Peter Kirk Pool Facility Assessment and Feasibility Study
RFQ 35-34-PCS

Answers to Questions

1. Does the City have existing as-built drawings for the facility that will be available to the project team? Including mechanical, plumbing, & pool mechanical systems? Are these available in CAD? Scans/PDF's?
    a. *Unfortunately, the City does not have any historical as-built plans for the facility.*

2. Are past studies related to the pool site available for review? Past evaluations or studies?
    a. *Yes, the City will provide a copy of the most recent evaluation of the pool which was completed in 2009.*

3. Will there be any community engagement expected as part of this project scope?
    a. *No formal community engagement is expected. Presentations to Park Board and City Council will be used to collect feedback on behalf of the community.*

4. Will you accept proposals from consultancy firms based in India?
    a. *Yes, international firms may submit a proposal for this project. However, in-person meetings/presentations and site visit to the pool is expected. Some meetings may be held virtually using Zoom or Teams as well.*

PETER KIRK OUTDOOR SWIMMING POOL INVESTIGATION AND ANALYSIS

Prepared by:
ORB Architects, Inc.

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Prepared for:
City of Kirkland, Washington
Dated: May 27, 2009

PETER KIRK POOL EXECUTIVE SUMMARY

On September 27th, 2007 Geoff Anderson (Principal), Rick Charbonneau (Swimming Pool Technician) and Rick Grove (mechanical engineer), made a field investigation of The City of Kirkland's Peter Kirk Outdoor Pool. At the time of the investigation, the pool had just recently closed for the 2007 swim season.

Existing conditions were reviewed for those items that met the current rules and regulations for construction and operation of public swimming pools in the State of Washington (WAC 246-260) "the pool code", as well as those items that were in violation of that code. Exclusions to our evaluation include the pool tank itself and the diving well configuration, which were previously evaluated by the owner. See the attached Appendix for the checklist completed for this project.

In addition to the field evaluation the 1995 pool renovation and bathhouse construction drawings provided by the Owner were evaluated. Based on the field observations along with review of these drawings, we have developed a recommended scope of work.

The following items are provided to the City of Kirkland for future improvement possibilities at the Peter Kirk Pool:

POOL IMPROVEMENTS – 10 -YEAR PLAN:

This corrects most of the existing facility code deficiencies found during our investigations as indicated by underlined items and as listed in Section 4.

The cost of this work is estimated at: $626,448.00

VALUE ADDED IMPROVEMENTS:

This includes multiple improvements to the pool facility to increase the operational efficiency, including energy conservation and programing.

The cost of this work is estimated at: $1,379,743.00

PETER KIRK POOL EVALUATION

The original Peter Kirk Pool was built in 1969 and renovated in 1995. The facility offers summer seasonal swimming serving the community recreational needs, including swimming competitions, diving and recreational swimming.

Facility Design

The facility is entered through a gate at the north side of the site where a guardhouse is located adjacent to the access gate. The back half of the guardhouse building is the mechanical room with the boiler and filter tank. The bathhouse is located at the south end of the site which is accessed by means of a walkway that runs between the lap pool and the wading pool. This pathway is defined by short fencing and a row of benches that are within the pool enclosure. It therefore does minimize non-use cross traffic as required by the pool code, but it does allow for cross traffic of pool users and those that have just entered the facility, but have not yet changed and/or showered before entering the pools. Accentuating this separation is something that may be explored as part of the value added recommendation in a later section.

The location of the guard house roof is within 15 feet of the wading pool which poses a risk as a diving or jumping. The bathhouse is built into the hillside at the south side of the site. While this is a nice architectural treatment to reduce the building presence from the road to the park, it makes for an accessible roof within 8 feet of the ground. Both of these conditions are preexisting and have not posed a problem in the past, and therefore we do not recommend any alterations of the buildings.

The pool decks are sufficient in size with approx 12,000 square feet of deck area excluding the walkway between pools. The concrete decks are in fair condition with some patched cracking and crazing which is not significant enough to cause a hazard. The staff reported that they have had no standing water issues on the pool deck, and only limited water staining was observed at the deck valleys near drains.

The majority of the existing fences meet the code required opening dimensions and are of adequate height. At the east side near the wading pool, the staff is aware that the fence does not meet code and is reportedly to be replaced this year. The existing shrubbery obscures the fence but the chain link openings exceed the 1-1/4" allowable dimension and where the fence is adjacent to the bathhouse a gap exists that would allow for a four-inch diameter sphere to pass.

There is one small patch of grass within the pool enclosure at the east side of the site adjacent to the wading pool. The staff reported that there are plans to remove the grass and add paving. This may not be necessary as long as the lawn area is equipped with a means of separation from the pool deck (i.e. rope line) to create a controlled access point and a means for cleansing the user's feet is provided before reentering the pool deck area.

Accessibility:

There are no designated parking areas specifically for the pool. It is located within a large park and adjacent to a library with a large parking garage and a senior center with a higher number of accessible spaces than is required.

The restroom facilities meet the majority of accessibility requirements, including access widths, toilet compartments and sinks. Some deficiencies are discussed further down within the discussions of plumbing facilities and fixtures.

A lift is available at the facility for accessibility to the pool.

Lap Pool Tank:

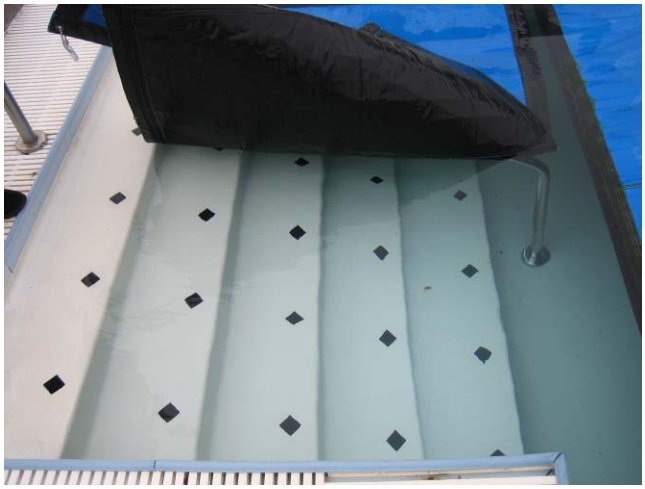
The Lap pool was filled with water and was covered for the season. A visual review of the tank was performed, but the evaluation of the tank was not in the scope. The City of Kirkland performed a full pool tank and diving well evaluation in 1997.

The main pool tank is an approximately 4,500 square foot competitive swimming tank. The "L" shaped tank has lengths of approximately 75'-1" and 77'-0 with a 35'-0" wide diving well and 42'-0" wide racing lanes. In addition to the main pool tank there is a separate 780 square foot rectangular wading pool.

The staff reports that the tank loses some water and stabilizes at about 6 inches below the normal level. Further investigation is required to determine if this could be related to a leak in the gutter system or at the pool deck slab depth. No work related to this is recommended at this time.

Pool Appurtenances:

An appropriate number of stair and ladders exist around the perimeter of the existing pool. The stairs have the appropriate tread depth and riser heights and ladders are equipped with handrails as required.

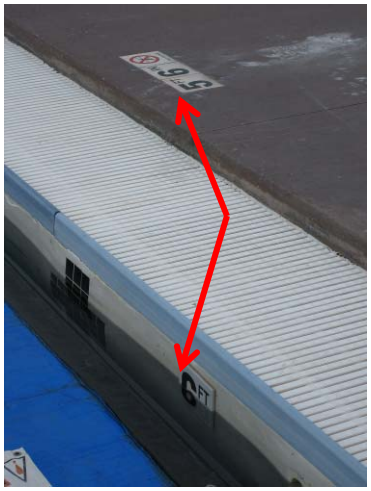


The matching pair of steps leading to the shallow end of the pool has a couple deficiencies. The edge of the stair treads do not have a contrasting colored edge. There is a diamond pattern near the edges of the stair tread edge that does not meet this requirement and could be confusing if interpreted as the edge of the treads. In addition the center handrail extends beyond the bottom tread further then necessary and extends into the competitive swimming lanes. We recommend replacing the handrail and adding a contrasting stair tread edge.

Safety and Depth Markings:

First aid equipment is provided within the guard house located near both pools. A fully equipped first aid kit is available and readily accessible. This includes a blanket stored in one of the staff lockers and several rescue tubes/buoys and boards for rescue needs. A phone is also provided within the guard house.

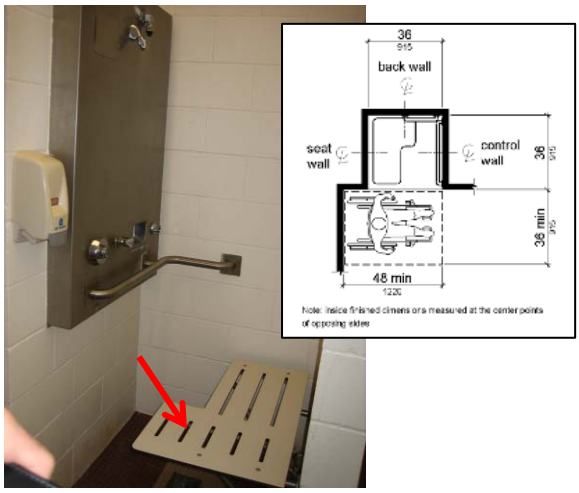
There are ceramic and painted depth markings for the pool at deck surface as well as on the pool walls which do not match each other. The depth markings on the deck appear to be generally correct based on the field measurements taken. It is unclear if any of the current depth markings are original.



At some locations on the pool walls the ceramic tiles are adhered directly to the plaster walls and therefore cause a dangerous projecting edge in violation of code. We recommend replacing all the depth markings on the pool walls for accuracy and safety.

Dressing, Shower and Toilet Facilities:

The bathhouse has the appropriate fixture count based on the size of the pool facility, including accessible toilets and sinks. The accessible shower meets the ADA requirements for size and grab bar configuration; however the seat is installed with the wide end towards the open end and should be reversed.



The bathhouse floors have reportedly had a history of drainage problems. We recommend that in the near future a new floor be provided for the bathhouse that drains properly.

The water heater mixing valves are set to deliver water at 105 degrees, which is well within the temperature range desired and allowable by code.

Site Plumbing Fixtures:

There are a limited number of hose bibs around the pool decks. The hose bibs identified are located at the bathhouse and guardhouse only. There should be a hose bib with vacuum breakers located at a maximum spacing of 150 feet around the pool deck.

An operable drinking fountain is located at the bathhouse; unfortunately it does not meet current accessibility standards for height, projection and clearance.

Pool and Deck Lighting:

The pool tank has adequate underwater lighting with nine (9) underwater lights as described by the staff. Minimal site lighting is provided for security. There is no night swimming at this site.

Equipment and Chemical Storage Rooms:

Our site evaluation was performed just after the facility had closed for the season. Much of the equipment that would be placed on the pool decks and/or placed in the pool for use were stored for the season. In some cases this meant that equipment was blocking access to certain elements such as the janitor sink and eye wash that should otherwise be accessible during the pool operation.

The existing mechanical room meets the space requirements to provide minimum access and clearance requirements around the equipment. Natural ventilation is provided by means of vented doors and a roof vent. One of the doors vents is blocked by a bulletin board, which ideally should be relocated for full ventilation. See the mechanical analysis for further consideration at the mechanical room.

There is no separate chemical storage room. No quantities of chemicals requiring fire separated storage were observed on site. A chemical feeder was observed, but it is assumed that the amount of chemicals that would require fire separated storage is not kept in the mechanical room. The pool code does address appropriate separate storage rooms for chemicals.

Recirculation, Filtration & Sanitation Systems:

The existing system consists of a DE filter tank and old, re-used boiler that is not efficient. There are no inadequacies related to the code requirement evaluation. However it is an older system that is believed to be at the end of its life-cycle. This is addressed in the “Added Values” section of this report. See further analysis provided by Stantec on the following pages.

Stantec Consulting Inc.
1932 First Avenue, Suite 307, Seattle, WA 98101
Tel.: (206) 770-7779 Fax: (206) 770-5941

MECHANICAL ENGINEER'S Memo 071015

PROJECT: Peter Kirk Outdoor Swimming Pool Rev 07.11.21
PROJECT NO.: 183528506
TOTAL PAGES: 4

MECHANICAL EVALUATION

Item 1: Wading Pool Water, per WAC 246-260-071. Wading pools can have jointly recirculated water with swimming pools. We recommend separating the systems such that they can be: filtered separately, sanitized separately, held at different temperatures and used at different water elevations.

Item2: Boiler: The current boiler is a converted steam boiler, Brand AJAX Model SGXB-325, Natural Gas, Rated at 378 SF EDR

3,900,000 BTU/H Input
2,600,000 BTU/H Output

This calculates to 66% boiler efficiency. This boiler should be able to keep the pools 40 degrees F higher than the ambient air temperature. In other words the pools can be kept to 85F when the air temperature drops to 55F, with a 3.5mph average wind. If this is acceptable then the new boiler can be sized the same.

The current boiler is old and likely to fail soon. The current boiler is located inside and gets attacked from free chlorine in the room which naturally comes off the chlorination system. The current Ajax boiler company is still in business. The company produces good incline tube and low NOx models, which are not rated for direct pool water. We recommend replacement of the boiler as soon as possible. With a boiler that is rated for direct pool water through it.

New Boilers are 83% efficient, bronze headers, stainless burners and electronic ignition. This boiler is rated for direct pool water and when the systems get separated only a small heat exchanger for the wading pool would be additional.

Boiler Option A: Output 2,490,000 BTU/H, RAYPAK Model 3001, 82" (long) x 41" (wide), plus room needed for the gas side and the boiler pump in the rear. This boiler would be roughly the same size as the existing boiler.

Boiler Option B: Output 2,905,000 BTU/H, RAYPAK Model 3500 92" (long) x 41" (wide), plus room needed for the gas side and the boiler pump in the rear. This boiler would be slightly longer than the existing boiler and would have a little more heat than existing if Kirkland wanted a little more heat in the pools.

We recommend that either boiler option chosen be located outside. Both the models can be ordered for outdoor use. We recommend having the new boiler behind a screening fence with only the supply and return piping going through the CMU wall. The pumps and everything else would remain inside. This makes room for additional items we recommend for the mechanical room and it helps theses new boilers last as long as possible by getting them away from airborne chlorine.

When moving the boiler outside the roof ventilation hood can be enclosed, also most of the door louvers can be closed off. Then for winter freeze protection we recommend a small electric heater, centrally located, like a KING Pic-A-Watt, surface mounted 40" off the floor, or ceiling mounted, size based upon 3 BTU/sf. The addition of roof insulation is also recommended and will help on both hot and cold days.

Item3: Filter; Existing DE filter requires a lot of maintenance. The space it takes up can be converted to a joint balance tank for the two pools or sub divided in the future if the two pools are separated. The filtering would then be done by a high capacity sand filter. We recommend the commercial HCOM series from MIAMI FILTER. These high rate filters run at up to 20 GPM per SF of filter area. These filters are horizontal, non corrosive fiberglass and come in either manual or automatic controls. Filter sizes 48" diameter and greater have a gravel level adding an extra level of complexity.

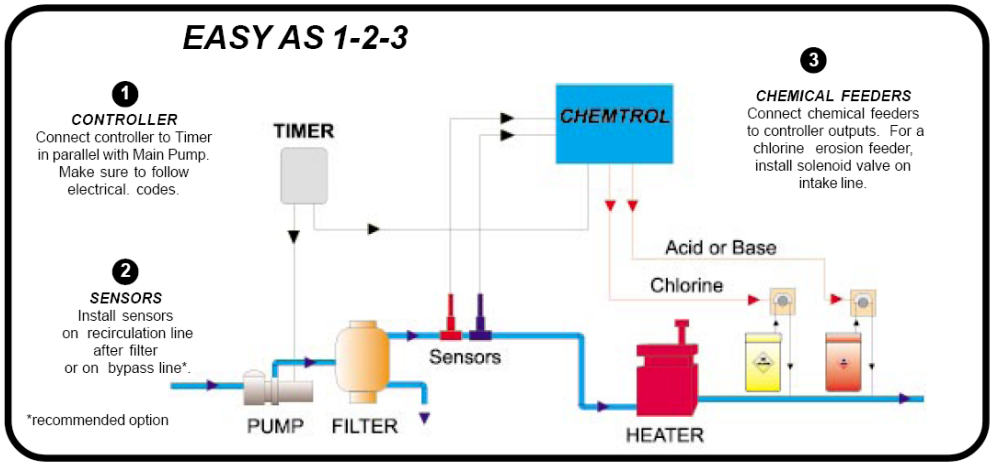
Separating the pools are separates the filter need into two sand filters. One for the large pool could be a HC421066 and the one for the wading pool would be a PENTAIR TR-60 for the existing wading program.

Item 4: Chemicals; Chlorine levels, pH control, total alkalinity, and calcium hardness are naturally vital to the safe and healthy operation of pools. The current system uses a dry powder added to the DE tank for pH control. The pool has a separate system for chlorination. The pH system is an ACCU Rater bulk solids metering system for dry powder. The CL system is a Pulsar IV which uses briquettes processed into liquid chlorine and injected into the supply lines to the pools.

If the pools are separated in the future the existing system of pH and Cl control can remain as is for the large pool. A new smaller Pulsar 1 for the wading pool. Although an ORP controller is not required in the current pool code for pools this small, we recommend an ORP controller even it is just used to control the Pulsar 1. One choice of an ORP /pH controller would be CHEMTROLS Model 250. This controller could be used with gas CO2 feed or liquid pH control via electric metering pumps.

Please note the space required for pH control is not great, flow cells and controls easily mount on walls with only feed buckets or tanks on the floor. The price of additional controllers is great the price of the CHEMTROL unit alone is around $2000. With the sensors pumps tanks and installation the system needs to be budgeted for when considering breaking the two pools apart.

A typical setup schematic is shown below:



Item 5: Circulator Pump, The circulation requirement listed in the 1997 report list the main pool and the wading pool as both having a need for a 6 hour turn over. The 2004 WAC requires a faster turnover for wading pools at 3 hours. Hence the pumping requirement has gone up from the 1997 listed 613 gpm. The new combined pumping requirement is 655 gpm. A pump for each system would be a pump for the wading pool performing at 58 gpm and the main pool at 597 gpm. If the existing pump has any remaining life then it could be used for the main pool pump. We believe the existing pump is likely to be worn out.

Item 6: Surge Tank, The current surge, based upon 1 gallon per SF is 5255 gallons.

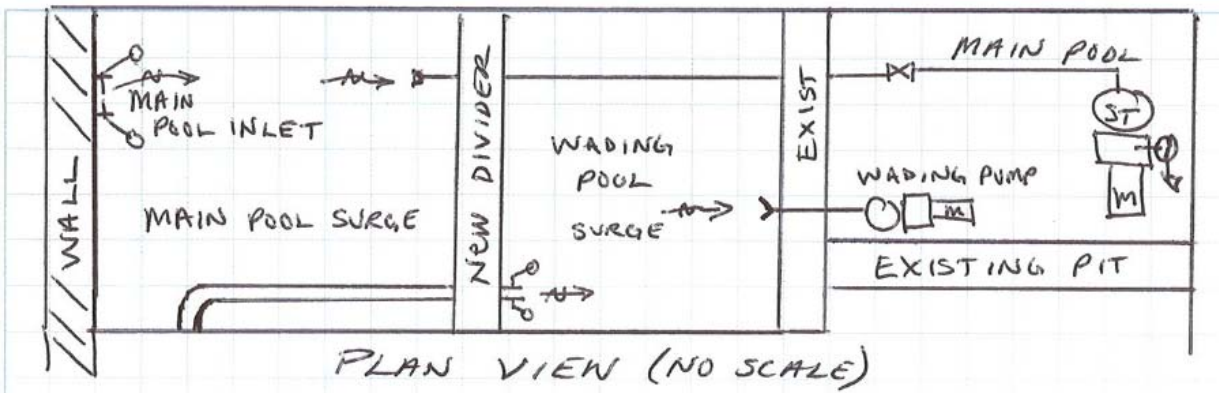
The current tank size is 13.67'x7.66'x8'deep which means the tank has a total capacity of 6265 gallons, but not all can be utilized. Typically a minimum depth of 3 feet is desired for vortex control into the pump. This reduces the surge tank to a 4000 gallon capacity. Ignoring the gutter at the wading pool, the remainder of the 5255 gallons of surge is taken up by the gutter of the main pool, or 1255 gallons. We calculate that the gutter is 324 LF x 1 ft wide, in perimeter and needs an average depth of 6 inches to make the 167 CF (= 1255 gallons). We measured two places in the gutter, the high point was 11.5 inches and the low was 29 inches. The average depth of gutter is 20 inches. Therefore the main pool gutter currently has the capacity for the 1255 gallons of surge.

We believe the existing DE filter tank can changed into two surge tanks. If a divider is placed in the existing surge tank then gallons of each side (the new tanks) will need to be calculated based upon all aspects of the new design. We recommend if using the gutters for surge only if they are documented with comprehensive measurements. We recommend when gutters are used for surge that at the full level they are to be 4 inches or more below the pool level. We believe it is possible for each pool to have partial surge being taken up by their respective gutters. Please note the wading pool gutter is not a perimeter gutter and is only across the end nearest the guard house.

The challenge of the surge tank is to divide it such that the division works well with the inlet pipes and floats and new pump. Below is a concept sketch.

Stantec

Peter Kirk Surge Concept Sketch
RG



SECTION 2 – EVALUATION & RECOMMENDATIONS

Summaries:

Equipment: The condition of the existing equipment is varied, we have pointed out that the boiler is our biggest concern. We believe the boiler is of immediate concern. A longer term outlook would involve dividing the two pools into two systems. We also recommend filter replacement into two systems with two pumps.

Current practice: The ORP controller, the Pulsar Chlorinator and the C02 gas system are all still widely used. DE filters are the exception, as they are rare, with most operators changing to new high rate sand filter systems for lower annual cost of materials and ease of maintenance. We recommend making the change to high rate sand filters.

Potential Code Issues: The two pools currently operate together with one filter. This practice is still allowed in our reading of the code. We do know that other states are moving to stop this practice.

Strategies: A rework of the DE filter into one surge tank is fairly easy**.** However dividing the surge into two surge tanks is far more complex. Dividing the systems is a long term goal and requires dividing the surge tank into two tanks. Increasing the surge volume will be required. Further study is recommended.

The biggest obstacle in dividing the system is getting the two surge tanks to fit within the same space and in the placement of the wading pump and filter.

Immediate recommendations:

- Replace the boiler.
- Confirm the flow of the pump by testing to see it meets the current rate by code, if not, size for the current GPM and at a HEAD that includes a single high rate sand filter. See above for brand and model.

Long term recommendations: We believe dividing the pools into two systems will have multiple benefits. The two easiest to see are that the pools could be run at different temperatures and at different levels. Different levels add to the ability to alter the wading pool to include a zero depth entry and or spray toys.

Another Consideration, which is our preferred condition, is to locate the new boiler outside. Chemicals are to be located in a separate room from the pool equipment but, the code does allow for the boiler and Pulsar to be in the same room. The free chlorine vapors attack the boiler and we warn the owners that it is poor practice to co-locate the two pieces of equipment.

Moving the boiler outside also frees up extra space which is needed when the additional equipment of dividing the pools into two systems is brought into the mechanical room. Other tradeoffs of scenario scheduling and future work space are big considerations.

Our preference is the boiler outdoors. The model stated above comes in an outdoor configuration. The boiler would be easy to fully drain for the winter and is a common option for pool boilers, (pumps and a heat exchanger would be inside).

Energy Savings: The new boiler has an energy efficiency of 83%. The pumping and the controls all will draw about the same. A new pump when dividing the pool systems will be an increase in power usage by about 2.4 kW (20 amps at 120 v) or 1.5 HP.

Summary of bathhouse:

- The bathhouse has a new hot water tank system.
- The roof ventilators are noisy and easy to replace with identical units, the new units need to be mounted level to extend the life of the unit and its bearings. Currently neither fan is mounted level.
- The handles on the ADA lavatories are not ADA. There are push button handles which are made with long enough levers such that the amount of force to operate them is small enough that they are ADA rated. This requires a change of the entire handle and valve.

Extra Info: The main pool shut off valve pit has standing water. This indicates a leak most likely at a joint in the pool. The valve itself is rusted and should be replaced.

Ongoing work of our scope includes: Evaluations with the prime consultant for; Energy savings strategies, (solar heating, shading, and pool cover). Additionally we will be looking at guard shack upgrades.

Sincerely,

Rick Grove, PE
Project Manager

SECTION 3 – VIRGINIA GRAEME BAKER ACT COMPLIANCE

VIRGINIA GRAEME BAKER ACT

The Virginia Graeme Baker Act requires all public pools and spas to meet the safety requirements for drains outlined in ANSI/ASME A112.19.8-2007. This law took effect as of December 20th, 2008.

Aquatic Specialties performed a dive to survey the existing conditions of the pool drains on Friday March 13th, 2009. Subsequently, Stantec Engineers provided an analysis of the drainage system. Because there were no existing drawings of the drain pipes, the City of Kirkland hired a camera service to help determine the size and configuration of the drain piped under the pool on Tuesday, April 14th, 2009. The information generated is included in this section.

Based on the survey and engineering analysis, ORB Architect has proposed the following actions to be in compliance with the Virginia Graeme Baker Act:

Main Pool:

Upon review of the camera survey completed for the piping of the Main Pool drains, it was confirmed that for at least 29 feet, the pipes are only 4" diameter and the drains are not hydraulically balanced. Ideally, the pipes would be 8" diameter in order to get the flow rates into the desired range.

Based on the strong appeal to come up with a solution that does not result in cutting through the pool tank to replace or build new sumps and piping, ORB and Stantec have carefully considered several options that might be able to comply with the new law. A field measurement of the water depth at the end of the diving board to the main drains at the bottom of the pool was 12'-6". Based on this measurement, it appears that there is more than adequate depth to comply with the 1-meter diving. The recommended water depth is approximately 11'-6" (3.5 meters). We can therefore raise the drains enough to add deeper sumps, larger pipe diameters, and more drainage area, (see the sketch on the following pages. This could then be connected to the existing piping without cutting the bottom of the pool.

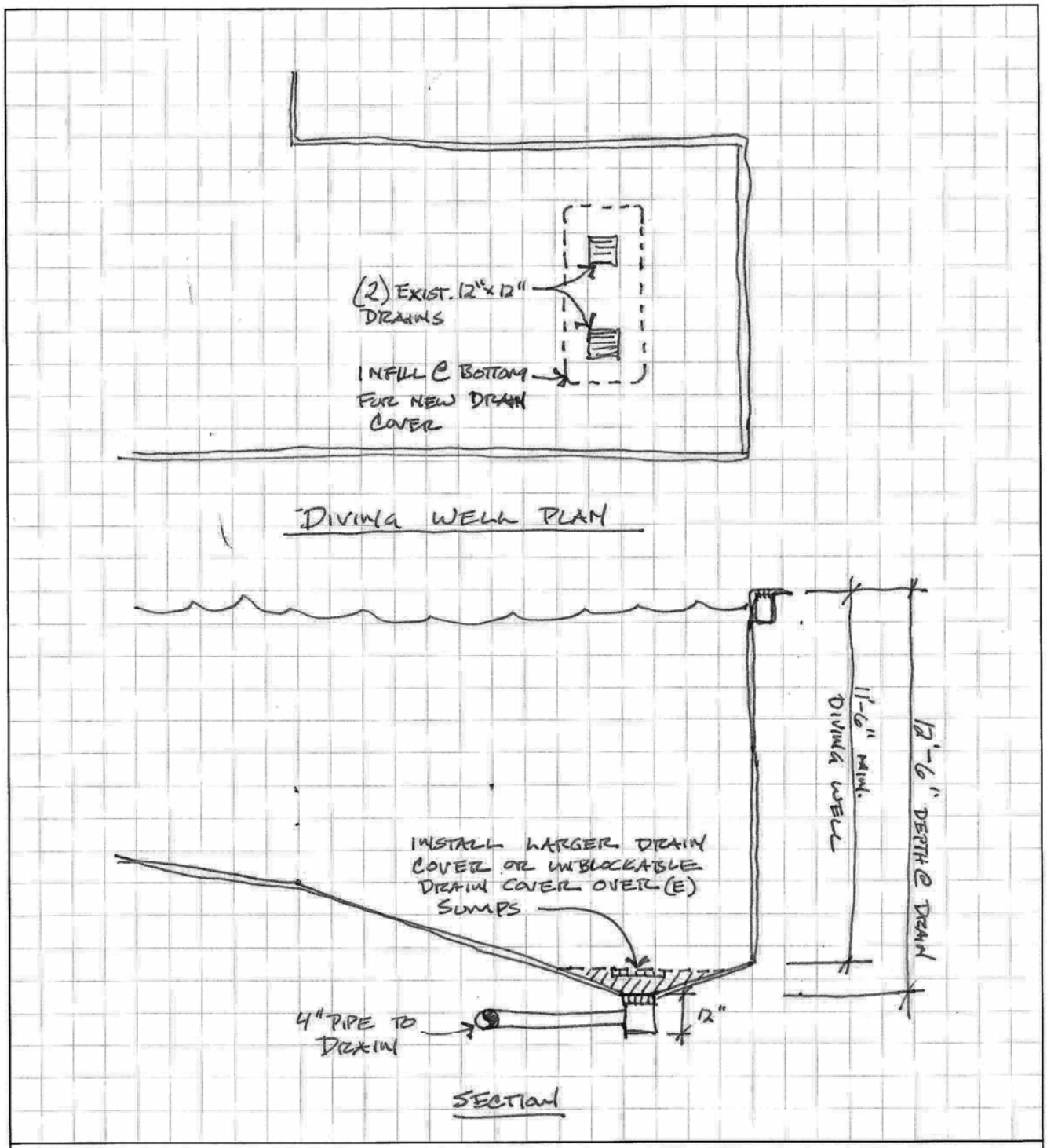
Options for a new drain cover could include either the Aquastar 32" Channel Drain, or an 18" by 18" drain cover that could integrate with the 12" x 12" existing sumps or even a Custom Sump and Drain Cover of some kind. See attached.

This solution would still require that the pool apply for a variance with the Department of Health due to the fact that the pipe velocities exceed the 6 fps standard and that it would be burdensome to replace it, existing pools may apply for this variance to allow the pool to remain open with the higher velocity.

Wading Pool:

The new dual drain replacement work the city completed a couple of years ago and the drawing supplied appears to be adequate for flow and they are hydraulically balanced. Therefore the solution is relatively easy and includes replacing the drain covers with ones that are stamped and certified for the new requirements. Per the mechanical engineer, a 12" by 12" cover will be adequate to make 6 pool turnovers per day at 50 gpm. Aquatic Specialties has recommended either an Aquastar or Hayward style cover. See attached.

SECTION 3 – VIRGINIA GRAEME BAKER ACT COMPLIANCE



o.r.b architects

PETER KIRK POOL — 5/11/09
PROJECT NAME — DATE

VGBA COMPLIANCE — 2727
SUBJECT — PROJECT NO.

KIRKLAND P&R — GA — 1/1
CLIENT — BY — SHEET NO.

607 SW Grady Way, Suite 210 • Renton, WA 98057 • 425.226.3522 phone • 425.226.9115 fax • www.orbarchitects.com

SECTION 3 – VIRGINIA GRAEME BAKER ACT COMPLIANCE

POOL SAFETY REPORT **POOL**

OWNER/MANAGER:	City of Kirkland	**By:**	SAR
LOCATION:	Kirkland, WA	**Date:**	3/19/2009
PROJECT #:	183581001	**Rev:**	3/31/2009

RECOMMENDATIONS AND CORRECTIVE MEASURES:

Existing Conditions:

1 Drain covers DO NOT meet current safety standards.
2 No piping drawings are available, so under slab pool piping has not been identified.
3 Hydraulic balance cannot be verified because piping connections are not known.
4 There are MULTIPLE main drains in this pool.
5 Center-to-center separation between covers EXCEEDS the minimum.
6 Manufactured sump depth DOES NOT NEED TO MEET the minimum depth and are side outlet.
7 4" Pipe flow velocity EXCEEDS the 6 fps standard. Eight inch common outlet pipe MEETS the 6 fps standard.
8 Face velocity through drain cover DOES NOT MEET the 1.5 fps standard.
9 With one grate covered, the remaining grates CAN NOT handle all of the flow.

Corrective Measures:

1 Replace the drain covers with an ASME A112.19.8-2007 or VGB 2008 compliant covers size 18" by 18 "and rated 600 gpm each.
2 Replace the sumps with 18" by 18" by 12" deep manufactured sumps that are VGB compliant .
3 Securely fasten all covers with tamper-resistant, non-corroding fasteners. They must engage three threads minimum and can be inserted and removed 15 times without stripping of threads.
4 Disconnect or disable wall-mounted vacuum system to prevent accidental use.

ENGINEER OF RECORD:
The corrective measures recommended for this pool-spa will meet the requirements of the Virginia Graeme Baker Law as applied in the State of Washington. The information herein was prepared by Stantec Consulting, Inc. from survey data provided by Aquatic Specialty Service, Inc. personnel.

Stephen A. Ricks Date

Stantec Consulting, Inc.
1932 First Avenue Suite 307
Seattle, WA. 98101

INSTALLATION BY:
Corrective Measures performed on _____, 2009

By _____
Signed

_____
Printed Name

INSPECTION BY:
Corrective Measures accepted on _____, 2009

By _____
Signed

_____
Printed Name

Page 1 of 6

POOL SAFETY REPORT **POOL**

OWNER/MANAGER:	City of Kirkland	**By:**	SAR
LOCATION:	Kirkland, WA	**Date:**	3/19/2009
PROJECT #:	183581001	**Rev:**	3/31/2009

EXISTING CONDITIONS: **Surveyed By:** Greg & Dan **Tel:** 206-275-0694
Company: Aquatic Specialty Services

Pool Size					Spa Size				
Length Ft.	Width Ft.	Avg. Depth Ft.	Volume Cf	Gal.	Length Ft.	Width Ft.	Avg. Depth Ft.	Volume Cf	Gal.
75	42	5	29,225.0	218,895.3					
35	35	11							

Pool Turnover - Times per day			Spa Turnover - Times per day		
4	6	8	48	96	144
	Gpm			Gpm	
608.04	912.06	1216.08	0.00	0.00	0.00
Min.	Med	High	Low	Med	High

MAIN DRAINS

Drain Type Gravity drains with two 12" by 12" covers on top of a 12" deep sump with 6" side outlet.
Covers are separated by 11'-0" center to center.
Main drains are connected to a surge tank.

Two 12 in.
12 in.

Multiple
Separation: 11 ft. PASSES

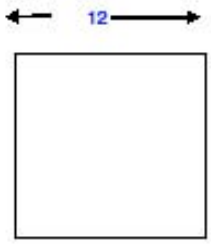
Square, Flush Cover

Original Cover		New Cover
2 Each		2 Each
12 in.		12 in. rd.
12 in.	Total Area	12 in.
144.00 Si	288.00 Si	144.00 Si
1.0 Sf	2.00 Sf	1.0 Sf
17.0 in. diag.		17.0 in. diag.

PUMP

Flow-Gpm	583
Head-ft tdh	75
Manuf.	Sta-Rite
Model #:	CSPHM3
Motor:-hp	15

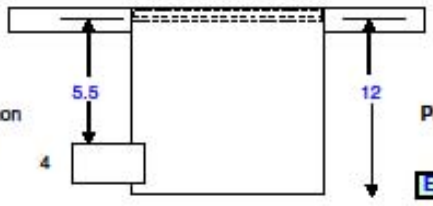
Min. Turn-over per day



SUMP

Field-Built?
Manufactured **Yes**

5.5	in. top of pipe		
12	in. deep	Common	8
4	in. outlet pipe		
1.5 Times Rule			
NA			



PIPE VELOCITY

4	in. outlet pipe
238.06	gpm at 6 fps
EXCEEDS VELOCITY	

POOL SAFETY REPORT **POOL**

OWNER/MANAGER: City of Kirkland
LOCATION: Kirkland, WA
PROJECT #: 183581001

By: SAR
Date: 3/19/2009
Rev: 3/31/2009

COVER FACE VELOCITY
1.5 Fps Maximum
90 Fpm
583 Gpm
77.94 Clm

Minimum Required Area
0.87 Sf of Opening
124.71 Si

PIPE VELOCITY
8 in. outlet pipe
935.51 gpm at 6 fps
PASSES

All Open Scenario
Ttl Gross Grate Area 2.0 Sf
Requires 43.3% Open

Ttl Grate Net Area 0.9 Sf

Inlet Velocity 38.97 Fpm
0.65 Fps

One Covered Scenario
Ea Gross Grate Area 1.0 Sf
Requires 86.6% Open
EXCEEDS STANDARD OPENING

One Grate Net Area 0.9 Sf

Inlet Velocity 77.94 Fpm
1.30 Fps
PASSES

One Grate 86.6% Open

SKIMMERS None. Gutters
Equalizing Lines: None.

VACUUM No Data.
Vacuum fittings:

SAFETY VACUUM RELEASE: No Data.
SVRS Control:

Page 3 of 6

SECTION 3 – VIRGINIA GRAEME BAKER ACT COMPLIANCE

POOL SAFETY REPORT **WADING POOL**

OWNER/MANAGER:	City of Kirkland	**By:**	SAR
LOCATION:	Kirkland, WA	**Date:**	3/19/2009
PROJECT #:	183581001	**Rev:**	3/31/2009

RECOMMENDATIONS AND CORRECTIVE MEASURES:

Existing Conditions:

1 Drain covers do NOT meet current safety standards.
2 Piping drawings are available, so under slab pool piping has been identified.
3 Hydraulic balance CAN be verified because piping connections are known.
4 There are MULTIPLE main drains in this pool.
5 Center-to-center separation between covers EXCEEDS the minimum.
6 Field-built sump depth MEETS the minimum depth and is side outlet.
7 The diagonal dimension is LESS than 29 inches.
8 Face velocity through drain cover MEETS the 1.5 fps standard.
9 With one grate covered, the remaining grates CAN handle all of the flow.
10 Pipe flow velocity DOES NOT EXCEED the 6 fps standard.

Corrective Measures:

1 Replace the drain covers with an ASME A112.19.8-2007 or VGB 2008 compliant covers size 12" by 12 "and rated 50 gpm.
2 Securely fasten all covers with tamper-resistant, non-corroding fasteners. They must engage three threads minimum and can be inserted and removed 15 times without stripping of threads.
3 Install a safety vacuum release to handle flow imbalances that exist. If necessary.

ENGINEER OF RECORD:
The corrective measures recommended for this pool-spa will meet the requirements of the Virginia Graeme Baker Law as applied in the State of Washington. The information herein was prepared by Stantec Consulting, Inc. from survey data provided by Aquatic Specialty Service, Inc. personnel.

Stephen A. Ricks Date

Stantec Consulting, Inc.
1932 First Avenue Suite 307
Seattle, WA. 98101

INSTALLATION BY:
Corrective Measures performed on _____, 2009

By _____
Signed

_____
Printed Name

INSPECTION BY:
Corrective Measures accepted on _____, 2009

By _____
Signed

_____
Printed Name

Page 4 of 6

POOL SAFETY REPORT **WADING POOL**

OWNER/MANAGER:	City of Kirkland	**By:**	SAR
LOCATION:	Kirkland, WA	**Date:**	3/19/2009
PROJECT #:	183581001	**Rev:**	3/31/2009

EXISTING CONDITIONS: **Surveyed By:** Greg & Dan **Tel:** 206-275-0694
Company: Aquatic Specialty Services

Pool Size					Spa Size				
Length Ft.	Width Ft.	Avg. Depth Ft.	Volume Cf	Gal.	Length Ft.	Width Ft.	Avg. Depth Ft.	Volume Cf	Gal.
40	20	1.9	1,520	11,385					
	240	3' to 4.5'							

Pool Turnover - Times per day			Spa Turnover - Times per day		
4	6	8	48	96	144
	Gpm			Gpm	
31.62	47.44	63.25	0.00	0.00	0.00
Min.	Med	High	Low	Med	High

MAIN DRAINS

Drain Type Gravity drains with two 12" by 12" drain covers, 2" drain pipe connects to side outlet of 12" depth sump. Covers are separated by 4'-5" center to center. Main drains are connected to a surge tank.

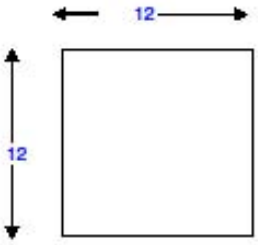
Two 12 in.
12 in.

Multiple
Separation: 4.4 ft. PASSES
Square, Flush Cover

Original Cover		New Cover
2 Each		2 Each
12 in.		12 in. rd.
12 in.	**Total Area**	12 in.
144.00 Si	288.00 Si	144.00 Si
1.0 Sf	2.00 Sf	1.0 Sf
17.0 in. diag.		17.0 in. diag.

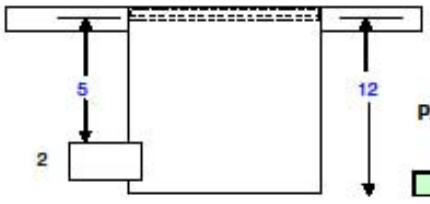
PUMP
Flow-Gpm 50 VERIFY
Head-ft tdh
Manuf. No Data
Model #:
Motor:-hp No Data

Slightly above 6 turns per day.



SUMP
Field-Built?
Manufactured Yes

5 in. top of pipe
12 in. deep
2 in. outlet pipe
1.5 Times Rule
NA



PIPE VELOCITY
2 in. outlet pipe
62.75 gpm at 6 fps
PASSES

POOL SAFETY REPORT **WADING POOL**

OWNER/MANAGER:	City of Kirkland	**By:**	SAR
LOCATION:	Kirkland, WA	**Date:**	3/19/2009
PROJECT #:	183581001	**Rev:**	3/31/2009

COVER FACE VELOCITY

1.5 Fps Maximum
90 Fpm
50 Gpm
6.68 Cfm

Minimum Required Area

0.07 Sf of Opening
10.70 Si

All Open Scenario		**One Covered Scenario**	
Ttl Gross Grate Area	2.0 Sf	Ea Gross Grate Area	1.0 Sf
Requires	3.7% Open	Requires	7.4% Open
			PASSES
Ttl Grate Net Area	0.1 Sf	One Grate Net Area	0.1 Sf
Inlet Velocity	3.34 Fpm	**Inlet Velocity**	6.68 Fpm
	0.06 Fps		0.11 Fps
			PASSES
		One Grate	7.4% Open

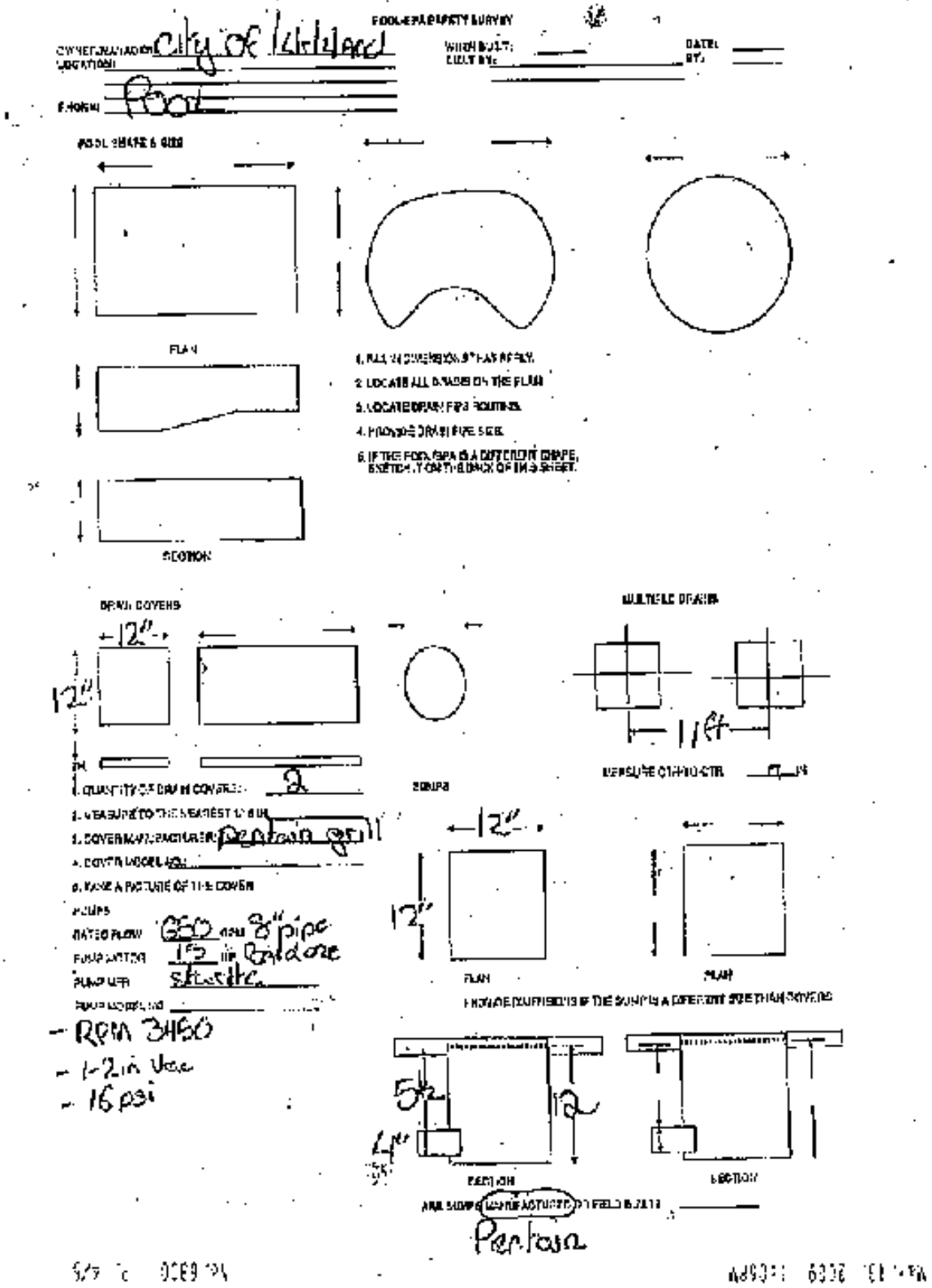
SKIMMERS
Equalizing Lines: Yes. 1 each. VERIFY.

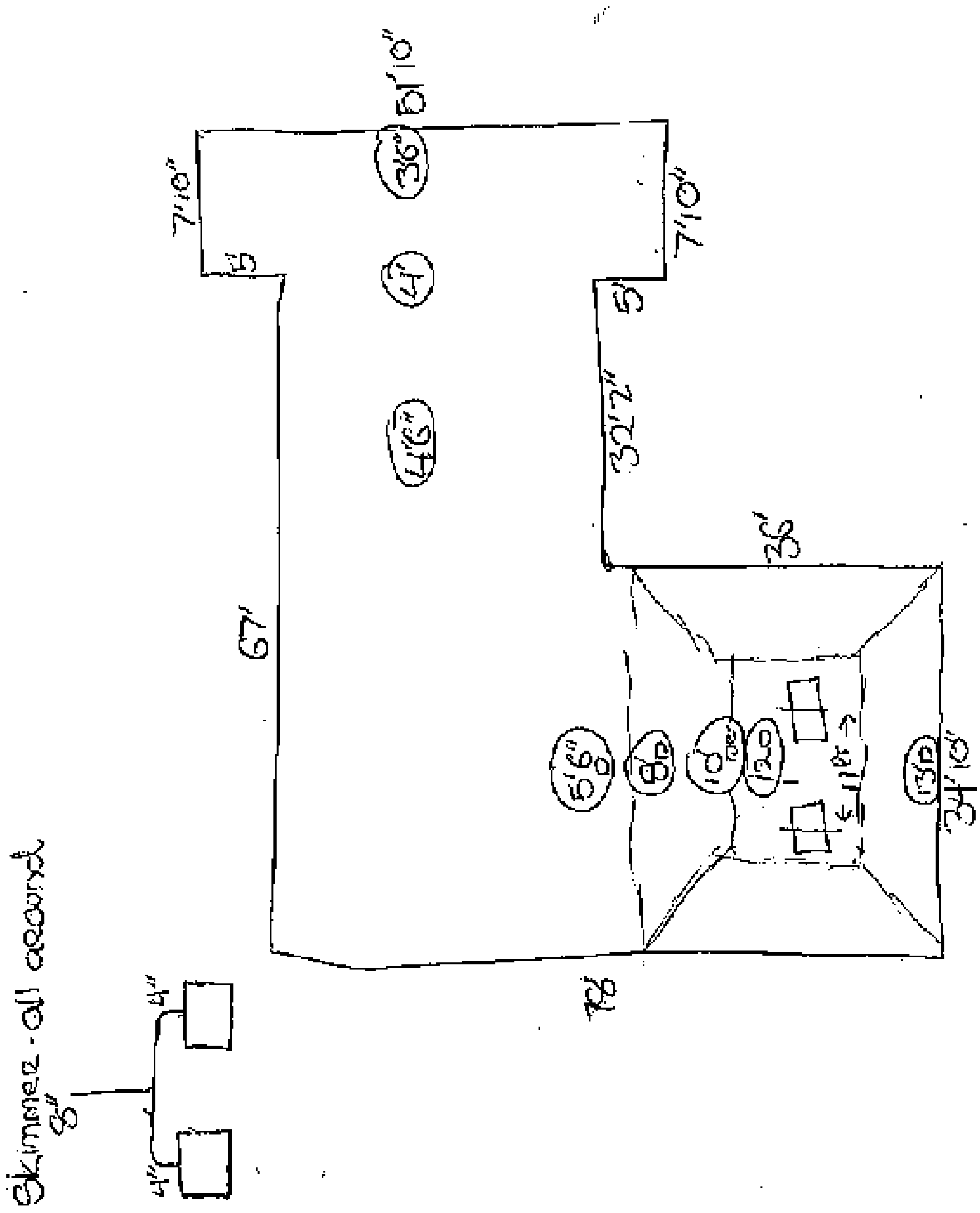
VACUUM
Vacuum fittings: None.

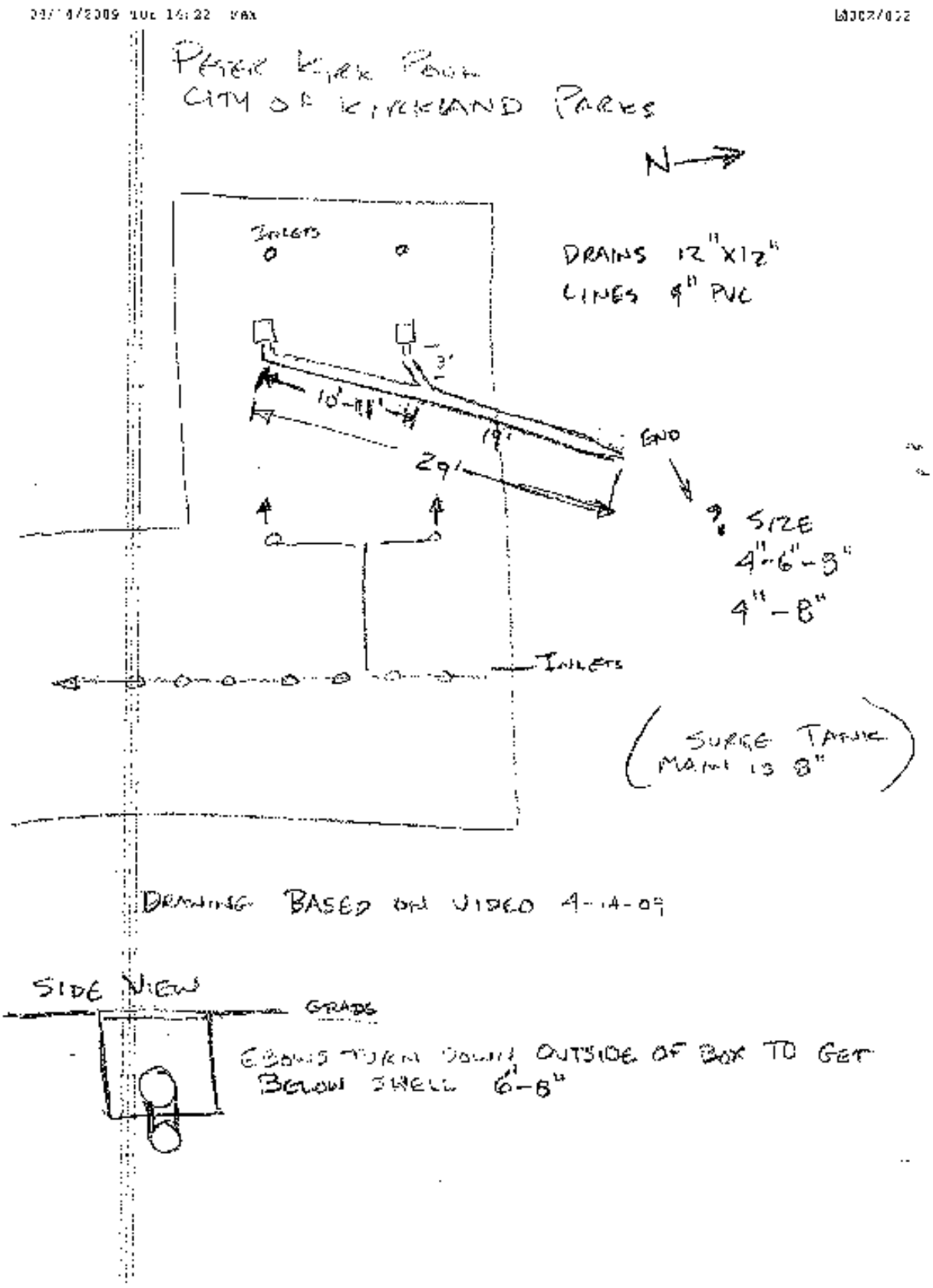
SAFETY VACUUM RELEASE: No data.
SVRS Control:

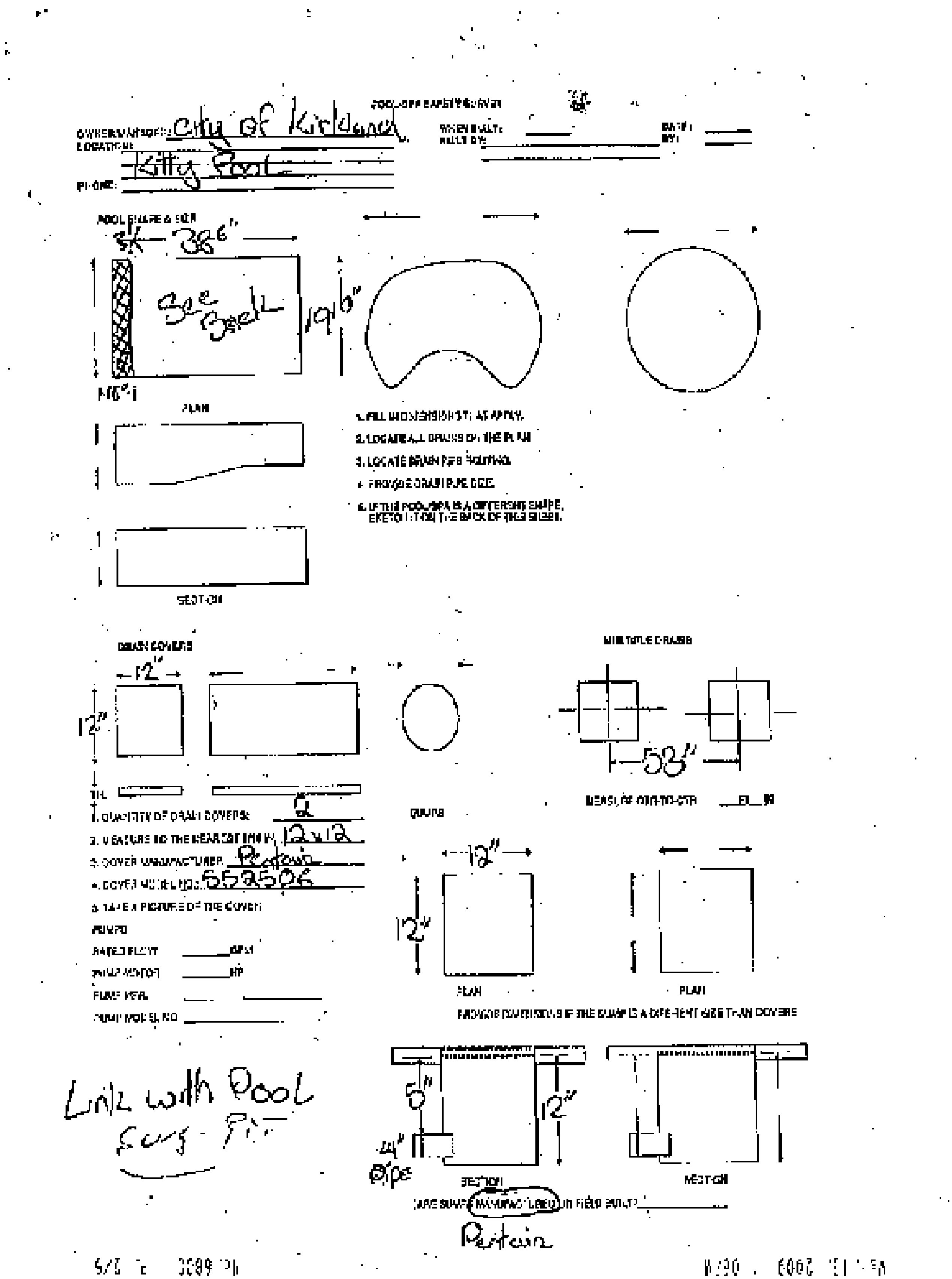
Page 6 of 6

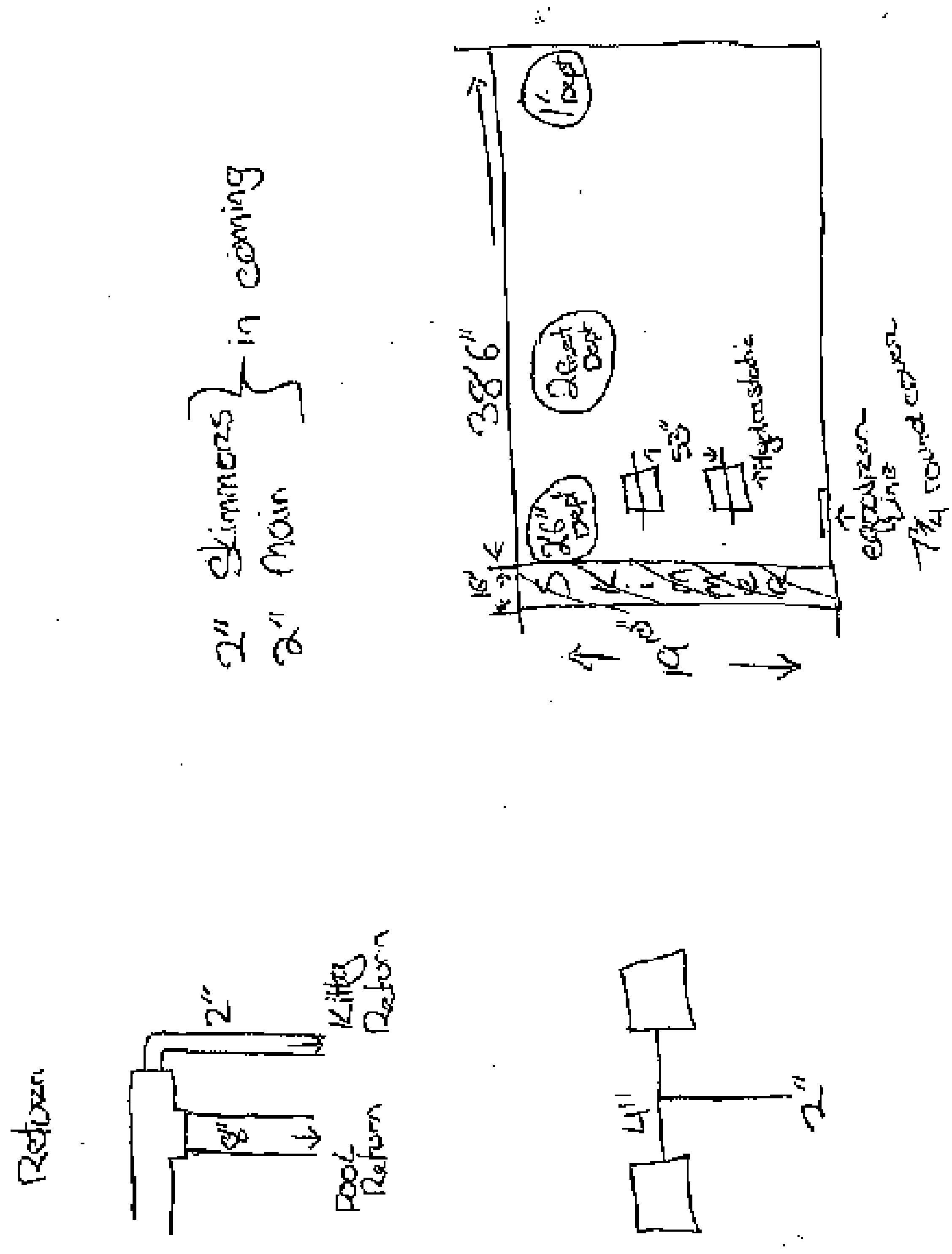
SECTION 3 – VIRGINIA GRAEME BAKER ACT COMPLIANCE



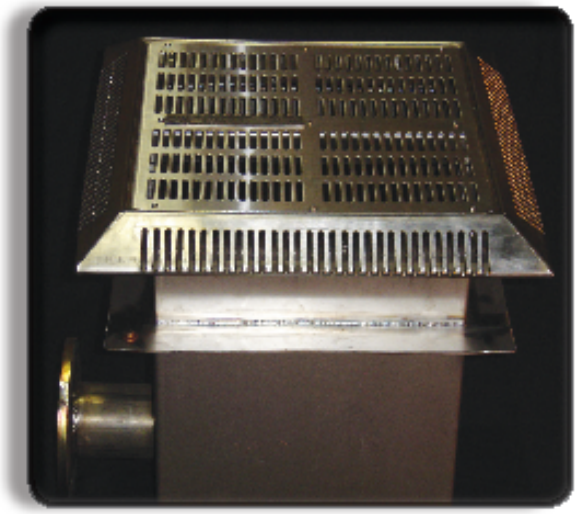

skimmer - all around
8"
4"
4"
67'
51'10"
7'10"
7'10"
36"
4'
4'6"
32'2"
35'
5'6"
34'10"


PETER KIRK POOL
CITY OF KIRKLAND PARKS
N
INLETS
DRAINS 12"X12"
LINES 4" PVC
3'
10'-11"
19'
29'
END
SIZE
4"-6"-8"
4"-8"
INLETS
SURGE TANK
MAIN IS 8"
DRAWING BASED ON VIDEO 4-14-09
SIDE VIEW
GRADE
6 BOLTS TURN DOWN OUTSIDE OF BOX TO GET
BELOW SHELL 6'-8"

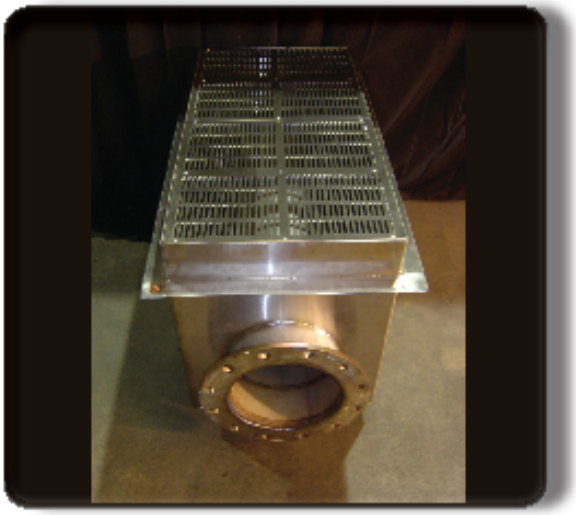

City of Kirkland
Kitty Pool
POOL SHAPE & SIZE
38'6"
See Back
19'6"
PLAN
SECTION
DRAIN COVERS
MULTIPLE DRAINS
12"
12"
53"
12x12
552506
SUMPS
12"
12"
PLAN
PLAN
5"
12"
4" Pipe
SECTION
SECTION
Pentair


2" Skimmers in coming
2" main
38'6"
19'
Return
Pool Return
2"
4'

MAIN DRAIN



Patent Pending



Patent Pending

Product	Mounting Position	Total Open Area	Recommended Design Flow	NSF Maximum Safe Flow
Model #1414ESMD 14 X 14 Entrapment Safe Main Drain with 20 X 20 Paddock Certified Drain Cover	Floor Only	122 sq. inches	572 GPM @ 1.5 fps	1200 GPM
Model #1818ESMD 18 X 18 Entrapment Safe Main Drain with 24 X 24 Paddock Certified Drain Cover	Floor or Wall Use	186 sq. inches	874 GPM @ 1.5 fps	1420 GPM
Model #2040ESMD 20 X 40 Entrapment Safe Main Drain with (2) 20 X 20 Paddock Certified Grate Only	Floor or Wall Use	244 sq. inches	1145 GPM @ 1.5 fps	1960 GPM

Paddock Certified Drain Cover is designed and approved with the use of Paddock *Entrapment Safe Sump Box* with *Reducing Anti-Vortex Device.*

Paddock Certified Drain Cover can be used on field fabricated outlets, new or retrofit, when designed and certified by a Registered Project Engineer.

Standard Features

- § ASME A112.19.8-2007 / 8A.2008 Approved
- § All Models are NSF Certified
- § 304 Stainless Steel
- § Suction Outlet Fitting Includes Anti-Vortex Reduction Device

VGB 2008 Certified NSF Listed

PADDOCK POOL EQUIPMENT CO., INC.

Drawing Description

Job Name:	
Location:	

Paddock Pool Equipment Co., Inc.
555 Paddock Parkway
Rock Hill, SC 29730
Ph: 803-324-1111
Fx: 803-324-1116

Last Revision: 12/22/08

PADDOCK
POOL EQUIPMENT CO., INC.

J. SPECIFICATIONS: PADDOCK ASME A112.19.8-2007 / 8A.2008 COMPLIANT AND NSF CERTIFIED SWIMMING POOL SUCTION OUTLET FITTINGS

J.01 The *Swimming Pool Suction Outlet Fittings* shall be a velocity, vacuum entrapment, hair entanglement ***REDUCING ANTI-VORTEX DEVICE*** which has been submitted under ASME A112.19.8-2007 / 8A.2008 for testing by NSF and found to be in compliance with this standard.

J.02 The *SUCTION OUTLET FITTING*, both cover/grate and sump, shall be fabricated from 304 stainless steel. The outlet and outlet piping assembly shall be fabricated with stainless steel piping and designed so that the top of the suction outlet is a minimum distance of 1 ½ times the size of the pipe diameter, below the cover/grate.

J.03 The open area of the suction outlet assembly shall be equal to or exceeds the open area of the outlet pipe of the suction outlet fitting.

J.04 All grating fasteners in the assembly shall be 316L stainless steel Pan Head Phillips fasteners. All exposed security fasteners shall be inserted or removed with #2 Phillips Screwdriver with a maximum torque of 19.8 inch pounds. All fasteners shall be engaged by a minimum of three (3) threads.

J.05 The velocity of water entering any orifice on the cover/grate of the fitting during normal operation shall not exceed 1.5 feet per second. To prevent finger or toe entrapment, orifice openings in the cover/grate shall not be over ¼ inch in width.

J.06 The sumps must be designed by a registered professional engineer in accordance with mandatory Appendix II of ASME A112.19.8-2007 / 8A.2008.

J.07 Definition of registered design professional – registered design professional shall be a certified architect or professional engineer duly licensed in the state the drain cover is installed.

Patents: Paddock has patents pending on the product(s) which it manufactures depicted in this document.

Intended Use: Use of this document or the Paddock product(s) depicted herein are only for the purpose it/they were designed for; refer to the appropriate specifications sheet. For the latest or updated documentation, if available, contact Paddock at 555 Paddock Parkway, Rock Hill, SC 29730 T: (803) 324-1111 or visit us online at www.paddockindustries.com.

THIS SUCTION OUTLET FITTING IS DESIGNED FOR MULTIPLE USE ONLY

NSF

SECTION 3 – VIRGINIA GRAEME BAKER ACT COMPLIANCE

AQUASTAR pool products

A Safe Drain is No Accident™

18" x 18" Square Frame with Four 9" x 9" "Wave" Anti-Entrapment Suction Outlet Covers

VGB Series

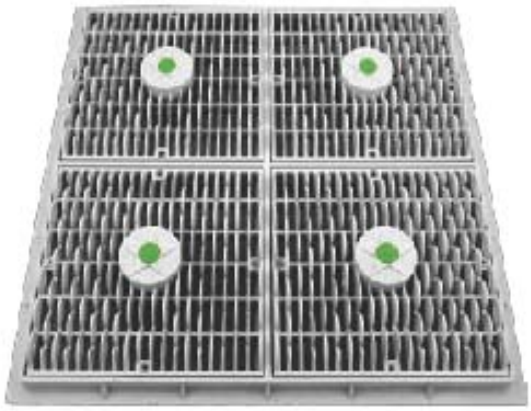
Product Specification Sheet

The AquaStar line of suction outlet covers, compliant with the new Virginia Graeme-Baker Pool and Spa Safety Act (ASME/ANSI A112.19.8a-2008)

Features

- For single or multiple drain use (see installation instructions)
- Single:
  Floor/wall: 896 GPM at 1.6 fps
  (Floor/wall: 828 GPM at 1.5 fps)
- 176.8 square inch opening
- Lime green colored "swimming man" plug easily identifies VGB 2008 compliant cover from on deck and underwater
- #316 stainless steel screws
- Manufactured from superior UV-resistant engineered polymers
- See cross-reference chart and installation instructions for details and special requirements*
- All components (covers, frame, screws) meet or exceed NSF 50/ASME/ANSI A112.19.8a-2008 national standards and ASTM G154 UV testing exposure
- 6 per case

Especially designed and engineered for ALL 1.0 and 1.5 fps states - great for gravity drain systems as well as direct suction



Model # WAV18xxx

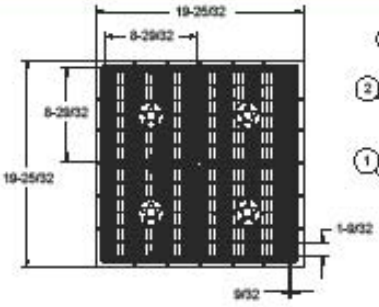
*Grates fit: AquaStar (p/n 18xxx, pre-VGB "flat"); Pentair (#1 selling) with 3/4" deep existing window grid frame and 4x4 screw hole pattern

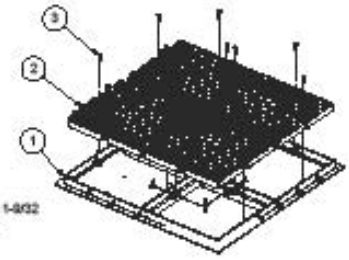
Part Numbers / Colors

- WAV18101 White
- WAV18102 Black
- WAV18103 Lt. Gray
- WAV18104 Blue
- WAV18105 Dk. Gray
- WAV18106 Bone
- WAV18107 Taupe
- WAV18108 Tan

Frame Included

VGB 2008 Compliant





1. 18"x18" flat square drain frame
2. 9" x 9" wave square drain cover
3. #10 flat head screw, stainless steel, qty 16

P 877-768-2717 F 877-276-POOL info@aquastarpoolproducts.com www.aquastarpoolproducts.com

PROUDLY MADE IN THE USA

AQUASTAR pool products

A Safe Drain is No Accident™

32" Channel Drain Flat Grate Anti-Entrapment Suction Outlet Cover and Three-Port Manufactured Sump

VGB Series

Product Specification Sheet

The AquaStar line of suction outlet covers, compliant with the new Virginia Graeme-Baker Pool and Spa Safety Act (ASME/ANSI A112.19.8a-2008)

Features

A single, unblockable suction outlet that exceeds the new VGB mandate and ASME/ANSI A112.19.8a-2008 standard

For single or multiple drain use (see installation instructions for plumbing, hydrostatic valve/drain pipe and single or multi-pump connections)

Single
Floor: 316 GPM at 3.9 fps
Wall: 208 GPM at 2.6 fps

Dual
Floor: 632 GPM at 3.9 fps
Wall: 416 GPM at 2.6 fps
Floor/wall: 242 GPM at 1.5 fps

25.9 square inch opening

#316 stainless steel screws

Manufactured from superior UV-resistant engineered polymers

Three ports: bottom 2⅛" OD, 2.0" ID S/S; inside 2.0" threaded FPT; two 2" threaded plugs included

Meets or exceeds NSF 50/ASME/ANSI A112.19.8a-2008 national standards and ASTM G154 UV testing

Listed with IAPMO R&T

4 per case

The Unblockable!™

With sump (concrete pools)*
Model # 32CDFLxxx

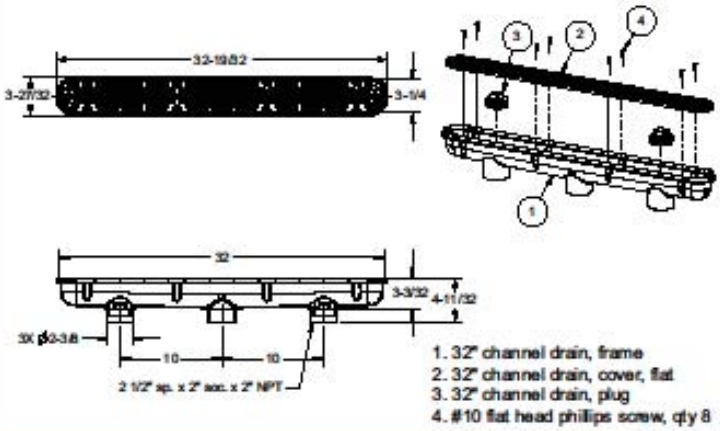
Two Drains in One!!!

*Also available for vinyl/fiberglass model # 32CDFLVxxx

Part Numbers / Colors

- 32CDFL101 White*
- 32CDFL102 Black*
- 32CDFL103 Lt. Gray*
- 32CDFL104 Blue*
- 32CDFL105 Dk. Gray*
- 32CDFL106 Bone*
- 32CDFL107 Taupe*
- 32CDFL108 Tan*

VGB 2008 Compliant



1. 32" channel drain, frame
2. 32" channel drain, cover, flat
3. 32" channel drain, plug
4. #10 flat head phillips screw, qty 8

P 877-768-2717 F 877-276-POOL info@aquastarpoolproducts.com www.aquastarpoolproducts.com

PROUDLY MADE IN THE USA

HAYWARD Pool Products
A Hayward Industries, Inc. Company

1 Hayward Industrial Drive
Clemmons, NC 27012
336-712-9900
www.haywardnet.com

CERTIFICATION OF COMPLIANCE

Contains: WG1032 Description: 12"x12" Suction Outlet

Ratings: Floor: *256 GPM* Wall: *112 GPM* Open Area: *32.37 sq-in*

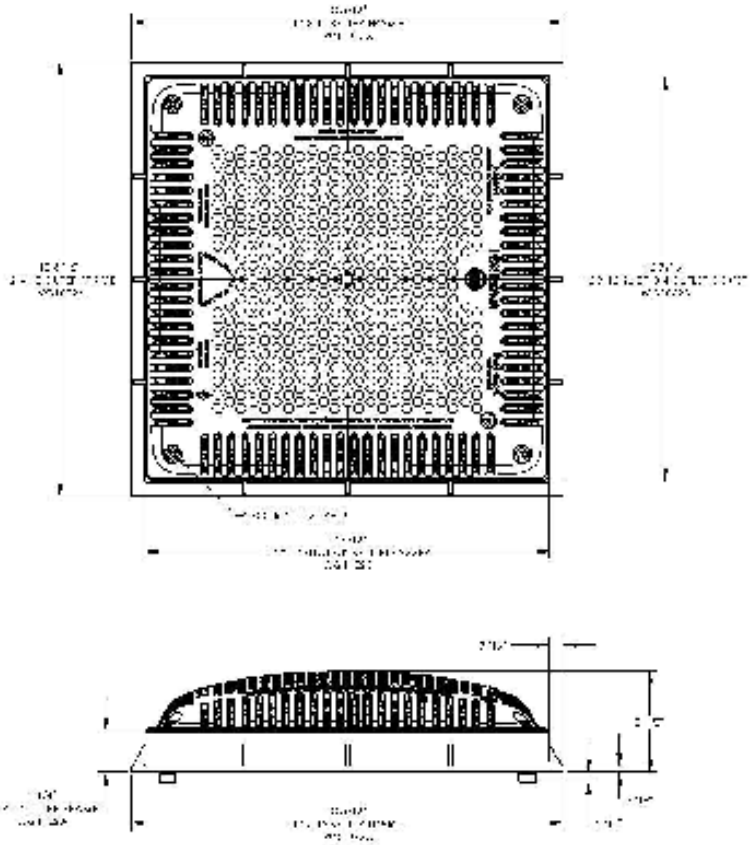
Certified to Comply with Section 1404 of the Virginia Graeme Baker Act (VGB) Pool & Spa Safety Act
Test Results can be obtained from:www.Haywardnet.com and/or http://www.nsf.org/Certified/Pools/

Manufactured: Between October 2008 and December 2008, by Hayward Pool Products in Pomona, CA, a Division of Hayward Industries, Inc. 620 Division Street, Elizabeth, NJ 07207, Phone 908-351-5400

Date of Mfr: The Lot Number shown on the carton label contains the Year & Month of manufacture. The first number represents the year (ex 8 = 2008) and the second character the month (A=Jan, B=Feb, H=Aug, I is skipped, J=Sep, etc)

Tested to ANSI/ASME 112.19.8-2007 (addendum 8a-2008) per Section 1404 of the Virginia Graeme Baker Act (VGB) Pool & Spa Safety Act. Certified by NSF International, 789 N. Dixboro, Road, Ann Arbor, MI. 48105 1(800)-NSF-MARK.

Date of Installation:_____

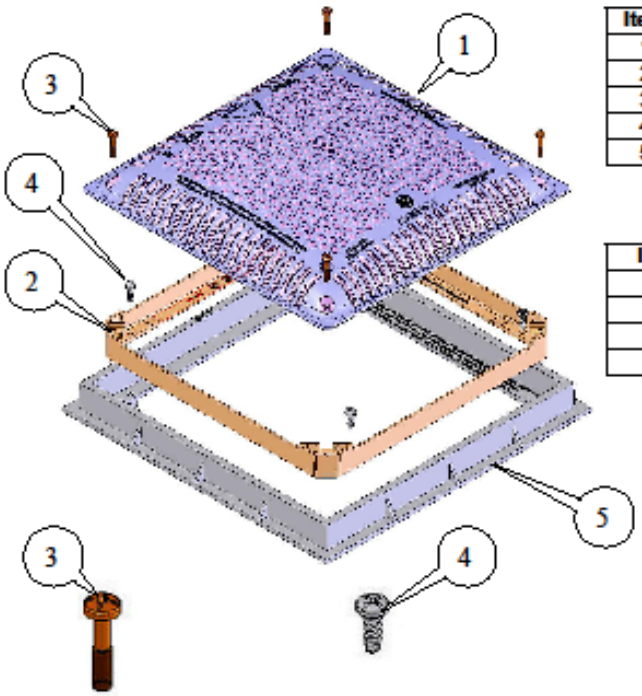


GOLDLINE CONTROLS

HAYWARD Pool Products
One source. Every pool.

INSTALLATION INSTRUCTIONS: - Use a #2 Philips head Screwdriver.
NOTICE: When installing WG1032PAK2 or WG1033PAK2 refer to ASME A112.19.8-2007 for the proper instructions on how to construct the field-fabricated sump. See Illustration on Page 7

- **PARTS LISTS**



WG1032PAK2 12" x 12"
Frame and Cover Dual Pack

Item	Description	Qty
1	Cover	2
2	Inner Frame	2 (Installed)
3	Machine Screw #10-24	8
4	#13-9 Self Taping Screw	8 (Installed)
5	Outer Frame	2

WGX1032B 12" x 12" Spare Part
Cover and Inner Frame

Item	Description	Qty
1	Cover	1
2	Inner Frame	1
3	Machine Screw #10-24	4
4	#13-9 Self Taping Screw	4

When replacing a SP1032B grate with a replacement cover WGX1032B, in an existing SP1032A Outer Frame (One that does not have inner frame installed), the grate is removed and discarded.

Locate the Inner Frame (Item 2) and using four (4) screw #13-9 x 5/8" (Item 4) **Secure** Inner Frame to Outer Frame. Should you not be able to secure the Inner Frame to the Outer Frame using the existing holes in the Outer Frame; drill four.149" (#25) diameter holes in the Outer Frame, using the holes in the Inner Frame to locate the holes to drill in the Outer Frame. Using four (4) screw #13-9 x 5/8" (Item 4) **Secure** Inner Frame to Outer Frame utilizing the four (4) new holes.

Locate the Cover (Item 1) and using four (4) #10-24 x 5/8" long screws (Item 3) Secure to the Inner Frame.

When replacing a WG1032B cover, **Do NOT** remove the Inner Frame from the Square Frame unless it is damaged. The four screws in the corners of the cover are retained in the cover. New screws should be used whenever the cover is replaced.

USE ONLY HAYWARD GENUINE REPLACEMENT PARTS INCLUDING SCREWS.

PN: ISSQUARES Rev: C

HAYWARD® Pool Products
A Hayward Industries, Inc. Company

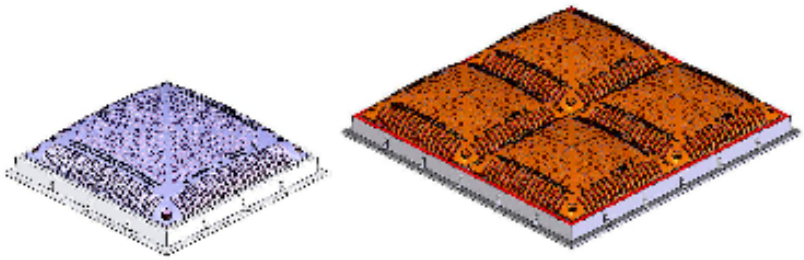
Owners Manual

OWNER'S MANUAL

INSTALLATION, OPERATION, & PARTS

DUAL SUBMERGED SUCTION OUTLET FRAMES & COVERS

[Commonly called main drains]



Basic safety precautions should always be followed, including the following: Failure to follow instructions can cause severe injury and/or death.

⚠ This is the safety-alert symbol. When you see this symbol on your equipment or in this manual, look for one of the following signal words and be alert to the potential for personal injury.

⚠ **WARNING** warns about hazards that **could** cause serious personal injury, death or major property damage and if ignored presents a potential hazard.

⚠ **CAUTION** warns about hazards that **will** or **can** cause minor or moderate personal injury and/or property damage and if ignored presents a potential hazard. It can also make consumers aware of actions that are unpredictable and unsafe.

The **NOTICE** label indicates special instructions that are important but not related to hazards.

⚠ - WARNING - Read and follow all instructions in this owner's manual and on the equipment. Failure to follow instructions can cause severe injury and/or death.

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.

USE ONLY HAYWARD GENUINE REPLACEMENT PARTS

HAYWARD® Pool Products
A Hayward Industries, Inc. Company

www.haywardpool.com

VALUE ADDED FEATURES

This section includes a summary on how the Peter Kirk Pool Facility can incorporate several ideas in a long range plan that would benefit the City of Kirkland and the pool users. Each of these concepts has the potential to improve the image, cost effectiveness of operating the facility, improve the quality & safety for the users, and/or improve the environmental impact.

Operational Cost Savings:

The biggest potential operational cost savings would be through the replacement of the existing boiler per the recommendation described by Stantec in the Evaluation & Recommendations.

Other long term considerations may include incorporating the latest technologies in pool system equipment, such as “smart pumps” which are able to operate and optimum levels as opposed to the level determined for the worst case just prior to a backwash cycle. This is different than having variable frequency pumps.

Solar Heating

Due to the fact that the operations for this facility are during the sunny summer months, solar power has the potential to offer the most benefits during the time that the facility is being used.

Through the addition of a Solar Heat Exchanger, the pool facility can achieve the goal of long term cost savings and be more environmentally conscious. See the attached information from the mechanical engineer, including product information.

Per the attached information, the concept would require adding solar collectors on a roof and tying it into the boiler system. The existing roof areas at the Peter Kirk Pool facility include the bathhouse and the guardhouse. The guardhouse is also the mechanical building, which would be convenient as a location, but it does not have enough roof area nor is any of the roof area facing in the ideal southerly direction. The bathhouse has a long south-facing roof, but it is not large enough for the 1,000 SF area recommended, (approx. 21 panels). Therefore additional structures will need to be built.

We suggest that a creatively designed structure can be provided for the site which not only functions to supply the necessary surface area, but can also enliven pool deck area. Potential ideas include building a covered trellis between the guardhouse and the bathhouse or designing a shade structure at the southwest deck area that would stimulate that otherwise blank space and provide a location for pool users to take refuge from the sun when needed. That SW location may result in additional cost to run the pipes to the mechanical room is a continuous system connecting it along the way is not provided.

Since there is no design for which to provide a cost estimate, we recommend that an allowance of $20,000 ($20/SF) be used for the additional structure needed to support the solar collectors. This cost would be in addition to the estimated cost of materials and installation of the solar collector system described in the attached mechanical summary.

By implementing a Solar Heat Exchanger to the Peter Kirk Pool, the City of Kirkland has an opportunity to demonstrate leadership in bringing an energy savings strategy to a public park facility. Outdoor pools operate only during the summer months, which is the ideal season for solar in our northwest region. The investment in this system will pay dividends in energy costs.

Engineers Report

The following pages include the Engineering Recommendations for Solar use for Pool Water Heating Savings at the Peter Kirk Pool prepared for ORB Architects by Stantec in January of 2008.

PROJECT ASSUMPTIONS:

Currently the entire pool heating load is accomplished via a natural gas fired boiler.

The pool is used seasonally, approximately Memorial Day to Labor Day.

The current boiler is 2,600,000 Btu/H

The concept:
Use solar panels to partially heat the water. Each unit of heat energy produced by the solar panels directly offsets units of pool heating by the gas boiler. Hence the panels have a direct savings of natural gas.

How much work are the panels doing?
Each panel will transfer heat based upon the amount of sunlight striking the panel. The panels transfer the most heat into the pool when the sun is directly over the panels, ~30 degrees slope off flat.

Why not go for 100%?
Going for 100% of the load would be nice if the load were constant. The load varies and over sizing the system leads to a longer payback period. The solar panels work best on the sunnier days this pool will always need the boiler on cloudy days. Therefore the boiler can not be taken out of the equation.

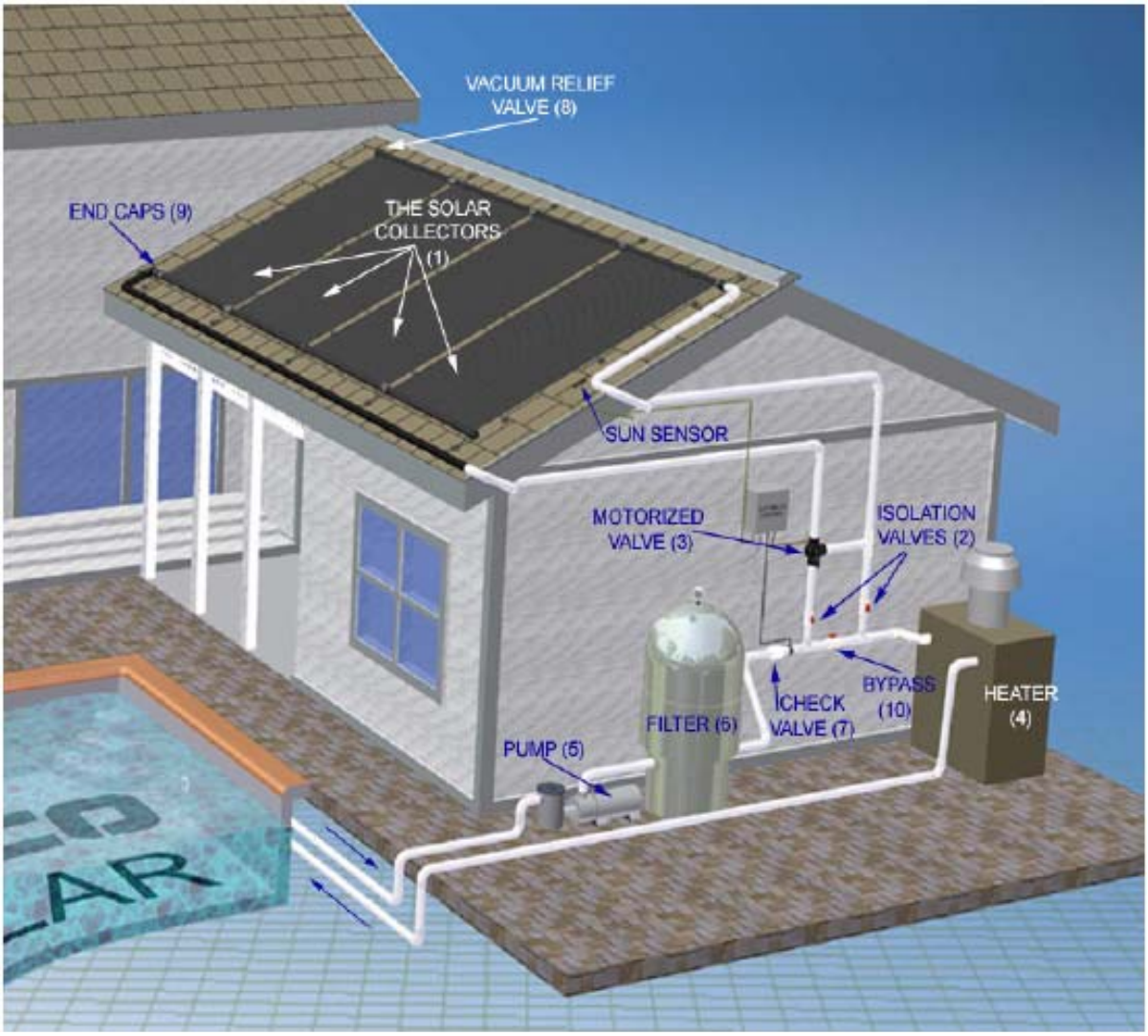
What Size of Solar Panel Array?
We recommend a total area of panels of 1000 SF. This is about 30% of the load when the air is 60F (or full load when the air is about 78). Since it is rare that the air temperature is over 78F the panels are being fully utilized all the time and a maximum payback is achieved.

The Cost
The solar panel manufacturers' representative verbally indicates a wholesale cost of the panels to be around $5 per SF based on an order of at least 1000 SF using large 4x12 panels, (FAFCO Model Sun Saver). The expected cost with contractor labor, brackets piping and controls estimates in the RS Means 2007 book at ~$20/SSF or $20,000 for 1000 SF recommended area.

Payback
The solar industry generally notes paybacks of systems sized per our above recommendations to have a payback of around 4 years. *(ORB: The cost of the added structure/shade trellis may extend the payback to as much as 8 years.)*

Summary
Every BTU saved is money that is not spent on natural gas.

System Concept:



No changes to pool pump filter or boiler, just adding panels, controller, valves and piping.

FAFCO

SUNSAVER™

SOLAR HEAT EXCHANGER

DESCRIPTION: The SunSaver™ Solar Collector is manufactured in Chico, California. The collector is a specially developed, highly stabilized polyolefin and is of parallel, circular channel design. It is unglazed, un-insulated, and designed for low temperature applications such as swimming pool heating, heat pumps, aquiculture, and hydroponics.

DIMENSIONS: Header Length = 50.875 in. (1.29 m)
Width (Panel body) = 47.5 in. (1.21 m)

Overall Dimensions	Effective Area
4 ft. X 8 ft. (1.22 X 2.44 m)	31.6 ft² (2.94 m²)
4 ft. X 10 ft. (1.22 X 3.05 m)	39.5 ft² (3.67 m²)
4 ft. X 12 ft. (1.22 X 3.66 m)	47.8 ft² (4.40 m²)

ROOF MOUNTING SPACE: Width = [Number of panels X 50.875 in. (129 cm)] + 24 in. (61 cm)
Length = Panel length + 24 in. (61 cm)

RACK SPACE: Width = [Number of panels X 50.875 in. (129 cm)]+ 2 in. (5 cm)
Length = Panel length + 6 in. (15 cm)

FLOW: Maximum recommended flow = 8 gpm per panel
3.47 psi head loss (1,817 l/hr, 0.244 kg/cm²)
Minimum recommended flow = 3 gpm per panel
0.48 psi head loss (681 l/hr, 0.034 kg/cm²)
Recommended flow = 4 gpm per panel
0.87 psi head loss (908 l/hr, 0.061 kg/cm²)

PANELS PER BANK: (maximum) 12 panels single end feed
17 panels diagonal feed

PRESSURE:

	NORMAL OPERATING PRESSURE	MAXIMUM INTERMITTENT PRESSURE
80°F (27°C)	0 to 30 psi (0 - 2.11 kg/cm²)	45 psi (3.16 kg/cm²)
212°F (100°C)	0 to 5 psi (0 - 0.35 kg/cm²)	5 psi (0.35 kg/cm²)

70°F (21°C) Measured burst pressure of panel body = Over 300 psi (21.1 kg/cm²)

TEMPERATURE: Normal operating temperature = 60°F to 90°F (16°C to 32°C)
Maximum continuous operating temperature = 212°F (100°C)
Maximum intermittent temperature (un-pressured) = 250°F (121°C)
Melt temperature = 338°F (170°C)

CHEMICAL RESISTANCE: Compatible with common collector fluids

CORROSION: Non-corrosive

FREEZING: The system should be drained before freezing conditions occur.

WEATHERABILITY: Weatherometer, accelerated outdoor exposure, and other extensive laboratory testing demonstrates long-term weatherability of SunSaver™ collectors (see warranty). Additionally, FAFCO's experience of 30+ years and over 1,000,000 collectors installed confirms that the proprietary stabilization and high mechanical strength results in negligible warranty over the **TWELVE-YEAR** warranty period.

WEIGHT: Without Water:

4 ft. X 8 ft.	13.5 lbs (5.04 kg) or 0.42 lbs/ft^2 (2.05 kg/m^2)
4 ft. X 10 ft.	15.9 lbs (5.93 kg) or 0.40 lbs/ft^2 (1.95 kg/m^2)
4 ft. X 12 ft.	18.3 lbs (6.83 kg) or 0.38 lbs/ft^2 (1.86 kg/m^2)

With Water:

4 ft. X 8 ft.	51.1 lbs (19.1 kg) or 1.60 lbs/ft^2 (7.81 kg/m^2)
4 ft. X 10 ft.	59.8 lbs (22.3 kg) or 1.50 lbs/ft^2 (7.32 kg/m^2)
4 ft. X 12 ft.	68.5 lbs (25.6 kg) or 1.43 lbs/ft^2 (6.98 kg/m^2)

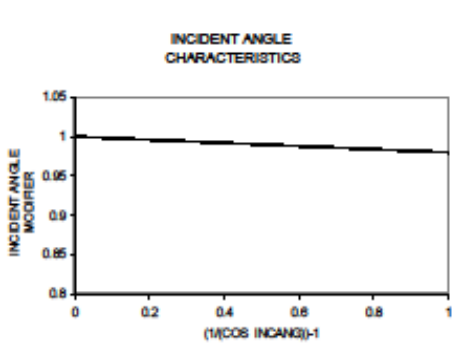
ABSORPTIVITY: 0.96

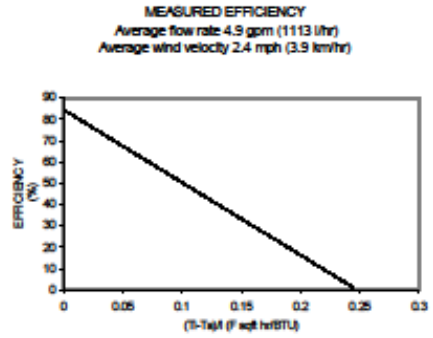
EMISSIVITY: 0.90

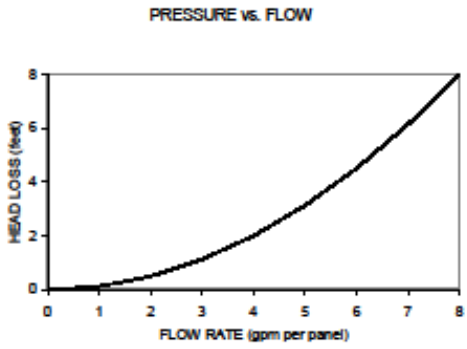
TIME CONSTANT: 64 seconds

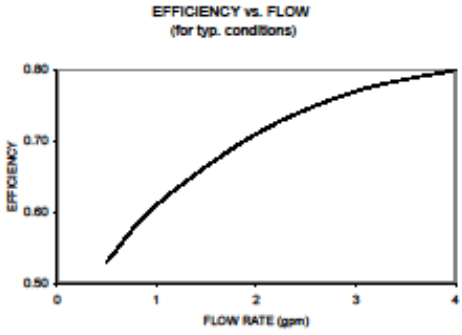
TESTED OUTPUT: 1,014 BTU/ft^2 (Florida Solar Energy Center)

PERFORMANCE CURVES:









All specifications and dimensions set forth above are as estimated by FAFCO Inc., but are not intended to be precise and should not be relied upon as precise without independent verification. These estimated specifications and dimensions are subject to change without notice. Nothing contained herein is intended or should be construed to expand or extend FAFCO Inc.'s warranty, or establish any express or implied warranties of any nature, other than as contained in the Twelve Year Warranty Agreement. (FAFCO Inc. disclaims any other warranties and assumes no duty to provide notice if it becomes aware of any deficiencies in these estimates.) The reader accepts full responsibility for any use or application of these estimates and specifically understands and acknowledges the limited reliability of these estimates.

Additional test data available on request

P/N 06359G
09/06

ADDITIONAL PROGRAMMING IDEAS

Implementation of previous plans:

The 1995 renovation plans for the Peter Kirk Pool included some design aspects that were not able to be completed at that time for one reason or another.

This includes a corridor trellis over the walkway between the guardhouse and the bathhouse. This would improve the connection between the two buildings and emphasize the circulation route into the site through the bathhouse were visitors are supposed to change and shower before entering the pools. There are no drawings in our records of what this trellis was to look like.

Leisure Pool:

Our research on Northwest Aquatic Facilities demonstrates that the addition or inclusion of a leisure pool component is a good return on the investment through increased participation and return paying users of the facility.

One option would be to take advantage of the area now being used as a wading pool and increase its ability to be used by a varied group of users including children, the elderly and the physically disabled. By converting the existing wading pool into a zero-depth pool a similar use of the space and water volume can be used to achieve this goal.

The advantages of this would go beyond the ability to increase paying visitors to increasing the ability to offer an array of programs to your existing families that use the pool. Families with young children can start swim training at a young age, increasing swimmer safety. Elderly and disabled community members can easily access the water for therapy training. And finally the additional “fun factor” will benefit all families.

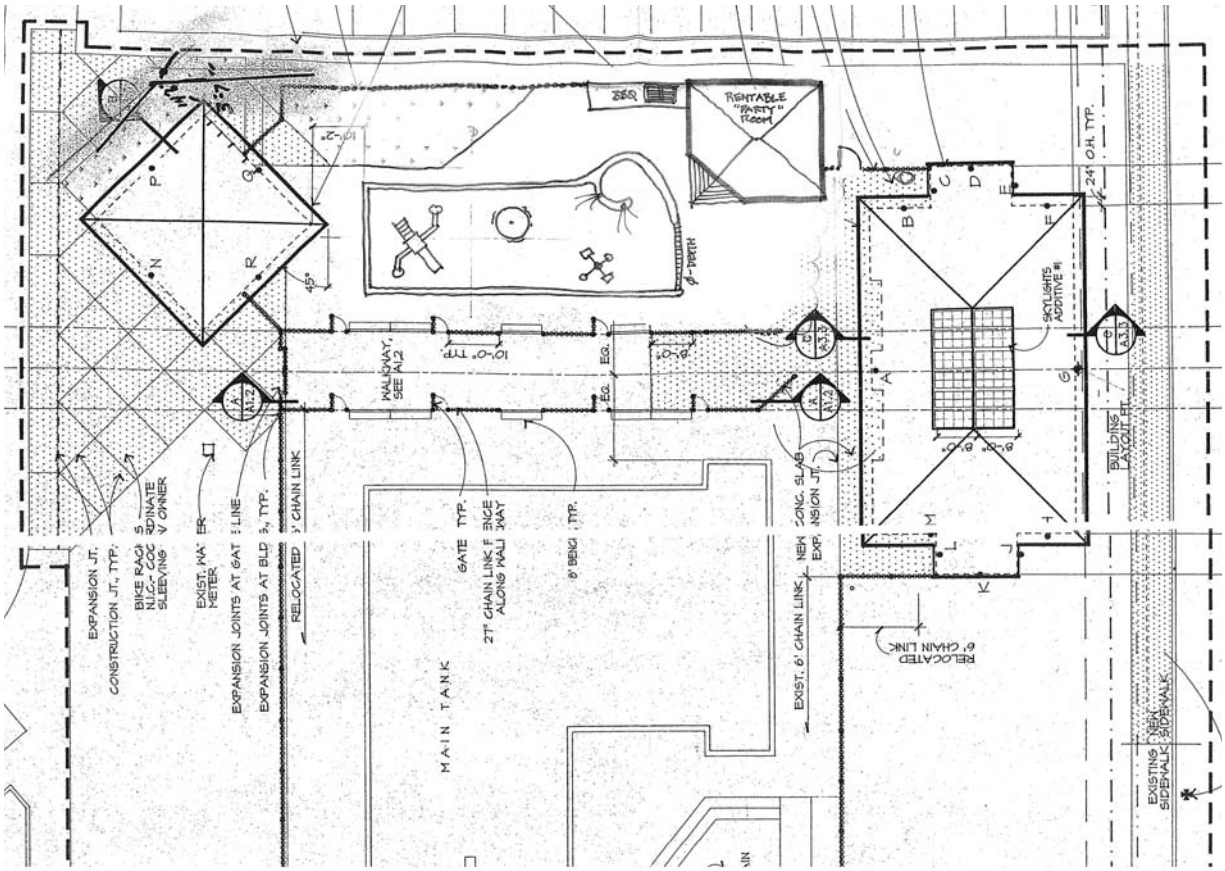
Other options worth considering may include a spray ground or addition of spray toys. Spray toys, such as “tumble buckets” and “geysers” are very popular. These can easily be implemented into a variety of other options.

Rentable Space:

Since the pool facility already has good attendance and therefore attracting additional users is not a primary concern, one additional programming option that could add value and be a good return on the investment is to provide rentable space for private events, such as birthday parties or parties for the seniors at the neighboring property.

By providing a moderately sized room near to the wading pool, possibly between the bathhouse and Guardhouse on the east side of the site, you could potentially increase the revenue from the pool usage without having to alter the pool capacity. The attraction to rent such a facility would be enhanced, however by its adjacency to a leisure style pool as opposed to the existing wading pool. The layout of the deck area even allows for this section to be roped off for such private events and add value through premium rentals to the concept.

The rentable room would at least have space to accommodate a counter with some cabinets and a sink, room for several tables and chairs and storage. Ideally, this space might also include a refrigerator, microwave and some means of accommodating a sound system. Doors from the room should enter directly onto the pool deck and may even want to include a large garage door style wall that can open up completely for a seamless interaction with the activities.



Concept Plan for Leisure Pool and Rentable Space

Based on some of our Regional Aquatic Operating Analysis, we estimate that rentable spaces such as this could generate substantial revenue for the facility. Depending on the size of the room (capacity) and amenities offered, we estimate that a space such as this could be rented for anywhere from $100.00 to over $200.00 per hour. A fee structure could even include a premium if it included private use of the wading/leisure pool area. Assuming you were able to rent the space for an average of 8 hours per weekend over the summer months, (14 weeks) that translates to anywhere from $11,000 to $22,000 per season.

UV Treatment

Many aquatic facilities have been adding UV treatment to their pool systems. These systems are relatively easy to add to an existing system with minimal piping revisions needed in order to get the length of straight runs of pie required.

The advantage of a UV treatment system is increased health safety for the pool users by killing bacteria such as E.Coli and Giardia that has caused pools to be shut down in recent years. UV systems have been proven as an effective solution to dramatically reduce the formation of reaction byproducts, and are effective against viruses and micro-organisms not normally killed by chlorine based chemicals.

In addition, there is the potential that by using a UV treatment system it can help reduce the amount of chemicals required to operate the pool, helping with operational costs and the overall effects these chemicals can have on pool users, such as odors and irritation.

PETER KIRK POOL

POOL IMPROVEMENTS– 10 -YEAR PLAN:

10-year plan

	Quantity	Unit		Total
Immediate Concern and Most Important				
Replace Eastern Fence	130	LF	$	5,200
Barrier at Lawn areas (rope)	100	LF	$	750
Provide foot wash at lawn area	1	EA	$	1,750
Depth Marking at pool walls & deck	1	LS	$	6,000
Replace Stair Handrails	2	EA	$	2,000
Contrasting Stair edge - Non-slip Tile Finish	250	SF	$	3,750
Replace Drinking Fountain	1	EA	$	2,000
New ADA bench for shower	2	EA	$	800
Mechanical Items				
Replace Boiler w/ Raypak Outdoors			$	60,000
Trench/Backfill & Slab Repair for boiler piping			$	3,000
		Subtotal	$	85,250
		Contractor OH&P	$	32,395
		Subtotal	$	117,645
		Sales Tax	$	10,470
		Subtotal	$	128,115
		Concept Contingency @ 15%	$	19,217
		Total Construction Cost	**$**	**147,333**
Future Items to Consider in 10-Year Plan				
Trench/Backfill & Slab Repair for hose bibbs	150	lf	$	7,500
Provide additional hose bibbs (one w/foot wash)	3	EA	$	1,500
Remove/Dispose Bathhouse Floor Slabs	2,560	SF	$	30,720
New Bathhouse Concrete floor and lowering drains	284	CY	$	55,467
New Tile Floor Finish	2,560	SF	$	23,040
Mechanical Items				
Remove DE System; demo & disposal			$	10,000
Divide pit for balance of each pool			$	20,000
Add High Rate Sand Filter for Main Pool			$	52,000
Add small Commercial Sand Filter for Wading Pool			$	15,000
Wading pool small pump			$	2,000
Wading Pool Chemtrol controller			$	10,000
Wading Pool Heat Exchanger			$	10,000
Piping Changes			$	40,000
		Subtotal	$	277,227
		Contractor OH&P	$	105,346
		Subtotal	$	382,573
		Sales Tax	$	34,049
		Subtotal	$	416,622
		Concept Contingency @ 15%	$	62,493
		Total Construction Cost	**$**	**479,115**
		GRAND TOTAL	**$**	**626,448**

PETER KIRK POOL

POOL IMPROVEMENTS– VALUE ADDED FEATURES:

Value Added Features	Quantity	Unit			Total
Solar Heating					
Solar Panel Structure/Support system	1,000	SF	20.00	$	20,000
Mechanical Items					
Solar 2k per panel	1,000	SF	5.00	$	5,000
Additional Piping if at SW corner	250	LF	100.00	$	25,000
Equipment & Labor	1,000	SF	20.00	$	20,000
			Subtotal - Solar Heating	**$**	**70,000**
Site Plan					
Corridor Trellis	2,000	SF	20.00	$	40,000
Shade Structure	1	EA	10,000.00	$	10,000
Deck Modifications	250	SF	10.00	$	2,500
			Subtotal - Site Plan	**$**	**52,500**
Leisure Pool					
Demo Wading Pool & Decks	1	LS	25,000.00	$	25,000
1,500 SF Zero-Depth Leisure Pool	1,500	SF Surf	200.00	$	300,000
Spray Toys/Features	1	LS	30,000.00	$	30,000
Deck Area	1,600	SF	6.00	$	9,600
Mechanical Items					
Pool filters, treatment, piping, etc.	1	LS	120,000.00	$	120,000
Electrical Items					
Misc. Electrical	1	LS	20,000.00	$	20,000
			Subtotal - Leisure Pool	**$**	**504,600**
Rentable Space					
Enclosed Structure	550	SF	175.00	$	96,250
Outdoor Ammenities	1	LS	15,000.00	$	15,000
			Subtotal - Leisure Pool	**$**	**111,250**
UV Treatment					
Add UV system to wading (or leisure) pool	1	LS	25,000.00	$	25,000
Add UV system to lap pool	1	LS	35,000.00	$	35,000
			Subtotal - Leisure Pool	**$**	**60,000**
			Subtotal of all items above	$	798,350
			Contractor OH&P	$	303,373
			Subtotal	$	1,101,723
			Sales Tax	$	98,053
			Subtotal	$	1,199,776
			Concept Contingency @ 15%	$	179,966
Value Added Features			**Total Construction Cost**	**$**	**1,379,743**

PUBLIC SWIMMING POOL EVALUATION CHECKLIST

Pool Design, Construction and Equipment

The following pages contain the On-Site evaluation checklist for the pool facility and bathhouse completed in September of 2007.

ORB Architects, Inc.
PUBLIC SWIMMING POOL CHECKLIST
BASED ON WAC 246-260
POOL DESIGN, CONSTRUCTION AND EQUIPMENT REQUIREMENT
WASHINGTON STATE

NAME OF POOL: ***Peter Kirk Pool***
OWNER: ***Kirkland Parks and Recreation***
DATE OF INSPECTION: ***9/27/2007***
INSPECTED BY: ***Geoff Anderson / Rick Charbonneau***

SWIMMING POOL MAXIMUM BATHING LOAD (SPMBL) outdoor pool Table 041.2

See page 2 for Pool Configuration Sketch & area calculations

1. Surface area of water less than five feet deep ***2056*** SF divided by 15 = ***137***
2. Plus surface area of water greater than five feet deep ***3199*** SF divided by 30 = ***107***
3. Equals SWIMMING POOL MAXIMUM BATHING LOAD (SPMBL) ***244***

Male Swimmers (50% of above) ***122***

Female Swimmers (50% of above) ***122***

CALCULATE NUMBER OF FIXTURES REQUIRED (TABLE 031.3)

Male Toilets:	Up to 120 bathers = 1/60		(2 Exist)
	From 121 to 360 = 1/80	***1.52***	
	Over 360 add = 1/150		
Urinals:	Up to 120 bathers = 1/60		(3 Exist)
	From 121 to 360 = 1/80	***1.52***	
	Over 360 add = 1/150		
Female Toilets:	Up to 120 bathers = 1/40		(5 Exist)
	From 121 to 360 = 1/60	***2.03***	
	Over 360 add = 1/100		
Male Showers:	Up to 120 bathers = 1/40		(9 Exist)
	From 121 to 360 = 1/60	***2.03***	
	Over 360 add = 1/100		
Female Showers:	Up to 120 bathers = 1/40		(9 Exist)
	From 121 to 360 = 1/60	***2.03***	
	Over 360 add = 1/100		
Male Sinks:	Up to 200 bathers = 1/100	***1.22***	(2 Exist)
	From 201 to 400 = 1/200		
	Over 400 add = 1/400		
Male Diaper Changing Area	1-Req.	***1.00***	(1 Exist)
Female Sinks:	Up to 200 bathers = 1/100	***1.22***	(2 Exist)
	From 201 to 400 = 1/200		
	Over 400 add = 1/400		
Female Diaper Changing Area	1-Req.	***1.00***	(1 Exist)

NAME OF FACILITY: ___**Peter Kirk Pool**_____

GENERAL DESIGN CHECKLIST

WAC 246-260-031 General Design, Construction and Equipment for All WRF Pool Facilities

RULE REQUIREMENT	COMPLIES: YES OR NO	REMARK NO.
(1) Location		
Owners shall locate pools to minimize surface drainage and other potential sources of pollution from entering the pool.	_X_YES __NO	Hill @ east and South
(2) Materials		
Owners shall use only structure and equipment materials that are nontoxic, durable, inert, and easily cleanable.	_X_YES __NO	
(3) Walking Surfaces: Owners shall design and maintain walking surfaces:		
Owners shall design and maintain walking surfaces:		
(a) Sloping away from the pool or pools	_X_YES __NO	
(b) Sloping a minimum of one-fourth inch per foot to drain	_X_YES __NO	
(c) Having a nonslip surface	_X_YES __NO	
(d) Not having an abrupt change in height of greater than one-half inch, a gap no greater than one-half inch in width, or a **crumbling surface** presenting a potential tripping hazard	_X_YES __NO	1 ponding area @ north (valley), crumbling @ steps (east)
(e) Equipped with sufficient drains to prevent standing water	_X_YES __NO	
(f) Of easily cleanable, impervious finishes	_X_YES __NO	
(4) Barriers for New Construction and Remodeling		
(a) Owners shall provide barriers to prevent unauthorized persons from gaining access to pools. Spray pool facilities without standing water are exempt from barrier requirements of this section.	__YES __NO	
~~(b) Barriers at limited use pools must be at least sixty inches high.~~	~~NA~~	
(c) Barriers at general use pools must be at least seventy-two inches high.	_X_YES __NO	72"
(d) Barriers, including windows, (see figures 031.1 and 031.2) may not:		
(i) Allow passage of a four-inch diameter sphere; or	__YES _X_NO	Gap in fence ajacent to bathhouse
(ii) Have spaces between vertical members greater than a width of one and three-quarter inches (1-3/4") if the distance between the tops of horizontal members are spaced less than forty-five inches (45") apart.	__YES _X_NO	East fence does not comply
(A.) If yes, is the space between the vertical members greater than 1-3/4"?	__YES _X_NO	See above
(B.) If the chain link fence opening exceeds 1-3/4", slats are to be provided to reduce opening, is this **action required?**	_X_YES __NO	Maintenance staff indicated fence to be replaced
(e) Solid barriers may not have indentations or protrusions, other than normal construction tolerances and masonry joints.	__YES __NO	Not applicable
(f) Barriers must have self-closing, self-latching gates or doors that provide either:	**NA for pools w/ lifeguards**	
(i) A mechanism that uses a continuously locked latch, coded lock or other equivalent access control system that always requires a key or code to enter pool area. If the latch is less than sixty inches from the ground, the barrier must have an eighteen-inch radius of	_X_YES __NO	
(ii) A latch height of sixty inches or more from the ground.	**NA**	
(g) Restricted area service entrances are exempt from door or gate requirements provided that no public access is available.	**NA**	
(h) Lifeguarded pools are not required to have a self-closing, self-latching gate during the period a pool is in use. Facility gates shall be closed and locked during nonuse periods.	_X_YES __NO	Sliding Gate entry
(i) Barrier heights are measured on the side outside the pool enclosure area. Owners shall ensure that surrounding ground levels, structures, or landscaping do not reduce the effective height of the barrier.	_X_YES __NO	
(5) Barriers for existing facilities		
(a)**Before June 1, 2008**, owners shall provide barriers for all pools conforming with subsection (4) of this section. Barrier modifications made prior to the compliance deadlines shall meet the requirements in subsection (4) of this section, at the time the modifications are made.	__YES __NO	East fence to be replaced

GENERAL DESIGN CHECKLIST		
(6) Pool Surfaces:		
Owners shall ensure pool surfaces are constructed and maintained to:		
(a) Have white or light color finish	_X_YES __NO	
(b) Not cause cutting, pinching, puncturing, entanglement, or abrasion hazard under casual contact	__YES _X_NO	Surface applied depth markings protrude from side walls
~~(c) Conform to ANSI/NSPI-1 2003 Standards for Public Swimming Pools or ANSI Standard NSPI-@-1999, American National Standard for Public Spas~~	~~__YES __NO~~	
(7) Inlets:		
Owners shall provide pool inlets that are:		
(a) Submerged	_X_YES __NO	
(b) Located to produce uniform water and chemical circulation throughout the pool	_X_YES __NO	
(c) Located on the bottom of swimming and wading pools over twenty-five hundred square feet and spa pools greater than ten thousand gallons	_X_YES __NO	
(8) Outlets		
(a) Owners shall provide pool outlets with:		
(i) Overflow and main drain grating systems each designed to carry one hundred percent of the total recirculation filter flow	_X_YES __NO	
(ii) Main drain piping systems designed to carry one hundred percent or more of total recirculation filter flow when a single pump is used or fifty percent more of total recirculation filter flow when multiple pumps are used	_X_YES __NO	
(iii) Valving on main drain piping designed to provide required flow	_X_YES __NO	
(b) Owners shall ensure that overflow outlets maintain a minimum of sixty percent of filter recirculation flow at all times	_X_YES __NO	
(c) Overflow outlets must consist of an overflow channel on the perimeter of swimming pools twenty-five hundred square feet or more and spa pools ten thousand gallons or more, to promote uniform circulation and skimming action of the upper water layer with:	_X_YES __NO	Gutter @ one side of wading pool (north)
(i) A design preventing all matter entering the channel from returning to the pool	_X_YES __NO	
(ii) Dimensions minimizing the hazard for bathers, such as catching arms or feet	_X_YES __NO	
(iii) One one-hundredth of a foot slope per foot or more. However, adequate hydraulic justification from a designer to ensure the overflow system will meet (c)(v) of this subsection may be provided as an alternative	_X_YES __NO	29" at outlet, 11-1/2 at high point
(iv) Drains sufficiently spaced and sized to collect and remove overflow water to return line and filter, where applicable	_X_YES __NO	1 drain at NW corner
(v) Size sufficient to carry one hundred percent of the recirculation flow plus the surge flow without flooding the overflow channel	_X_YES __NO	
~~(d) Overflow outlets must consist of skimmers or overflow channels for pools less than twenty-five hundred square feet, or for spas under 10,000 gallons~~	~~__YES __NO~~	
~~*(i)Weirs provided in skimmers must have a normal operation flow rate of three to five gpm per inch of weir*~~	~~__YES __NO~~	
~~*(ii) Skimmer equipment must be recessed in the pool wall so no part protrudes beyond the plane of the wall into the pool*~~	~~__YES __NO~~	
~~*(iii) Skimmers must be equipped with a device, such as an equalizer line, to prevent air lock in the recirculation suction line. If equalizer lines are used, they must be protected with grates listed by IAPMO or UL*~~	~~__YES __NO~~	
~~*(iv) Skimmers must be equipped with a removable and cleanable screen designed to trap large solids*~~	~~__YES __NO~~	
~~*(v) Skimmers shall operate continuously with a minimum displacement rate of fifteen gallons per bather in swimming pools, twenty gallons in spa pools, and seven gallons in wading pools*~~	~~__YES __NO~~	
(e) Main drains in all pools must:		
(i) Be located at swimming and wading pool low points	_X_YES __NO	
(ii) Consist of two or more main drains for any pumped water recirculating system designed	_X_YES __NO	New at wading pool
(A) Piping must be manifolded to assure the water pumps from both main drains simultaneously so that no single drain could be the sole source of suction	_X_YES __NO	no suction - gravity system

GENERAL DESIGN CHECKLIST		
~~(B) Drains must be spaced at least three feet apart or as far as practical in small spa pools. If a pool uses more than two main drains with a pump, the design must distribute flow so that no single drain could be the primary source of suction~~	~~__YES __NO~~	
(C) Piping must be designed so velocity in piping assuming one hundred percent of the pump recirculation flow does not exceed six fps up to the main drain outlet box	_X_ YES __NO	
(iii) Have grates on drains with maximum flow of one and one-half feet per second or net outlet area four times or greater than the discharge pipe	_X_ YES __NO	
(iv) Have openings that prevent a sphere greater than one-half inch in diameter passing	_X_ YES __NO	
(v) Have mechanically fastened grates designed to withstand the force of users	_X_ YES __NO	
(vi) Have the total open area of grates sized to prevent a suction or entrapment hazard dangerous to user	_X_ YES __NO	
~~*(vii) For spa pools, have a design listed by IAPMO or UL to aid in preventing hair entrapment, if the main drains are located on vertical walls of the spas*~~	~~__YES __NO~~	
(9) Pumps		
Owners shall provide and maintain recirculation pumps with adequate capacity to provide design flows for the entire operating and backwash cycles of the filter	_X_ YES __NO	
(10) Strainers		
Owners shall provide hair and lint strainers for pumps that precede filters	__YES __NO	N/A - DE filter
(11) Pool Appurtenances		
(a) Owners shall ensure pools have		
(i) Handholds when the pool deck is greater than twelve inches above the water surface	__YES __NO	N/A
(ii) Stairs leading into spa pools	__YES __NO	N/A
(iii) Step risers on the exterior of the spa pool shall conform with UBC requirements for risers with nonslip tread finishes, when spas are elevated off the pool floor	__YES __NO	N/A
(iv) Stairs, ladders, or stepholes for access at the shallow end of swimming pools	_X_ YES __NO	
(b) Owners shall ensure that stairs, when provided, meet the following construction requirements		
(i) Nonslip tread finish	_X_ YES __NO	
(ii) Contrasting color stair tread edges	__YES _X_ NO	diamond pattern at edge not fully complient
(iii) Placement recessed into the side of pools specifically designed for lap or competitive swimming	_X_ YES __NO	
(iv) Handrail having leading edges less than eighteen inches beyond and less than eight inches inside (horizontally) the vertical plane of the bottom riser	__YES _X_ NO	handrail extends into pool lanes
(v) Each riser tread shall have a minimum unobstructed, tread depth of ten inches and minimum surface area each of two hundred forty inches	_X_ YES __NO	12"
(vi) Uniform riser heights of seven and one-half inches or less on general use swim pools fifteen hundred square feet or more and spa pools greater than forty feet in perimeter, except the bottom riser may be less than the uniform height	_X_ YES __NO	7"
(vii) Uniform riser heights of ten inches or less for all other pools, except the bottom riser may be plus or minus two inches of the uniform height	_X_ YES __NO	
(c) Ladders or stepholes at swimming pools shall be		
(i) Spaced at a minimum of one for every seventy-five feet of swimming pool perimeter deeper than four feet	_X_ YES __NO	
(ii) Provided at both sides of the deep end of swim pools over thirty feet in width	_X_ YES __NO	
(iii) Equipped with handrails	_X_ YES __NO	
(12) Valves		
Owners shall provide valves to allow isolation and maintenance of equipment	_X_ YES __NO	
(13) Balancing Tanks		
Owners shall provide balancing tanks for pools designed with overflow channels.	__YES __NO	N/A
Balancing tanks must be of adequate size to prevent air lock in the pump suction line	__YES __NO	N/A
Balancing tanks must be of adequate size to have sufficient capacity to prevent flooding of the overflow channel	__YES __NO	N/A

GENERAL DESIGN CHECKLIST		
(14) Equipment and Chemical Storage Rooms		
Owners shall provide enclosed, locked, lighted, vented rooms for mechanical equipment	_X_YES __NO	vented door (boards hang over) and roof
Mechanical rooms shall have floors sloped to a floor drain	_X_YES __NO	
Mechanical rooms shall have a minimum access area three feet wide around equipment.	_X_YES __NO	42" to wall
Owners shall provide a separate chemical storage area or room that conforms to manufacturer's requirements for each chemical used in the pool area	__YES _X_NO	
(15) Make-up Water		
Owners shall ensure an adequate supply of make-up water with associated piping, for each pool:		
(a) Sufficient to replace daily pool losses	_X_YES __NO	
(b) From a supply conforming to chapter 246-290 WAC	_X_YES __NO	
(c) Without cross connections	_X_YES __NO	
(d) If using a pool fill spout:	__YES __NO	N/A - at tank
the spout may not project greater than one inch into the space above the water surface	__YES __NO	N/A
shall be shielded so as not to create a deck hazard	__YES __NO	N/A
(16) Filters		
(a) Owners shall equip pools with filtration equipment:		DE filter system
(i) Meeting the applicable standards of NSF (for commercial application) or equivalent	_X_YES __NO	
(ii) With a rate of flow indicator and gauge(s) for monitoring backpressure on filter	_X_YES __NO	at both sides of pump
(iii) With a means of discharging filter backwash to waste with a sight glass in a manner not creating a cross connection or a public nuisance	__YES __NO	N/A (for sand)
(iv) With a means to release air entering the filter tank for pressure filters	__YES __NO	N/A (for sand)
(b) If cartridge filters are used, owners shall always possess an extra set of cartridges and may not use cartridge filters with bypass valves	__YES __NO	N/A
(17) Disinfections Equipment		
(a) Owners shall provide disinfection equipment		
(i) Providing a continuous and effective disinfectant residual	_X_YES __NO	
(ii) Using a disinfectant with an easily monitored residual	_X_YES __NO	Strantrol controler
(iii) Having a design feed rate providing effective disinfection levels for peak demand conditions	_X_YES __NO	360# hopper
(iv) Conforming to NSF standard 50 if disinfection chemical is other than gas chlorine	_X_YES __NO	
(b) If the disinfections equipment has adjustable output rate chemical feed of liquid solutions, the equipment shall:		
(i) Feed under positive pressure in the recirculation system	__YES __NO	N/A
(ii) Provide a means for dosage adjustment	_X_YES __NO	
(iii) Having a design feed rate providing effective disinfection levels for peak demand conditions	_X_YES __NO	
(iv) Conforming to NSF standard 50 if disinfection chemical is other than gas chlorine		
(c) Solid tablets or granules may not be placed in skimmer basket	_X_YES __NO	
~~(d) Rooms holding chlorine gas equipment must~~		
~~*(i) Be above ground level*~~	~~__YES __NO~~	
~~*(ii) Be constructed so all openings or partitions with adjoining rooms are sealed*~~	~~__YES __NO~~	
~~*(iii) Be located with consideration of prevailing winds to dissipate leaked chlorine away from the pool facility*~~	~~__YES __NO~~	
~~*(iv) Have door(s) opening only outward to the out-of-doors*~~	~~__YES __NO~~	
~~*(v) Have a sign on the door exterior reading DANGER CHLORINE in large enough letters to be read twenty-five feet away*~~	~~__YES __NO~~	
~~(e) Chlorine rooms must have mechanical exhausting ventilation that includes:~~		No chlorine room
~~*(i) Air inlets located as far as possible from fan intakes to promote good air circulation patterns*~~	~~__YES __NO~~	
~~*(ii) A minimum of one air change per minute in the chlorine room when fan is operating*~~	~~__YES __NO~~	

GENERAL DESIGN CHECKLIST		
~~*(iii) A remote switch outside the room or a door-activated switch to turn on fan before entering*~~	~~__YES __NO~~	
~~*(iv) Suction for fan near the floor*~~	~~__YES __NO~~	
~~*(v) Exhaust vents located to prevent chlorine contaminated air from being drawn into supply air*~~	~~__YES __NO~~	
~~*(vi) Screened chlorinator vents*~~	~~__YES __NO~~	
~~(f) Gas chlorine systems must~~		
~~*(i) Be vacuum injection type, with vacuum-actuated cylinder regulators*~~	~~__YES __NO~~	
~~*(ii) Provide integral backflow and antisiphon protection at the injector*~~	~~__YES __NO~~	
~~*(iii) Have taring (net weight of cylinder gas) scales for determining chlorine weight*~~	~~__YES __NO~~	
~~*(iv) Have a means for automatic shutoff when water flow is interrupted*~~	~~__YES __NO~~	
~~(g) A self-contained breathing apparatus designed for use in chlorine atmospheres caused by chlorine leaks must be available in an area accessible to the operator outside the chlorine room.~~	~~__YES __NO~~	
~~The apparatus must be maintained in accordance with department of labor and industry standards.~~	~~__YES __NO~~	
~~If procedures are established for immediate evacuation and the owner has a written agreement with emergency service fire districts or other approved organizations within the area for promptly responding to chlorine leaks, then breathing protection is not required at the pool facility~~		
~~(h) Chlorine gas cylinders must:~~		
~~*(i) Be stored only in designated chlorine rooms*~~	~~__YES __NO~~	
~~*(ii) Have an approved valve-stem cylinder wrench on the valve stem to shut the system down in an emergency event*~~	~~__YES __NO~~	
~~*(iii) Be properly secured to prevent tipping*~~	~~__YES __NO~~	
~~*(iv) Be tagged to indicate cylinders are empty or full*~~	~~__YES __NO~~	
~~*(v) Not exceed one hundred fifty pounds tare weight per cylinder*~~	~~__YES __NO~~	
(i) Owners shall ensure that chemical disinfectants are not hand-fed into pools actively in use. *Exception, chemical disinfectants may be hand-fed on an emergency basis if no users are in the pool and the pool is tested to meet water quality standards before reentry*	_X_ YES __NO	
~~(j) If ozone is provided as a supplemental disinfection process:~~		
~~*(i) When ozone is produced by corona discharge method, the area where the ozone is produced shall meet the requirements of (c) of this subsection, unless field tests demonstrate no hazardous off-gassing of product*~~	~~__YES __NO~~	
~~*(ii) When ozone is produced by ultraviolet light, it may be allowed in the mechanical room provided there are no levels of off-gassing exceeding 0.05 ppm*~~	~~__YES __NO~~	
~~*(iii) Provide an ozone detector and alarm with corona discharge ozone generators*~~	~~__YES __NO~~	
~~*(iv) Provide sufficient contact chambers to prevent excess levels of ozone from entering the pool water*~~	~~__YES __NO~~	
~~*(v) Testing equipment must be provided to monitor levels in the water and the atmosphere immediately above the water and the room where the ozone is produced*~~	~~__YES __NO~~	
~~(k) If copper or copper/silver is provided as a supplemental disinfection process~~		
~~*(i) The output rate and method of controlling process levels into the pool facility must be provided*~~	~~__YES __NO~~	
~~*(ii) The system shall not have a detrimental effect on maintaining proper turnover rates for the pool*~~	~~__YES __NO~~	
~~*(iii) Testing equipment provided to monitor levels of copper and silver in the pool water*~~	~~__YES __NO~~	
(18) Chemical Feeding Equipment For pH Control		
Owners shall provide chemical feed equipment for pH control, with a means of automatic shutoff if water flow is interrupted, for:		**Feeding chemicals before double check (city system)
(a) Swimming pools fifty thousand gallons or greater	_X_ YES __NO	
~~(b) Spa pools ten thousand gallons or greater~~	~~__YES __NO~~	
(c) All pools treated with caustic soda or **carbon dioxide**	_X_ YES __NO	
(19) Ventilation		
Owners shall provide adequate ventilation (in conformance with ASHRAE standards for pools and decks) to maintain air quality and to prevent moisture buildup in indoor areas	_X_ YES __NO	at bathhouse
Design considerations must include maintaining negative pressure in the pool and deck area	__YES __NO	N/A
Design considerations must provide adequate total airflow for acceptable air distribution; and preventing short-circuiting of fresh air return to exhaust.	__YES __NO	N/A

GENERAL DESIGN CHECKLIST		
(20) Locker and Dressing Rooms		
(a) Owners shall provide **general use** pool facilities with locker rooms and dressing rooms having		
(i) Separate facilities for each gender constructed to block line of sight into locker rooms	_X_ YES __ NO	
(ii) Water impervious nonslip floors properly sloped to drains to prevent standing water	__ YES _X_ NO	reported standing water is constant
(iii) Easily cleanable walls, lockers, and benches (if provided)	_X_ YES __ NO	
(iv) Junctions between walls and floors coved for ease of cleaning	__ YES _X_ NO	
(v) Properly anchored lockers, (if provided), to prevent tipping	_X_ YES _X_ NO	one row in womens
~~(b) Owners shall provide **limited use** pool facilities with locker or dressing rooms meeting the requirements of (a) of this subsection if the pool facilities are located more than one-quarter mile from any served living units~~	~~__ YES __ NO~~	
~~(c) Owners shall provide **general use** recirculating **spray pool** facilities with locker or dressing rooms meeting the requirements of (a) of this subsection if the pool facilities are located indoors~~	~~__ YES __ NO~~	
(21) Restrooms, Shower Rooms, and Plumbing Fixtures		
(a) Owners shall provide **general use** pool facilities with restroom and shower room facilities having plumbing fixture types and numbers as described in Table 031.3 of this section (swim and wading pool bathing loads and spa bather capacity are additive for determining total bather load).	_X_ YES __ NO	
The pool facility design shall provide users easy access to restroom and shower facilities with minimum nonuser cross traffic	_X_ YES __ NO	
(b) Owners shall provide **general use** pool facilities with:		
(i) Hose bibs with vacuum breakers around pool decks at a maximum spacing of one hundred fifty feet	__ YES _X_ NO	at bathhouse and guardhouse only
Accessible to each locker room	_X_ YES __ NO	at showers
Within equipment room at facilities fifteen hundred square feet or more	_X_ YES __ NO	in boiler room
(ii) A janitor's sink at indoor facilities with a pool of fifteen hundred square feet or more	__ YES __ NO	N/A
(iii) An operable drinking fountain conforming to ASA requirements at facilities with a pool fifteen hundred square feet or more	_X_ YES __ NO	
~~(c) Owners shall provide **limited use** pool facilities with (swimming, spa, and wading pools) :~~		
~~*(i) Restroom and shower room facilities having plumbing fixture types and numbers as described in Table 031.3 of this section, if bathing load exceeds eighty persons*~~	~~__ YES __ NO~~	
~~*(ii) Restroom and shower room facilities having plumbing fixture types and numbers as described in Table 031.4 of this section, if bathing load is eighty persons or less*~~	~~__ YES __ NO~~	
~~*(iii) Hose bibs around pool decks at a maximum spacing of one hundred fifty feet*~~	~~__ YES __ NO~~	
~~*(iv) A hose bib accessible to each locker room*~~	~~__ YES __ NO~~	
~~*(v) A hose bib within each equipment room at facilities with a pool of fifteen hundred square feet or more*~~	~~__ YES __ NO~~	
~~(d) Owners shall provide **general use** recirculating **spray pool** facilities with~~		
~~*(i) Separate restroom facilities for each sex containing at least one toilet and handwashing sink*~~	~~__ YES __ NO~~	
~~*(ii) Hose bibs around pool decks at a maximum spacing of one hundred fifty feet*~~	~~__ YES __ NO~~	
~~*(iii) Additional plumbing fixtures, if indoors, conforming to the requirements for general use pools described in Table 031.3 of this section*~~	~~__ YES __ NO~~	
~~(e) Owners shall provide **limited use** recirculating **spray pool** facilities with~~		
~~*(i) Hose bibs around pool decks at a maximum spacing of one hundred fifty feet*~~	~~__ YES __ NO~~	
~~*(ii) A restroom facility containing at least one toilet and one handwashing sink, if living units served are farther than one hundred feet away from the main pool*~~	~~__ YES __ NO~~	
(f) Restroom facilities must be located convenient to, and no further than one hundred feet away from, the main pool.	_X_ YES __ NO	
They must have flush toilets provided with toilet tissue in dispensers and handwashing sinks including:	_X_ YES __ NO	
(i) Hot and cold or tempered water delivered through a mixing faucet with a maximum temperature of one hundred twenty degrees Fahrenheit	_X_ YES __ NO	tempered and cold @ 105 degrees
(ii) Single service soap in a nonglass dispenser	_X_ YES __ NO	
(iii) Single service towels or electric hand dryer	_X_ YES __ NO	
(iv) A minimum running water cycle of at least ten seconds if the faucets have self-closing valves	_X_ YES __ NO	20 secs

GENERAL DESIGN CHECKLIST		
(g) Shower facilities must be located convenient to, and no more than one hundred feet away from, the main pool. The facilities must have:	_X_ YES __NO	
(i) A design allowing a full-body shower in the nude	_X_ YES __NO	
(ii) A design providing an enclosure confining water to the shower area	_X_ YES __NO	
(iii) Nonslip floor impervious to water with sufficient drains to prevent water from standing within the shower areas	__YES _X_ NO	
(iv) Running water delivered at a temperature between ninety degrees and one hundred twenty degrees Fahrenheit	_X_ YES __NO	
(v) Single service soap in a nonglass dispenser	_X_ YES __NO	
(vi) Wall surfaces impervious to water up to shower head height	_X_ YES __NO	
(h) If owners limit the number of bathers within their facility and post and enforce the maximum bather load, owners may base the number of required plumbing fixtures on the posted maximum bather load	__YES __NO	N/A
(i) Owners shall dispose of all wastewater in a manner approved by the local health officer	_X_ YES __NO	
(22) Diaper changing stations		
Owners shall provide a diaper changing station, including a handwashing sink conforming to the requirements in subsection (21)(f) of this section, accessible to all bathers, if children in diapers are allowed in the pool facility and the facility is:	_X_ YES __NO	
(a) A **general use** pool facility	_X_ YES __NO	
~~(b) A **limited use** pool facility located more than one hundred feet away from living units served~~	~~__YES __NO~~	
(23) Lighting		
Owners shall design and maintain pool facility lighting to a minimum level as described in Table 031.5	_X_ YES __NO	
Sufficient overhead and underwater lighting shall be maintained to clearly see the bottom of the pool at all times pool is in use	_X_ YES __NO	No night swimming - 9 under water, none at wading pool
Owners shall provide protective shielding for all lighting fixtures above walking surfaces and pool areas	__YES __NO	N/A
(24) Flow-hrough pools:		
Flow-through pools may qualify for exceptions to recirculation	**NA**	
~~**(25) Flow through pools may qualify for exemptions to recirculation requirements if:**~~		
~~(a) Water supply provides the same turnover period in water supply specified for recirculation pools?;~~	~~__YES __NO~~	
~~(b) The source water supply meets acceptable quality requirements and is subject to disinfectant method per WAC 246-260-111(3)?;~~	~~__YES __NO~~	
~~(c) The inlet and outlet design is the same as required for recirculation pools?~~	~~__YES __NO~~	
~~(d) Pool water quality complies with WAC 246-260-111?~~	~~__YES __NO~~	
WAC 246-260-041 Swimming Pool Design, Construction and Equipment		
(1) Location		
Owners shall ensure pump houses, planters, balconies, landscape features, trees, and structures are located fifteen feet or more horizontally away from any swimming pool, or provide barriers or other means to prevent diving or ready access to a pool from the structures. These structures do not include:	__YES _X_ NO	guardhouse to wading pool
(a) Building walkways above the second story	__YES __NO	N/A
(b) Inaccessible roofs eight feet or more in height	__YES _X_ NO	south side of bathhouse to grade
(c) Any barriers provided to prevent unauthorized pool access (e.g., fencing)	_X_ YES __NO	
(2) Walking Deck Surfaces		
Owners shall design and maintain walking deck surfaces as follows:		
(a) For pools less than fifteen hundred square feet, walking deck surfaces must be at least four feet wide around the entire perimeter of pools	__YES __NO	N/A
(b) For pools less than fifteen hundred square feet, walking deck surfaces must be at least:		
(i) Six feet wide at the shallow end of a variable-depth pool	__YES __NO	N/A
(ii) Six feet wide on a minimum of twenty-five percent of the deck space of free form pools	__YES __NO	N/A
(c) For pools fifteen hundred square feet or larger, walking deck surfaces must be at least six feet wide:	_X_ YES __NO	
(i) Around the entire perimeter of outdoor pools	_X_ YES __NO	wading pool = 5'
(ii) On fifty percent of the perimeter of indoor pools	__YES __NO	
(iii) The remaining fifty percent perimeter of the indoor pool must be a minimum of four feet wide	__YES __NO	N/A

GENERAL DESIGN CHECKLIST		
(d) For pools fifteen hundred square feet or more, walking deck surfaces must be at least sixteen square feet per bather. To determine maximum bather load see subsection (10) of this section. If the owner provides maximum facility occupancy loading less than that of subsection (10) of this section, and the occupancy limit is posted and enforced, that loading may be used in lieu of the maximum bather load figure as described under subsection (10) of this section and...	_X_ YES __NO	approx. 12,000 SF
(e) General use pools may not have sand and grass areas within the pool enclosure unless...	__YES _X_ NO	grass
...these areas are separated to prevent direct access from the pool area and...	__YES _X_ NO	
the facility provides a means for cleansing bather's feet before reentering the pool and deck area	__YES _X_ NO	
(3) Pool General Floor and Wall Dimensional Design		
~~(a) Owners shall ensure pool dimensional designs for floors and walls provide for safety, circulation and quality of water~~	~~__YES __NO~~	Not reviewed in this scope
~~(b) Pool floors must have uniform slopes with:~~		
~~*(i) A maximum slope of a one-foot drop in twelve feet of run at pool depths to five or less in pools fifteen hundred square feet or more*~~	~~__YES __NO~~	
~~*(ii) Floor slopes not intruding into the area designated as the diving envelope*~~	~~__YES __NO~~	
~~(c) Pool sidewalls may not curve or intrude into the pool beyond the vertical more than twelve inches at three and one-half feet and eighteen inches at a depth of five feet.~~	~~__YES __NO~~	
~~The radius of curvature of wall-floor junctions may not exceed the maximum radius designated in Table 041.1 of this section for depths over five feet.~~	~~__YES __NO~~	
~~Vertical means walls not greater than eleven degrees from plumb:~~		
~~(d) Pool configuration must have a transitional radius from wall to floor where floor slopes join walls so that:~~	~~__YES __NO~~	
~~*(i) The center of the radius not less than the minimum vertical depth specified under Table 041.1 of this section below the water surface level*~~	~~__YES __NO~~	
~~*(ii) The arc of the radius is tangent to the wall*~~	~~__YES __NO~~	
~~*(iii) The maximum radius of coving, or any intrusion into the pool wall/floor interface, is determined by subtracting the vertical wall depth from the total pool depth*~~	~~__YES __NO~~	
(4) Ledges		
In new construction or alterations to existing construction, ledges are prohibited in swimming pool sidewalls, except as specified in WAC 246-260-091(3)	__YES __NO	N/A
(5) Specific Design Requirements for Pools Furnishing Areas for Diving		
~~Owners shall ensure areas designated for diving activities include a diving envelope meeting minimum requirements in:~~		Not reviewed in this scope
~~(a) D-8.01, Table 1, APHA Public Pool Regulations, 1981, if the pool user would enter from the deck level twelve inches or less from water surface level~~	~~__YES __NO~~	
~~(b) CNCA standard configuration in areas where user would enter from the deck level over twelve inches from water level, or has a platform or diving board provided at a height of less than one-half meter (twenty inches). This requirement is based on a standard described under CNCA publication Swimming Pools: A Guide to Their Planning, Design, and Operation 1987, Fourth Edition. Human Kinetics Publisher, Inc., Champaign, Illinois, Figure 8.1~~	~~__YES __NO~~	
~~(c) Dimensions for Diving Facilities, FINA facility rules, 2000-2001, if the pool user enters from the diving board or platform at a height of twenty inches (one-half meter) or greater from water surface level~~	~~__YES __NO~~	
(6) Pool Appurtances		
(a) If a swimming pool contains diving boards and/or diving platforms, owners shall ensure that the boards and platforms:		
(i) Are installed according to manufacturer's instructions	_X_ YES __NO	
(ii) Have slip-resistant tread surfaces	_X_ YES __NO	
(iii) Have steps and ladders leading to diving boards with handrails	_X_ YES __NO	
(iv) Are protected with guardrails and one intermediate rail, both extending at least to the water edge when one meter or more above the water	_X_ YES __NO	
(b) Owners shall ensure starting blocks:		
(i) Are firmly secured when in use	_X_ YES __NO	
(ii) If water depth is less than nine feet, starting blocks must be removed or covered with protective equipment unless used by competitive swimmers trained in proper use of starting blocks	_X_ YES __NO	
(c) Owners shall ensure that water slides conform with requirements of chapter 246-262 WAC	__YES __NO	N/A

GENERAL DESIGN CHECKLIST		
(7) Turnover		
Owners of swimming pools shall design and maintain water treatment recirculation rates to completely turn over the entire pool water volume of pool in six hours or less	_X_ YES __NO	
(8) Pool Depth Markings		
Owners shall provide water depth markings in feet:	_X_ YES __NO	
(a) Located on the pool vertical wall at or above the water level so as to be easily readable from the water, in numbers at least two inches high. If overflow channels do not allow for placement of vertical wall markings above the water level, they are not required	_X_ YES __NO	depth markings onside wall do not match the markings on the deck
(b) Located on the horizontal surface of pool coping or deck of pools within eighteen inches of the water's edge, easily readable while standing on the deck facing the water, in numbers at least four inches high	_X_ YES __NO	
(c) Placed at the maximum and minimum water depths and at all points of slope change	_X_ YES __NO	
(d) Spaced at increments of water depth of two feet or less	_X_ YES __NO	
(e) Spaced along sides of pools at horizontal intervals of twenty-five feet or less	__YES _X_ NO	
(f) Arranged uniformly on both sides and ends of pool	_X_ YES __NO	
(g) Placed on all major deviations in shape	_X_ YES __NO	
(h) Applied in a contrasting color	_X_ YES __NO	
(i) Made of slip-resistant material on decks	_X_ YES __NO	
(9) Safety Line or Marking Line		
(a) Owners shall provide either safety float lines or marking lines separating areas where the pool bottom breaks from a uniform slope in the shallow area leading to deeper water. Neither float lines or marking lines are required in pools with uniform floor slopes not exceeding one foot of slope for every twelve feet of horizontal floor length	_X_ YES __NO	loat line safety
(b) Safety float lines, when used, must:		
(i) Be kept in place at all times, except when the pool is used for a specific purpose such as lap swimming or competitive use	_X_ YES __NO	right at corner
(ii) Be placed one foot toward the shallow end away from the break point line	_X_ YES __NO	not in place at time of review
(iii) Be strung tightly allowing bathers to hold onto the line for support	_X_ YES __NO	
(iv) Provide floats on the line at a minimum distance of every four feet	_X_ YES __NO	
(v) Have a receptacle for receiving the safety line either:		
Recessed in the wall? or	__YES __NO	
Constructed so as to not constitute a safety hazard when the safety line is removed?	_X_ YES __NO	on metal brackets above the gutter
(c) Marking lines, when used, must:		
(i) Be placed on pool sides and bottoms at the break point line	__YES __NO	N/A
(ii) Be of a contrasting color to the background color of the pool sidewalls and floor	__YES __NO	N/A
(d) In pools with uniform slopes not exceeding one foot of drop in twelve feet of run from the shallow end to the deep end, a safety float line or marking line is not required	YES	N/A
(10) Bather Load		
Owners shall ensure maximum number of bathers in the pool facility at any one time do not exceed a number determined by the formula noted under Table 041.2	__YES __NO	
(11) Emergency Equipment		
Owners shall provide first aid and have emergency equipment readily available at swimming pool facilities during operating hours, including:	_X_ YES __NO	
(a) A telephone within the facility for **general use** pools?(a) A telephone within the facility for general use pools	_X_ YES __NO	in first aid /staff room
~~(b) A telephone accessible within one minute for **limited use** pool facilities~~	~~__YES __NO~~	
(c) A suitable area to accommodate persons requiring first-aid treatment	_X_ YES __NO	
(d) A standard 16-unit first-aid kit (see Appendix C, Table);	_X_ YES __NO	
(e) A blanket reserved for emergency use	_X_ YES __NO	in staff lockers
(f) For facilities with lifeguards:		
(i) A rescue tube or rescue buoy at each pool lifeguard station	_X_ YES __NO	
(ii) A backboard with means to secure a victim to a board and immobilize head, neck, and back	_X_ YES __NO	
~~(g) For pool facilities without lifeguards~~	~~__YES __NO~~	
~~*(i) A reaching pole at least twelve feet long with a double crook life hook*~~	~~__YES __NO~~	
~~*(ii) A reaching pole at least twelve feet long for every fifteen hundred square feet of pool surface area*~~	~~__YES __NO~~	
~~*(iii) A throwing buoy, throw-rope bag, or other similar device with a rope the width of the pool or fifty feet long, whichever is less, for reaching and retrieving a victim*~~	~~__YES __NO~~	

GENERAL DESIGN CHECKLIST		
(h) No later than June 1, 2008, owners of existing pools with single main drains shall install emergency equipment to shut off all pumps hooked to the recirculation lines for the pools. This emergency equipment must be placed within twenty feet of the pool and marked with an emergency shutoff sign. The shutoff switch must include an audible alarm which can be heard by those in the area, or have an alarm that goes to a point where staff is always present during the periods the pool is open	__YES __NO	owner added additional main drain to wading pool for 2007 season
(i) Pools providing dual main drains meeting the requirements of this section, or other acceptable methods of providing equivalent protection to the emergency shutoff switch, are exempt from this requirement.	_X_YES __NO	
(ii) The owner shall check the shutoff switch at least twice annually to determine it is properly operating	__YES __NO	N/A
(iii) The department will develop a guidance document to aid owners and designers in potential options to the emergency shutoff switch and audible alarm		
(12) Footbaths		
Foot baths at water recreation facilities are prohibited. This does not preclude the construction and use of foot showers, if the area is well drained	__YES __NO	N/A

NAME OF FACILITY: **Peter Kirk Pool**

ADA ACCESABILITY CHECKLIST	
Parking & Site Access *None designated - senior center next door has many*	There are _____ handicap parking spaces designated. Parking lot does _____ does not _____ have ADA curb cut (1:10 slope) or ramp (1:12 slope) from parking lot to the pool sidewalk. (1:20 or more requires handrails) Aisleway of _____ inches wide, does _____ does not _____ comply with ADA minimum of 60 inches requirement. Stall width of _____ inches, does _____ does not _____ comply with ADA minimum of 96 inches requirement. Paving does _____ does not _____ comply with a 1:50 maximum slope.
Doorways	Door hardware does X does not _____ comply with ADA requirements. Door opening width of 36" inches, does X does not _____ comply with ADA minimum 32 inches clear width requirement. Door opening when pulled open, does X does not _____ comply with ADA minimum 60 inches of maneuvering forward approach clearance, 18 inches strike jamb side clearance and 60 inches perpendicular to doorway of unobstructed floor space. Door opening when pushed open, does X does not _____ comply with ADA minimum 60 inches of maneuvering forward approach clearance, 12 inches strike jamb side clearance and 48 inches perpendicular to doorway of unobstructed floor space.
Reception Desk	Reception desk height of 36" inches, does _____ does not X comply with ADA side approach desk height requirement of 34 inches above floor.
Corridors and Aisles	Corridor Aisle width of _____ inches and door width of _____ inches, does _____ does not _____ comply with ADA minimum width requirement of 36 inches.
Men's Showers	Roll-in shower stall depth of 36 inches and length of 36 inches, does X does not _____ comply with ADA minimum depth requirement of 36 inches and minimum length requirement of 60 inches. Shower does X does not _____ have seat and/or hand held shower head. **Seat is installed backwards with wide end towards opening.** Shower does X does not _____ have grab bars at two sides at 36 inches maximum off the floor.
Women's Showers	Roll-in shower stall depth of 36 inches and length of 36 inches, does _____ does not X comply with ADA minimum depth requirement of 36 inches and minimum length requirement of 60 inches. Shower does X does not _____ have seat and/or hand held shower head. **Seat is installed backwards with wide end towards opening.** Shower does X does not _____ have grab bars at two sides at 36 inches maximum off the floor.
Men's Toilet Compartments	Water closet height of 18 inches does X does not _____ comply with ADA water closet height requirement of 17 inches to 19 inches. Flush controls are X are not _____ on accessible side of stall (wide side) no more than 44 inches above floor. Toilet compartments width of 60 inches and depth of 60 inches, does X does not _____ comply with ADA minimum compartment width of 60 inches, and minimum compartment depth of 59 inches for floor mounted W.C., or minimum compartment depth of 56 inches for wall mounted W.C. Grab bars do _____ do not X comply with ADA minimum requirements of top of bar 33 inches and maximum of 36 inches above and parallel to the floor, side bar 42 inches in length, 12 inches from rear wall and extending 54 inches from rear wall. The back bar 36 inches in length, 12 inches from center of W.C., 24 inches toward the open side of the W.C. and 9 inches behind the W.C. seat. Dispensers and receptacles do X do not _____ fall within easy reach of the W.C. and do _____ do not X interfere with grab bar utilization per ADA requirements.

Women's Toilet Compartments	Water closet height of 18 inches does X does not _____ comply with ADA water closet height requirement of 17 inches to 19 inches.
	Flush controls are X are not _____ on accessible side of stall (wide side) no more than 44 inches above floor.
	Toilet compartments width of 60 inches and depth of 60 inches, does X does not _____ comply with ADA minimum compartment width of 60 inches, and minimum compartment depth of 59 inches for floor mounted W.C., or minimum compartment depth of 56 inches for wall mounted W.C.
	Grab bars do X do not _____ comply with ADA minimum requirements of top of bar 33 inches and maximum of 36 inches above and parallel to the floor, side bar 42 inches in length, 12 inches from rear wall and extending 54 inches from rear wall. The back bar 36 inches in length, 12 inches from center of W.C., 24 inches toward the open side of the W.C. and 9 inches behind the W.C. seat.
	Dispensers and receptacles do X do not _____ fall within easy reach of the W.C. and do _____ do not X interfere with grab bar utilization per ADA requirements.
Men's Lavatories	Height to top of lavatory of 33 inches, clearance beneath front edge of lavatory of 28 inches, and clearance at bottom of bowl of 25 inches, does _____ does not X comply with ADA maximum height of 34 inches at top of the lavatory, 29 inches clearance beneath front edge of lavatory and 27 inches clearance beneath bottom of bowl.
Urinal	Urinal height of 17 inches and urinal flush valve height of 40 inches, does X does not _____ comply with the ADA urinal height requirement of 17 inches and maximum urinal flush valve height requirement of 44 inches.
	Urinal depth of 15-1/2 inches off the wall, does X does not _____ comply with ADA 13-1/2 inches minimum depth requirement.
Women's Lavatories	Height to top of lavatory of 33 inches, clearance beneath front edge of lavatory of 28 inches, and clearance at bottom of bowl of 25 inches, does _____ does not X comply with ADA maximum height of 34 inches at top of the lavatory, 29 inches clearance beneath front edge of lavatory and 27 inches clearance beneath bottom of bowl.
Access To Pool	Pool does X does not _____ have ADA compliant pool lifter or ramp for access to pool.
Drinking Fountain	Drinking fountain spout height of 34 inches, overall projection of 18-1/2 inches from wall and a horizontal depth of 10 inches with 25 inches clearance beneath bottom, does _____ does not X comply with ADA minimum of 36 inches maximum spout height, a projection of 17 inches to 19 inches from wall, 8 inches horizontal depth and 27 inches clearance below.
Telephone N/A	At least one telephone does _____ does not _____ comply with ADA requirement providing volume controls, a minimum of 54 inches above the floor to highest operating part, 27 inches clearance to bottom of shelf and/or phone bank, 10 inches maximum reach from edge of shelf and/or phone bank to operating controls, 48 inches by 30 inches width clearance of unobstructed floor space at phone location.
Other	

NAME OF FACILITY: _____

GENERAL CONSTRUCTION NOTES	
Exterior walls	
	CMU
Roof system	
	Asphalt shingles
Windows	
	Aluminum
Exterior Doors	
	Metal
Interior Doors	
	N/A
Interior Walls & Ceilings	
	Open ceilings
	CMU, GWB at guards
Floors	
	Concrete
Benches and Furnishings	
	Wood
Other	