bkm1u MSc Urbanism first semester
Design and technique

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week		TO and PO		pt	LP		
36	1	Landscape 30km	bkm1u06	2	bkm1u01 Terr., ecol. and techn.	bkm1u02 Design methodology	bkmvk11 Civil eng. and physics
37	2	Town and traffic 10km	Territory and environment				
38	3	Hydrology and ecology 3km					
39	4	bkmvk13 Carthography	bkmvk12 Urban CAD	1+1			
40	5	Traffic and constr. techn. 1km	bkm1u05	2			
41	6	Fysics and soil 300m	Construction and materialisation				
42	7	Materialisation 100m					
43	8				thematically		
44	9	First exam, handing reports		pt	2	1	1
45	10	bkm1u04		3	bkm1u01 Terr., ecol. and techn.	BKM1U02 Design methodology	BKM1U03 History
46	11	Design and					
47	12						
48	13	bkmvk19 Sustainability		1			
49	14						
50	15			3			
51	16	Technique					
52	17	Holiday			content		
1	18						
2	19	Second exam		pt	1	1	2
3	20	Workshop					
4	21	Demonstrations					

TO	bkm1u06 Grondgebied en milieu, bkm1u05 Constructie en materialisatie
PO	bkm1u04 Ontwerp en Techniek
TO, LP	Vrije keuze

CONTENTS

1 INTRODUCTION

The semester has two quarters with a different style, both ending with an exam.
The first quarter is a staccato acquaintance with weekly changing levels of scale and weekly changing teachers from different disciplines of urban design. If there are compelling reasons not to be present at one of te components, please phone the coordinator Prof.dr.ir. Taeke M. de Jong 015 2785965 or at home 079 351659 the week before. In case of illness a medical certificate is required. If you are not present without communication we suppose you do not continue the course.

week		Exercises		pt	Lectures		
36	1	Landscape 30km	bkm1u06	2	bkm1u01 Terr., ecol. and techn.	bkm1u02 Design methodology	bkmvk11 Civil eng. and physics
37	2	Town and traffic 10km	Territory and				
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41	6	Fysics and soil 300m	Construction and				
42	7	Materialisation 100m	materialisation				
43	8				thematically		
44	9	First exam, handing reports		pt	2	1	1

Figure 1 The first quarter

1.1 Exercises

In principle, every dark week in *Figure 1* starts on Monday morning making a collective plan by all students together without teachers on a large plasticized map on the floor, the 'L a i s s e z - F a i r e P l a n ' (L F P). Student-assitents (Eveline van der S c h e e and Jurrit J a n n i n k) will help. Take with you scissors, ruler, sketch paper and pencils.

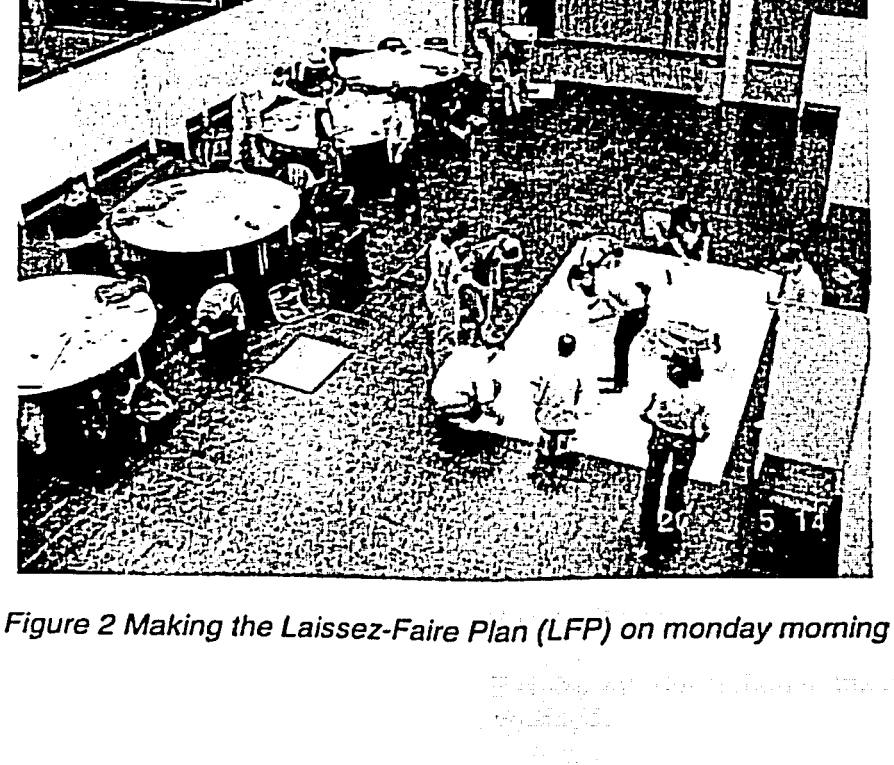

Figure 2 Making the Laissez-Faire Plan (LFP) on monday morning

The LFP has a largest measure (frame) and a smallest measure (grain) of analysis and design. The first frame has a radius (not a diameter) of 3km. The grain is 1% linear of the frame (*Figure 3*). That means that the LFP has a resolution comparable with a drawing (a rough sketch would have a resolution of 10%).[a]

Week	Radius in reality,		area	Radius on the floor of the studio			
	frame m	grain m	grain halm2	scale 1:	frame cm	grain cm	resolution
1	*30000*	300	28,3	25000	120,0	1,2	1%
2	*10000*	100	3,1	10000	100,0	1	1%
3	*3000*	30	0,3	2500	120,0	1,2	1%
5	*1000*	10	314,2	1000	100,0	1	1%
6	*300*	3	28,3	250	120,0	1,2	1%
7	*100*	1	3,1	100	100,0	1	1%
				Input	Output		

Figure 3 Frame and grain per week in reality and on the floor of the studio.

The same monday in the afternoon the teachers of the weekdiscipline discuss the plan and give suggestions for the rest of the week. The next day, Tuesday, teachers will help you to start making your own individual sketch for the same area to be judged on Friday morning by at least two teachers. Friday in the afternoon you have to make your own report reflecting on the LFP of that week, comparing it with your own plan, reflecting the judgement you got, putting it in the perspective of the next weekdiscipline. This r e f l e x i v e r e p o r t should be emailed to the teachers of the next week. Keep a copy yourself, because it will be revised as a chapter in your final report for the first quarter.

1.2 Marks

The LFP is not marked, you have to be there, that is all. The individual design however is marked for bkm1u06 and bkmu05 every week of the courses on Friday morning by two teachers from a different discipline. So, if you participate in both courses, you get 12 marks for design at the end of the first quarter. Apart from that you have to email 6 times your reflexive report to different teachers. It will be rated as satisfactory or unsatisfactory (for instance absent). At last you have to make a logbook to be marked fully. In the marking special attention will be paid whether or not you use the proper scale.

For your reports you can download the LFP from the internet[b] the day after it is made.
On the same internet adress you can find an excel-sheet to rescale maps for your reports (like *Figure 4*). For topographical maps you can lease a CD-ROM at € 10,-[c].

[a] See Jong (2002) *Mathematical models* in Jong and Voordt (2002).
[b] http://www.bk.tudelft.nl/users/dejongt/internet
[c] (Topografische_Dienst 2001) Ask student-assistent Eveline van der Schee in the studio to lease one or buy one at the Shell station in the TU neighbourhood.

Week	Importing a map in a report,						
	if	equals to	then scale = 1:	If desired scale 1:	then 15,0	cut off to width	to get in reality
	m	cm			should be	cm	m
1	10000	2,38	420168,1	500000	12,6	12	*60000*
2	4000	2,39	167364,0	250000	10,0	8	*20000*
3	1000	1,7	58823,5	100000	8,8	6	*6000*
5	500	2,78	17985,6	25000	10,8	8	*2000*
6	200	3,19	6269,6	10000	9,4	6	*600*
7	50	2,78	1798,6	2500	10,8	8	*200*
		Input Output		**Input** Output			

Figure 4 Rescaling maps in your report

1.3 Lectures

In principle, we try to plan the accompanying lectures in the afternoon of Wednesday and Thursday to get a reflexive afternoon after an active morning.

bkm1u01:Territory, ecology and technology (3pt) most likely by De Jong, Steenbergen and Tjallingii;[a]
bkm1u02:Design methodology (2pt), most likely by Meyer, Bach, Klaasen, Calabrese, and Van der Hoeven[b]
bkmvk11:Civil engineering and physics (1pt free choice), most likely by Van den Akker, Moens, Van der Voorden, De Bruin and Nijs.[c]

The lecturers will try to examine the diciplinary theme of the week seen from their own subject. They will also try to speak and show sheets in English, but excuse in advance for the quality of their English. The lecture notes and obliged books are mostly in Dutch. If you do not read Dutch you have to make notes yourself. In that case it is nevertheless recommended to purchase the obliged texts, because of the figures and English parts are comprehensible for you. We have made a provisional vocabulary Dutch-English and English-Dutch.[d]

1.4 Free choice excercises in quarter 1

The two exercises between the two periods in *Figure 1*

bkmvk13 Carthography (1pt free choice) by Moens, and Klaasen[e]
bkmvk12 Urban CAD (1pt free choice) most likelely by Bekkering, De Jong, Jannink, Rooij and Van Ooyen[f]

are very relevant for the main semester theme, but could be changed by free programmes elsewhere in the Faculty.[g]

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[a] Obliged literature: (Reh, Steenbergen et al. 1995; Steenbergen and Reh 1996; Jong 2002; Tjallingii 2002)
[b] Obliged literature: (Bach 2002; Heeling, Meyer et al. 2002; Meyer 2002; Meyer 2002; Meyer 2002)
[c] Obliged literature: (Voorden 1979; Voorden 1982; Nijs 1995; Huisman, Cramer et al. 1998; Jong 2002; Voorden ?)
[d] Ask Yvonne Modderman of Eveline van der Schee
[e] Obliged literature: (Jong 2002)
[f] Obliged literature: (Jong 2001; Topografische_Dienst 2001)
[g] See http://www.bk.tudelft.nl/onderwijs/msc/ vrije keuze vakken msc

1.5 The second quarter

The second quarter contains a largo design project Design and Technique bkm1u04 we will discuss later.[a] The bkmvk19 Sustainability (1pt free choice) exercise is also very relevant to the semester theme. Its theme is sun, noise and wind.[b] If you do not join the free exercises offered by the semester, you have to collect the required points elsewhere in the Faculty to reach 21 points. The lectures on territory, ecology, technology and design methodology continue in this quarter, the lecture on civil engineering and physics changes by BKM1U03 History (2pt) most probably given by Bollerey and Wegner.[c]

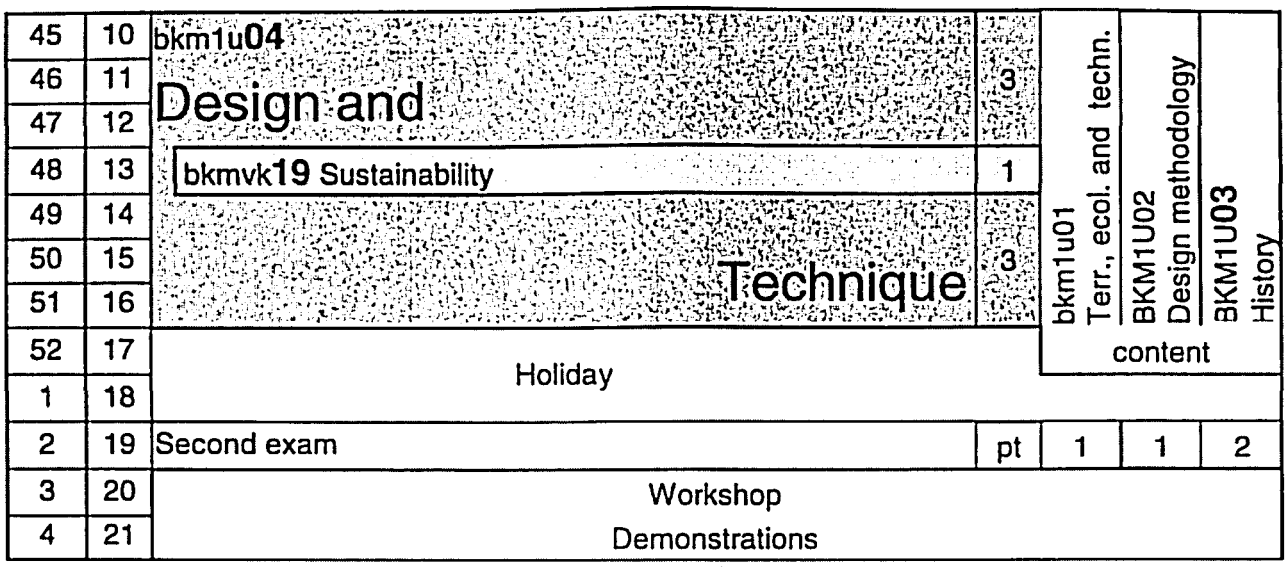

Figure 5 The second quarter

The lectures of Prof. Dr. Franziska Bollerey are titled *The city of the 19th and 20th century.*
The lectures are based on obligatory knowledge of the history lessons during the bachelor phase of studies and describe the conditions of urbanization from the late 18th century onward. They reflect the impact of the industrial revolution on the newly developing towns as well as on already existing agglomerations. The analysis of specific metropolises such as Paris, Vienna, Barcelona and Berlin show that cities share the same conditions and solutions when answering the needs of townplanning. On the other hand it cannot be denied that they constitute their very individual character caused by economic, political and social parameters.

The lectures will demonstrate the fascinating entity of the historic town and will prove that the foundation of their postmodern existence at the beginning of the 21st century goes back to the revolutionary changes that European and North American cities underwent especially in the 19th century.
Obligatory reading is Leonardo Benevolo's "The European City". During the lectures specific information, including bibliographical notes, will be handed out..

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[a] Obliged literature: (Jong and Voordt 2002; Bach ?)
[b] Obliged literature: (Voorden 1979; Voorden 1982; Bouwfysica_CT 1992; Nijs 1995; Jong 2002; Bouwfysica ?; Voorden ?)
[c] Obliged literature: (Benevolo 1993) or (Benevolo 1993)

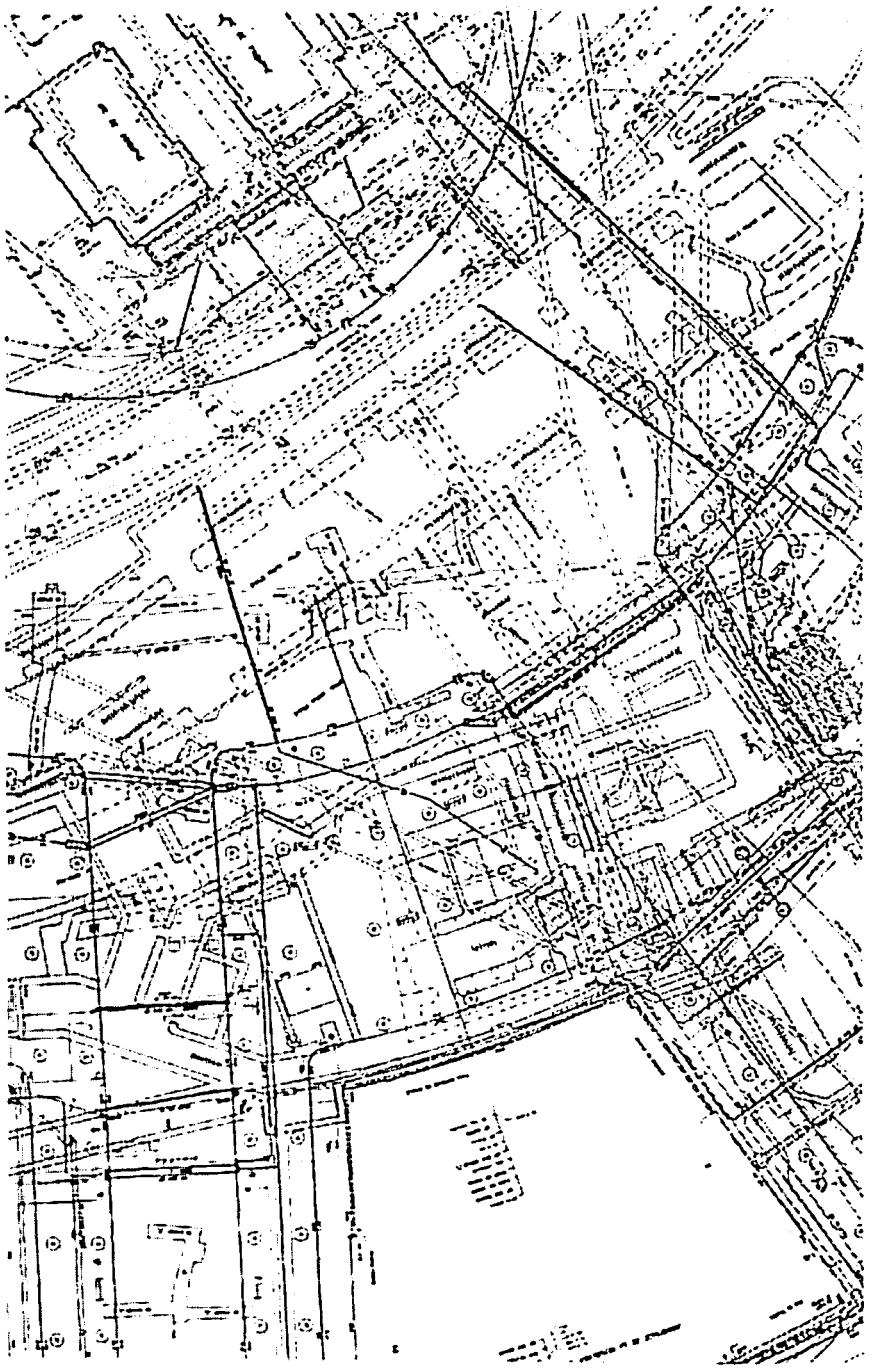


Figure 6 Network system under Place Charles-de-Gaulle in Paris

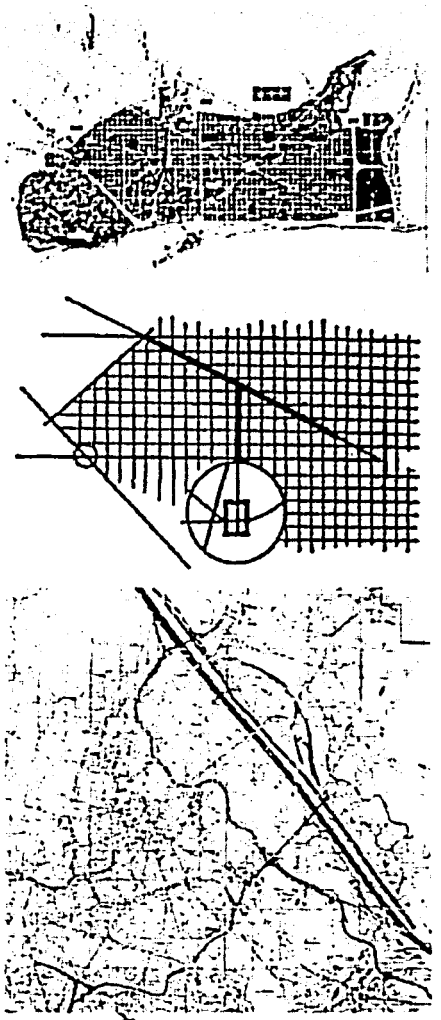
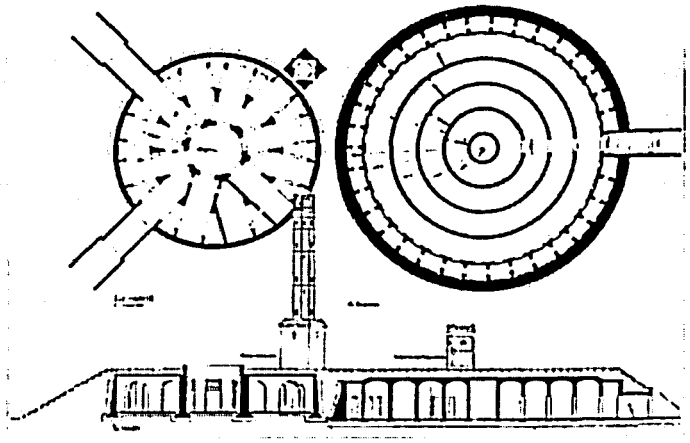


Figure 7 Barcelona and Vienna and schematic drawings of their extentions in the 19th century

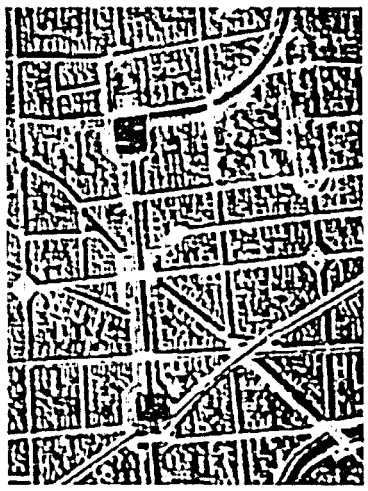
The seven lectures are titled:

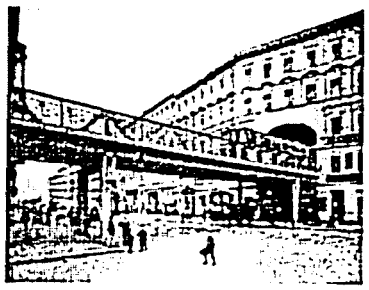
1. Metropolis for ever. The infrastructural network of metropolitan agglomerations
2. Industrial revolution and transport explosion
3. Urban processes. Expansion, growth and social conditions
4. Paris. Centerpoint of France
5. Vienna. Capital of the double-headed Empire
6. Barcelona. Demonstration of catalan selfconfidence
7. Berlin. Newcomer on the continent



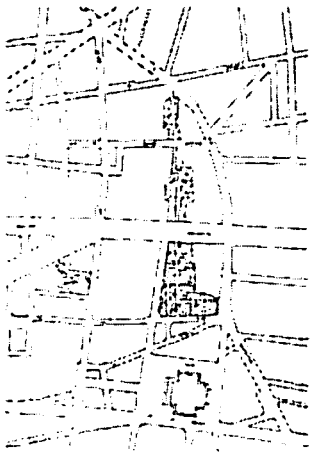
Water storage with water tower in Berlin

Paul Smith advertisement: a map of London to wear

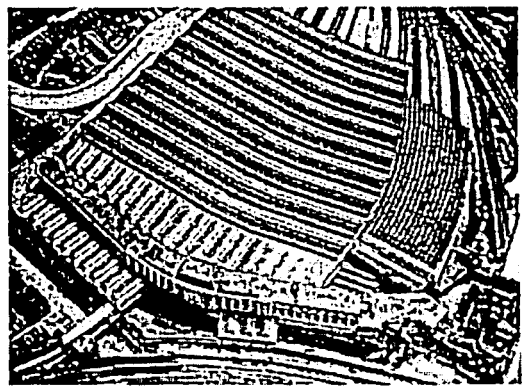




19th century housing and elevated underground in Berlin



A part of Paris' network of galleries



Waterloo station in London

Figure 8 Other subjects of Prof. Bollerey's lectures

2 QUARTER 1 (BKM1 U06,U05,U01,U02,VK11,VK12,VK13)

2.1 Week 1: landscape within 30km radius (bkm1u06 part 1)

2.1.1 Monday morning

The first week starts at Monday 08.45 A.M. in the studio without teachers by making an LFP together for the region Veluwe-Arnhem-Nijmegen with a radius of 30km (60km diameter). In the studio (atelier) you will find a large map 1: 25 000 of the region on the floor and different tables with coloured paper to be glued as legend units on the map.[a]

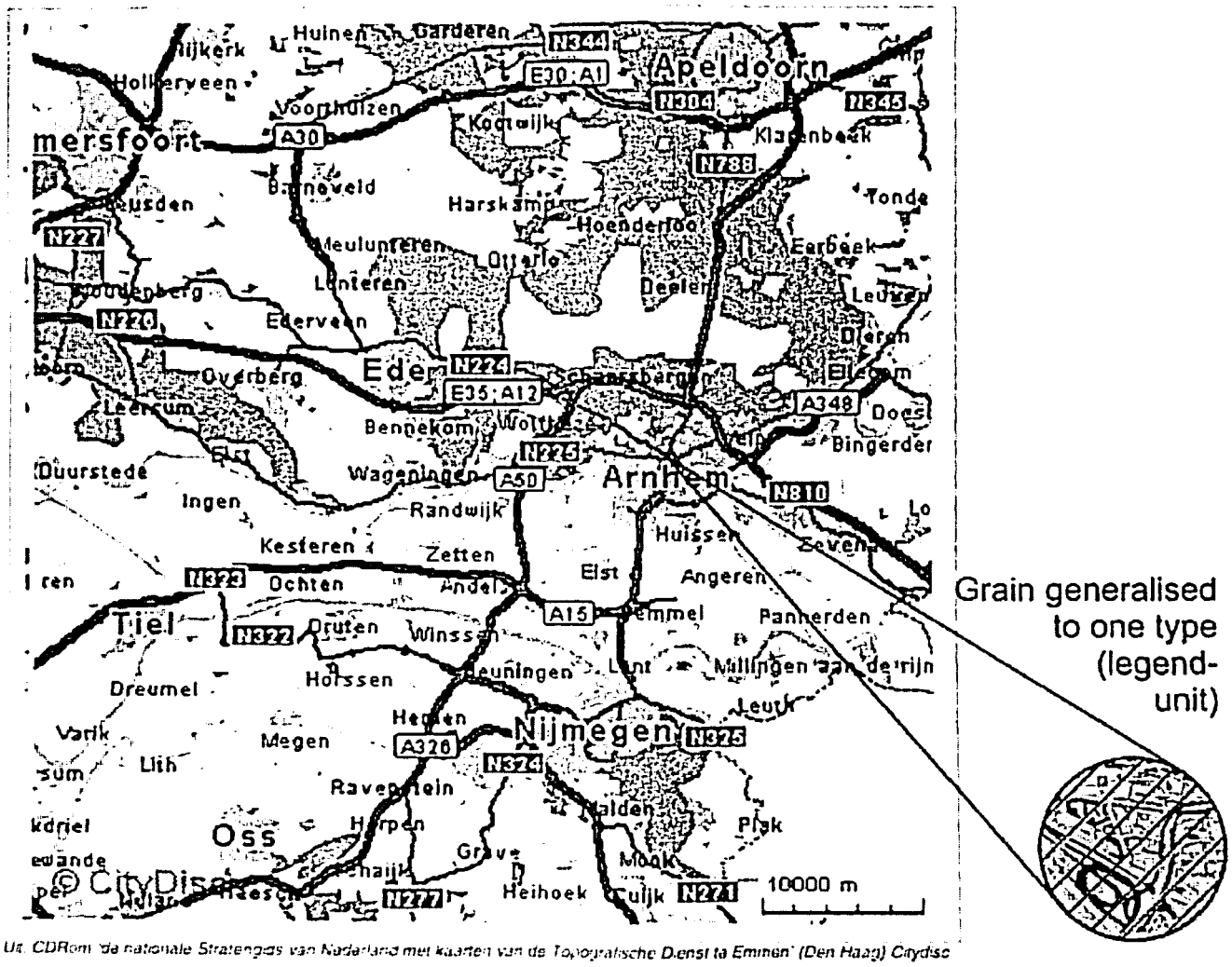


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Figure 9 The region Veluwe-Arnhem-Nijmegen 60x60km 1:500 000
The radius of its grain is R=300m in reality; r=1.2cm on scale 1:25 000

Every table has its own colour form red to blue in two hues: grey and clear. Grey means 'existent', clear means 'planned'. You are grouped by colour and every group designates a colour representitive. The groups are internationally mixed as much as possible. The exercise starts by interpreting the existent situation finding the locations to be covered by your group colour (legend unit) in grey. The aim is to get acquainted with eachother, with the region of the semester, and with some primary concepts of landscape architecture. Divide your group in many cutters-analysts and some gluers. The gluers may walk on socks over the map. The cutters have to keep overview, analyse the locations, cut and point out where they want their paper glued. You can cut the legend units in two sizes.

[a] See (Jong 2002) Grondgebied Chapter 2

The smallest legend unit (g r a i n) covers 1% of the radius of the whole map (300m) and a surface of approximately 30ha. Only when you decide to use 10 of the smallest legend units on the same spot, cut them at once with a radius of 1000m, but be thrifty with the size, because you need space left for design later on.

Grain				Legend				
Radius real	surface real	radius on scale	diameter on scale	Red	Orange	Yellow	Green	Blue
m	ha	cm	cm	meaning				
300	30	1,2	2,4	urban node	rural estate	plantation	landscape theatre	streamland
1000	300	4,0	8,0					

Figure 10 Legend-units R={300m,1000m} in LFP R=30km 1:25 000

S t e e n b e r g e n and Reh[a] discerned the principles of landscaping in *Figure 10* for the national planning agency of the rural area. The existing u r b a n n o d e s could be distinguished form important and large (3000m) to unimportant and small (300m). Try to find them and glue the grey-red spots on the map if you are a member of the red group.
There are many existing r u r a l e s t a t e s and c a s t l e s in the region concerned, try to find them and glue the grey-orange spots on the map if you are a member of the orange group. Remember that the v i s t a ' s and other forms of accompanying landscapes should be covered by the spot..
P l a n t a t i o n s are colonisation grids of the occupied surfaces by which the programme is put on stage by intended or unintended landscape architecture. They not only could be found in the rural, but also in the urban area.
L a n d s c a p e t h e a t r e s are recognisable systems of views and routes by which the physical, biological or cultural origin of the landscape could be experienced.
S t r e a m l a n d s are locations where the dynamics of natural or urban life can be experienced.
The legend paper could be cut elongated, but the applied surfaces should be recognisable as 30ha (0.3km^2) or 300ha (3km^2).

When after an hour (approximately 10.00 A.M.) the existing situation is simulated that way we regard it as 'true', regardless whether your collective interpretation is right or wrong. The map in that stage is photgraphed by van der Schee.

Now the time has come to use the clear colours and to make a design of the region together. Group red may start first and glue 3 minutes. Then group orange, yellow, green and blue each 3 minutes. After this first round many rounds may come until the map is full enough. Groups may decide to stop to give others the opportunity to make the plan complete.
When the Laissez-Faire-Plan is ready the map is again photographed bij Van der Schee to put it on the internet next day, downloadable by everybody (webmaster Rob van Ooijen).
Think about the result. Could you this week make a better plan yourself? Look how the legend units join. Try to generalise to larger surfaces. Rearrange them in your mind to 10 larger units (c o m p o n e n t s) with a radius of 10km. Name them. What kind of legend would you need to express such a c o m p o s i t i o n ? Make sketches, look for c r u c i a l , t y p i c a l , s t r i k i n g or l i n k i n g details. Use the remaining time of the morning to find literature, references, images. Look whether the semester library is open[b].

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[a] (Reh, Steenbergen et al. 1995; Steenbergen and Reh 1996; Steenbergen 1999)
[b] The semester library is opened on regular times in room 12.03. Sign up for the times you would like to use it, because the space is limited.

2.1.2 Monday afternoon

In the afternoon one or more teachers will judge the result at 13.45 P.M. (*Figure 11*), point out weaker and stronger aspects of the LFP and perhaps criticise the legend. What kind of legend would you use yourself to make a landscape design?

Figure 11 Judging the LFP by teachers

Then you will also hear what you are expected to do next days until Friday when your own plan will be judged. After the judgement of the LFP please help cleaning the room and the map after it is photographed. Next day you will find it on the Internet.[a] Start with the first part of your own reflection, the evaluation of the LFP. You have to work it out an hand in on Friday afternoon. Make a study plan for the next days and some priliminary sketches to show on Tuesday. Think about the legend, it does not have to be the same as that of the LFP.

The main field of study of this week is landscape architecture. Responsible teachers are Steenbergen and Kooy. The theme is: making a range of interventions in the sense of landscape architecture giving a frame or strategy for landscape developement in the perspective of a urbanisation task. The aim is to develop knowledge and ability concerning:

- morphology of the natural landscape and the landscape formed by man in interaction with the urban landscape[b];
- the urban and rural water system;[c]
- means of design by landscape architecture on the regional level;
- the typology of the river landscape;[d]
- the mechanism of landscape transformation[e] in the river landscape manipulated by design;
- the spatial translation of programmatic elements in the river landscape.

For the test of the prelininary knowledge and ability in this field within a week on Friday is required:

- a sketch for a spatial plan for landscape development, R=30km 1 : 50 000 with diagrammatic elaborations of illustrative examples, cross sections, reference images, perspectives and so on.
- a landscape analysis 1 : 50 000
- a treedimensional representation of the interventions in the sense of landscape architercture

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[a] http://www.bk.tudelft.nl/users/dejongt/internet.
[b] See [Steenbergen, 1996 #48]
[c] See (Jong 2002) Grondgebied Chapter 6 and Chapter 14 for a figure of the water system of the Veluwe.
[d] See (Moens-Gigengack 2002)
[e] See [Reh, 1995 #2] or [Steenbergen, 1996 #48]

2.1.3 Tuesday

Show your sketches and your plan, look at the sketches of the other students. The teachers mark your first sketch and study plan. Revise your sketches and study plan.

2.1.4 Wednesday and Thursday

Work out your sketches, hear the lectures.

2.1.5 Friday morning: judgement

Pin up your sketches at 08.30 A.M. Written explanation is not necessary. The drawings should speak for themselves. You can leave and work on the reflexive report. At 11.45 A.M. you can come back and hear the judgement and its accompanying discussion.

2.1.6 Friday afternoon: the reflexive report

Friday in the afternoon you have to make your own report reflecting on the LFP of that week, comparing it with your own plan, reflecting the judgement you got, putting it in the perspective of the next weekdiscipline (see **Fout! Verwijzingsbron niet gevonden.**, page **Fout! Bladwijzer niet gedefinieerd.**).
This r e f l e x i v e r e p o r t should be emailed to F.vanderHoeven@bk.tudelft.nl teacher of the next week. Name the document as RR<your own family name, initials> before sending it as an attachment. Do not make it larger than 1Mb. Keep a copy yourself, because you have to rvise it to a chapter in your final report for the first quarter.

2.2 Week 2: town and traffic within 10 km radius (bkm1u06 part 2)

2.2.1 Monday morning

The s e c o n d w e e k starts again on Monday 08.45 A.M. without teachers by making an L F P together now for the region Arnhem-Nijmegen (KAN-area, *Figure 12*) 1: 10 000 with a radius of 10km (20km diameter). In the studio (atelier) you will find a large map of the region on the floor and different tables with l e g e n d u n i t s .

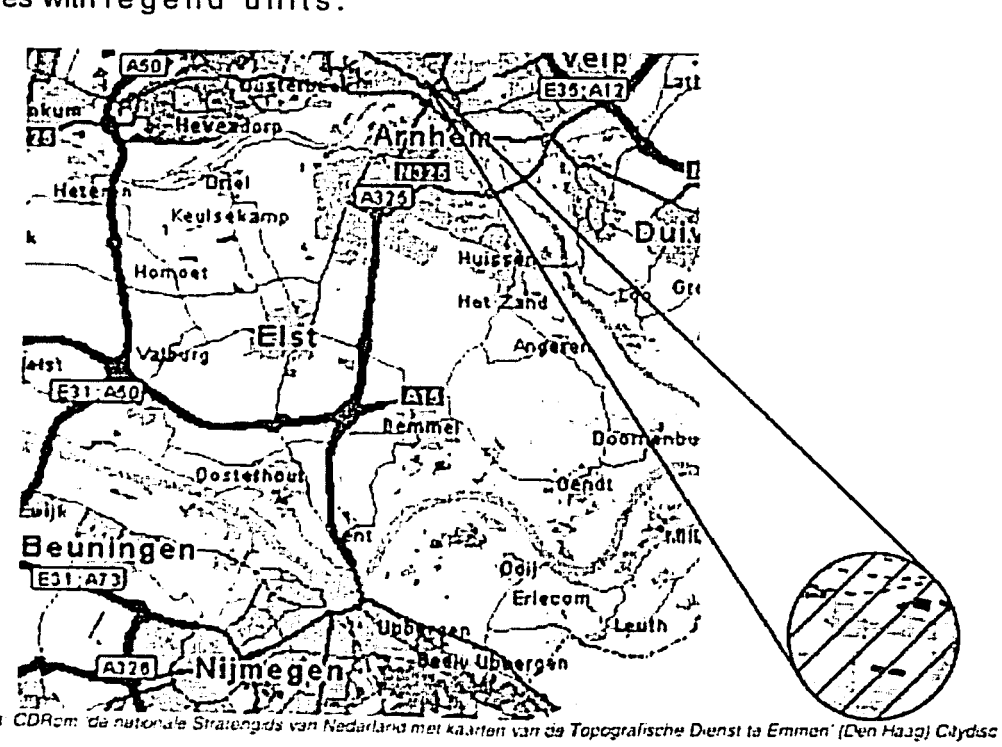

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Figure 12 The sub-region Arnhem-Nijmegen 20x20km here 1:250 000
Its grain has R=100m in reality: on scale 1:10 000 on the floor it has r=1cm

Grain				Legend for a regular Monday				
Radius real	surface real	radius on scale	diameter on scale	Red: people average per hour using a station or motorway exit	Orange: people living at home	Yellow: people working	Green: people recreating	Blue: people caring or studying nature
m	ha	cm	cm					
100	3	1,0	2,0	100	1000	500	<100	<10
300	30	3,0	6,0	1000	10 000	5000	<1000	<100

Figure 13 Legend-units R={100m, 300m} in LFP R=10km, 1:10 000

2.2.2 The rest of the week

The procedure is the same as described in 2.1, page 11.
The main field of study is urban design.[a] The responsible teachers are Han Meyer, Luisa Calabrese and Frank, der Hoeven Boudewijn Bach and Ina Klaasen.

In this exercise we like you to develop a sense of feeling about how much space a regional task could consume, what kind of 'conflicts' you might expect between the different spatial claims and how much infrastructure is needed to serve such an extensive new urban area. For this exercise we provide a clear cut task:

Task
Please accommodate an additional half million inhabitants in the KAN-area. While doing so please understand that there will be a need to give the rivers more space to flow more freely. In this way in the future it will be easier to manage our water problems in regions like this.

No guidelines
There won't be clear guidelines about the amount of infrastructure nor the type of infrastructure to use. That question is up to you. Neither will we be giving instructions on what densities to use or on what type of employment these new inhabitants will have. This is all your task.

Vision
We do expect a vision, a sketch for a regional plan. In this sketch it has to become clear what your guiding principles are. Should residential and working areas disperse over the whole region, should they be concentrated in one or more new towns or should we limit ourselves to extending the existing urban areas.
Should the urbanisation follow the river in its path or should it stick to existing or new infrastructure like motorways and railroads.
And what about densities? Should residential areas mainly be low rise or could we create high dense urban areas as well? And if we use combinations of the two, where do we position low and high dense areas and why? To help you somewhat in your design we ask you the following questions in specific.

Questions
In the case of residential areas: do we use low or high dense areas. Where do we use them and why. Is there a relationship with other parts of the (urban) areas or infrastructure. If so, how would you define this relationship.

In the case of employment: do we use large areas for extensive manufacturing, distribution and agricultural uses or do we provide commercial, service oriented, employment, concentrated in

[a] Obligatory: (Klaasen, Westrik et al. 1998)

smaller but more dense urban areas. Combinations of the two extremes are of course possible as well.

In the case of infrastructure: do we provide public transport in high quality and quantity or do we trust more the effectiveness of the road system, or maybe both. And.. how does this infrastructure work together with the residential and employment areas.
How much infrastructure do we actually need? How many highways, motorways or rail lines do we have to built. Do we bundle these roads and rail lines in specific corridors or do we spread them out as separate lines that find their way more freely through the (urban) landscape?

What consequences do are choices have for the local environment, is it still fun to live next to a highway or a freighter line/ Would you not prefer to live next to the city centre, the river landscape or maybe next to a new city forest.

These choices are up to you. While making the collective LF-plan you won't have a big influence on how things are going. It is a bit like it works in reality. But when we ask you to work as individuals you alone are responsible for the quality of live in the KAN-area. Please make logic choices so in the end the sketch will read itself. You won't be there to explain when the sketches are going to be judged. So everything has to be clear.

Like in the previous week we provide you with a legend. You have to work with this although you might think that the topics are not appropriate. If you arrive at such a conclusion, please write it down in your reflection and try to explain how your legend would look like.

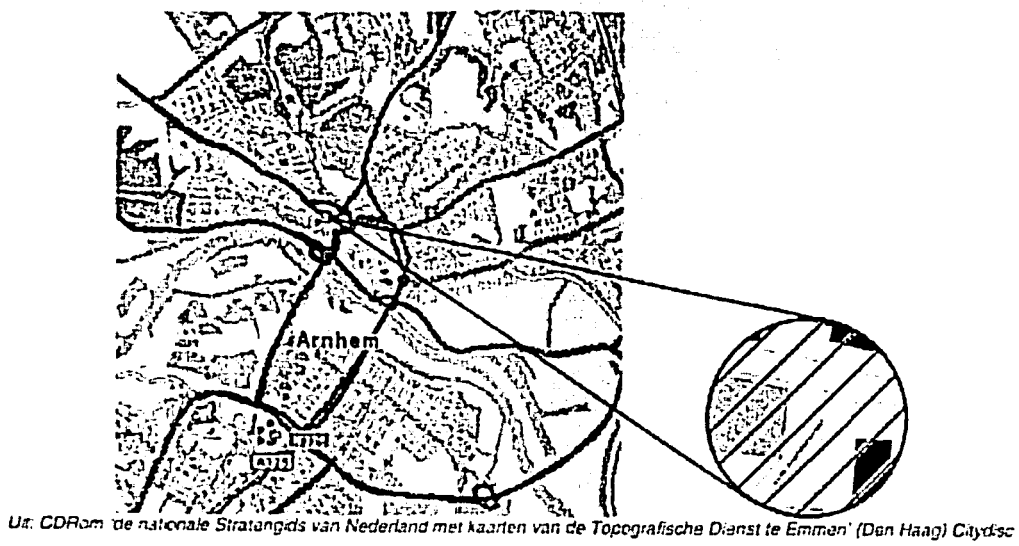
2.2.3 Friday afternoon: the reflexive report

Friday in the afternoon you have to make your own report reflecting on the LFP of that week, comparing it with your own plan, reflecting the judgement you got, putting it in the perspective of the next weekdiscipline (see **Fout! Verwijzingsbron niet gevonden.**, page **Fout! Bladwijzer niet gedefinieerd.**).
This reflexive report should be emailed to M.J.Moens-Gigengack@bk.tudelft.nl teacher of the next week. Name the document as RR<your own family name, initials> before sending it as an attachment. Do not make it larger than 1Mb. Keep a copy yourself, because you have to revise it to a chapter in your final report for the first quarter.

2.3 Week 3: hydrology and ecology within 3km radius (bkm1u06 part 3)

2.3.1 Monday morning

The main field of study is civil engineering and ecology. The responsible teachers are Riet Moens and Taeke de Jong
The third week starts with an excursion to the location.



Uit: CDRom 'de nationale Stratengids van Nederland met kaarten van de Topografische Dienst te Emmen' (Den Haag) Citydisc

Figure 14 The town of Arnhem 6x6km 1:100 000
Its grain meets R=30m in reality; r=1.2cm on scale 1:2 500

2.3.2 The rest of the week

The procedure is the same as described in 2.1, page 11.
P.M. explanation by Riet Moens.

2.3.3 Friday afternoon: the reflexive report

Friday in the afternoon you have to make your own report reflecting on the LFP of that week, comparing it with your own plan, reflecting the judgement you got, putting it in the perspective of the next weekdiscipline (see **Fout! Verwijzingsbron niet gevonden.**, page **Fout! Bladwijzer niet gedefinieerd.**).
This reflexive report should be emailed to F.vanderHoeven@bk.tudelft.nl teacher of week 5 (see 2.5, page 16). Name the document as RR<your own family name, initials> before sending it as an attachment. Do not make it larger than 1Mb. Keep a copy yourself, because you have to revise it to a chapter in your final report for the first quarter.

2.4 Week 4

2.4.1 Carthography and remote sensing (bkmvk13)[a]

P.M. Explanation by Riet Moens.[b]

2.4.2 Week 4 until 9: using computers (bkmvk12)

P.M. Explanation by Taeke de Jong.[c]

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[a] Read Moens (2002-06-26) *Map analysis* in [Jong, 2002 #1] *Grondgebied*
[b] See update on http://www.bk.tudelft.nl/users/dejongt/internet. by R. van Ooijen
[c] See update on http://www.bk.tudelft.nl/users/dejongt/internet. by R. van Ooijen

2.5 Week 5: traffic and constructive technology within 1 km radius (bkm1u05 part 1)

2.5.1 Monday morning

The fifth week starts again on 08.45 A.M. without teachers by making an LFP together for the city of Arnhem 1: 1 000 with a radius of 1km (2km diameter). In the studio (atelier) you will find a large map of the city on the floor and different tables with legend units.[a]

Uit: CDRom 'de nationale Stratengids van Nederland met kaarten van de Topografische Dienst te Emmen' (Den Haag) Cayoisc

Figure 15 The city of Arnhem 2x2km 1:25 000.
The radius of its grain meets R=10m in reality; r=1cm 1:1000

Grain				Legend				
Radius real	surface real	radius on scale	diameter on scale	Red investment crossing	Orange investment trace	Yellow investment multiple land use	Green investment milieu	Blue investment waterworks
m	m^2	cm	cm	meaning				
10	300	1.0	2.0	€ 10 mln	€ 10 mln	€ 10 mln	€ 10 mln	€ 10 mln
30	3000	3.0	6.0	€ 100 mln	€ 100 mln	€ 100 mln	€ 100 mln	€ 100 mln

Figure 16 Legend-units R={10m, 30m} in LFP R=1km, 1:1000

2.5.2 The rest of the week

The procedure is the same as described in 2.1, page 11.
The main field of study is urban design and civil engineering. The responsible teachers are Han Meyer, Luisa Calabrese, Frank van der Hoeven and Boudewijn Bach.

The task of adding another half million people to the KAN-area is not an easy one when it comes to connecting the new urban areas with the existing ones. The infrastructure in Arnhem for instance is dimensioned for the existing 600.000 people in the KAN-area, not for almost twice as much.

[a] See http://www.minvenw.nl/dgp/mit/projboek/2000/statpag/fmb.html

By doubling the population base we have to expect more people using the facilities in the city centre of Arnhem, more people using the train system, including the High Speed Trains, and more people wanting to cross the river Rhine with their vehicles.
This will mean two things. On the one hand there will be a need to provide more space for shops, leisure, parking, stations and so on in the city centre. On the other end there will be a need to provide more capacity for the road and more capacity for the rail system. It might even become necessary to introduce new infrastructure, previously unheard of in the KAN-area: light rail for instance.
With an increasing use and density of the several networks, with the introducing of even new networks and with the need to accommodate more people in the same area there will be a need to rethink the way infrastructure is integrated in the city.
Essential for the integration of infrastructure in urban areas are civil constructions.

- Civil constructions were used for facilitating line infrastructure where natural conditions made it impossible to situate the (rail)road at ground level (tunnels in mountain terrain or dikes in soft soil conditions)
- Civil constructions were used at points were networks met and crossed each other (bridges).
- Civil constructions are being used in the case of water management (dikes and locks).
- Increasingly we see civil constructions put to work to reduce the environmental impact of infrastructure and to increase the quality of life (noise barriers and sewage facilities).
- And in the last decade there has been a lot of research in the possibilities to use civil constructions to provide more space in urban or rural areas (multifunctional and intensive land-use).

From the point of view of an urban planner it is important to get a feeling about how many of these civil constructions are present in urban areas, how much you need to invest in them and how their design is influencing the possibilities and the quality of urban life. This will be the main focus for this week.

Again we begin the week by making a Laissez-Faire Plan together, this time for the inner city of Arnhem. At the map you will find some very obvious civil constructions like the Rhine-bridges and the new HST-station. But when you look closer you will discover much more. You will start off the Laissez-Faire Plan by mapping the current situation. This time you will make the Laissez-Faire Plan in two groups of about 20 students.

We will provide again a five-topic legend along the lines described as above. This time we will ask you to put a price tag at those key-points in your design. How much is invested already in civil constructions in this part of Arnhem and how much more money is in your opinion necessary needed for investments in civil constructions in this vital part of the KAN- area. You can allocate your money in the five different sectors mentioned above. An expert will comment your vision as always.

For the individual work we ask you to be a little more systematic:

- Network

Please draw the different networks as separate layers:
- Car (main roads only)
- Pedestrian (shopping streets, important routes)
- Bike (main network)
- Green (connecting framework, parks)
- Trolley bus (all)
- Train (all, including stations)
- Water (wider than six meters)

- Connecting or crossing point

For every network you need to point out where it crosses or connects to another network and by what means (especially in the case of a civil constructions). At the same time you have to point out where the networks have to deal with relatively big height differences.

- Additions or extensions

Next you need to draw the parts of the network that need new connections or more capacity. You might introduce even a new network if you think it is necessary or it will increase the quality of life in town.

• Conflicts (capacity, safety, environment)
Then you have to point out where you expect conflicts, conflicts between the functioning of several networks (capacity or safety problems at crossings), problems with height differences or conflicts between the (increasing) use of the network and the nuisance surrounding urban areas will experience (noise, air pollution, barrier).

• Change of use and redesign
Last but not least you should consider the space occupied by networks and the conflicts that comes along with them. Does this fit in the picture you have in mind for this part of Arnhem. If so, there is nothing more to do. But probably you would like to reconsider the design of quite a few civil constructions. You should ask yourself if the networks can use the same space at the same time. If not, which network will continue to use the street level and which one is going to be raised or suppressed, possibly diverted. You need to ask yourself if a change of functions is preferable at a particular place. Rail yards, train tracks: do they still belong in cities, if not: do you feel investing in raised or suppressed infrastructure is worth the money.

• Strategic map
As a final step you need to bring together your proposal in one drawing that will make clear what you are proposing as sound investments and why. What is it you are going to solve. The bigger sketch will be complete with little schemes of your analysis and work as illustrations. One of these little schemes is a price tag map like you started the week with.

Again, please make logic choices so in the end the sketch will read itself. You won't be there to explain when the sketches are going to be judged. So everything has to be clear.

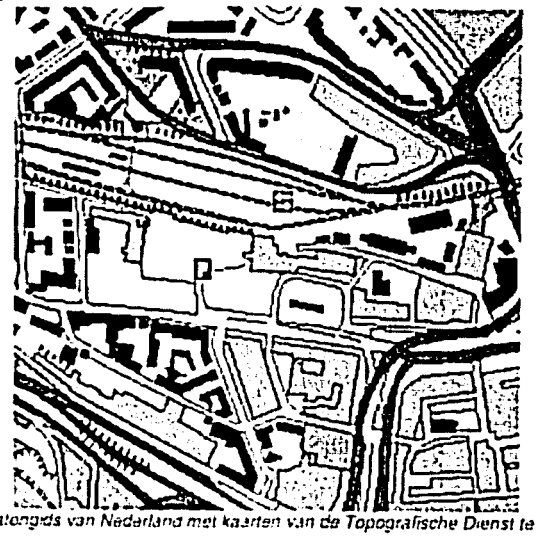
2.5.3 Friday afternoon: the reflexive report

Friday in the afternoon you have to make your own report reflecting on the LFP of that week, comparing it with your own plan, reflecting the judgement you got, putting it in the perspective of the next weekdiscipline (see **Fout! Verwijzingsbron niet gevonden.**, page **Fout! Bladwijzer niet gedefinieerd.**).
This reflexive report should be emailed to T.M.deJong@bk.tudelft.nl teacher of week 5 (see 2.5, page 16). Name the document as RR<your own family name, initials> before sending it as an attachment. Do not make it larger than 1Mb. Keep a copy yourself, because you have to revise it to a chapter in your final report for the first quarter.

2.6 Week 6: physics and soil within 300m radius (bkm1u05 part 2)

2.6.1 Monday morning

The sixth week starts again on Monday 08.45 A.M. without teachers by making an LFP together now for the railway station neigbourhood of Arnhem 1: 250 with a radius of 300m (600m diameter). In the studio (atelier) you will find a large map of the region on the floor and different tables with legend units.



Uit: CDRom 'de nationale Stratengids van Nederland met kaarten van de Topografische Dienst te Emmen' (Den Haag) Cilydisc

Figure 17 The railway station neighbourhood 600x600m of Arnhem 1:10 000
The grain is R=3m in reality, 1,2cm on scale 1:250

This time two groups choose a different legend of 5 colours each from:

Grain				Legend for a sunny day				
Radius real	surface real	radius on scale	diameter on scale	Red	Orange	Yellow	Green	Blue
m	m^2	cm	cm	meaning				
3	30	1.2	2,4					
				full sunlight	half sunlight	light shadow	shadow	darkness
				gale	wind	breeze	sheltered	windless
				racket	noise	low noise	quiet	silence
				high				low
				dry	normal	moisty	wet	stream
				rocky	gravel	sand	clay	marshy
10	300	4.0	8,0					

Figure 18 Legend-units R={3m, 10m} in LFP R=300m, 1:250

One group makes for instance an inventory by glueing gray spots of the sunlight within the area, another of the wind, of the noise, of the moist of the soil, of the soil itself. The other group chooses a different legend.

What kind of city nature you expect on this basis, what kind of trees, vegetation and animals? What about the comfort of people in public space and gardens? Is there any possibility for improvement? Think about how to measure these variables later on in bkm1vk13. Then make a plan together with clear spots.

2.6.2 The rest of the week

The procedure is the same as described in 2.1, page 11.
P.M. Explanation by Taeke de Jong

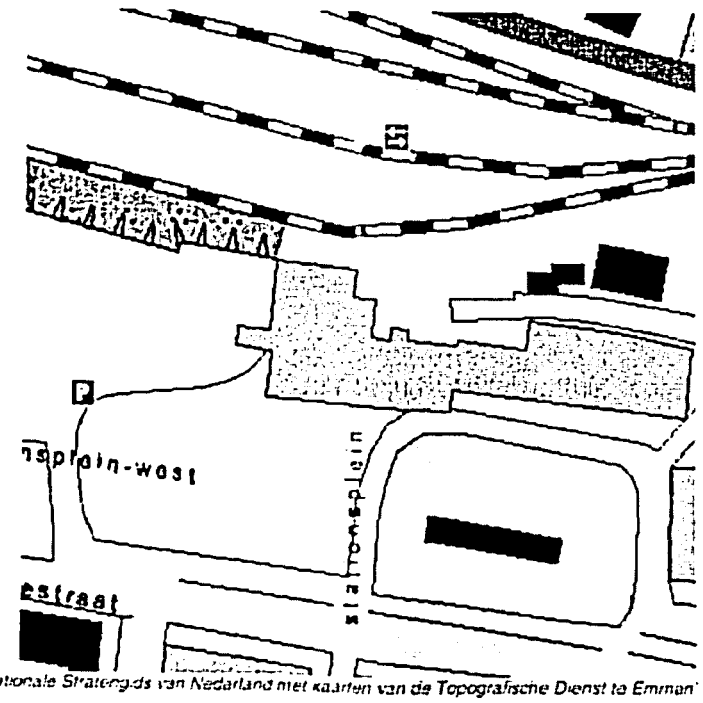
2.6.3 Friday afternoon: the reflexive report

Friday in the afternoon you have to make your own report reflecting on the LFP of that week, comparing it with your own plan, reflecting the judgement you got, putting it in the perspective of the next weekdiscipline (see **Fout! Verwijzingsbron niet gevonden.**, page **Fout! Bladwijzer niet gedefinieerd.**).
This reflexive report should be emailed to E.vanderKooij@bk.tudelft.nl teacher of week 5 (see 2.5, page 16). Name the document as RR<your own family name, initials> before sending it as an attachment. Do not make it larger than 1Mb. Keep a copy yourself, because you have to revise it to a chapter in your final report for the first quarter.

2.7 Week 7: materialisation within 100m radius (bkm1u05 part 3)

2.7.1 Monday morning

The seventh week starts again on Monday 08.45 A.M. without teachers by making an L F P together now for the railway station neigbourhood of Arnhem 1: 100 with a radius of 100m (200m diameter). In the studio (atelier) you will find a large map of the environment on the floor and different tables with legend units.



Uit CDRom 'de nationale Stratengids van Nederland met kaarten van de Topografische Dienst te Emmen' (Den Haag) Cityd

Figure 19 The Railway station of Arnhem 200x200m 1:2 500.
The grain is R=1m, r=1cm on scale 1:100.

Grain				Legend				
Radius real	surface real	radius on scale	diameter on scale	Red	Orange	Yellow	Green	Blue
m	m^2	cm	cm	meaning				
1	3.1	1.0	2,0	built-up	pavement	unbuilt private	park	water
3	2.8	3.0	6,0					

Figure 20 Legend-units R={1m, 3m} in LFP R=100m, 1:100

2.7.2 The rest of the week

The procedure is the same as described in 2.1, page 11.
The main field of study is landscape architecture.[a] The responsible teachers are Clemens Steenbergen en Erik van der Kooy.
The theme is giving form and materialise transformations in a sense of landscape architecture in a radius of 100m on the basis of interventions like a viewing place, a water playground, a pumping-station, culvert, plantation and so on.
The aim is to develop skills and knowledge concerning:

the morphology of natural and cultural landscape in relation to the urbanisation task;
design on different levels of scale with accompanying means of design from an integral view;
giving form to elementary technical components of the landscape in urban and rural areas
analysing the given of a place at the level of details in the context of a river landscape;
design in form and material on scale 1:1000 and 1:200 with an emphasis on water as a means of design.

For the test of the prelininary knowledge and ability in this field within a week is required:

a spatial plan (R=100), 1:1000 with elaborations until 1:200 of details, cross sections, perspectives, elevations and reference images.

P.M. explanation by Clemens Steenbergen.

2.7.3 Friday afternoon: the reflexive report

Friday in the afternoon you have to make your own report reflecting on the LFP of that week, comparing it with your own plan, reflecting the judgement you got, putting it in the perspective of the next weekdiscipline (see **Fout! Verwijzingsbron niet gevonden.**, page **Fout! Bladwijzer niet gedefinieerd.**).
This reflexive report should be emailed to T.M.deJong@bk.tudelft.nl coordinator of the semester (see 2.5, page 16). Name the document as RR<your own family name, initials> before sending it as an attachment. Do not make it larger than 1Mb. Keep a copy yourself, because you have to revise it to a chapter in your final report for the first quarter.

2.8 Week 8: study, finishing logbook (bkm1u06) and (bkm1u05)

Gather your reflexive reports to make a logbook of what you have done and learned as part of your finishing report (bkm1u06) and (bkm1u05). You can do it on A3. Think what you want to do in the second quarter and write it down as a study plan within that report.

[a] Obligatory: (Kooy, Reh et al. 1993), (Steenbergen 1988)

So, the logbook shoul contain:

- a report based on the reflections
- an evaluation of the first quarter
- a study plan for the second quarter

Bring the result to the secretary of Stedebouw in room 11.08.

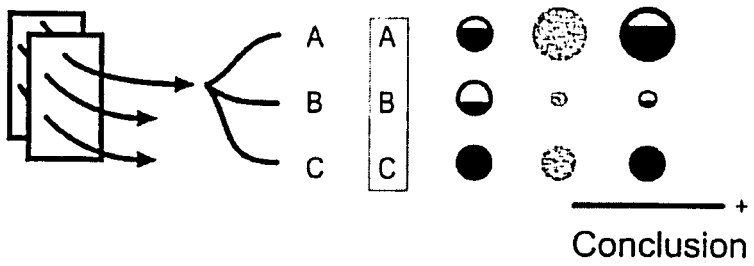
Finish your report on how you used the computer (bkmvk12). Prepare your exam of next week.

2.9 Week 9: first exam (bkm1 u01, u02, vk11), handing reports

Make your exam, always write down something, even if you have no idea about the question: a mark 3 is much more than a mark 0! We will try to make all the questions in English. Perhaps there are special questions for foreigners avoiding the literature in Dutch as much as they are not comprehenible from the figures. Hand your reports to the secretariat Stedebouw or directly to Luisa Calabrese or Frank van der Hoeven (bkm1u06 and bkm1u05) and Taeke de Jong (bkmvk12).

2.10The reflexive reports

Start with a comparison of the LFP and your own plan.



1 take two comparable plans
2 sum up the differences
3 choose one differnce as subject
4 choose one suffering object
5 locate in context and perspective
6 determine the effect per suffering object
7 weigh the effects
8 determine the total effect

Figure 21 Evaluating your own sketch against the background of the LFP

Read (Jong 200206)[a] to know how to make the drawings comparabe and to compare them properly. You can also use (Jong and Voordt 200203)[b] to note your thoughts in short and make a proper bibliography. Then look at the programme of the next week. Look for literature about the theme of that week (see paragraph 0, page 27)[c]. Write down the consequences for your sketch and send the result to the teachers of the next week (see chapter 0, page 25).

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[a] (Jong 200206)
[b] (Jong and Voordt 200203)
[c] You can download an Excel-sheet with literature concerning the semester from http://www.bk.tudelft.nl/users/dejongt/internet.

3 QUARTER 2 (BKM1 U04, U01, U02, U03, VK19)

3.1 Week 10: design and technology (bkm1u04)

P.M. Explanation by Luisa Calabrese and Frank van der Hoeven

3.2 Week 13: sustainability (bkm1vk19)

P.M. Explanation by Truus de Bruin

3.3 Week 19: second exam (bkm1 u01, u02, u03), preparing the workshop

3.4 Week 20: workshop, preparing the demonstration

3.5 Week 21: demonstration

4 PHILOSOPHY

The literature, lectures and exam are directed on the development of scientific width (universitas) and divergence.
The exercises and reports are directed on the capacity of limitation for the time being and directed depth.
The design exercises are directed on the capacity to bring a complex multitude together in simple spatial conceptions (convergence).

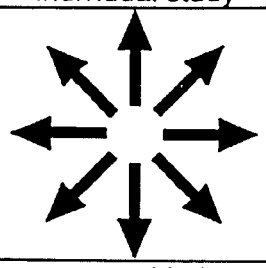
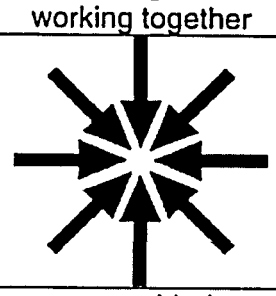
	broad	deep	complex
	literature, lecture, individual study	sectoral exercises, reports	design, working together
			
knowledge	many-sided, divergent	one-sided, directed	many-sided, convergent
insight	multidisciplinary	monodisciplinary	interdisciplinary
ability	methodology and creativity		

Figure 22 How to get universal broadness, competent depth and ability to handle complexity

It is a mistake to think that you do not need know-how for individual study or that design only requires ceativity. Knowledge, insight and ability a.e important in all of the columns.

Learning by hands is stimulated by starting with design (in the morning and at Monday) and ending with reflection and study (in the afternoon and at Friday).

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Clemens Steenbergen

Stephen Read

Sybrand Tjallingii

Martin an der Tooren

Rien van der Voorden

Jan Wegner

Figure 23Teachers and assitents

BIBLIOGRAPHY

There are for this semester more than 800 relevant publications registered.[a] Some 500 can be studied in the semester library[b], others in the library of the Faculty and in the library of the TUD.[c] 25 titles are obligatory, estimated on a tota value of approximately €200:

Bach, B. (2002) *Dictaat Verkeer.* (Delft) ? 02.

Bach, B. (?) *Naslagwerk Verkeers- en vervoerskunde.* (Delft) Faculteit Bouwkunde 04.

Benevolo, L. (1993) *De Europese stad.* (Amsterdam) 03.

Benevolo, L. (1993) *The European city.* (Oxford) 03.

Bouwfysica (?) *Bouwfysisch tabellarium* vk19.

Bouwfysica_CT (1992) *Bouwfysica 1.* (Delft) DUM VSSD vk19.

Heeling, J., V.J. Meyer, et al. (2002) *Het ontwerp van de stadsplattegrond.* (Nijmegen) SUN 05.

Huisman, P., W. Cramer, et al., Eds. (1998) *Water in the Netherlands.* NHV-special. (Delft) NHV, Netherlands Hydrological Society NUGI 672 vk11.

Jong, T.M.d. (2001) *Standaardverkaveling 11.exe* vk12.

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[a] This total list is also downoadabe on Excel from http://www.bk.tudelft.nl/users/dejongt/internet

[b] The semester library is opened on regular times in room 12.03. Sign up for the times you would like to use it, because the space is limited.

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