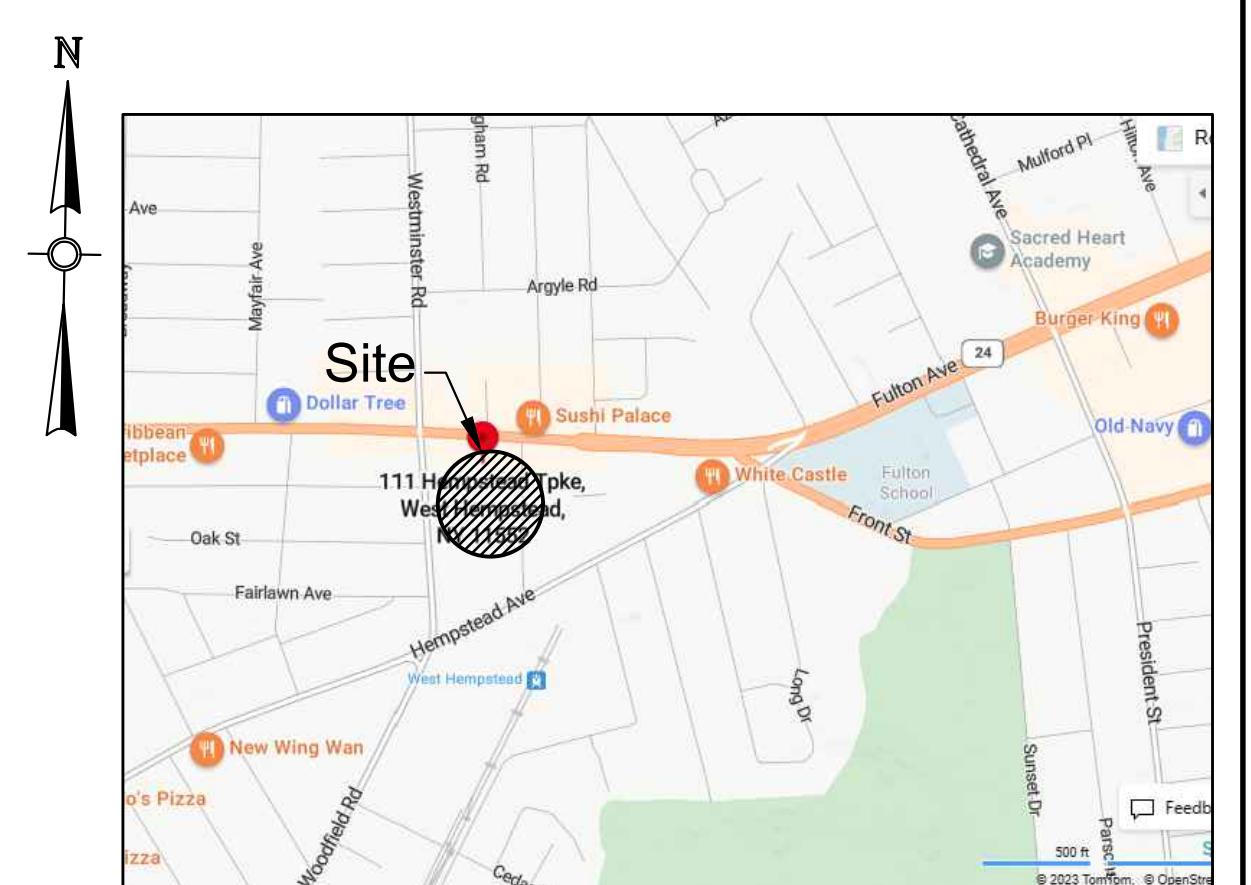
R & W / Engineers, P.C.

380 Townline Road, Suite 150
Hauppauge, New York 11788
631-969-8535 Fax 631-969-8518

Facility Contact
Ms. Christine Linsalato
Heatherwood Communities
Senior Director of Development
CLinsalato@Heatherwood.com
631-775-2265

1/17/2024
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Location Map

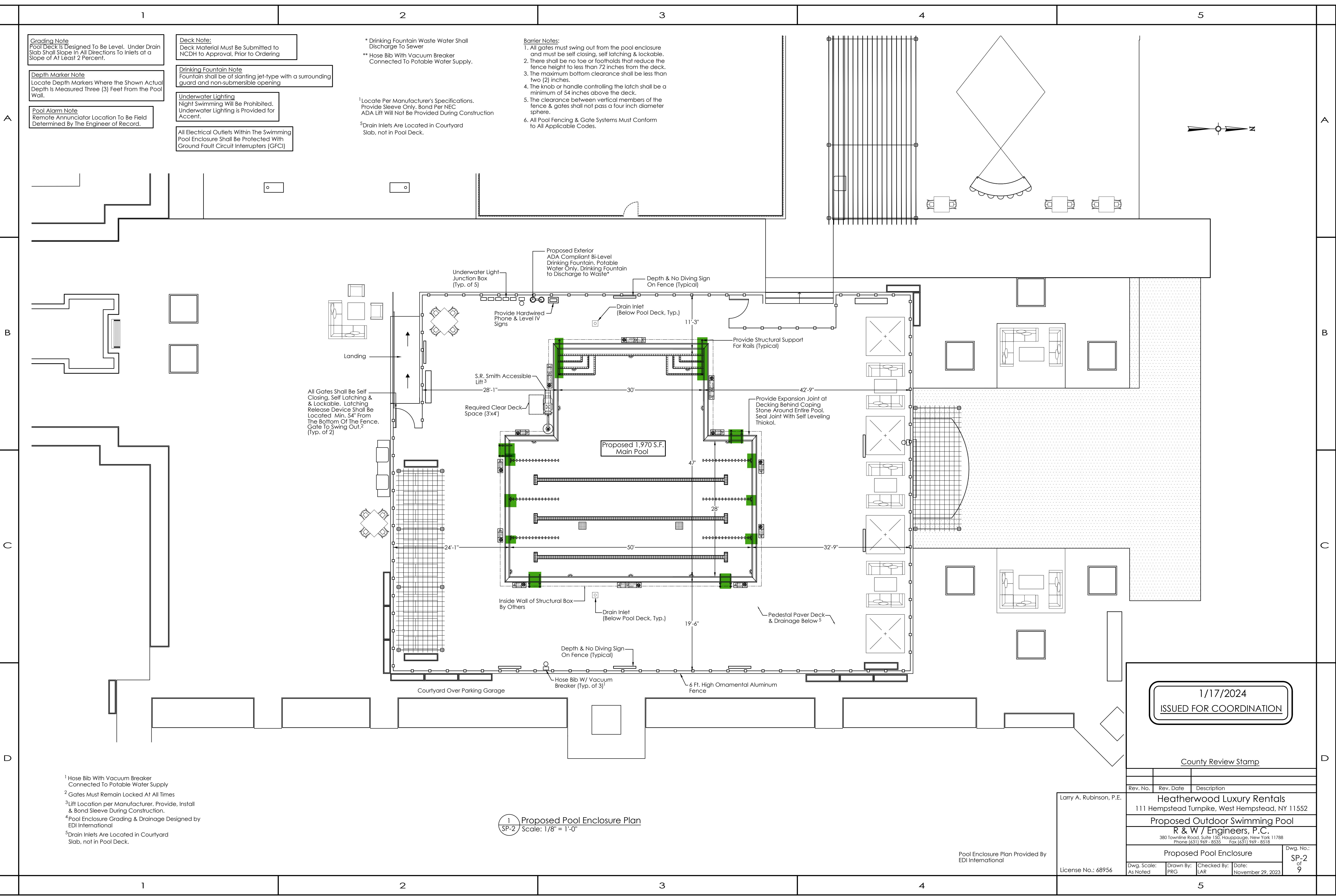
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Depth Marker Notes

1. Depth Markers Shall Indicate Depth As Measured 3 Feet From The Pool Wall.
2. Actual Location Per Field Conditions.

¹ Lighting Provided For Accent Only. Night Swimming Is Not Permitted.

² Locate Per Manufacturer's Specifications. Provide Sleeve Only, Bond Per NEC. ADA Lift Will Not Be Provided During Construction

S.R. Smith Accessible Lift?

Required Clear Deck Space (3x4)

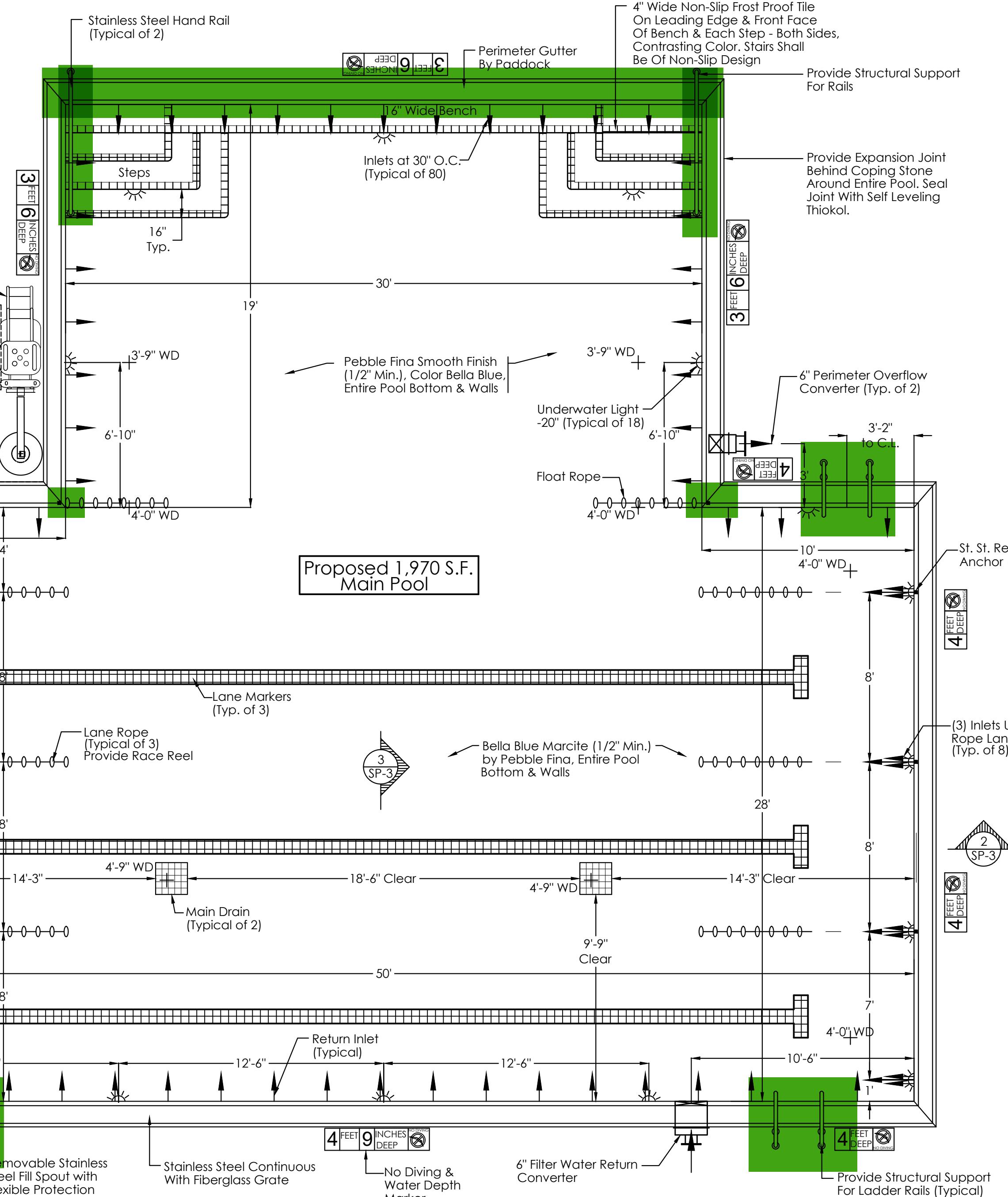
Stainless Steel Ladder Rail With Insert Wall Steps (Typ. of 4)

2' to C.L.

4' DEEP

4'-0" WD

8'



1 Proposed Pool Appurtenance Plan
SP-3 Scale: 1/4" = 1'-0"

Provide Structural Support For Rails

Provide Expansion Joint Behind Coping Stone Around Entire Pool Seal Joint With Self Leveling Thiokol.

3 FEET 6 INCHES DEEP

3 FEET 9 INCHES DEEP

3 FEET 2 INCHES DEEP

3 FEET 8 INCHES DEEP

3 FEET 4 INCHES DEEP

3 FEET 2 INCHES DEEP

3 FEET 4 INCHES DEEP

3 FEET 2 INCHES DEEP

3 FEET 4 INCHES DEEP

3 FEET 2 INCHES DEEP

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3 FEET 4 INCHES DEEP

3 FEET 2 INCHES DEEP

3 FEET 4 INCHES DEEP

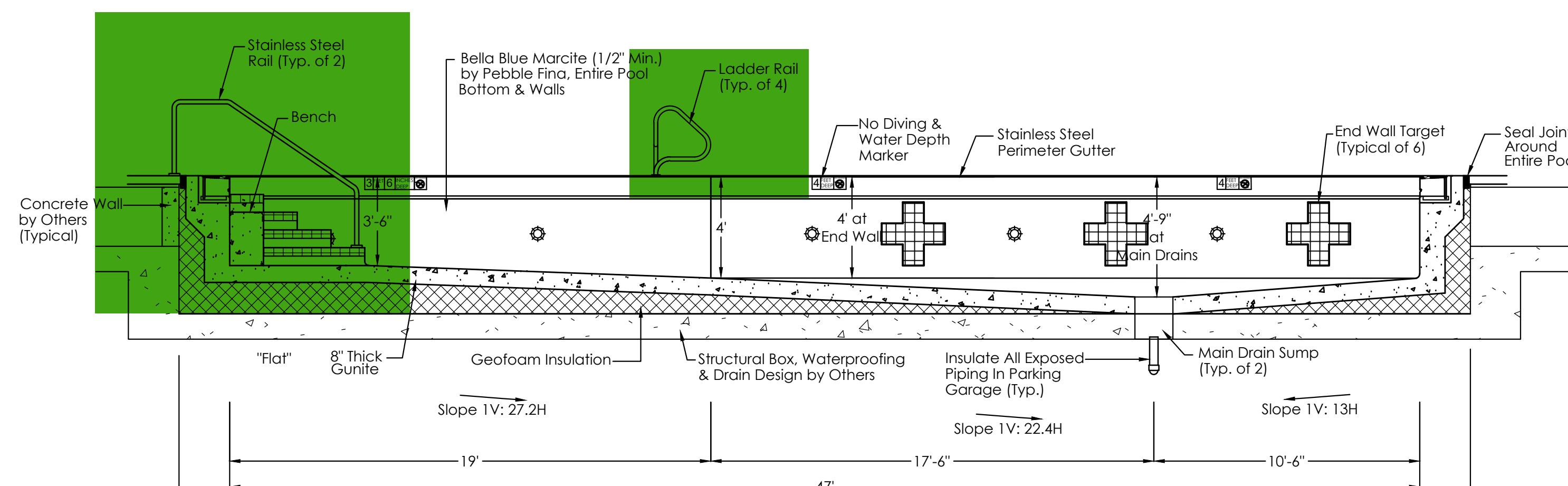
3 FEET 2 INCHES DEEP

3 FEET 4 INCHES DEEP

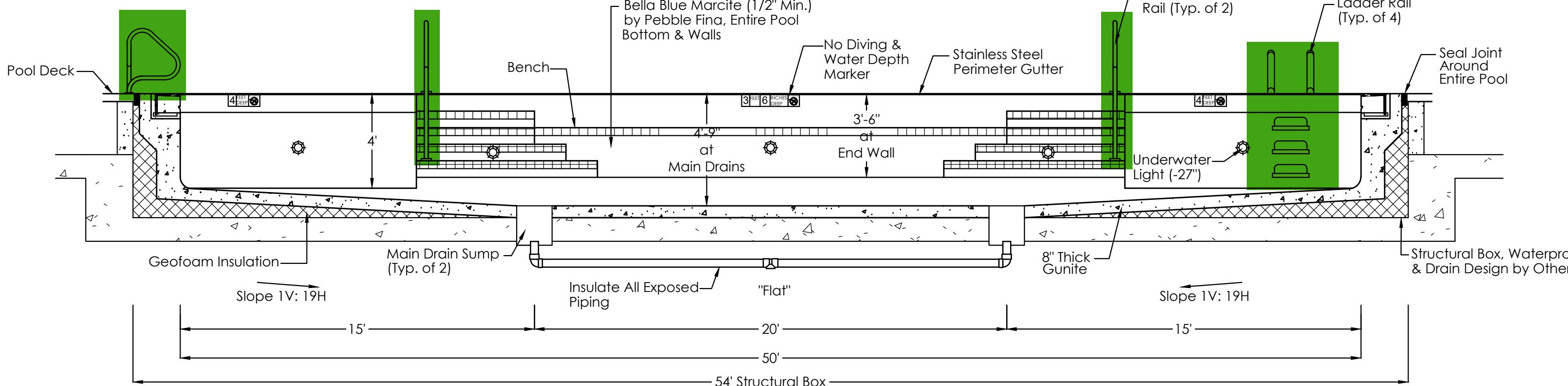
3 FEET 2 INCHES DEEP

3 FEET 4 INCHES DEEP

3 FEET 2 INCHES DEEP



2 Pool Longitudinal Section
SP-3 Scale: 1/4" = 1'-0"



2 Pool Longitudinal Section
SP-3 Scale: 1/4" = 1'-0"

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Rev. No. Rev. Date Description

Larry A. Robinson, P.E.
Heatherwood Luxury Rentals
111 Hempstead Turnpike, West Hempstead, NY 11552

R & W / Engineers, P.C.
380 Townline Road, Suite 150, Hauppauge, New York 11788

Phone (631) 969-8533 Fax (631) 969-8518

Swimming Pool Layout & Cross Sections

Dwg. No.: SP-3
Dwg. Scale: As Noted Drawn By: PRG Checked By: LAR Date: November 29, 2023

1

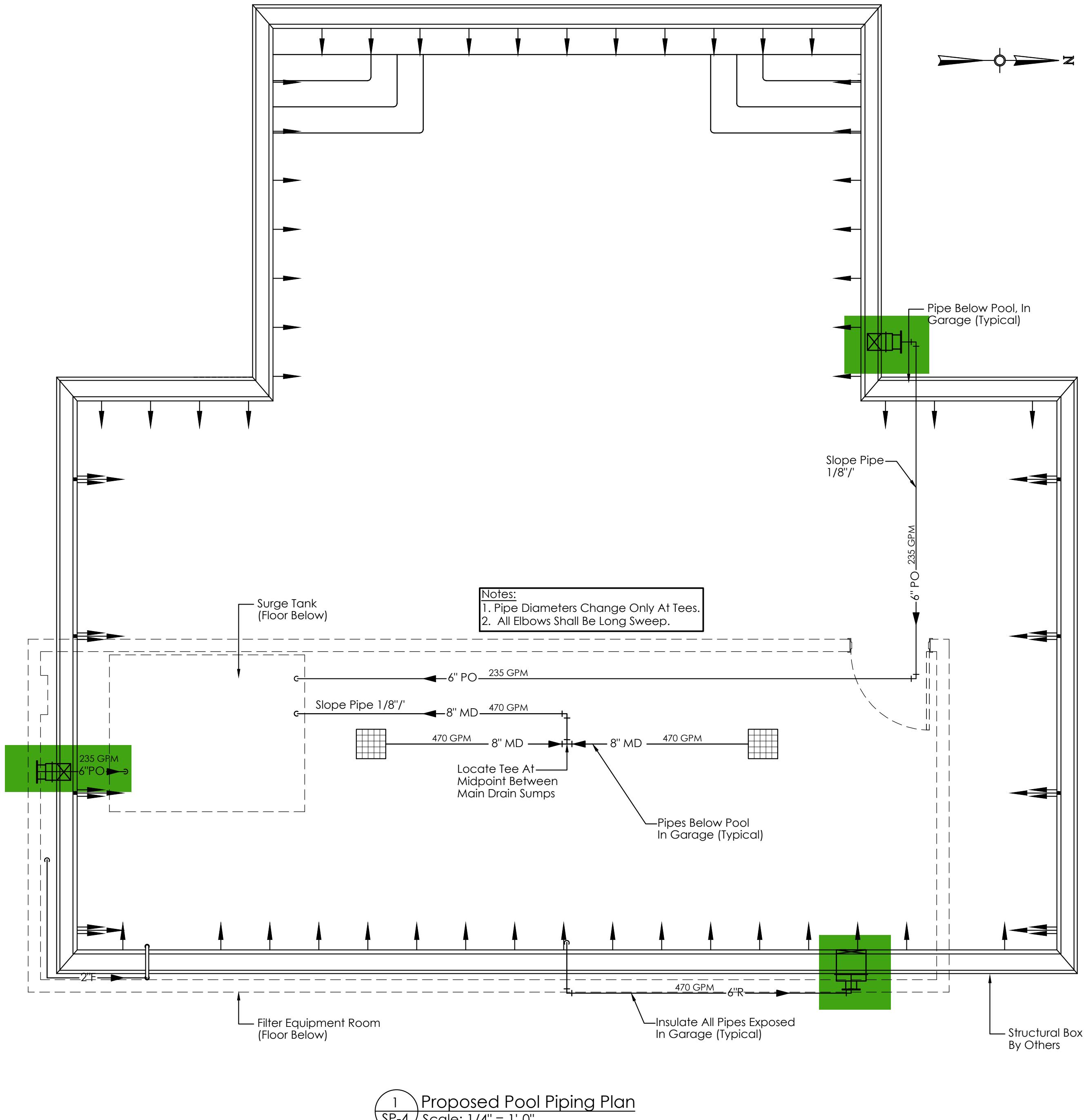
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Main Pool Piping Legend	
MD	Main Drain
PO	Perimeter Overflow
PR	Return
F	Pool Fill
STPO	Surge Tank Pool Overflow
STPS	Surge Tank Pool Suction



Main Pool Proposed Manufacturer Equipment Schedule					
Design	Description	Vendor	Model No.	Remarks	Qty.
A	Horizontal Sand Filter	Neptune Benson	42120SHFFG (6" Ø)	NSF Approved - 38,1 S.F.	1
B	Pump - Self Priming	Pentair	CSPHM3	15 H.P. - 3 Phase	1
C	Hair & Lint Strainer	Mermade	FO Series	Provide Spare Basket	1
D	Paddlewheel Flow Meter	Signet	2537	For 6" Ø (Return Line)	1
D1	Magnetic Flow Sensor	Signet	2551	Magnetic Flow Meter 6" Ø	1
E	Chlorine Feeder	Rola-Chem	RC-307	0.75- 77 GPD	2
F	Acid Feeder	Rola-Chem	RC-305	0.38-38 GPD	1
G	Acid Crock**	Chem-Tainer	TC2435DC	50 Gal. Double Wall Tank	1
H	Chlorine Crock**	Chem-Tainer	TC3539DC	100 Gal. Double Wall Tank	2
I	Chemical Controller	Pentair	IntelliChem	---	1
J	Stainless Gutter	Paddock	K-300 system	---	194
K	Gutter Converter	Paddock	6"	---	1
K1	Return Converter	Paddock	6"	---	1
L	Main Drain Box	A.S.A. MFG, INC.	FPK-50-818-24-8	18"x18"x24"	2
M	Main Drain Grate	Lawson Aquatics	MLD-FGD-1818WT	18"x18" - 183.06 SI O.A./Ea.	2
N	Vacuum Gauge	Weksler	AA442CC4LW	Compound type	1
O	Variable Frequency Drive	Pentair	Acu Drive XS	15 HP, 3 Ph. Out, Match In	1
P	Pressure Gauge	Weksler	AA442PE4LW	0-60 psi	3
Q	Separation Tank	Pentair	Sep Tank 100	100 Sq. Ft.	1
R	Ladder Rail	Paddock	California Style	---	4
R'	17.5° Recessed Step	Paddock	---	Textured Stepping Surface	12
S	Hand Rail	Paddock	Three Bend	Field Measure	2
T	Balance Tank	Paddock	---	8 Ft. x 10 Ft. x 8 Ft. Deep, Stainless Steel Tank	1
X	Underwater Lights	Pentair	GloBrite LED	300 Watt Equiv. W/ IntelliTouch Controller	18
X'	Light Controller	Pentair	600054	IntelliBrite Controller	5
Y	Flow Switch	ITI McDonnell	FS-250 Series	For 6" Ø Pipe	1
Z	Pool Alarm	Poolguard	PG-200	W/ Remote Annunciator*	3
ES	Eye Wash Station	Bradley	S19-2200BF	Provide Sign	1
OPD Water Test Kit	LC Morris	Pro 250 Plus	CD-1002-NJ	---	1
First Aid Kit	Recronics	12-013	24 Unit Red Cross	1	
Floor Rope	Recronics	---	30 Ft. Long	1	
Lane Rope	Recronics	---	50 Ft. Long	3	
ADA Accessible Lift	S. R. Smith	---	Provide Sleeve Only	1	
Rescue Tubes	Recronics	12-303	16' Long	2	
Reaching Life Pole	Recronics	12-237	Disposable Type	2	
Child Resuscitator	Recronics	12-469	Disposable Type	2	
Adult Resuscitator	Recronics	12-468	Disposable Type	2	
Spine Board	Recronics	12-335	6' Long - CJ Rescue Pkg.	1	
Extrication Collar	Recronics	12-287	Head Immobilizer	1	

*Permanently mount alarm annunciation and transformer in labeled lockable boxes.

Note: Revise And Provide Deck Safety Equipment Based On Level Of Supervision Per Owner.

Portable Vacuum Requirements

- Provide the Following:
1. Hayward 1 HP portable vacuum system Model PROVAC CART (Bell Aquia).
 2. One (1) Hayward 19 inch flexible vacuum.
 3. One (1) aluminum handle compatible with vacuum head.
 4. 50 feet of hose.

Cover Requirements

- Provide the Following:
1. One (1) Loop-Loc mesh cover.
 2. Provide & install brass cover anchors.
 3. Provide solar cover.

Spare Parts

- Provide the Following:
- 1 Pump Strainer Basket

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County Review Stamp

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Heatherwood Luxury Rentals
111 Hempstead Turnpike, West Hempstead, NY 11552
Proposed Outdoor Swimming Pool
R & W / Engineers, P.C.
380 Townline Road, Suite 150, Hauppauge, New York 11788
Phone (631) 969-8535 Fax (631) 969-8518
Pool Piping Plan
License No.: 68956

Dwg. No.: SP-4
Dwg. Scale: As Noted
Drawn By: PRG
Checked By: LAR
Date: November 29, 2023
of 9

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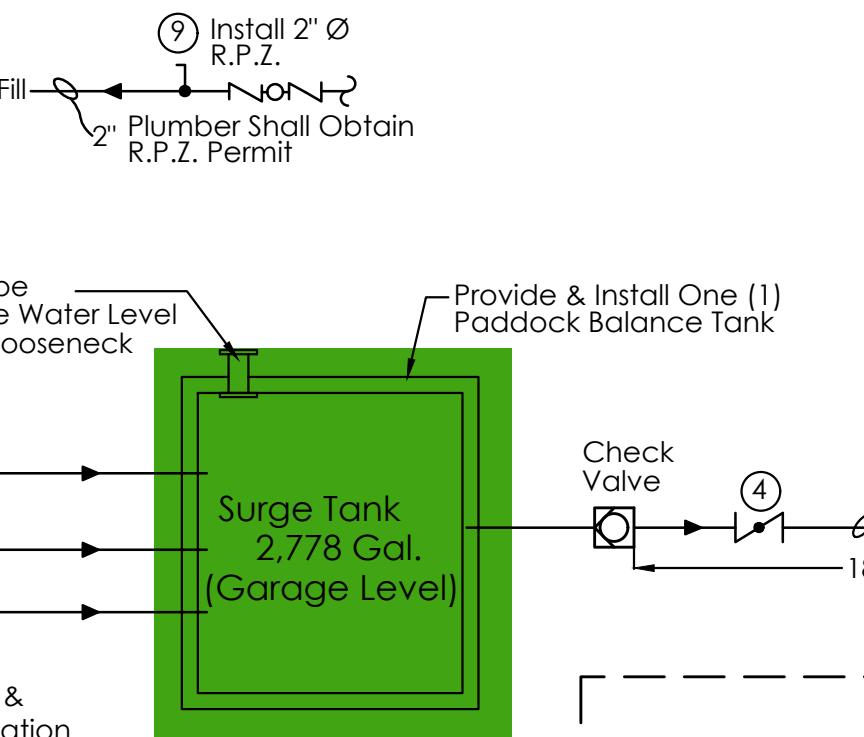
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*Locate Flow Meter On A Straight Run Of Pipe
10 Diameters Downstream & 5 Diameters
Upstream Of Any Fitting Or As More Stringently
Specified By Manufacturer

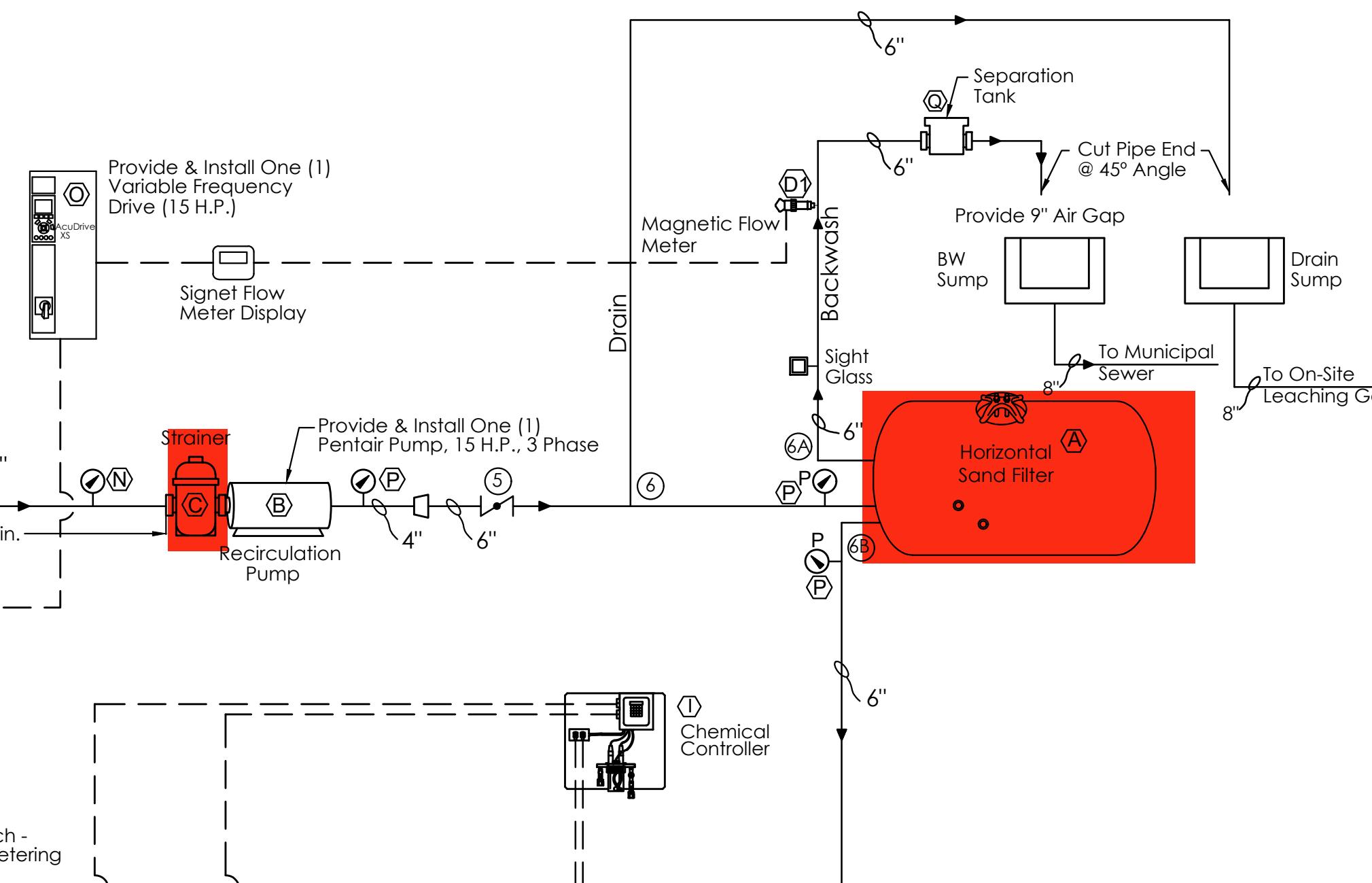
** Flow Switch Makes or Breaks an Electrical Circuit When
Flow Stops or Starts. Flow Switch to De-Energize Chemical
Pumps When There Is no Flow on the Return Line



1 Main Pool Hydraulic Schematic
SP-5 N.T.S.

All Chemical Feed Equipment Shall Be Electrically
Interlocked With The Pool Pump So That They Cannot
Operate When There Is No Flow In The Pool Return Line.

Provide pump label. Label to read "DURING
BACKWASH PUMP MUST BE SHUT-OFF A
MINIMUM OF 30 SECONDS".



*Locate Flow Meter On A Straight Run Of Pipe
20 Diameters Downstream & 5 Diameters
Upstream Of Any Fitting Or As More Stringently
Specified By Manufacturer. Elbows & Fittings
Upstream & Downstream Will Require Additional
Run of Straight Pipe.

** Flow Switch Makes or Breaks an Electrical Circuit When
Flow Stops or Starts. Flow Switch to De-Energize Chemical
Pumps When There Is no Flow on the Return Line

All Chemical Feed Equipment Shall Be Electrically
Interlocked With The Pool Pump So That They Cannot
Operate When There Is No Flow In The Pool Return Line.

Provide pump label. Label to read "DURING
BACKWASH PUMP MUST BE SHUT-OFF A
MINIMUM OF 30 SECONDS".

Pool Valve & Operational Chart								
Valve No.	Description	Valve Type	Valve Diam.	Filter	Drain	Fill		
1	Return	Butterfly	6"	O	C	---		
2	Main Drain	Butterfly	8"	O	O	---		
3	Pool Overflow	Butterfly	6"	O	C	---		
3A	Pool Overflow	Butterfly	6"	O	C	---		
4	Pump Suction	Butterfly	6"	O	O	---		
5	Pump Discharge	Butterfly	6"	O	O	---		
6	Drain	3 Way	6"	C	O	---		
6A	Backwash	3 way	6"	O	B	---		
6B	Filter	3 way	6"	O	C	---		
7	Acid Line	Globe	1/2"	O	C	---		
8	Chlorine Line	Globe	1/2"	O	C	---		
9	Fill Line	Ball	2"	---	---	---		

Pool Hydraulic Calculations							
Actual Length (Feet)	Equiv. Length (Feet)	Gallons Per Minute	Pipe Size (Inches)	Velocity (Ft/Sec)	Drop Feet/100 Feet	Actual Loss (Feet)	Sub Total
30	45	470	6	5.27	1.39	0.63	0.63
48	72	470	8	3.04	0.36	0.26	0.26
Recirculation							
Surge Tank Suction							
Total Piping Loss							
Filter Head Loss (Dirty)							
Inlets							
Safety Factor							
Total System Head Loss							

Piping Upstream of the Surge Tank is Gravity
Gutter & Main Drain Gravity Line Velocities = 2 Ft/Sec

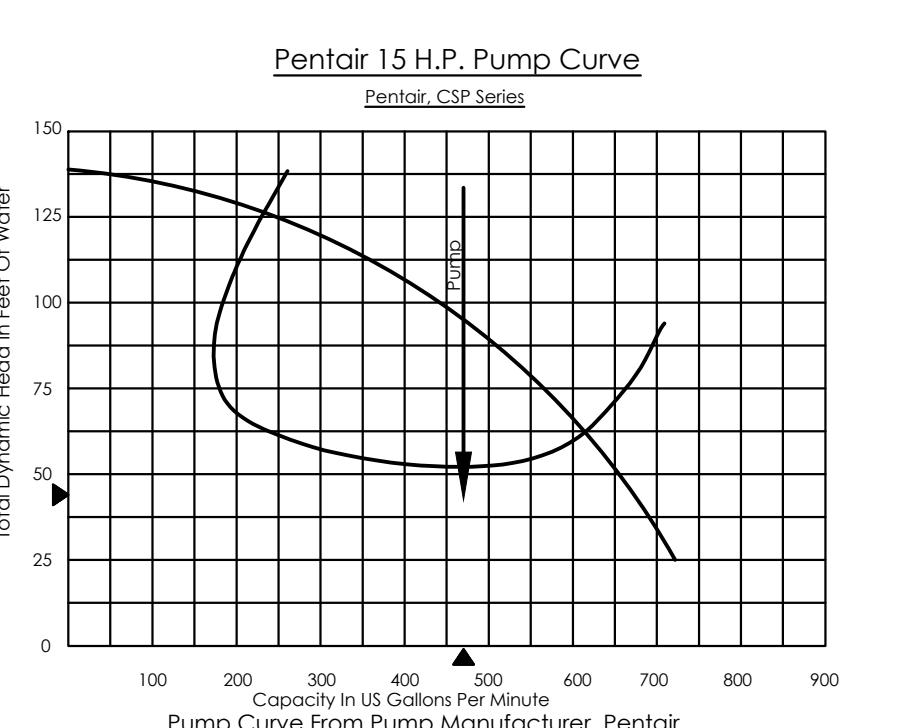
Bottom Grate Velocity
Assume 100% Flow through 1 Grate
Velocity = 470 GPM/448GPM/CFS/183.06 S.I.x144 S.I./S.F.
= 0.83 Ft/Sec < 1.5 Ft/Sec O.K.

Velocity Restrictions	
Designation/Description	Designation/Description
Pressure	10 FPS
Suction	6 FPS
Gravity	3 FPS
Main Drain	1.5 FPS

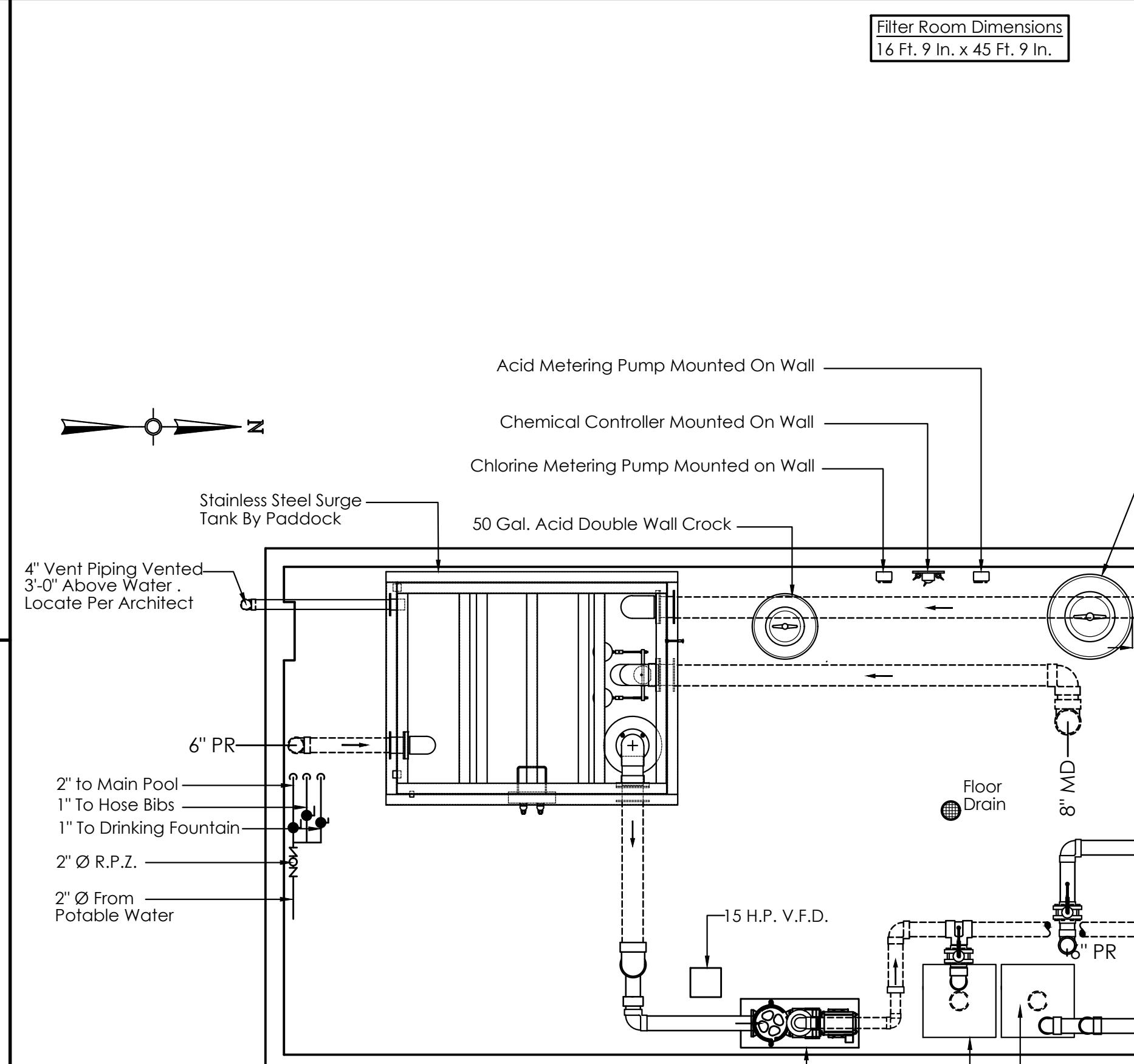
Filter Room Symbol Legend	
1 Ball Valve	
2-1 Butterfly Valve	
2 Gate Valve	
2-1 Check Valve	
P Pressure Gauge	
VP Compound Gauge	
Flow Meter	
SG Sight Glass	
Flow Arrow	
Reducer	
Chemical Controller	
Acid Feeder	
Circulation Pump	

Color Code Schedule	
Filtered Water	Aqua
Potable Water	Dark Blue
Skimmer	Olive Green
Main Drain	Black
Chlorine Line	Yellow
Acid Line	Pink
Backwash Waste	Dark Brown
Sewer	Dark Grey
Deck Drain	Light Brown

Main Pool Piping Legend	
MD Main Drain	
PO Perimeter Overflow	
R Return	
F Pool Fill	
STPO Surge Tank Pool Overflow	
STPS Surge Tank Pool Suction	

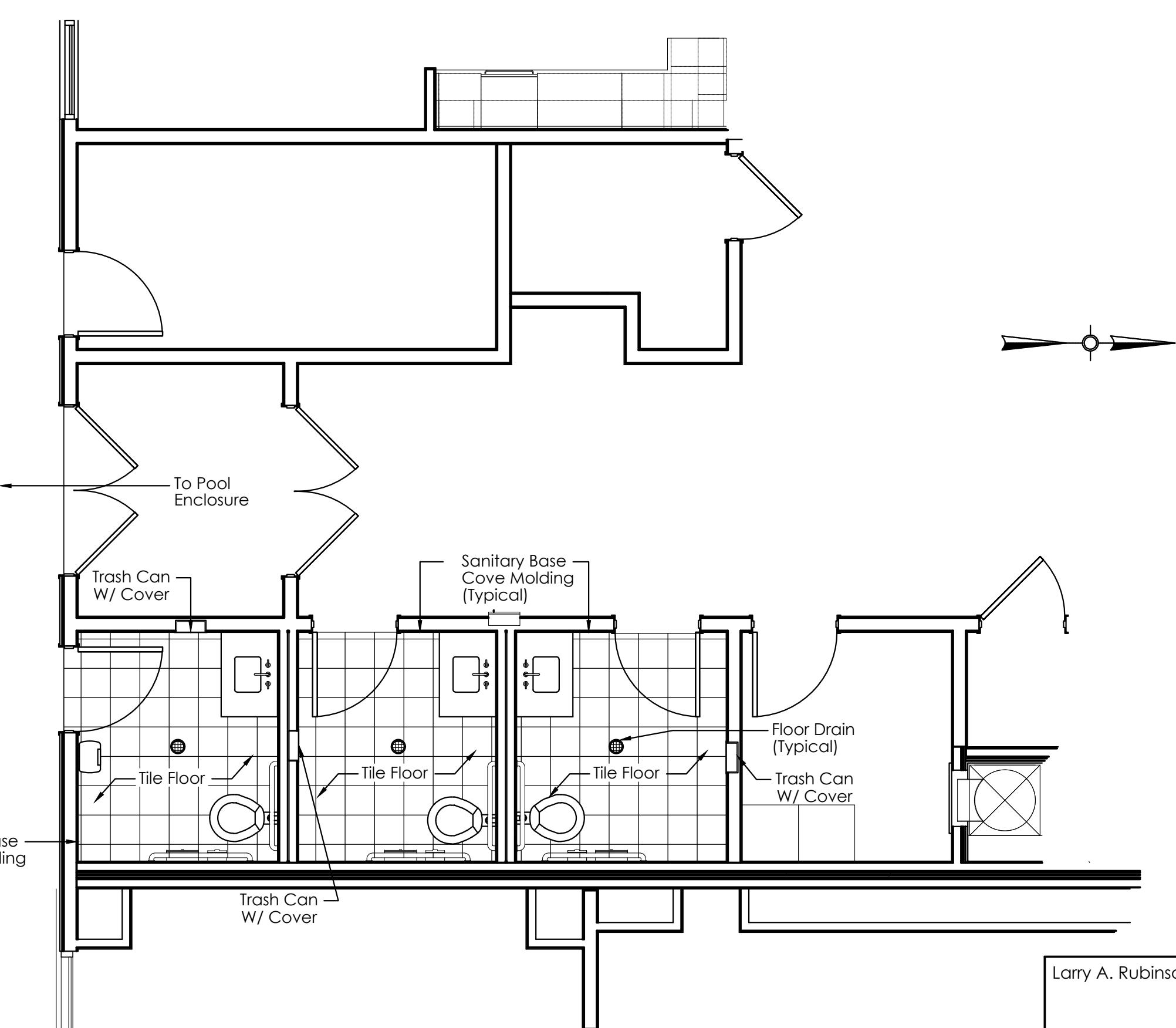


2 Filtration Pump Curve
SP-5 Scale: N.T.S.



Filter Room Dimensions
16 Ft. 9 In. x 45 Ft. 9 In.

Filter Equipment Room Notes:
1. Swimming pool equipment room shall have artificial lighting sufficient to illuminate all equipment & supplies.
2. Install lighting to provide 30 footcandles within filter room.
3. Provide door with 2 louvers (18"x24" each).
4. Provide mechanical exhaust fan. Exhaust duct to be within six (6) inches of floor.
5. All Piping Not Shown for Clarity. Inspect room to determine exact location and clearances of piping and equipment.
6. Locate Flow Meters on A Straight Pipe Run a Minimum 10 Ø downstream and 5 Ø upstream of any fitting or as more stringently specified by the manufacturer.
7. All Metal Pipe Supports (Not Shown) Shall Be Either Stainless Steel or PVC Coated.
8. All valves, piping and equipment in the filter room must be readily accessible.
9. All piping equipped to drain completely.
10. Mechanical Engineer to provide filter room ventilation system to turn over air 12 timer per hour. Provide intake within six (6) inches of the floor.
11. All chemical tubing to be in rigid conduit anchored to floor or walls.
12. Place acid and sodium hypochlorite in separate carrier pipes.



4 Toilet Facilities
SP-5 Scale: 1/4"=1'

Toilet Facility Notes:
All plumbing fixtures and fixture fittings to be installed according to the latest Uniform Plumbing Code. Each toilet room shall have the following:
1. A floor drain.
2. A hose bib.
3. Base sanitary cove tile molding.
4. A covered waste basket.
5. Suitable sanitary napkin receptacles shall be provided in the female toilet room.
6. Floor ceramic tile to be smooth-finished with non-slip surface.
7. Wall mounted liquid soap dispenser to be installed at lavatories.
8. Paper towel dispenser must be provided at each room.

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Proposed Outdoor Swimming Pool

R & W Engineers, P.C.

380 Townline Road, Suite 150, Hauppauge, New York 11788
Phone (631) 969 - 8535 Fax (631) 969 - 8518

Hydraulic Schematic, Filter Room Layout & Toilet Facilities

Dwg. No.: SP-5
Dwg. Scale: 1/4"=1'
As Noted

Drawn By: PRG
Checked By: LAR
Date: November 29, 2023

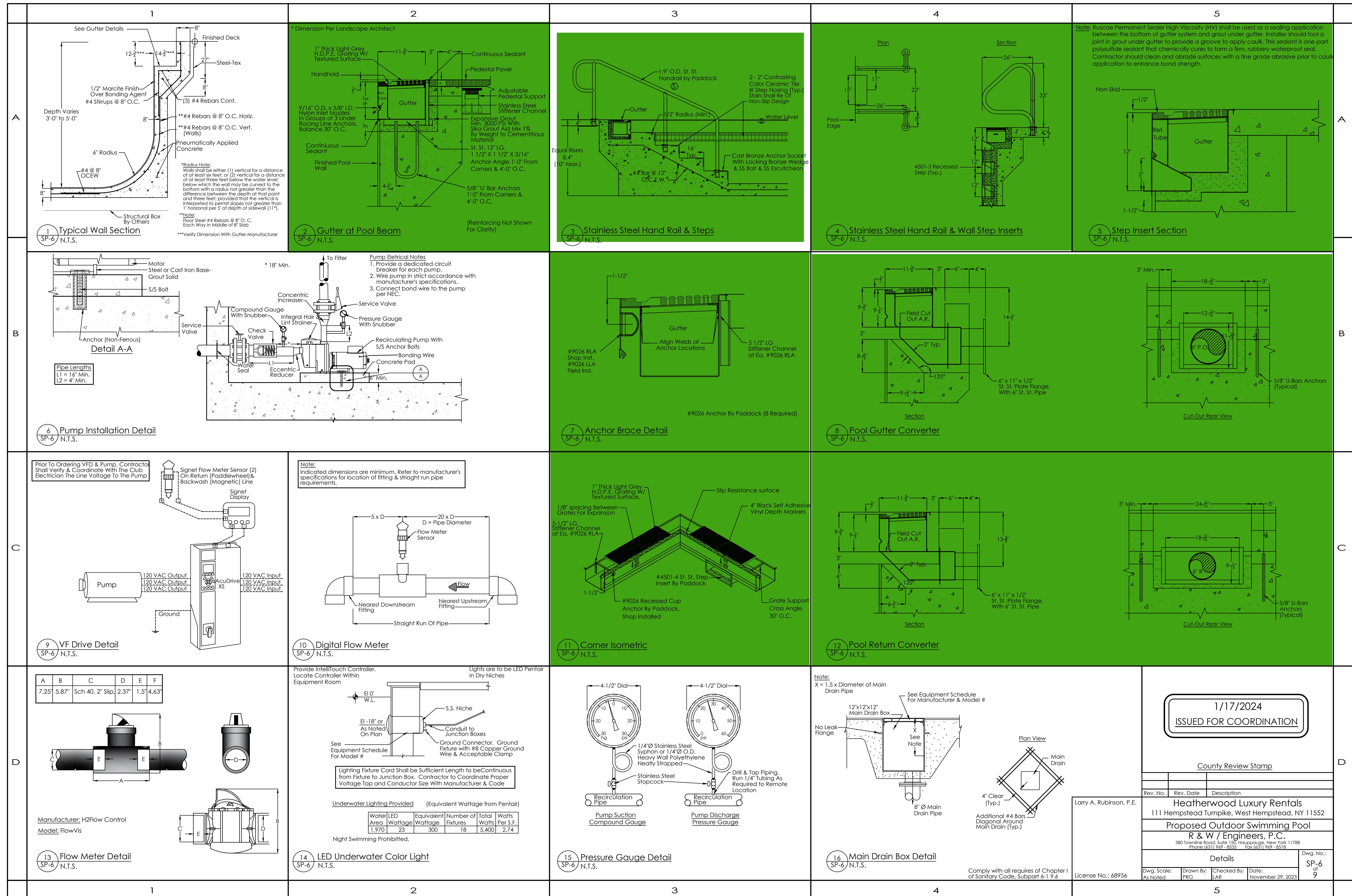
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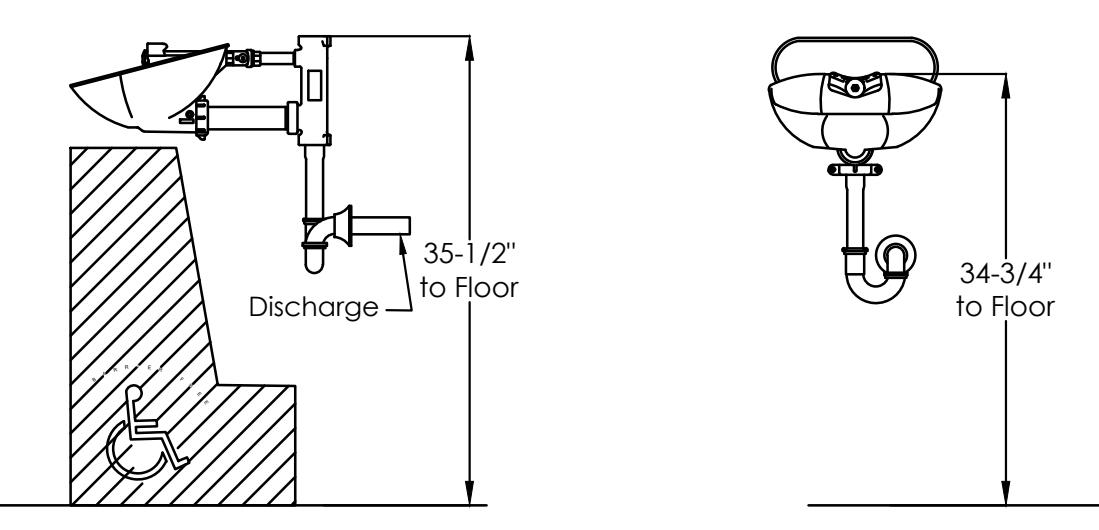
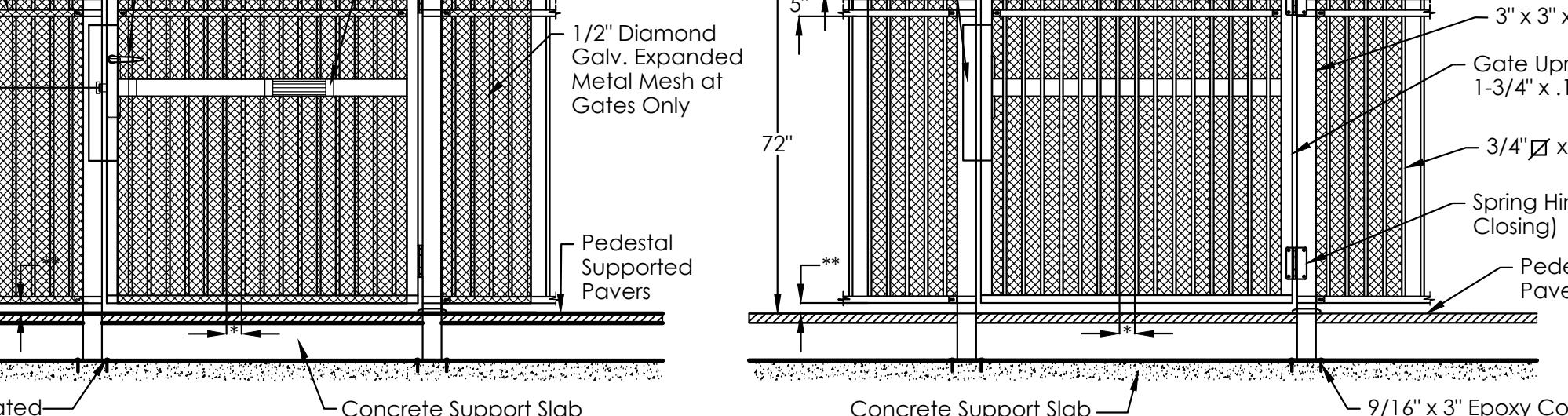
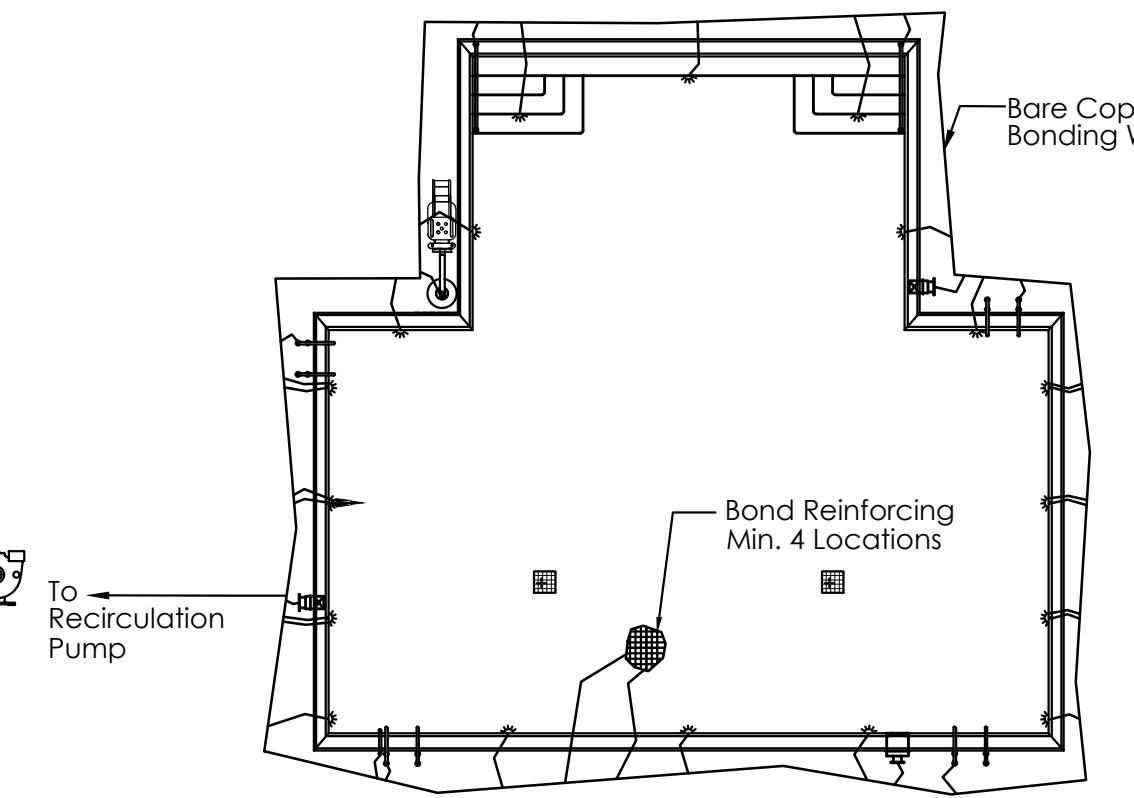
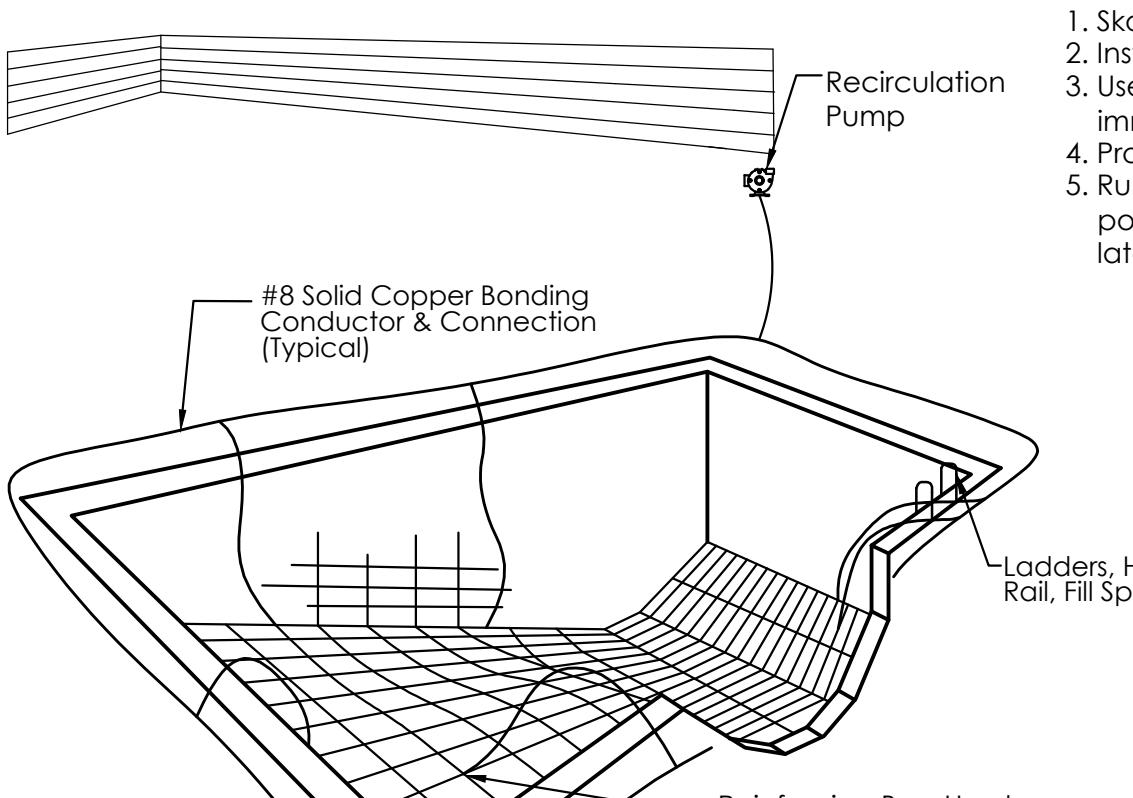
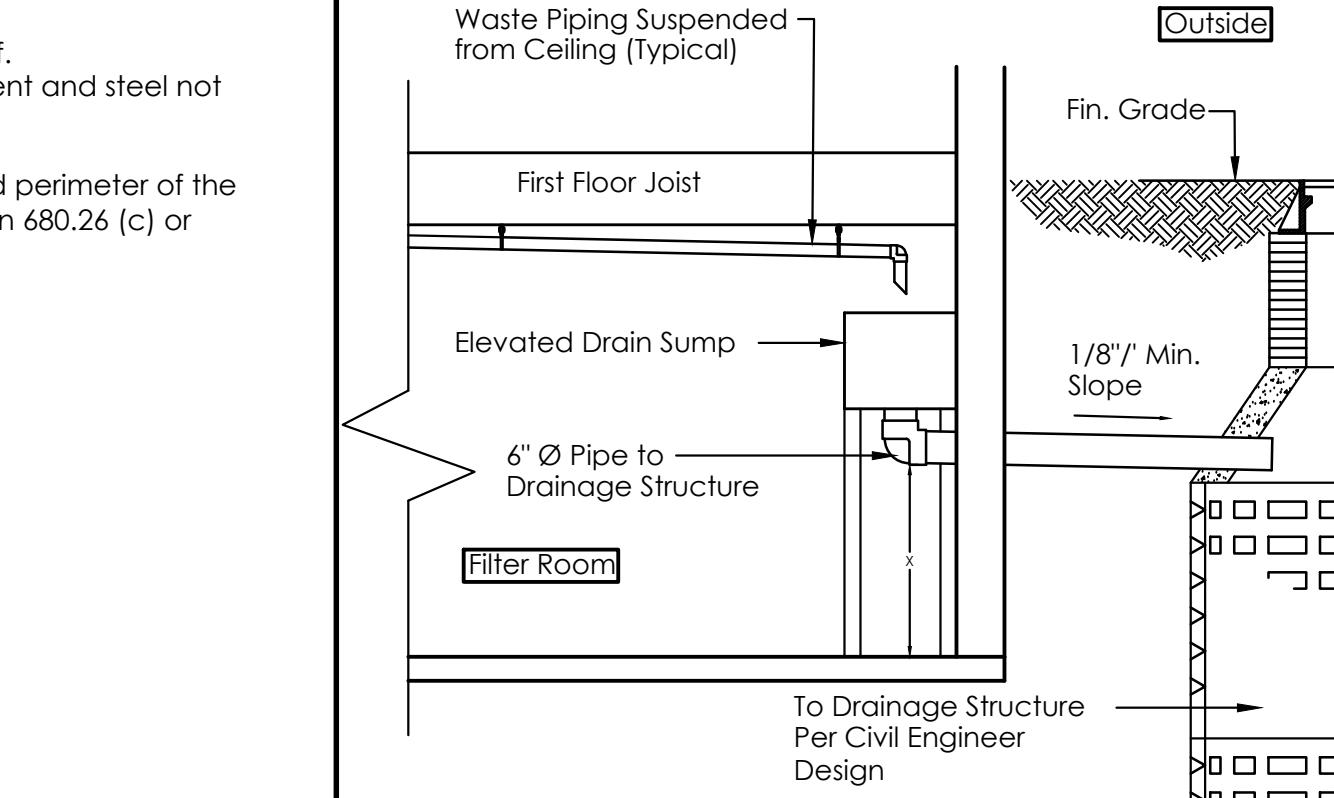
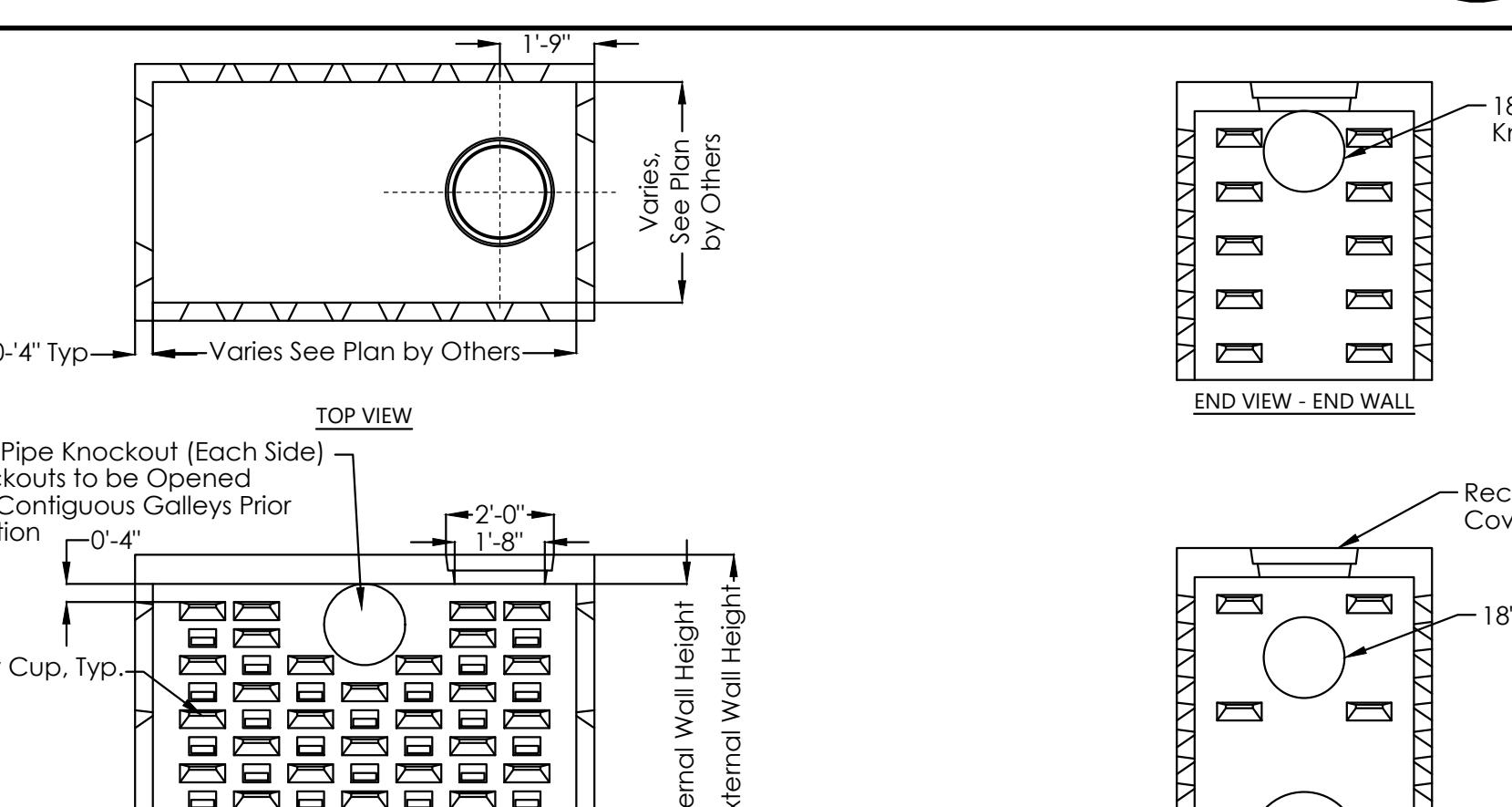
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	1	2	3	4	5																																																																																													
A	<p>Approximate Locations of Depth Markers Are Indicated on the Drawings. Depth Marker Installation Shall Conform to the Following: 1. Permanent Markers Shall Be Installed On the Pool Deck and Wall. 2. Depth Markers Shall be Tile With a Slip Resistance of 0.9 or Greater. 3. Depth Markers Shall Be Installed at points of Minimum and Maximum Depth, The pool Breakpoint and Increments of 2 feet of Depth. Spacing Between Markers Shall Not Exceed 25 Feet Around the Entire Perimeter of the Pool. 4. Markers Shall Indicate Depth as Measured 3 feet from the Pool Wall. 5. Markers Shall Include "NO DIVING" Markers at Locations Shown on the Plan. 6. Markers Shall Have Depth In Numbers That are 4" High Followed by "FOOT DEPTH" or "INCHES DEPTH". See Detail. 7. "NO DIVING" Markers Shall Be at All Locations With Depths Less than 8 Feet.</p> <p>1 Depth Marker Detail SP-7 N.T.S.</p> <p>2 Fill Spout Detail SP-7 N.T.S.</p> <p>3 Lane Markers Detail SP-7 N.T.S.</p> <p>4 Float Rope Detail SP-7 N.T.S.</p> <p>5 Pipe Hanger Detail SP-7 N.T.S.</p>	<p>2 Fill Spout Detail SP-7 N.T.S.</p>	<p>3 Lane Markers Detail SP-7 N.T.S.</p>	<p>4 Float Rope Detail SP-7 N.T.S.</p>	<p>Hanger Notes: 1. Pipe hanger as manufactured by Global Pipe Hanger Products, Inc. 2. Hanger is Series 402, Standard Clevis, PVC coated.</p> <table border="1"> <thead> <tr> <th colspan="5">Hanger Dimensions</th> </tr> <tr> <th>Pipe Dimensions (Inches)</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>Ø (In)</td> <td>3/4</td> <td>2-1/4</td> <td>3-1/8</td> <td>1-1/8</td> </tr> <tr> <td>1</td> <td>3/8</td> <td>2-1/4</td> <td>3-1/8</td> <td>4-1/4</td> <td>15/16</td> </tr> <tr> <td>2</td> <td>3/8</td> <td>2-7/8</td> <td>3-5/8</td> <td>5-1/2</td> <td>1</td> </tr> <tr> <td>3</td> <td>5/8</td> <td>3-5/8</td> <td>5-1/8</td> <td>7-3/8</td> <td>1-1/8</td> </tr> <tr> <td>4</td> <td>5/8</td> <td>3-5/8</td> <td>5-1/8</td> <td>6-1/4</td> <td>1-5/8</td> </tr> <tr> <td>6</td> <td>3/4</td> <td>5-3/4</td> <td>6-1/8</td> <td>8-1/4</td> <td>1-5/8</td> </tr> <tr> <td>8</td> <td>3/4</td> <td>8-1/4</td> <td>12-1/8</td> <td>8-1/4</td> <td>2</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="5">PVC Sch 40 Pipe Support Spacing</th> </tr> <tr> <th>Nominal Spacing Diameter (In)</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>4.5</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td>6</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td>7</td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> <td>7.5</td> </tr> <tr> <td>6</td> <td></td> <td></td> <td></td> <td>8</td> </tr> <tr> <td>8</td> <td></td> <td></td> <td></td> <td>8.5</td> </tr> </tbody> </table> <p>5 Pipe Hanger Detail SP-7 N.T.S.</p>	Hanger Dimensions					Pipe Dimensions (Inches)	A	B	C	D	Ø (In)	3/4	2-1/4	3-1/8	1-1/8	1	3/8	2-1/4	3-1/8	4-1/4	15/16	2	3/8	2-7/8	3-5/8	5-1/2	1	3	5/8	3-5/8	5-1/8	7-3/8	1-1/8	4	5/8	3-5/8	5-1/8	6-1/4	1-5/8	6	3/4	5-3/4	6-1/8	8-1/4	1-5/8	8	3/4	8-1/4	12-1/8	8-1/4	2	PVC Sch 40 Pipe Support Spacing					Nominal Spacing Diameter (In)	1	2	3	4	1	4.5				2		6			3			7		4				7.5	6				8	8				8.5		
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A	<p>Eye Wash Station Notes</p> <ol style="list-style-type: none"> Emergency Eye Wash unit to be Barrier-Free, wall mounted as manufactured by Bradley, model #S19224BPT. Follow manufacturer's specifications for installation. Comply with all O.S.H.A. regulations for Eye Wash Stations.  <p>1 Pool Water Heater SP-8 N.T.S.</p> <p>2 Deck Slab Drain Detail SP-8 N.T.S. Detail Provided By EDI-International</p> <p>3 Pool Enclosure Fence & Gate Detail SP-8 N.T.S.</p>	<p>Paver to be Manufactured by Techo-Bloc</p> <p>Fixed Height Pedestal on Adjustable Pedestal Steel Plate/ Angle Unilock Adjustable Pedestal or Approved Equal</p> <p>Stop Expanded Metal Mesh * 3/4" (Typical) ** 2" Max.</p> <p>4'-0" Leaf Widths 3' Min. Above Grade Latch Handle 54"</p> <p>1/2" Diamond Galv. Expanded Metal Mesh of Gates Only</p> <p>Panic Bar Latch Protector * 3/4" (Typical) ** 2" Max.</p> <p>1-1/4" x 1-7/16" Rail</p> <p>Concrete Slab by Others Proposed Drain Inlet By Others MM6125/Flex-Flash by Hydrotech at Drain</p> <p>Pedestal Supported Pavers 9/16" x 3" Epoxy Coated Stainless Steel Expansion Bolt Concrete Support Slab See Architectural & Structural Inside Pool Enclosure View</p> <p>1-3/4" x .125 Wall 3" x 3" x .080 Wall Picket Gate Upright Spring Hinge (Self Closing) Pedestal Supported Pavers 9/16" x 3" Epoxy Coated Stainless Steel Expansion Bolt Concrete Support Slab See Architectural & Structural Outside Pool Enclosure View</p> <p>Notes</p> <ol style="list-style-type: none"> Spacing between vertical members shall be less than four (4) inches. Pool enclosure to meet all Nassau County Codes, Height 72" min. Gate and gate hardware shall comply with the Building Code of New York State, Sections 3109.3.2.1 through 3109.3.2.7. Final configuration of gate hardware shall comply with the requirements specified and as recommended by manufacturer. Maximum 2" Clearance Below Fence. All gates shall be self closing, self latching and securely locked with a key. Fence shall be constructed and installed to not permit footholds. Contractor shall verify all dimensions with Fence/Gate Manufacturer. 	 <p>4</p> <p>72"</p> <p>54"</p> <p>4'-0" Leaf Widths 3' Min. Above Grade Latch Handle 54"</p> <p>1/2" Diamond Galv. Expanded Metal Mesh of Gates Only</p> <p>Panic Bar Latch Protector * 3/4" (Typical) ** 2" Max.</p> <p>1-1/4" x 1-7/16" Rail</p> <p>3" x 3" x .080 Wall Picket</p> <p>Gate Upright 1-3/4" x .125 Wall</p> <p>Spring Hinge (Self Closing)</p> <p>Pedestal Supported Pavers</p> <p>9/16" x 3" Epoxy Coated Stainless Steel Expansion Bolt</p> <p>Concrete Support Slab See Architectural & Structural Outside Pool Enclosure View</p> <p>72"</p> <p>5-1/2"</p> <p>4 - Ø 9/16"</p> <p>1/4" Thick St. St. Plate</p> <p>Concrete Support Slab See Architectural & Structural Fence Post and Base Plate</p>	<p>5</p> <p>Notes</p> <ol style="list-style-type: none"> 1. Spacing between vertical members shall be less than four (4) inches. 2. Pool enclosure to meet all Nassau County Codes, Height 72" min. 3. Gate and gate hardware shall comply with the Building Code of New York State, Sections 3109.3.2.1 through 3109.3.2.7. Final configuration of gate hardware shall comply with the requirements specified and as recommended by manufacturer. 4. Maximum 2" Clearance Below Fence. 5. All gates shall be self closing, self latching and securely locked with a key. 6. Fence shall be constructed and installed to not permit footholds. 7. Contractor shall verify all dimensions with Fence/Gate Manufacturer. <p>For Each Fence & Gate Post, Provide Escutcheon Cover Model: Century Rail Post skirt 2-1-2, by DecksDirect.com or Approved Equal</p> <p>Pedestal Pavers</p> <p>Connection to Roof Deck & Reinforcement per Structural Plans & Details, See Architectural & Structural Plans for Waterproofing</p> <p>9/16" x 3" Epoxy Coated Stainless Steel Expansion Bolt</p> <p>Concrete Support Slab See Architectural & Structural Fence Post and Base Plate</p> <p>5-1/2"</p> <p>1/4" Thick St. St. Plate</p> <p>1"-1/4"</p> <p>3"</p> <p>2"</p> <p>1/2"</p> <p>4 - Ø 9/16"</p> <p>1/4" Thick St. St. Plate</p>				
B	 <p>4 Pool Bonding Schematic SP-8 N.T.S.</p>  <p>5 Schematic Elevation - Sump, Piping & Drainage Structure SP-8 N.T.S.</p>	<p>Electrical Bonding Notes</p> <ol style="list-style-type: none"> Skotch-Kote all connections. Install per NEC 2005, Section 680.26 or latest thereof. Use No. 8 coated tails off bonding loop to equipment and steel not immediately adjacent to bond loop. Provide a "Certificate of Electrical Compliance". Run two #4 bars with 24" No. 4 bars 12" O.C. around perimeter of the pool. Set directly under deck per NEC 2005, Section 680.26 (c) or latest thereof. <p>6 Pool Deck Paver Detail SP-8 N.T.S. Detail Provided By RDA Landscape Architecture, P.C.</p>	<p>X= Height To Provide Minimum 1/8" Discharge Slope From Sump to Drainage Structure</p>  <p>7</p> <p>Waste Piping Suspended from Ceiling (Typical)</p> <p>First Floor Joist</p> <p>Elevated Drain Sump</p> <p>Fin. Grade</p> <p>1/8" Min. Slope</p> <p>6" Ø Pipe to Drainage Structure</p> <p>Filter Room</p> <p>To Drainage Structure Per Civil Engineer Design</p> <p>Paver Manufacturer: Techo-Bloc "Blu Grande" Finish: HD2 Smooth Color: Greyed Nickel</p> <p>Unlock Pedestal or Approved Equal</p> <p>2" Thick Pedestal Pavers</p> <p>Provide 1/4" Steel Plate Support Where Conflicts With Drains Prevent Placement of Pedestal</p> <p>Fixing Support</p> <p>Support Adjustment</p> <p>Spacer for Raising</p> <p>Support Base W/ Wedge Below for 1/8" Tapered Slope</p> <p>Roof Membrane, Concrete Roof Deck, See Architectural/Structural Plans for Additional Information</p>					
C	 <p>7 Pool Bonding Schematic SP-8 N.T.S.</p> <p>8</p> <p>18" Diam. Pipe Knockout (Each Side) Pipe Knockouts to be Opened Between Configurable Galleys Prior to Installation</p> <p>18" Ø Pipe Knockout</p> <p>18" Ø Hole</p> <p>Recessed Removable Cover</p> <p>END VIEW - END WALL</p> <p>END VIEW - INTERMEDIATE WALL</p> <p>For Reference Only, See Plans by Nelson & Pope for Dimensions</p>	<p>Installation Notes</p> <ol style="list-style-type: none"> The Contractor shall compact the subgrade in accordance with the project specifications. Any areas of subgrade that are deemed unsuitable by the geotechnical engineer, shall be undercut, removed and replaced with suitable sand and gravel fill. The Contractor is permitted to use native sand around and above the leaching galleys. The Engineer reserves the right to reject any material to be used as backfill if deemed unsuitable during construction. <p>Manufacturer Notes</p> <ol style="list-style-type: none"> Concrete 4,000 psi @ 28 Days. Rebar to be ASTM A-615 Grade 60. Welded Wire Fabric ASTM A-185. Designed for AASHTO HS-20 loading (without soil cover). Top slab and wall are monolithic. 	<p>9</p>	<p>10</p>	<p>11</p>			
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A	<p>Standard Notes</p> <ol style="list-style-type: none"> R & W / Engineers, P.C. (RWE) includes its owners, employees and sub-consultants whenever referenced. All plans and project documents are copy written. All rights are reserved and violations will be prosecuted to the fullest extent of the law. This plan is the work of RWE and shall not be reproduced, copied or otherwise used without written permission of RWE. The ideas, concepts, sketches, designs, details, specifications and notes contained on these drawings are the sole exclusive property of RWE. Nothing contained within these documents shall be used or disclosed to any person, firm or corporation for any purpose without the express written consent of RWE. RWE accepts no responsibility for interpretations or restrictions that may be imposed by the Owner. All layout, design, material, material placement, material specifications or other items within the Owner's jurisdiction has been dictated solely by the Owner. RWE is not responsible for errors of implementation by the Contractor or for changes, deletions, substitutions or additions to the Plans, Specifications or the Project by others. RWE makes no representation that the design needs or includes all applicable building codes and/or standards of the authorities having jurisdiction. Prior to using these documents the Owner and Contractor represent and warrant that they have examined the local building codes and acknowledge that by using these construction documents they are jointly and severally responsible to comply with any and all applicable local codes and clearances. RWE does not consult on safety, security and environmental concerns related to actual construction means, methods or procedures. The Owner and Contractor shall seek advice from professionals skilled in these disciplines if necessary. Any and all materials, means, methods and procedures not depicted in these construction documents shall be the sole responsibility of the Owner and Contractor. The Contractor shall be solely responsible for temporary bracing and shoring of items including, but not limited to, excavations, trenches, forms and erected structures. The construction documents represent the finished work and not the means, methods and procedures to perform the work. The Contractor shall be solely responsible for all site conditions including, but not limited to, safety, security and environmental concerns. This requirement is not limited to employees, sub-contractors, working hours or the physical extents of the work. The Owner and Contractor shall defend, indemnify and hold harmless RWE from all liability in connection with the performance of their work. The Owner and Contractor acknowledge that these construction documents include concepts that are subject to the site conditions. The site conditions may require modifications to the actual construction of the project to satisfy the intent of the concepts. These documents are not approved for construction without a stamp and signature of the Engineer of Record and the permit issuing agency on each sheet. Anchor bolts, embeds and inserts for equipment shall be designed by a qualified engineer with shop drawings submitted to RWE for review. If changes are requested by the Contractor or the Owner, new construction documents may be required for construction and submitted to authorities having jurisdiction. By the use of these plans the user acknowledges that they have read and understand all of the information included herein. All Standards, Codes, Ordinances, Regulations and Amendments by the authorities having jurisdiction shall be the latest edition. The Contractor shall immediately notify the Engineer of all errors, omissions and/or conflicts between standards, codes, ordinances, regulations, amendments by the authorities having jurisdiction, drawings, specifications, construction documents and/or contract documents. The contractor shall not proceed with any work affected by the issue(s) until they are resolved by the Engineer. The Contractor shall verify all dimensions, elevations and site conditions and shall immediately notify the Engineer of all discrepancies prior to starting the work. If a specific detail or specification is not provided then construction shall be the same as for similar work. The Contractor shall clarify omissions with the Engineer. Written dimensions shall take precedence over calculated dimensions that shall take precedence over scaled dimensions. <p>Reinforcing Steel Notes</p> <ol style="list-style-type: none"> Reinforcing steel shall conform to ASTM A-615, Grade 60. Welded wire fabric shall conform to ASTM A-185 with a minimum ultimate strength of 60,000 psi. Reinforcing bars shall be spliced a minimum of 45 bar diameters or 24" whichever is greater, unless noted otherwise. Lap top bars at midpoint and bottom bars at supports. Development length, L_d, shall be 35 bar diameters or 18", whichever is greater, unless note otherwise. The 90° end hook shall have a minimum length of 12 bar diameters. <p>Gunité Notes</p> <ol style="list-style-type: none"> Gunité is a trade name used to designate a mixture of Portland cement and sand thoroughly mixed dry, passed through a cement gun and conveyed by air through a flexible tube, hydrated at a nozzle at the end of the flexible tube and deposited by air pressure in its place of final repose. Unless otherwise specified, all gunité shall be mixed in the proportions of 1 part cement to 4 parts sand base on dry weight. Only Portland cements of American manufacturer's complying with the most recent edition of "Standard Specifications for Portland Cement" ASTM C-150-67 shall be used. Type I or Portland cement shall be used unless noted otherwise. Fine aggregate (sand) shall consist of washed sand and shall be hard, dense, durable, clean, sharp and graded evenly from fine to coarse in accordance with the "Standard Specifications for Concrete Aggregates," ASTM C 33-67. Sand shall be free from organic matter and shall not contain more than 5% by weight of deleterious substances. <p>Limits of Fine Aggregates Grading</p> <table border="1"> <thead> <tr> <th>Sieve Size</th> <th>Percent by Weight</th> </tr> </thead> <tbody> <tr> <td>Passing 3/8"</td> <td>100</td> </tr> <tr> <td>Passing No. 30</td> <td>30-50</td> </tr> <tr> <td>Passing No. 4</td> <td>95-100</td> </tr> <tr> <td>Passing No. 8</td> <td>65-90</td> </tr> <tr> <td>Passing No. 16</td> <td>45-75</td> </tr> <tr> <td>Passing No. 100</td> <td>10-22</td> </tr> <tr> <td>Passing No. 200</td> <td>2-8</td> </tr> </tbody> </table> <p>Gunité sand shall contain between 3% and 6% moisture by weight. Sand and cement proportions may be correct to provide for bulkage due to sand-moisture content.</p> <p>5. Water used for hydration of the nozzle shall be fit for drinking and shall be maintained at a uniform pressure which shall be at least 15 psi above the air pressure at the nozzle.</p> <p>6. Adequate ground wires, to be used as screeds, shall be installed to establish the thickness and surface planes of the gunité work. Ground wires shall be placed so that they are tight and true to line and in such a manner that they may be easily lightened. They shall be located at intervals sufficient to ensure proper thickness throughout and shall be maintained tight.</p> <p>7. When enclosing reinforcing steel, the nozzle shall be held so as to direct the material around the bars. A nozzleman's helper equipped with an air jet shall attend the nozzleman and blow out all rebound, sand, etc., which may be logged on the forms, steel or gunité. Gunité material shall emerge from the nozzle in a steady, uninterrupted flow. When flow becomes intermittent for any cause, the nozzle shall be diverted from the work until the flow becomes constant. Hydration shall be thorough and uniform without the use of excessive water. In shooting walls and beams, application shall begin at the bottom and shall completely embed the reinforcement. The limit of the thickness and height has been exceeded when the material begins to sag. In shooting beams, the nozzle shall be held at right angles to the surface of application. Wherever possible, slabs shall be completed in one operation.</p> <p>8. Reinforcement shall be cleaned of any previously deposited gunité which might prevent proper bond to reinforcement. Sufficient time shall be allowed between layers for the material to set. Before set has taken place, and before placing any succeeding layer, laitance shall be removed by brooming. Any laitance which has set shall be removed by sandblasting. Surfaces shall be damp at all times.</p> <p>9. Rebound pockets, sags or other defects shall be carefully cut out and replaced with new gunité or hand patched in a manner satisfactory to the Engineer.</p> <p>10. Upon reaching the thickness and planes outlined by forms and ground wires, the surface shall be rodded to true lines. Upon completion of rodding, ground wires may be removed. If possible, the finish coat shall be applied so that gunité is not shot over the finished work. All exposed surfaces shall be finished to straight and true lines.</p> <p>Marble Dust (Marcite) Finish Notes</p> <ol style="list-style-type: none"> After installing all new water line, step and interior tile, install marble dust interior surface. The new marble coating shall be a minimum of 1/2 inch thick, and is intended to provide a smooth, uniform surface. Prior to the application of the marble dust finish and after proper preparation of the pool shell, a bond coat shall be placed to the entire interior shell surface. Bond coat shall be comprised of a bonding agent, Acryl 60 or equal, sand and Portland cement. Cure bond coat a minimum of 36 hours. The mixture shall be in the following proportion 2-1/2 Gallons of Acryl 60 94 lbs of Portland Cement 100 lbs of Sand Water as required to provide a mixture having a consistency of heavy paint The marble dust coating shall consist of 1/2 inch thick layer of marble powder aggregate mixed two (2) parts marble to one (1) part white cement. Finish shall be troweled to a smooth, dense, impervious surface. Extreme care shall be used to avoid stains. Pool finish shall be applied by mechanics having at least three (3) years experience in the installation of this material. Written proof of this experience shall be supplied to the Engineer prior to commencement of the work. Pool finish shall be cured in accordance with industry standards. <p>General Notes</p> <ol style="list-style-type: none"> This entire swimming pool facility shall be designed, constructed and maintained in strict accordance with the New York State Sanitary Code, Chapter 1, Part 6 and Sub-Part 6-1 of the New York State Department of Health. Following items shall become part of the architectural specifications for construction of the sanitary facilities. <ul style="list-style-type: none"> Walls, partitions and ceilings shall have a finish that is impervious to moisture. Floors shall be non-slip, impervious to moisture, free from cracks and joints and sloped to the floor drains a minimum of 1/4 inch per foot. The juncture between the walls, partitions and floors shall be covered. Water closets, urinals, lavatories and showers shall be per code. The seat for the water closet shall have a split front. Shower curtains shall be of plastic or plastic coated. 	Sieve Size	Percent by Weight	Passing 3/8"	100	Passing No. 30	30-50	Passing No. 4	95-100	Passing No. 8	65-90	Passing No. 16	45-75	Passing No. 100	10-22	Passing No. 200	2-8	<p>F. Showers shall be equipped with hot water between 90 to 100 degrees Fahrenheit with automatic mixing valves to prevent scalding and with a minimum of three gallons per minute per shower head.</p> <p>G. Wall mounted liquid soap dispensers shall be installed at the showers and lavatories. The use of bar soap is strictly forbidden.</p> <p>H. Waste receptacles shall be provided in each toilet room. Suitable sanitary napkin receptacles shall be provided in the female toilet rooms.</p> <p>I. The swimming pool shall be totally enclosed by a minimum 72 inch high fence with a self closing and positive self latching gate as noted on the plans.</p> <p>3. The Following Applies to the Swimming Pool and Surrounding Deck Area.</p> <p>A. All walks and decks shall be smooth, non-slip, impervious to moisture and sloped away from the back of the pool to deck drains or seeded areas at 1/4 inch per foot, minimum. No asphalt or terrazzo surfaces are permitted. Carpeting of any type is prohibited.</p> <p>B. Provide 3/4 inch hose bibs with approved type vacuum breakers so located that all parts of the pool deck can be reached and cleaned with a fifty foot hose.</p> <p>C. No refreshments of any kind (food or drink) shall be served or eaten in the pool area.</p> <p>D. A prominently mounted sign shall post prominently indicating the following information: THE MAXIMUM NUMBER OF BATHERS IN THE POOL AT ANY GIVEN TIME - (See Schedule) THE MAXIMUM NUMBER OF PERSONS PERMITTED WITHIN THE POOL ENCLOSURE. (See Schedule)</p> <p>E. The following signs shall be prominently posted at the pool area: "LIFEGUARD AT POOLSIDE", "ALL PERSONS MUST SHOWER BEFORE ENTERING THE POOL", "PERSONS WITH INFLAMED EYES, NASAL OR EAR DISCHARGE, BACK OR OTHER EVIDENT SKIN OR BODILY INFECTIONS SHALL BE EXCLUDED FROM THE POOLS", "NO ONE IS PERMITTED IN THE POOL WHEN THE LIFEGUARD IS NOT ON DUTY AT THE POOL SIDE", "NO PETS OF ANY TYPE ARE PERMITTED IN POOL ENCLOSURE".</p> <p>F. The following sign shall be prominently posted at the pool area: "POLLUTION OF SWIMMING POOL WATER IS PROHIBITED, URINATING, DISCHARGE OF FECAL MATTER, EXPECTORATIONS OR BLOWING THE NOSE IN ANY SWIMMING POOL IS PROHIBITED."</p> <p>G. The pool bottom shall have a non-slip surface finish and shall pitch a maximum of one inch in twelve inches by the swimming area to a depth of 4-11". The pool interior shall be finished with a white marble dust plaster, unless otherwise noted on the plans.</p> <p>H. Provide permanent type depth markers approximately every twenty five (25) feet or as otherwise noted on the plans, marking the pool depths on the pool deck and pool walls. The depth markers shall be a minimum of four (4) inches in height and of a color contrasting with the background. Prominent "NO DIVING" markers shall be installed between depth markers.</p> <p>I. Safety handholes shall be provided in the form of a bull nose coping not more than nine (9) inches above the normal water line.</p> <p>J. A four (4) inch wide stripe of contrasting color shall be located along the top and front leading tread edge of all projecting pool steps.</p> <p>K. Unless otherwise noted on the plans, six inch by six inch frostproof mosaic type tile band shall be installed on the pool walls directly under the cast stone coping.</p> <p>L. The space between the back of the coping and the pool deck shall be sealed with Triokol, or equal, type sealant to prevent entry of any moisture or water.</p> <p>4. The Following Applies to the Swimming Pool Hydraulics:</p> <p>A. The piping is shown partially diagrammatic and is intended to guide the Contractor in installing the piping in the field. The arrangement and piping of equipment shall be as shown on the plans and as required to provide the proper operating and maintenance space and with adequate headroom (at least seven feet of head).</p> <p>B. All pressure lines shall be hydro-statically tested at 1-1/2 times the working pressure for a minimum period of two hours. Gravity lines shall be given a gravity pressure test. All lines must be repaired and the entire system tested for an additional two hours.</p> <p>C. Color coding of all exposed piping within the filter room shall be in accordance with the Color Code Schedule on this drawing.</p> <p>D. All valves shall be properly supported and tagged in accordance with the valve schedule. The valve tags shall be two inch diameter, brass or cyclic plastic and attached to the valves with brass S' hooks or plastic tie straps.</p> <p>E. All piping, unless otherwise noted, shall be rigid schedule 40 polyvinyl chloride pipe except that all piping under the pool shell shall be rigid schedule 80 pvc. Any metallic piping used below grade shall be given a minimum of two coats of bituminous paint. All piping shall be supported continuously or at sufficiently close intervals to prevent sagging. All supply and return pipeline to the pool shall be provided with insertable plugs or valves to allow piping to be drained completely. The fittings for the pvc piping shall be schedule 40 pvc or schedule 80 pvc when specified or under the pool and shall be solvent cemented.</p> <p>F. All valves 2-1/4 inch and larger shall be of the butterfly type. All valves two inches and smaller shall be gate valves, ball type valves or butterfly type valves.</p> <p>G. The bottom suction drain grate shall have a free area opening in the drain grating equal to four times the area of the drain pipe suction line. Openings in the top of the grate shall be less than 1/2 inch wide.</p> <p>H. Water return inlets shall be a minimum of 12 inches below the water line or as noted on the plans. The return inlets shall be both adjustable and directional.</p> <p>I. The domestic water fill line supply shall be separated from the top of the coping by an approved type 6 inch air break.</p> <p>J. The piping shall pitch a minimum of one inch in 30 feet and equipped with low point accessible valves for draining when required and when shown on the plans.</p> <p>L. A piping schematic behind glass or encapsulated in a clear plastic laminate shall be mounted on the filter room wall in a prominent place showing each valve, its function, number and approximate location.</p> <p>M. The pool contractor shall provide a comprehensive set of operating instructions and service instructions for all equipment and for all pool functions designed to meet the capabilities of a young lifeguard.</p> <p>N. All pressure and vacuum gauges shall be set at the same elevation.</p> <p>5. The Following Items Apply to the Swimming Pool Electrical Systems:</p> <p>A. The chemical feed equipment, chlorinator and acid feeder shall be electrically interlocked with its respective filtration pump motor.</p> <p>B. All electrical motors, underwater lights, above grade lighting and all other electrical equipment shall be equipped with ground fault interrupters in accordance with the latest edition of the National Board of Fire Underwriters, the National Electric Code, and the Underwriters Label of Certification.</p> <p>C. All wiring and grounding of all deck equipment shall be in accordance with the latest edition of The National Electric Code, The National Board of Fire Underwriters and all local electrical codes having jurisdiction.</p> <p>D. No overhead electrical wiring of any type shall be permitted within 20 feet of the pools measured horizontally from the water line.</p> <p>E. The swimming pool facility shall not be utilized until such time that an operating permit has been issued by the County.</p> <p>F. All work indicated on the plans and in these General Notes shall be completed in strict accordance with these provisions. The New York State Sanitary Code, all local codes having jurisdiction, and all local ordinances having jurisdiction.</p> <p>Certification Requirements</p> <ol style="list-style-type: none"> The Engineer of Record must certify that the construction conforms to the approved plans. As such, certain inspections will be required. The inspections shall include the following: <ul style="list-style-type: none"> Main drain piping (joint inspection with County) Shell steel reinforcing (joint inspection with County) Curied piping prior to backfill (joint inspection with County) Completion of all enclosure items and operation of all equipment (joint inspection with County) The contractor shall provide a mechanic capable of performing corrective work at each inspection. Follow up inspections may be required for corrective work that cannot be performed during the inspection. The Contractor shall provide a valid Electrical Approval Certificate at the final inspection. The Contractor shall notify the Engineer of Record at least 48 hours in advance of any inspection. <p>Identification and Tagging</p> <ol style="list-style-type: none"> Panels, cabinets, etc., shall be properly identified with permanent nameplates securely fastened with screws to the front of equipment. "Stick-On" type letters or plates shall not be used. <ul style="list-style-type: none"> Identify equipment and key equipment components with nameplates of black laminated phenolic material. Coordinate nameplates with actual equipment installed. Submit a cut sheet with nameplates for approval prior to purchase and installation. Minimum size nameplates shall be three (3) inches long with 1/4 inch lettering. Conductors in troughs, pullboxes, gutters, etc., shall be identified by means of tags indicating both terminating points. <p>Grounding and Bonding</p> <ol style="list-style-type: none"> Provide all grounding and bonding conductors and connections as indicated, and in accordance with the requirements of the NEC and all local authorities having jurisdiction. All major parts not carrying current, including the following items, shall be properly grounded with a green insulated grounding conductor. <ul style="list-style-type: none"> Metallic junction boxes and disconnect switches All metallic raceways, conduits and outlet boxes Motor and equipment housings and metallic control panels Provide a "green" wire grounding conductor for all equipment and as indicated on the drawings. Conductors and Connections <ul style="list-style-type: none"> Hard-drawn, stranded (ASTM B8) copper Accessible grounding conductors shall be annealed copper with 600 volt, green, type THW insulation. Conductors shall be stranded except pool bonding conductors which shall be solid. Accessible connections shall be made with multiple bolt silicon bronze connectors specifically designed and approved for the connection to be made. Grounding connectors shall be individually selected for each application, as recommended by the conductor manufacturer. Where connections involve dissimilar metals contributing to corrosion, interpose a third, compatible conductive material. Exothermic welds of copper to steel are acceptable. Inaccessible connections shall be made with exothermic welds (Cadmell or equal) Grounding connections shall be manufactured by <ul style="list-style-type: none"> Bundy Corp. Dossett Corp. Oz/Gedney Co. 	<p>6. Phase Rotation Tests</p> <ol style="list-style-type: none"> Properly test the phase rotation of feeder and branch circuits, and make such changes and alterations necessary to ensure the correct rotation of all motor driven equipment throughout the new installation. <p>7. Electrical Service Characteristics</p> <ol style="list-style-type: none"> The characteristics of the secondary electrical service and distribution system are 120/208 volts, three phase, four wire plus ground. <p>8. Tests, Inspections and Approval</p> <ol style="list-style-type: none"> Inspect all equipment, components and materials installed or connected to ensure <ul style="list-style-type: none"> Proper conditions Components are in place, aligned and secure. Proper internal connections The complete electrical system shall be free of grounds and short circuits. <p>Raceways</p> <ol style="list-style-type: none"> All wiring shall be installed in conduit systems in accordance with the following: <ul style="list-style-type: none"> Filter room wiring shall be installed in rigid schedule 40 pvc conduit with solvent welded fittings. All work installed in the filter room shall be run exposed. Conduit shall not be embedded in slabs. Minimum size conduit shall be 3/4 inch trade size unless otherwise indicated. Final connections to motors and vibrating equipment shall be installed in liquid-tight flexible metal conduit. Minimum length shall be 12 inches. The routing of conductors indicated on the drawings is diagrammatic. Before installing any work examine the working layouts and shop drawings of the other trades to determine the exact locations and clearance. Conduit fittings, connectors, couplings, ellips, nipples and such shall be of material and construction suitable for the conduit system used. <p>Wires and Cables</p> <ol style="list-style-type: none"> Wire and cable shall be 600 volt, copper with THHN/THWN-2 90 degrees C insulation except as noted or otherwise specified herein. Wire for power and lighting shall be not less than No. 12 AWG. Wire No. 8 and larger shall be stranded except as noted. Wires shall be color coded as follows: <ul style="list-style-type: none"> 208 Volt Systems - Black, Red and Blue Neutral - White Equipment Ground - Green Provide a green insulated ground conductor with all feeders and branch circuits. <p>Outlet Boxes</p> <ol style="list-style-type: none"> Boxes for wiring devices, junction points, switching relays, and such in the filter room shall be of proper size and type as required by the room conditions and shall be fabricated of fiberglass reinforced polyester or PVC with stainless steel screws and shall be UL listed. Conduit fittings, connectors, couplings and such in the filter room shall be of material and construction suitable for the conduit system used. <p>Wiring Devices</p> <ol style="list-style-type: none"> Switches <ul style="list-style-type: none"> Local switches shall be toggle type, 120-277 volt, AC rated 20 amperes, quiet-type with silent operating mechanism, totally enclosed in a molded composition base. Switches shall be Arrow Hart No. 1991, single pole or equal by Hubbell. Receptacles <ul style="list-style-type: none"> Receptacles shall be termination type duplex ground fault circuit interrupter. Receptacle device rated 20 ampere, 125 volts, Arrow Hart No. GF300 or approved equal. <p>Device Plates</p> <ol style="list-style-type: none"> In general, plates for all wiring devices, except as specified otherwise, shall be 0.040 inch satin finish stainless steel. A common plate shall cover all devices which are indicated at the same location. On the inside of each device plate, write the panel board designation and circuit number of the circuit serving the device. Device plates shall be secured with stainless steel screws. <p>Motor Starters and Controls</p> <ol style="list-style-type: none"> Motor starters, auxiliary contacts, interlock wiring, selector switches, pilot lights, push buttons, control relays, and other control devices, provided under this project, shall be in accordance with the drawings and as specified herein, to provide a complete operating system. Starters for motors shall be of the combination magnetic type and size as required, non-reversing, full voltage, as required for the motor served. Starters shall be furnished with the following: <ul style="list-style-type: none"> Front operator non-fused switch mechanically-interlocked with the starter enclosure cover to prevent opening the starter unless the switch is in the closed position, and lockable in the open position. Magnetic, across-the-line contactor with overload protection and under-voltage protection or release. Control transformer, minimum 100 VA extra capacity, fused secondary, for 120 volt control. Control stations shall be of the momentary contact Start-Stop push button and shall be door mounted. Provide manufacturer's standard legend. Running pilot lights of the oil-light push-to-test neon-type with lamp and red lens shall be door mounted. Provide manufacturer's standard legend. Starters shall be wall or stand mounted in NEMA 4X enclosures unless otherwise indicated. Enclosures shall be constructed of fiberglass reinforced polyester or PVC per NEMA and UL standards and shall bear UL listing. Motor starters and controls shall be manufactured by the following <ul style="list-style-type: none"> Eaton Square D General Electric <p>Panel Boards</p> <ol style="list-style-type: none"> Panels shall consist of an assembly of circuit breakers installed in one gauge stainless steel cabinets, surface mounted. The panel sections shall be mounted away from the back of the cabinet trim and framed. <ul style="list-style-type: none"> The gutter space on sides, top and bottom shall be of sufficient size to prevent overcrowding of wires and capable of overheating of the circuit breakers. Cabinets shall be complete with door in door, hinged doors with cylinder lock, directory frame and neatly typed directory charts. Provide an angle piece on the inside of the bottom of each trim for ease of installation. The branch circuit breakers, in general, shall be molded case, bolt on type, thermal magnetic trip, single, two or three pole. <ul style="list-style-type: none"> Multiple pole breakers shall be single handle, common trip. Where breakers of larger capacity are required, they shall have circuit characteristics as required by manufacturer specifications. Breakers shall be 22,000 A.I.R. for 120/208 volt service, unless otherwise specified. Main buswork shall be high conductivity copper and shall, as a minimum, be designed to carry the full rating of the feeder breaker or switch supplying the panel without perceptible heating. Branch circuit breakers shall be arranged so that each breaker is readily removable from the panel without disturbing adjacent breakers. Phase legs shall be alternately bussed to each circuit breaker in a manner to effect balancing the branch circuit connections as nearly as possible over each phase. Panels by Square D, Siemens, Eaton, and General Electric meeting these specifications shall be acceptable. <p>Cleaning</p> <ol style="list-style-type: none"> Remove all construction debris resulting from the work. Clean equipment and systems following the detailed procedures specified herein, or as directed. <p>Coordination and Supervision</p> <ol style="list-style-type: none"> The work shall be carefully laid out in advance to avoid unnecessary cutting, chipping or drilling of the floor, walls, partitions, ceilings or other surfaces. Where such work is necessary, however, the work shall be patched and/or repaired in an approved manner by skilled mechanics at no additional cost to the Owner. 	<p>Execution</p> <ol style="list-style-type: none"> Neutral connections to room steel or other ground sources shall be made and sized so that ground fault currents do not result in damage to materials or connections. Panel boards and feeder pull boxes shall be grounded by means of insulated grounding bushings on all incoming and outgoing conduits 1-1/4 inches and larger. <ul style="list-style-type: none"> Bushings shall be connected together and to the switchgear, panel or pull box ground lug with a grounding conductor. Wherever plastic or flexible conduit is without internal ground conductor is used for part of a conduit run, a grounding conductor shall be provided in or external to the conduit and connected to grounding connectors at each end of run. The resistance to ground of any part or system specified to be grounded shall not exceed 25 Ohms. Contractor shall test ground resistance with a megger ohmmeter and submit results in report for the Engineer for review. Contractor shall megger the bonded equipment and submit results in report format to the engineer for review. <p>Electrical Notes:</p> <ol style="list-style-type: none"> Electrical work shall include all labor, materials, equipment plant services & administrative tasks required to complete and make operable the work shown on the drawings and specified herein, including but not limited to the following: <ul style="list-style-type: none"> Prepare and submit shop drawings, diagrams and illustrations. Procure required permits and approvals and pay required fees and charges in connection with the work. Protect, test, balance, clean, adjust and guarantee all work to safely, properly and continuously operate. Submit as-built drawings, operation and maintenance instructions and manuals. Provide identification labels, tags, charts and diagrams. Perform all cutting, drilling rough and finish patching of existing and newly installed construction. Excavating and backfilling. Provide and install hangers, supports, foundations, structural framing supports and bases for conduit and equipment. Provide care-free flashing, sleeves and seals for roof, floor and wall penetrations. Temporary light and power for construction. Main distribution panels and motor controllers. Complete wiring for lights and power installations, branch circuits to equipment, motor controllers and power centers. Control wiring and relays. Receptacles, local switches and miscellaneous wiring devices
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