

PONTE DE LIMA 2023
HEALTHY BALANCE

Tina Vorstandlechner, Judith Theuretzbacher, Mathis Wachsmuth,
Dipl. Ing. Senior Lecturer Roland Wück, University of Natural Resources and Life Science, Vienna

Plot No. 2

Student
Tina Vorstandlechner
tina.vorstandlechner@students.boku.ac.at
Gerambgasse 132
1220 Wien

Student
Judith Theuretzbacher
judith.theuretzbacher@students.boku.ac.at
Operngasse 4/15a
1010 Wien

Student
Mathis Wachsmuth
mathis.wachsmuth@students.boku.ac.at
Konrad-Adenauer-Ring 20
69226 Nußloch
Germany

Advisor
Dipl. Ing. Prof. Roland Wück
roland.wueck@boku.ac.at

University of Natural Resources and Life Science, Vienna

Content

01 Idea

- 01.02 Idea // concept // description
- 01.03 Siteplan // perspective 1 // perspective 2

02 Construction

- 02.02 Groundplan with measurements // Materials plan
- 02.03 Section A-A' // Section B-B'
- 02.04 Cairn positions
- 02.05 Standard details

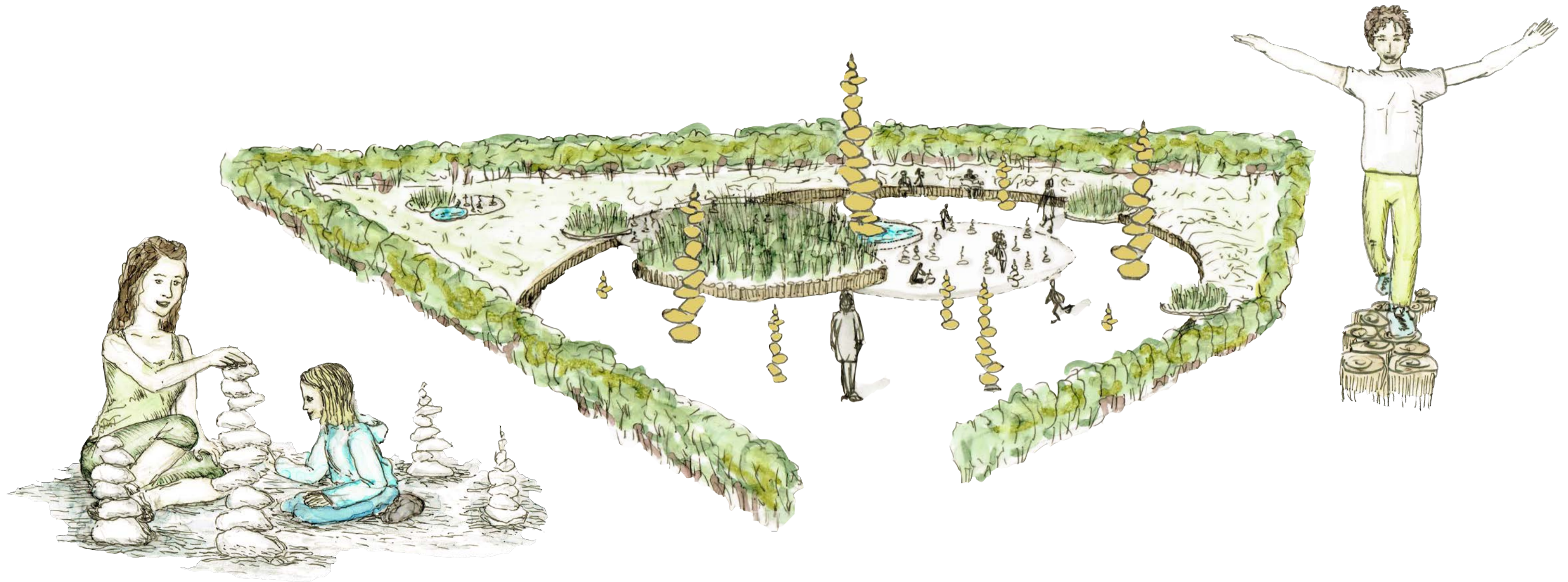
03 Technical details

- 03.02 Cairn (Stone sculptures)
- 03.03 Water basin
- 03.04 Wood circles
- 03.05 Steel circles

04 Planting

- 04.02 Planting plan
- 04.03 Planting list

05 Calculation



A contemplative place that encourages reflection.

Health is crucial to our well-being. Hence, the right balance of stress and relaxation is important. This balance of health is illustrated in the Healthy Balance garden. Balance can play a role in many different areas. Whether it is walking on narrow paths, layering stones or in personal health and everyday life. Keeping everything in balance is an art that people have been dealing with since time is immemorial. The circle plays an essential role in this, the form is always balanced in itself. However, in nature and also in the life of every human being, this perfect balance is an illusion, a goal that can never be reached and a task that never ends.

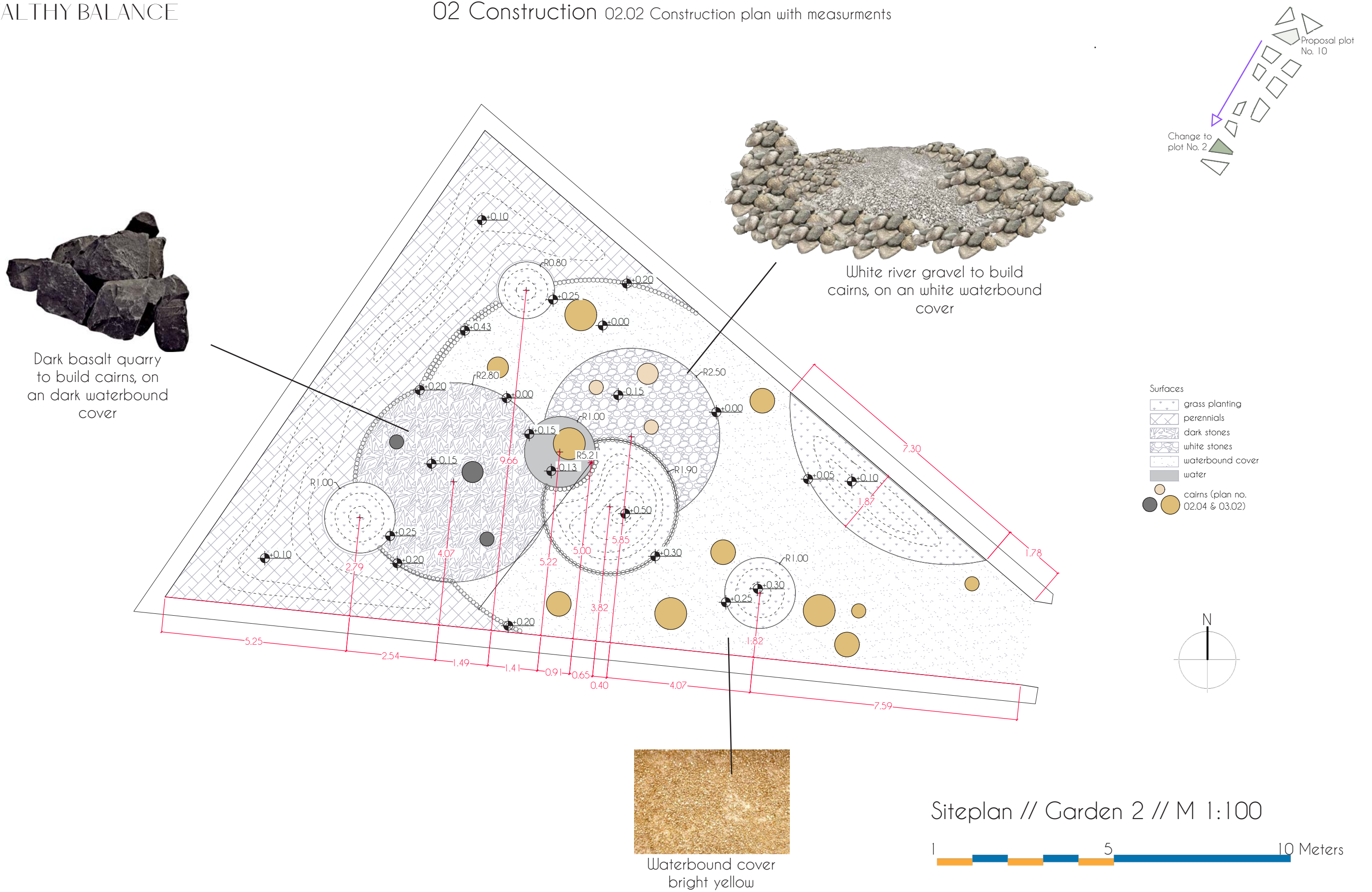
The garden "Healthy Balance" invites you to deal with your personal balance by focusing on order and structure. Upon entering the garden, the calm design has a decelerating effect. Round areas with different stones, water and grasses catch the eye of the observer. The different materials, surfaces and colours reflect different starting situations and conditions. In coordination with each other, a coherent picture emerges that integrates every component. Diversity is reduced to the essential. Several permanently installed cairns exemplify the art of balance. This apparent imbalance, which is in balance, symbolizes the personal pillars of health. For each person, well-being is built up from different parts to form an individual body.

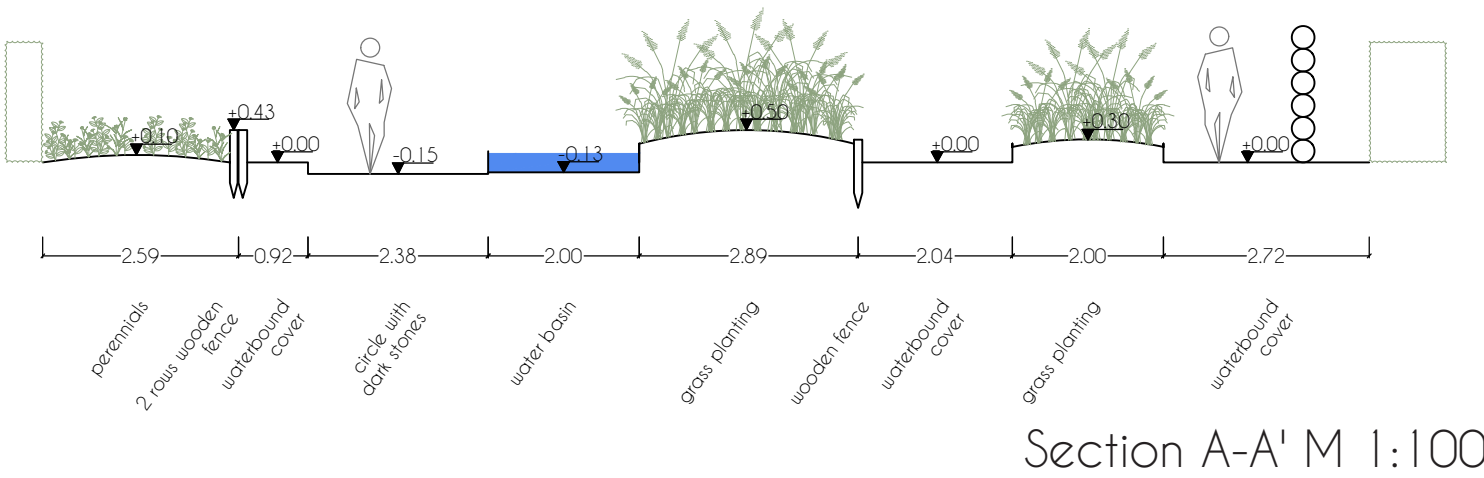
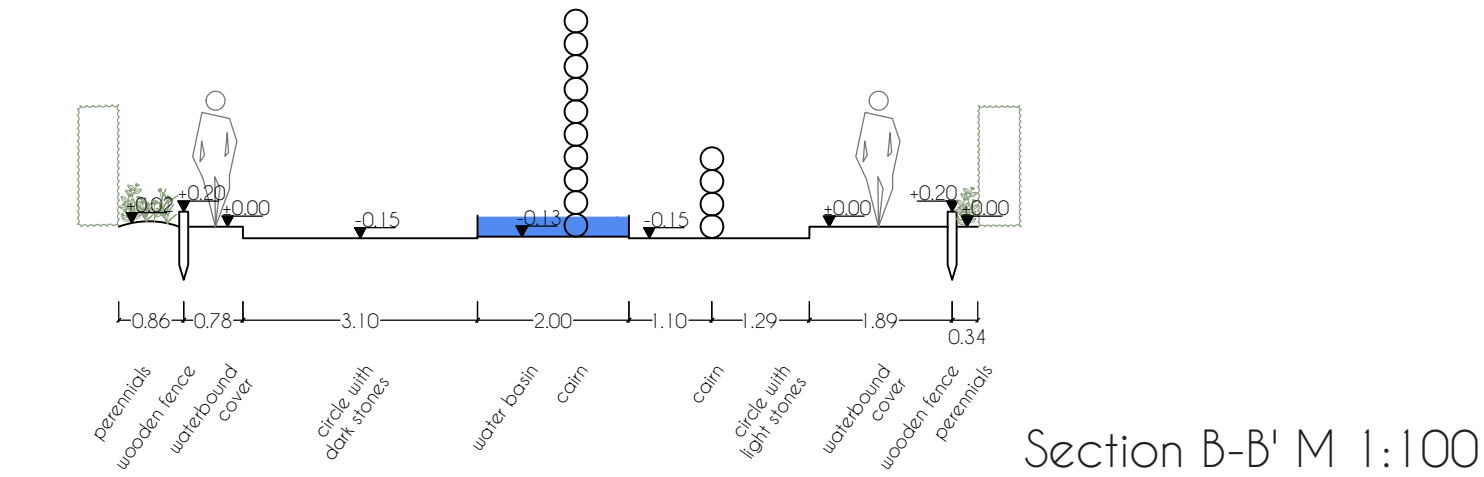
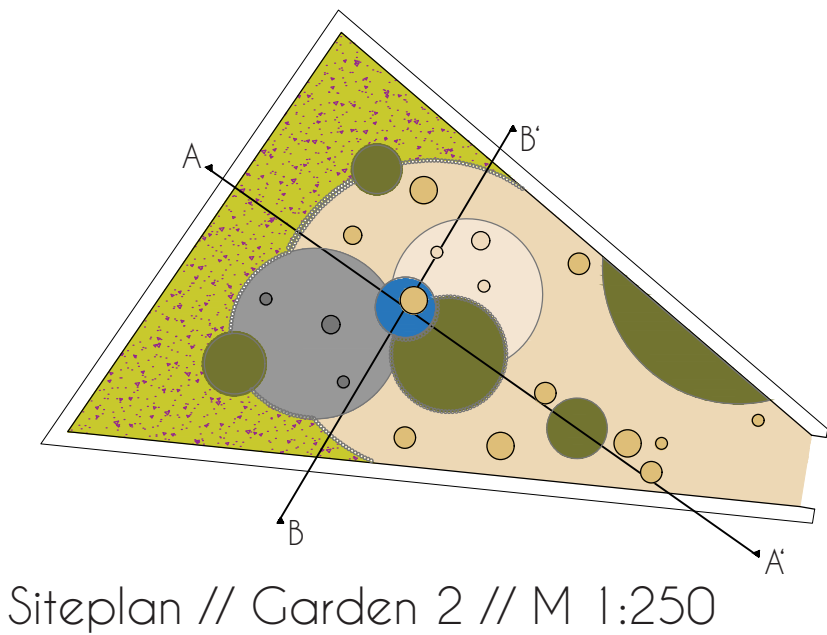
In the sea of stones the visitor is encouraged to test his balance skills. We extend an invitation to contemplation and self-reflection. Take a stone and bring it into balance. The surrounding stones can be stacked to form cairns. The construction combines physical creation with mental focus. Try to make the impossible possible, to see the stones as symbols for areas of your life and to arrange them well and wisely. We invite you to take time and enjoy the atmosphere, to come to peace and thus find your inner balance.

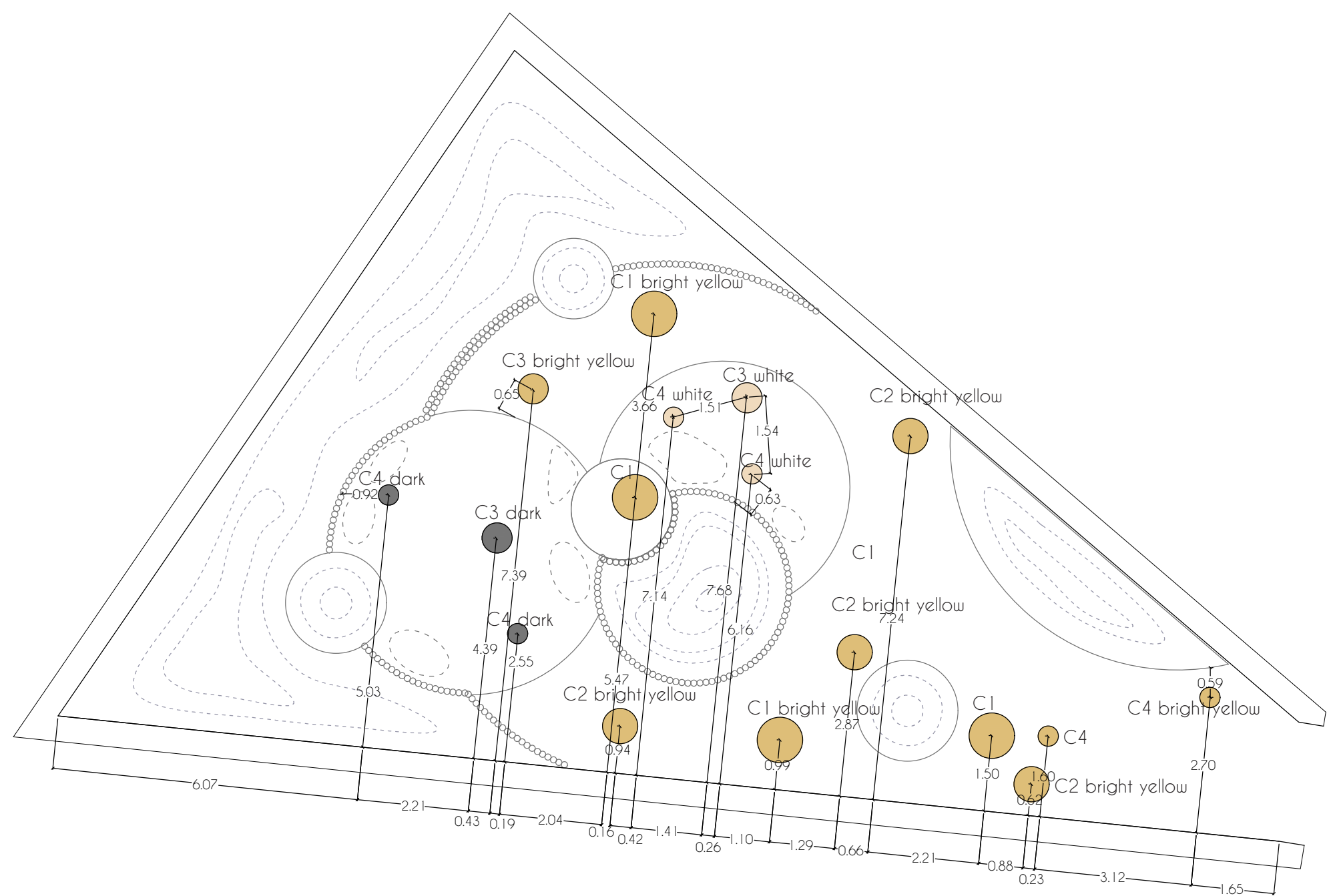
Take a stone and bring it into balance.
The garden „Healthy balance“ invites you to deal with your
personal balance by focusing on order and structure.

Change to plot No. 2

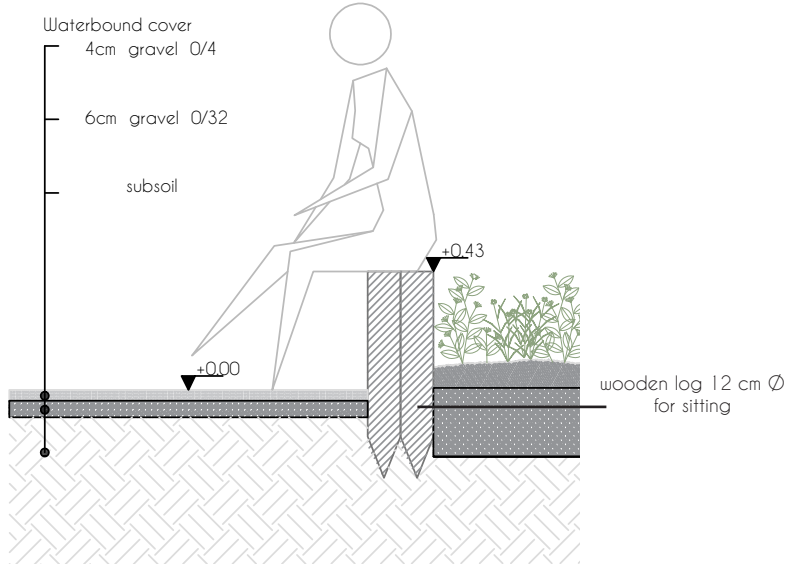
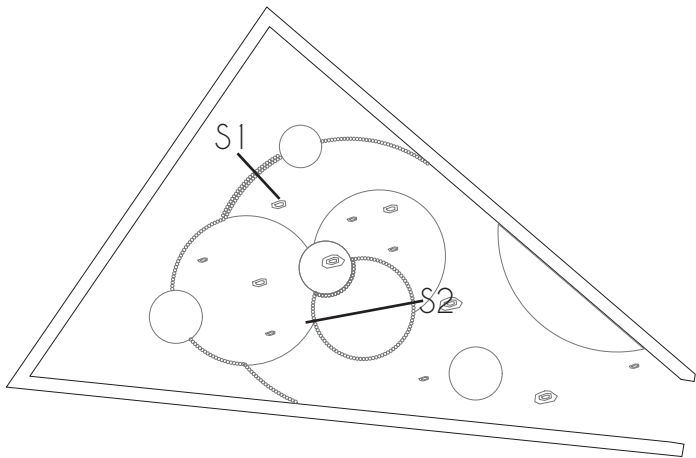




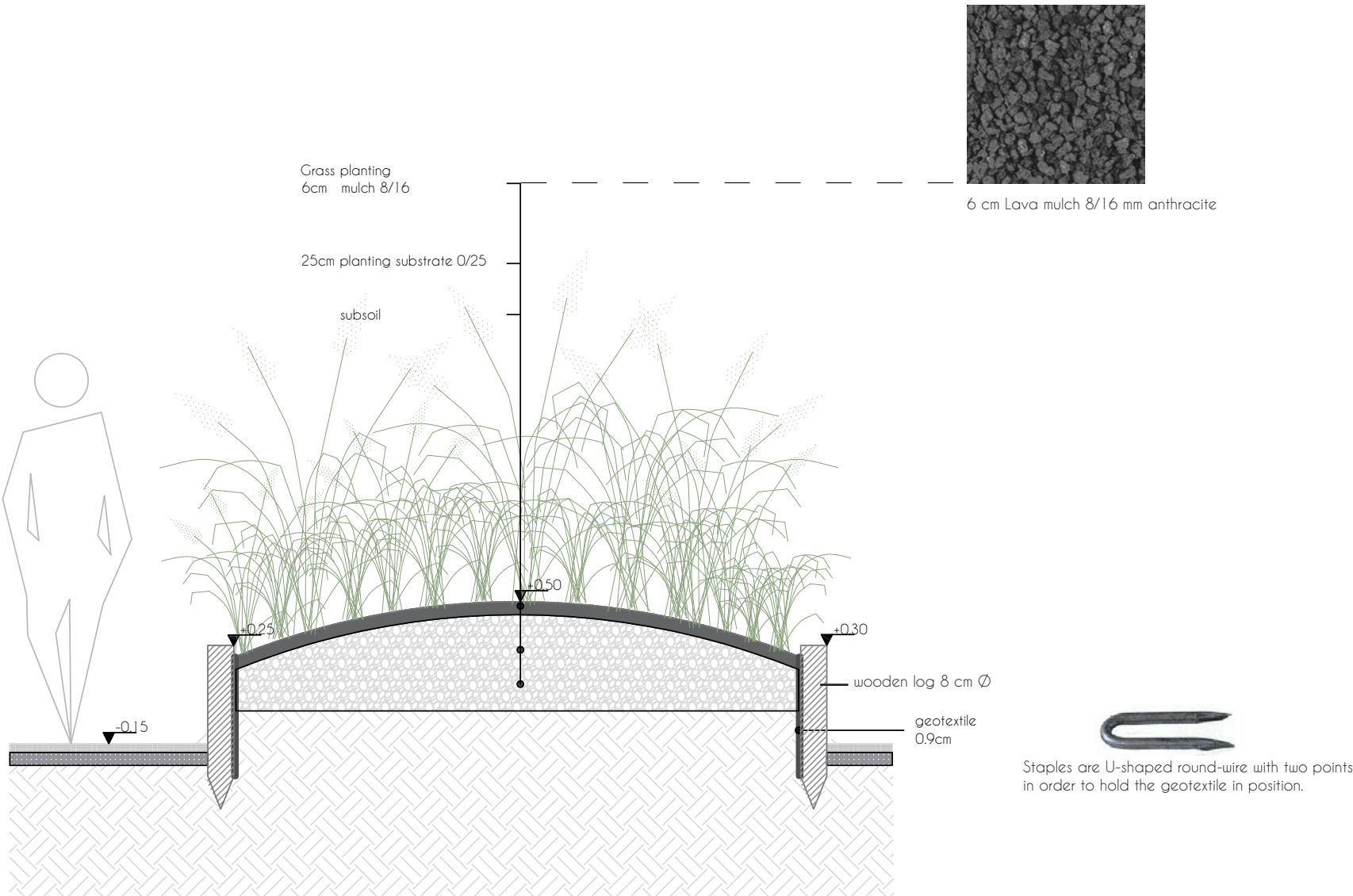




Cairn positions M 1:100
03.02 Cairn (Rock Sculpture)
more details on page 12



Standard details S1 M 1:25

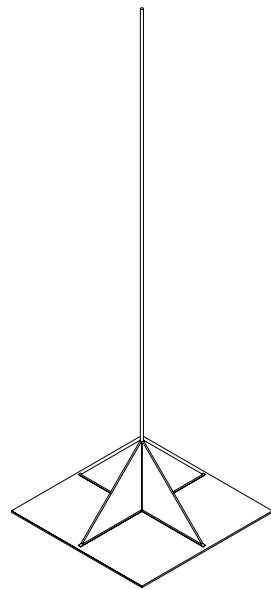


Wooden fences S2 M 1:25

Step by Step
Construction Rocks

The assembly foam needs 24 hours for the hardening process. The ambient air temperature is an essential factor for the formation of volume, and should therefore lie between 5 and 25 degree celcius. The cured assembly foam needs to be trimmed with a cutter, in order to create an edgy surface. When arranging the single stones to stone cairns, please pay attention to create the visual effect of imbalance. Grey lacquer should be applied as a foundation, whereas white lacquer can be used to create lighter shades and structure.

1. An welded steelframe bracing is supporting the foam.



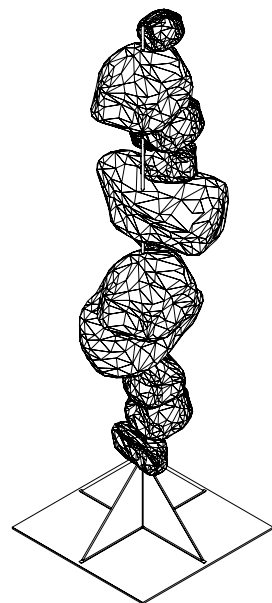
2. Foam uprocks out of polyurethane (assembly foam).



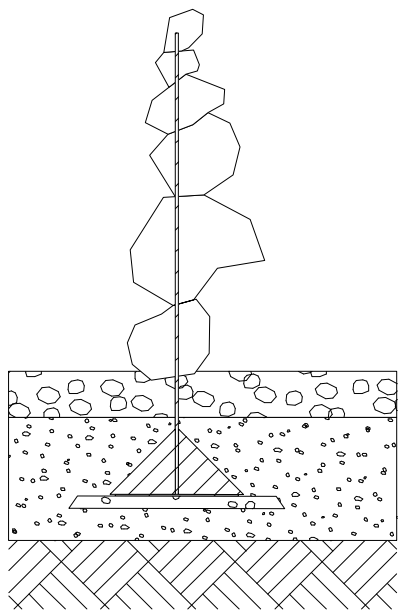
3. Modelling rocks out of the foam. And colour them in one of the three colours.



4. Stacking the rocks in one colour on the steelframe bracing.



5. Place the rock sculpture on the plot into the ground.



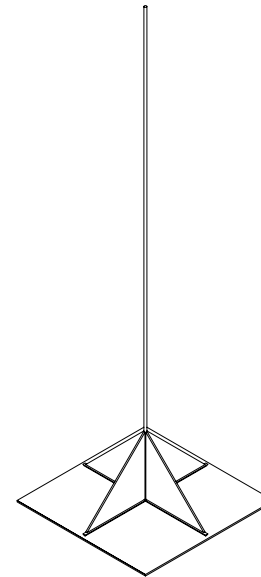
M 1:25

Step by Step **alternative solution**

Construction GFRC Rocks

Factory-made glass-fiber-reinforced-concrete (GFRC) cast from real rock face was chosen for this artificial rockwork. Because it is more convincing than attempting to create a rock face effect in stone and precast product are easier to control in terms of quality. GFRC permits fine moulding and also a fairly lightweight cladding unit. This approach combines a fairly simple and but expensive structure. The GFRC panels would cost 3000€. <https://www.stone-illusion.de/>

1. An welded steelframe bracing is supporting the GFRC (Detail 1, 2, 3)



2. 20mm GFRC artificial rockwork cladding panels ready to cut into pieces.

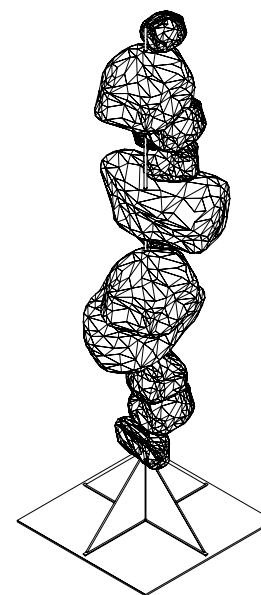


Source: <https://www.stone-illusion.de/do-it-yourself.html>

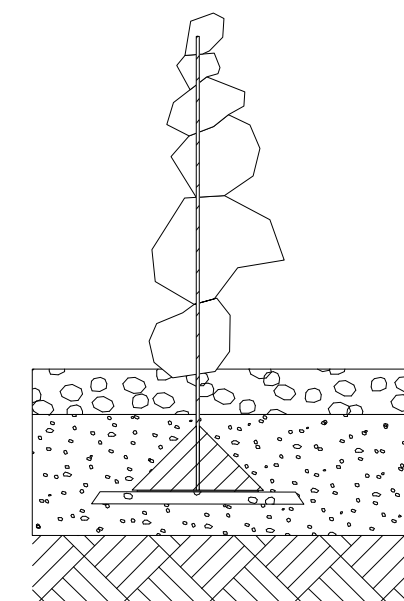
3. Modeling rocks out of the GFRC artificial rockwork cladding panels ready. And colour them in one of the three colours.



4. Stacking the rocks in one colour on the steelframe bracing.



5. Place the rock sculpture on the plot into the ground.



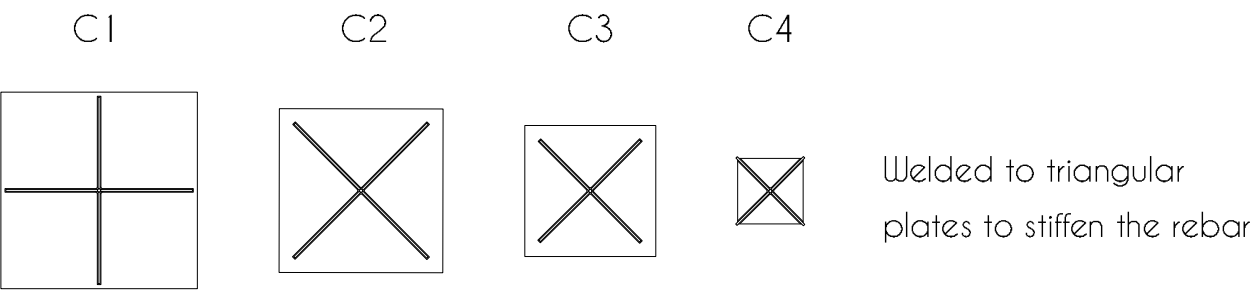
M 1:25

For more information:

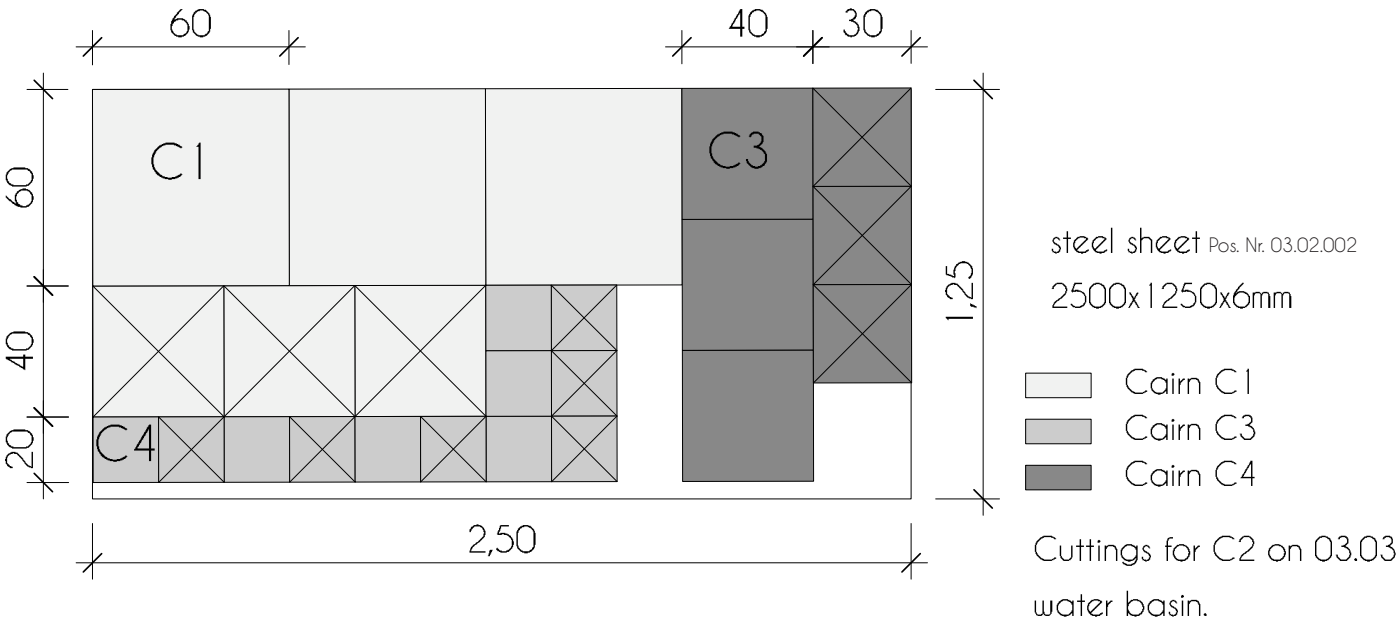
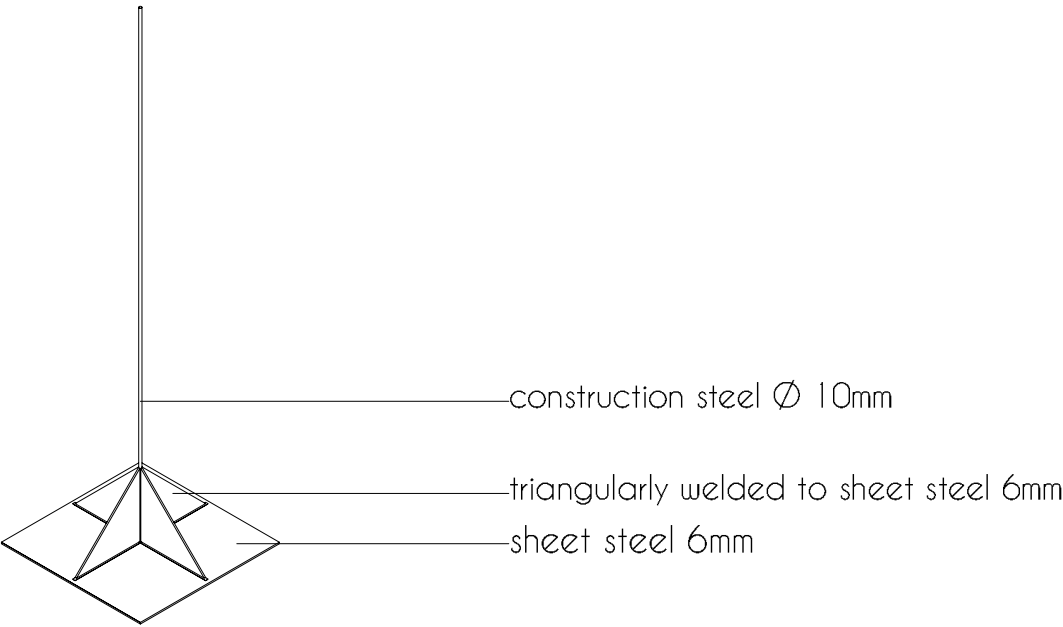
<https://www.stone-illusion.de/>

<https://www.youtube.com/watch?v=7tDf4x6N9-Y&t=119s>

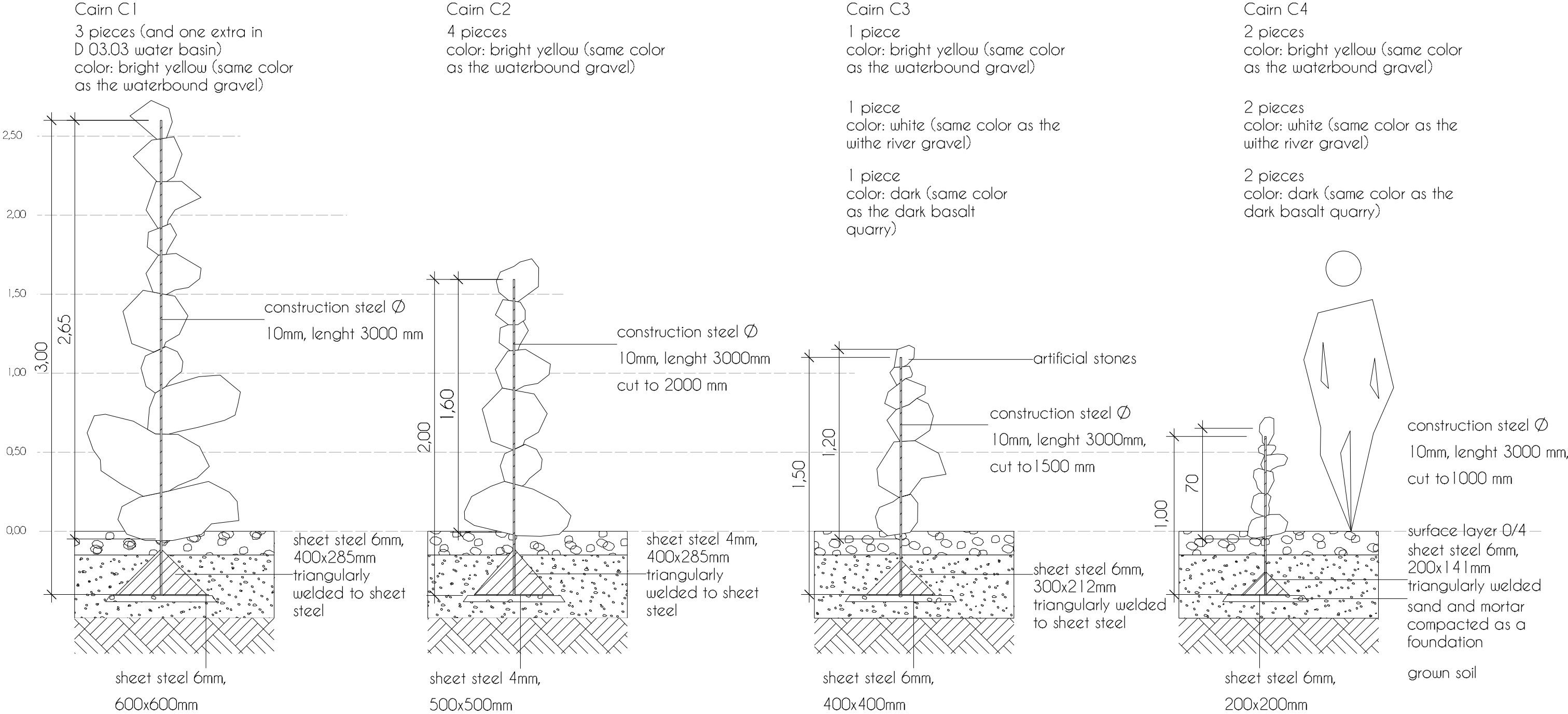
Steel stand, top view



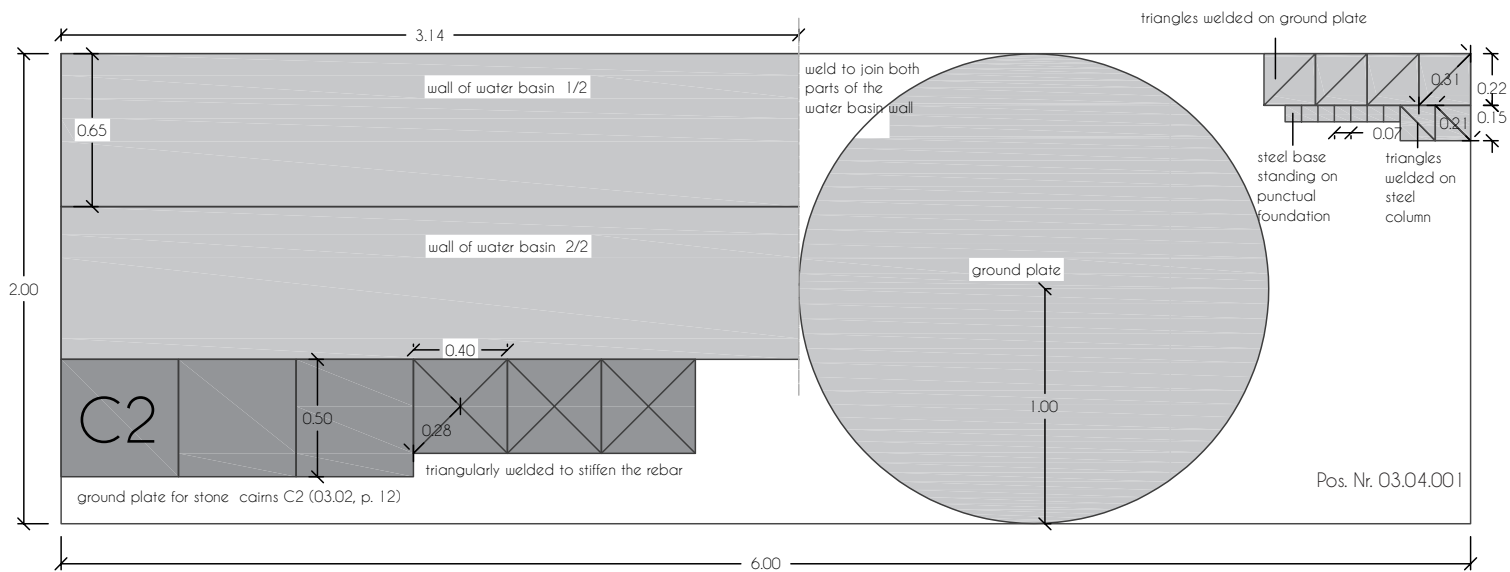
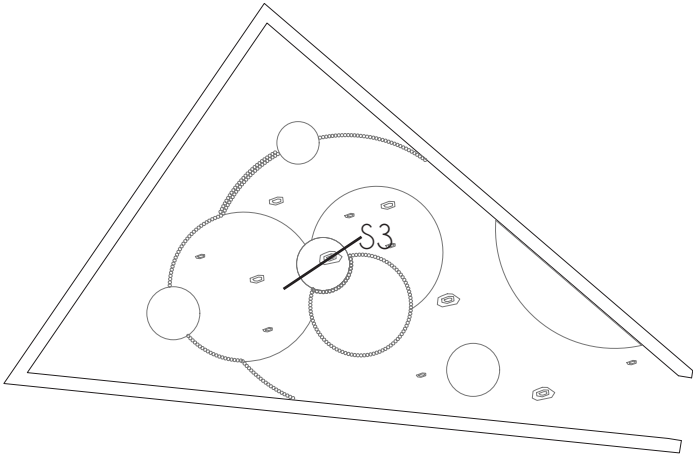
Steel stand



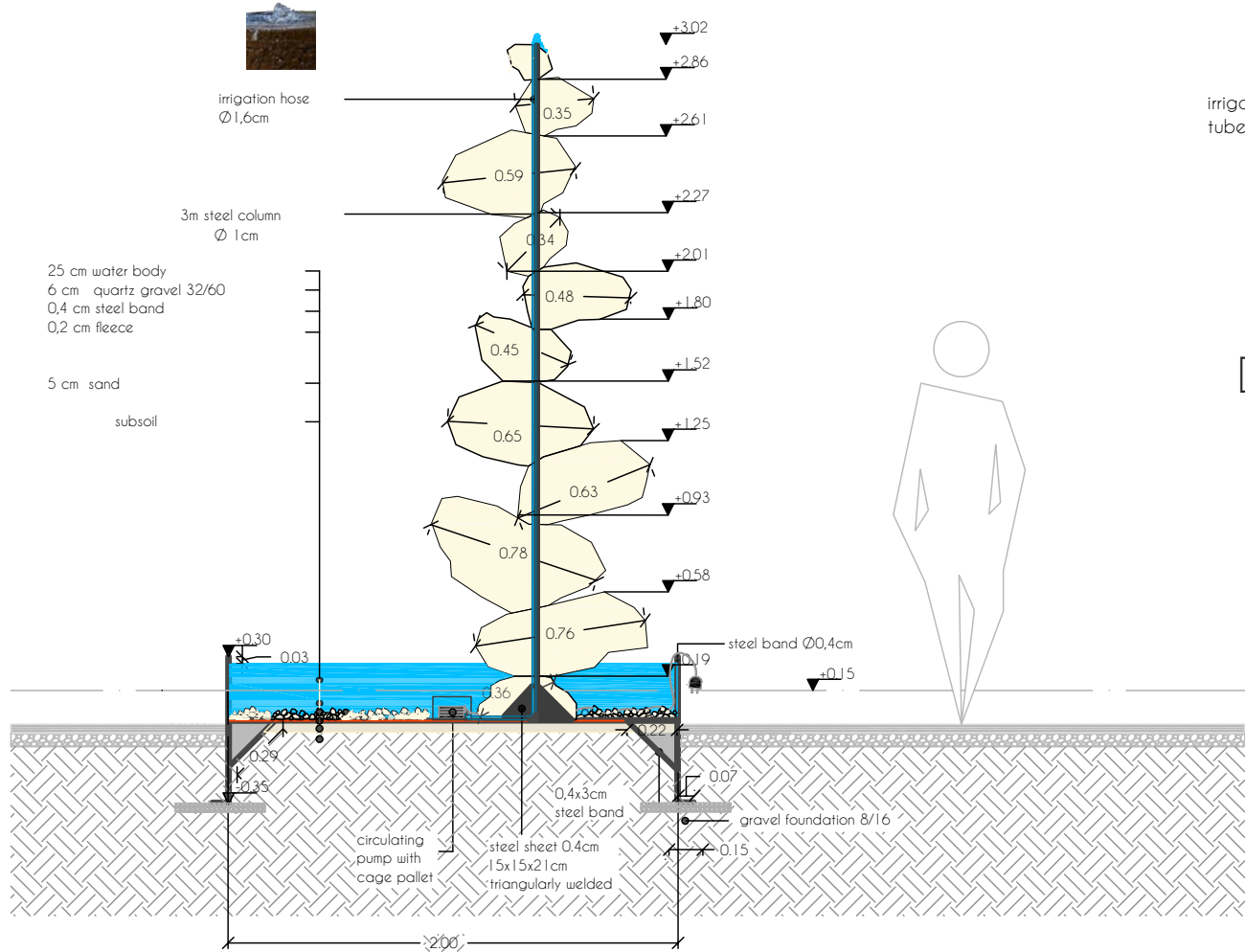
Steel panel cutting thickness 6mm M 1:25



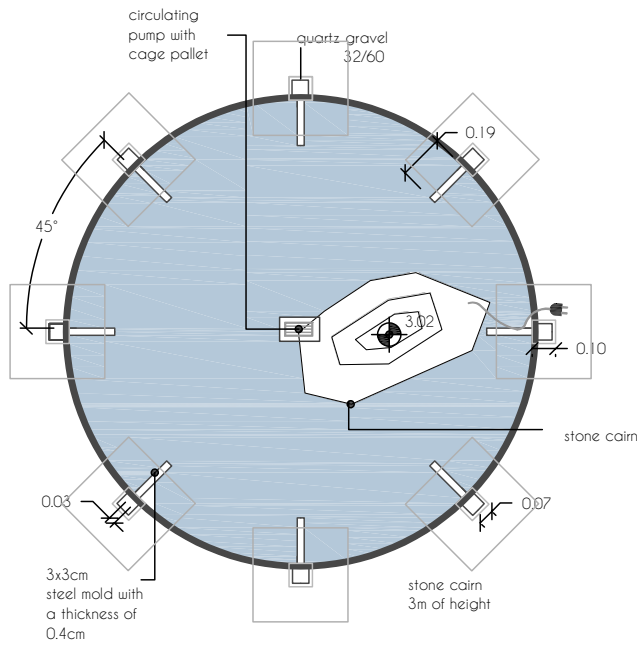
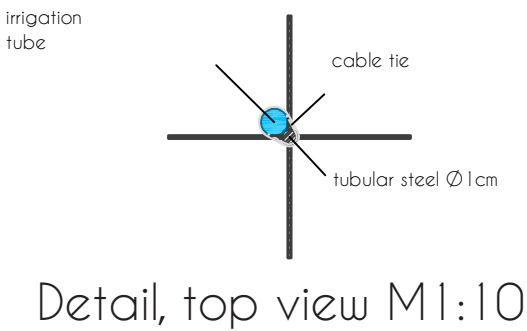
Cairn positions 02.04 page 7 M 1:25



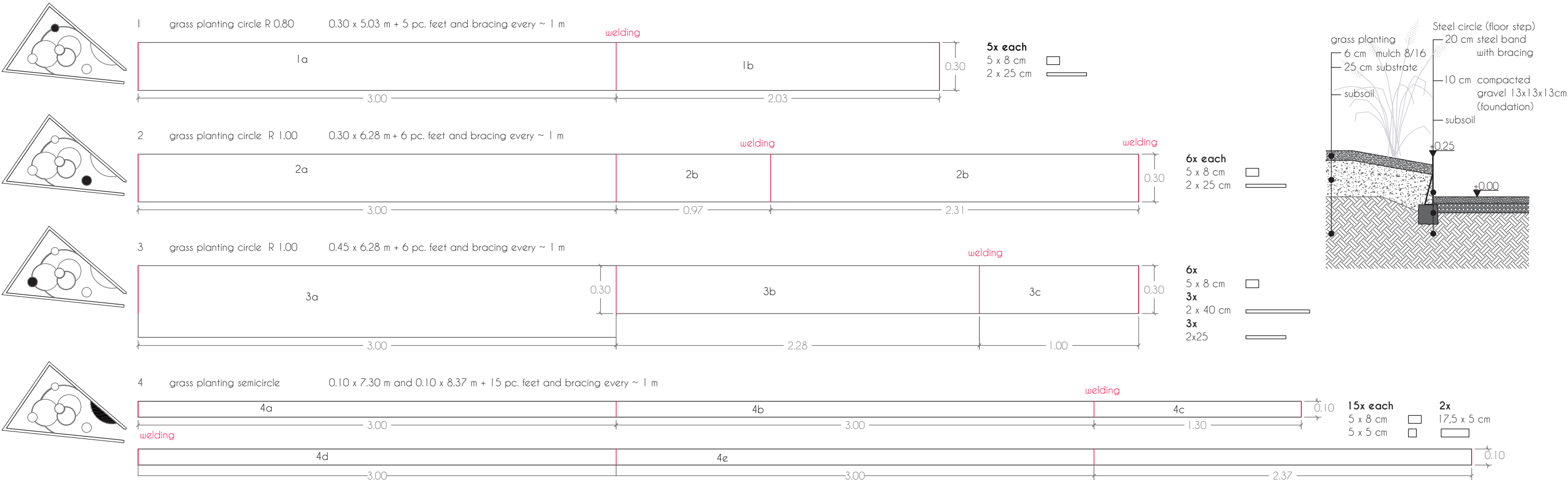
Steel panel cutting thickness 4mm M 1:25



S3 M 1:25

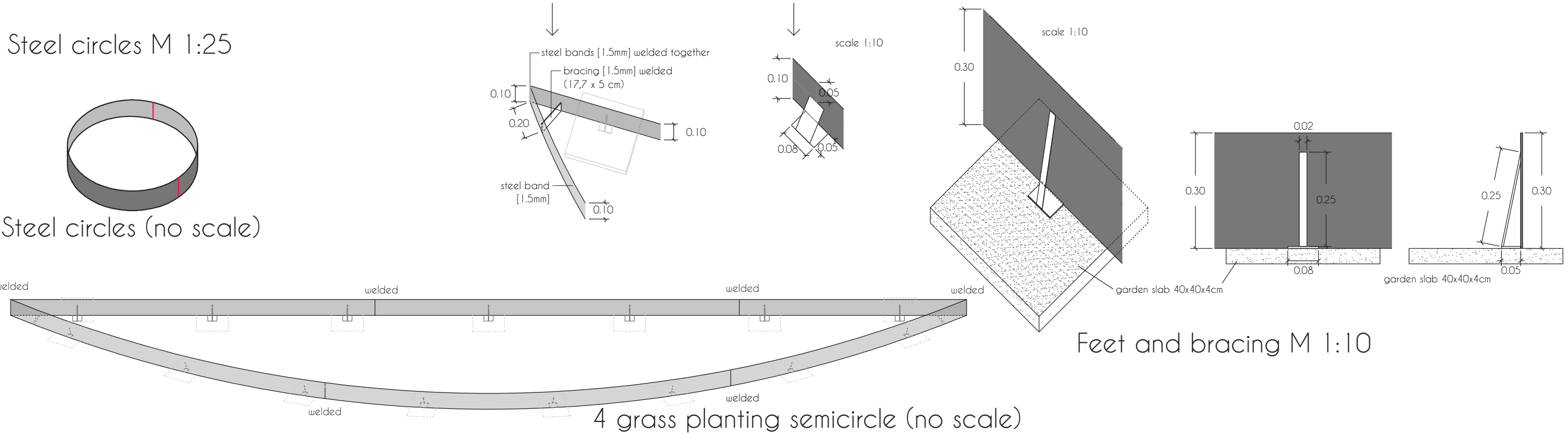


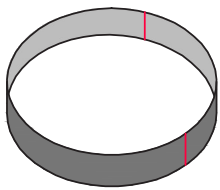
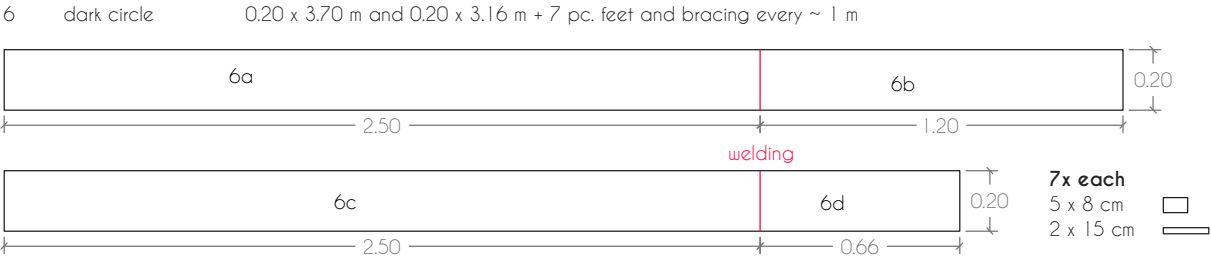
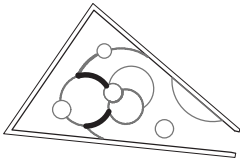
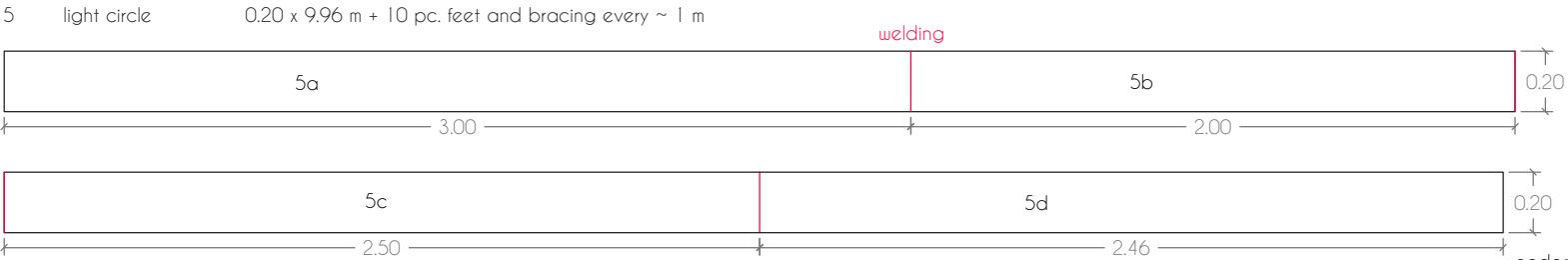
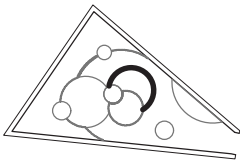
Top view M 1:25



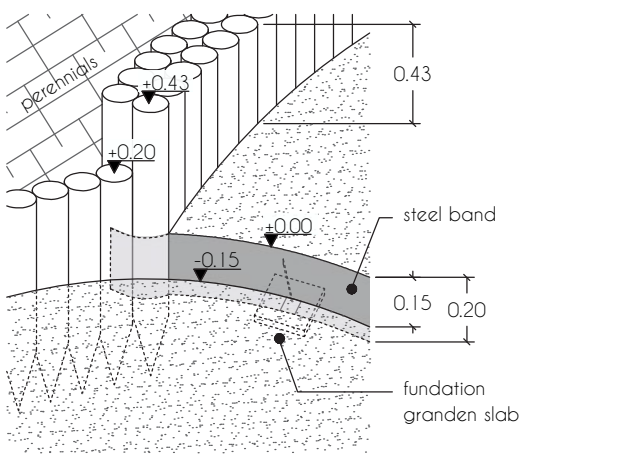
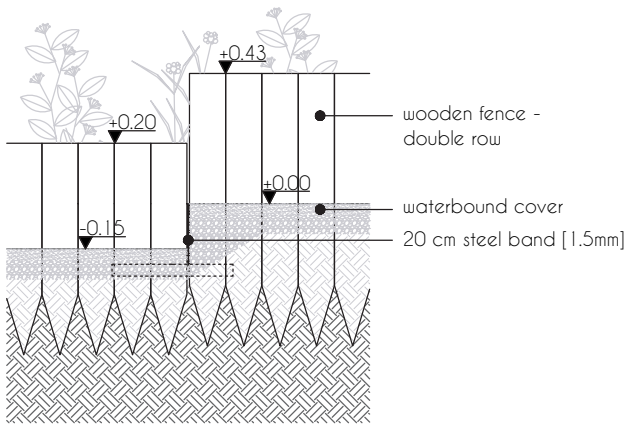
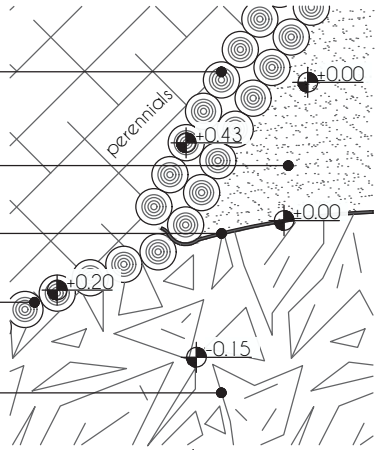
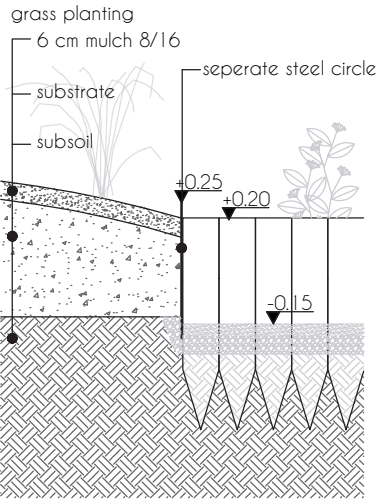
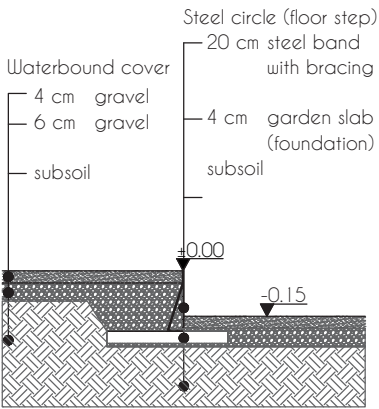
Steel circles M 1:25

Steel circles (no scale)

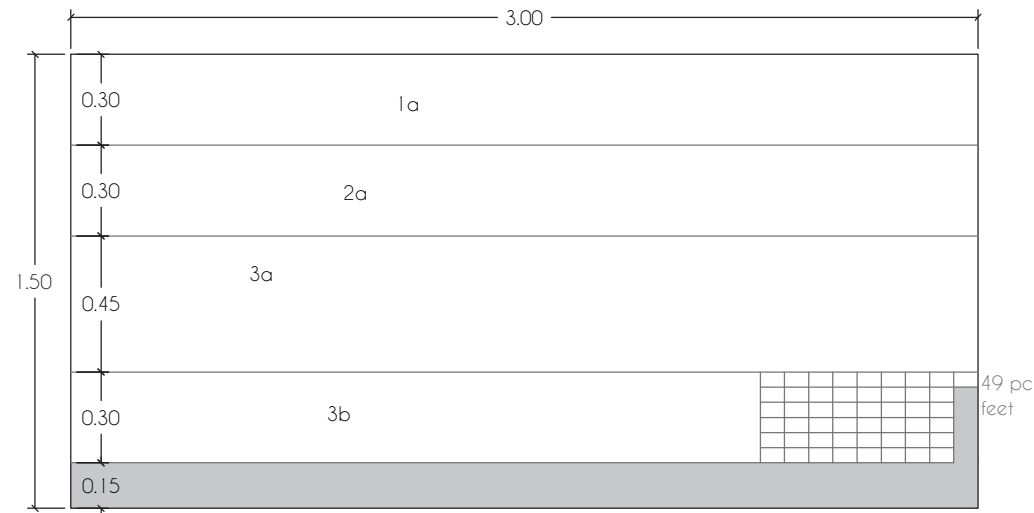




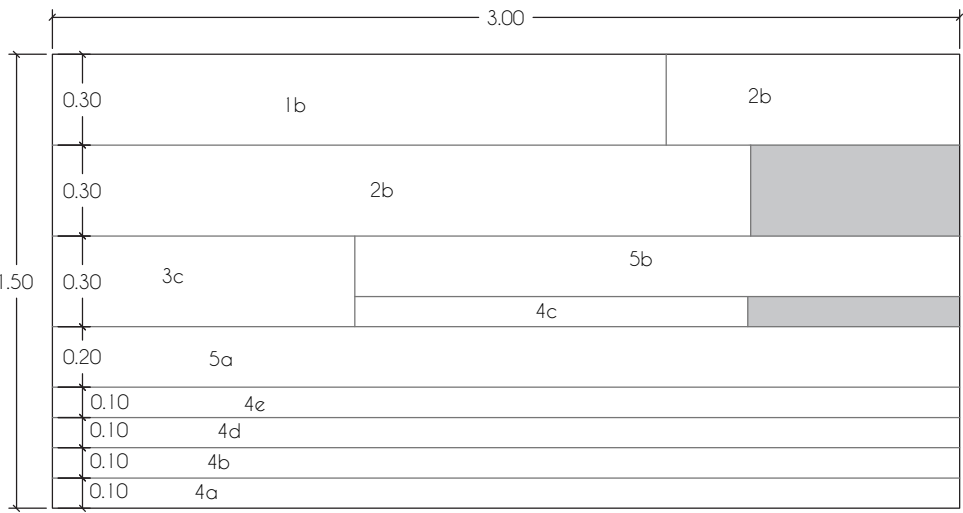
Steel circles (no scale)



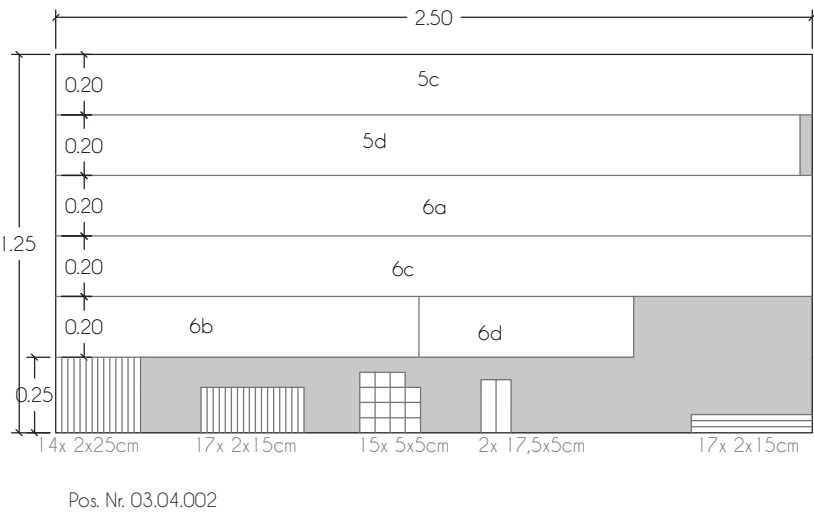
Steel transition black circle waterbound cover wood fence M 1:25



Pos. Nr. 03.04.001



Pos. Nr. 03.04.001



Pos. Nr. 03.04.002

Steel panel cutting thickness 1,5mm M 1:25

Plant selection &
Flower color

Latin name	Sort	Flower color	Flowering period
Perennial planting			
Amsonia orientalis		violet blue	june
Asphodeline lutea		yellow	may-june
Baptisia Hybride	'Twilite Prairieblues'	violet blue	june-july
Centranthus ruber	'Albus'	white	july-september
Cynara cardunculus		violet blue	august
Echinops ritro		violet blue	july-september
Euphorbia myrsinites		yellow	may-june
Euphorbia seguieriana		bright yellow	june-october
Gaura lindheimeri		white	july-october
Geranium Renardii-Hybride	'Terre Franche'	violet blue	may-june
Lavandula angustifolia		violet blue	june-july
Linum perenne		skyblue	june-august
Nepeta racemosa	'Superba'	silverblue	april-july
Salvia nemorosa	'Mainacht'	violet blue	may-june
Santolina chamaecyparissus		yellow	july-august
Stachys byzantina		purple	june-july
Verbena bonariensis		violet blue	june-august
Yucca filamentosa		white	july-august
Calamagrostis x acutiflora	'Karl Foerster'	silvery pink	july-august
Deschampsia cespitosa		golden brown	july-august
Molinia caerulea		blue green	august-october
Allium Hybride	Ambassador'	purple	june-july
Allium sphaerocephalon		purple	may-june



Asphodeline lutea



Linum perenne



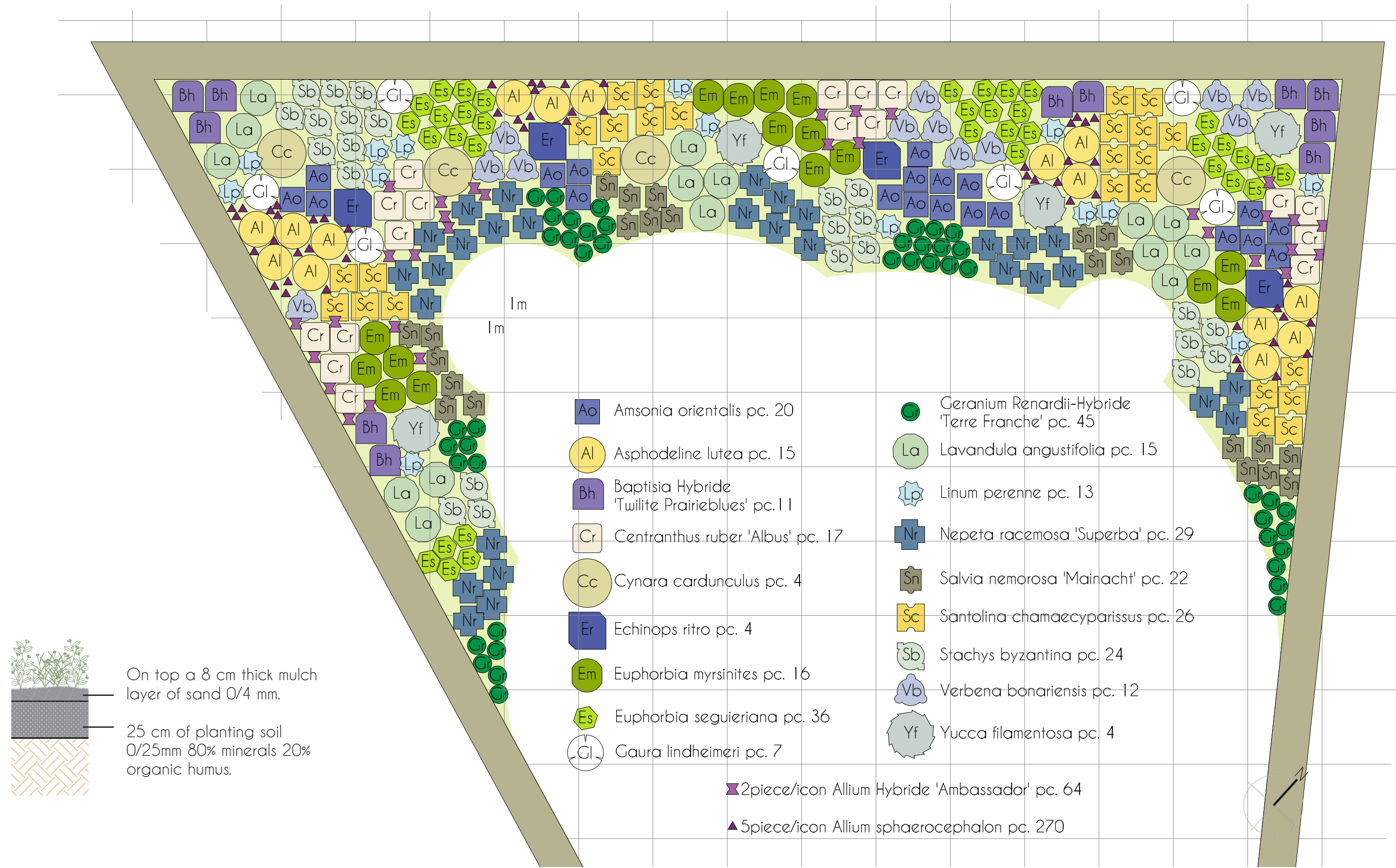
Yucca filamentosa

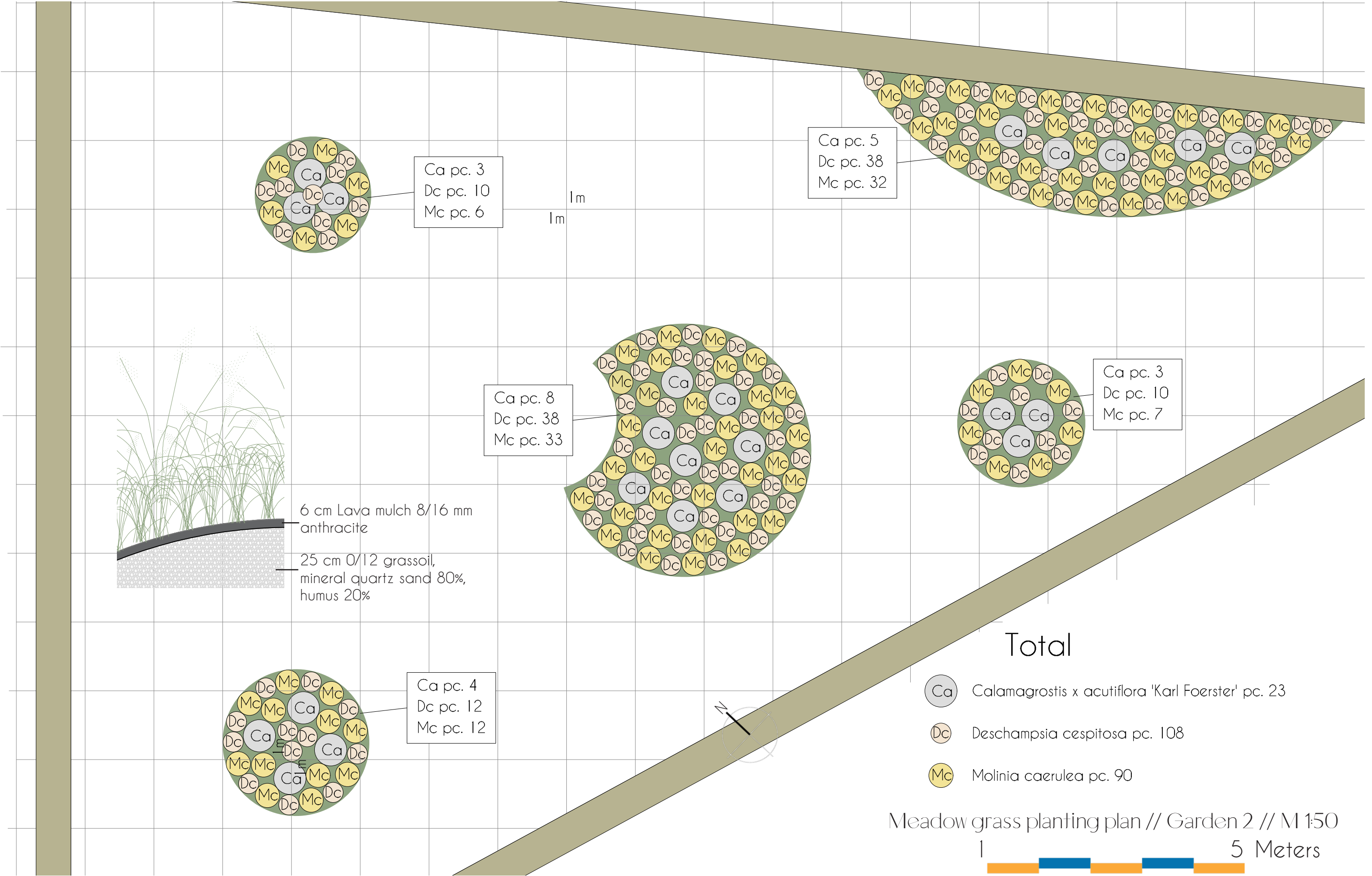


Calamagrostis x acutiflora 'Karl Foerster'



Deschampsia cespitosa





Nr.	Symbol	Latin name	Sort	Height in cm	Function	Plants per m²	Pot size	Price per Plant	Number of Plants	Total Price	Source
Perennial planting											
04.03.001	Ao	Amsonia orientalis		40-50	companion	10	11 cm (1l)	5,80 €	20	116,00 €	https://www.goissmayer.de/web/shop/themenwelten/lebensbereiche/trockenheitsvertraegliche-pflanzen/stauden-fuer-trockene-sonnige-plaetze/199/amsonia-rhazya-orientalis/2038/
04.03.002	Al	Asphodeline lutea		50-100	filler	8	9 cm (0,5l)	4,60 €	15	69,00 €	https://www.goissmayer.de/web/shop/themenwelten/lebensbereiche/trockenheitsvertraegliche-pflanzen/stauden-fuer-trockene-sonnige-plaetze/199/asphodeline-lutea/9303/
04.03.003	Bh	Baptisia Hybride	'Twilite Prairieblues'	80-120	companion	6	9 cm (0,5l)	5,20 €	11	57,20 €	https://www.goissmayer.de/web/shop/themenwelten/mit-stauden-gestalten/foerbepflanzen/172/baptisia-australis/10593/
04.03.004	Cr	Centranthus ruber	'Albus'	60-70	companion	6	9 cm (0,5l)	3,80 €	17	64,60 €	https://www.goissmayer.de/web/shop/themenwelten/lebensbereiche/trockenheitsvertraegliche-pflanzen/stauden-fuer-trockene-sonnige-plaetze/199/centranthus-ruber-albus/6289/
04.03.005	Cc	Cynara cardunculus		100-200	solitary	2	11 cm (1l)	5,20 €	4	20,80 €	https://www.goissmayer.de/web/shop/themenwelten/lebensbereiche/stauden-fuer-sonnige-plaetze/freiflaechenstauden/179/cynara-cardunculus-cardunculus-ssp-flavescens/4762/
04.03.006	Er	Echinops ritro		80-100	solitary	4	9 cm (0,5l)	4,20 €	4	16,80 €	https://www.goissmayer.de/web/shop/pflanzen-sortiment/stauden/disteln/222/echinops-ritro/4512/
04.03.007	Em	Euphorbia myrsinites		15-25	companion	8	9 cm (0,5l)	4,20 €	16	67,20 €	https://www.goissmayer.de/web/shop/themenwelten/lebensbereiche/steingarten/stauden-fuer-steinfugen-und-mauerkronen/192/euphorbia-myrnsinites/10304/
04.03.008	Es	Euphorbia seguieriana		40-60	companion	10	9 cm (0,5l)	5,20 €	36	187,20 €	https://www.goissmayer.de/web/shop/themenwelten/lebensbereiche/trockenheitsvertraegliche-pflanzen/stauden-fuer-trockene-sonnige-plaetze/199/euphorbia-seguieriana-ssp-niciciana/8554/
04.03.009	Gl	Gaura lindheimeri		60-100	filler	8	9 cm (0,5l)	4,60 €	7	32,20 €	https://www.goissmayer.de/web/shop/themenwelten/lebensbereiche/trockenheitsvertraegliche-pflanzen/stauden-fuer-trockene-sonnige-plaetze/199/gaura-lindheimeri/8044/
04.03.010	Gr	Geranium Renardii-Hybride	'Terre Franche'	35-55	ground cover	16	9 cm (0,5l)	5,20 €	45	234,00 €	https://www.goissmayer.de/web/shop/pflanzen-sortiment/stauden/geranium-storchschnabel/geranium-fuer-trockene-plaetze/245/geranium-renardii-hybride-terre-franche/1479/
04.03.011	La	Lavandula angustifolia		60-70	companion	8	11 cm (1l)	4,20 €	15	63,00 €	https://www.goissmayer.de/web/shop/themenwelten/mit-stauden-gestalten/symbolstauden/marienpflanzen/169/lavandula-angustifolia/10750/
04.03.012	Lp	Linum perenne		30-50	filler	16	9 cm (0,5l)	3,80 €	13	49,40 €	https://www.goissmayer.de/web/shop/themenwelten/lebensbereiche/trockenheitsvertraegliche-pflanzen/stauden-fuer-trockene-sonnige-plaetze/199/linum-perenne/2059/
04.03.013	Nr	Nepeta racemosa	'Superba'	30-40	ground cover	8	9 cm (0,5l)	3,80 €	29	110,20 €	https://www.goissmayer.de/web/shop/pflanzen-sortiment/stauden/stauden-von-e-bis-o/nepeta-katzeminze/452/nepeta-racemosa-x-faassenii-superba/1631/
04.03.014	Sn	Salvia nemorosa	'Mainacht'	50-60	ground cover	12	9 cm (0,5l)	4,20 €	22	92,40 €	https://www.goissmayer.de/web/shop/pflanzen-sortiment/stauden/stauden-von-p-bis-z/salvia-salbei/472/salvia-nemorosa-mainacht/6290/
04.03.015	Sc	Santolina chamaecyparissus		30-50	companion	8	9 cm (0,5l)	4,20 €	26	109,20 €	https://www.goissmayer.de/web/shop/pflanzen-sortiment/stauden/stauden-von-p-bis-z/s-sonstige/483/santolina-chamaecyparissus/8432/
04.03.016	Sb	Stachys byzantina		40-60	ground cover	8	9 cm (0,5l)	4,20 €	24	100,80 €	https://www.goissmayer.de/web/shop/pflanzen-sortiment/stauden/stauden-von-p-bis-z/stachys-ziest/481/stachys-byzantina-lanata-olympica/4246/
04.03.017	Vb	Verbena bonariensis		100-150	filler	12	9 cm (0,5l)	4,20 €	12	50,40 €	https://www.goissmayer.de/web/shop/pflanzen-sortiment/stauden/stauden-von-p-bis-z/verbena-eisenkraut/495/verbena-bonariensis/6720/
04.03.018	Yf	Yucca filamentosa		60-100	solitary	2	11 cm (1l)	5,80 €	4	23,20 €	https://www.goissmayer.de/web/shop/pflanzen-sortiment/stauden/stauden-von-p-bis-z/w-bis-z/500/yucca-filamentosa/5127/
Meadow grass											
04.03.019	Ca	Calamagrostis x acutiflora	'Karl Foerster'	100-150		4	11 cm (1l)	5,20 €	23	119,60 €	https://www.goissmayer.de/web/shop/themenwelten/lebensbereiche/stauden-fuer-sonnige-plaetze/freiflaechenstauden/179/calamagrostis-x-acutiflora-karl-foerster/5208/
04.03.020	Dc	Deschampsia cespitosa		60-100		10	9 cm (0,5l)	4,20 €	108	453,60 €	https://www.goissmayer.de/web/shop/pflanzen-sortiment/graeser/graeser-von-a-bis-z/578/deschampsia-cespitosa-bronzeschleier/8699/
04.03.021	Mc	Molinia caerulea		40-80		8	9 cm (0,5l)	4,20 €	90	378,00 €	https://www.goissmayer.de/web/shop/themenwelten/lebensbereiche/stauden-fuer-feuchte-boeden-und-teichraender/graeser-fuer-feuchte-boeden/196/molinia-caerulea/9134/
Geophyten											
04.03.022		Allium Hybride	'Ambassador'	130		4		1,45 €	64	92,80 €	https://www.goissmayer.de/web/shop/newsletter/herbstblaetter-2010/zierlauch/749/1-stueck-allium-hybride-ambassador/4095/
04.03.023		Allium sphaerocephalon		80-90		20		0,11 €	270	29,70 €	https://www.pflanze2000.de/zierlauch-sphaerocephalon-25-stueck?keyid=3713

Total 875 2.537,30 € Pos. Nr. 04.01.001

Plan no.		Product	Quality	Amount	Unit	Price per unit	Sum	Source
02.02		Ground surface						
02.02.001		waterbound cover						
02.02.002		top layer	angular grain 0/4mm	5,1	t	€ 22,20	€ 113,22	https://bit.ly/3HPOnsI
02.02.003		gravel base layer	angular grain 0/32mm	7,6	t	€ 15,40	€ 117,04	https://bit.ly/3HPOnsI
02.02.004		light circle						
02.02.005		top layer	angular grain, quartz, 0/4mm	0,84	t	€ 247,00	€ 207,48	https://bit.ly/3Yxu60t
02.02.006		gravel base layer	angular grain 0/32mm	1,3	t	€ 15,40	€ 20,02	https://bit.ly/3HPOnsI
02.02.007		light river gravel (quartz)	round grain 100/300 mm, white	4	t	€ 151,20	€ 604,80	https://bit.ly/3G5XgfH
02.02.008		dark circle						
02.02.009		top layer	angular grain 0/4mm	1,5	t	€ 147,00	€ 220,50	https://bit.ly/3HQwSHX
02.02.010		gravel base layer	angular grain 0/32mm	2,3	t	€ 15,40	€ 35,42	https://bit.ly/3HPOnsI
02.02.011		basalt quarry	80/200 [mm]	3,6	t	€ 120,00	€ 432,00	https://bit.ly/3j7pRbu
02.02.012		basalt quarry	100/300 [mm]	1	t	€ 267,11	€ 267,11	https://bit.ly/3VdLZhC
02.05		Wooden edgings						
02.05.001		wood log	10/12cm Ø, h=75cm, with lace	58	pc.	€ 6,20	€ 359,60	https://bit.ly/3Wylvra
02.05.002		wood log	8cm Ø, h=75cm, with lace	311	pc.	€ 3,09	€ 960,99	https://bit.ly/3jiU287
02.05.003		geotextile	thickness 0,95mm, 0,9g/cm², black	6	m	€ 1,30	€ 7,80	https://bit.ly/3v6yrde
02.05.004		Staples (U-shaped round-wire nails)	3,55mmØ, galvanised	100	pc.	€ 0,09	€ 8,60	https://bit.ly/3j7rp5i
03.02		Stone sculptures						
03.02.001		armour steel rod	round steel rod Ø 10mm, length 3000 mm	11	pc.	€ 10,95	€ 120,45	https://bit.ly/3HQB3ca
03.02.002		steel sheet	6mm, 2500x1250mm Art.Nr. V38M6G	1	pc.	€ 341,70	€ 341,70	https://bit.ly/3HU47Ky
03.02.003		assembly foam	EAN code: 4306517558079; 500ml, beige	236	pc.	€ 2,44	€ 575,84	https://bit.ly/3jiFQDO
03.02.004		lacquer (Sand yellow)	RAL 1002	9	l	€ 22,60	€ 203,40	https://bit.ly/3PGJZgV
03.02.005		lacquer (Oyster white)	RAL 1013	3	l	€ 22,60	€ 67,80	https://bit.ly/3PGJZgV
03.02.006		lacquer (Black grey)	RAL 7021	3	l	€ 22,60	€ 67,80	https://bit.ly/3PGJZgV
03.03		Water basin						
03.03.001		steel band	galvanised steel, 6000/2000/4,0 mm	1	pc.	€ 748,41	€ 748,41	https://bit.ly/3HU47Ky
03.03.002		metal lacquer	RAL 7016	1	l	€ 16,00	€ 16,00	https://bit.ly/3hIFtC3
03.03.003		fleece	180 g/m²	1	pc	€ 7,95	€ 7,95	https://bit.ly/3HMM6Ob
03.03.004		circulation pump	JIERTOP B09SDGHS7W	1	pc.	€ 40,07	€ 40,07	https://bit.ly/3YGI2X
03.03.005		irrigation hose/ polyethylene tube	Hunter Industries, TUPE-700-100 Ø 1,78cm, 30mØ	1	pc.	€ 38,20	€ 38,20	https://bit.ly/3G2LZvJ
03.03.006		fitting elbow	Hunter Industries PLD-LOC ELB	2	pc.	€ 1,60	€ 3,20	https://bit.ly/3G2LZvJ
03.03.007		garden slab (foundation)	washed concrete slab, 40x40x4cm	8	pc.	€ 2,49	€ 19,92	https://bit.ly/3WghkBO
03.04		Steel circles for grass plantings and groundlevel						
03.04.001		sheet metal cold-rolled hot-dip galvanised	DX51D+Z275NA; 3000/1500/1,5 mm	2	pc.	€ 99,23	€ 198,46	https://bit.ly/3HU47Ky
03.04.002		sheet metal cold-rolled hot-dip galvanised	DX51D+Z275NA; 2500/1250/1,5 mm	1	pc.	€ 124,47	€ 124,47	https://bit.ly/3HU47Ky
03.04.003		garden slab (foundations)	washed concrete slab, 40x40x4cm	49	pc.	€ 2,49	€ 122,01	https://bit.ly/3WghkBO
04.01		Vegetation						
04.01.001		Plants	Planting list 04.03	1		€ 2 537,30	€ 2 537,30	list 04.03
04.02		perennial planting						
04.02.001		planting soil	0/25mm, 80% mineral quartz sand, 20% humus	13,125	m³	€ 30,00	€ 393,75	https://bit.ly/3VclGY4
04.02.002		mulch	0/4 mm sand	4,2	t	€ 23,88	€ 100,30	https://bit.ly/3hlyOI8
04.02.003		grass plantings						
04.02.004		planting soil	0/12mm, 80% mineral quartz sand, 20% humus	6,75	m³	€ 40,00	€ 270,00	https://bit.ly/3v5uF48
04.02.005		mulch	mineral mulch 8/16 mm (Lava anthrazit)	1,62	t	€ 320,00	€ 518,40	https://bit.ly/3jhiA9f

Total € 9 870,01