



**Sewer & Water Board of New Orleans**  
**Integrated Master Planning RFI**  
February 18 2020



ATTN: Patti Wallace, Purchasing Director, SWBNO  
625 St. Joseph Street, Room 131,  
New Orleans, Louisiana 70165  
Pwallace@swbno.org

Written Response and Firm Profile for  
Integrated Master Planning RFI  
February 18 2020

One Architecture & Urbanism (ONE)  
35 E. Broadway #5C  
New York, NY 10002  
+ 1 917 261 5809

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Dear Madam/Sir,

We are excited to learn about the Integrated Master Plan process as you have described it in your RFI.

We are excited because the process because it clearly shows the Sewer & Water Board of New Orleans ambition to innovate and to address the city's water system's dual challenge of overcoming its legacy shortfalls while preparing it for the rapid changes of the 21st century.

My firm, One Architecture & Urbanism Inc., prides itself on being an active partner for public bodies and communities in developing integrated solutions for complex problems, often in the realm of resilience and climate adaptation. ONE helps to combine strategic planning and visioning with working through the real challenges of implementing projects. This combination allows us to create and learn from each project's feedback mechanisms and helps enable the cultural changes this work often requires.

In the attached note, firm description, bio, and project references you will see how we use design as a tool for integrated water management, linking water flows to spatial and territorial issues, and through this, facilitate the understanding of complex issues and communication between multiple actors and stakeholders.

I will gladly participate in the workshops, where I hope to contribute my expertise and support the shaping of a successful process.

Regards,



**Matthijs Bouw**  
Founding Principal, One Architecture & Urbanism (ONE)  
(e) [bouw@onearchitecture.nl](mailto:bouw@onearchitecture.nl)  
(o) +1 917 626 5658

**one architecture**  
new york city amsterdam

One Architecture & Urbanism is an award-winning design firm with Dutch origins, a US office in New York City, and a satellite office in Boston. In the US, our work primarily focuses on climate adaptation and resilience.

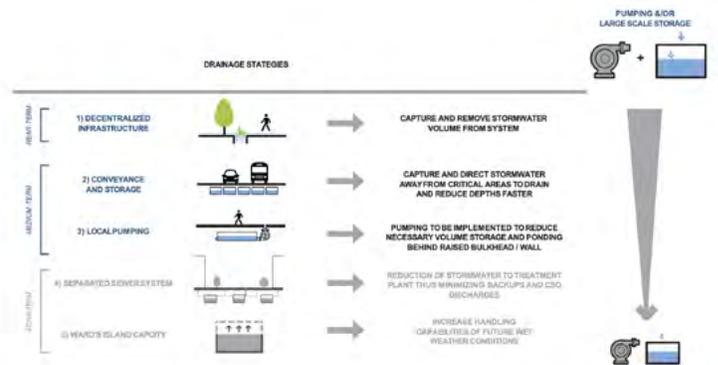
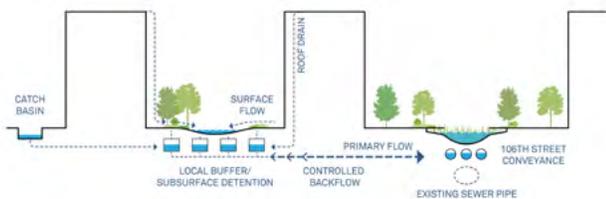
From this work, and drawing upon the Dutch legacy of the ‘polder,’ we have come to understand a few of the challenges that may be applicable to your master-planning process and tools that address these challenges. Collaborative water management strategies can also be learned from the Dutch polder strategy — thinking about innovative and historic ways to build governance mechanisms, and multiple layers on coordination among stakeholders involved in the system. In these notes, we have not distinguished fundamentally between stormwater, wastewater, and drinking water because, from our perspective, many challenges are similar.

## 1. SPATIAL DIMENSION OF WATER, NATURE-BASED SOLUTIONS

Our 20th century water infrastructures have often been designed as mono-functional and heavily dependent on fossil fuels and ‘grey’ solutions. These systems performed well in stable climatic environments. In the present, many of these infrastructures are approaching the end of their useful lifespan, which raises the question: how we should update or adapt them? Often the debate centers around whether to re-invest and continue to operate our legacy infrastructure, to integrate other systems (e.g. greener infrastructure), or to replace them altogether.

New infrastructure ideally uses more nature-based solutions and depends less on fossil-fuel for its operation. For example, in cases where stormwater management relies on pumping, our infrastructure is increasingly vulnerable to ‘cloud bursts.’ By building more space for the retention and detention of rainwater, and ideally separating it from the sewer system, buffer capacity can build capacity for big storms. The recreational or economic development benefits these systems bring are too often considered secondary.

Shifting towards greener infrastructure brings several challenges that intersect with our profession as spatial designers. The first and most obvious challenge is siting and creation of new open space, which might require land-use changes. This issue has the greatest hurdles to implementation in dense areas, such as East Harlem in New York, where we designed the climate resilience strategy. However, even in low-density areas, the shift toward green infrastructure can be significant and will require discussions with local community members (as we discuss further below). These new spaces can be designed to serve beyond their utility and provide multiple public benefits. And this is where spatial designers come in.



### East Harlem Resilience Study, New York

left: diagram showing future conveyance on 106th street (site of former creek)

right: green infrastructure strategy

The second set of spatial challenges come with the many types of green-blue infrastructure that might be used simultaneously. Each type is typically associated with a particular ownership: blue roofs and in-building cisterns work at the building scale (mostly private), crates work under parking spaces, public parks support retention, and bioswales and conveyance channels use the right-of-way (mostly public). Each infrastructure will ideally be implemented at the appropriate time for its owner, often aligned with other planned and ongoing work. The main challenge here will be to build out an interconnected system made up of multiple components, and which acknowledges the complexity of jurisdictions. From our experience, we have learned that spatial tools can enable us to navigate these organizational and management challenges. In Amsterdam, for instance, we explored alternatives to a new large-scale waste-water treatment plant and were able to propose a green infrastructure program combined with new decentralized waste-water treatment plants, each linked to new real estate development.

## 2. SYSTEMS THINKING, CIRCULARITY, FLOWS

As mentioned above, it is critical to create flexible capacity to retain stormwater in low-lying areas, especially polders, not only because of the risk of failure associated with pumping, but also due to the energy costs thereof. The 'water-energy nexus' has manifested itself in our work in many ways. In the 'bio-refineries' of the decentralized waste-water treatment system we helped design in Amsterdam, where we looked at both nutrient recovery and renewable energy. In this approach, there are clear links between stormwater, wastewater and drinking water. As the world moves toward circular economies, a systems approach to our water challenges is critical.

In New Orleans, like in the Netherlands, these linkages could potentially be even more pertinent in the future, as we are starting to understand saltwater infiltration associated with sea level rise. This infiltration not only has the potential to impact underground infrastructure but also the sourcing of drinking water, as well as the ecologies of the green infrastructure and recreational spaces we hope to design as co-benefits.

As designers, we have learned to think in systems and have developed tools to communicate and facilitate systems-based approaches. We have successfully used these tools to create 'circular' systems, link benefits, and connect these to multiple, hybrid financing sources.



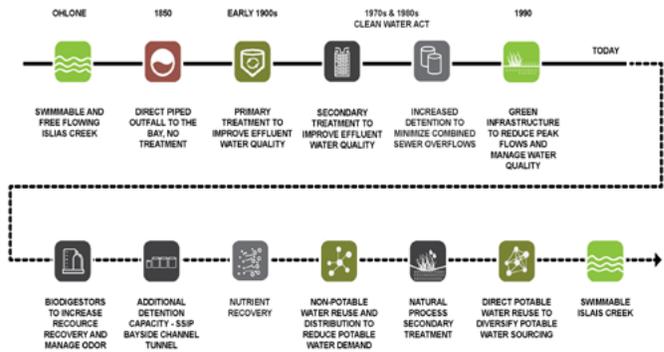
**Buikslooterham, Amsterdam**  
Site drawing and aerial overview of Buikslooterham, a brownfield remediation project which includes a floating bio-refinery in which wastewater is processed for energy and nutrients.

### 3. PILOTS, SCALING AND REPLICABILITY

The development of new approaches to address both legacy (maintenance backlogs) and new (climate change) challenges is hard work. It takes time and effort to build the necessary muscle to do things differently. Innovation through pilot projects often works well, because it helps work out internal processes, familiarize stakeholders and communities with possible solutions, and allows for feedback mechanisms on 'lessons learned'.

When designing and developing pilot projects, it is important to monitor and measure performance and impact. Project goals and metrics should be developed such that it facilitates decision-making and simplifies later replication and scalability. Pilot design and systems design go hand in hand.

A second, critical component in the design of pilot projects is their 'adaptive capacity'. Since these pilots function as learning environments, it is important to design them such that they can easily be modified over time in order to embrace new insights.



#### Islais Creek San Francisco

left: long term vision, with performative park on site of former creek  
right: water water treatment plant evolution in area with new park

### 4. DESIGN AS A COLLABORATION TOOL

Integrated water management in New Orleans is a huge challenge if only because of the numerous agencies and stakeholders currently involved. Twenty-first century integrated water management approaches increase this complexity further because of their spatial components, the use of nature-based systems in addition to grey infrastructure, the emphasis on necessary linkages between these systems, the objective to design for multiple benefits, the uncertainty of climate change, and not least, the frequent necessity to combine multiple public and private funding sources.

This added complexity necessitates alignment between multiple actors and stakeholders. In our experience, it often requires a new cultural understanding of the challenges, solutions, and roles.

In the Netherlands the water management system is an authority formed over a millennia ago and serving as a governance tool to fund, research, and manage all water related systems – as derived from the 'polders'.

Through our experience working on climate adaptation across the U.S., ONE has learned to use design and its capacity for integration and communication as a critical tool that enables embracing this complexity while simplifying the ways forward for all actors and stakeholders. By producing clear graphics of complex issues, design has become a tool for collaboration and joint decision-making.

As an example, ONE has pioneered a particularly successful methodology: the early establishment of the 'solution space' of projects and strategies. By developing prompts and discussing these in (interagency) workshops early in a planning process, ONE has been able to carve out a clear window for shared and innovative solutions.



**FiDi Seaport Masterplan, New York**

In a workshop with more than 70 representatives of different City, State and Federal agencies, the 'solution space' for the project was discussed



**One Architecture & Urbanism (ONE)** is an award-winning Amsterdam and New York-based design and planning firm. Established in 1995, the firm is known for its unique approach in which financial, technical, and organizational issues are addressed and resolved through design. A key area of ONE's expertise is large-scale resilience planning and infrastructure. Under the leadership of founding principal Matthijs Bouw, ONE has been instrumental in the development of complex, multi-actor, planning processes across the globe.

For the past half-decade, ONE has pursued major resilience projects in New York, Boston, San Francisco, and Southeast Asia, largely focused on climate adaptation and ranging in scale from the urban and regional planning to individual infrastructural objects. Beyond design-driven, implementable schemes for adaptation, the firm has created frameworks for long-term social and economic resilience through a commitment to local partnerships, community engagement, and thoughtful attention to policy, funding, and local value creation.

In New York, ONE co-lead a team with Bjarke Ingels Group (BIG) that won the 2014 Rebuild by Design competition. In 2014, The BIG U proposal secured over \$500 million in CDBG-DR grants, advancing NYC's first major resilience project to offer integrated flood protection and amenitized public space encircling Lower Manhattan. In initial concept design phase, ONE and partners met with 31 community and cultural organizations and over 40 government agencies at the city, state, and federal level with vested interests in the fate of Manhattan's waterfront parks. In continued collaboration, ONE is working on the design development of the East Side and Lower Manhattan (ESCR and LMCR) components of The BIG U - a process that has entailed nine rounds of public design workshops and over 50 stakeholder meetings, as well as on the subsequent FiDi/Seaport District Masterplan.

ONE has also been lead urban planner on a number of additional resilience studies and plans in East Harlem and Breezy Point. In Boston, ONE served as principal urban designer on the first district-specific components of the city's Climate Ready Boston program, producing in-depth resilience studies geared toward implementation for the coastal neighborhoods of East Boston and Charlestown. ONE is currently completing a follow-up vision plan focused on climate adaptation for Joe Moakley Park



in South Boston, a resilience and redevelopment vision for Peddocks Island (one of the largest islands in Boston Harbor), and resilience strategies for Chelsea and Everett, Massachusetts through the commonwealth's Coastal Zone Management (CZM) grant program. In each of these projects, ONE approaches stakeholder and community engagement, detailed scenario-driven analysis, concept design, and implementation pathways as mutually informative components of a singular project narrative.

Outside of the U.S., ONE works on projects in Latin America and South East Asia. For the Asian Development Bank, ONE led the development of the central zone in New Clark City, where the re-naturalized river combines flood protection with a central park. In Tacloban, also in the Philippines, ONE work with Wetlands International on the restoration of the protective mangrove belt. In Indonesia, they led a team for Water as Leverage in Semarang, and are currently, with Deltares, assisting the national government and the World Bank with the National Urban Flood Resilience Program. In Panama City, they teamed with Wetlands International on the Juan Diaz flood protection plan. In Argentina, ONE co-developed a vision for the Parana Delta. In all these projects, ONE work on the integration of nature-based solutions to provide climate adaptation in urban environments while capturing the diverse ecological, economical and carbon sequestration benefits.

[www.onearchitecture.nl](http://www.onearchitecture.nl)

Contact: Matthijs Bouw, [bouw@onearchitecture.nl](mailto:bouw@onearchitecture.nl)

(Left page) From top to bottom: The BIG U (2014); East Side Coastal Resiliency (ESCR) Project (2014 - present); Climate Ready Solutions for East Boston and Charlestown (2017); East Harlem Resiliency Study (2018); Moakley Park Vision Plan (2019).

(Right page) From top to bottom: New Clark City (2018); Water as Leverage: Semarang (2019); Panama Water Dialogue (2017).



## Matthijs Bouw

### Founding Principal

One Architecture & Urbanism (NYC), One Architecture (AMS)

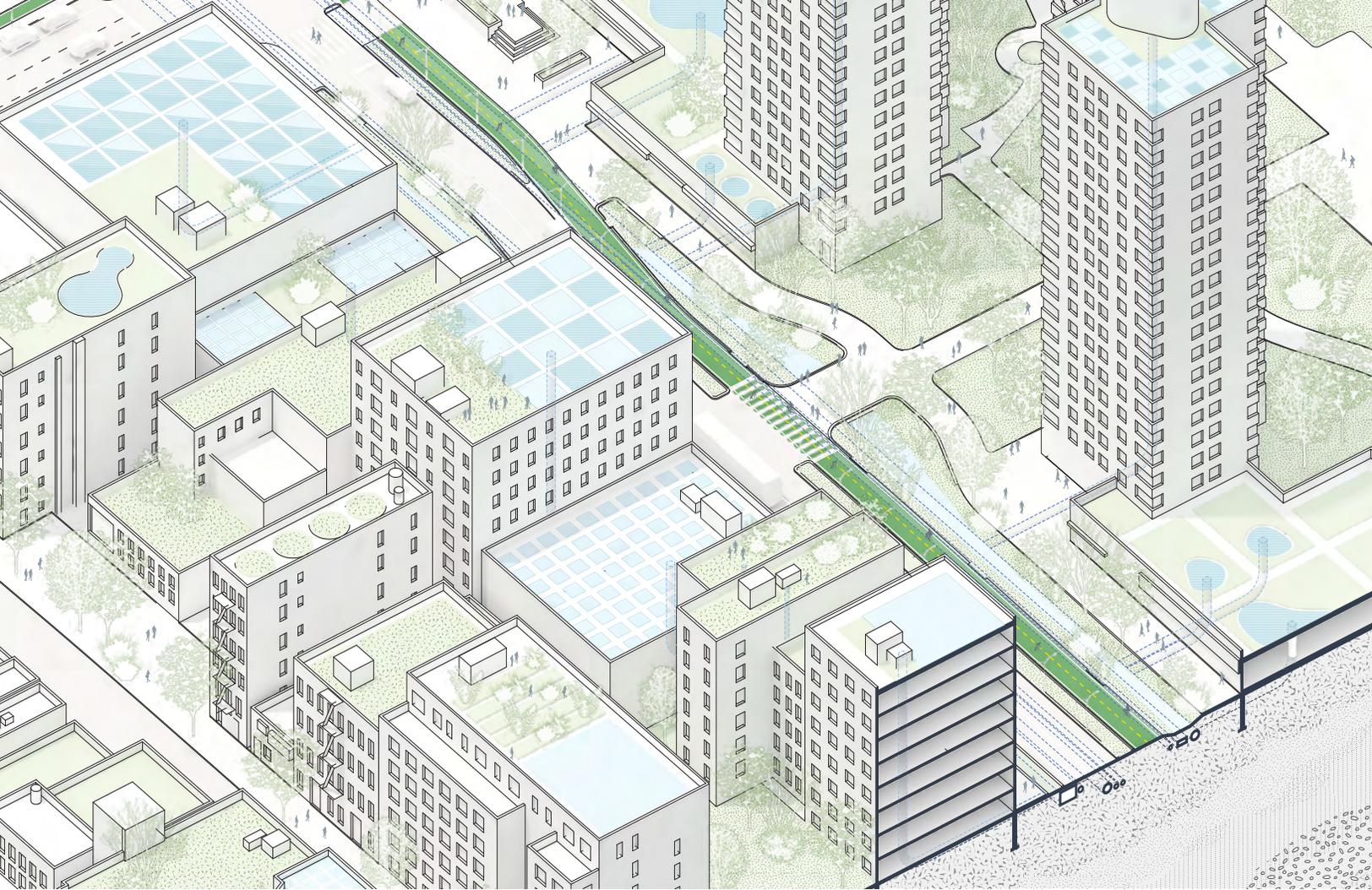
[bouw@onearchitecture.nl](mailto:bouw@onearchitecture.nl)

+1 203 612 5977

Matthijs Bouw is a Dutch architect and urbanist, the founder of One Architecture, an award-winning Amsterdam and New York-based design and planning firm. Bouw's practice is known for its unique approach in which programmatic, financial, technical, and organizational issues are studied, communicated, and resolved through design. Bouw has pioneered the use of design as a tool for collaboration. He led the development of 'Design Studios' to support the Netherlands Ministry of Infrastructure and the Environment's long-term planning, yielding notable projects such as the Deltametropolis Studio and Randstad 2040. More recently, this approach has found an important application through a body of climate adaptation and resilience projects across the U.S.

Bouw directs the Urban Resilience Certificate Program for the University of Pennsylvania Stuart Weitzman School of Design, where he is Associate Professor of Practice and the McHarg Center fellow for Risk and Resilience. He is also a member of the Faculty Advisory Board of the Water Center at Penn. Bouw's work at UPenn theorizes and positions design as an integrator and innovator among scales, disciplines, actors and issues in urban resilience and water management projects. Additionally, he researches how to achieve and increase 'resilience value' in the implementation of complex projects. Bouw has authored numerous publications, including contributing to the ULI report, 'Ten Principles for Building Resilience.'

In his practice, Bouw combines work on strategic planning, such as New York City's Climate Adaptation Roadmap and Boston's CRB Downtown, with implementation projects. The office works on flagship resilience projects in New York, Boston and San Francisco. A co-leader of the BIG Team that won the Rebuild by Design competition for the flood protection of Manhattan, ONE is currently part of the multi-disciplinary teams executing the first phase of the East Side Coastal Resiliency project for Lower Manhattan, as well as planning the Lower Manhattan Coastal Protection project. In Panama City, Bouw is the urban designer in the 'Water Dialogues' team. In the Philippines, he is the urban planner for the Asian Development Bank on New Clark City, and works on nature-based disaster reduction in Tacloban. In the Netherlands, One are part of the 'Hackable City' team for Buiksloterham, a large scale brownfield redevelopment in Amsterdam-Noord based on the principles of the circular economy. .



## East Harlem Resiliency Study | New York, NY

ONE was commissioned by the NYC Department of Parks and the Mayor's Office of Recovery and Resiliency as part of a multidisciplinary team to develop a resilience study for the neighborhood of East Harlem, Manhattan, extending from 92nd to 154th Street.

The end result of this study is a vision plan for all of East Harlem making recommendations for integrating storm water management and coastal protection with open space planning and social resiliency incorporated throughout the neighborhood. Through an innovative stakeholder outreach strategy, the team is partnered within a local DREAM Academy in order to closely collaborate with community institutions and residents while offering a curriculum in resiliency planning to DREAM scholars in high school.

One aim of the study is to create "pilots" throughout the life of the project – rather than just plan for resiliency, the team is working to build a culture of resiliency in East Harlem through project activities. The resiliency planning curriculum at DREAM exposes students to principles and professional methodologies related to neighborhood mapping, analyzing social vulnerability, and designing green infrastructure. This effort will result in the publication of a 20-lesson curriculum made available for other schools to teach, and demonstration projects by the students across the neighborhood.

**Client Reference:** Alda Chan, Project Administrator for Planning  
NYC Department of Parks and Recreation (NYC-DPR)  
(e) [alda.chan@parks.nyc.gov](mailto:alda.chan@parks.nyc.gov)

**Date of Services:** October 2017 - October 2018

**Collaborators:** Starr Whitehouse Landscape Architects, Langan, NYU  
Institute for Public Knowledge (IPK), Urbanomics,  
Sam Schwartz Engineering



One of the team's proposed pilot projects to combat the bathtub effect in East Harlem was an integrated stormwater management/green infrastructure project along 106th Street paired with a reconfiguration of the right-of-way to better accommodate pedestrians, cyclists, and buses.



## Circular Buiksloterham | Amsterdam, The Netherlands

Buiksloterham is a reclaimed brownfield area in Amsterdam-North currently under long-term redevelopment. The Economic Board of the City of Amsterdam assigned Buiksloterham the status of Innovation District / Urban Living Lab. A traditional, large-scale, top-down masterplan was designed, but due to the current economic crisis and the level of pollution in certain parts of the neighborhood, all development came to a standstill. A number of stakeholders took this chance to develop this area using a new grassroots approach consisting partly of individual initiatives and partly of collaborations between invested urbanists, shaping an encapsulated neighborhood based on the concept of a circular economy. One Architecture is both a leading planner and participant in this development.

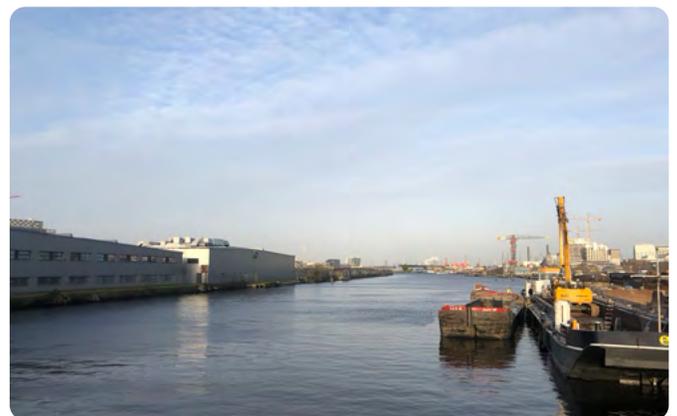
As of this year, the collective has completed the construction of eight projects with a total of 280 housing units and 60,000 square feet of commercial space. The neighborhood is now slated to house more than 8,000 new residents. One Architecture also served as the chief architect of ELTA, a 16-unit apartment building in Buiksloterham, which was co-developed with a group of future tenants and Bot Bouw Initiatief.

As other elements of Buiksloterham progress toward implementation, One has continued its relationship with the district and project partners in an advisory and supervisory role.

**Client Reference:** Frank Alsema,  
Stichting Coöperatie Buiksloterham  
(e) [frank@buiksloterham.nl](mailto:frank@buiksloterham.nl)

**Date of Services:** 2013 - Current

**Collaborators:** The Mobile City, Delva Landscape Architects, Bot Bouw Initiatief



Buiksloterham is ONE's flagship project for integrating energy efficiency and circular systems (energy, waste, water, and construction) into resilient upgrades to a waterfront neighborhood in Amsterdam-Noord.

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One Architecture (AMS)  
Johan van Hasseltkade 306 | 1032 LP Amsterdam, NL  
+31 20 470 0040 | office@onearchitecture.nl



One Architecture & Urbanism (NYC)  
35 E. Broadway #5C | New York, NY 10002  
+1 917 261 5809 | office@onearchitecture.nyc