

# BK Bridge - Montgomery Coastal Resilience

PDC Final Presentation

March 26, 2021

# AGENDA

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## 1. PROJECT INTRODUCTION

## 2. FLOOD PROTECTION ALIGNMENT & RAISED PLATFORM

## 3. PROJECT DESIGN

- ESPLANADE PROGRAM
- PAVING MATERIALS
- SIGNAGE
- LIGHTING
- FLOOD INFRASTRUCTURE
- INTERCEPTOR GATE BUILDING

*\*SEE ATTACHED LIST OF REVISIONS DOCUMENT*

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# LOWER MANHATTAN COASTAL RESILIENCY



**New York City is implementing \$500M in on-land capital projects and advancing a Master Plan for FiDi-Seaport**

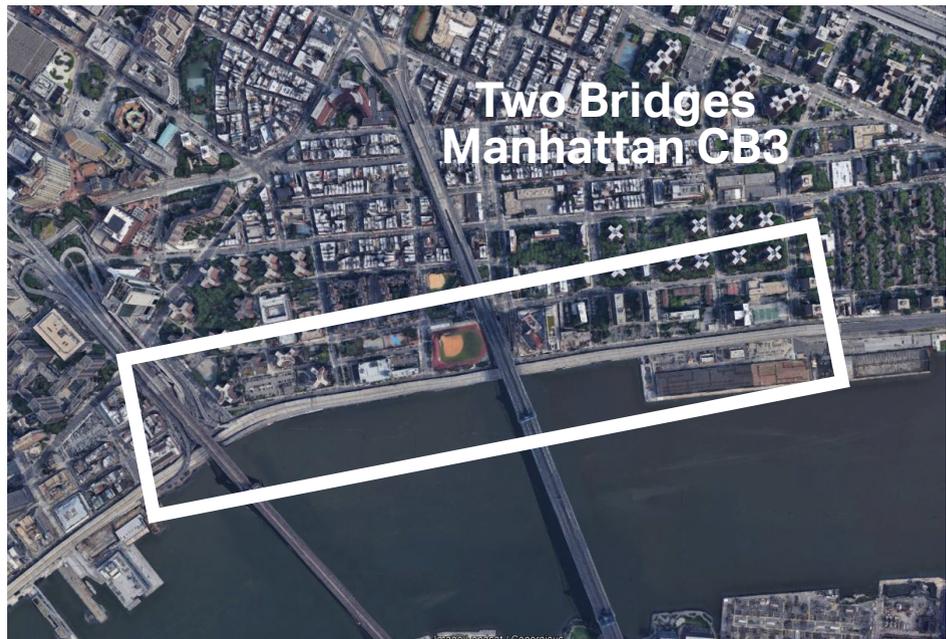
Capital projects to protect 70% of the shoreline of Lower Manhattan, and Master Plan for remaining 30%

- INTERIM FLOOD PROTECTION MEASURES (IFPM)
- PROJECTS ADJACENT TO LMCR STRATEGY

# PROJECT LOCATION



CITY 1 MI

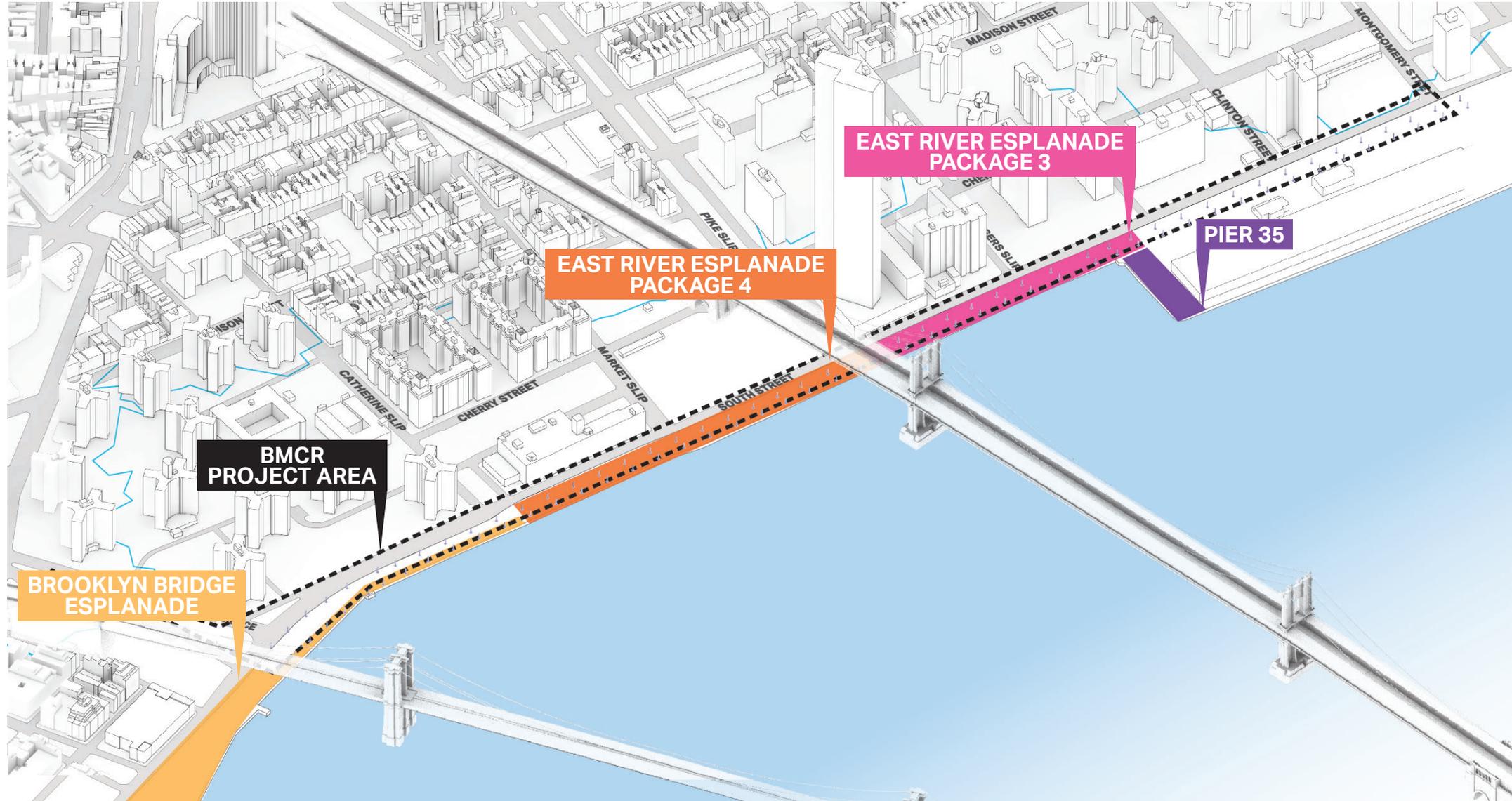


NEIGHBORHOOD 1000 FT



SITE 500 FT

# PROJECT COORDINATION



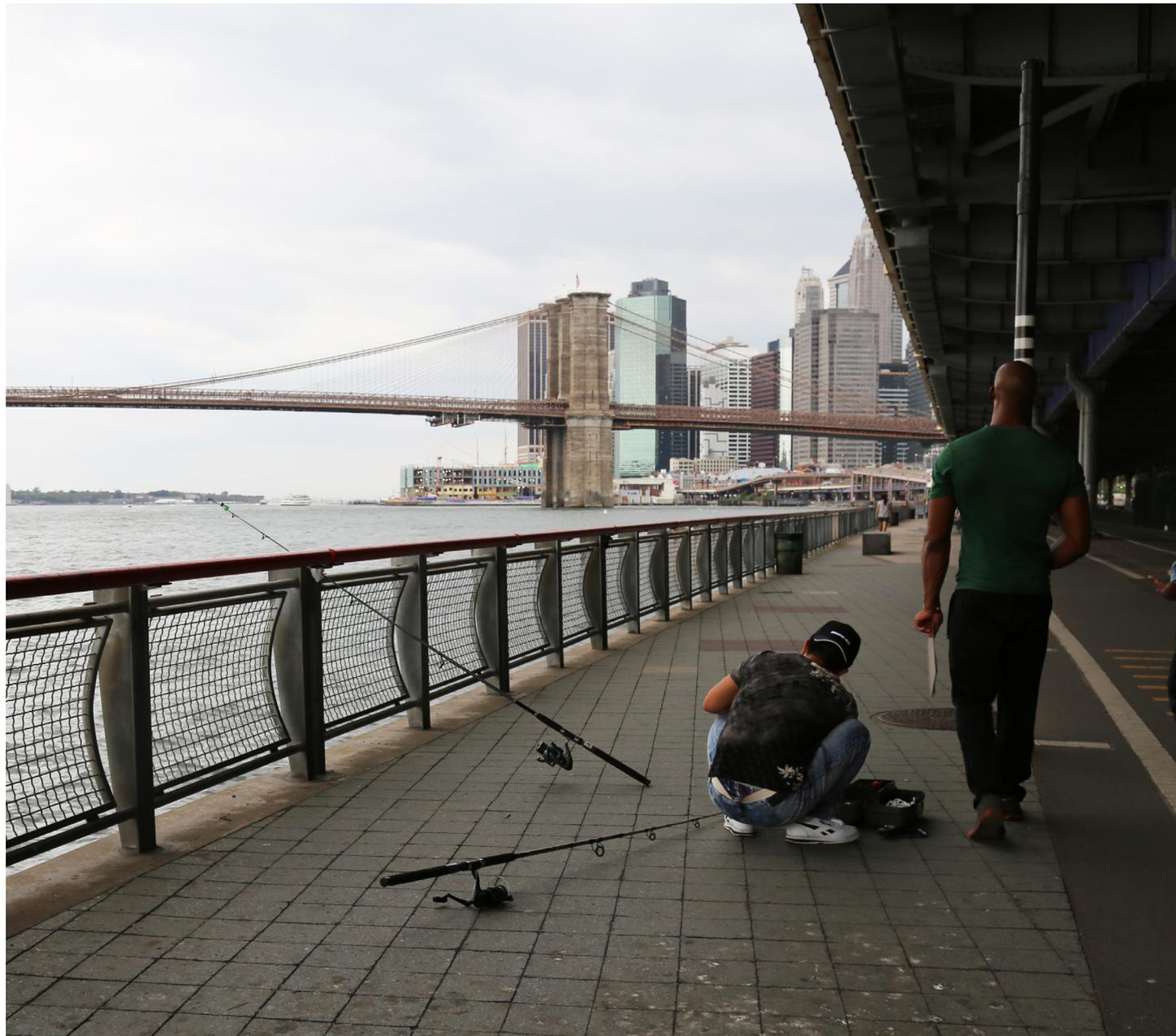
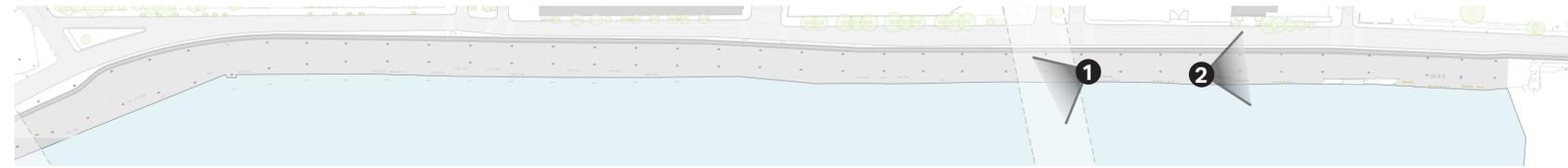
## TIMELINES

- PIER 35**  
2019 Completed
- EAST RIVER ESPLANADE - PACKAGE 3**  
2014 Completed
- EAST RIVER ESPLANADE - PACKAGE 4**  
2020 Completed
- BROOKLYN BRIDGE ESPLANADE (BBE)**  
October 2019 - 100% Construction Documents  
Currently in Construction Procurement
- BROOKLYN BRIDGE-MONTGOMERY  
COASTAL RESILIENCE**  
November 2019 - Schematic Design Complete  
May 2021 - 100% Construction Documents  
June 2021 - Bidding  
January 2022 - Construction Starts  
July 2022 - Federal Spending Deadline

# COVERED VS. UNCOVERED SPACE



# EXISTING ESPLANADE

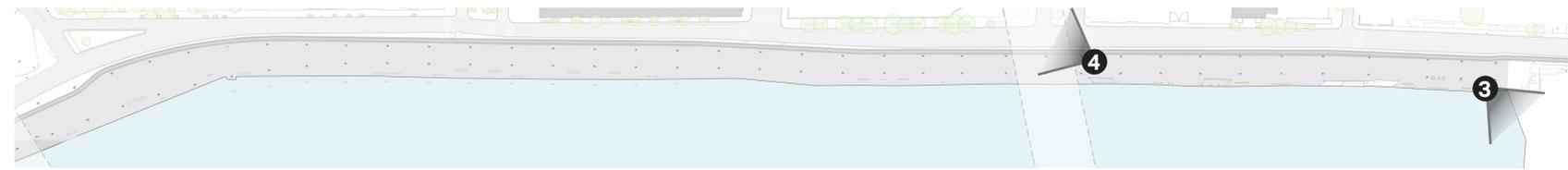


1 - FISHING AREA, LOOKING WEST



2 - SEATING / OBSERVATION AREA, LOOKING EAST

# EXISTING ESPLANADE

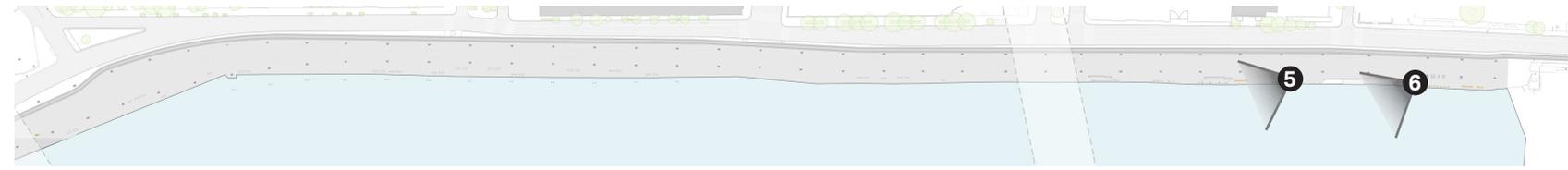


3 - CULTURAL PERFORMANCE IN OPEN SPACE



4 - BIKE PARKING UNDER FDR

# EXISTING ESPLANADE

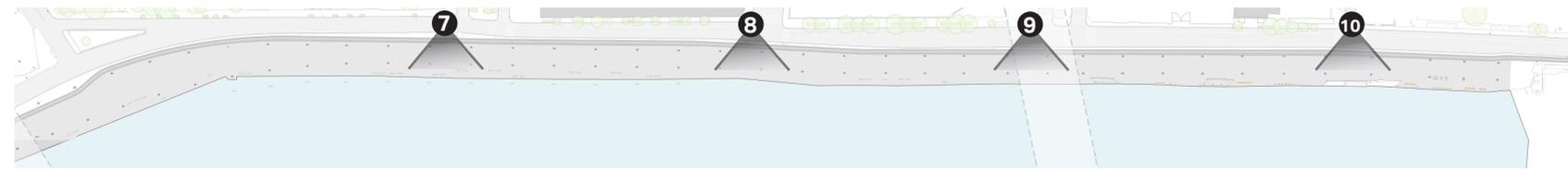


5 - BASKETBALL COURTS



6 - EAST RIVER ESPLANADE FITNESS PARK

# VIEW CORRIDORS



7 - CATHERINE SLIP



8 - MARKET SLIP



9 - PIKE SLIP



10 - RUTGERS SLIP

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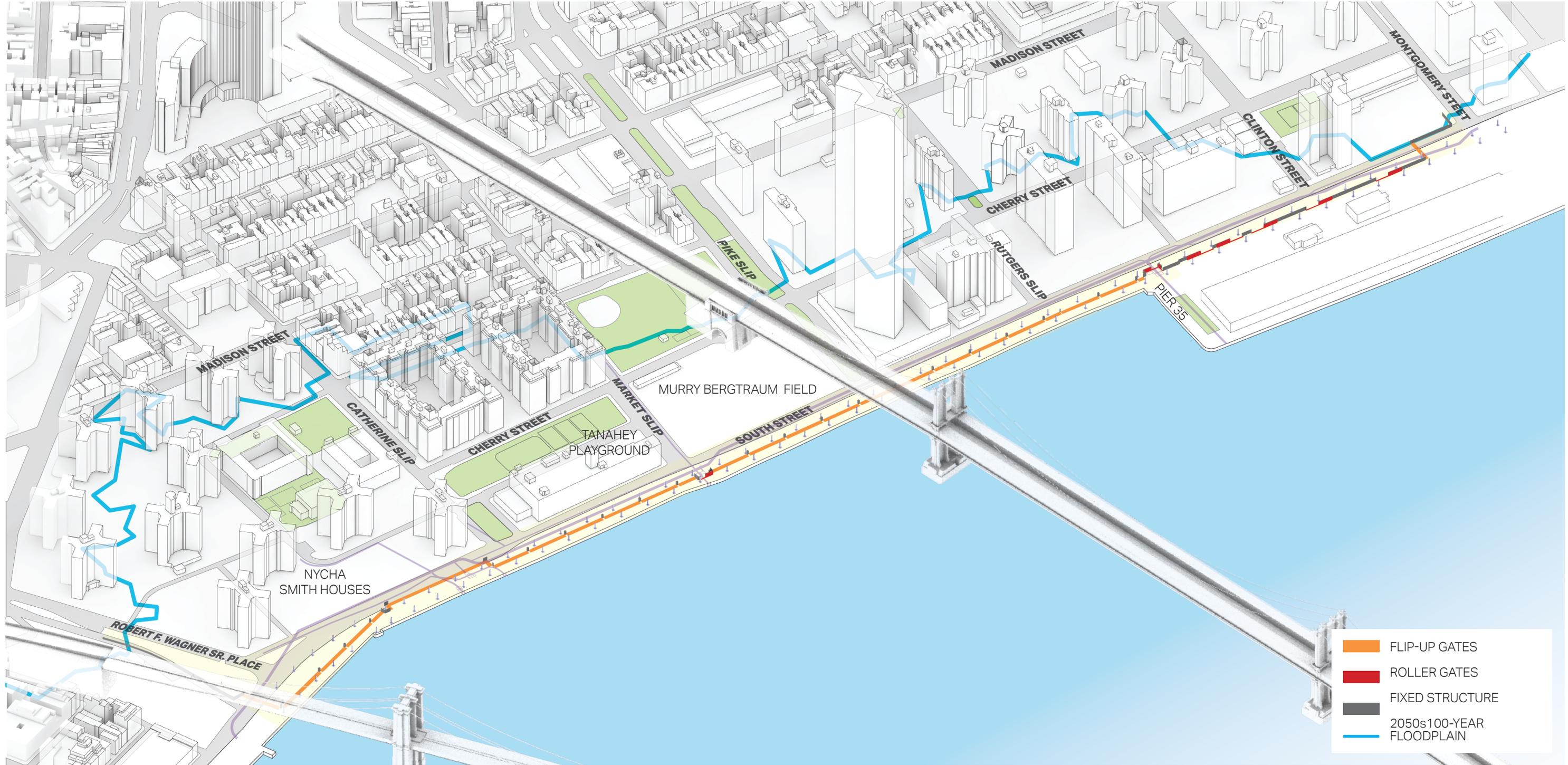
## 1. PROJECT INTRODUCTION

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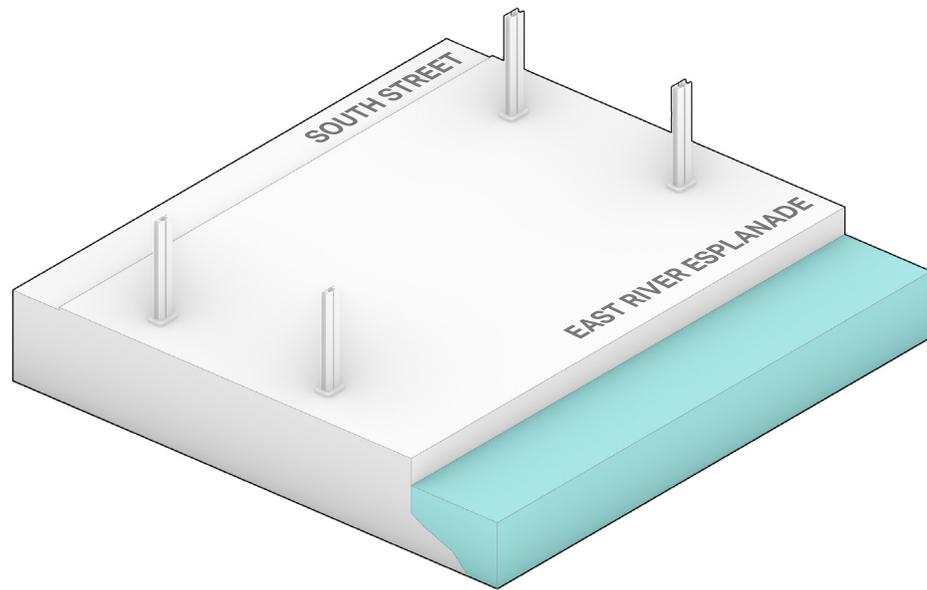
- ESPLANADE PROGRAM
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- INTERCEPTOR GATE BUILDING

# FLOOD PROTECTION ALIGNMENT

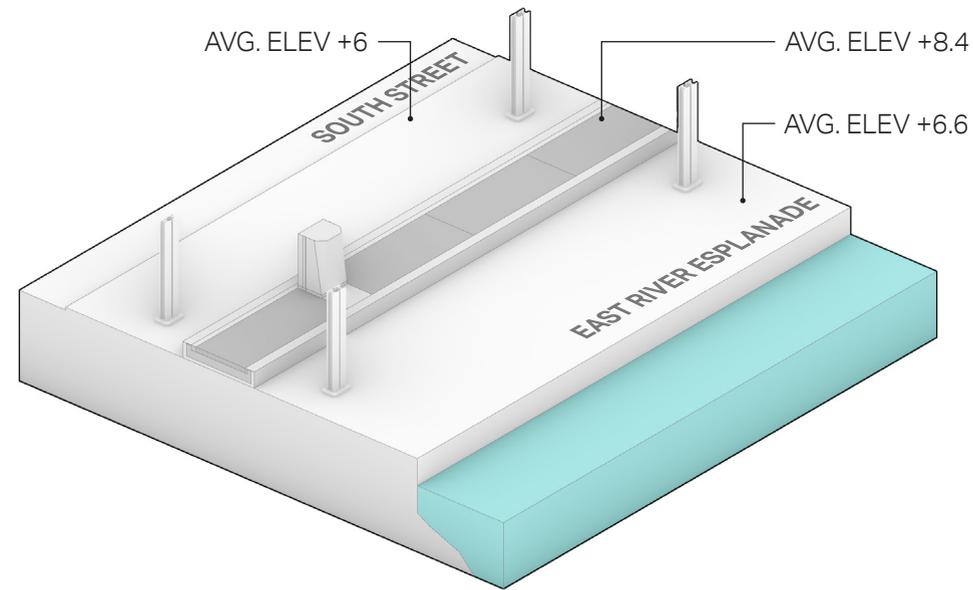


# MITIGATION OF FAIR WEATHER TIDAL FLOODING

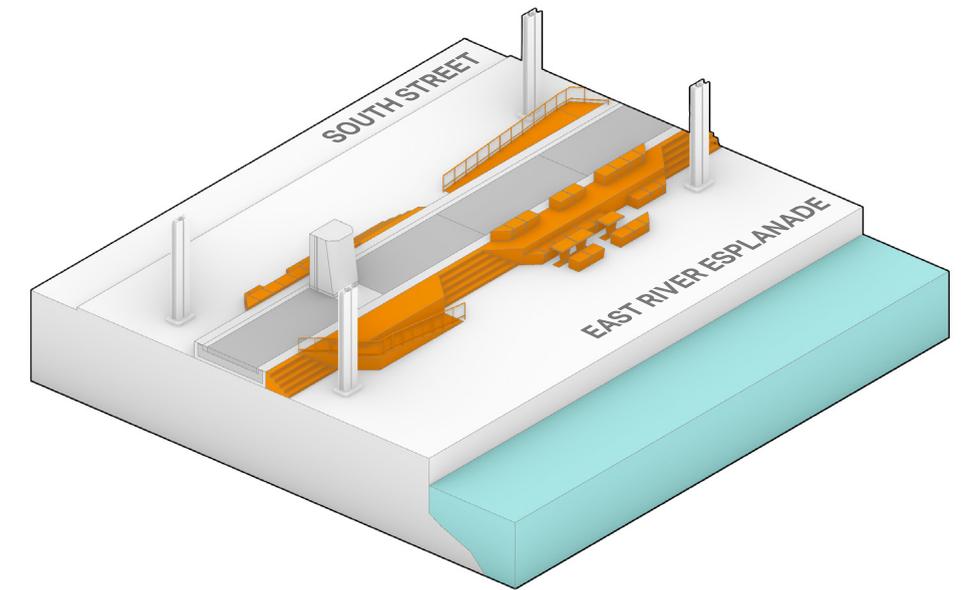
## 1. EXISTING CONDITION



## 2. RAISE THE PLATFORM TO AVERAGE ELEVATION OF +8.4 NAVD88

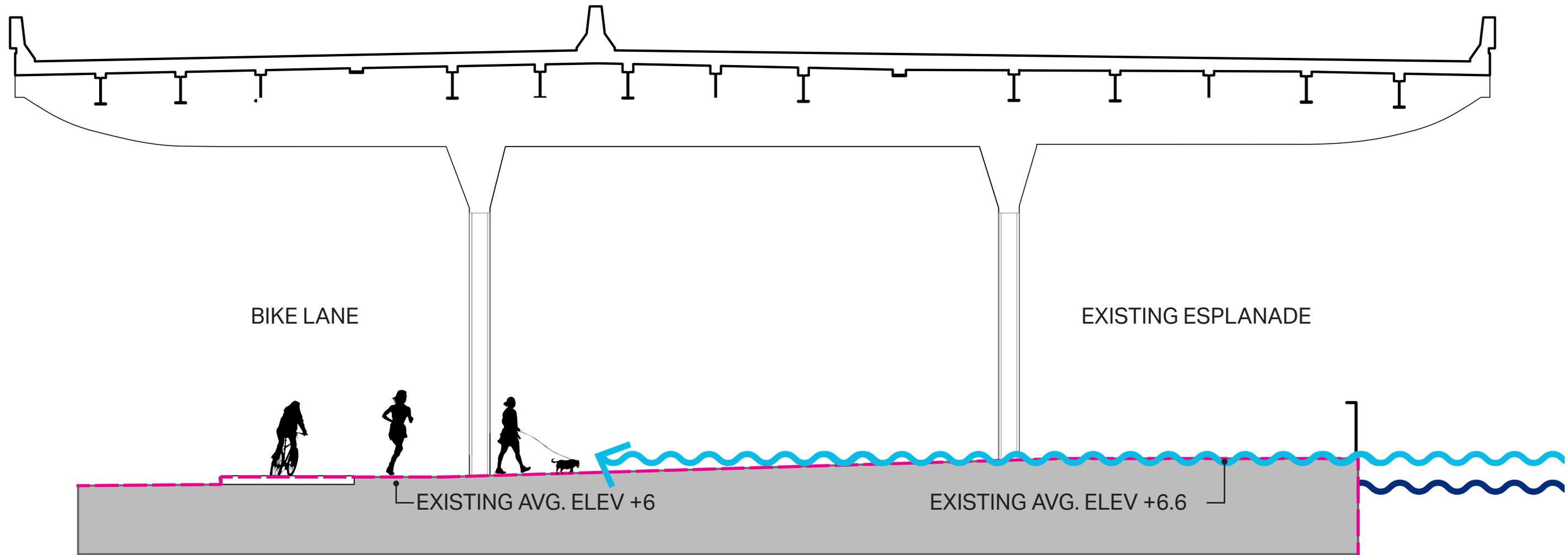


## 3. CONNECT PUBLIC REALM



ACTIVATE RAISED PLATFORM AND CREATE UNIVERSALLY ACCESSIBLE SPACES

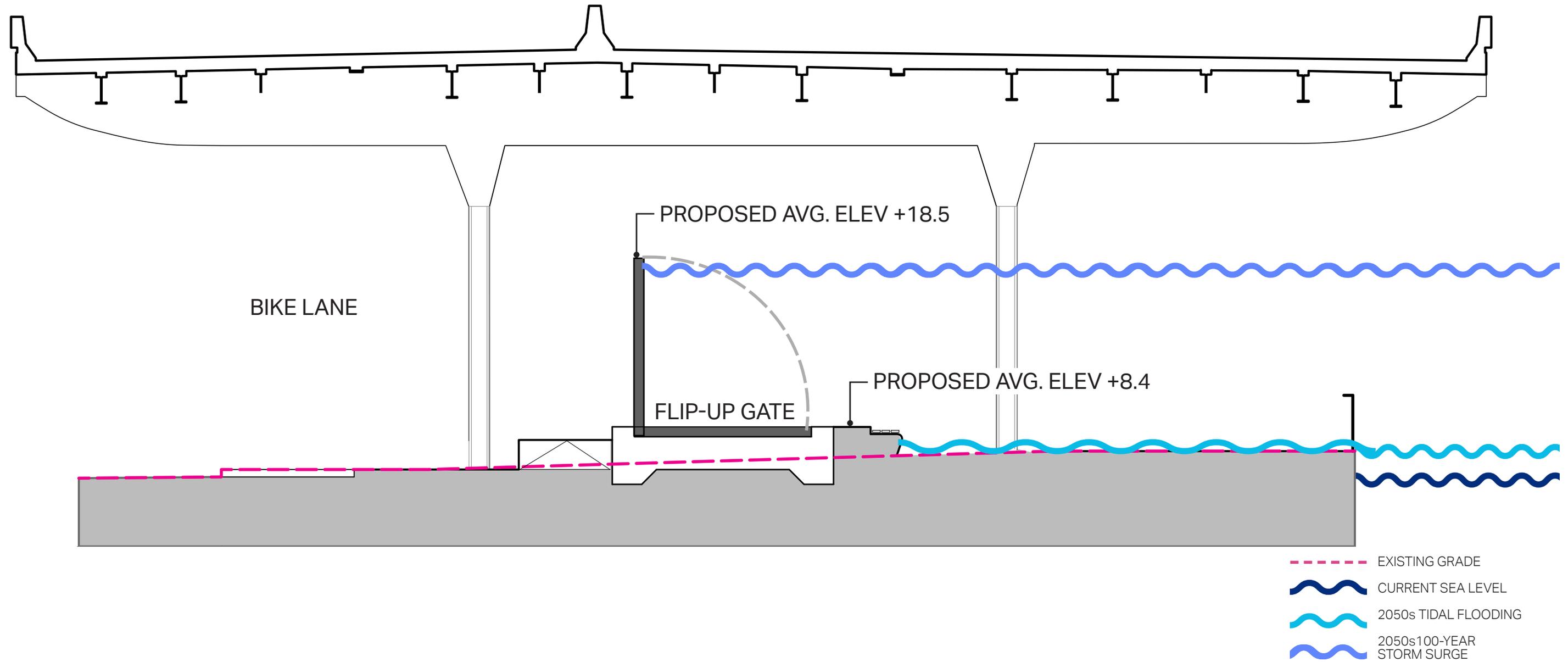
# EXISTING TYPICAL SECTION



- Raised Platform to Address Fair Weather Tidal Flooding from SLR
- Approximately 10-15 low-level inundation events per year in 2050s

- EXISTING GRADE
- ~ CURRENT SEA LEVEL
- ~ 2050s TIDAL FLOODING

# PROPOSED CONCEPTUAL TYPICAL SECTION



Raised Platform with Deployed Flood Infrastructure

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# DESIGN ZONES



**SOCIAL  
POCKETS**



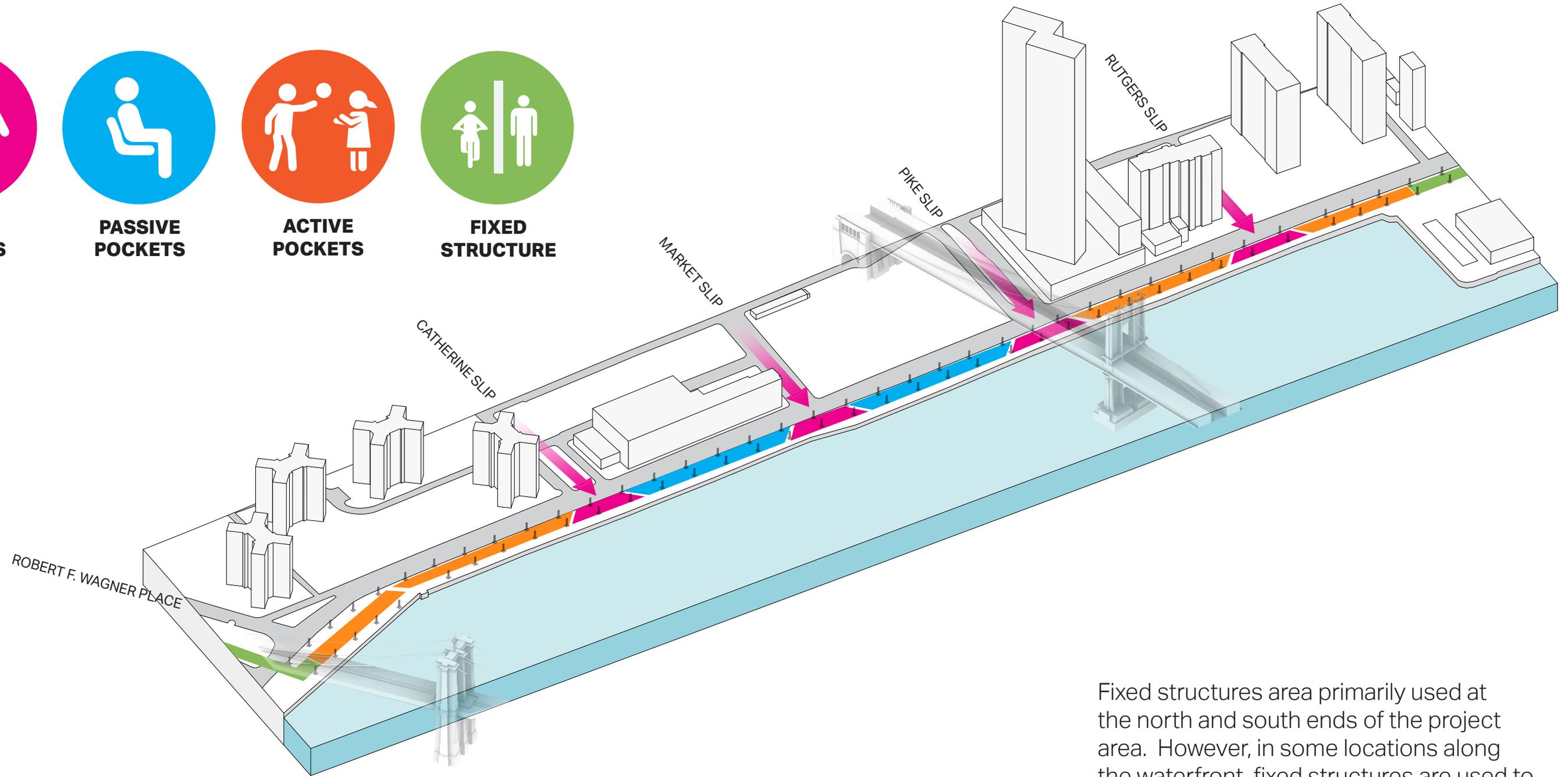
**PASSIVE  
POCKETS**



**ACTIVE  
POCKETS**



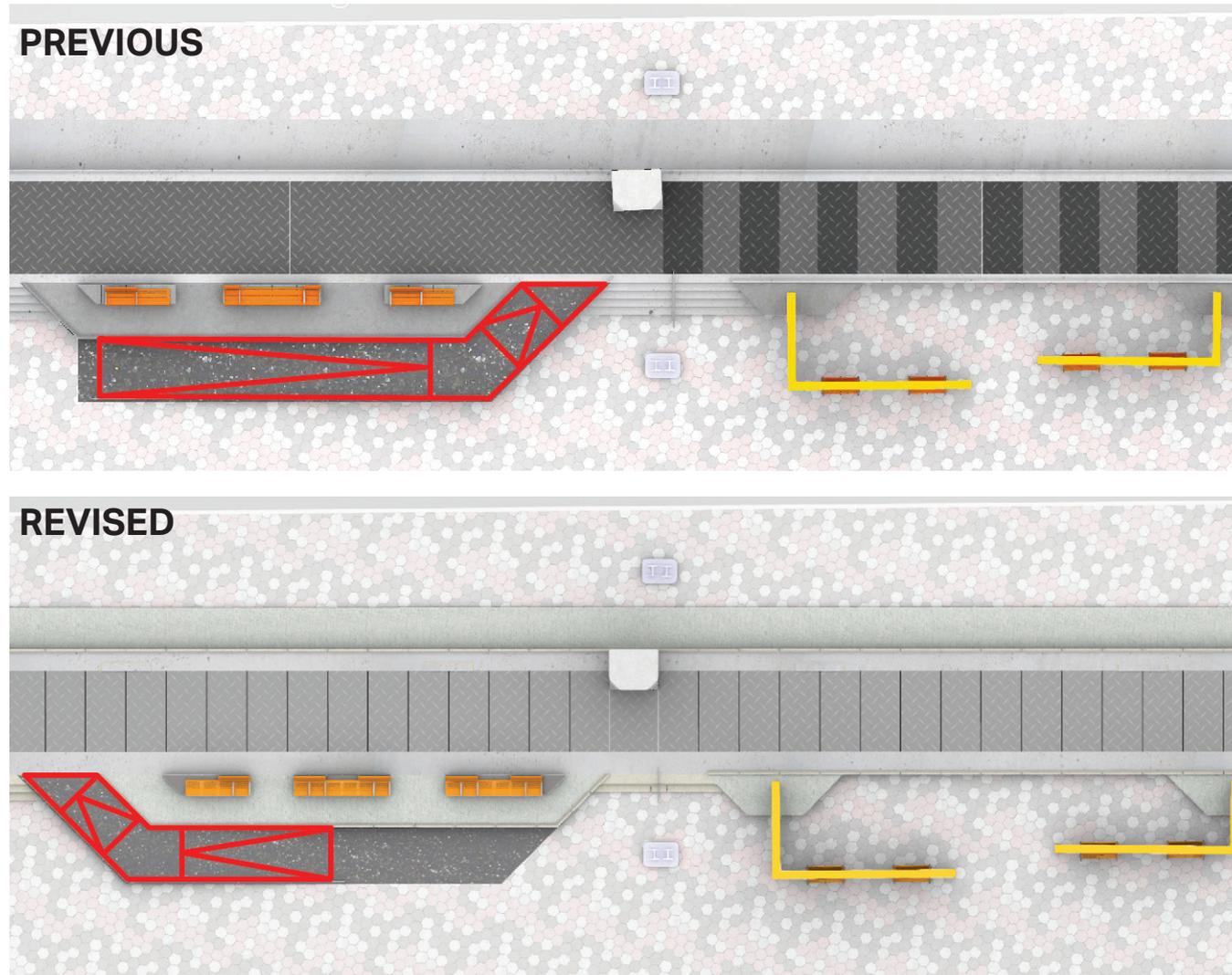
**FIXED  
STRUCTURE**



Fixed structures area primarily used at the north and south ends of the project area. However, in some locations along the waterfront, fixed structures are used to avoid underground utility conflicts.

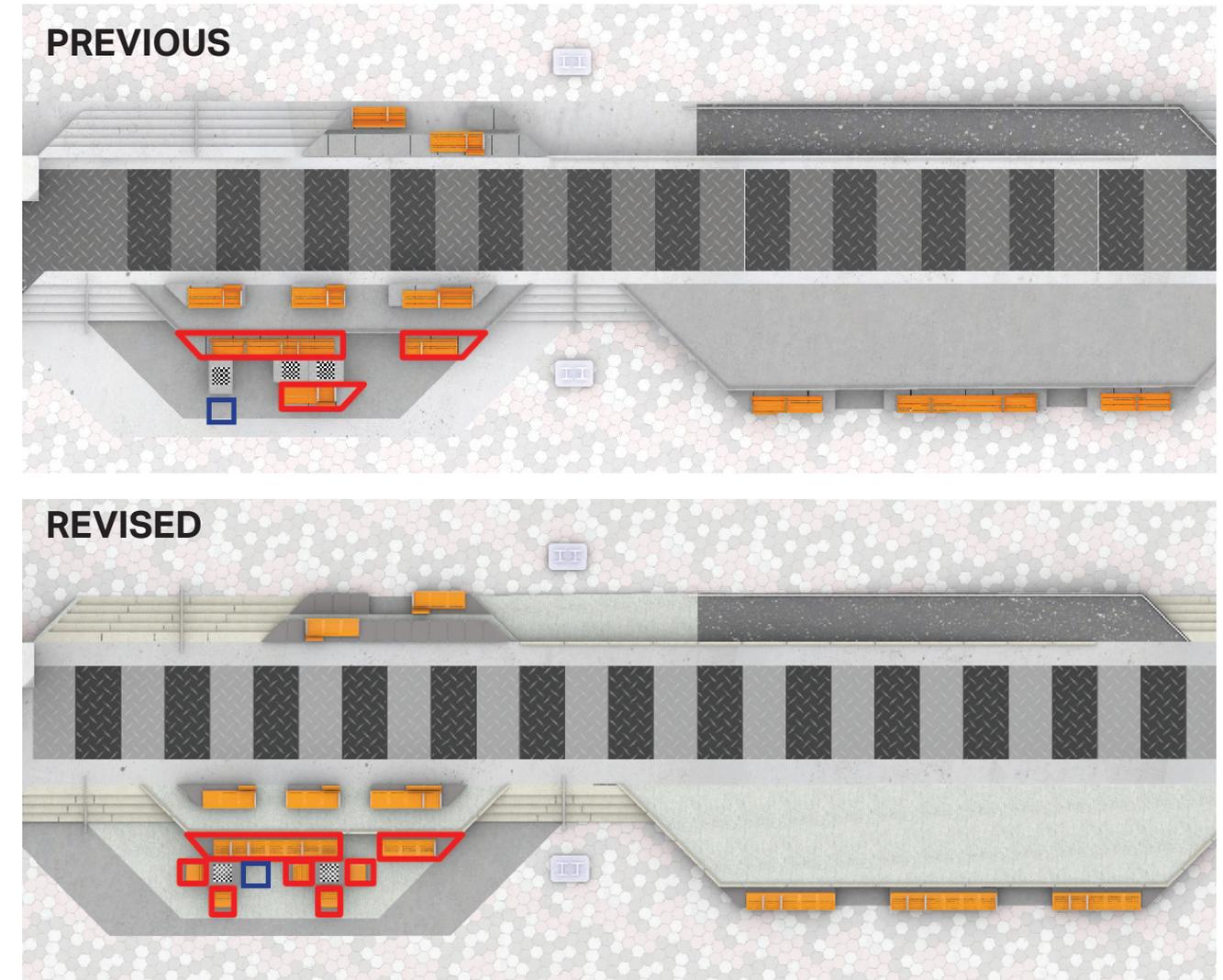
R1:

In coordination with Parks, ramp lengths have been shortened (while maintaining max 1:20 slope) to reduce travel distance up and over the raised platform. The direction of ramp run has been reversed in select waterside locations, identified in this presentation, in coordination with Parks and DCP to further reduce travel distances.



R2:

In response to LESPP/Parks/PDC request, we have modified the layout of game tables to add 4 seats to each table. There are typically two game tables at each social pocket, with one table including 4 benches, and the other table including 3 benches and 1 open ADA companion seat. Game table layouts have been reviewed and approved by Parks.



# SOCIAL POCKETS



**SOCIAL  
POCKETS**



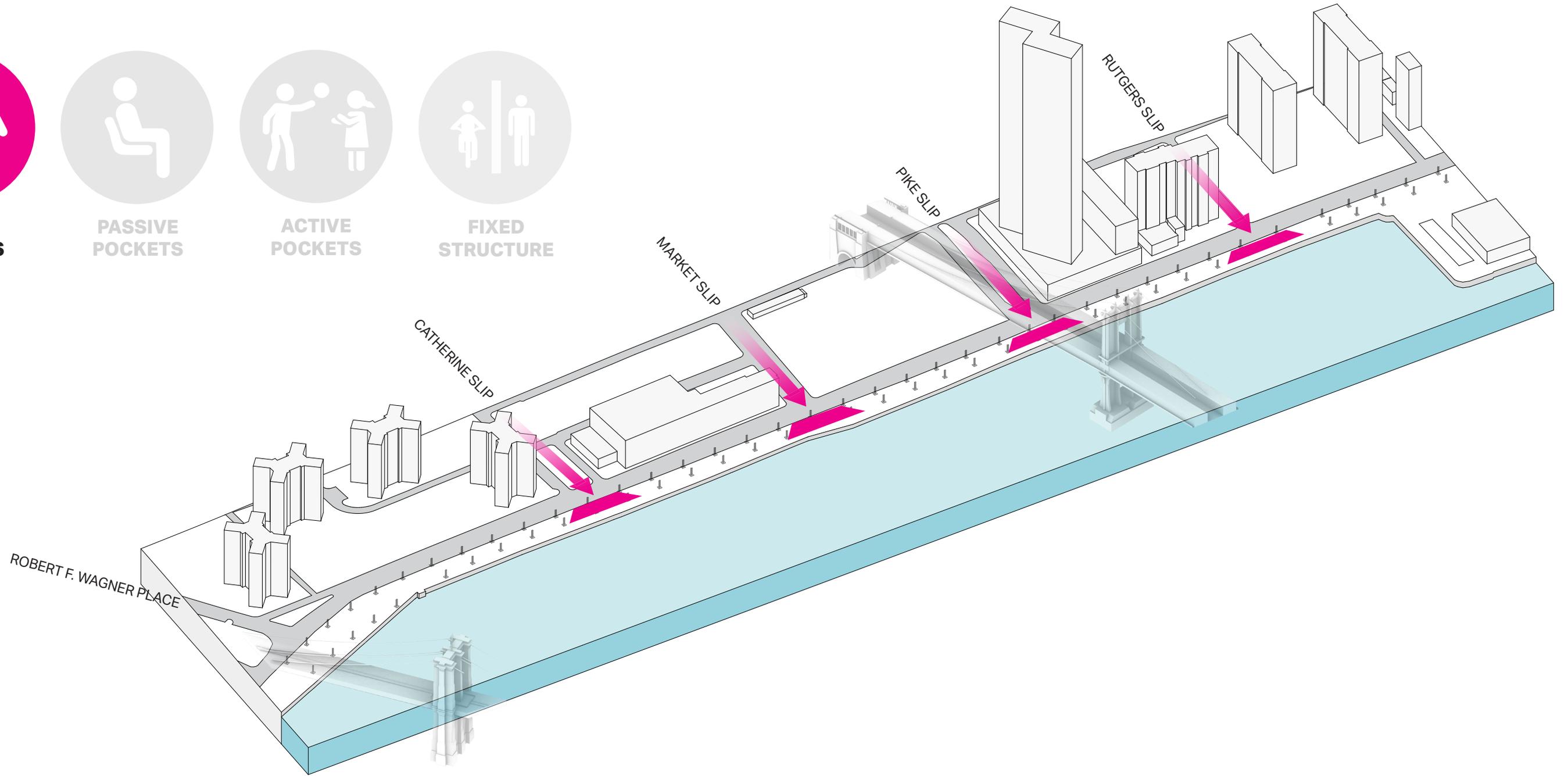
**PASSIVE  
POCKETS**



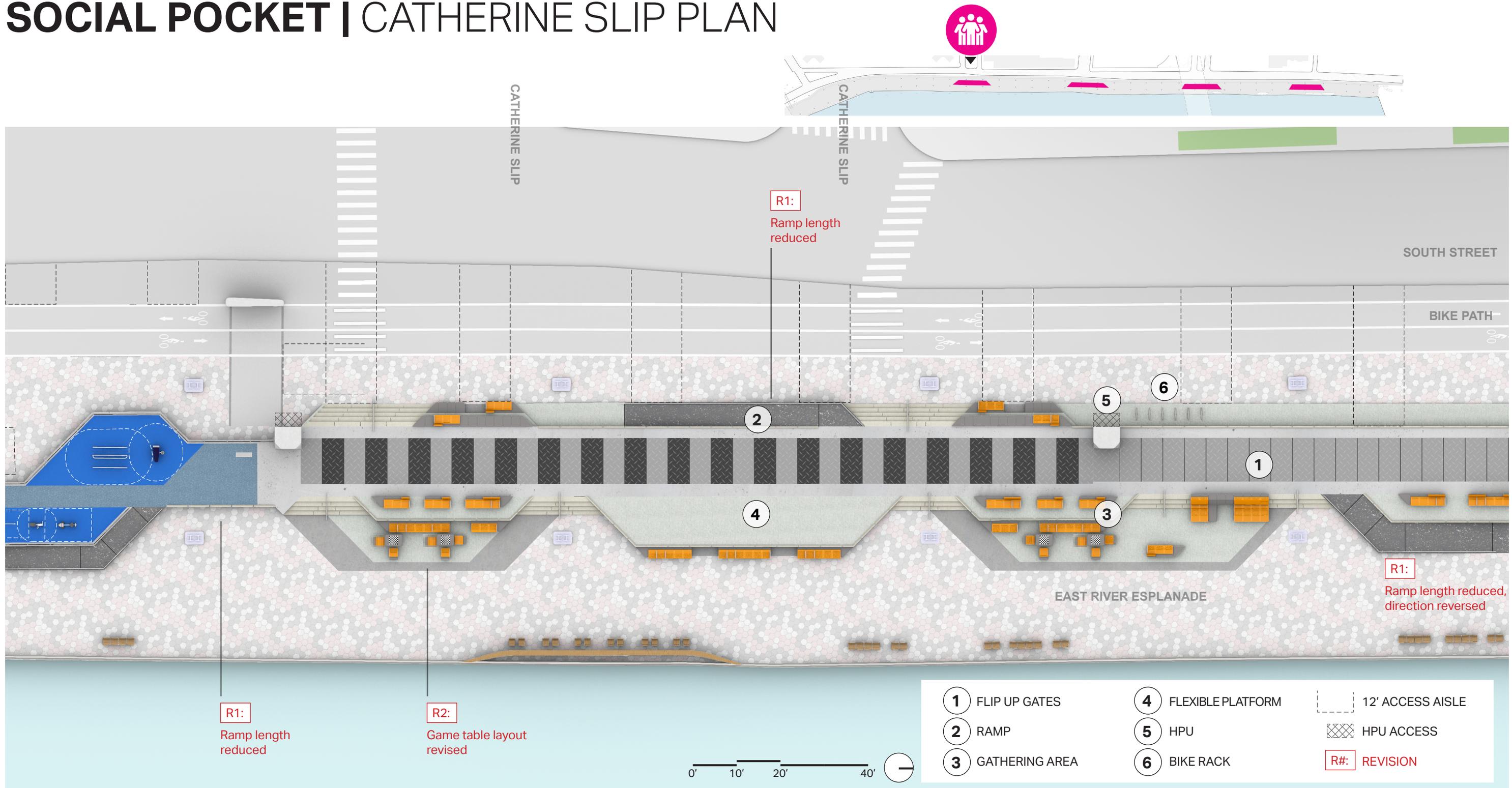
**ACTIVE  
POCKETS**



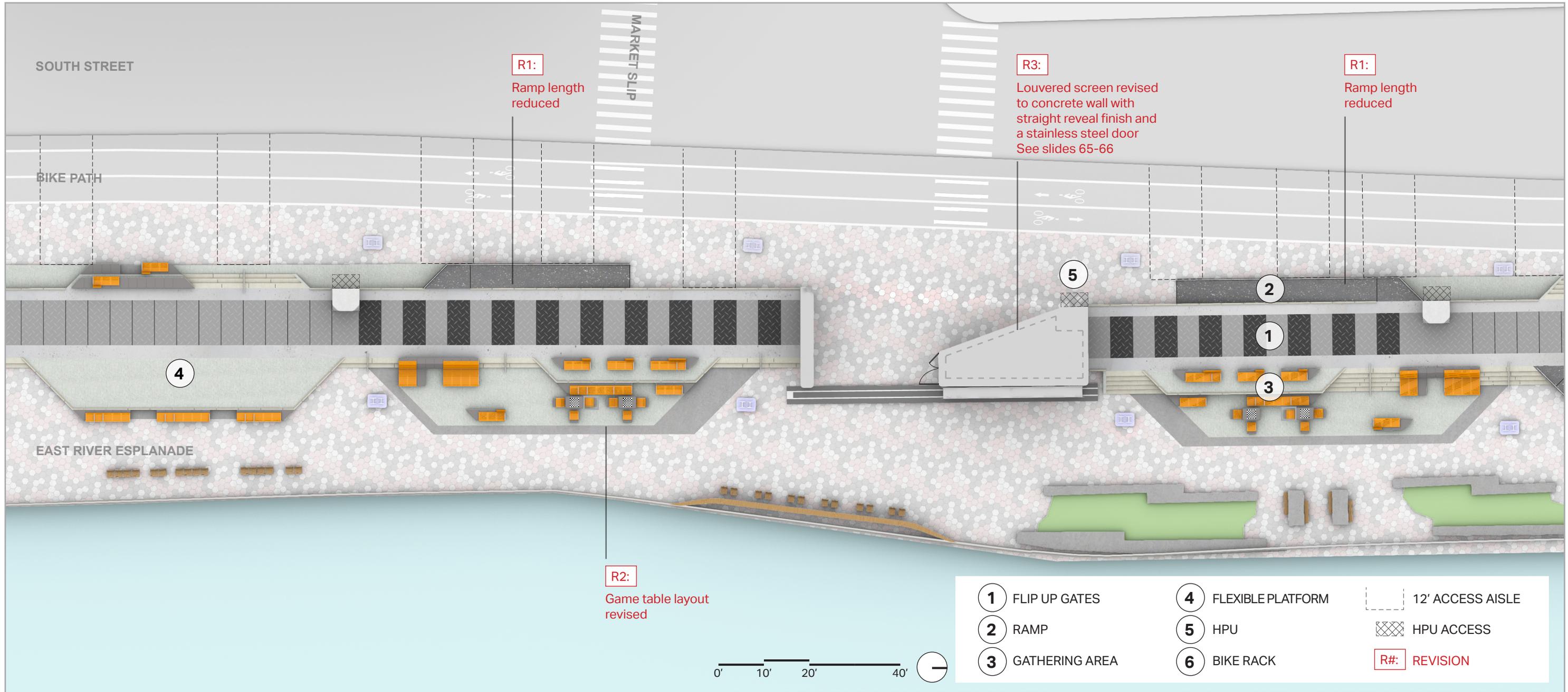
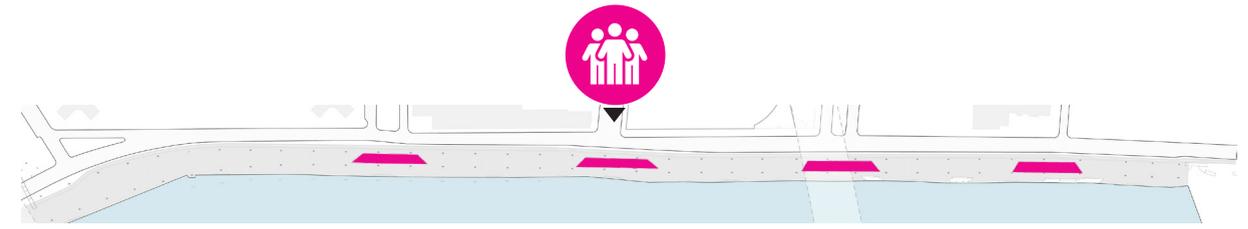
**FIXED  
STRUCTURE**



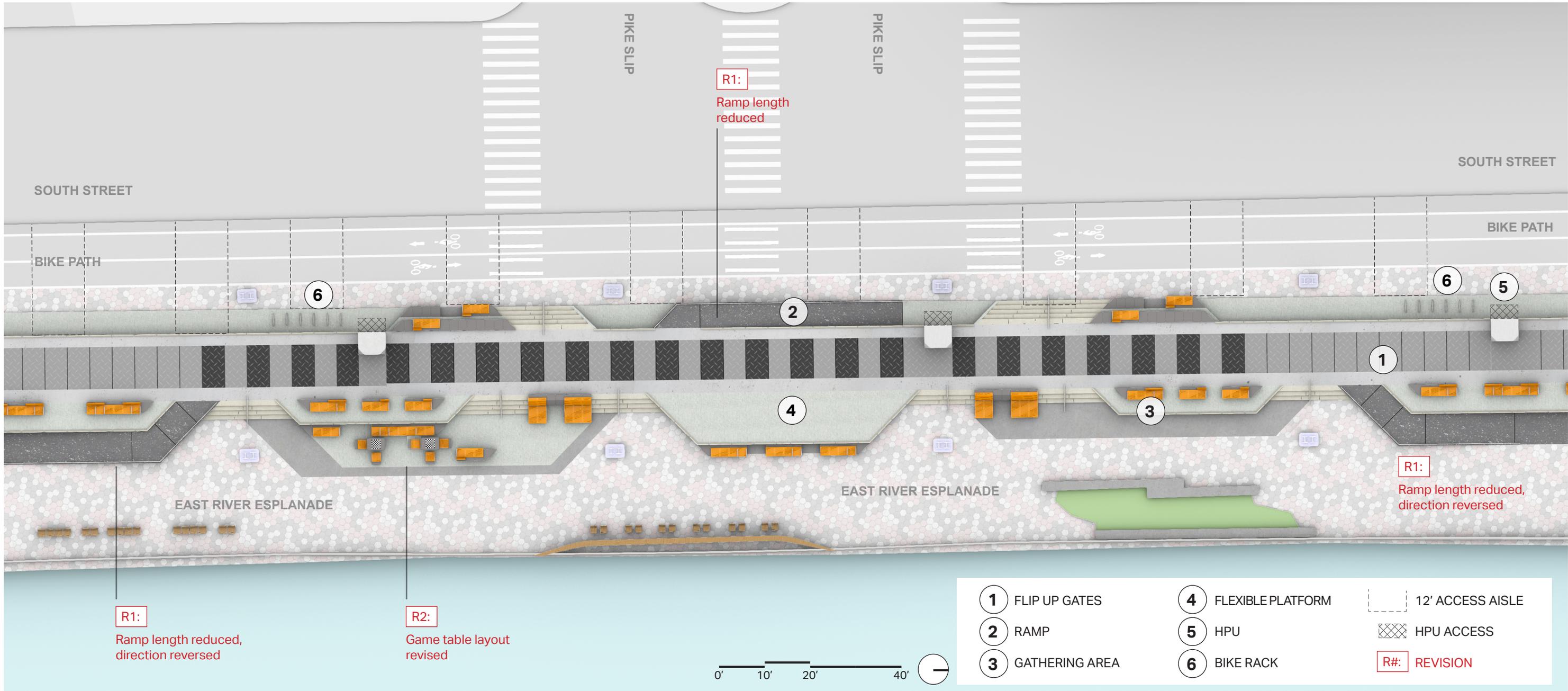
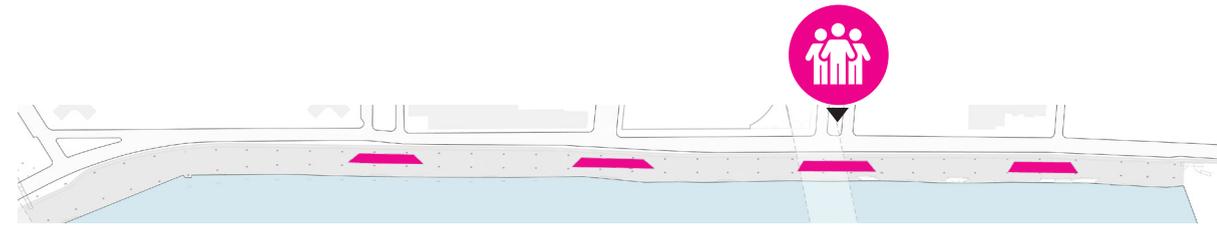
# SOCIAL POCKET | CATHERINE SLIP PLAN



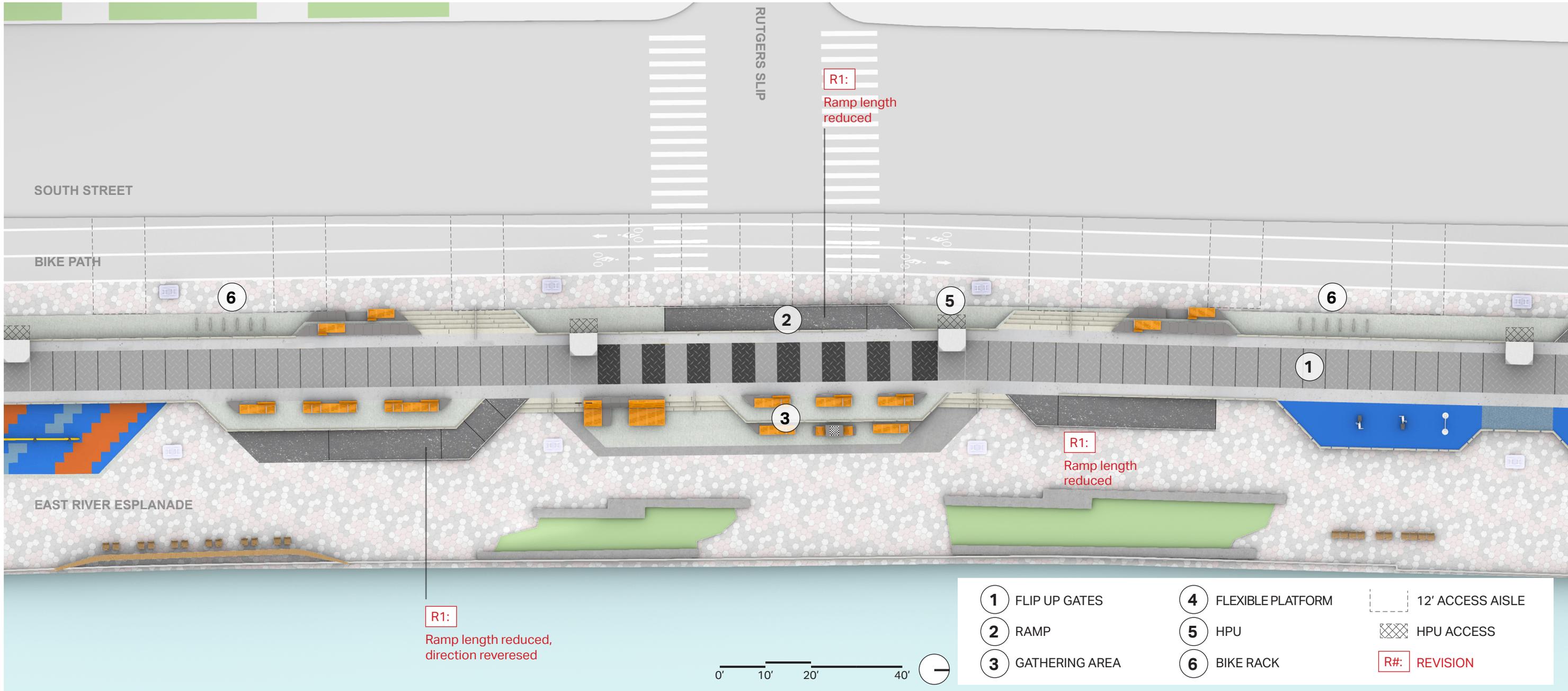
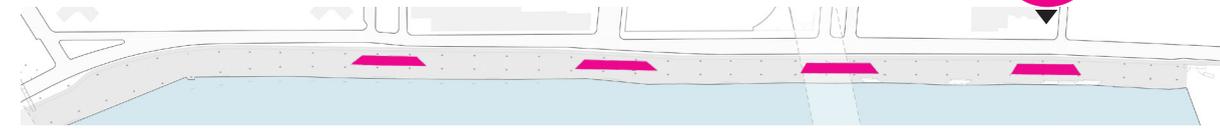
# SOCIAL POCKET | MARKET SLIP PLAN



# SOCIAL POCKET | PIKE SLIP PLAN



# SOCIAL POCKET | RUTGERS SLIP PLAN



# PASSIVE POCKETS



SOCIAL  
POCKETS



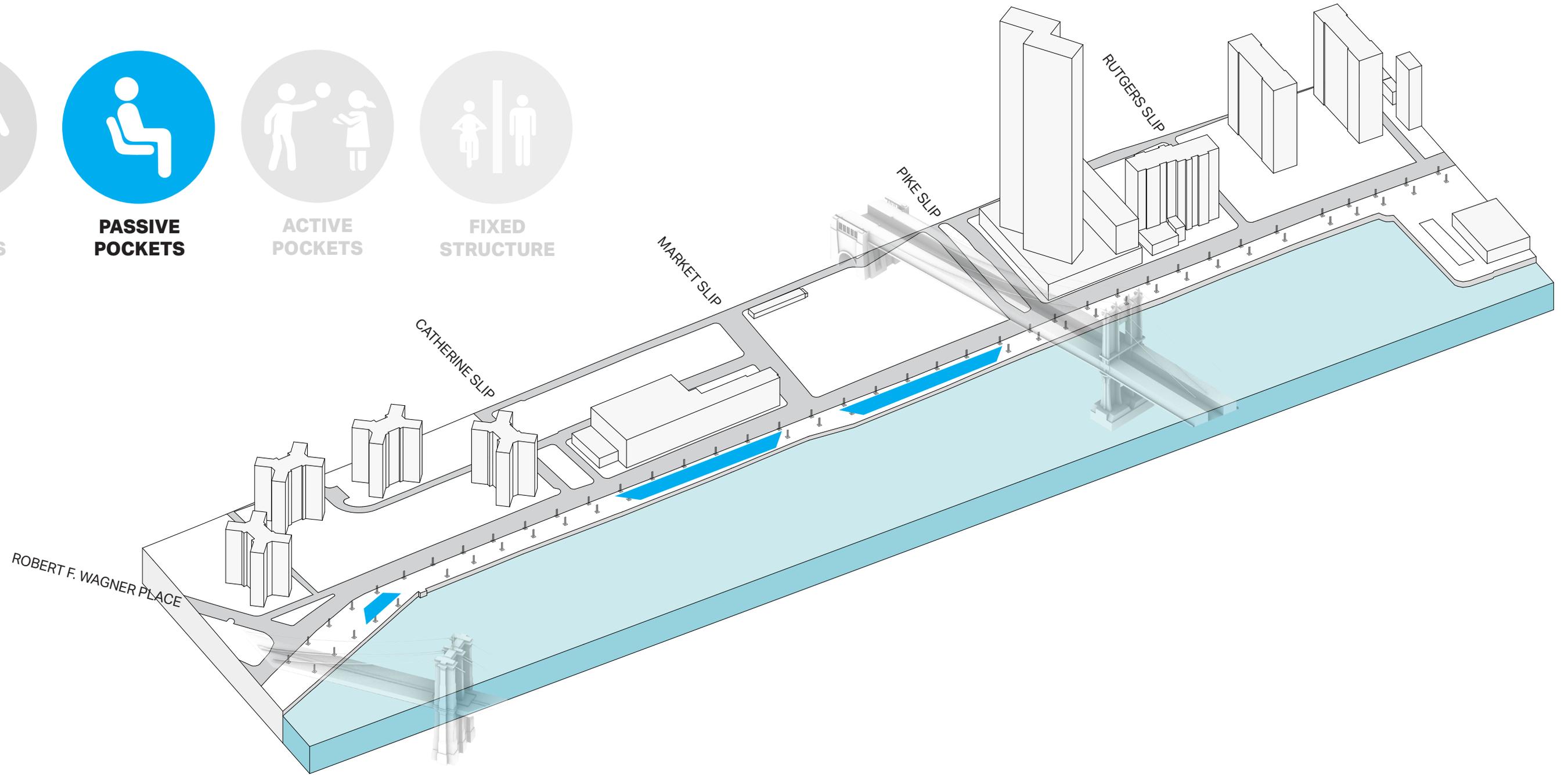
**PASSIVE  
POCKETS**



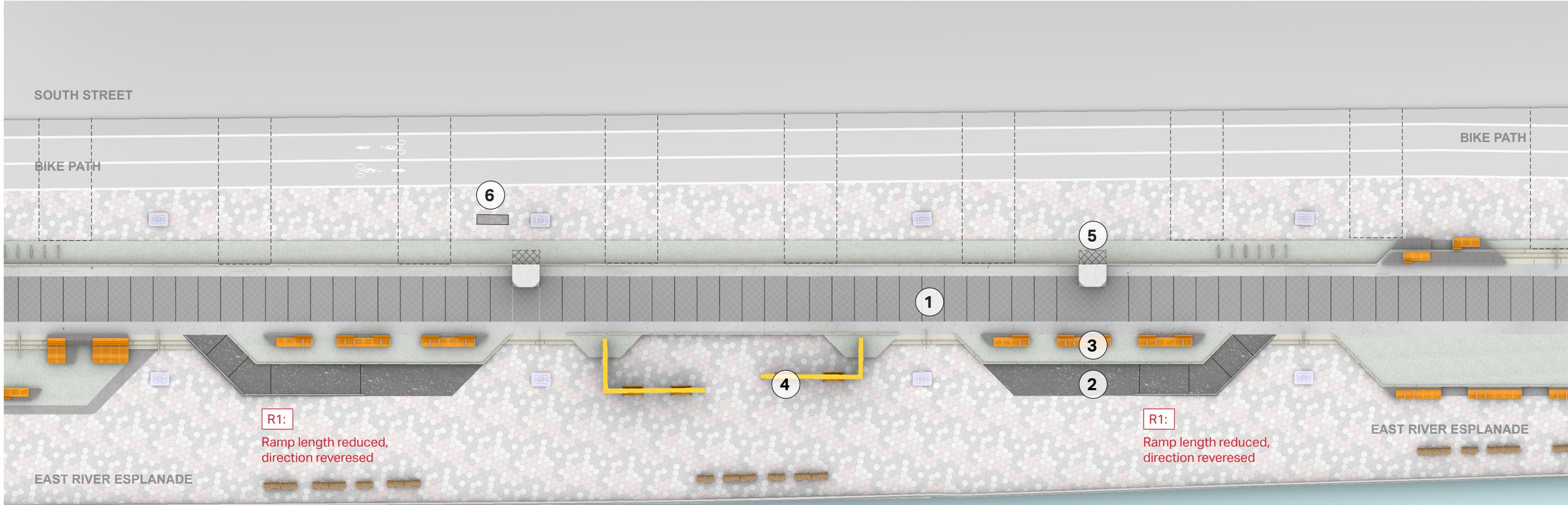
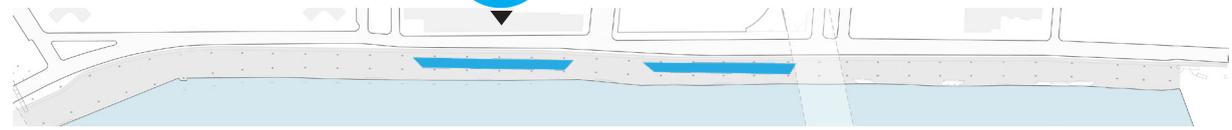
ACTIVE  
POCKETS



FIXED  
STRUCTURE

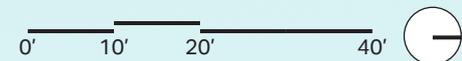


# PASSIVE POCKET | CATHERINE / MARKET PLAN



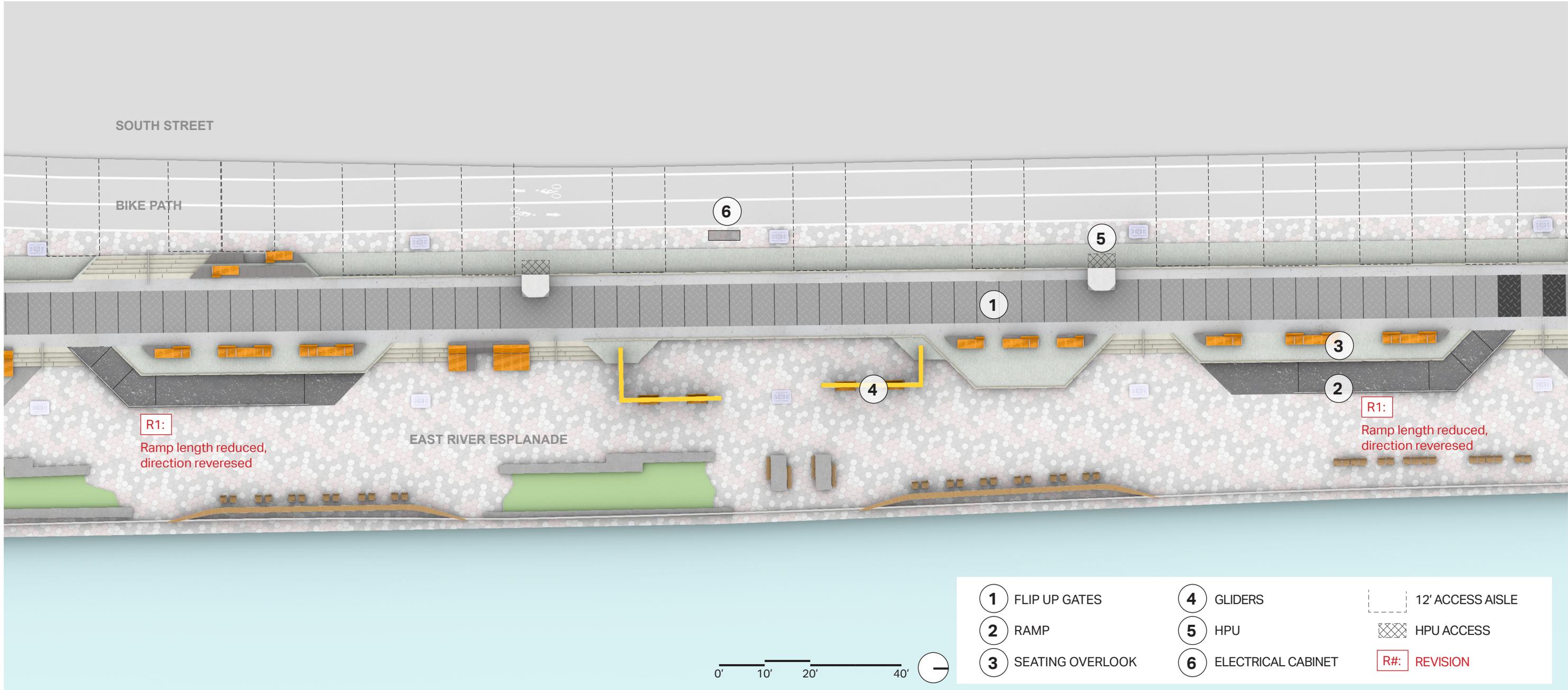
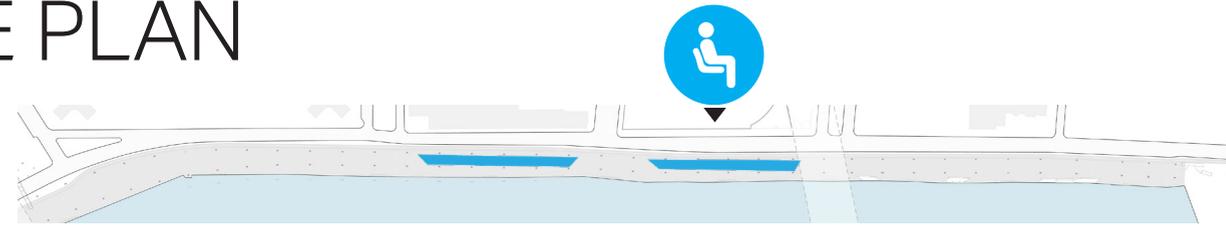
R1:  
Ramp length reduced,  
direction reversed

R1:  
Ramp length reduced,  
direction reversed



- 1 FLIP UP GATES
- 2 RAMP
- 3 SEATING OVERLOOK
- 4 GLIDERS
- 5 HPU
- 6 ELECTRICAL CABINET
- 12' ACCESS AISLE
- HPU ACCESS
- R#: REVISION

# PASSIVE POCKET | MARKET / PIKE PLAN



# ACTIVE POCKETS



SOCIAL  
POCKETS



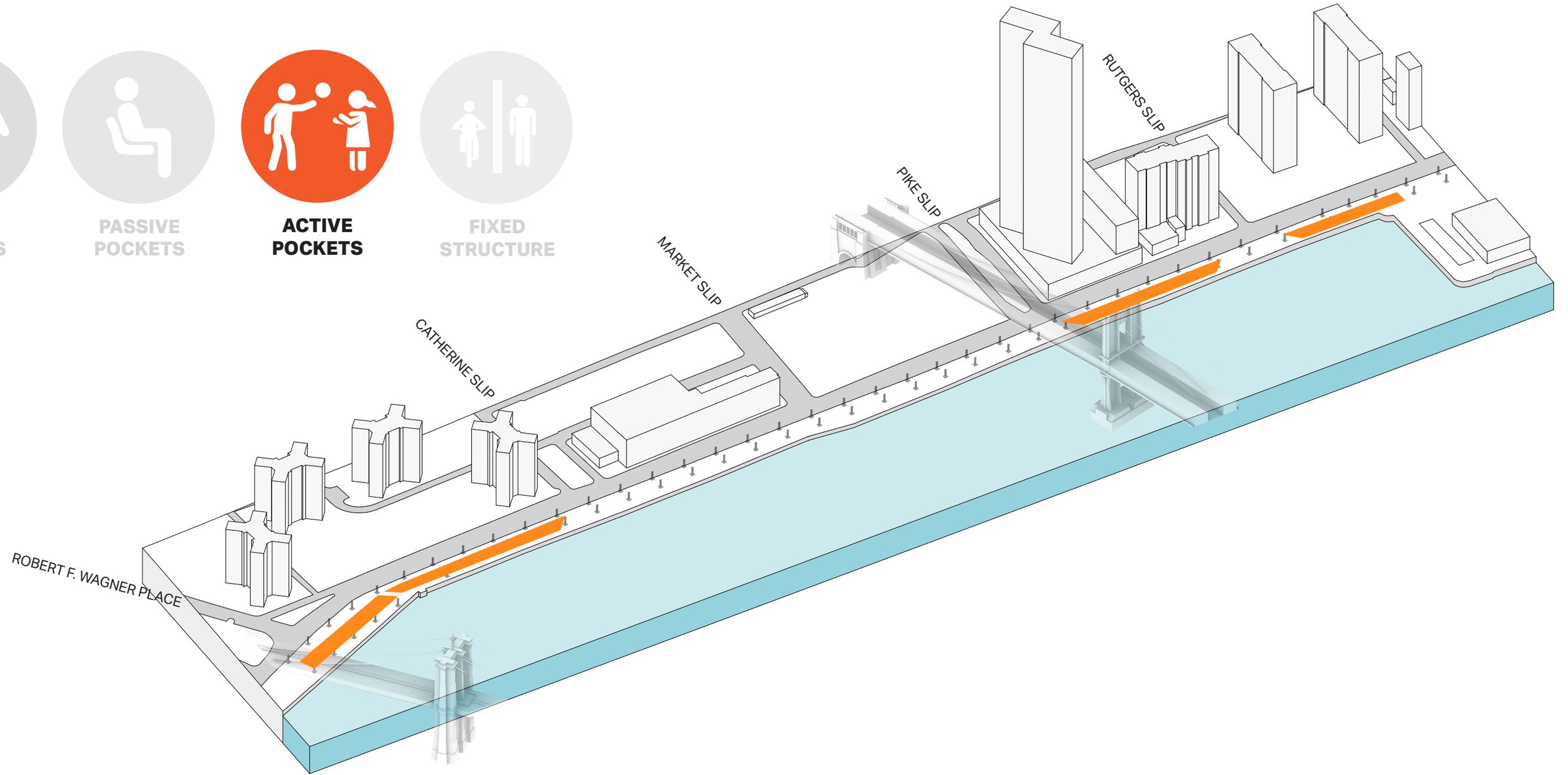
PASSIVE  
POCKETS



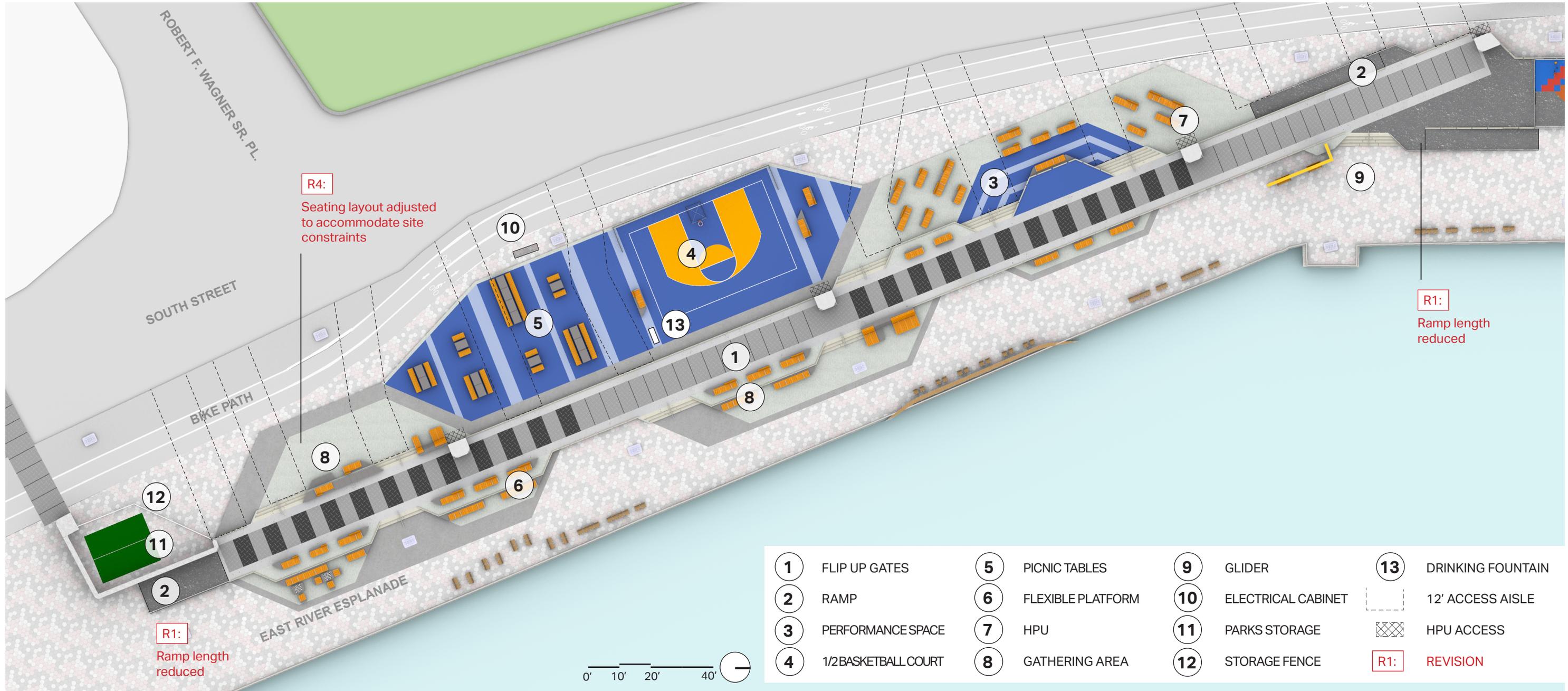
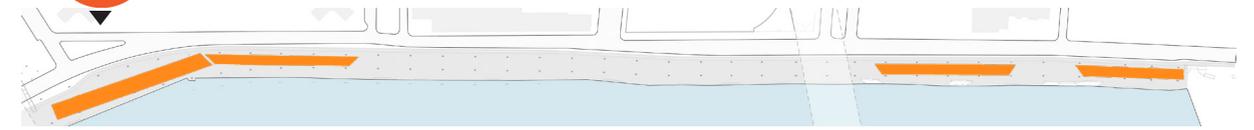
ACTIVE  
POCKETS



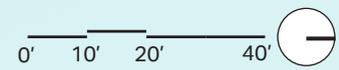
FIXED  
STRUCTURE



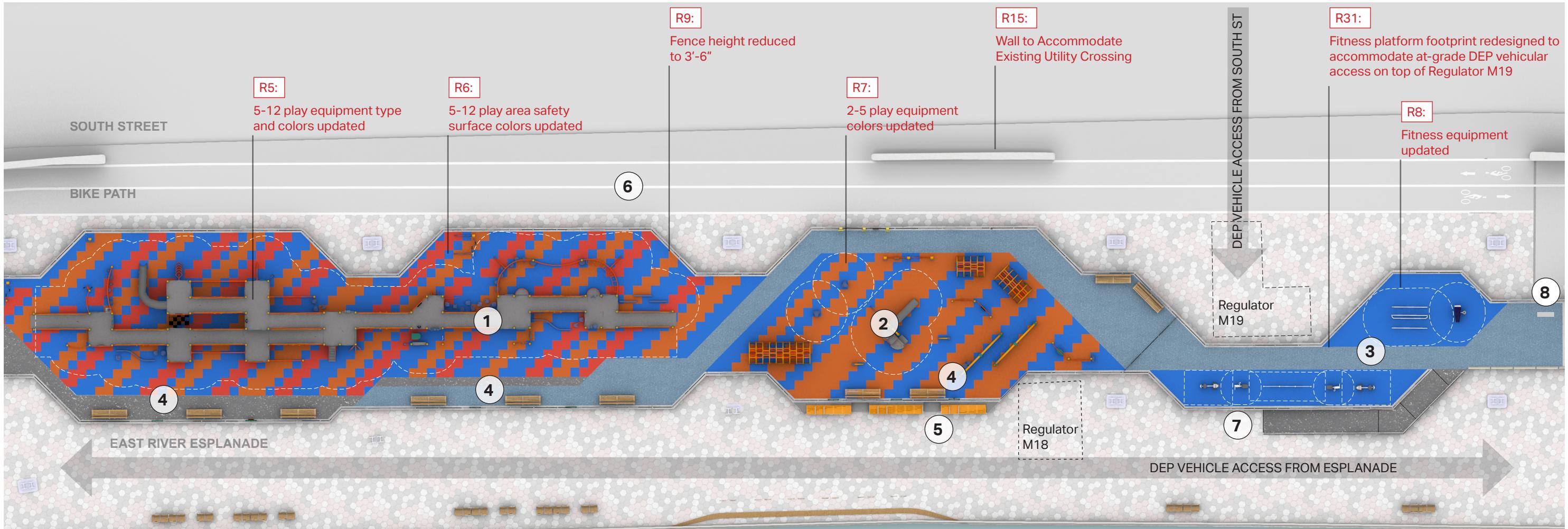
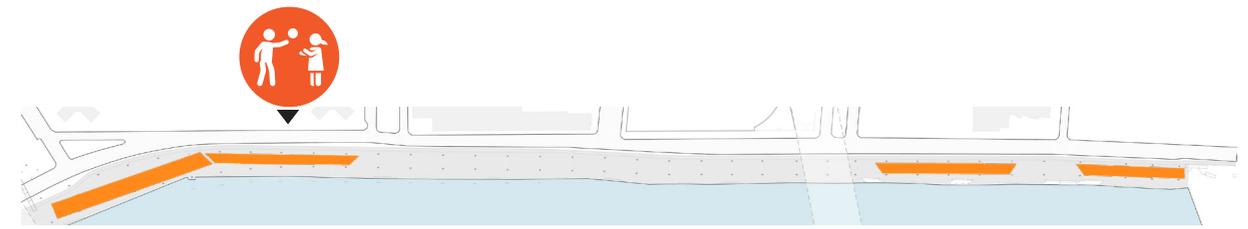
# SOUTH ACTIVE | SPORT / PERFORMANCE



- |                        |                     |                      |                     |
|------------------------|---------------------|----------------------|---------------------|
| ① FLIP UP GATES        | ⑤ PICNIC TABLES     | ⑨ GLIDER             | ⑬ DRINKING FOUNTAIN |
| ② RAMP                 | ⑥ FLEXIBLE PLATFORM | ⑩ ELECTRICAL CABINET | ⑭ 12' ACCESS AISLE  |
| ③ PERFORMANCE SPACE    | ⑦ HPU               | ⑪ PARKS STORAGE      | ⑮ HPU ACCESS        |
| ④ 1/2 BASKETBALL COURT | ⑧ GATHERING AREA    | ⑫ STORAGE FENCE      | <b>R1:</b> REVISION |



# SOUTH ACTIVE | PLAY & FITNESS PLAN



① RAMPED PLAY (5-12)	④ PLAY AREA SEATING	⑦ RAMP	12' ACCESS AISLE
② SENSORY PLAY (2-5)	⑤ ESPLANADE SEATING	⑧ DRINKING FOUNTAIN	HPU ACCESS
③ FITNESS AREA	⑥ FLIP UP GATES		R#: REVISION



# SOUTH ACTIVE | 2-5 PLAY EQUIPMENT (PRELIMINARY REVIEW)

## EQUIPMENT COLOR IN PROGRESS



ARCHED WALKWAYS  
WITH SENSORY BELLS

LASER CUT PLAY PANELS  
WITH SHADOW MOVEMENT

SADDLE SPINNER

STEEL TUBE ARCHES  
INTERACTIVE PANELS

WHIRLY GIG  
SOCIAL SPINNING PANELS

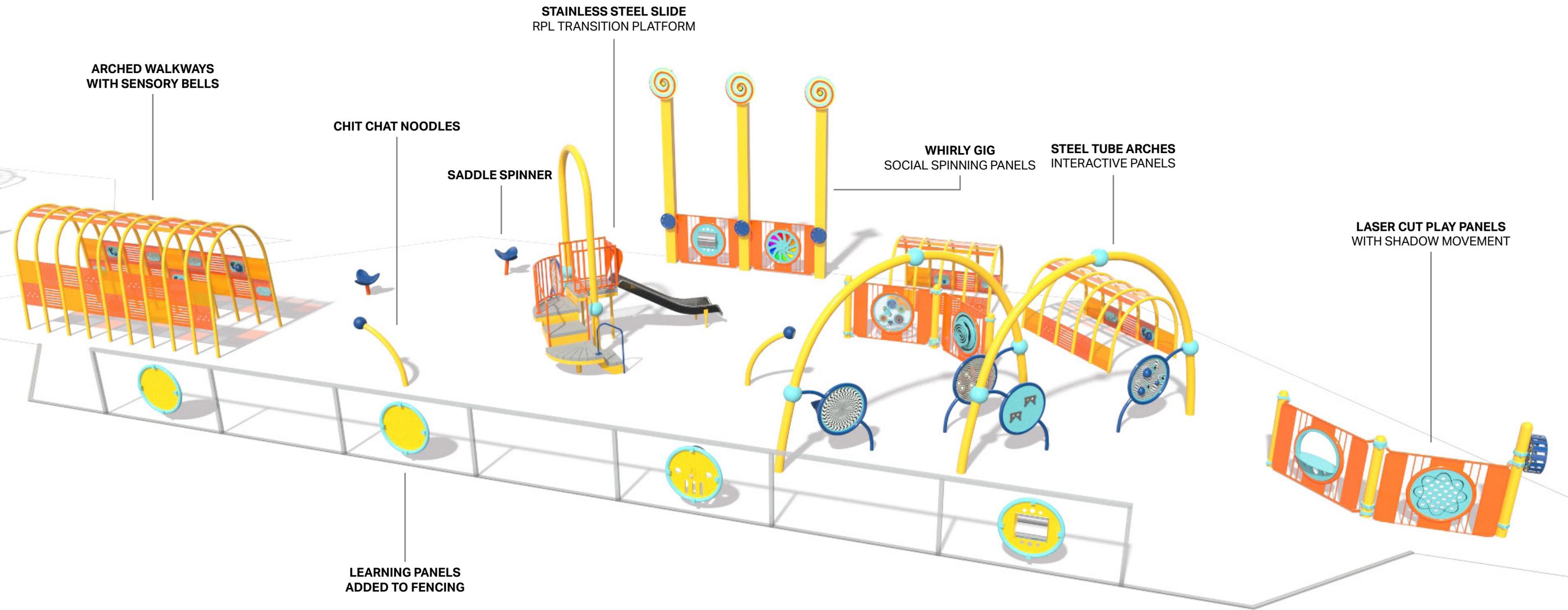
CHIT CHAT NOODLES

STAINLESS STEEL SLIDE  
RPL TRANSITION PLATFORM

# SOUTH ACTIVE | 2-5 PLAY EQUIPMENT (FINAL REVIEW)

R7:

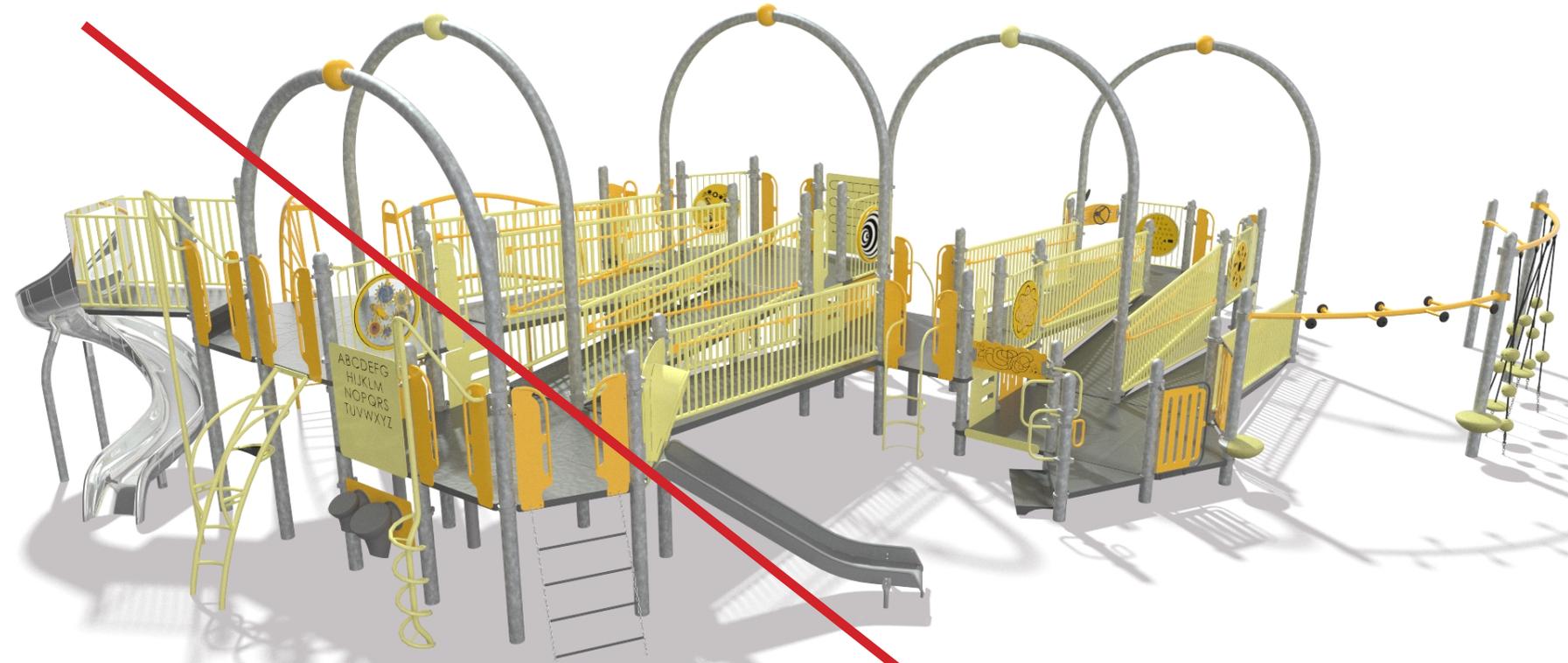
2-5 play equipment  
colors updated



# SOUTH ACTIVE | 5-12 PLAY EQUIPMENT (PRELIMINARY REVIEW)

R5:

5-12 play equipment type  
and colors updated



**RAMPED PLAY**

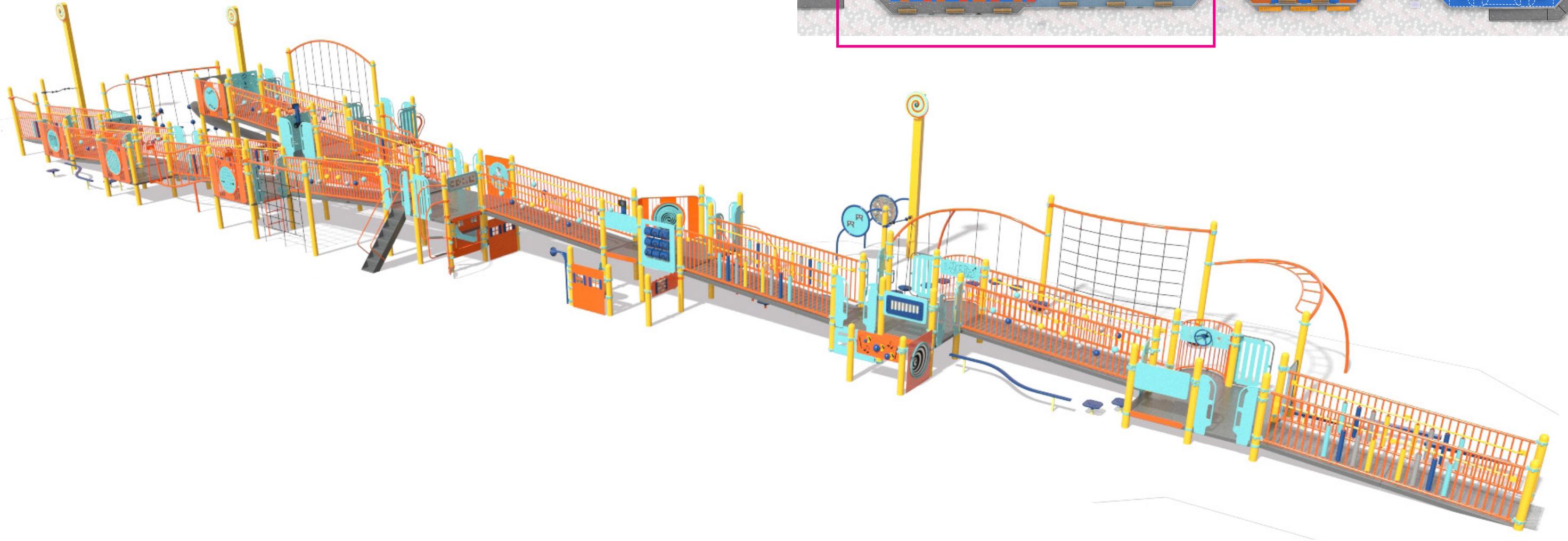
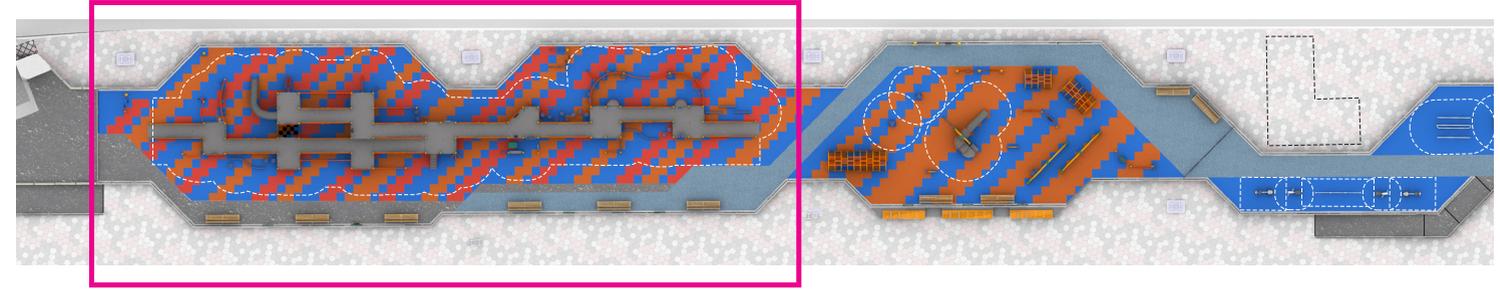


**CLIMBING PLAY**

# SOUTH ACTIVE | 5-12 PLAY EQUIPMENT (PDC FINAL)

R5:

5-12 play equipment type  
and colors updated



## COMBINED RAMPED & CLIMBING PLAY

# SOUTH ACTIVE | FITNESS EQUIPMENT (PRELIMINARY REVIEW)

R8:

Fitness equipment updated

PULL UP BARS - 5'6" & 7'6"



ARM BIKE



PUSH-UP AND LEG LIFT STATION



# SOUTH ACTIVE | FITNESS EQUIPMENT (FINAL REVIEW)

R8:

Fitness equipment updated



Arm Bike



Sit-up Bench



Leg Press

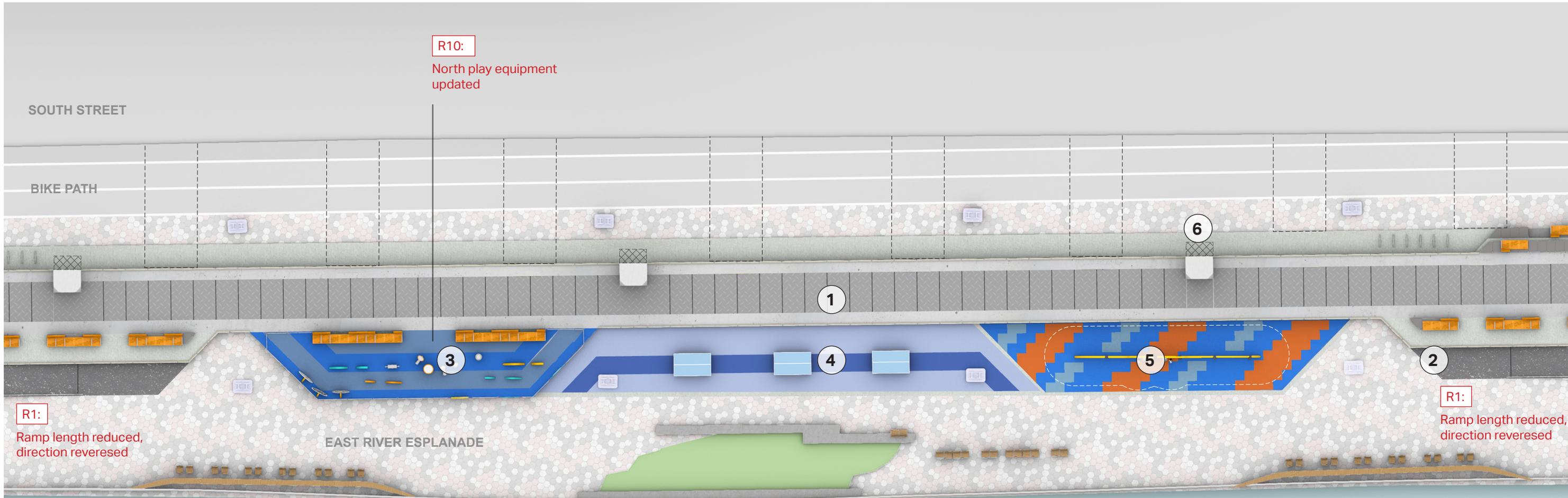
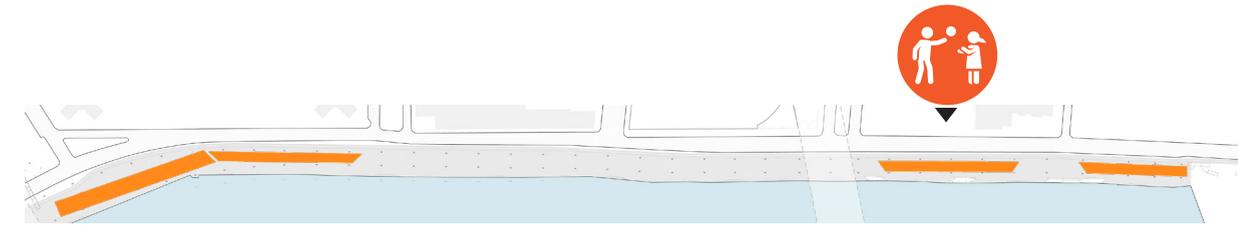


Triple Bars



Pull Up Bars, 5'6", 7'0", 8'0"

# NORTH ACTIVE | PLAY & CLIMB PLAN

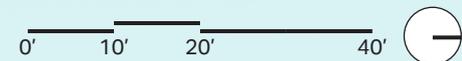


**R1:**  
Ramp length reduced,  
direction reversed

**R10:**  
North play equipment  
updated

**R1:**  
Ramp length reduced,  
direction reversed

<b>1</b> FLIP UP GATES	<b>4</b> PING PONG TABLES	12' ACCESS AISLE
<b>2</b> RAMP	<b>5</b> CLIMBING STRUCTURE	HPU ACCESS
<b>3</b> SENSORY PLAY (1-2)	<b>6</b> HPU	<b>R#:</b> REVISION



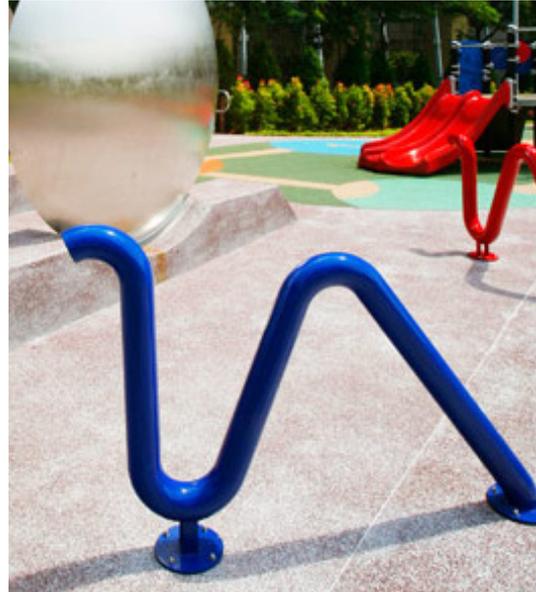
# NORTH ACTIVE | PLAY EQUIPMENT (PRELIMINARY REVIEW)

R10:

North play equipment updated



Landscape Structures: Telephone Tube



Sonic Architecture - Telephone Tube



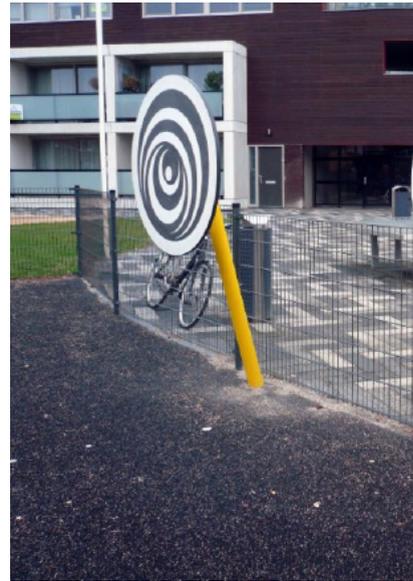
Goric - Rolling Bell & Sound Column



Landscape Structures: Learning Panel



Sonic Architecture - Kids Drums



Goric - Effect Disc B



Landscape Structures: Learning Panel



# NORTH ACTIVE | PLAY EQUIPMENT (FINAL REVIEW)

R10:

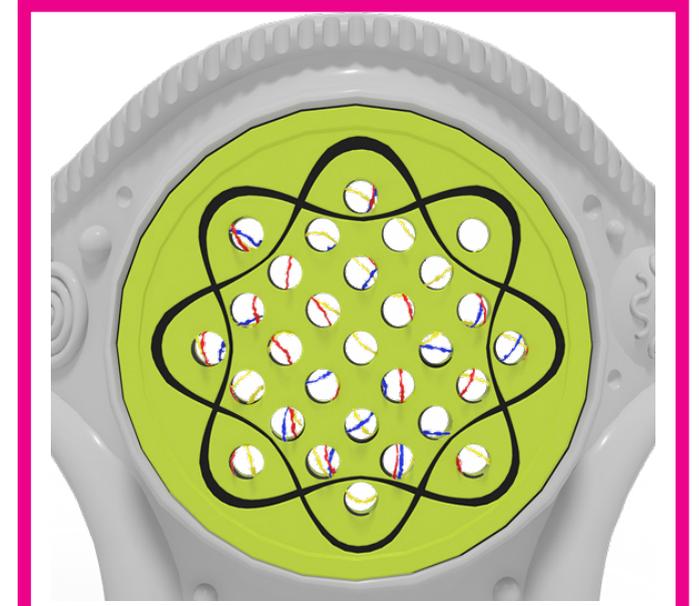
North play equipment updated



Landscape Structures: Telephone Tube

Sonic Architecture - Telephone Tube

Goric - Rolling Bell & Sound Column



Landscape Structures: Marble Panel



Landscape Structures - Rhapsody Drums

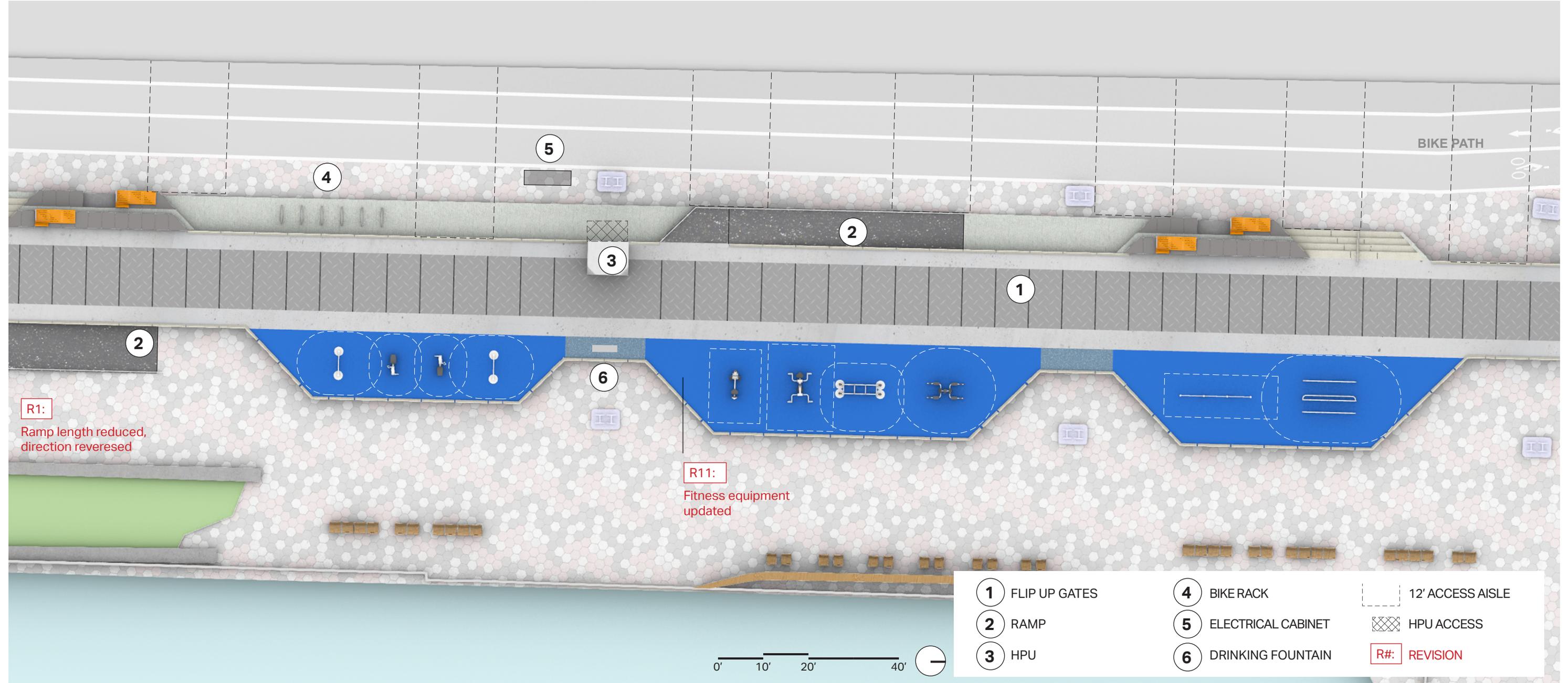
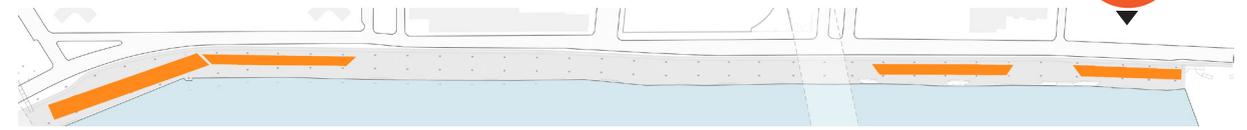


Goric - Effect Disc B



Landscape Structures: Kaleidoscope Panel

# NORTH ACTIVE | FITNESS PLAN



- |                 |                      |                  |
|-----------------|----------------------|------------------|
| ① FLIP UP GATES | ④ BIKE RACK          | 12' ACCESS AISLE |
| ② RAMP          | ⑤ ELECTRICAL CABINET | HPU ACCESS       |
| ③ HPU           | ⑥ DRINKING FOUNTAIN  | R#: REVISION     |

# NORTH ACTIVE | FITNESS EQUIPMENT (PRELIMINARY REVIEW)



a. Arm Bike



b. Triple Bars



c. Push Up & Leg Lift Station



d. Incline Press



f. Dip Bench



g. Pull Up Bars, 8' & 6'6"



h. Pull Up Bars - 5'6" & 7'6"

# NORTH ACTIVE | FITNESS EQUIPMENT (PDC FINAL)

R11:

Fitness equipment updated



a. Arm Bike



b. Triple Bars



Push Up & Leg Lift Station



Incline Press



Dip Bench



Pull Up Bars, 5'6", 7'0", 8'0"



Leg Press



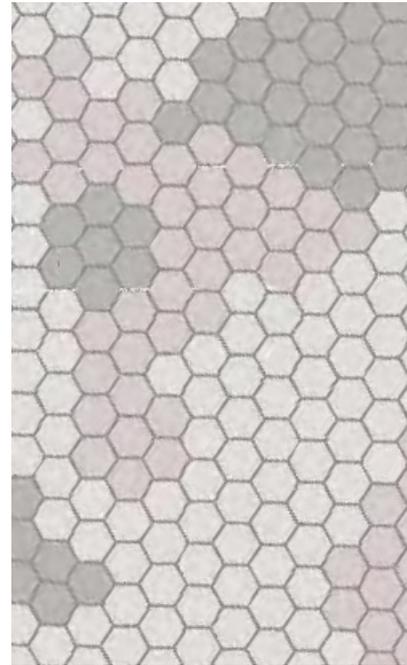
Seated Bench Press

# PAVING MATERIALS

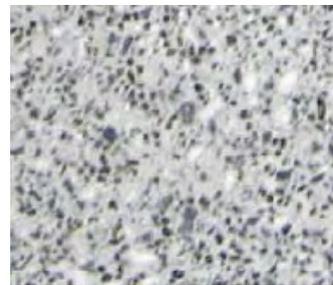
# PAVEMENT



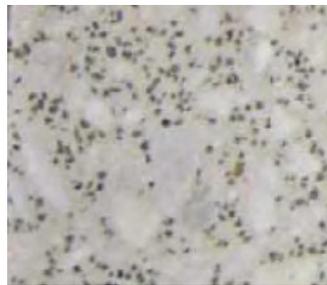
Hanover 16" Pre-cast Concrete Hex Paver



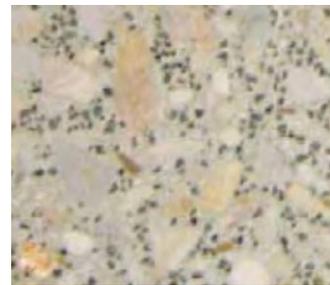
Typical Hex Paver Pattern



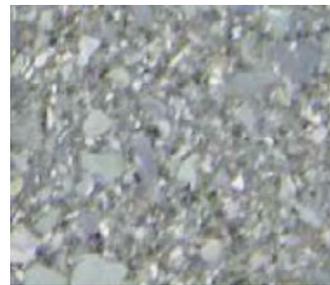
A: M2977, Ground Finish



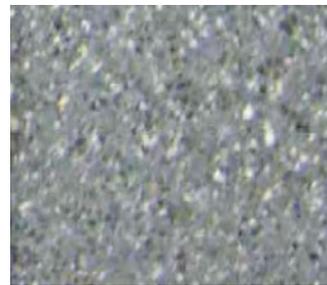
B: M2978, Tudor Finish



C: M2979, Ground Finish

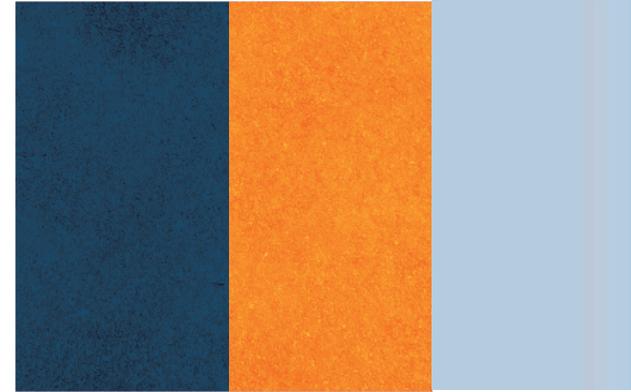


D: M2980, Ground Finish



E: M2981, Tudor Finish

## Hanover Hexagonal Paver



### SportMaster Sport Surfaces

Color SealCoat Asphalt

Color: Blue, Orange, Ice Blue

R6:

5-12 play area safety  
surface colors updated



### Mitchell Rubber Safety Tiles

Color: #20 (Red), #2 (Blue), #5 (Orange),

# PAVEMENT



## Flip-Up Gate Finish

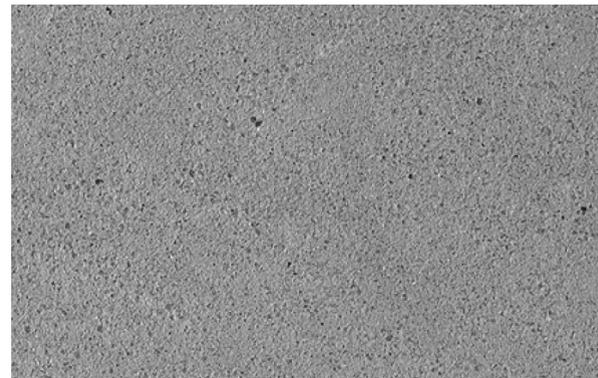
Aluminum Diamond Plate

Type 1 Finish - Stainless Steel Anti-Slip Coating

Type 2 Finish - Stainless Steel Anti-Slip Coating  
w/ Black Powder Coat Finish



C.I.P Concrete, Type 1  
Natural Gray Color  
Medium Broom Finish



C.I.P Concrete, Type 2  
Scofield Platinum Gray Integral Color  
Acid Etched Finish



C.I.P Concrete, Type 3  
Scofield Platinum Gray Integral Color  
w/ Seeded Silica Carbide Aggregate  
Medium Smooth Finish



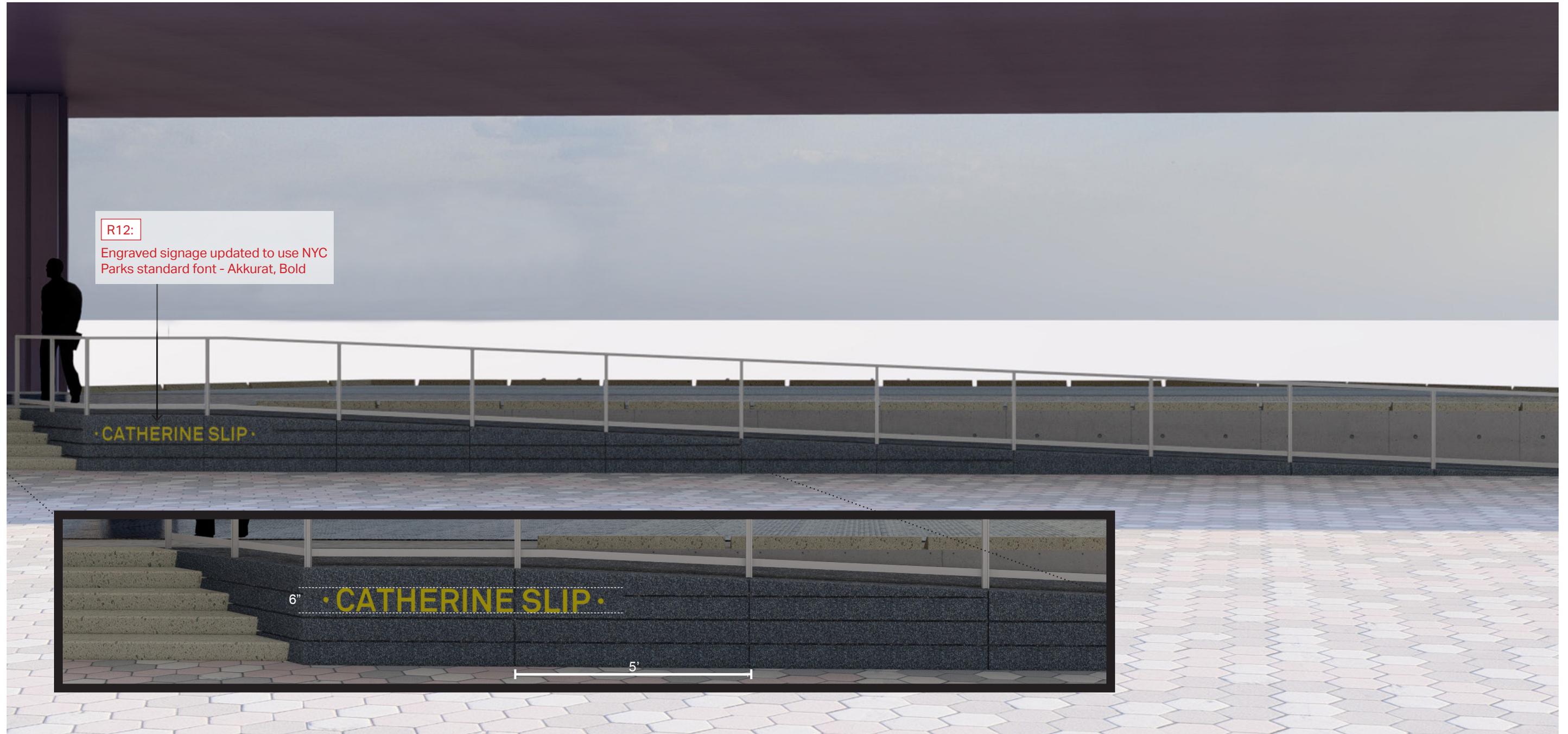
C.I.P Concrete, Type 4  
Scofield Denim Blue Integral Color  
w/ Seeded Silica Carbide Aggregate  
Medium Smooth Finish



Precast Steps and Curbs  
Integrally Colored: Latte/Beige  
Acid Etched Finish

# SIGNAGE

# ENGRAVED SIGNAGE | STREET SIDE RAMPS



# ENGRAVED SIGNAGE | WATER SIDE HPU



HPU with elevation marker

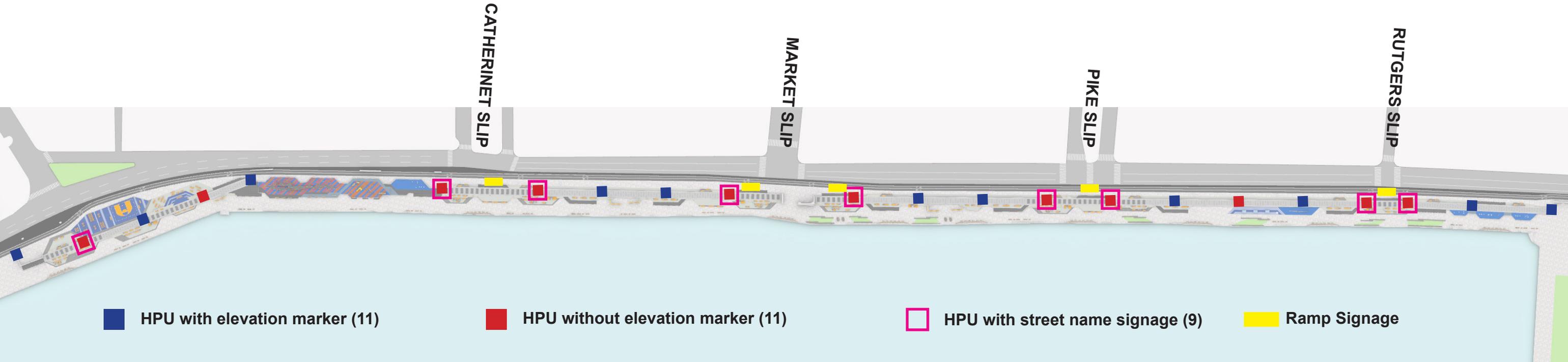


R13:  
Engraved signage added to water-facing side of HPU units

CATHERINE 6"  
← SLIP 6"

6'2"

# ENGRAVED SIGNAGE | LOCATIONS (FINAL REVIEW)



# LIGHTING

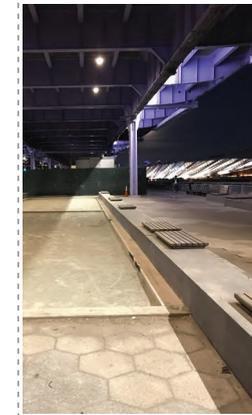
# EXISTING LIGHTING CONDITION



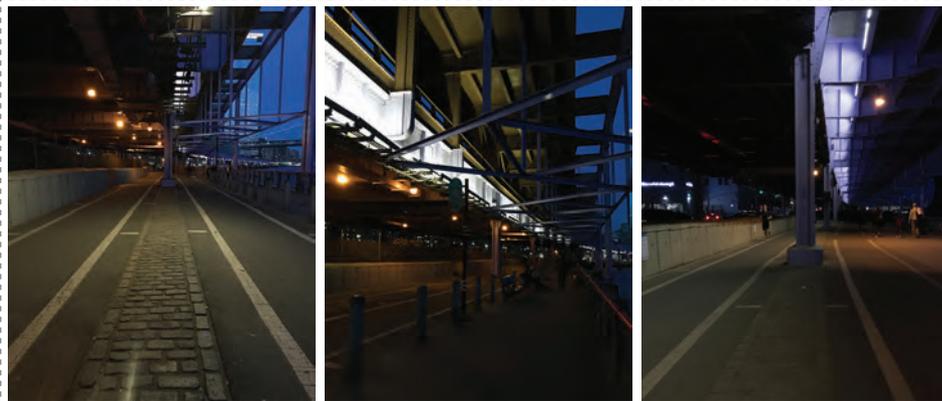
sidewalk/ bikeline by the construction



basketball court



seating



walkways



bike rack

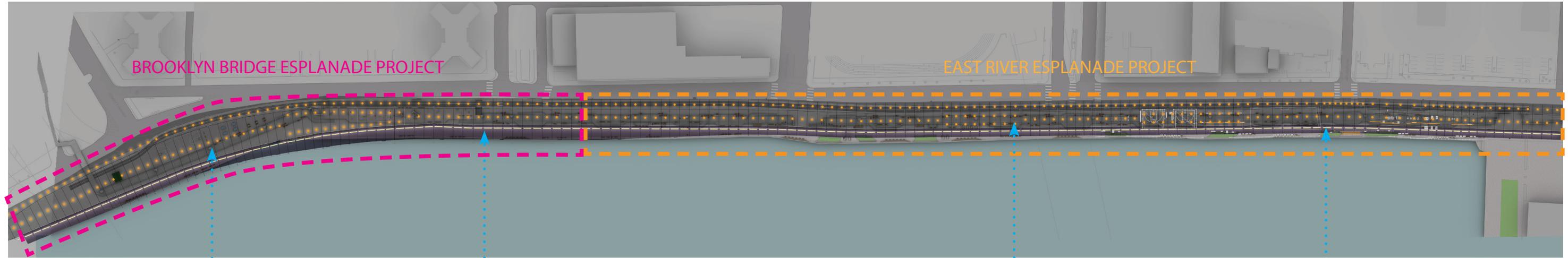


under the FDR



seating by the river

# EXISTING LIGHTING LAYOUT



SDOT Cannister lighting with LED



Surface mounted linear wall-washer with T5 fluorescent lamp and shielding visor, 54W, 4100K

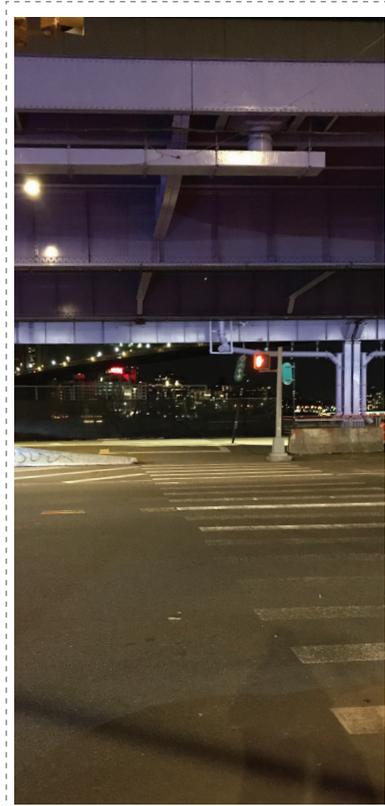


Surface mounted cylinder downlight with HID induction lamp, 55W, 3000K



Surface mounted linear wall-washer with T5 fluorescent lamp and shielding visor, 54W, 4100K

# EXISTING LIGHTING AT ENTRY POINTS



Catherine Slip



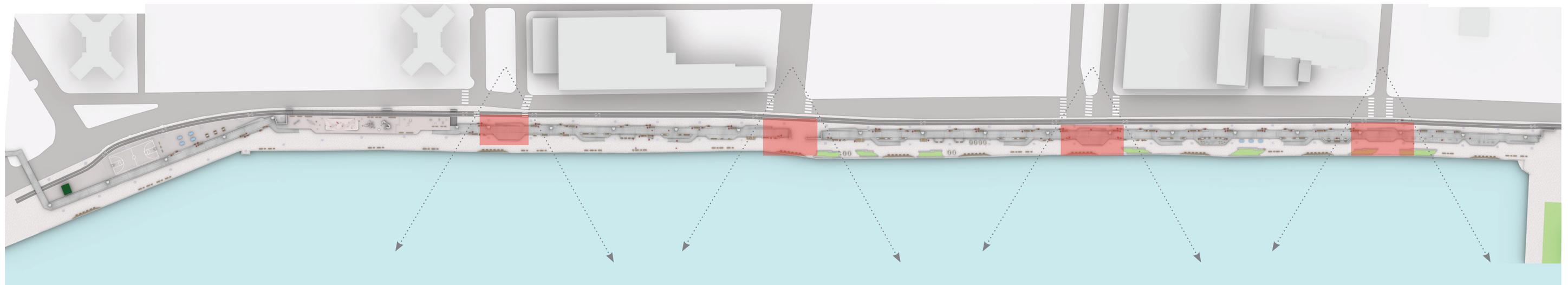
Market Slip



Pike Slip



Rutgers Slip



# PROPOSED LIGHTING AT ENTRY POINTS | INDIRECT PROJECTION

R14:

Lighting added at entry points

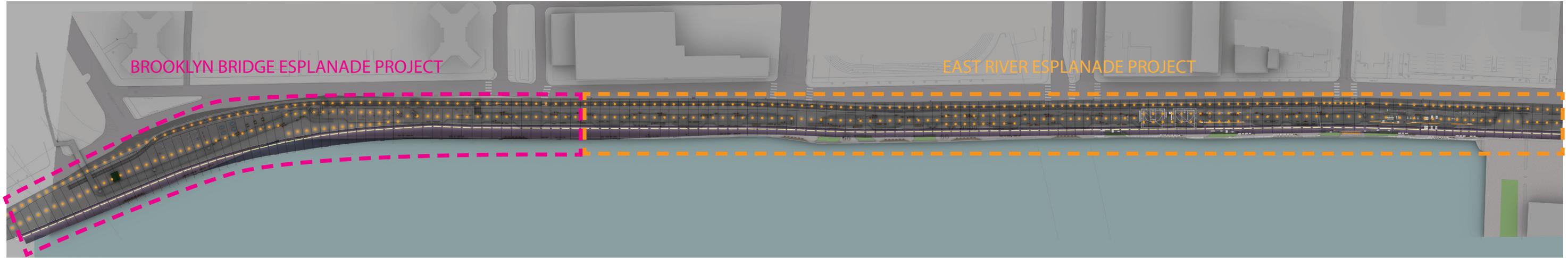


Existing downlighting to be updated to low-wattage LED fixtures

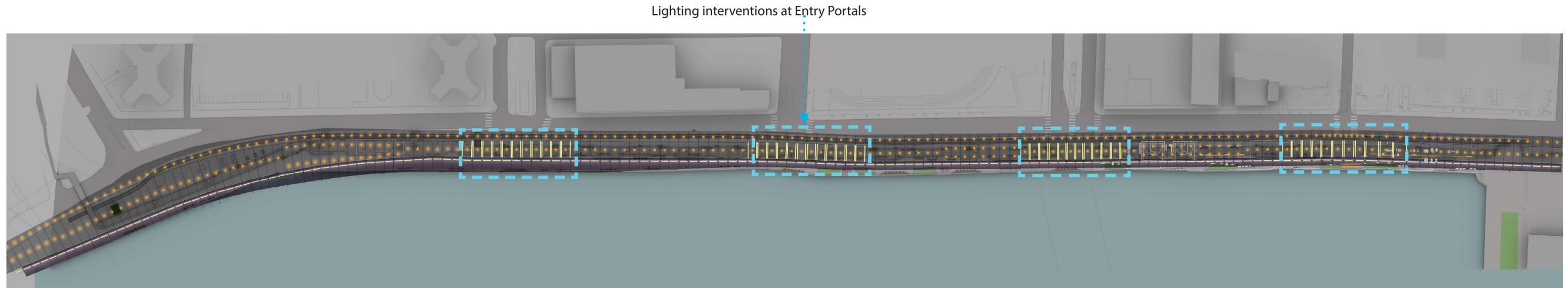


Surface mounted LED linear wall-washer and shielding visor, 51W, 4000k

# EXISTING VS PROPOSED LIGHTING LAYOUT



EXISTING

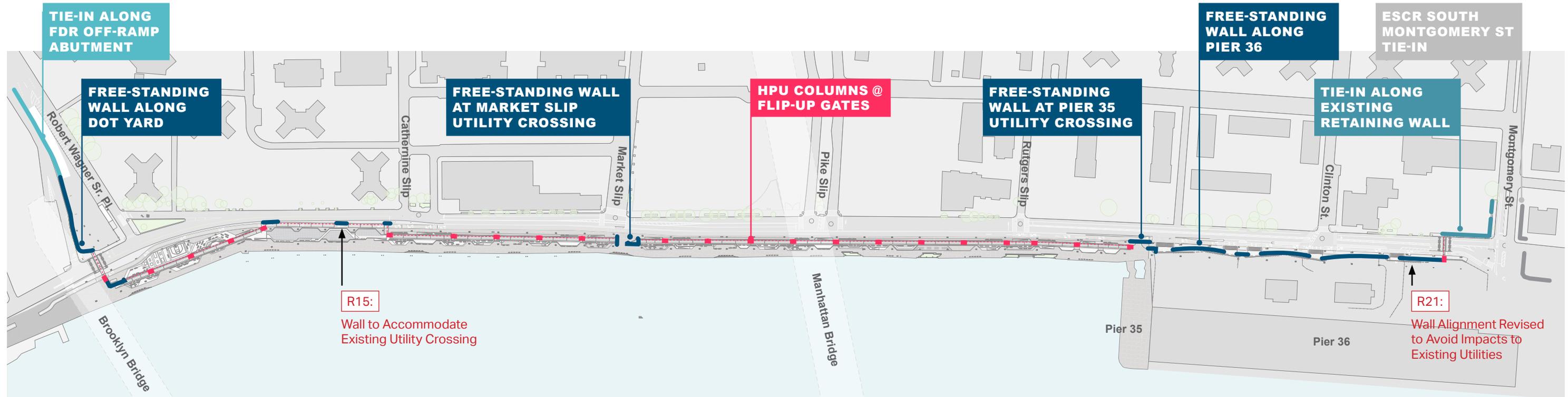


PROPOSED

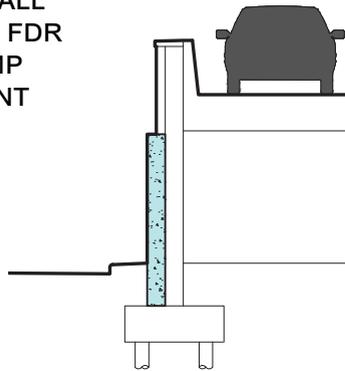
# FLOOD INFRASTRUCTURE

# FLOOD PROTECTION

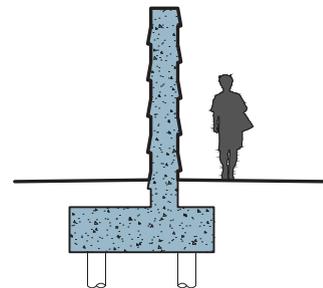
## Exposed Floodwall Overview



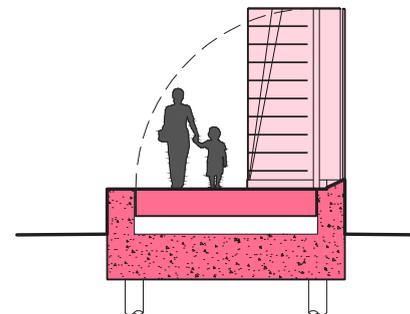
FLOODWALL AGAINST FDR OFF-RAMP ABUTMENT



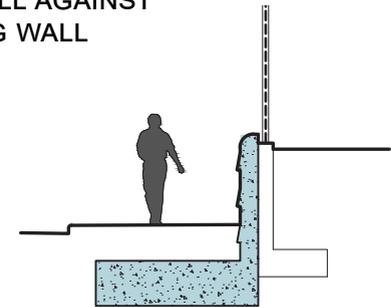
FREE-STANDING FLOODWALL



HPU COLUMNS @ FLIP-UP GATES

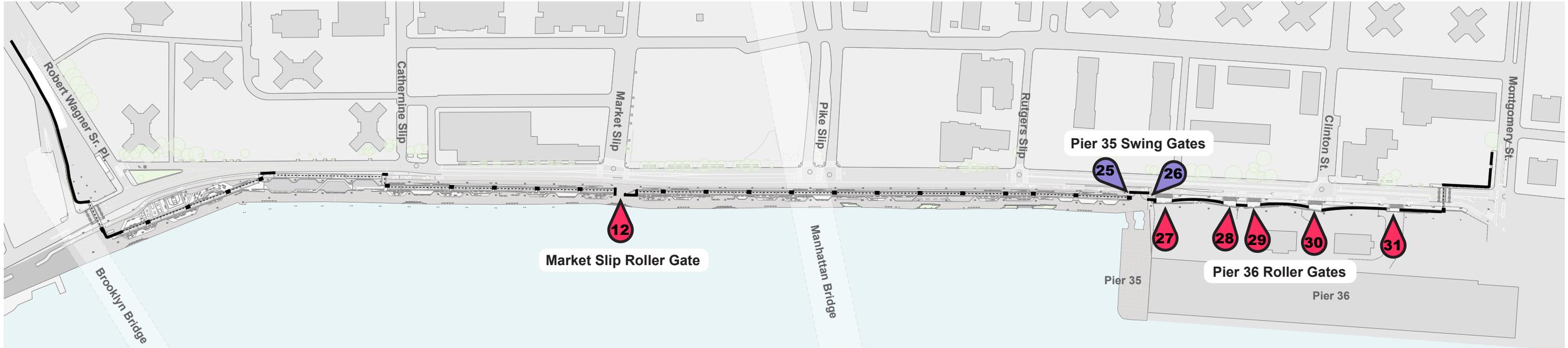


FLOODWALL AGAINST RETAINING WALL



# FLOOD PROTECTION

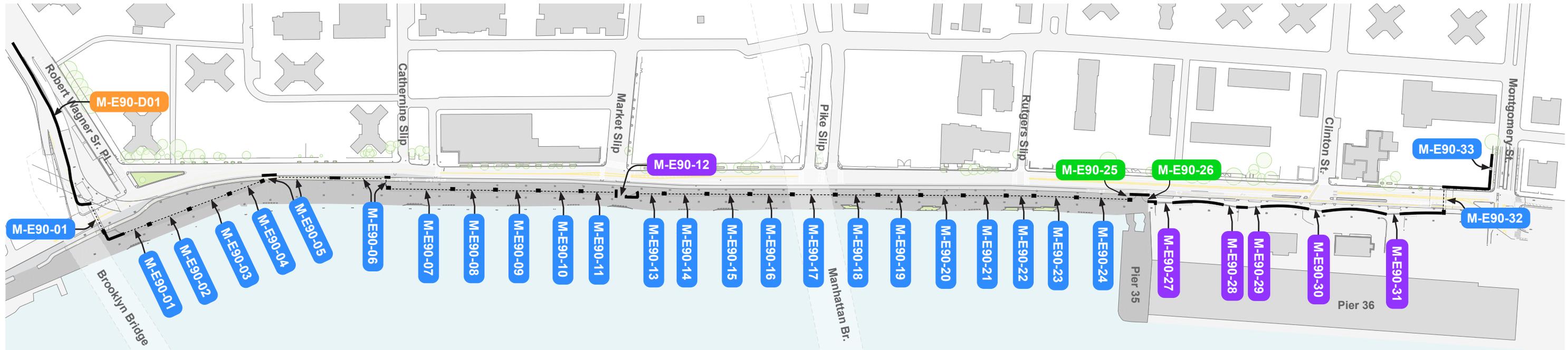
## Above Grade Gates



-  SWING GATE (2)
-  ROLLER GATE (6)

-  EXPOSED FLOODWALL & HPU COLUMNS
-  LINE OF FLIP-UP GATES

# GATE NUMBERING



M-E90-XXX FLIP-UP GATE

M-E90-XXX SWING GATE

M-E90-XXX ROLLER GATE

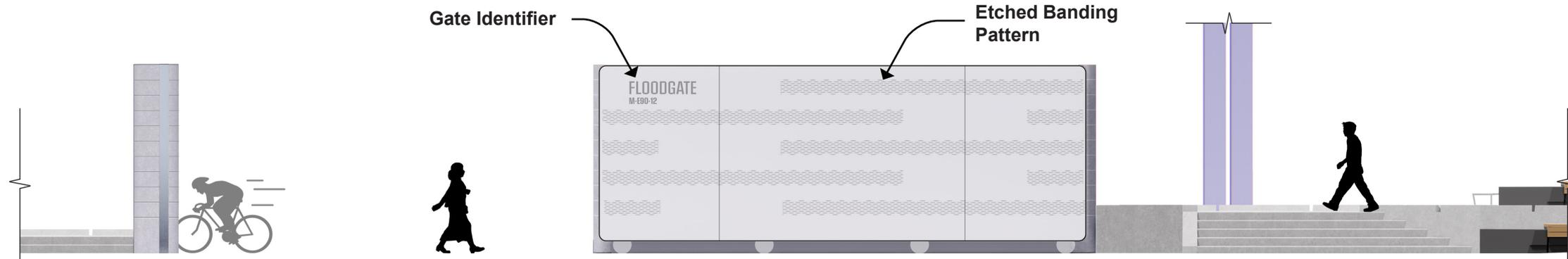
M-E90-XXX FLOOD DOOR

— EXPOSED FLOODWALL & HPU COLUMNS

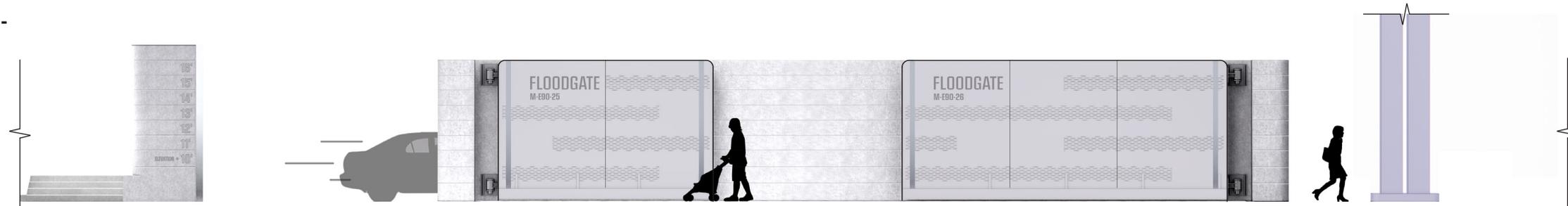
..... LINE OF FLIP-UP GATES

# FLOOD PROTECTION

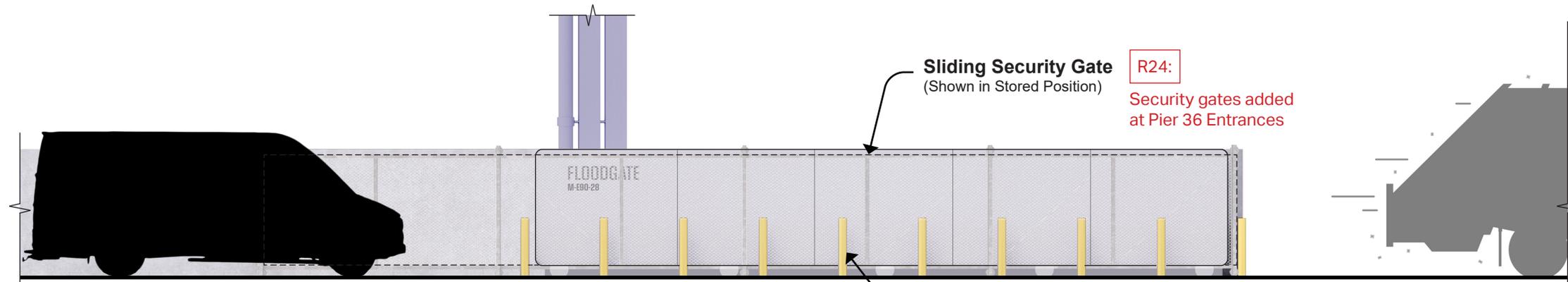
## Above Grade Gates



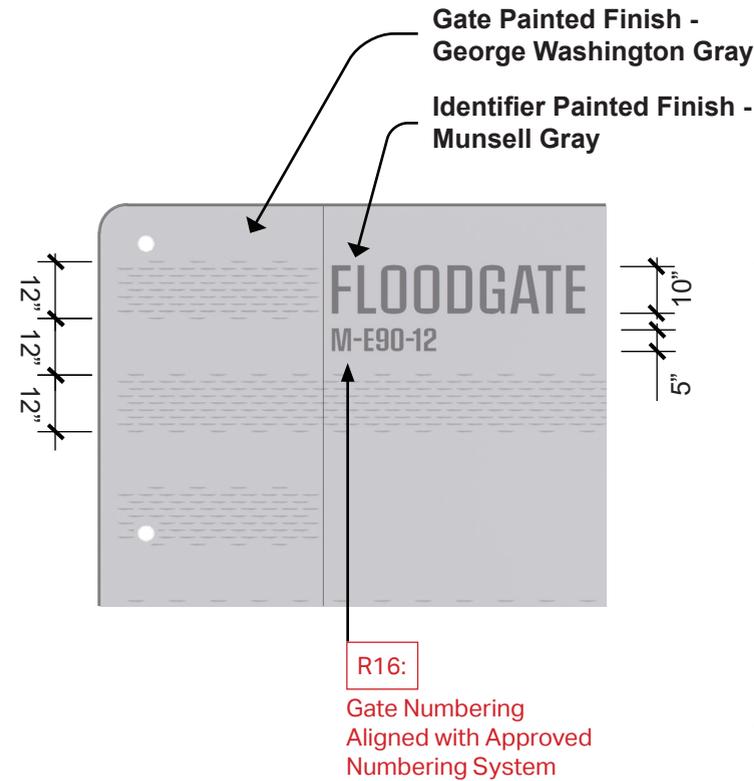
**MARKET SLIP ROLLER GATE**



**PIER 35 SWING GATES**



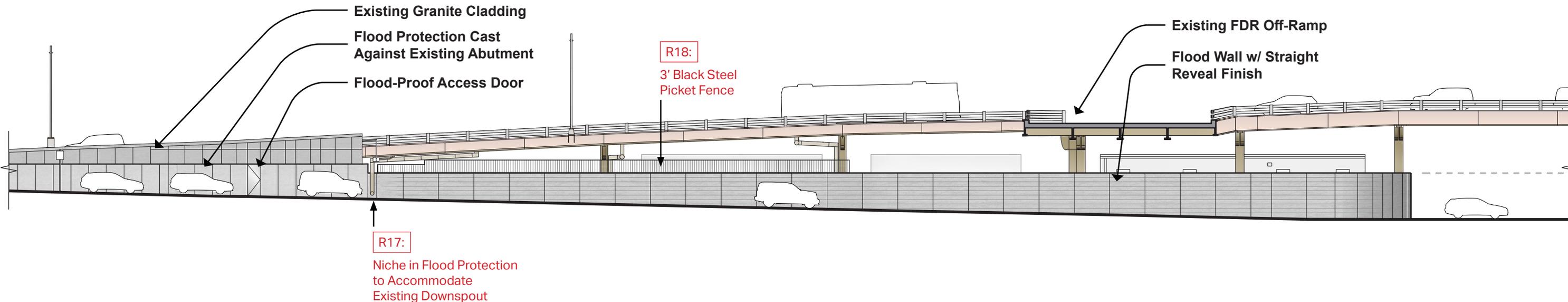
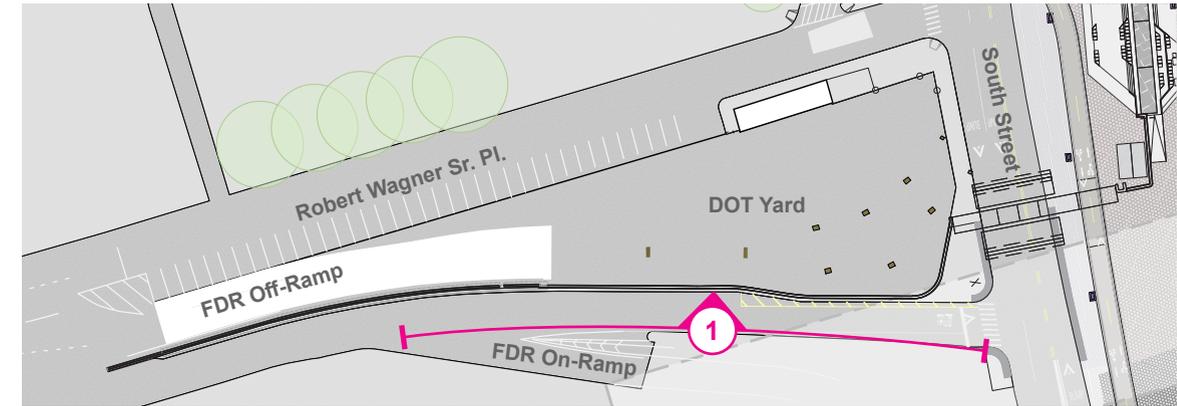
**TYPICAL PIER 36 ROLLER GATE**



**DETAIL OF SIGNAGE**

# FLOOD PROTECTION WALKTHROUGH

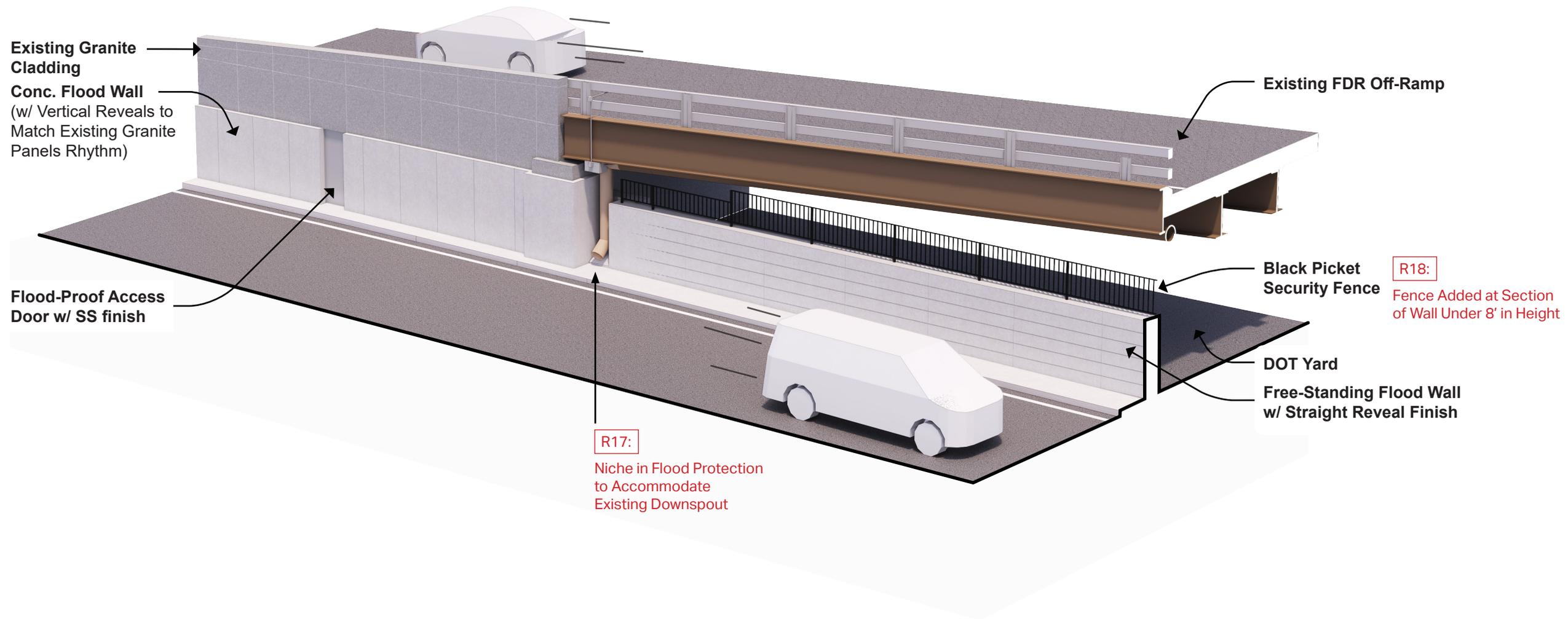
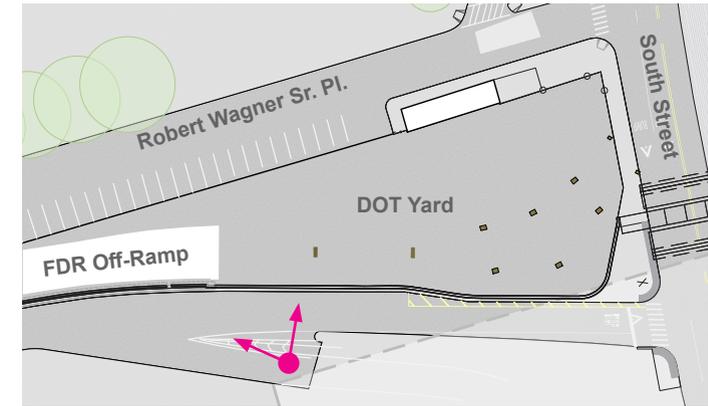
## Brooklyn Bridge Tie-In



1. EXPOSED WALL ELEVATION - FLOOD SIDE ALONG ROBERT WAGNER SR. PL

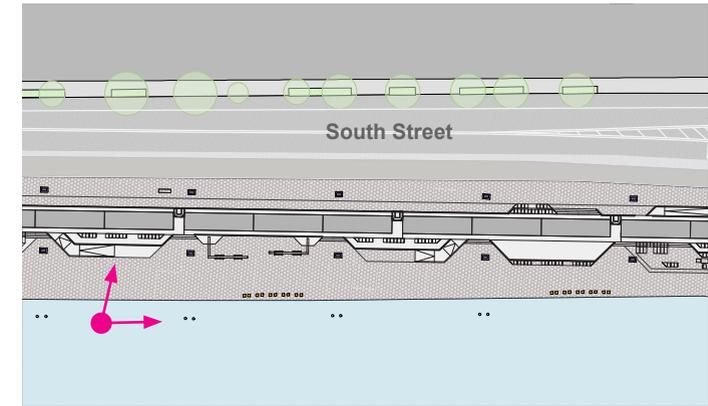
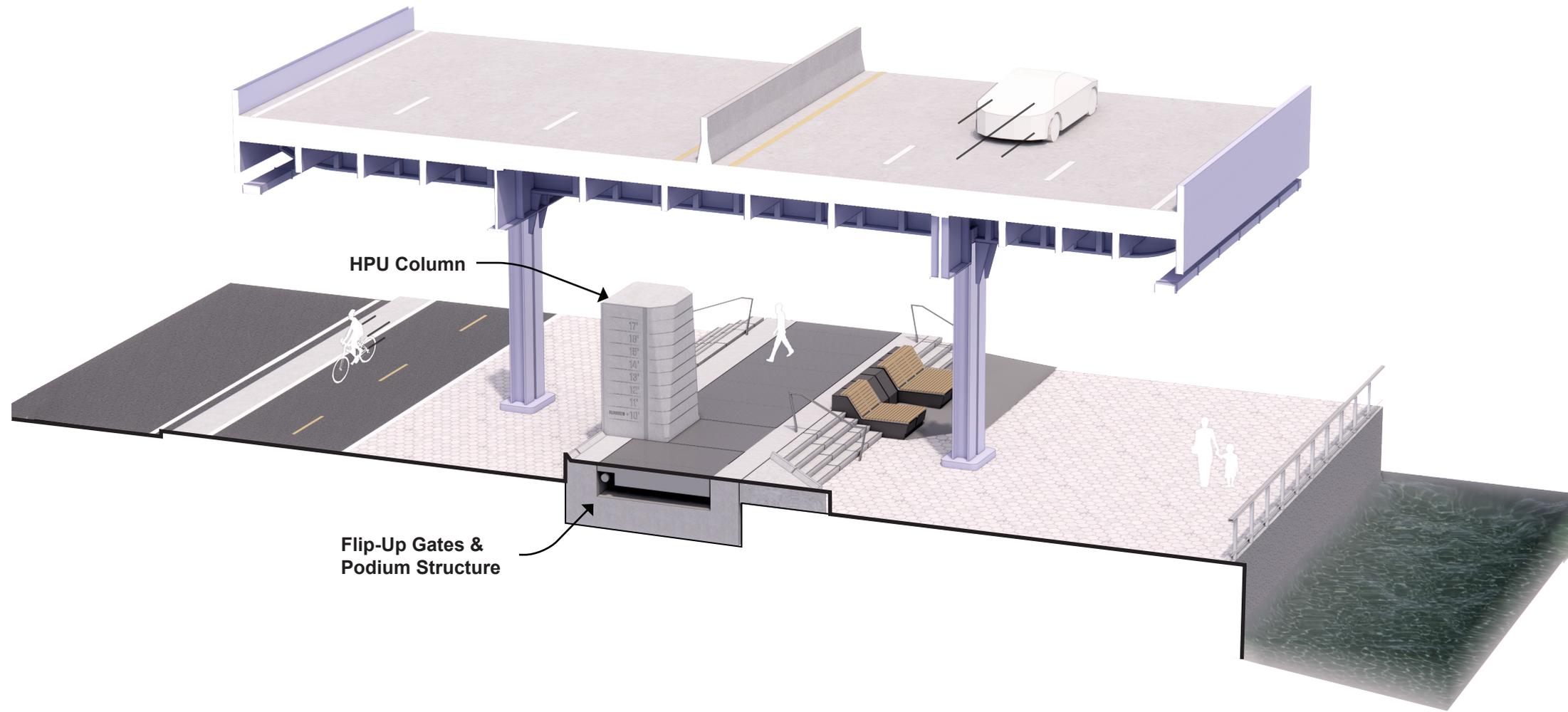
# FLOOD PROTECTION WALKTHROUGH

## Wall Transition at Abutment



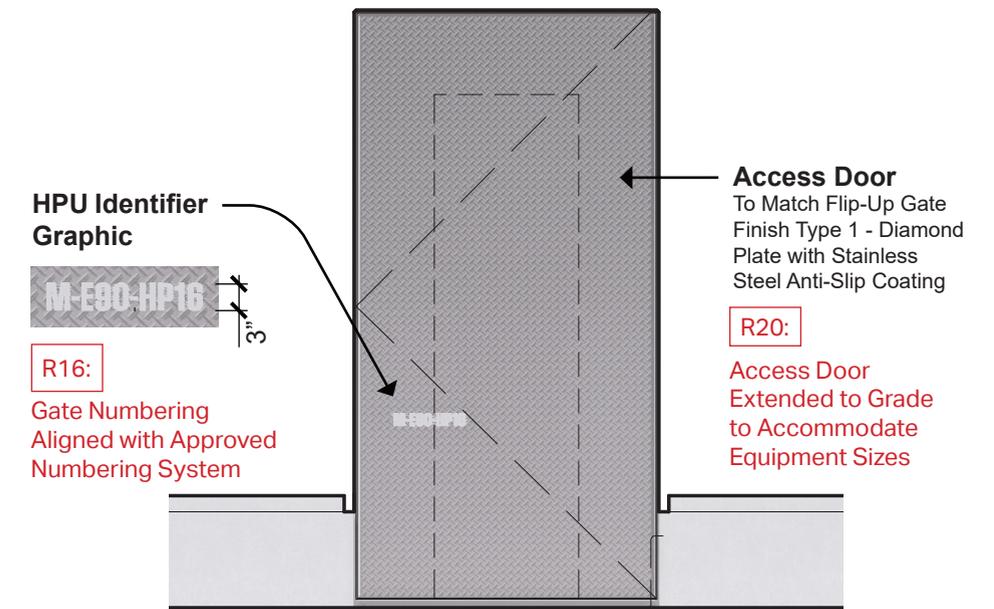
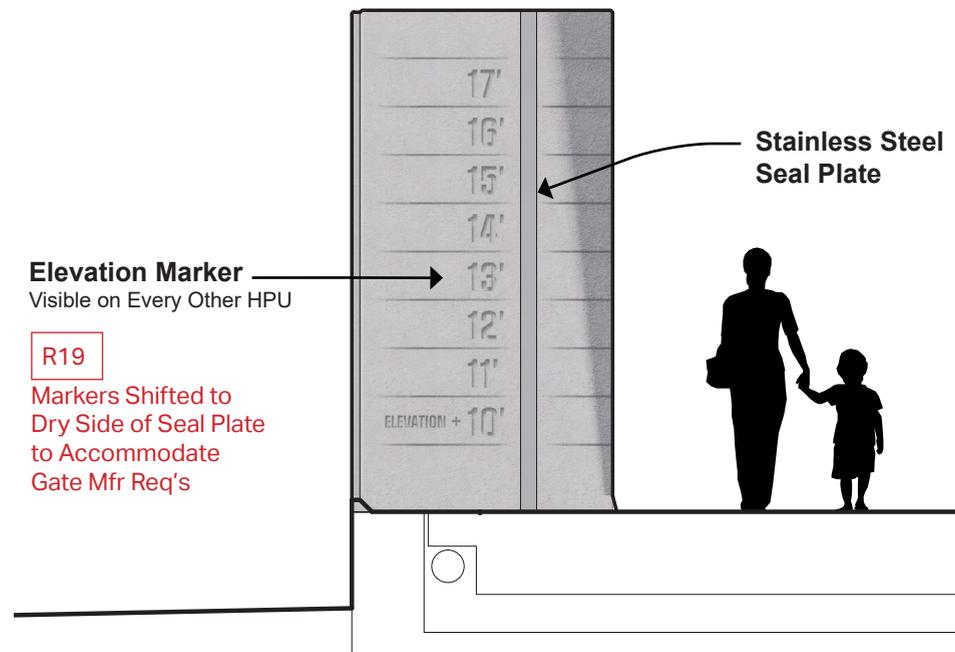
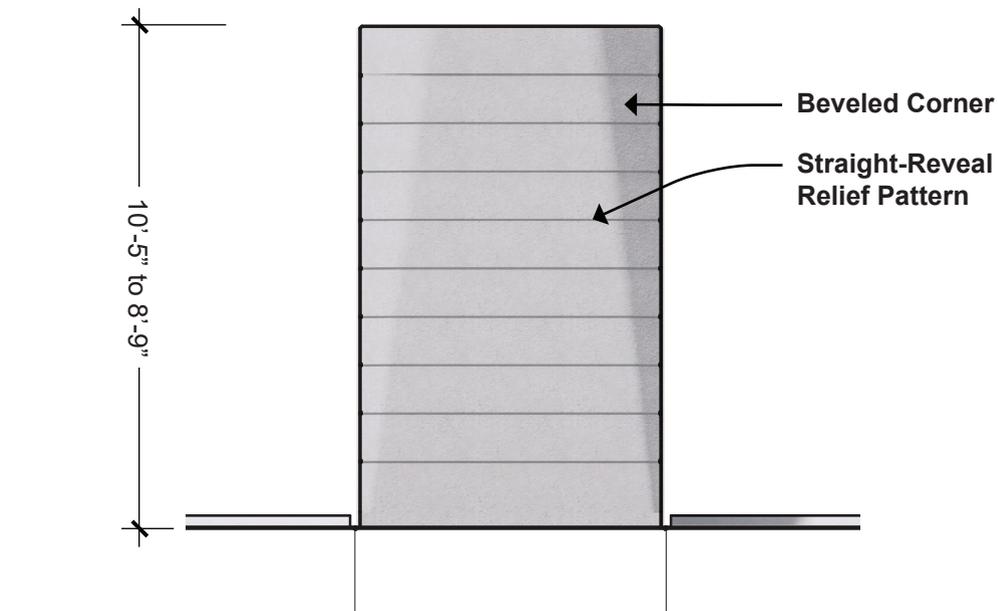
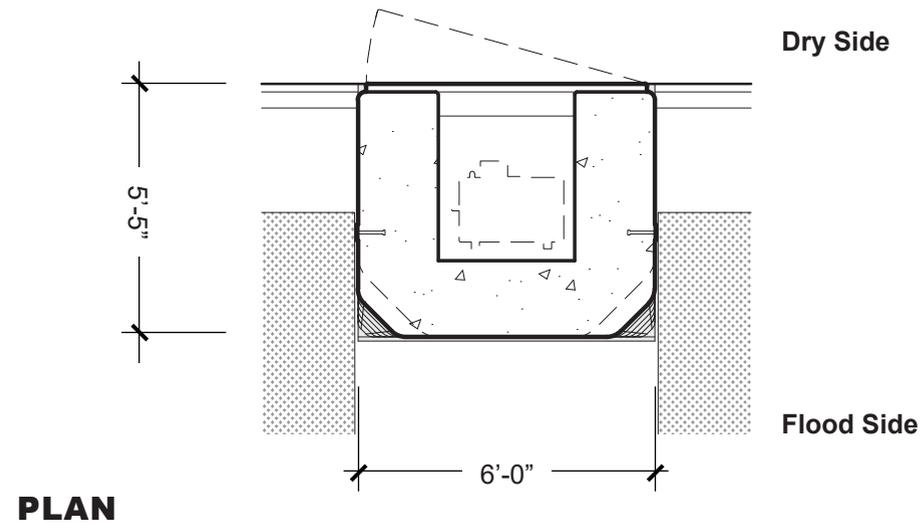
# FLOOD PROTECTION WALKTHROUGH

## Typical HPU Columns

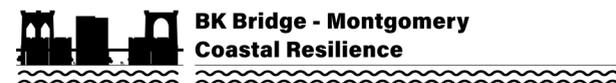


# FLOOD PROTECTION WALKTHROUGH

## Typical HPU Columns



## FLOOD SIDE ELEVATION

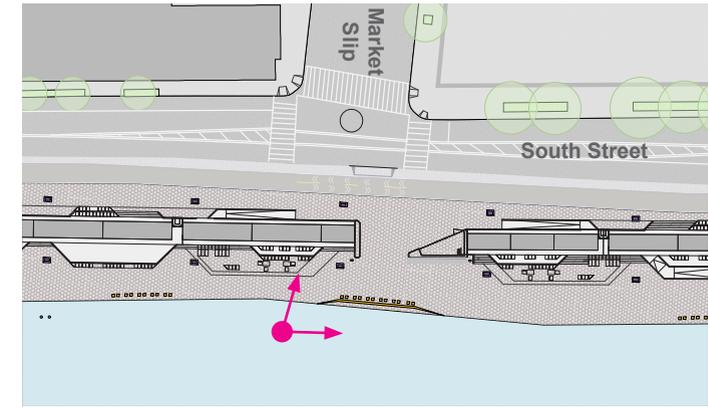
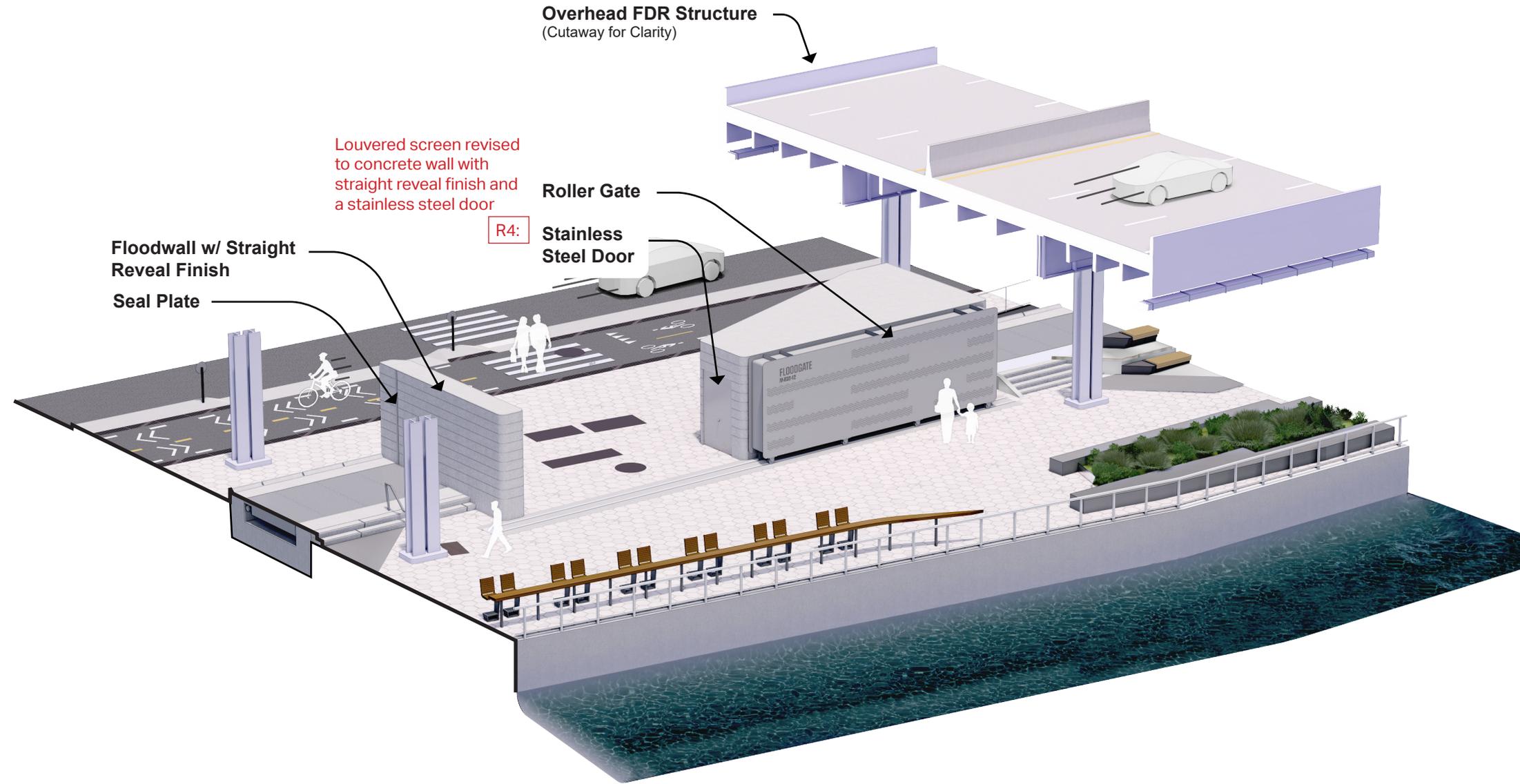


## SIDE ELEVATION

## DRY SIDE ELEVATION

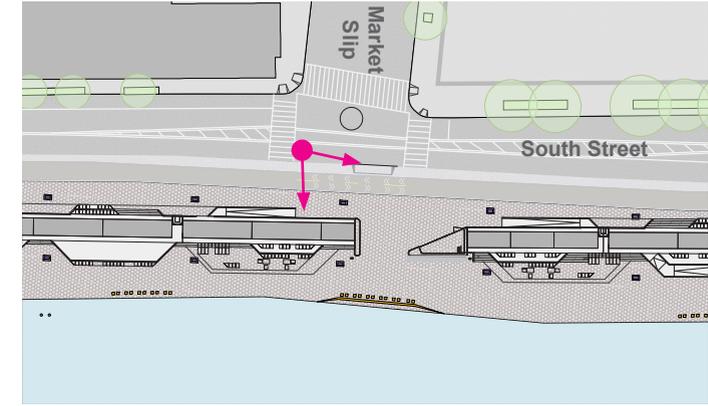
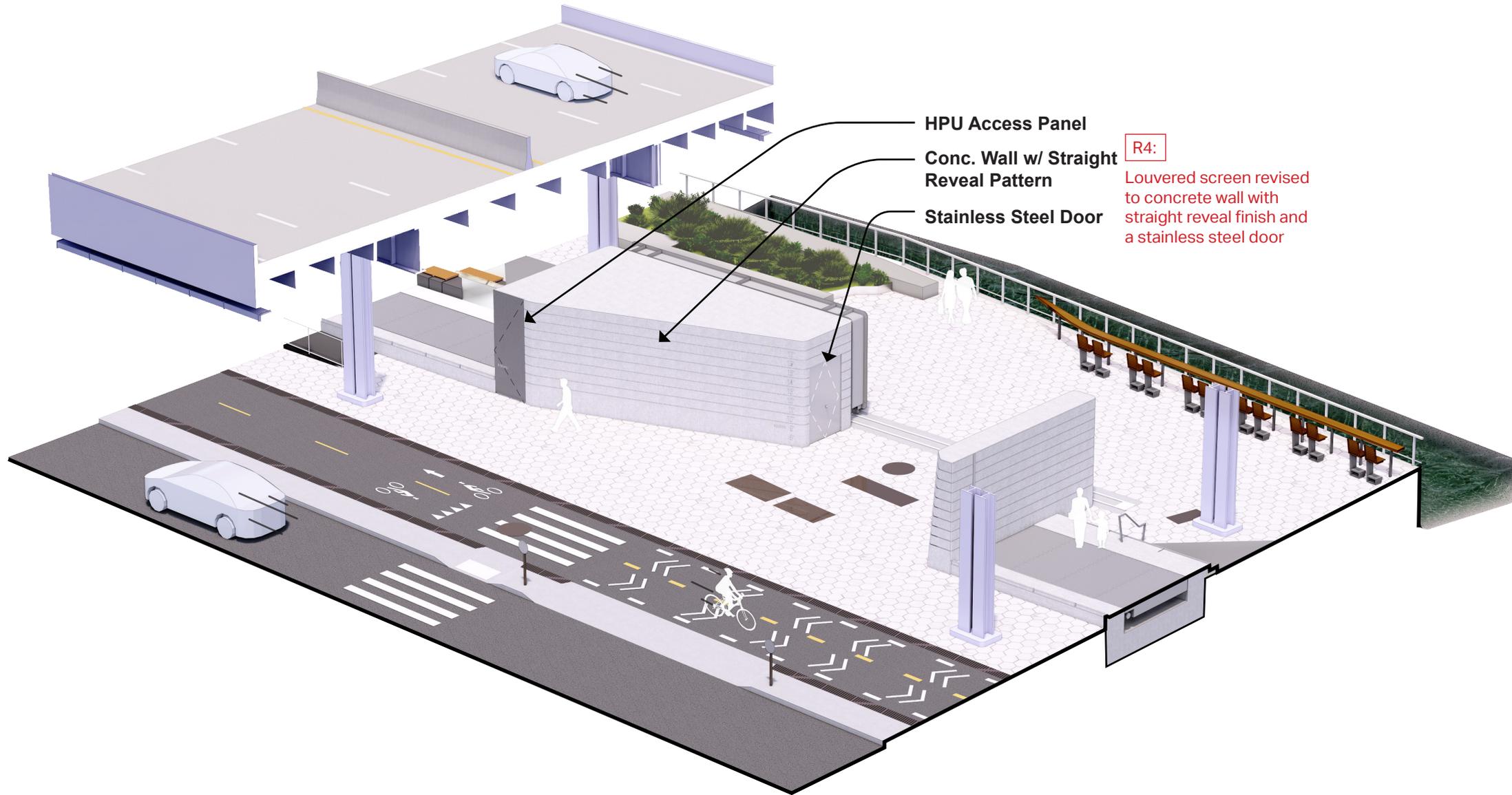
# FLOOD PROTECTION WALKTHROUGH

## Market Slip Utility Crossing - Flood Side (Gate 12)



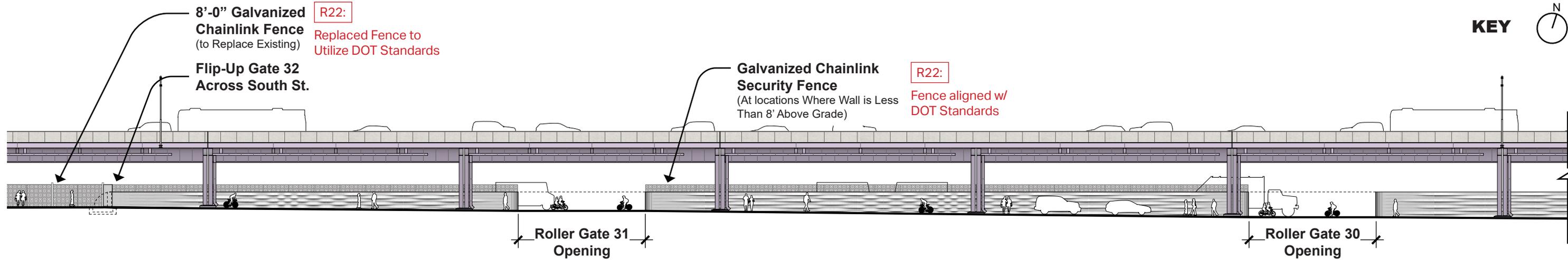
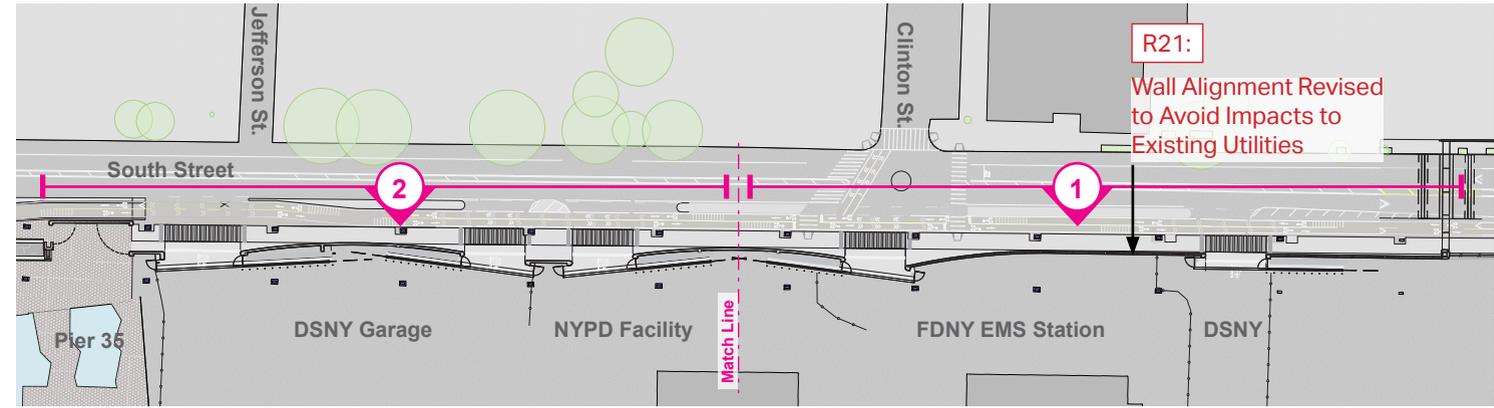
# FLOOD PROTECTION WALKTHROUGH

## Market Slip Utility Crossing - Protected Side (Gate 12)

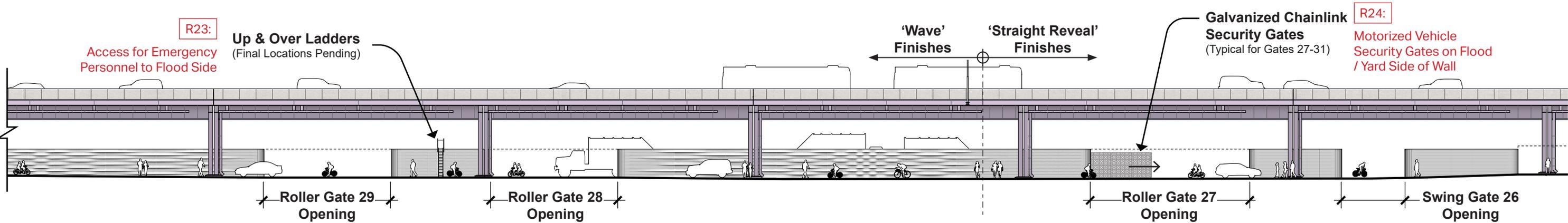


# FLOOD PROTECTION WALKTHROUGH

## Pier 36 Exposed Wall



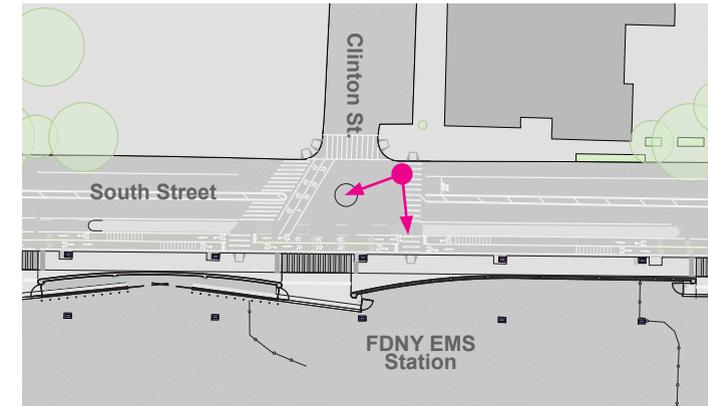
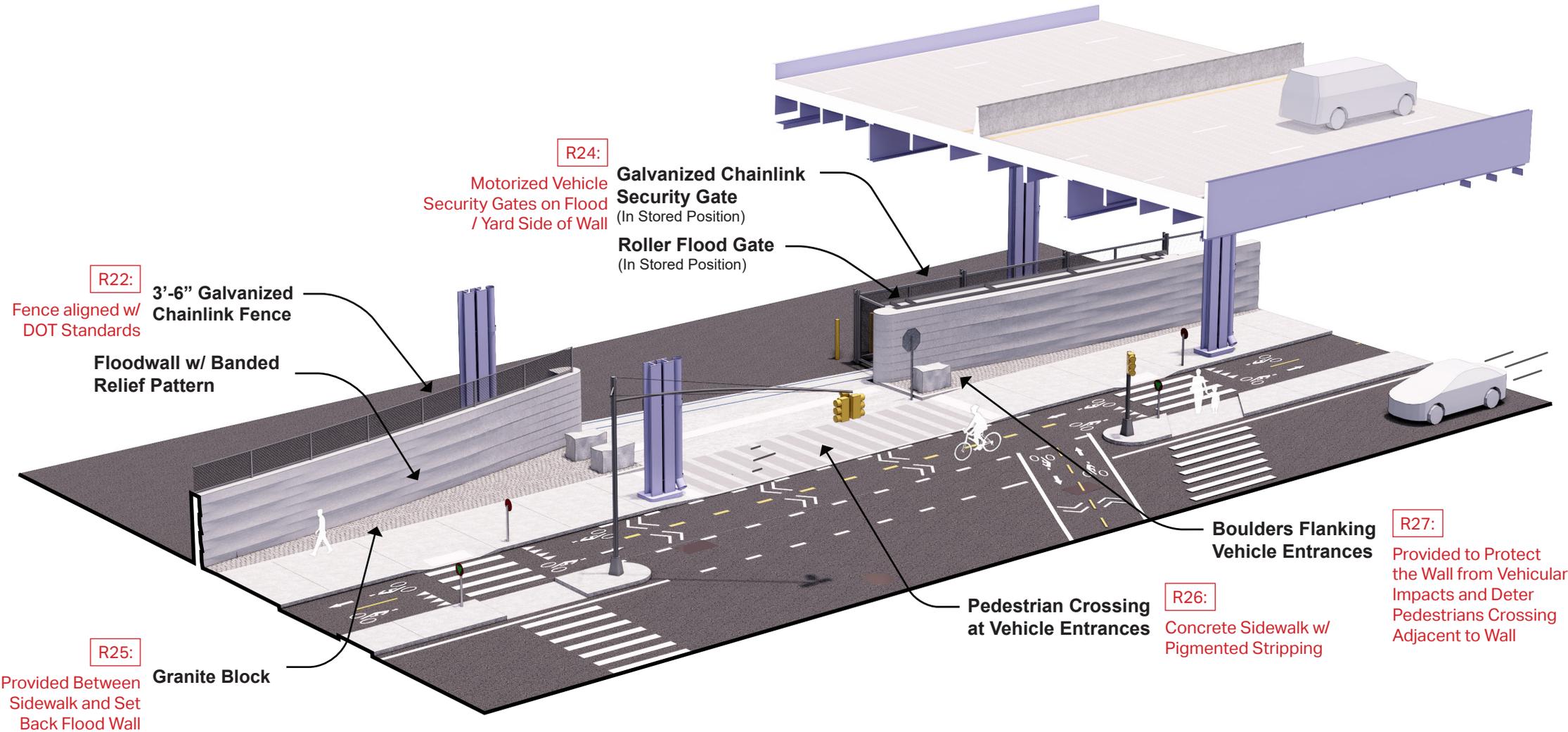
### 1. EXPOSED WALL ELEVATION - PROTECTED SIDE ALONG SOUTH STREET (EAST SECTION)



### 2. EXPOSED WALL ELEVATION - PROTECTED SIDE ALONG SOUTH STREET (WEST SECTION)

# FLOOD PROTECTION WALKTHROUGH

## Pier 36 Driveway at Clinton Street (Gate 30)



# FLOOD PROTECTION WALKTHROUGH

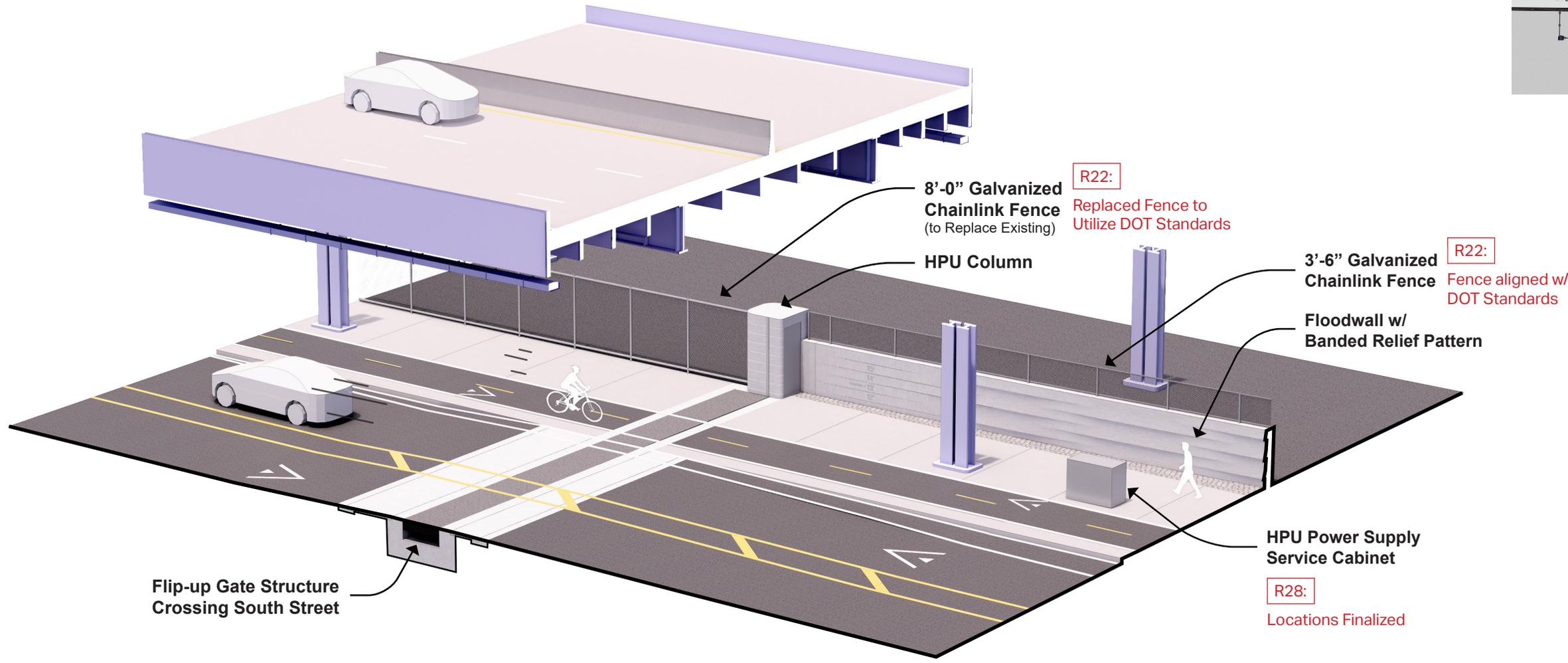
View Looking North Along Pier 36, At Vehicle Entrance at Clinton Street (Gate 30)



**EXISTING VIEW (APPROXIMATE)**

# FLOOD PROTECTION WALKTHROUGH

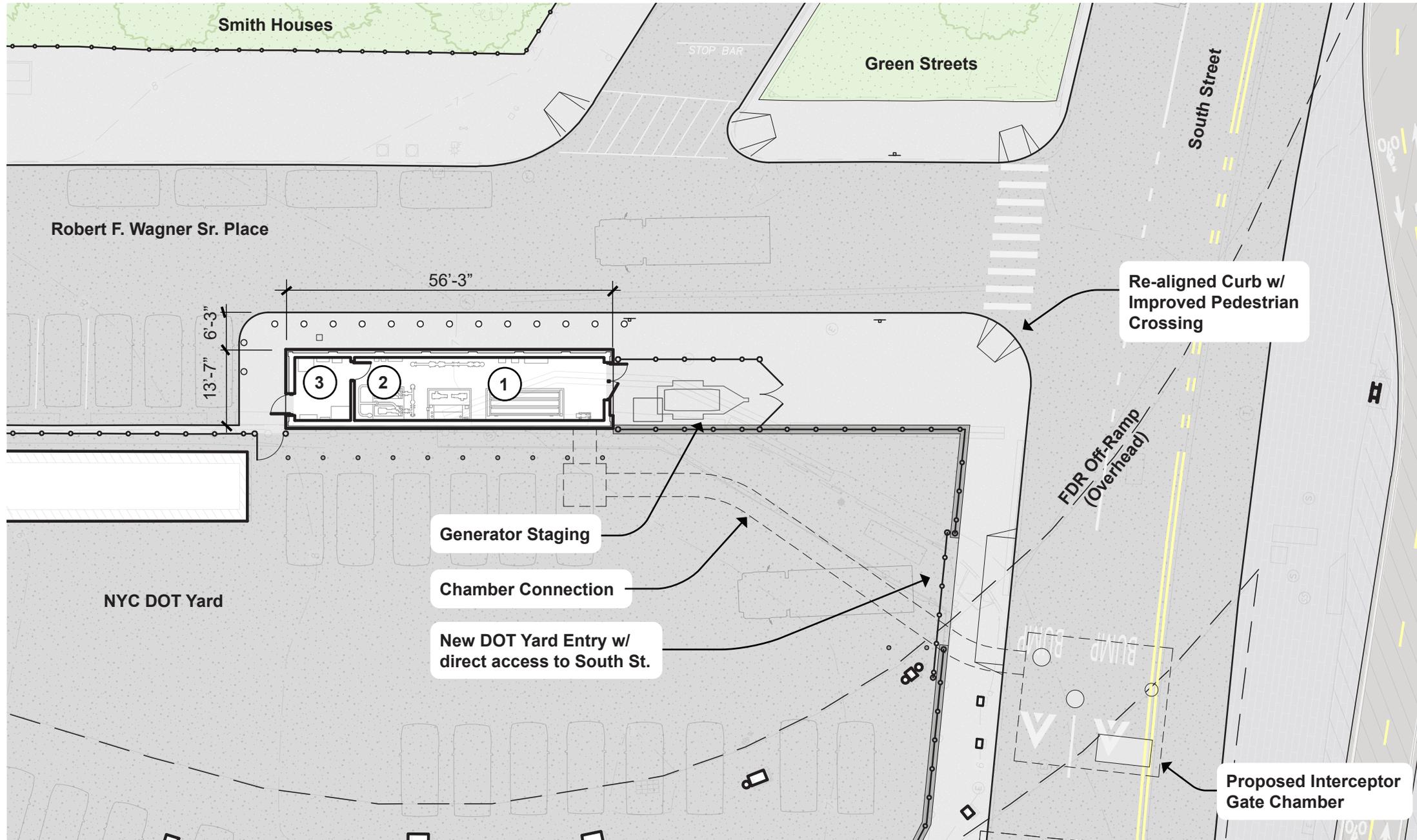
## South Street Crossing - Pier 36 Side



# INTERCEPTOR GATE BUILDING

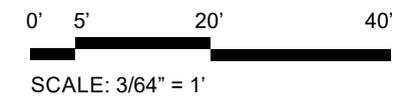
# INTERCEPTOR GATE BUILDING

## Proposed Site Plan



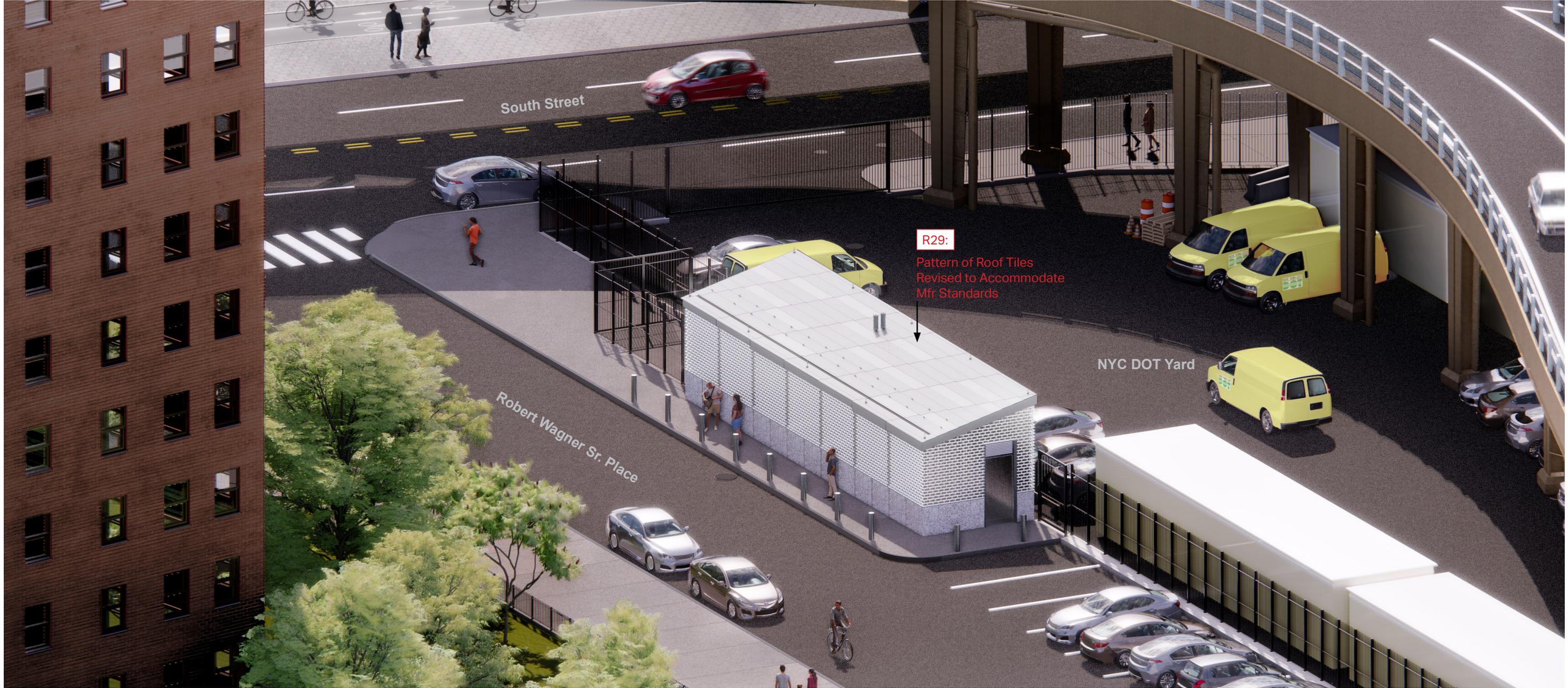
**KEY:**

- 1. Hydraulic Area
- 2. Pump Area
- 3. Electrical Room



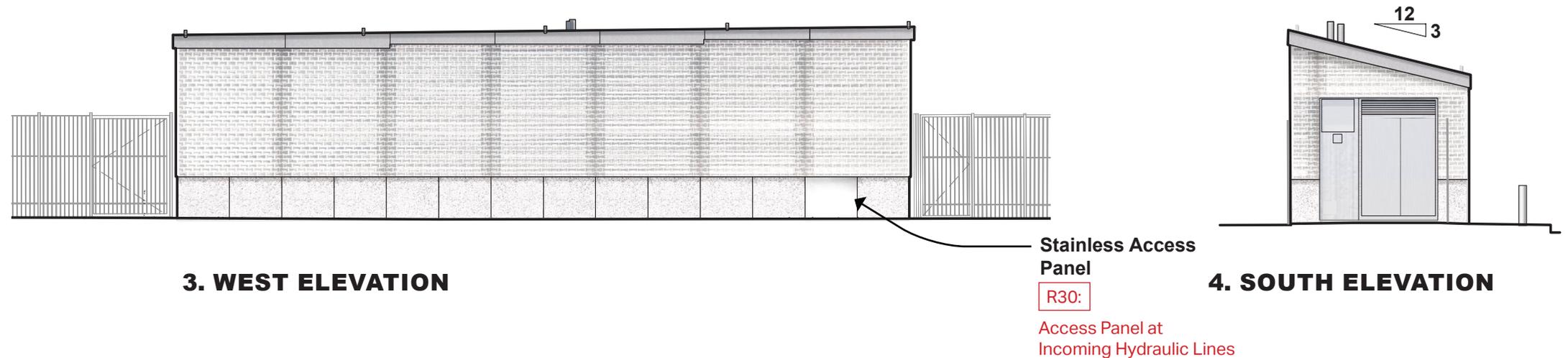
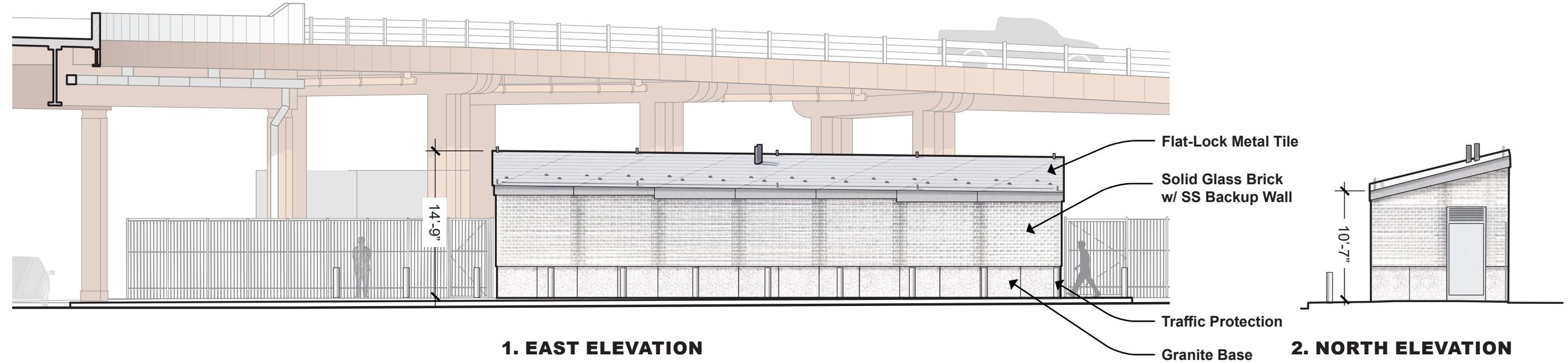
# INTERCEPTOR GATE BUILDING

Aerial View from East



# INTERCEPTOR GATE BUILDING

## Exterior Elevations



0' 5' 10' 20'

SCALE: 3/32" = 1'

# INTERCEPTOR GATE BUILDING

View from South Street

