



Environmental Health Plan Review

Public Swimming Pools

June 8th, 2017 / J. Christopher Salter, John Williams

GS 130A-280 through 282

Regulation of Public Swimming Pools

1. Submission and review of plans prior to construction
2. Application, review, expiration, renewal, and revocation or suspension of an operating permit
3. Inspection
4. Design and construction including materials, depth and other dimensions, and standards for the abatement of suction hazards
5. Operation and safety including water source, water quality and testing, fencing, water treatment, chemical storage, toilet and bath facilities, measures to ensure the personal cleanliness of bathers, safety equipment and other safety measures, and sewage and other wastewater disposal





Public Pools Plan Review

John Williams

15A NCAC 18A PLAN REVIEW AND APPROVAL

- Submitted by a Professional Engineer or Architect
- Two complete sets of plans for review
- Prints of drawings a minimum of 18 X 24 inches, maximum of 36 x 42 inches
- Plans are reviewed using a multi-page checklist
- Approve, disapprove, or written comments within 30 days
- Approval is void if construction is not initiated within 1 year



Plan Requirements

- Plan and sectional view dimensions of both the pool and the area enclosed by the barrier fences to include the bathhouse and the equipment room and pool accessories
- Specifications of all treatment equipment used and their layout in the equipment room
- A piping schematic – pipe size, inlets, main drains, skimmers, gutters and vacuum fittings
- Layout of chemical storage room
- Specifications of water supply and wastewater disposal



Review Checklist Components

- A. Pool Area Site Plan
- B. Pool Shell
- C. Appurtenances
- D. Calculations
- E. Pool Piping
- F. Circulation System



Pool Area Site Plan

- Adequate water and sewage disposal
- Perimeter fence and gates
- Pool decks - clear walking space, deck materials and drainage
- Lighting requirements around pool
- Decorative features
- Equipment room and chemical storage
- Safety equipment – body hook and ring buoy with rope, emergency phone
- Warning signs and other required signs
- Bathhouse and restrooms



Pool Shell

- Approved materials
- Corners rounded at intersection of floor and walls
- Depth requirements for shallow and deep end
- Shallow and deep end slope requirements
- Underwater seats, sun shelves or benches
- Diving area dimensions
- Water fountain feature in pool
- Stairs, ladders and handrails provided
- Decks continuous with the top of pool



Appurtenances

- Fill spouts and backflow prevention
- Floating safety ropes and bottom markings
- Contrasting color bands on stairs and seats
- Diving equipment specified
- Depth markings and no diving markers
- Dual drains, adjustable inlets, skimmers or gutters, suction outlets, vacuum ports, hydrostatic relief valve
- Pool slides
- Underwater lights



Calculations

- Pool perimeter
- Surface area
- Volume
- Flow rate – 6 hour turnover rate for swimming pools, 2 hour turnover for wading pools, 30 minutes for spas and hot tubs
- Number of ladders and stairs
- Number and placement of return inlets
- Number and placement of surface skimmers
- Maximum user loading
- Number of toilets, lavatories and shower fixtures



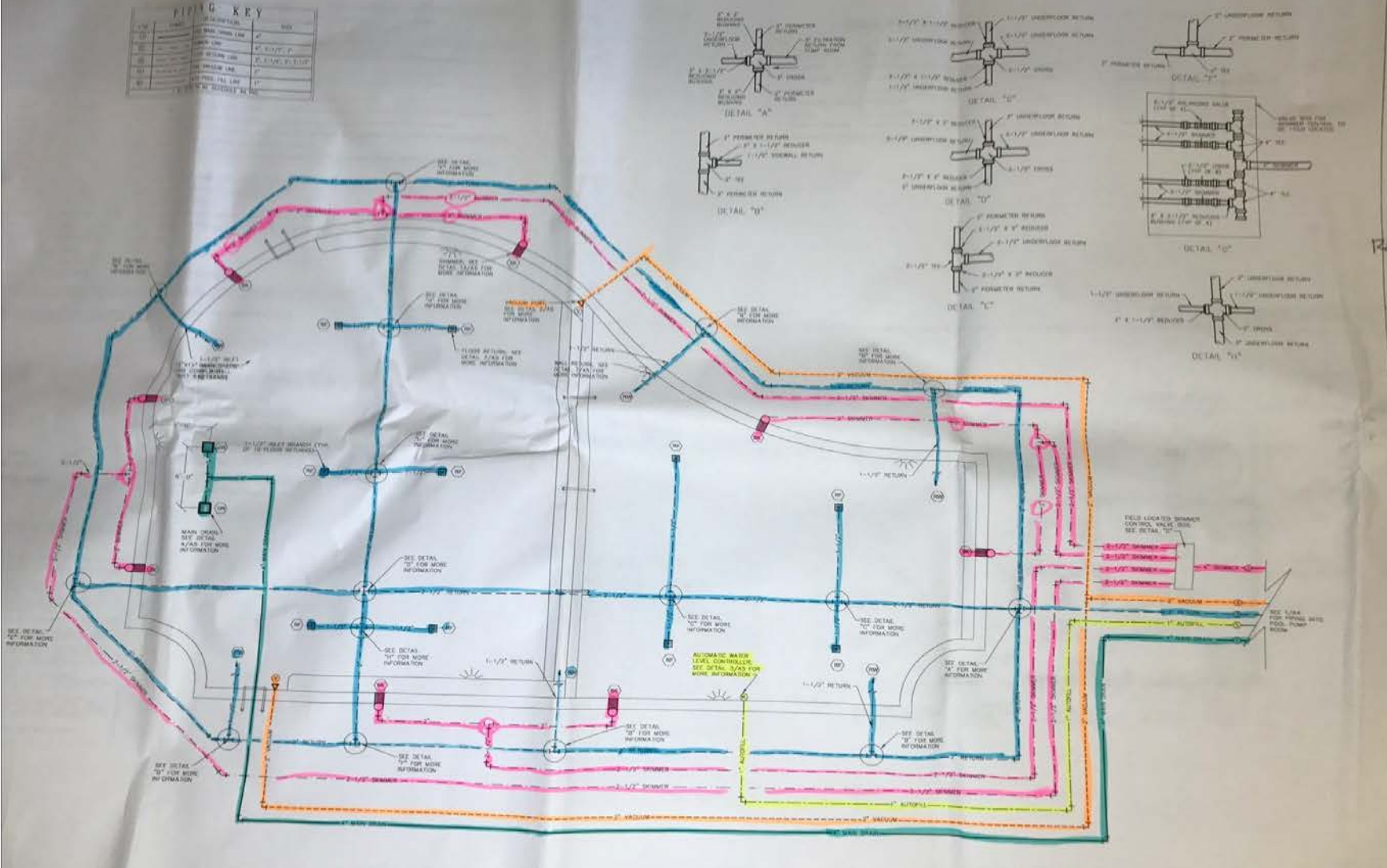
Pool Piping

- Main drain piping - sized to handle 100 percent of the design flow (maximum velocity cannot exceed 6 feet per second)
- Skimmer piping - sized to handle 100 percent of the design flow (maximum velocity cannot exceed 6 feet per second)
- Return piping - sized to handle 100 percent of return flow without exceeding a velocity of 10 feet per second
- Valves to control flow from drains, skimmers and vacuum cleaning system
- Drainage from pool overflow, deck drains and filter backwash
- Vacuum cleaning system with integral ports
- Documentation for the maximum possible pump flow rate for each pump suction system
- Drain covers protected with anti-entrapment covers/grates
- Documentation that drain sumps meet dimensional requirements for covers



Piping Plan

PIPING KEY		
NO.	DESCRIPTION	SIZE
1	1" GALV. STEEL UNDERFLOOR RETURN	1"
2	1" GALV. STEEL UNDERFLOOR RETURN	1"
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100	1" GALV. STEEL UNDERFLOOR RETURN	1"



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Spa and Pool World

LOCATIONS:
 THE RESORTS AT PARK PLACE
 1800 W. HARRIS BLVD., WINTERVILLE, NORTH CAROLINA 28081
 813-297-1111

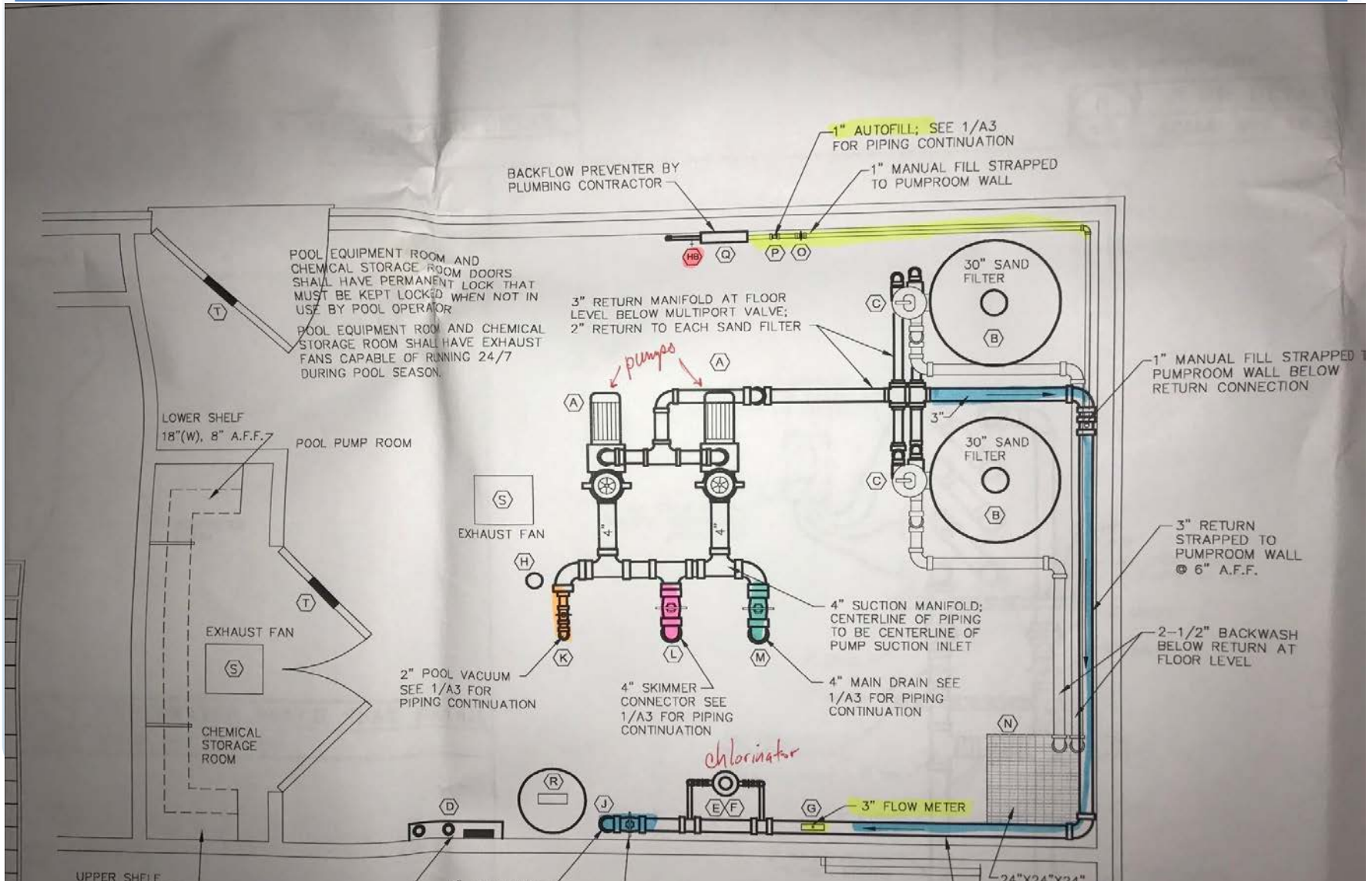
SPONSOR:
 PERRY'S
 1000 W. HARRIS BLVD., WINTERVILLE, NORTH CAROLINA 28081
 813-297-1111

Circulation System

- Pumps specifications
- Hair and lint strainers
- Filter meets NSF requirements, sized properly, necessary valves provided
- Pressure gauge and air relief valve on filter
- Chlorine feeders
- Flow meter
- Pool heater



Equipment Room

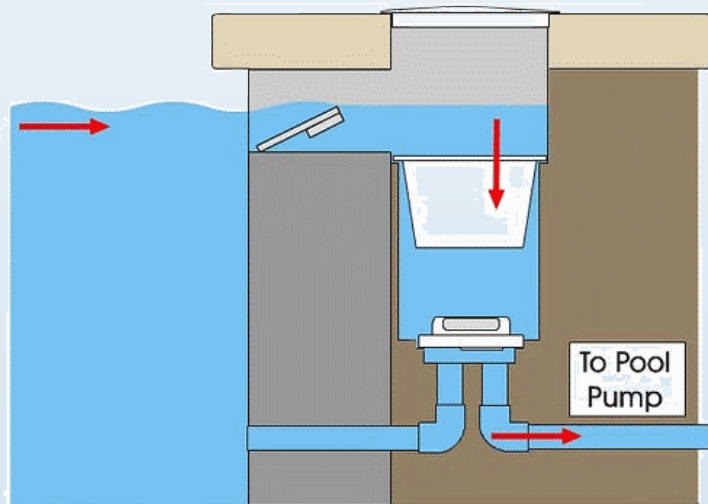


Suction Hazard Reduction Virginia Graeme-Baker (VGB) Pool and Spa Safety Act 12/19/08



Recent Changes

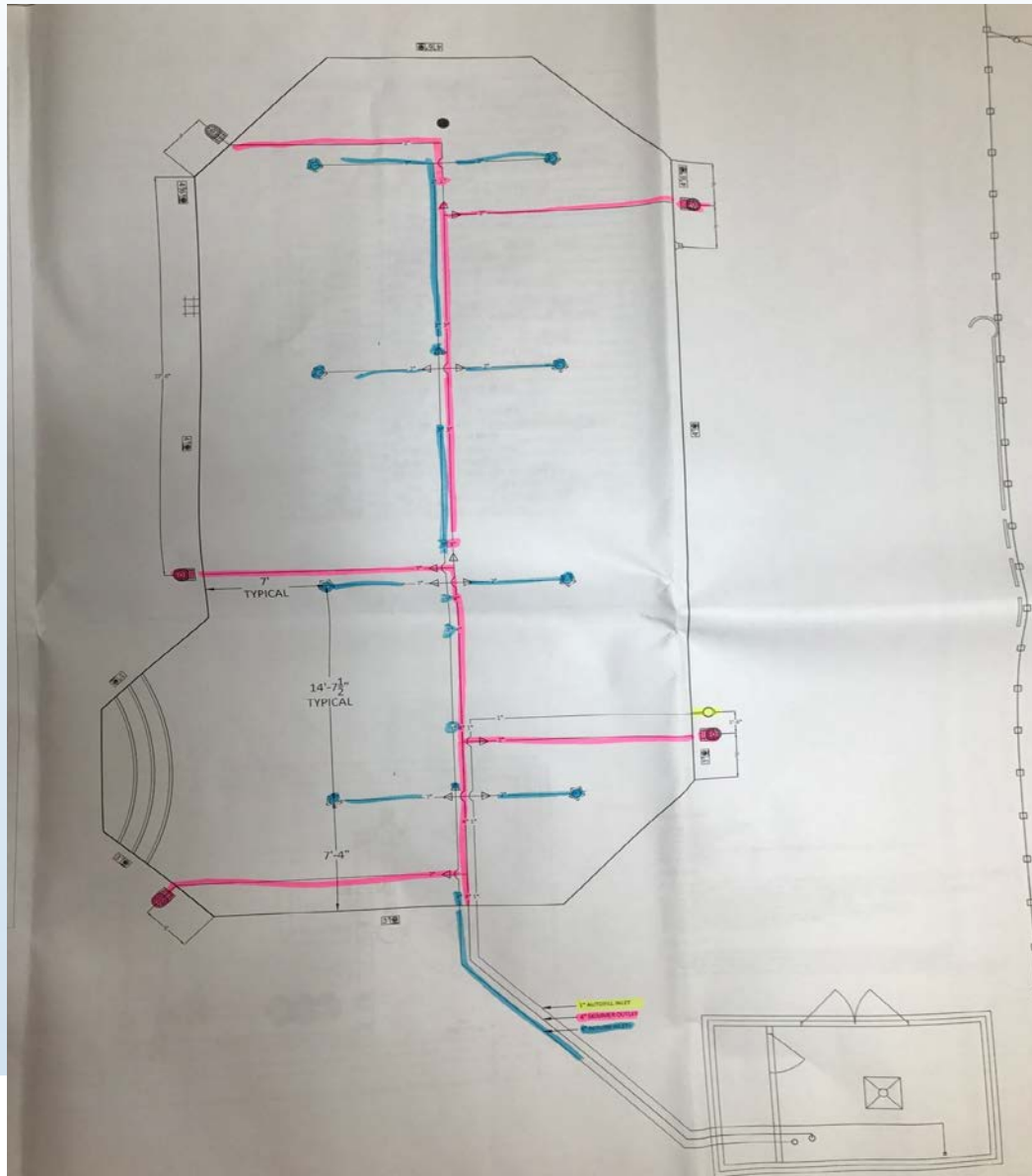
- Elimination of skimmer equalizers
- Requires auto fill



First Pool with no main drains



Plan View



Swimming Pool Electrical Safety

- State recommendation that electrical system be checked on a regular basis
- **SHIELD YOUR ELECTRICAL SYSTEMS WITH GROUND FAULT CIRCUIT INTERRUPTERS**
- The electrical codes did not begin to require that all electrical inputs at pools be protected by GFCI equipment until 2014. As a result of the recent tragedy, all facilities should consider upgrading their electrical equipment panels to current standards, in particular installing GFCI (Ground Fault Circuit Interrupters) on all power sources.
- **MAKE SURE THAT ALL ELECTRICAL COMPONENTS IN THE PUMP ROOM ARE PROPERLY GROUNDED**
- Pool pumps and other electrical devices in the pump room should be properly grounded at all times.
- HB 598 Swimming Pool Electrical Safety 04/06/2017 – GFCI required on power to pool pumps



QUESTIONS ?

