



DESIGNING FOR A DIGITAL GOVERNMENT

Research Plan, Design Brief & Reflection

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INDEX

01 INTRODUCTION	009
Introduction	9
Problem Statement	9
Research Question	12
02 FRAMEWORK	014
Theoretical Framework	14
03 METHODS	016
Clients, Program & Site	16
Expected Results	17
05 REFLECTION	024
06 BIBLIOGRAPHY	030
Bibliography	30
Figures	31
07 APPENDIX	032
Network of Stakeholders	32
Analysis of Existing Ministries	33
Program Bar of Case Studies	34
Urban Vision Berlin	36
Site Development	38
Band des Bundes	42
Site Competition Finalists	44
Site Zoning Analysis	46
Infrastructure & Connections	48
Underground Connections	50
Plot Sizes and Site Area	52
Plot Ownership	54
Building Age	56
Building Height	58
Spree River Embankment	60
Spree Water Features	62
Conceptual Massing Study	64

RESEARCH PLAN

“COULD A DIGITAL AFFAIRS MINISTRY BE THE SOLUTION?”

1.1 INTRODUCTION

If one were to find a country that represents the fall and rebirth of democracy, one needs to look no further than Germany. Its history includes a tumultuous chapter at the first half of the 20th century, only to then appear as a pioneer of European unity in the 21st century. After continuous presence as an epicentre of conflict for almost 100 years, Germany now appears at the forefront of western society and Europe's most powerful economic player (Posaner, et al., 2021).

Since the formation of the Weimar Republic, Germany's political system has been an example of a bicameral legislature, consisting of two chambers – an upper house (the Bundesrat) and a lower house (the Bundestag) (Expatrio, n.d.). The Chancellor, as head of the Bundestag, holds parliamentary power and thus has the power to create a cabinet of ministers to serve the various government functions (Britannica, n.d.). Of these ministries, the majority are located in Berlin and have been formed in response to global affairs. An example of this is the Federal Ministry for Environment, Nature Conservation, Nuclear Safety and Consumer Protection – originally founded as the Federal Ministry for the Environment, Nature Conservation and Reactor Safety in response to the Chernobyl disaster in 1986 (BMUV, n.d.). Another example would be the Federal Ministry of Economic Affairs and Climate Action, which – although short-lived – was founded with the sole purpose of overseeing the Marshall Plan (Stiftung Haus der Geschichte der Bundesrepublik, 2019). During the 4 years of its existence, the Ministry co-ordinated productive and valuable use of the more than \$15 billion assigned to help the recovery of industry and economic sectors. Once deemed completed, this ministry was abolished.

Recently, administrative changes have marked a new political era as Olaf Scholz takes over as Chancellor from Angela Merkel after an administration lasting 16 years (Posaner, et

al., 2021). One of the new administration's latest focus points has been digitalisation, the fintech sector and the start-up ecosystem (Nachrichtendienst, 2022). This was sparked by a “digital awakening” and the need to make Germany more self-reliant, addressing issues such as the facilitation of digital trade, digital technical standards, digital competition, data and internet security and telecommunications (Bundesregierung, 2022).

As a result, the appointment of Scholz's government ushers in a new political era. This will include a shuffled cabinet and – with new priorities – the opportunity for the formation of new ministries. After 16 years of the same administration, one can therefore anticipate new challenges and the expectation of progress – something the built environment can help solve.

1.2 PROBLEM STATEMENT

The emergence of digitalisation as a priority under the Scholz administration is not without reason. Under the Merkel administration, Germany's information and technology sector has fallen behind and further digital shortcomings have been exposed in the wake of the COVID-19 pandemic (Delcker, Why Can't Europe's Richest Country Go Digital?, 2021). On a regional scale, issues include schools with outdated computers, health authorities relying on fax machines and town offices with no online services (Delcker, Why Can't Europe's Richest Country Go Digital?, 2021).

This has resulted in Germany ranking 19th out of 28 European Union nations in its Digital Public Services score as part of the Digital Economy and Society Index (DESI), with the overall DESI ranking falling outside the top 10 (European Commission, 2022). It furthermore falls outside the top 15 in the 2022 United Nations e-government index (Department of Economic and Social Affairs, 2022).

At a glance, this may not seem detrimental, but these positions reflect the current progress on digitisation and digitalisation are directly

Government in Plain View

responsible for the mentioned regional issues – so much that the government has set a goal for itself to “move into the top 10” of the DESI (Delcker, 2022). Discontent around Germany’s digital advancement grows, and frustration rises around the current decentralised system that isn’t able to keep up with regional digital issues.

The digitalisation and digitisation of Germany and its government is one of the issues the Scholz cabinet have struggled with. Like most countries, Germany is grappling with the conflict in Ukraine, inflation, an energy crisis and a looming recession. These factors have resulted in largely negative opinions of Scholz’ administration and 62% of Germans having an unfavourable opinion of Scholz in August 2022 (Deutsche Welle, 2022).

With growing discontent – epitomized by what is seen as a lack of leadership and clear direction by the government (Deutsche Welle, 2022) – all methods of reviving trust need to be explored. This includes actions that not only satisfy the population, but can also receive unanimous backing from within the government. Open, equitable and inclusive policy is often seen as the best method of improving democratic performance as it can lead to transparency and citizen engagement (Kumagai & Iorio, 2020).

An intervention to therefore consider, is a focus on the mentioned “digital revival” (Delcker, 2022) due to its potential for extensive industrial and economic growth. The effort and plans will need to be co-ordinated, however. Observers of the Scholz administration have wondered – “could a digital affairs ministry be the solution?” (Delcker, 2021). This is a solution that will have to promote digital transparency and signify progress, likely represented by new ministry facilities.



Figure 1: Bundesministerium des Innern, Neubau Berlin

1.3

RESEARCH QUESTION

The main topic of focus for a ministry of digital affairs should concern digitalisation: “the process of converting something to digital form” (Merriam-Webster, n.d.). This mainly concerns process that would otherwise be analogue. In terms of functional aims of the ministry, its goals – based on the previously discussed concerns – should be as followed:

- Finance tech sector start-ups and initiatives
- Digitize government and citizen data
- Facilitate the digital economy
- Assist cyber terrorism defence
- Increase national digital literacy
- Increase national access to online resources

Several of these topics are currently being driven by separate ministries. Collating them as part of a new ministry with their interests as a priority should drive the progress of said topics and lead to a more focussed push towards progress in their fields. Digitalisation is multifaceted concept, and to ultimately progress it would require every element to be focussed and advanced.

For instance, the Federal Ministry of Food and Agriculture possesses a department concerned with Rural Development and Digital Innovation (Federal Ministry of Food and Agriculture, 2022). Another example is the Cyber Terrorism Defence department of the Federal Ministry of Interior and Community. A new ministry could ensure that these services are advanced and maintained without entirely taking over security operations.

By therefore facilitating these departments in a ministry complex that embodies digitalisation, the ministry can evoke collaboration, approachability, and progress. This, however, bring into question how this can be done. Digital innovation can undoubtedly be architecturally expressed through the aesthetic choice behind a building’s exterior, as is prevalent at the BEEAH headquarters in the United Arab Emirates. Another example, the Berlin Cube Office, juxtaposes the existing urban grid to make a statement on its modern and innovative intentions. These are just some of the examples of contextual

and aesthetic ways to display processes that are otherwise intangible. Within the context of the research and the ambition to design a government ministry that breathes digitalisation, the research question is as followed:

In what ways can digitalisation be incorporated into the built environment?

To further investigate the different parts of this research question, three sub-questions have been formulated. They aim to structure the research by providing three key components of a building to research. These will be adhered to later on as the three main ingredients of the design.

1. How can digitalisation be architecturally expressed in the built environment?

The first sub-question will aim to identify architectural elements that aid the expression of digitalisation. This will include aesthetic elements that make up the exterior and interior of a building.

2. How can digitalisation be incorporated into the program of a building?

The second sub-question will investigate digital aspects of program. Namely, which functions inside a building most represent digitalisation and whether these functions should in person, hybrid or virtual. It will also allude to the flexibility of program and how certain functions might change over time.

3. How can digitalisation be incorporated through digital tools?

The final sub-question will examine digital tools that could aid in representing the innovative and modern nature of the building. This will include any particular software and hardware tools that can be used to make a building ‘smart’.

This structure will aim to form the basis of the next evolution of government ministry architecture. As a conclusion, the key ingredients for the ministry of the future will be clearly defined. Ultimately this will therefore stand as a symbol of the administration’s intentions, allowing Germany and Berlin to create an architectural symbol of their “digital awakening” (Bundesregierung, 2022).



Figure 2: Reichstag Kuppel

2.1

THEORETICAL FRAMEWORK

The theoretical framework will aid in providing a structure for the research and a way to determine the three key elements of architecture that will be influenced by digitalisation. These three elements will have to cover all aspects of architecture and stand as the basis of the research and architecture in general, akin to Le Corbusier's five points of architecture (Oechslin, 1987).

The chosen theoretical framework is *De Architectura* by Vitruvius. Written in 30-20BC, the framework includes the famous triad "firmitas, utilitas, venustas" (stability, utility, attractiveness) as the basis of all architecture. Although originating from another time and being written long ago, the mentioned trinity is still referred to today and can still be seen in architecture throughout the world. As a result, this framework will be utilised to not only structure the research but ground it and ensure it still follows the principles of why architecture is architecture.

As mentioned, the theory originates from between 30-20BC as part of *De Architectura* and was published as *Ten Books on Architecture*. It was originally written as a guide for building projects, dedicated to the patron Caesar Augustus (Kruft, 1994). The literature further includes instructions on a variety of Greek and Roman architecture, as well as instructions on the design of cities, military structures and infrastructure such as aqueducts, harbours and measuring devices (Vitruvius, Howe, & Rowland, 2001).

The literature is logically comprised of three elements, the first being firmitas – stability. In the original text, Vitruvius alludes to the stability of architecture. Firmitas thereby involves the structural integrity of a building and the ways that it can support itself through engineering and quality of materials (Encyclopædia Britannica Inc., n.d.). Of course, this concept has evolved over time due to advancements in technology. Capabilities in structural engineering have allowed architecture to evolve beyond horizontality to verticality. The next element, utilitas, involves function.

Literally translated to 'utility', it involves the notion that a building must have function as it is otherwise obsolete (Encyclopædia Britannica Inc., n.d.). Primarily, it can be a driving element to organising the program within a building and the spatial hierarchy within. This has also evolved over time, with program changing from symmetrical arrangement to repetition to experimentation with no obvious hierarchy. Yet, the element utilitas still stands as a guiding principle in that a building's program must contain intention and a purpose.

Finally, with venustas, Vitruvius states that architecture should contain expression and an inherent visual quality. Over time, the validity of this element has been debated as it infers that architecture must be visually attractive (Encyclopædia Britannica Inc., n.d.). The attractive nature of architecture has been the basis of several architectural theories and styles, meaning it can be interpreted as subjective. However, for the nature of this research, expression as an architectural element cannot be ignored as it will be vital to the eventual design.

2.2

RELEVANCE

Currently, no purpose-built Ministry of Digital Affairs exists. Similar government ministries exist in countries like Poland, Luxembourg and Taiwan. However, the buildings they are located in pre-date the formation of said ministries. One could therefore put into question as to whether digitalisation or digital affairs is truly their top priority. A 'digital' ministry seems like the best option to address 'digital' objectives. The design for a purpose-built ministry of digital affairs can not only help advance knowledge for this specific type of building, but conclusions can be made on how digitalisation can be incorporated into architecture as part of an increasingly digital society. The main objective is to find the ideal client, program, and site within the appropriate context. However, each element can help advance the digital nature of any type of building in the future.

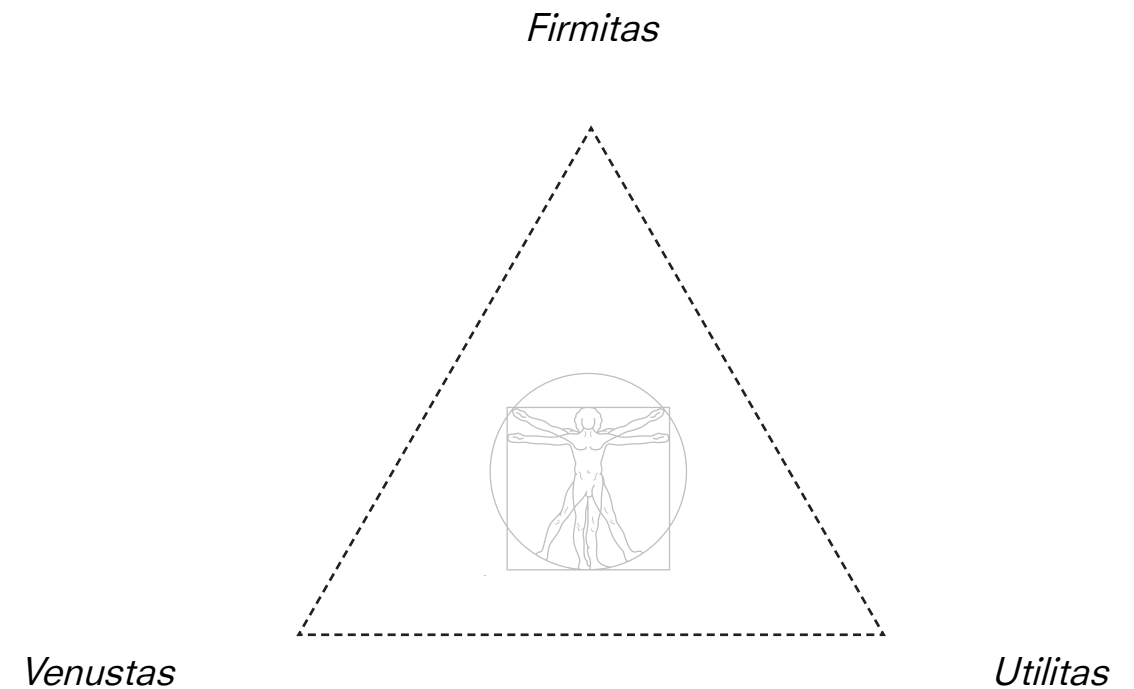


Figure 3: Illustration of the Vitruvius triad

3.1

METHODOLOGICAL FRAMEWORK

In order to gain a further understanding of the topics of this research, the methodological position will be comprised of field work, expert interviews and case studies. This will enable further understanding of both contextual, technical and architectural concepts that will be vital to the research.

CLIENTS

The clients are an essential part of the research, as they provide the basis for the program and eventual site. Their function and architectural ambitions are thereby essential in creating a solid foundation for the research. In order to create a complete overview, the clients and stakeholders are divided into three categories: initiator, user and city. The initiator is the client that instigates or commissions the project. They could also be responsible for how it proceeds once a design is complete. In the Netherlands, this responsibility lies with the Rijkswastgoedbedrijf (State Real Estate Company). They build and maintain all government properties in the Netherlands, including ministry buildings. (Rijkswastgoedbedrijf, n.d.). Next, the users are undoubtedly those that use the buildings and its functions in order to complete their objectives. In a ministry building, this could range from office workers to guests. It will be important to identify their unique needs and how the building can accommodate those. Finally, the city represents a unique stakeholder in that their demands can differ from the initiator and user. Their demands are likely part of a larger strategic plan or an urban vision in order to improve certain elements of – in this case – Berlin. The building will therefore be a smaller element of a larger vision. These clients and stakeholders will namely be identified through internet research. Websites of various organisation will have to be examined in order to identify the clients, what they represent and how these can be translated into functional and architectural objectives. If this information is unclear, some clients will have to be contacted directly.

PROGRAM

The program will evolve from the functional and architectural needs of the clients. Once these are accurately stipulated these needs – along with case study analysis, a program bar with all the necessary functions will be created. The mentioned case study analysis will involve analysing floorplans of existing buildings with similar function. The floorplans of various ministries will be looked at in order to determine what kind of functions they contain and the percentage they take up in the buildings. Once program bars have been formed for all the case studies, further conclusions can be made on common spaces and the arrangement of said spaces. However, due to the digital aspect of the task, it is possible that case studies with a more 'digital' element will also be examined. This might include tech campuses or data centres in order to identify any elements that help convey the process of digitalisation in their design.

SITE

Once the intentions of the clients are clear and the possible size of the program is determined, site requirements can be created. This site will then be analysed in a number of ways, the first being field work. The site will undoubtedly be visited in order to experience its context in real life. Here, photographs will be taken and various observations will be noted for later analysis. Mapping will enable further analysis. Programs such as QGIS enable the layering of various sets of data in order to analyse key aspects of the site such as infrastructure, connections and existing buildings. This will enable a clear conclusion of the potentials and constraints of the site and an early look into what might be possible. Finally, a historical analysis of the site through archival research will also be valuable, as it will enable a look into any possible vision for the site. Due to the rich urban history of Berlin, it will be likely that the site will have been part of a larger urban vision. Any key aspects or intentions behind this can add to historical references in the design later on.

3.2

EXPECTED RESULTS

At this moment, the expected outcome is to develop a comprehensive of architectural elements that can be implemented to create a government ministry that embodies the digitalisation efforts of Germany and Berlin. Studies from secondary research have predicted a government ministry of net 22,000 m² that can accommodate approximately 1000 government employees. Furthermore, the possibility of developing an innovation campus around the ministry is being explored. This will enable increased collaboration and multi-sector participation in various technical fields.

Ultimately, this investigation will explore a new architectural type that will push Germany back to the forefront of technical innovation. Not only the ministry building itself, but the way it will be designed to embody their democracy, progress and innovation can be used as a symbol to countries abroad.

4.1 DESIGN BRIEF: CLIENTS

In order to gain a full understanding of the relevant stakeholders and clients, they are organised into three categories: initiators, users and the city. The initiator is the Federal Office for Building and Planning and the user is the Federal Ministry of Digital Affairs, both of which belong to the Federal Government. The city is undoubtedly Berlin, represented by its government.

INITIATORS

The initiators of the design project is the *Bundesamt für Bauwesen und Raumordnung* (B.B.R.) - the Federal Office for Building and Planning. The job of the B.B.R. is to supervise the construction, design, renovation and maintenance of any buildings belonging of the Federal Government. They are situated in both Berlin and Bonn and is comprised of approximately 1,500 employees (Federal Office for Building and Regional Planning, n.d.). Their role as initiator stems works in partnership with the Federal Government, who will commission the project and place the B.B.R. in charge of its design and eventual realisation. As a result, this is the minimum ambition. Further functional ambitions stem from any government standards and the ability for the users to complete their tasks. The architectural ambition, however, stems from recent design trends. Current ministry architecture is comprised of re-purposed stock and new buildings. The new buildings represent a cultural shift and are visually distinct from re-purposed buildings. It is likely that this has been done on purpose due to the negative connotations of some of these re-purposed buildings. An example is the current Federal Ministry of Finance, formerly the office of the Luftwaffe, built in 1936 (Federal Ministry of Finance, n.d.). Compared to the new Federal Ministry of the Interior and Community, they could not be more visually distinct. As a goal to possibly disconnect from negative connotation, the B.B.R.'s architectural ambition will be to create architecture that is visually distinct to

create a modern, corporate impression.

USERS

The users involve those that use the building to complete their objectives. For the majority, this will include office workers who aim to complete the objectives of the Federal Ministry of Digital Affairs. The other users will include guests or those with appointments with office workers and VIPs (state envoys or high-ranking government personnel).

When considering the functions of this government ministry, one has to look beyond the regular 'nine-to-five' workday. Within a Federal Ministry of Digital Affairs, certain tasks must be kept operational 24/7. Especially for the office workers, this might include communication with foreign time-zones or the upkeep of the government's data needs, thereby functioning as a 'digital workplace'. It can therefore be functional to include both in-person, virtual and hybrid options for each of the users in order to complete tasks or visit the ministry. However to meet the in-person of these users, various security requirements will have to be established, with clear separated entrances and varying degrees of transparency.

CITY

The city is represented by the government of Berlin. Berlin, like three other cities, is a city-state and will therefore not have to take the requirements of an overarching state into account. Berlin is currently placing focus on a number of facets as part of an urban development concept for 2030. The aim of this plan is to set goals for the future and focus on how to accomplish them (Senate Department for Urban Development and the Environment). One of the main focus points is the emphasis on the technology start-up sector, something that is currently underutilised and discounted by the institutions. Berlin will aim to create a strong link between city, government and the start-up economy (see appendix 1). Ideally, the new ministry can be part of an innovation hub, where it can create an immediate link and partnership with start-ups and emerging businesses. Architecturally, an open hub rooted in context.

CLIENT: FEDERAL OFFICE FOR BUILDING AND PLANNING

FUNCTIONAL AMBITION



Facilitating the program



Ensure safety requirements

ARCHITECTURAL AMBITION



Government expression



Modern/Corporate architecture

USERS: FEDERAL MINISTRY OF DIGITAL AFFAIRS

FUNCTIONAL AMBITION



Function as a digital workplace



Controlled entry of different flows

ARCHITECTURAL AMBITION



Separate yet clear entrances



Varying levels of facade transparency

CITY: GOVERNMENT OF BERLIN

FUNCTIONAL AMBITION



Synthesis of Government, City, People



Functional business-innovation park

ARCHITECTURAL AMBITION



Clear connection to the Spree River



Open character

4.2 DESIGN BRIEF: PROGRAM

Three key ingredients are vital to determining the full program of the buildings. The first is the area in gross and net. Second is the full program and finally how this all connections and the circulation in the building.

AREA

The area of the building has been determined through researching existing government ministries and determining the average area (see appendix 2). From these calculations, it was possible to find out the square meters per office employee and thus the amount of employees the building would contain. The final details are as followed:

Gross area: 39,600 m²
Net area: 22,000 m²
Area ratio: 1.8

PROGRAM

The full program was determined through case studies and determining which functions are most suitable in this type of architecture (see appendix 3) The program is split into two parts: a public part and private part. The private section of the building will contain the necessary office space and accommodations in order for the government employees to complete their tasks. This further includes meeting rooms, press rooms and security facilities. Of the offices, 25% will be public flexworking spaces. These are office spaces that anyone can plug into in order to their work. This can include external guests as well as office workers in an attempt to boost collaboration.

The public section of the building includes the reception area and any other public facilities, both accessible to guests and office workers. In order to manage flows between the two sections, a security facility will be located between the two and will act as a checkpoint. In order to transit from public to private or vice-versa, one has to travel through the security checkpoint(s).

The program has been determined through

case study analysis of existing ministries as well as the demands of the various users and stakeholders. This has led to the program at hand in its current form.

CRITICAL SPACES

The building will contains several 'critical spaces'. These are spaces that play a larger role in the building as well as the research. One of these is the office, as this has to accommodate both in-person and hybrid work. The meeting rooms, as part of the office, be designed in a way that the virtual participants as well as the in-person participants play an equal role in the conversation in stead of the in-person participants. This will be a key element if the ministry aims to function as a 24/7 digital workplace.

Another critical space will be the security facility, as this will manage the flow between two sections of different levels of security and transparency. It will act as a filter, denying someone access to the private government office if they don't possess the necessary clearance. This process can be aided further through digital tools such as key cards or biometric scans.

The final critical space is the data centre. This has been added to the program to function as the Federal Government central cloud hub. Placing it in the heart of the government instead of an external site makes it more secure and easier to service. Furthermore, the presence of such as function can help diminish the digital divide between people and technology through, for instance, the heat production of which the excess can be given back to the city.

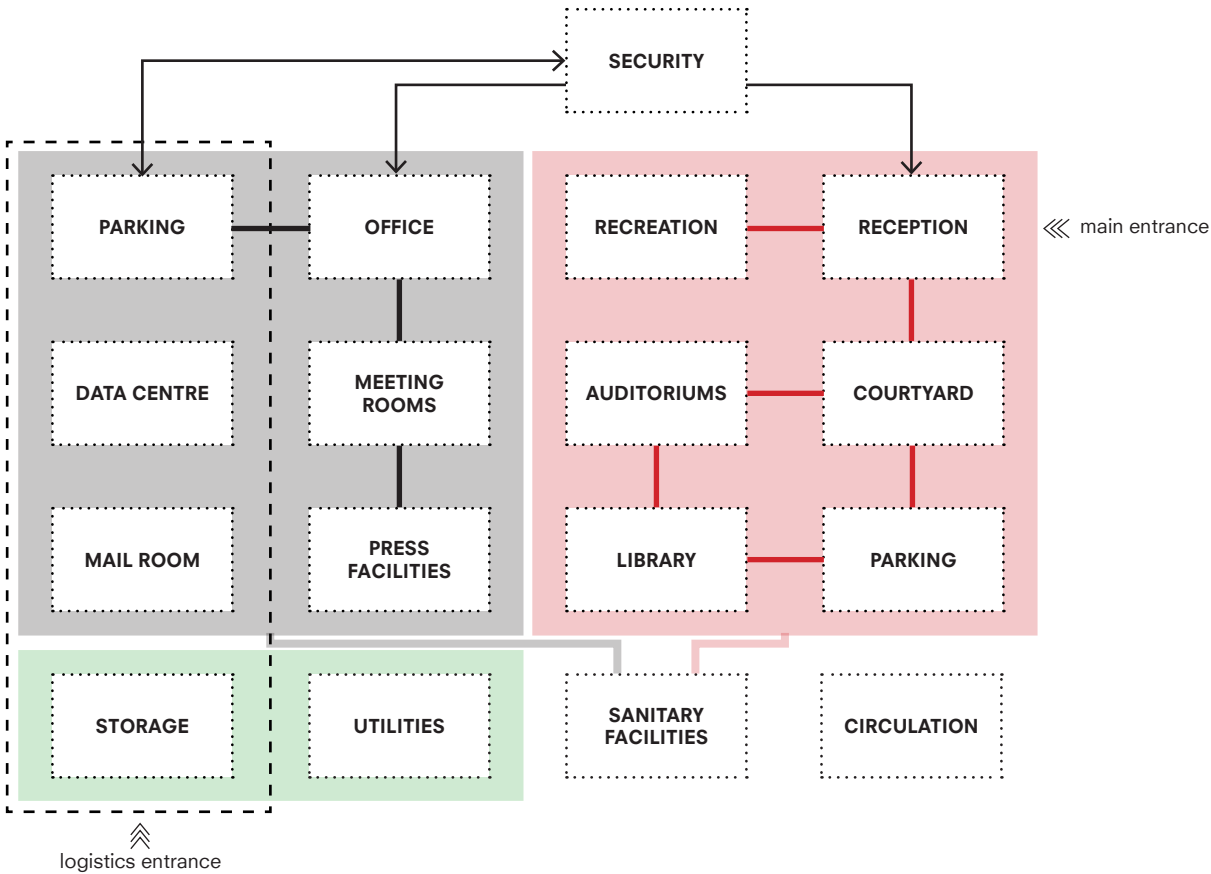


Figure 4: Circulation of Program

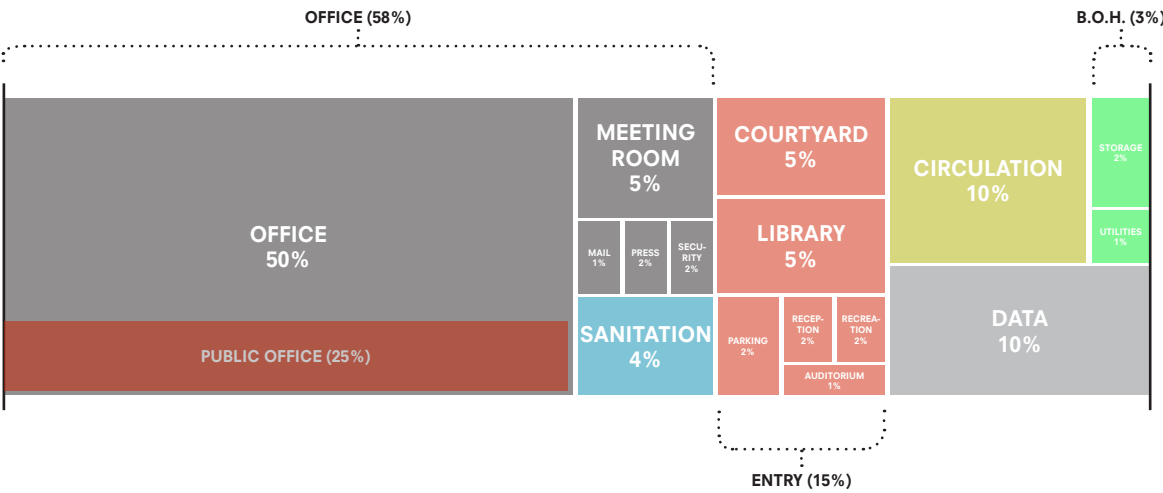
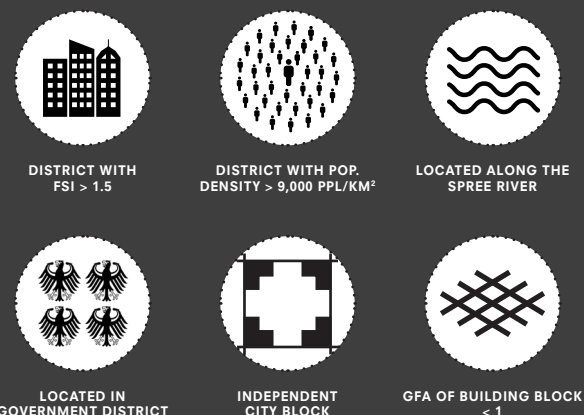


Figure 5: Full Program

4.3 DESIGN BRIEF: SITE

To find a suitable location of the building, two types of site requirements were noted. The first were individual requirements and second were requirements belonging to a larger urban vision:



URBAN VISION

As mentioned, the building and site are part of an ensemble of architectural interventions designed to create a clearer connection between Berlin and the Spree river (see appendix 4). The aim is to connect Berlin to its origin by improving the urban embankment quality around it. This will allow for increased interaction, strengthened by the fact that for the first time in 100 years, people are allowed to swim in it again (The Source, 2016).

SITE HISTORY

The chosen site, Schiffbauerdamm, is part of an area called Luisenblock Ost (see appendix 5). The site was part of a former shipyard, originally commissioned by Friederich Wilhelm I in 1738 (In Berlin Brandenburg, n.d.). According to mapping, this function did not last long as it soon lost its shipbuilding character in favour for a dense urban block with commercial and recreational functions. After the Second World War not much of the original block was left. Afterwards, the site was barely developed or rebuilt due to the proximity of the Berlin Wall. Following the fall of

the Wall, the site became part of an ensemble called the Band des Bundes in 1993. The Band des Bundes was the winning entry of Axel Schultes and Charlotte Frank in a competition to redesign the Spreebogen into the political capital of Berlin and Germany (see appendix 6). However, with major components of the plan such as the Paul-Löbe-Haus and Marie-Elisabeth-Lüders-Haus finished, the Luisenblock Ost was left incomplete. No longer part of the urban vision of Schultes and Frank, a new design competition was started in 2009 (see appendix 7). The winning entry was swiftly prevented from being built in 2020 after the design involved demolishing a protected monumental building (Berlin.de, n.d.). Currently the site contains a handful of buildings, ranging from government offices to storage warehouses (see appendix 8-14).

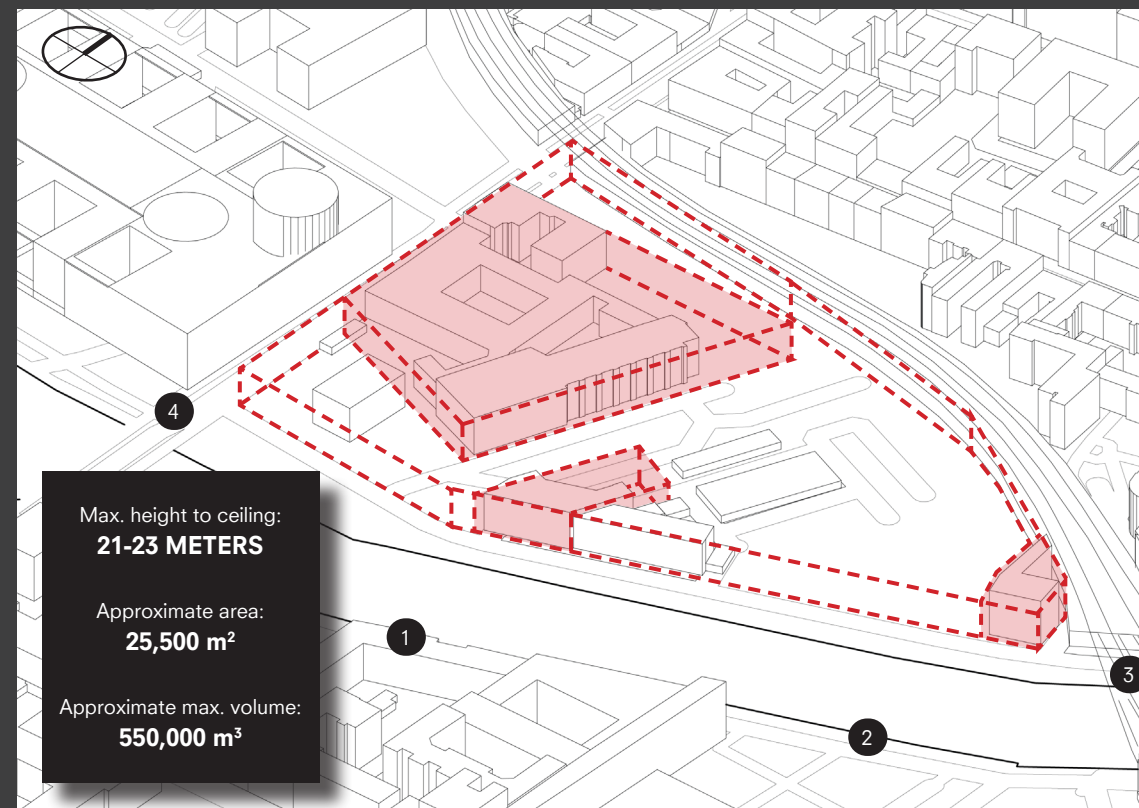
POTENTIAL

The site contains a lot of potential. Its size - approximately 40,000 m² - makes it an ideal place to accommodate a large campus environment. Another benefit of the site is its potential to continue the axis of the existing Band des Bundes buildings and orient it towards the water, strengthening the connection between Berlin and its origin. Finally, the site is extremely visible. From the Reichstagufer across the water, nothing impedes its visibility. This can create a prominent government landmark.

CONSTRAINT

The main constrain with the site is the number of buildings with a protected status (see appendix 11). These might impede the creative freedom or prevent a continuation of Schultes and Frank's original vision. Another constrain is the fact that the railway to the north of the site acts as an urban barrier. It creates a wall between a Designated Government Zone and a Mixed Use Zone. Finally, the exposed nature of the site can also be seen as a constrain, as it could create security concerns.

The site was hereafter used for massing studies with programmatic variations as a basis for designing (see appendix 15).



5.0 REFLECTION

1. What is the relation between your graduation project topic, your master track (Ar, Ur, BT, LA, MBE), and your master programme (MSc AUBS)?

The graduation project is part of MSc. 3/4 Complex Projects. This is a studio of the master track Architecture as part of the master programme MSc. Architecture, Urbanism and Building Sciences. The studio, Complex Projects, has previously been encountered in MSc. 1. Continuing this studio into MSc. 3/4 will allow an even greater understanding of the relationship between building and context, and how various design decisions feed into a greater narrative visible in subtle or clear ways throughout the design. The studio, - under the title "Bodies & Buildings, Berlin" - aims to examine the effect of architectural interventions as part of a larger urban intervention across the city of Berlin, whilst adhering to a researched narrative. Students of the studio are able to choose one of nine unique building typologies and incorporate them as part of a themed group strategy into the city.

2. How did your research influence your design/recommendations and how did the design/recommendations influence your research?

The research of this project involved creating a design brief for a real-world issue or subject that can be addressed through architecture. In this case, a design brief was created for a hypothetical Federal Ministry of Digital Affairs. This went hand-in-hand with the research question - "in what ways can digitalisation be incorporated into the built environment?" - as it helped to outline several design focusses and ultimately structure elements of the design process. For instance, a better understanding was created of the context, location and building type, extensive archival and historical research was done in both Delft and Berlin. In Delft,

historical archives were studied of the urban development of Berlin and how the city and Germany's political system have developed over time. The building types were further studied through architectural drawings and analysing elements such as program and spatial hierarchy.

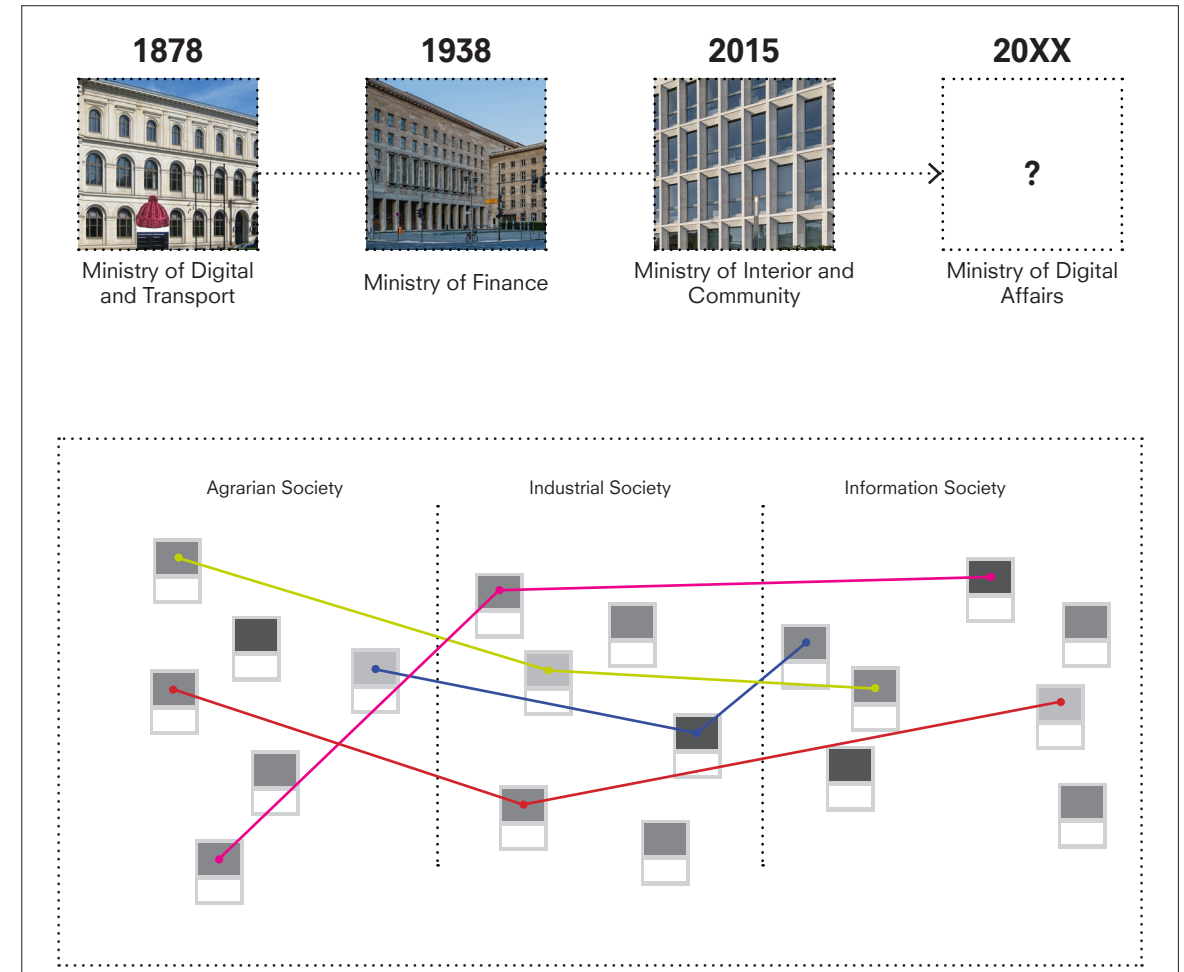
The findings of this research were then translated into a design brief. This meant clear statements about the ambitions of the clients (and stakeholder), program and site. The design was developed from these statements, and they ultimately formed the basis of the design.

Once the design was formed, it was possible to see which choices and design brief requirements genuinely worked. This mainly involved the relationship between spaces and overall aesthetic of the building in its context (through façade and placement on the site). Some choices, such as the type of circulation, could only be properly evaluated by designing. Various options were researched according to case studies, but the appropriate type had to be experimented through design.

3. How do you assess the value of your way of working (your approach, your used methods, used methodology)?

Overall, the way of working was quite structured and there were various facets of the studio that ultimately influenced the design. Apart from the individual's design choices, the culture-themed urban vision played a role in the placement of the building and its relation to Berlin's history and context. This resulted in stronger link to the site and played a role in the ministry's extroverted expression. Furthermore, research into two-dimensional space by those studying building of similar typologies (parliaments/ministries, courthouses, and universities) also contributed to the design through by outlining the development of various architectural elements and how these can be developed to fit one's building type. Overall, this resulted in a lot of sources of information. At times, this was difficult to organise but provided lots of design inspiration in the end. Throughout the research phase the plan was

Research example: building type timeline



Research example: field work



5.0 REFLECTION

to first research program, followed by location and finally client. This was quite valuable as it allowed for a committed and focussed approach to each element. Combined with literary and case study research, it formed a concise basis for the design.

The methods of obtaining information were therefore quite logical and straightforward. However, the research trip to Berlin was scheduled before a final location was chosen. Had a final location been chosen before the research trip, better research into the full experience of the location could have been done. This includes how the location sits within its context and the links it has to the architecture it sits adjacent to. However, this did not have a significant impact on the design process as translating the design brief to design options proved to be quite straightforward. Still, various specific items such as the most appropriate façade expression could have been explored sooner while developing the design brief. These items were eventually developed by research through design.

The theoretical framework – De Architectura by Vitruvius – proved to be a useful element to the design development as it enabled an emphasis on various elements that helped to achieve the desired outcome. Since in the end, every project must abide by the same three attributes (strength, utility and beauty), the framework provided a useful way of examining of how digitalisation had influenced said attributes.

4. How do you assess the academic and societal value, scope and implication of your graduation project, including ethical aspects?

At this moment in time, there is no purpose-built Ministry of Digital Affairs. There are Ministries of Digital Affairs or Ministries of Digitalization in existence, but these are facilitated in common office buildings. This research would establish the specific

ingredients and elements needed to design and build a Ministry of Digital Affairs.

The digital world is becoming an increasingly relevant topic with the emergence of AI, cyber terrorism and the digitalisation and security of data. How this is realised physically in the world lies in the hands of architects. In order to make this subject tangible and appropriate for human perception, various choices need to be made that don't also scare people. Technology needs to be made approachable, and this means that a typically conservative government like that of Germany needs to let its guard down and invite the public in.

The project is also a statement on the influence of technology. Its means of the public to interface with the building and its projections allude to the building's status as a billboard for the government's digital capabilities. The fact that no purpose-built ministries of digital affairs exist yet Germany does is statement to the government's cyber strength and a testament to their growth in this rapidly advancing field.

While the plaza at the Spree is intended to act as a public space where visitors can interact with the water and observe the technology around them, the looming canopy structure also aims to symbolise the increasing digital presence of the German government.

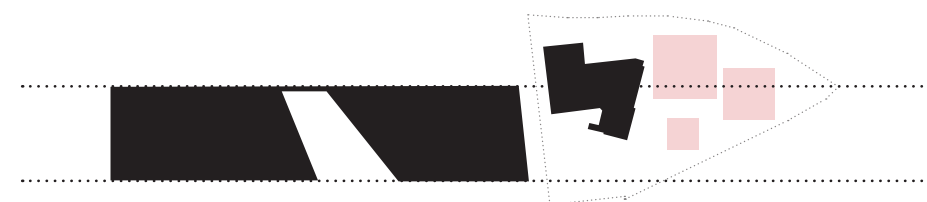
5. How do you assess the value of the transferability of your project results?

Realistically, the statement that is made could be too architecturally radical for the German government. Having said that, it does fall within the boundaries of an architectural vision for unity, the Band de Bundes, which was previously perceived as radical. The urban vision – still incomplete – is a strong message for unity and can be perceived as a timeline, something that this building represents a new chapter of.

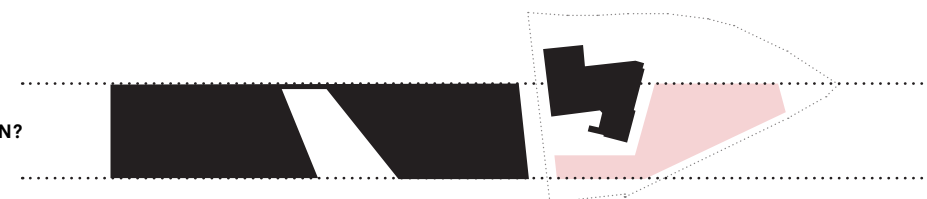
Expression wise, they would likely design something that replicates the vernacular of the adjacent architectural structures (Marie-Elisabeth-Lüders-Haus and the Paul-Löbe-Haus). A more recognisable stylistic vernacular – a conservative expression that

Possible site outcomes based on design options:

NEW URBAN LAYOUT?



CONTINUATION OF VISION?



RESPECTFUL HYBRID?



5.0 REFLECTION

aims to maintain the status quo. The downside of this choice is that it would not appropriately symbolise the technological and digital advancements that the building should aim to encompass. It would just be another ministry building.

Some of the winning competition entries for this site stand as evidence of this. The finalists are conservative in terms of architectural expression and minimal in bravado. It does need to be said, however, that this competition was for an extension of the Bundestag office and not a Ministry of Digital Affairs. Yet it still signifies the intent to create something less bold and the preference for something that follows the conventional stylistic choices already present around the government quarter of Berlin.

Still, it can still be assumed that the government would still take into account various technological interventions such as the possibility to interface. Or the organisation and internal flexibility to accommodate various emerging technologies to solve not only today, but tomorrow's problems. The balance between a conservative organisation and the need to advance.

6. How has it been included in a wider strategy/vision and what has this contributed to the design process?

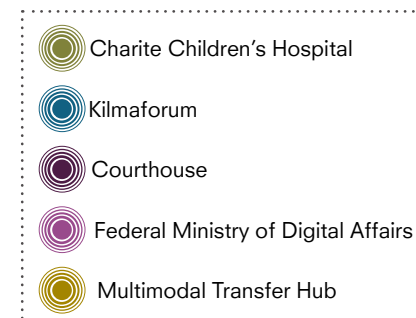
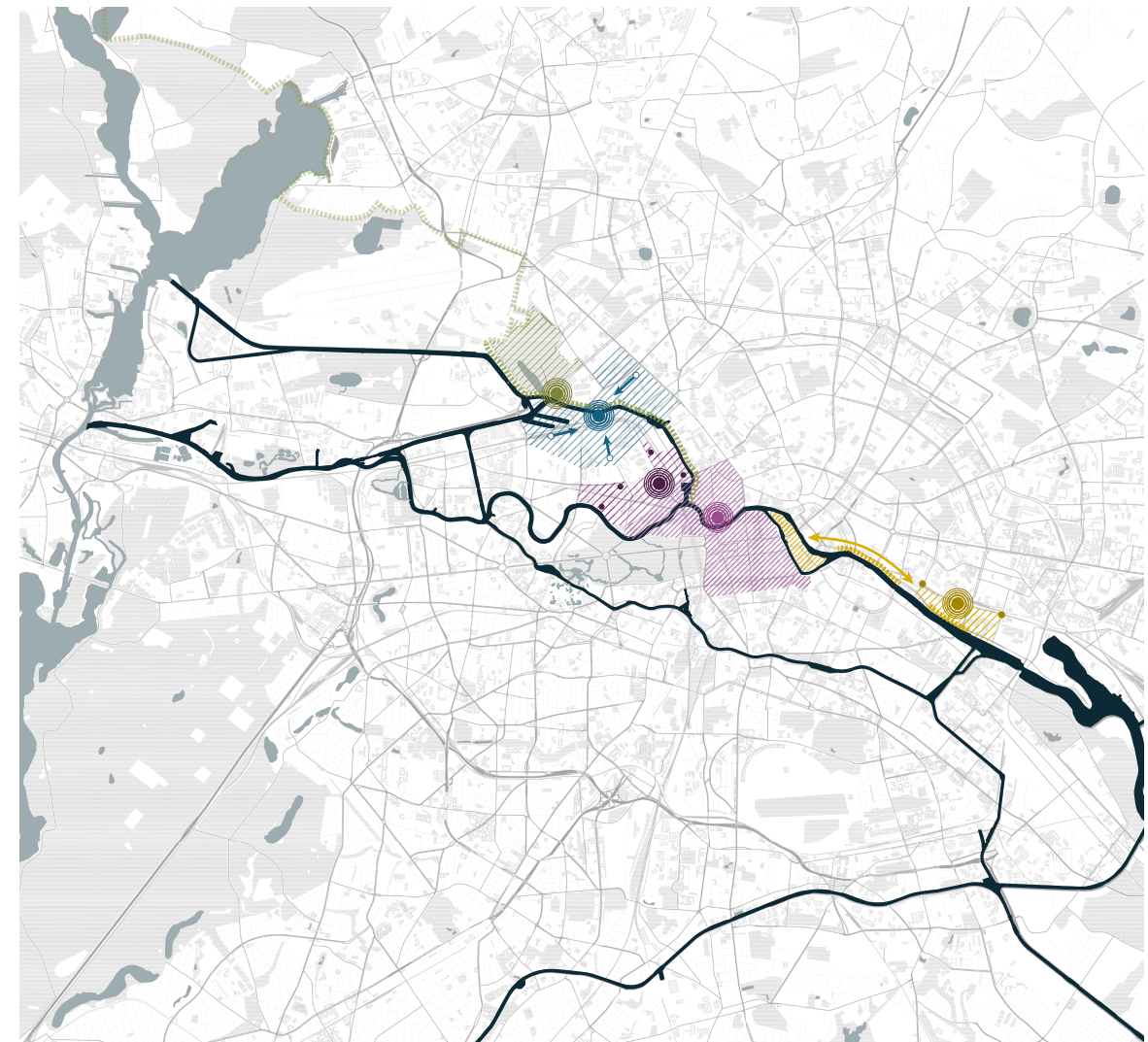
The project has been included in a wider vision aimed at improving the overall quality of the embankments of the Spree River in Berlin through a series of architectural interventions. This would result in a greater attraction to these otherwise neglected environments and a symbolic return to the roots of Berlin. The vision was created by researching Berlin through a thematic lens – culture. This lens allowed for a more focussed look into the context and resulted in a strong thematic link for the project. It also resulted in a set of extra requirements for the site alongside those created in the individual design brief.

In terms of design, it has resulted in a strong link to the Spree River through the creation of the public plaza that sits on the river's edge.

7. Has the inclusion to a grander vision benefited or obstructed the design process?

Ultimately, the inclusion of wider strategy/vision has benefited the project through the contextual elements that it adds to the research and design process. It has resulted in a strong link between building and context. One could argue that it has restricted the choice of location due to the extra set of requirements. Before the strategy's site requirements were finalised, various other locations were being considered. However at this point, the logic behind the location and how it has added to the design cannot be refuted. For other building types related to transit (train station and airport) it can be argued that the extra set of site requirements has created some difficulty due to the infrastructural connection and size of this building type. For instance, a train station requires connections to tracks and the appropriate space to divert tracks if not immediately connected. In that sense, the group strategy rules could have anticipated for this.

Spree River urban vision:
'Spree as a cultural artery'



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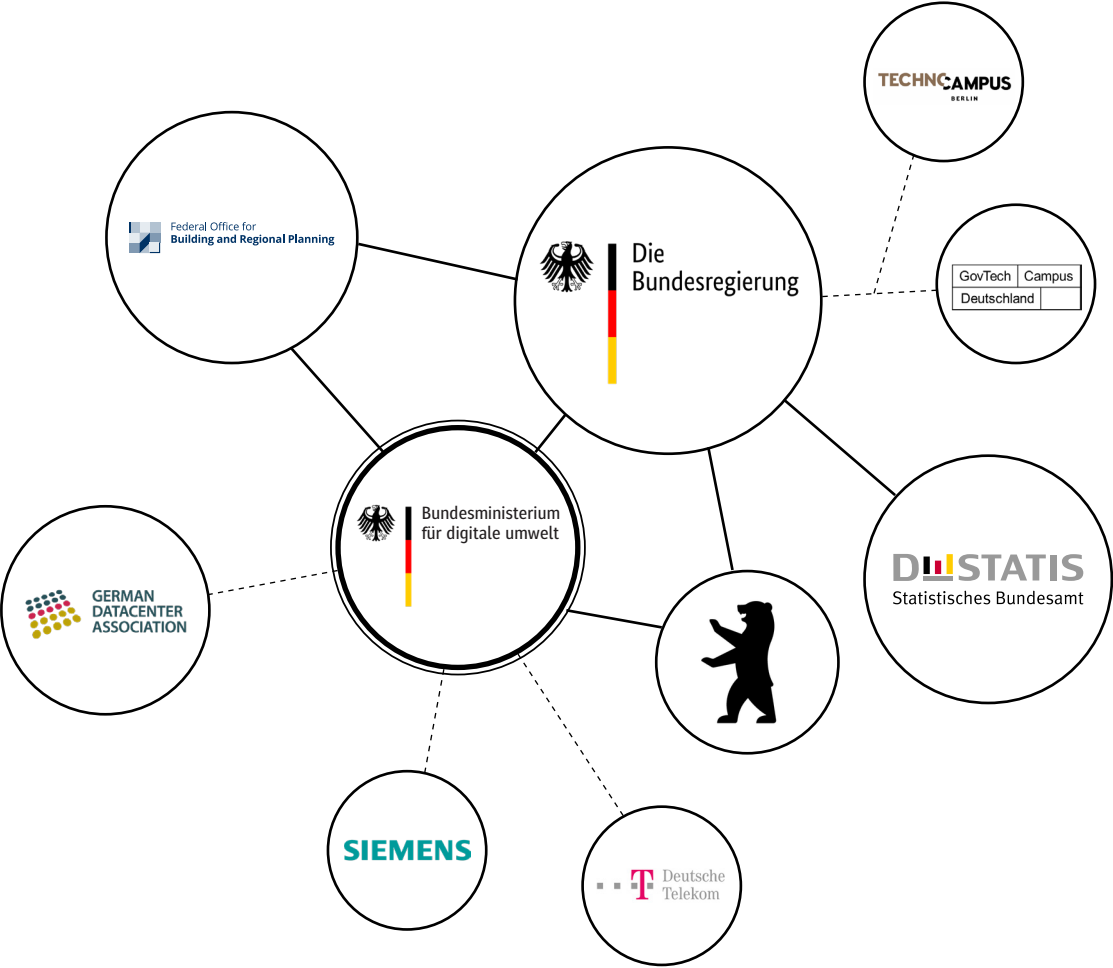
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FIGURES

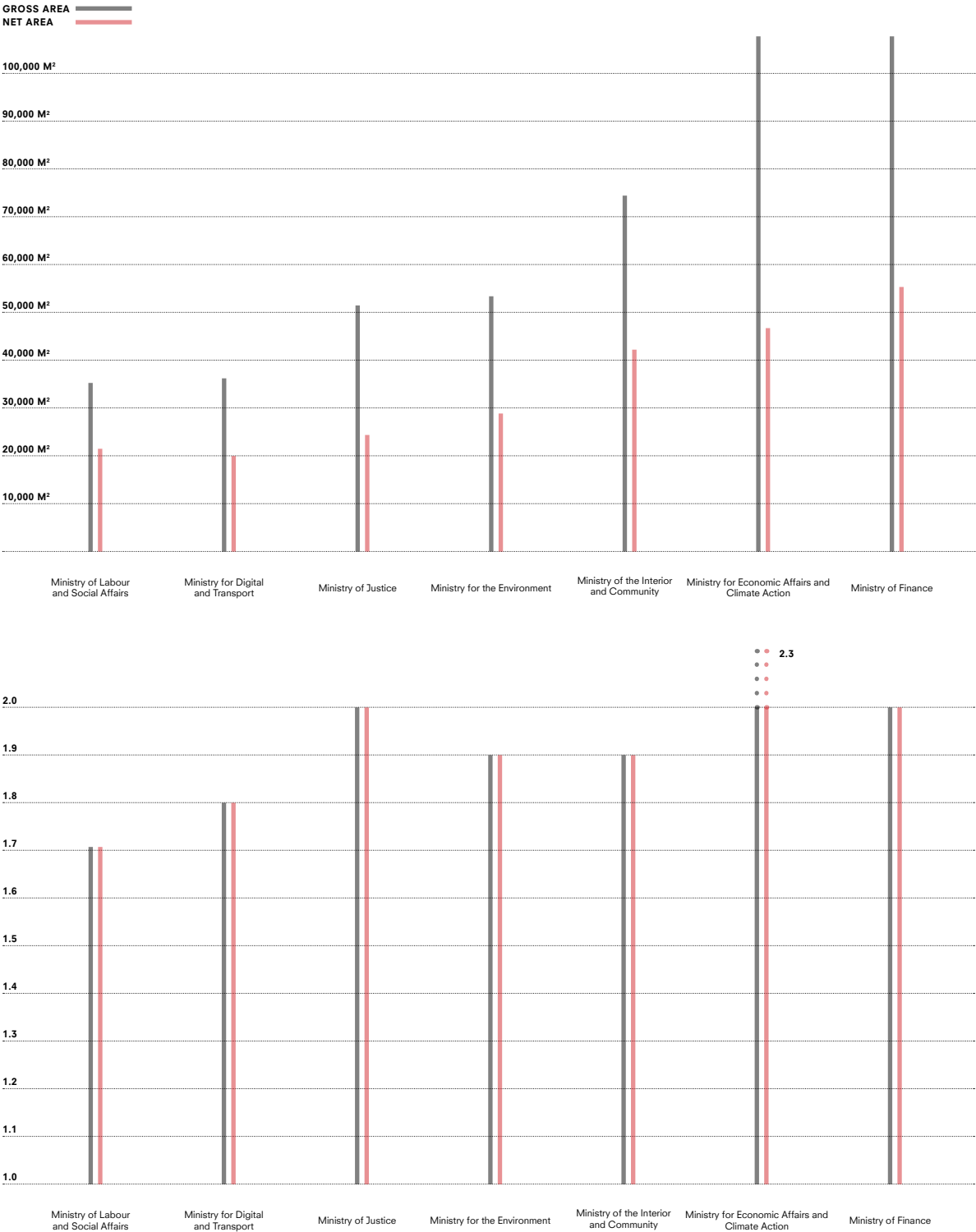
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Figure 2: Deutscher Bundestag. (n.d.). Registering to visit the dome of the Reichstag Building. Retrieved November 14, 2022, from Deutscher Bundestag:

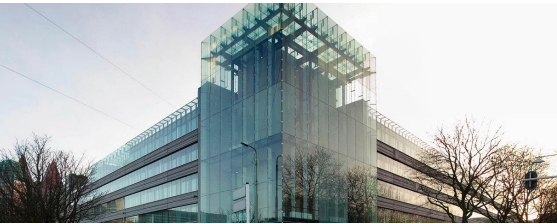
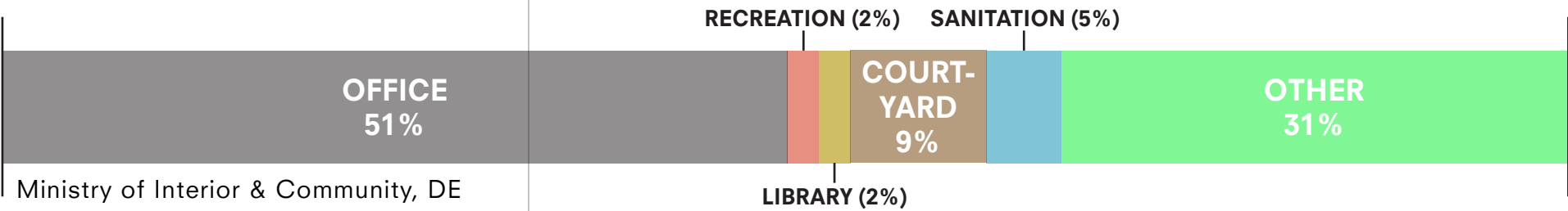
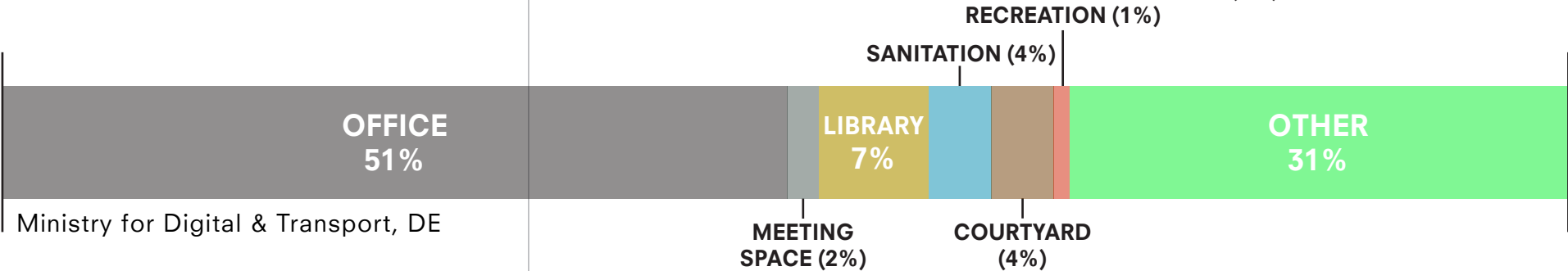
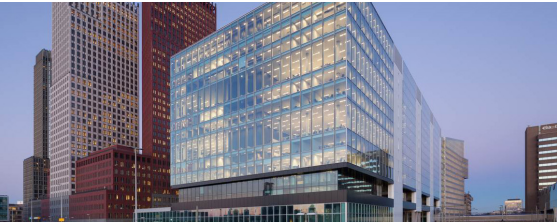
7.1 APPENDIX 1: NETWORK OF STAKEHOLDERS



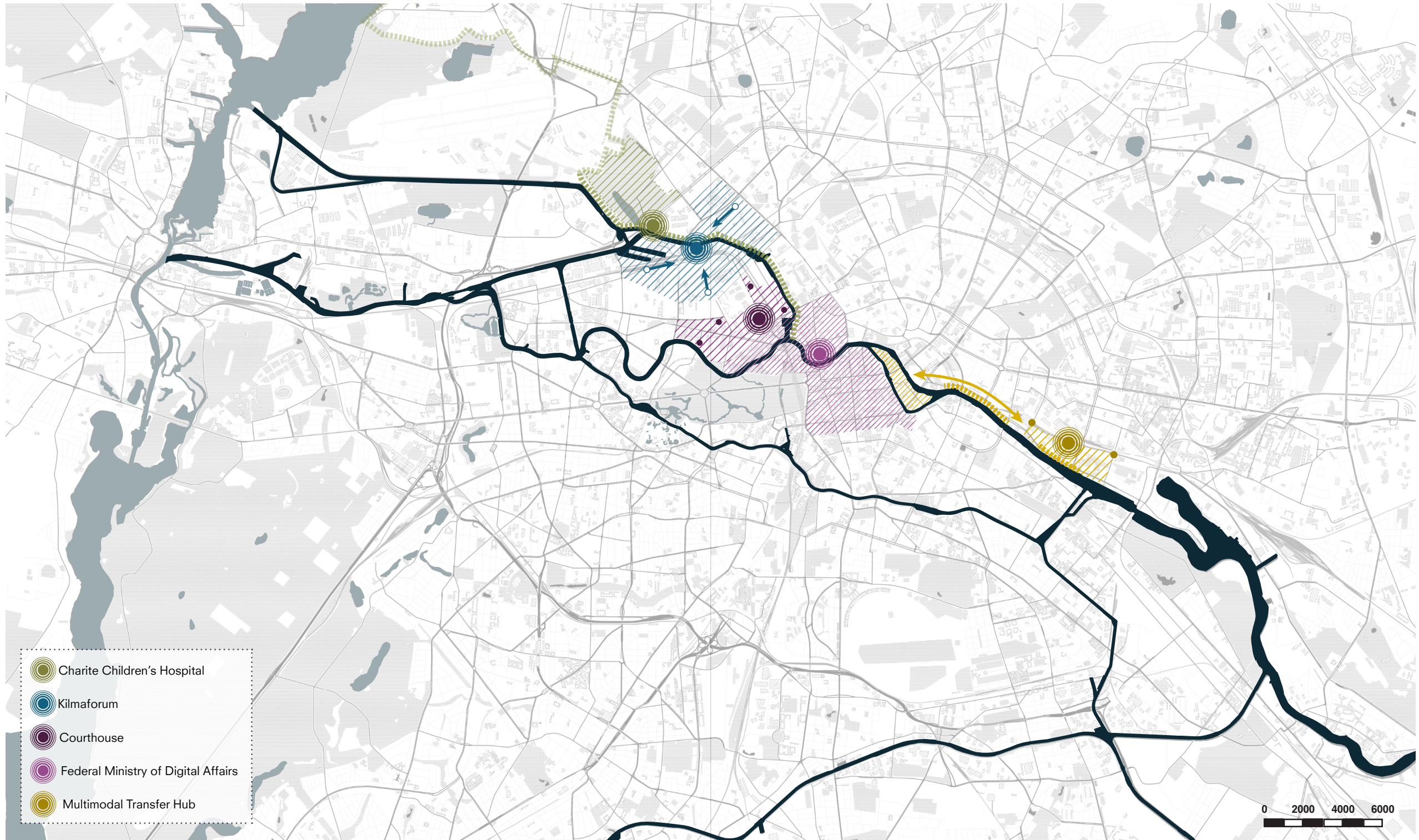
7.2 APPENDIX 2: ANALYSIS OF EXISTING MINISTRIES



7.3 APPENDIX 3:
PROGRAM BAR OF
CASE STUDIES

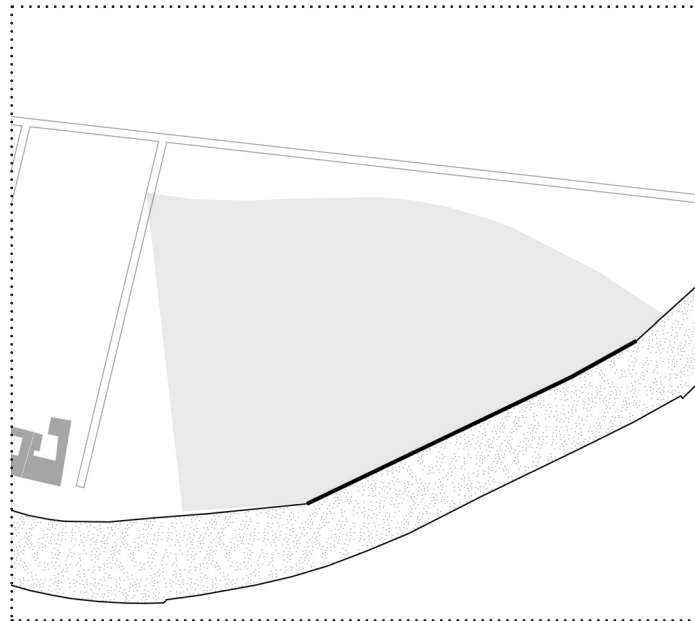


7.4 APPENDIX 4: BERLIN URBAN VISION



7.5

APPENDIX 5: SITE DEVELOPMENT



1748



(Plan de la ville Berlin)



1876



(Landesarchiv Berlin)



1910



(HistoMap Berlin)



1939



(HistoMap Berlin)

7.5

APPENDIX 5: SITE DEVELOPMENT



1953



(HistoMap Berlin)



1970

Berlin Wall



(HistoMap Berlin)



1992



(HistoMap Berlin)



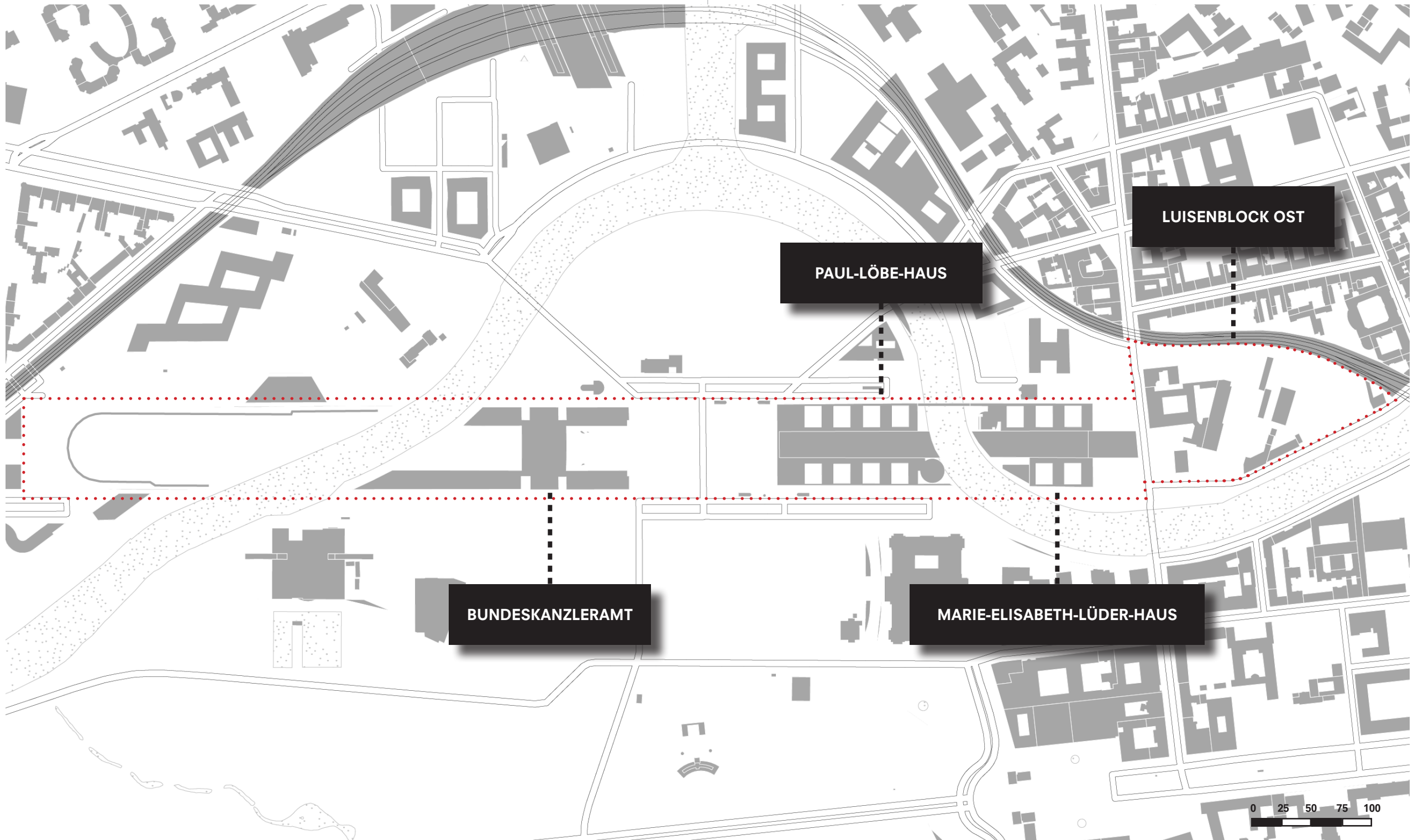
NOW



(HistoMap Berlin)

7.6

APPENDIX 6:
BAND DES BUNDES



7.6 APPENDIX 6: COMPETITION FINALISTS



WINNER
KUSUS + KUSUS
ARCHITECTS

(Senatsverwaltung für Stadtentwicklung, Bauen und Wohnen)



2ND PLACE
GOENFLOS
ARCHITECTS

(Senatsverwaltung für Stadtentwicklung, Bauen und Wohnen)



4TH PLACE
ARCHITECTURAL
OFFICE CHRISTINE
EDMAIER

(Senatsverwaltung für Stadtentwicklung, Bauen und Wohnen)

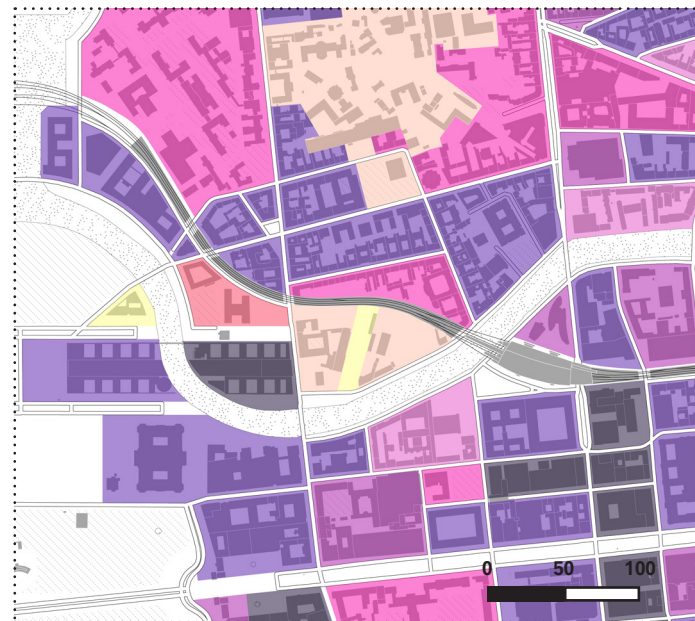


5TH PLACE
KENKMANN
ARCHITEKTEN

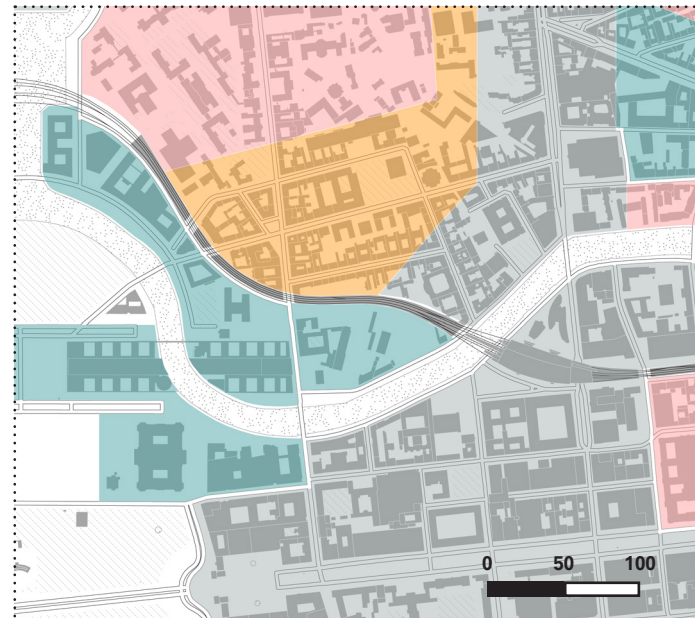
(Senatsverwaltung für Stadtentwicklung, Bauen und Wohnen)



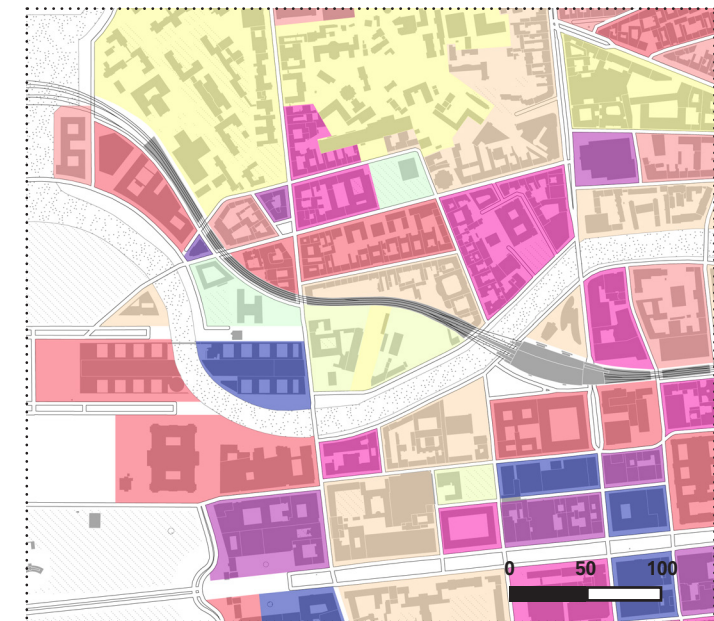
7.7 APPENDIX 7: SITE ZONING ANALYSIS



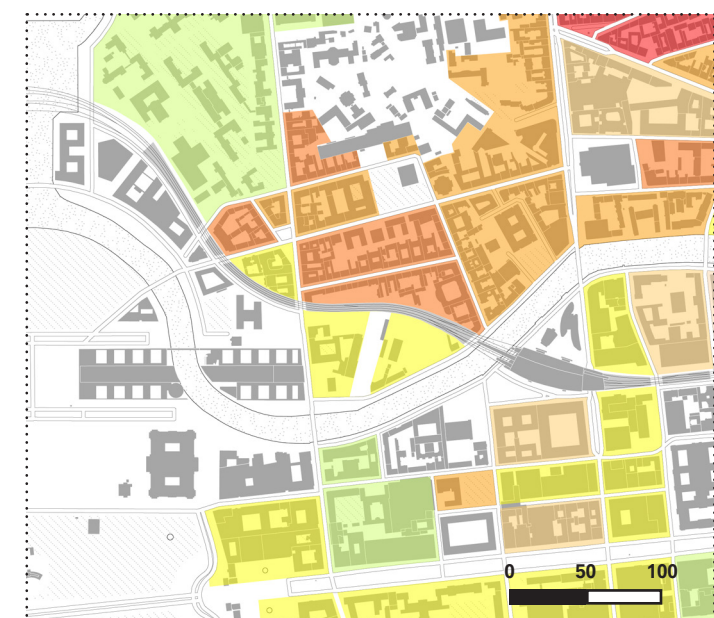
(Environmental Atlas Berlin)



(Senatsverwaltung für Stadtentwicklung, Bauen und Wohnen)

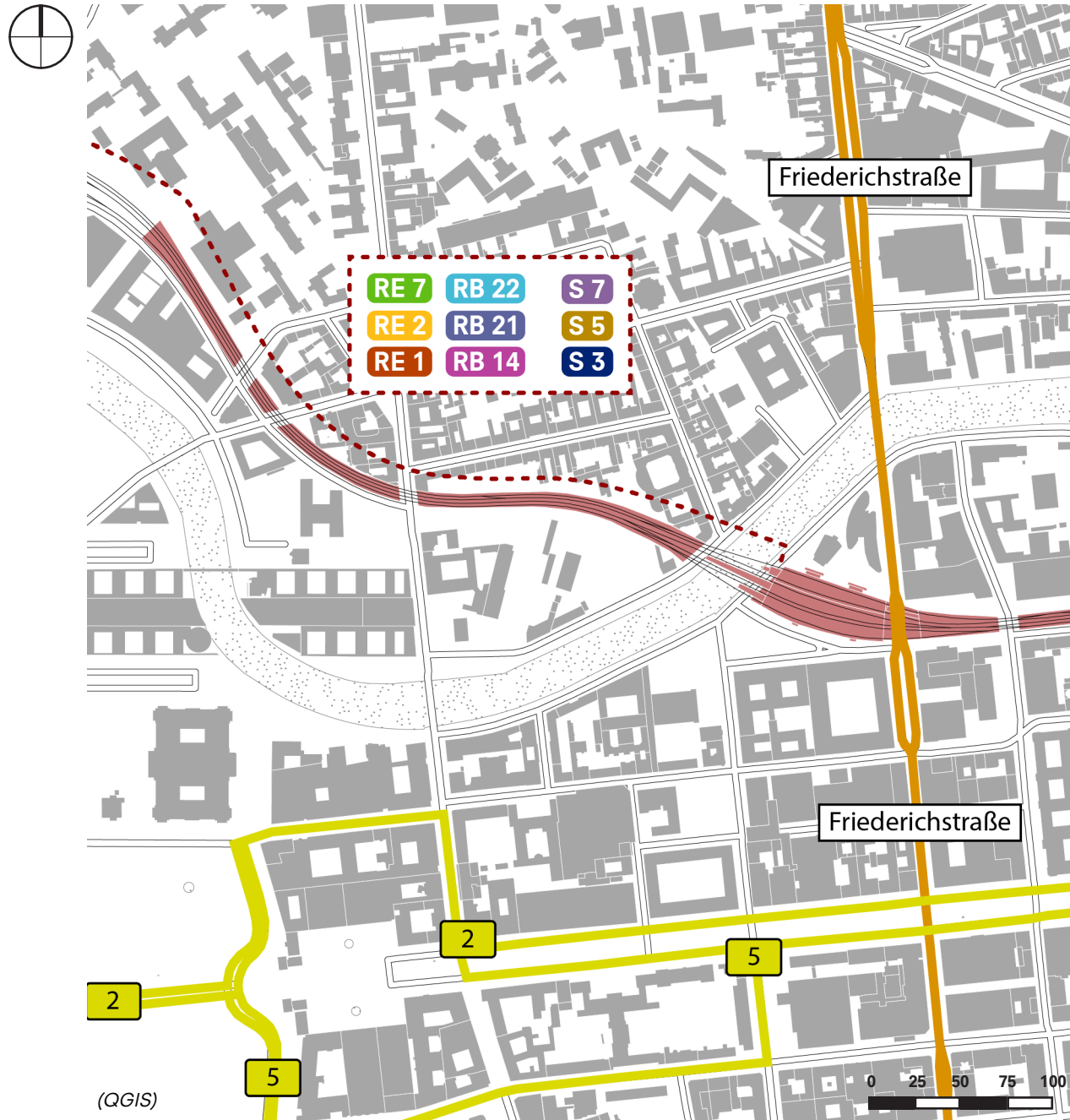


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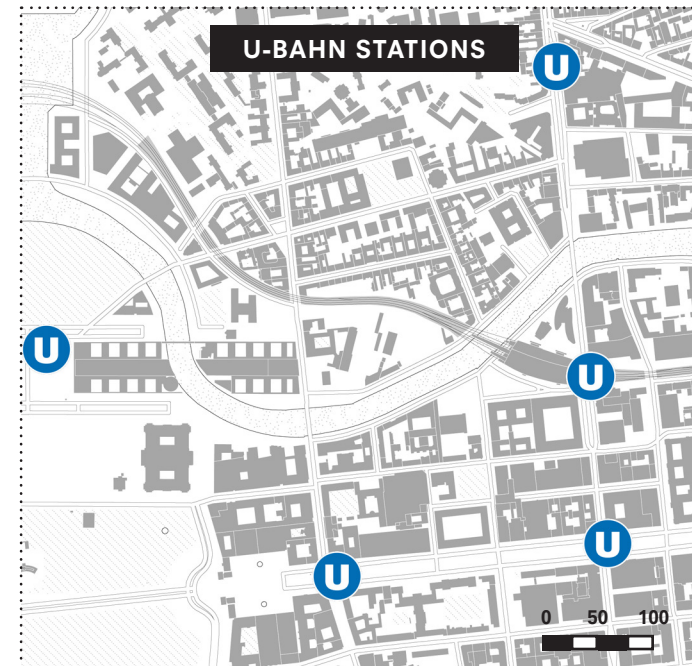
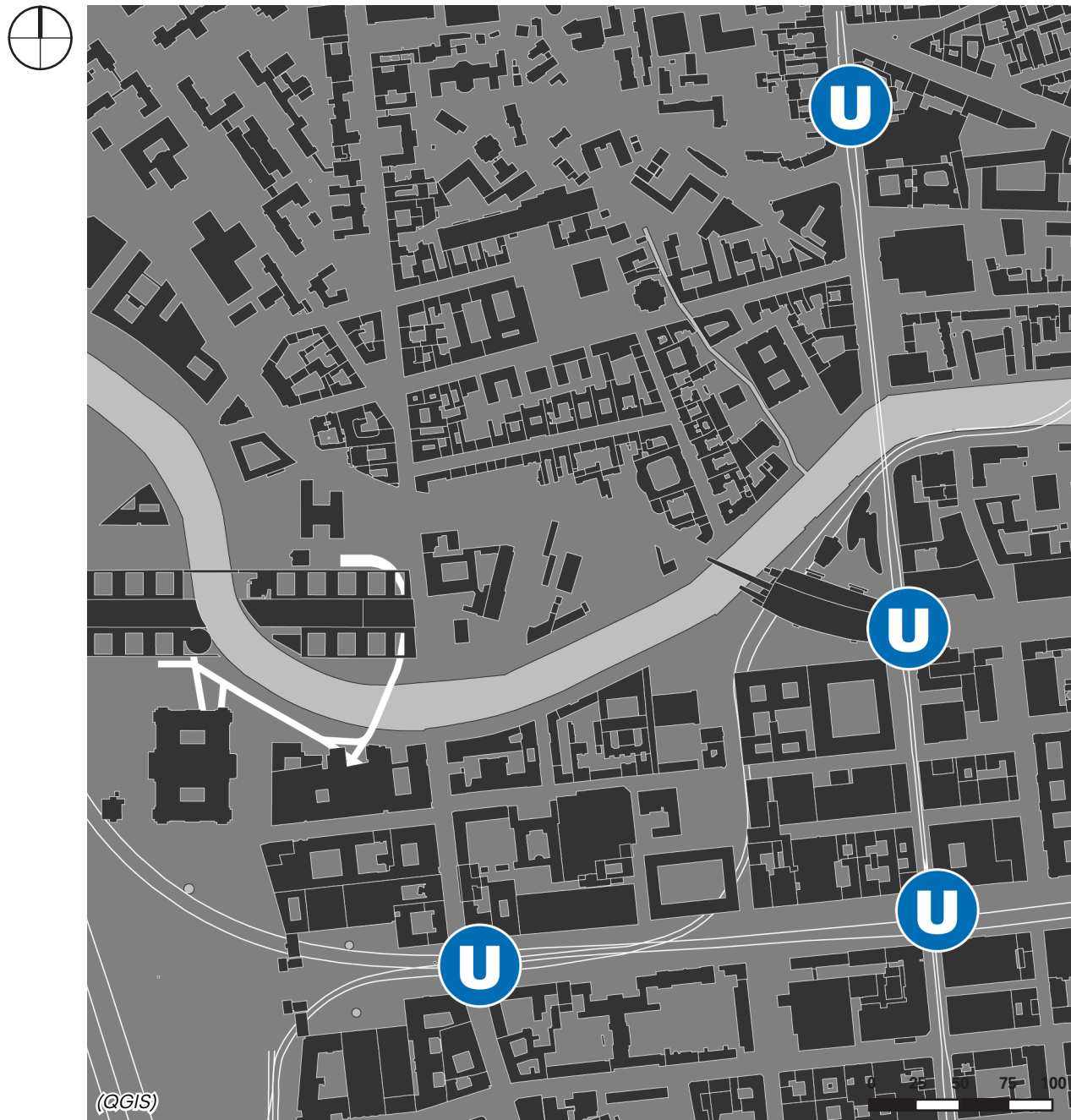
7.8 APPENDIX 8: INFRASTRUCTURE & CONNECTIONS



Berlin-Mitte is intersected by four Bundestraßen - these are federal highways that traverse Germany and Austria. The site is further bordered by a railway utilised by the S-bahn and DB.

- Bundestraße
- Major streets
- Above-ground railways

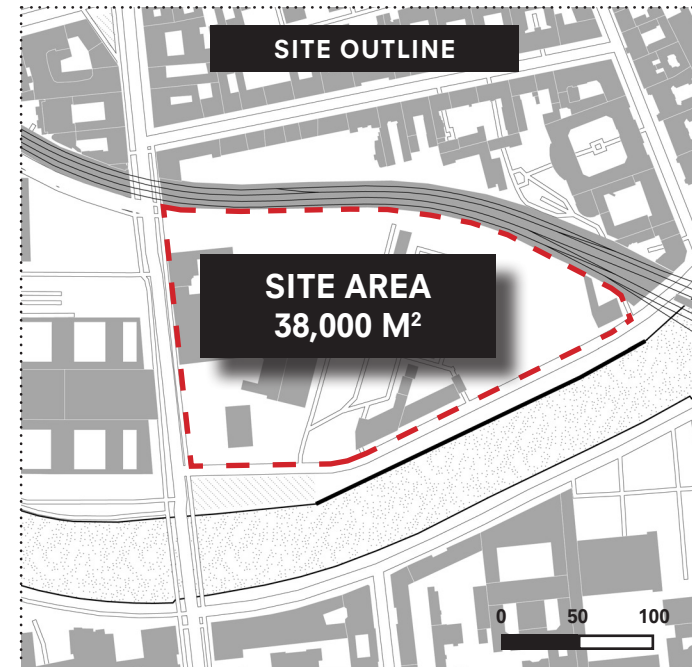
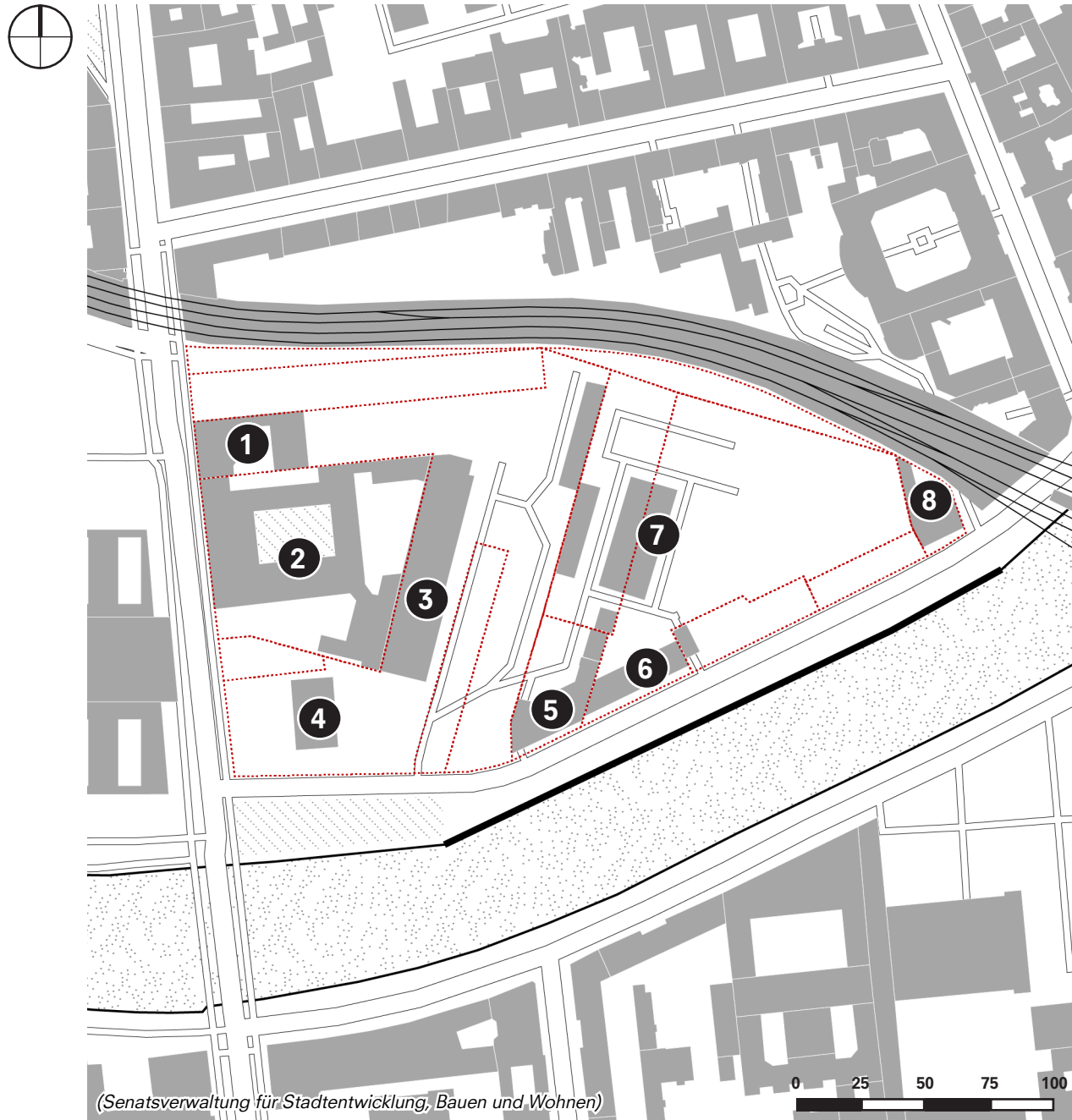
7.8 APPENDIX 8: UNDERGROUND CONNECTIONS



The Untergrundbahn is a major public transport system in Berlin and can be found along major streets and boulevards. The government district contains underground routes for cars.

- U-bahn routes
- Underground road network
- U Underground road network

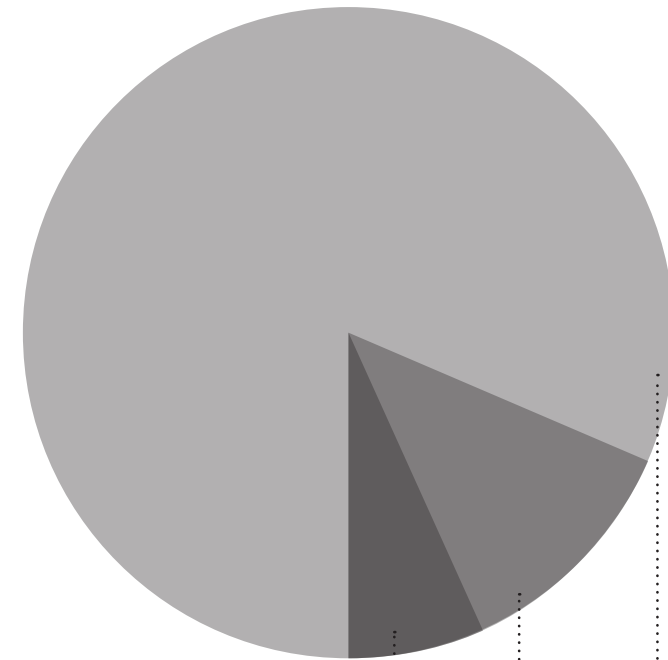
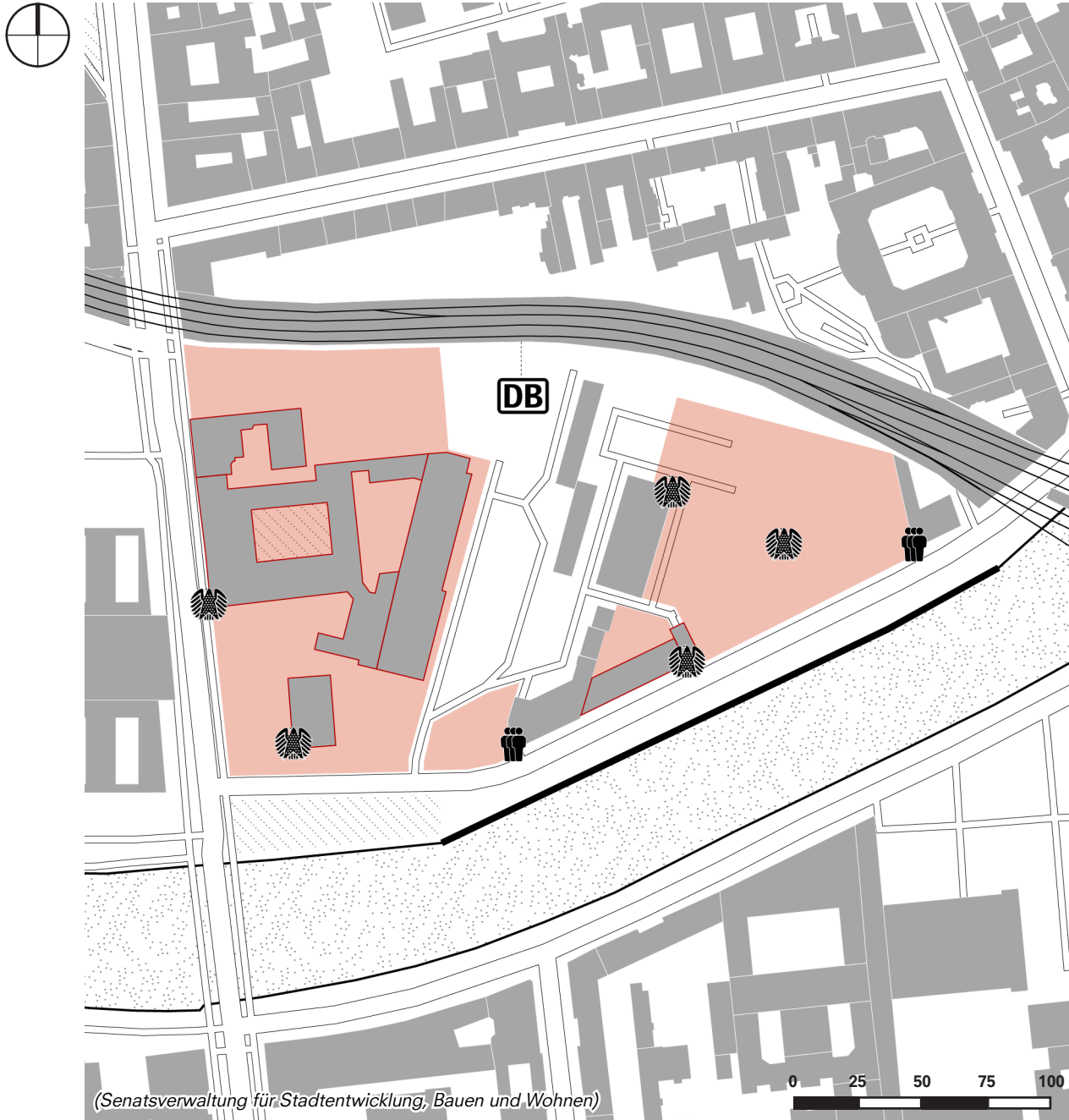
7.9 APPENDIX 9: PLOT SIZES AND SITE AREA



The site is comprised of a jigsaw of plots with different ownership arrangements and sizes. The smallest plots are those that are privately owned and the largest by the Federal Government.

BUILDING NUMBER	PLOT	BUILDING
1. German Bundestag	part of (2)	790 m ²
2. German Bundestag	5,260 m ²	3,360 m ²
3. News Center	5,420 m ²	1,880 m ²
4. Construction accommodation	part of (3)	460 m ²
5. Mixed use	1,237 m ²	665 m ²
6. German Bundestag	6,670 m ²	530 m ²
7. Storage Warehouse	2503 m ²	847 m ²
8. Mixed use	570 m ²	355 m ²

7.10 APPENDIX 10: PLOT OWNERSHIP



6.9%
Deutsche Bahn AG

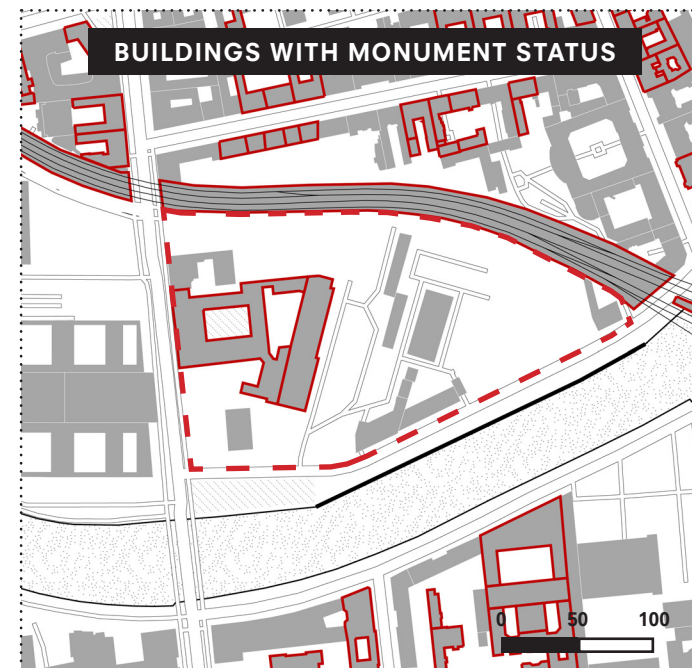
11.7%
Privately Owned

81.3%
Federal Government

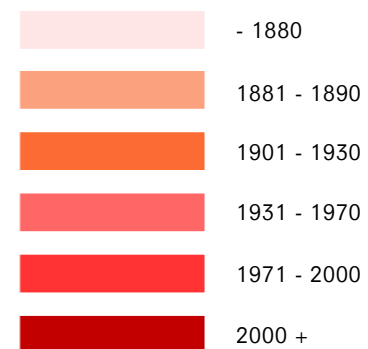
The plots owned by the Federal Government all border the roads around the site, while those owned by the Deutsche Bahn (the railway) make up the northern border of the site.

7.11

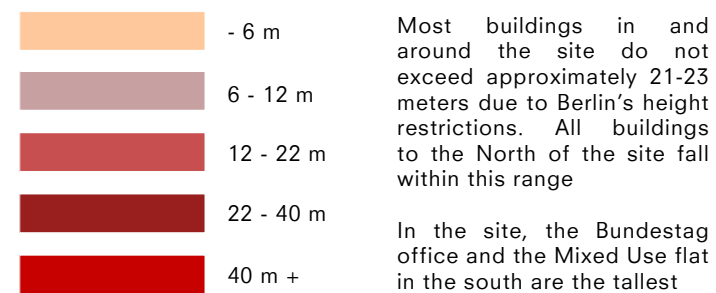
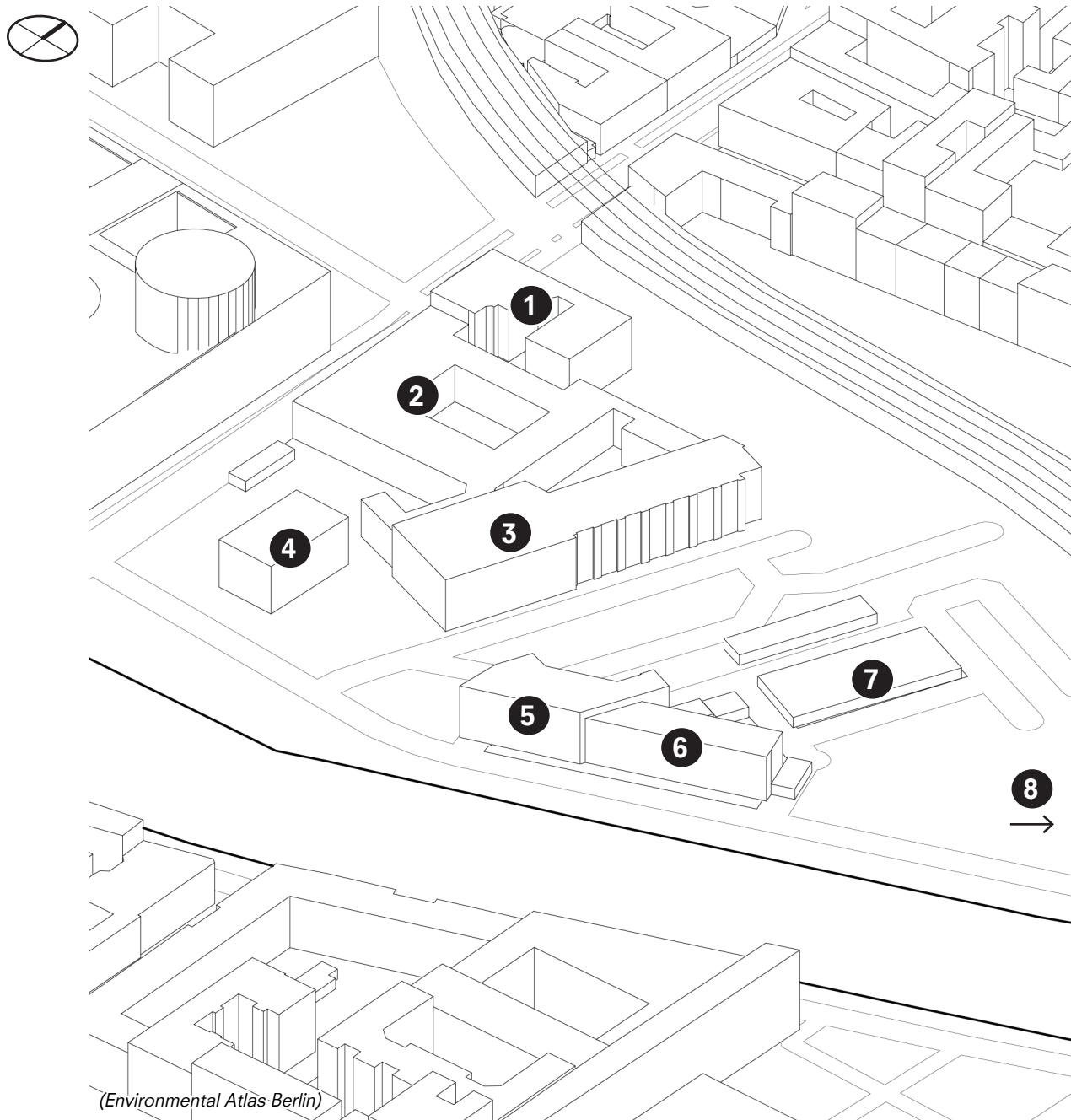
APPENDIX 11: BUILDING AGE



The oldest buildings in and around the site are all built mid-1800s. Those still standing are mainly found along the Marienstraße, with the newest buildings belonging to the government.

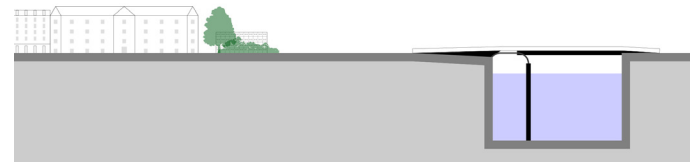
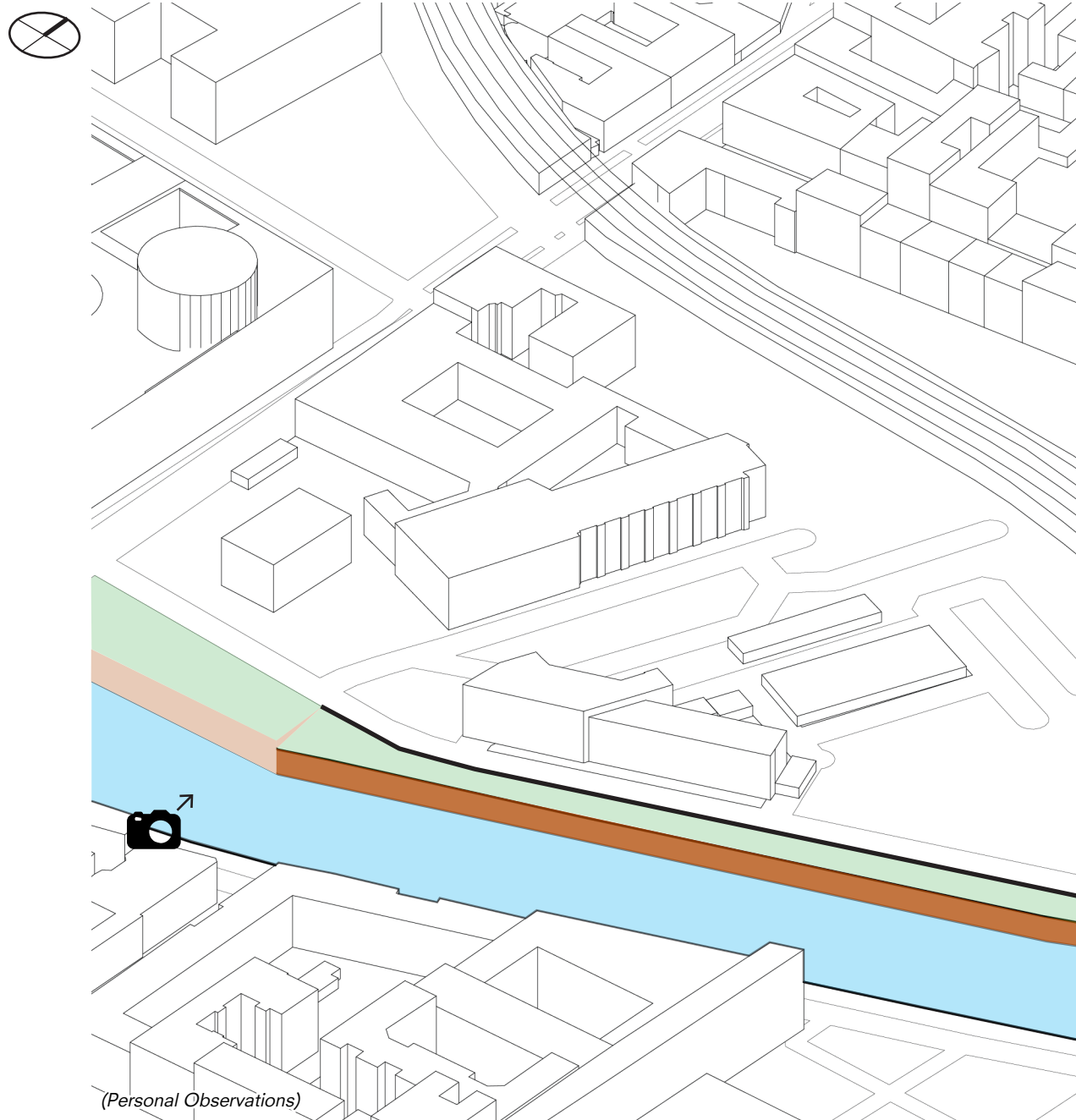


7.12 APPENDIX 12: BUILDING HEIGHTS



1. German Bundestag	± 22 m
2. German Bundestag	± 20 m
3. News Center	± 18 m
4. Construction accomodation	± 9 m
5. Mixed use	± 22 m
6. German Bundestag	± 20 m
7. Storage Warehouse	± 6 m
8. Mixed use	± 18 m

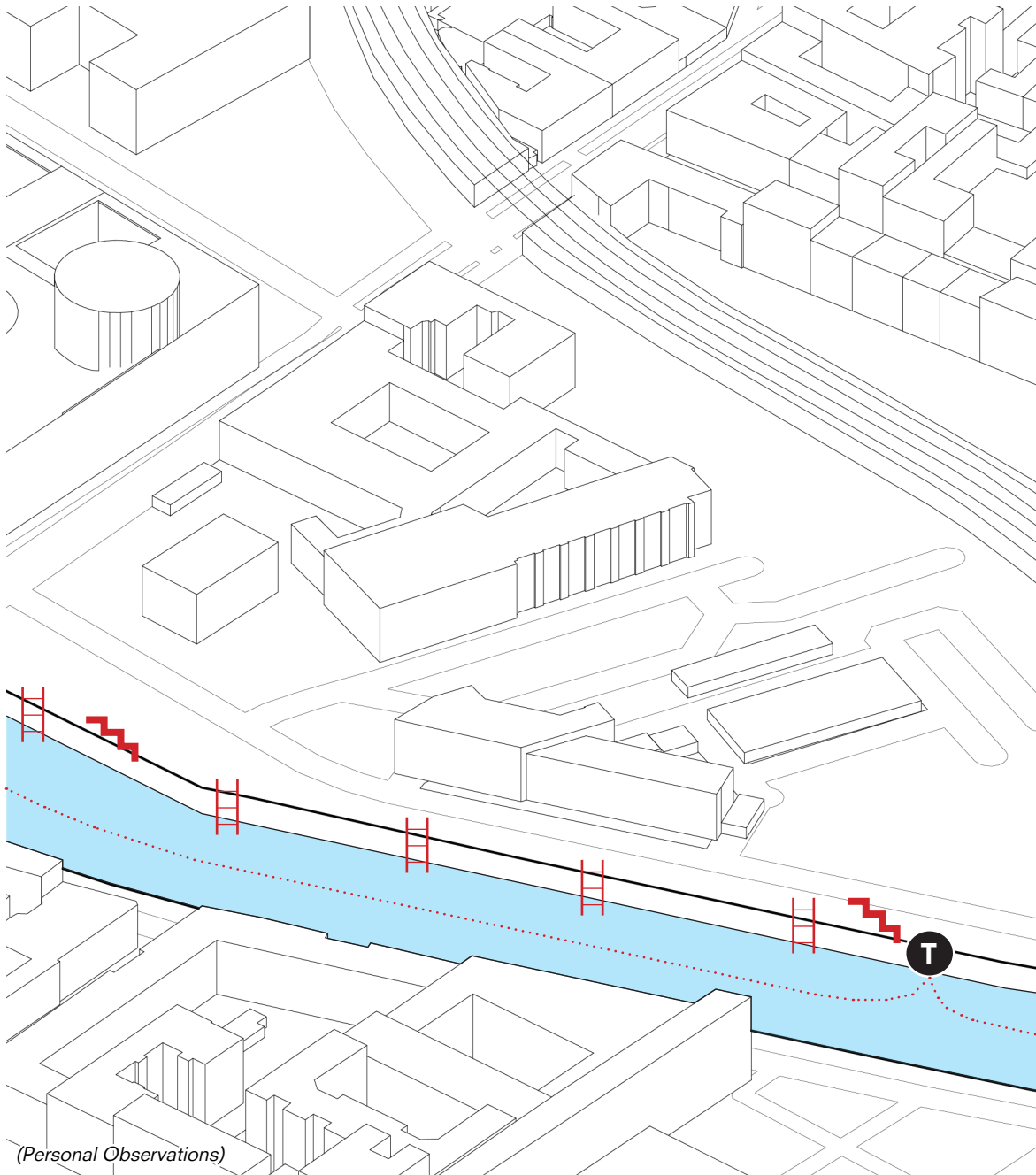
7.13 APPENDIX 13: SPREE RIVER EMBANKMENT



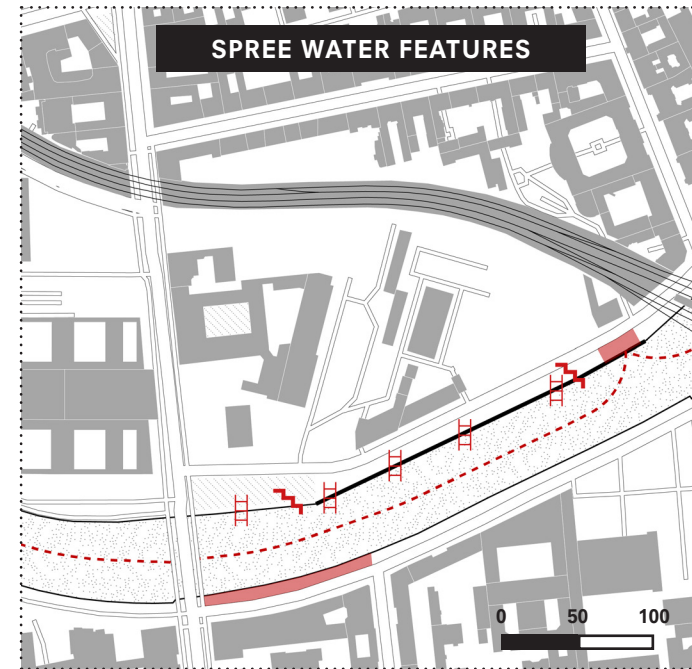
The embankment is primarily made of steel, which enables boats to dock to quays along the Spree. The Stone embankment is a visual feature to highlight the Marschallbrücke.

- Steel embankment
- Stone embankment
- Grass (innaccessible)
- Water





7.14 APPENDIX 14: SPREE WATER FEATURES



(Personal Observations)

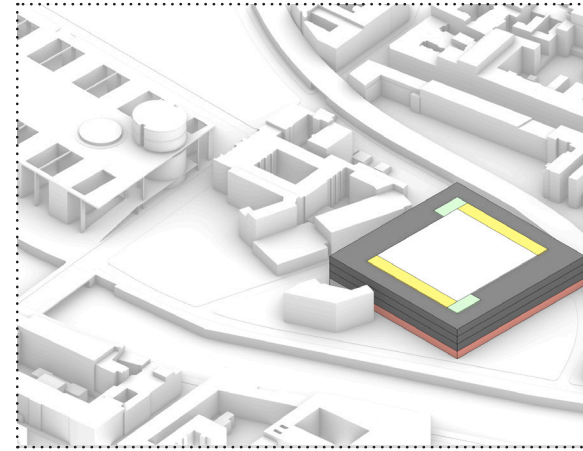
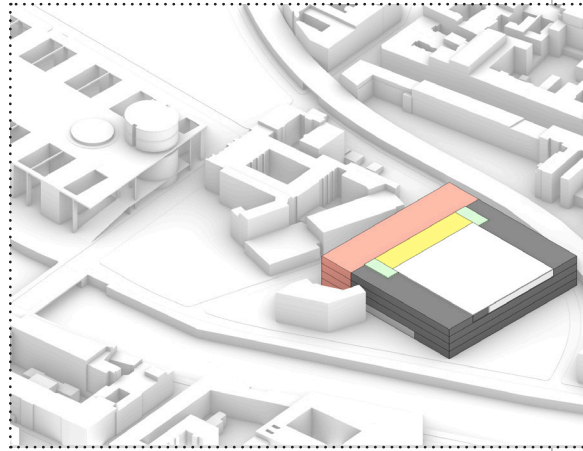
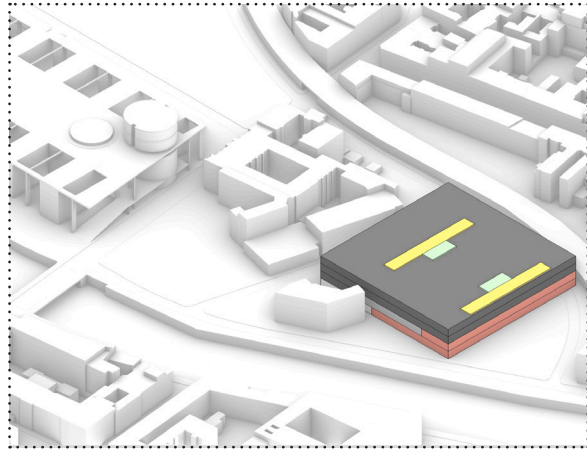


The Spree has various access points along the waterside, consisting of ladders and quays. The waterside further contains stairs to said ladders and spaces terraces along the water.

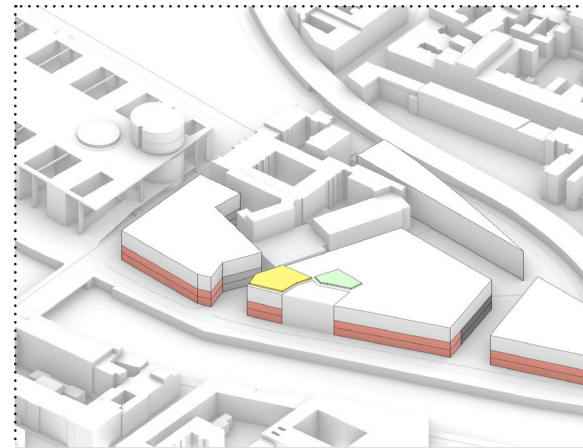
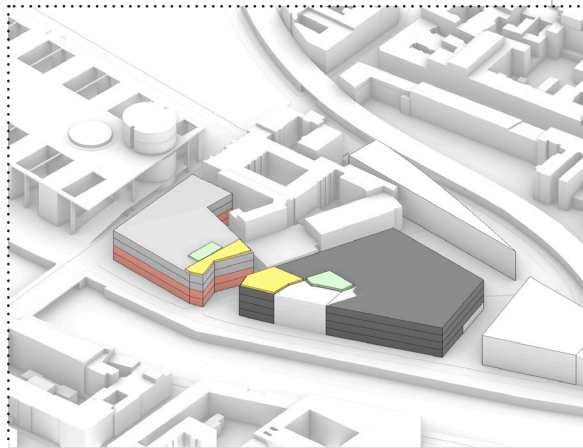
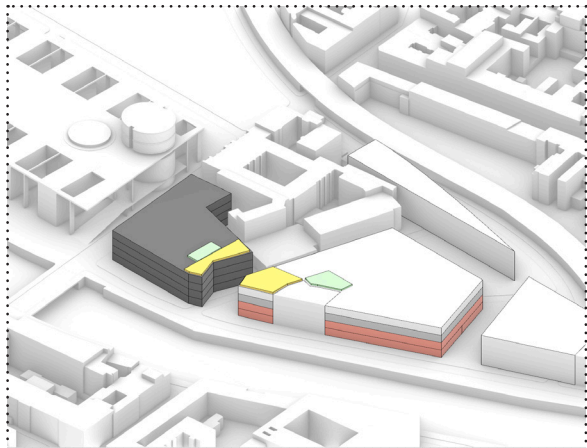
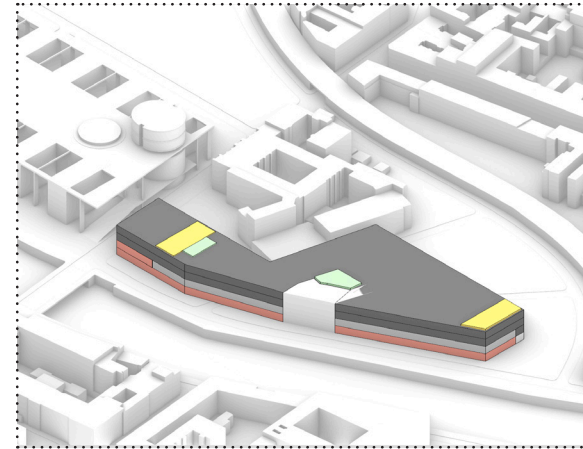
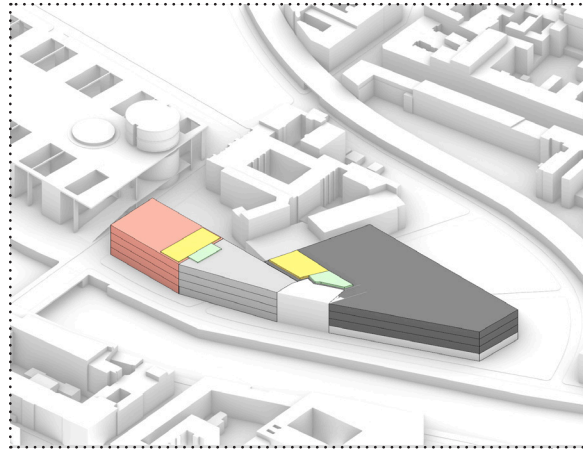
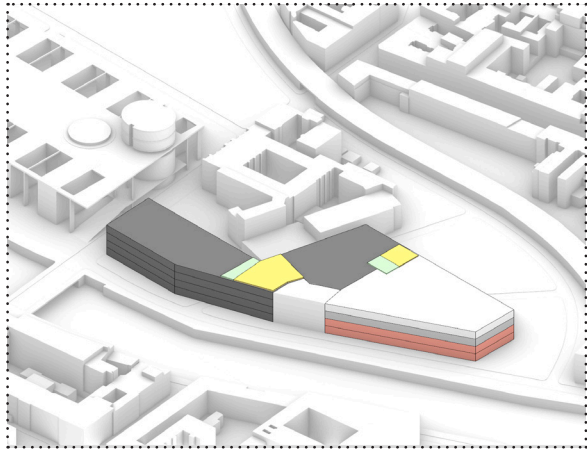
-  Waterside terraces
-  Ladders to water
-  Stairs to water
-  Boat tour departure point

7.15

APPENDIX 15: CONCEPTUAL MASSING STUDY



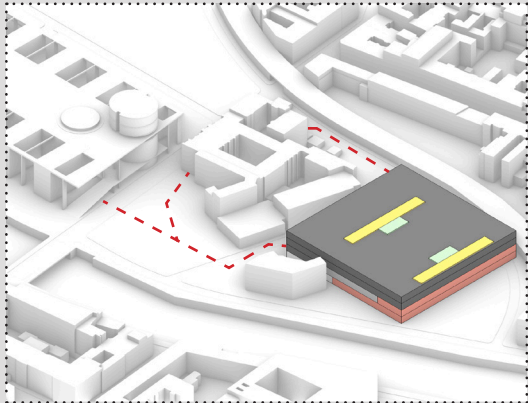
- Public
- Public Office
- Private
- Data Center
- Circulation
- Back of House



7.15

APPENDIX 15: CONCEPTUAL MASSING STUDY

GOVERNMENT ENSEMBLE

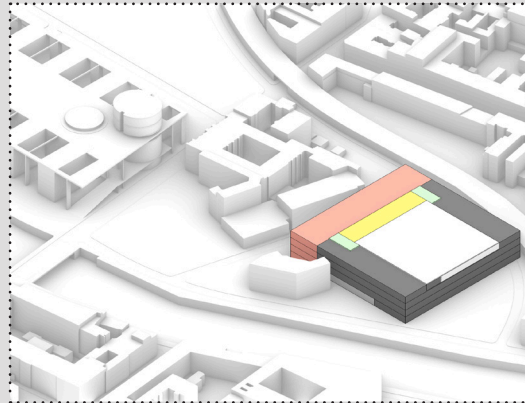


PRIVATE

PUBLIC

- + Potential public plaza
- Natural light at northern ground floor

PUBLIC WING

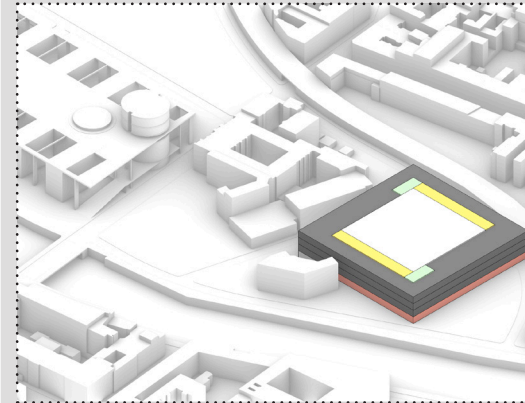


PUBLIC

PRIVATE

- + Clear split between function types
- Neglected public function allocation

PUBLIC PLINTH



PRIVATE

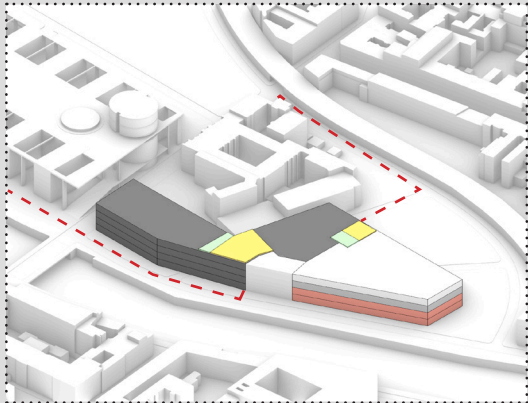
PUBLIC

- + Full public ground floor
- Impractical circulation

- Public
- Public Office
- Private
- Data Center
- Circulation
- Back of House

7.15 APPENDIX 15: CONCEPTUAL MASSING STUDY

GOVERNMENT ENSEMBLE

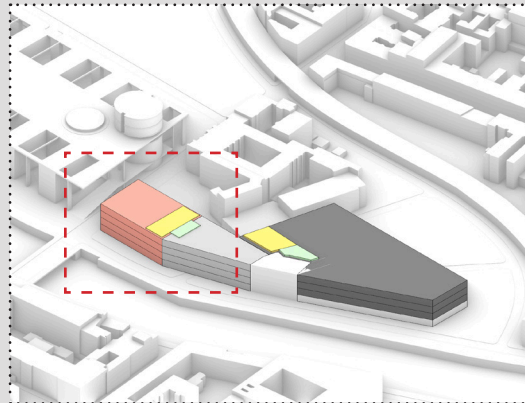


PRIVATE

PUBLIC

- + Clear government ensemble
- Disconnect between office types

PUBLIC WING

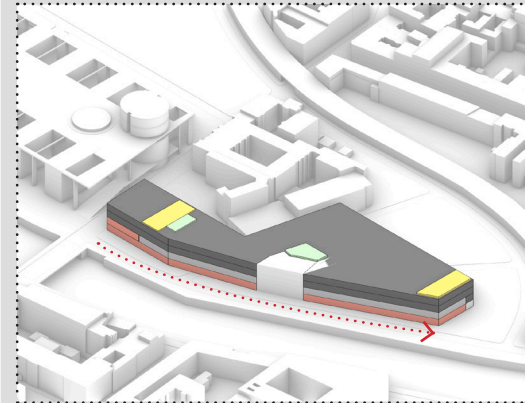


PUBLIC

PRIVATE

- + Grouped public functions
- Exposed data center

PUBLIC PLINTH



PRIVATE

PUBLIC

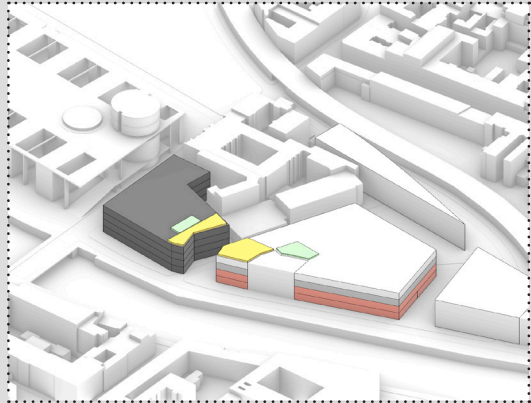
- + Directs public flow along the waterside
- Unattractive north facade

- Public
- Public Office
- Private
- Data Center
- Circulation
- Back of House

7.15

APPENDIX 15: CONCEPTUAL MASSING STUDY

GOVERNMENT ENSEMBLE

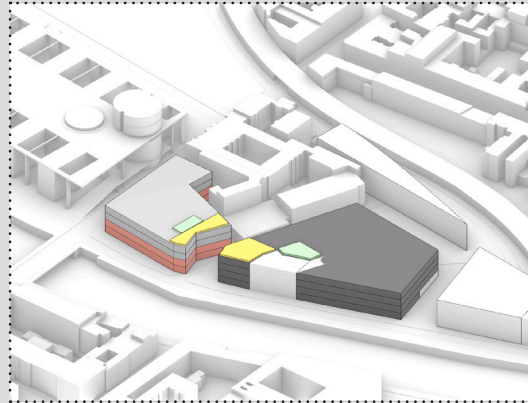


PRIVATE

PUBLIC

- + Secure office cluster
- Compromised data center

PUBLIC WING

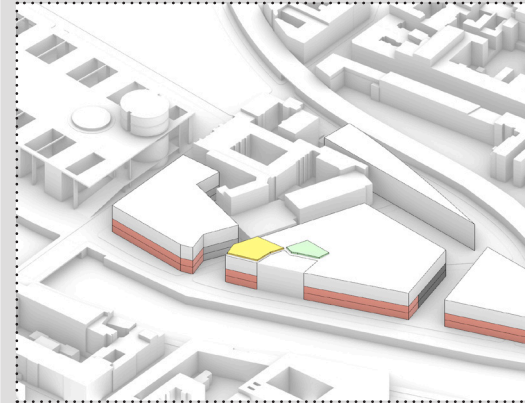


PUBLIC

PRIVATE

- + Central vertical circulation
- Disconnect between office types

PUBLIC PLINTH



PRIVATE

PUBLIC

- + Isolated & potentially secure office
- Unattractive north building

- Public
- Public Office
- Private
- Data Center
- Circulation
- Back of House