

Clearwater Self Build Pools



**Instruction Manual
& Parts Catalogue**



A self build pool can be an exciting and successful project for any competent D-I-Y enthusiast. To budget for that pool you will need to know accurately what materials and equipment you will need and what they will cost.

This catalogue sets out your requirements for each type and size of pool that you may be considering.

We provide all the items that you will need to build the basic pool in a convenient kit and at a single kit price.

We also provide a schedule of basic building materials that you are likely to need for each size and type of pool. These items are approximate and may vary according to local site conditions. These items can be purchased from you local builders' merchants.

A separate Accessories section in the catalogue provides you with a comprehensive list of accessories that you may choose to add to enhance your pool, such as a Roman End or underwater lights.

Clearwater self build pools are made from the same quality materials and equipment that we use for building our larger pools. You can be assured of the same quality of advice and assistance from our staff and pool experts.

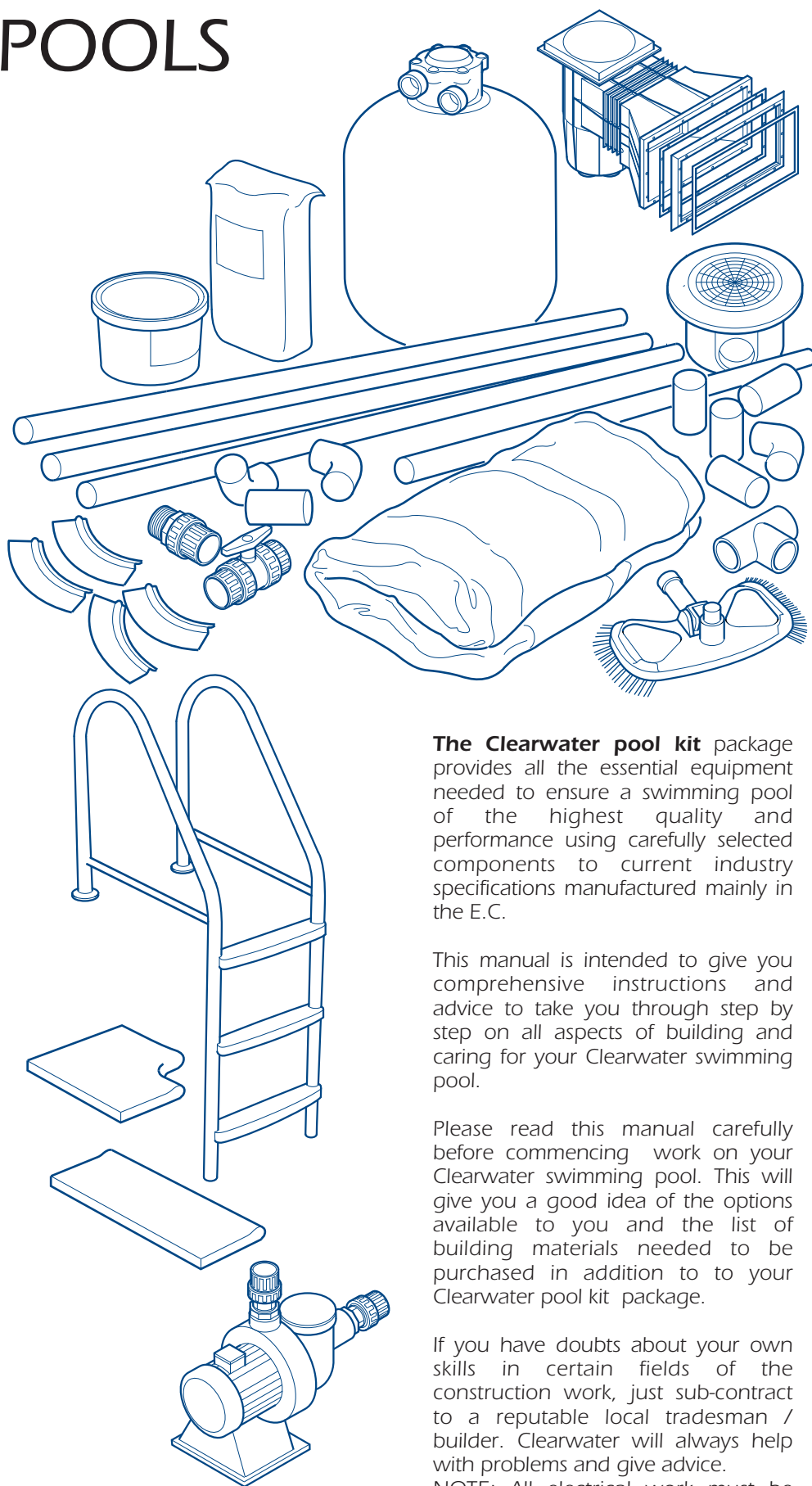
The extra benefit to you is the flexibility to decide for yourself what you want at a budget to suit you.

This book is intended to be used with CLEARWATER SWIMMING POOL KITS
IF YOU SUBSTITUTE COMPONENTS FROM OTHER MANUFACTURERS
INSTALLATION DETAILS MAY VARY FROM THOSE DESCRIBED AND THIS MAY
RESULT IN MISTAKES BEING MADE.

CLEARWATER SWIMMING POOLS HAVE TAKEN EVERY CARE TO VERIFY THE INFORMATION CONTAINED IN THIS PUBLICATION
WE CANNOT BE HELD RESPONSIBLE FOR ANY CONSEQUENTIAL DAMAGE OR LOSS HOWEVER CAUSED.

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CLEARWATER SELF BUILD POOLS



The Clearwater pool kit package provides all the essential equipment needed to ensure a swimming pool of the highest quality and performance using carefully selected components to current industry specifications manufactured mainly in the E.C.

This manual is intended to give you comprehensive instructions and advice to take you through step by step on all aspects of building and caring for your Clearwater swimming pool.

Please read this manual carefully before commencing work on your Clearwater swimming pool. This will give you a good idea of the options available to you and the list of building materials needed to be purchased in addition to to your Clearwater pool kit package.

If you have doubts about your own skills in certain fields of the construction work, just sub-contract to a reputable local tradesman / builder. Clearwater will always help with problems and give advice.

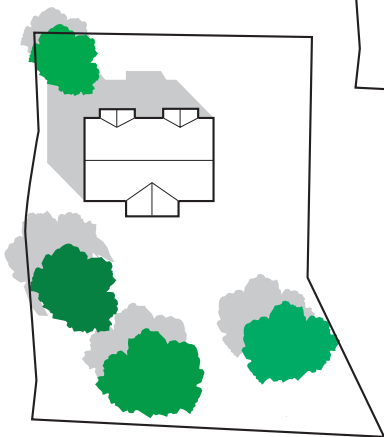
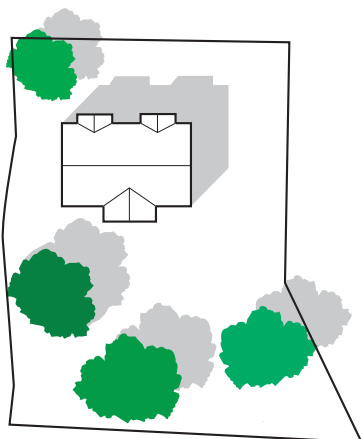
NOTE: All electrical work must be carried out by a qualified professional.

CONTENTS

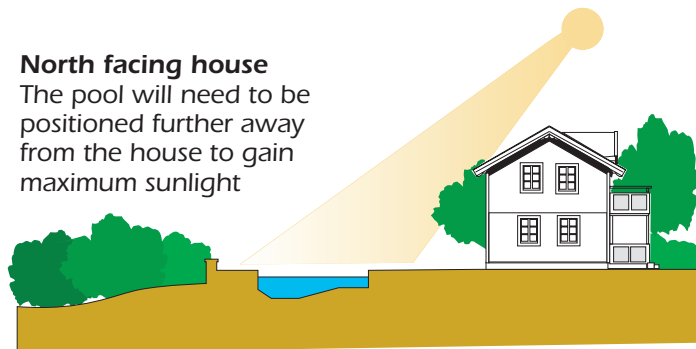
Planning your pool.....	2
Starting the pool.....	3
Setting out.....	4
Preparing for excavation...	5
Pool Dimensions.....	6
Excavation story pole.....	7
Finished dimension story pole.....	8
Cross section.....	9
Excavation.....	10
Digging the hopper.....	11
Main drain pipework.....	12
Underpool water.....	13
Wall foundations.....	14
Building the walls.....	15
Fittings.....	16
Pool filtration.....	17
Finishing the pool walls....	18
Surface skimmer.....	19
Backfill & ringbeam.....	20
Rendering - pool walls.....	21
Screeding the floor.....	22
Fitting the linerlock.....	23
Fitting the liner.....	24
Fitting the liner cont.....	25
Cutting out - Liner fittings..	26
The copings & paving.....	27
Starting up procedure....	28
OPTIONAL EXTRAS	
Roman ends.....	30
Rectangular ends.....	31
Underwater lights.....	32
Automatic Top-up.....	33
Miscellaneous extras.....	33
Pool steps.....	34
POOL SPECIFICATIONS	
Flat bottom pool.....	35
Flat bottom pool plan.....	36
Hopper pools.....	37
Small pool layout.....	38
large pool layout.....	39
Plumbing & filtration.....	40
Hopper pool plan.....	41
Site drainage.....	42
PARTS LIST	
Building materials.....	44
Liner kits.....	45
Parts index.....	46-48
Pool shells	
Amendments 1	
Amendments 2	

PLANNING YOUR POOL

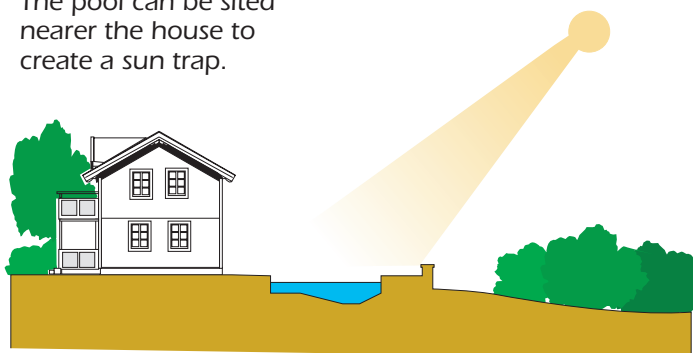
Site the pool where it will give you the maximum sunlight. The house and any trees while giving shelter will cast shadows at different times of the day.



North facing house
The pool will need to be positioned further away from the house to gain maximum sunlight



South facing house
The pool can be sited nearer the house to create a sun trap.



Clearwater Swimming pools can provide a range of pool kits and optional extras to cater for what ever type, size and shape of pool that you require. Here are some of the points to consider when planning your pool.

ACCESS

Arrangements will be needed for access by delivery trucks and heavy digging machinery for landscaping or removal waste soil.

LOCATION OF POOL

The pool should be positioned away from trees, so that it benefits from as much sun as possible. The following points should also be considered.

1. The filter will require housing: sometimes an existing building or summerhouse can be utilised, if near to the pool. Position the filter as close to the pool as possible to obtain maximum performance from the pump. There is sufficient pipework in the kit to plumb the filter up to 3 metres (10ft) from the pool.

2. Supply of electricity
3. Convenience of pumping water to waste, to a drain, ditch or soakaway. When the filter is cleaned a quantity of water is backwashed to waste.

4. Availability of water supply. Although usually a garden hose to the nearest tap is all that is required, an automatic pool top up is a must (see price list).

5. Proximity of pool to house for toilets and changing facilities.

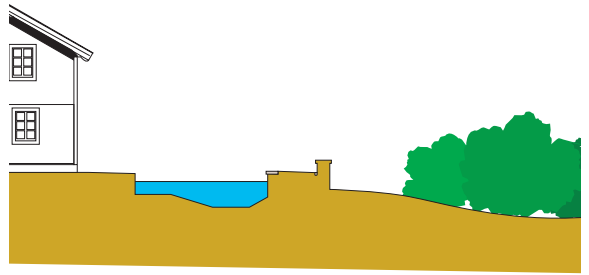
6. Most mains services are usually located in the front garden, however before commencing digging do a thorough check.

HEATING AND POWER

For most people the heating of an outside pool is essential. A comfortable water temperature will maximise the potential of your pool and lengthen the swimming season considerably.

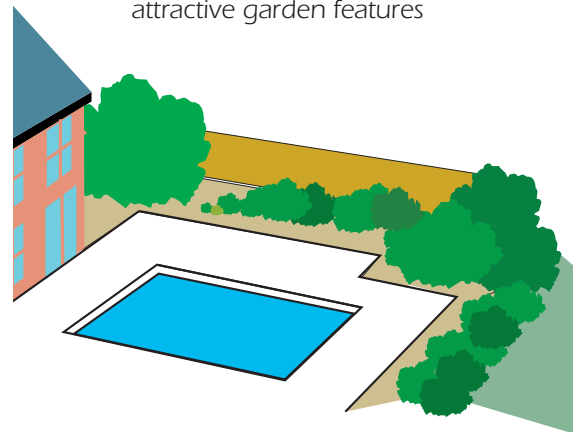
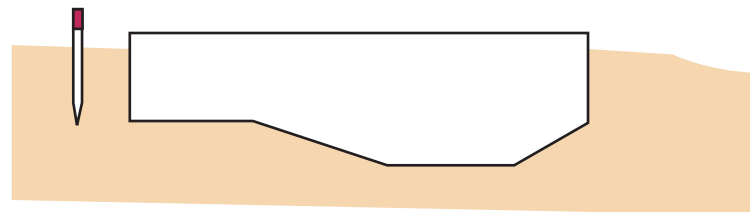
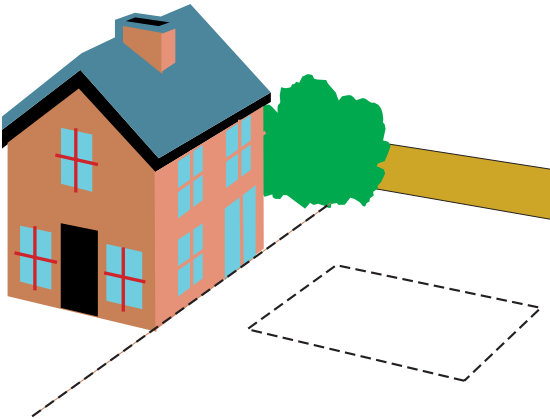
The heating options available range from Natural Gas fired and LPG and Oil fired boilers, inline Electric heaters, heat pumps and heat exchangers which will run off of your central heating boiler.

STARTING THE POOL



Landscaping the garden, using the waste soil from digging the pool can be used to blend the pool into its surroundings.

On a sloping site, a retaining wall with drainage channels to take away the surface water can be made into attractive garden features



POOL POSITION

The positioning of your pool to align with existing buildings and boundaries is very important. Choose a reference point from the house, wall or fence and line up the pool with this.

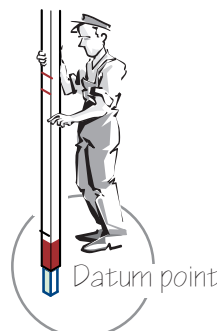
POOL HEIGHT

The finished height of the pool will be determined by the level of an existing patio/terrace or by the slope of the existing terrain.

It is essential that the finished height of the pool needs to be above the surrounding ground and that the deck slopes away from the pool edge to provide good drainage. As well as allowing for the fall a drainage channel will be needed to take surface water away to lower ground.

DATUM POINT

The ultimate top height of the pool is obviously very important. As it usually has to join an existing terrace or similar. This Height is called the DATUM, and before digging the pool, drive a peg into the ground in an area close to the pool, which will remain undisturbed during operations. The top of this peg is the datum point, and all measurements are taken downwards from this point to determine the depth of digging



COWLEY LEVEL

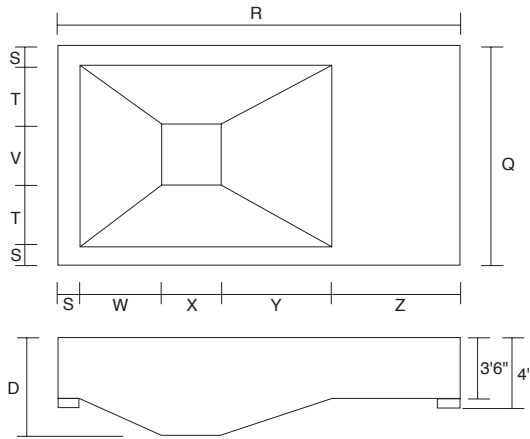
The easiest way of determining levels is by hiring a cowley level from a local hire shop.

The pool walls will have 150mm(6") foundations 1.067m (3'6") walls and 50mm (2") coping. Consequently the footings around the pool will be dug 1.27m (4'2") down from the datum point. The actual floor and hopper will be dug approximately 50mm (2") deeper than the finished pool to allow for the 50(2") insulating layer of sand/cement on the pool base.

The foundations around the shallow end will have to be dug by hand to produce an accurate 375mm(15") wide trench 150mm(6") deep.

SETTING OUT

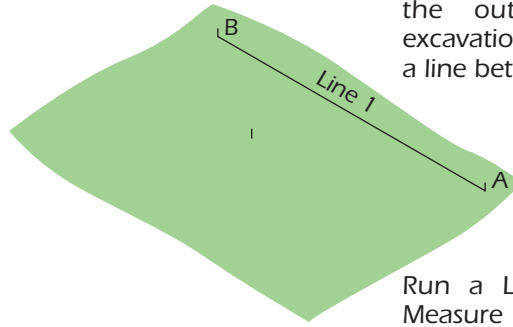
Excavation dimensions for shallow end hopper



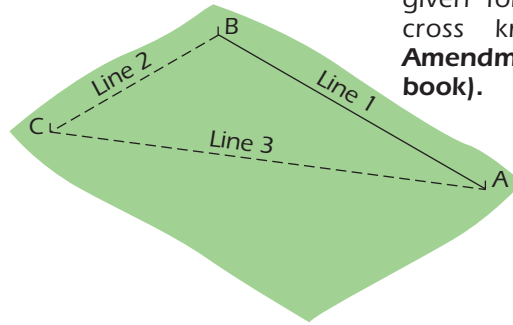
Pool size	Q	R	S	T	V	W	X	Y	Z	Hopper depth D	Diagonals
20' x 10'	12'6"	22'6"	13"	3"	4"	3"	4"	7"	6"	5'2"	26'5"
24' x 12'	14'6"	26'6"	13"	4"	4"	5"	4"	7"	9'3"	5'5"	30'2 1/2"
28' x 14'	16'6"	30'6"	13"	5"	4"	5"	4"	9"	11'3"	6'2"	34'8"
30' x 14'	16'6"	32'6"	13"	5"	4"	5"	4"	11"	11'3"	6'2"	36'11"
32' x 16'	18'6"	34'6"	13"	6"	4"	5"	6"	11"	11'3"	6'11"	39'1 3/4"
38' x 16'	18'6"	40'6"	13"	6"	4"	6"	6"	14"	13'3"	7'8"	44'6 1/4"
40' x 20'	22'6"	42'6"	13"	7"	6"	6"	6"	16"	13'3"	7'8"	48'11"

Excavation Dimensions - Wall depth 3'6"
Foundation Depth - 4'

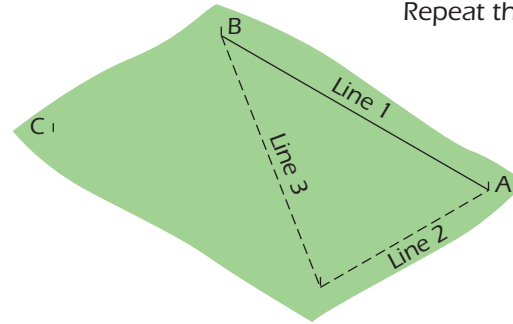
Mark out Line 1 parallel to the Reference line. Measure A to B to the outer dimensions of the excavation, Peg A and B and stretch a line between them.



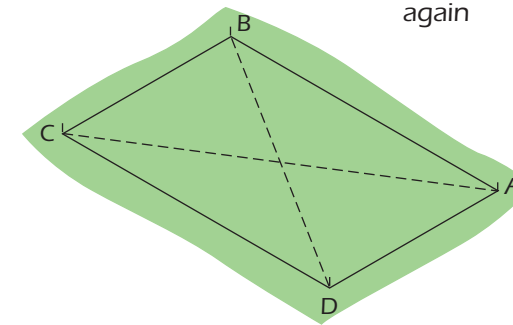
Run a Line a right angles to B Measure to the outer dimension for Line 2. Then run a line diagonally from A to C using the measurement given for Line 3, where the Lines cross knock in a peg. **(See Amendments 1, at the rear of this book).**



Repeat the previous stage to find D



Stretch a lines between A B C D Measure the diagonals they should be equal, if not adjust and measure again



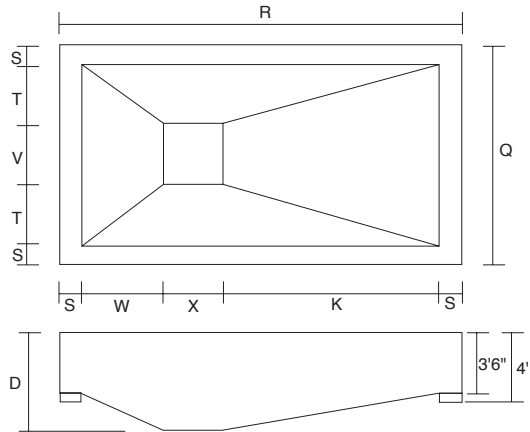
MARKING OUT

Now that you have decided on the pool position and have a Datum Point and Reference Line you are ready to mark out the shape of the pool.

The excavation size should be set out as follows:-

Inside the pool dimensions plus 750mm(2'6") on length and width, which will allow 375mm(15") extra on all sides for the 225mm(9") wall and 150mm(6") backfilling.

Excavation dimensions for wedge hopper



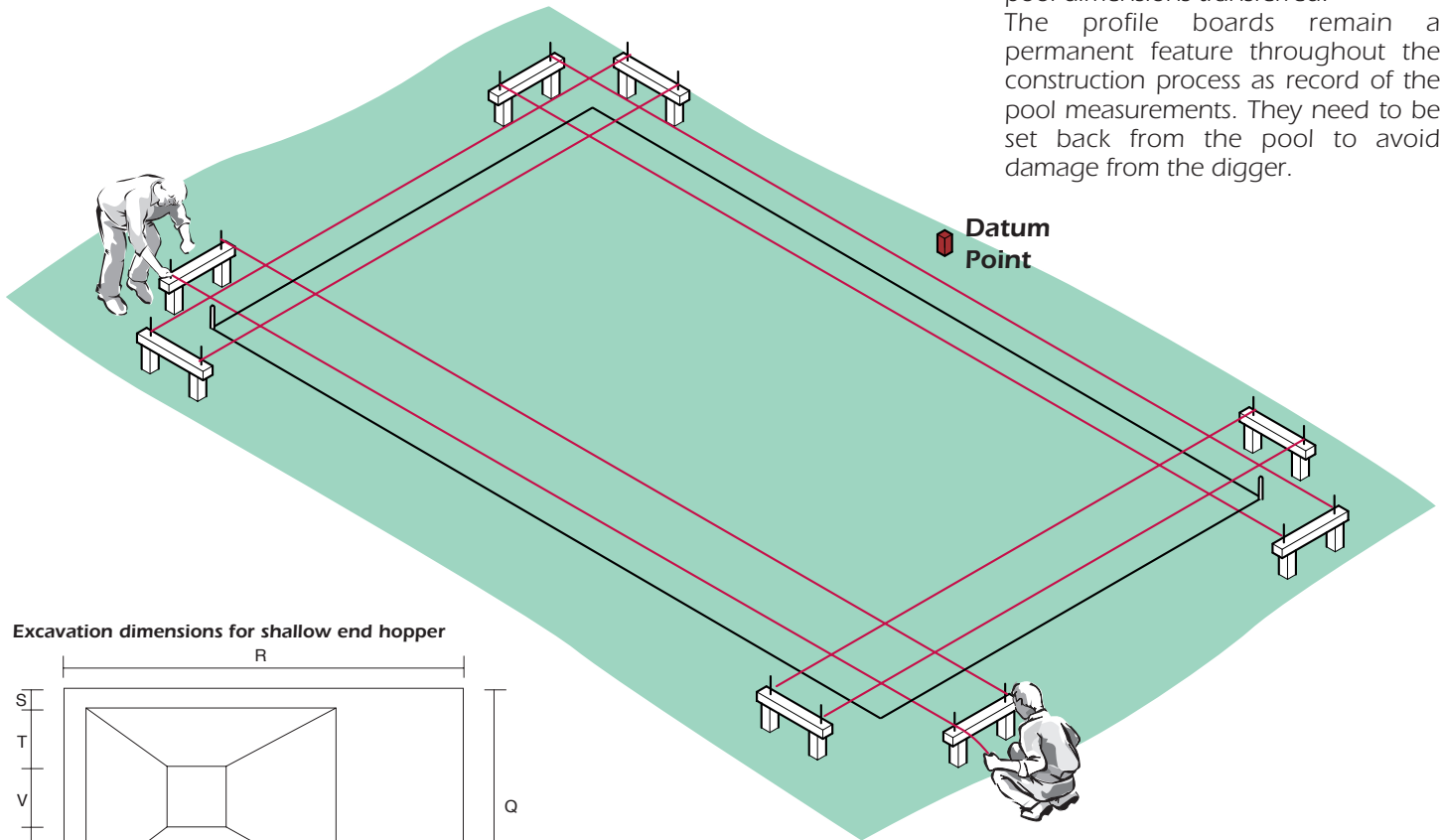
Pool size	Q	R	S	T	V	W	X	K	Depth at deepest point D	Diagonals
20' x 10'	12'6"	22'6"	13"	3"	4"	3"	4"	13'	5'5"	26'5"
24' x 12'	14'6"	26'6"	13"	4"	4"	5"	4"	15'	5'5"	30'2 1/2"
28' x 14'	16'6"	30'6"	13"	5"	4"	5"	4"	19'	6'2"	34'8"
30' x 14'	16'6"	32'6"	13"	5"	4"	5"	4"	21'	6'2"	36'11"
32' x 16'	18'6"	34'6"	13"	6"	4"	5"	6"	21'	6'11"	39'1 3/4"
38' x 16'	18'6"	40'6"	13"	6"	4"	6"	6"	26'	7'8"	44'6 1/4"
40' x 20'	22'6"	42'6"	13"	7"	6"	6"	6"	28'	7'8"	48'11"

Excavation Dimensions - Wall depth 3'6"
Foundation Depth - 4'

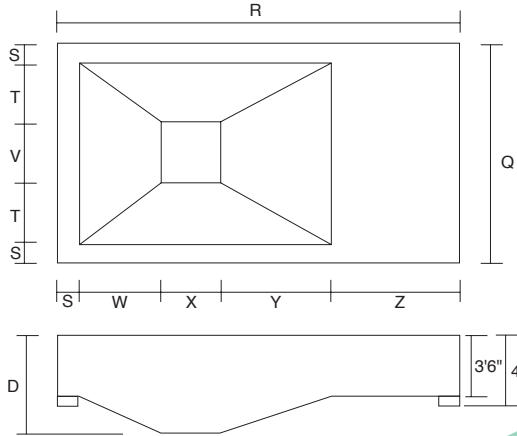
PREPARING FOR EXCAVATION

Now that you have marked the outer dimensions of the pool with pegs and strings profile boards need to be positioned and the outer and inner pool dimensions transferred.

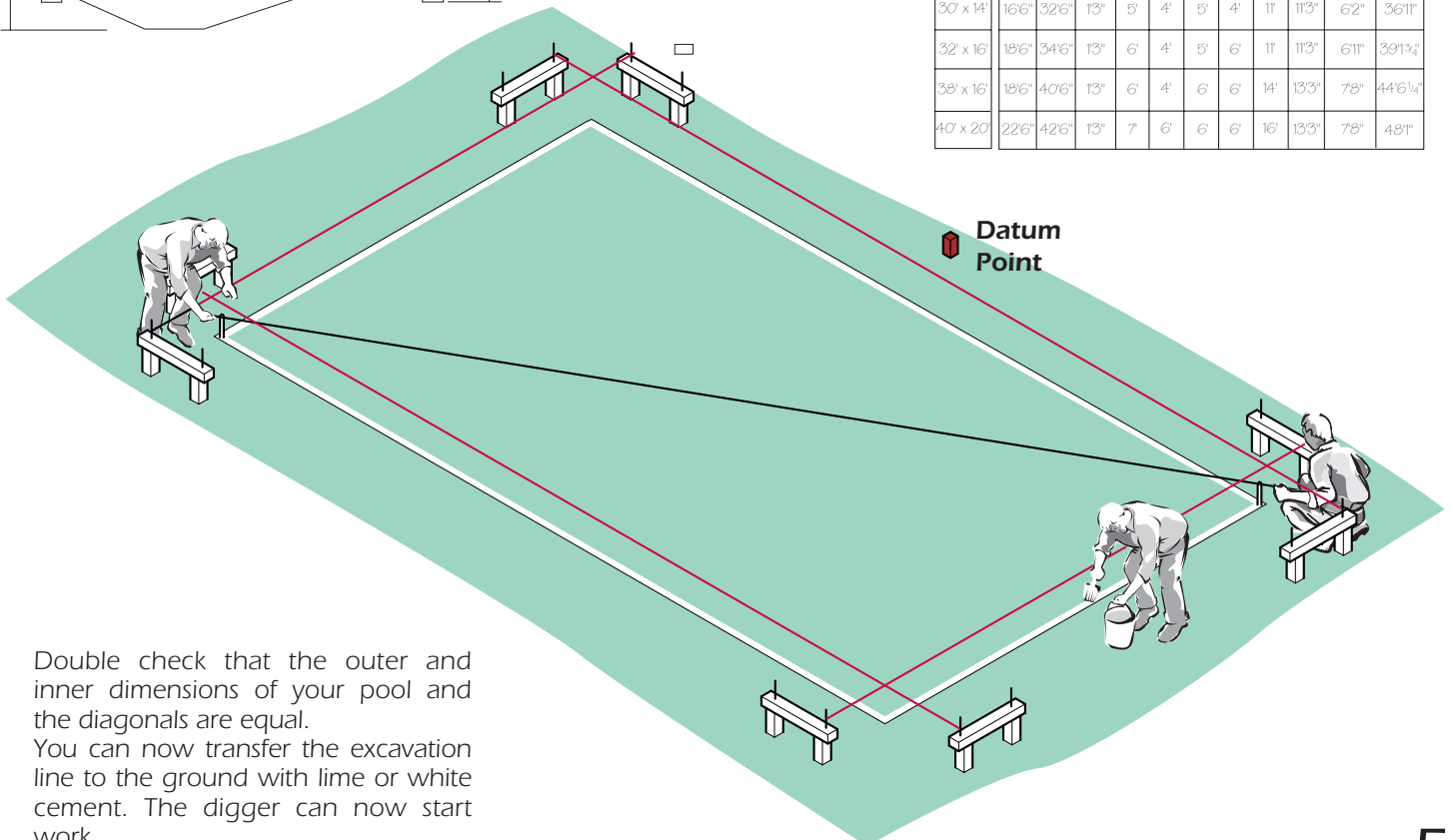
The profile boards remain a permanent feature throughout the construction process as record of the pool measurements. They need to be set back from the pool to avoid damage from the digger.



Excavation dimensions for shallow end hopper



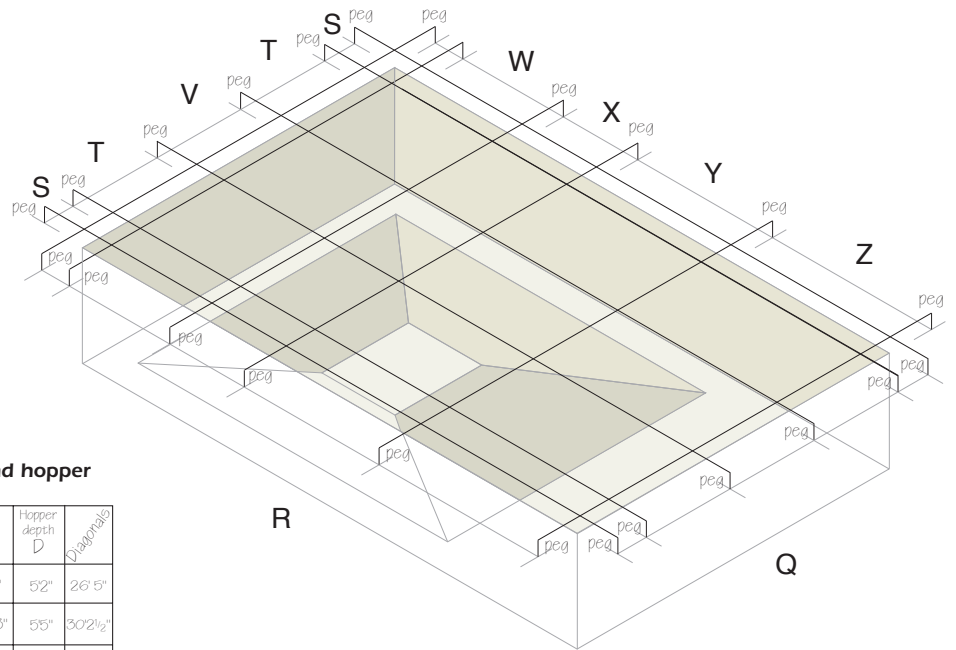
Pool size	Q	R	S	T	V	W	X	Y	Z	Hopper depth D	Diagonals
20' x 10'	126"	226"	13"	3"	4"	3"	4"	7"	6"	52"	26' 5"
24' x 12'	146"	266"	13"	4"	4"	5"	4"	7"	9 3/8"	55"	30' 2 1/2"
28' x 14'	166"	306"	13"	5"	4"	5"	4"	9"	11 3/8"	62"	34' 8"
30' x 14'	166"	326"	13"	5"	4"	5"	4"	11"	11 3/8"	62"	36' 11"
32' x 16'	186"	346"	13"	6"	4"	5"	6"	11"	11 3/8"	61 1/8"	39' 1 3/4"
38' x 16'	186"	406"	13"	6"	4"	6"	6"	14"	13 3/8"	78"	44' 6 1/4"
40' x 20'	226"	426"	13"	7"	6"	6"	6"	16"	13 3/8"	78"	48' 8"



Double check that the outer and inner dimensions of your pool and the diagonals are equal.

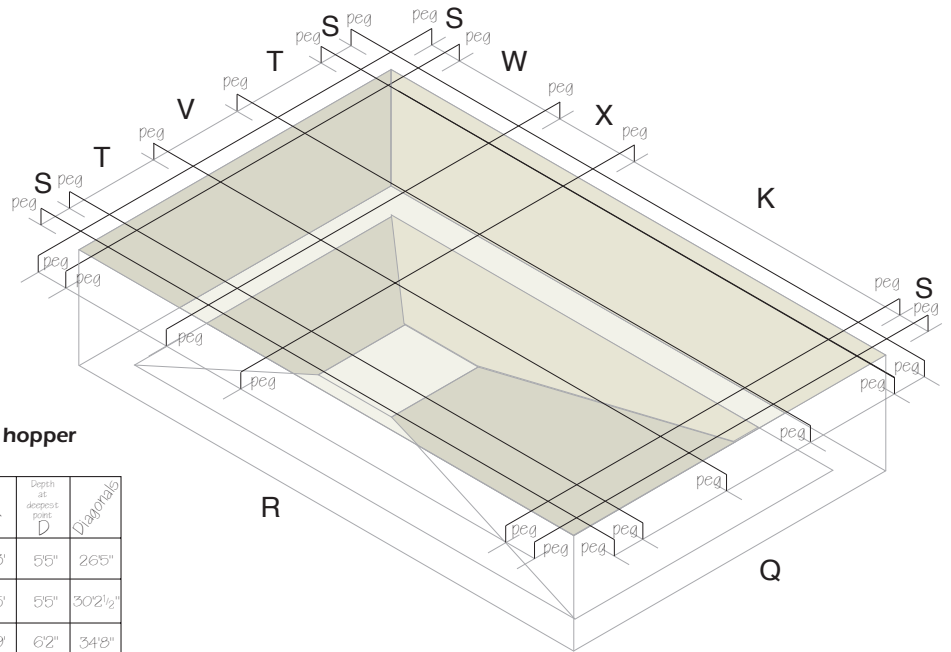
You can now transfer the excavation line to the ground with lime or white cement. The digger can now start work.

POOL DIMENSIONS



Excavation dimensions for shallow end hopper

Pool size	Q	R	S	T	V	W	X	Y	Z	Hopper depth D	Diagonals
20' x 10'	12'6"	22'6"	13"	3'	4'	3'	4'	7'	6'	52"	26'5"
24' x 12'	14'6"	26'6"	13"	4'	4'	5'	4'	7'	9'3"	55"	30'2 1/2"
28' x 14'	16'6"	30'6"	13"	5'	4'	5'	4'	9'	11'3"	62"	34'8"
30' x 14'	16'6"	32'6"	13"	5'	4'	5'	4'	11'	11'3"	62"	36'11"
32' x 16'	18'6"	34'6"	13"	6'	4'	5'	6'	11'	11'3"	61"	39'1 3/4"
38' x 16'	18'6"	40'6"	13"	6'	4'	6'	6'	14'	13'3"	78"	44'6 1/4"
40' x 20'	22'6"	42'6"	13"	7'	6'	6'	6'	16'	13'3"	78"	48'1"



Excavation dimensions for wedge hopper

Pool size	Q	R	S	T	V	W	X	K	Depth at deepest point D	Diagonals
20' x 10'	12'6"	22'6"	13"	3'	4'	3'	4'	13'	55"	26'5"
24' x 12'	14'6"	26'6"	13"	4'	4'	5'	4'	15'	55"	30'2 1/2"
28' x 14'	16'6"	30'6"	13"	5'	4'	5'	4'	19'	62"	34'8"
30' x 14'	16'6"	32'6"	13"	5'	4'	5'	4'	21'	62"	36'11"
32' x 16'	18'6"	34'6"	13"	6'	4'	5'	6'	21'	61"	39'1 3/4"
38' x 16'	18'6"	40'6"	13"	6'	4'	6'	6'	26'	78"	44'6 1/4"
40' x 20'	22'6"	42'6"	13"	7'	6'	6'	6'	28'	78"	48'1"

THE EXCAVATION STORY POLE

POOL MEASUREMENTS

1. Place a peg into the ground this represents your finished pool copings. This peg should be placed where it should not be disturbed.

2. Place another peg along side this peg, 50mm(2") lower. This represents the TOP OF THE POOL WALL. This peg is now called the **DATUM POINT** all measurements should be taken from this point.

3. Set up your Cowley Level and place the Story Pole on the **DATUM POINT** and make a mark on the pole where the two cross hairs meet. This is called **MARK A**

4. Measure up The Pole a distance of 4'(1220mm) from **MARK A**. This is now the EXCAVATION DEPTH for the foundations of the pool and is called **MARK B**. The deep end foundations can now be dug with the excavator with the shallow end foundations best dug by hand.

Measure up from **MARK A** a distance of 3'6"(1067mm). This is now the THE SHALLOW END EXCAVATION DEPTH and the TOP OF CONCRETE FOUNDATIONS this is now **MARK C**.

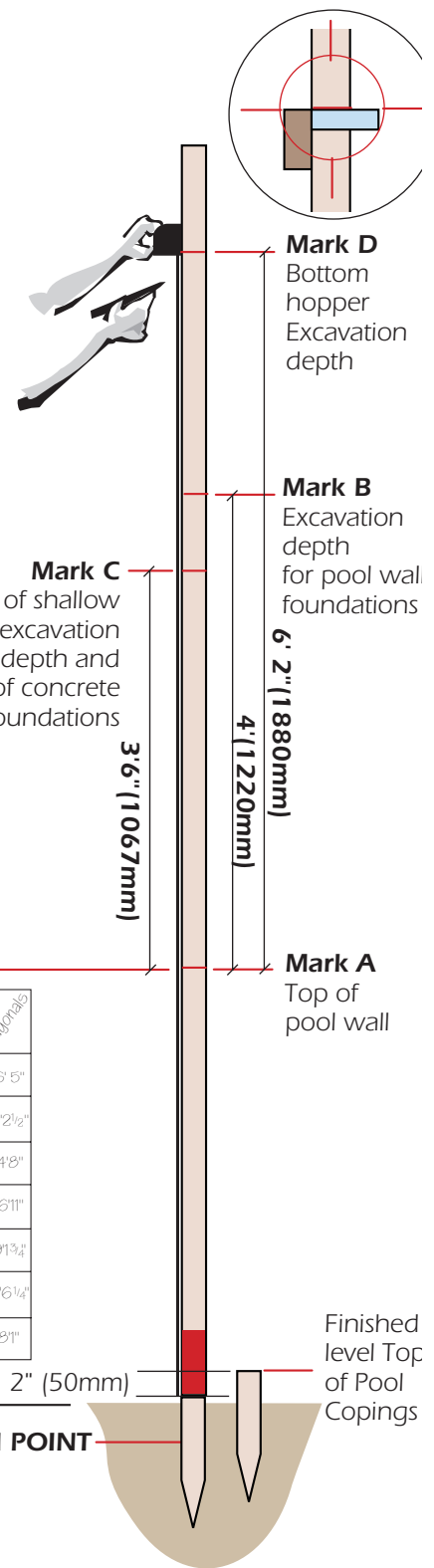
5. The excavation of the hopper for the your chosen pool size will be found from the reference chart. The measurement (D) in the chart

Example - 30' x 14' Pool
Measurement D is 6'2"(1880mm) from **MARK A** and is now **MARK D** on your pole

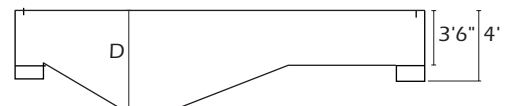
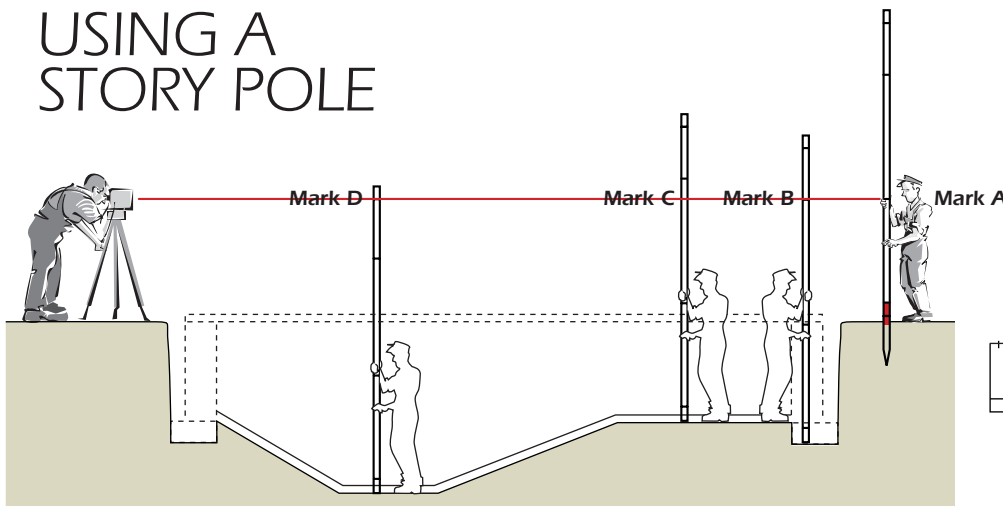


Pool size	Q	R	S	T	V	W	X	Y	Z	Hopper depth D	Diagonals
20' x 10'	12'6"	22'6"	1'3"	3'	4'	3'	4'	7'	6'	5'2"	26'5"
24' x 12'	14'6"	26'6"	1'3"	4'	4'	5'	4'	7'	9'3"	5'5"	30'2 1/2"
28' x 14'	16'6"	30'6"	1'3"	5'	4'	5'	4'	9'	11'3"	6'2"	34'8"
30' x 14'	16'6"	32'6"	1'3"	5'	4'	5'	4'	11'	11'3"	6'2"	36'11"
32' x 16'	18'6"	34'6"	1'3"	6'	4'	5'	6'	11'	11'3"	6'11"	39'1 1/4"
38' x 16'	18'6"	40'6"	1'3"	6'	4'	6'	6'	14'	13'3"	7'8"	44'6 1/4"
40' x 20'	22'6"	42'6"	1'3"	7'	6'	6'	6'	16'	13'3"	7'8"	48'1"

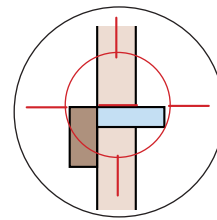
Excavated pool dimensions



USING A STORY POLE



THE FINISHED DIMENSION STORY POLE



Mark D1 — Required finished hopper depth. Top of screed and main drain

1. Measure up The Pole a distance of 3'4" (1016mm) from **MARK A**. This is now the FINISHED SCREED DEPTH for the shallow end of the pool and is called **MARK C1**.

2. The required finished depth of the hopper for your chosen pool size will be found from the reference chart. The measurement (**D1**) in the chart

Example - 30' x 14' Pool
 Measurement **D1**
 is 6' (1828mm) from **MARK A**
 and is now **MARK D1**
 The required FINISHED HOPPER DEPTH
 and the Top of screed and main drain on your pole.

Mark C1 — The FINISHED SCREED DEPTH for the shallow end.

3'4" (1016mm)

6' (1828mm)

Mark A — Top of pool wall

Finished pool dimensions

Pool size	A	B	C	D1	E	F	G	H	J	Diagonals	Gallons
20' x 10'	20'	10'	6'	5'	7'	4'	3'	3'	4'	22'4 1/2"	5,000
24' x 12'	24'	12'	8'	5'3"	7'	4'	5'	4'	4'	26'10"	6,500
28' x 14'	28'	14'	10'	6'0"	9'	4'	5'	5'	4'	31'3 1/2"	9,000
30' x 14'	30'	14'	10'	6'0"	11'	4'	5'	5'	4'	32'11"	10,000
32' x 16'	32'	16'	10'	6'9"	11'	6'	5'	6'	4'	35'9 1/4"	12,500
38' x 16'	38'	16'	12'	7'6"	14'	6'	6'	6'	4'	40'3"	16,500
40' x 20'	40'	20'	12'	7'6"	16'	6'	6'	7'	6'	44'8 3/4"	20,000

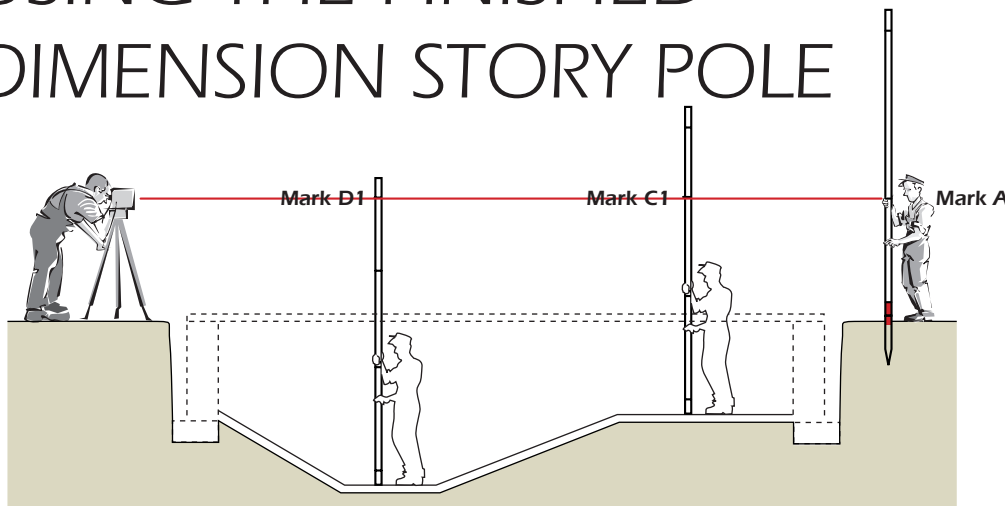
2" (50mm)

DATUM POINT

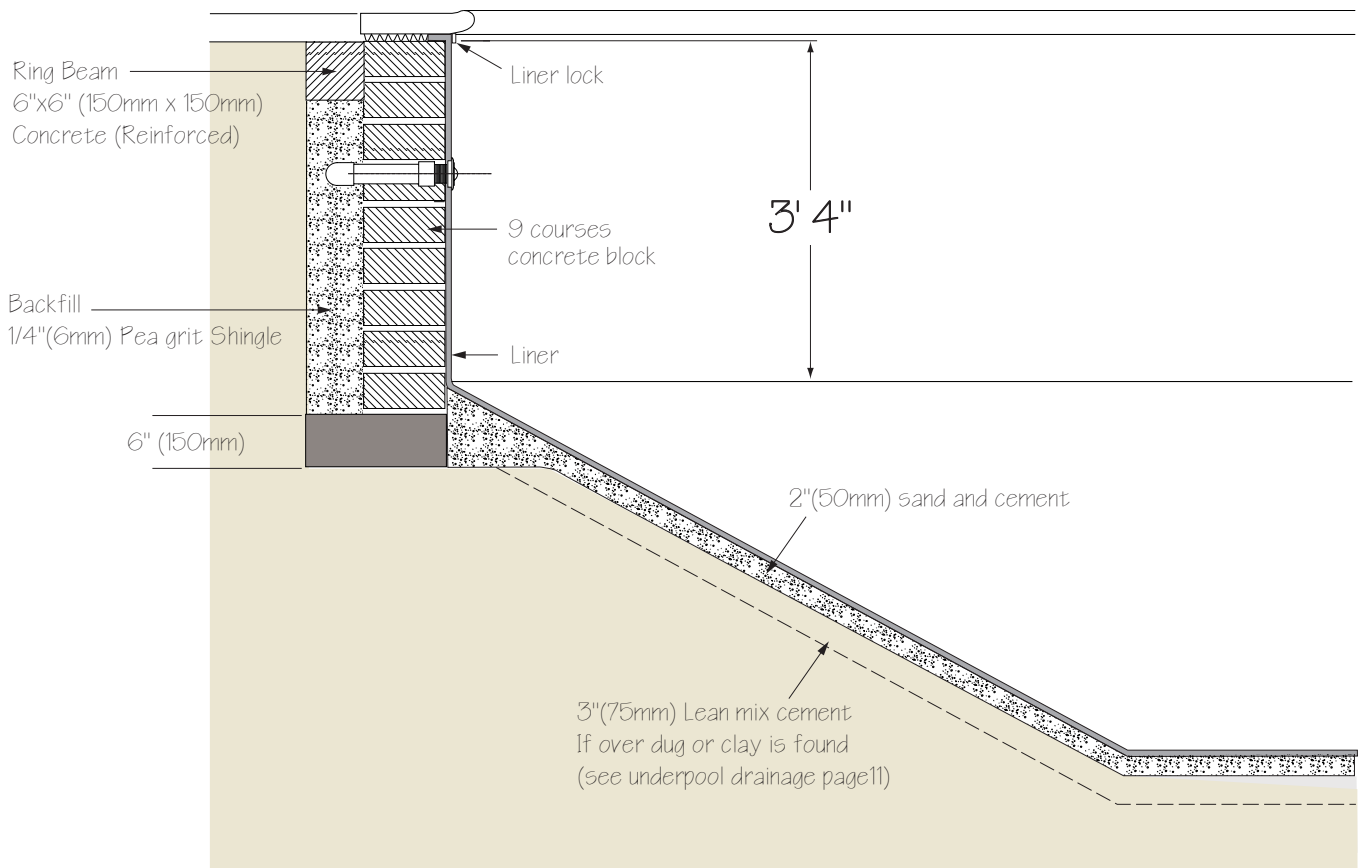
Finished level Top of Pool Copings



USING THE FINISHED DIMENSION STORY POLE



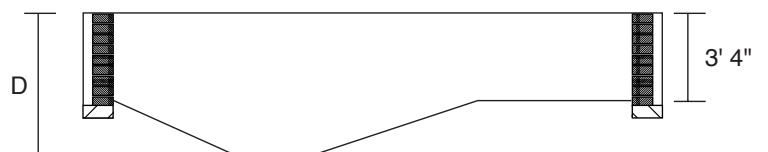
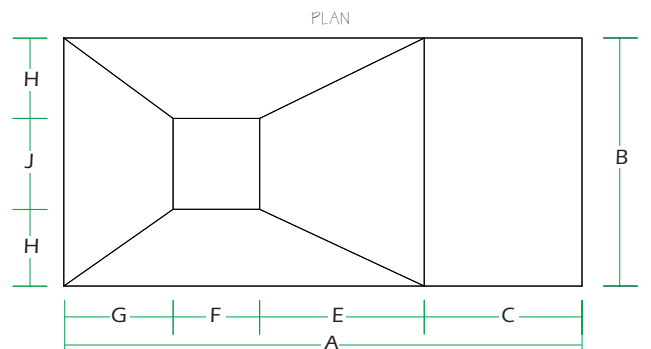
CROSS SECTION



Finished pool dimensions

Pool size	A	B	C	D1	E	F	G	H	J	Diagonals	Gallons
20' x 10'	20'	10'	6'	5'	7'	4'	3'	3'	4'	22'4 1/2"	5,000
24' x 12'	24'	12'	8'	5'3"	7'	4'	5'	4'	4'	26'10"	6,500
28' x 14'	28'	14'	10'	6'0"	9'	4'	5'	5'	4'	31'3 1/2"	9,000
30' x 14'	30'	14'	10'	6'0"	11'	4'	5'	5'	4'	32'11"	10,000
32' x 16'	32'	16'	10'	6'9"	11'	6'	5'	6'	4'	35'9 1/4"	12,500
38' x 16'	38'	16'	12'	7'6"	14'	6'	6'	6'	4'	40'3"	16,500
40' x 20'	40'	20'	12'	7'6"	16'	6'	6'	7'	6'	44'8 3/4"	20,000

Finished dimensions for shallow end hopper

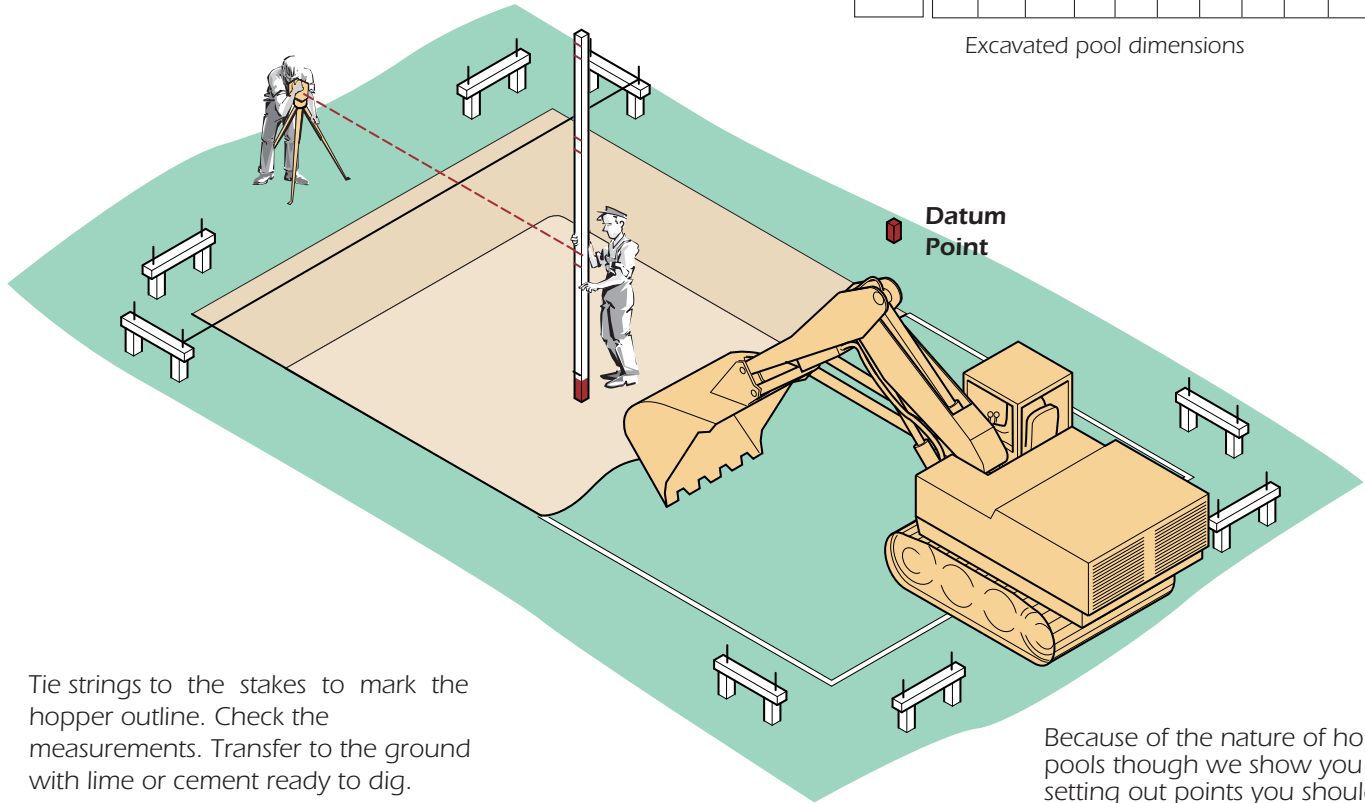


EXCAVATION

You will need a mechanical digger to dig your swimming pool. Access of 8' is required for the digger and the pool can be dug in a day. If access is limited smaller machines are available. If the soil is being retained on site then a dumper truck will be necessary.

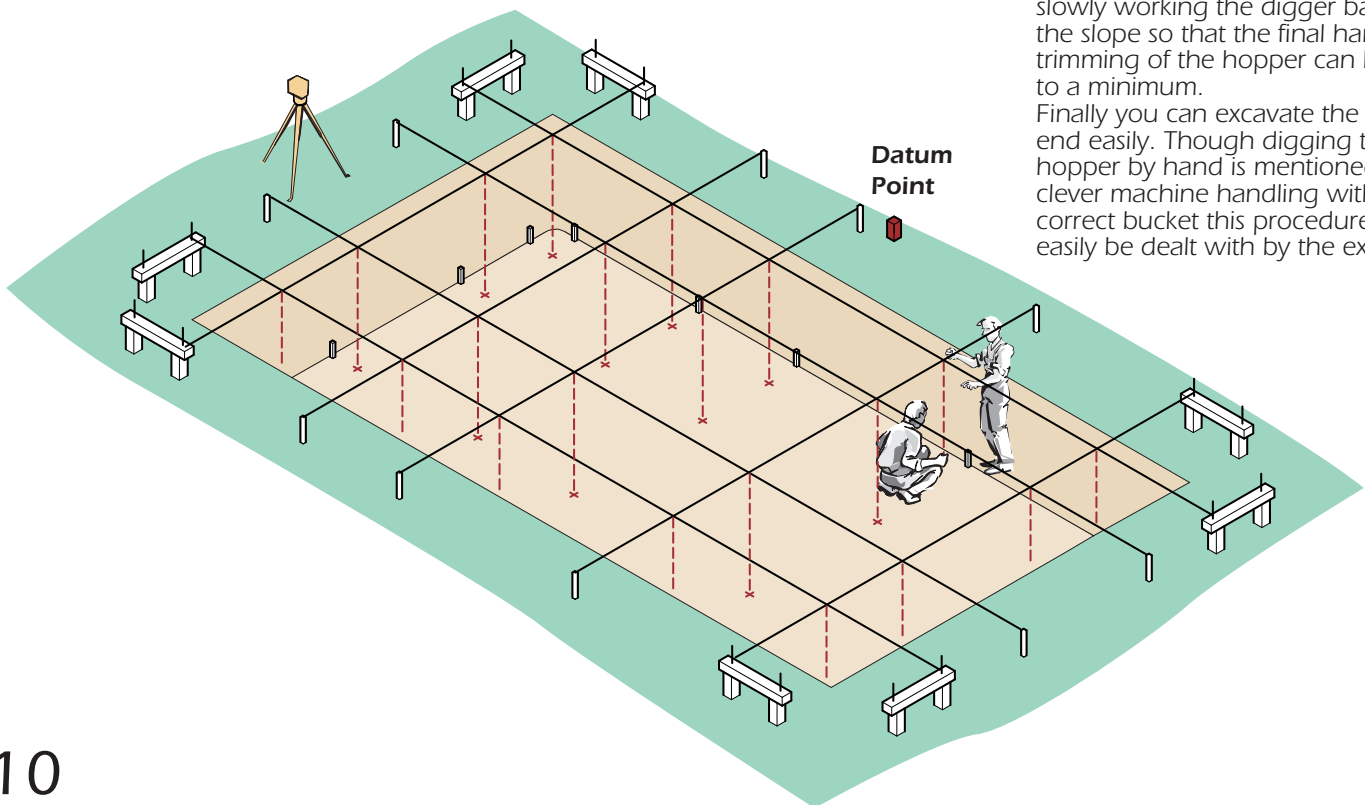
Pool size	Q	R	S	T	V	W	X	Y	Z	Hopper depth D	Diagonals
20' x 10'	12'6"	22'6"	1'3"	3'	4'	3'	4'	7'	6'	5'2"	26'5"
24' x 12'	14'6"	26'6"	1'3"	4'	4'	5'	4'	7'	9'3"	5'5"	30'2½"
28' x 14'	16'6"	30'6"	1'3"	5'	4'	5'	4'	9'	11'3"	6'2"	34'8"
30' x 14'	16'6"	32'6"	1'3"	5'	4'	5'	4'	11'	11'3"	6'2"	36'11"
32' x 16'	18'6"	34'6"	1'3"	6'	4'	5'	6'	11'	11'3"	6'11"	39'1¾"
38' x 16'	18'6"	40'6"	1'3"	6'	4'	6'	6'	14'	13'3"	7'8"	44'6¼"
40' x 20'	22'6"	42'6"	1'3"	7'	6'	6'	6'	16'	13'3"	7'8"	48'1"

Excavated pool dimensions



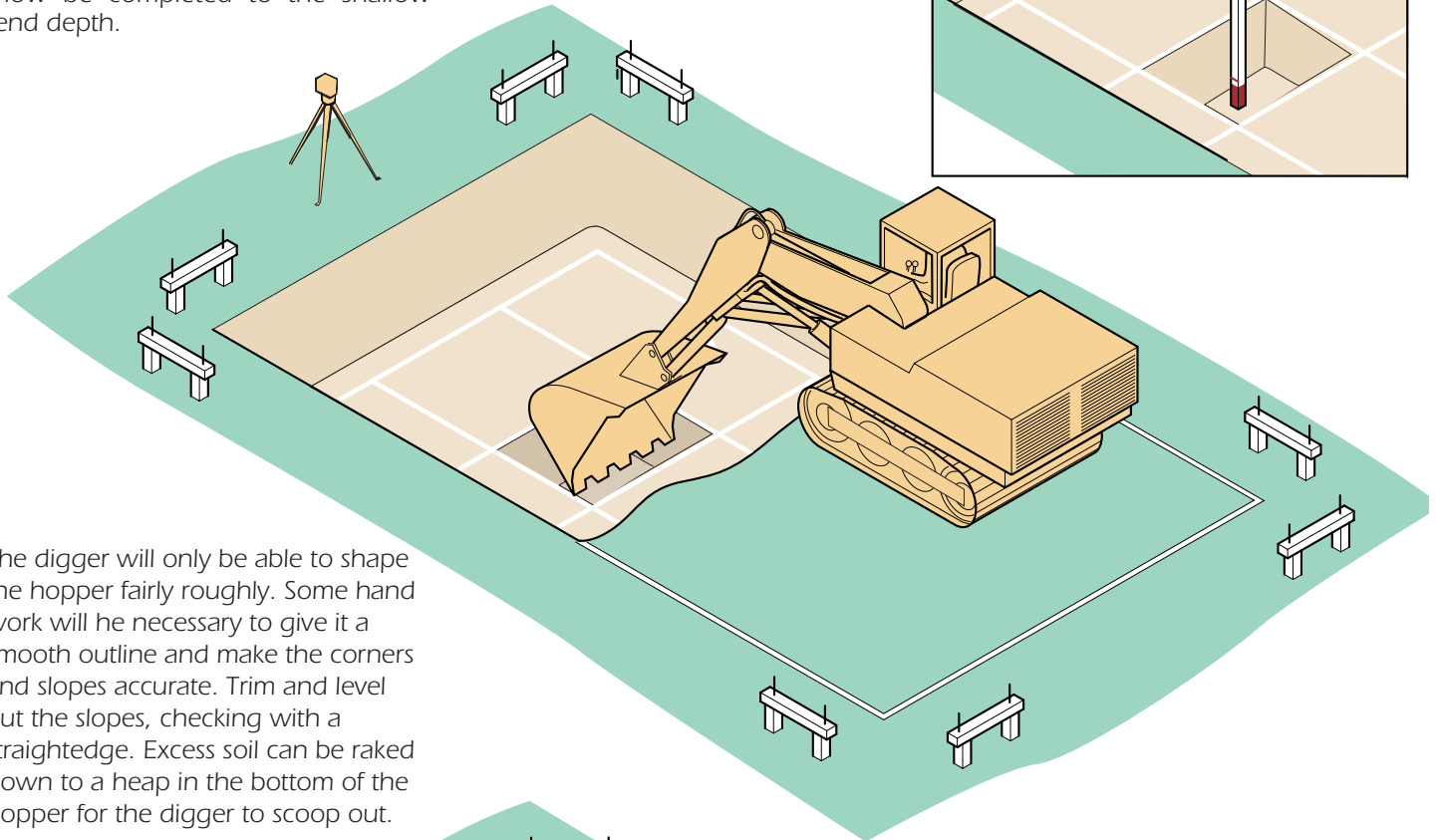
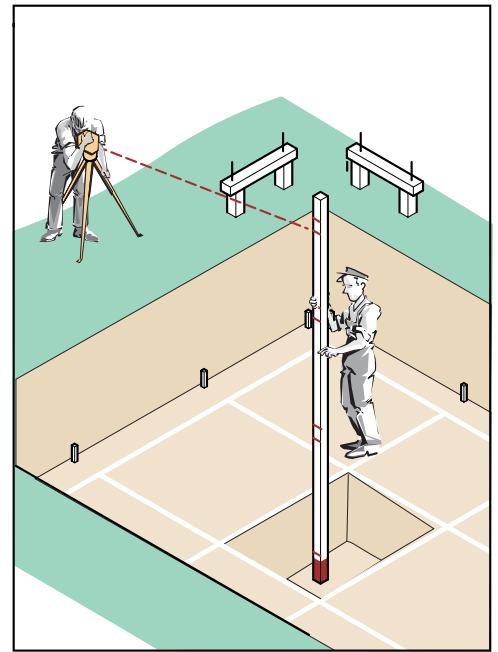
Tie strings to the stakes to mark the hopper outline. Check the measurements. Transfer to the ground with lime or cement ready to dig.

Because of the nature of hopper pools though we show you all of the setting out points you should not dig the shallow end out at this stage. Make a ramp so that the machine can get down the transition slope, continue excavating the hopper slowly working the digger back up the slope so that the final hand trimming of the hopper can be kept to a minimum. Finally you can excavate the shallow end easily. Though digging the hopper by hand is mentioned, with clever machine handling with the correct bucket this procedure can easily be dealt with by the excavator.

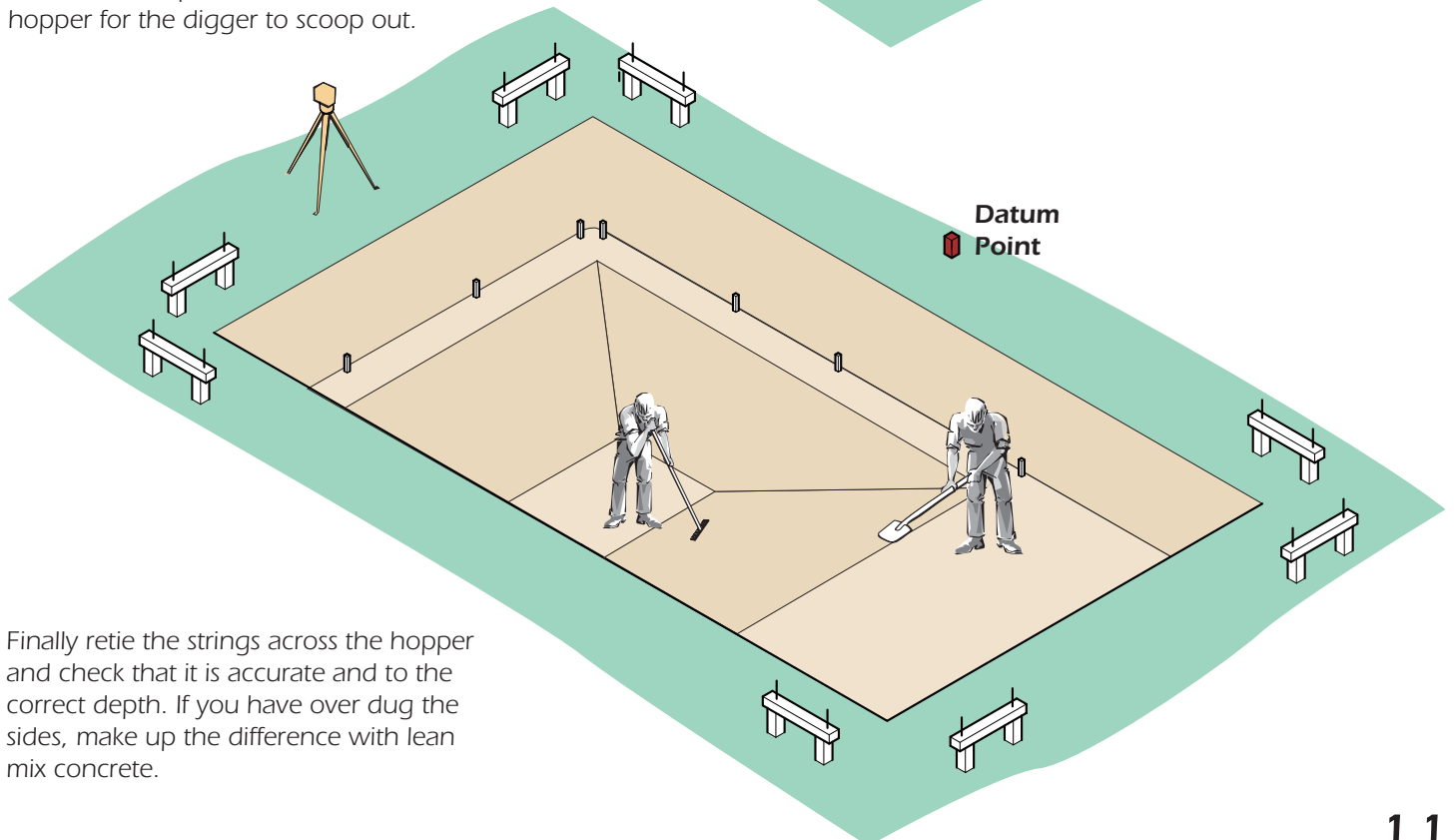


DIGGING THE HOPPER

Excavate working to the shallow end depth from the deep end, approximately half the length of the pool, restring across from the pegs transferring the dimensions for the hopper. The hopper can now be dug to the correct depth using the story pole. The rest rest of the pool can now be completed to the shallow end depth.



The digger will only be able to shape the hopper fairly roughly. Some hand work will be necessary to give it a smooth outline and make the corners and slopes accurate. Trim and level out the slopes, checking with a straightedge. Excess soil can be raked down to a heap in the bottom of the hopper for the digger to scoop out.



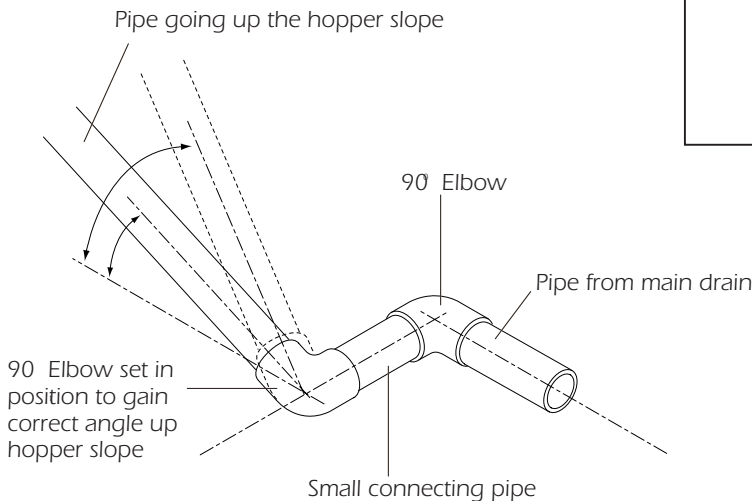
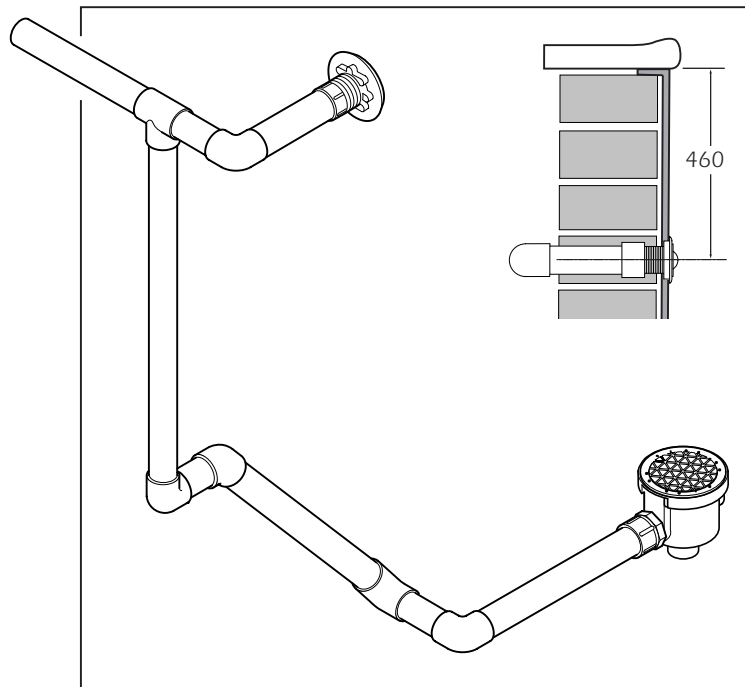
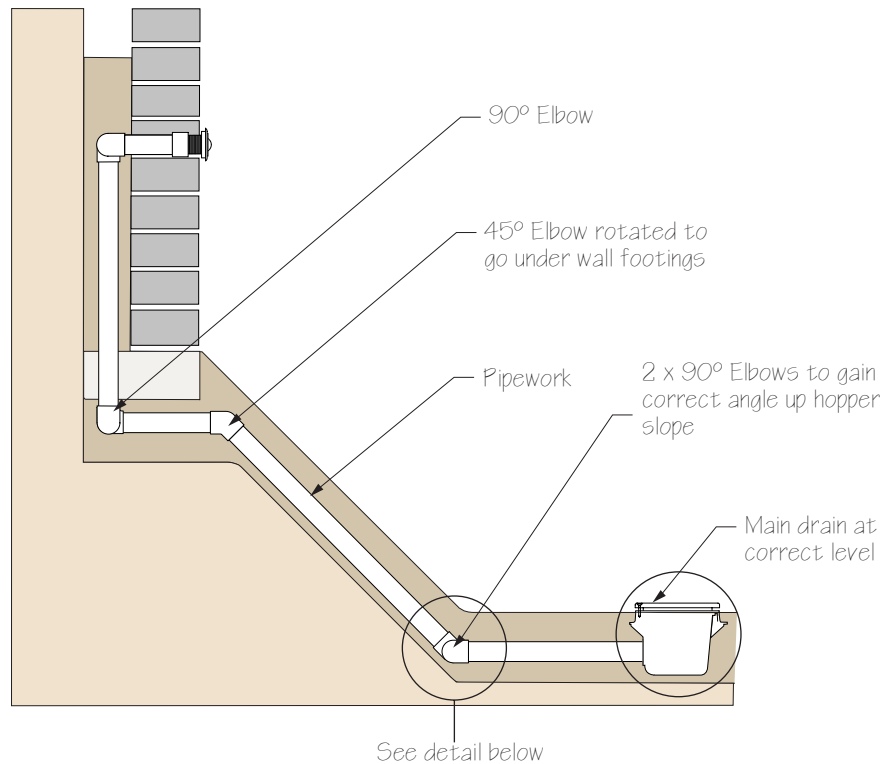
Finally retie the strings across the hopper and check that it is accurate and to the correct depth. If you have over dug the sides, make up the difference with lean mix concrete.

MAIN DRAIN PIPEWORK DETAILS

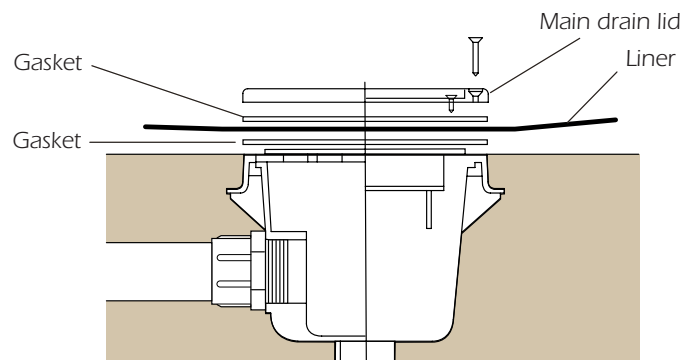
Provision needs to be made for one pipe to run under the foundations which will later be connected to the main suction point in the bottom of the pool, but if you have to deal with ground water then a second pipe will also be necessary. These should be positioned on the side nearest the proposed position of the filter in line with center of the hopper.

MAIN DRAIN SUCTION FITTING INSTALLATION

1. Remove and store the flange plate, grille, gaskets and screws as before for use when the liner is finally installed
2. Cover the top of the main drain with hard board and tape to prevent debris entering screw holes or the body of main drain.
3. Position the main drain fitting to allow the rim of the face plate to stand a fraction proud of the finished floor.
4. The suction pipe should be extended vertically behind the back of the wall.
5. Seal the open end of the suction pipe carefully to stop debris entering.
6. Newspaper should be crumpled up and be placed in the main drain body to prevent rubbish entering the pipework.
7. Carefully place concrete around the main drain fitting to retained position.
8. Backfill the pipe trenches with a dry lean concrete mix to prevent movement.
9. It is now recommended that you have 2 SUCTION POINTS for a swimming pool. We are now supplying kits with 1 Main Drain and a Low Suction Point.



METHOD FOR THE CORRECT ANGLE OF PIPE FOLLOWING THE HOPPER SLOPE



MAIN DRAIN DETAILS

UNDER POOL WATER

UNDER POOL DRAINING

If the soil is chalk, gravel, sand or shale you will not need to lay drainage as the soil will allow water to drain free. If your soil is clay, then drainage will have to be considered to prevent water building up beneath the liner.

The areas where water is entering the pool or the whole pool area will have to be over dug to a minimum of 6"(150mm) to allow for 3"(75mm) clean gravel and eventually 3"(75mm) lean mix concrete, this is to allow for free drainage down to the catchment sump.

The lowest point of the excavation will need to have 18" (450mm) deep drainage sump dug out. A polythene sheet should then be laid over the base of the hole and concrete blocks placed around the perimeter of the sump to prevent the sides collapsing. At this point it is advisable that before the foundations are laid the main drain is fitted.

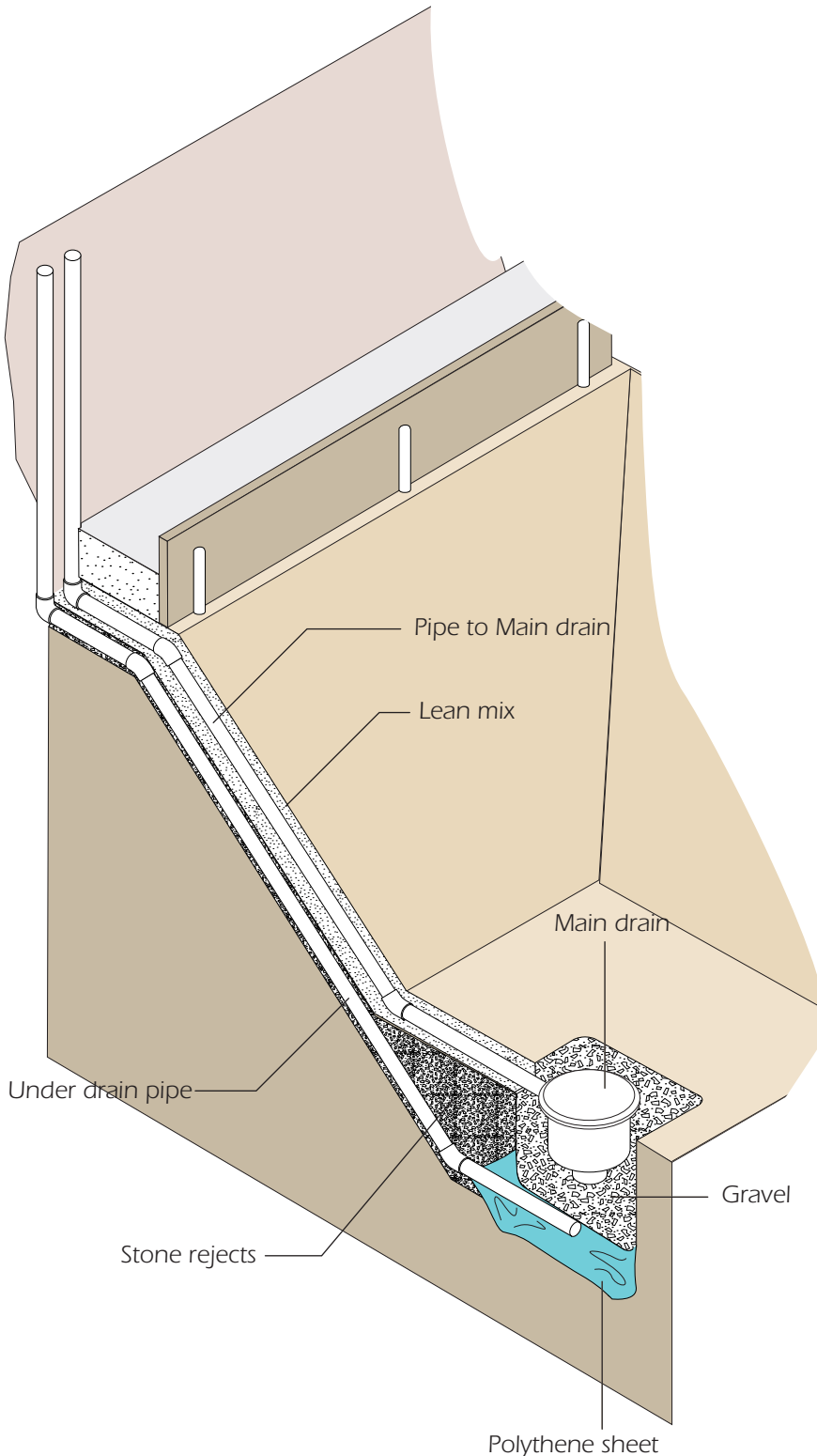
From the center of the sump run a 1.5" pipe up the sloping sides of the excavation. A collection tube, (a perforated section of pipe) should be fitted to the sump end of this pipe and the pit filled with clean gravel minimum size 2"(50mm) to prevent clogging of the drainage pipe.

Extend the pipe from the sump under the pool wall foundations and extend it vertically upwards behind the pool wall.

The pipe can be used during the construction to remove any ground water build up by using an electric diaphragm pump (this can be hired). Don't forget to pump any water well away from the site in order to prevent it reappearing in the excavation.

When the pool is completed the pipe can be enclosed in a small chamber, complete with access cover, and the pipe fitted with a temporary plug. This will mean the water from beneath the pool can be pumped out if the pool is drained or the liner replaced.

If the pool has continuous water, it is advisable that you totally drain the site to a lower level. **(Refer to page 41 for drainage details)**

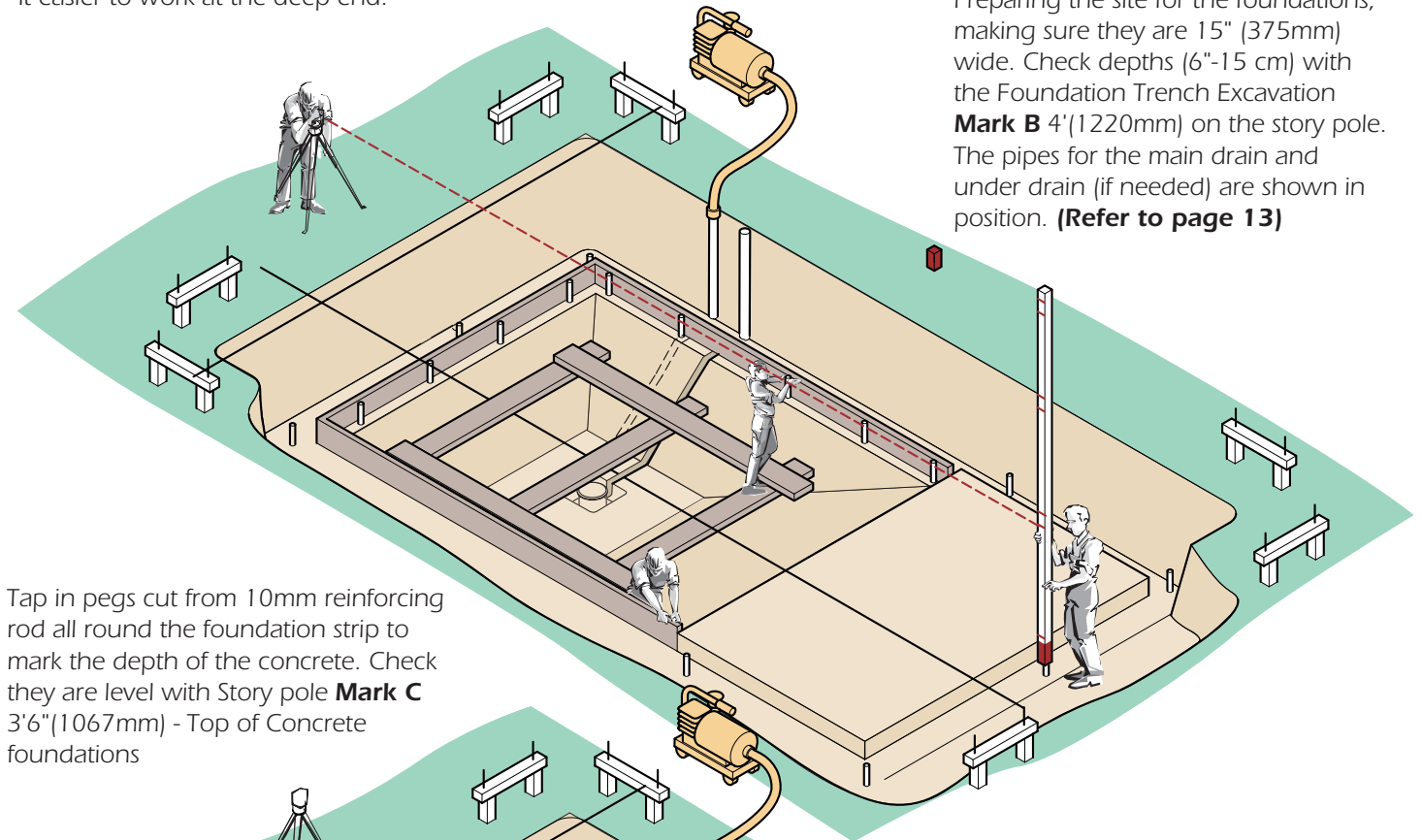


WALL FOUNDATIONS

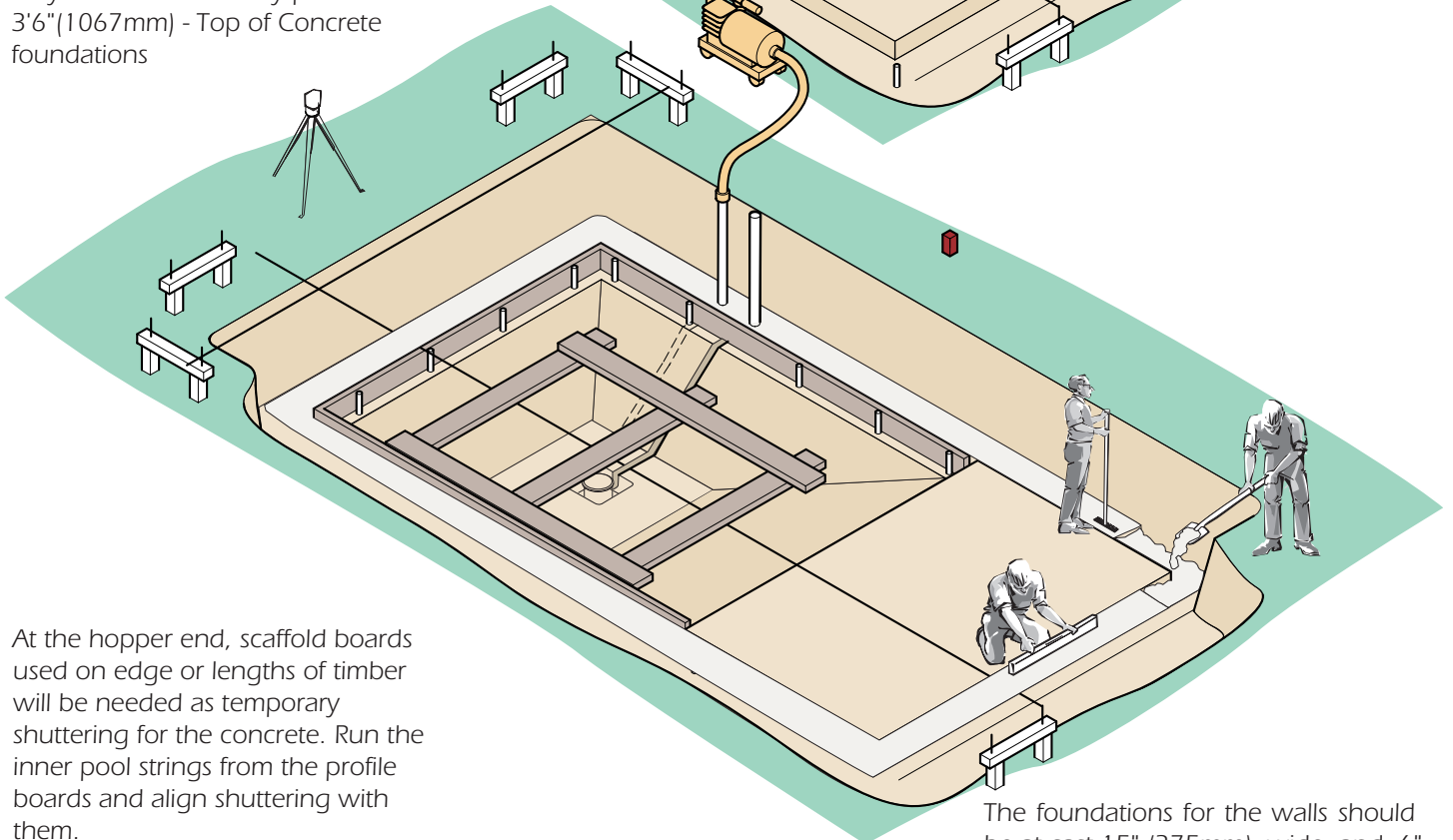
The wall foundations can be dug by hand or the digger. Check the depth with the foundation Trench Excavation depth mark on the Story pole - **Mark B** 4'(1220mm).

You will then need temporary shuttering to form an edge round the hopper. Use scaffolding boards on their sides or lengths of timber. Set up a platform of scaffold boards to make it easier to work at the deep end.

Preparing the site for the foundations, making sure they are 15" (375mm) wide. Check depths (6"-15 cm) with the Foundation Trench Excavation **Mark B** 4'(1220mm) on the story pole. The pipes for the main drain and under drain (if needed) are shown in position. **(Refer to page 13)**



Tap in pegs cut from 10mm reinforcing rod all round the foundation strip to mark the depth of the concrete. Check they are level with Story pole **Mark C** 3'6"(1067mm) - Top of Concrete foundations



At the hopper end, scaffold boards used on edge or lengths of timber will be needed as temporary shuttering for the concrete. Run the inner pool strings from the profile boards and align shuttering with them.

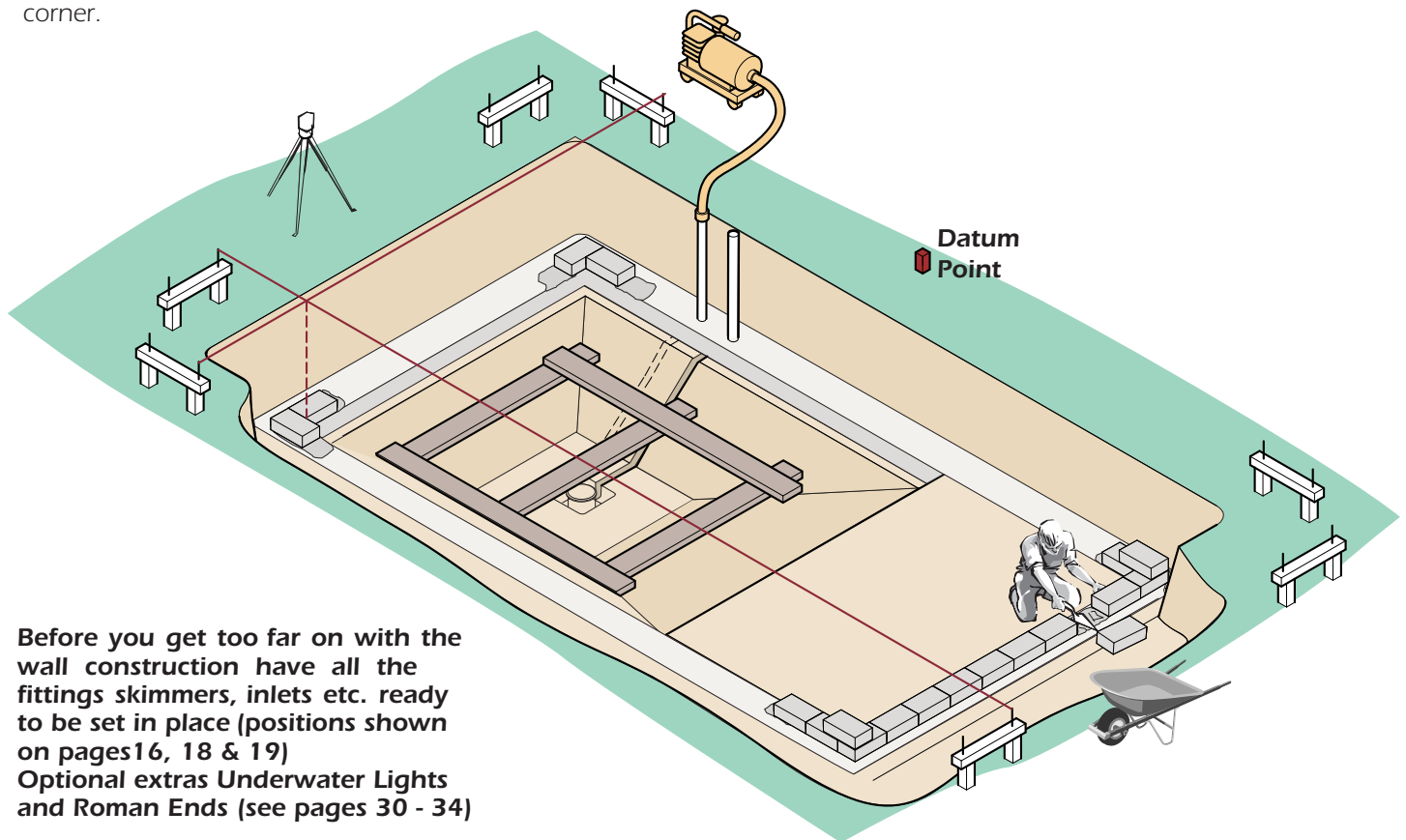
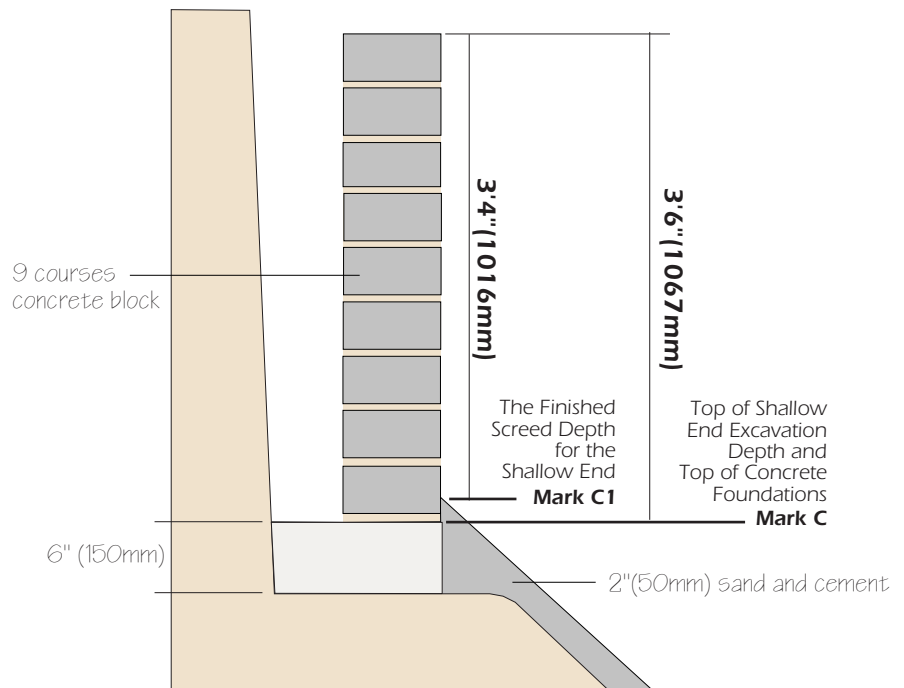
The foundations for the walls should be cast 15" (375mm) wide and 6" (150mm) deep.

BUILDING THE POOL WALLS

Pool walls are built with 100mm thick solid concrete blocks laid on their sides with 17 mm mortar joints, The walls are set back 1/2" (12 mm) from the edge of the foundation strip to allow for the wall rendering.

The first step is to setup building lines so that your walls will be straight and accurate. To do this you need to tie the strings between the profile boards to mark the inner pool dimensions. Check again that they are accurate.

So that the corners can be accurately marked on the foundation strip, roughly spread a thin layer of mortar at each corner. Then find where the strings cross and measure down from this point with a spirit level or plumb bob. Mark this point on the mortar with a trowel. To allow for the wall screed, set this mark back 1/2" (12 mm) use a trowel and straightedge to draw a line for the first two blocks at each corner.



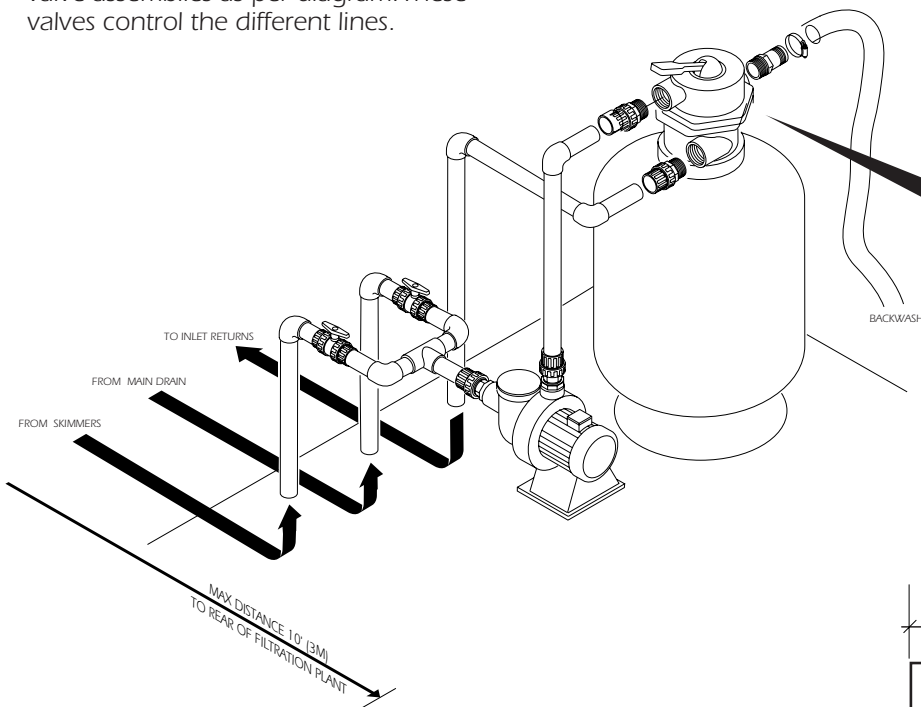
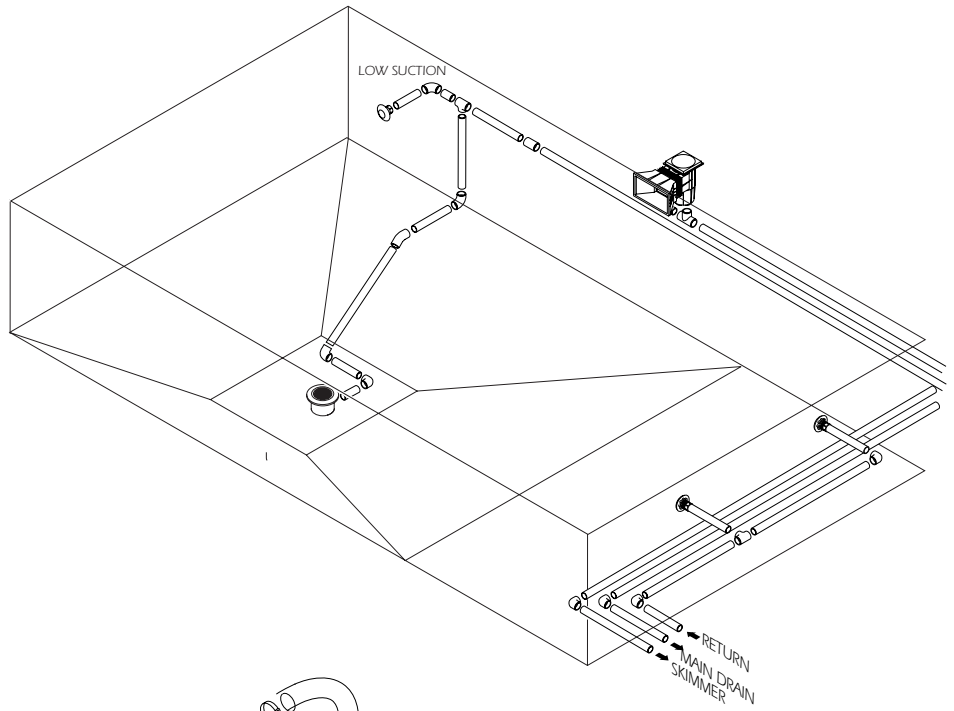
Set the corner blocks in place and then use them to set the building lines for each wall. Pull tight and check accuracy against the profile strings (with a spirit level plumb bob) - remember the walls should be 1/2" (12 mm) back from the finished pool dimensions to allow for thickness of the wall rendering.

FITTINGS

Plumbing

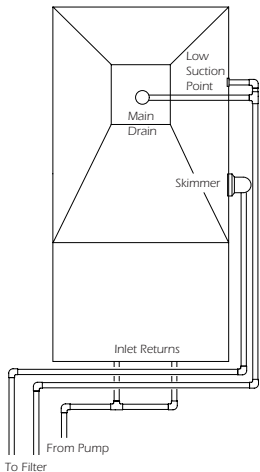
Each poolkit includes a pump and sand filter capable of filtering the entire contents of the pool in 8 hours or less. Sufficient pipe work and fittings are included in the kit to position the filter within 3m (10') of the pool and on the same level as the pool surround.

The plumbing round the pool shell terminates in three separate pipes. One return pipe to the inlet fitting, one suction pipe from the main drain, and one from the skimmer, these suction pipes are connected to the pump with valve assemblies as per diagram. These valves control the different lines.

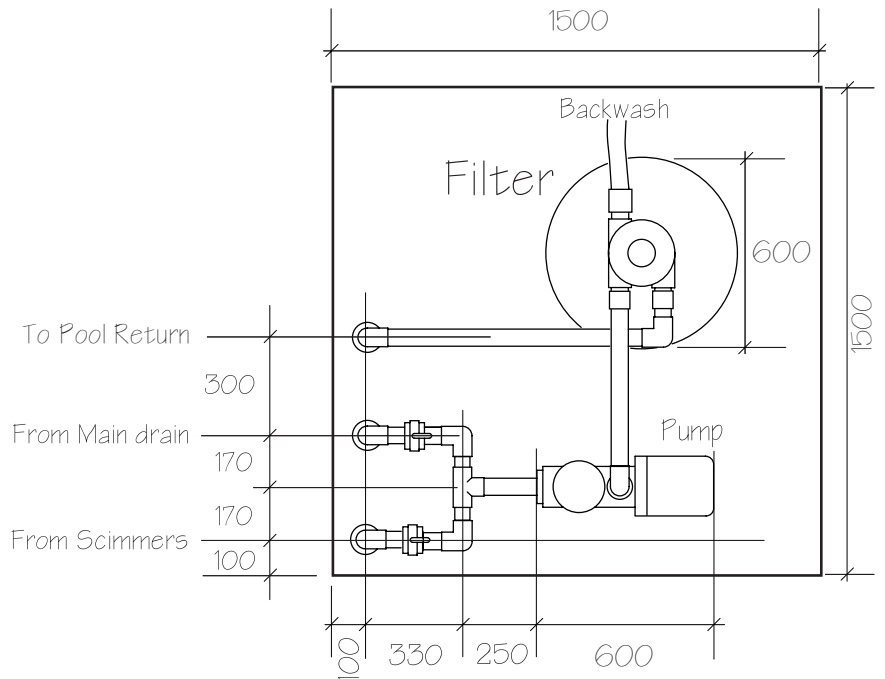
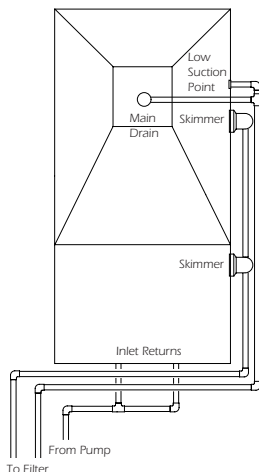


WHEN PLUMBING THE MULTI PORT YOU WILL FIND EACH PORT MARKED **PUMP - RETURN - WASTE**
Please plumb up correctly to pool or heater

Layout for pool sizes 24x12 28x14 30x14



Layout for pool sizes 32x16 38x16 40x20



POOL FILTRATION

Principal of operation

Pool water is drawn from the surface skimmer and the main drain assembly to the circulating pump. Large debris is trapped by the basket in the skimmer body and the strainer basket in the pump priming chamber, before the water enters the top of the filter tank via the multi port valve. The water then passes through the sand media leaving smaller debris as it travels through. The under drain collector tubes have holes that allow water to escape, but these are not large enough for sand. The filtered water then flows back through the multi port valve and reenters the pool through the return inlet fittings.

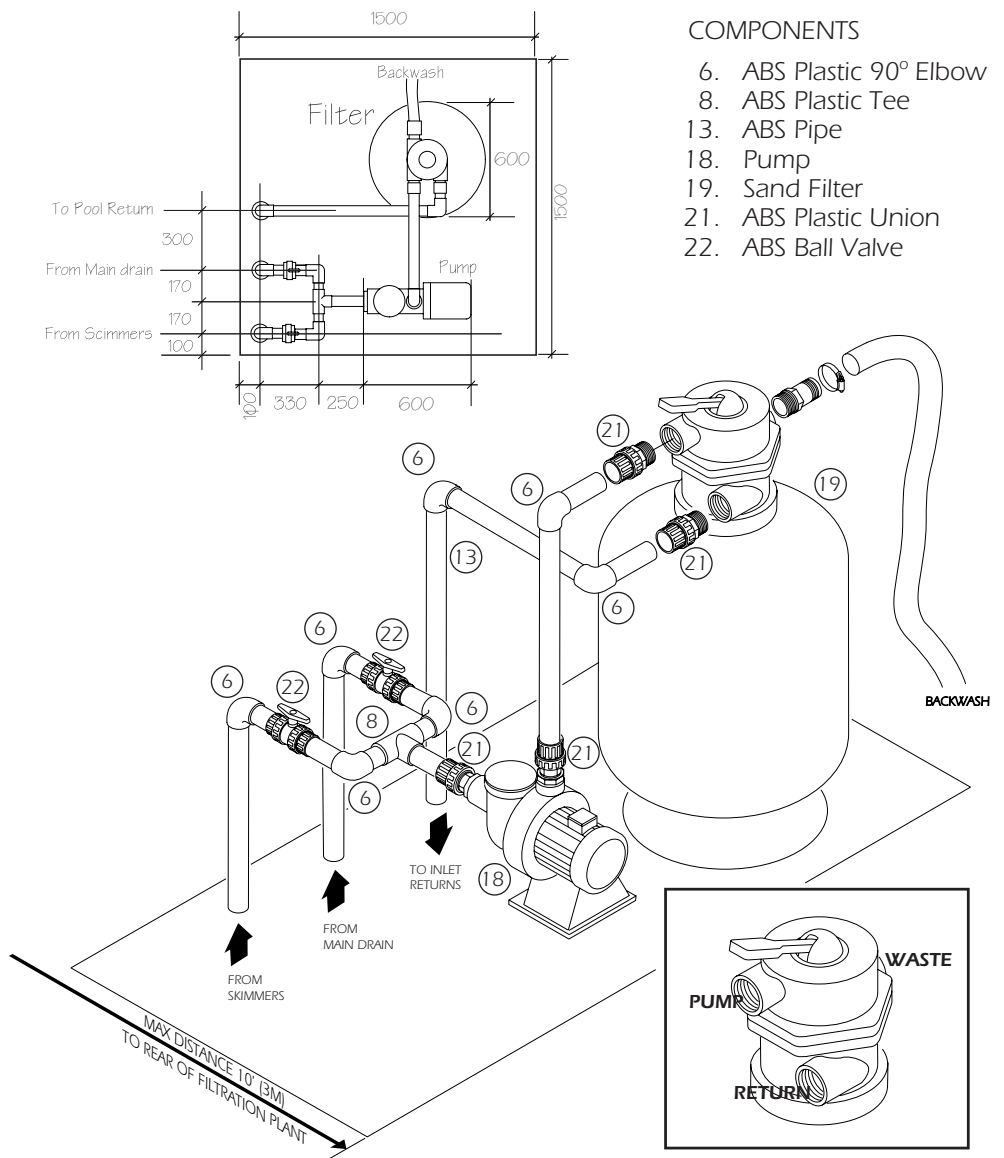
Eventually there will be a reduction in flow and increase in the pressure gauge reading, due to debris accumulating in the filter. The sand must then be back washed by reversing the water flow and sending the water to waste.

Filtration Plant

The pressure sand filtration system is designed to give a filtration turnover of 8 hours or less and consists of a circulating pump, filter tank and multi port valve.

The filtration plant must have a slab cast 1:2:4 concrete (Approx size 1.5m x 1.5m). This concrete slab must be at the same level as the top of the pool (see drawing on page 38). If the concrete base is placed below pool level you must consider drainage requirements and the possibility of water in the main drain pipe freezing.

Heating requirements will also determine the size of the plant house as well as the layout. If oil or gas are to be used as fuel then flues and fresh air vents must be considered and the plant house suitably arranged. Seek advice from your supplier Don't forget to make the door to the plant house wide enough! This will mean equipment can be removed easily at a later date if required, without dismantling, and allow yourself enough room to carry out routine maintenance and general cleaning and servicing. This also means enough headroom!



COMPONENTS

6. ABS Plastic 90° Elbow
8. ABS Plastic Tee
13. ABS Pipe
18. Pump
19. Sand Filter
21. ABS Plastic Union
22. ABS Ball Valve

1. Position the pump and filter tank. Lightly grease the 'O' ring with petroleum jelly and, making sure all debris is removed, fit the multi port valve assembly by screwing it home.
 2. Using the two plastic ball valves provided connect one to the main drain line and one to the skimmer line. Connect these two lines together with a tee piece, then, into the front of the pump on the suction side (this is called the duel valve assembly).
 3. The valves allow flow adjustment as well as isolation of the skimmer and main drain.
 4. Extend a 1/2" pipe from the delivery connection on top of the pump and plumb this into the pump connection on the multi port valve. Make sure a socket union is incorporated.
 5. Extend the return line back to the pool and connect to the return line on the multi port valve. Again make sure a socket union is incorporated.
 6. Extend the backwash hose from the 'waste' connection on the multi port valve to a suitable discharge point.
- Note: The socket unions which are fitted facilitate easy removal of a piece of equipment for maintenance or replacement.**

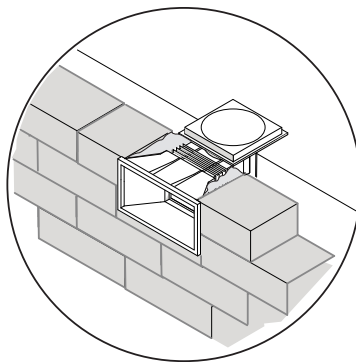
7. When the filter tank is located in its final position the sand media can be introduced.
8. Undo all the socket unions surrounding the multi port valve.
9. Unscrew the valve and put to one side.
10. Check the 8 under drain collector tubes at the bottom of the tank for tightness and pour water into the tank until the tubes are covered to a minimum depth of 225mm (9"). This prevents damage to the tubes when the sand is added.
11. Pour the sand into the tank. Make sure that the vertical center pipe is held in place with the correct amount of sand.
12. Fill the tank two thirds full with sand and level off by hand.
13. Wash any sand off the multi port valve screw threads and off the tank valve opening.
14. Lubricate the O'ring with petroleum jelly.
15. Carefully replace the multi port valve and its pipe work. Tighten by hand only
16. Having made sure all the pipe work lines up, reconnect the socket unions.

FINISHING THE POOL WALLS

Before the walls get too far, have the fittings -skimmer(s) and inlets ready to be set in place.

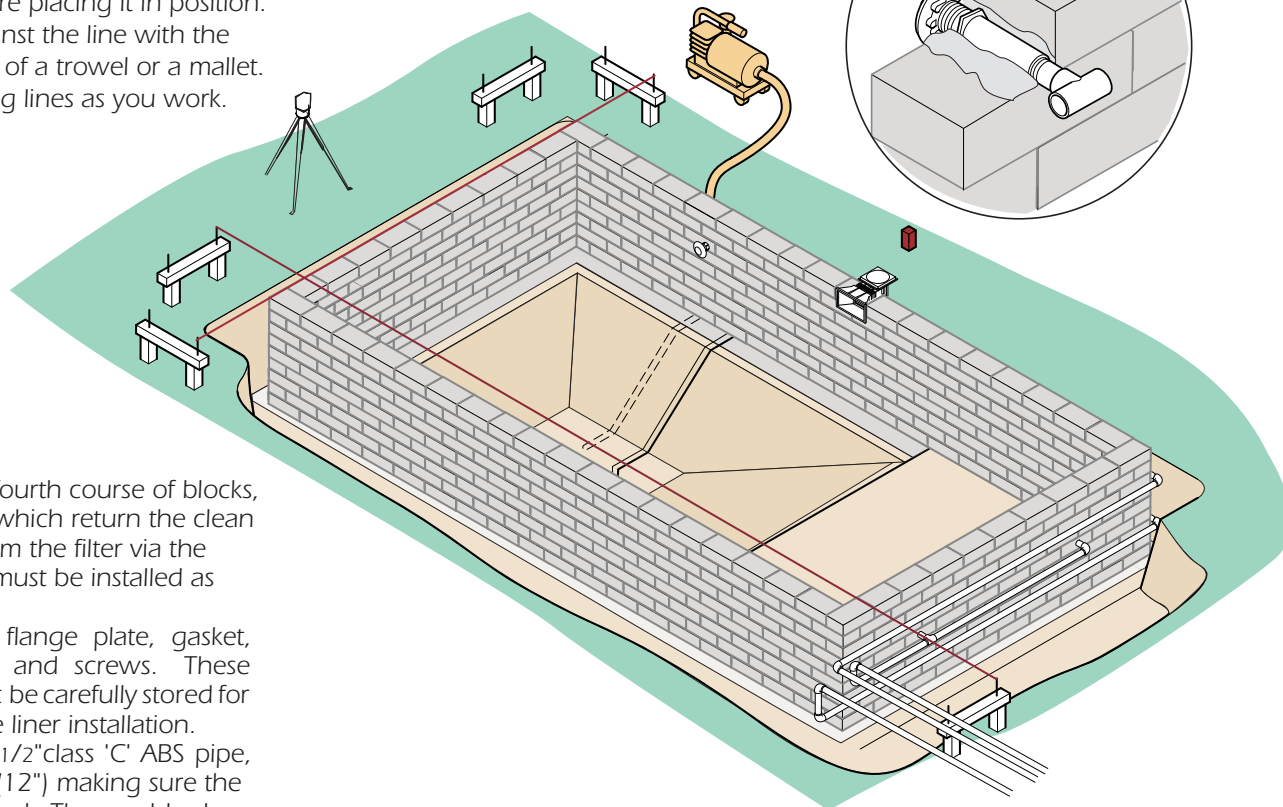
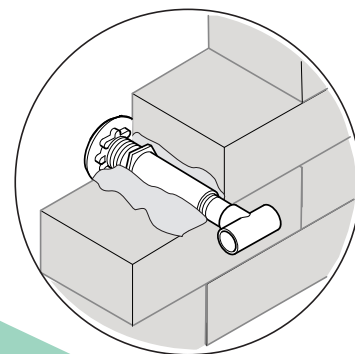
Their positions are shown on page 16.

Lay the blocks course by course, troweling a wedge of mortar on each block edge before placing it in position. Tap it firmly against the line with the wooden handle of a trowel or a mallet. Raise the building lines as you work.



Check alignment continually with a spirit level —horizontally and vertically.

Finally check all round the wall with the Story pole and Cowley Level to the Top of Pool Wall mark.



Return Inlets

Having laid the fourth course of blocks, the inlet fittings which return the clean filtered water from the filter via the heater (if fitted) must be installed as follows.

a Remove the flange plate, gasket, eyeball housing and screws. These items again must be carefully stored for fitting during the liner installation.

b Taking the 1 1/2" class 'C' ABS pipe, saw off 300mm (12") making sure the cut is at a right angle. Thoroughly clean up the pipe end making sure all burrs are removed.

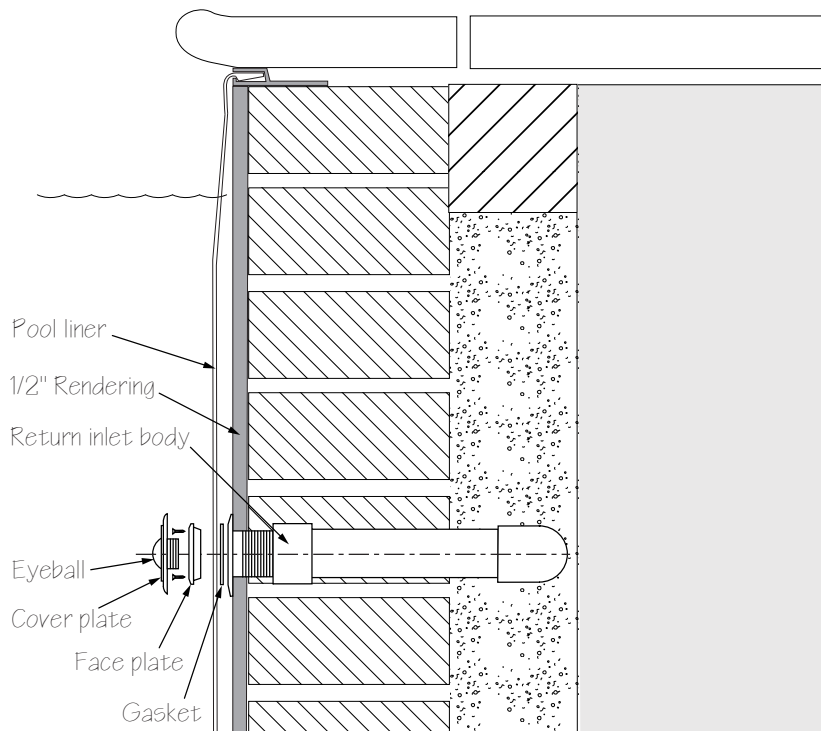
c To both the pipe end and the inside of a 1 1/2" socket nipple apply a thin even coat of solvent adhesive.

Immediately push the pipe and socket nipple together, twisting to ensure a watertight fit (note: this is done whilst the adhesive is wet). Hold the joint together for 30 seconds to avoid it springing apart. It will take approx. 4 hours for the joint to cure. Follow the procedure for all solvent welded joints.

d Wrap the threads of the socket nipple with PTFE tape and silicon provided. It is essential that there are no bare threads and that the tape is evenly wrapped. Again this procedure must be followed when all threaded joints on components are made, to ensure a watertight fit.

e Carefully screw the socket nipple into the inlet fitting

f Cement the whole assembly into position in the wall, making sure the chamfered front plate stands 12.5mm (1/2") proud of the wall to allow for the rendering.



SURFACE SKIMMER

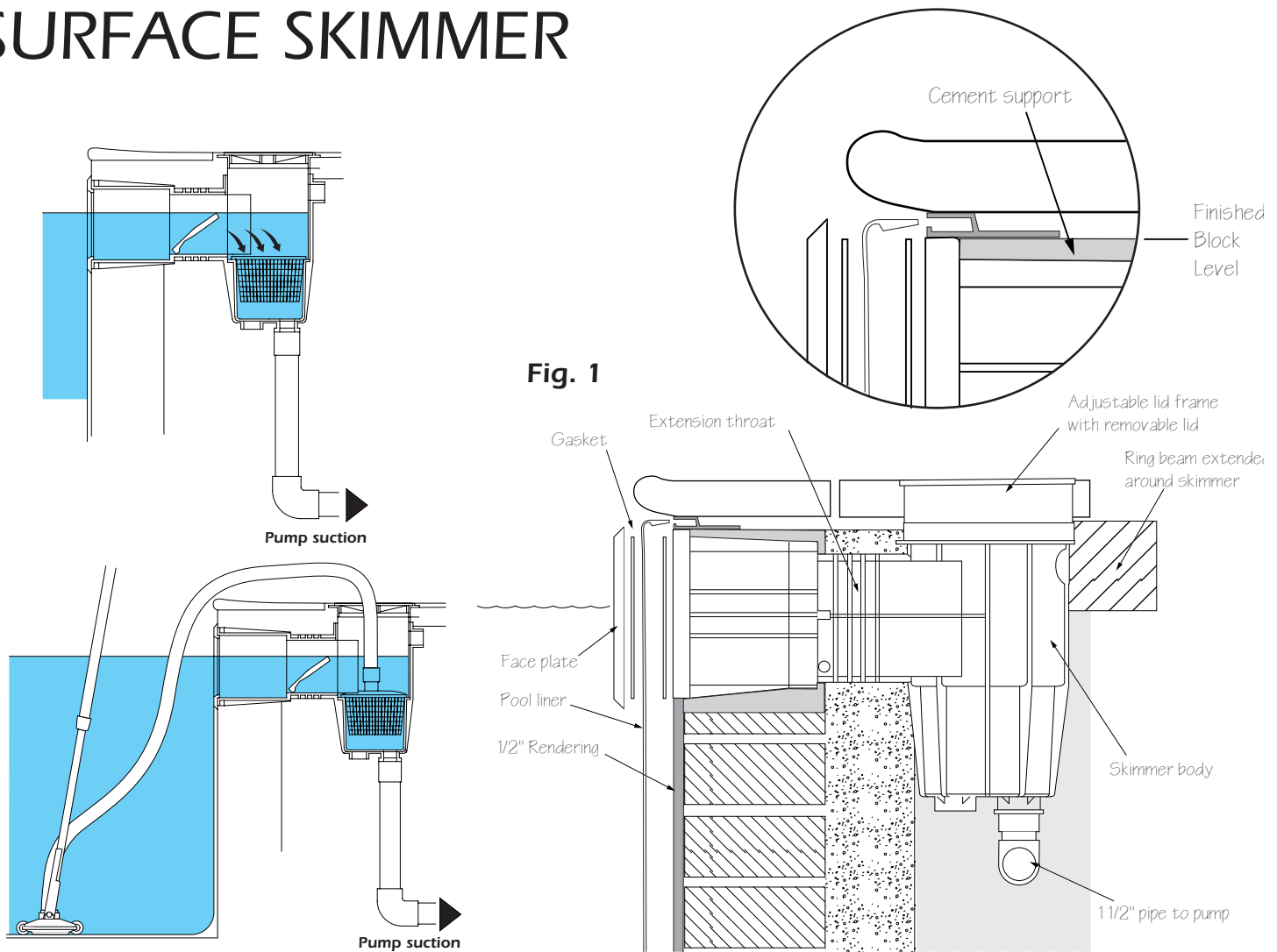


Fig. 1

The surface skimmer has a dual role. Not only does it remove floating debris, oil based contaminants and insects from the water surface, after removing the collar weir assembly, the suction cleaner hose whether manual or automatic can be connected and used to vacuum the bottom of the pool. In most pools one skimmer is adequate but if the pool is installed in a location where it will be susceptible to large amounts of wind borne debris, two may be needed, as may possibly be the case when installing large pools.

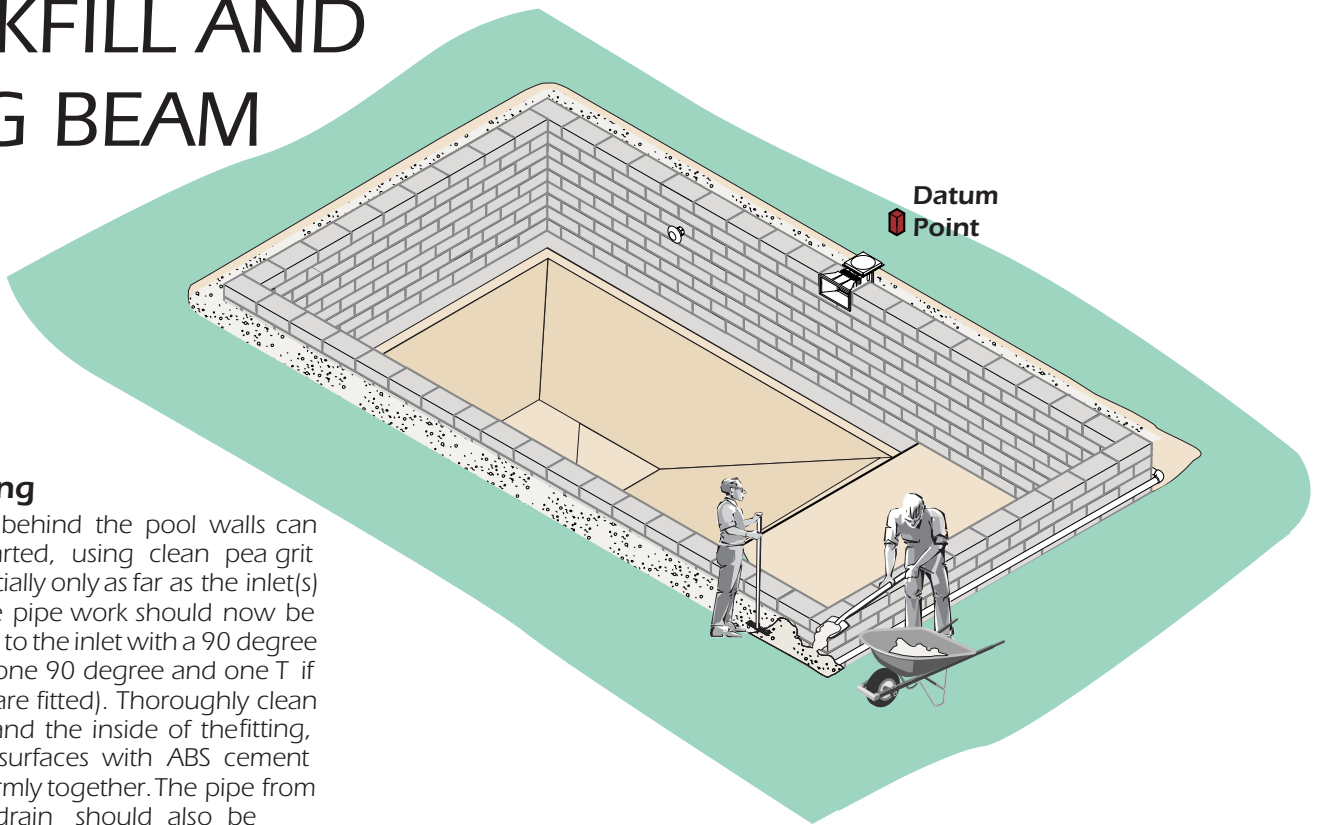
Always remember to consider the prevailing wind direction when siting the skimmer(s). It is preferable for the debris etc.. to be blown towards the skimmer to ease its removal.

Obviously if the skimmer is to be used as the vacuuming point it should be located centrally in one of the longer sides of the pool. There is a case for installing a second skimmer if the wind blown debris is found to always arrive at the short end of the pool. Ask your supplier for advice about skimmers if you are unsure about the number to use or their location.

- a.** The skimmer itself comes as one unit ready for installation
- b.** Again remove and store the flange plate, gasket, cover plate and screws, plus the collar weir and basket assembly until the liner is installed.
- c.** The bottom of the skimmer body has two 1 1/2" threaded outlets. Plug one of these off and fit a P/T nipple to the other in order to receive the suction pipeline back to the filter.
- d.** Install the skimmer 25mm (1") down from the top of the pool wall on the seventh course of blocks (As shown in Fig1 above). Make sure it is laid on a bed of cement with the front plate of the throat projecting 12.5mm (1/2in) from the wall to again allow for the thickness of the rendering
- e.** Carefully level and securely cement the fitting into position (please note: it is advisable to support the main body behind the wall as well as placing a concrete block over the top of the throat to help keep the fitting in position whilst the cement hardens).

- f.** Newspaper should be inserted into the main skimmer body to prevent general debris from entering the pipeline while work is in progress.
- h.** Take care to protect the skimmer body during backfilling, adequately supporting it to prevent movement which would damage the skimmer and its connections. Concrete backfilling should be used around the skimmer body.

BACKFILL AND RING BEAM

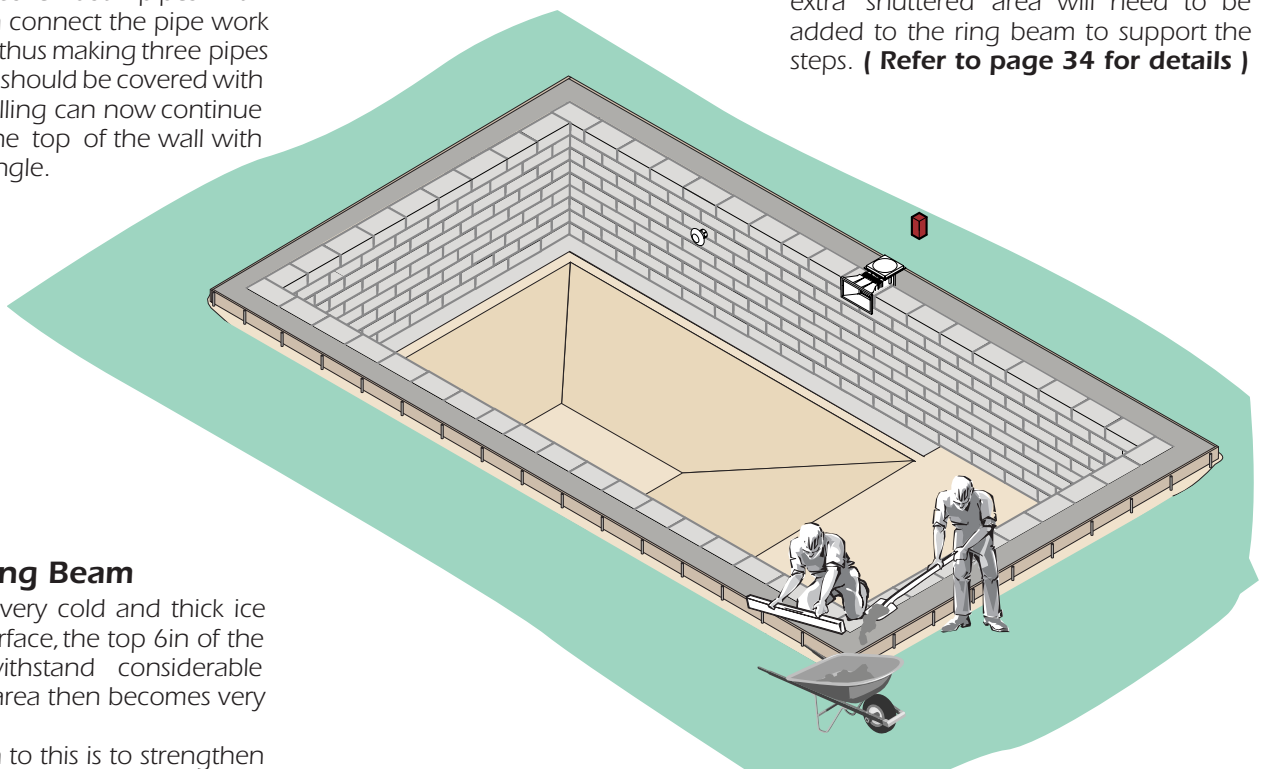


Backfilling

Backfilling behind the pool walls can now be started, using clean pea grit shingle, initially only as far as the inlet(s) fitting. The pipe work should now be connected to the inlet with a 90 degree elbow (or one 90 degree and one T if two inlets are fitted). Thoroughly clean the pipe, and the inside of the fitting, coat both surfaces with ABS cement and push firmly together. The pipe from the main drain should also be connected and this pipe laid side by side but not touching the inlet line. Surround and cover both pipes with sand, and then connect the pipe work to the skimmer, thus making three pipes together which should be covered with sand. The backfilling can now continue until 6" from the top of the wall with the pea grit shingle.

Note: Pool Steps

If you are fitting stainless steel steps an extra shuttered area will need to be added to the ring beam to support the steps. (Refer to page 34 for details)



Concrete Ring Beam

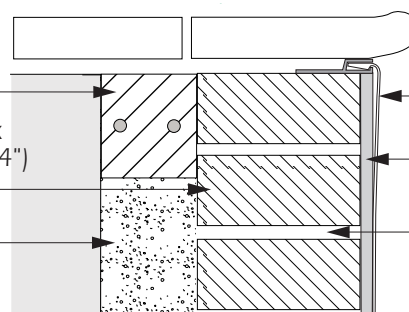
If the winter is very cold and thick ice forms on the surface, the top 6in of the pool has to withstand considerable pressure. This area then becomes very vulnerable.

1. The solution to this is to strengthen this 'vulnerable area' with a concrete ring beam 150mm x 150mm (6 x 6") reinforced with two 12.5mm (1/2") diameter reinforcing rods.
2. The beam must be cast in 1:2:4 concrete mix behind the top of the perimeter walls, extending around the skimmer body.
3. Shuttering made of scaffolding boards or similar size planks, held in place by concrete blocks or pegs should be used whilst casting the beam.

Concrete ring beam
150mm x 150mm
(6" x 6")
reinforced
with steel rods

450mm x 225mm x
100mm (18" x 9" x 4")
concrete blocks

Pea shingle
backfilling



Liner

1/2" rendering
4 : 1 mix
(sand : cement)

Mortar mix 4 : 1
(sand : cement)

RENDERING THE POOL WALLS

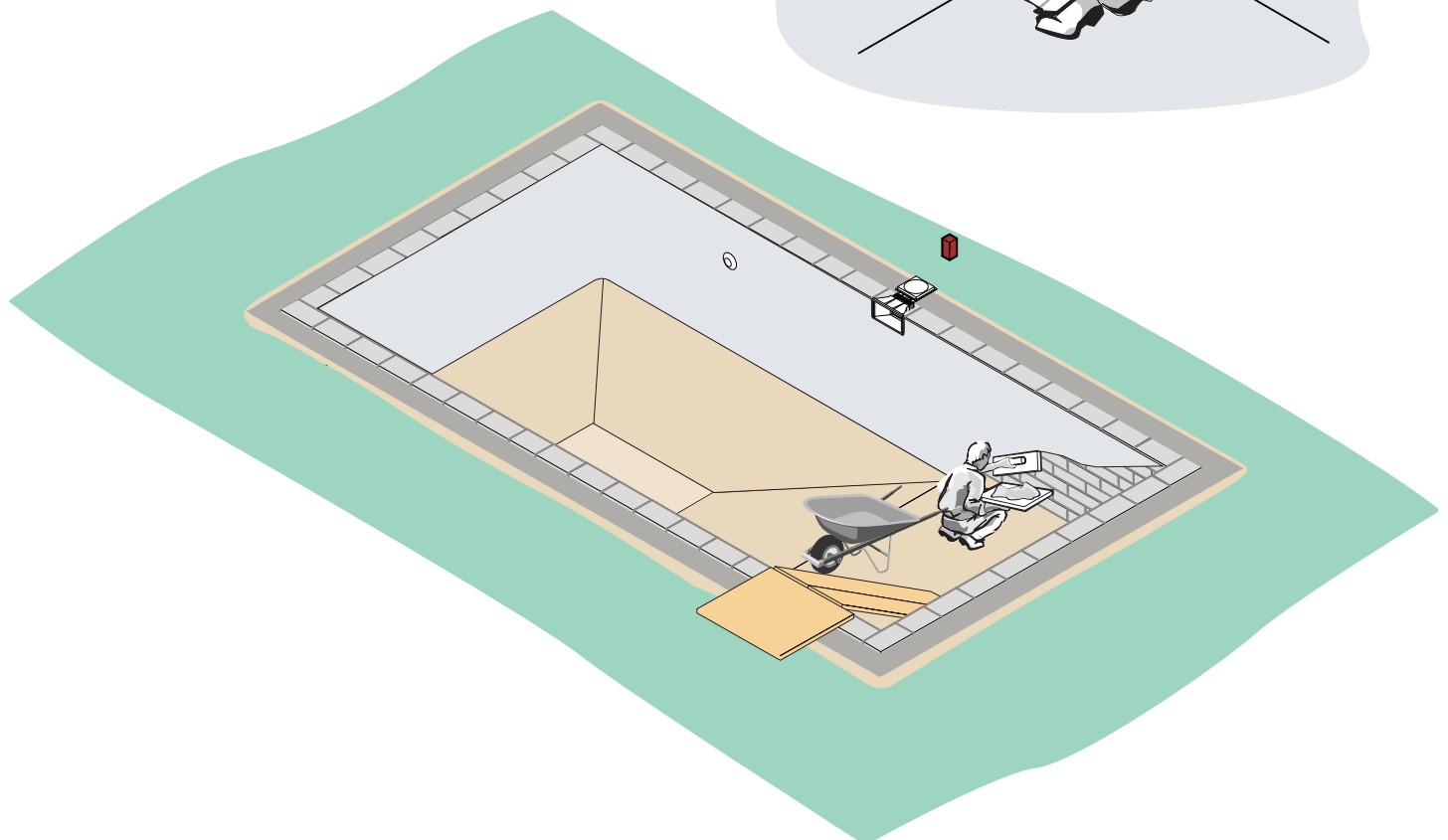
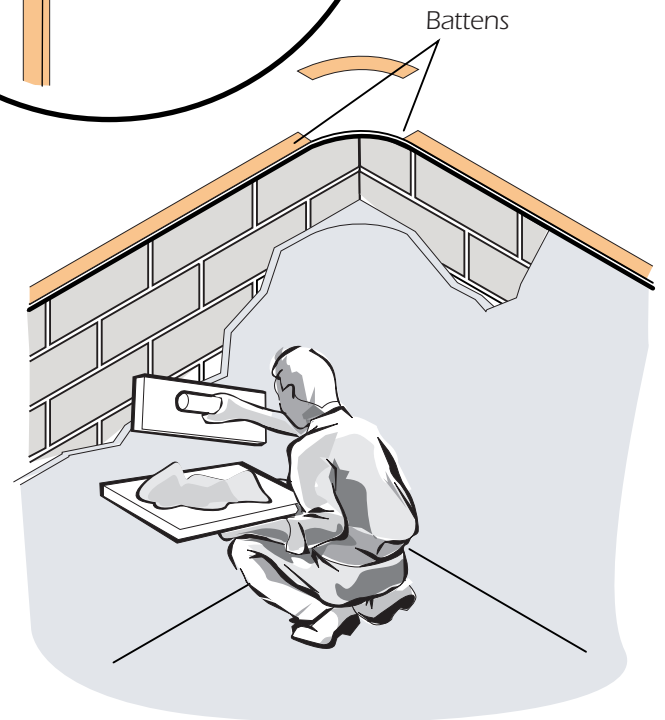
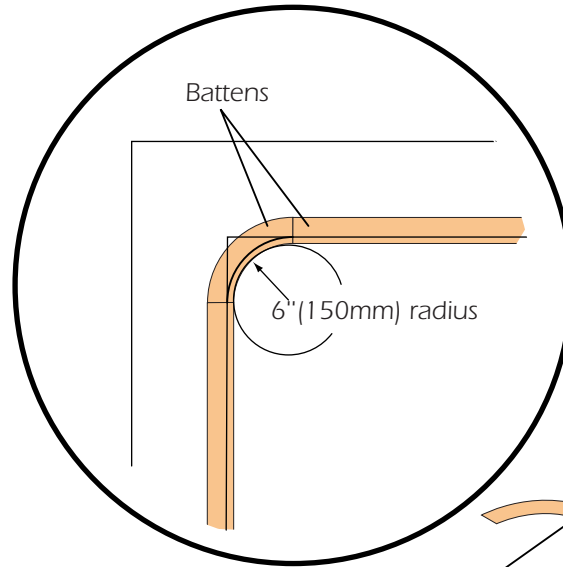
Internal Rendering

Note: Extra care must be taken to avoid damaging the flow control fittings when rendering the pool. All faces and screw holes must be masked up with tape prior to commencement of the work.

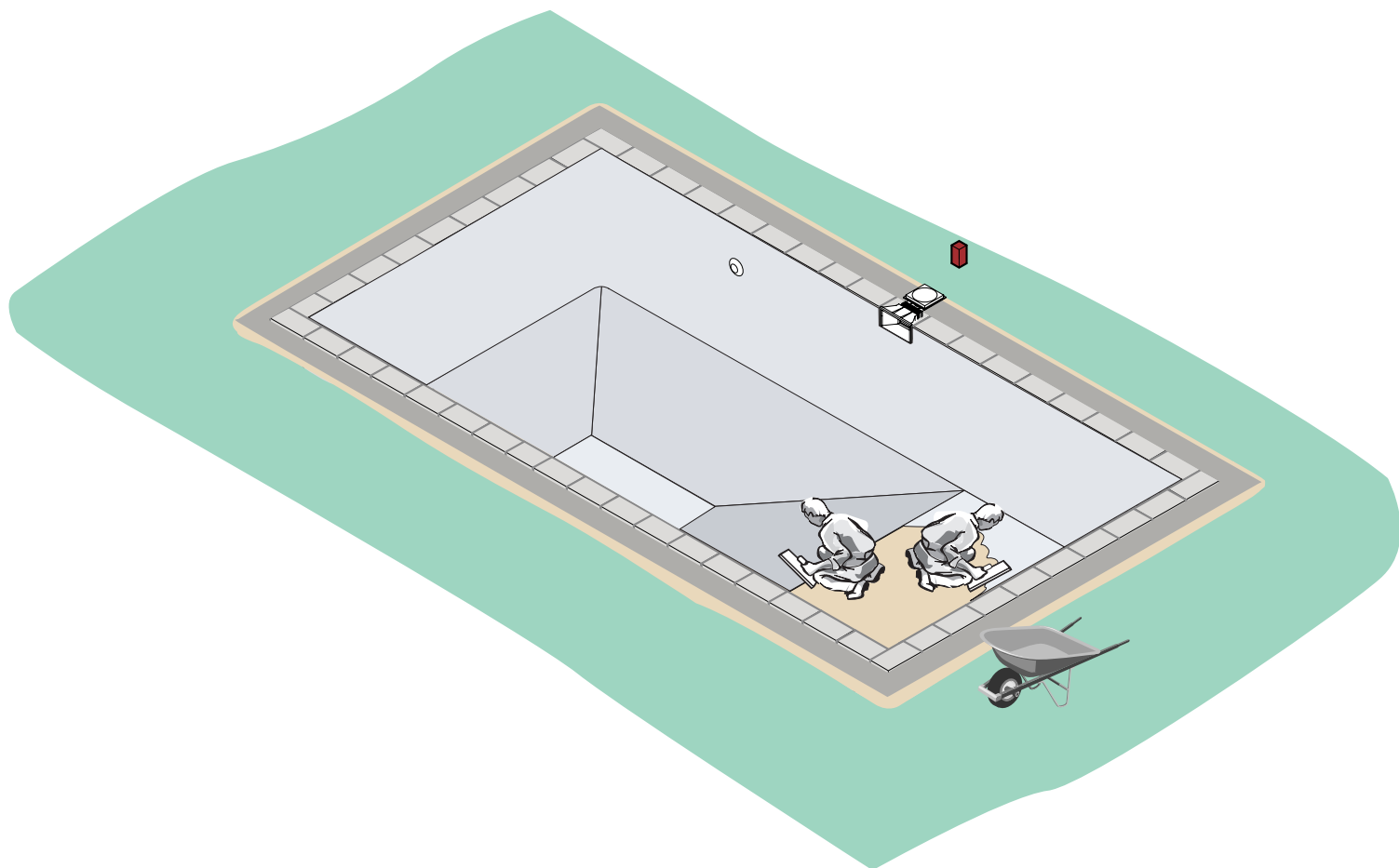
The overall look of the pool as well as the life of the liner will be greatly improved if a smooth finish is obtained when the inside is rendered. If you do not feel confident in obtaining a good rendered finish it might be worth employing a craftsman to do this job.

Procedure

1. Using masonry nails attached to the top of the pool walls, fit temporary timber battens so that 12.5mm (1/2") stands proud of the wall. This will give a guideline to work to for the rendering
2. A mix of 4:1 soft sand/cement is used.
3. Using a wooden float lay up the rendering to the face of the battens and smooth off with a steel trowel. In order to correct any unevenness in the block work it is often advisable to apply a scratch coat first.



SCREEDING THE FLOOR



Floor preparation

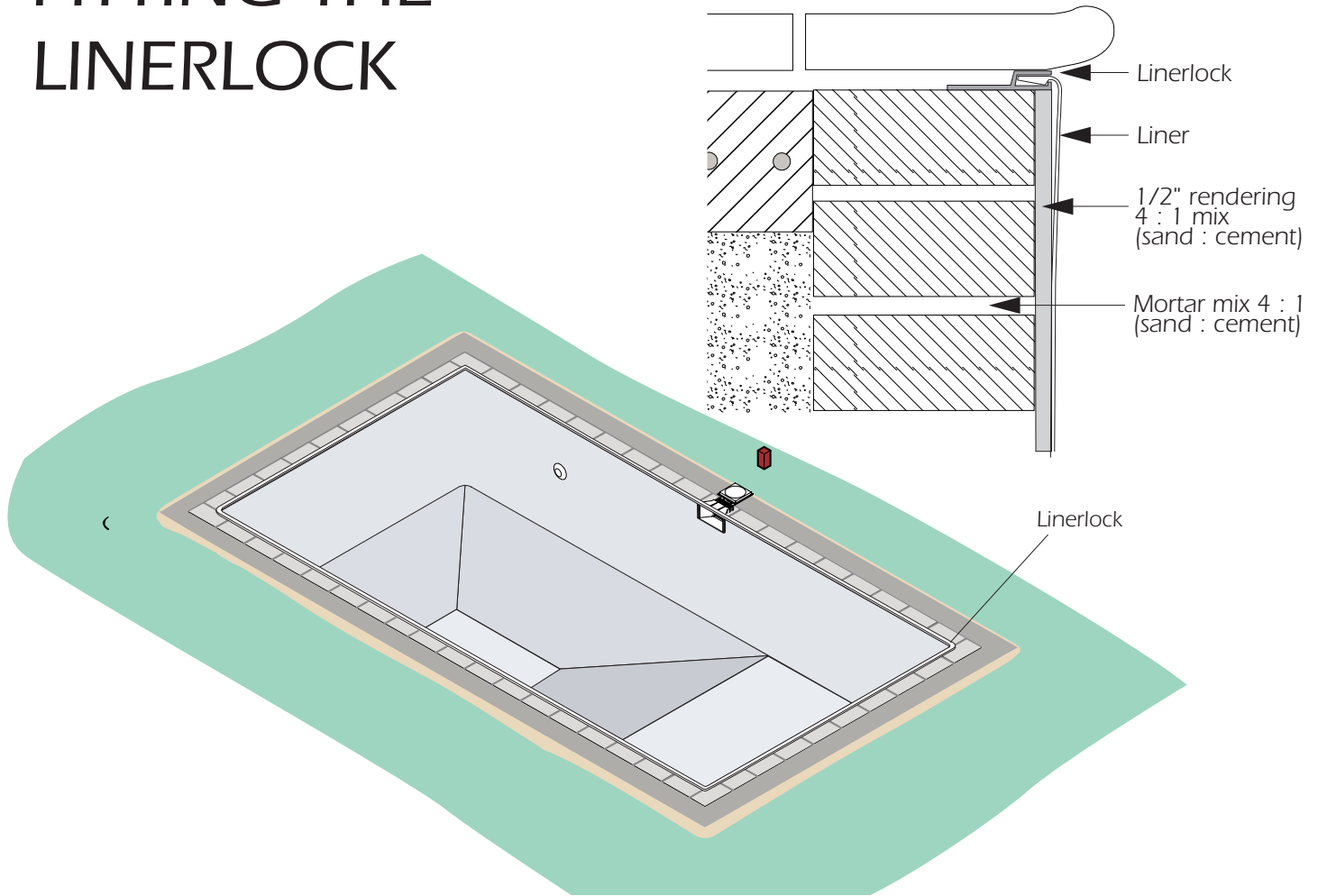
1. Measure 1m (3ft 4") down the walls from the top of the pool and mark a chalk line around the whole of the perimeter of the rendered walls. This will be the finished floor level.
2. Measure along the line and mark off the basin dimensions together with the shallow end line.
3. Fix 3 masonry nails on each long side and 2 on each short side at these points.
4. Attach string lines to these nails, from end to end and side to side and pull taut.
5. With a plumb bob or straight edge and spirit level, transfer and thereby locate the four corners of the basin bottom. Identify each corner with a peg, driven into the ground to ensure that the top of the pegs are level with the finished basin floor.

Floor Screed

1. Use a 4:1 soft sand/cement mix for the floor screed. Note: It is vital that a soft loamy sand is used, on no account should sharp sand be used.
2. Check all dimensions.
3. Make sure the sand is clean and does not contain stones. The consistency of the mix should be damp, but not wet.
4. Using a wooden float spread the screed mix down the sloping sides of the basin first. Checking with the string laid out across the area as you go
5. Using a timber batten level off the screed and then use a trowel to give a smooth finish to the area. Continue in the same manner to level and smooth the basin bottom and work back up the slope to the shallow end of the pool.

6. Take out all the pegs, battens and nails when the floor screed is finished and make good any disturbed areas.
7. Do not walk on the floor screed the next day unless absolutely necessary.
8. A point to note: the screed at this stage is porous enough to allow surface water to drain through.
9. For the optional floor underlay ask for a separate price.

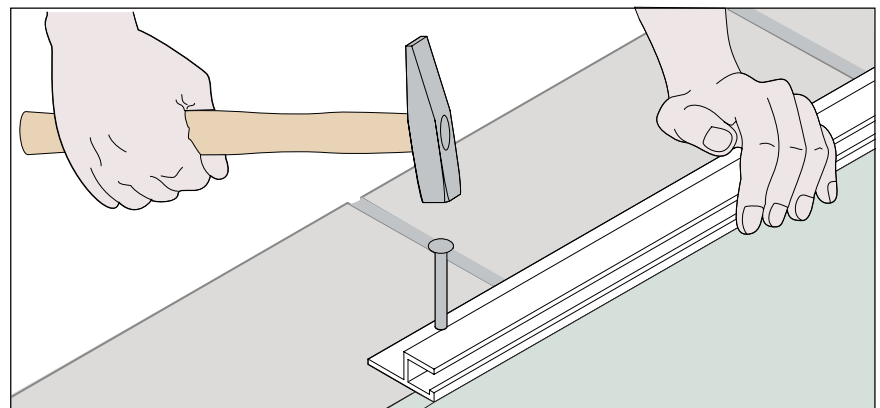
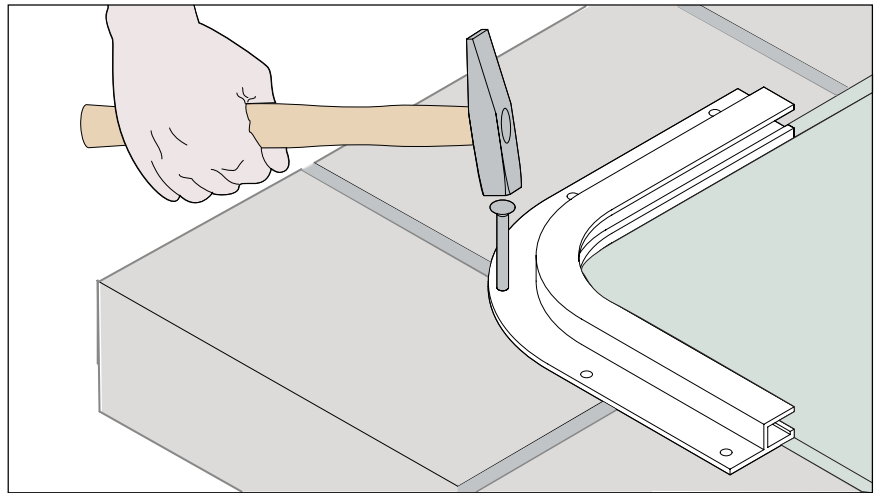
FITTING THE LINERLOCK



Linerlock

In order to make the pool look good it is essential that the top of the block wall is completely flat and level. Any undulations in the linerlock will be easily seen and annoying to the eye.

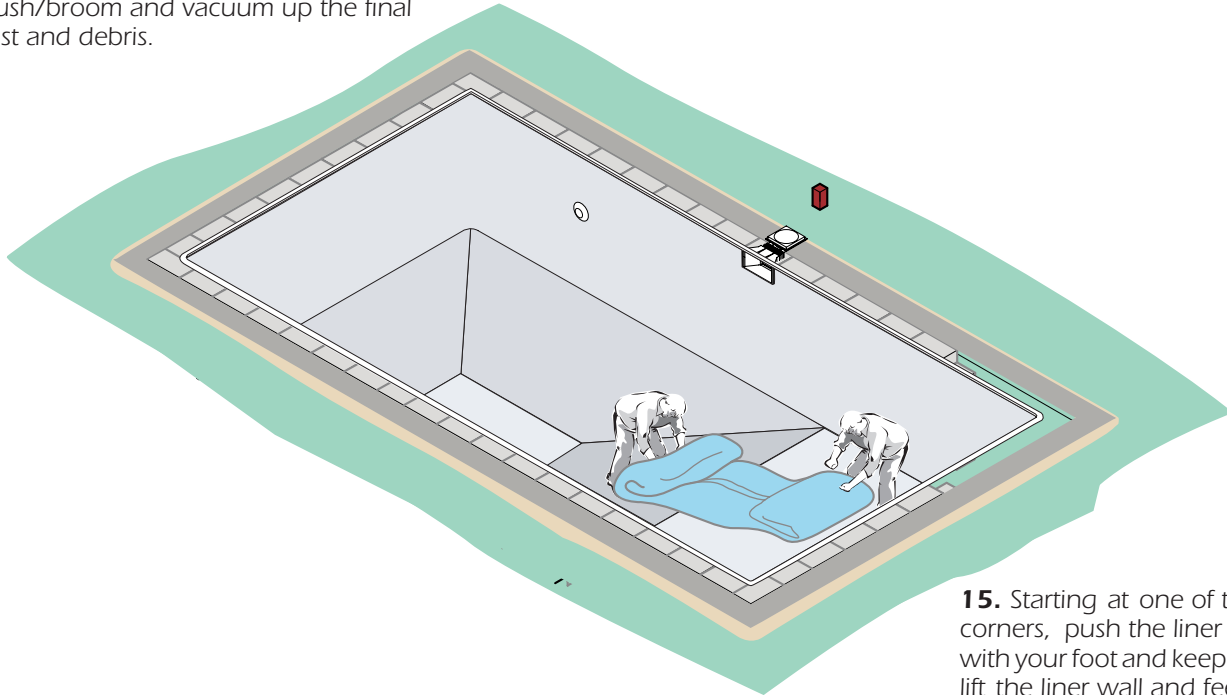
1. Scrape off any surplus protruding mortar around the perimeter of the top of the wall using a section of concrete block.
2. Fit the linerlock corner sections first. Make sure they are set square.
3. Next fit the straight sections.
4. Fix the linerlock with with the masonry nails supplied.



FITTING THE LINER

Liner Preparation

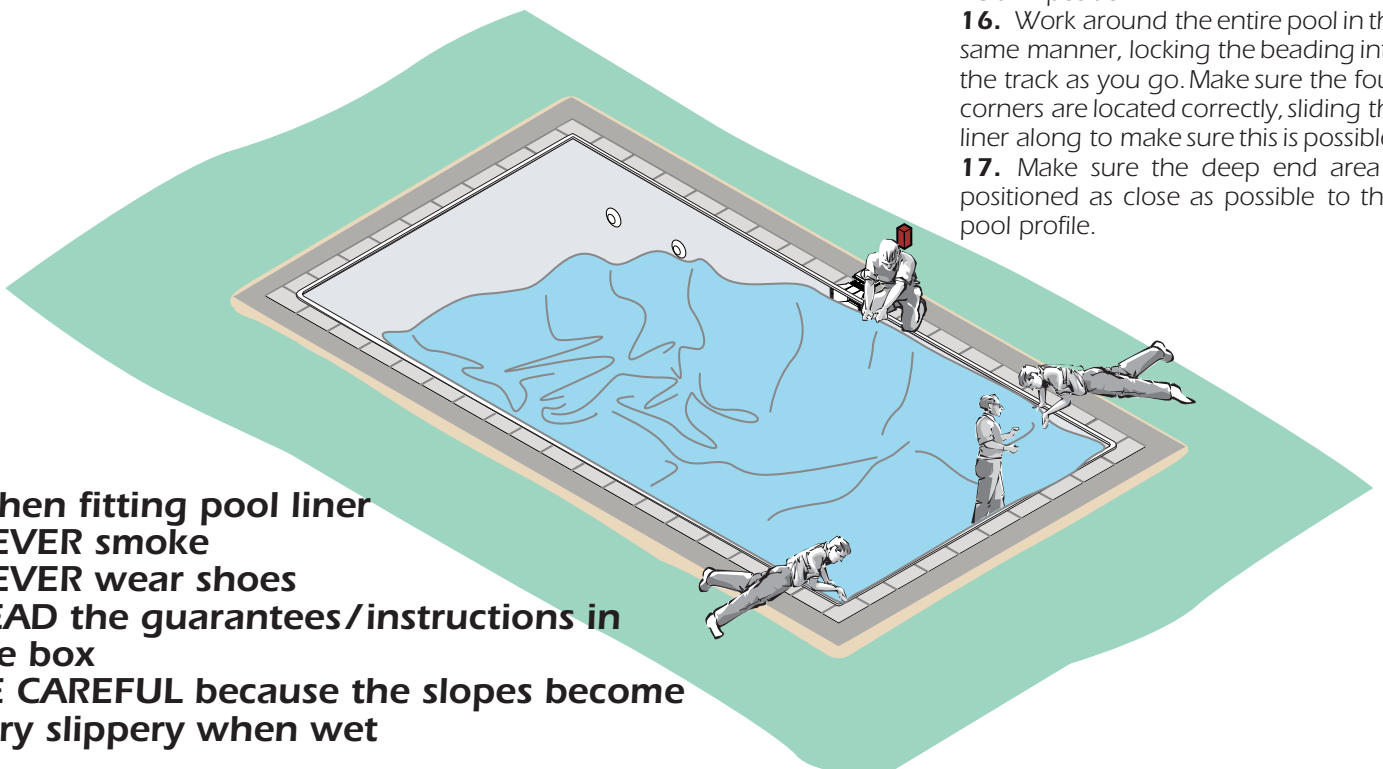
1. Closely examine the whole of the pool interior. Remove any stones, gravel and protruding pieces of cement and anything that might damage the liner.
2. Remove any masking tape from the pool fittings and carefully clean up the faces, paying particular attention to the screw holes. Any debris left on the fittings or holes could cause the plastic to crack when the unit is screwed up tightly.
3. Remove any plastic plugs and the newspaper from the main drain body.
4. Brush out the pool with a soft brush/broom and vacuum up the final dust and debris.



15. Starting at one of the shallow end corners, push the liner into the corner with your foot and keeping this pressure lift the liner wall and feed the beading at the top into the liner lock until it is held in position.

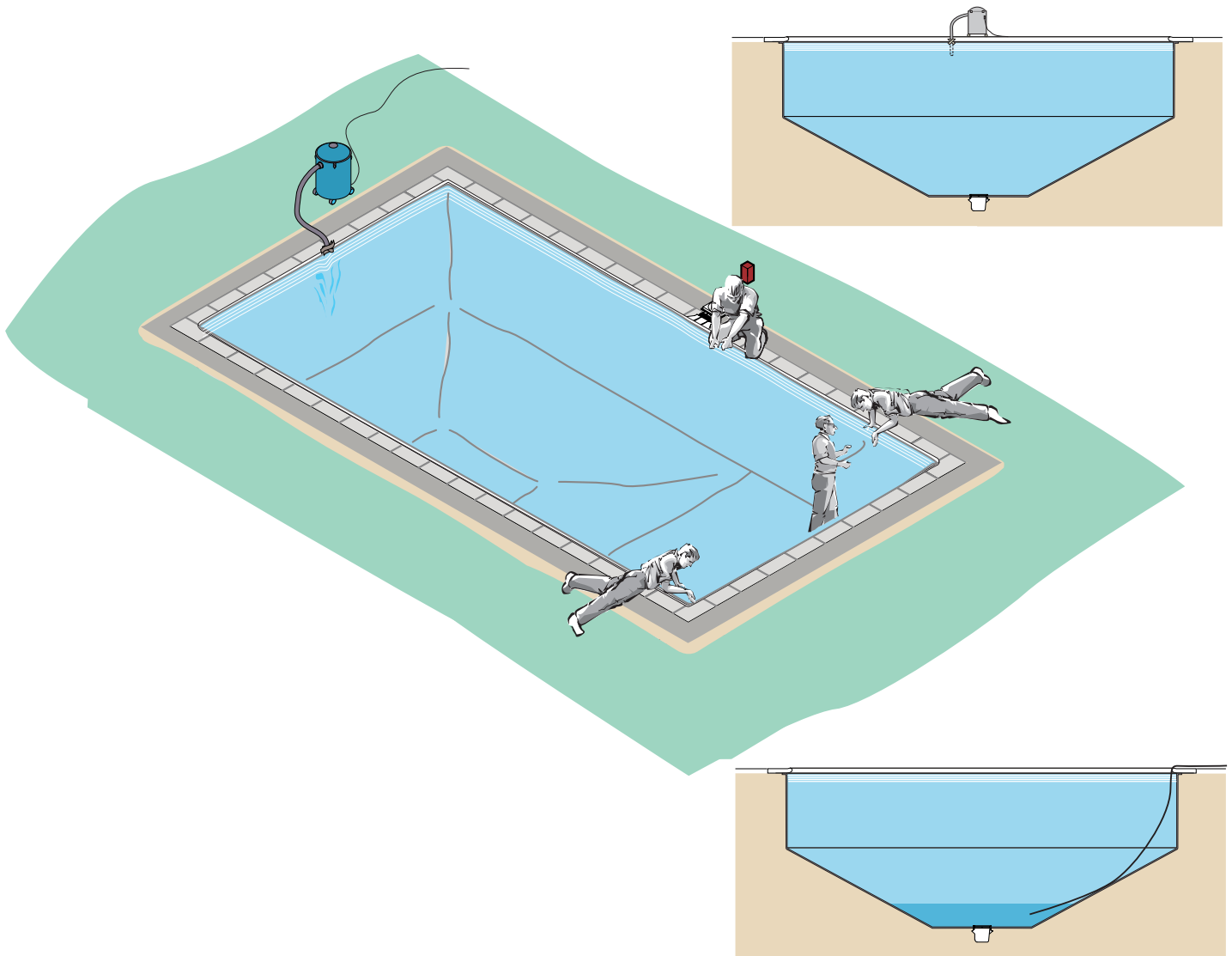
16. Work around the entire pool in the same manner, locking the beading into the track as you go. Make sure the four corners are located correctly, sliding the liner along to make sure this is possible.

17. Make sure the deep end area is positioned as close as possible to the pool profile.



**When fitting pool liner
NEVER smoke
NEVER wear shoes
READ the guarantees/instructions in
the box
BE CAREFUL because the slopes become
very slippery when wet**

FITTING THE LINER



Vacuuming the Liner into Position

The most effective way of positioning the liner is by drawing out the air trapped behind it and this can best be achieved by using an industrial vacuum cleaner. The cleaner can be hired from a local hire shop and it successfully draws the liner back to the walls ensuring an exact fit. In order to get the best result it is advisable to take the following precautions:

18. Using masking tape, seal the four open ends of the pipes connected to the skimmer, inlets, main drain and vac point.

19. Seal the joint between the rear edge of the liner lock and the top of the wall with a neat cement mix to reduce the possibility of air being drawn in between the liner lock and wall.

20. Approximately 450mm (18") from one of the deep end corners lift a small length of the liner beading out of the liner lock track and very carefully push the vacuum cleaner hose down behind the liner. Push the hose down to within 150mm (6") of the base of the wall.

21. Seal the gap around the hose with tape or wet towels and turn the vacuum cleaner on.

22. The liner will be sucked back to the walls and floor. Check that the corners are fitting correctly at this point. Also check that the floor seams align with the base of the walls.

23. There may be some tension at the base of the walls if the liner has not been sucked back fully, but this will correct itself when the pool is filled provided that the tension is equal all round.

24. If you have vertical creases from the floor seam to the top of the wall, turn off the vacuum and slide the liner along the liner lock to remove the creases.

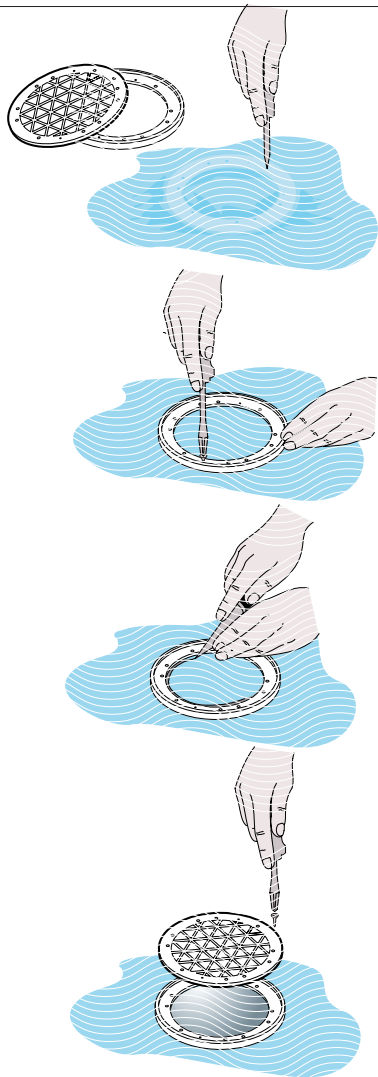
25. Switch on the vacuum cleaner and check that the liner is fitting correctly. When you are satisfied fill the pool with 150mm (6") of water all over the deep end base.

The pool is filled with 150mm (6") of water all over the deep end base. (Refer to page 26 for Main Drain fitting).

CUTTING OUT - LINER FITTINGS

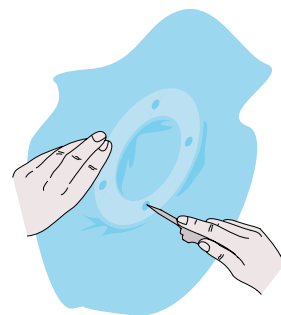
Cutting out the Main Drain

1. Take a Philips screwdriver, Stanley knife and brad awl down into the bottom of the pool. Also take the main drain flange plate, grille and screws with you.
2. Puncture each of the screw holes in the main drain face plate with a brad awl. The outline of the plate will be easily visible through the liner.
3. Locate the flange plate on top of the liner and align the screw holes.
4. Fit the screws carefully, taking care to work on diagonally opposite screws in turn. This will allow the plate to be evenly screwed down.
5. Tighten all screws.
6. When secure, carefully cut out the liner held in the center of the flange plate
7. Fit the grille with the screws provided.
8. Continue to fill the pool. Switch off the vacuum cleaner when the pool has filled to level of 150mm (6") above the shallow end floor.
9. Remove the vacuum cleaner from behind the liner and replace beading into the liner lock



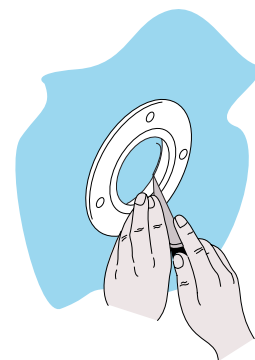
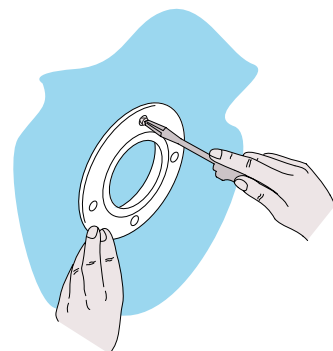
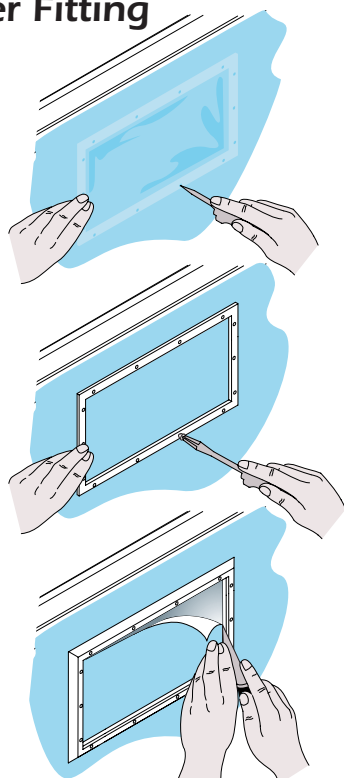
Cutting out Return Inlet Fitting

1. DO NOT cut out the return inlet fittings until the water level is immediately below the fitting. If the liner is cut too soon, stretching may occur and unsightly creases form around the fitting.
2. Locate the screw holes and pierce them with a brad awl.
3. Align the flange plate and tighten the screws. Make sure that you work in diagonally opposite pairs to evenly secure the fitting.
4. When secure carefully cut out the inner circle of liner.
5. Screw the eyeball housing assembly into position.

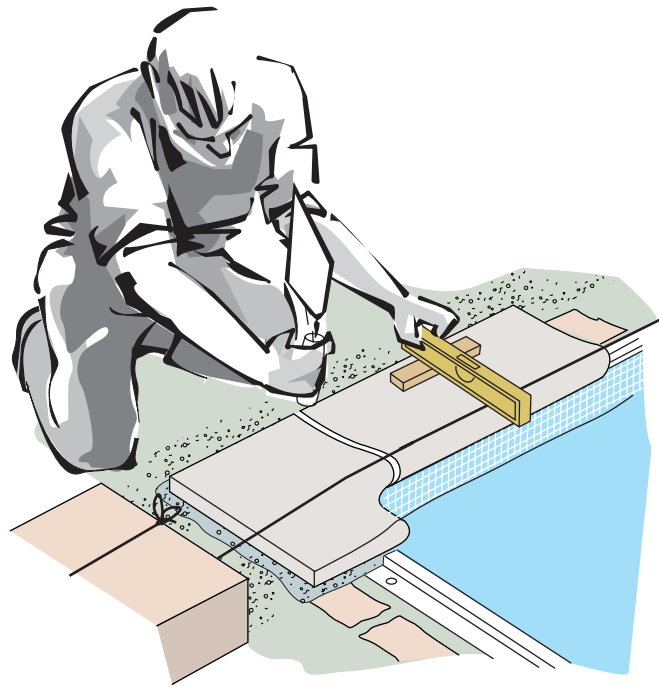


Cutting out the Surface Skimmer Fitting

1. DO NOT cut out the surface skimmer fittings until the water level is immediately below the skimmer extension throat. If the liner is cut too soon, stretching may occur and unsightly creases form around the fitting.
2. Locate the screw holes and pierce them with a brad awl.
3. Align the flange plate and tighten the screws. Make sure that you work in diagonally opposite pairs to evenly secure the fitting.
4. When secure carefully cut out the inner rectangle of liner.
5. Snap the cover plate into position over the flange plate.
6. Remove the newspaper, clean out the skimmer body and fit the collar weir and basket assembly.
7. Finish filling the pool until the water level is up to half way up the skimmer mouth, this represents the normal water level.



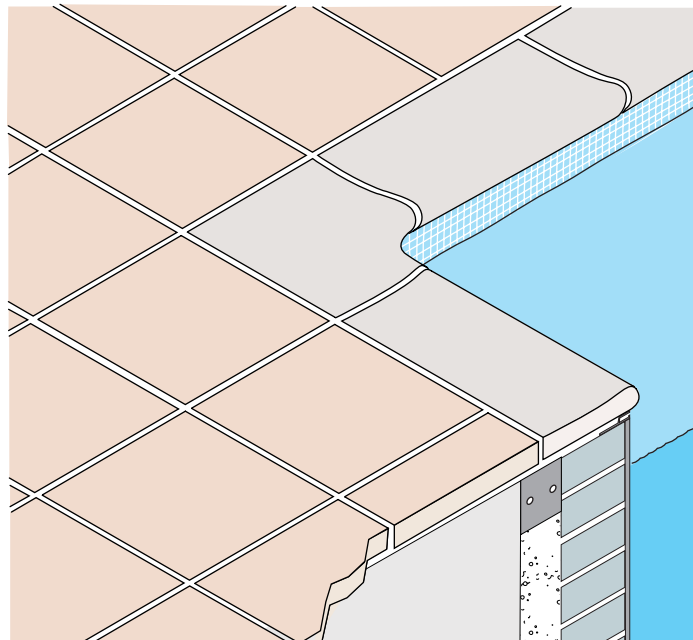
LAYING THE COPING AND PAVING



Copings

The copings are 225mm (9") wide and have a bullnose front edge. The straight lengths are 600mm (2') long and with a radius of 150mm (6"). Additional copings are used on Roman End or Rectangular steps.

1. Remove all dust and dirt from the top of the pool block walls.
2. Apply a cement slurry to the top of the walls to act as a bonding agent. This slurry should be a thick cream consistency and painted on both the copings and the block work prior to laying.
3. Spread a 6:1 sand and cement fillet on the top of the pool walls and make sure this is evenly spread and level. The finished layer should protrude marginally above the liner lock track.
4. Lay the four corner copings first. Each coping should overlap the liner lock by 9.5mm (3/8") to cover it up.
5. Stretch a taut string between each corner to ensure that the straight copings are all in a line along the sides. Always work from the corners to the middle.
6. Take care to make sure the copings are all level. Some units may need more or less mortar due to the fact that they are not all uniform in depth when manufactured. Any copings that need cutting will be in the middle of each side or end, this will look more pleasing to the eye.
7. If any copings need cutting use a Carborundum disc cutter, this again can be hired.
8. Leave 9.5mm (3/8") between copings for point. The mixture for pointing is one part silver sand to one part white cement, mixed to a putty consistency.
9. Trowel the mixture into the joints and remove any extra immediately with a damp sponge. Do not scratch any surplus off as this will damage the copings.
10. TAKE CARE NOT TO LET ANY DEBRIS FALL INTO THE POOL OR ONTO THE LINER LOCK.



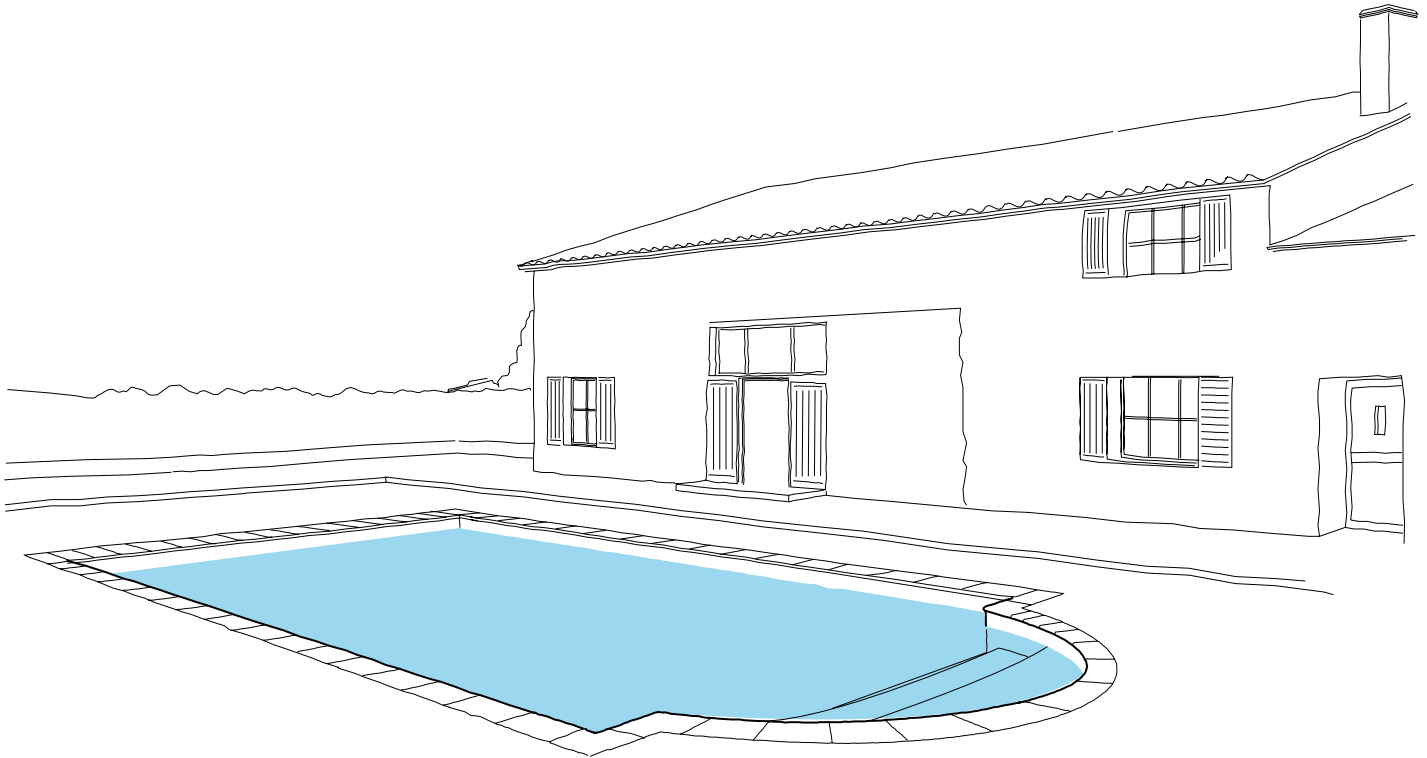
Paving

The paving around the pool must be laid with a fall away from the rear edge of the perimeter coping to make sure surface water and any dirt and debris are not washed into the pool.

1. If the area is fairly level and well consolidated use pea shingle or stone chippings on which to lay the paving slabs.
2. A mixture of 1:5 semi dry cement and sand bedding mortar.
3. Leave 12.5mm (1/2") between slabs for pointing and this should be done using a dry mortar mix well rammed in. The pointing should be slightly recessed to improve drainage as well as the appearance.
4. Sponge off surplus cement to avoid damage to the paving slabs.

5. Fit the skimmer frame and lid assembly and install the stainless steel steps where required.
6. Consider the installation of a diving board and any other deck furniture at this stage and also make provision for the electrical services to the under-water light deck box.
7. Settlement may take place for a little while if the pool surrounds have had to be made up. In this case it is advisable to lay the slabs on sand so that they may be leveled again at a later date, then cemented into place.
8. Choose the paving slabs carefully. PAVED AREAS ARE SLIPPERY AND DANGEROUS WHEN WET. Look for textured slabs to minimise danger.

STARTING UP PROCEDURE



1. Make sure the pool is filled to the middle of the skimmer
2. Close both valves skimmer and main drain.
3. Set Multi port valve to the rinse position (make sure the backwash is connected)
4. Remove top of pump coarse strainer and fill to top with water, replace the top firmly.
5. Turn on the pump and open the main drain valve slowly. After a minute or two the pump should start pumping and the pressure gauge will rise. If this does not happen within 3 minutes, switch off and repeat the procedure. When the filter is operating satisfactorily with one valve open, the second valve should be opened very slowly. If the pressure gauge immediately drops to zero, turn the skimmer valve off until the pressure has risen to normal, then slowly open the skimmer valve again. When the pressure gauge is constant and both skimmer and main drain are open, run the pump for 4 or 5 minutes. Then switch off the pump.

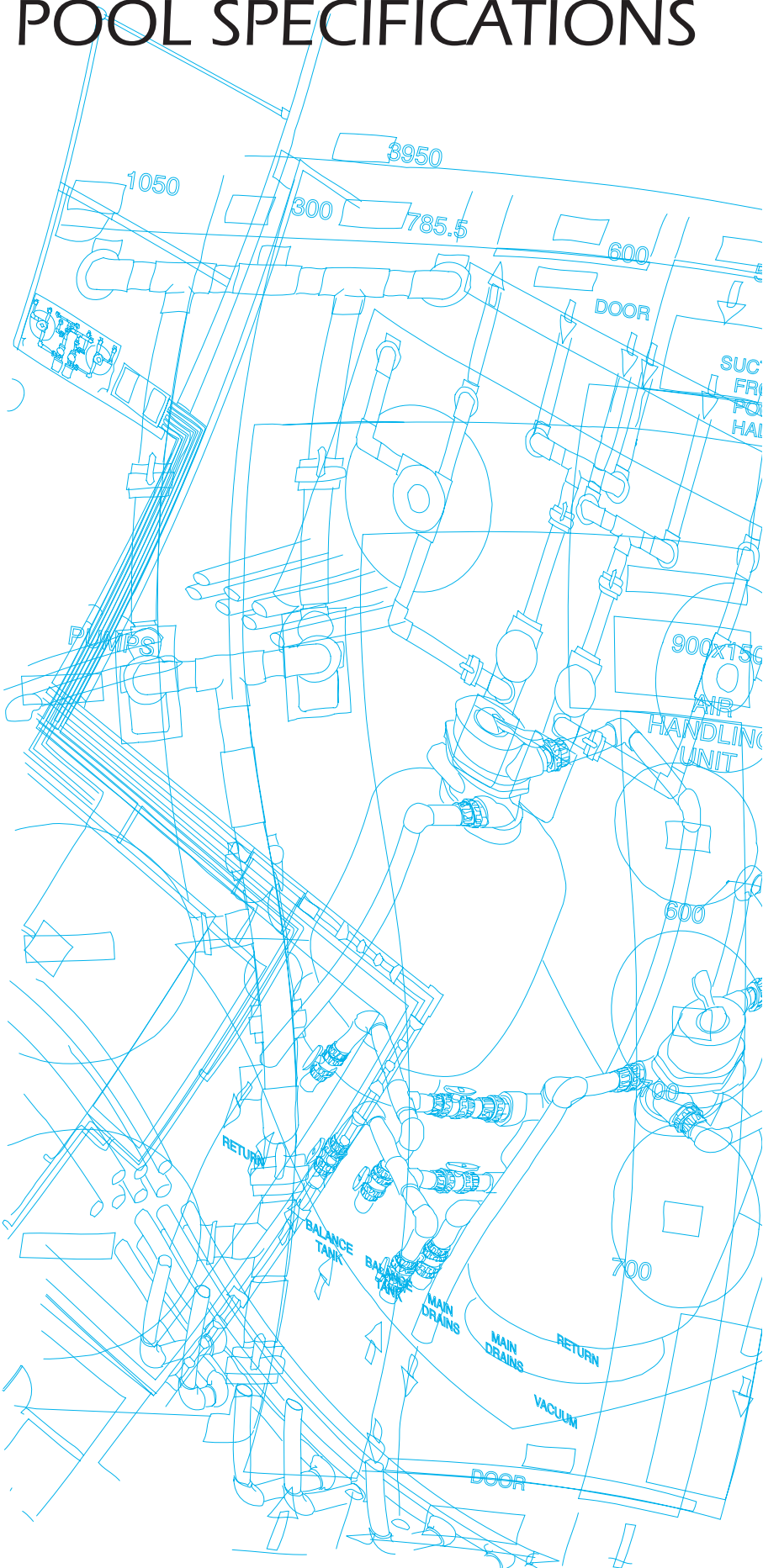
6. Backwashing on start-up
7. With both skimmer and main drain valves open, and the multi port in the backwash position, the water is pumping into the base of the filter, forcing all the fine dirt and particles of sand out of the filter to waste. This is necessary to clean the new sand in the filter which although graded, has some dirt and small particles, which need to be back washed to prevent these finding their way into the pool. Run the filter in this position for approximately 3 minutes, by which time the backwash water should be clean. Stop the pump, move the multi port handle to the rinse position and run for 30 seconds. Turn the pump off and move the multi port handle to the filter' position.
8. The filter can now continue to operate in this position, this procedure above is only necessary for new installations or when the filter sand is changed.

NEVER MOVE THE MULTI PORT VALVE WITHOUT SWITCHING OFF THE PUMP

IMPORTANT

POOLS MUST NOT BE EMPTIED WITH THE SWIMMING POOL PUMP. LINER POOLS MUST NEVER BE EMPTIED AND MUST BE FULL AT ALL TIMES. IF YOU CHANGE THE LINER A SUBMERSIBLE PUMP WHICH CAN BE OBTAINED FROM A LOCAL PLANT HIRE COMPANY MUST BE USED TO DRAIN THE POOL.

OPTIONAL EXTRAS AND POOL SPECIFICATIONS



CONTENTS

OPTIONAL EXTRAS

Roman ends.....	30
Rectangular steps.....	31
Underwater lights.....	32
Automatic Top-up.....	33
Miscellaneous extras.....	33
Pool steps.....	34

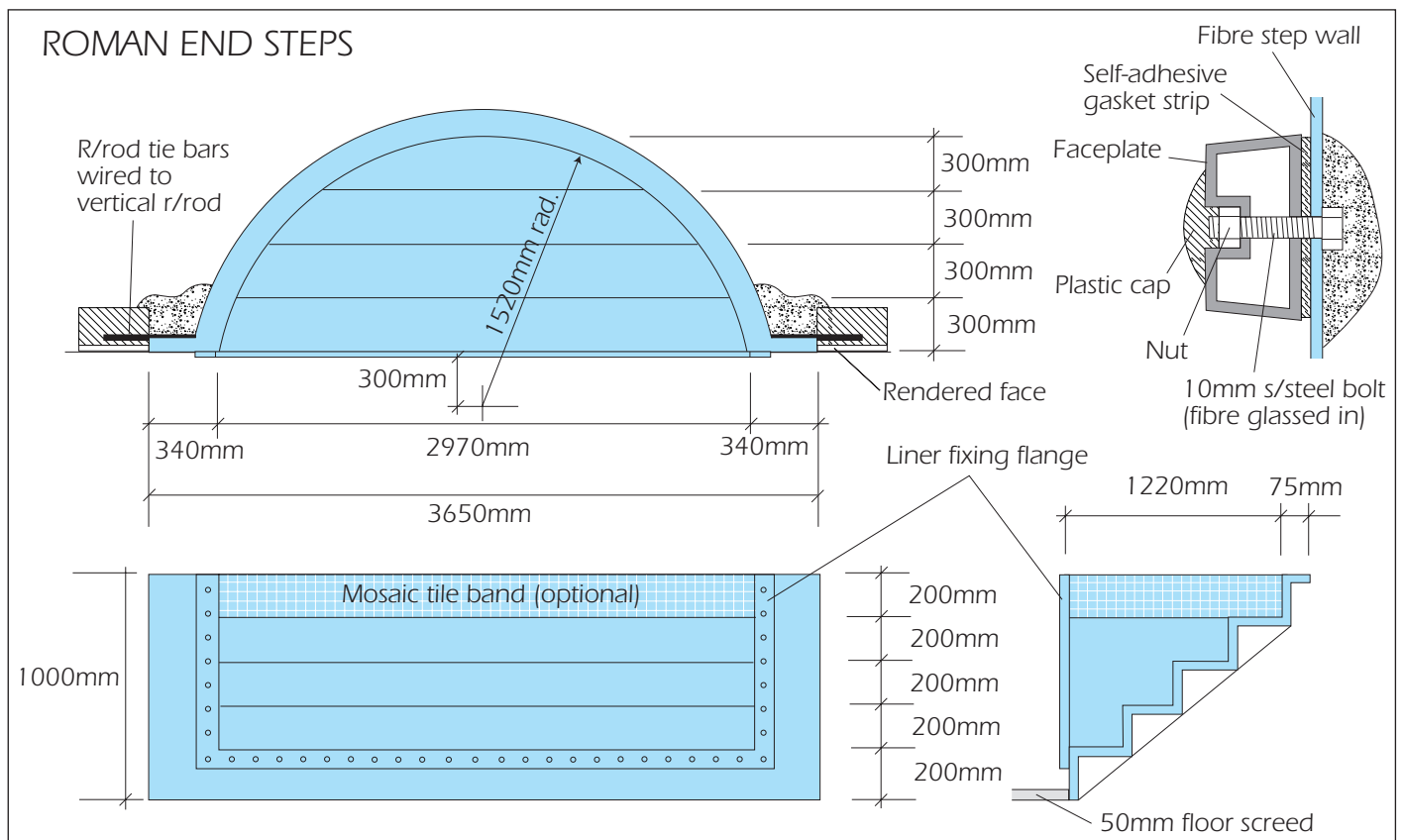
POOL SPECIFICATIONS

Flat bottom pool.....	35
Flat bottom pool plan.....	36
Hopper pools.....	37
Small pool layout.....	38
large pool layout.....	39
Plumbing & filtration.....	40
Hopper pool plan.....	41
Site drainage.....	42

FITTING ROMAN END AND RECTANGULAR STEPS

Roman End Steps

The Roman End steps can only be installed in pools 4.2m (12') or wider depending on the choice of liner design, the pre formed steps (white fibreglass) are finished with or without a tile band (fibreglass units have real inset mosaic). The treads are non slip and give confidence to both children and elderly people alike.



Installation of Roman End and Rectangular Steps

1. All the concrete foundations for the perimeter walls including the step must be completed around the whole pool.
2. The excavation for the step must be dug to a 45° slope with a sufficient backfilling with dry 9-1 sand and cement.

3. The step unit should be placed in position, again with 12.5mm (1/2") protruding in front of the pool wall to allow for rendering. The flanges on both sides of the step unit must have the block pool walls laid to but tightly against them.

4. Drill a 12.5mm (1/2") diameter hole through the step flange (fibreglass) and pass a 300mm (12' approx.) length of reinforcing rod with a cranked end through this flange, this should be positioned and wired around a vertical section of reinforcing rod and bedded into each course blocks.

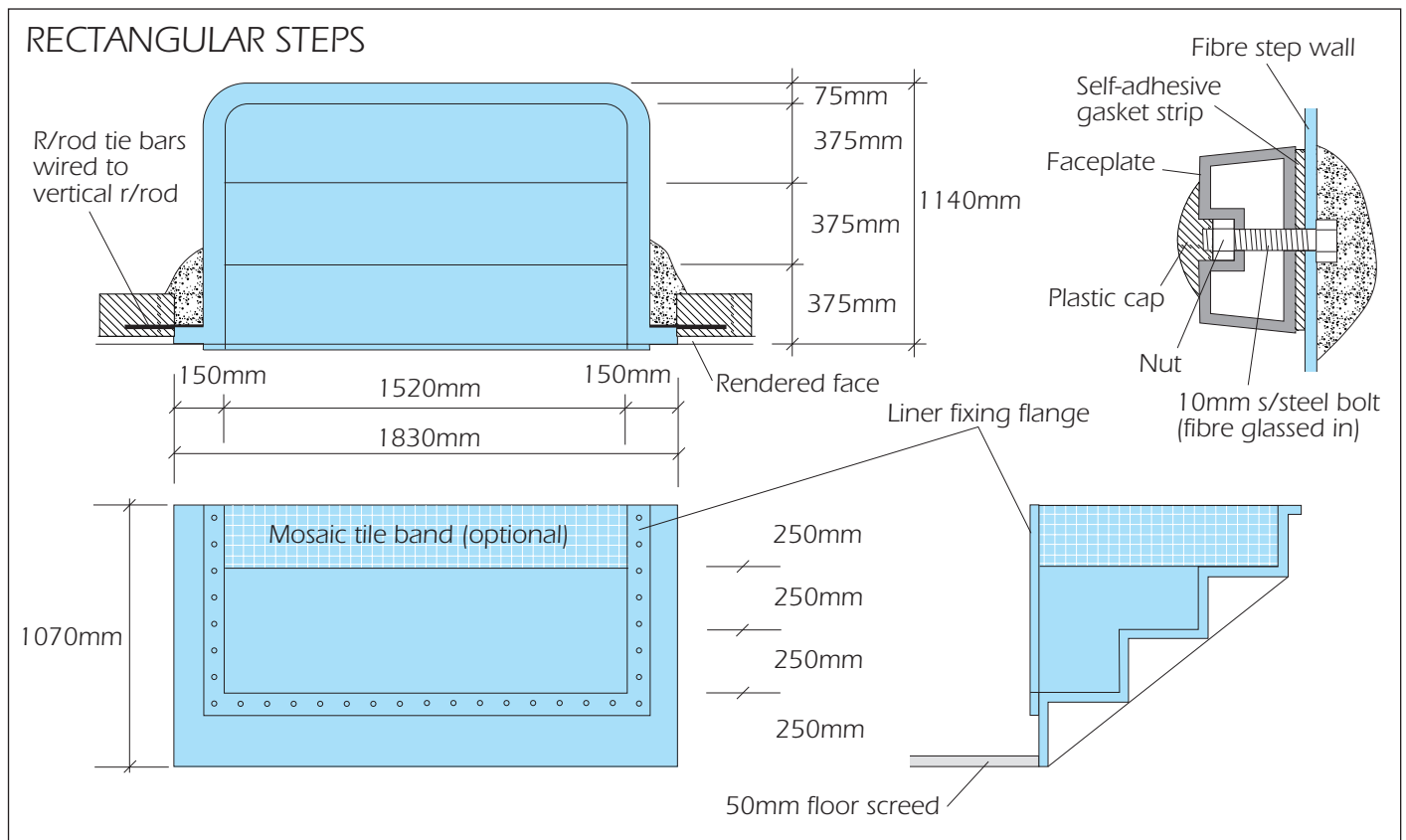
5. Concrete should be carefully placed at each end of the step unit, once the block work has set to fully anchor the reinforcement.

6. The mix to in fill the gap behind the steps should be 9-1 dry lean sand/ cement firmly tramped down to remove all the gaps and spaces. This will prevent the steps from moving and feel solid to the tread.

FITTING ROMAN END AND RECTANGULAR STEPS

Rectangular Steps

This design can be fitted to the shallow end or the deep end of the pool and although manufactured in the same way as the Roman end steps, is smaller in size and rectangular in shape.



Installation of the Liner around a Roman End or Rectangular Steps

Both of these types of steps incorporate a neoprene gasket and flange plate which seals the joint with the liner. Stainless steel bolts secure the flange plate into the shell of the step unit.

1. Remove the flange plate, leaving the gasket in position.
2. Fit a temporary bulkhead (plywood or similar) across the opening into the steps. Fix this panel by fixing it to a scaffold board laid across the top of the steps and strutted back against the step risers.
3. Make sure this bulkhead is firmly anchored to take the weight of the rising water.

4. CARE MUST BE TAKEN IN HANDLING STEPS The glass fibre surfaces of the steps are vulnerable to damage and care must be taken to protect them.

5. Seal the edges of the bulkhead panel against the base and two sides of the step unit with masking tape.

6. As a temporary measure fit a section of liner lock across the top of the bulkhead to take the liner. This section of liner will eventually be cut away.

7. Once the pool has filled to a level of 150mm (6in) above the shallow end floor remove the liner bead from the track across the temporary bulkhead panel. The weight of the water will stretch the liner into the floor cove beneath the step unit.

8. The location of the flange bolts will now be evident as they will protrude through the liner.

9. Carefully pierce the liner at the top of each bolt projection with a sharp knife and this will allow the bolt to penetrate through the material.

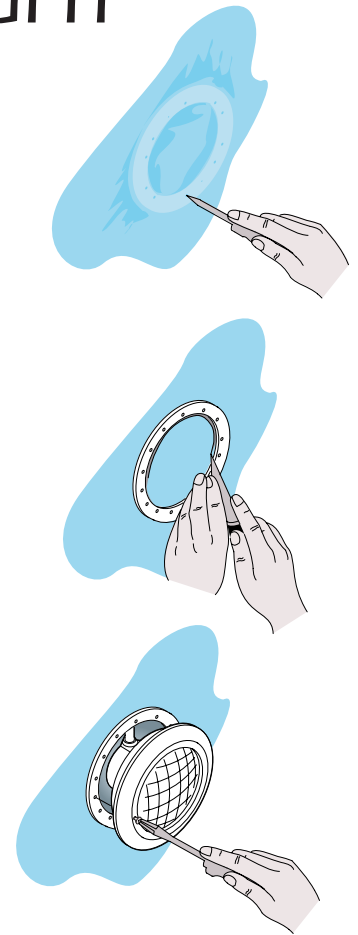
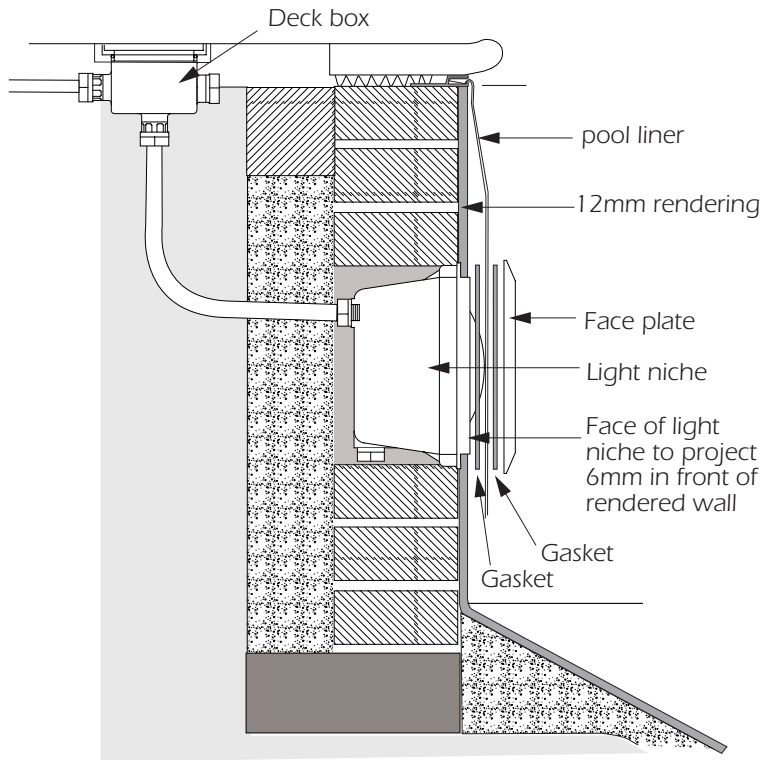
10. Position the flange plate over the projecting bolts and screw the nuts in place, working first along the bottom of the flange.

11. Tighten all nuts using a box spanner. Fit the plastic caps to each nut.

12. Remove the temporary bulkhead panel.

13. Carefully cut out the section of liner that has been trapped

FITTING AN UNDERWATER LIGHT



Underwater Light

1. If you intend to use underwater lighting, remember that although it makes the pool look very attractive, it also high-lights any slight imperfections in the construction. Extra care must therefore be taken with finishing the surfaces, particularly the pool floor.
2. Take the underwater light from the box and remove the light unit, face plate and gaskets from the niche (storing them carefully, as they will not be required until the liner is installed). You should be left with the niche, blanking plug, flexible conduit and screw in gland and rubber ring.
3. Use the blanking plug to seal off the unwanted hole from the outside (there are two in the back of the niche). Install the niche into the wall at the third course of blocks making sure you cement it securely. The unit must stand 12.5mm (1/2") proud of the wall to enable the rendering to be 12.5mm (1/2") thick.
4. The conduit hole on the light unit should be at the very top of the unit. In order to make the threading of the light cable to the deck box as easy as possible, the flexible cable conduit must be laid with curves and not angles. The flexible conduit should then be attached to the niche by means of a watertight joint to the light unit. Connect the other end of the conduit to the deck box

5. Cooling for the light unit is provided by the water which surrounds it and the level of water in the conduit extends up to the level of the pool itself. In order to prevent water entering the deck box when the pool level rises too high the screw in gland and rubber ring should be fitted to the inside of the deck box to seal the cable. Make sure you locate the terminal block well up in the deck box and keep the 'O' ring seal to the box clean and lightly greased with petroleum jelly. This seal prevents rain water etc. from entering.

6. Electrical Services

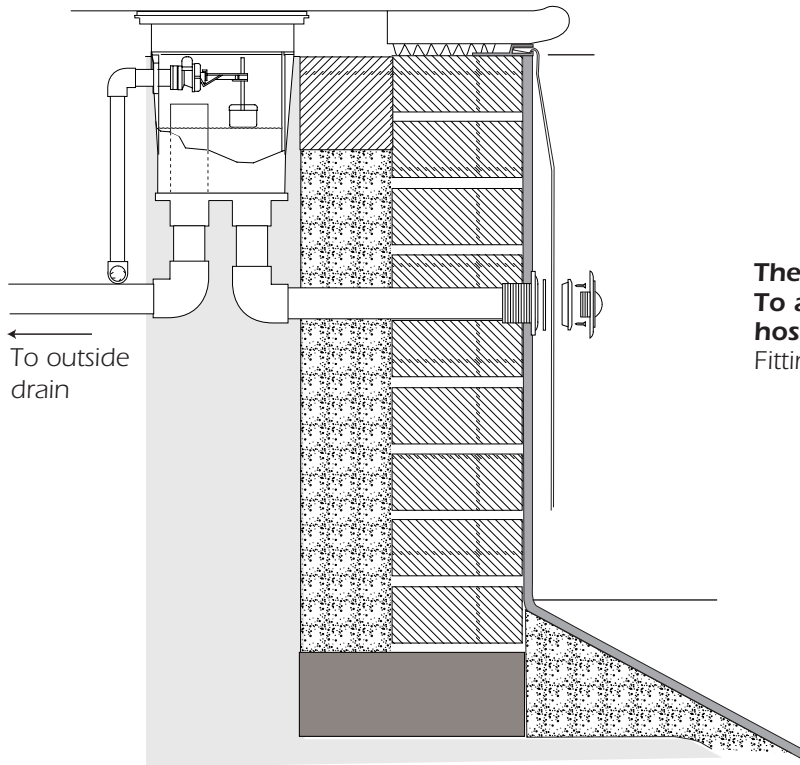
It is usual to install the underwater light transformer on the wall of the plant house. It is very important to use the correct size of 3 core PVC insulated steel wire armoured cable, connecting the transformer to the light unit by means of the deck box. 4mm cable can be used if the distance involved is less than 20m (22yds) but if it is between 20 (22yds) and 30m (33yds), 6mm can be used. There are various separate tappings on the transformer which overcome the resistance of the cable and thereby increase the electrical output if the thicker cable is used. Follow the table below to pick up the correct tapping on the transformer.

7. YOU MUST USE A QUALIFIED ELECTRICIAN - **SEE AMENDMENTS 2**

Cutting out the Liner - Underwater Light Fitting

8. DO NOT cut out the underwater light fitting until the water level is immediately below the light.
9. Locate the holes and pierce them with a brad awl.
10. Align the flange plate and tighten the screws. Make sure that you work in diagonally opposite pairs to evenly secure the fitting.
11. When secure carefully cut out the inner circle of liner.
12. Fit the internal lamp unit into the niche by passing the cable through the conduit up to the deck box, making sure that you leave any extra cable wound around the lamp unit to facilitate lifting the unit above the water line to change the bulb. DO NOT SHORTEN THE CABLE IN ANY WAY.
13. Secure the lamp unit in the niche, it is a push fit (four metal clamps on the back of the light unit connect with the four raised areas in the niche) and seal the cable entry by tightening the compression fitting at the base of the deck box.

AUTOMATIC TOP-UP



The automatic top-up
To avoid the need for ugly
hose pipes trailing across the lawn
Fitting instructions included in the box

Liners

Our deluxe liners are made to a 20° thickness, have a tile band with plain colour walls and floor. The liners are made to measure and can be supplied after the pool shell has been completed, to ensure a perfect fit.

See Price List for alternative designs and delivery information.

Rainbow Chlorinator

Ideal chlorination system for people with a busy lifestyle.

Solar Covers

Standard covers are 400 micron . Always use the protection sheet included when cover is off the pool. Solar covers not to be used in winter.

Winter Covers

Our winter covers are core weave type, springs and straps are included with 'P' bracket fixings.

Solar Cover Rollers

We supply two types of adjustable roller - an Economy version which has powder coated metal stands (steering wheel type) and a Deluxe version with stainless steel ends

Felt Underlay Kits

Felt underlay for floor only. It is for protection against badly laid screed or screed damage due to weather conditions.

Always advisable for flat bottom pools

Pool Heating

Clearwater offer a range of pool boilers - Gas, Propane, Oil and Electric

GAS/OIL

Can be installed inside or outside

Internal boiler installations - must be carried by a CORGI registered Engineer.

- require an extra flue (quotes can be provided)

We provide stainless steel heat sinks to change the metal to plastic at heater end.

ELECTRIC

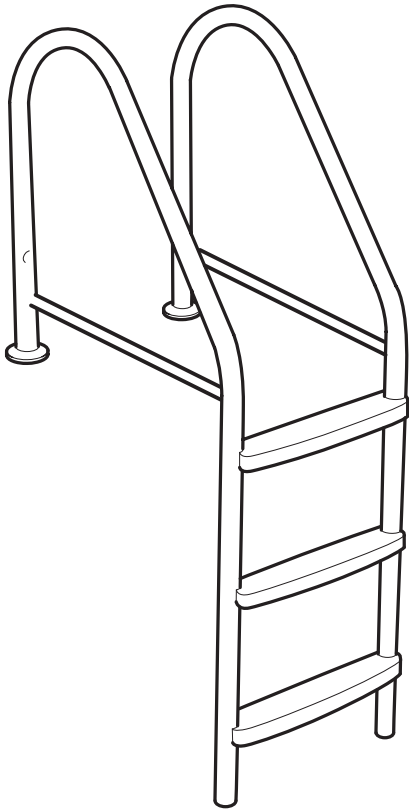
Should be sized and installed by a competent Electrician

ALL BOILERS

Requirements for extra pipe work and fittings - we can provide advice and estimates

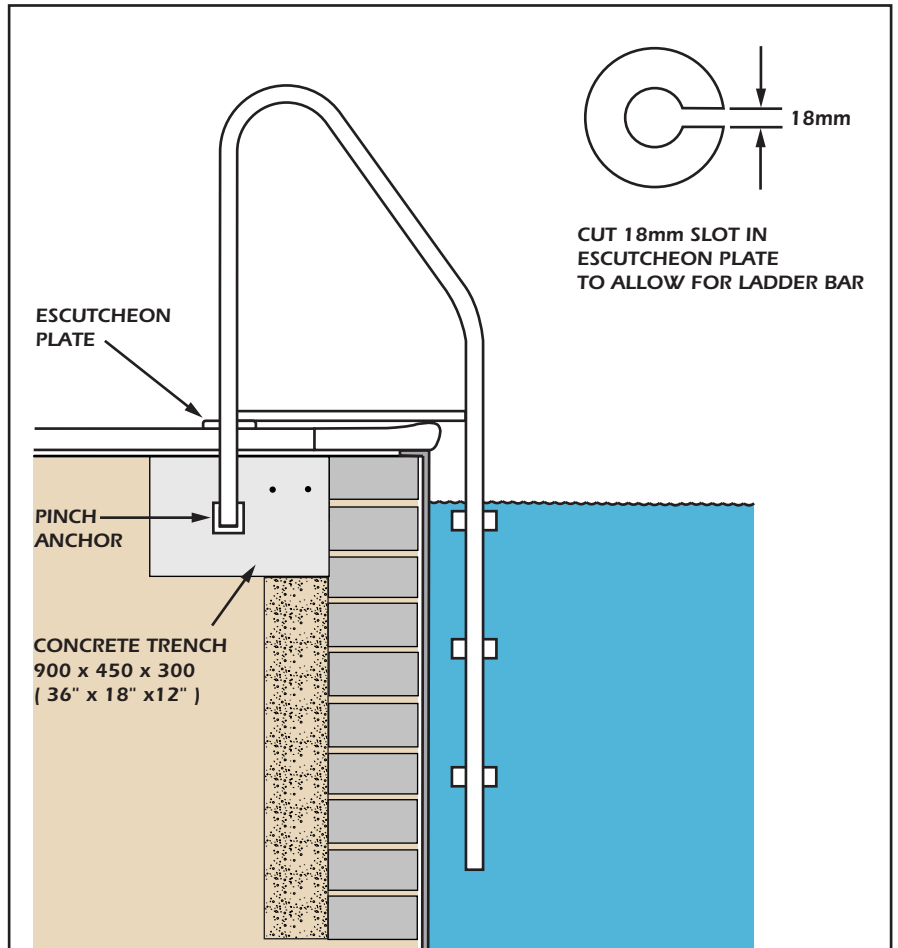
See Price list for details

POOL STEPS



Bar Liner Stainless Steel Pool Steps

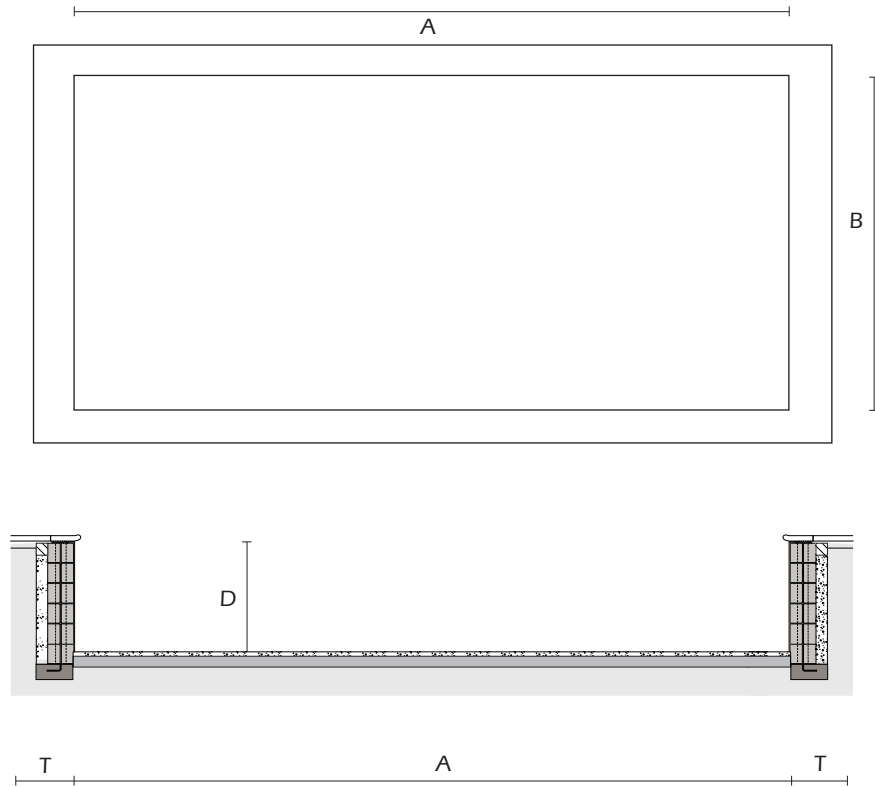
The steps for the pool are designed to be supported by the pool coping. They are anchored into the surround paving with pinch anchors, which are set in a concrete trench. These anchors have a screw which can be loosened for removing the steps in winter. The escutcheon plates which cover up the pinch anchors, have to be cut with a hacksaw as per the diagram to fit around the stainless steel tube.



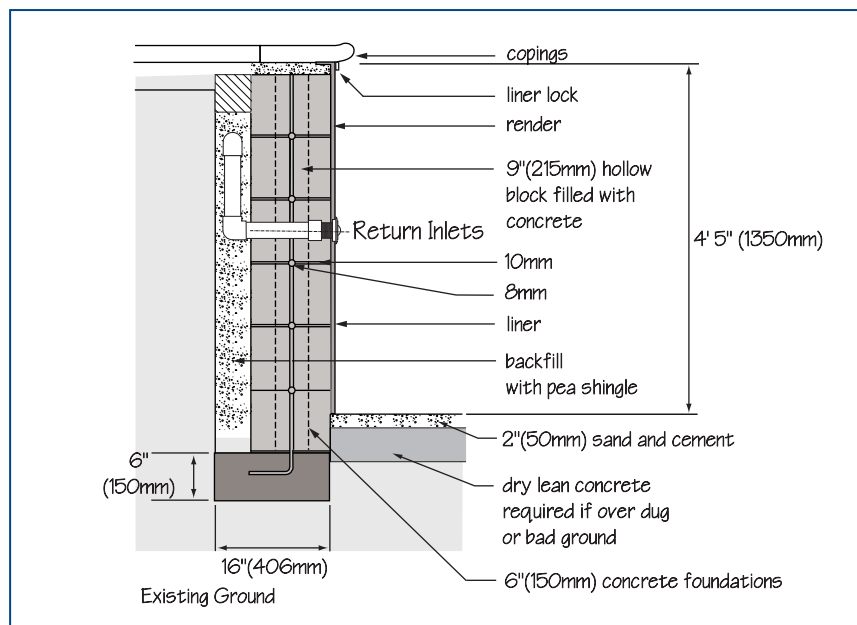
POOL DIMENSIONS

Flat Bottom Pool

Flat Bottom Pool



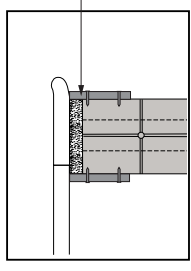
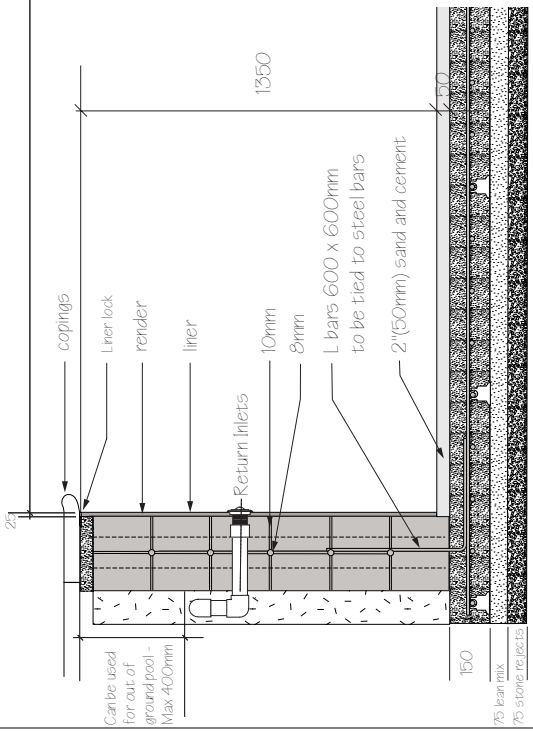
20' x 10'	A 20'	B 10'	D 4'5"	T 1'3"
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It must be stressed that the structure and quantity of the materials shown in the above illustration should be taken as a guideline only. Actual detailed structure and quantities required will depend on local ground conditions.

Finished Pool Size

LONGITUDINAL SECTION

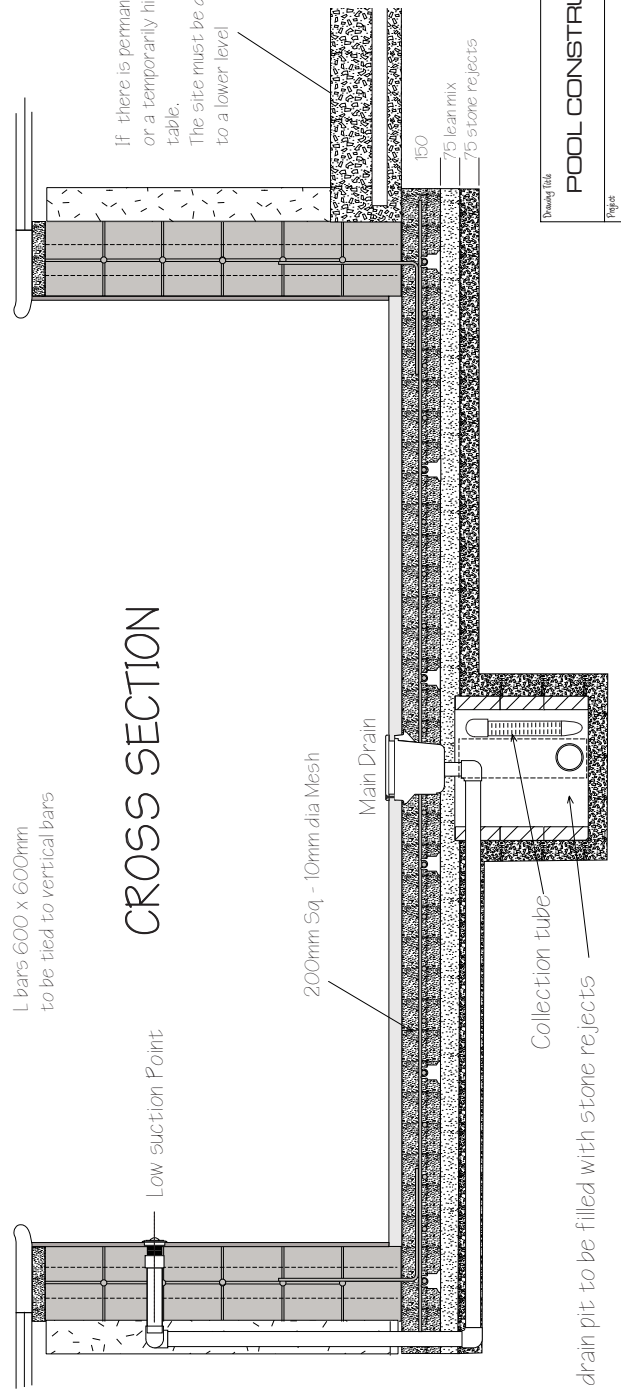


Main drain pit to be filled with stone rejects

Shuttered concrete to bring the wall up to the required level

L bars 600 x 600mm to be tied to vertical bars

CROSS SECTION



If there is permanent or a temporarily high water table. The site must be drained to a lower level

Client

Clearwater SWIMMING POOLS LTD

THE STUDIO
81 LANGLEY CLOSE
HEADINGTON
OXFORD OX3 7DB

POOL CONSTRUCTION DETAILS

Project No	Page No	Sheet No	Page No
		05/09/01	IV

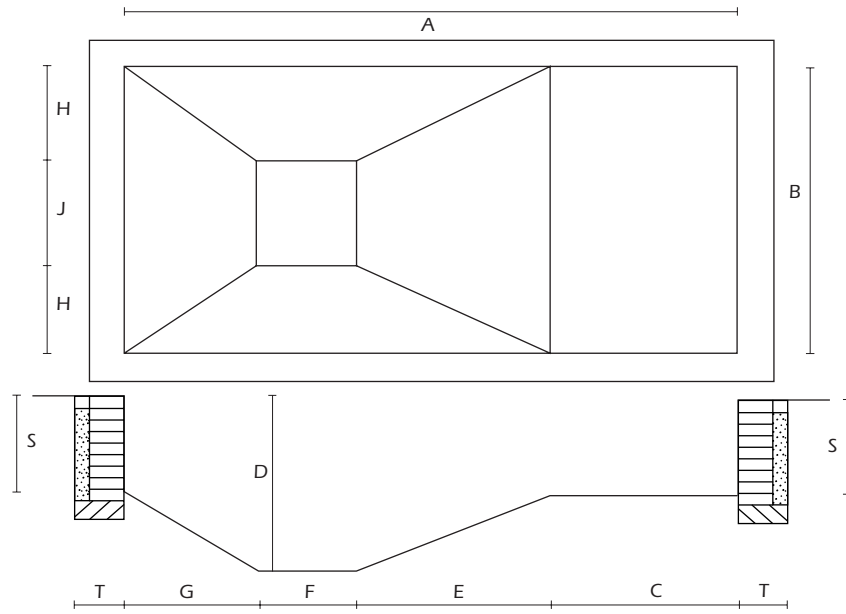
Sheet 1 of 1

CW/STD-011

POOL DIMENSIONS

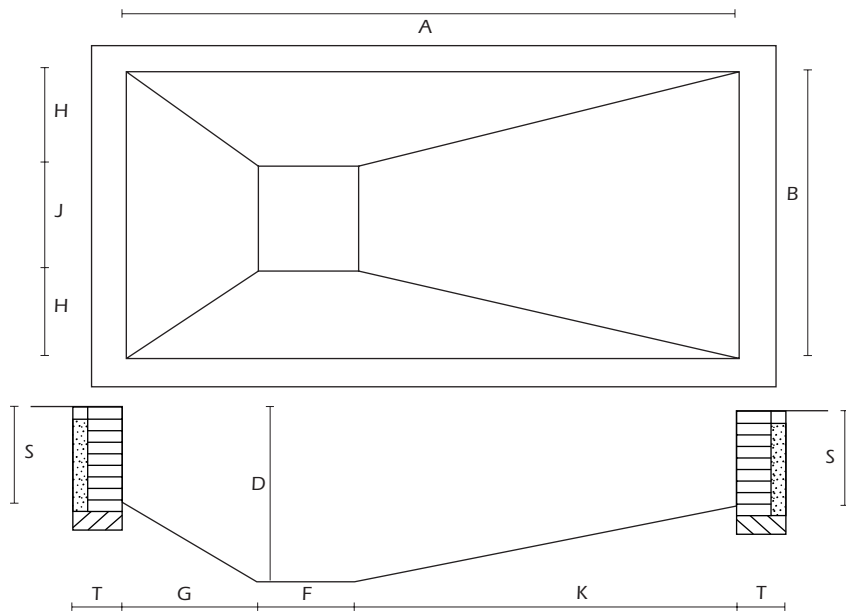
Hopper Pools

Shallow
End
Hopper
Pool



	A	B	C	D	E	F	G	H	J	S	T
20' x 10'	20'	10'	6'	5' 3"	5'	4'	5'	3'	4'	3'4"	1' 3"
24' x 12'	24'	12'	8'	5' 3"	7'	4'	5'	4'	4'	3'4"	1' 3"
28' x 14'	28'	14'	10'	6' 0"	9'	4'	5'	5'	4'	3'4"	1' 3"
30' x 14'	30'	14'	10'	6' 0"	11'	4'	5'	5'	4'	3'4"	1' 3"
32' x 16'	32'	16'	10'	6' 9"	11'	6'	5'	6'	4'	3'4"	1' 3"
38' x 16'	38'	16'	12'	7' 6"	14'	6'	6'	6'	4'	3'4"	1' 3"
40' x 20'	40'	20'	12'	7' 6"	16'	6'	6'	7'	6'	3'4"	1' 3"

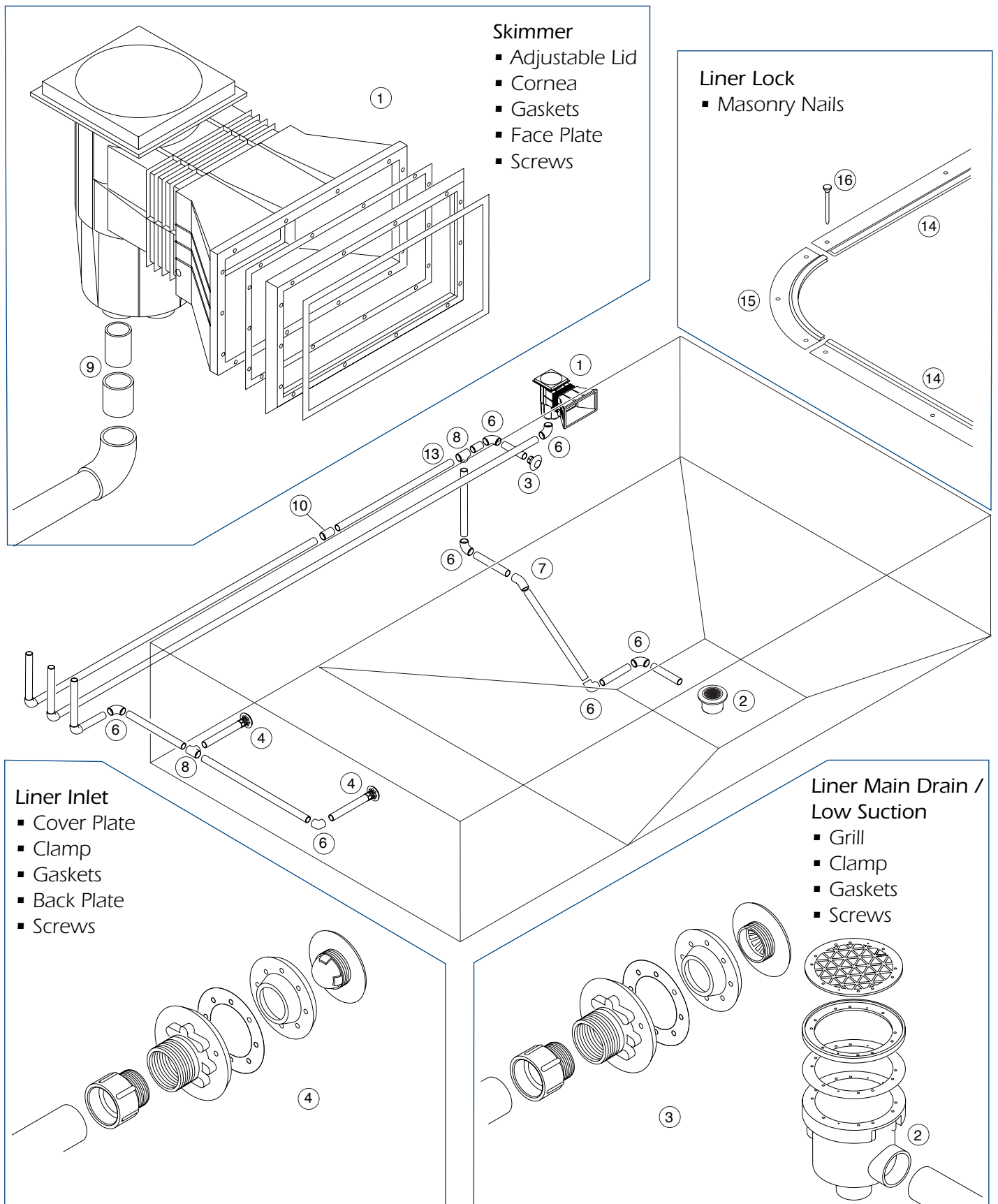
Wedge
Hopper
Pool



	A	B	D	F	G	H	J	K	S	T
20' x 10'	20'	10'	5' 3"	4'	5'	3'	4'	11'	3'4"	1' 3"
24' x 12'	24'	12'	5' 3"	4'	5'	4'	4'	15'	3'4"	1' 3"
28' x 14'	28'	14'	6' 0"	4'	5'	5'	4'	19'	3'4"	1' 3"
30' x 14'	30'	14'	6' 0"	4'	5'	5'	4'	21'	3'4"	1' 3"
32' x 16'	32'	16'	6' 9"	6'	5'	6'	4'	21'	3'4"	1' 3"
38' x 16'	38'	16'	7' 6"	6'	6'	6'	4'	26'	3'4"	1' 3"
40' x 20'	40'	20'	7' 6"	6'	6'	7'	6'	28'	3'4"	1' 3"

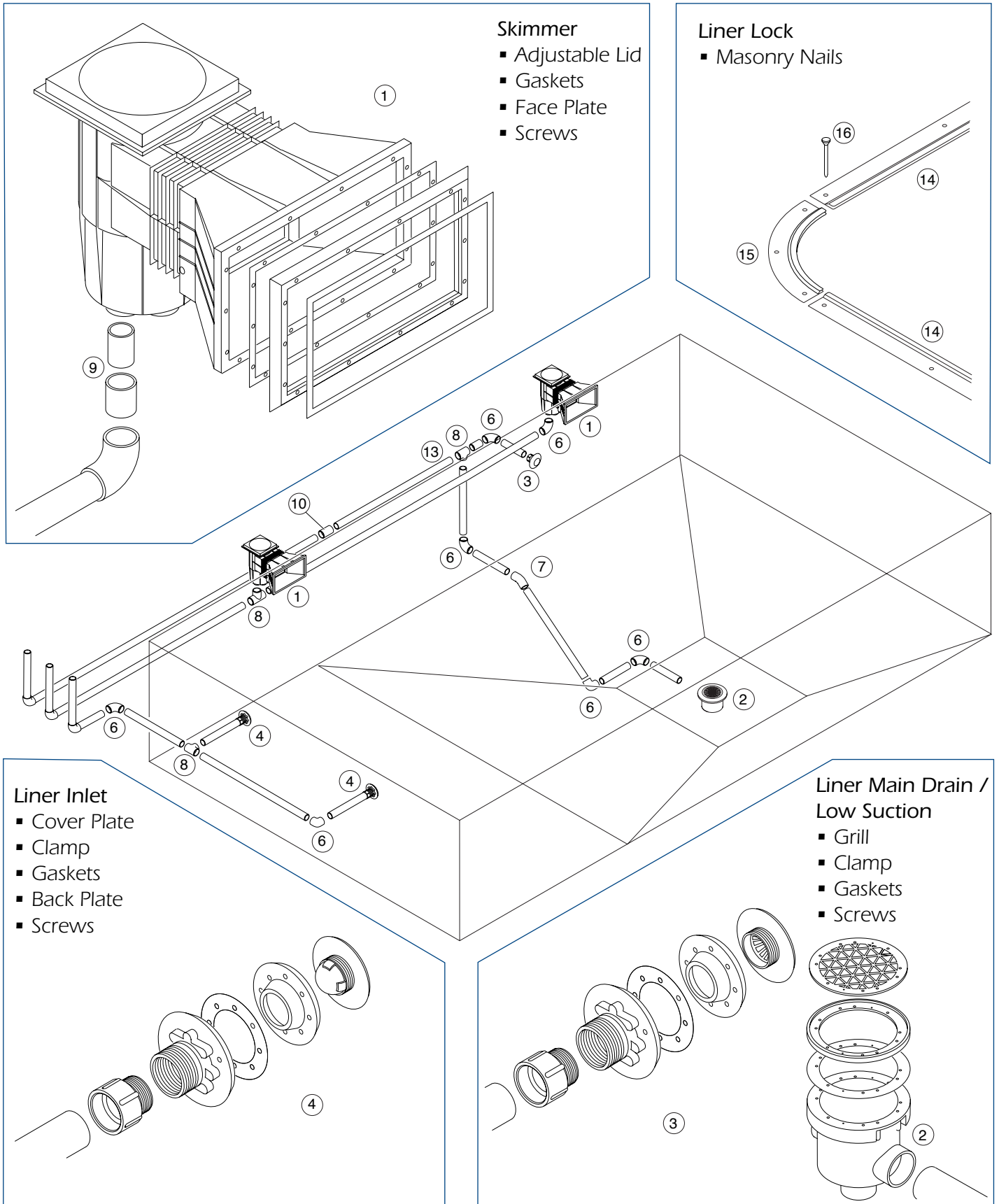
POOL LAYOUT

Small Pool

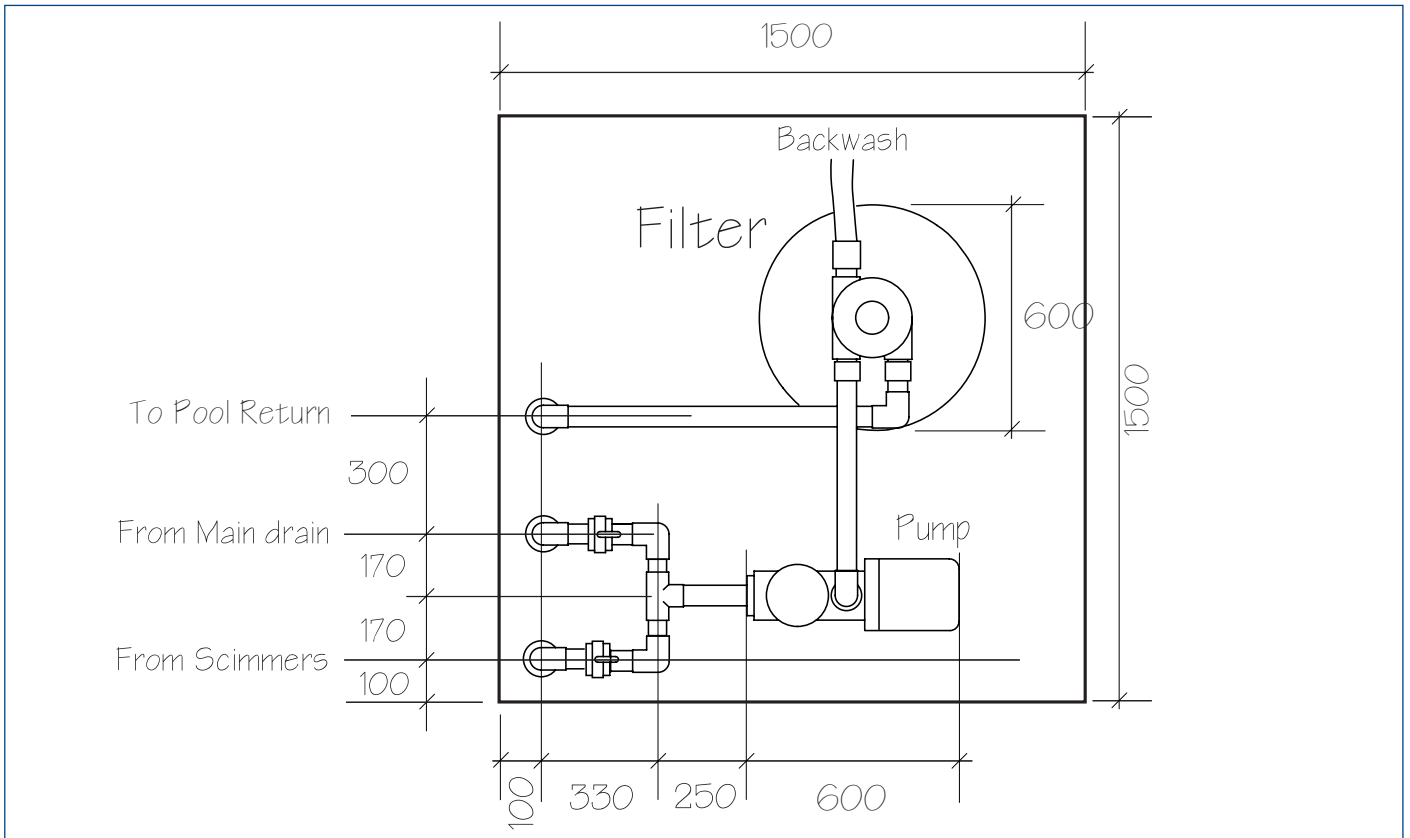


POOL LAYOUT

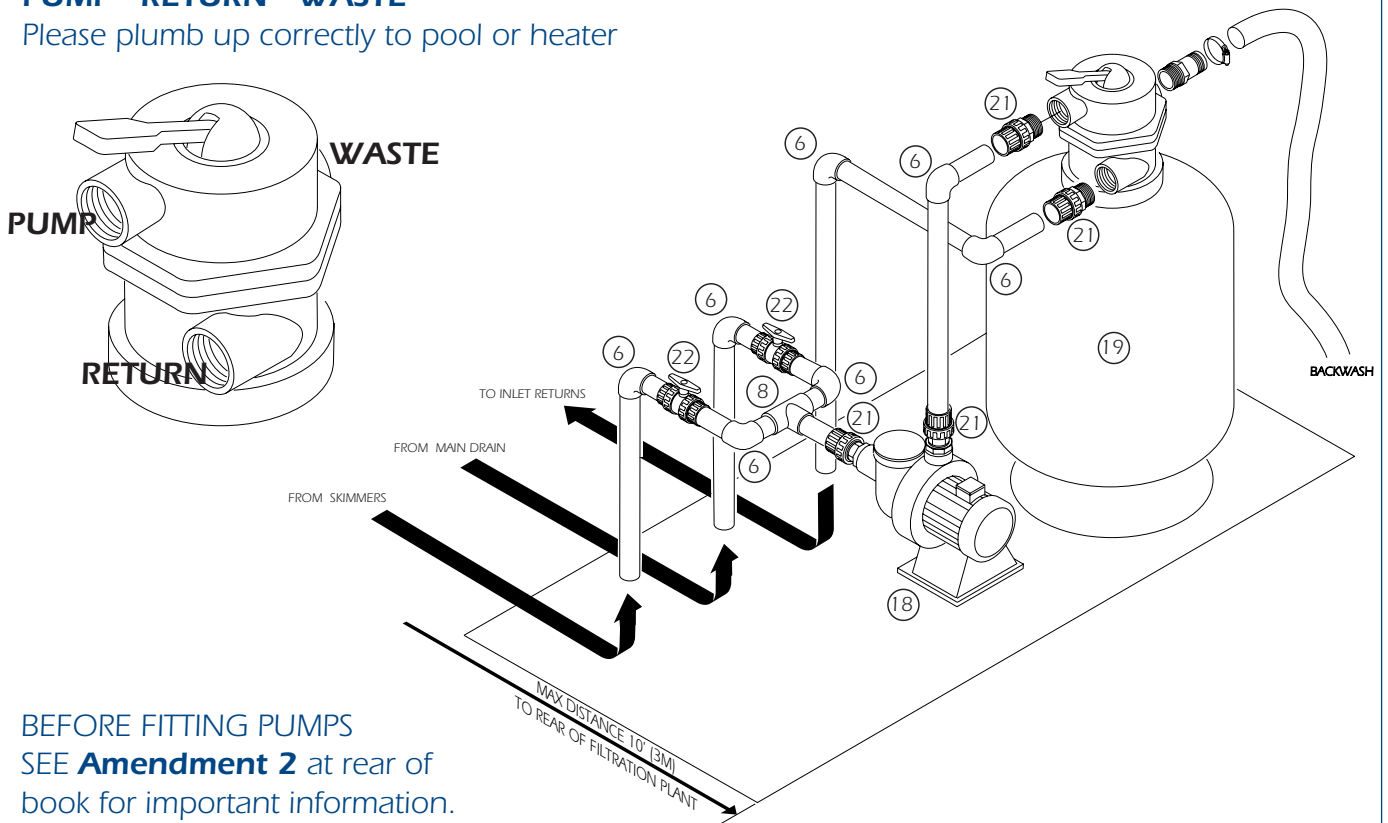
Large Pool



POOL FILTRATION Plumbing

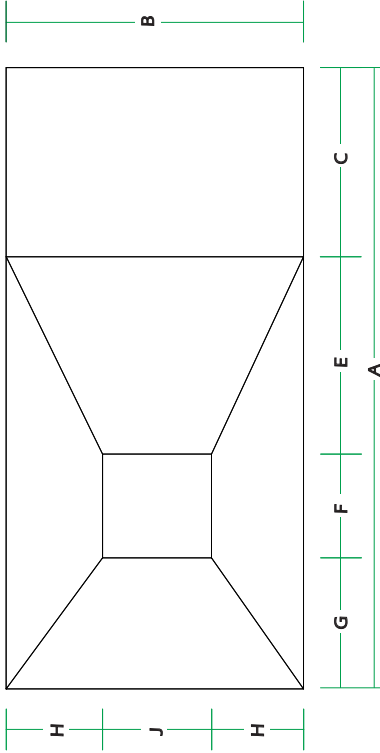


WHEN PLUMBING THE MULTI PORT
YOU WILL FIND EACH PORT MARKED
PUMP - RETURN - WASTE
Please plumb up correctly to pool or heater



BEFORE FITTING PUMPS
SEE **Amendment 2** at rear of
book for important information.

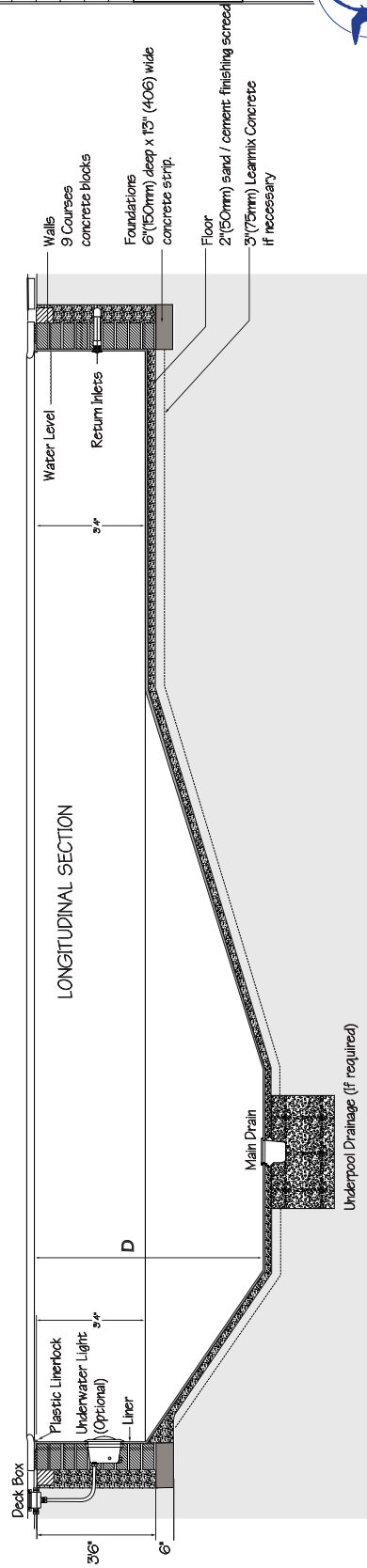
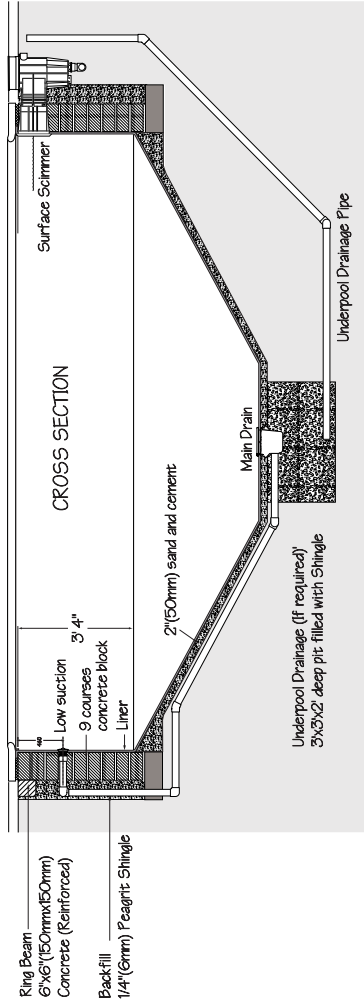
PLAN



FINISHED DIMENSIONS

SIZE	A	B	C	D	E	F	G	H	J	GALLONS
24'x12'	24'	12'	8'	5'3"	7'	4'	5'	4'	4'	6,500
28'x14'	28'	14'	10'	6'	9'	4'	5'	5'	4'	9,000
30'x14'	30'	14'	10'	6'	11'	4'	5'	5'	4'	10,000
32'x16'	32'	16'	10'	6'9"	11'	6'	5'	6'	4'	12,500
38'x16'	38'	16'	12'	7'6"	14'	6'	6'	6'	4'	16,500
40'x20'	40'	20'	12'	7'6"	16'	6'	6'	7'	6'	20,000

3/4" SHALLOW END FINISHED DIMENSIONS



FLAT BLOCK SECTION LINER POOLS

Clearwater
SWIMMING
POOLS LTD



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81 LANGLEY CLOSE
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Drawing Title

POOL CONSTRUCTION DETAILS

Sheet 1 of 1

Project

Drawing No

Drawn By

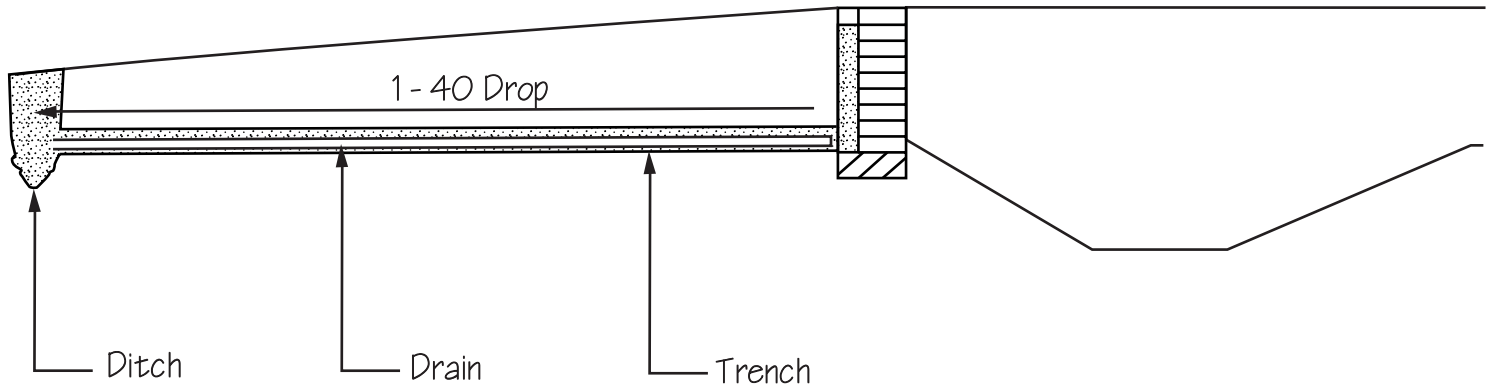
JV

Date

8/11/01

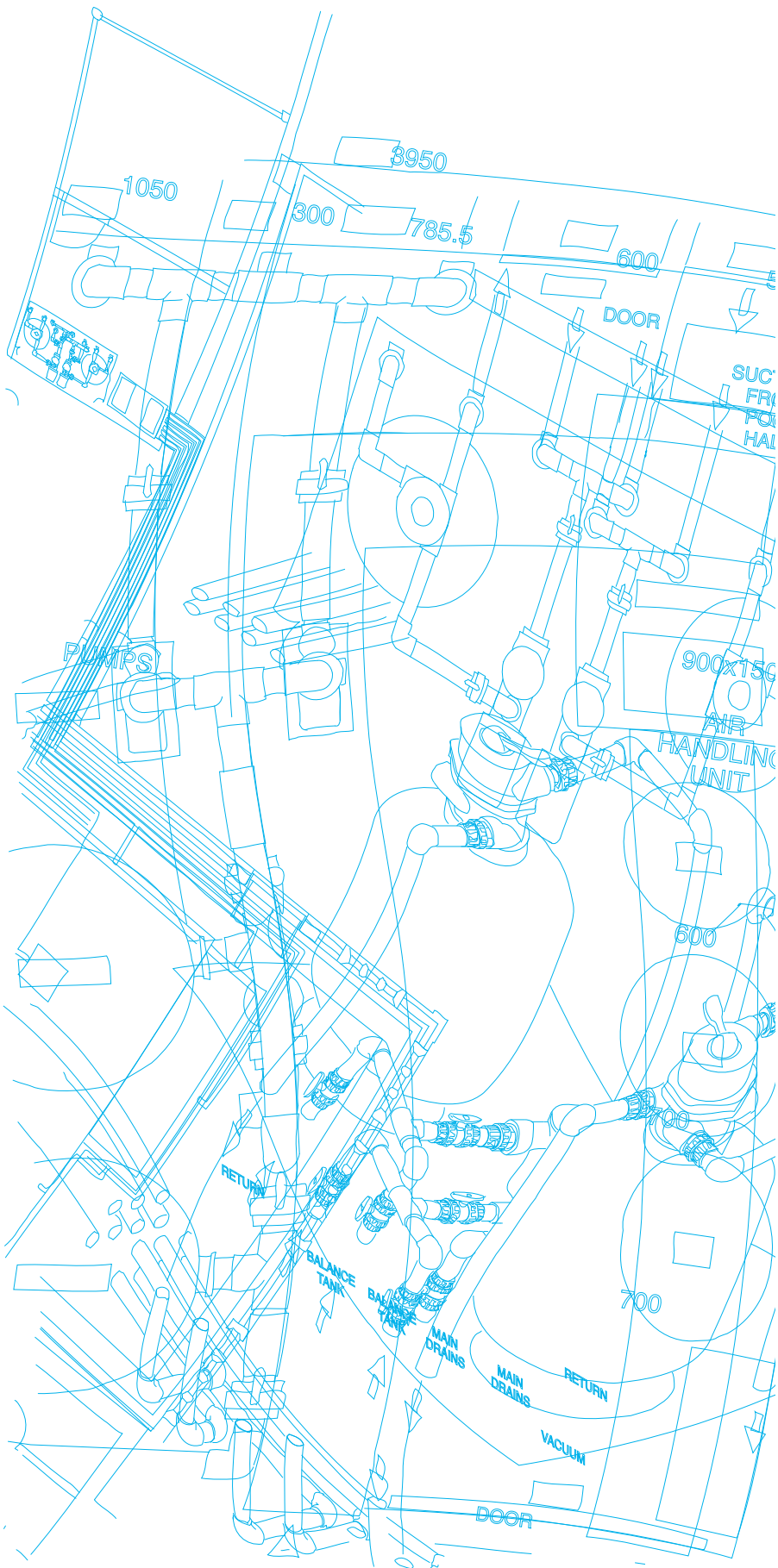
SITE DRAINAGE DETAILS

SLOPING GROUND



PARTS LIST

Building materials.....	44
Liner kits.....	45
Parts index.....	46 - 48



BUILDING MATERIALS

Pool size & Gallonage	Profile	Excavated spoil cu. m	Foundations 1 part cement to 4 parts 3/4" to dust in aggregate		conc. reb. blocks 18x9x4	Mortar for block walls 1 part cement to 4 parts B.S.1200 sand		Rendering 1 part cement to 4 parts B.S.1200 sand		Floor screed 1 part cement to 4 parts sand		Back fill pea single		Ring beam 1 part cement to 4 parts 3/4" to dust in aggregate		1/2" or 12mm reinforcing rod
			Ready mix cu. m	Mixed on site Cement		Cement	Aggregate	Cement cu. m	Sand cu. m	Cement cu. m	Sand cu. m	Cement cu. m	Sand cu. m	Cement cu. m	Sand cu. m	
20x10' 5000 G	& wedge	37	1.3	14 bags	252	20 bags	1.5	8 bags	12 bags	1.3	5 bags	3.50	5 bags	0.7	160'	
24x12' 6500 G	Hopper & wedge	45	1.5	14 bags	450	22 bags	1.6	10 bags	16 bags	2	6 bags	3.75	6 bags	0.8	180'	
28x14' 9000 G	Hopper & wedge	63	1.75	18 bags	525	26 bags	1.8	12 bags	22 bags	2.8	8 bags	4.25	8 bags	1	200'	
30x15' 5000 G	Hopper & wedge	67	1.85	18 bags	550	26 bags	1.9	12 bags	24 bags	3.0	8 bags	4.5	8 bags	1	220'	
32x16' 5000 G	Hopper & wedge	83	2.0	22 bags	600	28 bags	2	14 bags	26 bags	3.6	8 bags	5	8 bags	1.1	230'	
38x16' 5000 G	Hopper & wedge	101	2.25	22 bags	675	30 bags	2.3	16 bags	32 bags	4.3	10 bags	5.75	10 bags	1.2	250'	
40x20' 5000 G	Hopper & wedge	131	2.5	26 bags	750	34 bags	2.6	18 bags	42 bags	5.6	10 bags	6.25	10 bags	1.3	280'	

Basic building materials to be purchased locally - Please note the quantities shown here are only approximate
 If you require a Flat Bottom Pool - You must use Hollow Blocks with steel reinforcement - Ref: page 36

Small and Large Liner Kits for Blockwall Construction

Pack 'A'

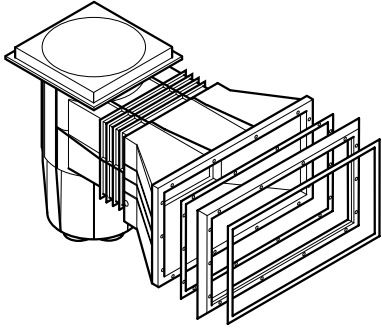
Part No.	Description	20'x10'	24'x12'	28'x14'	30'x14'	32'x16'	38'x16'	40'x20'
1	Wide Angle Liner Skimmer	1	1	1	1	2	2	2
2	Liner Main Drain & Low Suction	1	1	1	1	1	1	1
3	Low Suction	1	1	1	1	1	1	1
4	Inlet	2	2	2	2	2	2	2
5	Threaded Socket Nipple	2	2	2	2	2	2	2
6	1.5" 90° Elbow	20	20	20	20	22	22	22
7	1.5" 45° Elbow	4	4	4	4	4	4	4
8	1.5" Tee	3	3	3	3	4	4	4
9	1.5" - 50mm Socket Reducer	1	1	1	1	2	2	2
10	1.5" P/P Socket	10	10	10	10	10	10	10
11	Roll PTFE Tape	1	1	1	1	1	2	2
12	250ml Glue	2	2	2	2	2	2	2
13	1.5" ABS Pipe(3 metre lengths)	12	12	15	15	19	19	19
14	3m Length Liner lock	7	7	9	9	10	11	12
15	Liner lock Corner	4	4	4	4	4	4	4
16	Fixings for Liner lock	1	1	1	1	1	1	1
17	Silicone Sealant	1	1	1	1	1	1	1

Pack 'B'

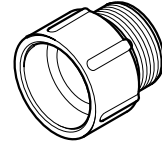
Part No.	Description	20'x10'	24'x12'	28'x14'	30'x14'	32'x16'	38'x16'	40'x20'
18	0.5 hp Pump	1	1	N/A	N/A	N/A	N/A	N/A
18	0.75 hp Pump	N/A	N/A	1	1	N/A	N/A	N/A
18	1 hp Pump	N/A	N/A	N/A	N/A	1	1	1
19	500mm Sand Filter	1	1	N/A	N/A	N/A	N/A	N/A
19	600mm Sand Filter	N/A	N/A	1	1	1	1	1
20	Filter sand (Bags)	4	4	6	6	6	6	6
21	P/T Socket Union	5	5	5	5	5	5	5
22	1.5" Double Union Ball Valve	2	2	2	2	2	2	2

PARTS INDEX

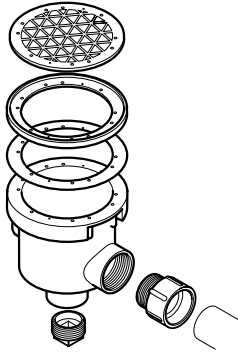
1 Wide Angle Liner Skimmer



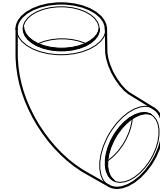
5 1.5" Threaded Socket



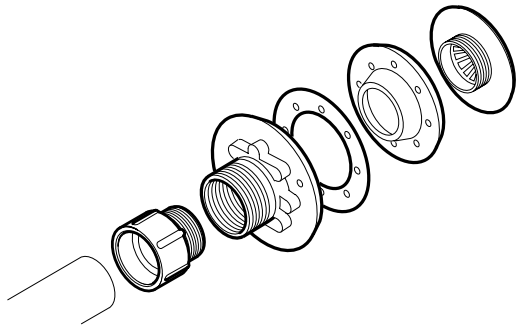
2 Liner Main Drain - Low Suction



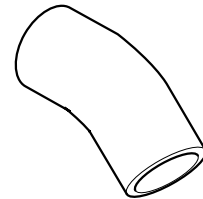
6 90° 1.5" ABS Elbow



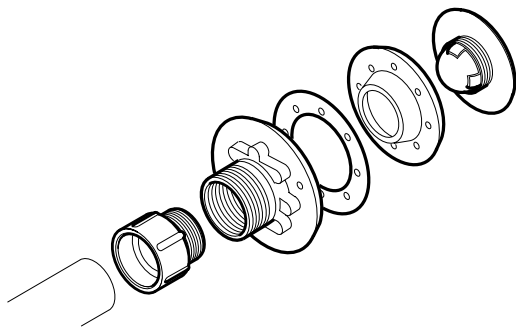
3 Low Suction



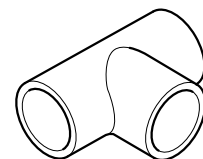
7 45° 1.5" ABS Elbow



4 Liner Inlet

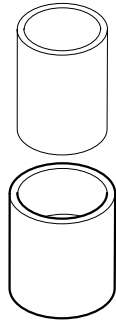


8 1.5" ABS Tee

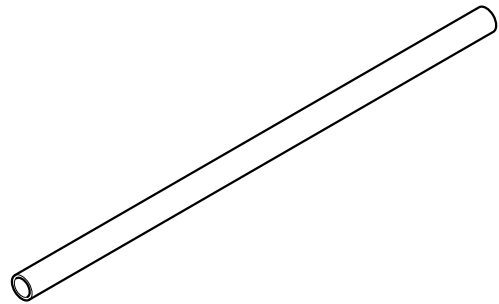


PARTS INDEX

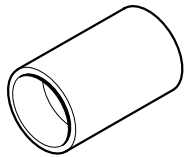
9 1.5"- 50mm Socket Reducer



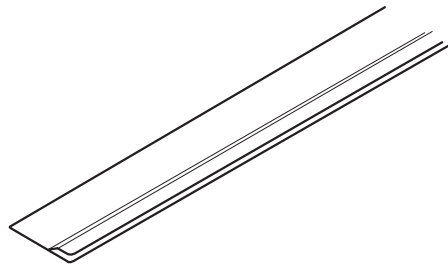
13 Class 'C' ABS Pipe



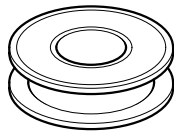
10 1.5" ABS P/P Socket



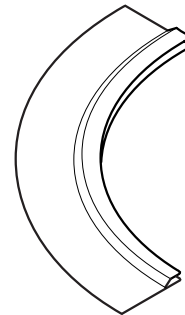
14 Wide Back Linerlock



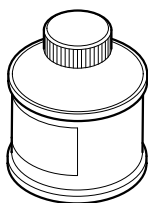
11 Roll PTFE Tape



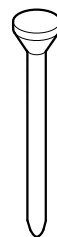
15 Linerlock Corner



12 ABS/PVC Solvent Cement



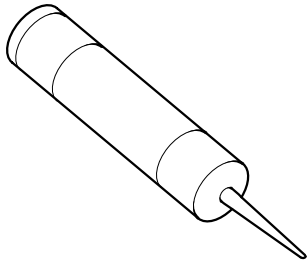
16 Masonry Nails - Linerlock



PARTS INDEX

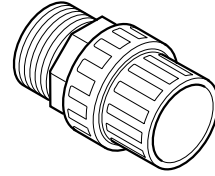
17

Silicone Sealent



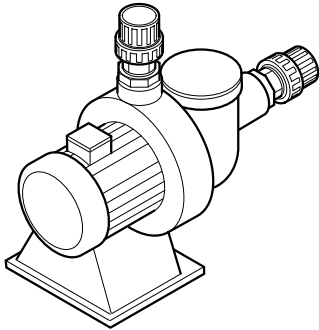
21

1.5" P/T ABS Socket Union



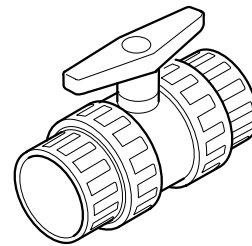
18

Self Priming Pump



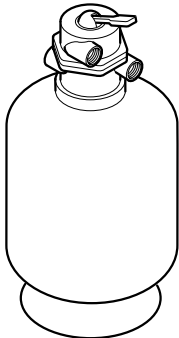
22

1.5" Double Union Ball Valve



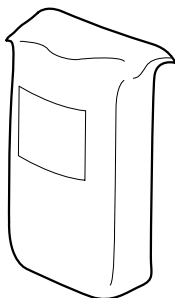
19

High Rate Sand Filter



20

Bag Filter Sand



VINYL LINER POOLS (In ground)

- a. All liner pool wall structures shall be capable of withstanding internal and external pressures, whether the pool is empty or full.
- b. All liner pools shall have adequate ring beam, and under pool drainage; extra care must be taken to install adequate under pool drainage in high water table areas.
- c. The interior dimensions, depths, and floor profile to be very precise to ensure a well filling liner without undue stress in any area.
- d. The final floor screed (50mm) shall be composed of fine loam sand 6:1 cement DAMP MIX, well tamped, floated and troweled to a perfect flat, smooth finish. In wet, muddy conditions the floor shall be excavated to allow approximately 75mm of 8.1 dry lean mix concrete to provide a clean, well drained, consolidated floor.
USE ONLY SOFT SAND.
- e. All walls and floor to have a perfect finish without pits or protrusions and to be smooth; all to be thoroughly swept and vacuumed before the liner is fitted.

Vinyl Liner Pools (Partially or completely out of ground)

Where an in ground liner pool structure is constructed above ground, or partially above ground, extra stresses on the structure will be exerted when the pool is full, without the compensating benefit of backfill. In these circumstances, a structural engineer must give written recommendations to ensure the future safety of the pool.

POOL SHELLS

Pool shell

The following standard, codes and recommendations are useful reference:

BS8007 Design of concrete Structures for Retaining Aqueous Liquids (see page 6)

CP110 The structural use of concrete.

Code of Practice for the spraying of concrete by the dry process otherwise known as Guniting or Shotcrete. (Assoc. of Guniting Contractors)

Cement & Concrete Association construction booklet Concrete Swimming Pools (ISBN 0 7210 1265 5)

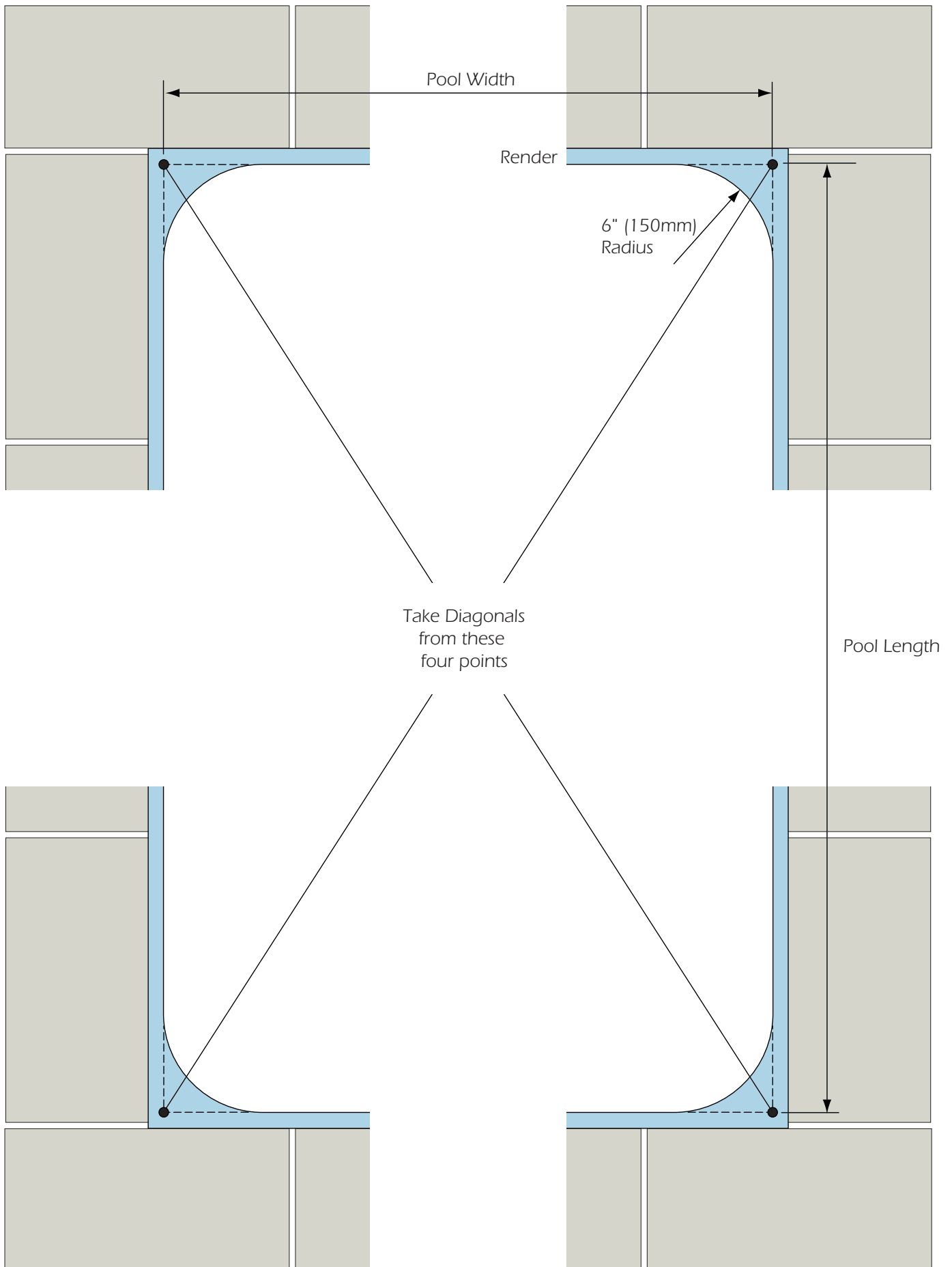
Concrete Pools (freestanding and in-ground) build to 2.1 Construction Methods.

- a. The specification shall be drawn in accordance with recognised Codes of Civil Engineering and Building Practice.
- b. Design calculations and structural drawings shall be prepared by a qualified structural engineer.
- c. All works shall be supervised and carried out by the contractor in accordance with recognised good civil engineering and building practice.

- d. Recommendations as far as design, workmanship and materials of the appropriate British Standards Institution's Code of Practice shall be observed at all times.
- e. All pools shall conform to the following:
 - i. In-ground pool shells shall be designed and constructed to meet the internal and external water pressures, as well as withstand soil forces from additional structures or separate foundations which may be imposed upon them. Provision shall be made for hydrostatic forces (subsoil water pressure) whether by under floor and general drainage, hydrostatic relief valve, mass concrete, pulsed sump well or a combination of all or some of these methods.
 - ii. Design provision shall help protect the pool shell, fixtures and fitting against frost; it must be appreciated correct winterising procedure will properly prevent frost damage. The contractor should instruct the client as to the method of winterisation he recommends for his type of pool.
 - iii. Free-standing pools shall be designed and constructed to withstand internal forces placed upon the shell.
- f. All pool shells shall have an adequate under pool drainage system constructed, irrespective of soil conditions at the time of excavation.
- g. Pool shells must not be sited where damage to the footing of existing buildings could occur; nor must they be located near to any trees where roots might disturb the structure.
- h. Excavations shall be carried out to a high degree of accuracy with hand trimming as necessary.
- i. Areas of over dig shall be brought back to correct levels using dry lean concrete to avoid possible subsidence.
- j. All pool fittings (skimmers, inlets, outlets, underwater lights, etc.) shall be installed in accordance with manufacturers' instructions. All pipe work must be installed, and secured against possible movement so that settlement cannot take place.
- k. Backfilling must be carried out with 25mm down rejects, or fine pea gravel or similar, to provide free draining backfill with no possibility of settlement.

Amendments 1

Measuring the Diagonals



Amendments 2

Pumps

IMPORTANT

INSTRUCTIONS FOR ELECTRIC CENTRIFUGAL PUMPS.

**READ CAREFULLY BEFORE CONNECTING THE PUMP TO
AN ELECTRIC SUPPLY,
WORK MUST BE CARRIED OUT BY QUALIFIED
PERSONNEL**

1. Always refer to the manufacturers's instruction manual before operating the pump.
2. Check the pump data plate for correct voltage.
3. Make sure the pump is properly earthed.
4. Always use a motor protector/contactor set for the correct current (Amps) as indicated on the pump data plate.
5. To comply with regulations and for personal protection a 30mA R.C.D. should also be used.
6. Customers are advised to refer to the I.E.E. Wiring Regulations before connecting and running the pump.
7. On single phase pumps the rotation is preset
On three phase pumps always check the rotation whenever the pump is connected to a new supply.
Rotation is normally clockwise viewed along the pump towards the impeller. If the rotation is wrong, change two phase wires.
Do not alter the earth wire (GREEN / YELLOW).
8. Never run the pump dry.
9. Ensure rotating parts are free to turn before starting the pump.
10. Always drain the pump after use in cold weather to prevent icing up.
11. Warranty is for workmanship and materials only.
Stators are not covered by warranty unless a motor overload is used. The warranty period is one year from date of purchase.

UNDER-WATER LIGHT CONNECTIONS

The cable between the deck box and transformer should be suitably sized in accordance with current IEE Regulations. The size of cable used will differ depending on the type of cable used, the distance of the cable run and the installation method used.

The minimum size of cable used, regardless of distance should be 4mm and the minimum length should be 5m.

As a general guide, if using Steel Wire Armoured cable buried direct in the ground, 4mm will be suitable for lengths up to 20m and 6mm cable will be suitable up to lengths of 30m.

For distances in excess of 30m a qualified electrician should be consulted for the correct calculations of cable size to be used.

When the connections are made a voltage test should be taken to ensure there is 12v at the deck. If the voltage is under or over, the connections in the transformer can be altered onto different tapings to give the correct voltage.

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