

Information pack on the upgrade of the Uilenburg electricity substation

April 2024

**X Gemeente
X
X Amsterdam**



Introduction

On 30 October 2023 Liander and the Municipality of Amsterdam organised an information meeting on the upgrade of the electricity substation at Nieuwe Uilenburgerstraat 27. At this meeting, and in the [associated information pack](#), we presented three site options.

Since then the following steps have been taken:

- Bureau Bewonerszaken has conducted a second neighbourhood survey on behalf of Liander.
- Engineering consultancy Royal HaskoningDHV has researched alternative sites outside Uilenburg island on behalf of the Municipality.
- Liander has investigated the (technical) feasibility of the three site options for the electricity substation on Uilenburg island.
- Technical consultancy DEP has calculated the electromagnetic fields (EMFs) on behalf of the Municipality.

In this information pack we provide you with information about these aspects and the process we have followed, and we explain which choices we have made and why. We also tell you about the next steps that will be taken in preparation for the site decision relating to the upgrade of the Uilenburg electricity substation. The project team will ask the Executive Committee of Amsterdam's Centrum District to make this site decision this summer. In this way the Executive Committee will decide whether the Municipality will cooperate with the spatial planning procedures necessary to implement the plan.

Information meeting

We will also be organising another information meeting, including a plenary presentation and an information market.

- Date: Tuesday 14 May 2024
- Time of plenary presentation: 7 p.m. – 8.15 p.m. Doors open from 6.30 p.m.
- Time of information market: 8.15 p.m. – 9.15 p.m.
- Location: Uilenburgersjoel, Nieuwe Uilenburgerstraat 91
- [You do not need to register in advance](#)

Contents of this information pack

1. Feedback on neighbourhood survey	3
What are we doing differently this time?	3
What are the main topics we will discuss on 14 May?	3
Which topics will we deal with later?	4
2. Why is the electricity substation being upgraded?	5
A larger, stronger and smarter power grid	5
More electricity for the centre of Amsterdam	6
Where is the electricity supplied?	6
3. Are there alternative sites outside Uilenburg?	7
Alternative sites put forward by local residents	8
4. Site options on Uilenburg	9
New option: a combination of 2 and 3	10
Characteristics	10
Point for consideration: relocation of the listed building	10
Preferred option for site decision	10
5. What implications does the new option have for EMFs?	11
Precautionary policy of the Municipality of Amsterdam	11
Research on the EMF contour for the new option	11
Advice of the Municipal Health Service (GGD)	11
6. What implications does the new option have for the listed building?	12
7. What implications does the new option have for the housing for senior citizens?	13
8. What next?	14
Site decision by the Municipality of Amsterdam	14
How will we deal with inconvenience (resulting from construction)?	14
How will we arrive at a design?	14
Communication and participation	15
Permits and procedures	15

1. Feedback on neighbourhood survey

In the autumn of 2023 Bureau Bewonerszaken conducted a second neighbourhood survey on behalf of Liander. In total, 119 local residents took part.

- First neighbourhood survey (spring 2023): [uilenburg-amsterdam - Bureau Bewonerszaken*](#)
- Second neighbourhood survey (autumn 2023): [buurtonderzoek uilenburg - Bureau Bewonerszaken*](#)

We are using the results of the neighbourhood surveys to:

- find out what concerns people have in the district and what is important to you;
- improve the plans for upgrading the electricity substation, where possible;
- improve the information and communication about the upgrade of the electricity substation.

What are we doing differently this time?

Plenary presentation: the feedback from the residents' evening held on 30 October 2023 and from the neighbourhood survey made clear that there was a need for a plenary presentation. This will ensure that all visitors hear the same story and any questions they may have will be answered centrally. The first part of the meeting on 14 May will therefore consist of a plenary presentation.

Information pack distributed in advance: the information pack that we distributed after the meeting last time was well received. The feedback also revealed that local residents would have preferred to receive the pack before the meeting, so they could come to the event well prepared. This time we have therefore got the information pack ready for you ahead of the meeting.

**) Available in Dutch only*

What are the main topics we will discuss on 14 May?

We cannot cover all the topics arising from the neighbourhood survey in a single evening. For that reason we have decided to focus on the topics that are relevant to the site decision that will be made this summer. These are:

Need to upgrade the electricity substation: many people are wondering why a relatively small electricity substation in a densely populated part of the city needs to supply more electricity and where this electricity will go. We explain this in chapter 2 and will also pay attention to this question at the meeting.

Alternative sites outside Uilenburg: local residents are wondering whether the substation could not be built somewhere else in the city. Alternative sites were also put forward in the neighbourhood survey. We deal with this in chapter 3.

Options on Uilenburg: in the neighbourhood survey local residents could give their reactions to the three different site options. We took these reactions into account in the research carried out into these options. This has resulted in a new site option being developed. We explain this in chapter 4.

Electromagnetic fields: local residents wanted to obtain a clearer picture of the EMF contour before a decision is made about the site. In chapter 5 you can read about the research that we have had carried out in this area. We will, of course, also focus on this question at the meeting and the Municipal Health Service (GGD) will be present to answer any health-related questions.

Listed building: part of the site decision relates to the relocation of the 'Old Teacher's House'. In the neighbourhood survey people expressed concerns about how we will deal with the Jewish cultural heritage. We discuss this in chapter 6.

Housing for senior citizens: the plans for the electricity substation will have an impact on the plans for housing for senior citizens. We discuss the status of this in chapter 7.

Which topics will we deal with later?

In addition to the above, in the neighbourhood survey people asked a lot of questions about:

The design of the substation and the layout of the outside space: we want to focus more attention on this question after the Municipality has made a decision on the site. In chapter 8 you can read about the steps we are taking in the design phase. The architect of the electricity substation will also be present on 14 May.

Construction work: in the neighbourhood survey people asked a lot of questions relating to the work that will be carried out and the measures that Liander will be taking to limit any inconvenience and reduce the risk of damage. In chapter 8 we answer these questions in general terms. We would like to provide more details at a subsequent information meeting.

2. Why is the electricity substation being upgraded?

A larger, stronger and smarter power grid

We are used to electricity flowing like water from a tap. But this is no longer a given. Since the 1970s, our power consumption has tripled, and the electrical grid through which the power passes has expanded with it all this time. However, demand for power has been rising so fast in recent years that soon our power grid will no longer have the capacity required. In fact, Amsterdam is expected to use three to four times as much power in 2050 as it does today.

To accommodate that growth, a power grid that is twice as large is needed. It also needs to get smarter, as more and more people and businesses generate their own power. Expanding our power grid is a huge puzzle. Amsterdam is very built up, both above and below ground. Figuring out where any cables fit is a really big job. Not to mention working out where substations and distributor boxes may or can be built. These also need to be connected properly to the existing power grid.

The Municipality of Amsterdam ensures that everything is done in accordance with the law and regulations and that the work is coordinated. The upgrade itself is managed by grid operators TenneT and Liander. Until at least 2035, we are working all over the city, renovating or expanding 13 electricity substations like Uilenburg and building 30 new ones. In addition, 2,600 new distributor boxes are required and, of course, hundreds of miles of cable to connect it all.

Amsterdam (detailkaart)

Toekomstige situatie

Legenda



More electricity for the centre of Amsterdam

The area to which a substation supplies electricity is called the supply area. The substation on Uilenburg supplies electricity to a large part of the city centre (see image below for the current supply area).

Amsterdam Centrum

Huidige situatie

Voedingsgebied van OS Uilenburg



The current supply area of Uilenburg electricity substation.

Once the electricity substation has been upgraded, the supply area will look slightly different (see image below).

Amsterdam Centrum

Toekomstige situatie

Voedingsgebied van OS Uilenburg



Where is the electricity supplied?

We are not allowed to say which customers are supplied with electricity by Liander and how much is supplied. This is a stipulation of the Electricity Act, as it is sensitive information. We cannot therefore answer questions about specific customer connections, such as that of Booking.com. However, we can say how many homes and businesses are connected to the Uilenburg electricity substation.

The electricity is supplied to:

- Approximately 9,000 households
- Approximately 200 businesses
- Public facilities

3. Are there alternative sites outside Uilenburg?

Finding space in the city for electricity substations is a major challenge. Amsterdam is densely populated and different functions are packed close together, especially in the city centre.

An alternative site for the Uilenburg electricity substation has to meet at least the following requirements:

- The site must be within the defined search area: inside the area to which the substation supplies electricity (the supply area) and within a 1 km radius of the current electricity substation on Uilenburg;
- The minimum surface area required is 42 metres x 37 metres;
- The site must not fall within the so-called 'Main Green Structure' (the reserved green space) of the Municipality of Amsterdam.

The Municipality of Amsterdam has asked the engineering consultancy Royal HaskoningDHV to look for alternative sites for the electricity substation outside Uilenburg island. The report drawn up by Royal HaskoningDHV is publicly available and can be found [here](#) (available in Dutch only). We have summarised the findings below:

The following sites emerge from the analysis conducted by Royal HaskoningDHV:

1. Mr. Visserplein
2. Nieuwmarkt
3. Dam Square
4. Beursplein

Amsterdam Centrum

Voedingsgebied en zoekgebied van OS Uilenburg

Vier locaties uit het locatieonderzoek met voldoende ruimte boven de grond:

1. Mr. Visserplein
2. Nieuwmarkt
3. De Dam
4. Beursplein

Legenda











 Onderstation (OS) 150 kV TenneT / Lander	 Station - vervanging uitbreiding	
 Onderstation (OS) 50 kV Lander	 Voedingsgebied OS Uilenburg	
* Uitzondering op beheer: Daar waar we afwijken van de standaard, zie de twee symbolen hieronder		 Zoekgebied OS Uilenburg
 TenneT in beheer	 Beoordeelde locaties OS Uilenburg	
 Lander in beheer		
 Hoogspanningsnet 150 kV TenneT		
 Kabelverbinding 50 kV Lander		



Figure 5: Search area with four sites that meet the minimum surface area required.

Dam Square, Beursplein and Nieuwmarkt can be ruled out in advance due to the protected cityscape and the extremely busy nature of these locations. Mr. Visserplein was examined further in the site study on the basis of the following criteria:

1. Municipal policy
2. Cables and pipes
3. Electromagnetic fields (EMFs)
4. Loss of public space
5. Inconvenience (resulting from construction)

As far as the second and fifth criteria are concerned, Mr. Visserplein is considerably less suitable than Nieuwe Uilenburgerstraat. The re-routing of cables and pipes that would be necessary to relocate the electricity substation to Mr. Visserplein would lead to an unacceptable increase in construction-related inconvenience compared to expanding the substation on Uilenburg. That is because a significant part of the underground infrastructure running through the city would have to be relaid. In addition, besides road safety and traffic flow in the city centre, aspects such as the time needed for construction, the available capacity at Liander and the much higher construction costs are key considerations when it comes to weighing up the alternatives. Based on the above, we conclude that expanding the electricity substation on Uilenburg is the only realistic option.

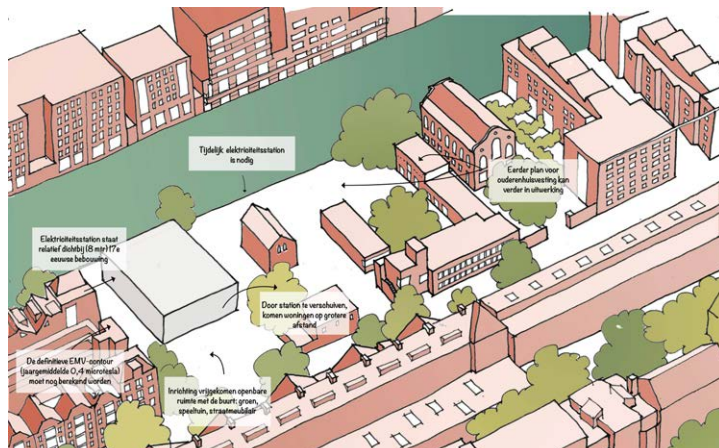
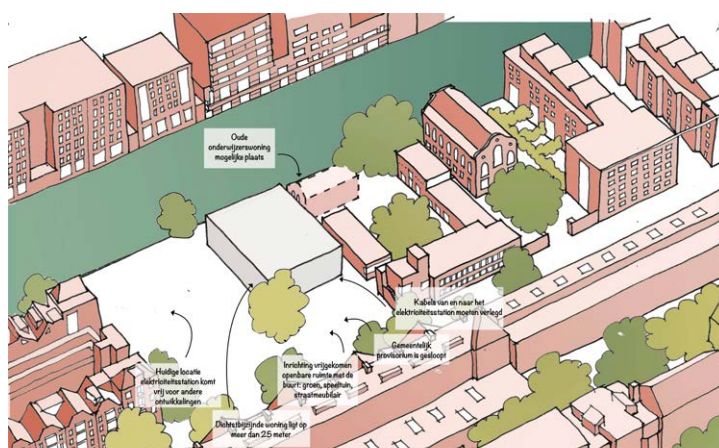
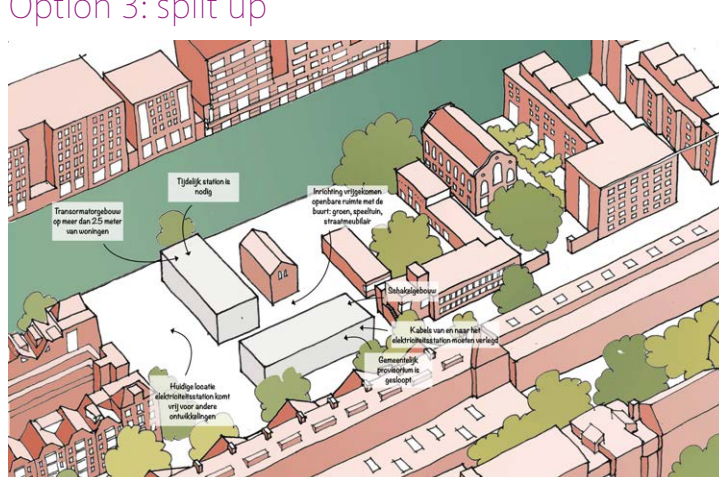
Alternative sites put forward by local residents

Residents put forward the following alternative sites. These have been assessed and have proven not to be feasible:

- **Below ground:** Liander has examined these suggestions and has concluded that making an underground electricity substation compliant with the safety standards is not feasible. The costs of underground construction are also unacceptably high compared with construction above ground.
- **Marineterrein:** this site is outside the supply area.
- **Mr Visserplein:** this site has been investigated further by the engineering consultancy Royal HaskoningDHV.

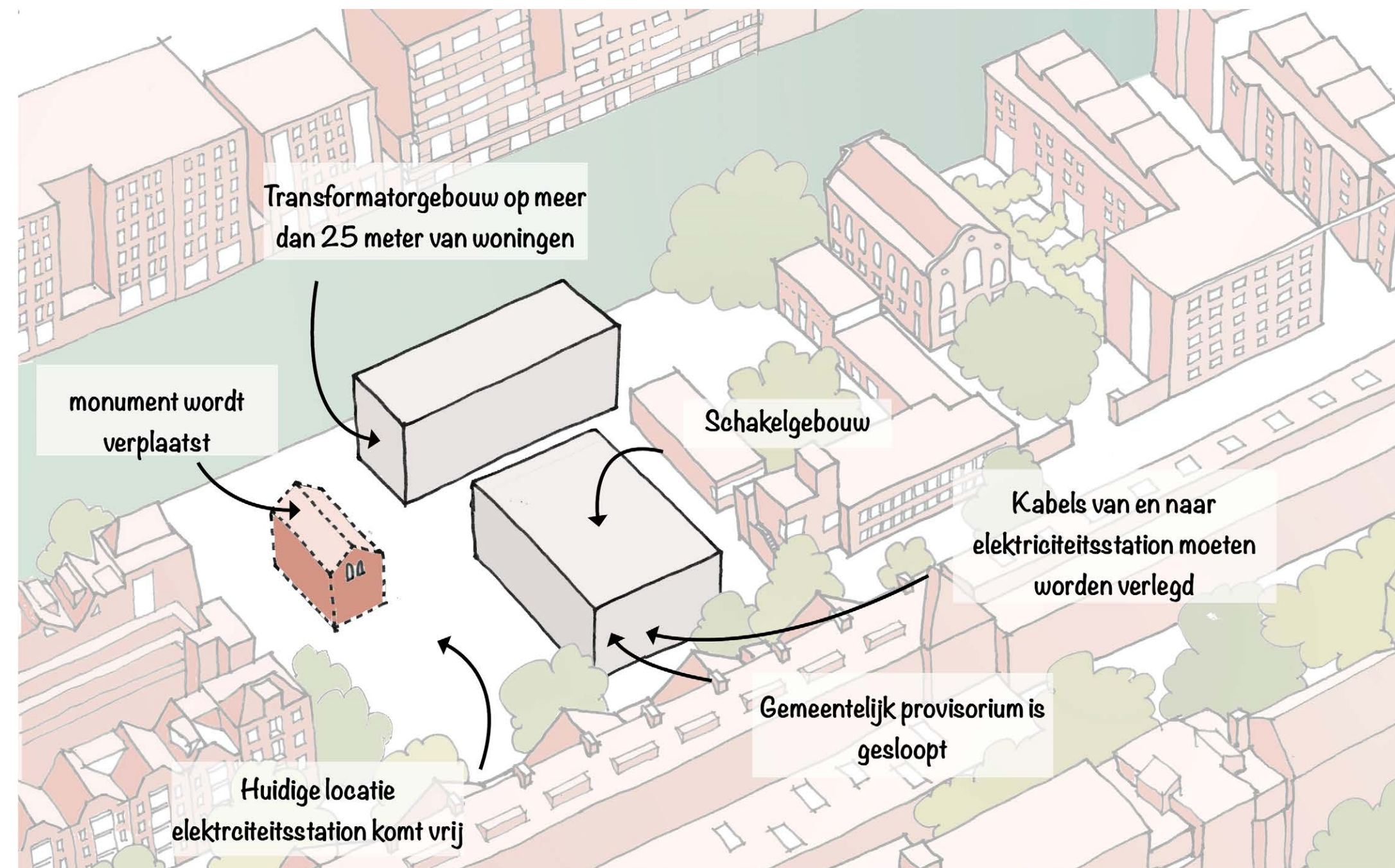
4. Site options on Uilenburg

During the previous meeting in October 2023, and in the associated information pack, we presented three site options. The technical feasibility of these options had to be examined further. This process has now been completed. We have also examined the reactions given to the different options in the neighbourhood survey. An overview of the results can be found below:

Option	Characteristics	Technical feasibility	Reactions from the neighbourhood survey	Conclusion of the project team
<p>Option 1: remain in current spot</p> 	<ul style="list-style-type: none"> • Site: same spot as current substation. Smaller in size and therefore a little further from existing buildings than it is now. • Environmental plan amendment: no • Construction period: approx. 5 years • Temporary substation needed: yes • Plan for housing for senior citizens stays unchanged 	<ul style="list-style-type: none"> • This option is technically feasible. As a temporary substation is needed, the construction period is relatively long. 	<ul style="list-style-type: none"> • This is the option that local residents have known about for the longest and it does not have any impact on the listed building or the housing for senior citizens. • At the same time, some people are wondering why it is still an option, given the proximity to housing. • The temporary situation resulted in a number of objections being raised by local residents, such as the longer construction period and the need for a temporary substation on the water. 	<ul style="list-style-type: none"> • This option is not currently the preferred choice.
<p>Option 2: move</p> 	<ul style="list-style-type: none"> • Site: location of the 'Old Teacher's House'. This listed building must be moved for this purpose. • Environmental plan amendment: required • Construction period: approx. 3 years • Temporary substation needed: no • Plan for housing for senior citizens: needs to be amended 	<ul style="list-style-type: none"> • This option is not technically feasible. There is not enough space around the substation to install the electrical installations and for the underground cables. That is because the existing substation will only be removed once the new substation has entered use. 	<ul style="list-style-type: none"> • This option received the most positive reactions in the neighbourhood survey because the transformers are further from the housing than with option 1 (smaller EMF impact), because the building is not on the street (in contrast to option 3), which means there is less of an impact on the historic streetscape, and because the construction period is shorter. • The negative reactions mainly related to the relocation of the listed building and the lack of clarity regarding the housing for senior citizens. 	<ul style="list-style-type: none"> • This option has been ruled out on grounds of technical feasibility.
<p>Option 3: split up</p> 	<ul style="list-style-type: none"> • Site: transformer building to the left of the 'Old Teacher's House', switch building on the site of the temporary municipal facility • Environmental plan amendment: required • Construction period: approx. 4 years • Temporary substation needed: yes • Plan for housing for senior citizens: needs to be amended 	<ul style="list-style-type: none"> • This option is technically feasible, but further research shows that the construction period is considerably longer and more people and resources are required than previously estimated. As a result, this option is a good deal more expensive than the other options. 	<ul style="list-style-type: none"> • With this option the transformers are closer to the housing than with option 2 and there are concerns about the EMF impact. • The impact on the historic streetscape if one of the buildings is sited along Nieuwe Uilenburgerstraat also gave rise to questions. • With this option the 'Old Teacher's House' remains in position but is behind the switch building. 	<ul style="list-style-type: none"> • This option is not currently the preferred choice.

New option: a combination of 2 and 3

We returned to the drawing board and taking the technical aspects and the reactions from the neighbourhood survey into account, came up with a new option.



Characteristics

- Site: the switch building will be sited where the 'Old Teacher's House' is currently located. The latter will be moved for this purpose. The transformer building will be erected next to the canal.
- The transformers are further away from the housing, which means that no homes fall within the EMF contour (see chapter 5).
- Dimensions of the buildings:
 - Transformer building: 25 metres long, 11.7 metres wide and 16 metres high
 - Switch building: 25 metres long, 15.5 metres wide and 12.5 metres high
- Environmental plan amendment: required
- Construction period: approx. 4 years
- Temporary substation needed: no
- Plan for housing for senior citizens: needs to be amended, but can be kept at the volume previously mentioned

Point for consideration: relocation of the listed building

With options 1 and 3 the 'Old Teacher's House' remained in position. For this new option the 'Old Teacher's House', a piece of Jewish cultural heritage, has to be relocated. We are aware of the sensitivities and will deal with this matter carefully. You can read more about the listed building in chapter 6.

Preferred option for site decision

The project team is putting forward this new option as the preferred option and will ask the Executive Committee of the Centrum District to make a site decision on it this summer.

5. What implications does the new option have for EMFs?

Residents living in the vicinity of electricity substations worry about the potential health effects of electromagnetic fields (EMFs) in the event of a substation being upgraded. EMFs are created wherever electricity flows. There are no illnesses or conditions for which a causal link to magnetic fields has been demonstrated. However, research has shown an increase in the number of cases of leukaemia in the vicinity of overhead high-voltage power lines. The Municipality of Amsterdam and Liander take these concerns seriously.

Precautionary policy of the Municipality of Amsterdam

As far as reasonably possible, the Municipality of Amsterdam wants to prevent existing homes from being exposed to an annual average magnetic field stronger than 0.4 microtesla (tesla is the unit of magnetic field strength). The limit of 0.4 microtesla is not a legal limit.

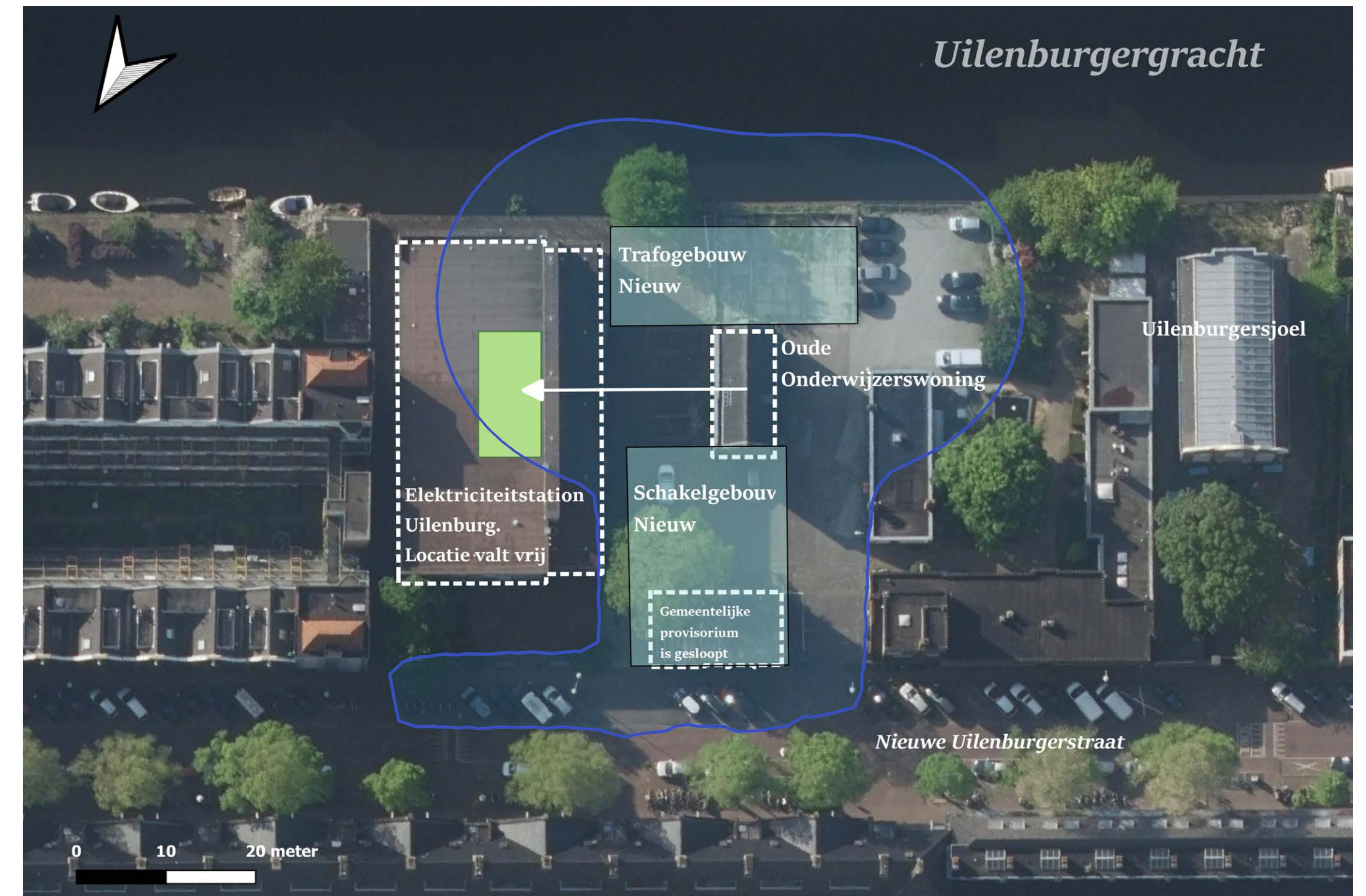
Research on the EMF contour for the new option

In preparation for the site decision, the technical consultancy DEP has calculated the 0.4 microtesla EMF contour of the new option on behalf of the Municipality of Amsterdam (see image below). The calculation shows that in the case of the new option no homes fall within the EMF contour. DEP's report is public and can be accessed here: [Elektromagnetische velden \(EMV\) elektriciteitsstation Uilenburg | Liander](#).

Advice of the Municipal Health Service (GGD)

Whenever an electricity substation is expanded or upgraded, or a new one is built, the GGD is consulted about the EMF impact in the specific situation in question. This was also the case in relation to the new option. The GGD has issued a favourable opinion regarding the new option, as existing housing and residents have been taken into account as a precaution. With regard to the office premises, the GGD advises to give the users of these two buildings the option to decide for themselves whether they want to work in areas of the building with a magnetic field that is stronger than 0.4 microtesla. The GGD advises pregnant women not to work here.

The letter of advice from the GGD is available on [Elektromagnetische velden \(EMV\) elektriciteitsstation Uilenburg | Liander](#)



EMF contour of new option.

6. What implications does the new option have for the listed building?

Thorough (technical) research has shown that the municipal listed building, the 'Old Teacher's House' of the Sophie Rosenthal nursery school, can be relocated in its current state. Based on internal explorations and the residents' survey, we expect there to be sufficient support for the relocation, provided that it is carried out carefully and the listed building is more accessible in the new position.

The new option frees up the plot of the existing electricity substation. The listed building will be relocated to this position and, together with the housing for senior citizens, will therefore stand on the former site of the Sophie Rosenthal nursery school. In this way it will continue to mark a location of importance in the history of Jews on Uilenburg. This site was chosen following discussions with the Municipality's Listed Buildings and Archaeology department and will be carefully integrated into the new development, in consultation with interest groups. A decision will be made on this at a later date.



The 'Old Teacher's House' of the Sophie Rosenthal nursery school.

7. What implications does the new option have for the housing for senior citizens?

In the original plan for the housing for senior citizens a gross floor area (GFA) of 1,288 m² was taken into account, to be developed in the existing buildings of the Werf (Nieuwe Uilenburgerstraat 57-59). This does not change with the new option, which means these buildings remain available.

In the original plan for the housing for senior citizens a GFA of 1,700 m² was added around the municipal listed building: the 'Old Teacher's House'. The new option involves siting the new electricity substation in this spot and relocating the listed building. The site of the existing electricity substation is therefore freed up.

This will create space for the relocation of the municipal listed building and also for housing for senior citizens. In the new situation it will be possible to add housing for senior citizens with a GFA of at least 1,700 m². Once the site decision has been made, the Municipality of Amsterdam will resume its search for a potential housing corporation to pick up the development of the housing for senior citizens.

At the information meeting you will be able to see sketches and there will be a model showing the volumes of the buildings.

8. What next?

Site decision by the Municipality of Amsterdam

This summer the project team will ask the Executive Committee of the Centrum District to make a site decision relating to the upgrade of the electricity substation on Uilenburg. By doing so, the Executive Committee will decide that the Municipality will cooperate with the spatial planning procedures necessary to implement the plan. The site decision will cover:

- The project team's preferred option for the site of the electricity substation.
- The integration of the associated cables.
- The relocation of the 'Old Teacher's House' to the current location of the electricity substation.
- The possibility of developing housing for senior citizens at the current location of the electricity substation.

The site decision will be published and we will inform you about it.

How will we deal with inconvenience (resulting from construction)?

In the neighbourhood survey people asked a lot of questions relating to the work that will be carried out and the measures that Liander will be taking to limit any inconvenience and reduce the risk of damage. At the moment it is only possible to answer these questions in general terms, as various factors affect what work is carried out when, including the details of the design of the electricity substation.

During the next phase we will have more details available about the design and consequently about the construction work and the expected impact on the living environment. We will inform you about this at a subsequent information meeting.

During the meeting on 14 May an expert from Liander will be present who will be able to provide you with general information about the measures taken in relation to the construction of other electricity substations.

How will we arrive at a design?

In the neighbourhood survey people asked a lot of questions about the design of the substation and the layout of the outside space. We would like to pay more attention to these aspects once the Municipality has made a site decision.

- Following the site decision the Municipality will draw up an area planning framework. This will be assessed by the Spatial Quality Committee (COK), also known as the Building Aesthetics Committee. The area planning framework will describe the requirements that the electricity substation has to meet in terms of spatial planning and the wishes regarding the design at this site.
- With the help of the information from the area planning framework, the architect will then set to work on designing the electricity substation. Any wishes previously expressed by local residents will be taken into account, provided that they fit in with the design.
- Once the architect has produced sketches that satisfy the wishes and requirements of the Municipality and Liander, we would like to give local residents the opportunity to share their views on the appearance of the electricity substation and, where possible, the layout of the site. How we do this will depend on how much scope there is for public participation on these points. This will become clear once the area planning framework has been completed.
- During the design process we will consult with the COK on the progress of the design. The COK will assess whether the design meets the aesthetic standards of Amsterdam and is in keeping with Uilenburg.

The architect who will be designing the electricity substation will be present at the information meeting on 14 May.

Communication and participation

Milestone	Communication and participation
Site decision Summer 2024	You will receive a letter explaining the outcome of the Municipality of Amsterdam's site decision.
Design phase starts after site decision	Local residents will have the opportunity to share their views on the appearance of the electricity substation and, where possible, the layout of the site.
	<p>We will organise another information meeting to deal with the following:</p> <ul style="list-style-type: none"> • The architect's sketches • The work, potential inconvenience and measures to prevent damage

Permits and procedures

Environmental plan procedure, or an application will be made for a permit for an activity that is inconsistent with the plan (BOPA).	<p>Liander has to follow an environmental plan procedure or apply for a BOPA permit to be able to construct the electricity substation at the preferred site. This procedure provides for official opportunities for public participation:</p> <ul style="list-style-type: none"> • Possibility of submitting opinions when the plans are made available for inspection • Possibility of lodging an appeal after adoption of the environmental plan • Possibility of lodging an objection and appeal against the BOPA
Various construction, demolition and environmental permits, including a permit for relocating the listed building.	These permit procedures provide for official opportunities for public participation (possibility of lodging an objection and appeal).