



**emitspace**

**Landscape Architecture and Infrastructure**

**Design possibilities of infrastructures from the perspective of landscape architecture using the example of the Kiel Canal**

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Country / City	Germany / Hannover
University / School	Leibniz University Hannover
Academic year	winter semester 2017/18
Title of the project	timespace - infrastructure and landscape architecture
Authors	Lukas Merkel

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# PERFORMATIVE NATURE

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SCHOOL PRIZE

X International Landscape Architecture Biennial

Máster d'Arquitectura del Paisatge -DUOT - UPC

ETSAB- Escola Tècnica Superior

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Avenida Diagonal, 649 piso 5

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## TECHNICAL DOSSIER

Title of the project	timespace - landscape architecture and infrastructure
Authors	Lukas Merkel
Title of the course	master's thesis
Academic year	winter semester 2017/18
Teaching Staff	Prof. Dipl.-Ing. Katja Benfer & M. Sc. Kendra Busche
Department/Section/Program of belonging	Department of Landscape Architecture & Department of Open Space Development
University/School	Leibniz University Hannover

### Design possibilities of infrastructures from the perspective of landscape architecture using the example of the Kiel Canal

Infrastructures have become the basis of our civilisation in almost all areas of everyday life with an importance that we are only rarely aware of. The master's thesis examines the relationship of infrastructures to their surroundings using the Kiel Canal, located in northern Germany. Due to growing economic interests in order to increase the efficiency, the canal is extended in eastern parts and will be deepened along its entire length. This generates large amounts of soil, which need to be redistributed.

Where is potential to create a infrastructure that can be useful for the surrounding landscape and people beyond their purely functional purpose? How can this integration be achieved and what design opportunities are possible by using the examined soil?

These questions ask for wide analysis of the canal and a closer look at the functioning and integration into the surrounding at various levels and time layers. The methods of soil removal defines the basis of the design process.

The design develop a concept that explains the integration of three example designs into the canal surroundings. It also shows the functions of the newly created added value of the individual intervention.

Finally it becomes clear that effects of infrastructures can lead to mutually positively influencing symbioses under the comprehensive consideration of the basic requirements of the locations and demands of the infrastructure on the area.

Landscape architecture can, establish itself more in this technically shaped field, become a competent mediating designer between the disciplines through its basically interdisciplinary planning culture.

For further information

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Consult the web page <http://landscape.coac.net/>



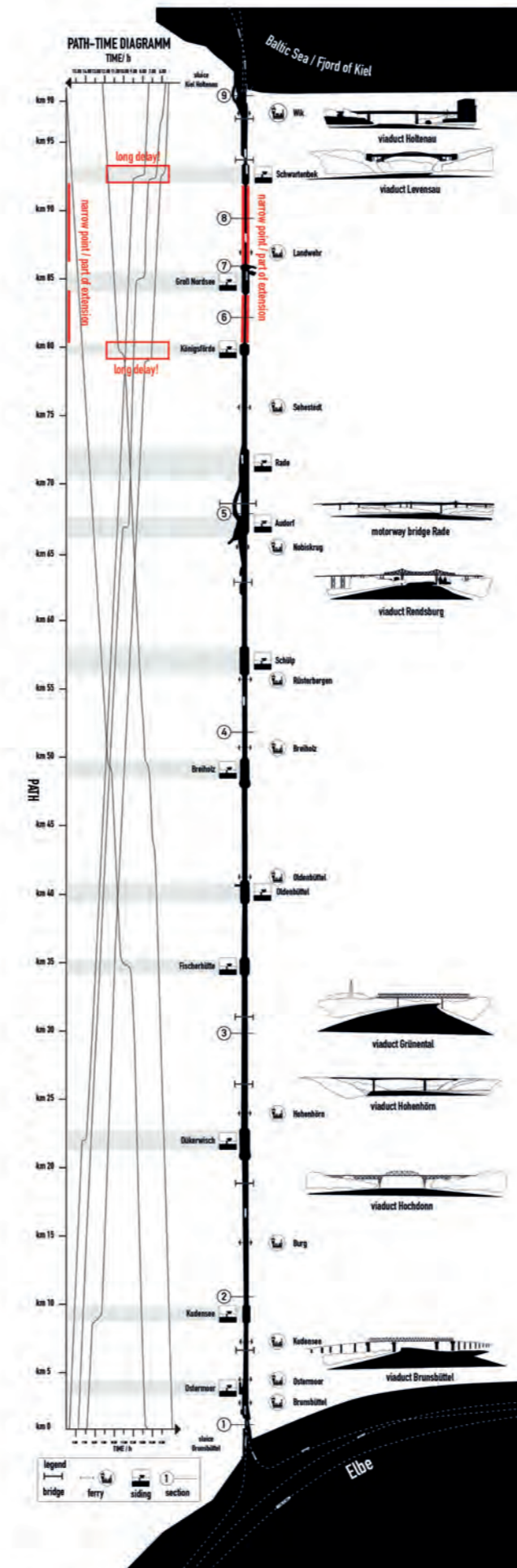


land consumption of infrastructure in germany compared to the area of Berlin



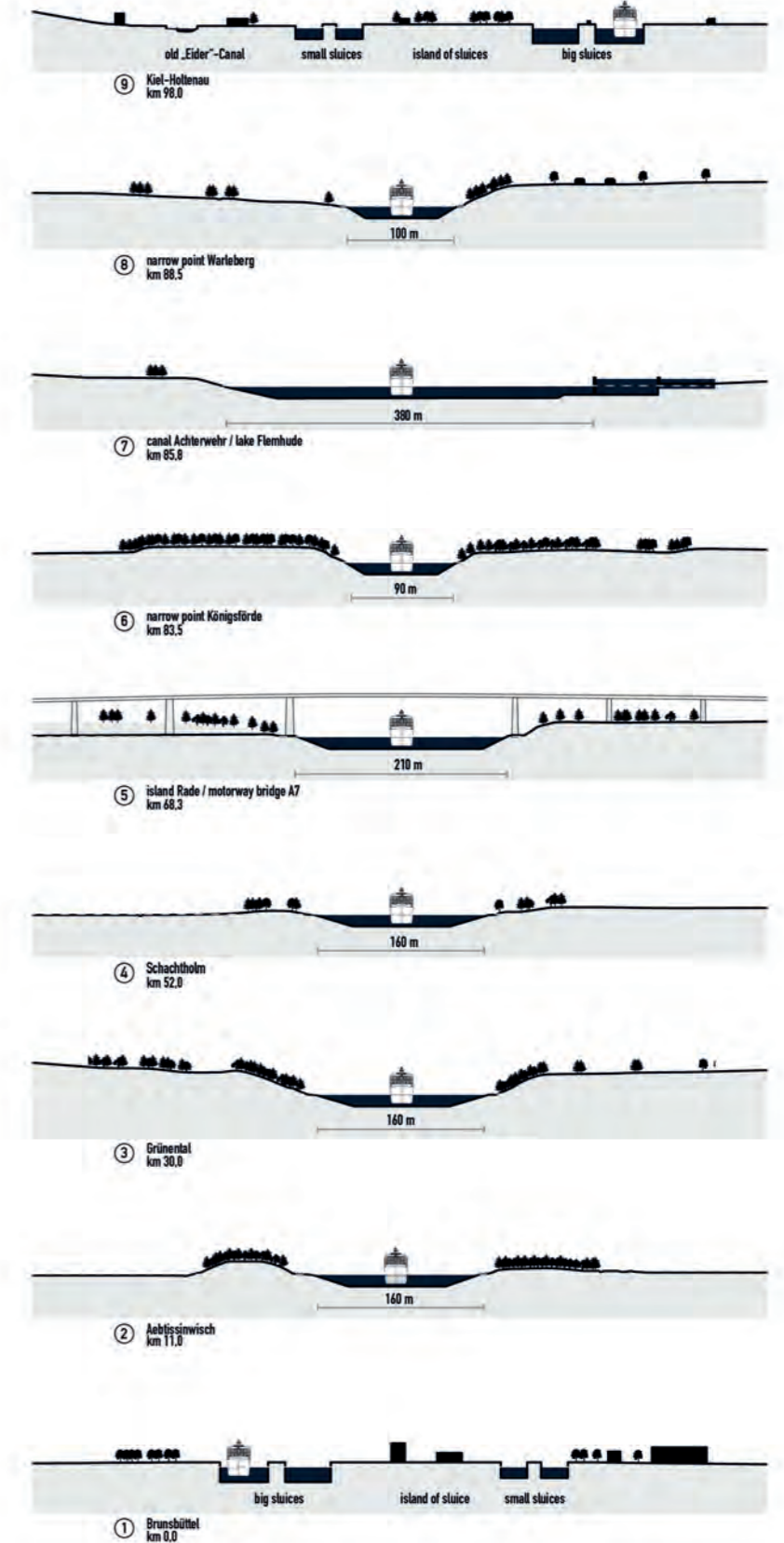
01 german infrastructure extension projects until 2030

source: BMVI 2016, 75-179, Wasser- und Schifffahrtsverwaltung des Bundes (WSV), 2013, 'Wegvorteile', Aufgerufen am 14.03.2018. [http://www.wsa-kiel.wsv.de/Nord-Ostsee-Kanal/Anlagen/Wegevorteil\\_2.jpg](http://www.wsa-kiel.wsv.de/Nord-Ostsee-Kanal/Anlagen/Wegevorteil_2.jpg) | Daten für Straße und Kanal: BBSR 2011, 10, Daten für Schiene: Allianz pro Schiene e.V., o. J., 'Flächenverbrauch: Platzsparend mobil auf der Schiene', Aufgerufen am 14.03.2018. <https://www.allianz-pro-schiene.de/themen/umwelt/flaechenverbrauch/>



02 functionality of the Kiel Canal

source: Graf et al, 1972, Kanalkarte

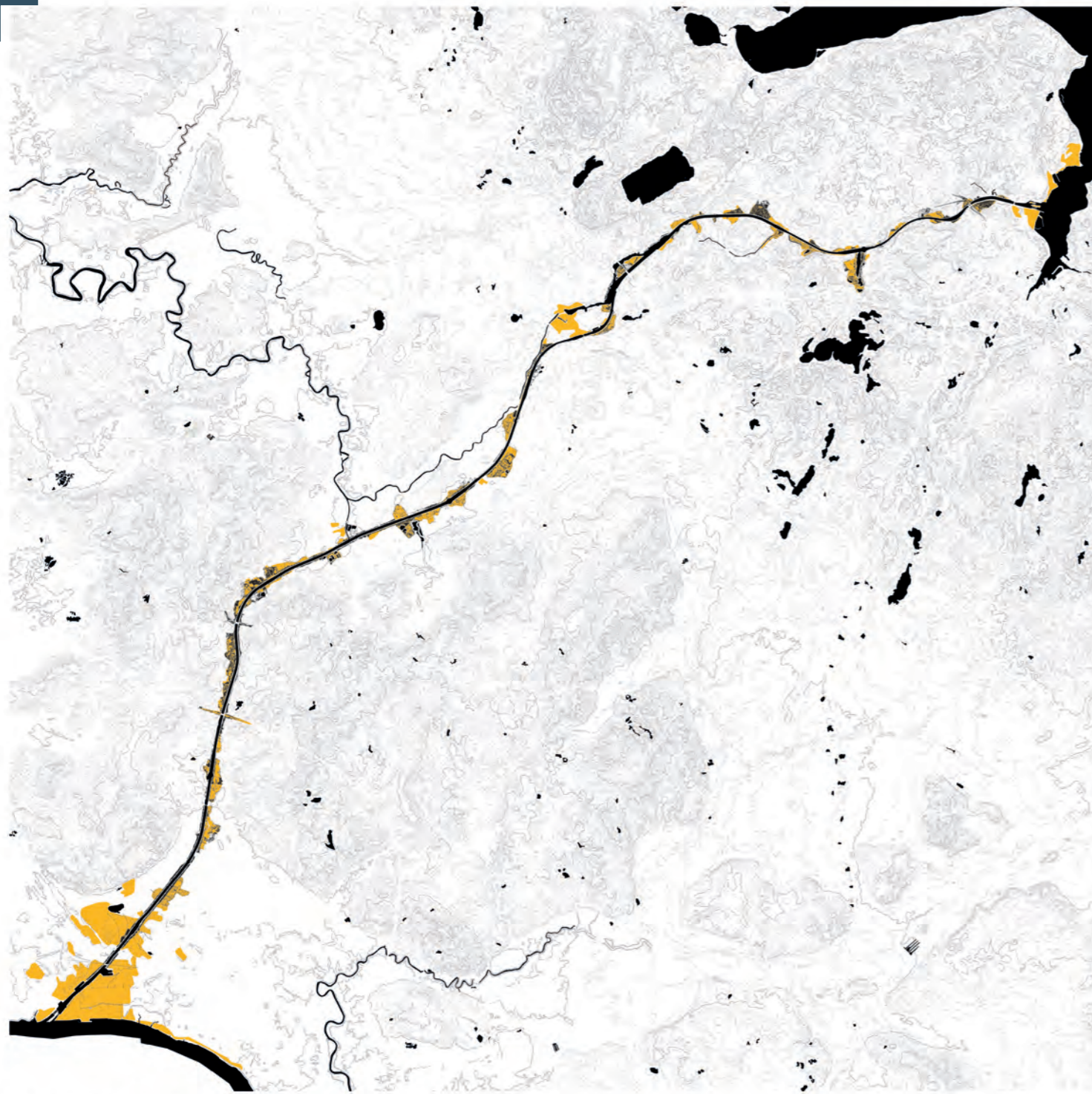


03 sections along the Kiel-Canal

source: Schleswig-Holstein, Landesamt für Vermessung und Geoinformation Schleswig-Holstein, Datenbasis „Digitale topographische Karten DTK100“ (Auftrags-Nr.: DP 81929/2017)

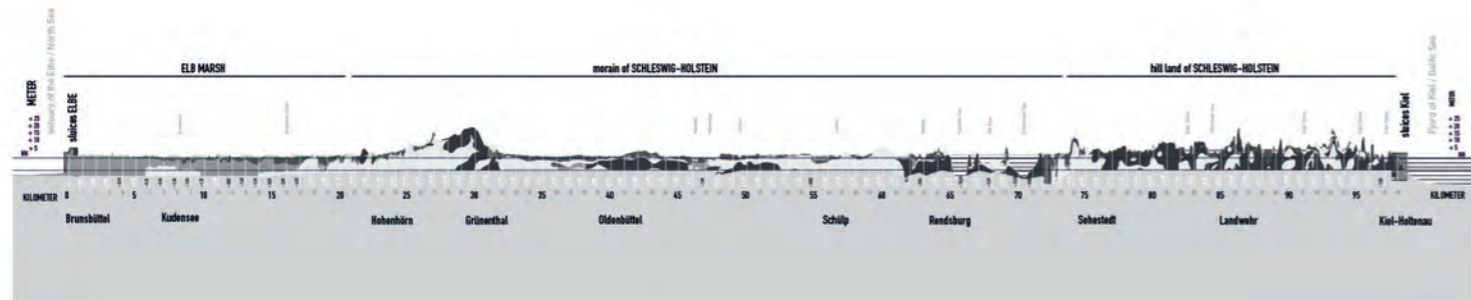






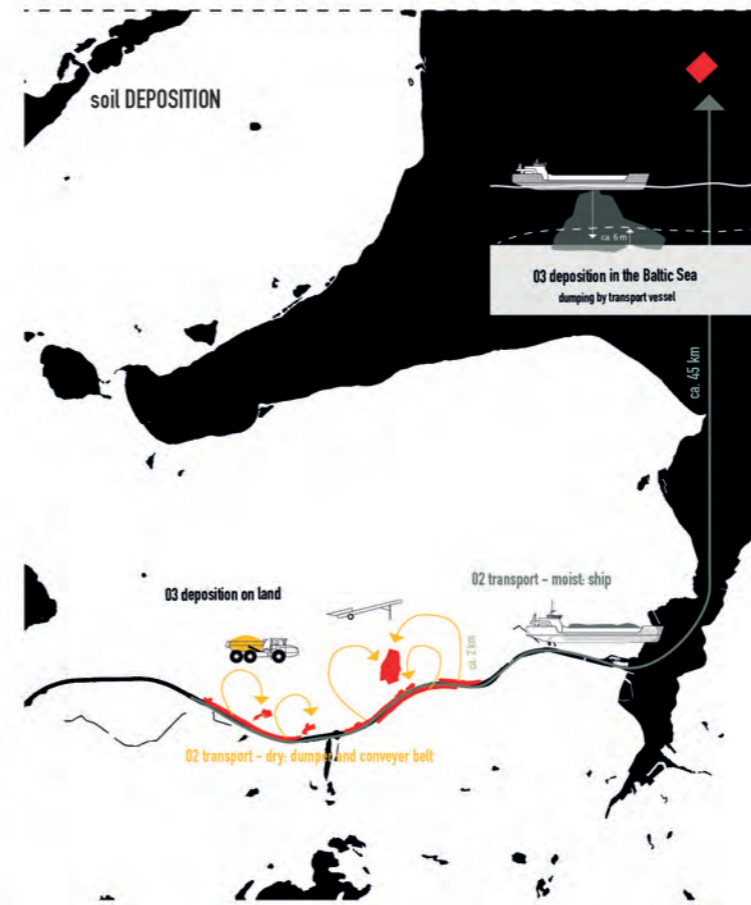
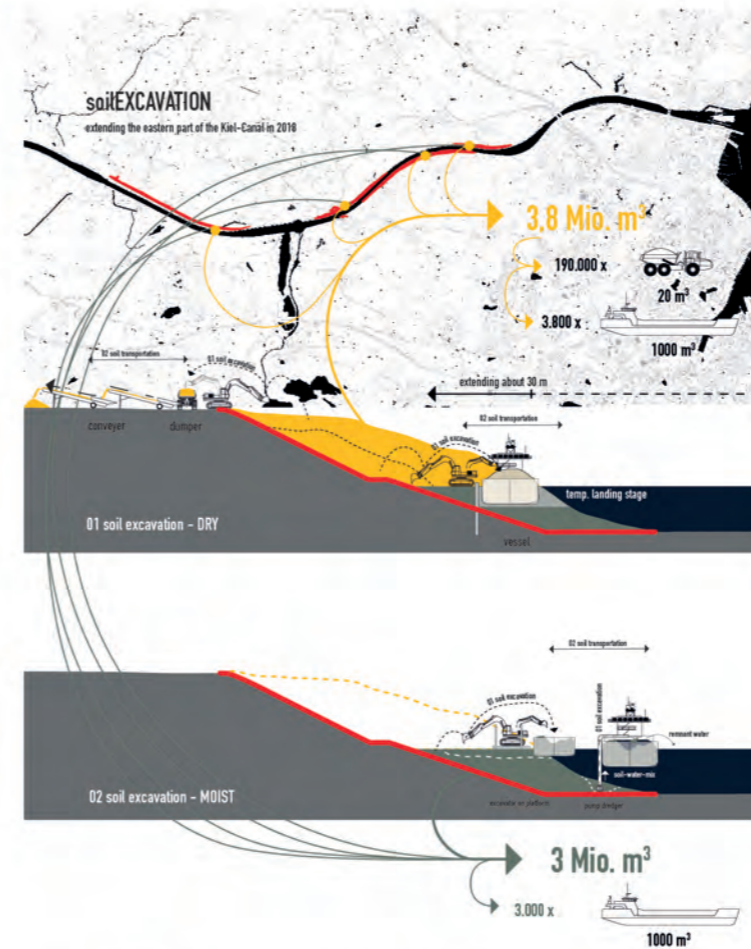
04 analysing the existing deposition areas along the canal

source: Schleswig-Holstein, Landesamt für Vermessung und Geoinformation Schleswig-Holstein, Datenbasis „Digitale topographische Karten DTK100“ (Auftrag-Nr.: DP 81929/2017)



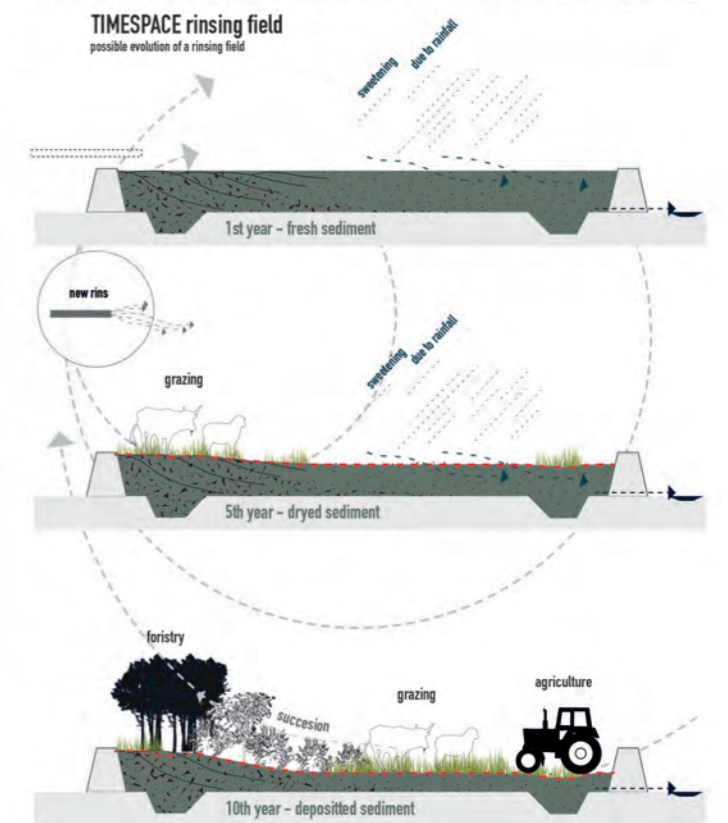
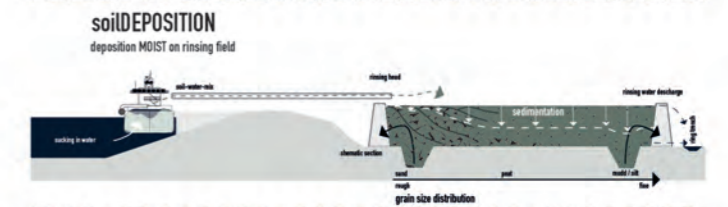
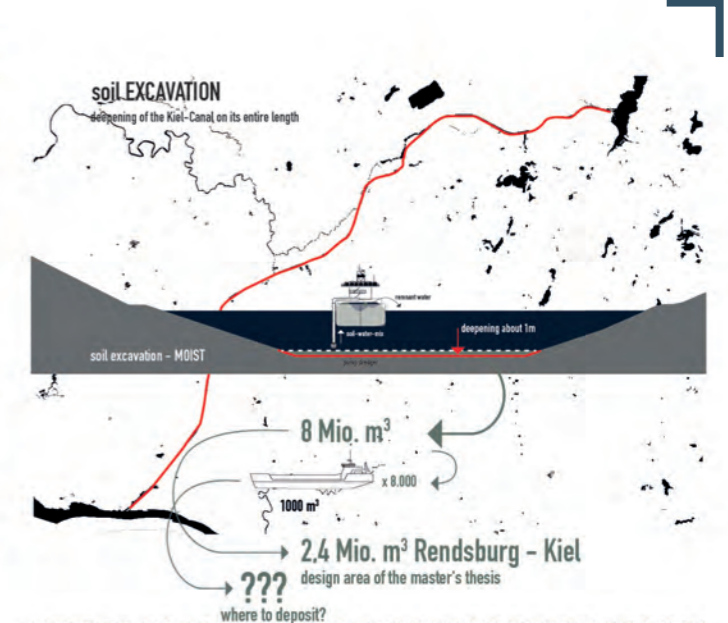
05 section through the Kiel-Canal from Brunsbüttel to Kiel-Holtenau

source: Zeitschrift für Bauwesen, 1896. Kaiser-Wilhelm-Canal. Berlin: Verlag von Wilhelm Ernst & Sohn.



06 excavation & deposition methods dry and moist in the eastern part of the canal, starting 2018

source: GWDS 2013, Wasser- und Schifffahrtsamt Brunsbüttel (WSA). 2009. Bodenmanagementkonzept und Wasserbehandlung Neubau 5. Schleusenkammer und Neubau Torinstandsetzungsdock. Aufgerufen am 17.03.2018. [https://www.portalnok.de/Projekte/Schleuse\\_Brunsbuettel/Planfeststellungsverfahren/Planunterlagen/10Materialband/14.pdf](https://www.portalnok.de/Projekte/Schleuse_Brunsbuettel/Planfeststellungsverfahren/Planunterlagen/10Materialband/14.pdf)

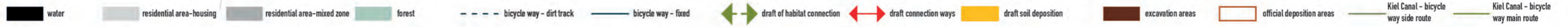


07 deepening the canal at its entire length and deposition methods of the soil-water-mix on shore

source: Grundlage: WSV 2017; Schleswig-Holstein, Landesamt für Vermessung und Geoinformation Schleswig-Holstein, Datenbasis „Digitale topographische Karten DTK25“ (Auftrag-Nr.: DP 2894/2017). Grundlage: WSV 2013; Kuntze et al. 1984, 9f | Eigene Darstellung, Grundlage: Kuntze et al. 1984, 9f | Eigene Darstellung, Grundlage: Kuntze et al. 1984, 8ff, Kriebitzsch 1987, 260ff

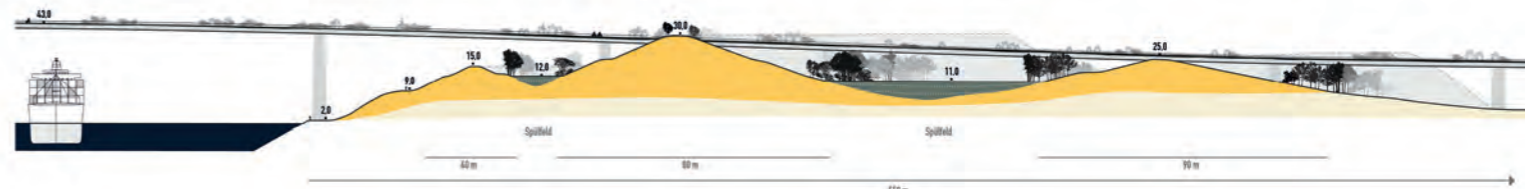






08 concept of the design area Rendsburg (west) to Kiel (east), yellow shows the new soil deposition areas with different uses

source: Schleswig-Holstein, Landesamt für Vermessung und Geoinformation Schleswig Holstein, Datenbasis „Digitale topographische Karten DTK25“ (Auftrag-Nr.: DP 2896/2018)

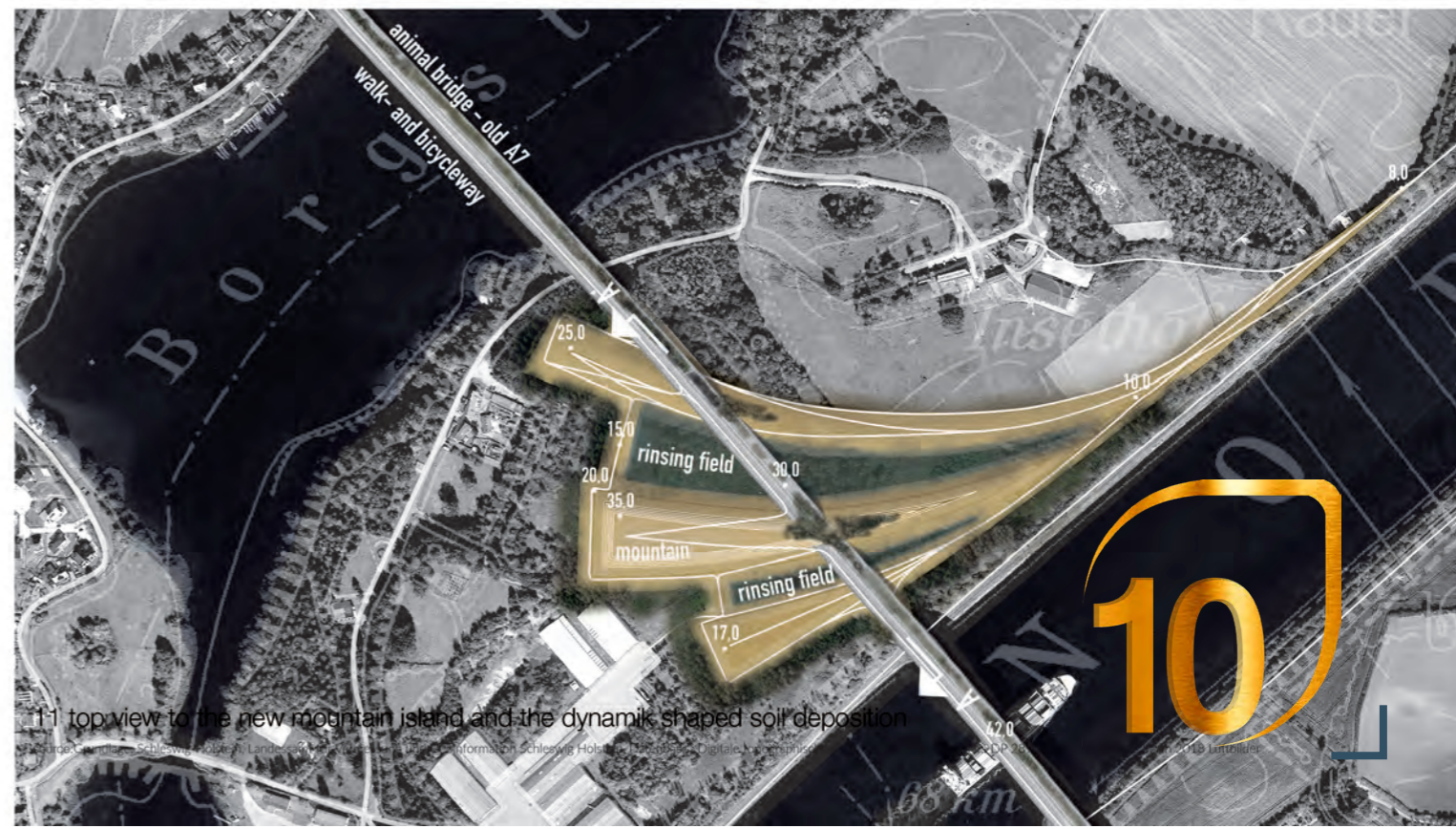


10 section A-A' through the bridge and the new mountains

source: Schleswig-Holstein, Landesamt für Vermessung und Geoinformation Schleswig Holstein, Datenbasis „Digitale topographische Karten DTK25“ (Auftrag-Nr.: DP 2896/2018), © Google Earth 2018 Luftbilder



09 one example - western mountain at the old motorway bridge, now used as an animal bridge and also walk- and bicycleway



11 top view to the new mountain island and the dynamic shaped soil deposition

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