
POOL COMMITTEE REPORT TO THE BOARD OF DIRECTORS

This report describes the work of the Pool Committee, which was formed by the Sunlight Waters Country Club Board of Directors to research options for refurbishing or replacing the existing pool.

In the Annual Meeting of 2021, a pool replacement motion costing about \$350,000 was voted down. There was interest in the swimming pool and some general recognition that action was required, but many in the Community said that they wanted more information and options before they made such an important decision.

This report represents the work of the Committee to describe all options, and the costs and consequences of choosing either replacement or refurbishment.

1. Committee Authorization

The Pool Committee was formed to investigate:

- The current pool's condition
- Feasibility of fixing known pool issues to bring it up to code
- Cost and feasibility of constructing a new replacement pool

The Pool committee was asked to present a detailed report and recommendations for refurbishing or replacement for release to the Community at the 2022 Annual Meeting.

2. Summary

The pool is in mediocre condition and does not meet current safety and health codes.

We asked multiple contractors to provide their expert opinion on the condition of the pool and the feasibility of refurbishment or replacement. Most contractors suggested major changes to the plumbing system and structure of the pool. Their list of necessary changes includes:

- repainting or replastering to meet current codes
- addition of ADA compliant safety features
- replacement of the broken coping
- addition of tile at the upper inner pool surface per code requirements
- installation of ADA compliant showers

These changes alone would cost upwards of \$300,000, when you factor in partial removal of the hardscape, replacement of piping, heating, and cleaning structures associated with the pool, and relocation of the pumphouse.

Recommendation

Given the high cost of refurbishing the pool, the Pool Committee recommends that we replace the pool with a new pool that meets state requirements for depth, slope, safety, and accessibility. The new pool should be fitted with a heat pump or solar heating. Some contractors have recommended a small propane heater for backup but we feel that is unnecessary, since the pool is open only in summer and has good solar exposure. The pump house should be relocated to the south and southeast side of the current pool area.

Given the cost of saw-cutting concrete, no great savings are achieved by removing only part of the hardscape. We recommend removing the existing concrete and installing a new pool deck with appropriate expansion joints and nonslip coatings. We can save money by using colored concrete but avoiding stamping or tile.

Two options have been presented for replacement: gunite and fiberglass. Recent improvements in fiberglass technology mean that this option is cheaper but almost as durable as gunite. fiberglass pool would be slightly narrower and slightly shorter than the current pool, and the wading area at the L would be eliminated. Possibly a hot tub or child's wading area could be installed separately on the pool deck. These options are described in the report.

It might be possible to insert a fiberglass pool into the current shell of the pool, although the irregular shape of the pool means some filling would be required; hence the contractor recommends removing the existing pool shell. The

After reviewing the bids and talking to many contractors, the Pool Committee recommends installation of a new fiberglass pool and spa. This option is slightly more expensive than renovation but is cheaper than a new concrete pool. Moreover, a fiberglass pool would be faster to install and more durable, with less maintenance cost, allowing the Community to enjoy a pool for the next 25-50 years.

Given the complexity of changes that need to be made to the pool, we recommend that we hire Top Rail of Yakima do the pool installation work. Concrete demolition should be done by Shocker Trucking.

The changes to the shower area and other changes to the bathrooms to accommodate ADA requirements can be done separately to save money but must be completed before the pool can open. The Pool Committee did not solicit estimates for this work, given there is sufficient expertise in the Community to assess and perform this work separately.

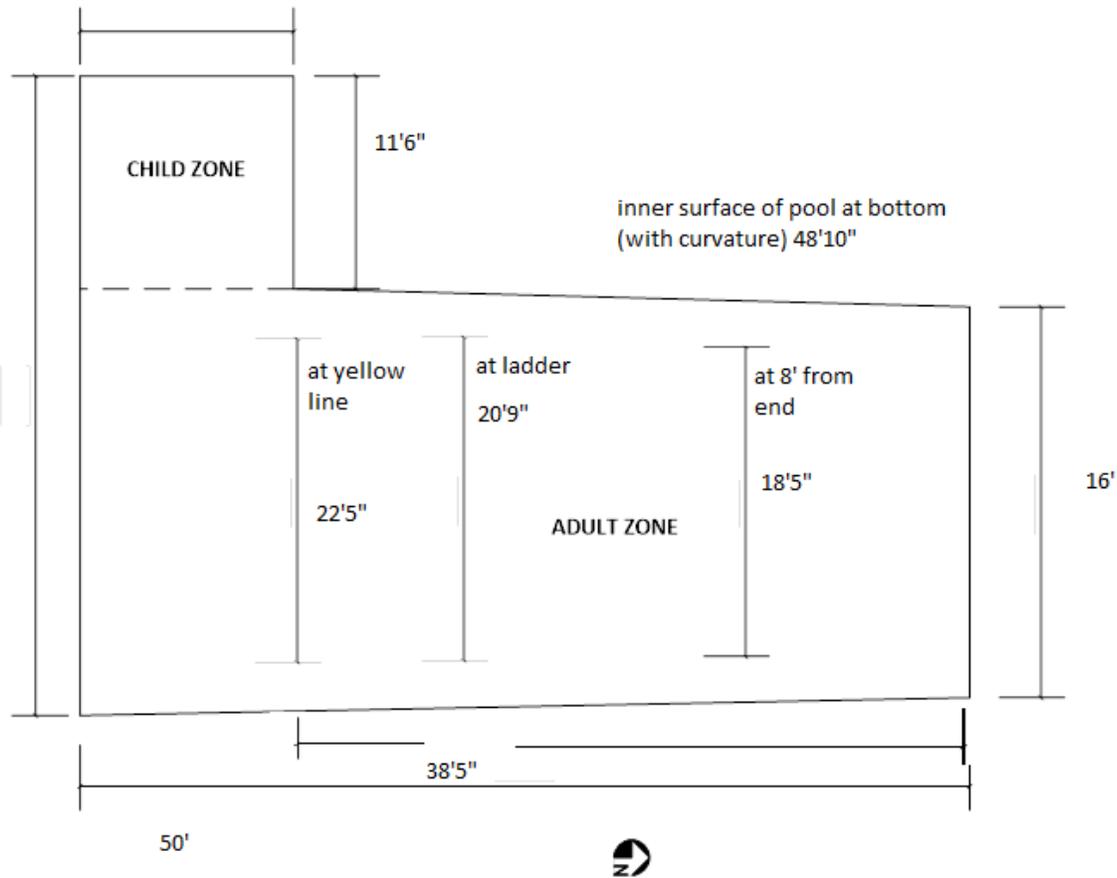
3. Existing Pool Data

This section describes the current pool's construction and maintenance history.

3.1. Pool Size

The existing pool is irregularly L-shaped as shown below. The area of the pool in the small child zone is about 144 square feet. The area of the pool in the adult zone is about 1,100 square feet.

Detailed measurements were taken 3/14/2022, to determine whether a fiberglass pool could be fitted inside the existing shell. Measurements were taken at the coping edge.



- End of adult zone: 16 feet
- ~8 feet from end of adult zone: 18 feet 5 inches
- At ladder: 20 feet 9 inches
- At yellow marked line: 22 feet 5 inches
- From east side to end of L: 38 feet 5 inches
- Width of L-shaped portion: 11 feet 6 inches
- N-S length of adult zone: 50 feet
- Inner surface of pool at bottom (curvature): 48 feet 10 inches

3.2. Original Construction Details

The pool was built in the late 60's or early 70's.

The length of the pool is 50 feet. At the shallow (south) end the pool is 3 deep. The width of the pool at the south end is about 36 feet since it includes the 12 feet at the L.

The pool is constructed of gunite, which was invented in the 40's. Gunite is a sprayed-on concrete mix that goes on over steel reinforcing and can be formed into any shape. Gunite has many advantages, one of them being that the pool need not be square. (However, a square pool is easier to cover.)

A gunite pool typically has a plaster inner surface; paint used in coloring the pool's inner surface is mixed in with the plaster. Estimates for when replastering on a gunite pool should be done range from every 7 to 25 years. This is a major recurring cost for a gunite pool; however, depending on the climate and the materials mixed in the plaster, the plaster can be more expensive and last longer.

The SWCC pool has been ground down and replastered before, but we don't know how many times.

This pool has an unusual liner, hereinafter referred to as the Rhino Liner. This liner is similar to the spray-on lining applied to truck beds. It was applied in 2014 by Kodiak Industrial Solutions, which also repaired the liner yearly under a 5-year warranty. The Rhino Liner was applied either on top of the gunite or on top of the plaster, we are not sure.

The liner is no longer under warranty and the company that provided it is operating under new owners and no longer does pool work.

4. Existing Pool Condition

4.1. Pool Surface, Paint, and Liner

The Rhino Liner is an impermeable rubberized material that is quite slippery. For safety, it was painted with a special paint designed to adhere to the slippery liner material. When this resulted in a surface that was too slick to safely stand upon, sand was added to the paint to create a rougher surface.

Unfortunately, whether because of this addition, or because of normal weathering, the paint has been flaking off since the pool opened late in summer of 2021. These paint chips are not just unsightly; they pose a choking hazard, they float in the pool, get caught in the filter, and have caused a suction system alarm to go off. Currently the paint chips are removed manually.

The pool was painted blue, which was popular years ago. However, codes governing pools have changed, and all pools must now be painted in a "white color family". This is for visibility and safety. There are no exceptions, no grandfather clauses. The pool will fail inspection with this paint color.

The depth numbers on the walls of the pool are required at specific intervals and must be in a contrasting color. In the SWCC pool, the numbers have faded or flaked off in many places, which is a safety code violation.

There is a crack between the coping (tile around the edge of the pool) and the patio concrete. This crack has been caulked but has continued to widen, leaving a gap that water from the pool and hose pours down, as well as rain. We do not know how much water has entered the pool shell from this process, or if it has had any effect on the underlying pool structure.

4.2. Hardscape

The pool hardscape (concrete slab) was estimated at 4,830 cubic feet. This number includes the barbeque patio near the pool, which is in good condition.

Current issues with the pool hardscape:

- Steps are too high
- Cracking. No expansion joints.
- Flaking in areas

Safety codes governing hardscape generally require that there be no hazards, such as cracks measuring more than ½" in height, that all steps be of limited height and be marked clearly with contrasting paint, and that handrails be provided where there are steps. We are failing on several of these safety requirements.

4.3. Tile and Coping

Coping refers to the terracotta tile around the edge of the pool.

Our pool uses a type of tile that was very popular 40 or so years ago. Today, it is more common to install concrete up to the edge of the water, and use specialized forms to create the smooth, grabbable surface required by law.

In about 10-20% of the tiles around the SWCC pool, there is cracking or breakage that represents a code violation and certainly a safety hazard. Some of the tiles have been repaired with some kind of filler, but chunks continue to break off and fall into the pool.

Currently law requires that in concrete pools, a tile border measuring 6 inches be installed at the upper margin of the inner pool surface. (Source: Reuben Pool Plaster). Currently we have only the painted liner with a thin border of plain plaster above it. If we refurbish the pool, to meet code we would have to add the tile border.

In fiberglass pools, the shape of the pool is preformed to specifications at the factory. There is no need for tile.

4.4. Pool Structure and Shape

The current pool features a deep end of 9 feet, a shallow end of 3 feet, and a small entry/wading area.

Many people love the wading area with the rail, and the 9 ft. deep end. Unfortunately, both of these features will likely be eliminated to meet current state guidelines. Why?

- **Deep end:** The slope down to the deep end is too steep, under current regulations.
- **Wading area:** The wading area doesn't meet safety requirements. Contractors have all stated that it would be easy to construct a shallow end with safe entry steps at one end of a rectangular pool. The shallow wading step can be made to extend across the entire end of the pool, or they can install a series of steps with a handrail in just one corner.

Additionally, the irregular shape of the pool poses a problem for covering. The current cover is heavy and hard to move, also hard to keep in the correct position when the wind is blowing. Most contractors have recommended that we make the pool a plain rectangle (rather than the irregular polygon we have) and install an automated cover.

4.5. Concrete Slab Cracking

The hardscape has several cracks, but this is not uncommon for concrete. Some of the cracks have been roughly repaired while others have not. There are some areas where plants are growing in the cracks and water seems to flow down into them easily.

The concrete has not been sealed recently. This has caused algae to grow on parts of the patio. Perhaps this was rectified in the past with a good scrubbing of bleach.

The steps between the shower area and pool deck are too high and have caused falls. The height may represent a safety violation. There might be ways to mitigate this, such as a railing, new shallower steps, or a nonslip ramp.

4.6. Miscellaneous Issues

Aside from the issues listed in the section above, we don't know if there are cracks in the gunite, structural damage, or groundwater issues that would prevent the pool from being refurbished. In March of 2022, r. Ihrke drained the pool to perform a simple groundwater test. Minimal water was seen in the pool after draining, despite the saturation of the ground at the

time, which suggests there is minimal intrusion of groundwater from the surrounding soil. Most contractors who examined the pool felt the pool was probably high enough about the water table to present few problems with ground water intrusion.

We do not know the condition of the existing concrete under the plaster. We have heard (but have no proof) that cracks were previously found. If present, any cracks in the concrete (gunite) can be repaired by epoxy injection. This repair would require removing the Rhino Liner and the plaster beneath it.

One question is whether the bubbling under the Rhino Liner indicates groundwater intrusion into the concrete, which would cause any repairs to fail. However, the bubbling could also be caused by hydrostatic pressure in winter, when the pool is empty.

4.7. Pool Cover

The current pool cover was purchased from the old Cle Elum pool. It is heavy and hard to operate.

4.8. Pumphouse Issues

The concrete foundation inside the pumphouse has a crack which has separated. One section has dropped at least 1 inch.

4.8.1. Electrical

There is copper wire from one piece of equipment sitting in a constant puddle of water. Enough water is on the floor that plants are growing. Any amount of water leaking in the pump room represents a dangerous electrical situation. In any case, recommendations for both refurbishment and replacement include moving the pumphouse away from the Clubhouse (freeing up more room for construction of ADA-compliant showers).

The electrical panel would need to be replaced.

4.8.2. Plumbing

Pipes in the pump house are leaking at multiple places including where pipes emerge from the concrete floor.

The filter can seal is bent so the canister can only be put on in one spot which has been marked with arrows.

The chlorinator and the chlorine tablet container are not secured and there have been spills. This is both a legal and permitting issue given the hazardous properties of chlorine.

The filter can is not fastened down to the floor. This could be a plumbing code requirement for seismic safety.

Pipes between the pump house and the pool are undersized given current state requirements for complete recirculation of pool water every 12 hours (6?). To replace the pipes would require partial demolition of the hardcape.

4.8.3. Pumps

The pump is designed for residential pools and is undersized for semi-commercial use. State regulations mandate that the filter must recirculate the complete volume of the pool, which is about 45,000 gallons, in under 6 hours. This means 125 gallons per minute of water flow. However, our filter is rated for maximum 100 GPM. The pump is capable of only 60 GPM.

Regulatory Note: The Virginia Graeme Baker Act is a federal requirement passed to limit filtration system suction. (You may remember the terrible accident some years back when a young child was killed when trapped against a pool suction intake.) To keep the pool water clean while not creating excessive suction, water speed cannot exceed 6 ft per second. Pipes of 1 ½" can only flow 333 GPM at 6 feet per second, which means that our plumbing is capable of only one quarter of the flow required to stay compliant. **With our current configuration, we are over-speeding the plumbing but still not getting the required amount of filtration turnover necessary. A lose-lose scenario.**

Pumps are currently completely disassembled at the end of the season and rebuilt each spring (by Mr. Ihrke).

4.8.4. Heaters

The heater uses propane. The estimated cost of heating a large pool with propane is \$25,000 over a complete season. Newer heaters are more efficient so this cost could be reduced; unfortunately, propane cost has gone up as well.

The heater was not working for the summer of 2021; we relied on "solar heating" which worked out okay because June was extremely hot.

Other options:

- With an electric heater (heat pump) the cost would be a tenth that of propane.
- Several contractors have recommended solar heating for us, because our pool is only open in the summer, and we have great southern exposure. However, it would likely take 10 years or more to recoup the cost. Heat pumps are cheaper in the short term.

At the minimum, the heater would need to be replaced with a model capable of serving a commercial size pool like ours. The cost of a new heater would be \$2,000-\$3,500, not including new wiring, pipes, installation, or updates to the electrical panel.

We are asking Jerry to hold off on repairs until a decision can be made.

4.8.5. Skimmers

The pool has multiple mechanisms for cleaning. The filters are in-line with the pump that recirculates water. Each day the filters are removed and cleaned manually. Eventually filters must be replaced, at a cost of \$150-300 each.

The sweeper, or skimmer, is a small vacuum cleaner that attached to a hose and is placed into the pool at night. It moves using water pressure and suctions up dirt from the floor of the pool, which goes into the filter. The sweeper failed and was not used in the 2021 season. Jerry purchased new parts and repaired the sweeper at the end of the season.

Contractors have advised us that the current number of sweepers or skimmers (1) is inadequate for the size of pool, particularly since we are not meeting state requirements for water circulation. Two (2) would be required for a pool of this size and depth (source: Reuben Pool Plastering; Chinook Pools).

The Chinook bid includes three skimmers. That is because the Chinook pool is larger than the current pool as well.

Most contractors have recommended using a sand filter instead of mechanical filters. A sand filter is a large canister, about the size of an oil barrel, that filters water via a gravity system. It costs almost nothing to operate once installed (no more purchasing filters) and can be cleaned by reversing the flow of water. To winterize it, you drain the filter and cover it.

5. Immediate Repairs Needed for Pool Opening

5.1. General health and safety

The health inspector did not come in 2021. We have not asked them to come this year. We have been told that Kittitas County inspectors are somewhat lax about inspections. However, in Yakima one pool was forced to close over a minor code violation, so we cannot and should not count on a lack of supervision.

Safety issues that need addressing:

- Electrical issues and leaks in pumphouse

- Chlorine canister safety
- Skimmer repair
- Removal of paint chips
- Hazardous steps, cracks, and broken tile

5.2. Hardscape

Whether the existing pool is repaired or replaced, the hardscape around the pool requires at least partial demolition in order to install new piping and plumbing. This work is about the same regardless of whether we refurbish or replace the pool.

Hardscape should be durable. Popular finishes include stamped concrete or colored concrete. There are also special nonslip surfaces that can be added at the margin of the pool for relatively low cost.

Options for replacement of the hardscape include, in order of ascending cost:

- Digging up only necessary sections of concrete. Fixing hazards.
- All of the necessary and hazard mitigation work, plus partial replacement near pool edge with decorative concrete
- Necessary pipe and hazard work, plus addition of partial or complete tile near pool edge
- Necessary pipe and hazard work, plus addition of pavers away from pool edge
- Complete demolition of hardscape. Install new drains and new nonslip surface. Area to include all of pool area, up to the Clubhouse steps.

Some have suggested using square concrete blocks to save money; however, pool contractors generally dislike this option because grass grows in the cracks, and then bugs come up through the dirt and then get in the pool. Most prefer concrete with expansion joints.

We are advised not to use stamped concrete around the pool because the muriatic acid used in gunite pools can collect in depressions and cause discoloration.

5.3. Pumphouse repairs

The pumphouse needs a variety of repairs, small and large.

- The filter system is leaking. Currently a clamp is applied to prevent leaking, but it tends not to hold, so there is still lots of water on the floor of the pump house.
- If the leak is large enough that the system detects a loss of pressure, the system won't start.

- The chlorine canister needs to be securely bolted to the floor.
- Cracks in the concrete foundation should be repaired.
- The pump is not capable of recirculating water at the speed and volume required by law.

5.4. Pool liner repairs and paint

The inner surface of the pool must be repainted in one of the approved varieties of white. This is a new requirement which was signed into law for safety reasons.

Some pool paints have sparkles to increase visibility and contrast, or slight blue or pink tinge. This is true regardless of the material used to surface the pool.

It is unknown whether the paint coating can be removed from the Rhino Liner without damaging the material of the liner. For this reason, all contractors have recommended that the Rhino Liner be removed entirely, and the pool replastered.

Repainting options

- The liner can be repainted. The company that supplies the paint for the Rhino Liner reported trouble getting the product in 2021. He said he would stop by, but we have not received a call back. The company that made the Rhino Liner (Kodiak Industrial Solutions LLC) has new owners and they no longer do pools.
- If the Rhino liner is removed, the white paint would be applied within the plaster coat, and no additional paint would be required, assuming the plaster is properly applied (Source: Reuben's Pool Plastering).
- With a new concrete pool, paint is included with the plaster finish, or other coatings (tile, aggregate, etc.) can be applied in the designated color.
- With fiberglass, the pool color is part of the product and needs no repainting or maintenance.

Currently, tile is required for the top 6 inches inside the pool. We do not know if tile can be adhered to the Rhino Liner.

6. Health Dept. and Permit Requirements

This section summarizes codes and regulations applicable to this pool. Note that this pool is a **semi-commercial limited access** pool; hence, not given the same relative freedom with regard to construction and safety rules that is afforded to purely residential pools. Basically, this pool

is like a hotel pool: small, but subject to many (but not all) of the health and safety requirements that apply to public pools.

- Washington State Health Department site for pool construction and safety. The requirements are very detailed. [Chapter 246-260 WAC:](#)
- Guidelines for Builders and Operators: [Regulated Water Recreation Facility Resources | Washington State Department of Health](#)
- Download PDF of regulations: [Water Recreation Facility Rules and Guidelines | Washington State Department of Health](#)

6.1. Bottom Slope

There are new requirements regarding the slope of the pool. Our pool slopes too steeply into the deep end. One contractor suggested filling in the deep end (to a depth of about 6 feet) and then plastering to create a gentler slope. This would be a large job, costing at least \$100,000. (Source: Reuben Pool Plastering, no formal bid)

Pool floor must have a uniform slope, with a maximum slope of a 1-foot drop per 12 feet of run at pool depths of five or less in pools 1500 sq feet or more.

Pool sidewalls may not curve into the pool beyond the vertical more than 12 inches at 3.5 feet of depth and may not curve more than 18 inches at a depth of 5 feet. Vertical means wall not greater than 11 degrees of plumb.

In new construction, ledges are prohibited in sidewalls, with certain exceptions.

6.2. Depth markers etc

Depth markers (indicating the depth in feet) are required wherever the depth of the water changes more than 2 feet, at the minimum and maximum depth points, wherever there is a deviation in the shape of the pool (such as at the L), and at intervals of 25 feet or less. Paint should be a contrasting color, at least 2 inches high, and must be easily read from the water.

Our depth markers are fading or have peeled off and must be completely redone.

6.3. Shower rooms

Separate men's and women's showers are required, meaning a shower in each restroom area. At the current pool size, one shower per area.

If the pool size is increased, we would need two shower stalls in each area.

The joint rinse-off style showers currently installed are permitted only if grandfathered in from an existing design that employed a single rinse-off location. Since we originally had separate showers, and then changed the showers, review of our permit would reveal that we originally had two showers, and the single rinse-off shower would not be allowed.

(Note: KrisCo Pools did a job in Yakima where a single shower was installed; upon inspection, they were closed down, and were forced to totally redo their bathrooms to support separate showers.)

6.4. Plumbing

In general, the pipes connecting the pump system to the pool are undersized. The key point is to ensure complete recirculation of all water within the pool in 6 hours or less; unfortunately, this is not feasible with the pipes and pump we have.

Additionally, there are requirements for:

- Positioning of equipment
- Signage for hazards such as chlorine
- Prevention of chlorine dispersal downwind
- Ventilation and doors of chlorine storage area
- Fans and air circulation in equipment room

We recommend using an established pool contractor to perform work related to these areas, to ensure that requirements are met.

6.5. Walking Surfaces

- Walking surfaces must slope away from pool (min. 1/4 inch per foot) and be made of nonslip material.
- No abrupt change in height of more than 1/2 inch; no gaps of 1/2 inch or more; no tripping hazards
- Stairs and pool steps should have contrasting color edge finishes
- Pump houses, planters, balconies, trees and other structures should be located 15 feet or more away from the pool

6.6. Stairs and Guardrails

The pool is not open to the general public, hence is not a "public pool". Our designation is as a "limited use" pool, like those in most HOAs, hotels, or clubs that require membership.

Swimming pools of this class with less than 300 linear feet of pool wall must provide at least

one accessible means of entry; larger pools require additional entry points. Means can be either a pool lift or sloped entry. Staff training should include instruction on what accessible features are available, how to operate and maintain them, and any necessary safety considerations.

ADA features

Because many seniors and disabled people in this Community would get more enjoyment from the pool given safe access, we hope to provide safe entry steps and ADA facilities where possible.

- **Lifts:** We are not required to have an ADA lift if we have a shallow entry (such entries are defined in code to have shallow riser height, handrails, etc.). However, we could purchase a portable lift for backup. Costs range from \$3700 to \$7000 (Source: Discover My Mobility web site). Portable pool lifts are popular in hotels and community pools, because these lifts provide convenience while some level of safety and comfort. A portable lift can be stored indoors until required. However, staff training is essential to ensure that accessible equipment (particularly pool lifts) can be used whenever a pool is open.
- **Sloped or shallow entry:** Sloped entries, in general, are built to comply with similar accessible route provisions. For example, the sloped entry must extend to a depth of 24 inches minimum to 30 inches maximum below the water level to ensure buoyancy. At least one landing must be located 24 -30 inches below the water level.
- **Handrails** must be provided on both sides of a sloped entry. See the Washington state code for detailed requirements for handrail size, positioning, gripping surfaces, and the size and shape of transfer walls (which support the weight of the individual.)

6.7. Other

Bather load is the number of people who are allowed in the water. Bather load is determined by the size of the pool, including its depth, and whether the pool is indoor or outdoor. The bather load is calculated based on the total number of square feet at a particular depth. For example, assuming a concrete pool and a fiberglass pool, both of which sloped from 5ft to 3 ft in such a way that 2/3 of the pool was less than 5 ft deep, the bather load would be computed as follows:

Pool size	2/3 Shallow (5 ft or less)	1/3 Deep (> 5 ft)	Maximum bather load = total shallow and deep
-----------	----------------------------	-------------------	--

Current pool (1344 sq ft)	Shallow SQ FT divided by 15 = 59.7	Deep SQ FT divided by 30 = 14.9	74.6
Fiberglass pool (544 sq ft)	Shallow SQ FT divided by 15 = 24	Deep SQ FT divided by 30 = 6	30

- The calculations for a fiberglass pool assume a pool size of 16' x 45'.

6.8. Pool Cover

Pools must be covered when not in use to prevent hazards. Either manual or automatic pool covers are supported under state code.

6.9. Permitting Process

Any redesign or new pool must be submitted to Kittitas County. A permit is required for any new pool design or change in pool design.

Prior to submitting the permit, we need an engineering design. To get this design, we would provide exact requirements to our chosen pool contractor, who would then create a pool specification that meets code, which the engineering firm would use to complete the draft pool design.

Let's say we decide we want a pool that is 6-7 feet deep. Since there are restrictions on the depth of a pool based on the length and slope, the engineers would calculate the slope that depth and size allow and provide an engineering design and estimate.

When the engineering is complete and we agree this is what we want and can afford, the pool contractor would submit the permit request to the state regulator in Olympia.

Kittitas County pool permits cost \$612.

IMPORTANT: The estimates provided to the Committee by various contractors that you see in this report are **ballpark only**. No pool construction or even a reasonable estimate can be given without a clear specification from us (the client) of the dimensions and functionality of the pool. We would also not know the final cost of the pool until the engineering phase is complete. The cost of permits is not included in any bids.

7. Refurbishment Option

The work required for pool refurbishing is generally as follows:

- Drain the pool
- Grind out, jackhammer, or water blast to remove Rhino Liner and underlying plaster

- Verify that pool shell is structurally sound: check for corrosion to the rebar used in the pool shell, check for cracks and voids, etc.
- Install new skimmers and any required plumbing updates
- Replaster with correct paint color
- Replace the coping in favor of a smooth concrete edge
- Install or repair hardscape

7.1. Required work:

Remove Liner and Replaster

The Rhino liner must be removed, typically by a jackhammer or other specialized demolition equipment.

Repair Concrete shell

If the gunite has any defects, on removal of the lining and plaster, the cracks should be repaired.

Replaster

Once the shell is repaired, the pool's inner surface is replaced with a smooth, water-resistant finish.

If plaster is used, the white paint required would be incorporated into the plaster, and depth markings added.

Other options for the inner surface of the pool are aggregate (durable, rough to stand on, and expensive), or tiled (super expensive but lasts forever). Plaster is cheapest.

Reshape Pool

Proposals for refurbishment have suggested two options regarding the shape of the pool:

- Eliminate the wading area at the L
- Separate the main pool from the wading area or spa

In general, the L-shape of the pool makes it hard to cover. Therefore, most experts we spoke to recommended eliminating the wading area at the L. Instead, they recommend creating a rectangular pool that has a shallow end for wading, and a 5-6-ft deep end for swimming.

The deep and shallow ends would be demarked by ropes. The slope of the pool from shallow end to deep end would be far less abrupt than the current pool.

Optionally, contractors have suggested creating a separate wading area, or an inground spa. Depending on materials and size, the cost could be as low as \$15,000 and as high as \$40,000. However, it is important to note that shallow wading areas warm faster and hence have more problems with bacterial growth. Additional filtration equipment is required to eliminate hazardous bacteria. Typically this is done by passing water through an ionizer or UV light.

The main swimming pool does require a shallow entry area for safety. The first step of the shallow end could run the width of the pool.

Another option is a wide, shallow corner step with a handrail down the center. This shape is very popular with older swimmers who need support while entering the water.

Restructure Bottom Slope

Currently, the deep end is about 22 feet wide and 9 feet deep. Most contractors suggest reducing the depth to 5 to 6 feet at most.

We realize that eliminating the deep end would be unpopular with many people who enjoy swimming in deep water, but a depth of 5 to 6 feet would achieve the same effect.

Also, because the diving board has been removed and diving is not allowed, decreasing the depth would save on heating costs by substantially reducing the pool water volume.

Replaster

A gunite pool features a plaster lining that both repels water and provides a non-slip surface for walking. The color of the pool is determined by paint added into the plaster, so after the plaster is applied, no additional painting is required. The plaster can be patched or refreshed at intervals ranging from 7 to 25 years (various estimates from multiple contractors).

The plaster can incorporate aggregate of various quality, as well as synthetic and quartz-like features that add to lifespan and make the pool less slippery, more attractive, or both. For example, adding Pebblecrete to the pool would reduce the frequency of replastering by 5-10 years but would cost an additional \$100,000.

Add Additional Drains and Plumbing

The pipes running between the pool and the heating equipment are smaller than the size required to recirculate water completely within 6 hours. Thus, they absolutely must be replaced.

This work entails digging up a good portion of the current hardscape.; however, partial removal of concrete is done routinely, and it can be patched easily, compared to other more

expensive surfaces such as tile. Details on the size of the pipes that are required, and the pump volume required, can be found in the report from KrisCo Pools.

This cost is roughly the same regardless of whether we renovate the pool or build a new pool.

Repair, Enhance, or Replace Hardscape

In addition to the work required to replace pipes, we need to make changes to the hardscape to make the pool safer or more attractive. For example:

- Patch the broken areas
- Correct safety hazards such as too-high steps and cracks.
- Fix cracks inside foundation of shower room

Additional options to improve the look and feel include:

- Putting in a nonslip surface appropriate to a poolside. For example, add a nonslip track around the pool.
- Replacing all concrete, including those areas adjacent to the Clubhouse, with new hardscape.

Surfacing materials

Hardscape options, in order of increasing cost, are:

- pavers
- plain concrete
- stamped or colored concrete
- aggregate concrete
- partial or complete tile

Any kind of concrete is preferable to pavers. Although pavers make it easier to replace pipes, they can shift, gaps widen, and ants and plants come up through the cracks; hence pavers are much harder to keep clean. The process of hosing off the pool decks each day would likely wash dirt and insects into the pool.

Concrete can be made more decorative near the pool area. The pool contractor uses a 6-sack concrete mix with fiber and joints in corners. Joints are added no less than 10 feet apart, but usually at 8 feet apart. He breaks up the surface evenly depending on total area. Adding color is a cheap way to add visual interest around the pool deck. See the included photos for examples.

Extent of surface to replace

To save costs, the minimum surface that needs to be replaced is as follows:

- Cracked or damaged pool deck
- Shower area
- Pumphouse area

In requesting bids, we have assumed that we will not disturb the area adjoining the Clubhouse (including the BBQ area), except to add drains along the west side, where there is currently poor slope leading to water pooling.

The pumphouse should be relocated to the south side of the pool. Moving this structure will give us more room to extend the showers.

Removal and recycling of concrete

The concrete contractor said they can cut along any line we specify. For example, we could:

- Remove only the immediate pool area
- Remove an area extending 3-5 ft around the pool
- Remove everything up to the steps before the Clubhouse

However, saw-cutting concrete is an expensive task, primarily because of the labor and difficulty. To completely remove the pool costs only \$7000 more than cutting around the pool. Hence, we are recommending complete removal of the hardscape. See the bids from Shocker Trucking for details.

Required: Replace pool cover

If we install a rectangular pool, it will be easy to install an automatic pool cover. Such covers open and close with a touch of a button. During winter, the pool would remain almost completely filled (a few inches below the skimmers.) The pool cover would remain on the pool throughout the winter and is sturdy enough to walk on even if we get 4 feet of snow.

An automatic pool cover expands and retracts at the push of a button. They are solid enough that you can walk on them (though not advised).

Manual pool covers are also available.

For the spa, assuming we install one, it is recommended that we use a winter cover on top of the automated cover, to protect the automated pool cover from freezing damage.

Cost of a new rectangular retracting pool cover varies by quality. At the higher end, the pool cover is inground, at the windward (deep) end of the pool. These cost between \$20,000-30,000. A cheaper rectangular pool cover might be \$10,000-\$20,000.

Winterization

- The pool water is left in place. You add an algaecide and some other chemicals, and then cover the pool.
- All of the pipelines would have the water removed.
- The pool filter (sand filter) would be blown out and covered.
- The water in the pool is re-used in springtime.

Required: Relocate Pumphouse and New Equipment

We need a new pool heater. Our current propane heater is sized for a residential pool, and is okay for that purpose, but inadequate for a semi-commercial pool. It is also costly to heat a pool with propane.

- **Solar heating:** Many pools have only solar heating, and clients are generally happy with those solutions. A solar water heating system could likely meet all our heating needs, because our pool does not need to operate in winter, and we get plenty of sunshine. Costs of a solar water heating system of this size are about \$30,000 installed. It would take about 10 years to recoup this cost. Issues with solar include damage from ice, or when deer jump onto the panels.
- **Heat pumps:** A heat pump designed to support a commercial pool can be very expensive, around \$75,000. However, one contractor suggested that, since we have room to spare, we could use up to 3 residential size heat pumps, which are much cheaper, around \$5000-\$7500 per unit, and achieve cost savings plus some redundancy.
- **Propane backup heater:** Some contractors have advised that we have a propane fueled heater for backup, with a capacity of at least 450 BTU. New heaters are far more efficient than the existing one and would likely not cost as much to operate. However, this is optional, since we operate the pool in summer only.
- **Location:** The pumphouse and boiler room should be relocated. We suggest that a new concrete pad be installed outside the current fence line, adjacent to the BBQ area entry. Relocation will permit us to more easily build the structure we need, rather than working around the old shed. Bids include building of the pad and installation of equipment, but not wiring to the pad or construction of buildings.

Required: Construct New Shower rooms

The State requires that we have separate shower facilities for men and women. If we increase the pool occupancy, we will need two showers per gender area. Each shower area must have water-impervious nonslip floors.

The contractors who viewed our pool agreed that the current shower stalls provide plenty of room to create the required shower facilities, particularly when the pump house and chemical shed is removed.

7.2. Out of Scope

- **A structure that completely encloses the pool** would avoid weather-related problems. The rough estimate for a greenhouse like enclosure of aluminum framing with glass or plexiglass panels was about \$300,000. Because of the high cost, the Pool Committee recommends that a pool enclosure be tabled for a future phase.
- **Hot tub** is a frequent Community ask. A hot tub that is usable year-round is out of scope. However, the proposal from TopRail includes a fiberglass spa near the existing pool. The spa would be operable only during the summer months and be rectangular or square, seating 6-10 people. It would require a separate cover and an ionizing or UV light system for removing harmful bacteria. The contractor recommends we use a spa models that is already approved for use in Washington state to reduce permitting time.
- **Clubhouse renovations**, aside from the shower room updates required for pool operation, were out of scope and not considered by the Committee.

7.3. Bids: KrisCo

Few contractors are interested in doing pool renovation, because they can't commit to the cost or a schedule until they get in and see the condition of the underlying structure and pipes. We got one detailed estimate from a company in Woodinville that specializes in old pool repair (KrisCo). We thought we would get another bid from Reuben Pool Plastering, but they did not respond to further inquiries.)

The bid for refurbishment includes:

- Removal of the liner and replastering to bring pool up to code.
- Partially digging up hardscape to fix circulation issues; we would need to do repairs

Estimated cost for just the removal of the Rhino Liner and replastering was \$168,612. This bid does not include any of the following:

- No heat pump: new 4000 BTU propane heater included
- No plumbing, such as sewer backwash line
- No electrical
- No additional drainage around pool
- No improvements to hardscape
- No shower improvements (which are required)
- Building to house heater and chemicals not included

8. Replacement Options

Replacement means that the pool would be considered a new pool for permitting purposes. Contactors have provided us with multiple options:

- Demolish existing pool structure and install a completely new gunite pool.
- Reuse existing pool structure but add concrete and plaster to correct problems of slope and depth etc. This would for permitting purposes be considered a new pool.
- Reuse existing pool structure and install a fiberglass pool within that footprint. This option was proposed by TopRail of Yakima. They say that they can provide a fiberglass pool that is only slightly smaller than the current pool, minus the wading area.
- Demolish existing pool structure and hardscape. Install a fiberglass pool and small fiberglass spa.

8.1. Why didn't we get more bids?

No pool construction or even a reasonable estimate can be given without a clear specification from us, the client, of the dimensions and functionality of the pool. Most contractors are unwilling to spend the time to come out to the Community and review the condition of the pool without some form of payment, as well as general specifications and the potential budget, all of which are required to give us a fair estimate.

The Pool Committee has spent many hours conferring with contractors, providing them with information about our pool and needs. We received multiple bids; however, these are not competing bids for exactly the same specifications. Not all pool companies do exactly the same type of work, and the bids we received are not comparable.

For example, one bid was for renovation only; another was for an all new luxurious gunite pool, and another was for a slightly smaller fiberglass pool. To move forward on pool renovation or

replacement, it is critical that we, the Community, determine which general course of action to take, and establish a clear budget and pool requirements.

For example, we should determine whether we want a gunite pool or a fiberglass pool, and if we can afford a separate spa or wading area. We should know our budget and have a backup set of specifications in case we cannot get all our desired features within the budget.

8.2. Option 1: Build new concrete pool

Building a new pool is a good option for these reasons:

1. We can install more efficient heating, such as heat pumps or solar
2. A new pool would have better circulation, as required by law, and more efficient filters
3. The depth of the pool and its color would meet state safety standards as well as ADA requirements
4. Operation and maintenance would be more cost-effective
5. State of the art materials mean longer life and better slip-resistance
6. Commercial grade equipment is necessary for longevity, reliability, and ease of service

Costs of a brand-new pool range from \$350,000 (no frills, no demolition, etc.) to \$750,00 (larger luxury pool).

8.3. Option 2: Install fiberglass pool

Fiberglass pools are durable and cheaper than gunite pools. Fiberglass pools have been used in this climate (Yakima) for over 50 years with no cracking or any issues. It is even possible to install a fiberglass pool into the existing concrete shell.

The chief disadvantage of a fiberglass pool is that you are restricted in the shape and size. The pool would necessarily be smaller, but we could perhaps add a spa adjacent to the main pool. (A spa is not a hot tub, but a smaller pool that is heated. It would have to be covered separately but can either be contiguous with or separate from the existing pool.)

A fiberglass pool would be good for these reasons:

- Cheaper
- Durable with all safety features built in
- Easier to heat
- Attractive finish with no replastering or maintenance to surface
- Resists bacteria and grime

8.4. Comparison matrix

Features	Fiberglass	Gunite
Warranty	25-year non prorated structural warranty	One year
Installation time	Within days (not including prep)	8 or more weeks
Product quality	Manufactured in a controlled environment	Quality dependent on job site conditions
Design options	100+ models to choose from	Unlimited
Durability	Flexes under pressure Resists cold, heat, and impact	Rigid, cracks with movement
Interior finish	Smooth, skin-friendly	Very rough
Swim outs, steps, benches and sun decks	One piece, molded in	Only at additional cost
Water chemistry*	No harsh chemicals needed	Requires muriatic acid
Cleanliness	Algae and mildews do not adhere	
Ecological impact	Lower chemical use means less impact on environment from run-off	
Efficiency	Shorter pump run time to keep pool warm	

8.5. Other required work

Hardscape fixes and improvements

Regardless of whether we build a new concrete pool or get a fiberglass pool, the following work is required on the hardscape. Pool contractors generally are willing to include most of this in their bid. Drainage around the current pool is inadequate meaning water pools and algae grows in some spots.)

- Dig up entire area around pool
- Install new pipes, include returns, skimmers, and drains
- Create new concrete pool deck with correct slope for drainage
- Create new concrete pad for pump house outside south end of pool deck

Costs:

- Demolition of hardscape: \$51,163.73 (incl. tax)

- New hardscape: Chinook Pools included the cost of installing new hardscape in their bid (\$750,000).
- TopRail amount: TBD

Plumbing fixes and improvements

The filter must recirculate the complete volume of the pool, which is about 45,000 gallons, in under 6 hours. This means 125 gallons per minute of water flow. However, our filter is rated for maximum 100 GPM. The pump is capable of only 60 GPM.

Therefore, we need wider pipes and a beefier pump and filtration to support water circulation requirements. Most contractors recommend using a sand filter, which is clean and energy effective.

The new pumphouse should be relocated to the south side of the pool deck, on a new pad.

Heating

There are several options for heating:

- Solar
- Heat pumps (commercial or residential)
- Heat pump or solar with propane backup

Solar panels would be quite adequate for heating and could be placed in the field south of the Clubhouse. However, the solar panels would likely need to be fenced in to prevent damage from deer. Putting solar in would cost about \$30,000. Given the time need to recover the cost,

Some contractors have recommended that we install a propane heater as backup; however, since we cover the pool at night and do not use the pool when it is cold, we probably don't need it.

A heat pump should be capable of raising the water temperature approximately one degree per hour at a cost of \$2-3 per hour for electricity. For comparison, a similar size commercial propane heater will cost half the price, and will heat the water one degree per hour, but will cost \$16-22 per hour.

To summarize, the cost for a thousand hours of heating over a summer would be about \$2500 in electricity (heat pumps), and about \$20,000 in propane.

We recommend a series of 2-3 residential size heat pumps, which can be located on the south end of the pool deck.

Shower rooms

Shower rooms must be rebuilt to ADA specifications. This work must be completed before the pool inspection, but we can either do the work independently, or ask the pool contractor (and their subcontractors) to handle it.

We have no solicited bids for this work but believe there is good representation in the community of contractors able to assess and cost this work.

9. Recommendation

This section states the course of action recommended by the Pool Committee and discusses the pros and cons of other options.

9.1. Recommended Pool Selection: Fiberglass

We recommend that the community contract with TopRail of Yakima to install a new fiberglass pool. Estimate cost is \$475,000.

TopRail suggested two options:

- Install a fiberglass pool inside the shell of the current pool
- Demolish the existing shell and erect a new shell specific to the fiberglass pool.

They recommend the latter, because it could be difficult to position a fiberglass pool within the current, irregularly shaped shell. For example, the pool is only 16' wide at the deep end, so the fiberglass pool would have to be shifted south. If the curvature of the pool shell prevents the fiberglass pool from settling in, we could raise the entire pool deck by some inches. This isn't entirely bad, since it would support better drainage and eliminate some of the hazardous steps.

However, demolishing the hardscape would be easier. It would allow us to install a fiberglass spa, and correct some safety issues with the steps and drainage.

The contractor would handle almost everything (we would do the shower work ourselves) and guarantee a pool that can be opened next year.

We had hoped to obtain a pool this year, but the supplier reports that mid-August is the earliest the pool could be delivered. Construction could start immediately, weather permitting. (Construction would likely continue into November.)

They recommend against installing automated pool monitoring system, since we have managed manual monitoring very well.

They recommend we install an automated pool cover. The pool cover would extend and close at the push of a button, from the deep end of the pool. The cover is sturdy enough to walk on in winter. The contractor does recommend a winter cover to protect the automatic cover.

9.2. Recommended Hardscape Work: Demolition and Replacement with Brushed Graded Concrete

We recommend that the community contract with Shocker Trucking to demolish and recycle the existing hardscape. They have given us a very good bid for this work.

The cost of demolishing just the problems areas is about \$50,000. The costs of demolishing the entire deck and the pool is about \$54,000. (See updated bids for details.)

The pool contractor will install the new pool decking. To save money, we recommended a simple broomed concrete finish with a suitable number of expansion joints. For a very small additional cost, they can add contrasting colors in the concrete to create borders, walkways, or other decorative features.

The contractor will install a new drain along the Clubhouse steps to catch water, make sure that the pool deck is slanted to drain away from the pool, and install ramps as needed.

9.3. Recommended Shower Work: Install ADA-compliant showers

Demolish the existing shower enclosure and extend the roof to support a new shower area, one each for men and women's bathrooms. The work can be done by volunteers, or under a separate bid, but should be complete before the pool undergoes inspection.

9.4. Recommended Time Frame

Critical path:

- When can Shocker Trucking start demolition?
- When can a fiberglass pool of the approved type be delivered by San Juan Pools? (mid-August at earliest)
- Can subcontractors make time?
- Can they obtain materials?

- After the pool is set in the hole, plumbing and electrical work must be completed. Only after that can the hardscape be poured. Weather is the factor.

Best possible completion: November 2022.

Latest possible completion: mid-summer 2023

9.5. Reasons for Recommendation

At this point with all the info we have gathered we would recommend a total replacement for several reasons.

- There is no question that the pump house needs to be completely replaced.
- All pool professionals state that the Rhino Liner must be removed. The Rhino Liner was a stopgap measure designed to let us use the pool as long as the pump house was operational.
- The pool cannot open with the paint on the Rhino Liner floating around in the pool.
- The paint color is not up to code, and other repairs are needed.

After speaking to many experts, we have concluded that repair and refurbishing would be almost as costly as building a new pool.

1. We would first pay to remove the Rhino Liner.
2. Then we would pay to re-plaster the pool (minimum verbal estimate was \$25,000 just to replaster the pool).
3. Maintenance costs would be unpredictable given the mix of old and new technologies in the pool. In general, pool technology has changed a lot since this pool was first built in the 1960s.

We feel the Community would get the greatest use of an up-to-date pool that meets all requirements and requires less maintenance and short-term fixes. We examined several pool types and concluded that a fiberglass pool is the best option given the size of the Community, the climate, and projected replacement cycle.

10. Recommended Process

10.1. Get Member approval of project and budget

This report will be presented at the General meeting in 2022 so that Community members can determine a course of action. **We will ask the Community to vote yea or nay on our recommendation of a new fiberglass pool.**

YEA: If the recommendation is accepted, we will add members to the Pool Committee to continue work preparatory to engineering and financing:

1. Formalize a projected budget for all activities
2. Seek financing from the appropriate agency (Terry knows the local agency)
3. Request a formal bid from the selected contractor
4. Report schedule and cost to the Board and the community

NAY: If the recommendation is rejected, we will defer action on the pool till the following year. A new Pool Committee will be responsible for finding a course of action acceptable to the Community. The pool will not open this year owing to multiple safety code violations.

10.2. Obtain engineering and architectural design

Depending on which pool type we build, the contractor will handle all engineering and permits. However, if we want a gunite pool, we must provide exact pool specifications, including:

- Size
- Slope and depth
- Any extra features

For this reason, a gunite pool will take longer and cost more. The initial cost of engineering a gunite pool, including a site visit from an engineer, is about \$30,000.

For fiberglass, the pool is already engineered, and the type of pool we propose to install has already been approved by Olympia.

10.3. Obtain permits

Review by state: After basic specifications are drafted by the pool contractor, the pool specifications are reviewed by the State.

- **Fiberglass:** The pool of the size and type we propose to install has already been approved
- **Gunite:** Initial review of engineering design for a gunite pool takes 2-3 months.

Review by County: After approval is obtained from the State, the pool contractor presents the plan to the Kittitas County permit department. The contractor makes any changes to the plan that are requested by Kittitas County, upon which work can begin.

10.4. Summary of Estimates Received

Please refer to the bids that are posted on the web site for details. The following figures are based on initial word of mouth estimates.

Important: The details of what is included in each bid differ greatly.

Company	Type of work	Rough estimate
KrisCo	Refurbish to minimum standards	\$168,612
Shocker Trucking	Demolition of hardscape and pool buildings	\$50,000 -\$57,000
TopRail	Refurbish gunite pool	N/A
TopRail	New fiberglass pool	\$475,000
TopRail	New gunite pool	\$550,000
Chinook Pool	New gunite pool	\$750,000
Boyer Mountain Pools	New pool, unspecified scope	\$350,000 (Ballpark from last year, has since been retracted)

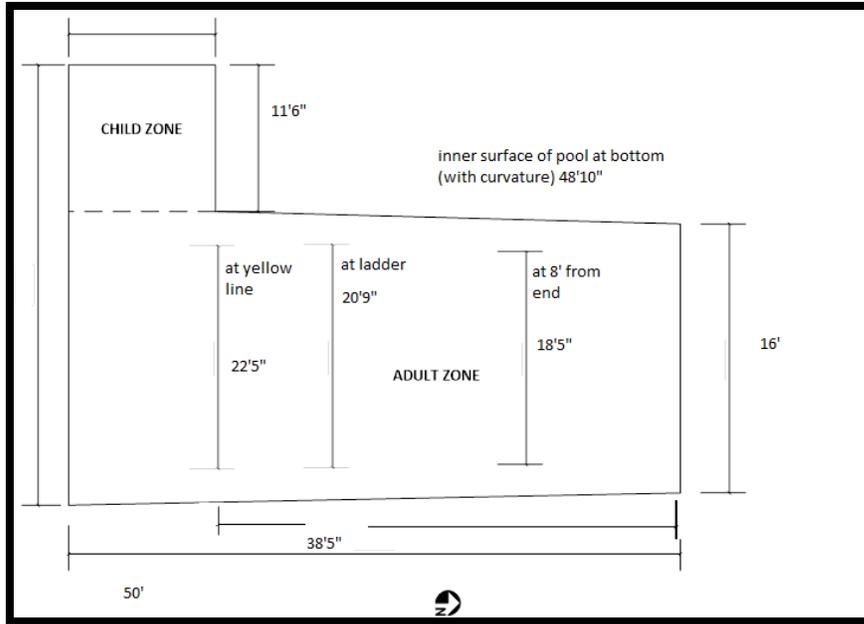
Appendices

10.5. Fiberglass pools

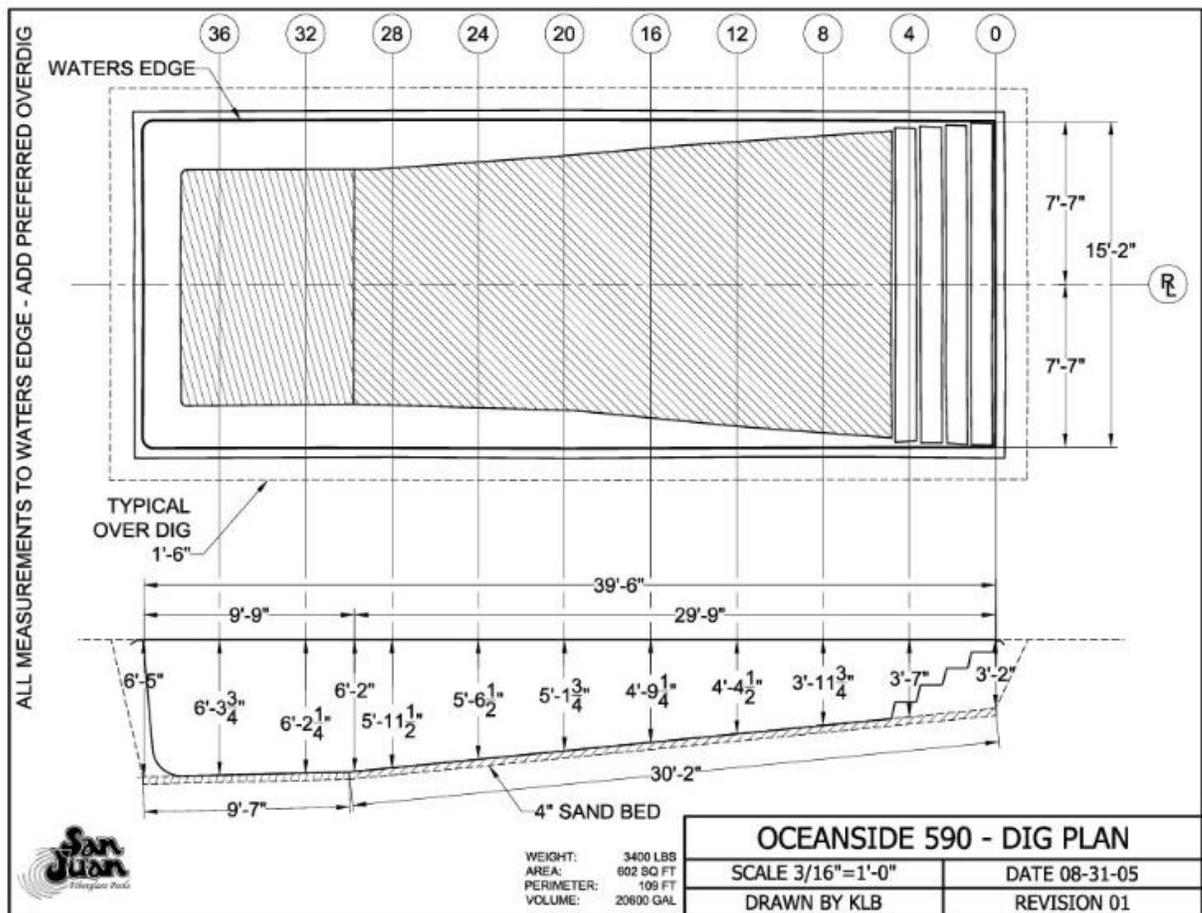
The provider of fiberglass pools that we would use is [San Juan Pools](#), on San Juan Island.

Currently their [Oceanside model](#) is permitted by the State and would probably fit inside our existing pool shell. It includes a shallow wading area across the entire end of the pool, and a depth of 3'8" to 6'4".

- Total surface area of 602 SQFT
- Fairly level swimming pool with lots of standing room; works great for pool water games & aerobics.
- Deep end of 6'5", width of 15' 2"



Fiberglass Pool– Dig plan



10.6. Fiberglass Spas

To gain the maximum seating area, it is recommended that we install a rectangular or square spa. See this page for examples: [San Juan Pools, square spas](#)

Example of a larger rectangular spa:



In residences, the spa can be installed contiguous with the pool. **However, this is not permitted in commercial pools.**

Example of a smaller square spa:

