6M DEVELOPMENT
WATERSTUDIO.BLUE

CHARLESTOWN NAVY YARD
PIER 5 - RFP SUBMISSION

4th JANUARY 2021

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2. DEVELOPMENT SUBMISSION

January 6, 2021

Teresa Polhemus
Executive Director / Secretary
Boston Planning and Development Agency
12 Channel Street
Municipal Protective Services Desk, First Floor
South Boston , Ma 02210

RE: Letter of Interest – Pier 5 RFP

Ms. Polhemus,

On behalf of the development team, 6M Development LLC is pleased to submit this response to the city of Boston's Request for Proposals regarding the redevlopment of Pier 5 in Charlestown. The proposed development is, in our opinion, the highest beneficial use for Pier 5 and its surroundings. The partial demolition and partial repurposing of portions of Pier 5 will enable the addition of high quality, highly sustainable, LEED certifiable, climate resilient, low impact development floating multifamily housing to the housing stock of the Charlestown neighborhood. This proposal will positively transform this portion of the Navy Yard that has been abandoned for years.

The project will also provide a significant number of additional amenities to the Navy Yard and surroundings. Water access, through a new water shuttle stop and through additional boat slips for tenants of the housing, will be provided. Traffic demand management principles will be enacted within the project and will provide an 'out of the box' design that will sustain climate fluctuations and will be resilient to flooding. The proposed project is composed of 138 housing units, a restaurant space facing the water, passive parks, a water shuttle stop, and the inclusion of new biodiversity in the form of floating salt marsh, that will promote new habitat for several aquatic reliant species.

We feel that we have assembled an elite team of design, legal, entitlement, and development professionals that will execute on this concept navigating through any complexities that may be encountered. Please find attached to this letter, the contact information of the Proponent's team. Please feel free to contact William Caulder at 617-320-1420 with any questions regarding the response to this RFP. Thank you.

Sincerely,

William Caulder
6M Development LLC

Enclosures: RFP submission

CC: Gosder Cerilus
Gregg Nolan
Alfred Carrier
Richard Coutts
Koen Olthuis

A. II. DEVELOPMENT TEAM EXPERIENCE

Lead Developer - 6M Development
William Caulder is the founder and Principal at 6M Development LLC, where he is currently performing all aspects of development in the Northeast market including a proposed 135 key boutique hotel in the North End of Boston, MA. A 66 unit condominium mixed use project in East Boston, MA was completed in 2017 as well as 140 unit multifamily development in Quincy, MA, and a 244 unit multifamily development in Boxborough, MA. William has developed several other multifamily rental, condominium and office opportunities throughout the New England area.

Prior to starting 6M Development, William worked as the Managing Director at The Gutierrez Company, one of the top ten development companies in New England, which is based in Burlington, Ma. The Gutierrez Company has development over 10 million square feet of space and has another 8 million square feet of permitted land holding ripe for built to suit opportunities. At The Gutierrez Company, William was responsible for managing all residential development and select commercial projects for the company, performed all aspects of development from "concept to keys" on all projects including originations, acquisitions, local, state, and federal entitlements, design team and consultant selection and oversight, debt and equity placement, general contractor procurement, and leasing and sales transactions.

Prior to The Gutierrez Company, William was the Senior Project Manager for Simpson Housing LLLP, where he and a Senior VP established the Boston office for the region originating multifamily housing deals in the Northeast -Primarily Boston, New York, and Washington DC. The most notable project was the Victor near North Station. William, performed all aspects of development in the Boston market and structured joint venture agreements and placed equity with development partners in the NY and DC markets.

Prior to Simpson Housing, William worked in Acquisitions, Finance, and Development for Modern Continental, one of the largest civil contractors for the Central Artery Tunnel Project in Boston.

Co-Developer - Bastion Companies
Gosder Cherilus is Founder & CEO of Bastion Companies, a M/WBE owned diversified holding company. Prior to forming Bastion Companies, the Somerville, MA native was an owner of Eagle Development Partners, ("Eagle"). Formed in 2010 for the express purpose of developing real estate for his "life after football" with a focus on developing and permitting real estate projects in Maine, Massachusetts and Pennsylvania. As Eagle's Managing Partner, Gosder was responsible for setting the overall direction of the firm. Prior to starting Eagle in 2010, Gosder spent nine (9) seasons in the NFL and was a starting right tackle for the Detroit Lions, Indianapolis Colts and Tampa Bay Buccaneers. On March 16, 2017 Gosder officially announced his retirement from professional football. Gosder graduated from Boston College where he played on a football team with one of the highest winning percentages in school history.

Kelly King is COO of Bastion Companies and owner of Atlanta firms K King & Co. and Ypiretis Asset Management. Prior to founding these companies, Ms. King worked as Senior Asset Manager for State Street's private equity group, The Tuckerman Group. In addition to managing UBS investments in several states, Ms. King was appointed to State Street's Carpathia Real Estate Advisers to oversee Citigroup Pension Plan investments in AEW, CarVal, GTIS Partners, Landmark and Hines I & II. Before State Street, Ms. King was a Senior Asset Manager at Yale's University Properties group and the Office of New Haven

& State Affairs with oversight for the school's real estate investments and community relations. Ms. King's career began as Manager of Real Estate for Loews Corporation with membership on the Real Estate Board of New York (REBNY.) Ms. King has a BA in English Literature from Wellesley College and MMH in Real Estate from Cornell University. Ms. King is a member of the Wellesley College Alumnae Association, the Cornell Society of Hotelmen, the Regina Winters Professional Development Fund of New Haven (in partnership with LEAP), the Boston Athenaeum, Westside Future Fund and Delta Sigma Theta Sorority, Inc. Board memberships include Morris Brown College and Zoo Atlanta.

Design Architect - Waterstudio Blue (Waterstudio NL)
Koen Olthuis studied Architecture and Industrial Design at the Delft University of Technology. In 2007 he was chosen as no. 122 on Time Magazine's list of most influential people in the world due to the increasing worldwide interest in water development. In addition, the French magazine, Terra Eco, choose him in 2011 as one of 100 green persons that will change the world. According to his vision, today's designers are an essential part of the climate change generation and should start to enhance their perspective by considering urban components that are dynamic instead of static. His solution, called City Apps, are floating urban components that add a particular function to the existing static grid of a city. Using existing urban water as building ground relieves space for a new density, providing worldwide opportunities for cities to respond flexibly to climate change and urbanization.

Design Architect - Waterstudio Blus (BACA Architects)
Richard Coutts founded Baca in 2003. Richard is a Chartered Architect with over 15 years experience. With a Master's degree in daylighting and PV technology from Sheffield University, he is particularly interested in renewable energy, sustainability and low carbon design. He has directed large high profile projects such as the Eiland Veur Lent in Nijmegen - a new 'eco-leisure' destination in The Netherlands; the Waterspace Strategy for UNESCO World Heritage Site – Liverpool South Docks and an array of high quality one-off architectural projects for private clients. Richard has also designed several unique memorials for Her Majesty's Royal Marines and is a professional illustrator. He formerly worked for Sir Terry Farrell & Partners and Dr. Ken Yeang in Malaysia and Australia, including working as resident site architect for the Guthrie Pavilion – Winner of Aga Kahn Best Building in Asia 2000.

Architect of Record - Group One Partners
Harold (Harry) Wheeler brings a thorough knowledge of design and construction, combined with thoughtful attention to detail and use of materials. Since joining the firm in 1996, he has been involved in all aspects of the design and construction projects for numerous hospitality, restaurant and multi family housing projects. Group One Partners, Inc. is an award winning design firm specializing in architectural, interior design, and procurement services for hospitality properties. Using a collaborative design approach with an emphasis on client relations and attention to detail, we create a streamlined design process to ensure all client projects are completed on time and within budget. Since the company's inception in 1970, Group One has designed and supervised nearly 3,000 projects across the globe including hospitality, residential, and multi-family properties, assisted living and elder care facilities, and retail spaces. With an unwavering commitment to designing high quality and aesthetically pleasing properties, we capture our clients' visions – and turn them into reality.

Debt and Equity - JMB Financial Advisors / Goedecke and Company
Steve Lovelette is the President of JMB Financial Advisors, a real estate investment advisory firm that utilizes its extensive experience in real estate and the capital markets to provide customized capital solutions including debt and equity, for acquisition, recapitalization and development of all real estate asset types. JMB Financial accesses institutional capital on behalf of real estate investors seeking a capital partner to either purchase institutional real estate of any product type or to recapitalize an existing partnership. We will analyze the deal structure and our client's needs to identify the appropriate capital structure.

Jeff Charneski is a Principal Goedecke and Company, based in the Boston office. Jeff has over 20 years of experience in the capitalization of commercial real estate, including placement of first mortgage loans, subordinate debt, institutional joint ventures and private equity. Over the course of his career, Jeff has advised his clients on virtually all property types and stages of development in every phase of an economic cycle.

After graduating from the University of Connecticut's Center for Real Estate in 1995, Jeff began his career as an analyst in Meredith & Grew's (now Colliers) capital markets group. Jeff left as a Vice President in 2003 to join Goedecke & Company and move into a production role. Based upon his success in this new role, Jeff was made a Principal of the firm in 2007. Jeff grew up in central Connecticut moving to Boston after college. He currently resides in Sherborn, Massachusetts with his wife and twin daughters.

Land Use / Environmental Attorneys - Michael Leon & Matthew Snell

Michael Leon is a partner in Nutter's Real Estate Department, and a member of the Development, Land Use and Permitting practice group. His practice is concentrated in the areas of environmental, land use, zoning, municipal and real estate law. Michael's environmental practice includes the representation of municipalities, public authorities and business entities in infrastructure development, wastewater regulation, water supply, wetlands and waterfront development, solid waste, and other regulatory matters. He counsels commercial and industrial clients in all aspects of environmental regulation. Michael has been a member of NAIOP's Executive Committee, served as chair of the Regulatory Committee of the Massachusetts Clean Water Council, past chairman of the Boston Bar Association's Solid Waste Committee, and is co-chair of the Private Bar Campaign of MetroWest Legal Services. He also serves on the Board of Save the Harbor/Save the Bay.

Matthew H. Snell is a partner in Nutter's Real Estate Department and Development, Land Use and Permitting practice group. He focuses his practice on the development and use of land, with a concentration in zoning and permitting matters, environmental enforcement and compliance, and real estate transactions. He has significant experience practicing in front of local, state, and federal boards and agencies in matters involving zoning and land use, regulatory permitting and enforcement matters, and the development of contaminated properties.

Permitting/Regulatory - Fort Point Associates/Tetratech

Jamie Fay is the founder and president of Fort Point Associates, Inc., a multi-disciplinary planning and environmental consulting firm. Mr. Fay has been the principal-in-charge and lead consultant for the past 35 years for a variety of master planning, real estate development and public infrastructure projects. Notable public sector projects include the $2 billion Wynn Boston Harbor Resort, $850 million Boston Convention and Exhibition Center, and the $14 billion Central Artery/Tunnel project. Private sector projects include over $4 billion in real estate development for retail, commercial, industrial, residential, and institutional uses.

Prior to founding the firm in 1985, he held senior positions in multiple public and private organizations. Mr. Fay was a senior planner for four years with the Executive Office of Environmental Affair's Coastal Zone Management Program, developing environmental policy for activities within coastal communities and assisting in the preparation of state wetlands and waterways regulations. As vice president of a private environmental policy consulting firm for five years, he provided strategic advice to public sector clients, which included developing new regulatory programs for the Department of Environmental Protection. Mr. Fay is a member of the American Institute of Certified Planners and a Certified Environmental Planner, the former Chairman and member for 26 years of the Ipswich Finance Committee, Vice President and Trustee of The Boston Harbor Association in Boston for 25 years, Trustee of Boston Harbor Now, and a member of the Public Affairs committee of the National Association of Office and Industrial Properties (NAIOP).

Civil and Traffic Engineering - Howard Stein Hudson
Tom Tinlin leads Howard Stein Hudson's talented group of transportation planners and civil engineers in helping clients realize their visions. Being at the center of mobility and transportation in Boston for the past 30 years, Tom has a unique perspective on the merits and challenges facing development projects. Tom works with our exceptional team to deliver modern sustainable development projects in a seamless manner.

Tom was the longest serving Commissioner of the Boston Transportation Department in the City's history and also served as MassDOT's Highway Administrator. His leadership in rolling out the All Electronic Tolling Conversion along the MassPike garnered Tom the American Public Works Association's Professional Transportation Manager of the Year Award. Tom also recently received the Ray LaHood Award from the Women's Transportation Seminar (WTS) for his advocacy in advancing women in transportation.

Sustainability - EBI Consulting
Mike Eardley joined EBI Consulting in 2018 as the Director of Energy and Sustainability and has more than 20 years' experience in energy consulting, commissioning, and mechanical engineering. Mike's professional industry experience spans higher education, healthcare, laboratory, K-12, and government facilities. He is a professional engineer in Massachusetts and Maine, LEED accredited in building design and construction, and a certified commissioning professional. Mike has a Bachelor of Science in mechanical engineering from the University of California at Berkeley and a Master of Science in mechanical engineering from the University of Colorado. He is affiliated with the Building Commissioning Association, the Building Commissioning Certification Board, US Green Building Council, American Society of Heating, and the Association of Energy Engineers. He works out of EBI's Burlington, MA headquarters.

Environmental - EBI Consulting
Nolan Previte joined EBI Consulting in 1991 after receiving a B.S. in Biology and an MBA from Boston College. Nolan possesses over 28 years of experience in environmental and property condition due diligence, energy and sustainability, CMBS, construction consulting, and agency lending. He has successfully recruited and managed a national sales force, while creating successful partnerships with the most prominent real estate finance, global investment, and commercial banking companies in the United States. As President of the company, Nolan's focus at EBI is overall company leadership, corporate communications, key real estate account development, and continued building of a high-performing leadership team. Nolan resides with his family in Massachusetts and operates out of EBI's corporate headquarters in Burlington, Massachusetts.

Local and State Government Relations – The Nolan Group
Gregg Nolan, President of The Nolan Group, has an extensive background in both government and business. He served in state and federal government, including staff positions with former United States Representative Joseph Kennedy (D-MA, 8th) and current United States Congressman Michael Capuano (D-MA, 8th). Gregg has built an unparalleled network of contacts in Massachusetts, Maryland and Washington, DC.

Prior to establishing his own practice, Gregg was the Senior Vice President of the Government Insight Group, a Boston based government and public affairs firm. Additionally, Mr. Nolan served as Director of Government and Community Affairs for Forest City Enterprises, one of the nations largest retail, residential and commercial real estate developers. In this position he was responsible for creating and implementing complex government, community and public relations strategies.

OPM / Construction Management Services – Carrier and Associates, Inc.
Al Carrier established Carrier and Associates to continue his remarkable success story of over 30 years of providing high quality project management, consulting, engineering and construction services for both public and private clients. His most recent achievement involved being the program manager for the largest privately funded public infrastructure roadway project in the Commonwealth of Massachusetts. The $65M offsite roadway improvement projects and MBTA Station improvements, was just Mr. Carrier's latest successful project. Over the span of his career Al Carrier has managed many projects including private development, water, wastewater, stormwater, transportation, water security and emergency response plans.

Geotechnical – Haley and Aldrich
Mark Balfestarted his career at Haley & Aldrich in 2000 and since then has collaborated with clients as a project engineer, project manager, and most recently, a principal. As an integral member of his clients' teams from the earliest phase of a project through completion, he partners with clients and team members on a project to understand the project goals and identify shared solutions.

MEP/FP Engineering – R.W. Sullivan
Paul Sullivan serves as the President of R.W. Sullivan Engineering and has for the past 15 years. He first joined R.W. Sullivan Engineering in 1991 and started the firm's Code Consulting Group. He is involved with project management, code consulting, fire modeling, the design of plumbing, fire protection, fire alarm systems, and department leadership throughout his leadership.

Paul has been an Adjunct Professor for the Wentworth Institute of Technology's Architecture Department and presents seminars yearly for the Boston Society of Architects and the Boston Architectural Center, where he is on the board of overseers. He also prepared the publication Performance-Based Design of Structural Steel for Fire Conditions, while chair of the American Society of Civil Engineers Committee on Fire Protection.

Hospitality – Navy Yard Hospitality Group
Charles Larner – An established leader in the hospitality and venture capital industry for over 15 years, Mr. Larner has extensive management experience overseeing both independent and franchise restaurant locations. Mr. Larner has been the driving force for the growth and success of NYHG restaurants. Navy Yard Hospitality Group is a Boston based restaurant group with landmark locations in Faneuil Hall Marketplace, Logan Airport, and along the city's vibrant waterfront. Current restaurant brands include ReelHouse in East Boston and Quincy, Reel House Oyster Bar Seaport, Mija Cantina, and Pier 6 in Charlestown.

Leasing - RESIS
Tina Bacci - Well experienced in the Boston market, RESIS employs onsite leasing specialists that have solid experience in large lease-ups, new construction leasing, conversions, and asset management. They stay up to date on rental issues through IREM and are supervised by a specific Certified Property Manager for each property.

Local Zoning Attorney
Daniel J. Toscano is a founding partner of Drago + Toscano, LLP. His practice focuses on real estate, government relations, and criminal defense. Thanks to the sixteen years he spent at the State House working as a top aide and eventually Chief Legal Counsel to the Speaker of the Massachusetts House of Representatives, he possesses an excellent command of city, state, and community government, as well as the legislative process generally. He works closely with elected officials and governmental agencies on behalf of clients' specific goals. Attorney Toscano's chief focus is real estate and zoning law. He has extensive knowledge of and experience with the City of Boston Zoning Code. Daniel works closely with State and Municipal officials and neighborhood civic associations in zoning, land use, and licensing petitions.

A. III. CONTACT INFORMATION OF ALL DEVELOPMENT TEAM MEMBERS

Lead Developer:

William Caulder
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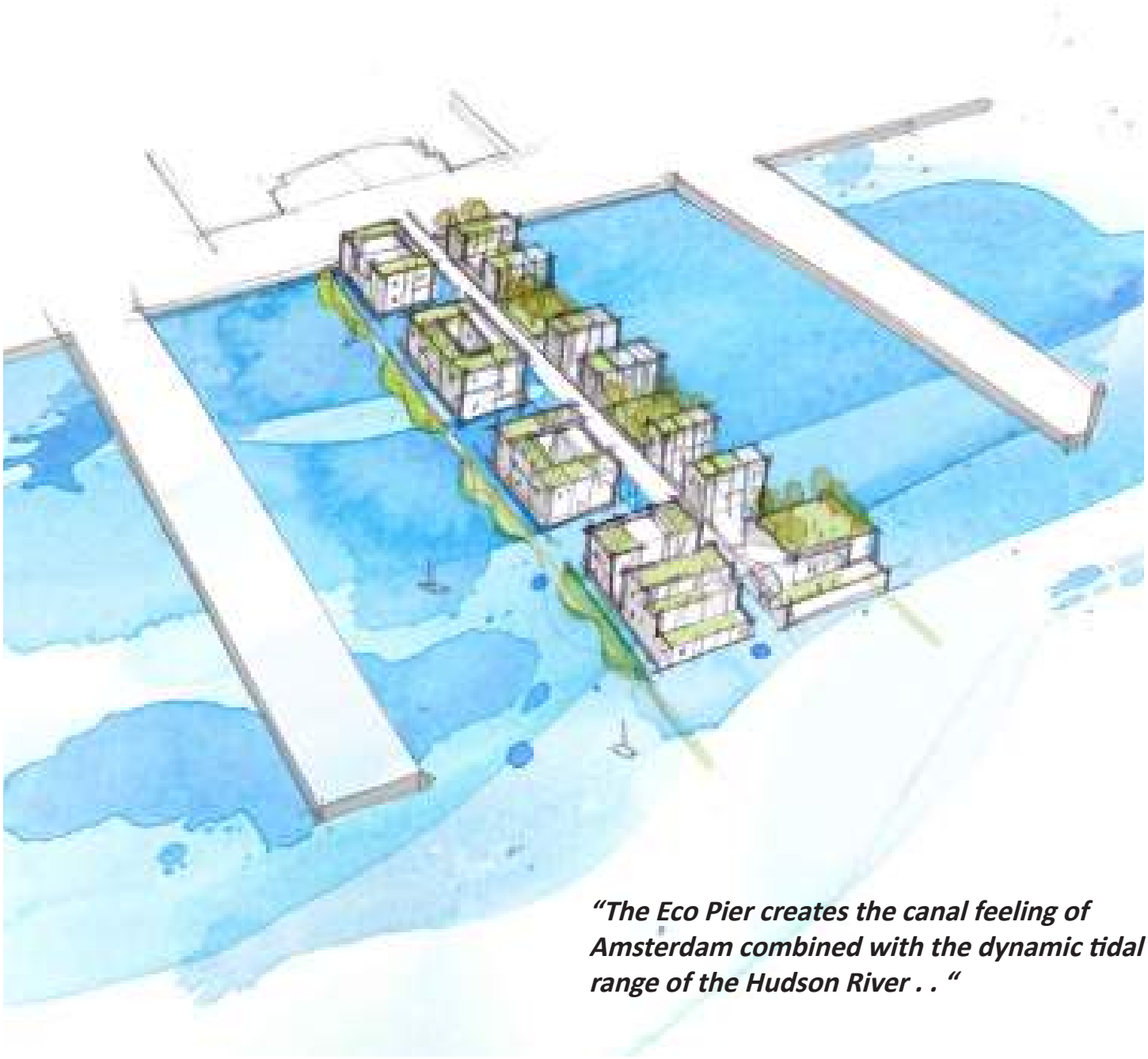
RIGHT: Publications either by or featuring the work of Koen Olthuis and Richard Coutts

B. DESIGN CONCEPT



"The Eco Pier creates the canal feeling of Amsterdam combined with the dynamic tidal range of the Hudson River . . "

Aerial view of the new pier

By repositioning Pier 5 in the Charlestown Navy Yard in Boston, Baca Architects and WaterStudio.NL (WaterStudio.Blue) provide an intelligent, sustainable and adaptable solution to changing water levels. By selectively demolishing and retaining parts of the pier to create four sturdy islands that become anchoring points for WaterStudio.Blue's unique floating homes, the pier merges the canal feeling of Amsterdam with the dynamic tidal range of Boston's Inner Harbor.

The design creates much needed housing, economically and safely fit for the challenges of climate change while designing an iconic architectural structure. The anchoring points are created by removing the unwanted elements of the pier and piling around the edges to create a retaining wall that forms a cofferdam. The void behind the dam is infilled and capped to form an island. The water spaces between the islands are filled with floating homes, built off large floating structures. These structures are tethered to the floating islands on flexible moorings but allow the homes to rise in full with the tide in a stable way.

These homes on top of the floating structures are built using modern methods of construction – consisting of structural highly insulated prefabricated timber panels that allow for rapid construction and also lets the end users benefit from low energy bills. The roof tops will also maintain the high levels of thermal performance in their construction mounted with solar pergolas to provide a sense of enclosure for those using the rooftops and will also easily collect renewable energy from the sun.

These floating homes will provide four stories of accommodation with three and a half sitting above the waterline and no higher than 35 feet above the existing pier height. The lowest floor is half a story below the waterline with windows above and will sit within the flotation unit that provides buoyancy to the rest of the structure.

The islands will consist of a combination of townhouses, duplexes and apartments with amenity space provided in the form of balconies and rooftop terraces. The islands are connected to the mainland by a spine or harborwalk that runs from the landward side to the end of the pier to allow ease of access for pedestrians and for emergency vehicles. All movement will occur from this central harborwalk. This design means residents can arrive by foot and boat. Some dwellings will have access to a boat slip and ample space is provided for a water shuttle stop.

Solar pergolas a top the floating homes

Each island park will have its own character, providing different types of amenity which allows each area to have its own identity and collectively have a greater sum than its individual parts.

i. The proposed development is composed predominantly of multifamily residential with a retail/restaurant component, seasonal boat slips, a water shuttle stop, bike ride share, and an integrated harborwalk, and the total square footage of each use is as follows:

Residential:	172,000 sf
Retail:	1,200 sf
Restaurant:	2,500 sf
Dockage:	6,100 sf

ii. The proposed uses and design will satisfy the Development Objectives of this RFP by incorporating green building, climate resiliency, low impact development with appropriate storm water infiltration, a reduction in greenhouse gas emissions through LEED principals, floating wetlands to promote new habitat, green roofs with plantings, open space, resilient design elements, geothermal heating and cooling, community space and the activation of the water sheet in the inner harbor.

The potential for photo voltaic solar is also being considered pending design as well as materials that will have low VOC's, toxins, and hazardous chemicals. The construction materials will be sourced to potentially include products made with recycled and reclaimed materials and materials and products that are responsibly harvested or from rapidly renewable sources. There will be emphasis on locally sourced products and materials (within 500 miles) as well.

With regard to innovation, technology is always evolving, so the plan will be to utilize both "off-the-shelf" products and practices as well as innovative strategies and "cutting edge" products to increase the sustainability and performance of the building, without being left with static products that won't or can't evolve or be updated.

iii. The community benefits supported by the development will be the activation of the water sheet, that will include access to the water through an extended harborwalk, quality residential housing units, boat slips, a water shuttle stop, and the integration of floating wetlands that will restore long lost habitat for aquatic reliant species. The new harborwalk will extend out into the water (currently Pier 5 is condemned), quality accessory retail to support the surrounding buildings and the project and restaurant space that will be a destination for residents, tourists and passersby alike.

iv. The proposed development will benefit the surrounding community through adding temporary and subsequently permanent jobs in the Navy Yard. Jobs will be in the form of construction, management, and eventually capital improvements and maintenance on the project. The number of construction and permanent jobs that will be created are estimated to be 1,150 for construction and 22 for permanent jobs generated by the proposed development.

v. Narrative of Community benefits beyond those generated by the development itself

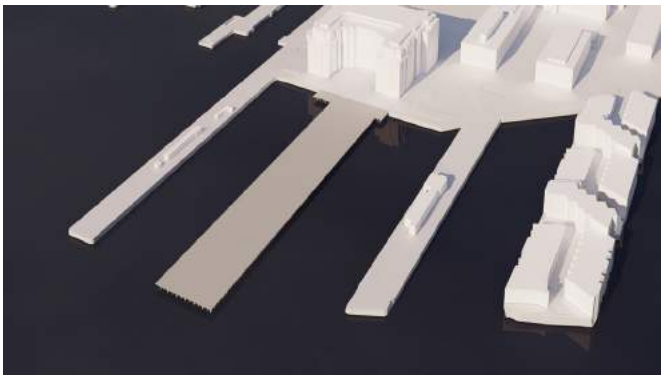
The addition of public park space and lawn areas throughout the development will add passive recreation areas for both residents and the public accessing the Harborwalk extension. These green spaces will be integrated and accessible to the public from the Harborwalk extension and will consist of integrated landscaping of native species dovetailed with the landscaped edges around the housing units and the Harborwalk. These passive recreation spaces will include walkways, trees, shrubs and lawn areas. Areas along the edges of the green spaces will offer great viewing spots that will include benches and viewing scopes to help draw residents and the public to these green spaces.

Another important amenity that will benefit the residents as well as visitors is a robust wayfinding signage program for the Harborwalk extension that will help to draw people to the Harborwalk. In addition, the wayfinding signage will dovetail and enhance the existing wayfinding signage throughout the Navy Yard and promote more connectivity with the existing Harborwalk on either side of the project.

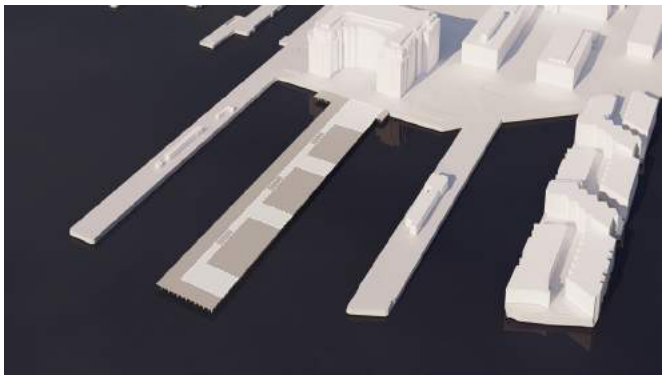
The history of the Navy Yard is another important factor that will be recognized throughout this project with wayside interpretive exhibits. This amenity, for both residents and visitors, is a creative and interactive way to highlight the history of the Navy Yard. Wayside interpretive exhibits can also be used to highlight the history of this section of Boston Harbor as well as the wildlife and local aquatic species that are encountered. Both programs will be designed and developed in conjunction with the National Park Service, Boston Parks Service and Boston Harbor Now as well as with the residents of the Charlestown Navy Yard. It is envisioned that the wayside interpretive exhibits will include both low profile and upright exhibits and will be placed strategically throughout the project. Re-use of existing nautical items such as crane rails, moorings, ship line and other relevant historical remnants from the site will help to authenticate these exhibits. The wayside exhibits and Harborwalk wayfinding signage will be located throughout the green spaces and along the Harborwalk extension.

Our early discussions with the nearest non-profit organization, Courageous Sailing, were positive and informative and they were interested in keeping abreast with the proposed project as well as working with the project team to discuss potential impacts as well as benefits that could be realized.

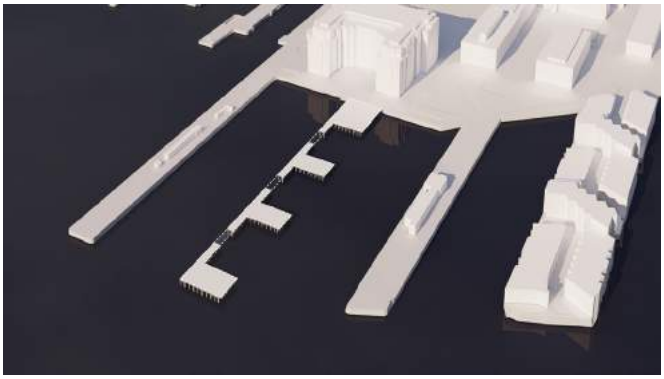
BUILD SEQUENCING



PHASE ONE - ASSESS AND DELINEATE DEMOLITION VS WHAT IS TO REMAIN



PHASE TWO - DEMOLISH ROUGHLY TWO-THIRDS OF THE PIER



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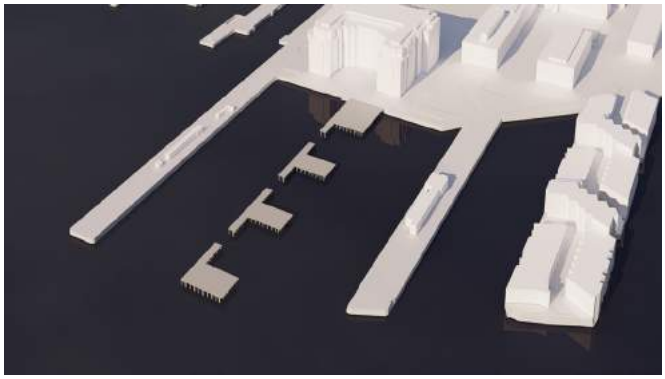

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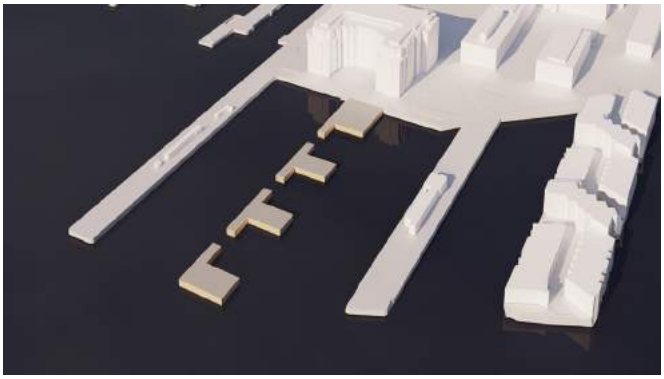

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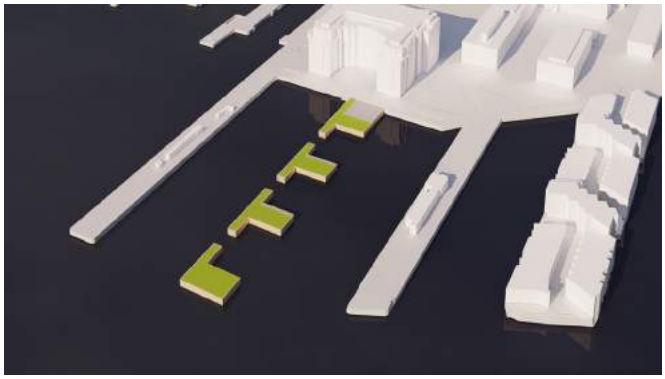
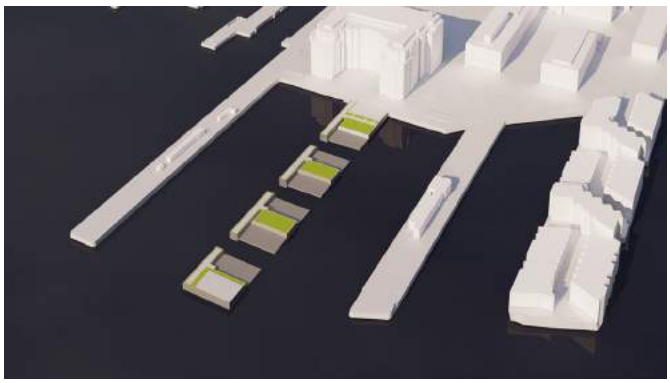


PHASE SIX - PREP COFFER DAM ISLANDS TO ACCEPT PARKS AND HARDSCAPE



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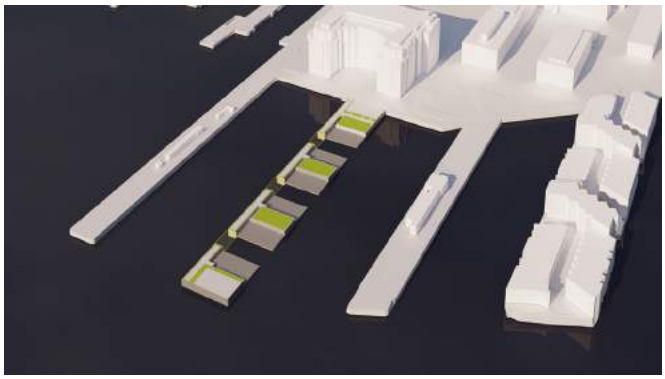

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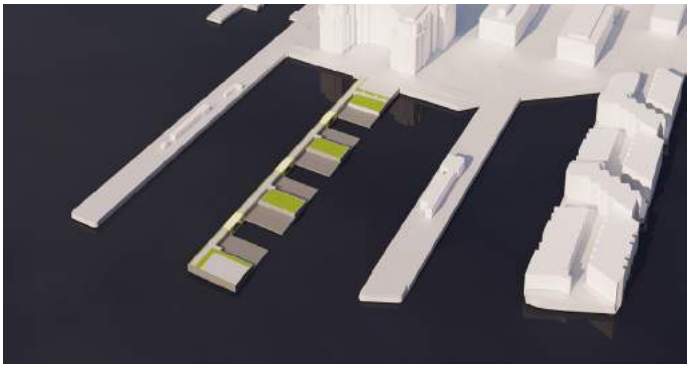
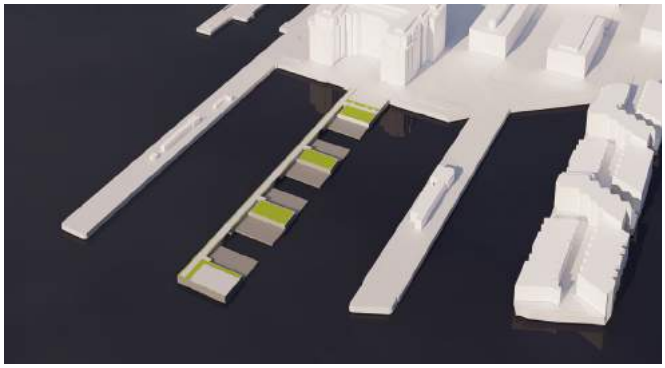


PHASE NINE- CONSTRUCTION BRIDGING TO COMPLETE CONNECTION OF ISLANDS



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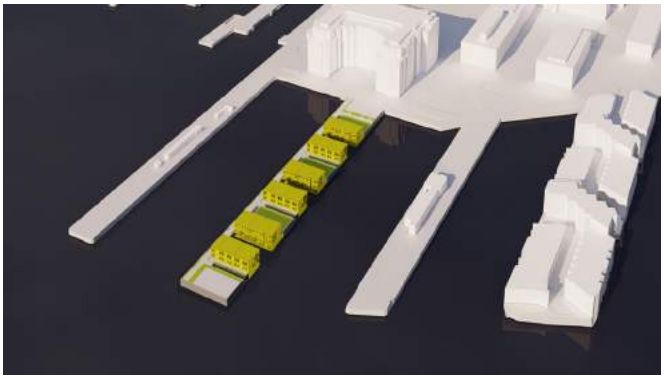

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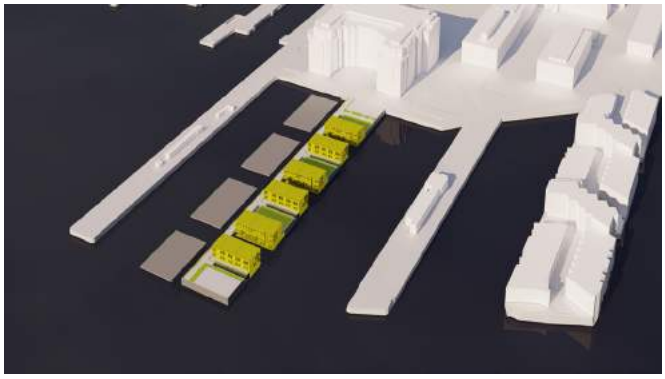

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PHASE FIFTEEN - PERMANENT DOCKS AND GANGWAYS INSTALLED

PHASE SIXTEEN - ALL LANDSCAPING, GREENERY, AND LIGHTING IS INSTALLED

EXAMPLE OF BUILT WORK > Schoonschip, Netherlands

The Johan van Hasseltkanaal, a side canal from the IJ river (in the north of Amsterdam), is a calm spot at the moment. But that will change: this will be the home of a floating neighborhood project called 'Schoonschip'. Literally, Schoonschip can be translated as clean ship.
The neighborhood consists of homes for 46 households and a community center on 30 floating plots. The first of the water homes will be realized in 2017, and by 2019 the most sustainable floating neighborhood in all of Europe, with in total 46 households and more than 100 inhabitants, will become a reality!
Sustainablity
• The water homes are well-insulated (EPC = maximal zero) and will not be connected to the natural gas network.
• The heat will be generated by water pumps, which extract warmth from the canal water, and passive solar energy will be optimized.
• Tap water will be heated by sun boilers in warm water pumps; all showers are equipped with installations that recycle the heat (WTW).
•We are producing our own electricity with photovoltaic solar panels. Every household has a battery in which temporarily unneeded energy can be stored.
• All water homes are connected to a communal smart grid. This smart grid makes it possible to trade energy efficiently amongst the households. 46 households will share only one connection to the national energy grid!
• Gray water (i.e. washing machine) and black water (i.e. toilet) will be 'flushed' by a separate source of energy. Waternet will eventually include us in their pilot project, which delivers the toilet water to a bio-refinery, in order to ferment it and transform it into energy.
• All homes will have a green roof covering at least one third of the roof's surface.

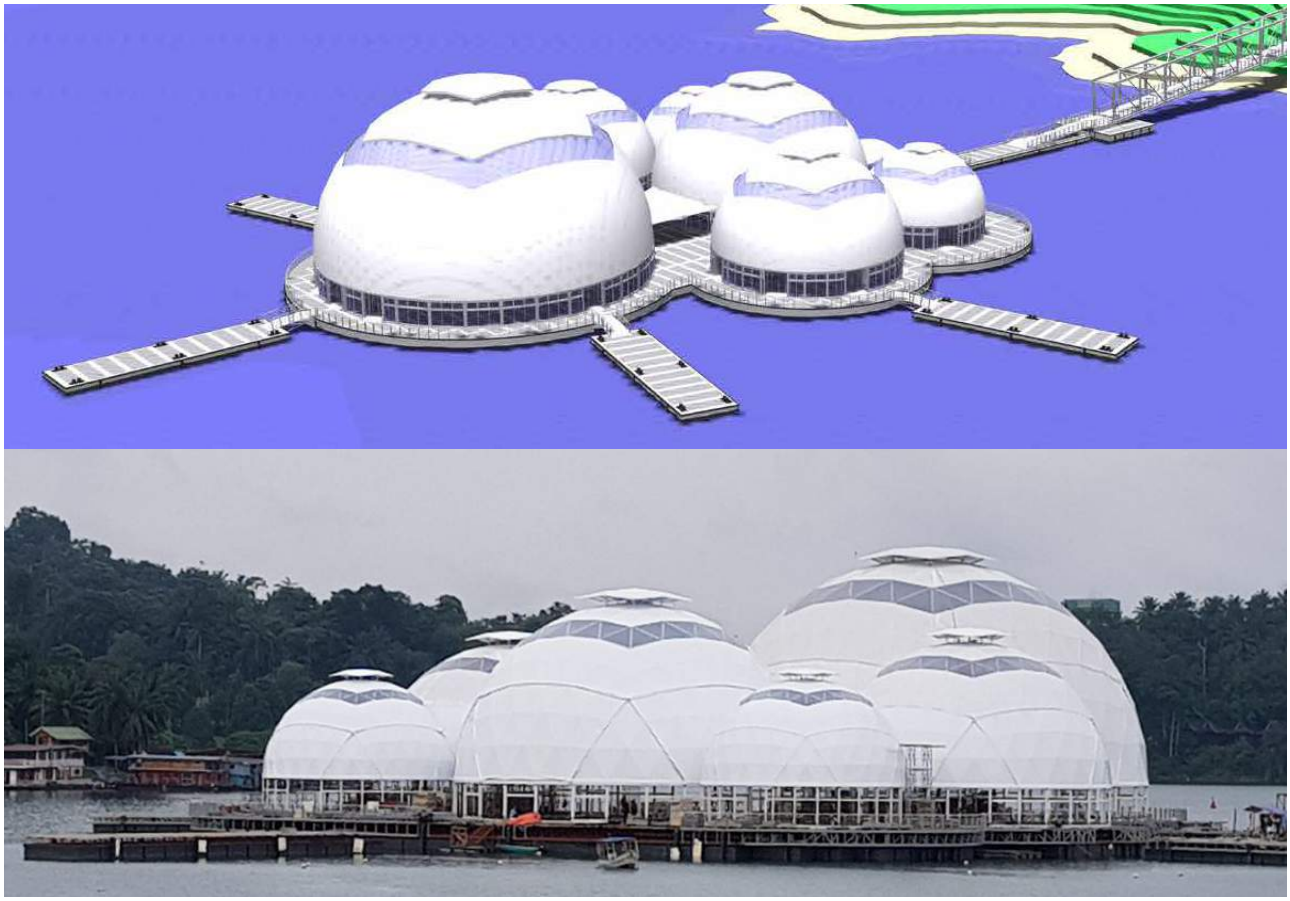
EXAMPLES OF BUILT WORK

Large floatation base constructed from lots of smaller units

The bases for the vessels can either be constructed from singular large units or from smaller units.

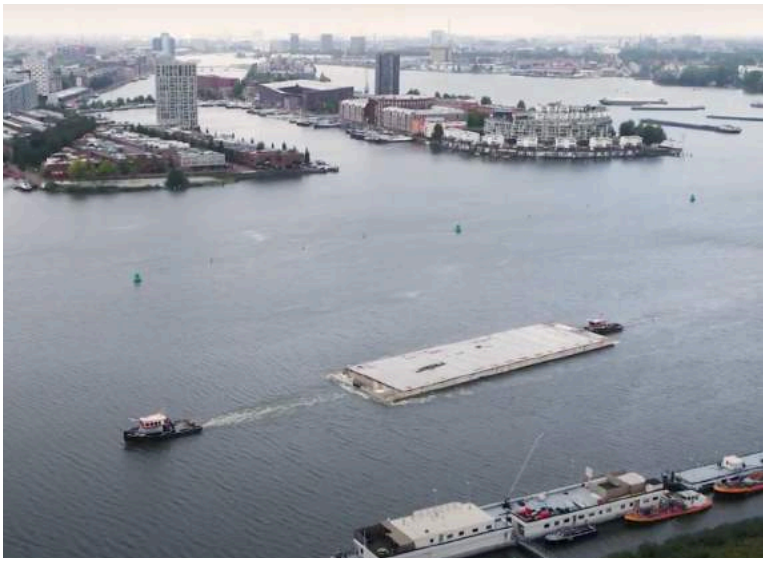
The small indivudual units tessellate to combine into larger structures.

The floating base is designed to accommodate pre-fabricated structures.



Precedent Image. Built floating pavilion.

EXAMPLES OF BUILT WORK



Large Concrete Hull - ready to receive accommodation at destination

SIPS panels for “The Chichester”

Floating Leisure appartments in the UK by Baca Architects

Floating theatre by Waterstudio in France

b. A DESCRIPTION AND ILLUSTRATION OF AUTO, BICYCLE, AND OTHER TRANSPORTATION CIRCULATION BASED ON URBAN DESIGN GUIDELINES

One of the biggest benefits to this project is that there are roughly 80-100 parking spaces "banked" in flagship Wharf that has been set aside for this proposal. Therefore, this will be the location for provided parking for the project. Parking at or on the proposed design is obviously not feasible. The project will promote car ridesharing services to be used as well as shared bike stations that can be installed on the landward side of the project to decrease the need for parked cars.

c. A Preliminary Zoning Analysis

A preliminary zoning analysis is attached as Exhibit F

d. A Written and Graphic Description on How the Proposal Satisfies Resilient Development and Green Building

Open Space and Public Realm

This proposal by its nature is one of the most innovative designs that has been proposed to the city Boston in that the housing will be floating, taking advantage of or removing the need for the majority of the pier structure and will provide for flood resilient units. The spine of the concept will also serve as the harborwalk and will provide access to the units as well as to the farthest point out in the concept. The public will be able to access the end of the concept and will have access to the water via a water shuttle and may be picked up and dropped off by private boats.

The existing pier will be selectively demolished and the remaining components will be repurposed as parks that will demised the residential units and will provide for anchoring points as well as much needed green space in the proposed concept. New trees and shrubs and other plantings will be used in the parks as well as along the spine of the harbor walk out to the end point of the proposed concept. Concrete elements may be used as architectural details rather than elements that need to be screened.

All disposal areas, accessory storage areas, and other storage tructures, including dumpsters will be screened and placed at the end of the pier on the landward side and views will be minimized on these edges. Any damage or alteration to any existing sidewalk paving, lights and other streetscape materials will be repaired or replaced by the proponent as needed.

Resiliency and Sustainability Guidelines

The proposed project will be supportive of the community's and the city of Boston's climate resiliency and healthy community goals and will endeavor to meet or exceed all of the article 37 green building and climate resiliency guidelines. Based on the fact that

the proposed concept is, in fact, floating housing, the concept's vulnerability to flooding is significantly diminished as well as other related hazards that are stated in the Coastal Resilience Solutions for Charlestown text.

The proposed concept will include resilient building insight strategies to eliminate, reduce, and mitigate potential impacts such as greenhouse gas, higher temperatures and heat events, and will account for more intense precipitation events.

To the highest extent practicable, the concept will include low energy building with an enhanced envelope and will include energy efficient systems and other measures that will be valuable in providing **the lowest amount of** carbon emissions from the newly constructed site.

Depending on the amount or ratio of glass to solid surface walls and roof structures, the goal will be to reduce heat exposure and heat retention in and around the buildings. Green roofs will be integrated into the design and the parks and other landscape areas that will provide canopy and shade structure in the project.

The project will also integrate strategies to mitigate for the impact of stormwater flooding on the site and reduce the properties contribution to storm water flooding. The concept is over the water of the inner harbor and any rainwater on the project will shed directly into the harbor. There will be no vehicular drive aisles on the pier which will remove the need for any treated surface runoff. If the concept is modified to include limited vehicular access, then water runoff will be treated to achieve low impact standards. At the present, all circulation in the proposed concept is strictly pedestrian with the exception of small golf cart type vehicles that will be run on electricity and not gas and will not leave the complex.

Due to the unique system that the floating housing is proposing, the project will significantly reduced the risk of coastal in inland flooding and will remove the risk of base floor, critically utilities, mechanical systems and infrastructure flooding. The project design includes flood proof materials and removes the potential for vulnerability of flooding of the first floor and below.

The project includes communal space that will be heated and cooled whereby unit owners or tenants can occupy this communal space during extreme weather events or other events if there is an extended period of disruption of utility service. Though the space is not a significant amount, it can be used to house a certain number of tenants or occupants of the proposed concept.

<u>Green Building Design Guidelines</u>

Green Buildings: As the city of Boston is a stretch code compliant city in the Commonwealth of Massachusetts, the project will meet stretch code standard as is expeced andwill be built to certifiable standards and will focus on achieving and surpassing green building requirements for LEED silver at a minimum and will strive to meet either LEED gold or platinum depending on all of the variables to achieve each. A draft LEED checklist is attached as Exhibit B for review.

Integrated Project Planning: As an itegral part of the team, Colleen Soden and the LEED professionals of Soden Sustainability will be running point as the LEED accredited professional(s) and will focus on the team's approach to integrated project planning and will be conducting preliminary and whole building energy modeling.

Site Development: This proposed concept is unique in that the objective is to selectively demolish parts of the pier and to use the remaining parts to establish anchor points for the floating housing. These remnant segments of the pier will be, in simple terms, boxed in and filled to achieve square islands that can be used for connecting the main harborwalk and to also allow for utilities to be run out to the farthest most point needed. There will not be any soils exported off-site, the but the pier debris will need to be barged to a recycling location and any construction debris that will be a result of this project will be recycled and disposed of properly.

Connectivity: One of the most unique features of this proposed concept is the fact that it will not have vehicular access for the tenants, but only emergency access and egress for valet carts and bicycles. Reducing personal vehicle travel on site is preferred. The integration of open space parks is key with additional landscaping along key pathways, and integrating public viewing areas and seating are also key elements to the concept.

Water Efficiency: The proposed concept will include low flow plumbing fixtures throughout. Regarding rainwater harvesting for gardens and building systems, the project will be floating on the water and any direct runoff will flow directly into the harbor as there will be no need for treatment. Drought resistant plants will be used in the parks as well as in other accessory plantings and may be irrigated depending on the amount of sun exposure.

Energy efficiency: All HVAC equipment will be at a standard energy efficiency rating (SEER) of more than 16 and the HERS index of 40-55 will be achieved on the residential buildings, depending on their size and physical make up. Where conditions allow, a high performance building envelope with air tight and well insulated walls will be constructed as well as the floors and roof structures. Doors and windows will be high efficiency as the glass will be high performance low-E glass. All appliances installed will be Energy Star high efficiency appliances and the goal is to use hydo- thermal heat pump systems for all of the heating and cooling, taking advantage of the temperate water of the harbor. All lighting fixtures will be LED and may include advanced lighting control systems depending on the price points of the units.

Clean Energy, Energy Efficient Incentives, and Indoor Quality: Where applicable, clean energy sources will be preferred as well as applying for any energy efficient incentives available through state and federal agencies to utilize energy efficient and renewable energy programs. Where appropriate the project will incorporate strategies that may include extended roof overhangs, proper drainage, non-paper gypsum board in moist areas, passive and active fresh air systems and ventilation for the project. Building materials that may be used for construction will be free of toxins and hazardous chemicals. Special attention will be given to products that may emit odors or may trigger asthma or respiratory allergens or irritants.

Materials selection: A strategy will be put in place to source product's made with recycled and reclaimed materials and products that have been responsibly harvested and are rapidly renewable products. The construction materials of the project will also be sourced by vendors and suppliers that fall within 500 miles from the project.

Innovation: This project will incorporate many innovative strategies that are cutting edge including the design as well as materials and products that will construct the project. Sustainability and performance of the building will be paramount for this unique opportunity. The following outlines the goals for the innovative strategies that will be employed by the project:

I. Approach to Integrated Project Design and Delivery

II. Zero Carbon Building Assessment including performance targets for energy use and carbon emissions (or Home Energy Rating System ("HERS") index score);

III. Preliminary LEED Checklist is attached as Exhibit B;

IV. Preliminary Boston Climate Resiliency Checklist reflecting proposed outcomes is attached as Exhibit G;

V. Key resilient development

VI. Green building strategies

4. Design Drawings

(PLEASE SEE FOLLOWING PAGES)

1. Neighborhood Plan
2. Site Plan
3. Schematic floor plans showing the basement, ground floor, upper floor(s), and roof, including room dimensions, square footage of rooms, overall building dimensions, and the gross square footage of the building.
4. Building Elevations showing all sides of the proposed building, architectural details, building height and notations of proposed materials.
5. Street elevations showing the relationships of the proposed building to the massing, building height and architectural style of adjacent buildings. This street context drawing may combine drawings with photographs in any manner that clearly depicts the relationship of the new building to existing buildings.
6. Perspective drawings drawn at eye-level and aerial views that show the project in the context of the surrounding area

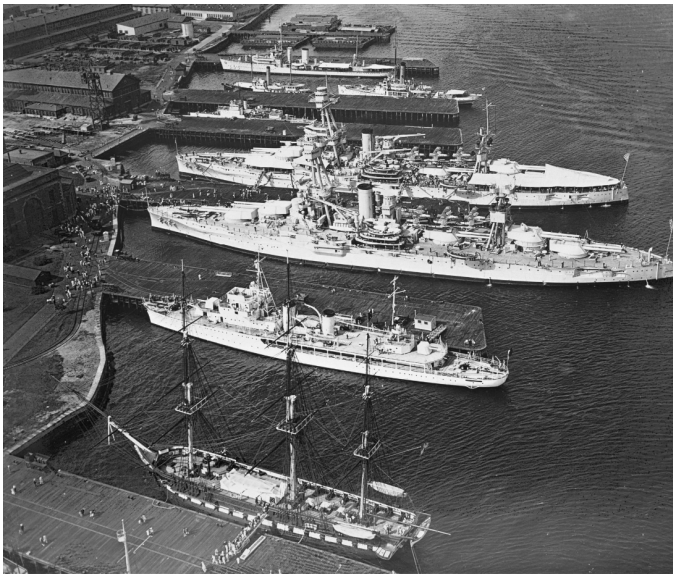
BUILDING 123

Building 123, the pump house for Dry Dock 1 and 2, will be recognized as an integral building of historical significance to the Charlestown Navy Yard. As the Charlestown Navy Yard was home to one of the first two naval dry docks in the United States and throughout its existence From 1800 to 1974, it's role in the construction, repair and servicing of naval vessels was of utmost importance to the United States Navy. The pump house, known as Building 123, was instrumental in servicing the dry docks No. 1 and 2, by pumping out thousands of gallons of seawater out of the stone lined dry docks to enable the ship building and ship repair work needed for the massive vessels.

As part of the construction of the project, the proponent will request to use the drydock for staging and laydown for the construction of some or all of the work on the proposed project. If Building 123 requires repair to become operable again to support the operation of the drydock, then proponent will repair it given cost efficiencies and will use it as such until the project is complete.

Thereafter, with the goal of not taking the operable part of the building out of commission, Building 123 will be transformed into a small cafe that will help to serve the overall neighboring buildings and owners, but will also be a good location for passersby who may be visiting the other historical venues within the Navy Yard and along this section of the Harborwalk. In addition, it is envisioned that an ATM machine as well as a ticket booth for Boston Harbor Cruises for the Boston Harbor ferry service and an MBTA Charlie Card machine (located on the exterior of the building and accessible to the public) could be incorporated into the building. This location would also be a great location for a bike share rack given its close proximity to the water taxi stop.

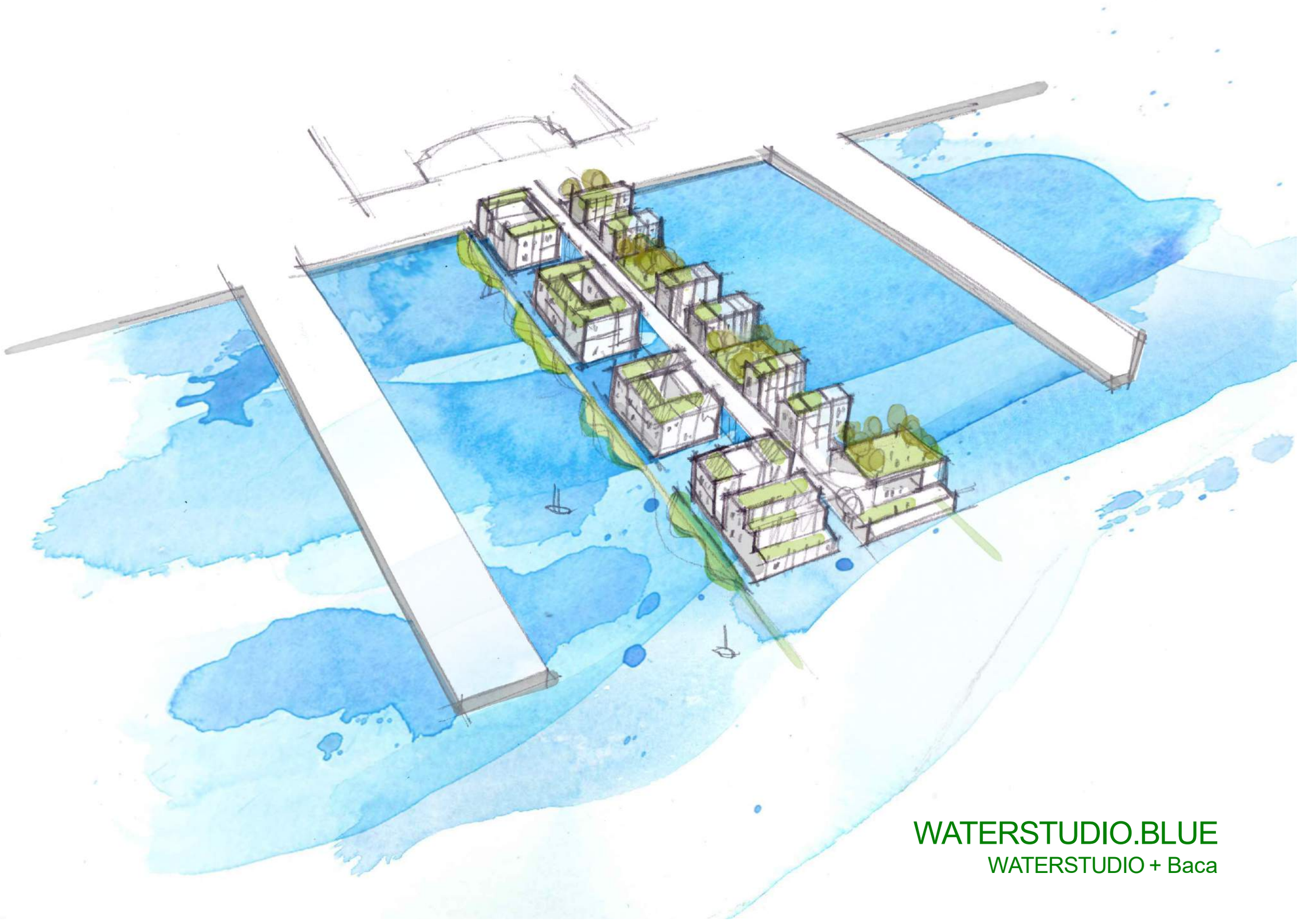
This will become a wayfinding spot that will include interpretive signage highlighting the buildings significance and contribution to the art and history of shipbuilding. It will also house a gallery of photos and wayfinding/interpretive displays that will highlight the activities of the Navy Yard as a whole. These displays will be open to the public and will also include wayfinding information for the nearby Harborwalk and its amenities.



DRYDOCK USE ADJACENT TO FLAGSHIP

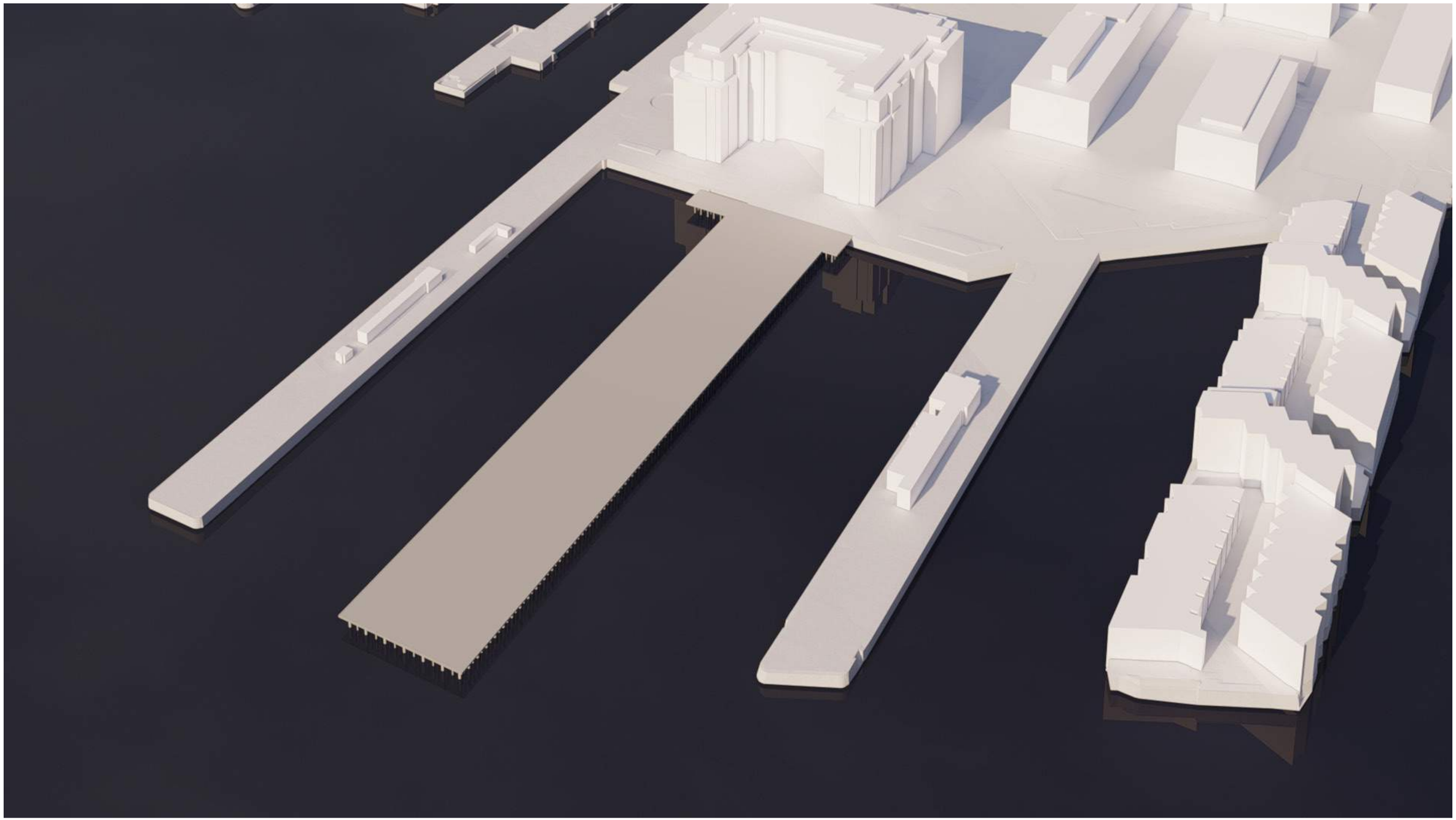
As the City of Boston also owns the Drydock in the Charlestown Navy Yard that is adjacent to Flagship Wharf and Building 123, the proponent would request to memorialize an agreement for its use. We are unaware of the condition of this drydock and whether is it operable or not, but the proponent would like to request the use of this Drydock for staging, laydown, and construction of some or all of the components of the floating housing concept as it has been presented.

It is also understood that if there are any costs incurred to refurbish the drydock to make it operable again, that this costs would be borne by the proponent. The costs to use this area would be $0 zero dollars) to the proponent to support construction of the project.

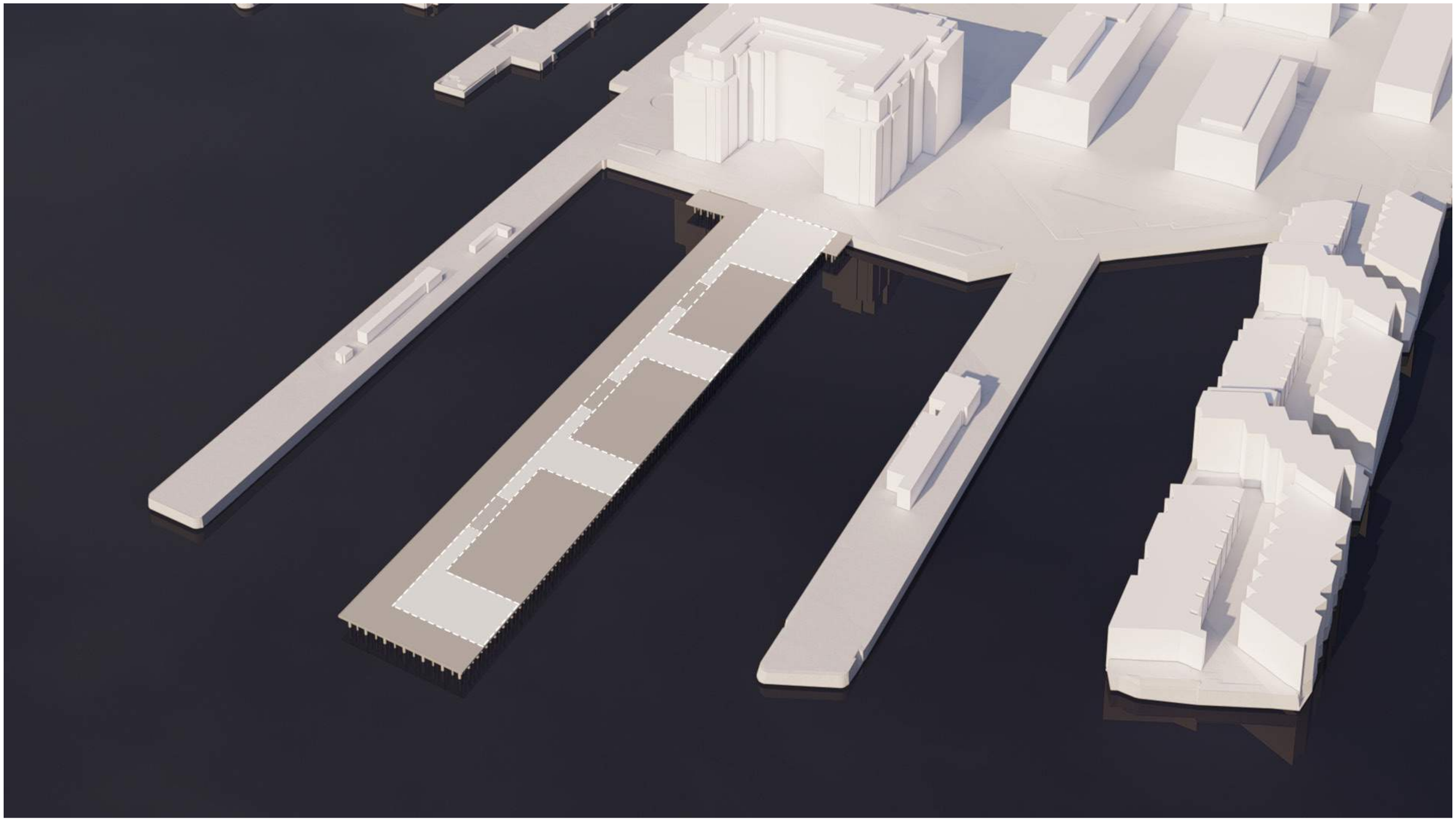


WATERSTUDIO.BLUE

WATERSTUDIO + Baca



PHASE ONE - ASSESS AND DELINEATE DEMOLITION VS WHAT IS TO REMAIN



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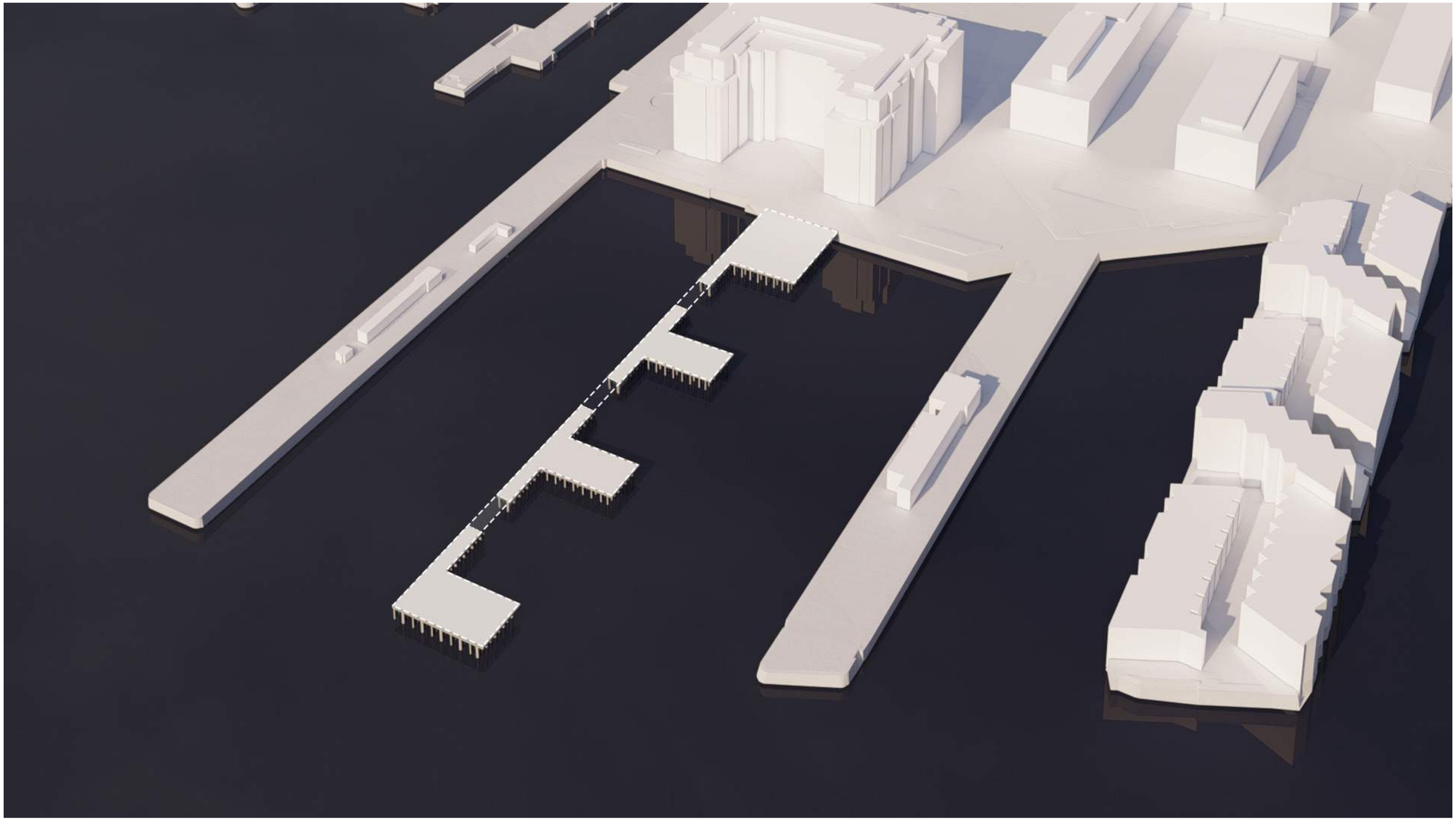

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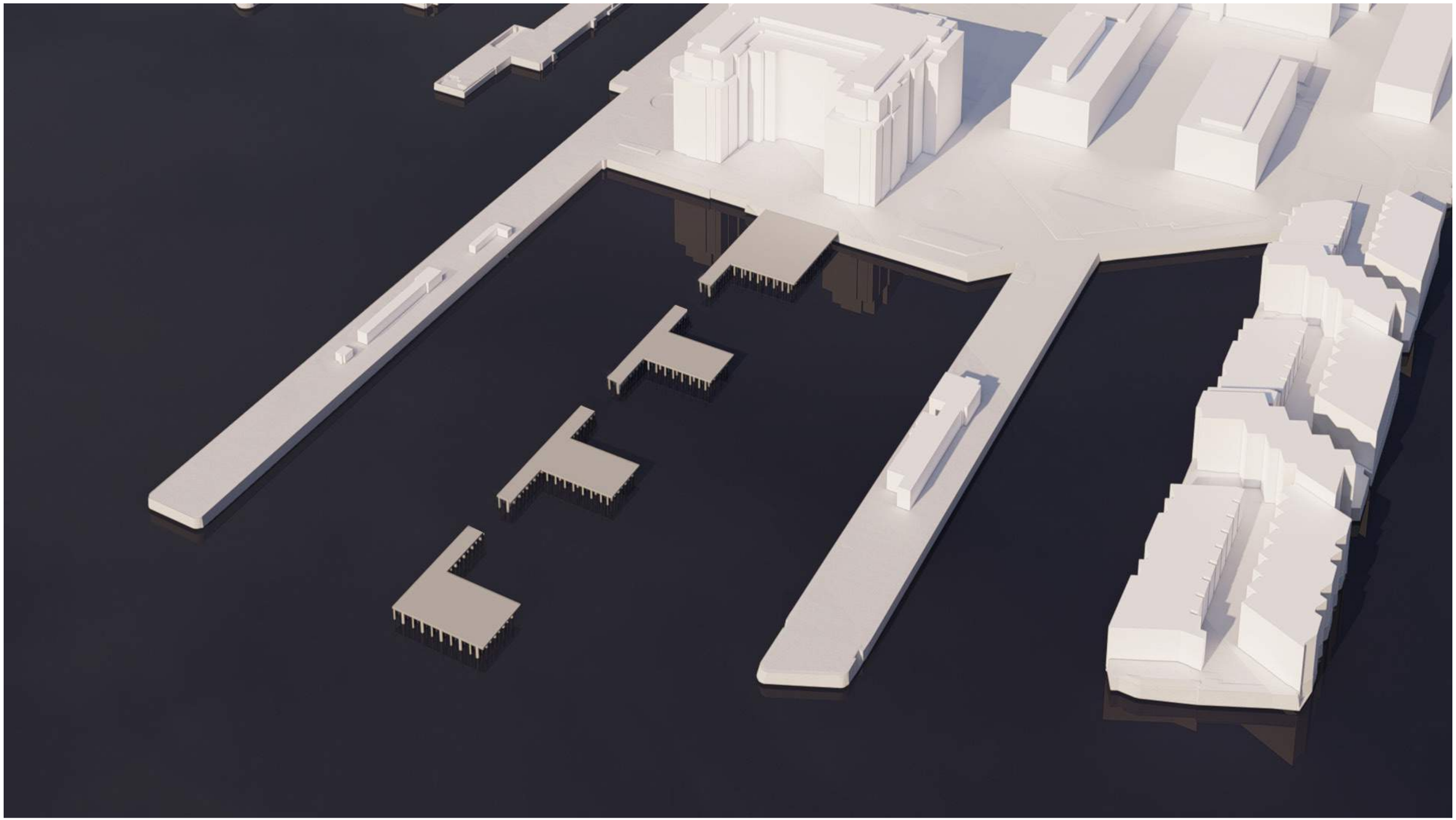

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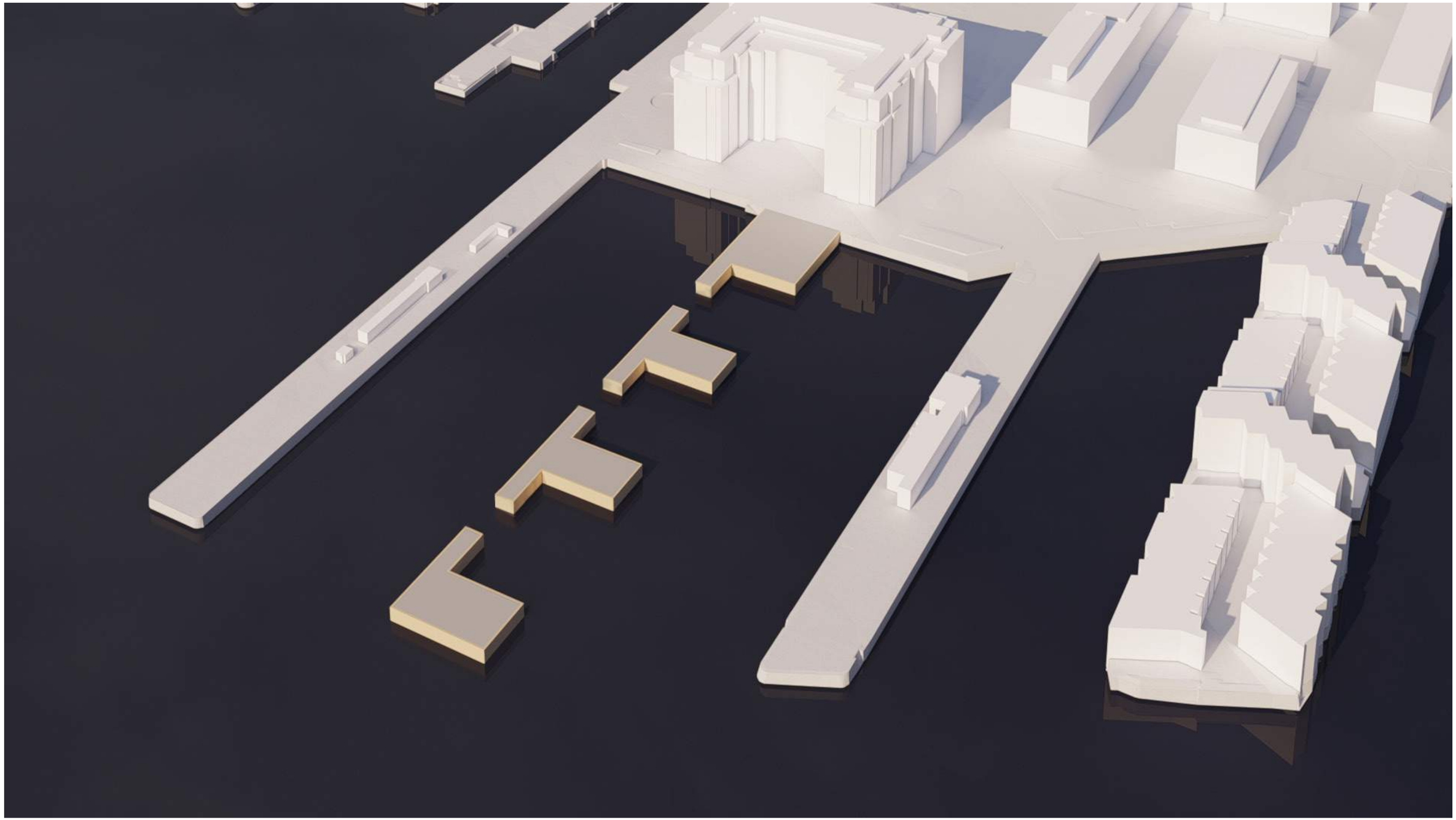

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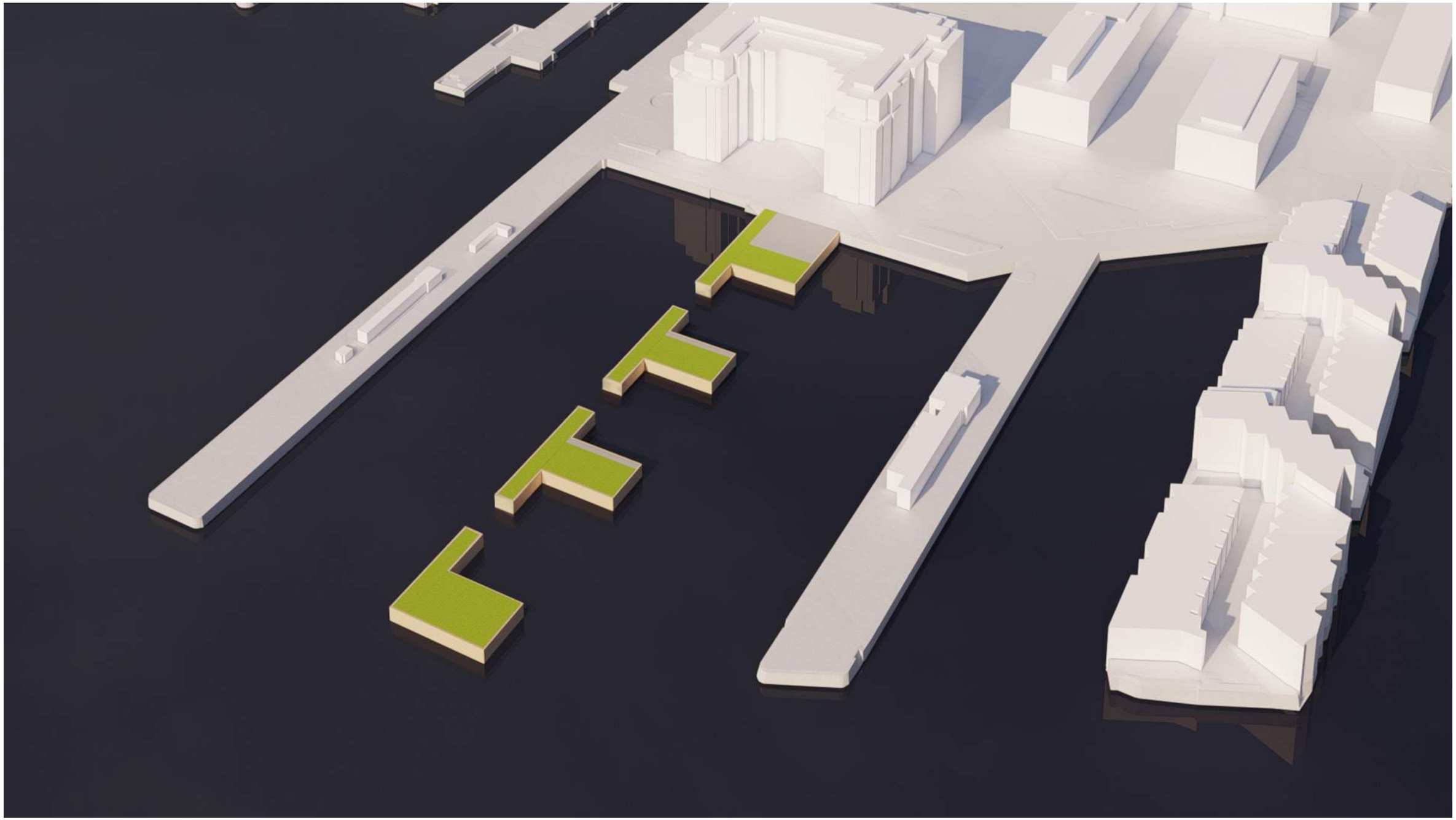

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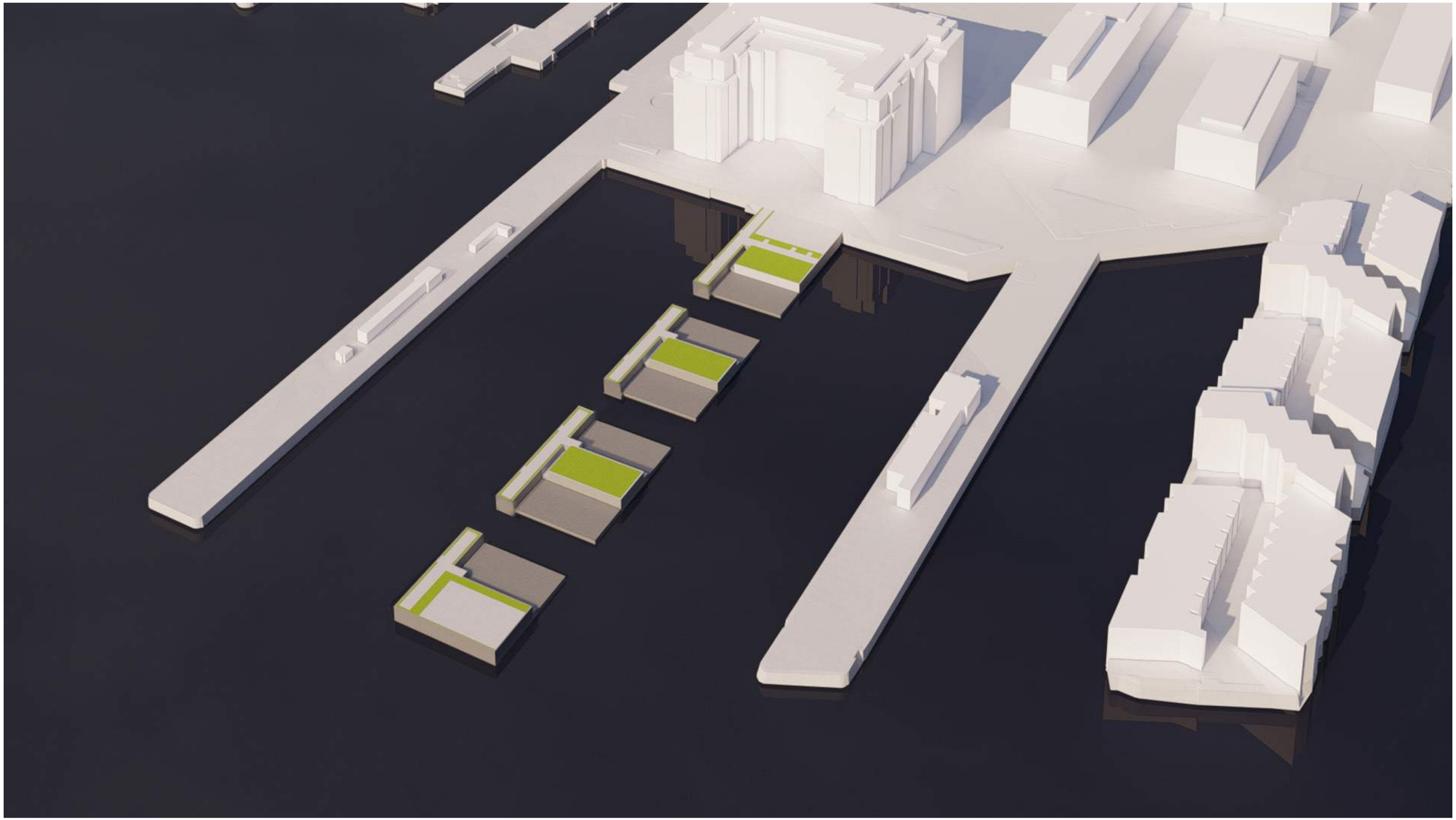

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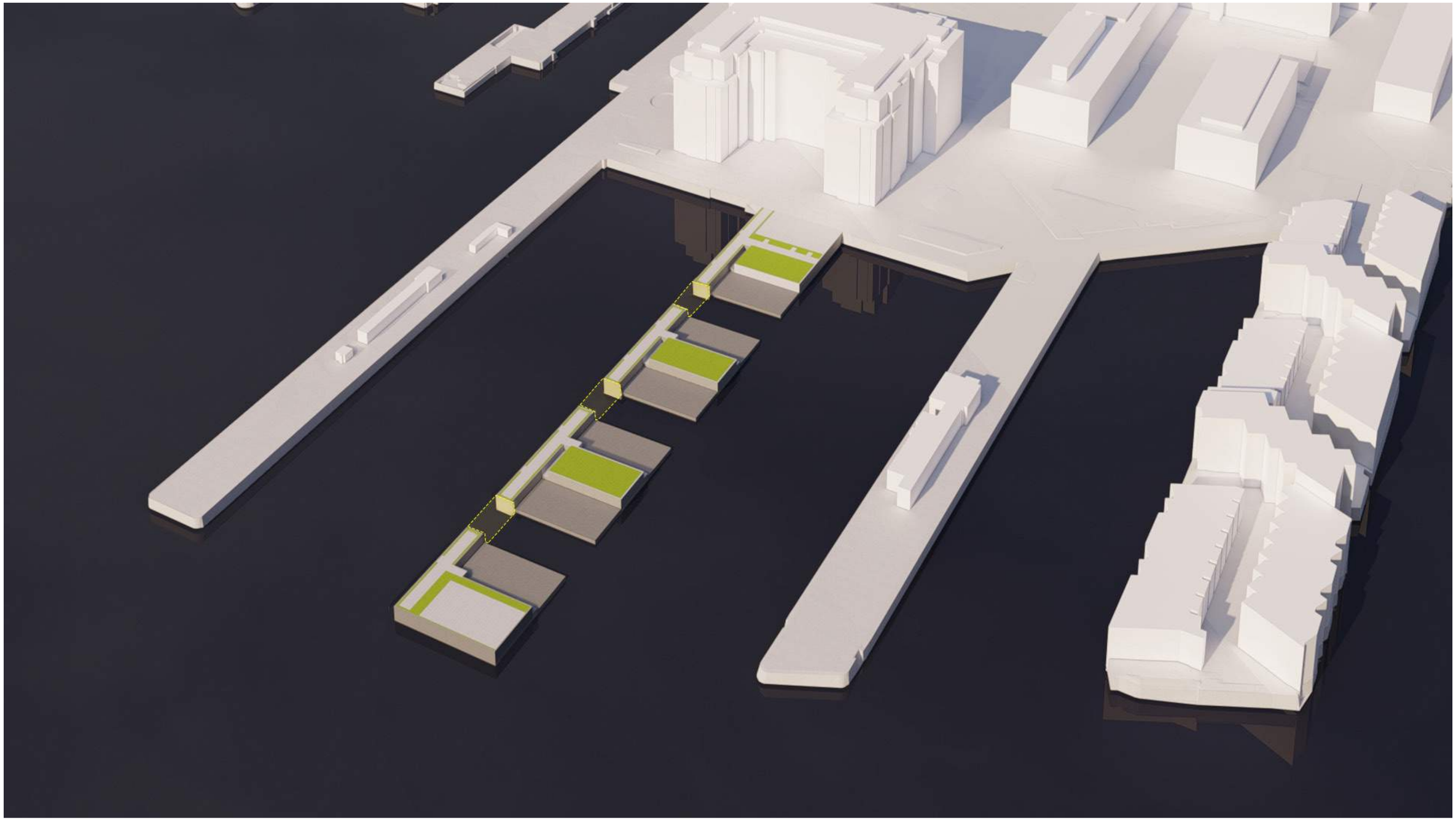

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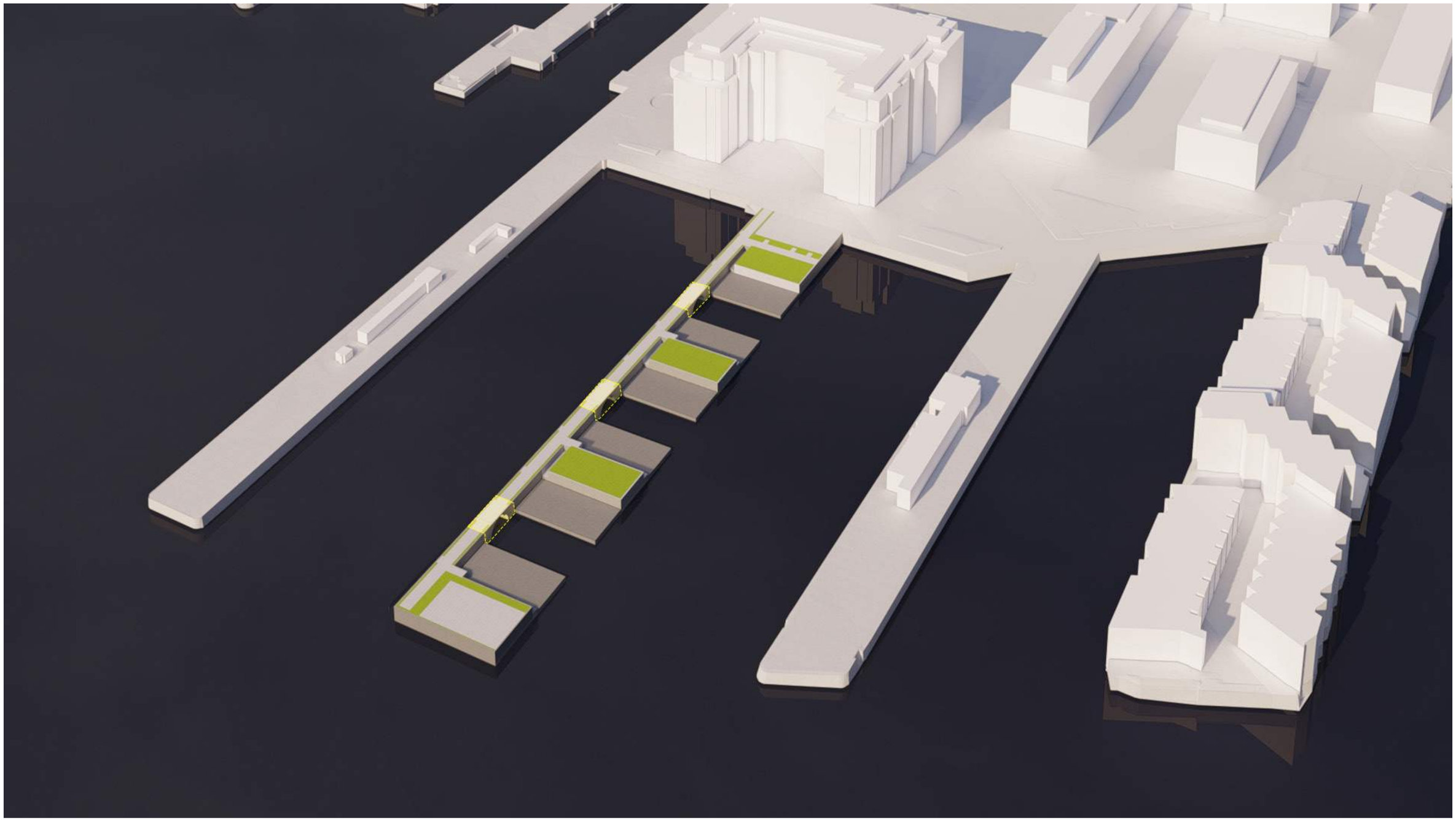

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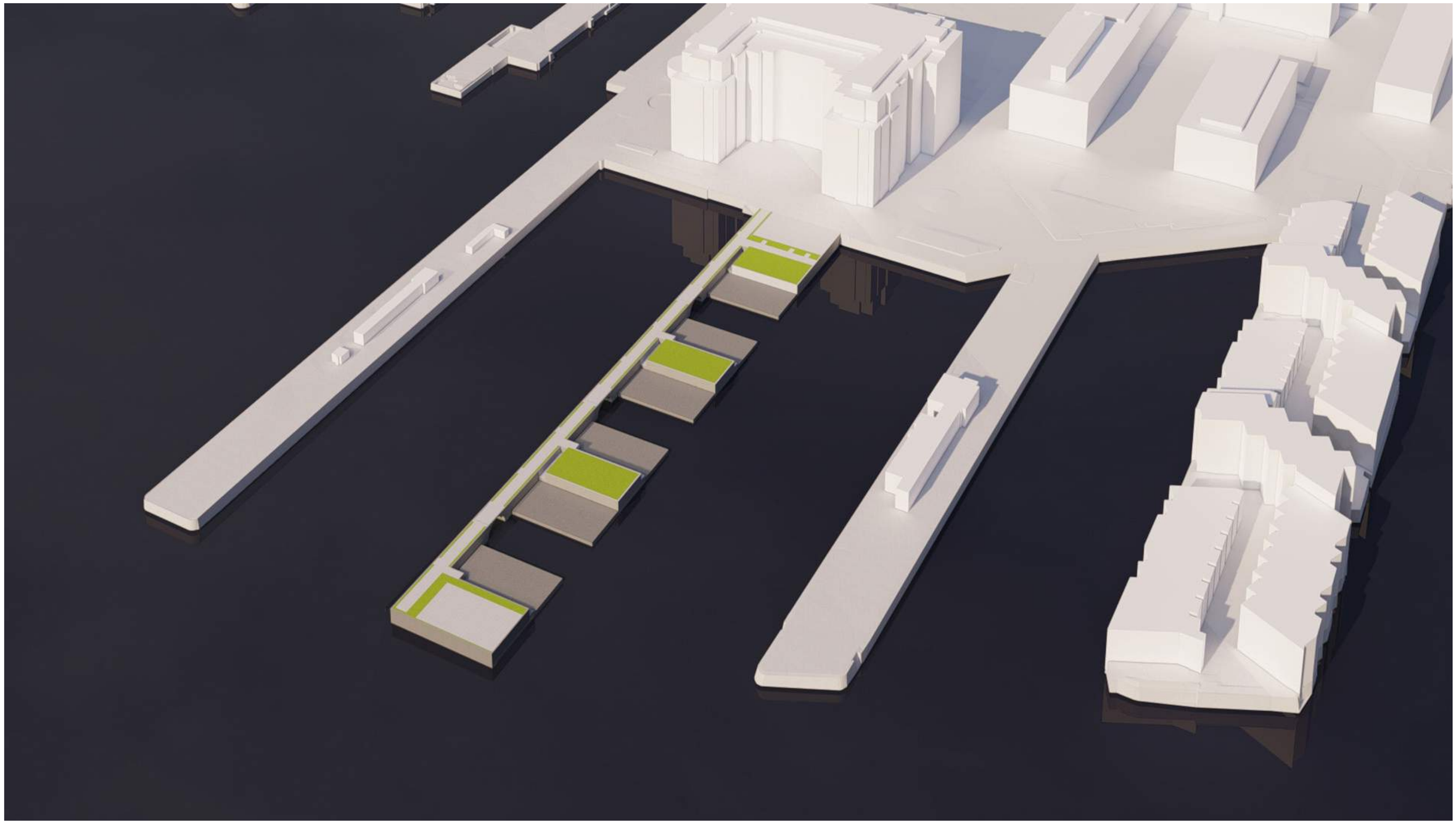
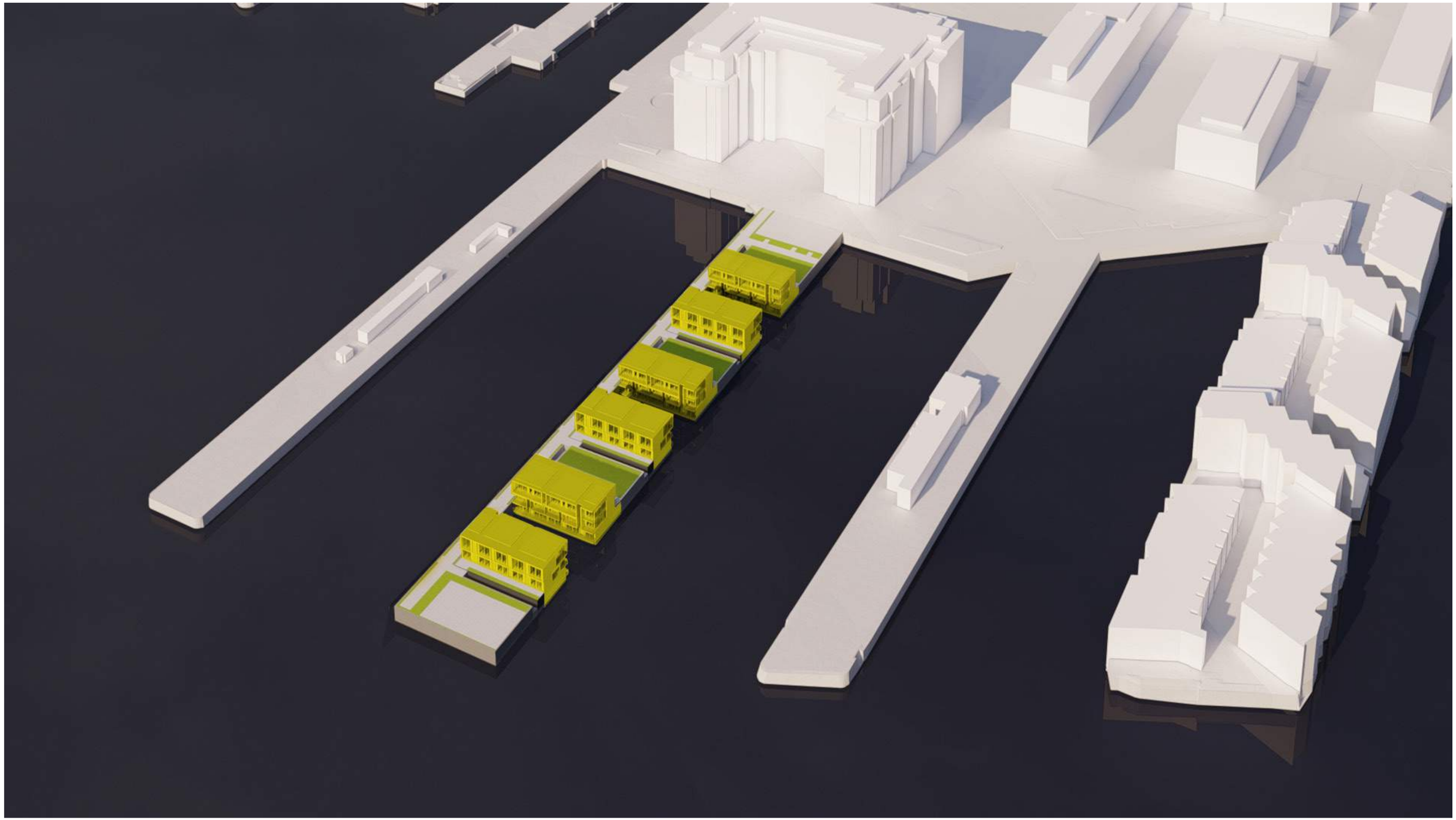


PHASE TEN- ADD HARBORWALK HARDSCAPE AND PREP FOR HOUSING CONSTRUCTION



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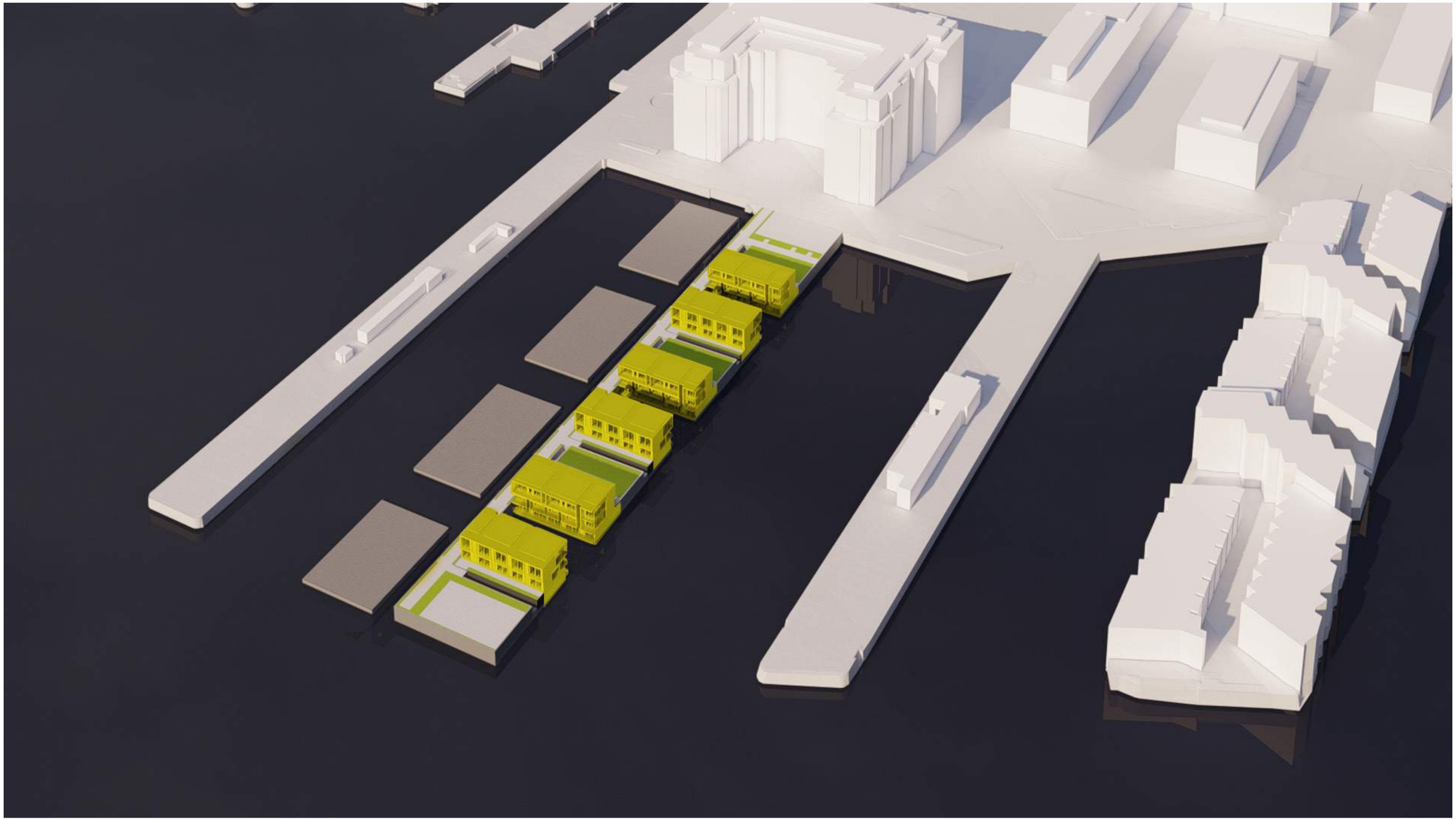

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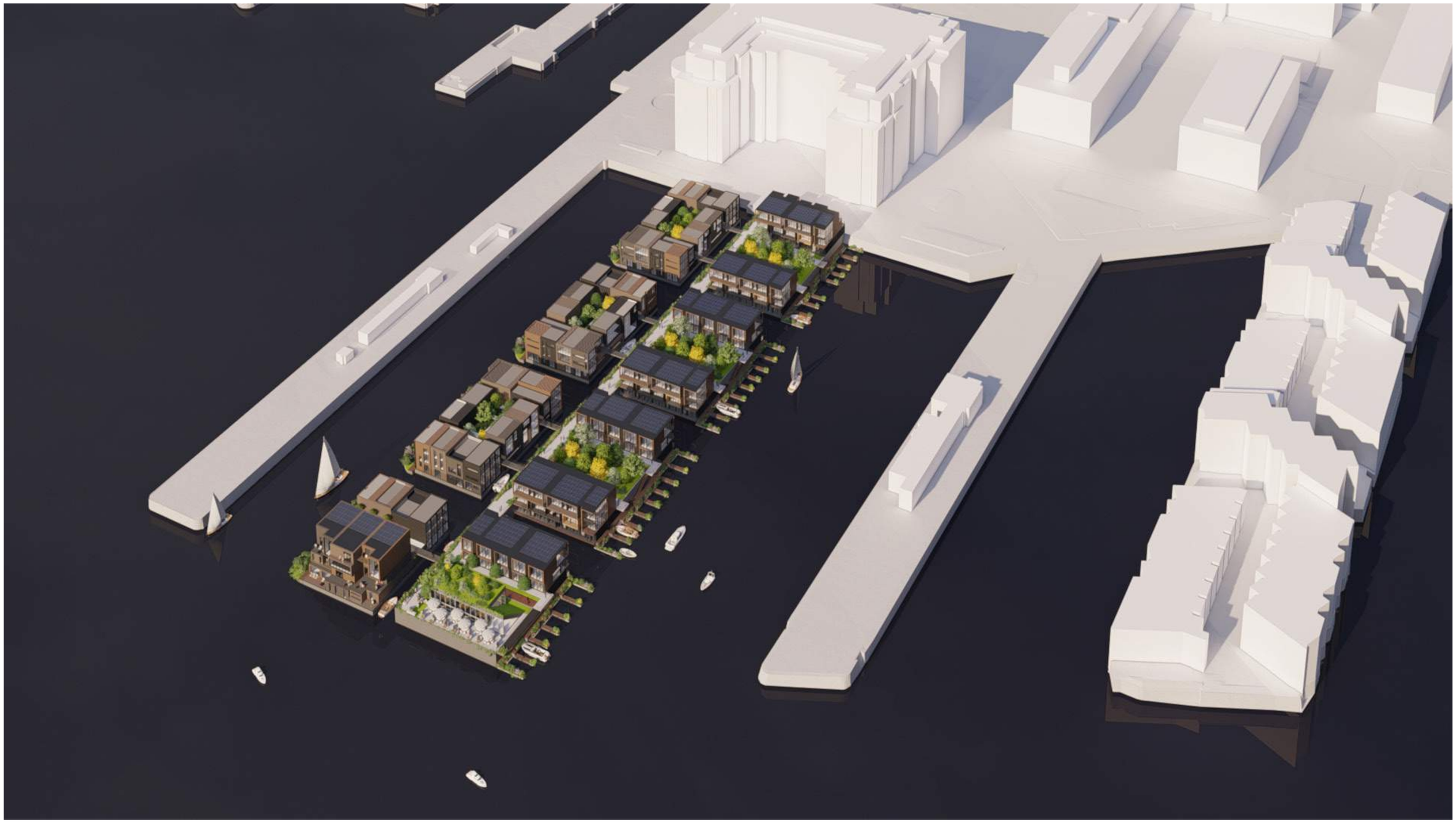
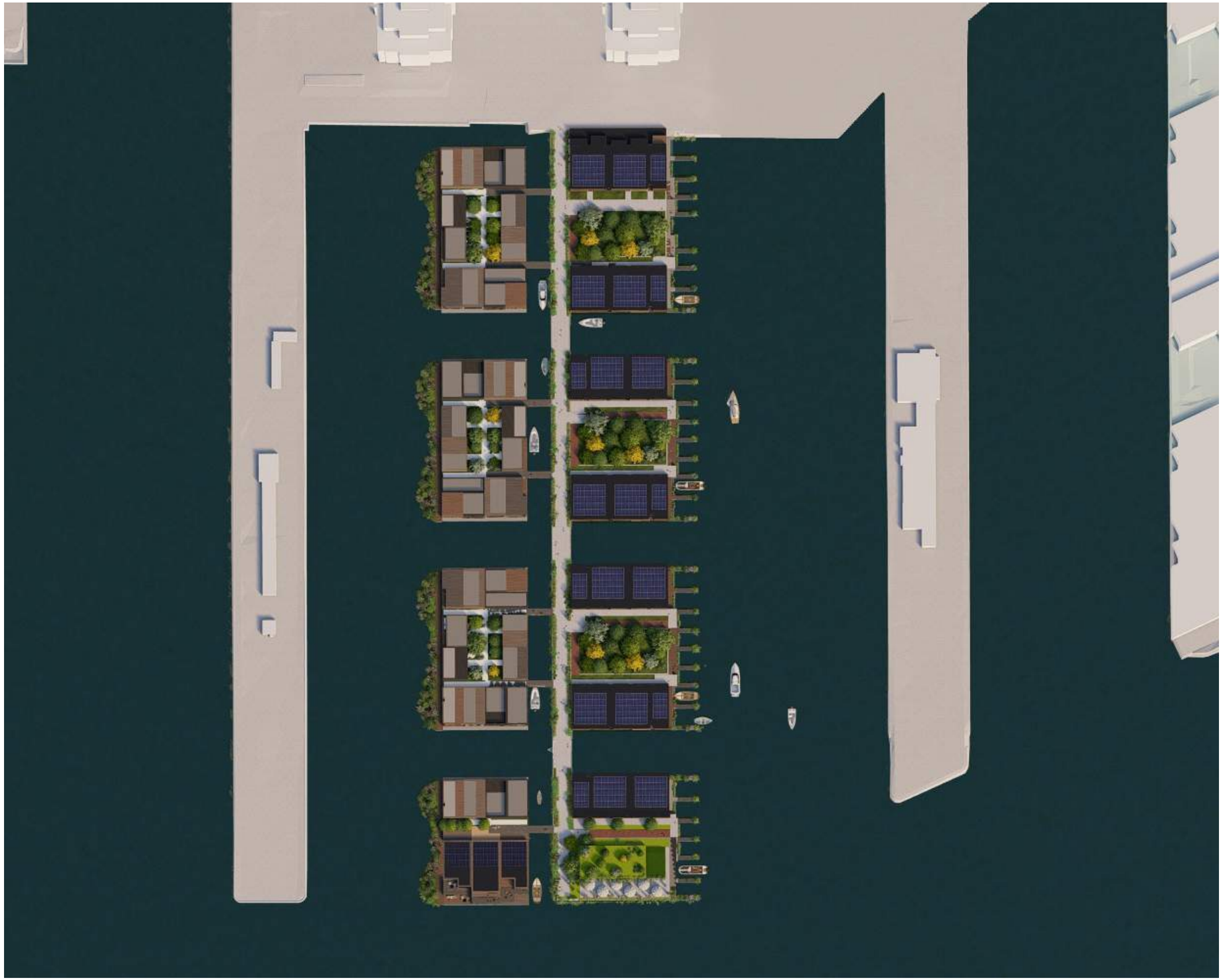
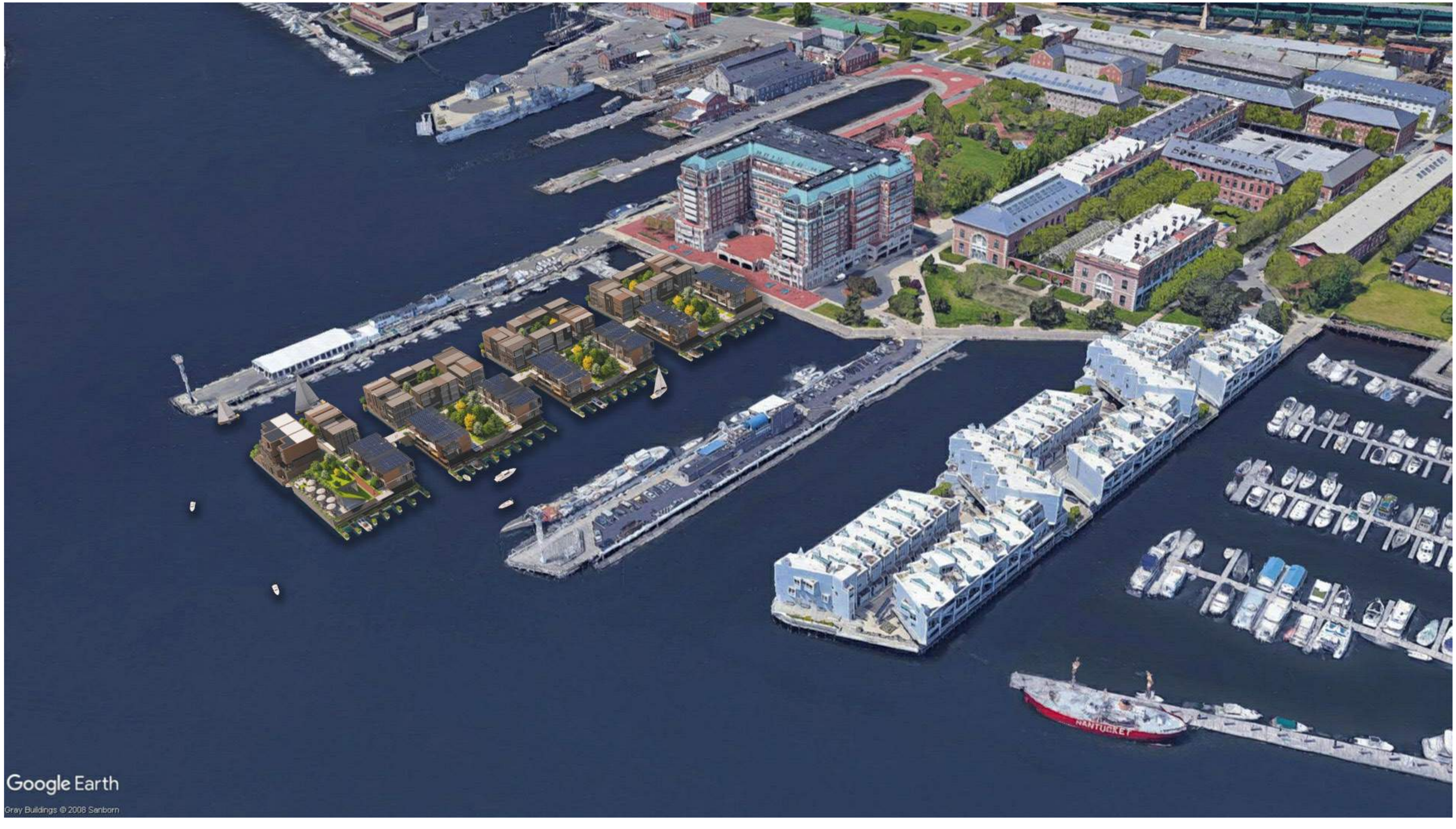


COMPLETED PROJECT



SITE PLAN - NOT TO SCALE

AERIAL PERSPECTIVE FROM THE SOUTHWEST



AERIAL PERSPECTIVE FROM THE SOUTHEAST

AERIAL PERSPECTIVE FROM THE NORTHWEST

PERSPECTIVE FROM THE WATER FROM THE SOUTHWEST

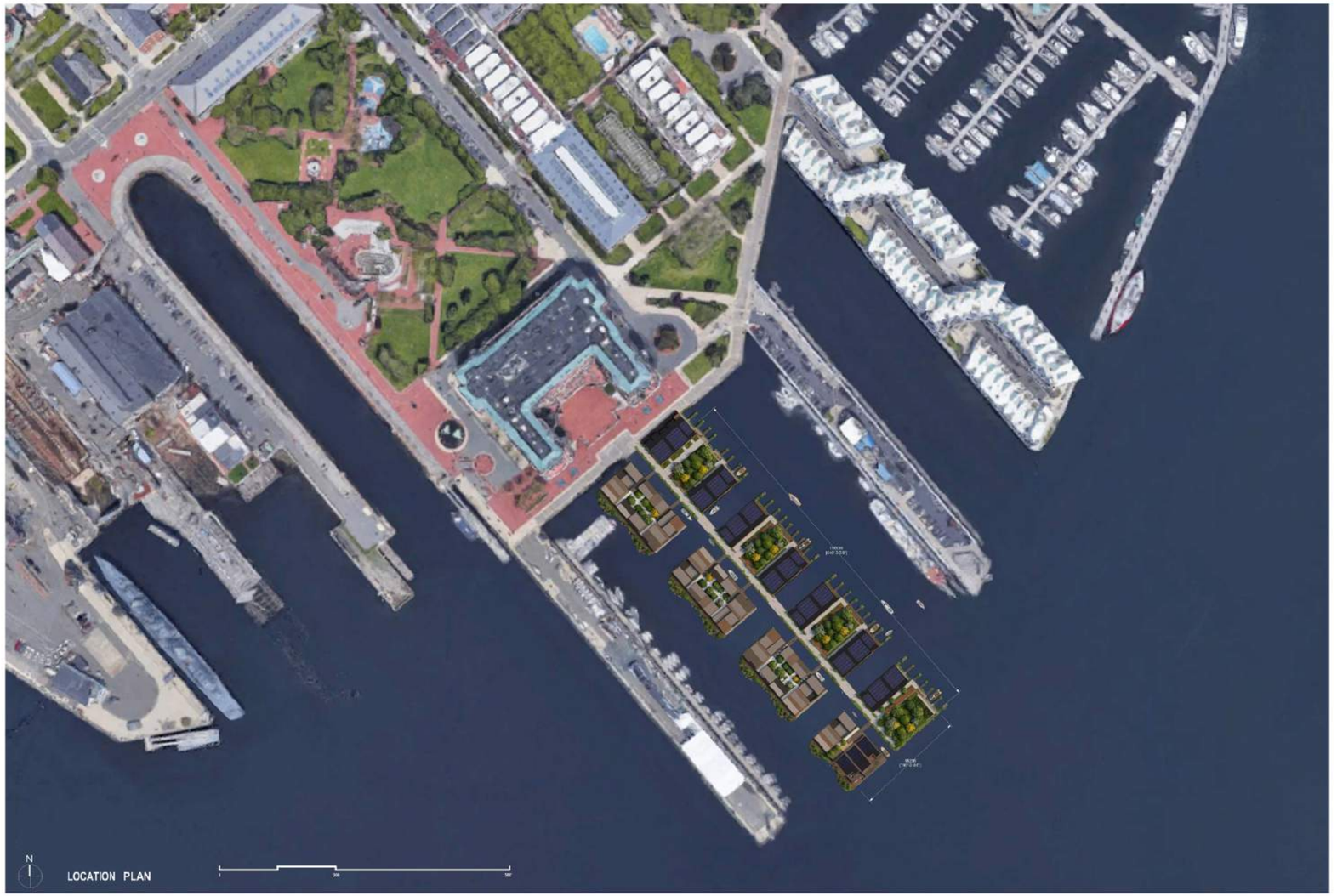
CLOSE PERSPECTIVE FROM WATER (SOUTHWEST)

PERSPECTIVE FROM WATER SHOWING RESTAURANT SPACE AT EDGE OF PIER

PERSPECTIVE DUE SOUTH FACING RESTAURANT AND HOUSING

PERSPECTIVE FROM THE NORTH EAST (PIER 6 SIDE)

PERSPECTIVE FROM THE SOUTHWEST SHOWING FINGER SLIPS AND HOUSING



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mail@baca.uk.com

ARCHITECTS baca

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2. All dimensions to be verified by the contractor before work is commenced
3. Architect to be notified immediately if any discrepancies are found
4. All shop drawings to be approved by Architect before work commences.
5. All details to be in accordance with relevant British Standards and manufacturers recommendations and specification

All Dimensions in mm

Notes
Significant Health, Safety & Environmental information relating to CDM
Health:
Safety:
Environmental:
It is assumed that all works will be carried out by a competent contractorworking, where apppropriate, to an agreed method statement

Notes

Rev	Date	Description	DRN	CK

Drawing Title: LOCATION PLAN

Client: 6M Development/Waterstudio.Blue

Project No. 267

Project Name: Eco Pier Development

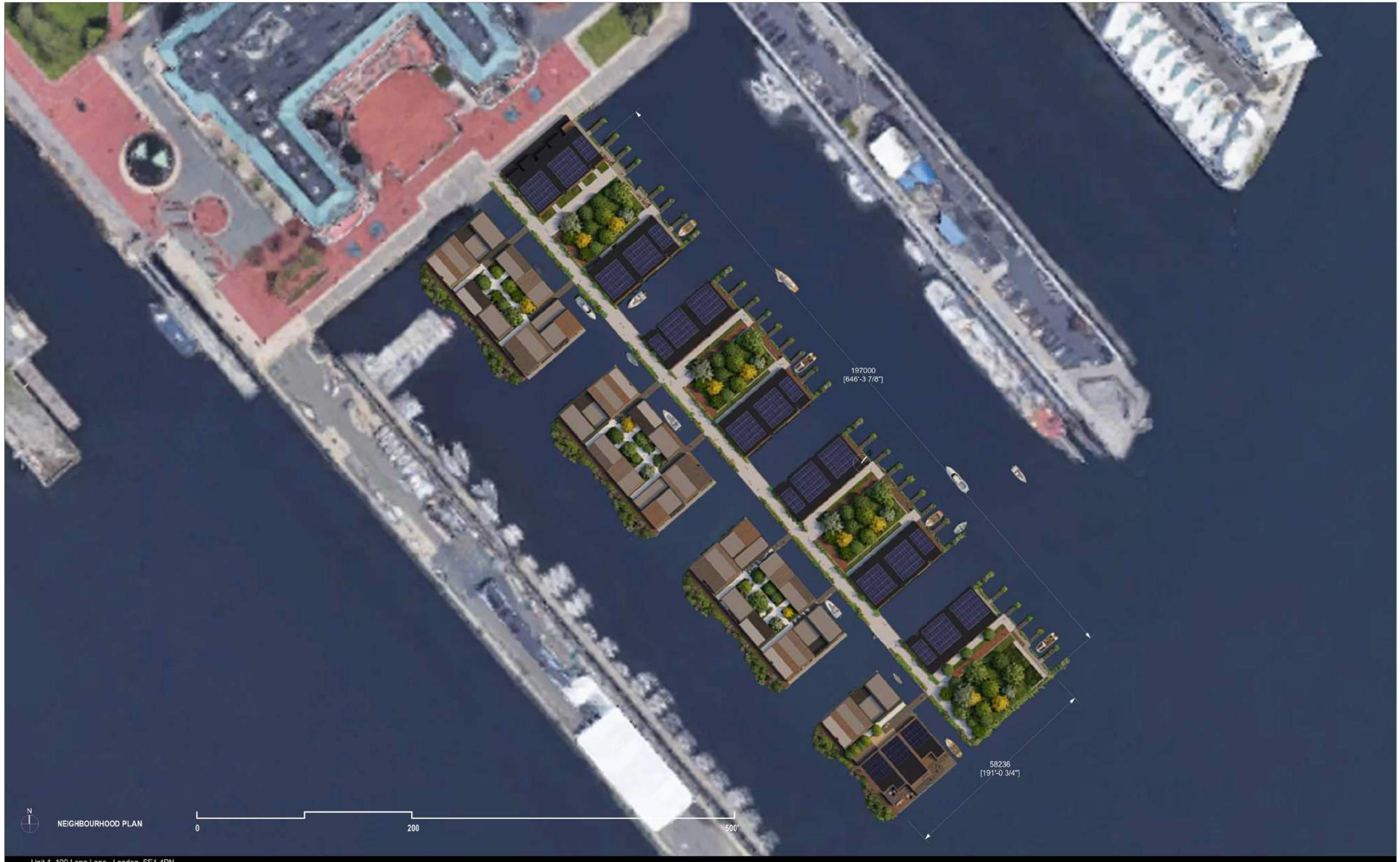
Project Address: Pier 5, Charlestown Navy Yard, Boston

Scale: A1 Sheet: 1" = 100'

Status: Schematic

Drawing No: 297-100-001

Rev



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All Dimensions in mm

Notes	Notes
Significant Health, Safety & Environmental information relating to CDM	
Health:	
Safety:	
Environmental:	
It is assumed that all works will be carried out by a competent contractorworking, where appropriate, to an agreed method statement	

Rev	Date	Description	DRN	CK

Drawing Title: NEIGHBOURHOOD PLAN

Client: 6M Development/Waterstudio.Blue

Project No. 267

Project Name: Eco Pier Development

Project Address: Pier 5, Charlestown Navy Yard, Boston

Scale: 1" = 40'0" A1 Sheet

Status: Schematic

Drawing No: 297-100-010

Rev

SECTION OF EAST ELEVATION

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All Dimensions in mm

Notes

Significant Health, Safety & Environmental information relating to CDM

Health:

Safety:

Environmental:

It is assumed that all works will be carried out by a competent contractorworking, where appppropriate, to an agreed method statement

Notes

Rev	Date	Description	DRN	CK

Drawing Title: SECTION OF EAST ELEVATION

Client: 6M Development/Waterstudio.Blue

Project No: 267

Project Name: Eco Pier Development

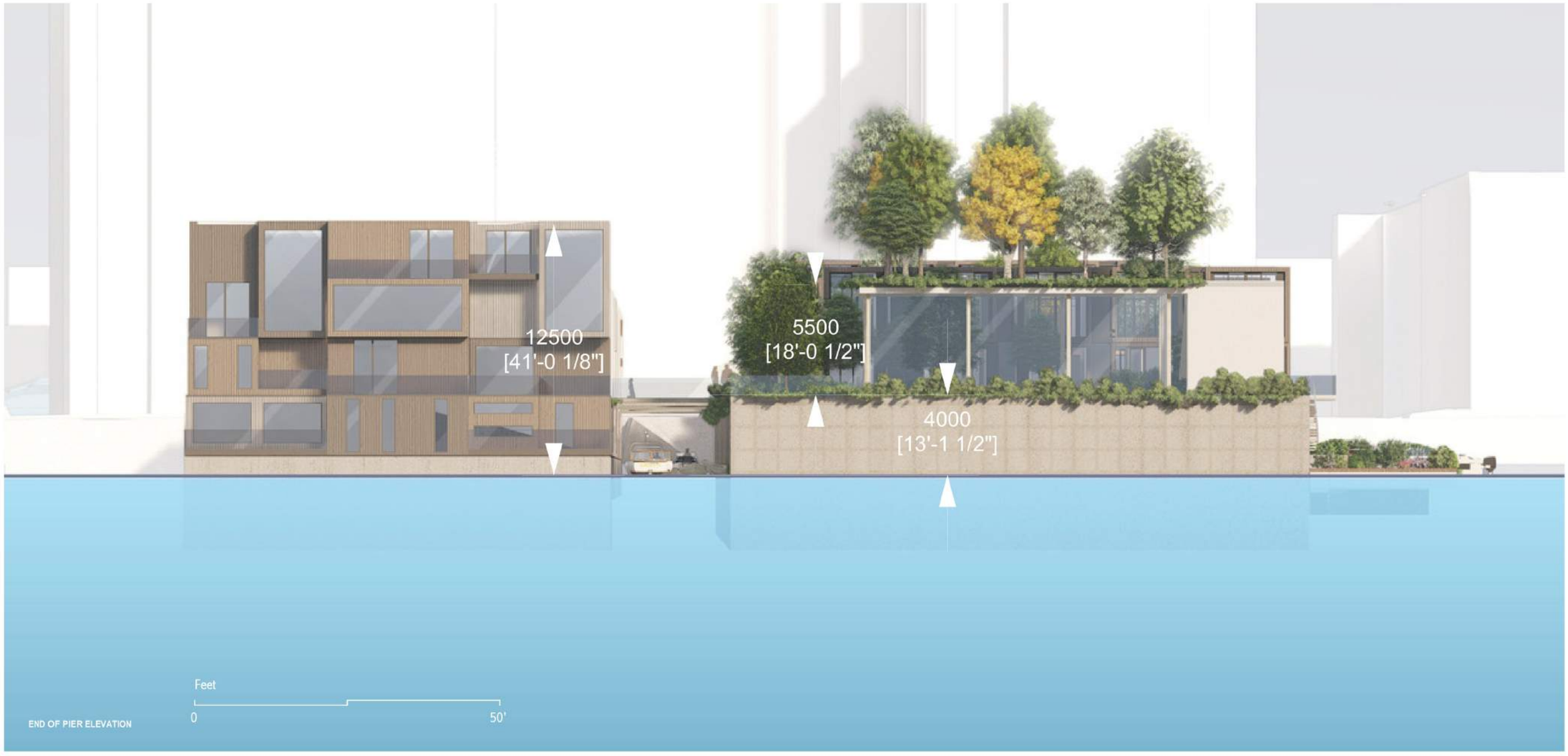
Project Address: Pier 5, Charlestown Navy Yard, Boston

Scale: A1 Sheet 1/8" = 1' 0"

Status: Schematic

Drawing No: 297-100-031

Rev



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All Dimensions in mm

Notes

Significant Health, Safety & Environmental information relating to CDM

Health:

Safety:

Environmental:

It is assumed that all works will be carried out by a competent contractorworking, where appppropriate, to an agreed method statement

Notes

Rev	Date	Description	DRN	CK

Drawing Title: END OF PIER ELEVATION

Client: 6M Development/Waterstudio.Blue

Project No. 267

Project Name: Eco Pier Development

Project Address: Pier 5, Charlestown Navy Yard, Boston

Scale: A1 Sheet 1/8" = 1' 0"

Status: Schematic

Drawing No: 297-100-032

Rev

EAST ELEVATION

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Notes
Significant Health, Safety & Environmental information relating to CDM
Health:
Safety:
Environmental:
It is assumed that all works will be carried out by a competent contractorworking, where appropriate, to an agreed method statement

Notes

Rev	Date	Description	DRN	CK

Drawing Title: EAST ELEVATION

Client: 6M Development/Waterstudio.Blue

Project No. 267

Project Name: Eco Pier Development

Project Address: Pier 5, Charlestown Navy Yard, Boston

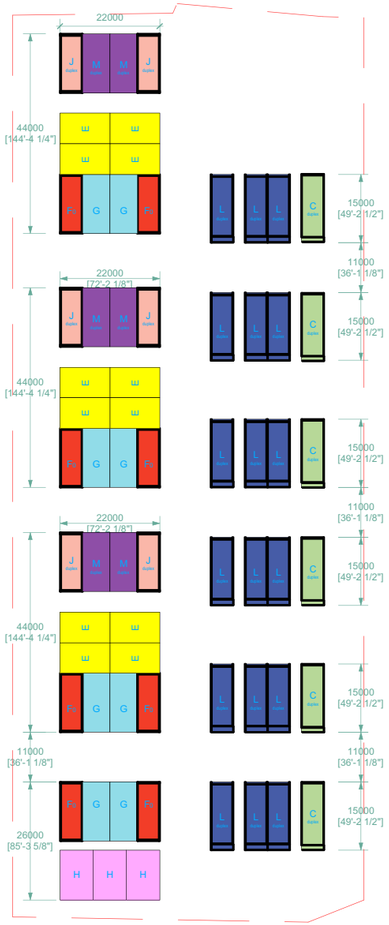
Scale: 1" = 30'0" A1 Sheet

Status: Schematic

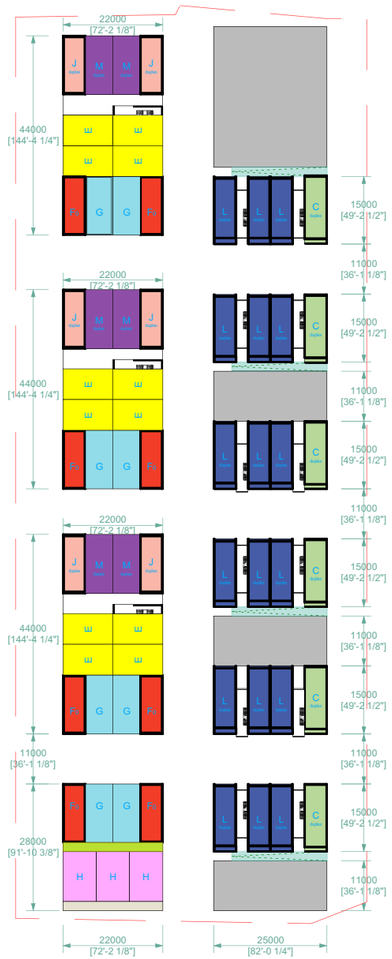
Drawing No: 297-100-030 Rev

1. No dimensions to be scaled
2. All dimensions to be verified by the contractor before work is commenced
3. Architect to be notified immediately if any discrepancies are found
4. All shop drawings to be approved by Architect before work commences.
5. All details to be in accordance with relevant British Standards and manufacturers recommendations and specification

All Dimensions in mm

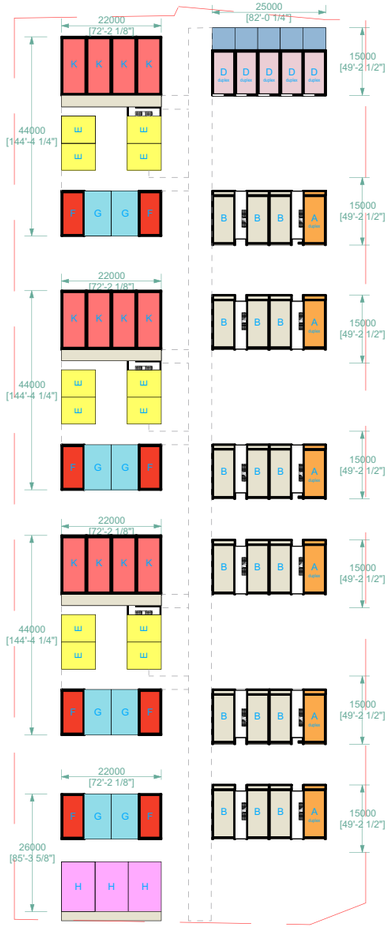


PIER 5 - GA PLAN LEVEL -1 (WORK IN PROGRESS)



PIER 5 - GA PLAN LEVEL 0 (WORK IN PROGRESS)

PIER 5 - GA PLAN LEVEL 1 (WORK IN PROGRESS)



PIER 5 - GA PLAN LEVEL 2 (WORK IN PROGRESS)

PIER 5 - GA PLAN LEVEL 3 (WORK IN PROGRESS)

KEY

- type A - 2 bed/ 3P duplex
- type B - studio/ 2P
- type C - 2 bed/ 3P duplex
- type D - 2 bed/ 3P duplex
- type E - 3 bed/ 4P
- type F - 3 bed/ 4P
- type G - 3 bed/ 4P
- type H - 5 bed/ 5P
- type J - 2 bed/ 3P duplex
- type K - 1 bed/ 2P
- type L - 2 bed/ 3P duplex
- type M - 2 bed/ 3P duplex

Rev	Date	Description	DRN	CK

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Drawing Title: FOOTPRINT INFORMATION

Scale: 1 to 1000 — A3 Sheet

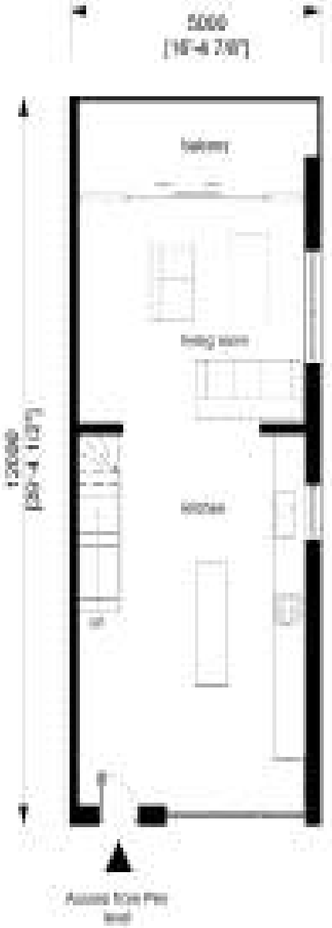
Client: SubCon

Status: PRELIMINARY

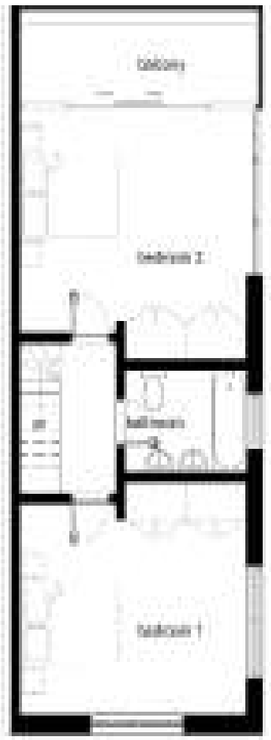
Project No. 297 — Project Name: MIXED USE - PIER 5

Project Address:PIER 5 BOSTON USA

Drawing No: 297-100-002 — Rev -



LEVEL 2 - TYPE A



71.5A sqft total floor area

LEVEL 1 - TYPE A

KEY PLAN 1"=100'-0"

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TYPICAL FLOOR PLANS
- TYPE A

1/8" = 1'-0"

Schematic

20T-130-Typea

500 sqft total floor area

LEVEL 1 - TYPE B

KEY PLAN 1"=100'-0"

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TYPICAL FLOOR PLANS
TYPE B

1/4" = 1'-0"

201-100-Type B

2150 sqft total floor area

LEVEL -1 - TYPE F

LEVEL 3 - TYPE F

LEVEL 1 - TYPE F

LEVEL 2 - TYPE F

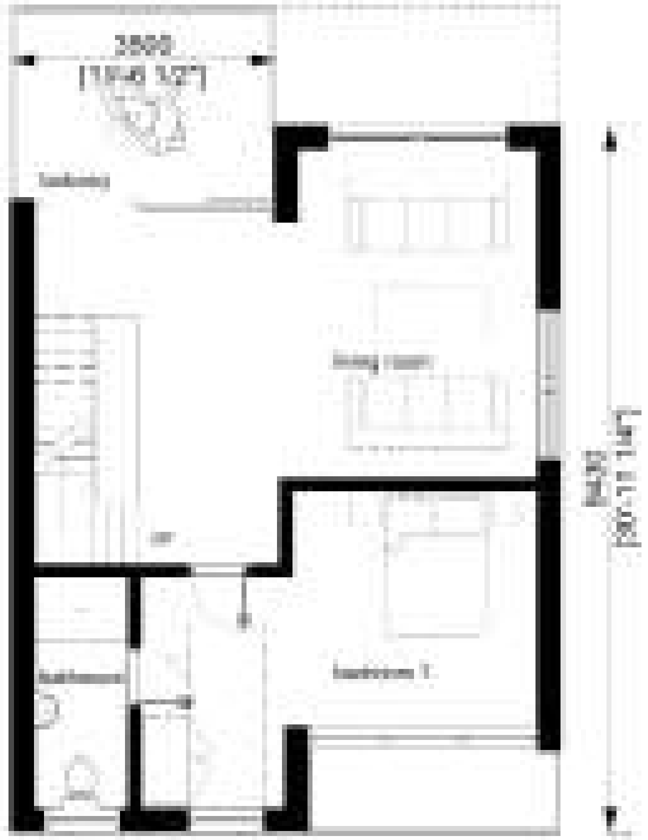
KEY PLAN 1"=100' 0"

Feet

0 20'

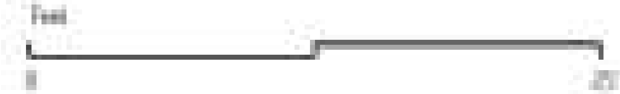
baca

TYPICAL FLOOR PLANS
TYPE F



LEVEL 2 - TYPE H

LEVEL 3 - TYPE H



LEVEL 1 - TYPE H

LEVEL 0 - TYPE H

LEVEL -1 - TYPE H

KEY PLAN 1"=100'-0"

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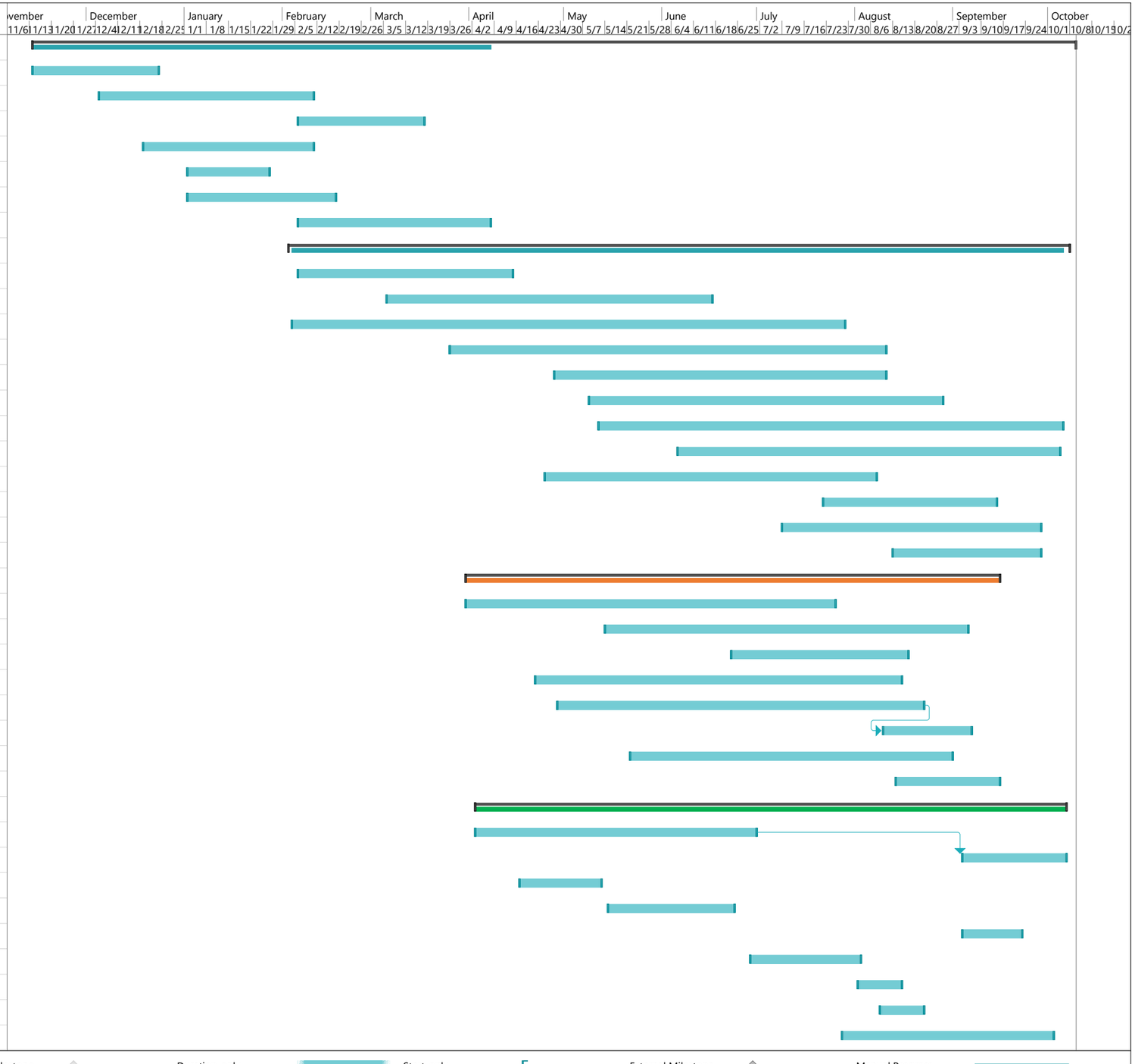
TYPICAL FLOOR PLANS
TYPE H

EXHIBIT A- DEVELOPMENT TIMELINE

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**Construction**	**236 days**	**Mon 11/14/22**	**Mon 10/9/23**	
2		Deck and Pier demo and disposal	30 days	Mon 11/14/22	Fri 12/23/22	
3		Cofferdam construction	50 days	Mon 12/5/22	Fri 2/10/23	
4		Harborwalk	30 days	Mon 2/6/23	Fri 3/17/23	
5		Bridge sections	40 days	Mon 12/19/22	Fri 2/10/23	
6		Breakwater Sections	20 days	Mon 1/2/23	Fri 1/27/23	
7		Anchoring system and piles	35 days	Mon 1/2/23	Fri 2/17/23	
8		Dockage	45 days	Mon 2/6/23	Fri 4/7/23	
9		**Building components**	**176 days**	**Fri 2/3/23**	**Sun 10/8/23**	
10		Floating Foundation construction	50 days	Mon 2/6/23	Fri 4/14/23	
11		Foundation Installation	75 days	Mon 3/6/23	Fri 6/16/23	
12		Building framing pre-fabrication	126 days	Sat 2/4/23	Sat 7/29/23	
13		Building Framing Installation	100 days	Sun 3/26/23	Thu 8/10/23	
14		Exterior Façade	75 days	Fri 4/28/23	Thu 8/10/23	
15		Glazing	80 days	Tue 5/9/23	Mon 8/28/23	
16		MEP's	105 days	Fri 5/12/23	Thu 10/5/23	
17		Interior construction/finishing	87 days	Tue 6/6/23	Wed 10/4/23	
18		Roofing	75 days	Tue 4/25/23	Mon 8/7/23	
19		Green Roofs	40 days	Sat 7/22/23	Thu 9/14/23	
20		Solar panels	60 days	Sun 7/9/23	Thu 9/28/23	
21		Rainwater Harvesting	35 days	Sun 8/13/23	Thu 9/28/23	
22		**Utilities**	**121 days**	**Fri 3/31/23**	**Fri 9/15/23**	
23		Water mains	83 days	Fri 3/31/23	Tue 7/25/23	
24		Sewers	83 days	Sun 5/14/23	Tue 9/5/23	
25		Drains	40 days	Fri 6/23/23	Thu 8/17/23	
26		Gas	83 days	Sat 4/22/23	Tue 8/15/23	
27		Electric	83 days	Sat 4/29/23	Tue 8/22/23	
28		Public Street Lighting	20 days	Thu 8/10/23	Wed 9/6/23	27
29		Telcom	74 days	Mon 5/22/23	Thu 8/31/23	
30		Public Connections	25 days	Mon 8/14/23	Fri 9/15/23	
31		**Harborwalk/ Parks and Open Space**	**135 days**	**Mon 4/3/23**	**Fri 10/6/23**	
32		Park Substrate	65 days	Mon 4/3/23	Fri 6/30/23	
33		Park Plantings	25 days	Mon 9/4/23	Fri 10/6/23	32
34		Floating Salt Marsh foundations	20 days	Mon 4/17/23	Fri 5/12/23	
35		Floating Salt Marsh substrate	30 days	Mon 5/15/23	Fri 6/23/23	
36		Floating Salt Marsh Plantings	15 days	Mon 9/4/23	Fri 9/22/23	
37		Harborwalk Extension	25 days	Thu 6/29/23	Wed 8/2/23	
38		Harborwalk Signage	10 days	Wed 8/2/23	Tue 8/15/23	
39		Historical Interpretive Signage	10 days	Wed 8/9/23	Tue 8/22/23	
40		Boat Slip Dockage	47 days	Fri 7/28/23	Mon 10/2/23	



Project: Construction schedule
Date: Thu 12/31/20

Task	Summary	Inactive Milestone	Duration-only	Start-only	External Milestone	Manual Progress
Split	Project Summary	Inactive Summary	Manual Summary Rollup	Finish-only	Deadline	
Milestone	Inactive Task	Manual Task	Manual Summary	External Tasks	Progress	

EXHIBIT B- LEED CHECKLIST

LEED v4 for BD+C: New Construction and Major Renovation

Project Checklist

Project Name: Pier 5
Date: 11/18/20

Y	?	N			
1			Credit	Integrative Process	1

	8	2	6	**Location and Transportation**		**16**
				Credit	LEED for Neighborhood Development Location	16
	1			Credit	Sensitive Land Protection	1
2	1		1	Credit	High Priority Site	2
	3	1	1	Credit	Surrounding Density and Diverse Uses	5
		1	4	Credit	Access to Quality Transit	5
	1			Credit	Bicycle Facilities	1
	1			Credit	Reduced Parking Footprint	1
	1			Credit	Green Vehicles	1

	9	1	0	**Sustainable Sites**		**10**
	Y			Prereq	Construction Activity Pollution Prevention	Required
	1			Credit	Site Assessment	1
	2			Credit	Site Development - Protect or Restore Habitat	2
	1			Credit	Open Space	1
2	2	1		Credit	Rainwater Management	3
	2			Credit	Heat Island Reduction	2
	1			Credit	Light Pollution Reduction	1

	2	6	3	**Water Efficiency**		**11**
	Y			Prereq	Outdoor Water Use Reduction	Required
	Y			Prereq	Indoor Water Use Reduction	Required
	Y			Prereq	Building-Level Water Metering	Required
		2		Credit	Outdoor Water Use Reduction	2
4	2	4		Credit	Indoor Water Use Reduction	6
			2	Credit	Cooling Tower Water Use	2
			1	Credit	Water Metering	1

	19	11	3	**Energy and Atmosphere**		**33**
	Y			Prereq	Fundamental Commissioning and Verification	Required
	Y			Prereq	Minimum Energy Performance	Required
	Y			Prereq	Building-Level Energy Metering	Required
	Y			Prereq	Fundamental Refrigerant Management	Required
	6			Credit	Enhanced Commissioning	6
8	10	8		Credit	Optimize Energy Performance	18
			1	Credit	Advanced Energy Metering	1
			2	Credit	Demand Response	2
2		3		Credit	Renewable Energy Production	3
	1			Credit	Enhanced Refrigerant Management	1
	2			Credit	Green Power and Carbon Offsets	2

	4	5	4	**Materials and Resources**		**13**
	Y			Prereq	Storage and Collection of Recyclables	Required
	Y			Prereq	Construction and Demolition Waste Management Planning	Required
2		1	4	Credit	Building Life-Cycle Impact Reduction	5
	2			Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
		2		Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
		2		Credit	Building Product Disclosure and Optimization - Material Ingredients	2
	2			Credit	Construction and Demolition Waste Management	2

	11	5	0	**Indoor Environmental Quality**		**16**
	Y			Prereq	Minimum Indoor Air Quality Performance	Required
	Y			Prereq	Environmental Tobacco Smoke Control	Required
	2			Credit	Enhanced Indoor Air Quality Strategies	2
	3			Credit	Low-Emitting Materials	3
	1			Credit	Construction Indoor Air Quality Management Plan	1
		2		Credit	Indoor Air Quality Assessment	2
	1			Credit	Thermal Comfort	1
	2			Credit	Interior Lighting	2
		3		Credit	Daylight	3
	1			Credit	Quality Views	1
	1			Credit	Acoustic Performance	1

	3	3	0	**Innovation**		**6**
	2	3		Credit	Innovation	5
	1			Credit	LEED Accredited Professional	1

	2	2	0	**Regional Priority**		**4**
	1			Credit	Regional Priority: Specific Credit	1
	1			Credit	Regional Priority: Specific Credit	1
		1		Credit	Regional Priority: Specific Credit	1
		1		Credit	Regional Priority: Specific Credit	1

59	35	16	**TOTALS**	Possible Points:	**110**

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

EXHIBIT C

PROJECT PERMITTING

Table 1 contains a list of federal, state, and local agencies from which permits or other actions may be sought or to which filings may be made.

Timeframe for completing pre-construction permitting and potential start of construction is approximately 18 months from Project initiation. This assumes that no variances are required from zoning, and that a Single Environmental Impact Report will be issued.

Table 1: Anticipated Permits, Reviews, and Approvals

Agency	Permit, Review, or Approval
Federal	
US Army Corps of Engineers (USACE)	• Work in Navigable Waters (Section 10) Individual Permit
National Environmental Policy Act (NEPA)	• Environmental Assesment/Finding of No Signficant Impact
Federal Aviation Agency (FAA)	• Determination of No Hazard to Air Navigation (cranes)
State	
Executive Office of Energy and Environmental Affairs (EOEEA)	• Massachusetts Environmental Policy Act (MEPA) Review Expanded Environmental Notification Form(EENF) and Single Environmental Impact Report (SEIR)
Massachusetts Department of Environmental Protection (MassDEP)	• Chapter 91 Waterways License • Notification of Construction and Demolition
Massachusetts Office of Coastal Zone Management (CZM)	• Federal Consistency Review
Massachusetts Historical Commission (MHC)	• Finding of No Adverse Effect relative to historic and archeological resources • Section 106 Review

Board of Underwater Archaeological Resources (BUAR)	• Review of proposed work/Project Site to determine if Reconnaissance Excavation or Special Use Permit(s) are necessary
Local	
Boston Planning and Development Agency	• Article 80 Large Project Review • Cooperation Agreement • Certificate of Compliance • Lease Agreement • IGBC Article 37 Review • Compliance with Design Standards for New Development Area
Boston Conservation Commission	• Order of Conditions under State Wetlands Protection Act and local ordinance
Boston Civic Design Commission	• Review and Recommendation on Design
Boston Water and Sewer Commission	• Site Plan Approval
Department of Neighborhood Development	• Affirmative Marketing Plan
Boston Transportation Department	• Transportation Access Plan Agreement • Construction Management Plan

EXHIBIT C

Fort Point Associates, Inc.
31 State Street, 3rd Floor
Boston, MA 02109
(617) 357-7044

Pier 5 Major Permit Schedule

12/20/20

TASKS	Days	2021 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2022 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Design and Construction																									
Schematic Design	106d	1/25				5/10																			
Design Development	105d				5/11				8/23																
Value Engineering/Construction Drawings	185d							8/23							2/23										
Public Process																									
Elected Officials	2d		2/8			5/3																			
Executive Office of Environmental Affairs	2d		2/15			5/10																			
MEPA	1d		2/15																						
Department of Environmental Protection (DEP)	3d		2/15		4/19			7/2																	
Coastal Zone Management	1d		2/15																						
Army Corps of Engineers/ Federal Agencies	2d		2/20			5/19																			
Boston Planning and Development Agency (BPDA)	3d		2/23			5/10					10/6														
Boston Conservation Commission	1d		2/23																						
Neighborhood Associations/Advocacy Groups	2d		3/2			5/26																			
Meetings	5d			4/2		6/1			8/2		10/15			1/14											
BPDA Large Project Review																									
Letter of Intent	30d			4/3	5/2																				
Project Notification Form	90d				5/2		7/30																		
Draft Project Impact Report	154d							7/30					12/30												
BPDA Board vote	43d											12/30		2/10											
Boston Civic Design Commission																									
BCDC Design Review																									
Massachusetts Environmental Policy Act (MEPA)																									
Expanded ENF	88d				5/1			7/27																	
Certificate on EENF	1d								8/17																
Single EIR	136d							8/17					12/30												
Certificate on SEIR	1d												1/15												
Boston Conservation Commission																									
Prepare and Submit Notice of Intent (WPA only)	30d											12/21	1/19												
Order of Conditions	55d											1/19		2/8	3/13										
Department of Environmental Protection (DEP)																									
Prepare and Submit Chapter 91 Application	62d											11/19	1/19												

△ Meeting/Hearing — Review Timeline — ◆ Decision/Report/Permit/Notice

EXHIBIT C (cont'd)

Fort Point Associates, Inc.
31 State Street, 3rd Floor
Boston, MA 02109
(617) 357-7044

Pier 5 Major Permit Schedule

12/20/20

TASKS	Days	Start	Milestone	End
Chapter 91 License	221d	1/19	3/17	8/25
Appeal Period	21d	8/25		9/13
Record Chapter 91 License	60d	9/13		11/11
Coastal Zone Management (CZM)				
Prepare and Submit Request for Consistency	8d	8/17		8/24
Federal Consistency Determination	88d	8/24		11/18
US Army Corps of Engineers (ACOE)				
Prepare and Submit Individual Permit	32d	5/17		6/17
Individual Permit	164d	6/17		11/27

Timeline: 2021 (Jan–Dec), 2022 (Jan–Dec)

△ Meeting/Hearing — Review Timeline ◆ Decision/Report/Permit/Notice

EXHIBIT D

PROJECT MULTIFAMILY RENT COMPARABLES

								
	Parris Landing - Condominiums 48 8th Street	**Flagship Wharf - Condominiums** 197 8th Street	**Harborview at the Navy Yard** 250 1st Avenue	**The Eddy** 10 New Street Maverick	**Boston East** 126 Border Street Maverick	**NEMA Boston** 399 Congress Street	**The Benjamin** 25-29 Northern Avenue	**Watermark Seaport** 85 Seaport Boulevard
Total Units:	367	198	224	259	200	414	354	346
Year Built:	2004	2018	2007	2016	2018	2019	2017	2016
Occupancy:	-	-	96%	87%	78%	72%	84%	93%
	Studio	1 BR / 1 BA	Studio	Studio	Studio	Studio	Studio	Studio
Monthly Rent:	$2,100	$2,700	$2,893	$1,982	$2,154	$2,465	$2,268	$2,112
Square Feet:	500	747	560	446	469	440	470	408
Rent/Sq. Ft.:	$4.20	$3.61	$5.17	$4.44	$4.59	$5.60	$4.83	$5.18
Rent/Bed:	$2,100	$2,700	$2,893	$1,982	$2,154	$2,465	$2,268	$2,112
	1 BR / 1 BA	1 BR / 1 BA	1 BR / 1 BA	1 BR / 1 BA	1 BR / 1 BA	1 BR / 1 BA	1 BR / 1 BA	1 BR / 1 BA
Monthly Rent:	$2,600	$3,000	$3,157	$2,322	$2,327	$3,032	$3,248	$2,889
Square Feet:	703	747	878	612	621	619	756	616
Rent/Sq. Ft.:	$3.70	$4.02	$3.60	$3.79	$3.75	$4.90	$4.30	$4.69
Rent/Bed:	$2,600	$3,000	$3,157	$2,322	$2,327	$3,032	$3,248	$2,889
	2 BR / 2 BA	2 BR / 2 BA	2 BR / 2 BA	2 BR / 2 BA	2 BR / 2 BA	2 BR / 2 BA	2 BR / 2 BA	2 BR / 2 BA
Monthly Rent:	$3,400	$5,000	$4,186	$2,991	$3,475	$4,234	$5,486	$4,503
Square Feet:	941	1,450	1,355	888	952	946	1,094	983
Rent/Sq. Ft.:	$3.61	$3.45	$3.09	$3.37	$3.65	$4.48	$5.01	$4.58
Rent/Bed:	$1,700	$2,500	$2,093	$1,496	$1,738	$2,117	$2,743	$2,252
						3 BR / 2 BA	3 BR / 2 BA	
Monthly Rent:						$5,511	$6,748	
Square Feet:						1,063	1,242	
Rent/Sq. Ft.:						$5.18	$5.43	
Rent/Bed:						$1,837	$2,249	

EXHIBIT E

PROPOSED PERMITTING APPROACH

This innovative project has no precedent in the City of Boston or the Commonwealth, and will require the active support of City and state agencies to authorize its construction and operation. We currently anticipate that among other permitting the project will be subject to Chapter 91 licensing, which in turn is likely to require close coordination with the BPDA, and subsequently with the Department of Environmental Protection and the Office of Coastal Zone Management.

In order to comply with Chapter 91 without the need to amend the Municipal Harbor Plan or seek other legislative action, the spine of the pier, including the parks, dockage, gangways, saltmarsh, and any other structure is envisioned to be permitted as a marina, The floating blocks of housing are then designed to be detachable and movable from their tethered locations. This design makes each block of housing a barge or vessel rather than real affixed property. Accordingly, the project and blocks of housing will be subject to applicable marine vessel requirements.

A Home Rule petition request from the City of Boston to the state legislature may also become an option. If this Home Rule is passed locally, the city government will send this bill to Massachusetts State Representatives and State Senators, who would seek to pass it in the legislature as a state law and would only affect this project.

The blocks of housing are intended to be detachable and movable from its tethered location, thus making each block of housing a barge or large vessel rather than real affixed property. Language on barge and vessel regulations will be provided. The remaining spine of the pier or possible floating spine, including the parks, dockage, gangways, saltmarsh, and any other structure built separate from the barge/vessel housing units, will be considered a marina use; either pier support or pile secured, but depending on the final cost analysis, will likely be all floating.

EXHIBIT F

PRELIMINARY ZONING ANALYSIS

The above-mentioned property has an address located at Eight Street in the City of Boston. The property is described by City of Boston Assessing Department as parcel ID # 0203505600, approximately 158,461 square feet, located in the Harborpark Charlestown Waterfront Zoning District. In particular, Pier 5 falls within the Charlestown Navy Yard Sub-district/New Development Area according to Map 2B-2C of the Boston Zoning Code.

The Charlestown Navy Yard Sub-district is a mixed-use area which includes, water dependent & water related uses, open space recreational uses, multi-family residential dwellings, community uses & cultural facilities, restaurants, offices, general retail, parking uses, etc, and is applicable to the zoning regulations set forth in Article 42F of the Boston Zoning Code.

The purpose of Article 42F and the Harborpark District Plan are to protect the Harborpark District from inappropriate land and water uses; to promote balanced growth along Boston's shoreline; to allow the waterfront to be used as a public resource and thereby to extend its use and benefit to the greatest number of people; to preserve and protect public open space and beach area within the harbor area; to promote public access to the waterfront; to promote residential and mixed-use commercial activities compatible with adjacent areas; to promote the economic growth and development of water-dependent and water-related commercial activity; to protect the working waterfront and preserve areas for water-dependent uses; to promote public waterborne transportation; and to promote uses which integrate uses, activities, and physical connections between the harbor and its surrounding neighborhoods.

The intended use by 6M Development, LLC is to renovate, beautify, and utilize the existing dilapidated pier in accordance the above-mentioned purpose of Article 42F if the current design proves to be more cost effective than an all floating marina, parks, and hardscape, and landscape. The focus is to transform Pier 5 or reconstruct new structure in its entirety into a vibrant area to live, grow and for the entire Charlestown community to enjoy. Depending on the final design of the vessels will determine which parts of the 'kit of parts' is subject the dimensional regulations set forth in Article 42F, including, but not limited to, Usable Open Space, Set-backs, Height, Floor Area Ratio. In addition, Pier 5 development is subject to Tideland Regulations pursuant to Chapter 91 of the Massachusetts General Laws as set forth in Article 42F.

If applicable, as part of the zoning process, the proponent will appear before all neighborhood civic associations prior to any city hearings. The Charlestown Neighborhood Boards and associations would include groups as the Charlestown Waterfront Coalition and the Charlestown Neighborhood Council in addition to the Impact Advisory Group that will be formed for the project through the BPDA review process. Other groups we would meet with are the Charlestown Chamber of Commerce, the Charlestown Business Association

EXHIBIT G

boston planning & development agency

Climate Resiliency Checklist

NOT FOR FILING

NOTE: Project filings should be prepared and submitted using the online Climate Resiliency Checklist.

A.1 - Project Information

Project Name:	Pier 5 Climate Resilient Housing project			
Project Address:	Pier 5, Charlestown Navy Yard,			
Project Address Additional:				
Filing Type (*select*)	*Initial (PNF, EPNF, NPC or other substantial filing)* *Design / Building Permit (prior to final design approval), or* *Construction / Certificate of Occupancy (post construction completion)*			
Filing Contact	*Name*	*Company*	*Email*	*Phone*
Is MEPA approval required	*Yes/no*		*Date*	

A.3 - Project Team

Owner / Developer:	6M Development
Architect:	WaterStudio.Blue
Engineer:	Howard Stein Hudson
Sustainability / LEED:	EBI Consulting
Permitting:	Fort Point Associates – Dain Torpy
Construction Management:	CM is TBD – OPM is Carrier Associates

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Climate Resilient Floating Multifamily Residential
List the First Floor Uses:	First Floor residential with accessory retail and supportive uses for the residential
List any Critical Site Infrastructure and or Building Uses:	The existing Pier is condemned and is in need of demolition.

Site and Building:

Site Area:	*166,586 SF*	Building Area:	*183,548 SF*
Building Height:	*35 Ft*	Building Height:	*3 Stories*
Existing Site Elevation – Low:	*5 Ft BCB*	Existing Site Elevation – High:	*0 Ft BCB*
Proposed Site Elevation – Low:	*3 Ft BCB*	Proposed Site Elevation – High:	*3 Ft BCB*
Proposed First Floor Elevation:	*0 Ft BCB*	Below grade levels:	*1 Stories*

Article 37 Green Building:

LEED Version - Rating System :	V4 for BD+C	LEED Certification:	*Yes*
Proposed LEED rating:	***Silver***	Proposed LEED point score:	*59 Pts.*

EXHIBIT G (cont'd)

Building Envelope

When reporting R values, differentiate between R discontinuous and R continuous. For example, use "R13" to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Roof:	*49(R)*	Exposed Floor:	*21(R)*
Foundation Wall:	*21(R)*	Slab Edge (at or below grade):	*21(R)*

Vertical Above-grade Assemblies (%'s are of total vertical area and together should total 100%):

Area of Opaque Curtain Wall & Spandrel Assembly:	*0(%)*	Wall & Spandrel Assembly Value:	*N/A(U)*
Area of Framed & Insulated / Standard Wall:	*60(%)*	Wall Value	*21(R)*
Area of Vision Window:	*24-35%*	Window Glazing Assembly Value:	*.17-.25(U)*
		Window Glazing SHGC:	*.30-.60(SHGC)*
Area of Doors:	*5%*	Door Assembly Value:	*.34+/-(U)*

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined	*Being that this is a Request for Proposals and the fact that the MEP systems have not been designed, this section will have to remain N.A. until an MEP system is selected. The proponent is researching a hydo system that will take advantage of the temperate waters of the harbor to cool and supplement heating.*		
Annual Electric:	***2,000,000 (kWh)***	Peak Electric:	***550** (kW)*
Annual Heating:	***1900** (MMbtu/hr)*	Peak Heating:	***4000** (MMbtu)*
Annual Cooling:	***500 (MMbtu/hr)***	Peak Cooling:	***325** (Tons)*
Energy Use - Below ASHRAE 90.1 - 2013:	***20%***	Have the local utilities reviewed the building energy performance?:	***No***
Energy Use - Below Mass. Code:	***15%***	Energy Use Intensity:	***35-40** (kBtu/SF)*

Back-up / Emergency Power System

Electrical Generation Output:	*Not yet known (kW)*	Number of Power Units:	*Not yet known*
System Type:	*Not yet known (kW)*	Fuel Source:	*Not yet known*

Emergency and Critical System Loads (in the event of a service interruption)

Electric:	*Not yet known (kW)*	Heating:	*Not yet known (MMbtu/hr)*
		Cooling:	*Not yet known (Tons/hr)*

B – Greenhouse Gas Reduction and Net Zero / Net Positive Carbon Building Performance

Reducing GHG emissions is critical to avoiding more extreme climate change conditions. To achieve the City's goal of carbon neutrality by 2050 new buildings performance will need to progressively improve to net carbon zero and positive.

B.1 – GHG Emissions - Design Conditions

For this Filing - Annual Building GHG Emissions: ***750*** *(Tons)*

For this filing - describe how building energy performance has been integrated into project planning, design, and engineering and any supporting analysis or modeling:

Energy performance estimated based on previous project experience modeling all-electric buildings with energy efficient systems.

Describe building specific passive energy efficiency measures including orientation, massing, envelop, and systems:

This has not been fully designed and will be provided post submission if designated

Describe building specific active energy efficiency measures including equipment, controls, fixtures, and systems:

Heat pumps, energy recovery ventilation, all-LED lighting, low flow plumbing fixtures, Energy Star appliances,

Describe building specific load reduction strategies including on-site renewable, clean, and energy storage systems:

This has not been fully designed and will be provided post submission if designated, but the intent is to possibly make use of sea water cooling

Describe any area or district scale emission reduction strategies including renewable energy, central energy plants, distributed energy systems, and smart grid infrastructure:

The proponent is unaware of a district scale system in this area of Boston.

Describe any energy efficiency assistance or support provided or to be provided to the project:

The Project team will work with Eversource to determine what programs and incentives will be available for the Project, possibly through the MassSave Multifamily new construction program.

B.2 - GHG Reduction - Adaptation Strategies

Describe how the building and its systems will evolve to further reduce GHG emissions and achieve annual carbon net zero and net positive performance (e.g. added efficiency measures, renewable energy, energy storage, etc.) and the timeline for meeting that goal (by 2050):

The building will be constructed to meet stringent new MA Energy Code and Stretch Energy requirements; any future renovations to the property will also meet energy code. There will be high efficiency HVAC/domestic hot water systems, and all-LED lighting throughout.

C - Extreme Heat Events

Annual average temperature in Boston increased by about 2˚F in the past hundred years and will continue to rise due to climate change. By the end of the century, the average annual temperature could be 56° (compared to 46° now) and the number of days above 90° (currently about 10 a year) could rise to 90.

C.1 – Extreme Heat - Design Conditions

Temperature Range - Low:	*7 Deg.*	Temperature Range - High:	*91 Deg.*
Annual Heating Degree Days:	**5,854**	Annual Cooling Degree Days	**796**

What Extreme Heat Event characteristics will be / have been used for project planning

Days - Above 90°:	*20 #*	Days – Above 100°:	*10 #*
Number of Heatwaves / Year:	*6 #*	Average Duration of Heatwave (Days):	*3 #*

Describe all building and site measures to reduce heat-island effect at the site and in the surrounding area:

As this proposed development will be sitting in the harbor surrounded by water, at it's warmest, will be in the 70's, so the heat island effect will be minimized by this condition.

C.2 - Extreme Heat – Adaptation Strategies

Describe how the building and its systems will be adapted to efficiently manage future higher average temperatures, higher extreme temperatures, additional annual heatwaves, and longer heatwaves:

All residential units and amenity spaces will have operable windows for natural ventilation and will be built to the applicable stretch code requirements and will minimize heat intrusion.

Describe all mechanical and non-mechanical strategies that will support building functionality and use during extended interruptions of utility services and infrastructure including proposed and future adaptations:

A generator will be provided for amenity spaces and can be provided with HVAC and standby electrical for tenant comfort and electricity use during any outage. Power outages in downtown Boston have been of limited frequency.

D - Extreme Precipitation Events

From 1958 to 2010, there was a 70 percent increase in the amount of precipitation that fell on the days with the heaviest precipitation. Currently, the 10-Year, 24-Hour Design Storm precipitation level is 5.25". There is a significant probability that this will increase to at least 6" by the end of the century. Additionally, fewer, larger storms are likely to be accompanied by more frequent droughts.

D.1 – Extreme Precipitation - Design Conditions

10 Year, 24 Hour Design Storm:	*6.65 In.*

Describe all building and site measures for reducing storm water run-off:

The project will not have vehicular impacts and all walkways will be permeable and stormwater will be able to drain to the harbor directly from structures.

D.2 - Extreme Precipitation - Adaptation Strategies

Describe how site and building systems will be adapted to efficiently accommodate future more significant rain events (e.g. rainwater harvesting, on-site storm water retention, bio swales, green roofs):

EXHIBIT G (cont'd)

Being that the proposed project is floating housing, the resiliency to flooding is ensured as the elevation of the housing will match that of the water elevation. Water will shed into the harbor with no issue with the need for stormwater filtration. Low impact development measures will be implemented.

E – Sea Level Rise and Storms

Under any plausible greenhouse gas emissions scenario, sea levels in Boston will continue to rise throughout the century. This will increase the number of buildings in Boston susceptible to coastal flooding and the likely frequency of flooding for those already in the floodplain.

Is any portion of the site in a FEMA SFHA?	*Yes*	What Zone:	VE
		Current FEMA SFHA Zone Base Flood Elevation:	*11 Ft BCB*

Is any portion of the site in a BPDA Sea Level Rise - Flood Hazard Area? Use the online BPDA SLR-FHA Mapping Tool to assess the susceptibility of the project site.	*Yes*

If you answered YES to either of the above questions, please complete the following questions. Otherwise you have completed the questionnaire; thank you!

E.1 – Sea Level Rise and Storms – Design Conditions

Proposed projects should identify immediate and future adaptation strategies for managing the flooding scenario represented on the BPDA Sea Level Rise - Flood Hazard Area (SLR-FHA) map, which depicts a modeled 1% annual chance coastal flood event with 40 inches of sea level rise (SLR). Use the online BPDA SLR-FHA Mapping Tool to identify the highest Sea Level Rise - Base Flood Elevation for the site. The Sea Level Rise - Design Flood Elevation is determined by adding either 24" of freeboard for critical facilities and infrastructure and any ground floor residential units OR 12" of freeboard for other buildings and uses.

Sea Level Rise - Base Flood Elevation:	*11 Ft BCB*		
Sea Level Rise - Design Flood Elevation:	*N/A Ft BCB*	First Floor Elevation:	*3 Ft BCB*
Site Elevations at Building:	*3 Ft BCB*	Accessible Route Elevation:	*N/A Ft BCB*

Describe site design strategies for adapting to sea level rise including building access during flood events, elevated site areas, hard and soft barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Being that the proposed project is floating housing, the resiliency to flooding is ensured as the elevation of the housing will match that of the water elevation.

Describe how the proposed Building Design Flood Elevation will be achieved including dry / wet flood proofing, critical systems protection, utility service protection, temporary flood barriers, waste and drain water back flow prevention, etc.:

Being that the proposed project is floating housing, the resiliency to flooding is ensured as the elevation of the housing will match that of the water elevation.

Describe how occupants might shelter in place during a flooding event including any emergency power, water, and waste water provisions and the expected availability of any such measures:

Occupants will be able to stay in their homes during possibly flooding and storm events as the structure will allow for flood stage waters to rise and fall

Describe any strategies that would support rapid recovery after a weather event:

There would in essence not be a recovery because the project will not sustain any adverse impacts. The project is design to be resilient to flooding and storms.

E.2 – Sea Level Rise and Storms – Adaptation Strategies

Describe future site design and or infrastructure adaptation strategies for responding to sea level rise including future elevating of site areas and access routes, barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Being that the proposed project is floating housing, the resiliency to flooding is ensured as the elevation of the housing will match that of the water elevation.

Describe future building adaptation strategies for raising the Sea Level Rise Design Flood Elevation and further protecting critical systems, including permanent and temporary measures:

The floating structures will be tethered to piles and will rise and fall with the tide. The piles will have additional height to account for flood stage levels.

A pdf and word version of the Climate Resiliency Checklist is provided for informational use and off-line preparation of a project submission. NOTE: Project filings should be prepared and submitted using the online Climate Resiliency Checklist.

For questions or comments about this checklist or Climate Change best practices, please contact: John.Dalzell@boston.gov

EXHIBIT H

PROPONENTS ADHERANCE TO THE BOSTON RESIDENTS JOBS POLICY

Developers and Contractors may rely on traditional referral methods in the hiring of journeymen, apprentices, advanced trainees and helpers. Developers and contractors also shall implement affirmative action steps, which include the following to the extent that such steps do not conflict with any collective bargaining agreement:

CONTRACTOR'S BEST EFFORTS

l. The contractor shall designate and shall require each subcontractor to designate an individual to serve as a compliance officer for the purpose of pursuing the Boston Residents Construction Employment Standards.

2. Prior to the start of construction, the contractor and each subcontractor then selected shall meet with appropriate representatives of the construction trade unions, representatives from the Boston Residents Jobs Policy Office, and the awarding or contracting authority for the purpose of reviewing the Standards and the estimated employment requirements for construction activity over the construction period of the Covered Project.

3. Whenever any person involved in the construction of a Covered Project makes a request to a union hiring shall, business agent or contractor's association for qualified workers, the requestor shall ask that those qualified applicants referred for construction positions be referred in the proportions specified in the Boston Residents Construction Employment Standards and shall, further, contain a recitation of such Standards. However, if the requesting party's workforce composition at any time falls short of any one or more of the proportions specified in the Standards, the requesting party shall adjust his or her request so as to seek to more fully achieve the proportions as specified in the Standards. If the union hall, business agent or contractor's association to whom a request for qualified employees has been made, fails to fully comply with such a request, the requesting party's compliance officer shall seek written confirmation that there are insufficient employees in the categories specified in the request and that such insufficiency is documented on the unemployment list maintained by the hall, agent or association. Copies of any confirmation so
obtained shall be forwarded to the Commission. Copies of any requests for qualified employees made at the time that the requesting party's workforce composition falls short of any one or more of such Standards shall be forwarded contemporaneously to the Boston Residents Jobs Policy Office.

4. All persons applying directly to the Contractor or any subcontractor for employment in construction of a Covered Project who are not employed by the party to whom application is made shall be referred by said party to the Boston Residents Jobs Policy Office, and a written record of such a referral shall be made by said party, a copy of which shall be sent to said Compliance and Enforcement Division.

5. Contractors shall maintain a current file of the names, addresses, and telephone numbers of each Boston Resident, Minority and Woman who has sought employment with respect to a Covered Project, or who was referred to the contractor by the Boston Residents Jobs Policy Office, but was not hired. The contractor shall maintain a record of the reason any such person was not hired. (Amendment inclusion 9/26/86) If the construction of a Covered Project is subject to any union collective bargaining agreements, it shall be required that the employee complies with any lawful union security clauses contained in such agreement.

EXHIBIT H (cont'd)

6. The contractor shall in a timely manner complete and submit to the Commission a projection of the workforce needs over the course of construction of the Covered Project. Such a submission shall reflect the needs by trade for each month of the construction process.

7. The contractor shall obtain from each worker employed in the construction of the Covered Project, a sworn statement containing the worker's name and place of residence.

8. One week following the commencement of construction of the project, and each week thereafter until such work is completed, the contractor shall complete and submit to the Boston Residents Jobs Policy Office for the week just ended a report which reflects (a) for each employee, the employee's name, place of residence, race, gender, trade and total number of worker hours he or she worked, and (b) the total worker hours of its total workforce.

9. The contractor and each subcontractor shall maintain records reasonably necessary to ascertain compliance with the steps detailed in clauses (l) through (8) hereof for a least one year after the issuance of a Certificate of Occupancy for the Covered Project. In its review of records of a construction project submitted to demonstrate compliance with these steps, the Commission shall take into consideration any affirmative action outreach programs and affirmative action job training programs of the particular trades participating in the Covered Project.

DEVELOPER'S BEST EFFORTS

l. Developers of the Covered Project shall incorporate in every general construction contract or construction management agreement an enumeration of the Standards and shall impose a responsibility upon any such general contractor or construction management to take all steps enumerated in clauses (l) through (9), and to incorporate such Standards in all subcontracts and impose upon all subcontractors the obligation to take such steps.

2. The developer shall meet with the contractor no less frequently than weekly throughout the period of construction of the Covered Project to review the contractor's compliance with such Standards and steps. The developer shall maintain minutes of such meetings and shall forward a copy of such minutes to the Boston Residents Jobs Policy Office within ten (l0) days of such meeting.

3. The developer shall comply with the escrow deposits as requirements of the Boston Employment Commission.

EXHIBIT I

Diversity Inclusion Plan

The proponent will use diversity, equity and inclusion (DE&I) initiatives for both compliance obligations and to increase the overall bottom line with a more diverse, equitable and inclusive workforce. Developing the DE&I initiative will involve four main phases:

1. Data collection and analysis to determine the need for change.

2. Strategy design to match business objectives.

3. Implementation of the initiative.

4. Evaluation and continuing audit of the plan.

The following steps break down these main phases into action steps the proponent will take to develop a DE&I initiative.

Step 1: Compile Data on Workforce

The proponent will establish what the potential workforce looks like compared with the labor market, and if there are inequities based on demographics. By capturing data on employee demographics, an employer is better able to understand the diversity of the employees and equity of its internal practices and identify any areas of concern or trends.

Surveying employees will help shed light on their perception of the project in relation to encouraging and appreciating DE&I in the workplace.

Step 2: Identify Needs and/or Areas of Concern

Once data are collected, underrepresented or problematic areas can be identified. To do so, the proponent will begin with a high-level review of demographics such as age, sex and race representation and equity, and then continue to drill down by area of focus, position, etc. Identification of problem areas can include questions such as:

- Is management full of older white males?
- Do black females make less than their white counterparts?
- Does the accounting department tend to hire only females?
- Have promotions been limited for those with English as their second language?
- Are employees in certain fields more ethnically diverse than in other fields?

Additional information gained from employee surveys can help identify other areas of concern. Employee attitudes on culture may or may not match the survey results. If they do match, then the proponent will have a clearer path to what change is needed; if not, the organization may wish to conduct employee focus groups to better understand the disconnect.

Step 3: Address Policies or Practices Affecting DE&I

The proponent will determine if there are barriers impeding the employment, opportunity or inclusion of individuals from different demographic groups. Organizations should consider if any policies or practices need to be eliminated or adjusted. Some examples to start with include:

- Unconscious biases: Are there certain areas of the project that are underrepresented in relation to the labor market? Is it possible that the hiring manager is selecting individuals based on biases against certain groups?
- Company culture: Apparent preferences toward pro-life, traditional marriage and other aspects often associated with religious beliefs can repel candidates of differing beliefs or lifestyles. An annual Christmas party and recognizing only Christian holidays in a workplace can unintentionally send a message that only Christian employees are welcome.
- Political preferences: An employer with political signs and/or messages on its property may discourage individuals with different viewpoints from applying. A bumper sticker on an employee›s car supporting a candidate who differs from a manager›s choice can affect the manager›s perception of the employee, as well as the manager›s decisions regarding pay, performance and promotion. The organization must take appropriate disciplinary action when employees, including supervisors or managers, are intolerant of differences.

Step 4: Identify Business Objectives

Identifying how a diverse, equitable and inclusive workforce can aid in achieving business objectives aligned with the company's strategy is the next step in the process. The organization must set specific goals related to DE&I based on the company's strategic objectives.

Step 5: Procure Buy-in and Support

For the DE&I initiative to succeed, senior level buy-in and support are vital. Management must understand the business case for DE&I initiatives, with direct links to the project's strategic goals. It is helpful to identify a senior-level person who can be tasked with visible support of the initiative and ultimately responsible for keeping the program "alive."

Another task is to identify how management will be held accountable for supporting and engaging in the DE&I initiatives. Examples of manager expectations include ongoing dialogue with staff regarding DE&I, training for team members, and holding direct reports accountable for their individual actions related to fostering a diverse, equitable and inclusive workplace.

EXHIBIT I

Step 6: Implement Initiatives

Examples of DE&I initiatives are changes in policies and practices, staff training, targeted recruiting, and employer-sponsored DE&I awareness events for employees. The proponent will develop an action plan to implement these initiatives by setting realistic goals and starting with the elements that have the greatest business value or that are readily achievable to build momentum for the initiative.

Step 7: Communicate the Initiatives

Employers must identify different stakeholders and design messages for each stakeholder to inform, educate, engage or empower as appropriate. People vary in how they understand messages, and it is important for each person to receive an ongoing stream of communications about the initiatives. The communication plan should incorporate executive presentations and all available media, including social media. Newsletters, intranet and e-mail can also be successful communication tools. The organization should use metrics and success stories to connect the DE&I efforts to its own goals and strategic plan.

Step 8: Measure and Disseminate Outcomes

It is imperative to measure the results of the DE&I initiatives that have been implemented. Outcomes such as increased representation of identified groups and improved employee survey scores should be captured. Other measurements, such as improved employee retention, and public recognition, such as employer awards or social media accolades, can also indicate how an employer is performing in its DE&I initiatives.

Step 9: Review and Adjust

DE&I initiatives are not static, and an ongoing review of the workforce and a response to changing needs are necessary. The proponent must establish procedures for periodic review of DE&I initiatives and goals. After a DE&I initiative has been implemented for a period of time, the employer should resurvey employees regarding their perceptions of the company’s efforts. Periodically, an organization may need to start at step 1 again and collect data to refocus its DE&I program.

EXHIBIT J

Commonwealth of Massachusetts
Department of Revenue
Geoffrey E. Snyder, Commissioner

mass.gov/dor

Letter ID: L1919752512
Notice Date: December 22, 2020
Case ID: 0-000-891-360

CERTIFICATE OF GOOD STANDING AND/OR TAX COMPLIANCE

6M DEVELOPMENT LLC
5 UNION WHARF
BOSTON MA 02109-1202

Why did I receive this notice?

The Commissioner of Revenue certifies that, as of the date of this certificate, 6M DEVELOPMENT LLC is in compliance with its tax obligations under Chapter 62C of the Massachusetts General Laws.

This certificate doesn't certify that the taxpayer is compliant in taxes such as unemployment insurance administered by agencies other than the Department of Revenue, or taxes under any other provisions of law.

This is not a waiver of lien issued under Chapter 62C, section 52 of the Massachusetts General Laws.

What if I have questions?

If you have questions, call us at (617) 887-6400 or toll-free in Massachusetts at (800) 392-6089, Monday through Friday, 9:00 a.m. to 4:00 p.m..

Visit us online!

Visit mass.gov/dor to learn more about Massachusetts tax laws and DOR policies and procedures, including your Taxpayer Bill of Rights, and MassTaxConnect for easy access to your account:

- Review or update your account
- Contact us using e-message
- Sign up for e-billing to save paper
- Make payments or set up autopay

Edward W. Coyle, Jr., Chief
Collections Bureau

EXHIBIT K

Marketing Strategy for Pier 5, Charlestown

Pre-Market Phase (6 months before C.O.)

Outbound Marketing. The first aim for the marketing strategy will be to work with the extensive RESIS database to demonstrate a strong start before going live to the market. The pro-forma pricing will be offered to early "pre-market" renters in order to establish ground floor price points and to show immediate traction as soon as we open leasing to the public.

The "pre-market" campaign will be comprised of various outbound marketing efforts to our database of prospects from:

- Our clients who follow us from project to project with the intention of being the first in on new developments
- Our 5,000+ database of renters and renter leads developed over the past several years as a result of large lease-ups and maintenance leasing for new rental buildings

We will also extend the pre-marketing campaign to our broker network, including:

- Offering pre-marketing listings to the brokerage community through Boston Agent Connect, Top Agent Network, and several other private top broker networks
- Promoting select listings via the RESIS social media channels and a "Coming Soon" website as well as social media channels specific to the property

Pre-Construction Phase (3 months before C.O.)

Targets. As we go out to the general public with a pre-construction marketing campaign, the goal will be to control inventory and lift pricing as leasing milestones are reached in order to maximize profitability. We will enter the pre-construction phase with units already under contract and proof of concept already established to demonstrate validity in our pricing and credibility of our product. A clear and concise value proposition and engaging and attractive lifestyle and brand personality will be expressed throughout our site signage, leasing trailer, full website, renderings, brochures, ads, and email marketing messages. We will aggressively target various audiences, casting a wide net for maximum exposure. Targets will include:

- Professionals working in Charlestown, North Station, West End (and affiliated with MGH and Spaulding), Seaport, and the Financial District
- Professionals who use air travel frequently for work
- Renters in lifestyle buildings in North Station, Downtown, Waterfront, West End, as well as high paying renters in South Boston, and North End.

EXHIBIT K (cont'd)

We will also target high paying renters along the various commuting lines into Seaport, North Station, and the Financial District

Brokers. Brokers will also be an important target and a broker campaign will begin as soon as possible. Market data, neighborhood comparisons, broker road shows, broker email blast campaigns, and luncheons at the leasing trailer will be early initiatives that will continue throughout the marketing program.

Advertising. The initial buzz created through social media campaigns and site signage will be the jumping off point for the media campaign. The primary messages will stay focused on the brand personality and value proposition while the secondary messages will evolve as the leasing program rolls out and specific hyper targeting campaigns are enacted. Using carefully targeted online ads, we will maximize the adverting budget's reach and effectiveness.

EXHIBIT K(cont'd)

Operations Plan Summary

The property management team on site will be responsible for securing new residents, creating great living experiences for residents, helping set rents appropriately and keeping the community looking great through proactive maintenance plans.

Leasing

The leasing team members of RESIS will be responsible for providing great customer service and closing the leases. They will also collaborate with marketing teams to make sure a community is reaching the right audience of potential residents.

Positions will include:

- Leasing Manager
  The leasing manager will perform the same duties as leasing consultants while also managing the whole team of consultants. They are charged and are responsible for the overall operations of an apartment community. The buck stops here!

- Leasing Consultant
  RESIS leasing consultants will take prospective residents on tours, work with marketing teams to improve lead generation, manage resident concerns, stage apartment homes, post information on social media, and will cater to incoming tenants. Consultants will also plan resident events, processing rental applications and negotiating lease renewals.

Ancillary Services

Ancillary Services will oversee operations details such as valet trash, tenant deliveries and the on-site storage space for all packages that arrive to the community. Ancillary services team members will design and manage a variety of these free and fee-based services to help provide a top-notch living experience and drive additional revenue. Programs will ensure to address resident needs and are priced appropriately.

Facilities Management & Maintenance

The most common point of contact with residents, facilities and maintenance team members make needed repairs and perform critical maintenance. It's also hard to overstate their importance to creating high levels of resident satisfaction and retention. The head of facilities will ensure everything from air conditioners to sprinkler heads work seamlessly. They will oversee service requests and preventative maintenance responsibilities to ensure that the guts of the apartment community thrive, while the grounds always look their best. The facilities head will oversee a staff of maintenance technicians, groundskeepers and housekeepers, etc.

EXHIBIT K(cont'd)

Everything that must be purchased will run through procurement. Appliances, fitness equipment, dog waste bags, signs, key fobs and every other thing the community will need will be purchased in procurement. The head of purchasing is responsible for negotiating bulk purchasing contracts, managing the purchase approval process and ultimately buying or approving the purchase of the goods and services needed to keep an apartment community functioning smoothly.

A maintenance technician at apartment communities is responsible for maintaining and repairing the apartment community's building systems, such as the HVAC, plumbing and electrical systems. But, as they are also the face of the community, they often interact with residents more than any other team members. Their positive interactions with residents are vital to resident satisfaction and lease renewals.

The project's grounds will be diverse with numerous complex ecosystems that need daily maintenance. Groundskeepers have extensive knowledge of what it takes to keep a large variety of plants, shrubs and grasses healthy and beautiful. Their efforts play in resident satisfaction and the appeal of a community to prospective renters.

In charge of the turn, housekeepers and painters clean and spruce up vacated apartment homes to prepare them for tours and new residents. Other duties will include keeping leasing offices, models, clubhouses and the interiors of common areas in peak condition. Housekeepers will play a vital role in creating good experiences for both current and prospective residents.

The IT professionals will lead the development and implementation of systems and software that dramatically enhance apartment companies' ability to price, market, operate and maintain their communities. This is truly a cutting-edge industry that demands cutting-edge technology and analytical skills.

The price of an apartment home rises and falls based on supply and demand, and the economic conditions of the surrounding area. The project will employ pricing managers (a.k.a. revenue managers) to dig deep to find the pricing targets no matter the market conditions.

BACA ARCHITECTS

In, on or near water

Enable Design Build

OUR PHILOSOPHY

From the directors of WATERSTUDIO.blue, a fusion of Baca Architects and Waterstudio

Richard Coutts is a visionary. He is happiest when drawing and even happier when the focus of the sketch is an image of our future cities living in harmony with the environment.

The future of climate change is real. Richard co-founded Baca in response to the changes in weather that are a consequence of this. How we inhabit a future of increased rainfall, increased sea-level and increased threat of flood is central to Baca's work. Richard leads the office as Team Principal.

Koen Olthuis studied Architecture and Industrial Design at the Delft University of Technology. In 2007 he was chosen as no. 122 on Time Magazine's list of most influential people in the world due to the increasing worldwide interest in water developments.

According to his vision, today's designers are an essential part of the climate change generation and should start to enhance their perspective by considering urban components that are dynamic instead of static.

WATERSTUDIO.blue believes that cities that today start to embrace water and take advantage of the skills of water, will be the cities that have a better performance economically and socially and politically in the next 20 to 30 years and beyond. 'Aquatecture' is a water centric approach in which flood-risk management, development pressure and adaption to climate change are simultaneously reconciled to allow buildings and cities to live and work with water. This approach can unlock strategic urban areas, waterside sites and docklands that could otherwise struggle to be developed. For landlocked bodies of water we are designing and building the UK's first floating homes, hotels and leisure facilities. And for Waterfronts we a crafting places for people, combing visionary and practical solutions underpinned by robust economic delivery strategies.

Rise of the Blue City

As an architect, you have designed floating structures and urban plans in relation to water. The Dutch have always fought against the water, but you are saying that we should rather live with the water. Your vision is that water will play a bigger role in the future of cities. So my first question is:

What is a city for you?

There are different ways of looking at a city. A sociologist will probably say a city is characterised by the way its citizens interact, and an ecologist would probably see the city as an environment with different habitats and species.

As an architect, I see cities as a mix of three elements. Firstly, the specifics of the natural location, the **DNA** of the city. Secondly, the built-up environment, made up of buildings and infrastructure, i. e. the city's **hardware**. And thirdly, the **protocols**, which are a combination of the rules, regulations, traditions and culture of the community, which determine how the hardware in a city can be used.

All cities are not equal, and these three elements create a kind of balance or structure that determines the profile of a city.

I think that the role of an architect should be to analyse city profiles, see their shortcomings and come up with new solutions of how to upgrade the performance of the city. This performance should be measured in terms of how liveable the city is.

Can we not just grow further with the same system?

Today it is hard to imagine a city without revolutionary innovations that have become part of our normal lives, such as cars, electricity and the internet, which have all changed the profile of cities and the way we live. The introduction of electricity, mobility, lifts etc. has been a game changer, altering the functionality and liveability of cities. Steve Jobs said in 1997: "A lot of times, people don't know what they want until you show it to them." I think this also applies to urban innovation. We think that the concept of a city has reached its final stage, but we are just in a process of evolution.

Urbanisation and climate change are having a great effect on the available space and put pressure on the capacity of urban functions in cities. Growing urban congestion, the rising cost of city housing and maintenance are only a few indicators of the difficulties static cities face in adapting to change. What I mean is that the demands of society change so fast that it is not possible for a city to respond immediately because of the nature of its static hardware. Its response time is too long.

How should we get ready for change?

Investments for the future must be made to keep cities running smoothly, but what if you do not know what tomorrow's needs will be? Big investments in infrastructure can be useless tomorrow as technology changes the way we live or use space and facilities. The only way to resolve this dilemma is to start building for change. Charles Darwin said: "It is not the strongest or the most intelligent who will survive but those who can best manage change."

Cities are living organisms, so they should change and create the potential to react to change. For this, they need to find space to grow, shorten response times and make rules and regulations more flexible so that new ideas can be adopted and implemented. Once an innovation has been adopted by a city and proven successful, it will eventually spread to other cities. The flexibility of its hardware and protocols will determine how long it takes for a city to adapt. The specific profile of a certain city could make implementation of new technology difficult. For example, it took Amsterdam 12 years to build one extra metro line in the mud. Compare that to building metro lines in solid ground in London, where the metro system was invented.

To keep cities financially viable and maintain or improve their liveability, we should improve adaptability or start building for change, so to speak. Building for change can only work if you have a better idea of the needs of the city. The next revolution in cities will bring real-time interaction between the city and its users. This is the essence of a smart city.

The smart city will change our cities from a stupid non-communicating structure to an interactive system that reacts to needs and data communicated by its inhabitants and users. A tailor-made system that will enhance efficiency and liveability. This leap in city evolution will make us look back in twenty years' time and smile at the static, inefficient cities we used to live in.

What more can be done to keep our cities viable?

As viability depends on flexibility, and flexibility is in turn related to the availability of space, we need to look at cities through different eyes. We see built structures, but we should look at capacity and the extent to which functions are utilised. What I mean is that, if we could use buildings and functions more intensively, we would not necessarily need more buildings to respond to growing demand.

There is an awful lot of dead space in the built environment of our cities.

If you only look at how we use our homes. Many people have a spare room, kitchens are used for maybe »

5 % of the day, bedrooms for 30 % and bathrooms for 10 %. Cars are used for 2 – 5 % of their lifespan and occupy parking spots for the other 95 %. Roads and power systems are designed to meet peak demand.

We should use space more efficiently instead of having many functions that are only used for a small proportion of their capacity. The same applies to utilities, which produce more than we actually need for most of the time.

To achieve this, we need to change the way we use these functions. By sharing space, making space more dynamic and using temporary spaces and functions, we could reduce the need for additional buildings. Instead of building more structures and raise density, I think we need to raise the efficiency of density.

Who will take the initiative in changing cities and raising the efficiency of density?

Upgrades of a city system will be initiated by existing players who control and provide services in a city. Revolutions and leaps mostly come from prospectors and innovators in the private sector. A new invention can change the game and companies will build new business models around this. Examples we see everywhere include companies such as Uber and Airbnb, which have shaken up the existing static system of taxis and hotels, and both have already had an effect on the efficiency of density. There are more beds and cars available without building more hotels or cars. For the smart city revolution, we have to closely follow tech companies such as IBM, Samsung, Microsoft, Panasonic, Erikson and Google, all of which are looking for testbeds of smart technologies in existing cities.

So, what new leaps can we expect?

Almost all major cities have water in some shape or form. This water has not yet been "optimised" for adaptable city development. This is not because of lack of technology, but because it is held back by protocol restrictions. Every innovation starts with a small experiment before it is implemented on a larger scale. I think that water is the secret ingredient of a next leap in the evolution of cities. You can see small initiatives in cities like Amsterdam, Miami, Dubai, where water – or what we call blue space – is used for floating housing, restaurants, resorts and offices. These initial concepts show a glimpse of how blue space could be used.

Once we can break through the regulatory obstacles, we can unlock new territory, improve efficiency and create new flexible developments.

With the use of blue space, the tools available to architects to adapt cities will change. Functions can easily be added or relocated, whenever necessary, within a very short response time. No city profile is perfect, and every change in demand necessitates constant adjustments to the built environment and its protocols.

The city can be tuned if a certain number of functionalities are flexible in terms of location, quantity and cost. A blue city can be tuned to become high-performing and efficient at any time. We believe that water will be the secret ingredient in meeting the challenge of balancing constantly changing needs with the static capacity of city functions. Blue cities will be less constricted by the lifespans of urban components.

What will be the effect of more development space being available on water?

Today we see that prices of real estate in Amsterdam are booming and the affordability of housing is going down. This will eventually determine who can still afford to live in the city centre. Any initiative to turn this negative trend around would be welcomed by politicians, who want to make housing more affordable. Space owned by the municipality can deliver new revenues for the community. A blue profile can loosen the grip developers have on land prices. For cities, the new credo will be "the wetter the better". The unique opportunities and facilities, such as flexibility, space and safety, that water can add to the urban landscape will turn blue space into the new gold. Based on this assumption, we can determine which cities hold large bodies of water near the centre and predict their willingness and ability to adapt their protocols (rules and regulations) in order to make floating developments possible and thus create opportunities for these cities to improve their performance. I think we may soon see the first signs of the rise of the blue city.

What kinds of new concepts will a blue city have in store for us in the future?

The evolution of new blue city models, in which cities take advantage of water to upgrade, will happen in small steps. With water as an additional tool in urban planning, the rules of the game will change. Projects will not necessarily remain static, as some of the products can be placed on water. They can then be relocated and reused in other locations. Functions are no longer limited to the functional lifespan of a particular place in town, but will be determined by their technical lifespan, located on water inside or outside the city. For example, a floating school or floating sports facilities can move with the neighbourhood's needs for those functions. Buildings will interact better with the climate of a city. It is strange that many architects still build houses that are the same for severe winter conditions and for hot summers. I think we will have seasonal houses and neighbourhoods in the future, which will change their configuration and identity along with the changing seasons.

Another new concept is "meantime" cities where neighbourhoods or functions can be placed in a location. They then have to make space for new uses when their economic value no longer matches the needs of the location. This means you will be able to make space for new developments in the centre of the city without having to demolish buildings that are still functional. You just replace, re-use and re-organise to suit your needs. A common feature will be city apps – small temporary floating functions that can meet a specific need or solve a specific problem in a location: temporary parking places, floating sports facilities for a big event or temporary floating affordable housing for students.

As green space is under pressure in expanding cities, we will see green spaces appear in blue cities. Floating habitats, floating forests, floating parks can all have a positive effect on the environment of a city.

There will also be greater interaction between cities. The rise of the blue city is not only about changing the type of hardware the city deploys but also about greater efficiency of two or more cities working together.

The next step towards greater flexibility is the cooperation between cities that share protocols (rules and regulations) and mobile assets. It will be possible to build a floating museum and share it between cities. You will no longer have to go to a specific city to see a museum, but the museum will come to you. The sharing industry transcends products and services and enters the world of urban components. Blue city profiles will allow for joint ownership and an economy in which major city functions, facilities and components can be shared.

Just a few decades ago, you would have been born in a specific city and worked, lived and died there. Today the young generation of millennials can choose the city that provides them with the best opportunities. As cities will be judged and compared on the basis of liveability, competition between them will increase.

Cities need to upgrade their performance and branding in order to attract the best inhabitants. We could even see battles between cities in their attempts to lure potential millennials. Adaptable cities that take advantage of water will not only survive but also thrive!

ENABLE

Taking advantage of the ways in which water works will enable cities to become more dynamic, by creating floating urban components that allow positive and safe expansion, leading to better economic, social and political growth. ‘Aquatecture’ enables a style of architecture that focuses on solving multiple current and future global crisis’ such as flood-risk, development pressures and climate change, allowing the large percentage of global water front cities to become flexible and adapt to their surroundings.

DESIGN

Projects of note in the UK include a waterspace plan to unlock the potential of Liverpool’s South Docks (a UNESCO World Heritage site) delivered a sustainability SPD for the London Borough of Hackbridge, a 4 Start hotel and spa and 100 floating lodges at an old gravel pit in Doncaster, secured planning for 670units on a brownfield flood-risk site in Norwich, and are currently developing Dover Waterfront that will include a new marina and cable car to link the Castle to the waterfront.

BUILD

We develop traditional and flood resilient plans for sites from 50 to 200,000 new homes. We have developed planning guidance and build the first generation of amphibious, elevated, flood resilient and floating homes for private clients in the UK and Holland.

Recently we have secured full planning for 100 floating leisure homes at Tyram Lake, Doncaster and full flood resilient development with integrated SUDS to rejuvenate a brownfield site in the heart of Stratford upon Avon.


enable

talks and publication

TEDx

BBC

Waterstudio + Baca lead by Koen Olthuis and Richard Coutts, is specialized in architecture, urban planning and research related to living, working and recreation on water.

We are a practice based research company. We collaborate with academics, engineers and politicians to advance our understanding and affect change in the field of architecture and the built environment. The ranges across three core areas: enable, design and build, flood resilient homes and communities. .

In the last 20 years, the ten worst international flood events alone claimed over 50,000 lives, affected one billion people and resulted in damages in excess of $165 billion. Storm events both worldwide and in the UK are occurring with greater intensity and frequency over the past decade. The failing of recently constructed flood defenses such as those in Cumbria have exposed a growing uncertainty in weather patterns and a weakness in relying on traditional flood defenses alone.

In 2009 we published The LifE 'Long-term Initiatives for Flood-risk Environments' Project for Defra marking a fundamental shift from traditional flood prevention towards a non-defensive approach; based on 'Making Space for Water' , as well as the highest environmental design standards - Including reducing operational energy, embodied carbon and potable water.

The prognoses is that by 2050 approximately 70% of the world's population will live in urbanized areas. Given the fact that about 90% of the world's largest cities are situated on the waterfront, we have arrived to a situation where we are forced to rethink the way we live with water in the built environment. Considering the unpredictability of future developments and unanticipated needs, we should come up with flexible strategies – planning for change. Our vision is that large-scale floating projects in an urban environment provide a tangible solution to these problems that is both flexible as well as sustainable.

Koen Olthuis (1971) studied Architecture and Industrial Design at the Delft University of Technology. In 2007 he was chosen as no. 122 on Time Magazine's list of most influential people in the world due to the increasing worldwide interest in water developments. In addition, the French magazine, Terra Eco, choose him in 2011 as one of 100 green persons that will change the world.

Richard Coutts (1975) studied Architecture at Sheffield University, UK. In 2019, was made a Lifetime Fellow of RIBA (the Royal Institute of British Architects) for making a major contribution to the world design and architecture. This recognized both Coutts' role in the Core City's Advisory Group for Her Majesty's Government and his lobbying on behalf of the RIBA to require building resilience measures to play a more prominent role in the UK's Building Regulations.

DISSEMINAT


KOEN OLTHUIS &
DAVID KEUNING
FLOAT!
aquatecture by Richard Coutts
Built on Water Floating Architecture + Design
Water: Resource and Threat
Cities and Flooding
A Guide to Integrated Urban Flood Risk Manag
DESIGN for FLOODING
URBAN FLOOD
MANAGEMENT
ZEVENBERGEN,
CASHMAN,
EVELPIDOU,
PASCHE, GARVIN
& ASHLEY

ION

Effective engagement

Our participatory techniques build collaborative visions for our projects with the very people who will go on to use them.

Our latest consultation tool called 'Planning for LifE' has been identified as an exemplar project by the **EU INTERREG IVC** programme and described as *'creating a vital interface between the professional world and the living environment of 'ordinary people' in this case induced by climate change impacts.*

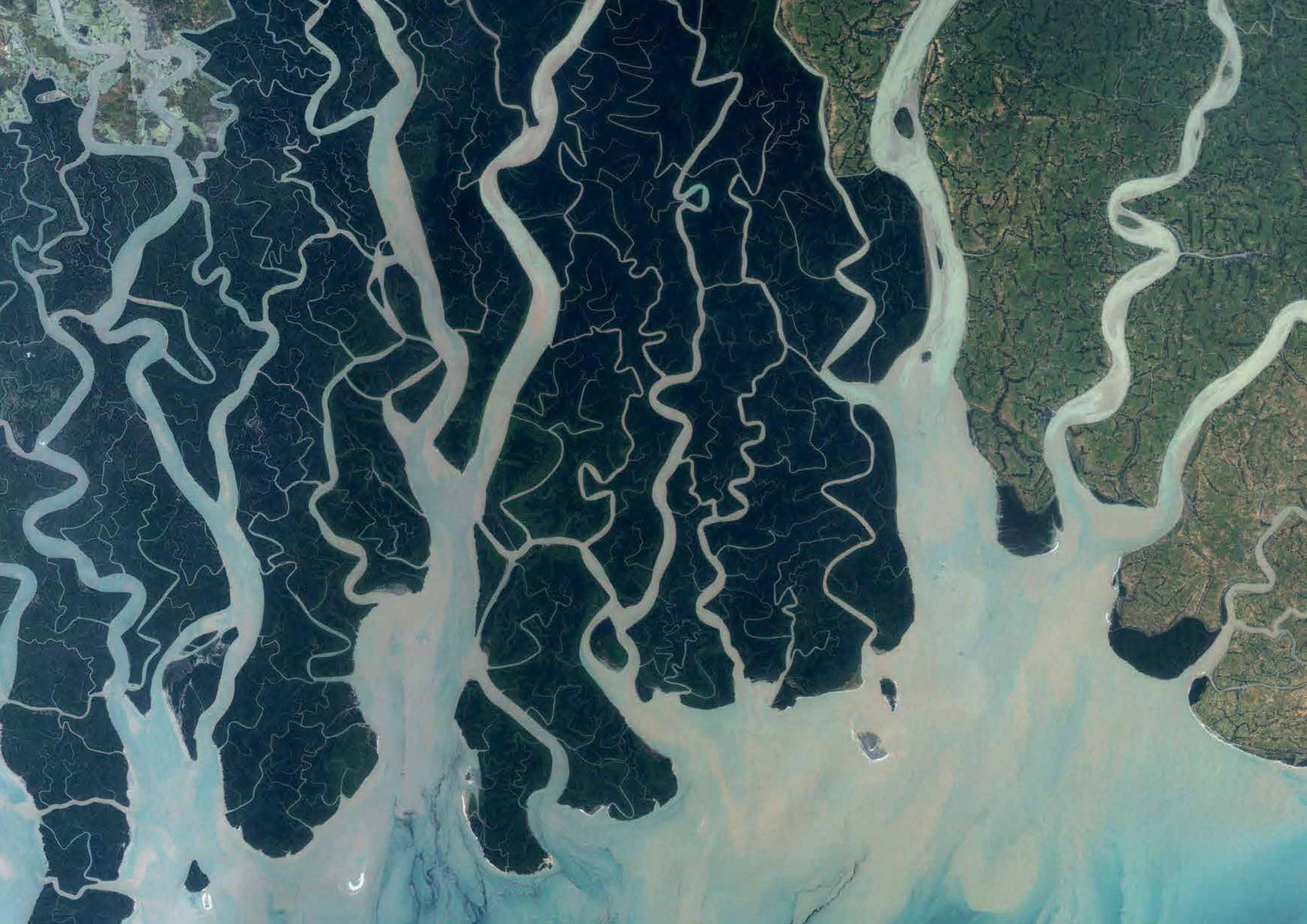
Planning for LifE consultation tool ^
London Borough of Sutton

Architecture Week >
City Hall Installation & Public Consultation event

Creating a vital interface between the professional world and the living environment of 'ordinary people' in this case induced by climate change impacts.

Age Niels Holstein (NL)


design



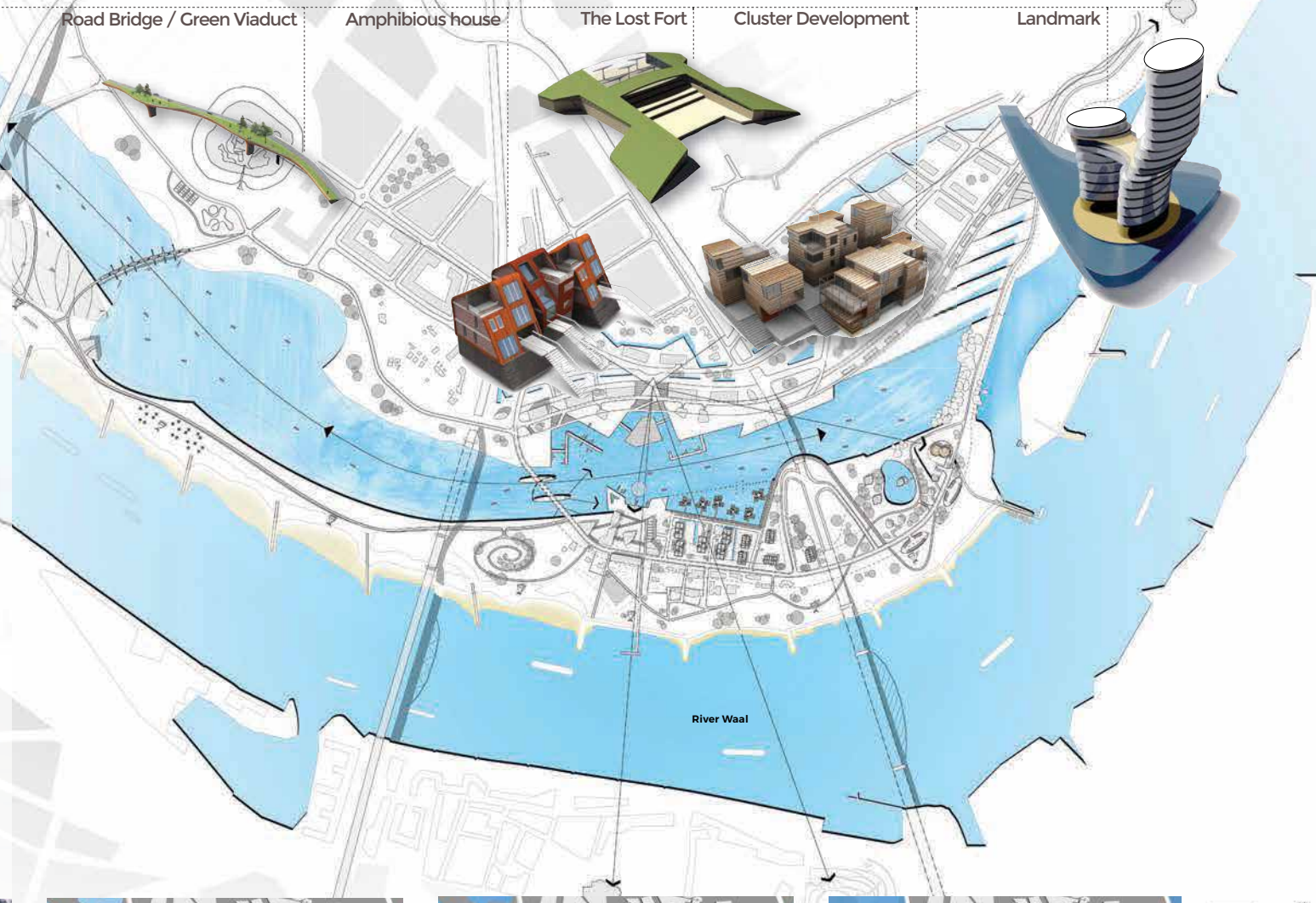
FUTURE PROJECT AWARDS 2014

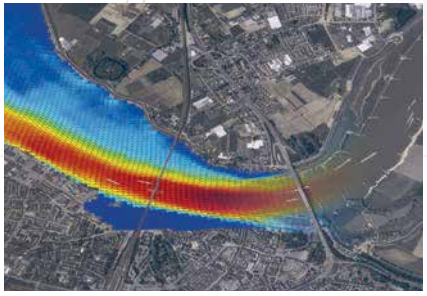
Eiland Veur Lent

Making Space for Water

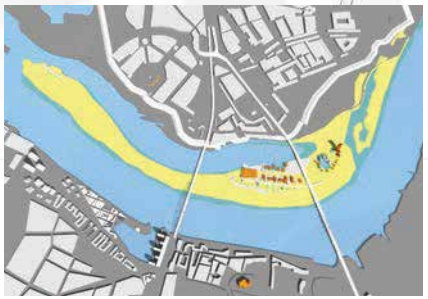
The Making Space for Water programme marks a paradigm shift in flood mitigation – by designing developments that make space for floodwater and work in harmony with natural processes; rather than building dykes and levees that limit flood storage and can be overtopped.

As an alternative to sheet piling, the dynamic exchange of land and water is celebrated and enhanced through a soft, naturalized landscape that touches and engages with the waters edge. A cascade of several river levels to the east of the gully are exposed throughout the year as the river level changes by 5m. Shallow gully banks create a more natural relationship with the water and allow specific areas such as the Roman remains, wetlands and the

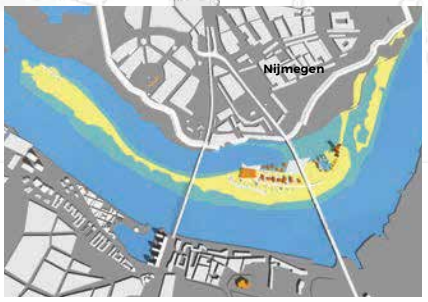




Area flood map



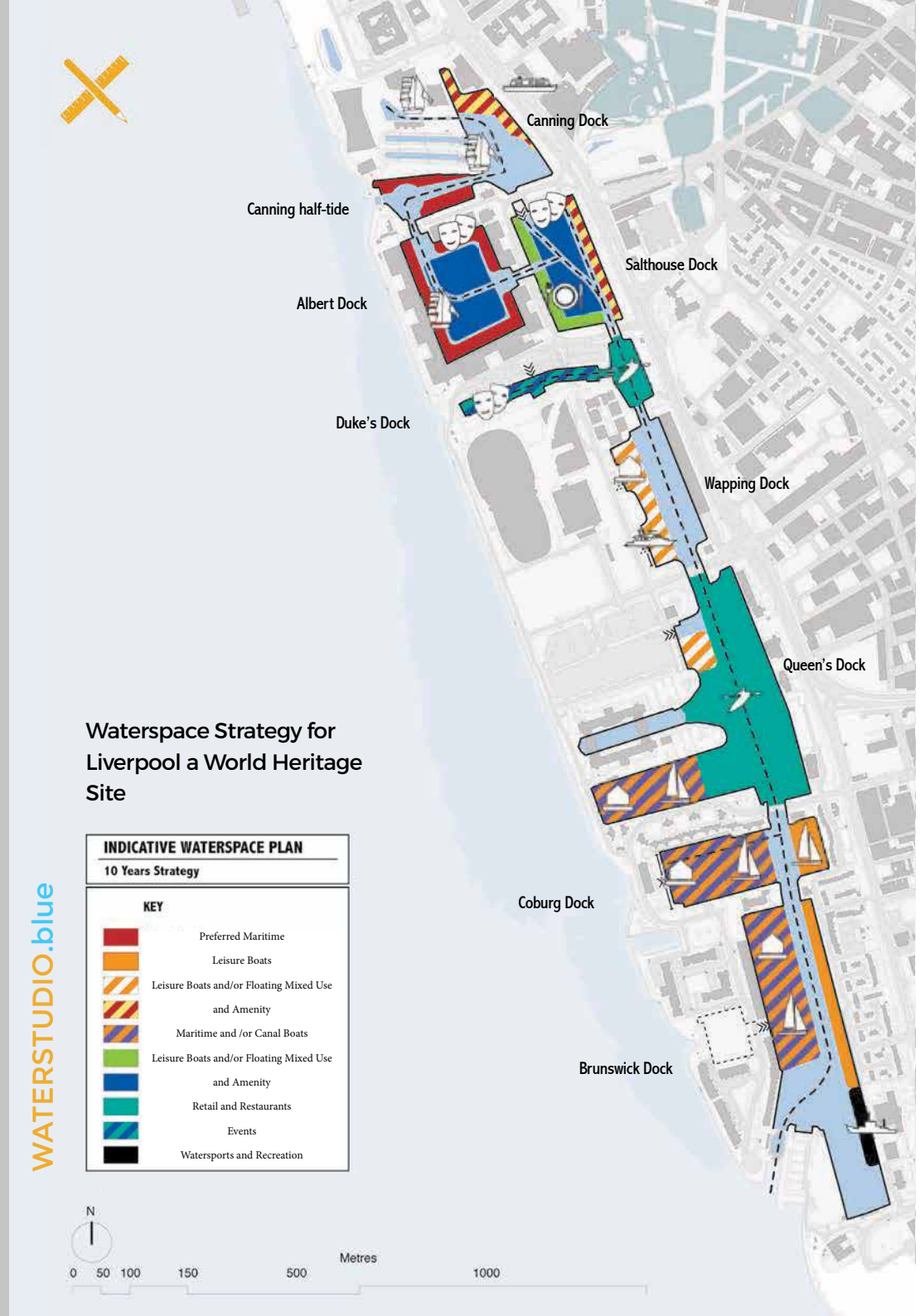
Water level +6.5m NAP



Water level +11.5m NAP

Water level +15.0m NAP

WATERSTUDIO.blue



Waterspace Strategy for Liverpool a World Heritage Site

WATERSTUDIO.blue

Waterways Renaissance

Covering an area of 50 hectares, including 37 hectares of water, the site consists of 10 docks, seven of which are within a UNESCO World Heritage site. The strategy creates three distinct zones, a 'culture' zone for events, a 'mixed-use' zone with a floating water park and floating homes; and a 'leisure and aquatic' zone with new bridges and marina.


Liverpool
Waterfront

The White Lagoon

Location: St Kitts

The White Lagoon exists of 4 individual ring-shaped floating islands each with 72 Watervilla's connected to it. The rings function as beach-boulevards with white sand and greenery. At the inside of the rings there will be a marina with berthing places, restaurants, bars, shops and boutiques. A bridge makes it possible to let boats enter the ring. Every Watervilla has a private beach, pool and a roof terrace which provides beautiful views over the natural Lagoon and it's white sandbank beach.

Floating Village

Location: Royal Docks, London, UK

Status: Planning

Scale: 3.3 Hectares

Baca Architects came runner up in an ambitious plan to build a floating village in London's Royal Docks, as part of the Mayor of London's Vision.

The team, led by Hadley Mace, developed plans for a floating village conceived as a 'Crown' in the Royal Docks. It would form; the head of a future necklace of floating settlements that could extend throughout the Docks along a watery 'Champs Elysee' boulevard.

A fundamental approach to Baca's plan was that the development should not be an extension of the dock edge. Rather that it should be set away from the dock edge and surrounded by a 'blue belt', to provide space to breathe and express the unique 'aquatecture'.

build


KOBELCO
HITACHI

WATERSTUDIO.blue

speedo

Redeveloping London's East End is a positive Olympic Legacy

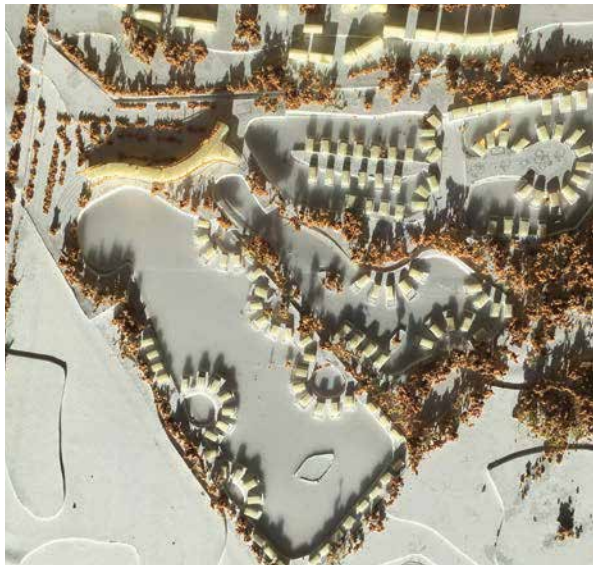
LONDON 2012

WATERSTUDIO.blue

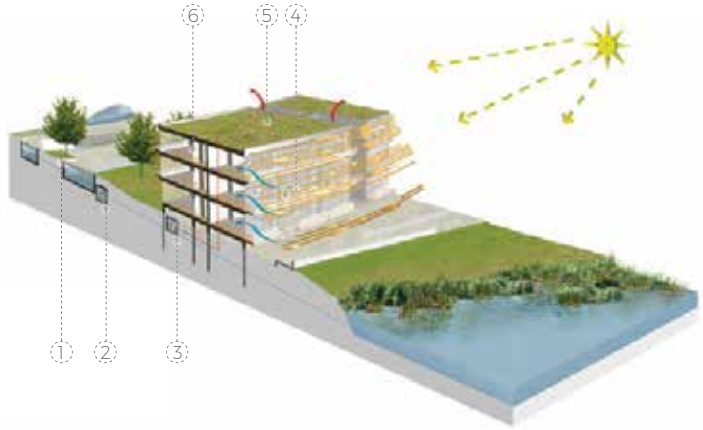
Tyram Lakes Hotel & SPA

Location: Doncaster, UK
Status: Planning
Scale: 3.3 Hectares

Set in the heart of the Humberside Peatlands, Hatfield Moor and the National Nature Reserve, the Tyram Lakes Hotel & Spa delivers over a 100 luxury rooms, fine dining restaurant, conferencing and meeting facilities, pool, superior spa and picturesque party and wedding venue. Suites and a top floor bar provide panoramic views of the lakes and countryside beyond. Conferencing in the countryside will be a perfect space to free the mind and think those big ideas.



KEY
1. SUDS
2. Water Tank
3. Ground Source Heat Pump
4. Solar Shading
5. Hybrid Roof - PV Panels + Green Roof
6. UFH



Ashwicken Lake Eco-resort

80 hectare site
East Anglia, UK
Clubhouse and Spa
150 Family Lodges
40 Luxury Floating Villas
Floating Apartments

The proposals are sustainable and aim for zero-carbon both in use and production, using materials of low bodied energy, high levels of thermal insulation and building airtightness, natural ventilation, and offsite prefabrication as well as on-site energy generation and waste treatment. The highly engineered design of the project, together with the reduction of on-site material wastage and embedded carbon cost, contributed to achieving a BREEAM ‘Very good’ rating.

WATERSTUDIO.blue

Watervilla IJburg

Location: Amsterdam, Netherlands
Status: Completed
Scale: 210sqm

This watervilla for IJburg measures roughly 7x10m in floor plan and consists of three storeys. The upper level of the villa only occupies half of the surface, creating a spacious roofterrace which is outlined by the distinctive white frame. Within this light framework, glass panels with of slightly different colors are used, adding subtle variation and playfulness within the otherwise austere shape.

AMPHIBIOUS House

Location: Buckinghamshire, UK

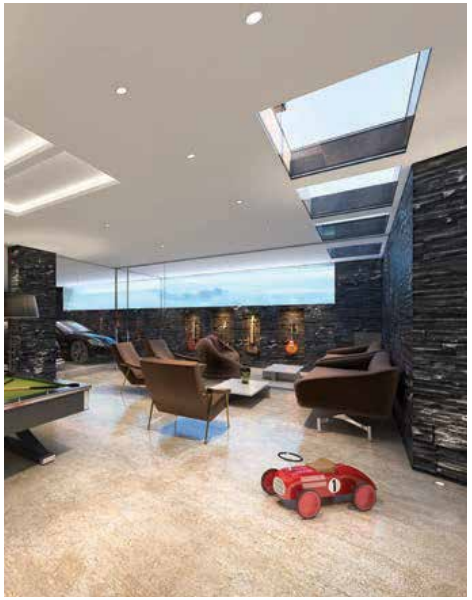
Status: Completed

Scale: 225sqm

Situated on the banks of the River Thames, Formosa is the UK's first amphibious house. An amphibious house is a building that rests on the ground on fixed foundations but, whenever a flood occurs, rises up in its dock and floats there, buoyed by the floodwater.

Using the latest technology, the property is a major breakthrough for British architects and engineers who have been searching for many years for a solution to mitigate the risk - and damage - of water ingress to homes in flood-prone areas.

The new house has been designed to cope with up to 2.5m of floodwater, well above the predicted flood levels and future projected flood levels for the area. A carefully laid out garden also acts as a natural early warning flood system.



Watervilla

Location: Cotswolds, UK
Status: Construction
Scale: 750sqm

With interiors designed by Kate Moss, Elle MacPherson, Jade Jagger and Kelly Hoppen as well as house designs by Phillipe Starck & the Yoo Studio, the Lakes by yoo are a gorgeous design-led holiday and weekend home destination within a spacious yet truly private countryside environment.

The house itself is situated on an end plot on the most westerly lake. The building's floor plates are stacked and twisted – orientating the first floor bedrooms towards the key views across the lake with its cantilever creating a shaded pool terrace below. The ground floor is stepped in section to allow taller floor to ceiling heights towards the lakeside with the pool, located next to the lake bounding the external terrace.

Water Villa 4

Location: Westland, Netherlands

Status: Completed

Scale: 3.3 Hectares

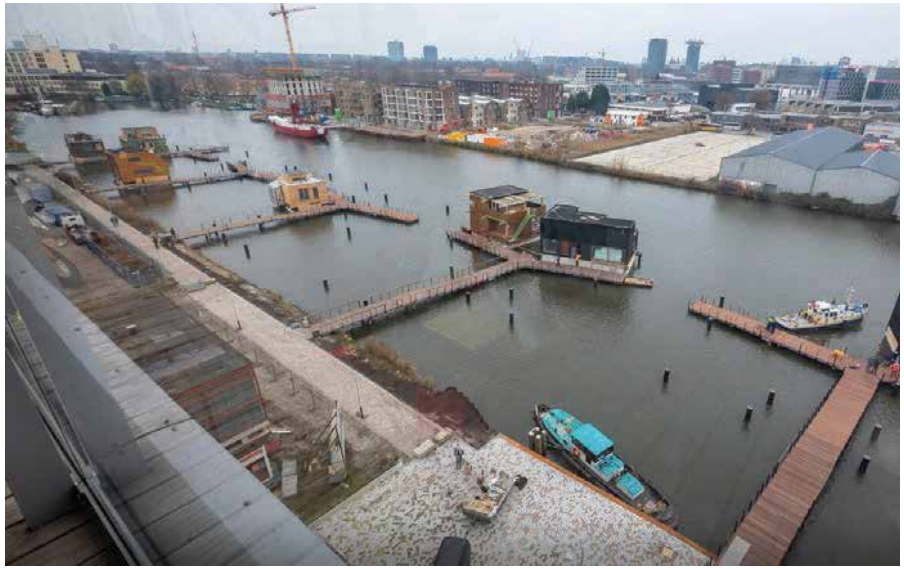
With the volume limited, Waterstudio decided to make a floor under ground level, providing extra surface within the limited dimensions of the building-envelope. Solutions for allowing daylight in the lower floor turned out to be the main architectural highlights.

The volume was taken up as a white frame outlining large surfaces of glass, making the whole villa rather transparent. Some touches of wood add subtlety and warmth to the scheme. The white frame curling along the facade closes off both ends of the house. In the middle the frame rises to mark the entrance.

Villa Traverse

Location: Westland, Netherlands
Status: Completed
Scale: TBC

This villa in Westland has a concrete base that situated in a dyke. This concrete base houses a boathouse and extra functions. On the top of the base, three U-shape masses form the villa. The living room sits on the dyke level overlooking the beautiful view of its vicinity. Corian is used as the main cladding material, giving round, smooth edges to the building. Carved lines give the facade an extra dimension.



Schoonschip

Location: Amsterdan
Status: Completed
Scale: 230sqm

The Johan van Hasseltkanaal, a side canal from the IJ river (in the north of Amsterdam), is a calm spot at the moment. But that will change: this will be the home of a floating neighborhood project called 'Schoonschip'. Literally, Schoonschip can be translated as clean ship.

The neighborhood consists of homes for 46 households and a community center on 30 floating plots. The first of the water homes will be realized in 2017, and by 2019 the most sustainable floating neighborhood in all of Europe, with in total 46 households and more than 100 inhabitants, will become a reality!

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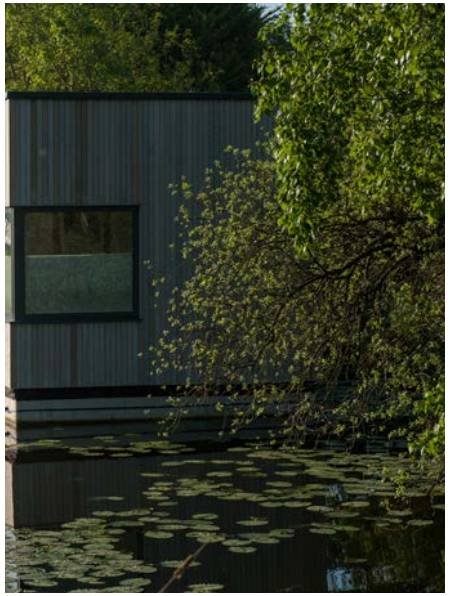
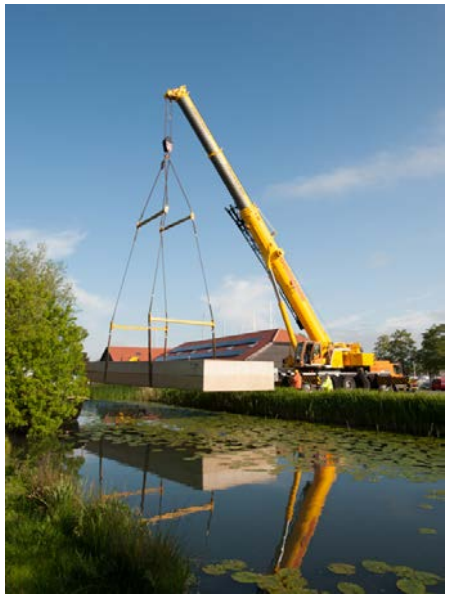


The Chichester

Location: Chichester, UK
Status: Built
Scale: 70sqm

Floating Homes Limited (a specialist floating construction company) have engaged Baca Architects to develop their new 2015/16 range of floating homes. Inspired by narrow boat and canal living, the 'Chichester' model provides a split-level, open-plan residence, creating a spacious and luxurious interior. The first prototype is now finished. Internally the proportions are very different to a canal boat but with the same ethos of space efficiency. These homes are not only practical and affordable, but reate a sense of sanctuary by living on water, which is a unique experience in most cities.



ARKUP

Location: -
Status: Completed
Scale: 405sqm

In collaboration with Arkup, Waterstudio designed these zero-emmision floating homes. They feature waste management, rainwater harvesting and water purification systems. These livable yaghts are designed as such that they can withstand high winds, floods and hurricanes thanks to their elevation system.

These livable yachts leave behind the constraints that marinas and other floating communities face. Due to their hydraulic piles, the floating homes can occupy waterfront space that is currently unusable by conventional yachts. Arkup strives to bring new ideas to marina owners to develop the floating communities of tomorrow.

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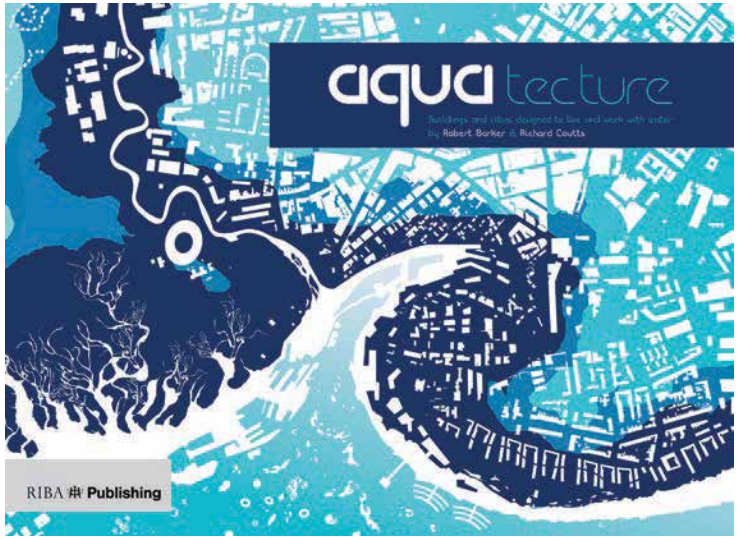

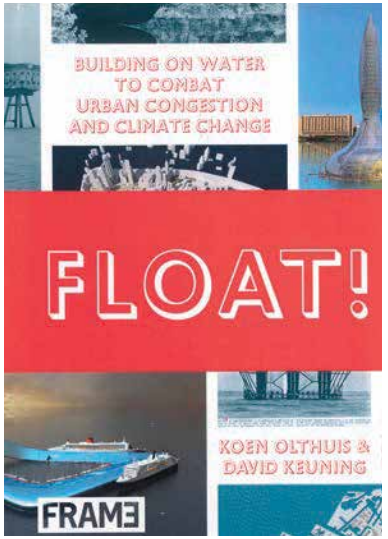

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