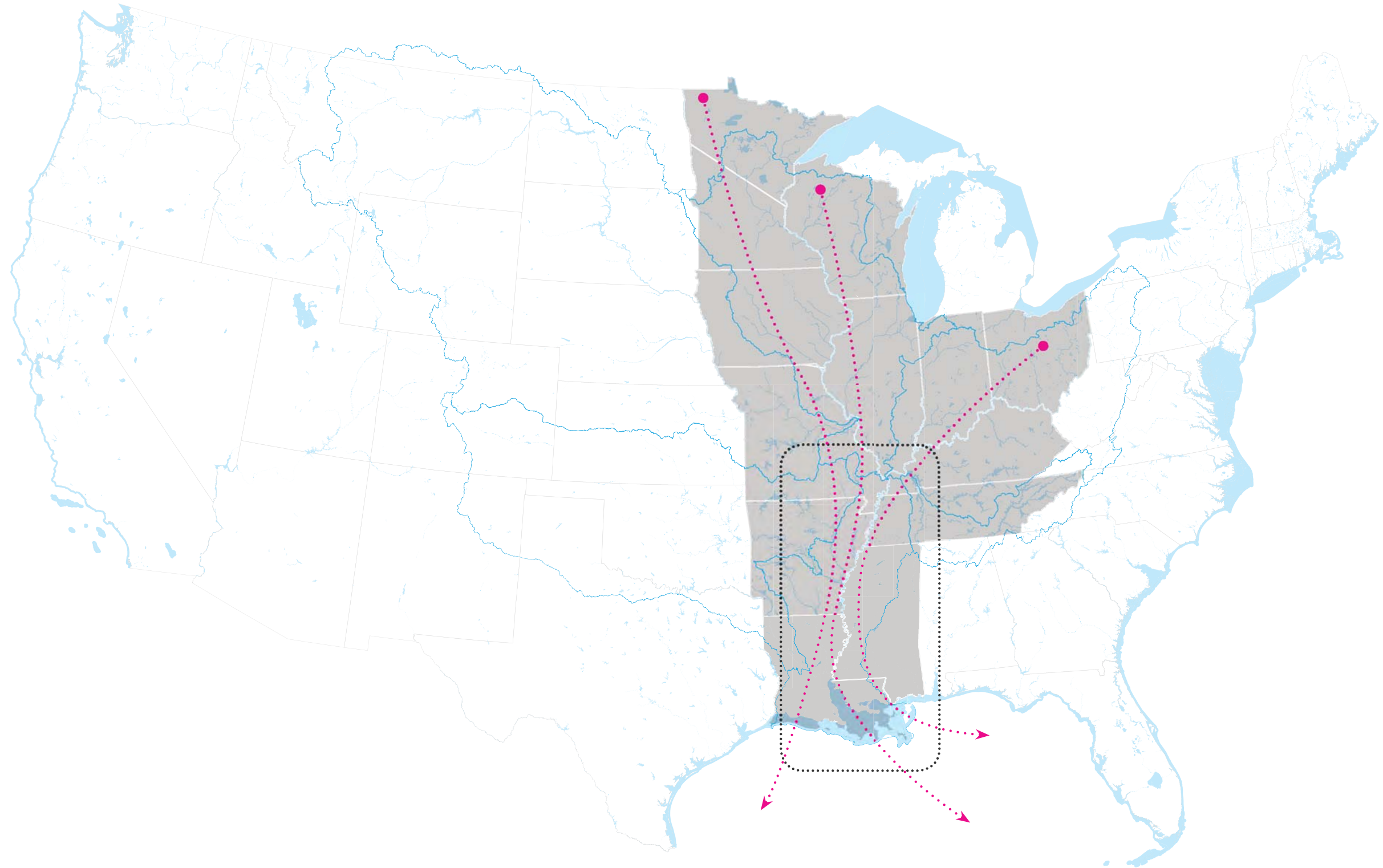
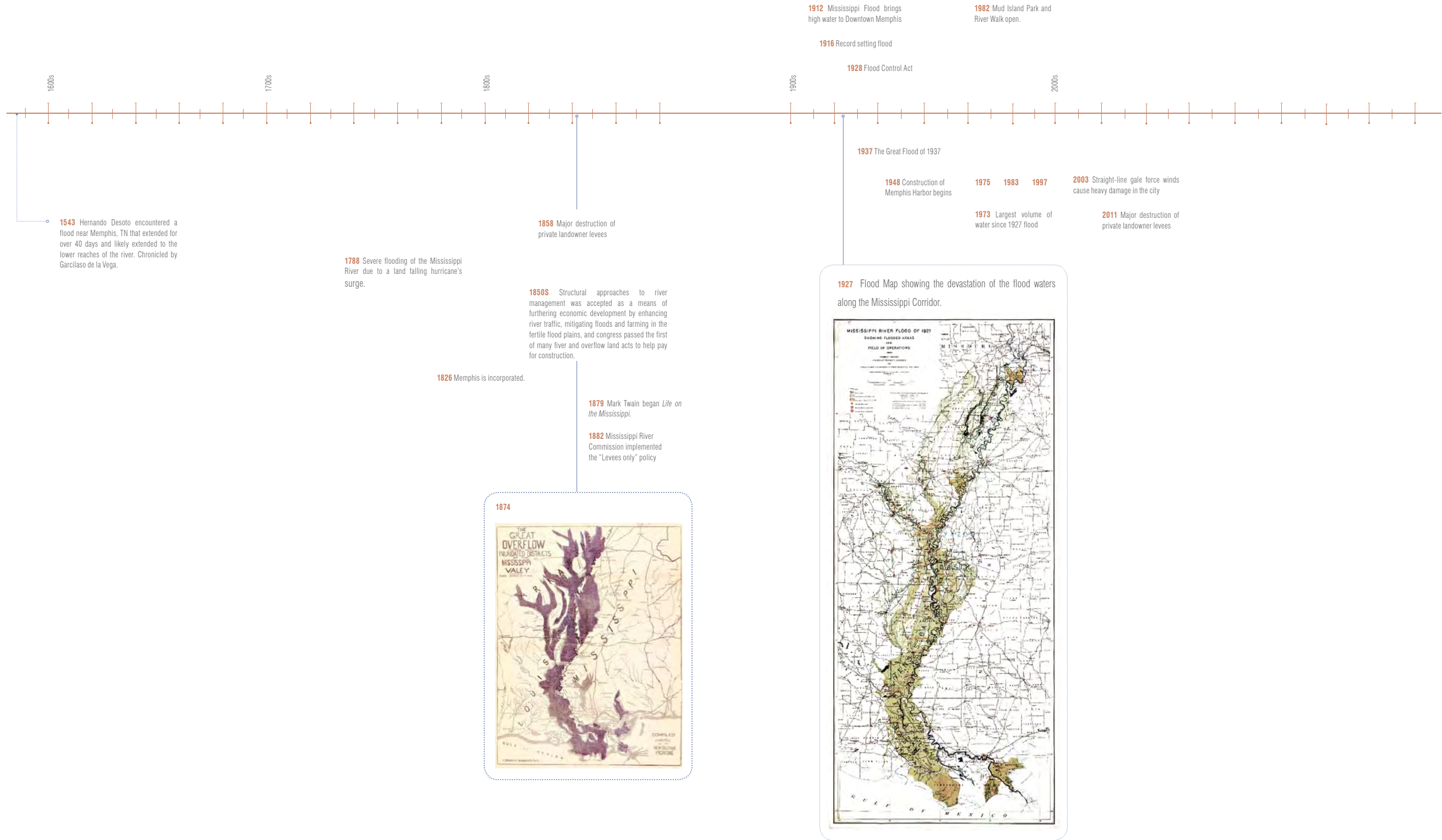


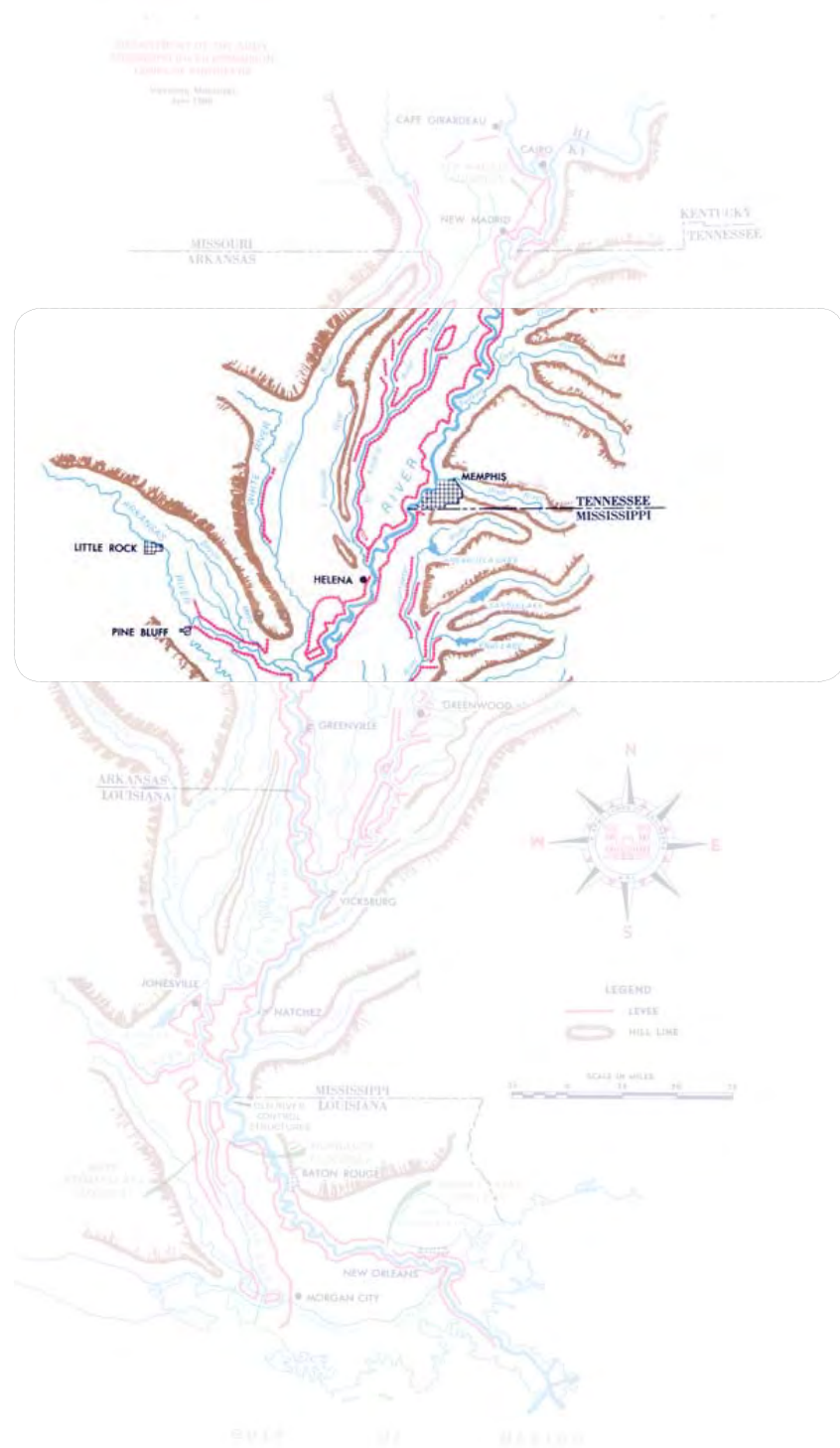
DEEP SURFACE

ENGAGING THE TERRA VISCUS



MISSISSIPPI WATERSHED + MISSISSIPPI FLYWAY

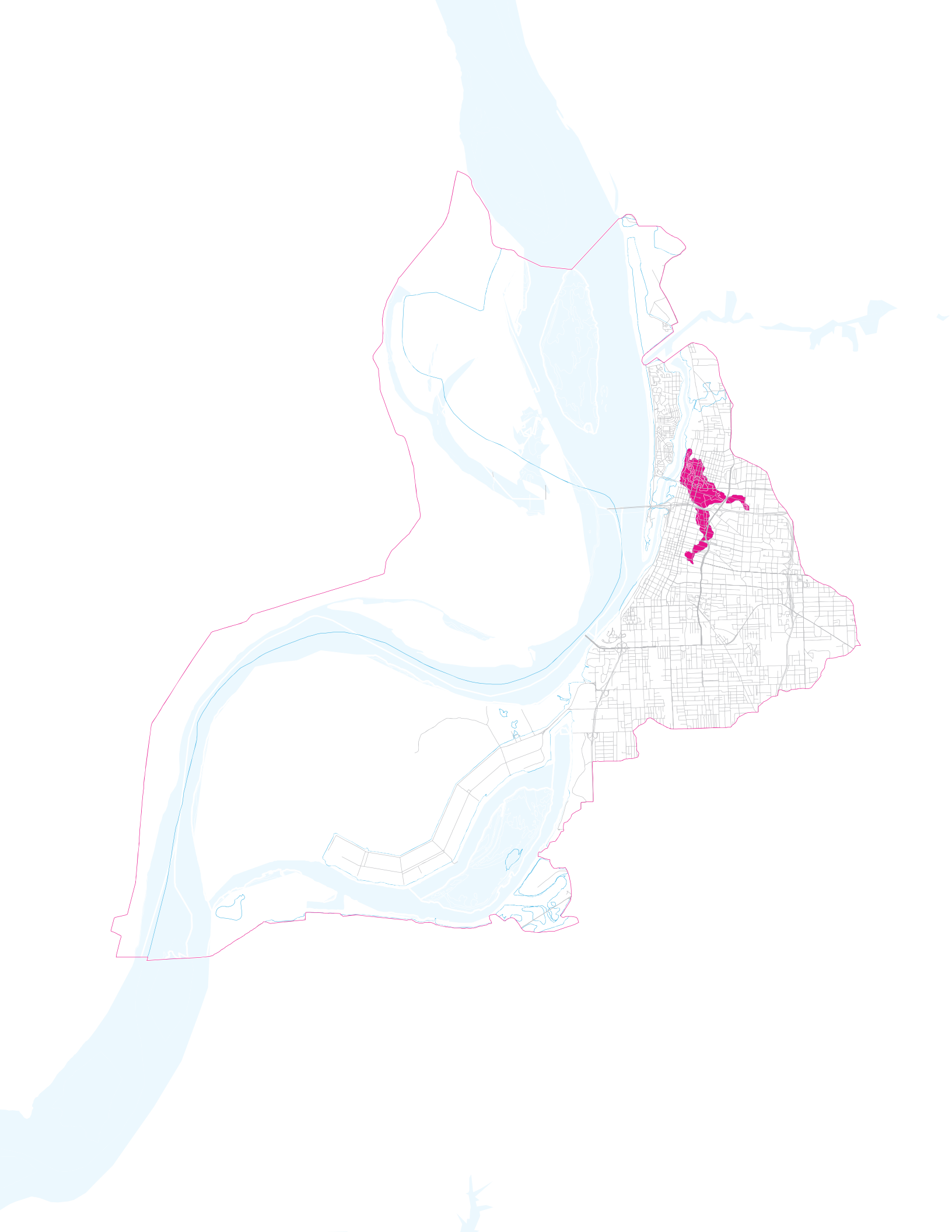




You hardly ever see the river, but the levee is always close by, a great green serpent running through the woods, swamps, and farms, with towns nestling close to its slopes. The levee is unobtrusive, since its slope is green and gradual, but in fact is immense -- higher and longer than the Great Wall of China, very likely the biggest thing that man has ever made... it was the principal human response to the titanic power of the great river."

Alan Lomax - The Land Where The Blues Began







WHAT HAPPENS WHEN THE LEVEE FAILS?



246 acres along the eastern edge of downtown Memphis are labeled as “**Shaded Zone X**” on FEMA flood insurance maps. This is an area “protected by the levees” but subject to flood during large storm events. Unprepared for the potential flood, the people within this area feel safe behind the static levee wall. If storms worsen as predicted and settlement continues to sprawl increasing impervious surfaces of the Mississippi River Basin, the area within Shaded Zone X and the people who occupy it will be in danger.

Historically, storm water In **Zone X** drained into the **Gayoso Bayou**, an open-air bayou that snaked through the city and defined its eastern edge. Over the past century, the Bayou has been steadily disappearing from sight, being hidden beneath the concrete terra firma. The Bayou represents a temporal ecological landscape that no longer exists within the city of Memphis. Through examination of the **DEEP SURFACE** — a combination of historical, cultural and ecological layers that comprise the urban landscape — a new paradigm can be established that balances the cultural needs of the landscape with the ecological. This thesis imagines the potential of excavating this area within the urban landscape to transform the terra firma -- an unresponsive static surface -- into a ***terra viscous*** — a liquid landscape that engages with the ebb and flow of seasonal fluctuation. As a development strategy, the project combines seasonally responsive architecture and landscape that embraces the ephemeral qualities of water. The imagined infrastructures hybridizes infrastructures of the past century with more **responsive soft systems to better respond to the dynamic nature of the ever-changing environment** and become a more resilient system for urban life.



ZONE X

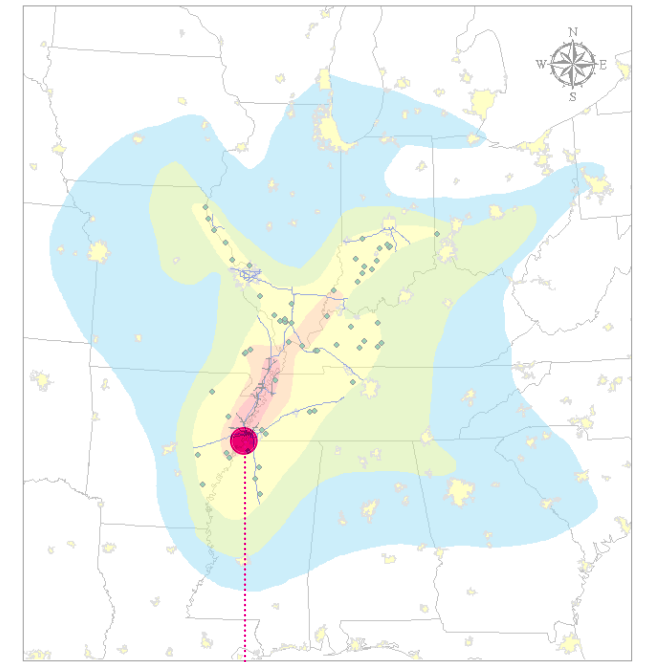
On the FEMA FIRM maps, there is an area described as “Shaded Zone X”. Near Downtown Memphis, this area consists of 246 acres of land that is beneath the 232’ one hundred year flood plain.

As noted on the video on the left, the flood zone occupies the site seasonally. From the 100 year flood plain to the

MUD ISLAND

INTERSTATE 40

Potential Risks to Infrastructure at New Madrid Fault



MEMPHIS, TN

LIQUIFICATION ZONE [MODERATE]

△ WILL LIQUEFY | DANGER!

● WILL NOT LIQUEFY

■ BUILDINGS AFFECTED BY ZONE X

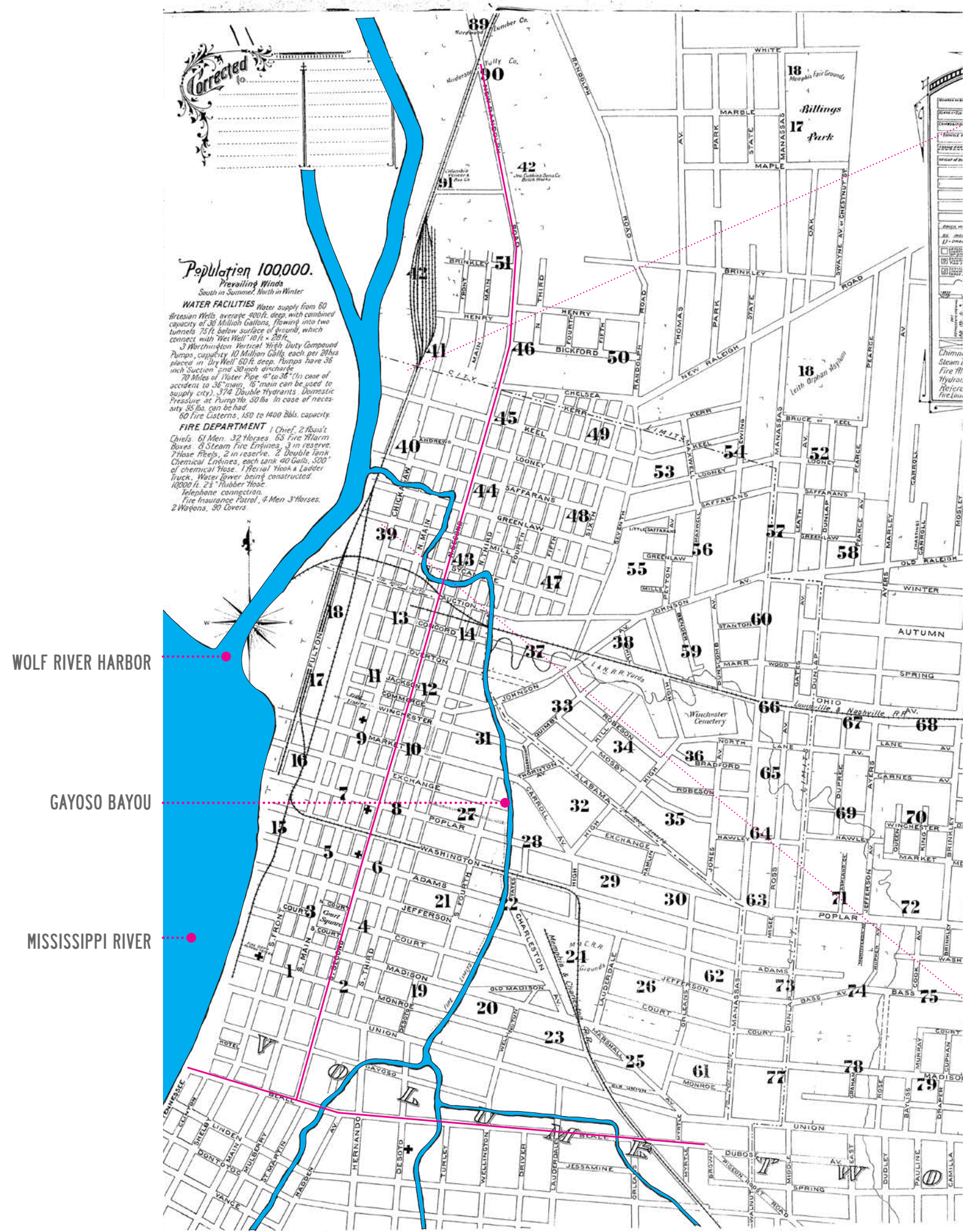
1819 MAP OF MEMPHIS



GAYOSO BAYOU

Upon the study of historical maps of Memphis, there was a defining ecological feature that once ran through the eastern portion of Memphis proper. This element carried the stormwater from the city and the areas to the East out to the Harbor, The Gayoso Bayou was incrementally covered up from the late 1800s until the early 1940s. Largely, the infrastructure of the New Deal affected its relation to the city.

UNCOVERING ECOLOGICAL LAYERS OF MEMPHIS



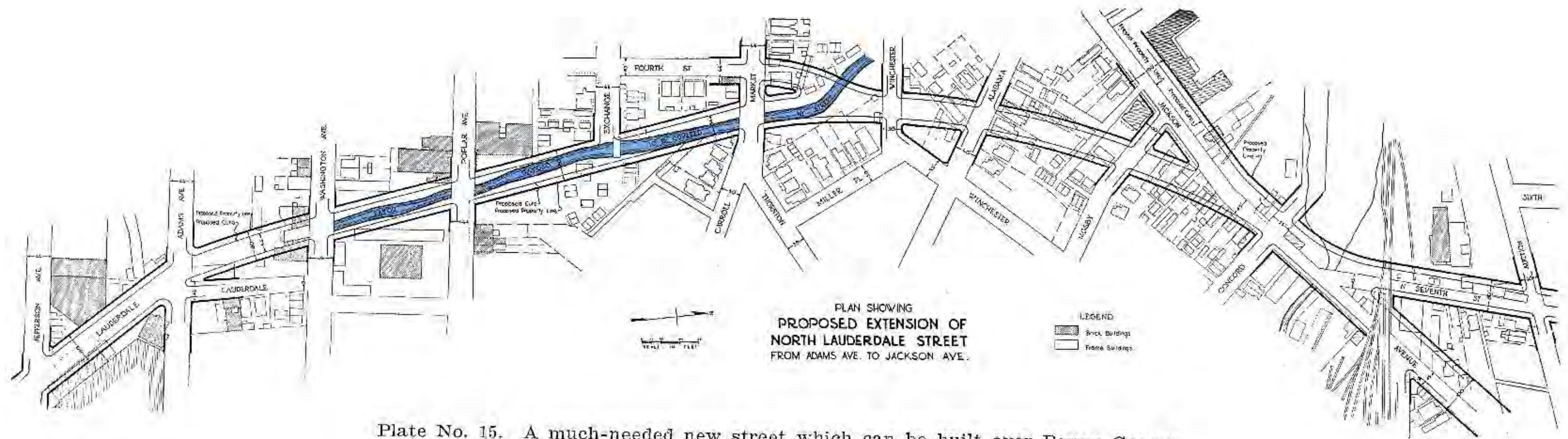


Plate No. 15. A much-needed new street which can be built over Bayou Gayoso.



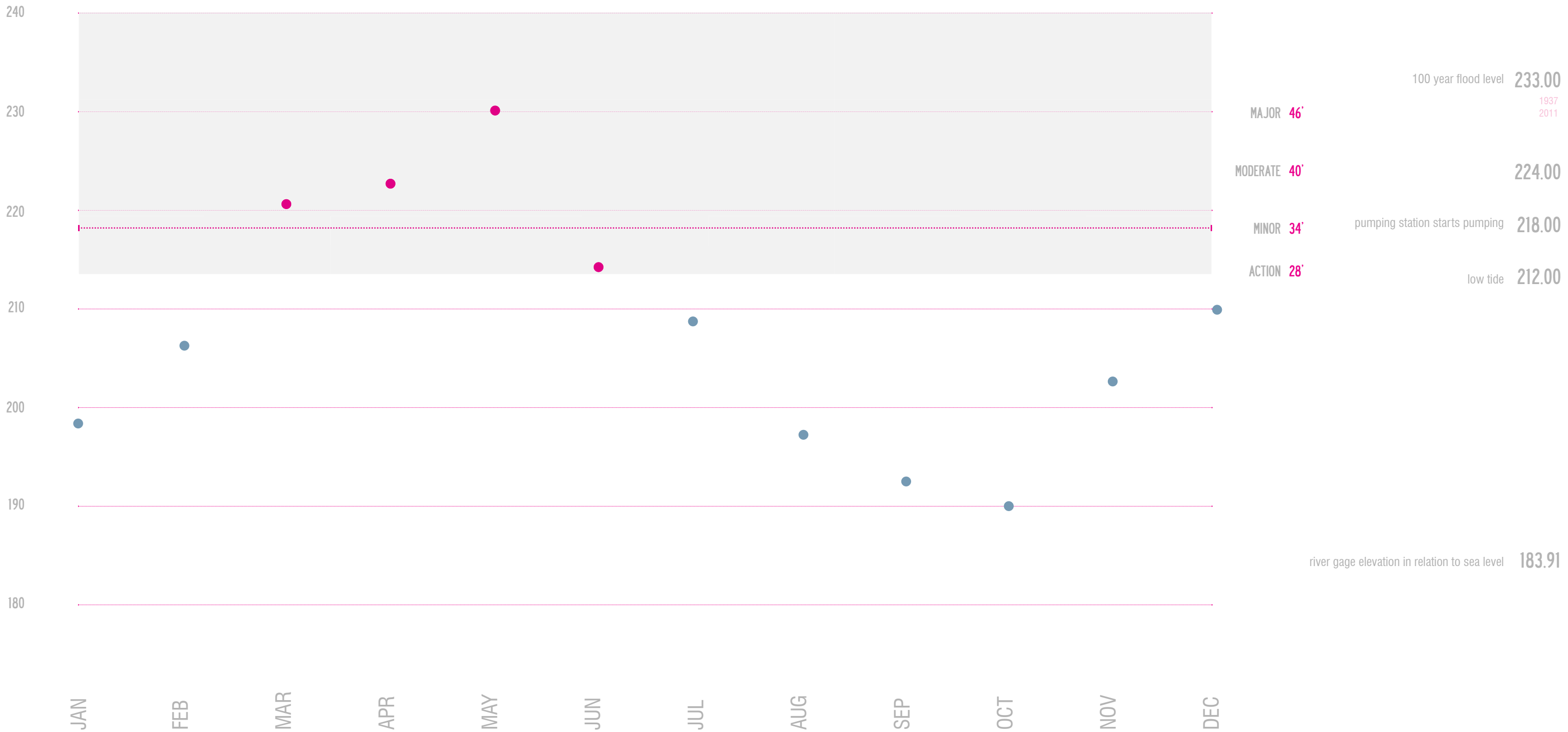
5 large reservoirs detain water before the Pumping Station can pump it into the harbor.

Now, the Gayoso Bayou lies beneath the urban surface, trapped within the confines of concrete culverts. The three systems expel polluted water into the Mississippi River daily.

THEY PAVED PARADISE AND PUT UP A... ROAD.

PROPOSAL:

CREATE AN ECOLOGICALLY VIBRANT, POROUS LANDSCAPE INFRASTRUCTURE THAT
MANAGES STORMWATER AND ARCHITECTURE THAT **ENGAGES** THE TEMPORALITY OF
THE FLOOD.





212'

+28'

100 year flood level 233.00
1937
2011

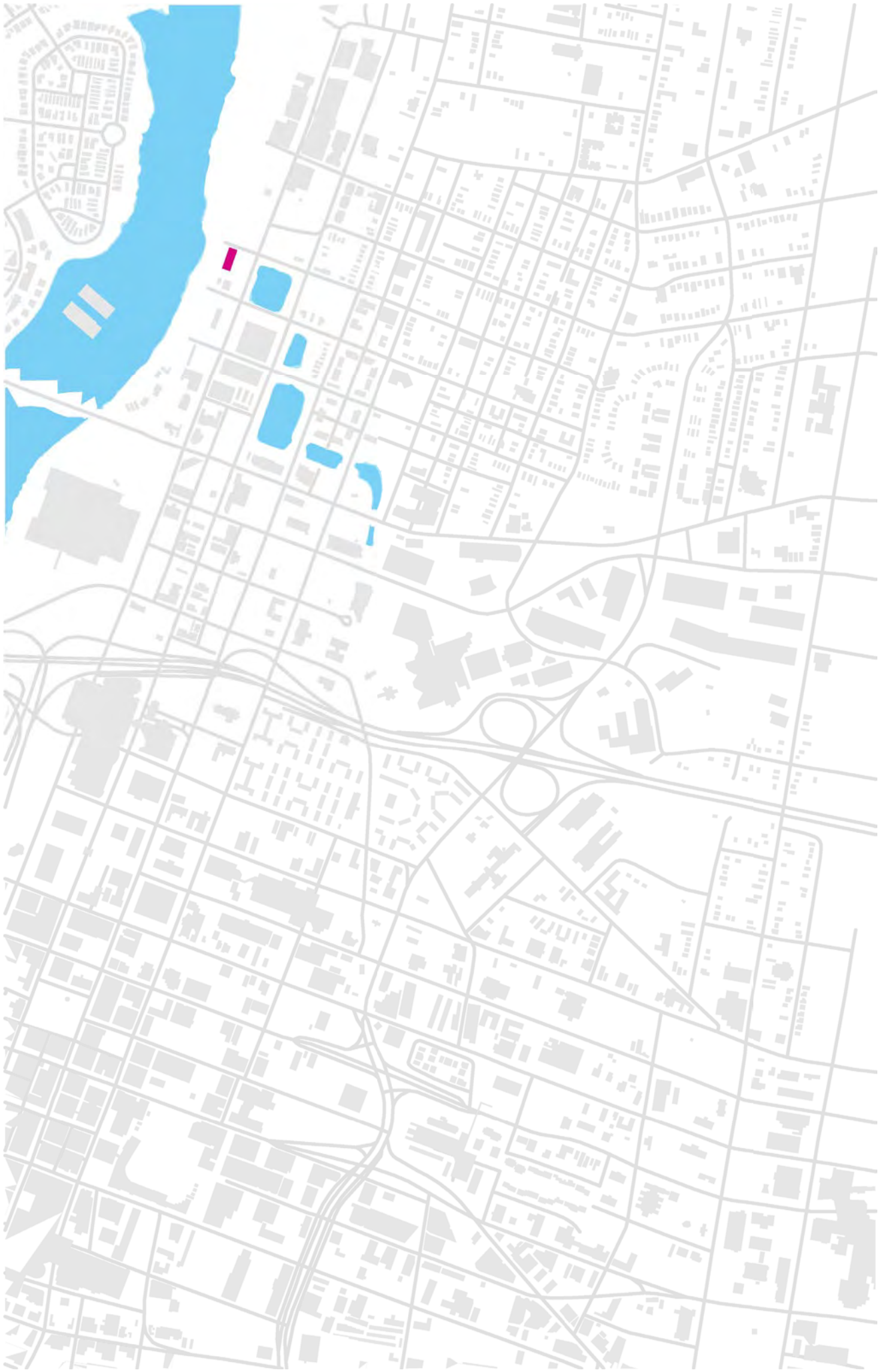
224.00

pumping station starts pumping 218.00

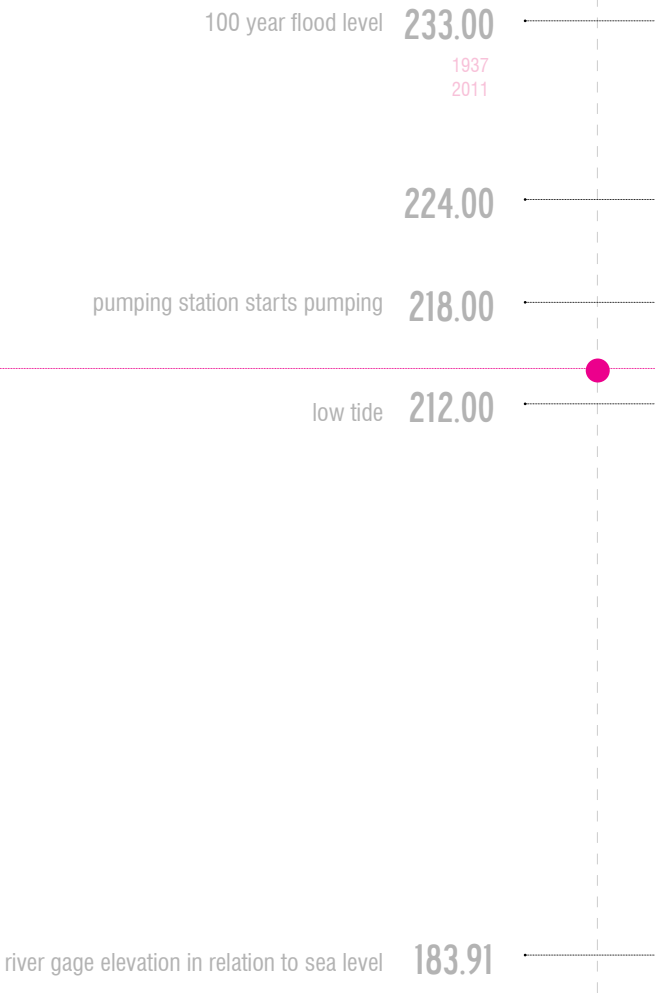
low tide 212.00

river gage elevation in relation to sea level 183.91

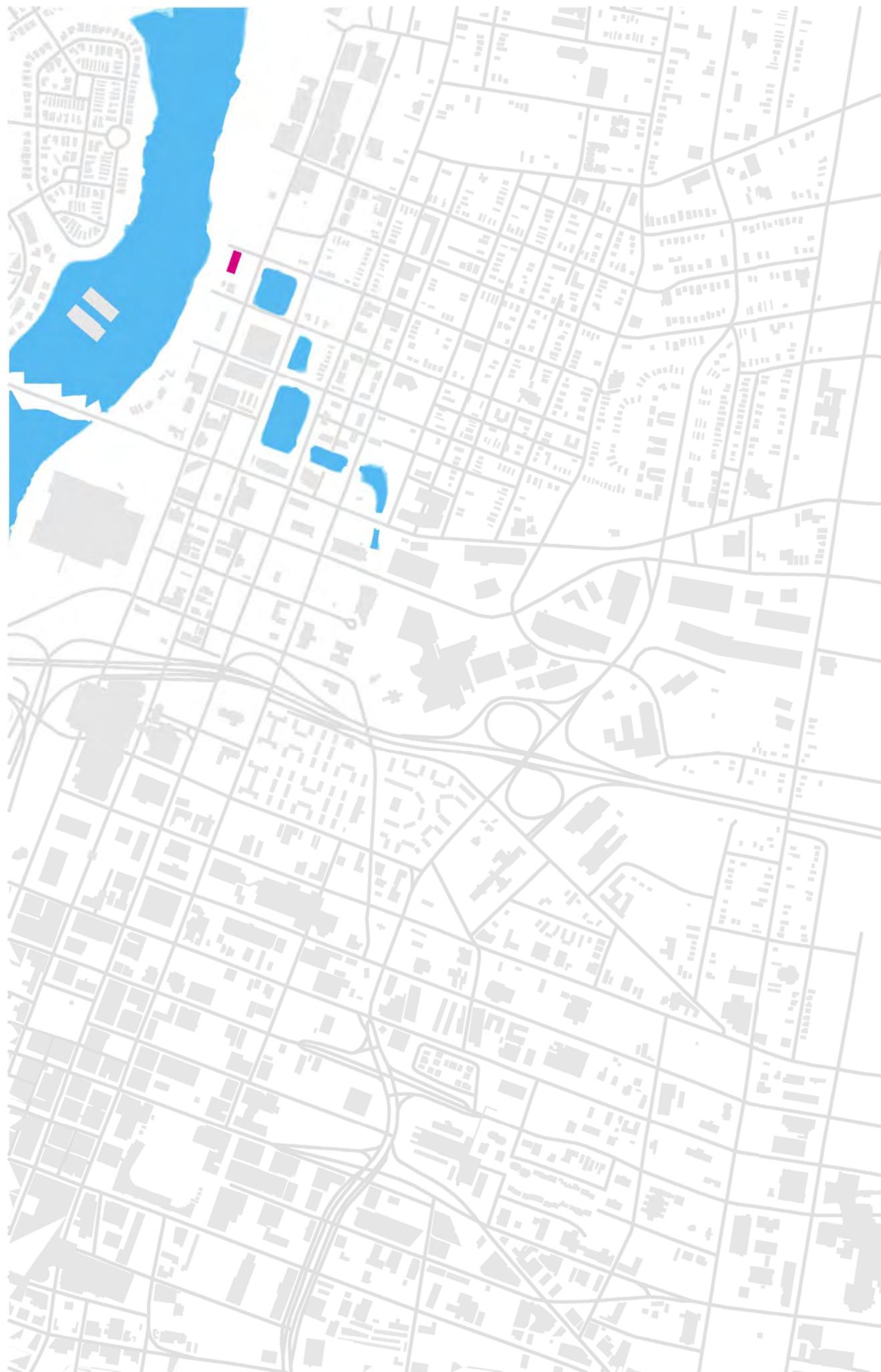
214'



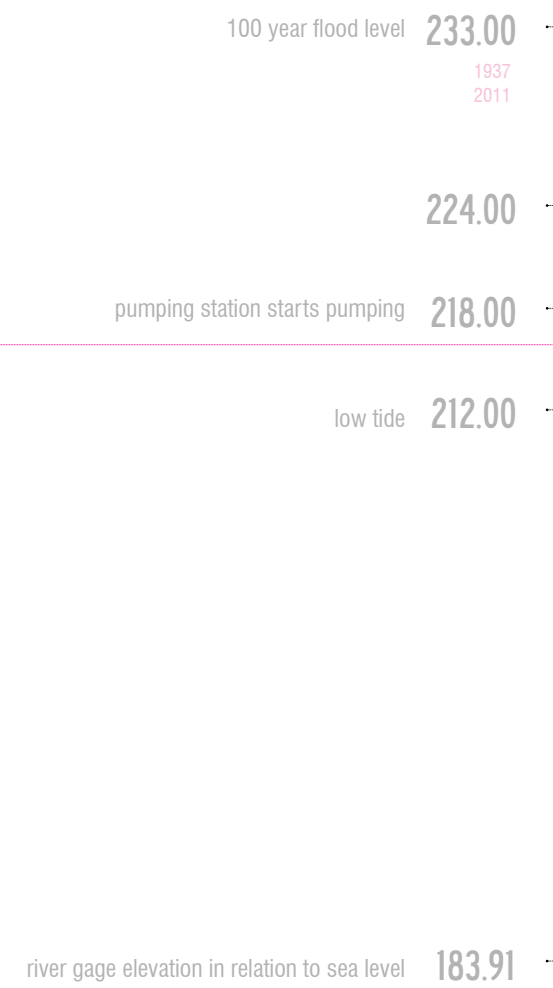
+30'



216'

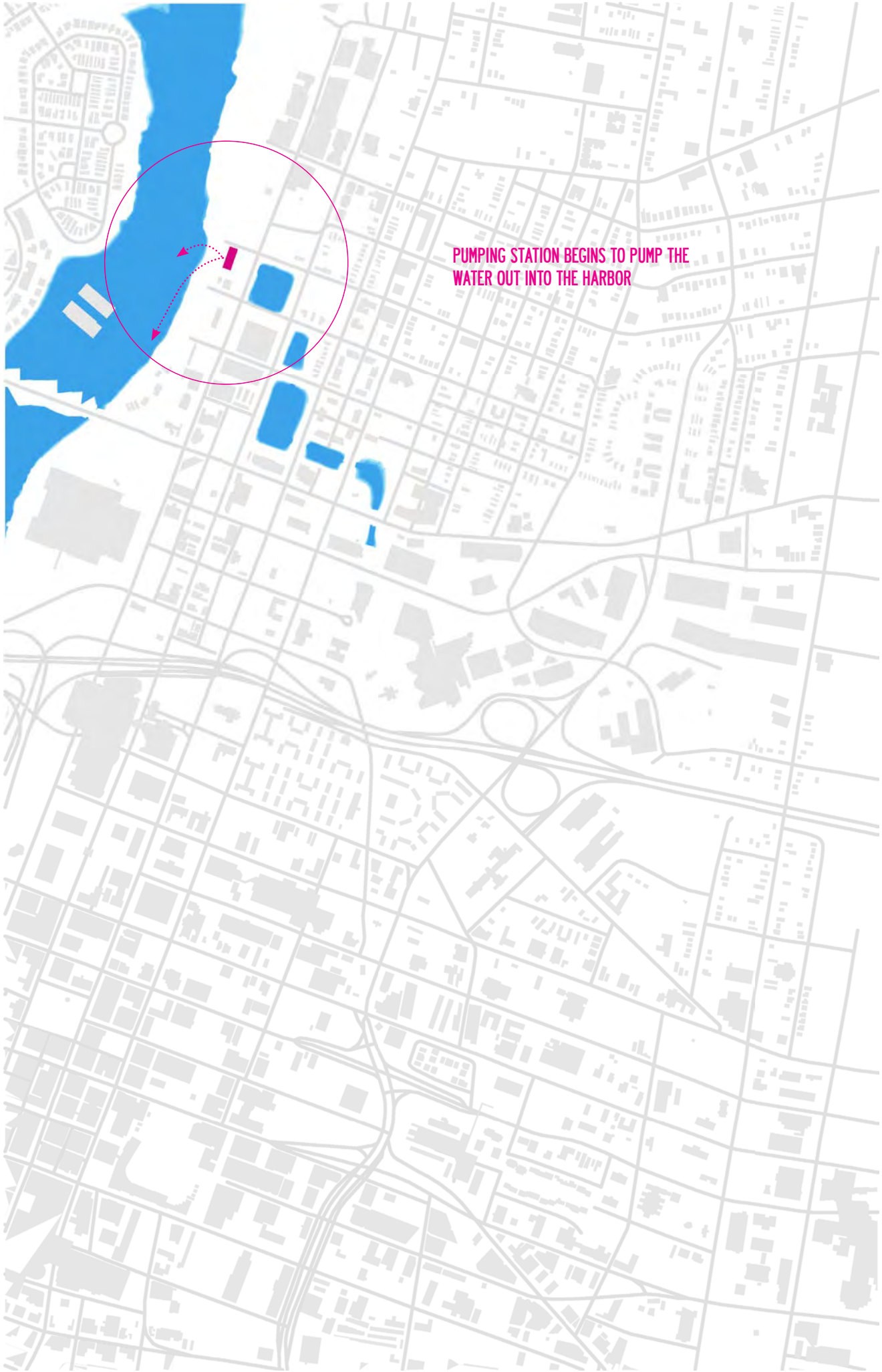


+32'

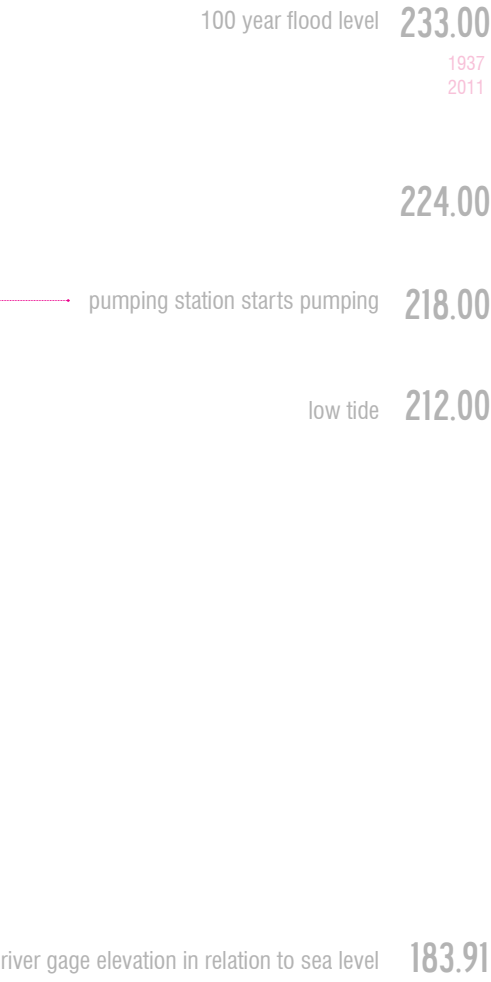


FLOODING IMPACT ON MEMPHIS, TN

218'



+34'



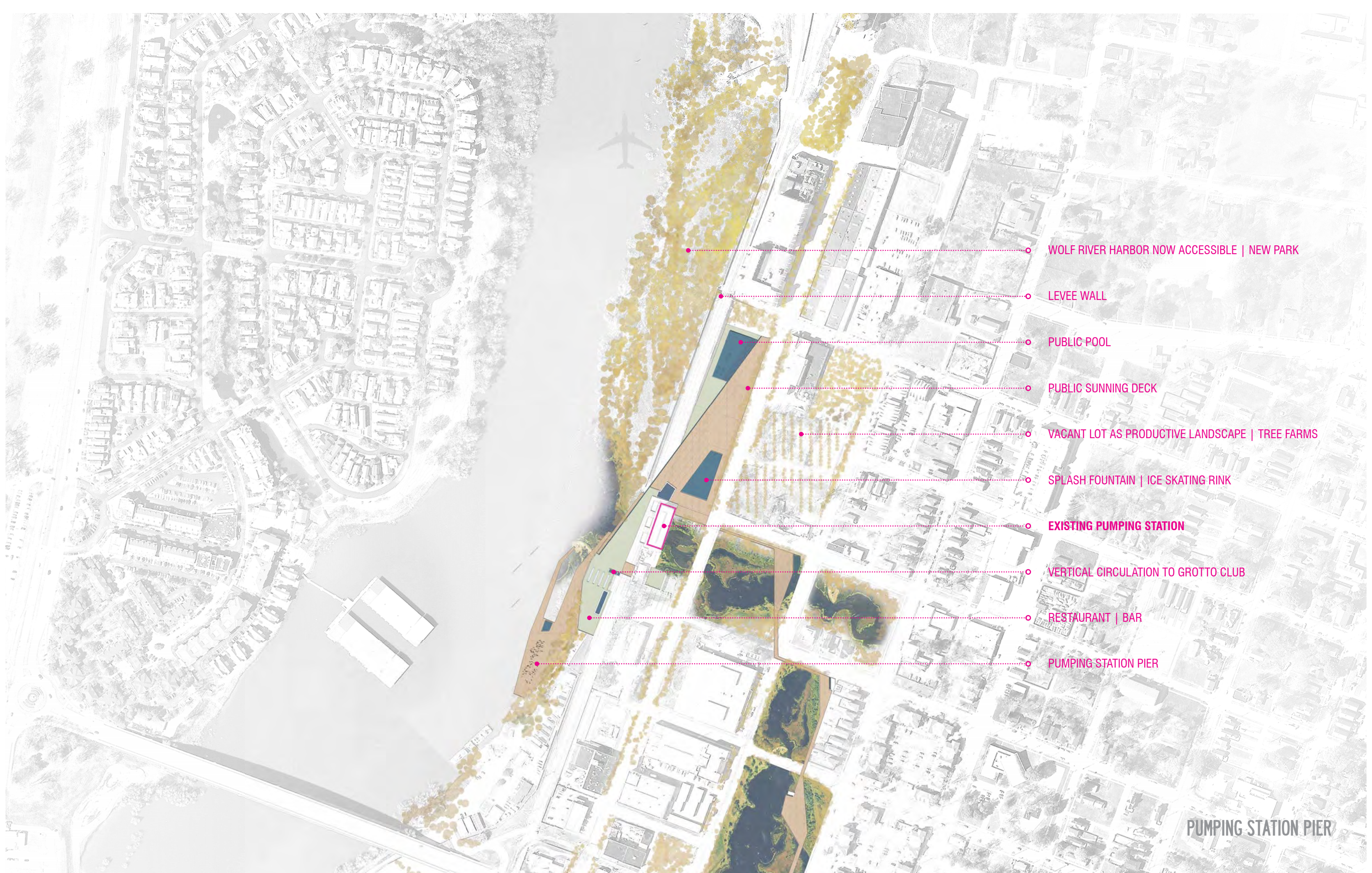
MINOR FLOODING

218'



PUMPING STATION BEGINS TO PUMP THE WATER OUT INTO THE HARBOR

PUMPING STATION NO LONGER NEEDS TO START PUMPING WATER OUT THE LANDSCAPE HOLDS, DETAINS, AND ALLOWS THE WATER TO SOAK





PUMPING STATION PIER
- RESTAURANT/CAFE
- BAR
- NIGHTCLUB

EXISTING PUMPING STATION

WADING AREA FOR WATERFOWL

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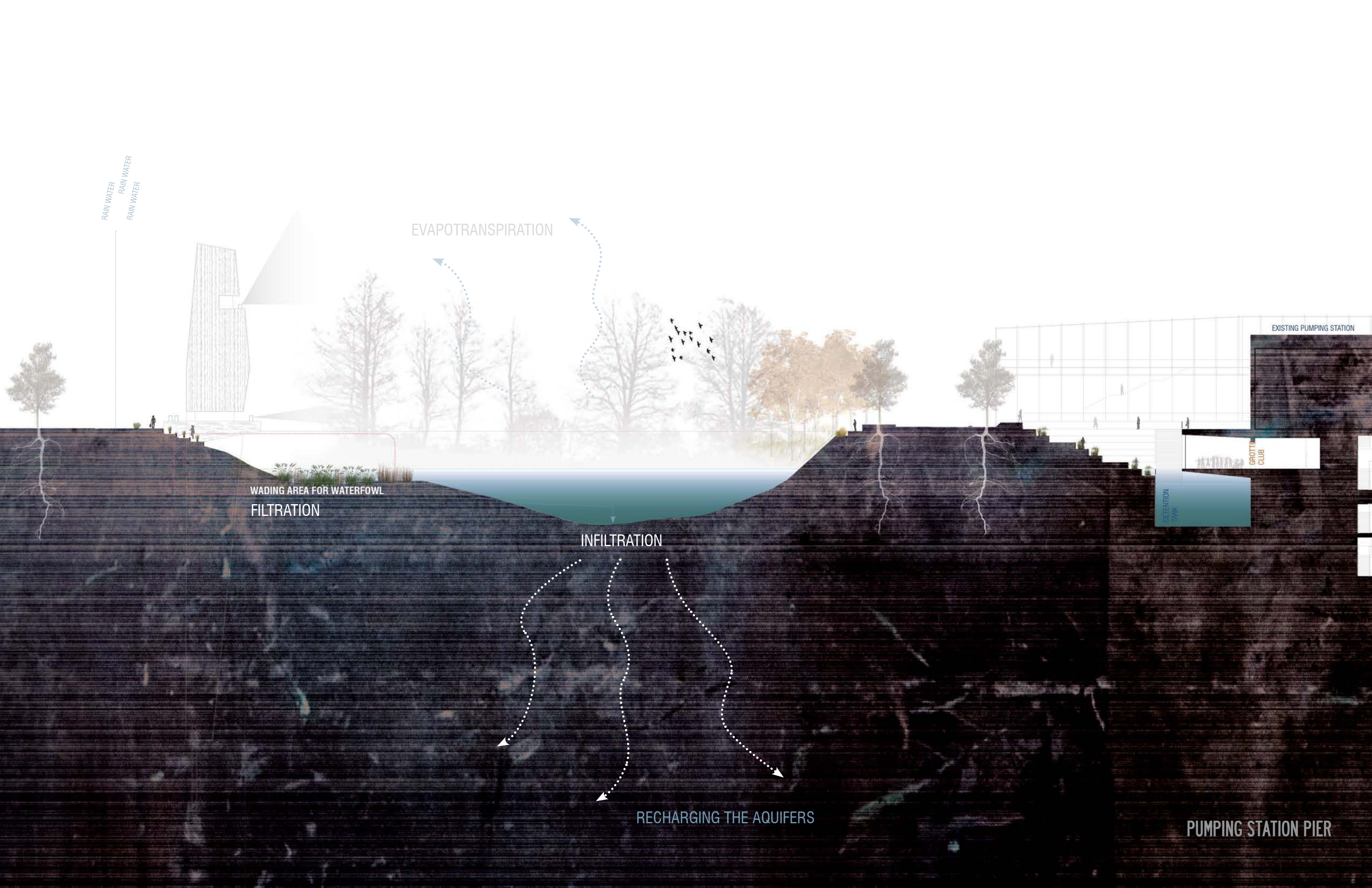
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RAIN WATER
RAIN WATER
RAIN WATER

EVAPOTRANSPIRATION

WADING AREA FOR WATERFOWL
FILTRATION

INFILTRATION

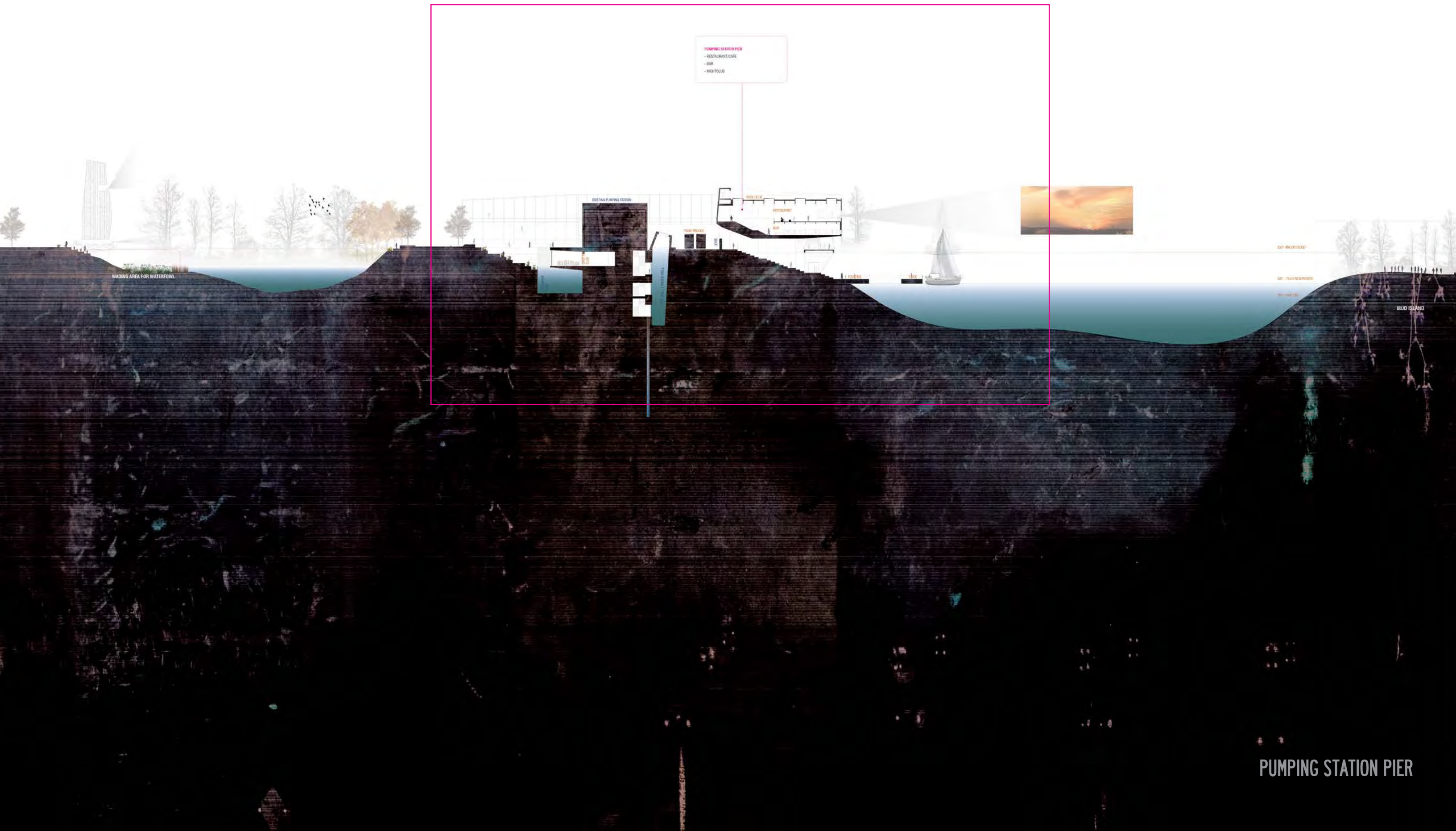
RECHARGING THE AQUIFERS

RETENTION
TANK

GROTTOS
CLUB

EXISTING PUMPING STATION

PUMPING STATION PIER



PUMPING STATION PIER

PUMPING STATION PIER

- RESTAURANT/CAFE
- BAR
- NIGHTCLUB

EXISTING PUMPING STATION

ROOF DECK

RESTAURANT

BAR

TRAIN TRACKS

LEVEE

GROTTOS CLUB

RETENTION TANK

LIGHT WELL / WATER WELL

FLOATING

DOCK

CLEANSING THE RUN-OFF

DOCK
MOVES UP
AND DOWN

SATURATED SOIL

OBSERVATION WELL

PUMPING STATION PIER





SUNSET PERSPECTIVE

MEMPHIS PYRAMID

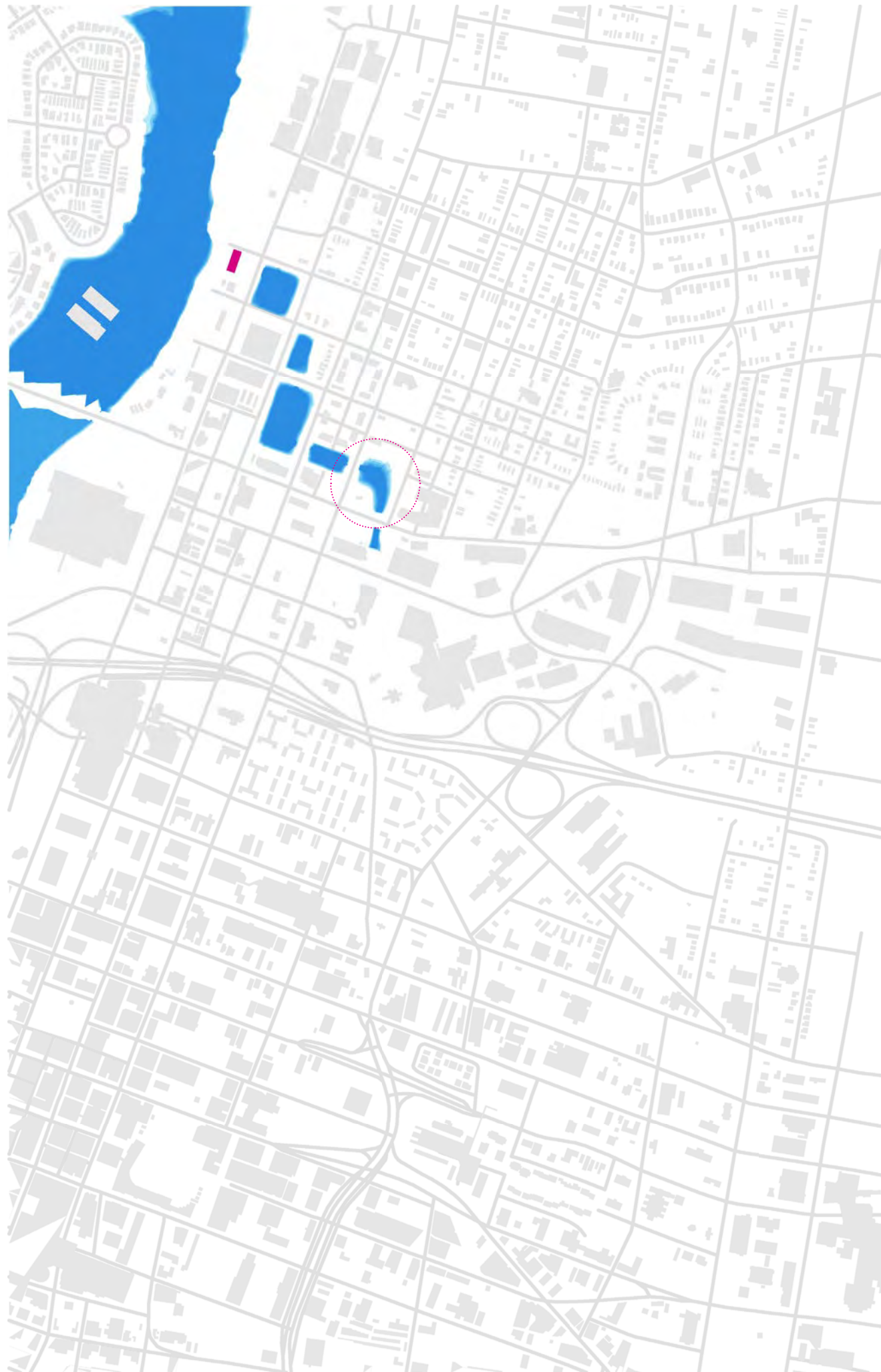
PUMPING STATION PIER



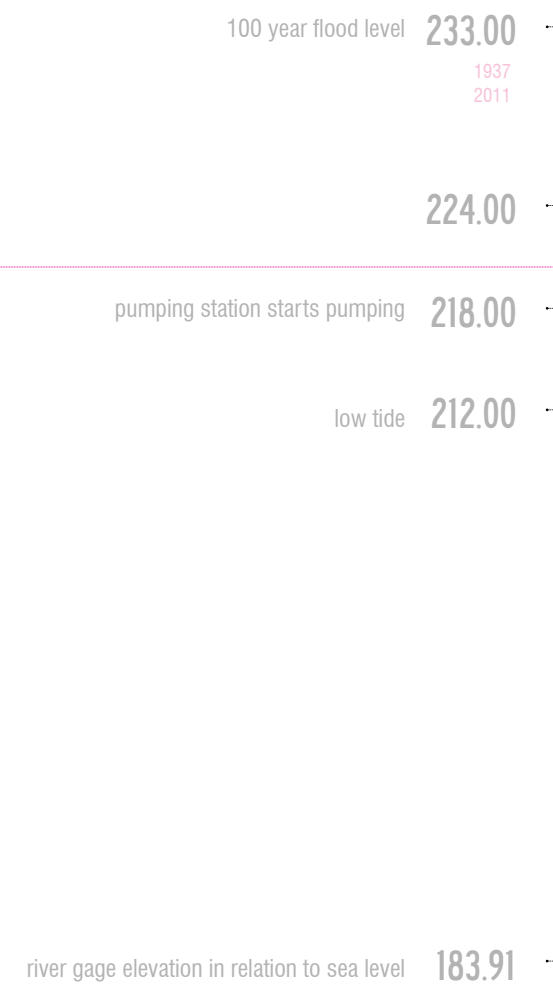
APPROACHING THE PUMPING STATION RESTAURANT | BAR LOOKING SOUTHWEST TOWARD SUNSET

PUMPING STATION PIER

220'

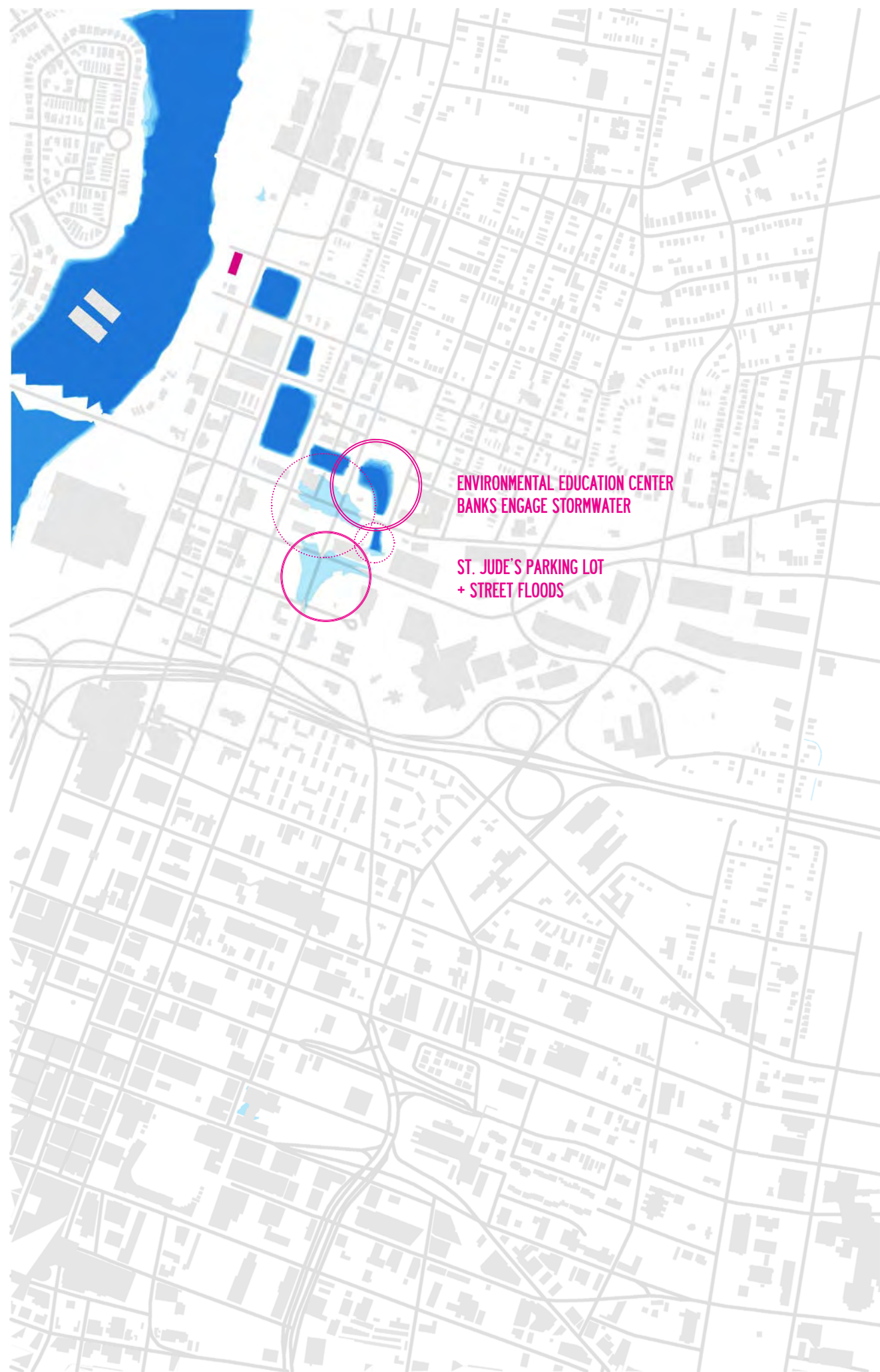


+36'

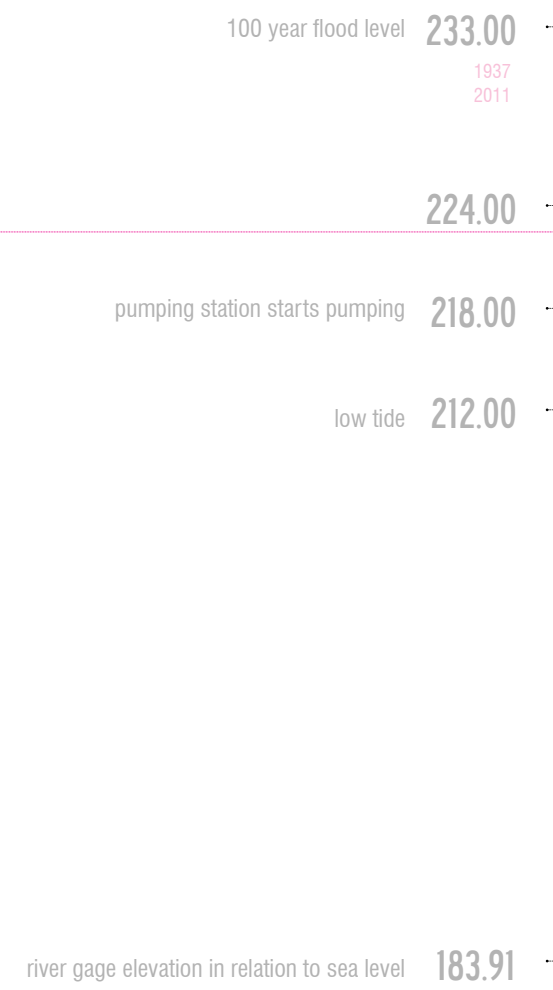


FLOODING IMPACT ON MEMPHIS, TN

222'

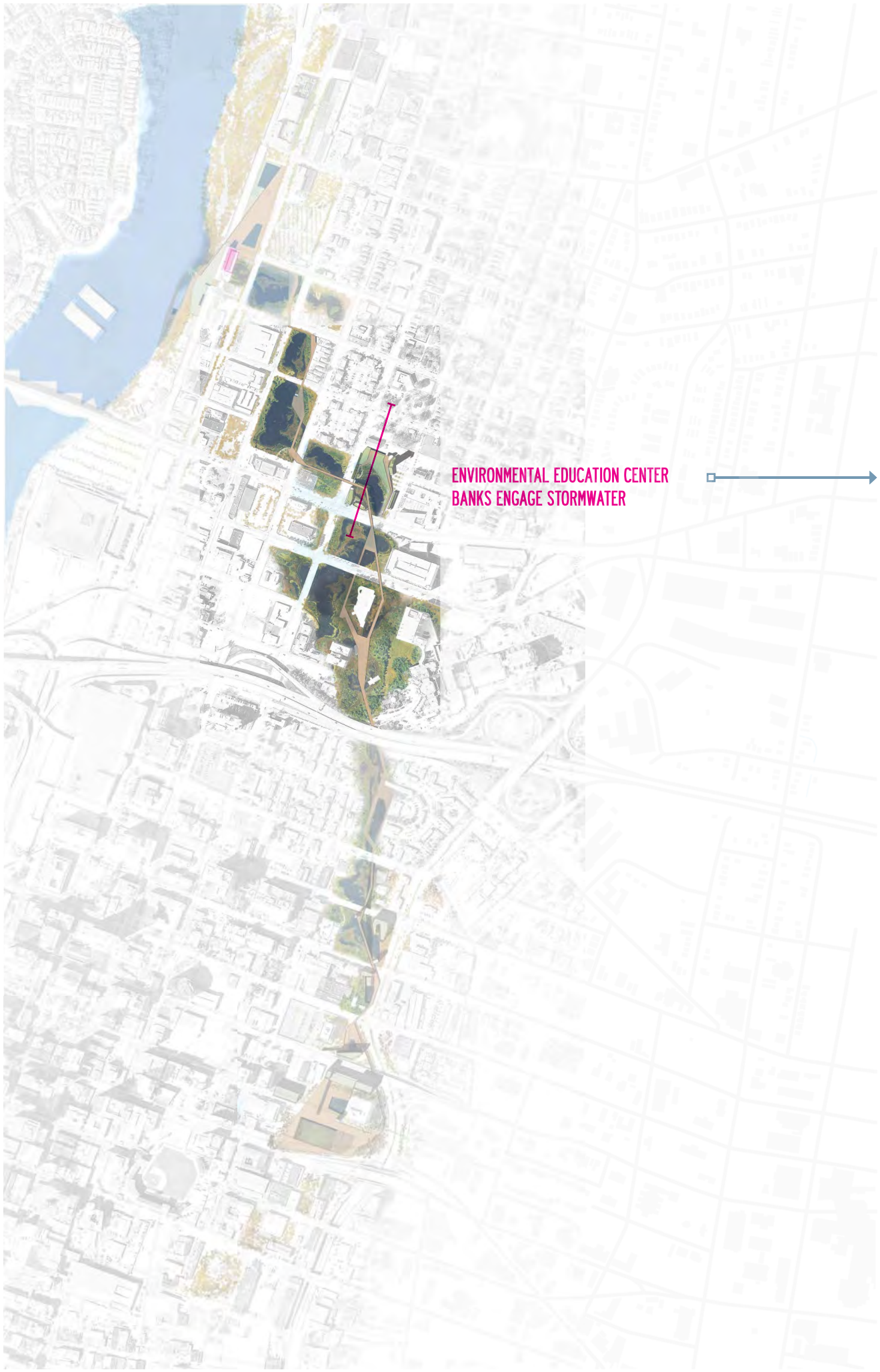


+38'



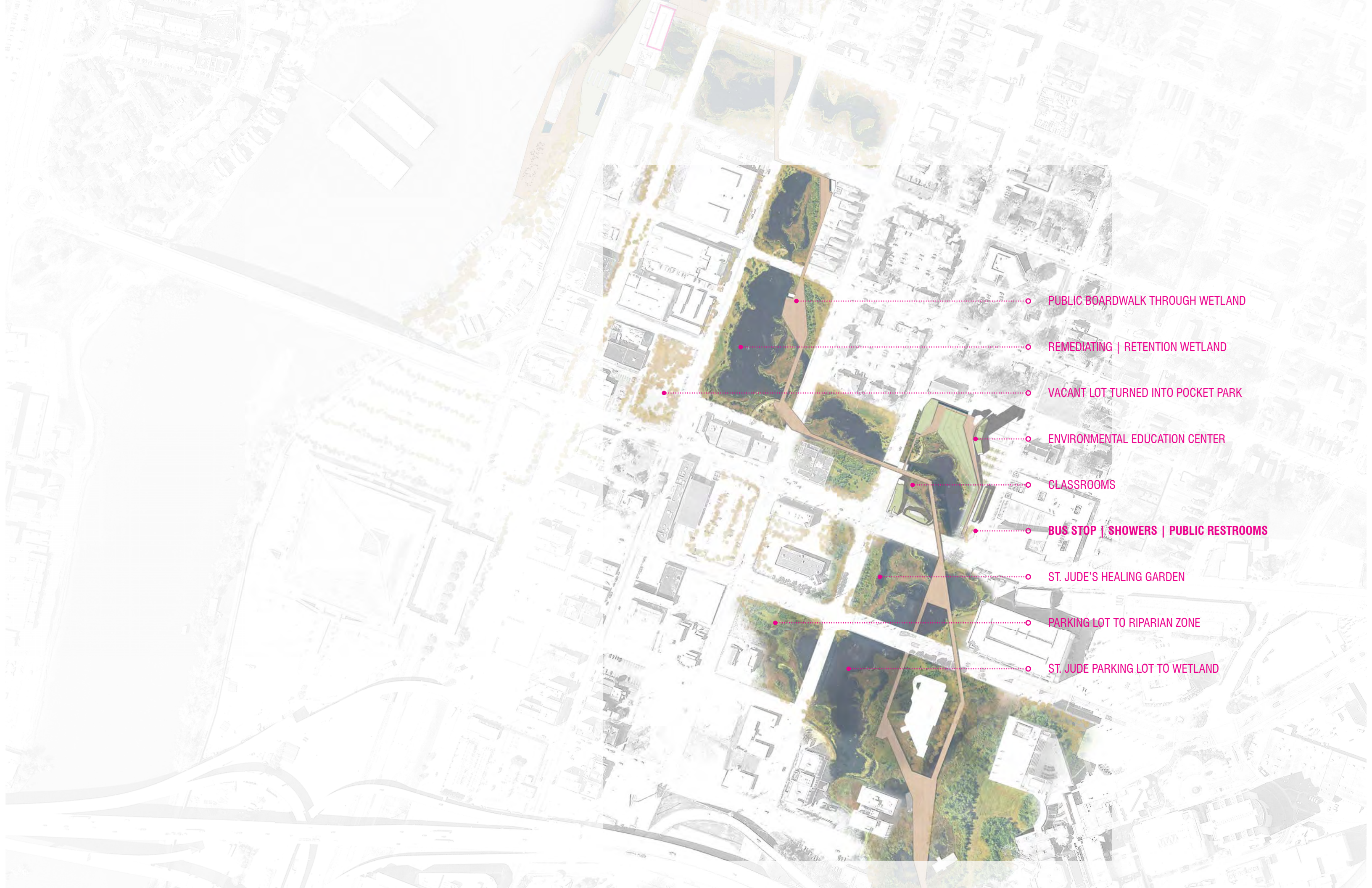
FLOODING IMPACT ON MEMPHIS, TN

222'



ENVIRONMENTAL EDUCATION CENTER
BANKS ENGAGE STORMWATER

THE TIERED LANDSCAPE MEASURES THE WATER LEVEL
AND PROVIDES ACCESS TO THE WATER'S EDGE



PUBLIC BOARDWALK THROUGH WETLAND

REMEDIATING | RETENTION WETLAND

VACANT LOT TURNED INTO POCKET PARK

ENVIRONMENTAL EDUCATION CENTER

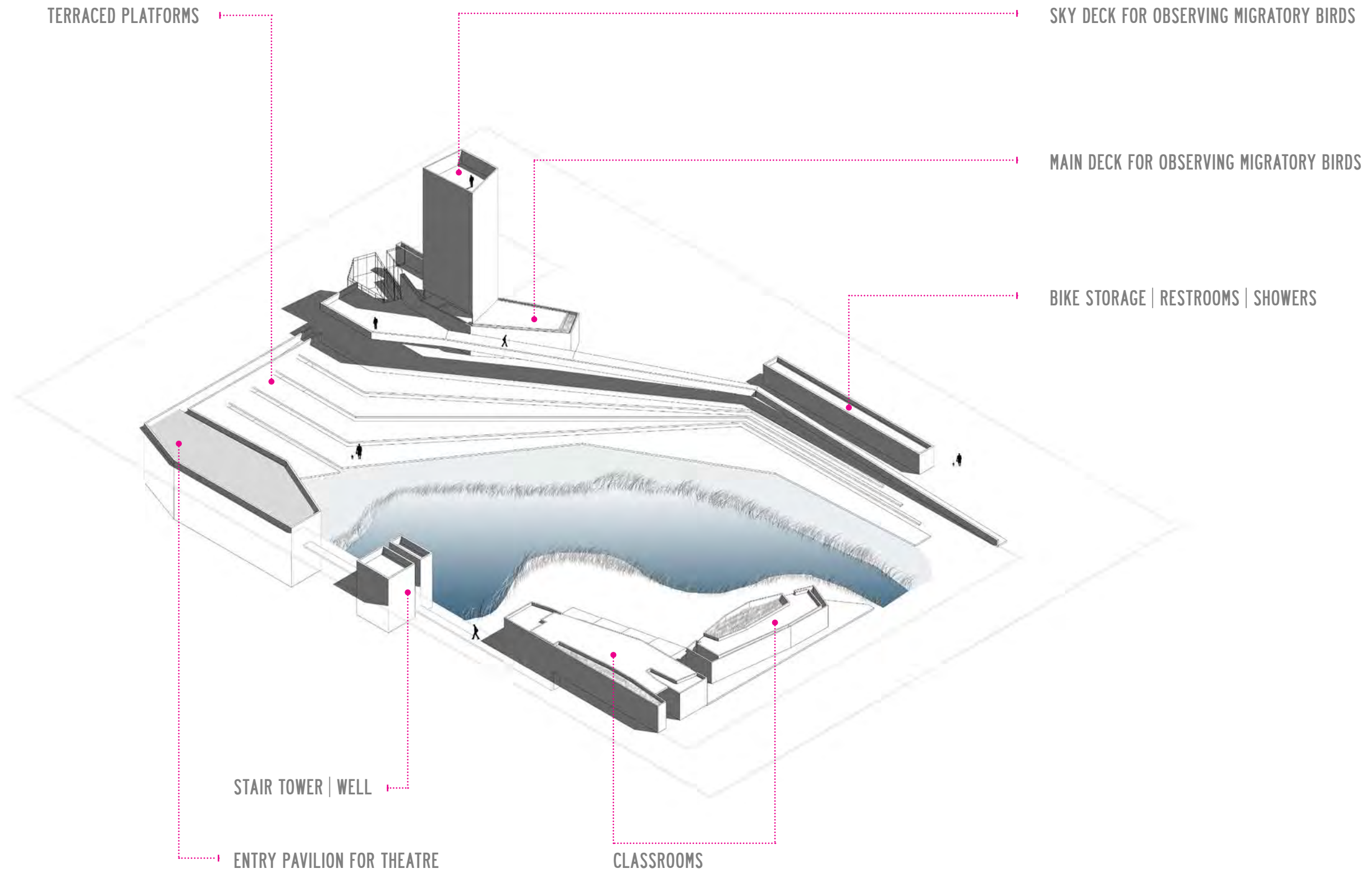
CLASSROOMS

BUS STOP | SHOWERS | PUBLIC RESTROOMS

ST. JUDE'S HEALING GARDEN

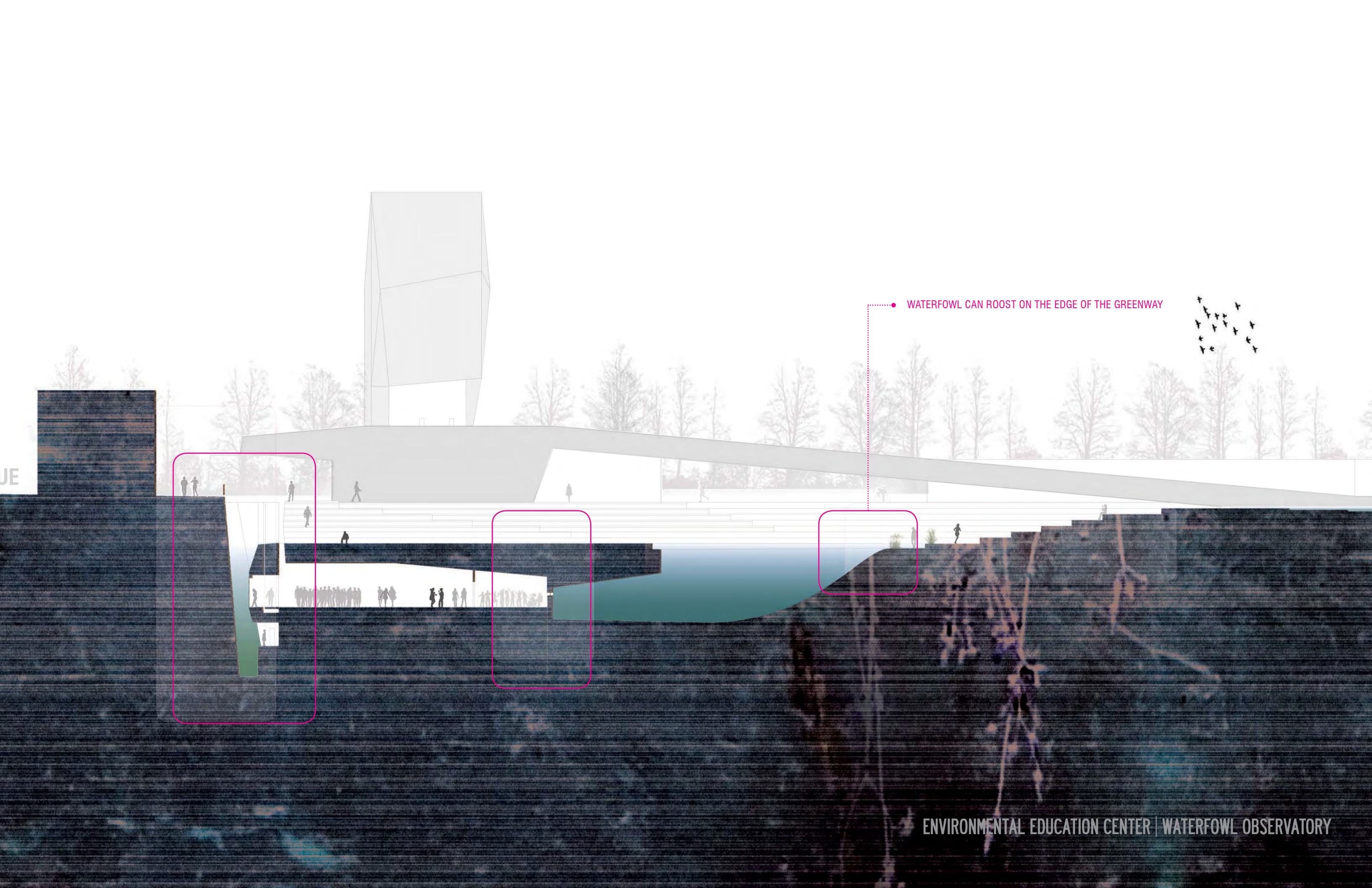
PARKING LOT TO RIPARIAN ZONE

ST. JUDE PARKING LOT TO WETLAND





ENVIRONMENTAL EDUCATION CENTER | WATERFOWL OBSERVATORY



• WATERFOWL CAN ROOST ON THE EDGE OF THE GREENWAY



ENVIRONMENTAL EDUCATION CENTER | WATERFOWL OBSERVATORY



THE WATER TOWER AS ARCHETYPE

ENVIRONMENTAL EDUCATION CENTER

- CLASSROOMS
- BIKE STORAGE
- PUBLIC RESTROOMS

THE TIERED LANDSCAPE MEASURES THE WATER LEVEL
AND PROVIDES ACCESS TO THE WATER'S EDGE

PERFORMANCE HALL FOR ENVIRONMENTAL EDUCATION CENTER

N. FOURTH STREET

233' - MAJOR FLOOD

202' - FILLS RESERVOIRS

190' - LOW TIDE

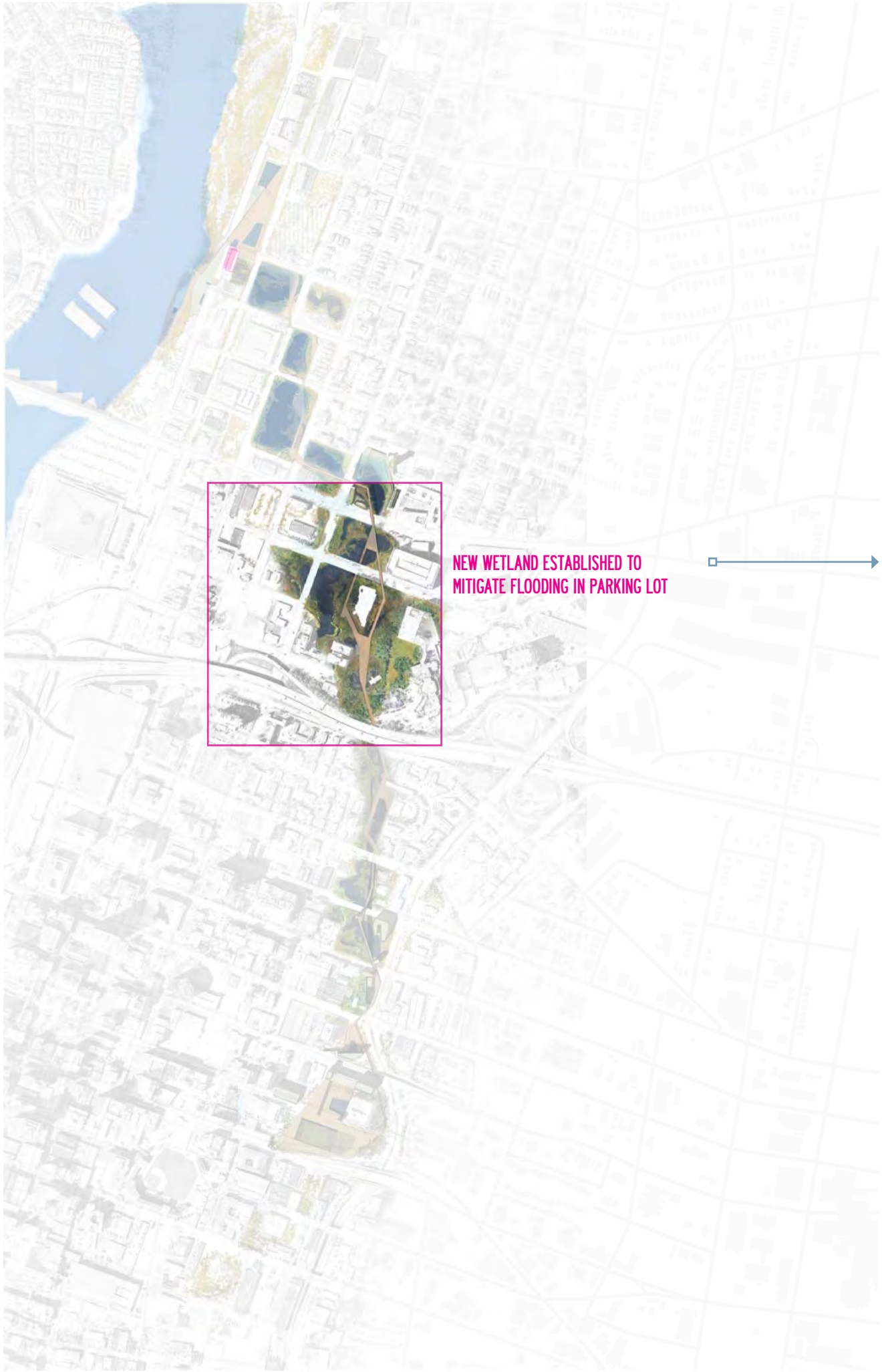


WINTER MIGRATION PERSPECTIVE

ENVIRONMENTAL EDUCATION CENTER | WATERFOWL OBSERVATORY

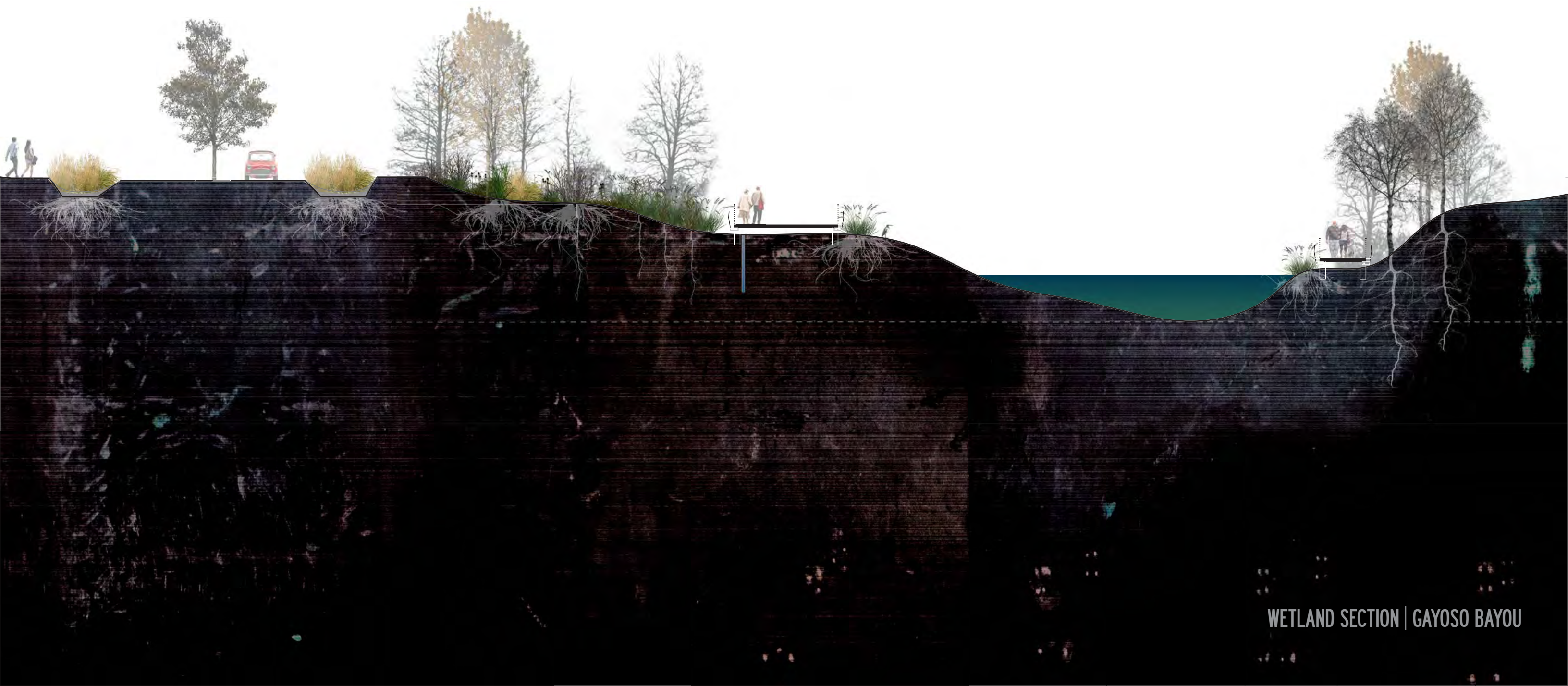


222'



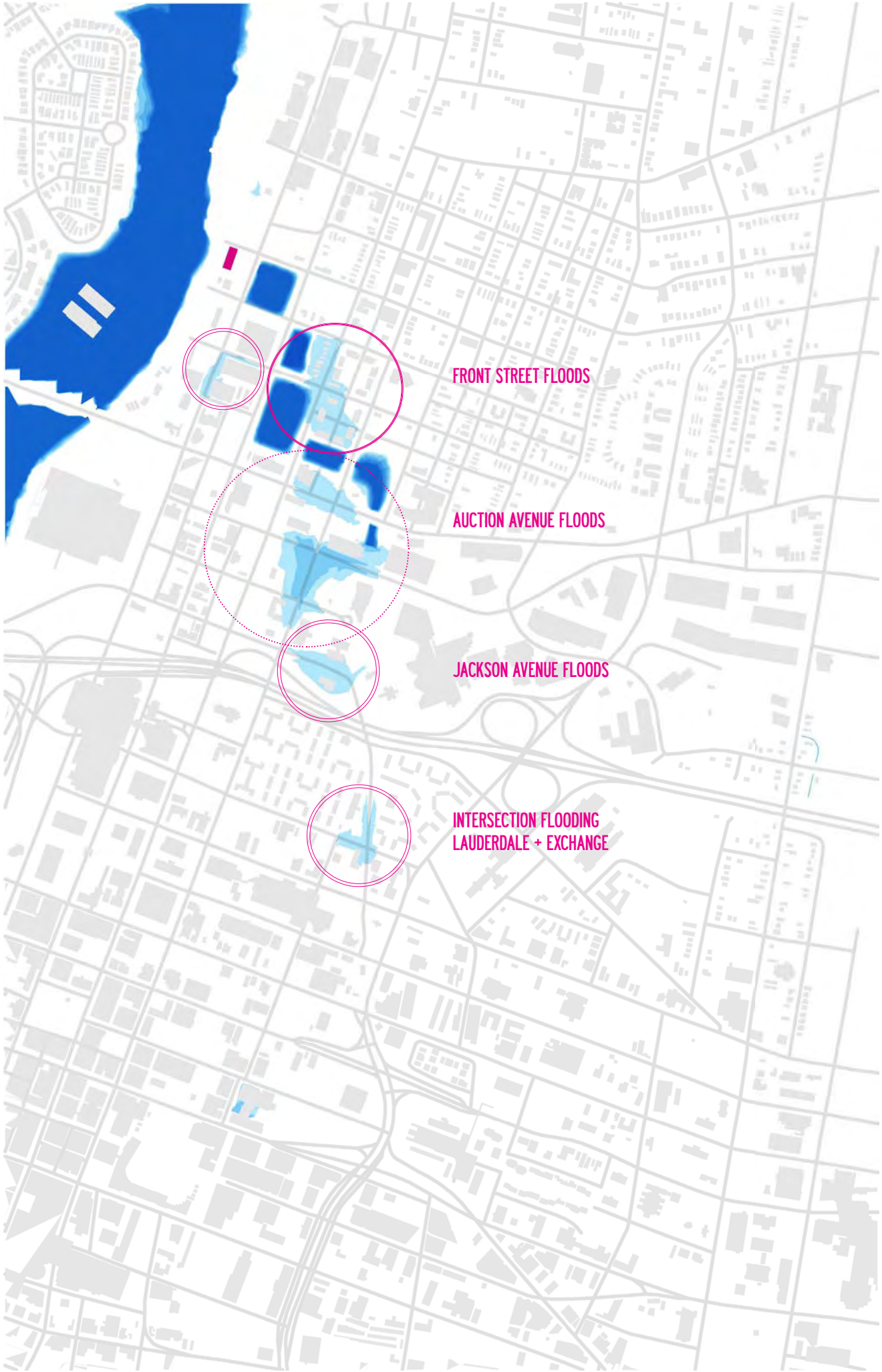
NEW WETLAND ESTABLISHED TO
MITIGATE FLOODING IN PARKING LOT

THE WETLAND HOLDS STORMWATER, CLEANSSES IT, THEN
RELEASES IT INTO THE BAYOU SYSTEM TO EXPEL INTO THE
HARBOR OR SOAK INTO THE EARTH

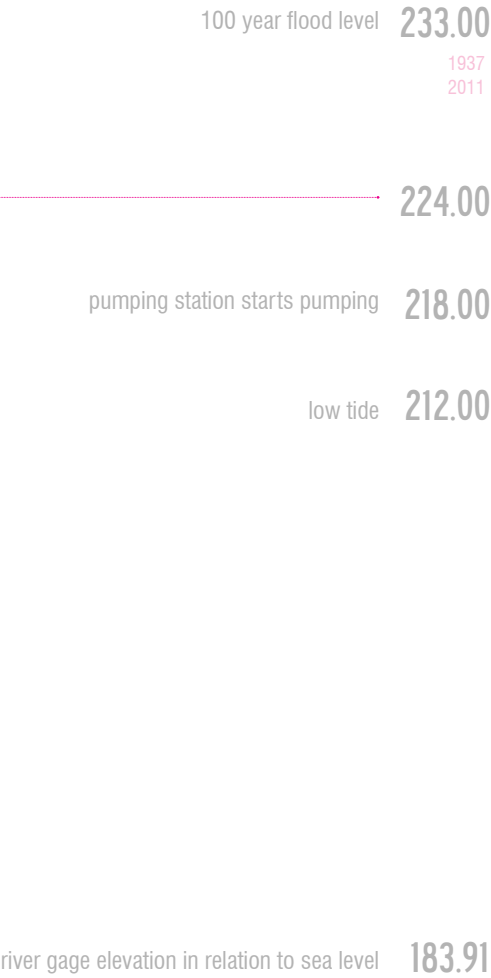


WETLAND SECTION | GAYOSO BAYOU

224'

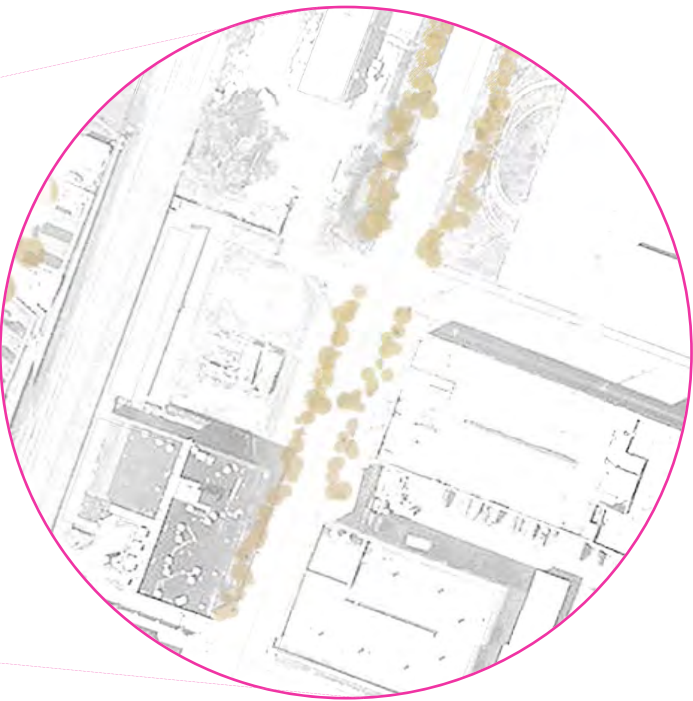


+40'



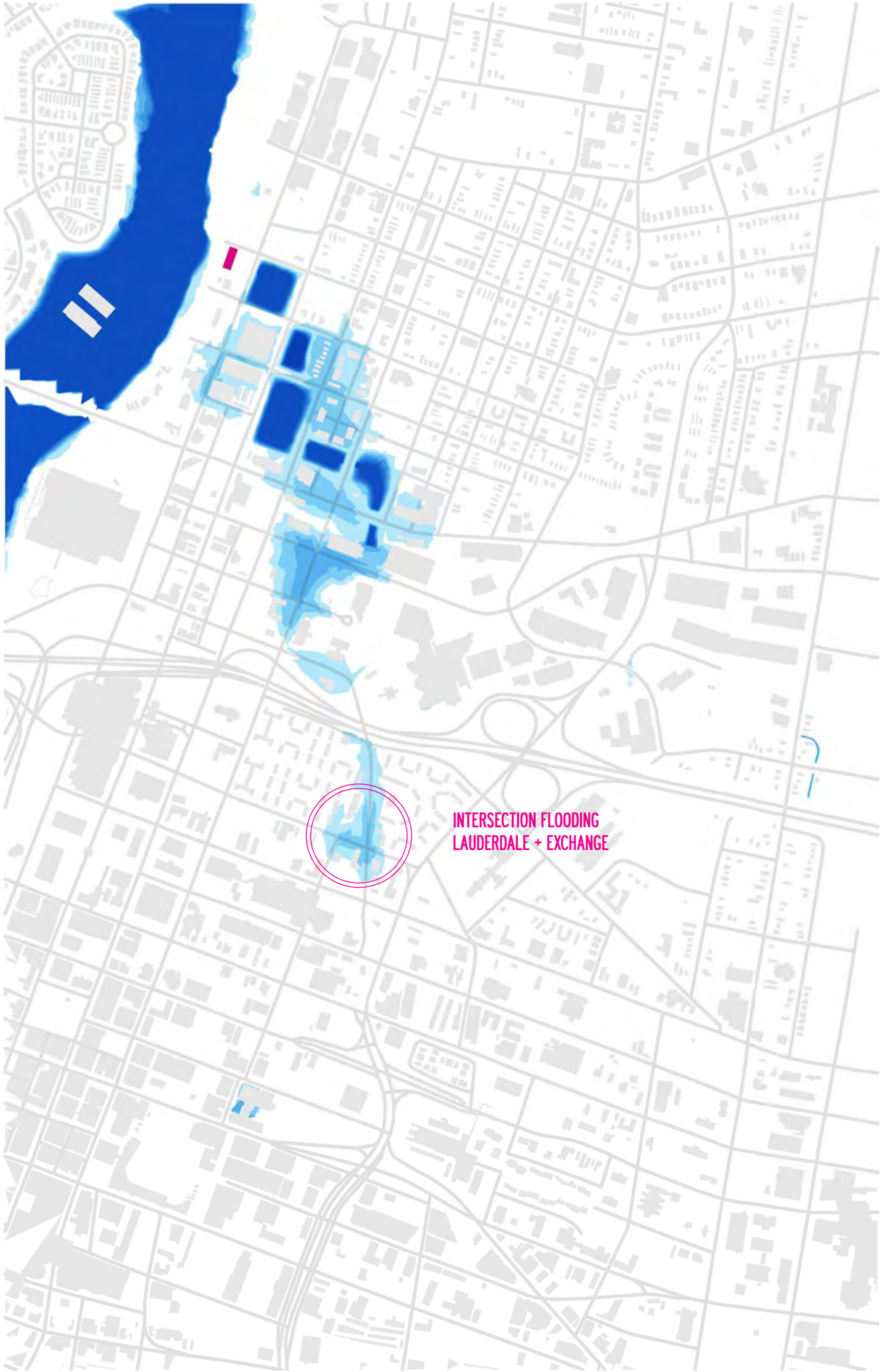
STREET FLOODING

224'

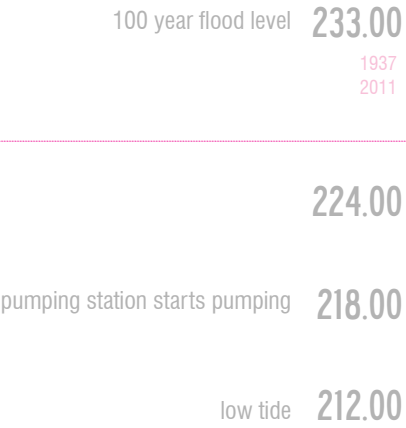


<http://cloud2.wsicdn.com/blog/wp-content/uploads/2012/04/walkingbybioswale.jpg>

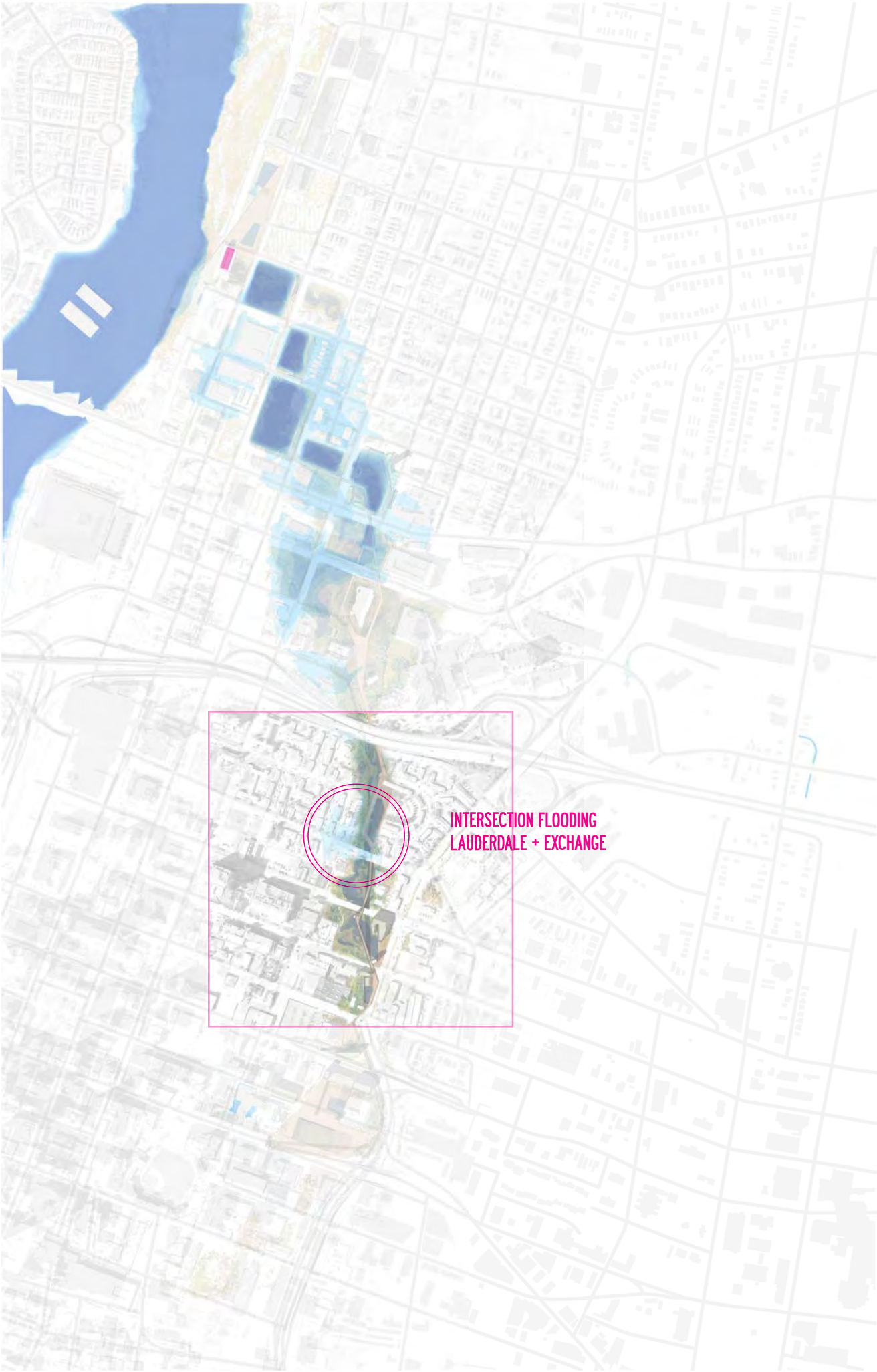
226'



+42'



226'

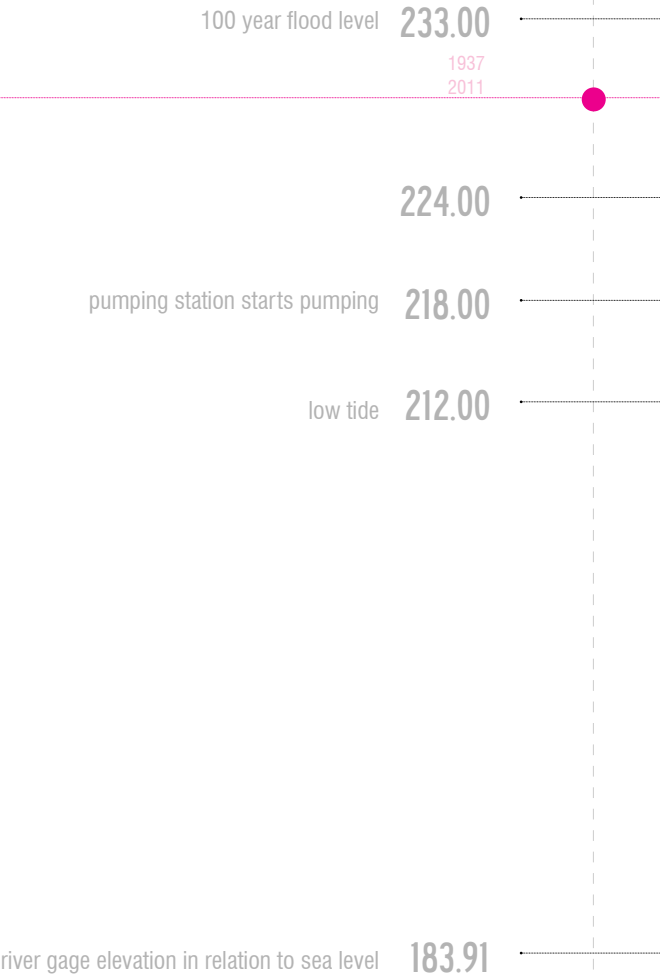




228'



+44'

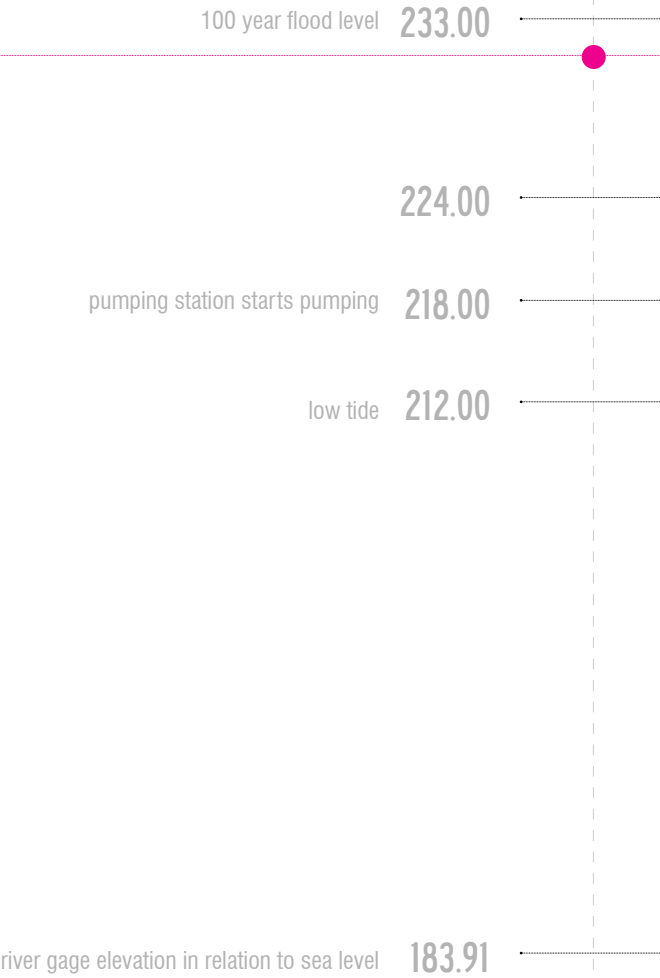


FLOODING IMPACT ON MEMPHIS, TN

230'



+46'



230'





PUBLIC BOARDWALK THROUGH WETLAND

ARTISTS-IN-RESIDENCE | MIXED USE

THE CASCADES

BUS STOP

THE CAVERN

CROSSWALK ON GRADE

PERFORMANCE AMPHITHEATER WITH COLLECTING POOL

MIXED USE SHOPPING | RETAIL

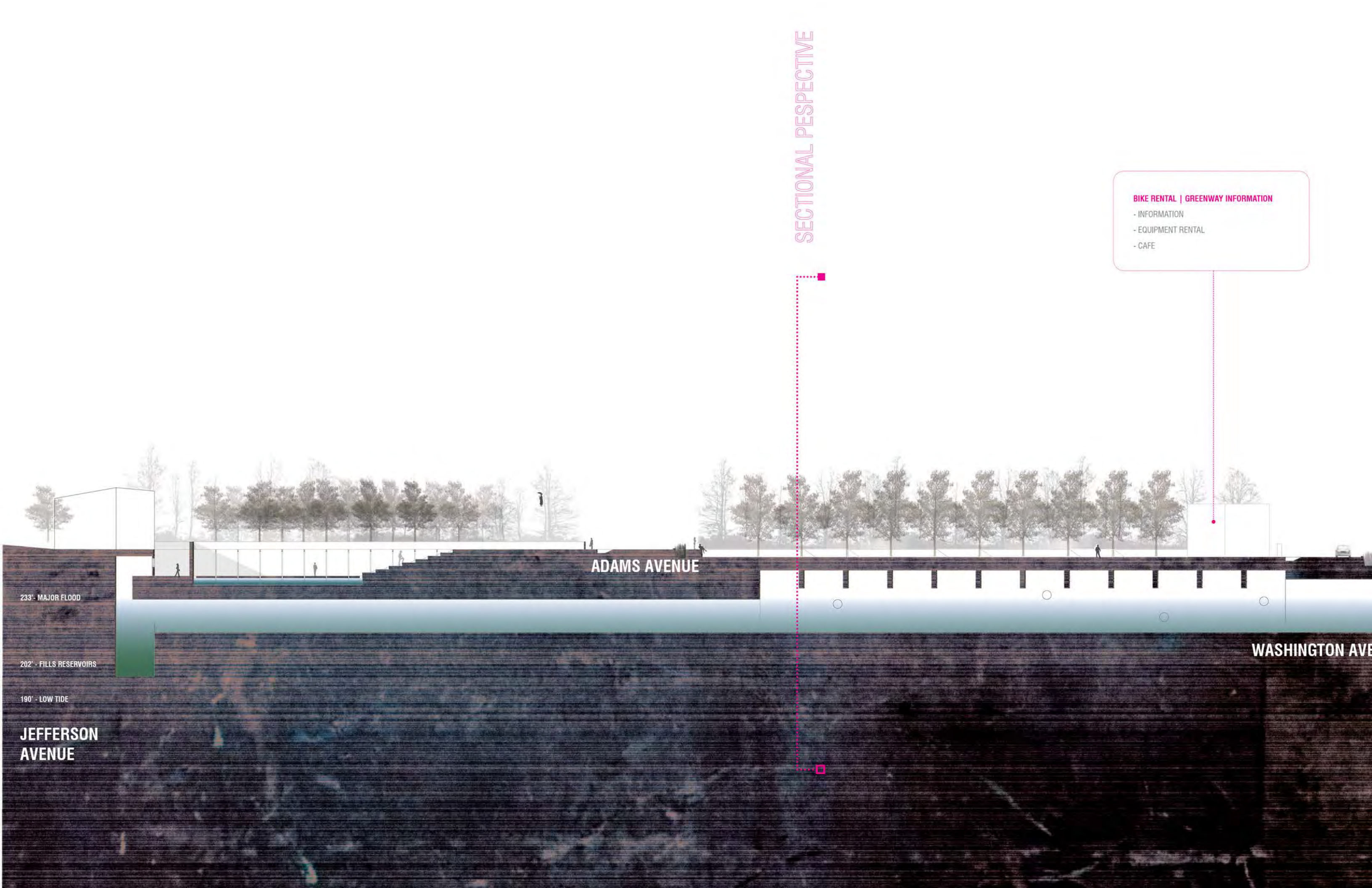
LARGE PUBLIC AMPHITHEATER

RECREATIONAL FIELD

SECTIONAL PERSPECTIVE

BIKE RENTAL | GREENWAY INFORMATION

- INFORMATION
- EQUIPMENT RENTAL
- CAFE



BIKE RENTAL | GREENWAY INFORMATION

- INFORMATION
- EQUIPMENT RENTAL
- CAFE

ARTISTS IN RESIDENCE + PERFORMANCE HALL

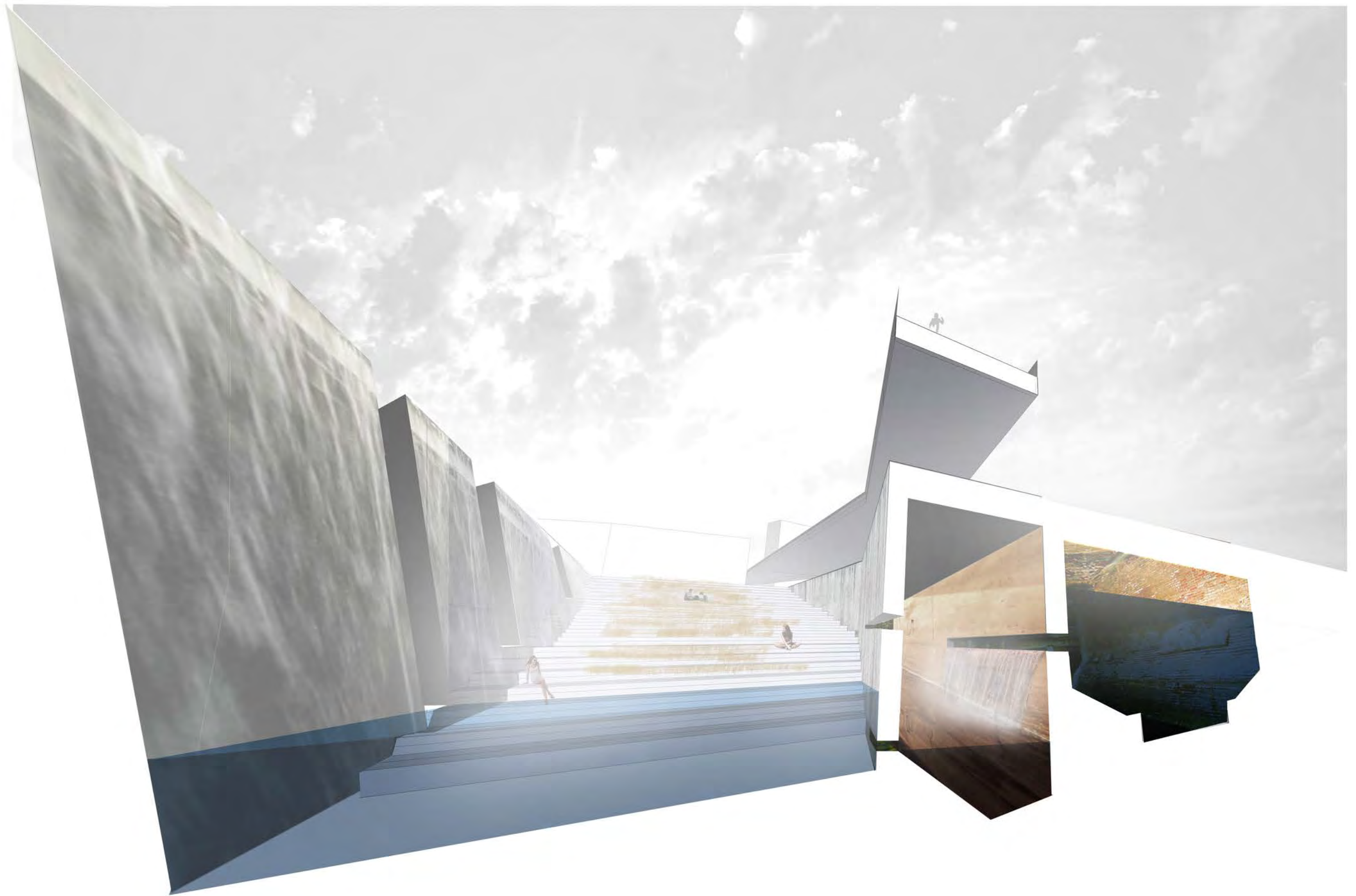
- RENTABLE OFFICE SPACE
- THREE APARTMENTS AVAILABLE
- ACCESS TO THE CREEK



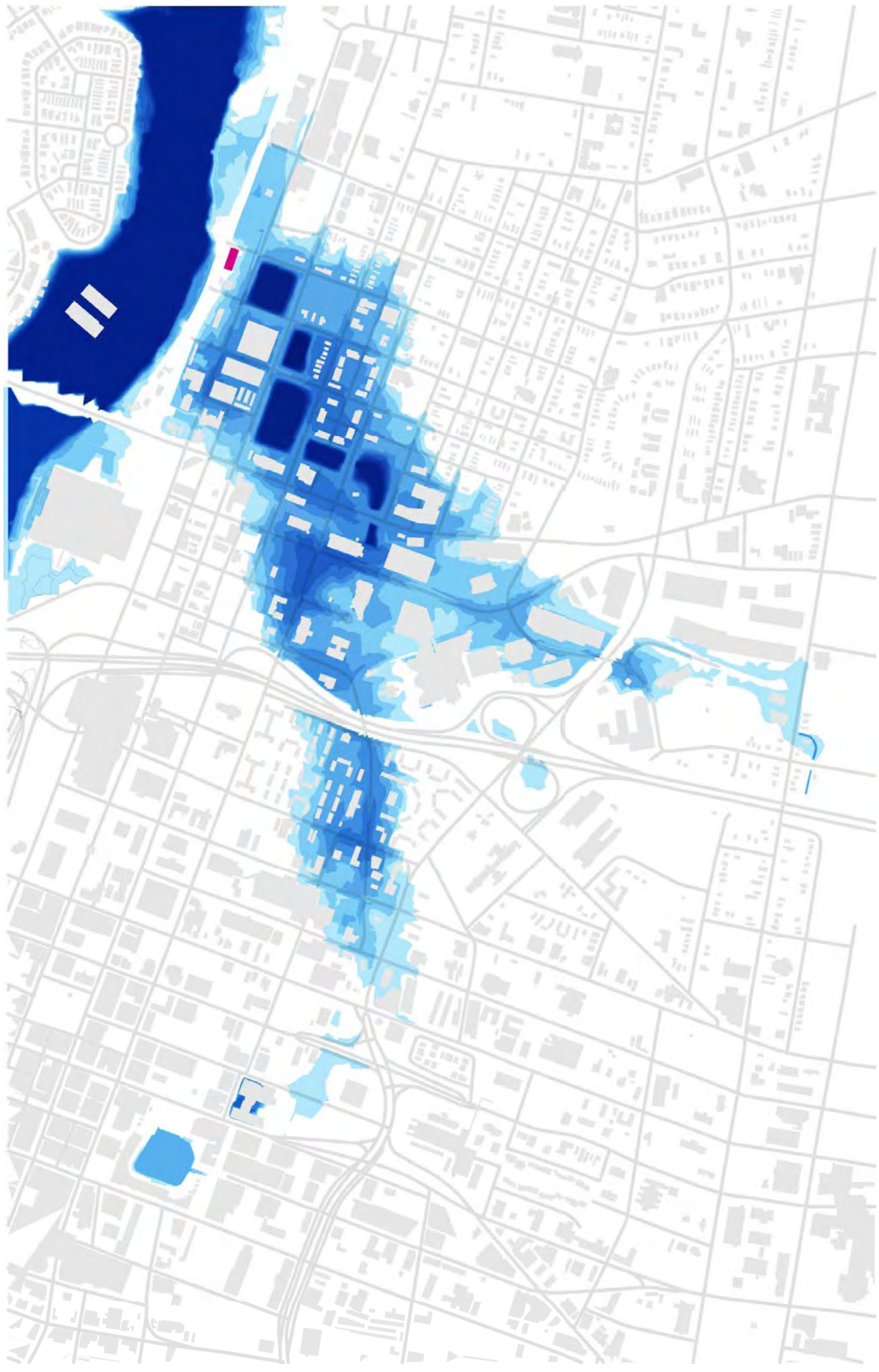
WASHINGTON AVENUE

PRACTICE ROOMS | DIFFER IN VOLUME FOR VARIED PERFORMANCE EXPERIENCE AND SOUND QUALITY

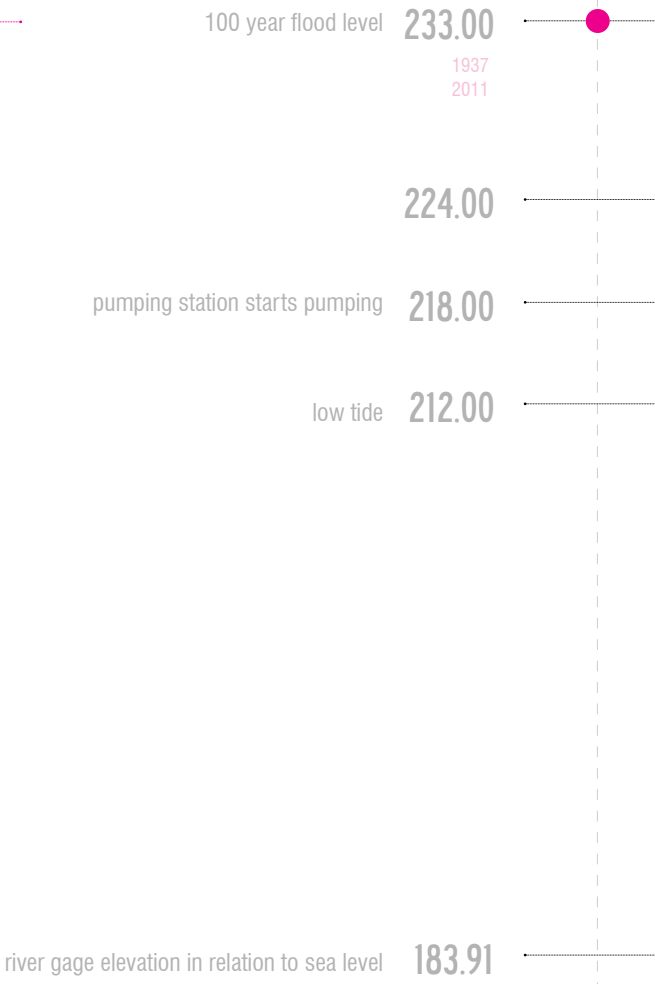
POPLAR AVENUE



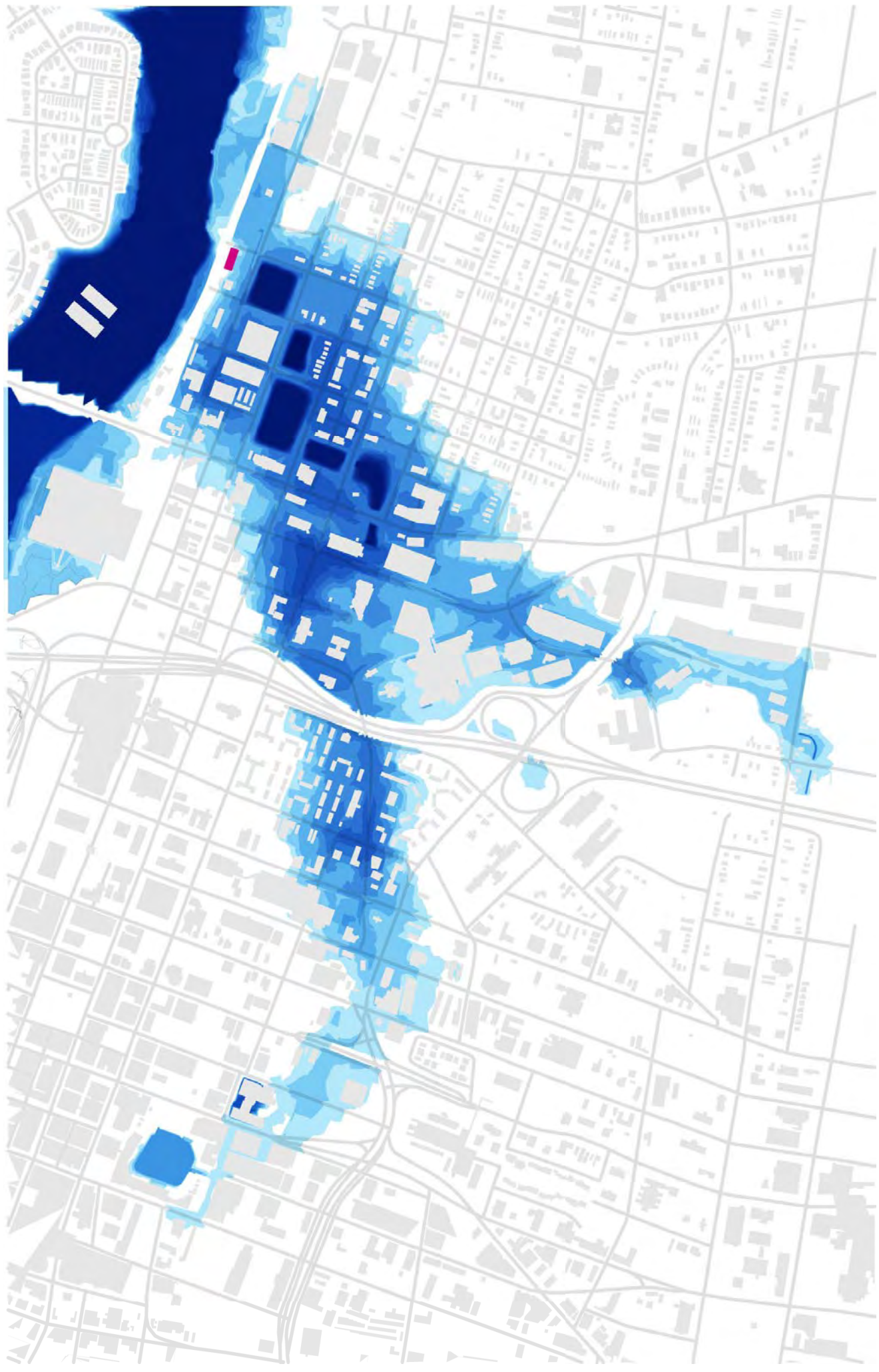
232'



+48'



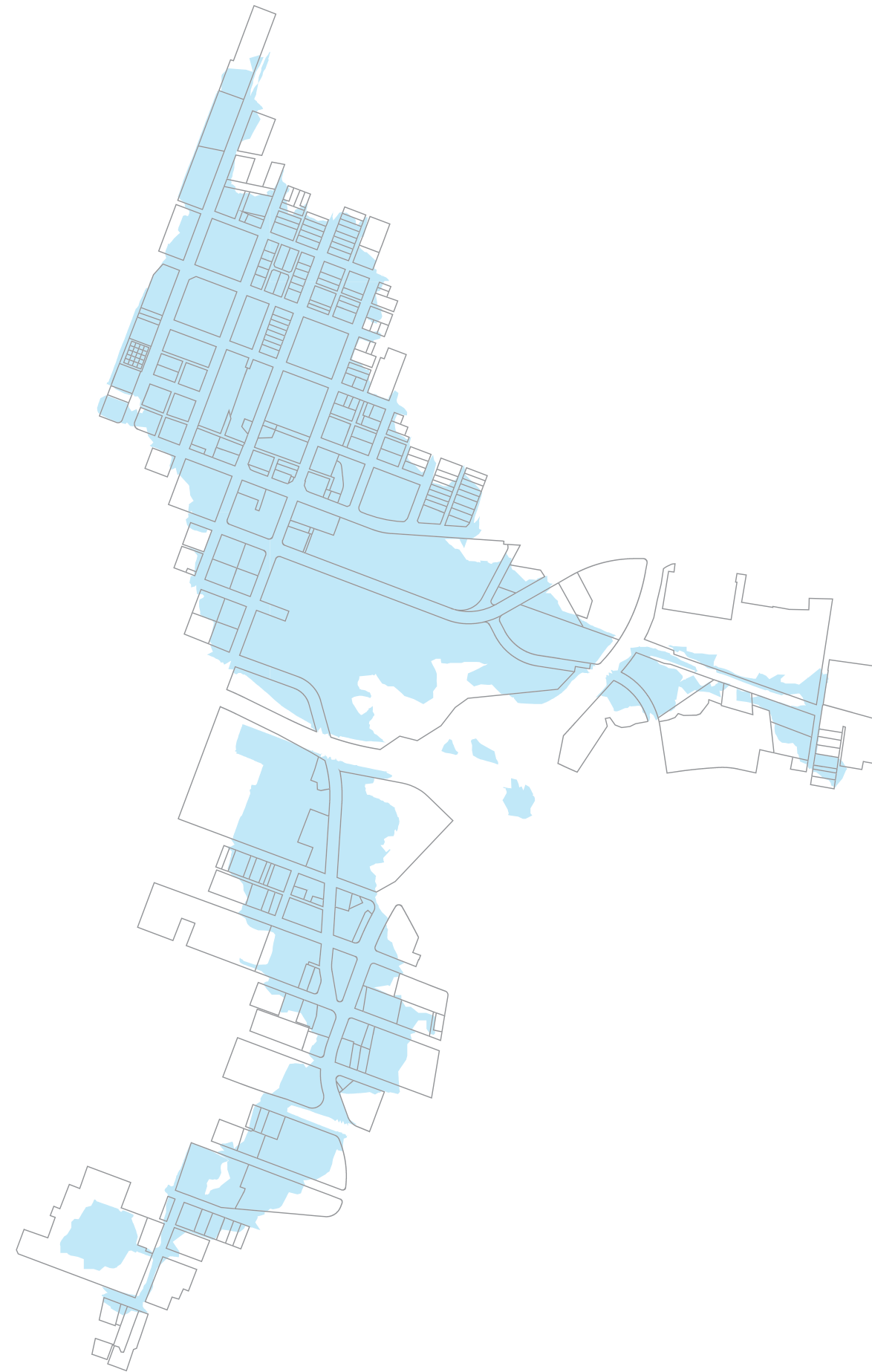
234'



+50'

- 100 year flood level 233.00
1937
2011
- 224.00
- pumping station starts pumping 218.00
- low tide 212.00

river gage elevation in relation to sea level 183.91



■ SHADED ZONE X
□ AFFECTED PARCELS

283 PARCELS AFFECTED

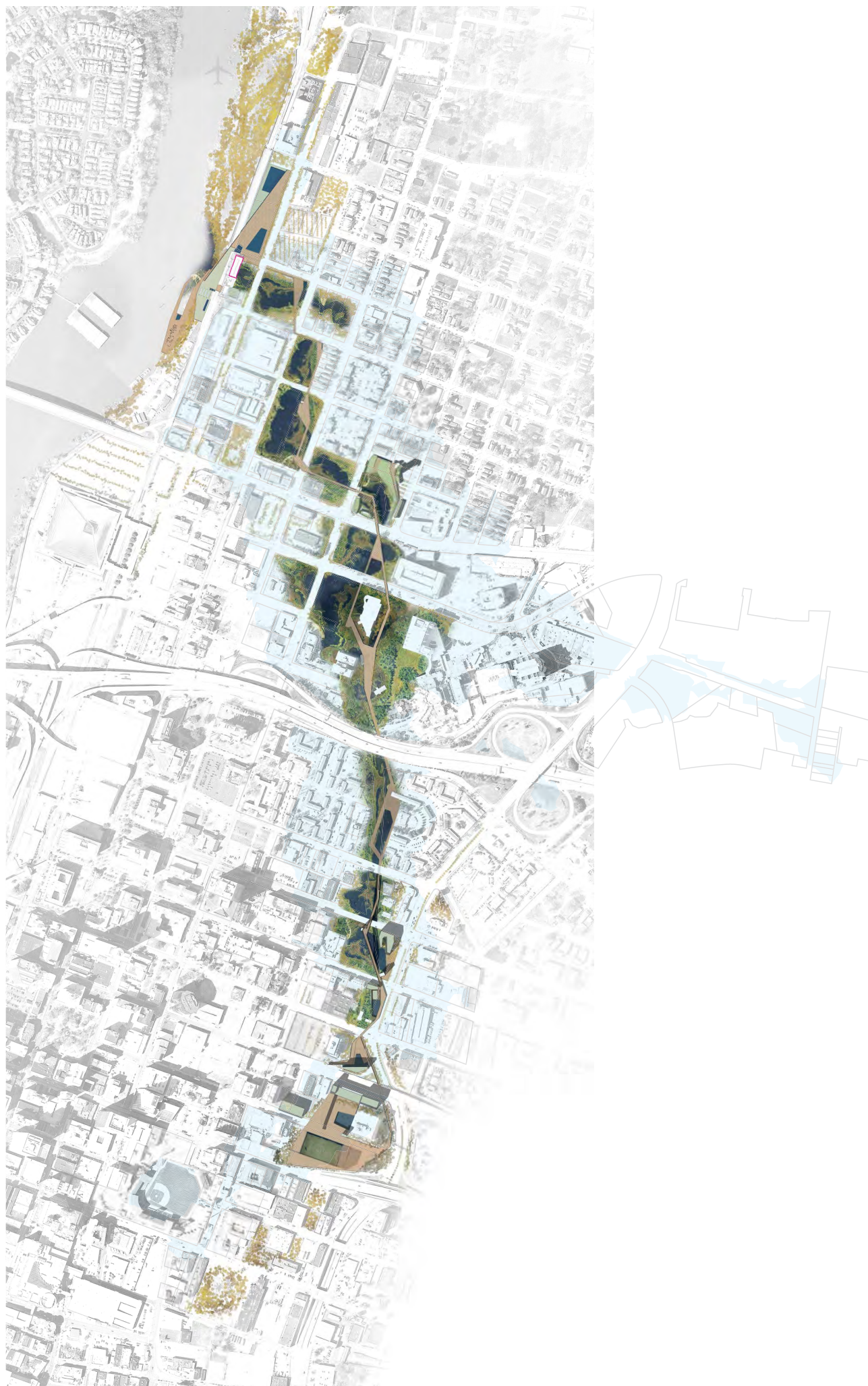
PARCELS IMPACTED BY ZONE X



■ SHADED ZONE X
■ FLOODED BUILDINGS

229 BUILDINGS AFFECTED

BUILDINGS IMPACTED BY ZONE X



1. NEW CONNECTED PUBLIC REALM

2. CONTINUOUS GREENWAY ACCESS THROUGH CITY

3. INCREASED PROPERTY VALUE ALONG EDGE

4. INCREASED URBAN BIODIVERSITY

5. FLOOD RETENTION | DETENTION

6. IMPROVE AIR + WATER QUALITY

7. ACCESS TO WATER FOR RECREATION

8. NEW PUBLIC AMENITIES

9. INCREASED ENVIRONMENTAL AWARENESS

10. RECHARGED AQUIFERS

BENEFITS OF THE GAYOSO BAYOU DAYLIGHTING