LANGE GmbH

Creative in the home and garden

Lothar Lange GmbH©

DIA - NATURE-POND OUT OF CLAY®

INSTRUCTIONS ON HOW TO BUILD

THE MOST NATURAL WAY TO DO POND-SEALING:

- no foreign body in the bottom
- pure natural material without additions or supplements, consequently free of harmful substances
- a close-to-nature and ecologically impeccable alternative
- multifunctional use-and applicability-long-lasting, robust and high load-bearing capability
- simple maintenance and safe functionability
- extreme variability in design, and adjustability
- A consistent and valuable contribution toward ecological conservation

D E C K E N

Stein

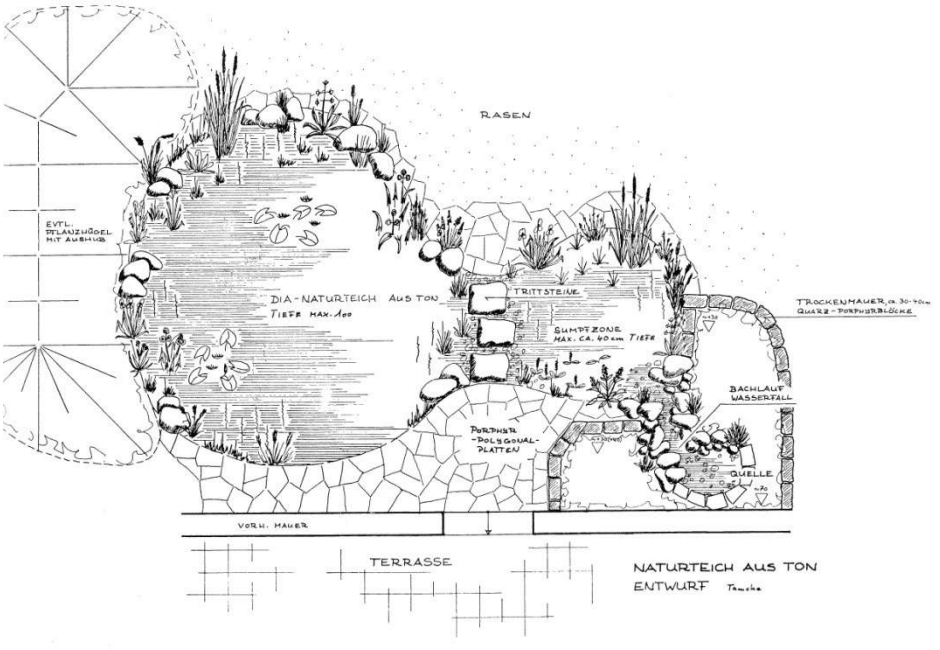
LANGE GmbH
Creative in the home and garden

CONSTRUCTION OF A DIA NATURAL CLAY-POND®

In order that you may have pleasure owning a natural clay-pond, we provide you with some tips towards planning one.

Checklist

- Location, position, shape, depth etc. to be established
- A sunny, or partially shaded location is to be prefered (especially at noon-time!)
- Surrounding items to be included/considered (eg.: terrace, seating places, vegetation etc.)
- Retreat possibilities for amphibians etc. to be considered
- Areal topography to be taken account of (eg. natural inclination to be included/made part of)
- Avoid immediate proximity to trees, shrubs. (nutritional enrichment of the water through falling leaves, this causing rot/decay)
- Hardly any limits set to design, creativity. (but take into account embankment inclination)
- Flatten embankment (not any steeper than 1:3 !!)



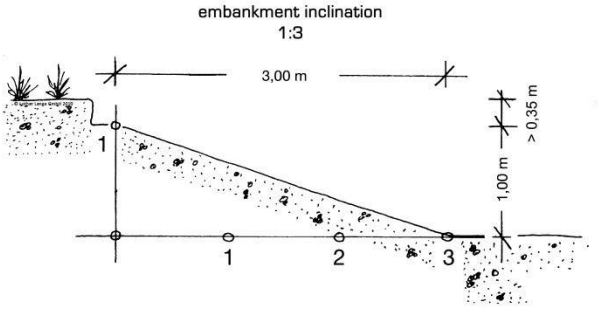
1. Earth-digging and covering (with tarpaulin)

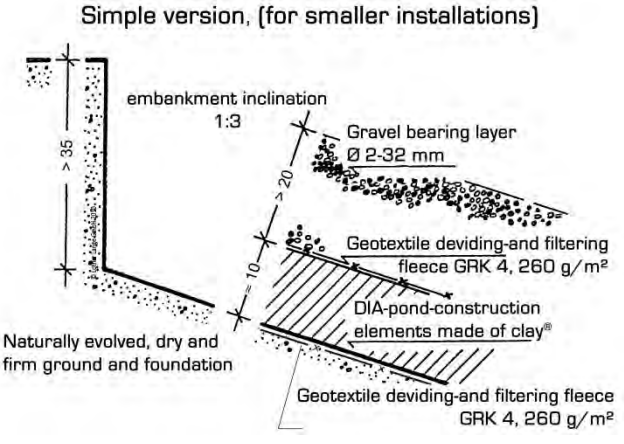
- Establish shape/contours/mark out (eg. with pins).
- Embankments start at ca. 35 cm. under suitable ground.
- do exact leveling of the pond. (be meticulous!).
- Flatten embankments.
- The entire surface / leveling is to be contracted after finishing doing the earth-digging

Embankment inclination of a maximum of 1:3 must not be exceeded! (Flatter would be better 1:4).

Steeper embankments lead to slipping of the burden/load, and causes subsequent leaks in the pond.

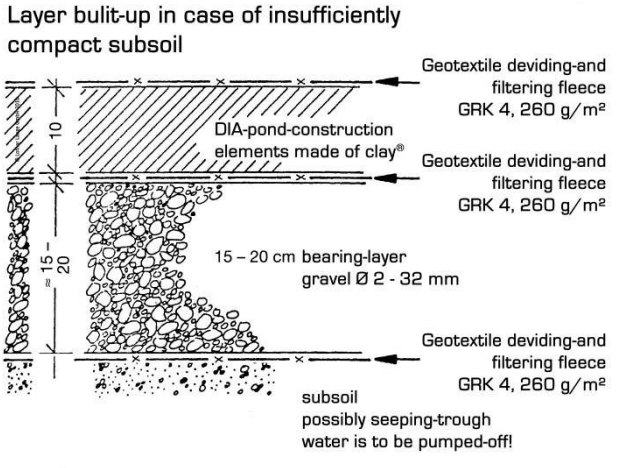
For instance: Asuming a depth of 1 Meter of water, the pond with an embankment inclination of 1:3 at a circumference of ca. 6 meters.





2. Subsoil conditions

- dry, firm, "evolved"
- solid, compact
- moist, slippery, unsuitable for bearing weights, not compact, with water seeping in.
  → *Fill-in (depending on sub-soil conditions) ca. 15 – 20 cm strong layer made of gravel or mineral mixture, eg.: gravel-size of 2 -32 mm, and on top of that folding out of the geotextilefleece GRK 4, 260 g/m² with ca. 50 cm. Overlap at the edges.*
  → *Get a pump sump with a dip pump and float switch.*



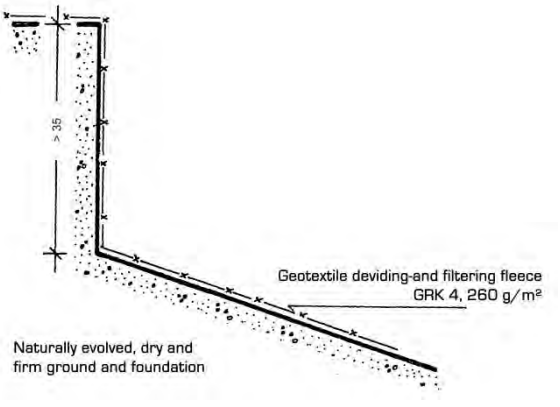
CONSTRUCTION OF A DIA NATURAL CLAY-POND®

3. Instaling the geotextile tarpaulin

On the sub-soil / leveling is to be applied as the deviding shift of the geotextilefleece. The surfaces have to overlap ca. 50 cm. On all sides (cutting edges to be considered).

- Material TERRAM 3000, Polymer-tarpaulin (Polymer-Vlies) thermally hardened, water-permeable
- Geotextile tarpaulin 260 g/m² Class GRK 4

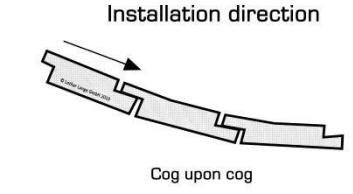
The geotextilefleece, as a separating shift prevents soiling between the subsoil and the DIA-pond-constructionelements made of clay®.

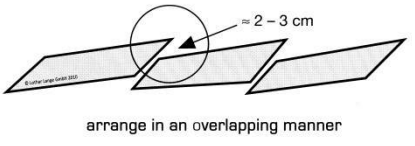


4. Installing the DIA-pond-constructionelements

- fundamentally apply row upon row, slope upon slope, link upon link..
- Start at the upper edge of the pond's pit, down the embankment along the pond's bottom, then again upwards along the embankment up to the upper edge of the pond's basin. At the start of rain, please immediately cover the pond with a plastic covering! Otherwise the clay-layer becomes slippery, and can no longer be tread upon or worked at.

In the event of strong rain, apply a pump sump at the deepest point and pump-up the water with a float switch. The ensuing aperture is to be closed carefully, and secured with more layers of clay, seperately to be shut in.





To watch out for meticulously:

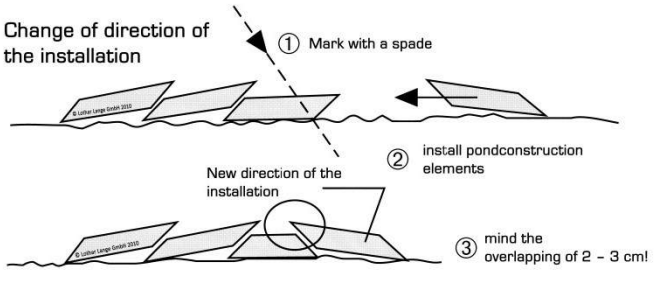
- Elements must connect as closely as possible.
- No bigger gaps (max. 2 cm.) if need be secure/shut with clay slices/disks.
- sloping plates need to overlap ca. 2 – 3 cm.
- visible surfaces of the sloping plates need to neatly be joined (possibly correct with a spade).
- No particles (earth, leaves, wood pebbles etc.) are to be in the joints or slopes.
- Soiled, softened, dry or strongly deformed elements may not be installed.
- Moist, or softened areas (on the surface) are to be removed with a spade and be disposed of.
- During longer working interruptions cover the external not yet kneaded rows with film, then cover same with an at least 10cm weight. Upon continuation with the work remove all objects and seamlessly continue with the installation.

What counts basically:

1. watch for a clean, correct installation!
2. straight rows as possibe (shifting!)
3. Only install as much as can be kneaded in a short time-span, and can be covered with geotextilefleece, and balast/weight can be removed!
4. Work in episodes (subareas)!

Change in installation direction

Neatly mark with a spade the slopes of the first row of elements in the oposite direction (ca. 45°) Now you can re-start from the top-edge. Through these measures you obtain a stronger, steady over-lapping of the slopes at the embankments.



To be especially mindful of:

- Palettes are not to be left in the sunshine!
- if needs be cover with plastic planes, jute or the like, and keep moist.
- Already started palettes are to be shut-in while interrupting the work, (open at the adhesive tapes).
- leased palettes are to be collected and returned free of charge.

5. Kneading of the DIA-Pondconstruction elements

As a result of kneading the pondconstruction elements merge into a homogenous clay-shift.

On condition that

- the basis be dry, firm and able to bear weights, ie. The complete stamp-energy is conducted into the elements.

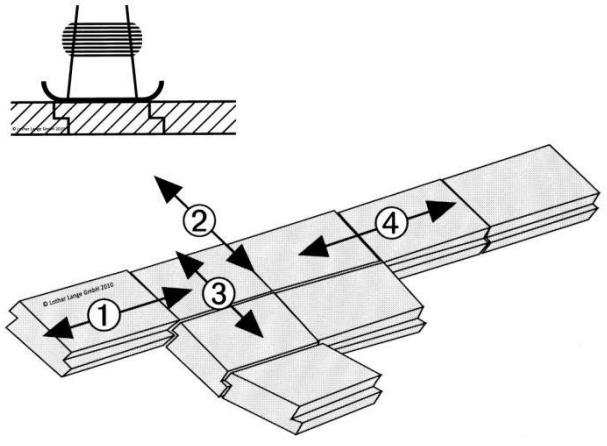
To be used are Vibrationsstamper “BS 50-2” or Schaffusswalze “RT 82-SC-2” of company Fa. Wacker. Other gear is not suitable, as it fails to properly knead the clay layer, and could destroy it!

Procedure / sequence

1. Kneading the pond's edge, at least 2 – 3 times.
2. Overlapping of the slopes at least 2 – 3 times.
3. in the centre of the elements at least 2 – 3 times.
4. the entire surface, crossing present stamp direction at least 2 – 3 times (only applies to processing with the vibration stamper).

What to be especially mindful of:

- stamperplate must lie flat on the surface (do not jam up the machine).
- maintain an even work-tempo!
- Mind stamper noises! They tell one where possible not fully kneaded, holow regions can be located and be kneaded as long as is needed until an even, cracking or banging noise can be heard.
- working the embankments with the schaffuss roller up- and downwards overlapping!
- avoid working- interruptions at the embankments and only at horizontal surfaces.



Please note, that while kneading the prepared elements could be pushed side-wise, that is why you should, whilst not finishing the job all at once, always leave the two outmost rows alone, ie. Not worked at! *(important: interrupting the work always protect these unfinished rows against drying out and adverse weather influences! See: "installation of the clay DIA-Pond-construction-elements")*

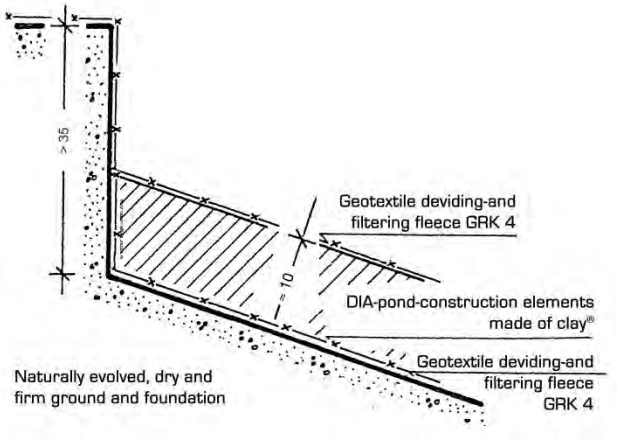
The surfaces are to be covered with geotextilefleece with the proper weights to keep them in place!

6. Installation of the geotextilefleeces

The geotextilefleece is to be laid on the clay surface. The rows are to overlap each-other side-wise by about 50 cm (consider the cutting edges!).

- Material TERRAM 3000. Polymer-fleece, thermally hardened, water-permeable, Geo-textilefleece 260 g/m², Fleececlass GRK 4.

The geotextilefleece guarantees stability, longevity of the clayclosures. At the same time the separating layer between the clay and the compressive layer, and prevents the mingling of the both (Which otherwise would lead to the destruction of both.).

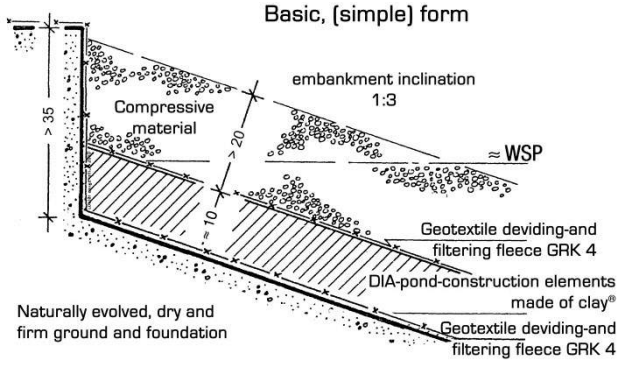


Without geotextilefleece, there is no mineral seal system!

7. Applying the compressive layer

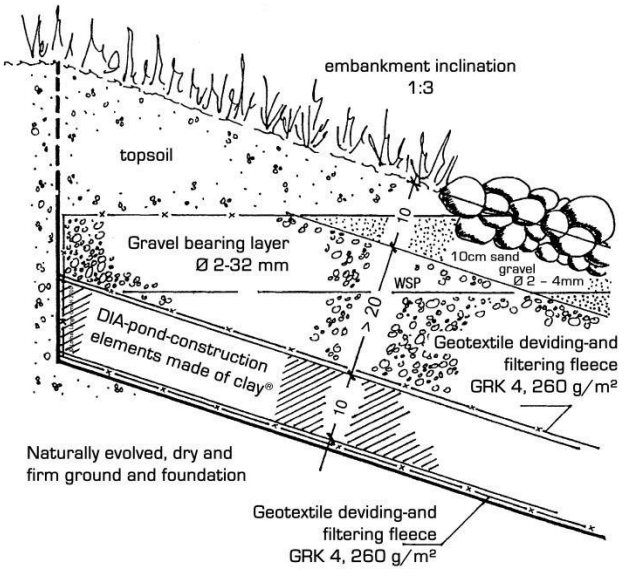
Finally a 20 cm compressive layer is to be applied. It protects the clay layer from drying up and being washed out, moreover it keeps the clay from excessive swelling up, and promotes its load-bearing capacity.

while choosing the compressive material, locality and later use are to be considered! If need be, increase the amount thereof.



The compressive layer is to be applied ca. 20 - 25 cm. *(Attention: We recommend the use of lime-poor material, to counteract algae growth.)*

The compressive layer is to be evenly applied, in correct consentration over the entire surface, then to be leveled off, and if need be compressed or densify.



8. Additional information

- DIA-Pondconstruction clay-elements can be easily done with a spade.
- compactness and durability of clay-sealing depend on careful processing, and observing instructions and constructing-tips!
- Loss of water can be caused by capilary of neighbouring soil. This natural process can be, if absolutely wished be avoided by raising the closure at the pond's edge, or by folding of the geotextile fleece as a seperation between compressive layer and the bottom thereby avoiding the capilary. (See detail: "capilary barrier")
- The water table lies usually ca. 2 – 6 cm under the "OK"clay-closure.
- Vegetation should, considering later mainenance work be done in vegetable baskets. (strongly proliferating aquating plants eg. Reeds, cattail and the like should be kept in closed pots). The plantbaskets are to be put into the compressive layer or let down into the covering eg. Gravel.
- another good piece of advice: earth of aquatic plants should, due to high nutrient content, always be kept in plantbaskets..

Have fun doing pondconstruction, and enjoy experiencing and observing a new piece of life-nature.
DIA-Naturepond out of clay can be found all around the Federal Republic of Germany! If requested, we hold a large amount of information material ready for you, or draw attention to existing Objects, also near you.
Should you have any further questions or queries, just contact us, or make an appointment. We shall be very happy to give you any advice you might require!

OUR DELIVERY SERVICE AT A GLANCE

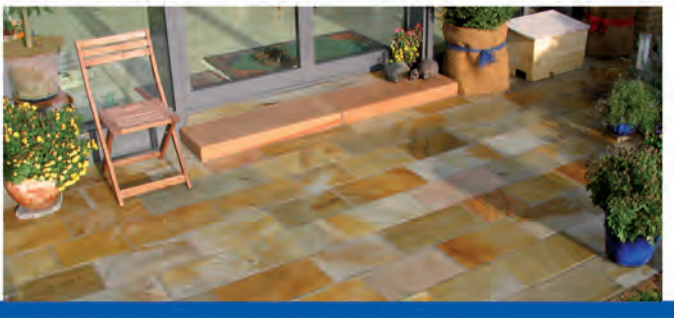
- Hollowstone roofs, roof elements
- element walls, pre-fab staircases, platforms
- logia slabs, balcony elements
- various rod-finished parts
- natural stone or rock for gardening and landscaping
- OASE watertechnics, Lake Management
- DIA clay natural pond with the DIA-claypond-construction-elements: "UNI" and "Jumbo"

NATURAL STONE

highly appreciated for its durability and functionality, we even to-day cherish its exclusiveness!

- Floor plates & paving stones
- chippings & solitary rocks
- Well-stones, water games, and wells
- Stonedrilling,-processing, and care products

You, too can find the natural stone to fit your personal taste!



LANGE GmbH

Creative in the home and garden

OPENING TIMES

Mo.– Fr. : 8:00 – 16:30 Uhr
Sa. : 10:00 – 12:00 Uhr

November - March
closed on Saturdays

LOTHAR LANGE GMBH
Ziegeleistraße 63
30855 Langenhagen
Godshorn
FON 0511.74 44 11
FAX 0511.74 42 41

mail@lange-fertigteildecken.de
mail@lange-natursteine.de

Stand : 12.2012