



Algiers Drainage Upgrades and Green Infrastructure

30% Design Report

Submitted 24 March 2016

Waggoner & Ball

Project Description



Project Area

- West Bank of New Orleans, in section of Algiers, within McDonough and Whitney neighborhoods
- Bordered by De Armas Street to the north, Verret Street and Hermosa Street to the west, L.B. Landry Avenue to the east, and Mardi Gras Boulevard to the south
- 27 square blocks with large Sewerage and Water Board property at neighborhood boundary

Land Use

- Zoned low-density pre-war residential, medium density mixed use, and industrial
- Housing is mainly detached single family dwellings
- Floor elevations nearly flush with the ground and prone to flooding

Existing Drainage System

- Stormwater drains north to Lamarque St, then east to L.B. Landry Ave. and south to Mardi Gras Blvd.
- Flows southeast through open canals to DPS 13, and into Intracoastal Waterway

Project Description



Issues

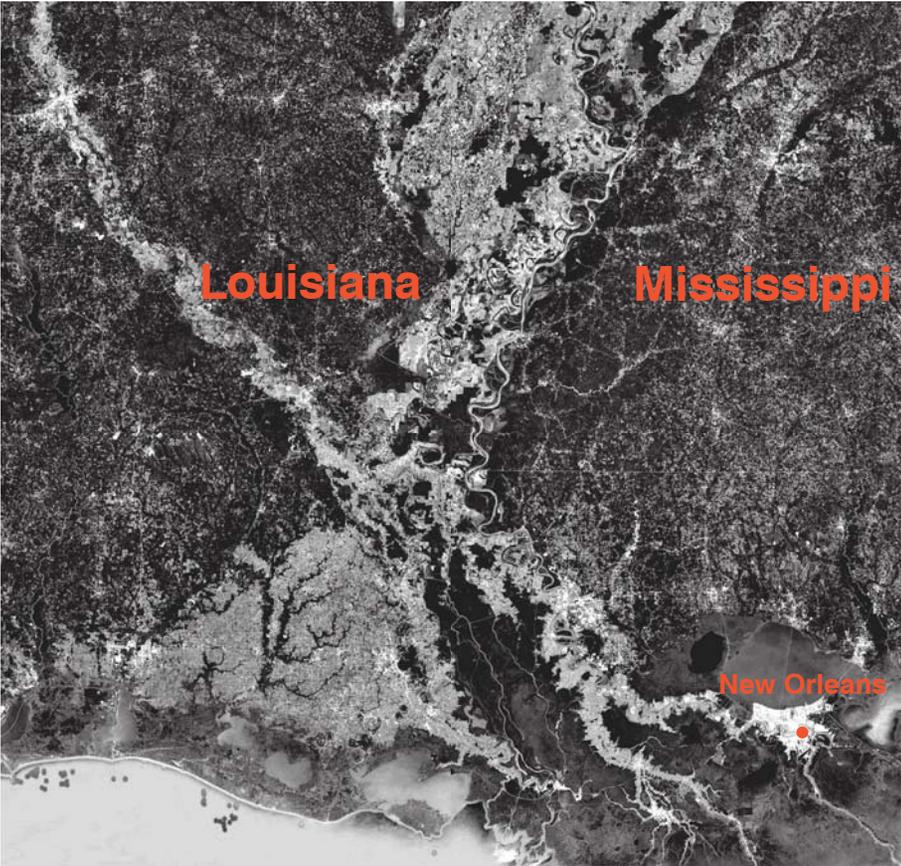
- Hydraulic modeling shows subsurface drainage below local smaller streets to be undersized
- Results in localized flooding in streets and properties



Goals

- To reduce flood risk through a combination of structural and non-structural interventions to more efficiently remove stormwater runoff from surfaces of streets and properties
- All upgrades will be designed to accommodate and/or mitigate 10-year 24-hour storm event
- Budget: \$3.06M

Study Area



Aerial image of Louisiana with project study area encircled
Accessed via Google Earth



Aerial image of New Orleans with project study area
Accessed via Google Earth

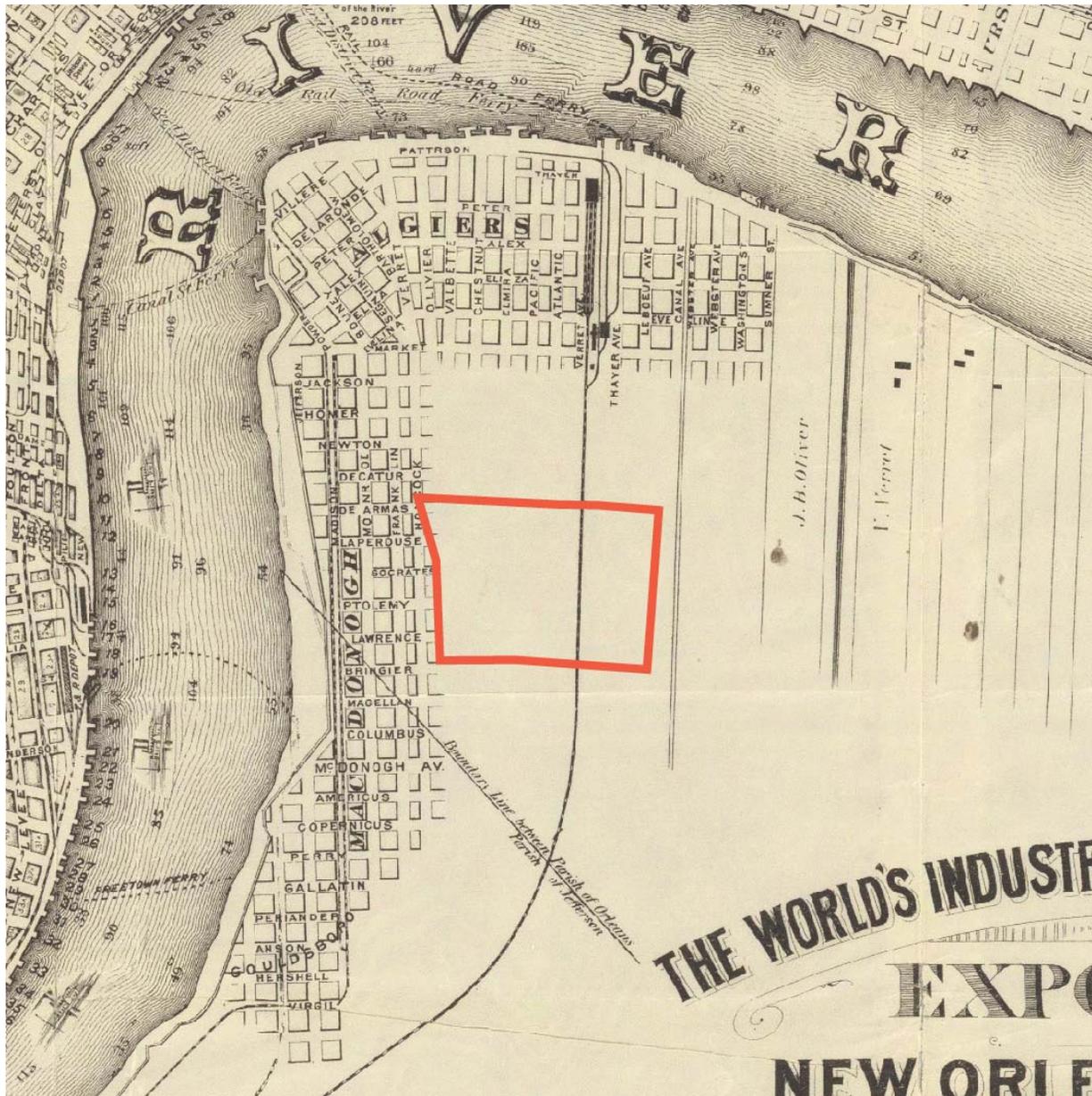
Study Area



Aerial image of Algiers, New Orleans with project study area outlined

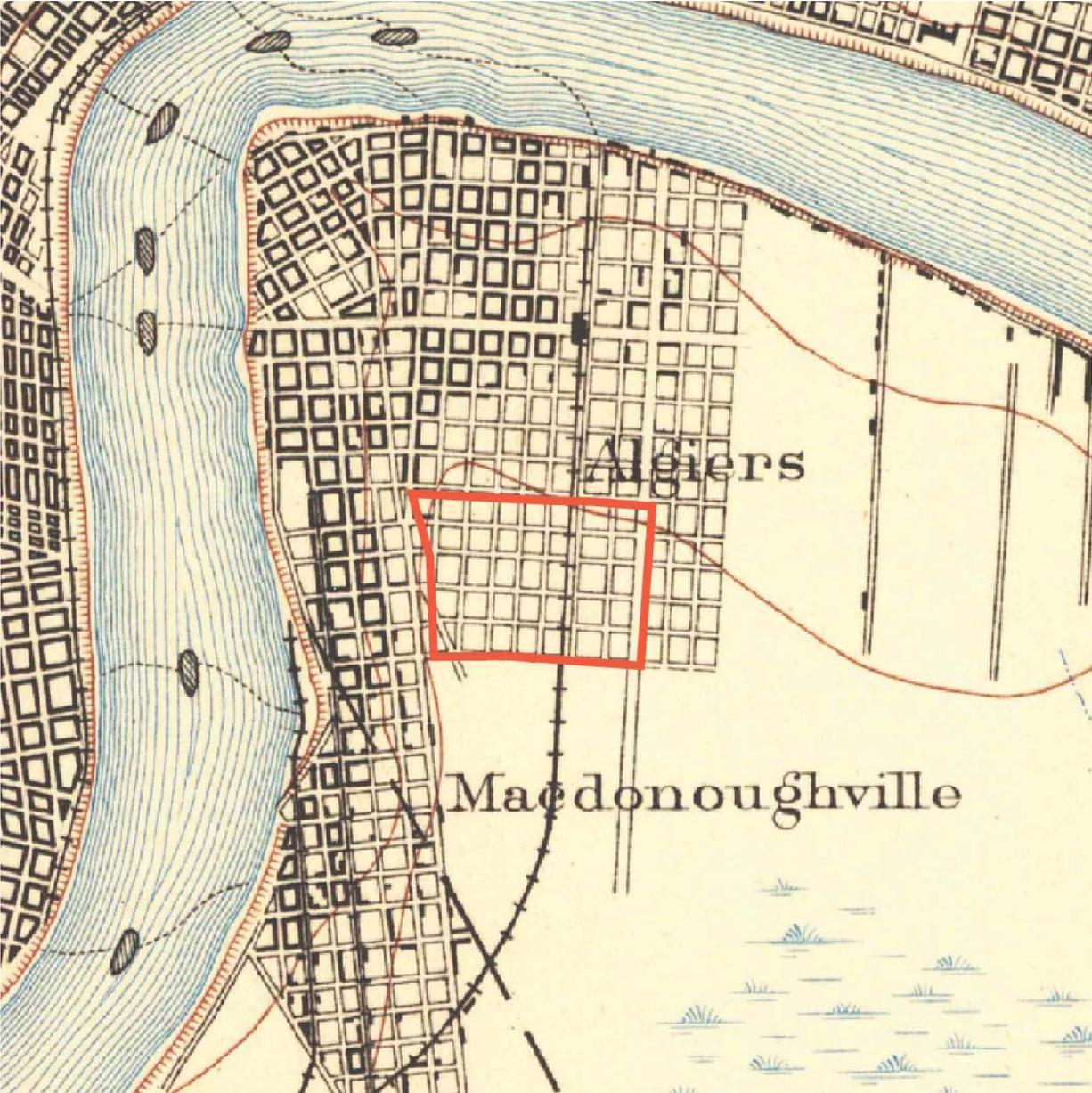
Accessed via Google Earth

Historical Development



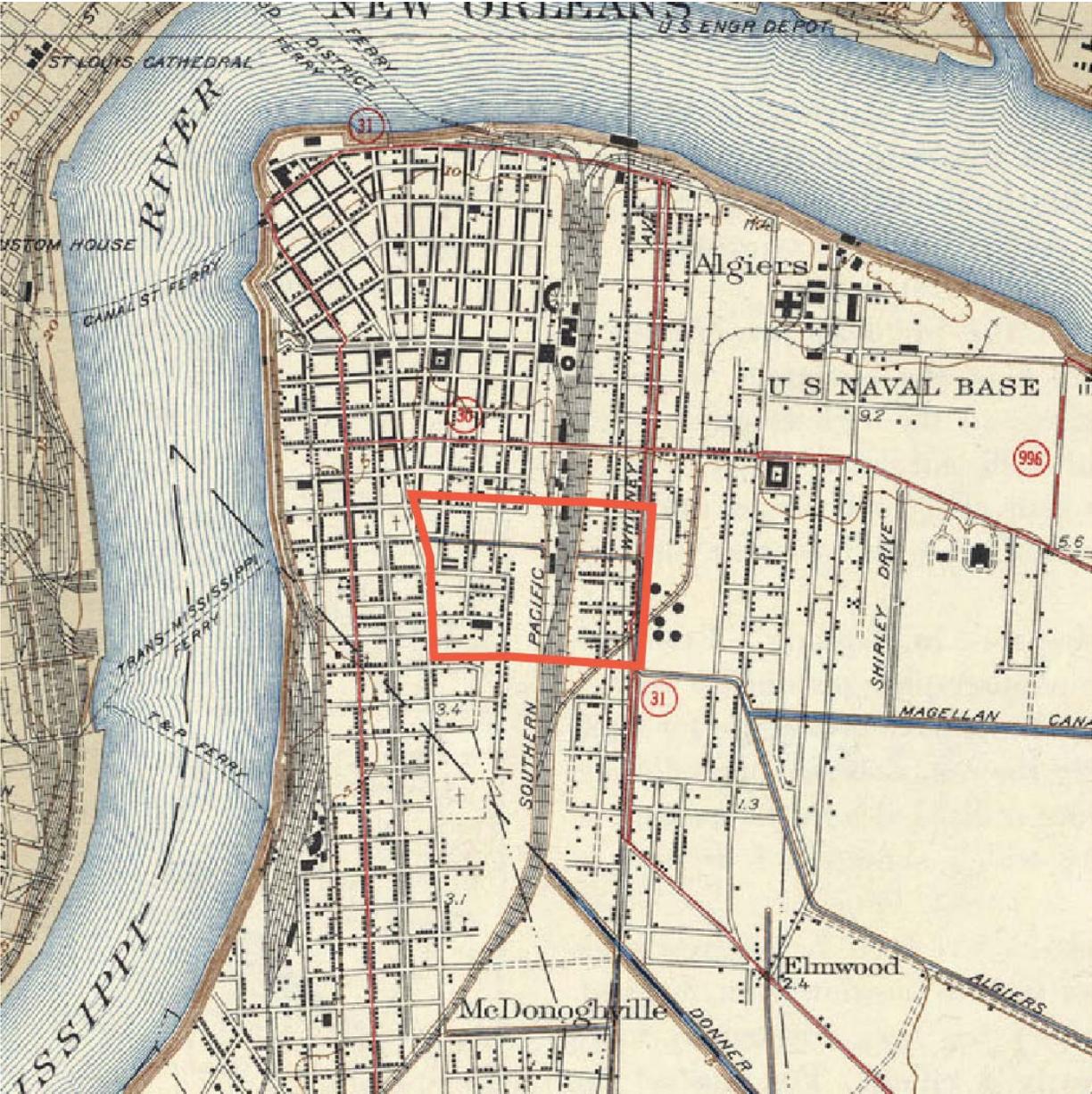
1885

Historical Development



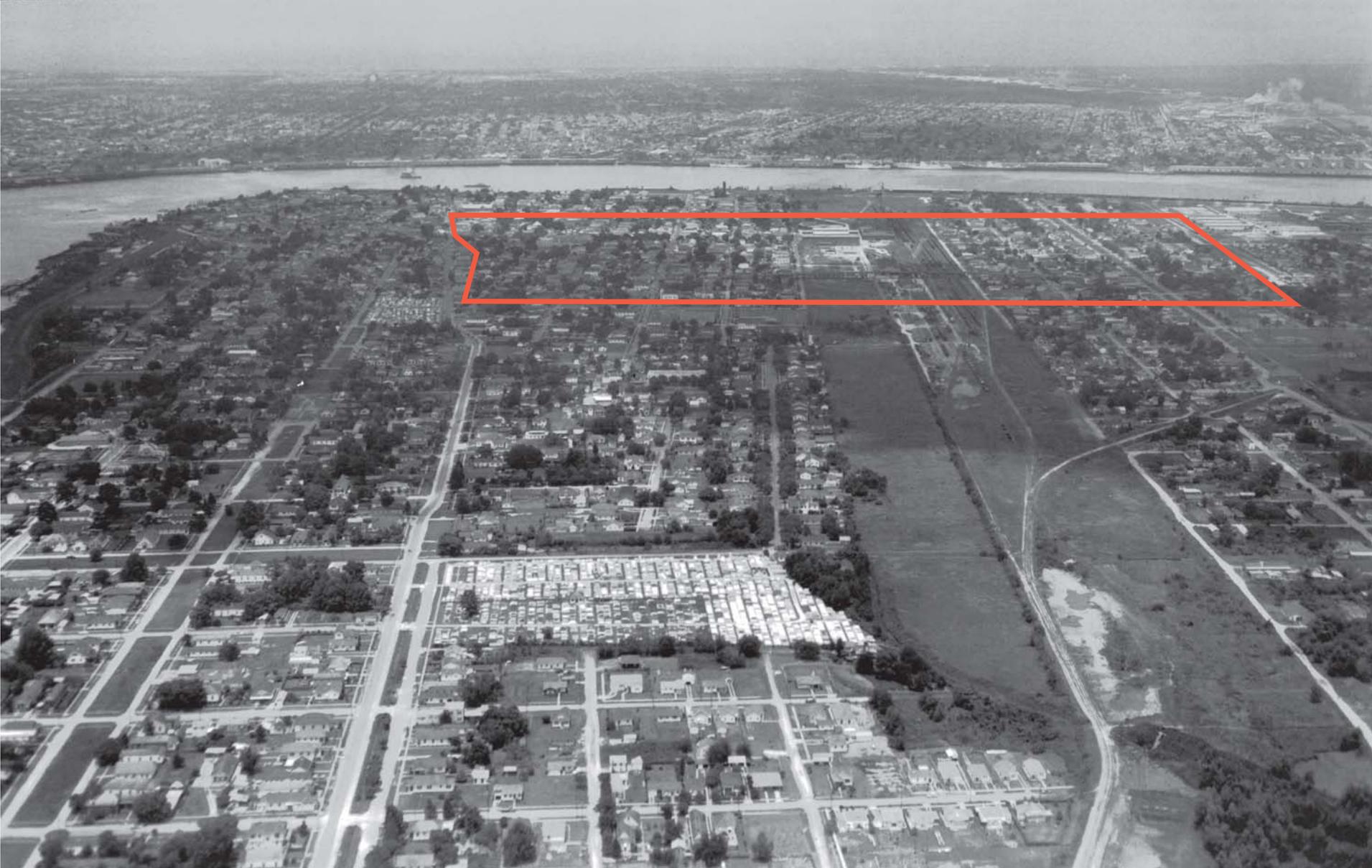
1891

Historical Development



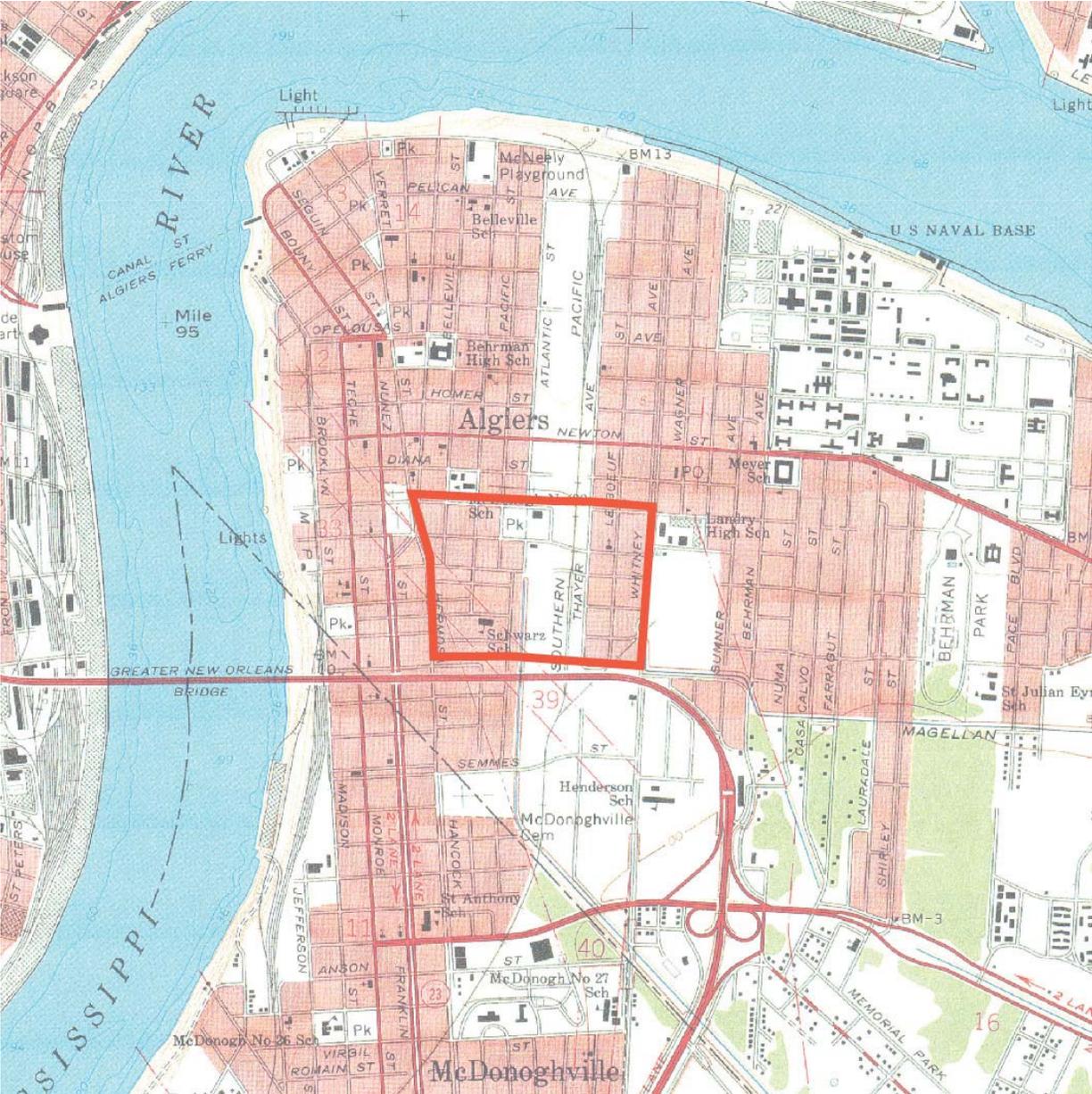
1935

Historical Development



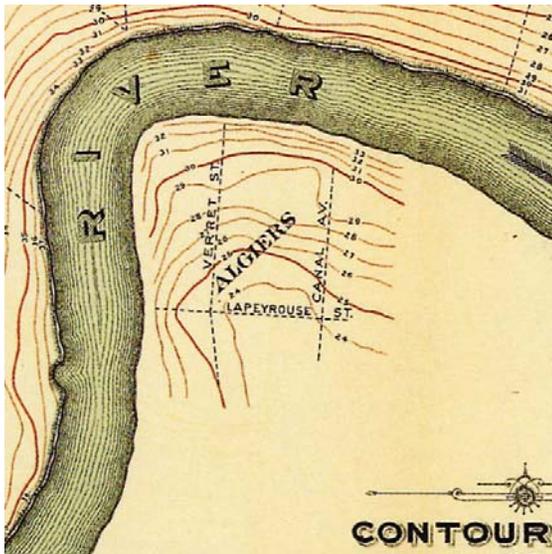
Aerial photo of Algiers and Gretna area, 1950s
Courtesy of US Army Corps of Engineers

Historical Development



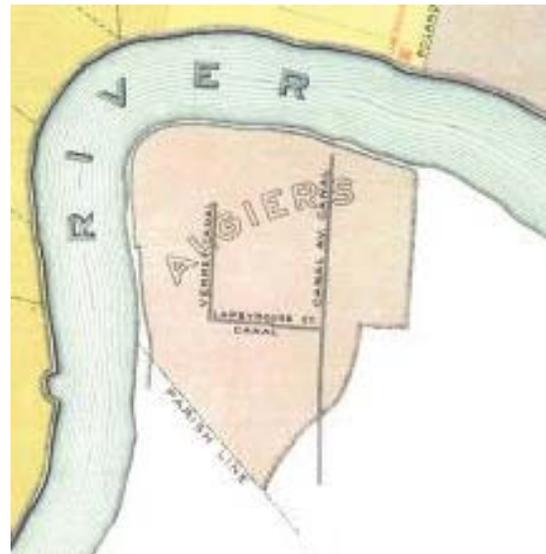
1966

Drainage System

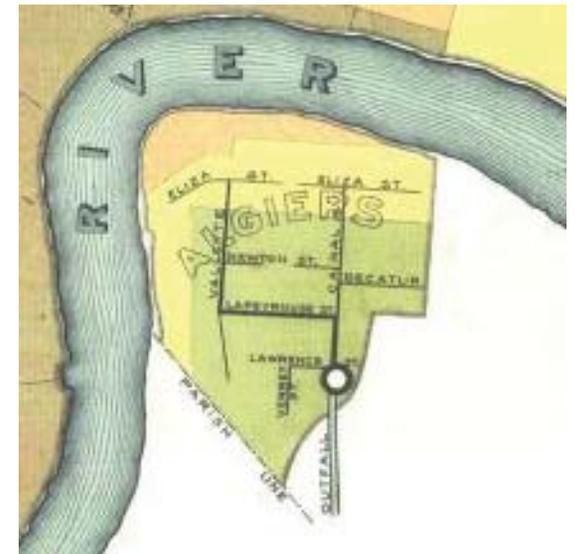


Contour map of Algiers, 1895

Images from *Report on the Drainage of the City of New Orleans, 1895*



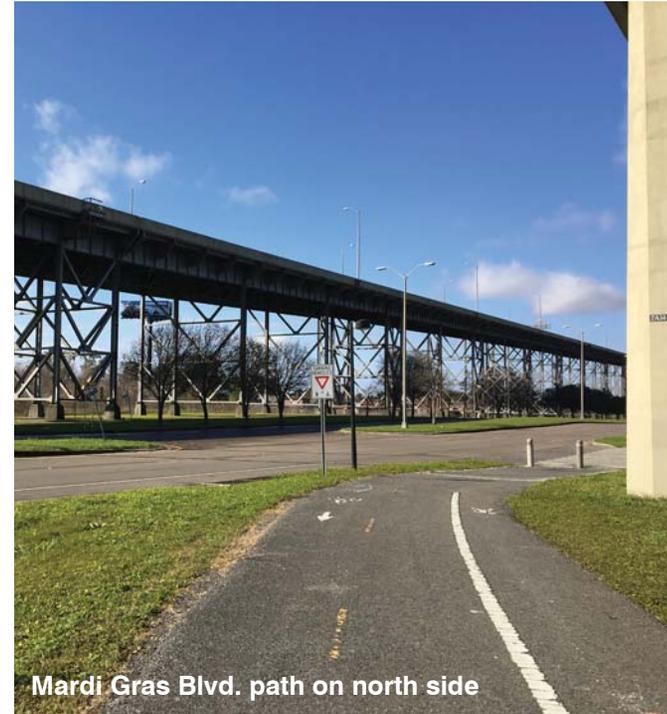
Phasing of Algiers drainage, 1895



Proposed system for Algiers, 1895

Subsurface canals, which exist today, flowed to a pump station that pumped water into an open outfall canal, the present day canal along Mardi Gras Blvd.

Existing Conditions



Existing Conditions



Swale on Hermosa St. looking north



Swale on Hermosa St. looking north



Thayer St. looking south



Thayer St. looking north

Existing Conditions



Bodenger Blvd. looking east toward Thayer St.



Mardi Gras Blvd. looking north on Bodenger Blvd.



East side of Thayer St. looking west



Open canal on Mardi Gras Blvd. looking northwest

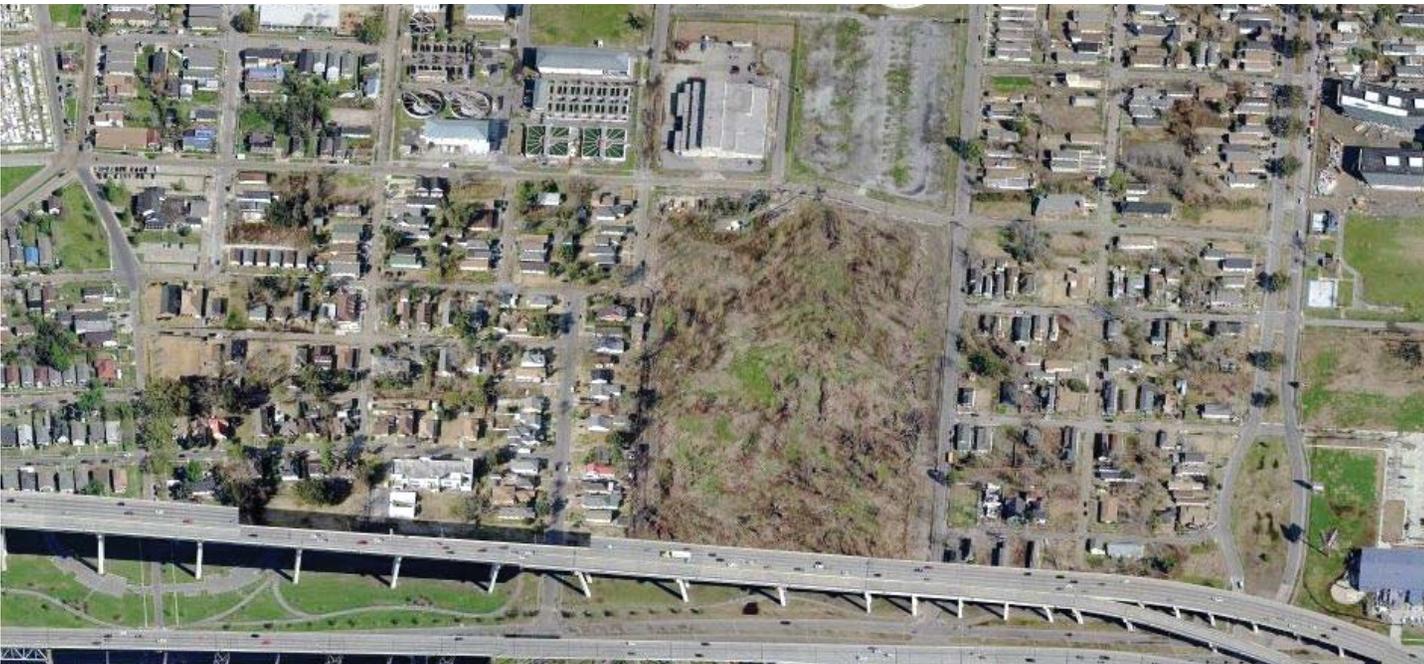
Existing Conditions



Existing swale in right of way on Hermosa St.



Natural water ponding under elevated expressway.



Bird's eye view of the project area showing a mix of land uses and building types.

Flood Mitigation



2 year storm



5 year storm

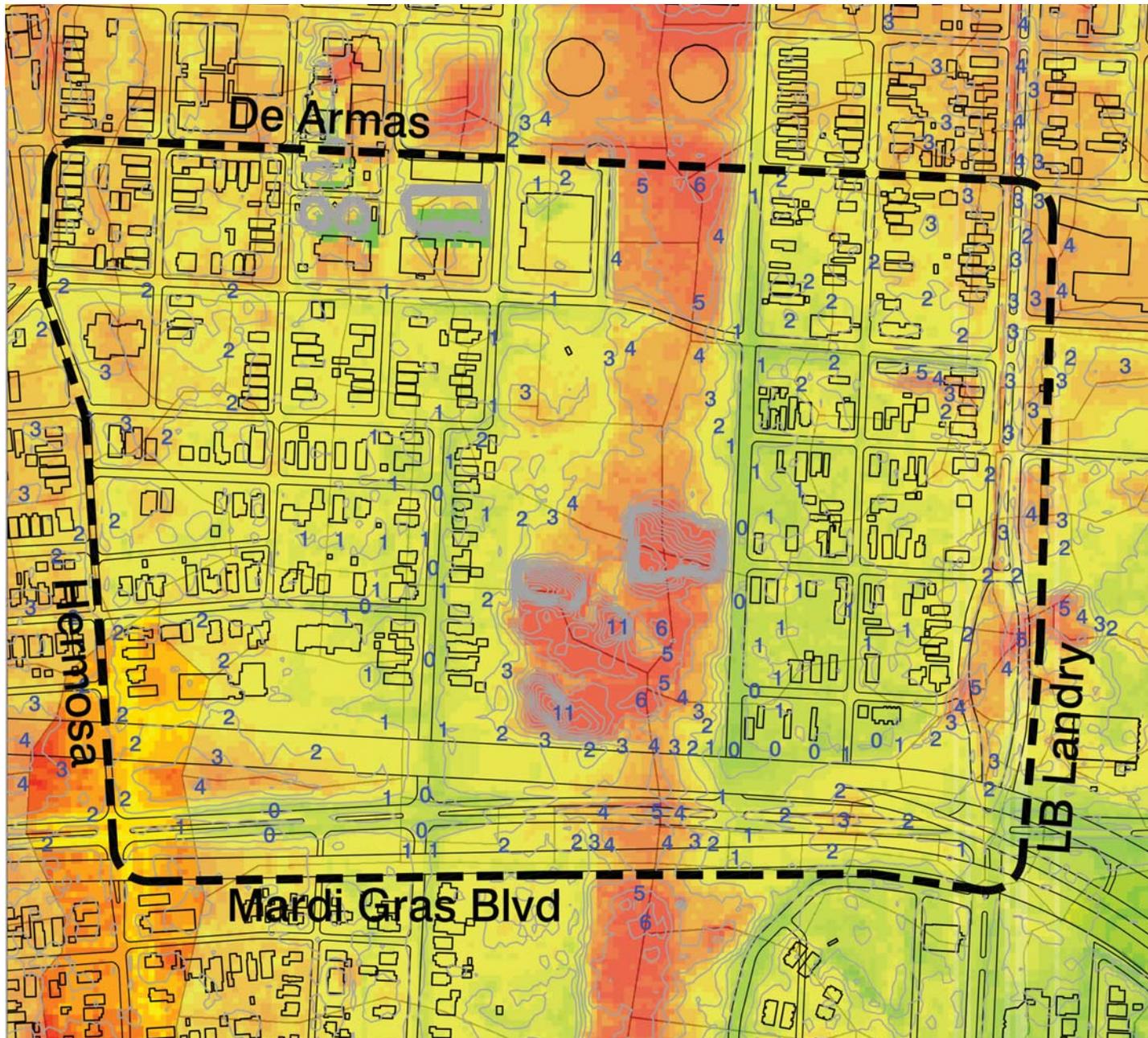


10 year storm



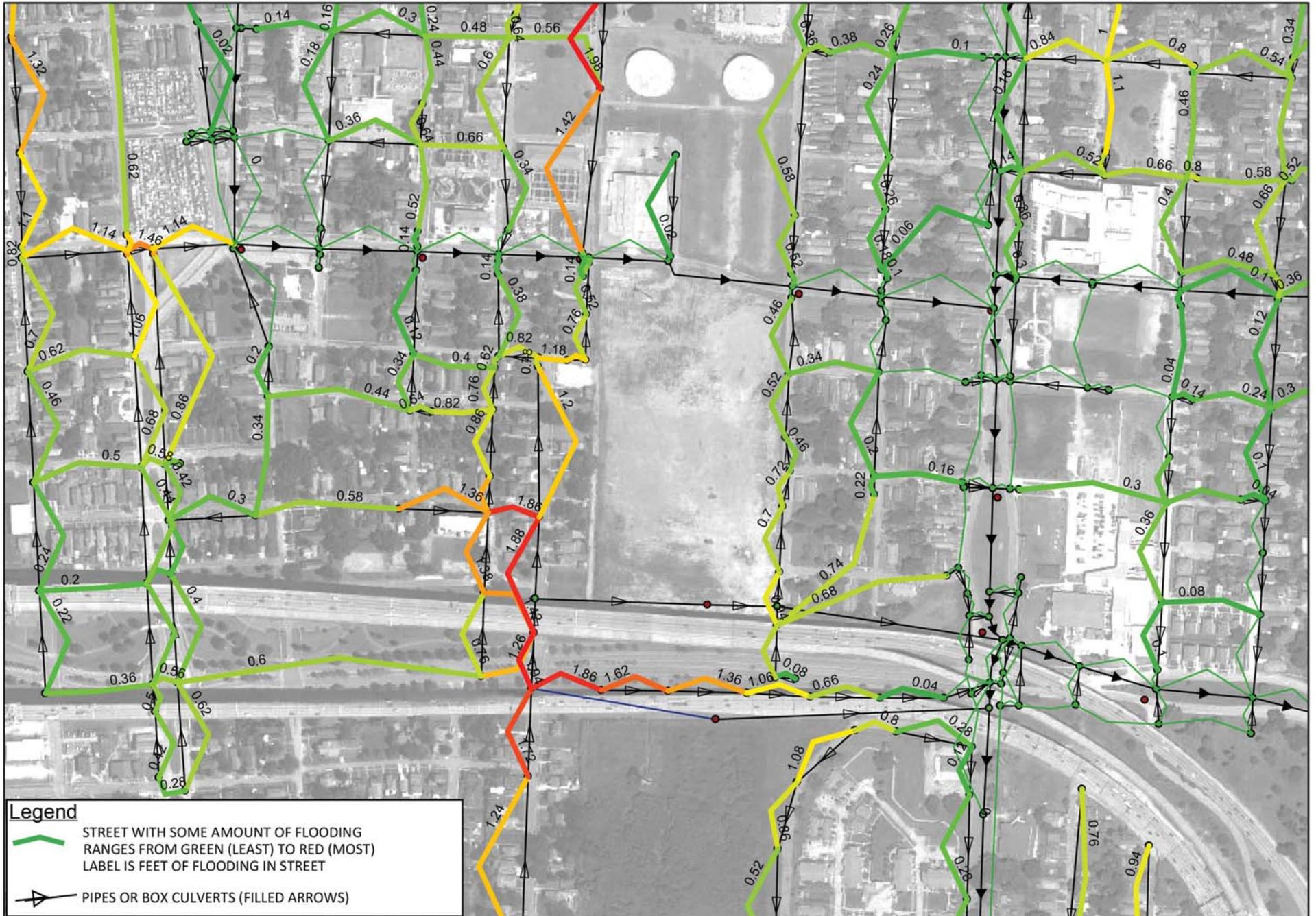
100 year storm

Surface Analysis



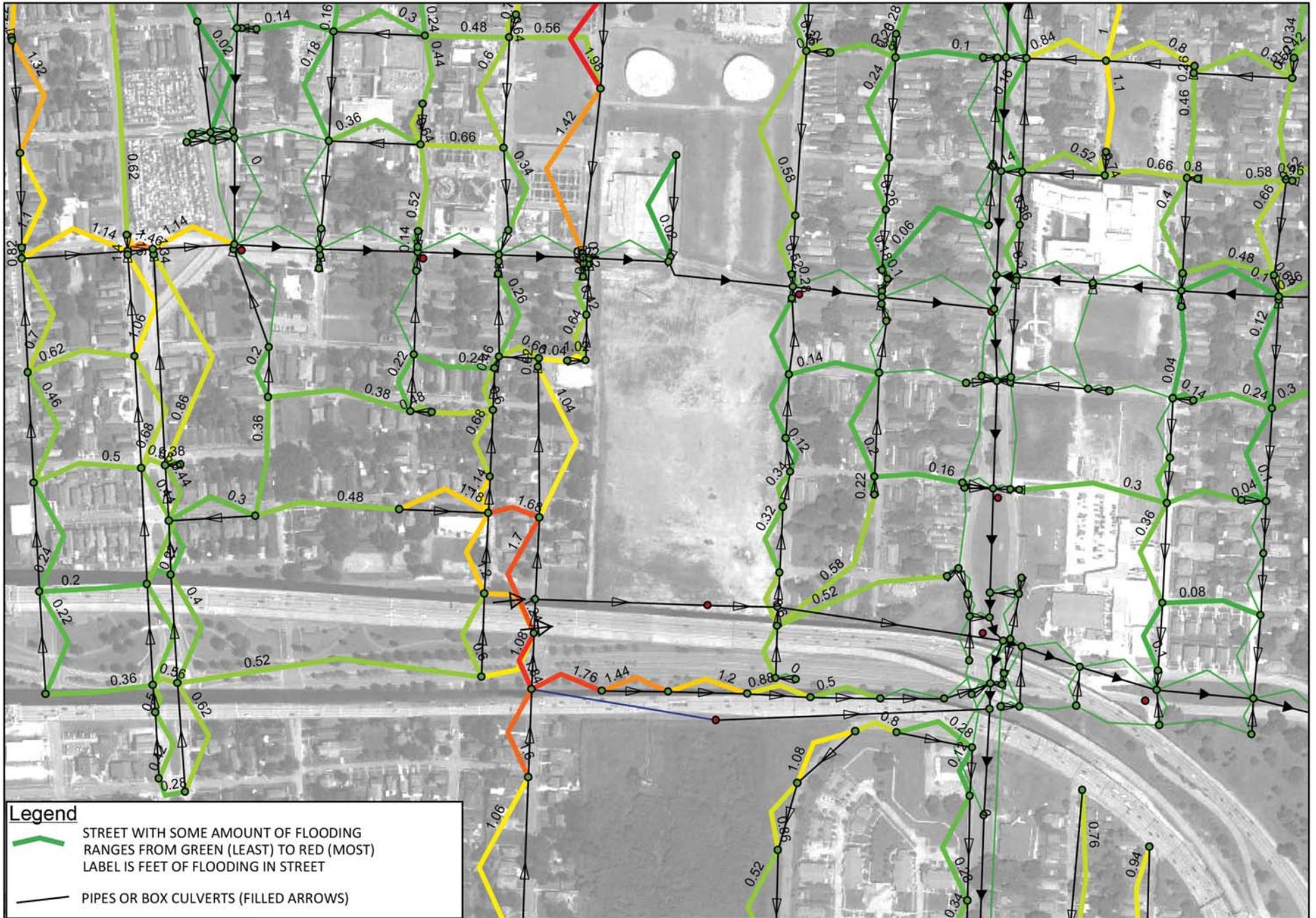
State of Louisiana LIDAR with surface elevations, streets, buildings, and delineated project scope area.

Hydraulic Modeling Analysis



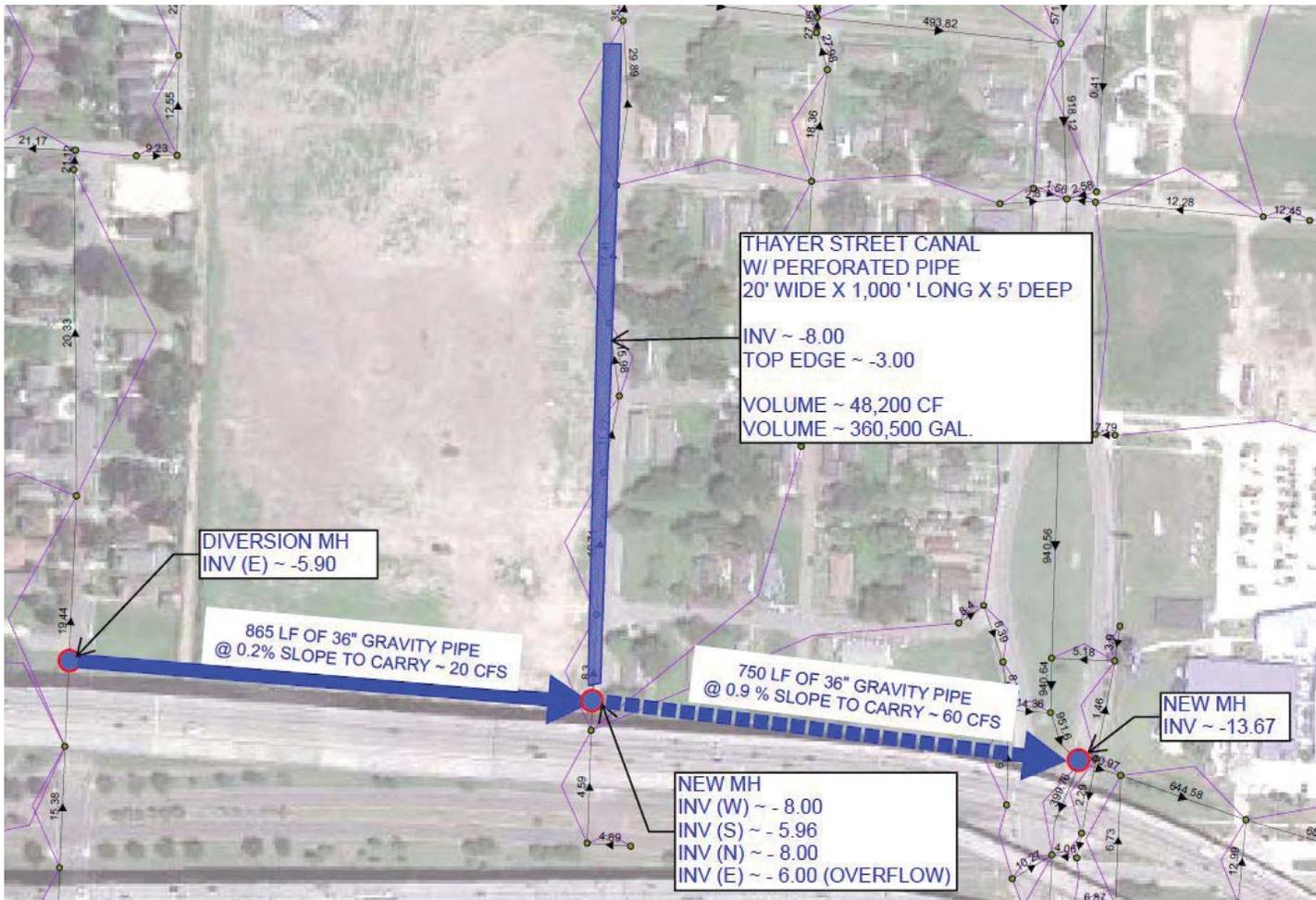
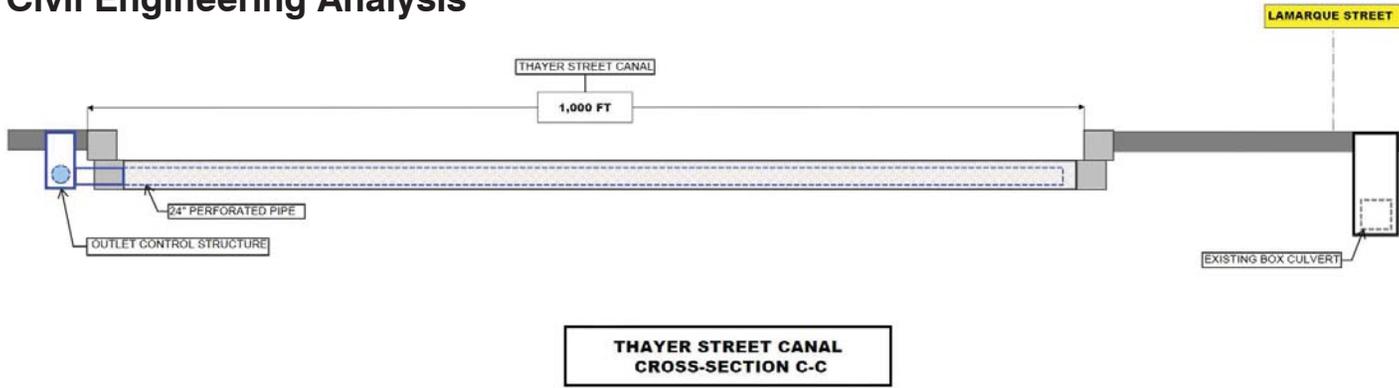
Existing condition: street flooding for 10 year 24 hour storm

Hydraulic Modeling Analysis

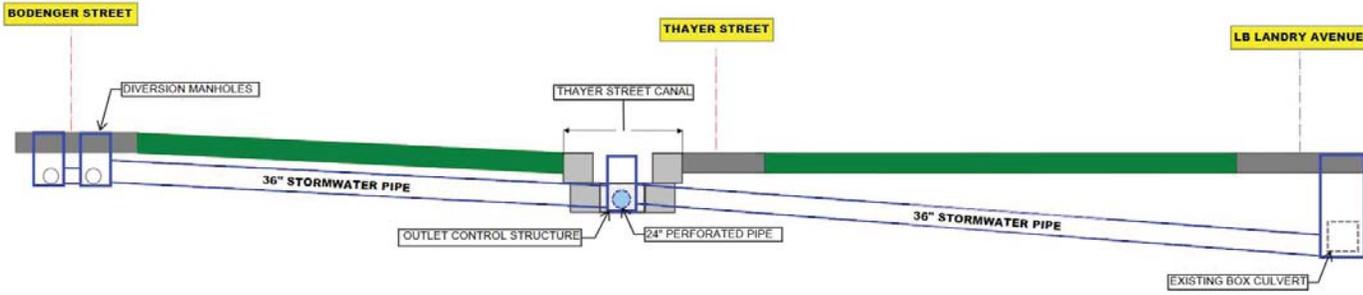


Proposed condition: street flooding for 10 year 24 hour storm

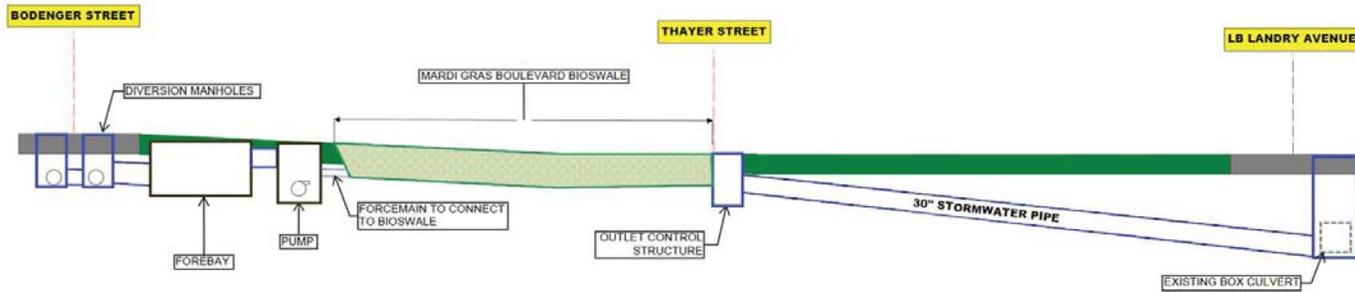
Civil Engineering Analysis



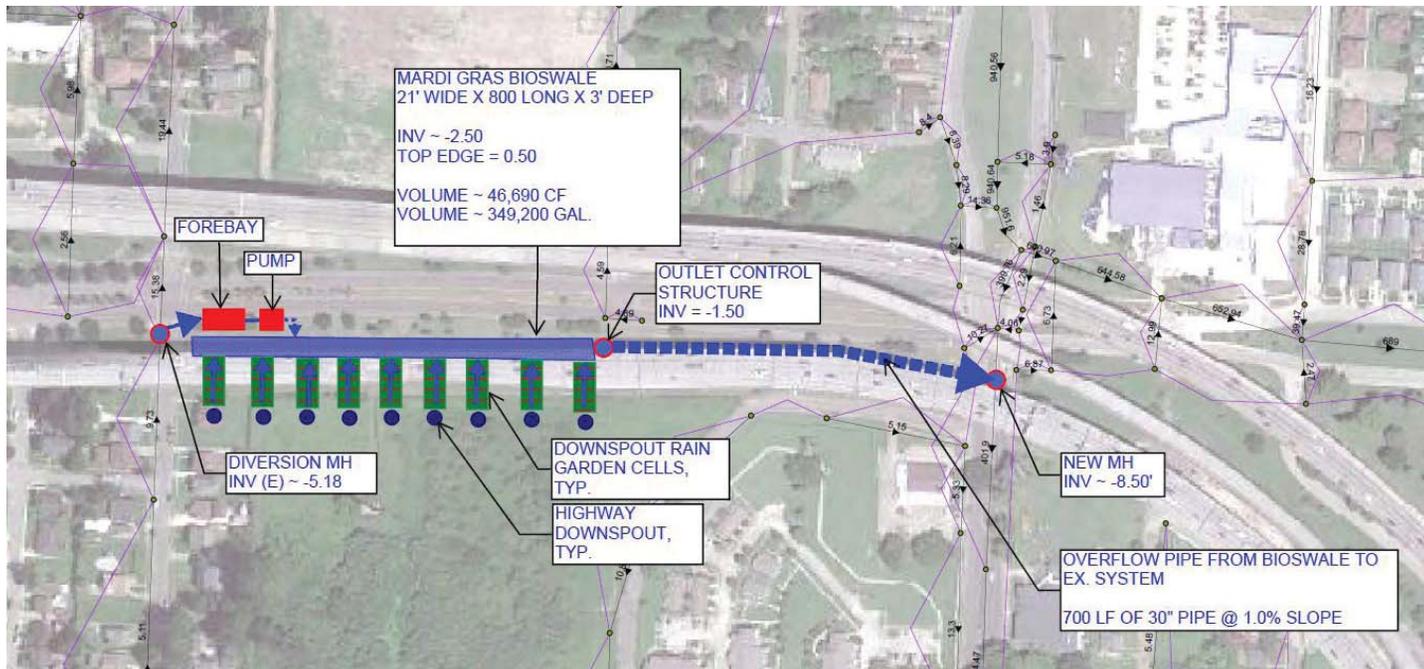
Civil Engineering Analysis



**BODENGER STREET TO LB LANDRY AVENUE
CROSS-SECTION A-A**



**BODENGER STREET TO LB LANDRY AVENUE
CROSS-SECTION B-B**



Site 1: Thayer St. Canal



curb extension

open water storage with gravel base

wetland vegetation

cypress tree

Site 2A:
Mardi Gras Blvd. Bioswale

Site 2B:
Mardi Gras Blvd. Rain Gardens

wetland vegetation

open water storage
with gravel base

disconnected
downspout

gravel filtration
cell

wetland
filtration
cell



Project Schedule

FEMA HMGP				2015				2016				2017			
ALGIERS DRAINAGE UPGRADES				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
30% Design	1-Dec-15	24-Mar-16	4 mos												
FEMA Approval / NTP	31-Mar-16	14-Apr-16	2 wks												
60% Design	14-Apr-16	31-Oct-16	6.5 mos												
FEMA Approval / NTP	4-Nov-16	21-Nov-16	2 wks												
90% Design	21-Nov-16	2-Mar-17	3 mos												
City Review / NTP	3-Mar-17	17-Mar-17	2 wks												
Bid Documents	17-Mar-17	17-Apr-17	1 mo												

Completed milestones:

- Delivery of H& H studies to the Consultant – December 1, 2015
- 30% Design Deliverable to City – March 24, 2016
- 30% Design Submitted to FEMA – March 31, 2016

Planned milestones:

- Approval from FEMA and issuance of NTP for 60 % - April 14, 2016
- 60% Design Deliverable to City – October 31, 2016
- Approval from FEMA and issuance of NTP for 90 % - November 21, 2016
- 90% Design Deliverable to City – March 3, 2017
- Advertise for Bid – April 17, 2017