Exhibit B

CITY OF MIAMI BEACH

WEST AVENUE STORM WATER TREATMENT SYSTEM RELOCATION

LIMITED AND ACCELERATED FEASIBILITY STUDY

WEST AVENUE IMPROVEMENTS PHASE II

Prepared for

MIAMIBEACH

City of Miami Beach

Public Works Department, Engineering Division
1700 Convention Center Drive
Miami Beach, FL 33139

OCTOBER 2020

By:
CES CONSULTANTS, INC.
880 SW 145th Avenue
Suite 106
Pembroke Pines, FL 33027
(954)-613-4553

Prepared By:
Jose A. Caraballo, P.E.
FL PE #73064

Exhibit B

CES CONSULTANTS

Table of Contents

1.0 Introduction 1

1.1 Storm Water Treatment System Components 1

1.2 Technical Components Investigated 6

2.0 Option 1: Bay Road and Lincoln Court – Storm Water Treatment System at Lincoln Road End 6

2.1 Benefits 7

2.2 Negative Issues 8

3.0 Option 2: Move Generator and FPL Electrical Vault to 1671 West Avenue – Storm Water Treatment System at Lincoln Road End with Above Ground Control Platform between Bay Road and Lincoln Court 9

3.1 Benefits 10

3.2 Negative Issues 11

4.0 Option 3: Relocate the Storm Water Treatment System and all above ground equipment to 1671 West Avenue (Post Office) 11

4.1 Benefits 12

4.2 Negative Issues 13

5.0 Option 4: Revert to Five-Year Storm Criteria – Install 10-Year Sized Piping (below ground) for Eventual 10-Year SWTS Upgrade. Add SWTS Capacity at a Future Date. 13

5.1 Benefits 14

a. We did not identify any benefits which will differentiate this option from option 1 other than a temporary reduction in cost. 14

5.2 Negative Issues 14

6.0 Option 4A: Revert to Five-Year Storm Criteria – Install 10-Year Sized Piping and Storm Water Treatment System (below ground) and 5-Year pumps and Above Ground Electrical for Eventual 10-Year SWTS Upgrade (10-Year Footprint). Increase Pumping Capacity at a Future Date. 15

6.1 Benefits 16

6.2 Negative Issues 16

7.0 Option 5: Split the Storm Water Treatment System into two (2) 60,000 GPM Units 17

7.1 Benefits 17

Below is a list of benefits with option 5 compared to option 1. 17

7.2 Negative Issues 17

8.0 Option 6: Storm Water Treatment System at Lincoln Road – All Above Ground Components to 1671 West Avenue 18

8.1 Benefits 18

8.2 Negative Issues 19

9.0 Option 7: Upgrade Existing Storm Water Treatment Systems at 6th Street and Split Flows N&S at 14th Street 19

9.1 Benefits 20

9.2 Negative Issues 21

10.0 Option 8: Eliminate Permanent Emergency Generator from Lincoln Road and Other Locations 21

10.1 Benefits 22

Below is a list of benefits with option 8 compared to option 1. 22

10.2 Negative Issues 22

11.0 Option 9: Storm Water Treatment System at Lincoln Road – All Above Ground Components to 1625 West Avenue (Circular Parking Lot) 23

11.1 Benefits 23

11.2 Negative Issues 24

Appendices

Appendix A: Option 1 Plans, Flooding Map, and Hydraulic Grade line

Appendix B: Option 2 Plans, Flooding Map, and Hydraulic Grade line

Appendix C: Option 3 Plans, Flooding Map, and Hydraulic Grade line

Appendix D: Option 4 Plans, Flooding Map, and Hydraulic Grade line

Appendix E: Option 4A Plans, Flooding Map, and Hydraulic Grade line

Appendix F: Option 5 Plans, Flooding Map, and Hydraulic Grade line

Appendix G: Option 6 Plans, Flooding Map, and Hydraulic Grade line

Appendix H: Option 7 Plans, Flooding Map, and Hydraulic Grade line

Appendix I: Option 8 Plans, Flooding Map, and Hydraulic Grade line

Appendix J: Option 9 Plans, Flooding Map, and Hydraulic Grade line

CES CONSULTANTS

1.0 Introduction

The City of Miami Beach (CMB) is in the process of implementing a substantial program to improve flood protection and reduce existing flooding conditions south of Dade Boulevard. A critical component of the project is the effective method of relocation of the stormwater in the West Avenue basin. This basin extends from 6th Street to Dade Boulevard and from Alton Road west to Biscayne Bay. This portion of the project is of extreme importance because it is the discharge area not just for the West Avenue basin, but for approximately 400 acres east of this basin.

The purpose of this feasibility study is to identify, validate, and compare various options for the final location of the project's Storm Water Treatment System and all associated above ground components. Although the report is a feasibility study, every option will be studied to assure that each option will provide CMB with the desired outcome of managing the rainfall generated from a 10-year theoretical storm event. Once an option is determined to meet the criteria required to manage a 10-year theoretical storm event, the report will identify issues and benefits that may impact CMB and its residents. These issues are obstruction of view, loss of parking (restricted resident parking and public metered parking), additional facilities requiring installation, impact to right-of-way corridor for future utility expansion. The following two sections will provide a brief description of each physical component of a Storm Water Treatment System, and a description of each technical component analyzed to confirm that the option is feasible and to determine each options positive and negative impacts to the project and residents.

1.1 Storm Water Treatment System Components

In order to discuss the 11 options defined in this feasibility study, it is important to understand each component of a Storm Water Treatment System, what each component does, and how could it impact the community. A Storm Water Treatment System is a mechanical system to accelerate the relocation or discharge of stormwater. In the case of the West Avenue project, the Storm Water Treatment System will assist in mechanically moving a large volume of water into Biscayne Bay where it would otherwise cause severe flooding to the project area. The simplest way to analyze this Storm Water Treatment System is to divide it into above ground and below ground components. The above ground components are all related to power supply and controlling the Storm Water

Treatment System. The below ground components mechanically separate contaminant material from the stormwater, provide short term storage of the stormwater, and mechanically force the collected and treated stormwater into Biscayne Bay.

Below Ground Components

The below ground components include inflow piping, water quality wells, a trash rack, a filtration system, a wet well with submersible pumps, and force mains with a dissipator structure. Each one of these components will be constructed in its entirety below ground, with only access hatches visible. These access hatches will be flush with the ground They are rated to withstand heavy loads, such as that from a large truck, and they have built-in locking mechanisms to avoid unauthorized access. Since all of these components are below ground, they do not cause a visible obstruction to the residents of the West Avenue project area. Additionally, they are not audibly noticeable unless they are operating, which only occurs during a significant rain event. During a short shower or light rain, the stormwater will be stored in the collection pipes, and the disposal mechanism will be through the expected 15 drainage wells that are designed throughout the project area.

Inflow Piping

The inflow piping is the portion of the collection system that connects to the Storm Water Treatment System. As the stormwater lands on the roadway, the rain flows into a drainage inlet. Below the ground, there is a network of collection structures and pipes that collect all the stormwater and convey it towards the Storm Water Treatment System. The network of structures and pipes designed for this project have been sized to collect and convey the amount of stormwater generated in a 10-year theoretical storm event.

Water Quality Wells

The portion of stormwater that carries harmful contaminants is the first flush. This is the initial stormwater (first flush) that washes contaminants, such as brake dust and oils, into the stormwater system. In order to treat the contaminated stormwater, we will divert the first flush towards a series of water quality wells. These wells allow for the settling of solids particles and the separation of oils from

the stormwater. Once the solid particles and oils are separated from the stormwater, the treated stormwater will be pumped into the groundwater system for a final natural attenuation. The entire well system is below ground and will not be visible to the public.

Trash Rack

Once the stormwater enters the Storm Water Treatment System facility, it will first pass through a trash rack. Anything that may have entered the drainage system that is larger than 3.5 inches will be captured in the trash rack. The trash rack requires periodic cleaning. The amount of cleaning depends on the season, but it does not occur more than once every couple of months. The importance of the trash rack is to help maintain a clean discharge into Biscayne Bay, and to protect the pumps from large objects that can cause damage to the equipment.

Filtration System

The stormwater next enters the filtration system. The stormwater will pass through a mesh screen, which captures particles up to 120 microns, or as small as a grain of sand. The filtration system requires periodic cleaning. The amount of cleaning depends on the season, but it does not occur more than once every couple of months. The importance of the filtration system is to help maintain a clean discharge into Biscayne Bay, and to protect the pumps from possible damage. This filtration system is just one component of the overall water quality system designed for this project.

Wet Well with Submersible Pumps

The stormwater next enters the wet well. This is where the pumping system is located. When operational, the submersible pumps will transfer the stormwater from the wet well into Biscayne Bay via a dissipator. Each pump is designed to mechanically move up to 20,000 gallons of stormwater per minute. This Storm Water Treatment System has 6 pumps for a total of 120,000 gallons per minute. These pumps do have variable speed drives to deliver the needed output while saving energy. The wet well measures approximately 33 feet x 16.67 feet and 27

feet deep. The dimensions of the wet well are critical for the operation of the station. The volume of the wet well allows for sufficient stormwater to enter the facility and allows for an efficient operation of each pump.

Force Main with Dissipator Structure

The submersible pumps force the stormwater through pipes into the dissipator. The dissipator is located below the cap of the seawall and is designed to be part of the seawall. The purpose of the dissipator is to reduce the velocity of the pumped stormwater in order to avoid scouring the sea floor of Biscayne Bay, a necessary environmental assurance.

Above Ground Components

The above ground components are all related to powering and controlling the Storm Water Treatment System. The above ground components include an electrical panel platform, an emergency generator, and an FPL electrical vault. Due to the size of this project, all these components have a significant footprint and height.

Electrical Panel Platform

The electrical panel platform is the nerve center to the Storm Water Treatment System. This platform houses all the electrical and communications equipment. This equipment provides power to the pumps, but it also is programmed to direct which pump to turn on and off, and to operate at desired speeds to produce only the necessary output while saving energy. This is key to proper operation of the station. Most of the time, only one or a couple of pumps will be operating at any given time. The controls will decide which to turn on and when. This reduces wear and tear on the pumps, and it controls the amount of discharge that enters Biscayne Bay at any one time. Due to safety code requirements, each piece of equipment located on the electrical panel platform needs to have a safe working area. This factor drives the actual size required for the platform. The current electrical panel platform configuration requires 30.5 feet x 20.5 feet of area. Additionally, due to FEMA flood zone maps and Florida Building Code requirements, the base of the electrical panel platform cannot be lower than

elevation 8.44 NAVD, which is approximately 4.5 feet above the surface of the new roadway. The equipment height is approximately 7 feet for a total height from the proposed roadway of 11.5 feet or 15.44 NAVD.

Emergency Generator

The emergency generator is an extremely important component to the above ground equipment. The emergency generator will be able to power the entire Storm Water Treatment System in the event that there is a loss of power in the area. This is extremely important because the power typically goes out during a theoretical storm event, which is exactly when the neighborhood will need the Storm Water Treatment System. Additionally, power usually is not restored immediately. The emergency generator will make sure that the station is operating to its full capacity. This operation is critical for preservation of private property and first responder access. The generator required to power this station is 34 feet x 14 feet. FEMA flood zone maps and Florida Building Code requirements, the base of the emergency generator cannot be lower than elevation 8.44 NAVD. Since the emergency generator sits on its fuel tank, we were able to lower the generator pad to 5.69 NAVD. The generator 14 feet. The emergency generator height is approximately 14 feet for a total height from the proposed roadway of 15.2 feet or 19.70 NAVD. It is important to note that the generator selected for this project operates with a 50/50 fuel mixture of natural gas and diesel fuel. This helps the generator run efficiently and reduces harmful environmental emissions, and operates at the highest available noise reduction rating of 40 Db.

FPL Electrical Vault

The FPL electrical vault is essential to provide uninterrupted power to the Storm Water Treatment System. Due to requirements established between FPL and CMB, FPL is required to provide dedicated and redundant power to each Storm Water Treatment System constructed by CMB. This requirement does increase the size of the FPL electrical vault, but it also provides reliable power to an important City asset. The FPL vault houses the transformers required to properly power the station. Under the current configuration, the FPL Electrical Vault 35.33 feet by

21.33 feet. The FPL vault will sit flush with the proposed roadway, but the roof of the structure will 13.83 feet above the proposed roadway, or 18.33 NAVD.

1.2 Technical Components Investigated

The effort placed into this feasibility study was to identify additional potential locations, to determine if it is possible to relocate the Storm Water Treatment System, and what kind of impact will it have on the project and the community. In order to determine if an option is feasible, we verified that it meets the minimum requirements of the project's needs. This includes meeting the 10-year theoretical storm event, potential environmental contamination at each site, and any potential permitting issues, except for options 4 and 4A where the Storm Water Treatment System is reverted back to meeting only a 5-year theoretical storm event. Once it is determined that an option is feasible for relocation, we analyzed the physical impacts to CMB and its residents' day to day lives. These impacts include potential visual impairment, loss of parking, potential impacts to utility corridors within the public right of way, and impacts to operations, maintenance, and safety of CMB public works employees.

2.0 Option 1: Bay Road and Lincoln Court – Storm Water Treatment System at Lincoln Road End

Option 1 is based on the Design Criteria Package upgraded to meet a 10-year theoretical storm event. Originally, the project required a stormwater system designed to a five-year theoretical storm event, and the entire Storm Water Treatment System system was located at the western most street end of Lincoln Road. At the request of the Miami Beach Commission, the stormwater system was modeled and redesigned to manage a ten-year theoretical storm event. This required a significant increase in capacity, which subsequently increased the footprint of the entire Storm Water Treatment System. CMB also requested the incorporation of a 1,250 KW emergency generator to the project. The increase in above ground electrical components rendered the original layout obsolete. The median concept was developed to attempt to accommodate the above ground electrical equipment as close to the actual Storm Water Treatment System as possible.

The configuration of option 1 is to have the entire Storm Water Treatment System (below ground components) at the western most street end of Lincoln Road. This includes a trash rack, filter system, wet well and dissipator, all below ground. The only visible parts to the below ground components are the access hatches, which are flush with the roadway surface. The electrical and control systems will be located in in a median in the middle of Lincoln Road between Bay Road and Lincoln Court. These above ground features include an electrical control panel platform, a stand-by emergency generator, and an FPL vault. These above ground features require an area of approximately 121'x31'. The maximum height of the equipment will be 15 feet above the proposed roadway. In order to protect the equipment from vehicular traffic and vandalism, a screening system has been designed. This screening system will include a barrier wall to prevent vehicles from impacting the screen or the above ground equipment. Additionally, the screen will visibly shield the electrical components from the residents. Appendix A includes plan view and section view drawings of the Storm Water Treatment System and the above ground components.

CES has prepared a hydraulic model of the West Avenue project area. The option 1 configuration will manage a ten-year theoretical storm event. FPL has also prepared design plans to provide the necessary power to this station under the option 1 conditions. We have also met with the City of Miami Beach Public Works Department and the City of Miami Beach Fire Department regarding the median concept, and they have both approved the location regarding regulations and required access. This option is a feasible option from an engineering standpoint. It is also the most desirable option due to its improved hydraulics and safer operating conditions for maintenance staff.

2.1 Benefits

Option 1 is the base option for this project. We will define some benefits in this section, but it will be used as a comparison to all other options. Below is a list of benefits with Option 1.

a. Emergency Overflow piping – Due to the proximity to the Lincoln Road street and sea wall, this option allows for the installation of emergency overflow piping. These pipes will discharge any stormwater that reaches a certain elevation by means of gravity. We feel that this is important because if the station becomes overwhelmed due to power failure or mechanical failure, there is a means to discharge excess stormwater.

b. Proximity of Electrical Equipment to Storm Water Treatment System – Maintaining a close proximity from the electrical equipment to the actual Storm Water Treatment System (approximately 200 feet) improves operator safety. By maintaining a line of sight from the electrical equipment to the Storm Water Treatment System, the maintenance crew can communicate without communication devices and can maintain sight on each other. By maintaining line of sight, the City can utilize a two or three employee maintenance crew, which reduces annual operating cost.

c. Promenade Atmosphere / Traffic Calming – The median will include screening and canopy cover to promote a disincentive to traffic (calming effect) and create a promenade type atmosphere with flush sidewalks and roadway pavers in addition to new amenities at the street end.

2.2 Negative Issues

Although we have established that Option 1 is a feasible layout, there are some major issues with this option. Below is a list of issues with Option 1.

a. Resident Displeasure – Many residents near the location of the median concept have expressed disagreement with the above ground components. They do not necessarily have an issue with the below ground features located at the street end. Many residents have agreed that the project is a benefit, but they do not want the above ground features to be located in the median between Bay Road and Lincoln Court.

b. Loss of On-Street Restricted Resident Parking – The installation of the median concept causes a loss of on-street restricted resident parking at two (2) locations. First, there will be a loss of 17 on-street restricted resident parking spaces along Lincoln Road between Bay Road and Lincoln Court due to the width required to accommodate the median concept. Second, there will be a loss of 9 on-street restricted resident parking spaces along Lincoln Road just east of Bay Road due to a lane shift to accommodate the median concept.

c. Impact to Delivery Vehicles, Maintenance Vehicles, and Visitors – The presence of the above ground median equipment creates a space restriction between Bay Road and Lincoln Court. The loss of on-street mentioned above will impact these services.

d. Perceived Loss of Property Value – The residents immediately surrounding the equipment believe the above ground equipment will impact the value of their property due to the size and nature of the footprint.

3.0 Option 2: Move Generator and FPL Electrical Vault to 1671 West Avenue – Storm Water Treatment System at Lincoln Road End with Above Ground Control Platform between Bay Road and Lincoln Court

Option 2 is very similar to option 1. In this configuration, the entire Storm Water Treatment System (below ground components) will be located at the western most street end of Lincoln Road. This includes a trash rack, filtration system, wet well and dissipator. The only visible parts to the below ground components are the access hatches, which are flush with the roadway surface. The electrical control platform will be located in a median in the middle of Lincoln Road between Bay Road and Lincoln Court, and the stand-by emergency generator and FPL electrical vault will be located at the parking lot of 1671 West Avenue. The above ground features in the median of Lincoln Road require an area of approximately 30.5’x45.7’ (Layout No. 2: 97’x17.2’). In order to protect the equipment from vehicular traffic and vandalism, a screening system has been designed. This screening system will include a barrier wall to prevent vehicles from impacting the screen or the above ground equipment. The total height of the screening system along Lincoln Road will be 12.5’. The stand-by emergency generator and FPL electrical vault will be located within a public parking lot and will be shielded from sight with a screened fence, and it will be protected from vehicular traffic with bollards. A duct bank measuring approximately 4’x1,000’ will be required to connect the Storm Water Treatment System to the stand-by emergency generator. Appendix 2 includes plan view and section view drawings of the Storm Water Treatment System and the above ground components.

CES has prepared a hydraulic model of the West Avenue project area. The option 2 configuration will manage a ten-year theoretical storm event. FPL has expressed the ability to provide the necessary power supply to the relocation area of 1671 West Avenue.

We have also met with the City of Miami Beach Public Works Department and the City of Miami Beach Fire Department regarding the median concept, and they have both approved the location regarding regulations and required access. Finally, we have identified a corridor within the public right-of-way for the duct bank from the electrical platform to the stand-by emergency generator. This option is a feasible option from an engineering standpoint.

3.1 Benefits

Below is a list of benefits with option 2 compared to option 1, however the footprint at the median will be lessened.

a. Emergency Overflow piping – Due to the proximity to the Lincoln Road street and sea wall, this option allows for the installation of emergency overflow piping. These pipes will discharge any stormwater that reaches a certain elevation by means of gravity. We feel that this is important because if the station becomes overwhelmed due to power failure or mechanical failure, there is a means to discharge excess stormwater.

b. Proximity of Electrical Control Platform to Storm Water Treatment System – Maintaining a close proximity from the electrical control platform to the actual Storm Water Treatment System (approximately 200 feet) improves operator safety. By maintaining a line of sight from the electrical equipment to the Storm Water Treatment System, the maintenance crew can communicate without communication devices and can maintain sight on each other. By maintaining line of sight, the City can utilize a two or three employee maintenance crew, which reduces annual operating cost.

c. Promenade Atmosphere / Traffic Calming – The median will include screening and canopy cover to promote a disincentive to traffic (calming effect) and create a promenade type atmosphere with flush sidewalks and roadway pavers in addition to new amenities at the street end.

d. Potential Ability to Recapture Additional Parking Spaces – Due to time, this option was investigated with a very conservative perspective, as to not mislead the public. There is a strong possibility that additional parking spaces may be recaptured by optimizing the design, if selected.

CES CONSULTANTS

3.2 Negative Issues

Although we have established that Option 2 is a feasible layout, there are some major issues with this option. Below is a list of issues with Option 2.

a. Resident Displeasure – This option will still require a median concept. As stated in option 1, many residents near the location of the median concept have expressed disagreement with the above ground components. Removing the generator and FPL electrical vault from the median concept will reduce the footprint by 2,024.5 square feet and reduce the overall height by 2.5 feet.

b. Loss of On-Street Restricted Resident Parking and Public Metered Parking – As in option 1, the installation of the median concept (even a shorter one) causes a loss of on-street parking at two (2) locations. First, there will be a loss of 10 on-street restricted resident parking spaces along Lincoln Road between Bay Road and Lincoln Court due to the width required to accommodate the median concept. There will also be a loss of approximately 14 public parking spaces at the public parking lot located at 1671 West Avenue.

c. Additional Electrical Duct Bank – Moving the generator away from the electrical equipment will require the design and construction of an additional electrical duct bank. This duct bank will need a utility corridor of approximately 4'. A plan view of the duct bank can be found in Appendix B of this report.

4.0 Option 3: Relocate the Storm Water Treatment System and all above ground equipment to 1671 West Avenue (Post Office)

The configuration for option 3 is to relocate the entire Storm Water Treatment System (above and below ground components) to the public parking lot located at 1671 West Avenue. This will require several modifications to the current design. The current design has the stormwater flow from west avenue turning west towards the Lincoln Road street end. In option 3 we will direct the flow straight across Lincoln Road or approximately 400'. This should actually benefit the drainage by avoiding a bottle neck in the drainage pipes. This bottle neck was previously addressed by increasing the pipe diameters to 96 inches. The Storm Water Treatment System will then discharge into Biscayne Bay through six (6)

42-inch force mains from the parking lot to the Lincoln Road street end approximately 1,000 feet away. We also looked into discharging into the Dade Canal near the intersection of 17th Street and West Avenue (Option 3A). Although we are confident that we can dissipate the flow to avoid erosion at the discharge point, we cannot determine the impact of 120,000 gallons per minute entering the Dade Canal. Additional time will be required to model the effects of such a large volume of stormwater entering the canal at one time. Appendix 3 includes plan view and section view drawings of the Storm Water Treatment System and the above ground components.

4.1 Benefits

Below is a list of benefits with Option 3 compared to Option 1.

a. Resident Satisfaction – We have participated in many resident meetings, and it seems that there is a great displeasure with the above ground components. This option will satisfy the requests from the residents of Lincoln Road. It is important to note that this option will still require a much smaller, but still significant, electrical disconnect platform, and a repeater box for the signal at the end of Lincoln Road. The repeater box will be approximately 4 feet by 4 feet and 6 feet tall. The electrical disconnect platform will be approximately 20 feet by 25 feet. This will be placed near the sea wall.

b. No Loss of On-Street Restricted Resident Parking – Since this option does not require any electrical equipment within the median of Lincoln Road, there will be no impact to the existing restricted resident parking. The project will still require for the roadway to be raised and for harmonization to occur at the private property, but the parking will be returned with new pavement markings. It is important to note that there are claims that the Storm Water Treatment System is eliminating 7 private parking spaces currently located on the north end of the Lincoln Road street end. This is not factual. These parking spaces are not within private property are in fact not private parking spaces. As per direction from CMB, these parking spaces will be eliminated regardless of the location of the Storm Water Treatment System.

c. Park Like Amenities – It is possible to beautify the street end with added green space. We have looked into creating a small island greenspace with park benches at the street end. This additional green space, in conjunction with the concrete pavers and flush sidewalks along Lincoln Court, provides a connectivity between the Lincoln Road street end and the

Lincoln Court Pedestrian Bridge.

4.2 Negative Issues

Although we have established that option 3 is a feasible layout, there are some major issues with this option. Below is a list of issues with option 3 and 3A.

a. Loss of Emergency Overflow Piping – Our original design has emergency overflow pipes that allow discharge via gravity in the event that the station becomes overwhelmed due to electrical or mechanical failure. Moving the underground components approximately 1,000 feet away from the sea wall makes it impossible to install these gravity overflow pipes and have them operate as intended. Therefore, in a catastrophic power loss (including the emergency generator) the Storm Water Treatment System will be crippled. Flood waters will flow into the streets in lieu of direct discharge to the bay or canal.

b. Loss of Public Parking – Utilizing the parking lot will cause the loss of 31 parking spaces from the public lot. The loss of spaces due to the above ground components will be approximately 19 stalls. The below ground components will also take up an additional 12 parking stalls due to the access hatches. The hatches can withstand the weight of a vehicle, but in the event of an emergency or routine maintenance, if a vehicle is parked on a hatch, it will need to be moved or towed. Due to time, this option was investigated with a very conservative perspective, as to not mislead the public. There is a strong possibility that the parking space loss can be reduced from 31 to 28 with design optimization.

c. Extended Construction Time – The wide corridor required to install the discharge pipes from the Storm Water Treatment System to the sea wall at Lincoln Road will require extensive utility relocations. This will not only cause delays to the project, but it may cause longer construction time to complete the installation.

5.0 Option 4: Revert to Five-Year Storm Criteria – Install 10-Year Sized Piping (below ground) for Eventual 10-Year SWTS Upgrade. Add SWTS Capacity at a Future Date.

The configuration for Option 4 is to install the collection piping for a 10-year theoretical storm event, but construct a Storm Water Treatment System at the Lincoln Road street end that will handle a 5-year theoretical storm event. The Storm Water Treatment System will be designed in a modular layout to allow for upgrading at a future date. The Storm Water Treatment System will have a full-sized trash rack, but one filter system measuring approximately 20 feet by 13 feet, and a 3-pump wet well measuring approximately 19 feet by 22 feet. A 3-Storm Water Treatment System will require significantly reduce the size of the above ground electrical equipment, which will allow for all above ground components to be located near the Lincoln Road sea wall. This option will reduce the footprint of all of the above ground electrical components by 2,411.48 square feet. It is important to note that because of the FEMA Flood zone and the Florida Building Code requirements, the overall height of the above ground components should not vary significantly. ***It is important to note that this option goes against CMB Commission Resolution No. R7-F dated December 12, 2018. This resolution requested an analysis and subsequent design of a stormwater system for a 10-year theoretical storm event.*** Appendix 4 includes plan view and section view drawings of the Storm Water Treatment System and the above ground components.

5.1 Benefits

Below is a list of benefits with option 4 compared to option 1.

a. We did not identify any benefits which will differentiate this option from option 1 other than a temporary reduction in cost.

5.2 Negative Issues

Although we have established that Option 4 is a feasible layout, there are some major issues with this option. Below is a list of issues with Option 4.

a. Violation of Commission Resolution No. R7-F – Under this configuration, it does not meet the management of a 10-year theoretical storm event.

b. Additional Major Construction Activities in the Future – This option simply buys time for the inevitable upgrade to the 10-Year storm design. This option will have a reduced

construction cost impact because of the smaller generator, less pumps, and less electrical panels. These are all items that will eventually require upgrades to meet the CMB Commission request to meet the 10-Year theoretical storm event.

c. Eventual Above Ground Equipment Space Issue – This option will satisfy the residents in the immediate future, but the upgrade to the 10-Year storm will cause serious issues. The proposed location of the above ground electrical equipment to manage a 5-year storm will not be sufficient to fit the equipment needed to manage the 10-year storm. The upgrades will require a new location for all of the above ground equipment, and we are back to the exact reason for this feasibility study.

d. Loss of On-Street Restricted Resident Parking and Public Metered Parking – This option will cause a loss of restricted resident parking at the street end of Lincoln Road of approximately 16 parking spaces.

6.0 Option 4A: Revert to Five-Year Storm Criteria – Install 10-Year Sized Piping and Storm Water Treatment System (below ground) and 5-Year pumps and Above Ground Electrical for Eventual 10-Year SWTS Upgrade (10-Year Footprint). Increase Pumping Capacity at a Future Date.

The configuration for option 4A is to install the collection piping for a 10-year theoretical storm event, and install all the below ground structures required to manage a 10-year theoretical storm event, but we will install only 3 pumps. It is important to note that because of the FEMA Flood zone and the Florida Building Code requirements, the overall height of the above ground components should not vary significantly. This option will require installing all of the major below ground components, and will not require significant construction to upgrade the Storm Water Treatment System from a 5-year storm to a 10-year storm. ***It is important to note that this option goes against CMB Commission Resolution No. R7-F dated December 12, 2018. This resolution requested an analysis and subsequent design of a stormwater system for a 10-year theoretical storm event.*** Appendix 5 includes plan view and section view drawings of the Storm Water Treatment System and the above ground components.

6.1 Benefits

Below is a list of benefits with Option 4A compared to Option 1.

a. Emergency Overflow piping – Due to the proximity to the Lincoln Road street and sea wall, this option allows for the installation of emergency overflow piping. These pipes will discharge any stormwater that reaches a certain elevation by means of gravity. We feel that this is important because if the station becomes overwhelmed due to power failure or mechanical failure, there is a means to discharge excess stormwater.

b. Proximity of Electrical Equipment to Storm Water Treatment System – Maintaining a close proximity from the electrical equipment to the actual Storm Water Treatment System (approximately 200 feet) improves operator safety. By maintaining a line of sight from the electrical equipment to the Storm Water Treatment System, the maintenance crew can communicate without communication devices and can maintain sight on each other. By maintaining line of sight, the City can utilize a two or three employee maintenance crew, which reduces annual operating cost.

c. Promenade Atmosphere / Traffic Calming – The median will include screening and canopy cover to promote a disincentive to traffic(calming effect) and create a promenade type atmosphere with flush sidewalks and roadway pavers in addition to new amenities at the street end.

d. We did not identify any benefits which will differentiate this option from option 1 other than a temporary reduction in cost.

6.2 Negative Issues

Although we have established that Option 4A is a feasible layout, there are some major issues with this option. Below is a list of issues with Option 4A.

a. Violation of Commission Resolution No. R7-F – Under this configuration, it does not meet the management of a 10-year theoretical storm event.

b. Loss of On-Street Restricted Resident Parking and Public Metered Parking – This option

will cause a loss of restricted resident parking at the street end of Lincoln Road of approximately 26 parking spaces.

c. Reduced Pumping Capacity – This option will provide the pumping capacity to manage a 5-Year theoretical storm event, but will have all the physical features of a 10-Year theoretical storm event.

7.0 Option 5: Split the Storm Water Treatment System into two (2) 60,000 GPM Units

The configuration for option 5 is to install a 3-pump 60,000 GPM Storm Water Treatment System at the west end of Lincoln Road and a 3-pump 60,000 GPM Storm Water Treatment System at the north end of Bay Road. Each Storm Water Treatment System will have all its above ground components at its respective street end. The systems will be interconnected, but piping will be adjusted to direct the flow of the stormwater towards both stations. This option may eliminate the need to install a 96-inch drainage pipe. Our hydraulic model also reflects an improvement in the drainage capacity. This may be due to the removal of the bottleneck at the intersection of Lincoln Road and Bay Road. Appendix 6 includes plan view and section view drawings of the Storm Water Treatment System and the above ground components.

7.1 Benefits

Below is a list of benefits with option 5 compared to option 1.

a. Redundancy – This option will provide redundancy to the stormwater system. In the event that one station rendered inoperable, the second station can still provide a 5-year level of service. Inoperable can include damage, loss of power or some sort of maintenance.

7.2 Negative Issues

Although we have established that option 5 is a feasible layout, there are some major issues with this option. Below is a list of issues with option 5.

a. Available Space – Although each station has a smaller footprint above and below ground,

the available area for the above ground components is limited. The above ground equipment will take up much of the right of way at the end of Bay Road. The above ground equipment at the end of Lincoln Road will create an obstruction to views of the Bay.

b. Loss of On-Street Restricted Resident Parking and Public Metered Parking – This option will cause a loss of restricted resident parking at the street end of Lincoln Road of approximately 12 parking spaces.

c. Obstruction of View – The above ground structures located in various places throughout the Lincoln Rad street end and the Bay Road street end will create visual obstructions.

8.0 Option 6: Storm Water Treatment System at Lincoln Road – All Above Ground Components to 1671 West Avenue

The configuration for option 6 is to design and install all below ground components for a Storm Water Treatment System that will manage a 10-year theoretical storm event at the west street end of Lincoln Road. All of the above ground components will be installed within the parking lot located at 1671 West Avenue. In order to accomplish this, two (2) dedicated duct banks will need to be installed. One duct bank will protect the power cables from the pump motors to the control panel. The second duct bank will protect the communication controls for the Storm Water Treatment System. ***It is important to note that this option will create maintenance issues. Due to the long distance between the Storm Water Treatment System underground components and the above ground electrical and communication components, the maintenance crew will require additional safety training, and the maintenance crew will require more employees. Additionally, pump disconnect panels will be required near the below ground components to increase safety during maintenance operations.***

8.1 Benefits

Below is a list of benefits with Option 6 compared to Option 1.

a. Resident Satisfaction – We have participated in many resident meetings, and it seems that there is a great displeasure with the above ground components. This option will satisfy the requests from the residents of Lincoln Road. It is important to note that this

option will still require a much smaller, but still significant, electrical disconnect platform, and a repeater box for the signal. The repeater box will be approximately 4 feet by 4 feet and 6 feet tall. The electrical disconnect platform will be approximately 12 feet by 6 feet and a total height of 12.5 feet. This will be placed near the sea wall.

b. No Loss of On-Street Restricted Resident Parking – Since this option does not require any electrical equipment within the median of Lincoln Road, there will be no impact to the existing restricted resident parking. The project will still require for the roadway to be raised and for harmonization to occur at the private property, but the parking will be returned with new pavement markings.

8.2 Negative Issues

Although we have established that option 6 is a feasible layout, there are some major issues with this option. Below is a list of issues with option 6.

a. Upgraded Power and Communication Cables – Since the distance from the pumps to the electrical equipment will be approximately 1,200 feet, the power cables may increase in diameter and they will require a junction box near the intersection of West Avenue and Lincoln Road. Additionally, the communication cables will also increase in diameter and material. The communication cables may also need a repeater at the intersection of West Avenue and Lincoln Road in order to maintain proper signal reaction.

b. Incorporate Additional Disconnect Switches – Due t the significant distance between the pumps and the electrical control panels, a disconnect switch will be required for each pump at the Lincoln Road street end. This series of six (6) pump disconnect switches will require an elevated platform measuring 12’x6’ and a total height of 12.5 feet.

c. Loss of Public Parking – Utilizing the parking lot will cause the loss of 19 parking spaces from the public lot.

9.0 Option 7: Upgrade Existing Storm Water Treatment Systems at 6th Street and Split Flows N&S at 14th Street

Option 7 is an interesting option and has been considered and explored previously by CMB. This is an option that CES investigated when we were developing the systemwide hydraulic model for the 10-year rainfall theoretical storm event for the entire West Avenue Drainage Basin. This option would promote collecting all of the storm water within the West Avenue Basin, but it would split the direction of the flows. Instead of collecting all of the stormwater from south to north and disposing of it solely at Lincoln Road, we would redistribute the stormwater amongst all of the existing and proposed Storm Water Treatment Systems from 6th Street to Lincoln Road. This would require analysis of each Storm Water Treatment System to determine the specific upgrades and modifications required to make the overall drainage system function appropriately to meet the storm, flooding and environmental goals of CMB. Under this scenario, CES would also design/construct a significantly smaller Storm Water Treatment System at the end of Lincoln Road. CMB did not originally select this option for several reasons. First, the regulatory agencies have issues with the operations and efficiency of existing Storm Water Treatment Systems at 6th Street, 10th Street (2 stations), and 14th Street (2 stations). There was concern that the regulatory agencies may request upgrades above and beyond what would be needed to handle the additional flows. Second, due to the connectivity of the entire stormwater system south of Dade Boulevard, CMB desired the additional stormwater capacity that the larger 120,000 GPM Storm Water Treatment System incorporated into the overall system. Finally, there are two Storm Water Treatment Systems at 10th Street and two Storm Water Treatment Systems at 14th Street. At each location, one of the stations is the property of FDOT. Performing upgrades to these stations may require significant design and permitting discussions with FDOT. This option, although very efficient, will require a redesign of the Lincoln Road Storm Water Treatment System, the entire stormwater collection system, and an analysis and expansion design of 5 existing Storm Water Treatment Systems.

When looking at the items that triggered this feasibility study, the Lincoln Road Storm Water Treatment System component of this project will look similar to option 4, with the exception of potentially smaller overall drainage piping in certain locations along West Avenue.

9.1 Benefits

Below is a list of benefits with Option 7 compared to Option 1.

a. Addressing Regulatory Agency Issues – Addressing the regulatory agency issues may be advantageous on several fronts. First, it would bring the existing Storm Water Treatment Systems into compliance and potentially improve capacity and efficiency. Second, it could build good will with the regulatory agencies for future CMB projects. Finally, it may satisfy some of the residents that believe that the existing Storm Water Treatment Systems are causing negative environmental impact on Biscayne Bay.

b. Reduction of Stormwater Collection System Size – This option would potentially reduce the pipe diameters of the currently proposed design. This may equate to a reduced construction cost for the piping component and may positively impact the schedule of the storm/drainage system installation.

9.2 Negative Issues

Although we have established that Option 6 is a feasible layout from the engineering and construction standpoint, there are some issues related to this option. Below is a list of issues with Option 7.

a. Project Delays – This option may cause significant delays to the construction schedule. CES would need additional time to sufficiently model and complete the additional design and permitting effort required to integrate all West Avenue Storm Water Treatment Systems into a cohesive system. Additionally, this would extend the actual construction time due to multiple Storm Water Treatment Systems being constructed and project phasing.

10.0 Option 8: Eliminate Permanent Emergency Generator from Lincoln Road and Other Locations

The configuration for Option 8 is the same as many of the other options and configurations with the exception of eliminating the emergency generator. Eliminating this component of the project will reduce the footprint of all the above ground components by approximately 750 square feet. Although this is a significant savings in project cost and above ground area, CES does not believe that this is a prudent and viable option for both CMB and the community, and this option does not meet the current

standard of practice or recommendations of the SE Florida Compact related to Resiliency or Sustainability; and CES does not support this option. The reason for the stormwater system and Storm Water Treatment System is to protect the West Avenue Neighborhood/area from flooding, and flooding usually occurs during a standard/limited theoretical storm event. Many of these same theoretical storm events include/cause loss of power and other related impacts. By eliminating the emergency generator, the Storm Water Treatment System would have no backup power supply and may become inoperable during its most needed time, thus exacerbating the flooding issues. There are also several questions regarding safety, emergency vehicle access from fire and police, and CMB code requirements.

10.1 Benefits

Below is a list of benefits with option 8 compared to option 1.

a. CES does not see any current or future benefits or value to the consideration of this option. CES does not believe that this is a prudent and viable option for both CMB and the community, and this option does not meet the current standard of practice or recommendations of the SE Florida Compact related to Resiliency or Sustainability; and CES does not support this option.

10.2 Negative Issues

Although we have established that Option 6 is a feasible option and provides a reduced site layout, there are some major issues and considerations with this option. Below is a list of issues related to this Option 8.

a. Loss of Emergency Back Up Power – The purpose of the Storm Water Treatment System is to manage the stormwater during a rain event. The electrical power supplied within the CMB and throughout the island is usually very stable, but power and communications can be lost during a theoretical storm event. If the power goes out during a theoretical storm event, the area is left with no stormwater protection other than the emergency overflow pipes designed and operational only with the station located at the end of Lincoln Road.

11.0 Option 9: Storm Water Treatment System at Lincoln Road – All Above Ground Components to 1625 West Avenue (Circular Parking Lot)

The configuration for Option 9 is similar to that of Option 6. This option will maintain the design and installation of all below ground components for a Storm Water Treatment System that will manage a 10-year rainfall theoretical storm event at the west street end of Lincoln Road. All of the above ground components will be installed within the parking lot located at 1625 West Avenue. In order to accomplish this, two (2) dedicated duct banks would need to be installed from the control panels back to the Storm Water Treatment System. One duct bank will protect the power cables from the pump motors to the control panel. The second duct bank will protect the communication controls for the Storm Water Treatment System. ***It is important to note that this option may create maintenance issues. Due to the long distance between the Storm Water Treatment System underground components and the above ground electrical and communication components, the maintenance crew will require additional safety training, and the maintenance crew will require more employees. Additionally, pump disconnect panels will be required near the below ground components to increase safety during maintenance operations.***

11.1 Benefits

Below is a list of benefits with Option 9 compared to Option 1.

a. Resident Satisfaction – We have participated in many resident meetings, and it seems that there appears to be great displeasure with various aspects of the above ground components. This option may satisfy the requests from the residents of Lincoln Road and the general community. It is important to note that this option would still require a smaller, but still significant, electrical disconnect and operational platform, and a master communications control box with repeater box for the signal connection and pump monitoring. The repeater box will be approximately 4 feet by 4 feet and 6 feet tall. The electrical disconnect platform could be approximately 12 feet by 6 feet and a total height of 12.5 feet. This will be placed near the sea wall.

b. No Loss of On-Street Restricted Resident Parking – Since this option does not require any electrical equipment within the median of Lincoln Road, there will be no impact to the

existing restricted resident parking along Lincoln Road. The project will still require for the roadway to be raised and for harmonization to occur at the private property, but the travel lanes and proposed parking will be returned to the new DCP requirements and cross-section with new pavement markings.

11.2 Negative Issues

Although CES has established that Option 9 is a feasible layout from an engineering and construction standpoint, there are some issues and considerations with this option. Below is a list of issues related to Option 9.

a. Upgraded Power and Communication Cables – Since the distance from the pumps to the electrical equipment will be approximately 1,200 feet, the power cables may increase in diameter and they may need a junction box near the intersection of West Avenue and Lincoln Road. Additionally, the communication cables will also increase in diameter and material. The communication cables may also need a repeaters at the intersection of West Avenue and Lincoln Road, or along the route, in order to maintain proper signal connection and reaction.

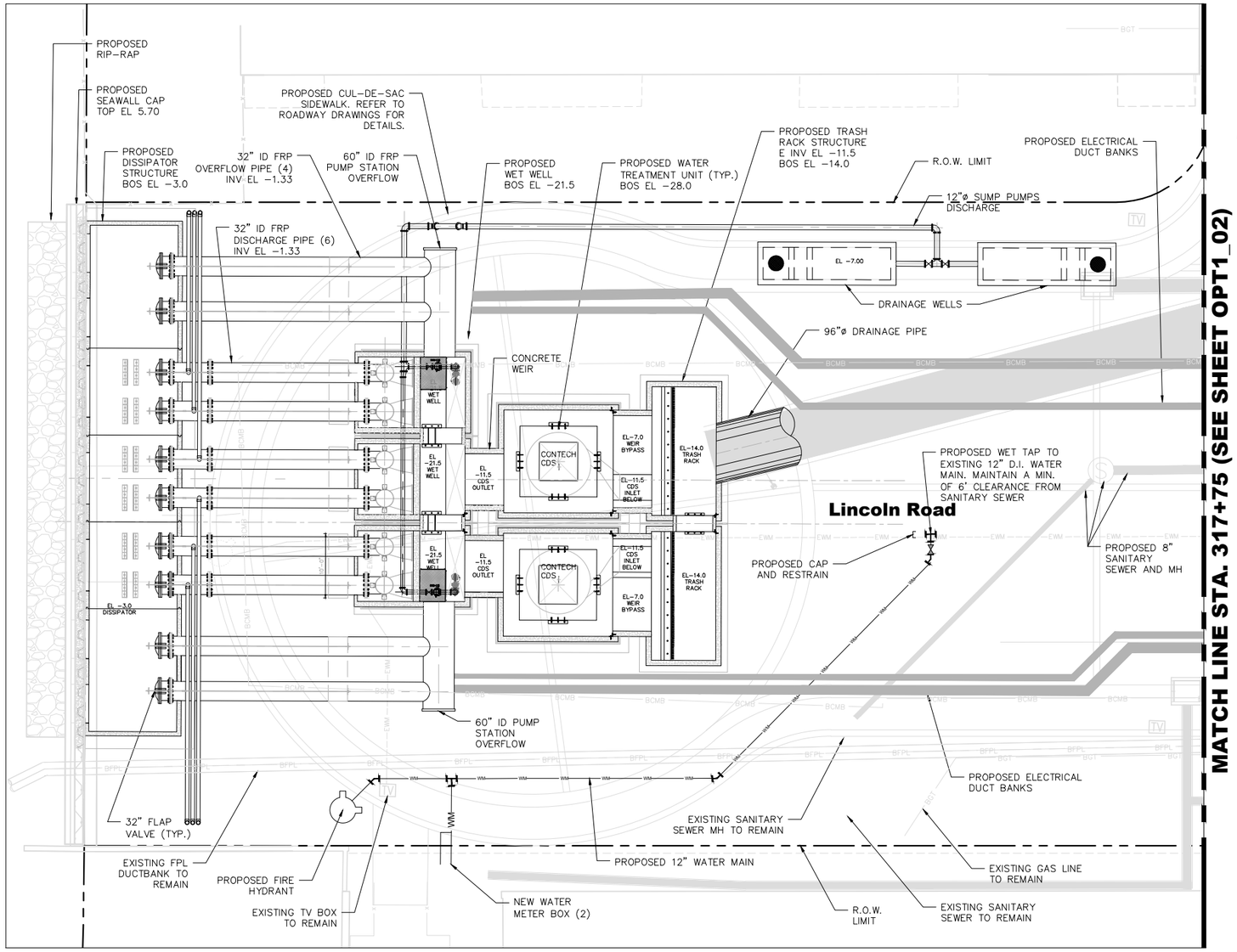
b. Incorporate Additional Disconnect Switches – Due t the significant distance between the pumps and the electrical control panels, a disconnect switch will be required for each pump at the Lincoln Road street end. This series of six (6) pump disconnect switches will require an elevated platform measuring 12’x6’ and a total height of 12.5 feet.
c. Loss of Public Parking – Utilizing the parking lot would potentially cause the loss of 8 parking spaces from the public lot, primarily due to the above ground components.

Exhibit B

APPENDIX A

OPTION 1: Plans, Artist Renderings, ICPR 4 Flood Maps, and Hydraulic Grade Lines

Exhibit B



N

0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: **OPTION 1 STORM DRAINAGE PUMP STATION**

TITLE: **CIVIL PROPOSED SITE PLAN - PUMP STATION**

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

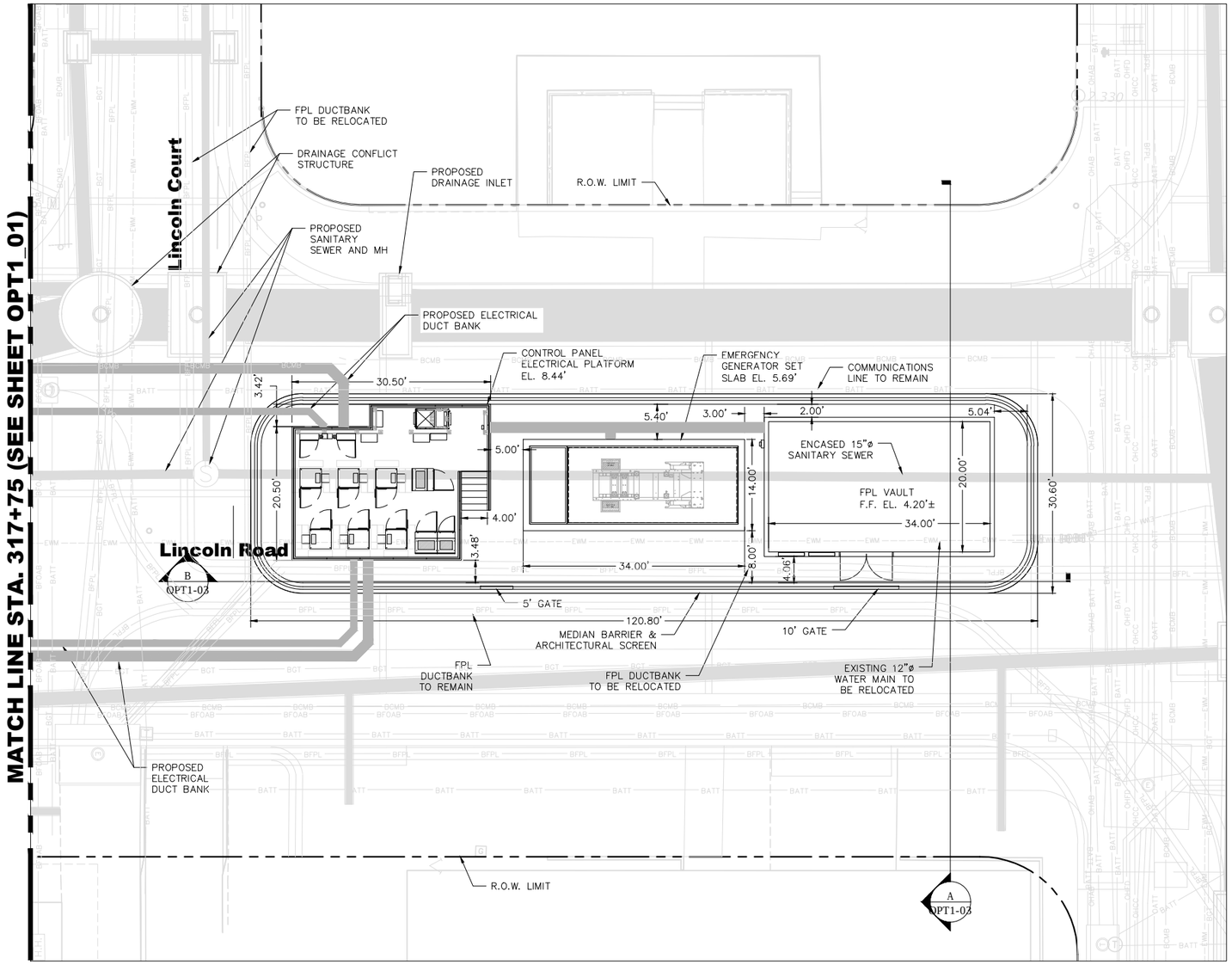
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT1_01.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: **OPT1_01**

Exhibit B



N

0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 1
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

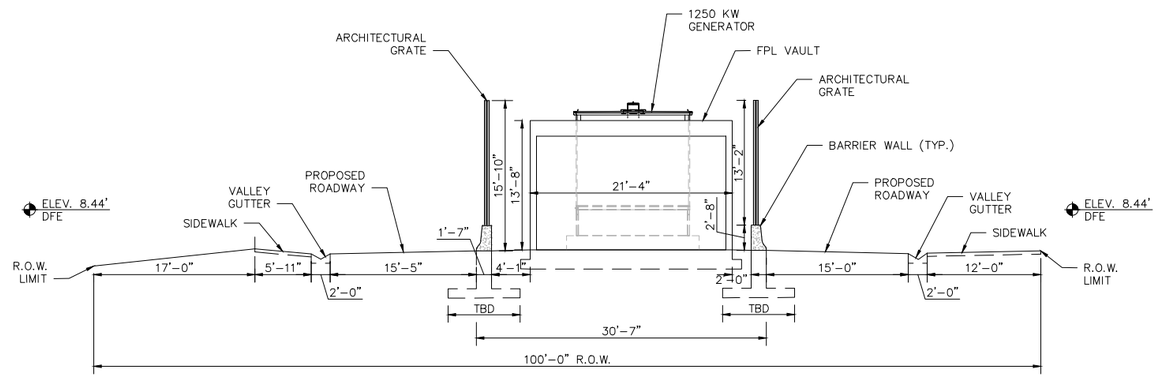
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

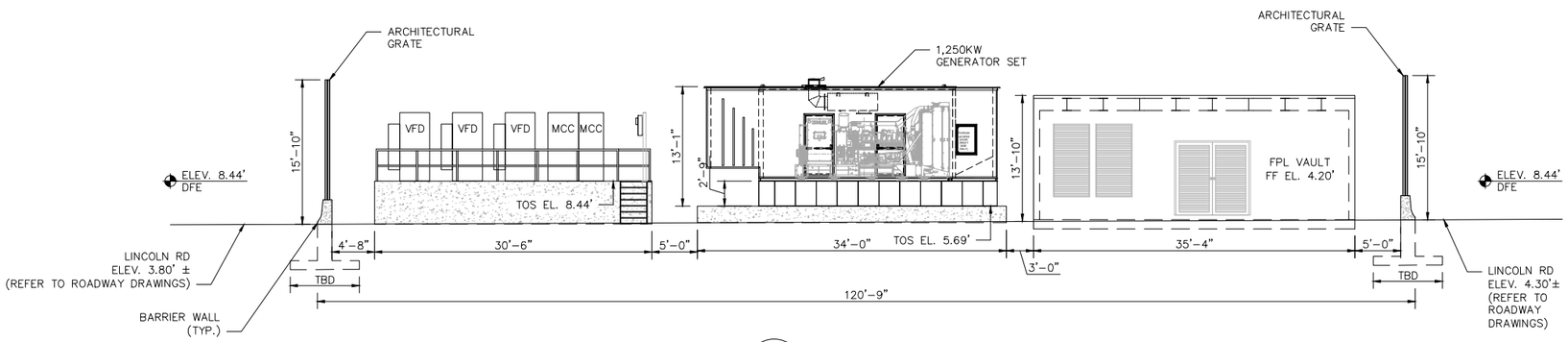
NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT1_02.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT1_02

Exhibit B



A C-03 SECTION
SCALE: 1"=8'



B C-03 SECTION
SCALE: 1"=8'

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD:
OPTION 1
STORM DRAINAGE PUMP STATION

TITLE:
CIVIL
SECTIONS

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

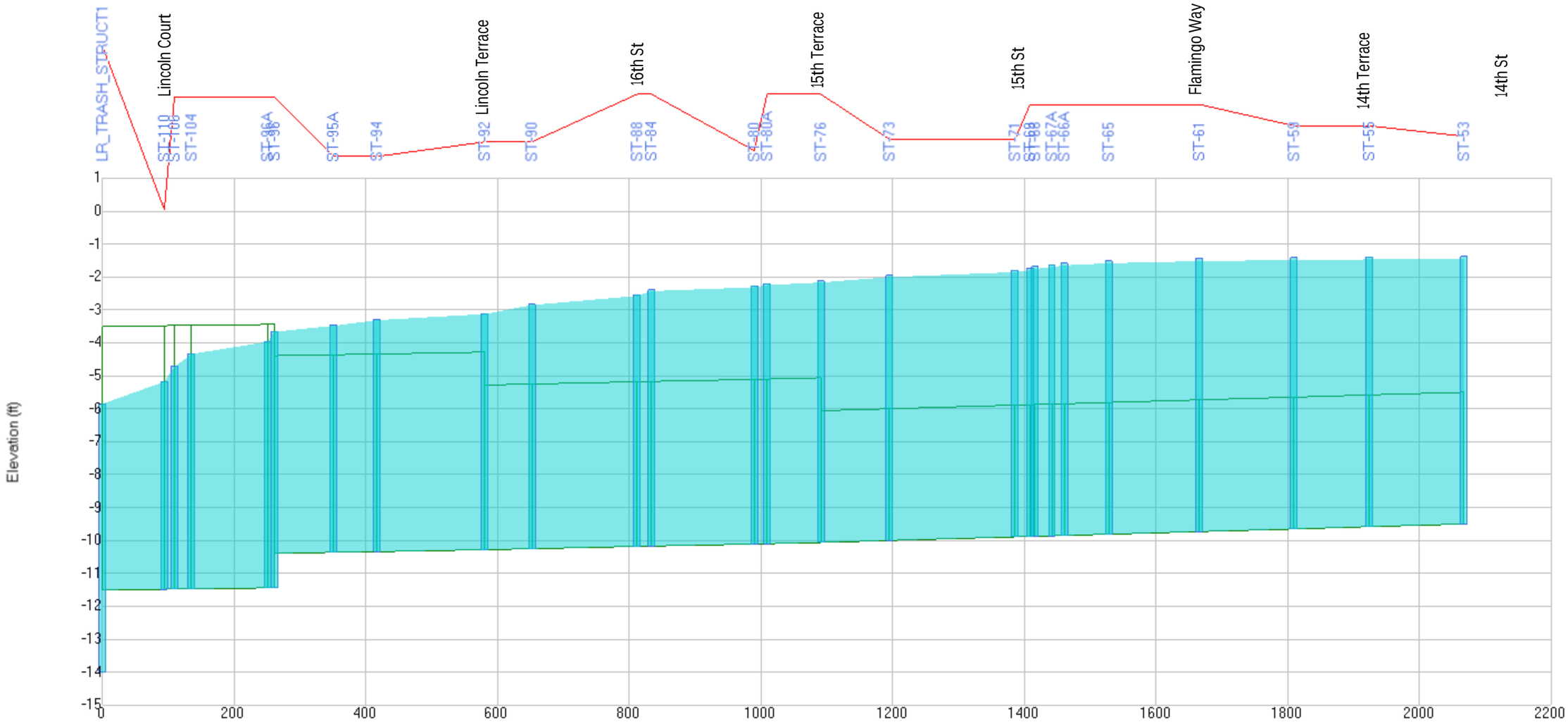
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT1_03.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: **OPT1_03**

Exhibit B



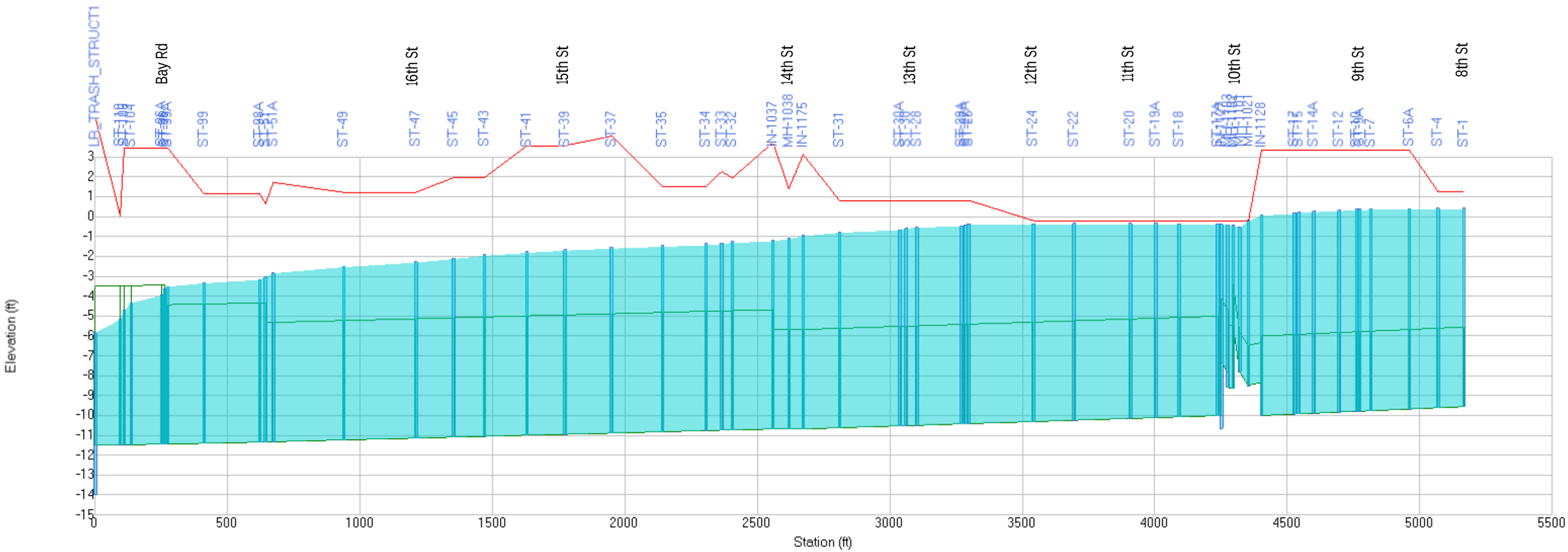
West - East
Lincoln Rd from
Proposed Pump Station
to Bay Rd

North - South
Bay Rd from Lincoln Rd to 14th St

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



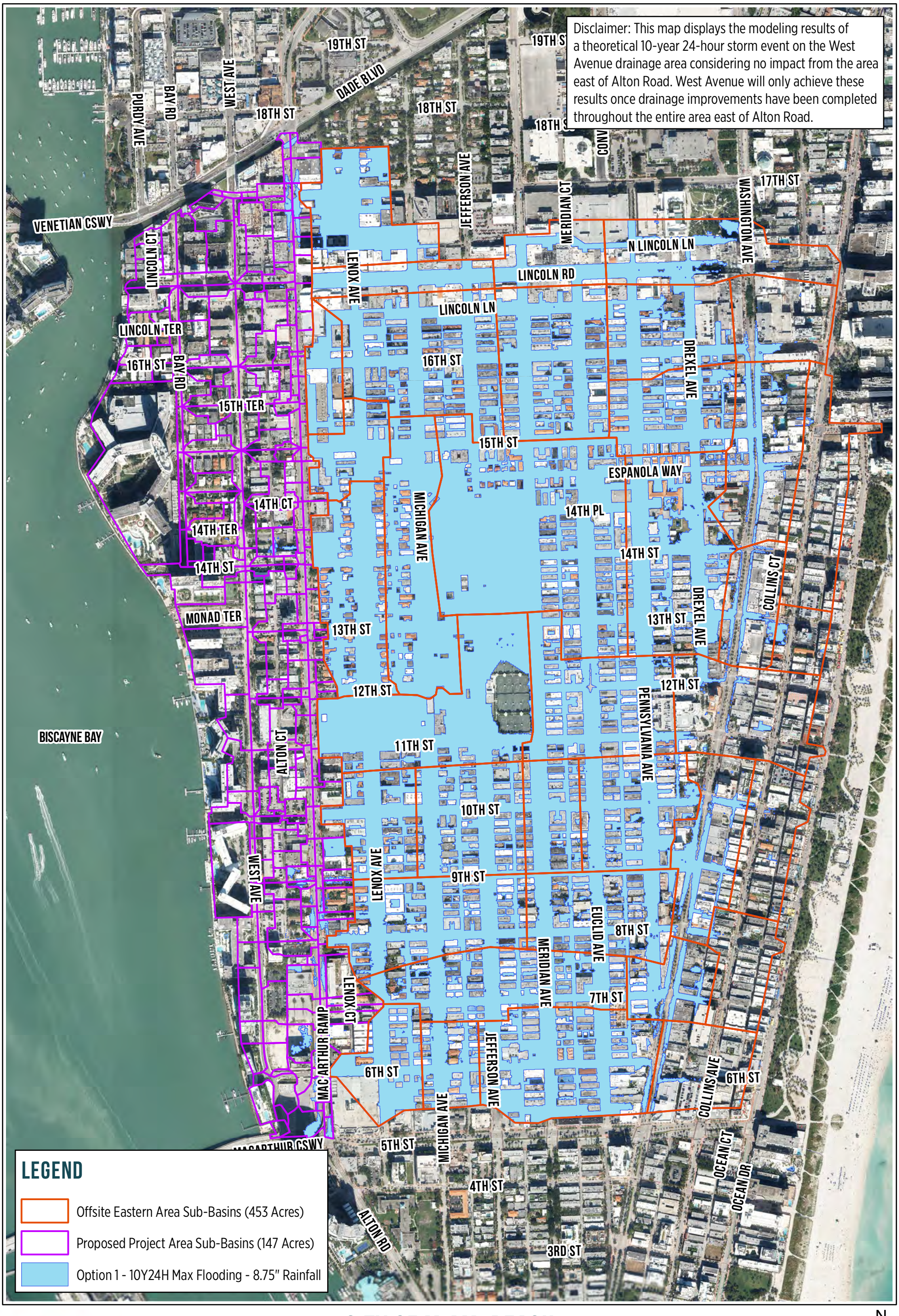
West - East
Lincoln Rd from
Proposed Pump Station
to West Avenue

North - South
West Ave from Lincoln Rd to 8th Street

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



Document Name: OPT1CLIP_10Y24H_wBasins

Date Saved: 7/16/2020 2:39:59 PM

CITY OF MIAMI BEACH

Feasibility Study

Option 1 (147 Ac)

10YR 24HR Design Storm Event

1 inch = 600 feet

N

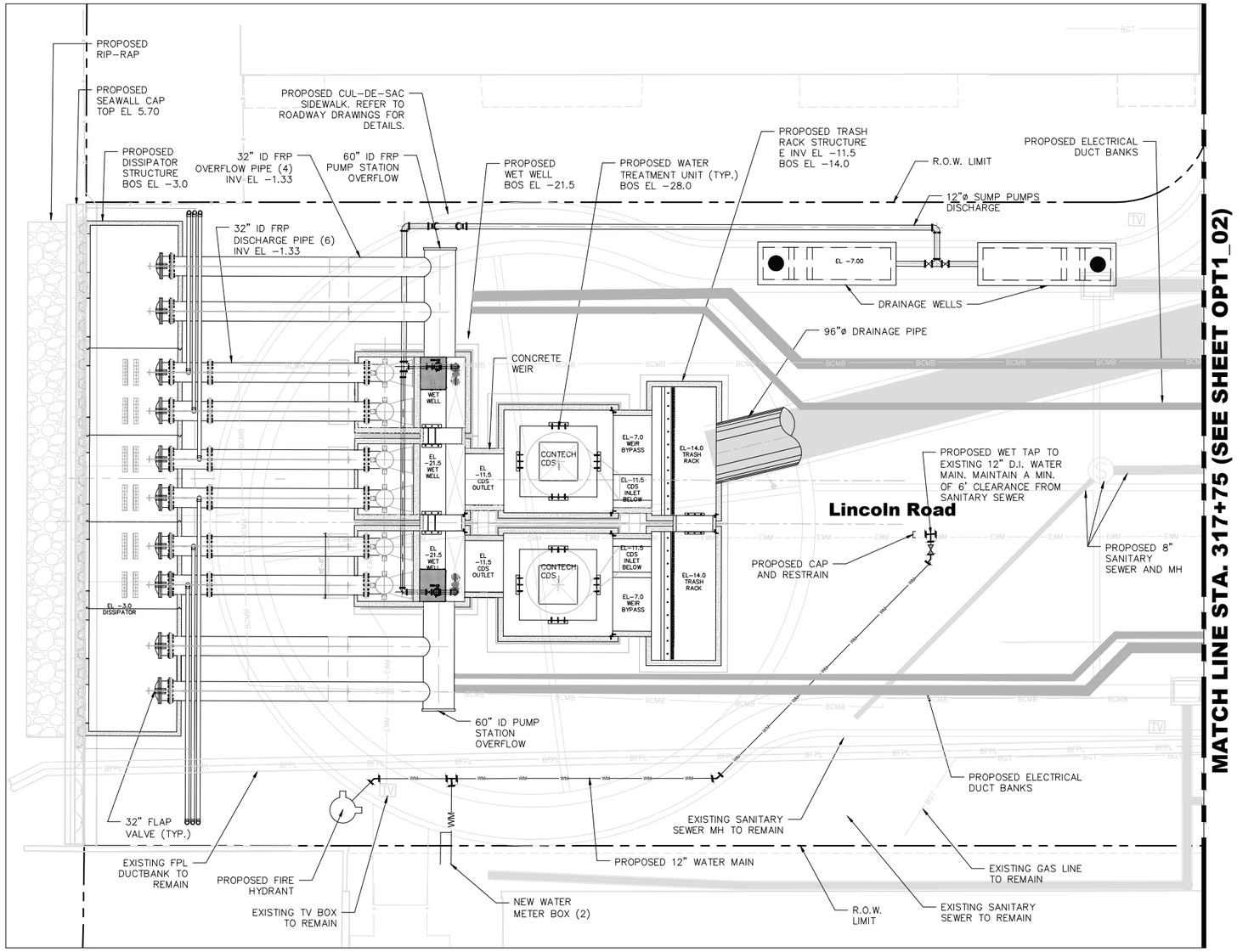
0 600 1,200 Feet

CES CONSULTANTS

APPENDIX B

OPTION 2: Plans, ICPR 4 Flood Maps, and Hydraulic Grade Lines

Exhibit B



N

0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: **OPTION 1 STORM DRAINAGE PUMP STATION**

TITLE: **CIVIL PROPOSED SITE PLAN - PUMP STATION**

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

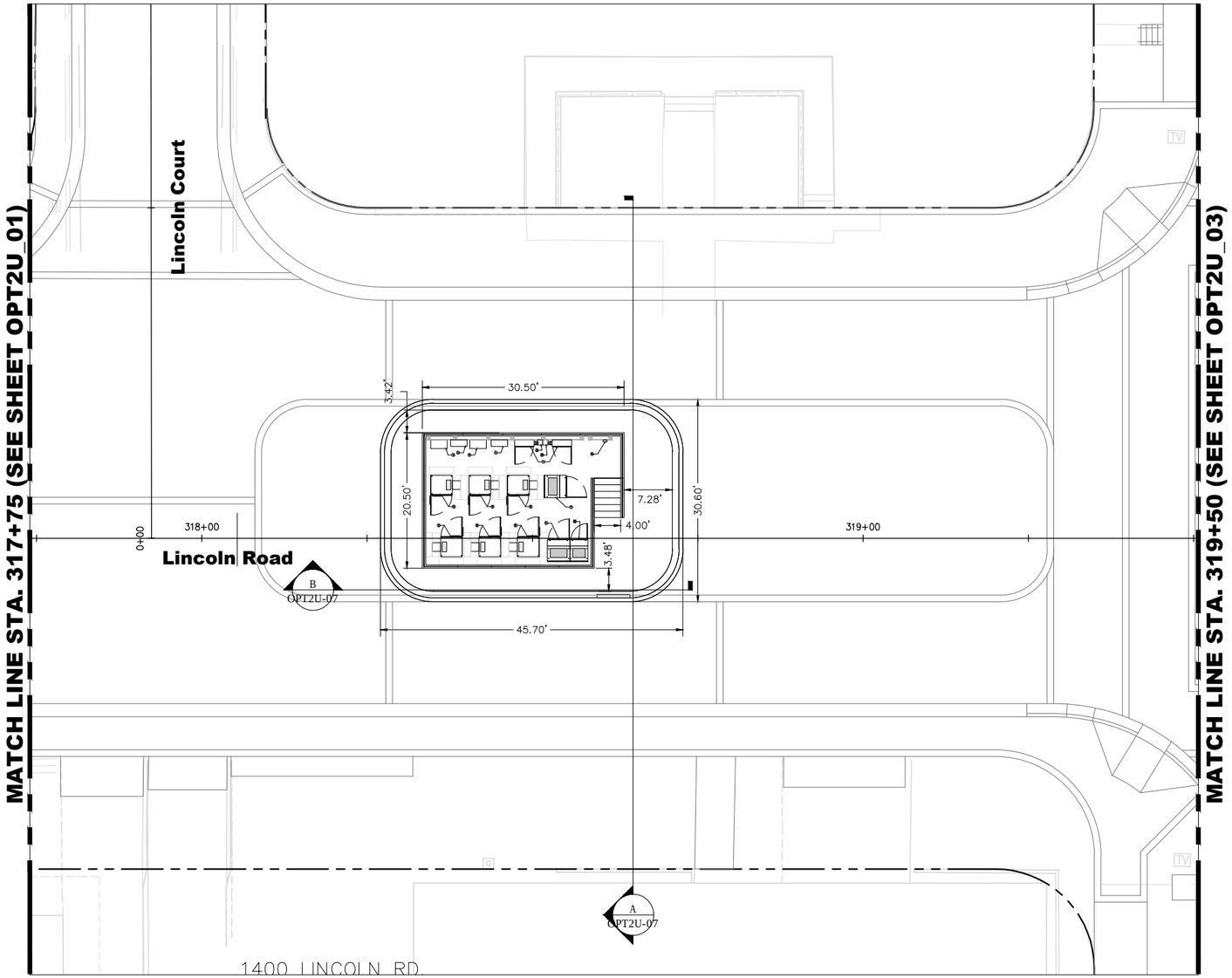
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT1_01.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: **OPT1_01**

Exhibit B



LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: **OPTION 2 - UPDATE STORM DRAINAGE PUMP STATION**

TITLE: **CIVIL PROPOSED SITE PLAN - PUMP STATION**

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

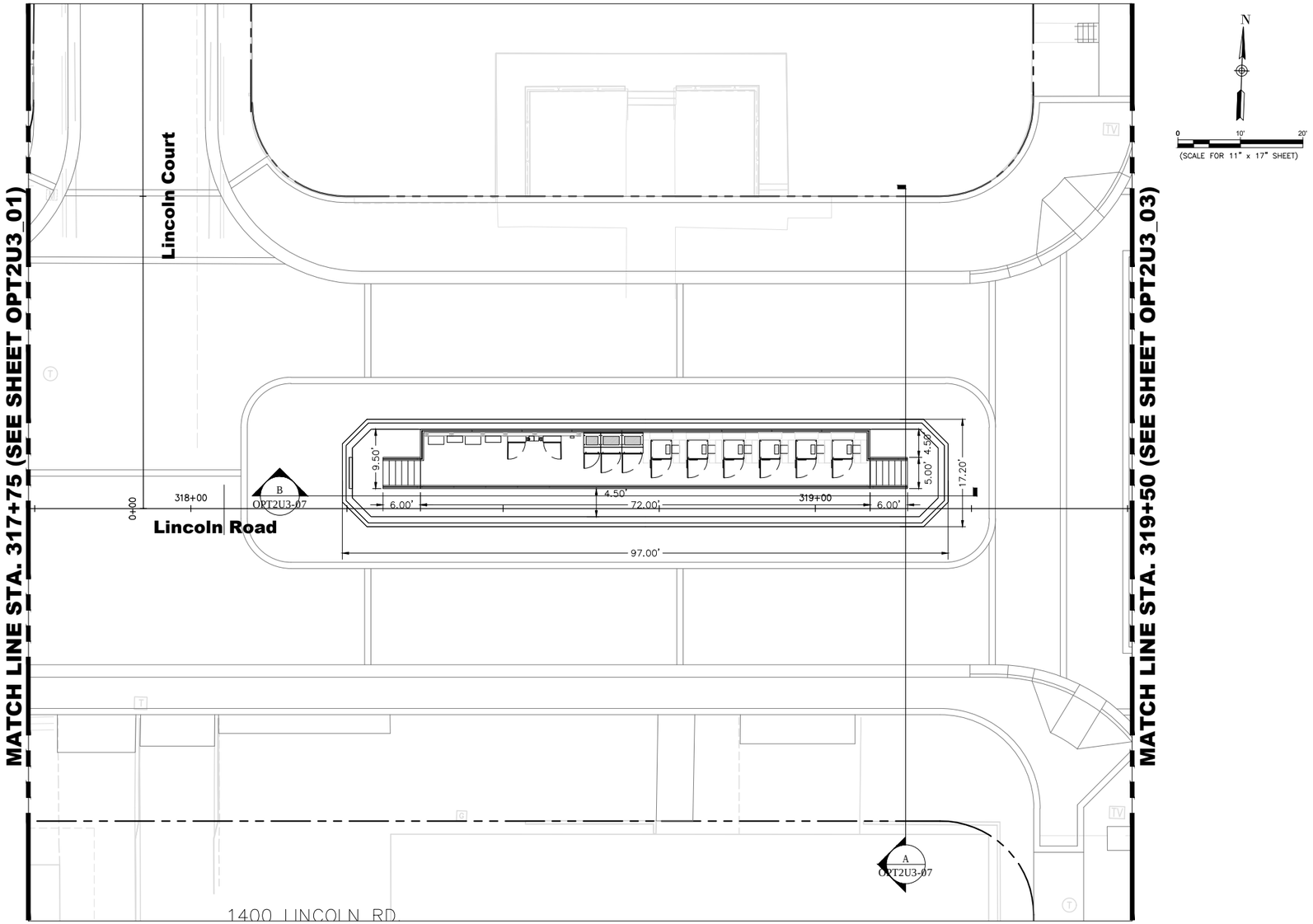
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT2U_02.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT2U_02

Exhibit B



N

0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 2 - UPDATE 3
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

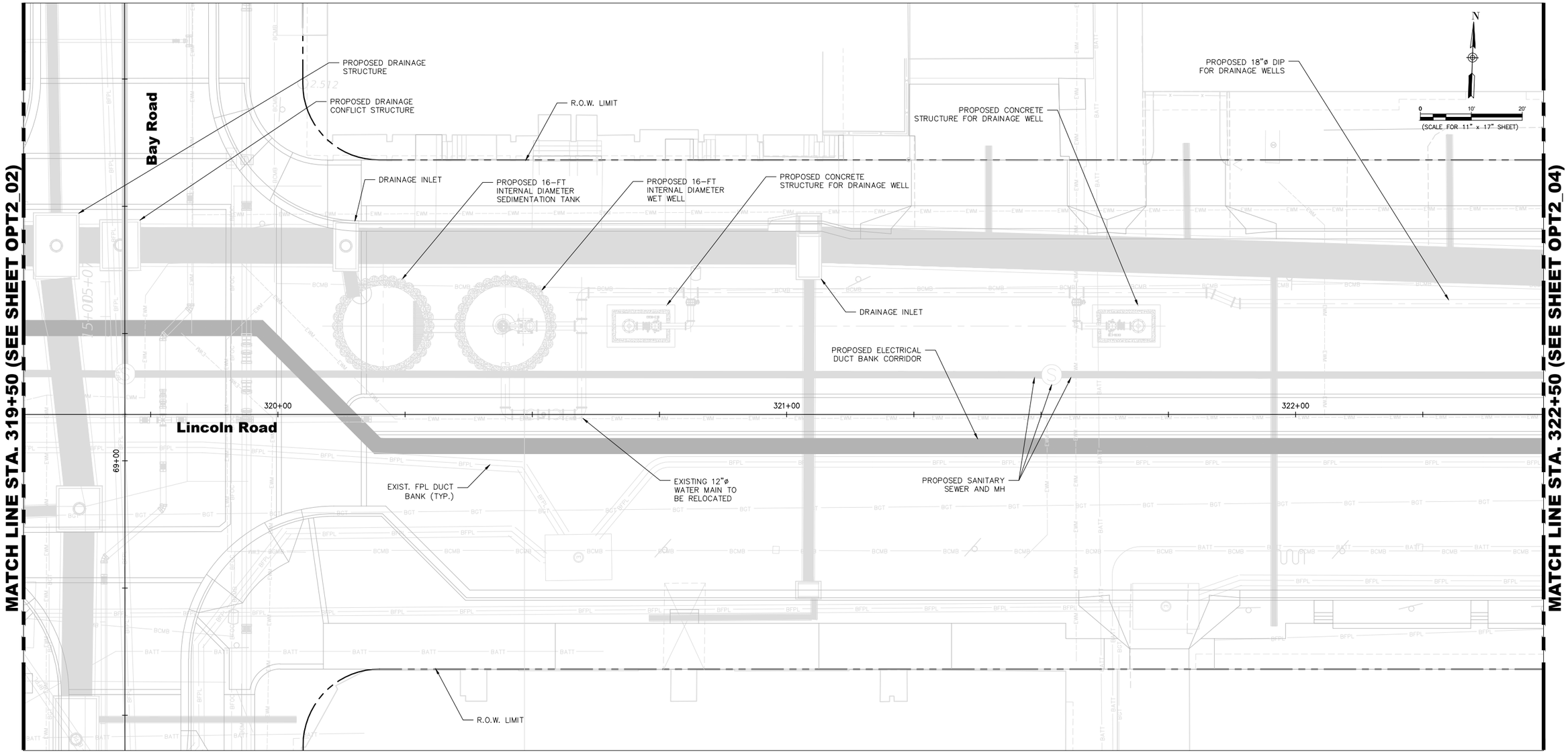
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT2U3_02.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/01/20 Sheet: _____ Drawing: OPT2U3_02

Exhibit B



LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL 33139

NEIGHBORHOOD: OPTION 2 STORM DRAINAGE PUMP STATION

TITLE: CIVIL PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

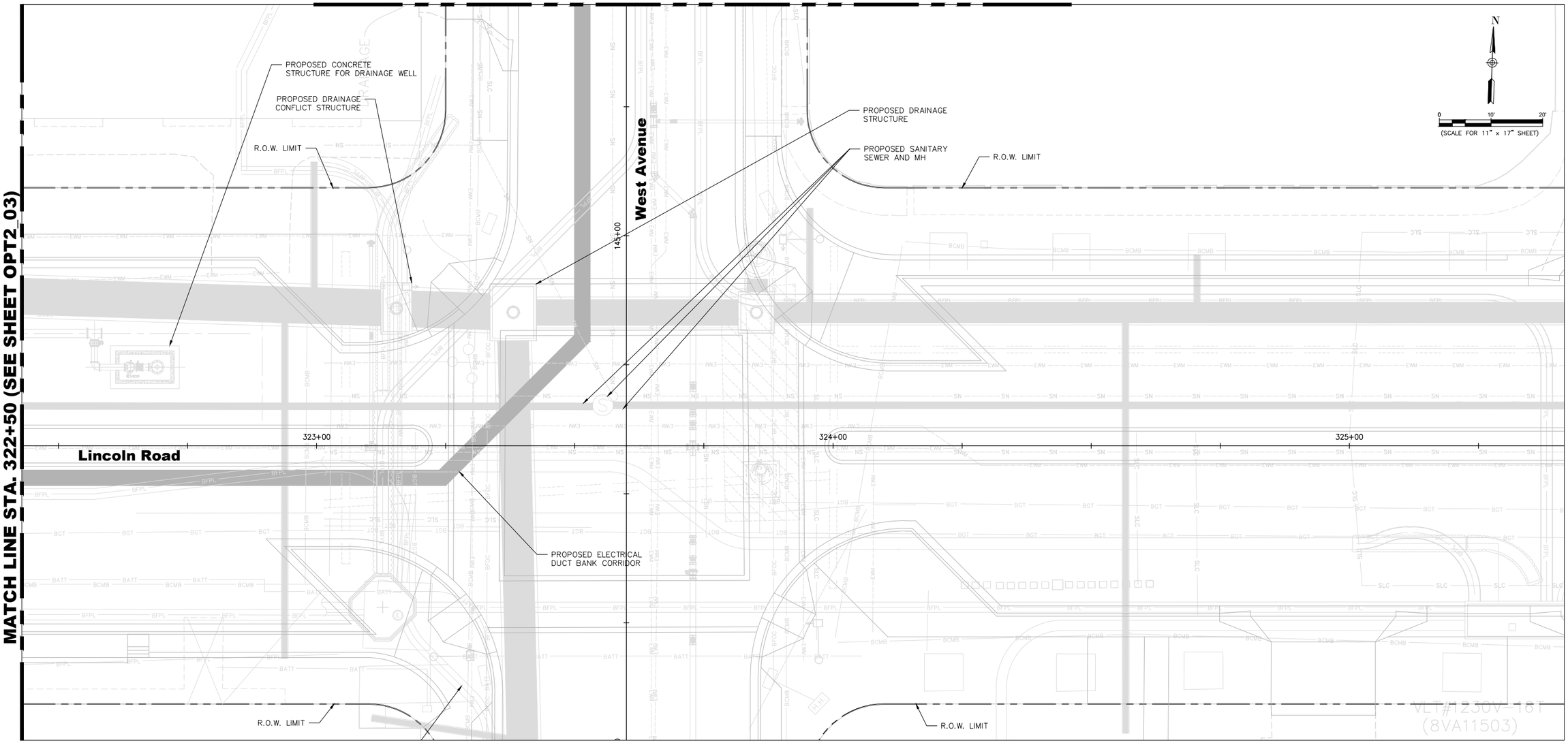
NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT2_03.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT2_03

Exhibit B

MATCH LINE STA. 145+50 (SEE SHEET OPT2_05)

MATCH LINE STA. 322+50 (SEE SHEET OPT2_03)



LEGEND:

BATT	BURIED ATT
BFPL	BURIED FPL
BGT	BURIED GAS
BFOAB	BURIED FIBER OPTIC
	RIGHT-OF-WAY
	CATCH BASIN
D	STORM DRAINAGE MANHOLE
S	SANITARY SEWER MANHOLE
E	ELECTRICAL MANHOLE
T	TELEPHONE MANHOLE
	BACK FLOW PREVENTER
	FIRE HYDRANT
TV	CABLE TV COMMUNICATION BOX
M	WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 2
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

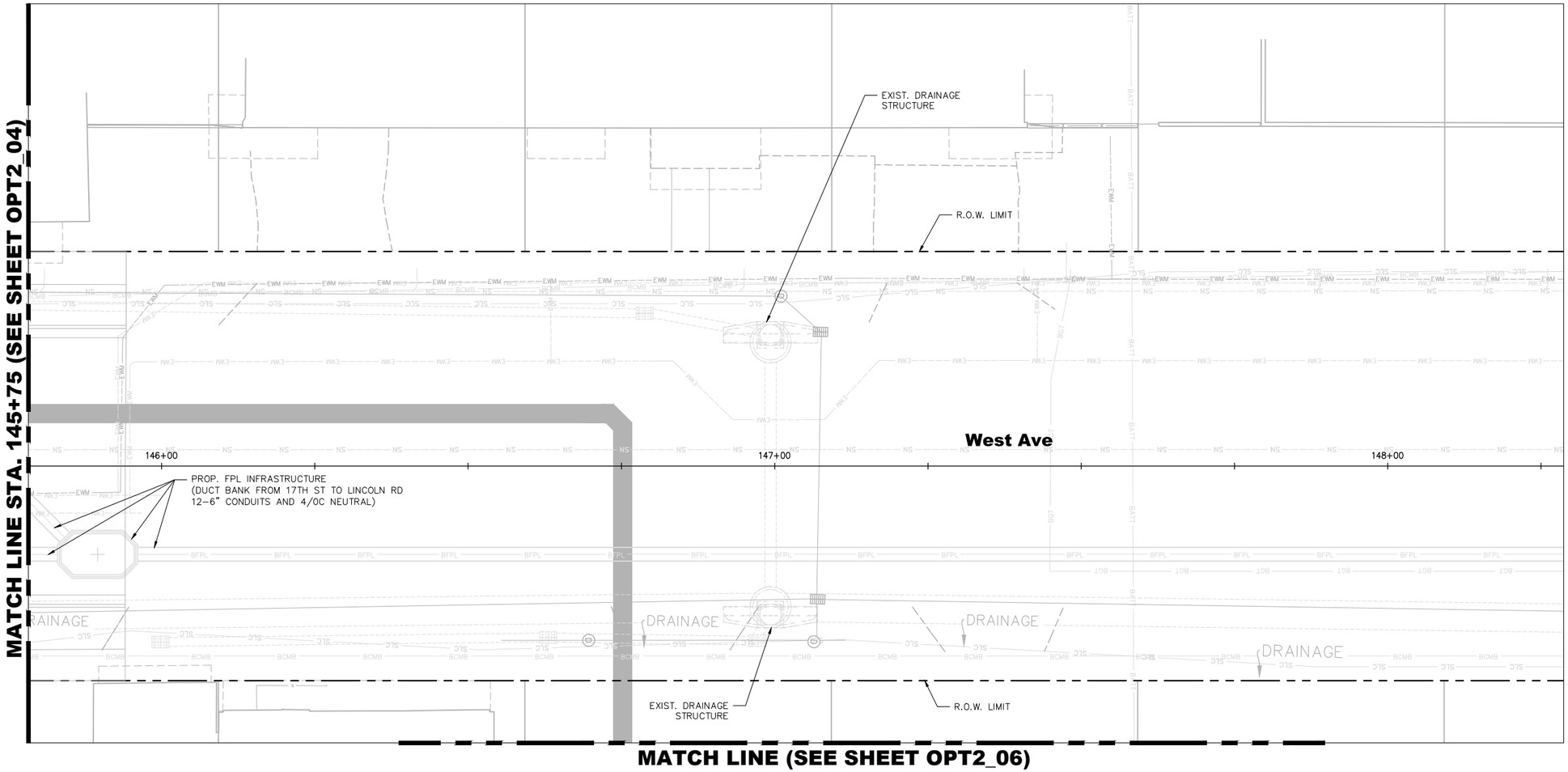
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT2_04.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT2_04

Exhibit B



0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL 33139

NEIGHBORHOOD: OPTION 2
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

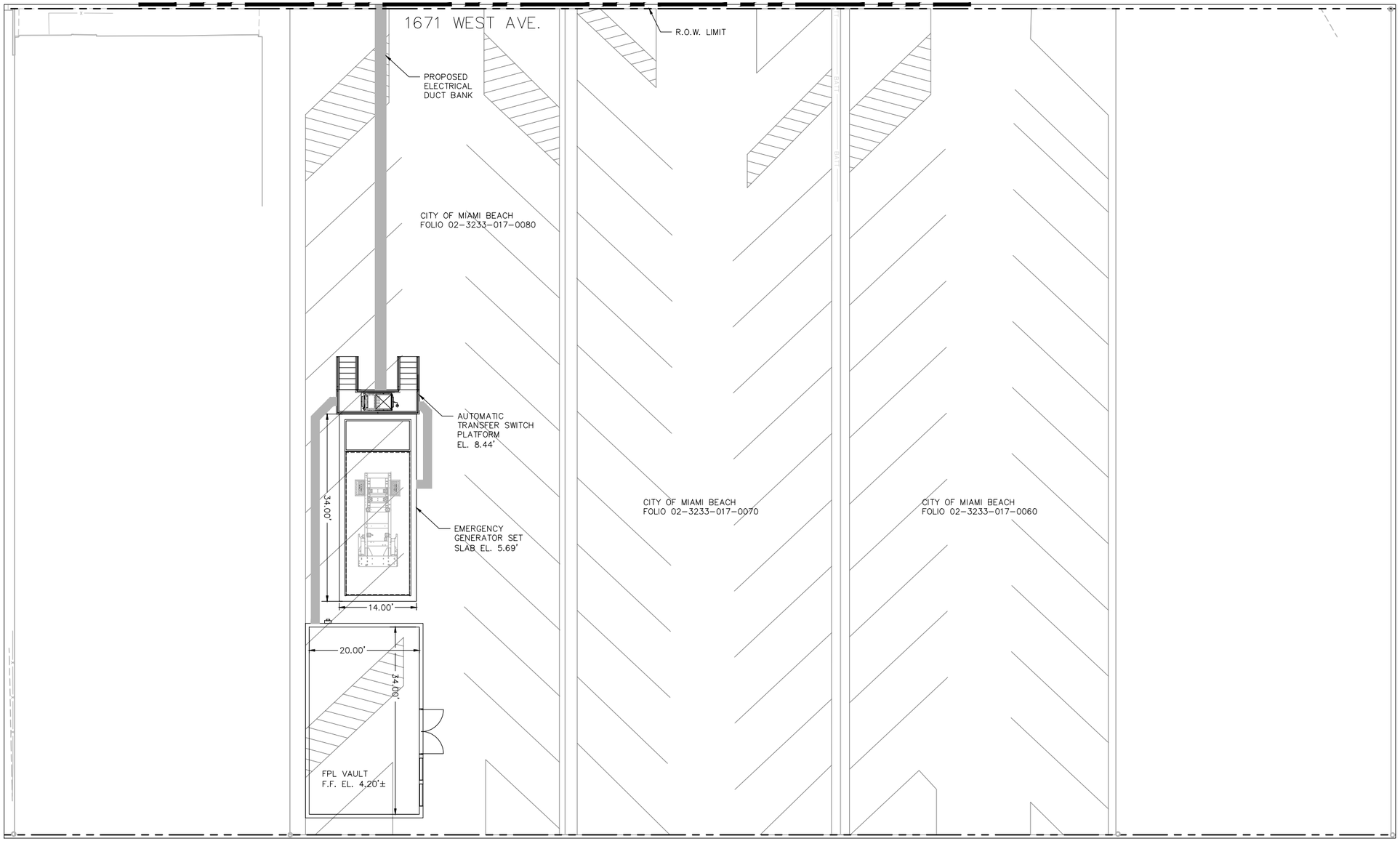
ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT2_05.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT2_05

Exhibit B

MATCH LINE - WEST AVENUE (SEE SHEET OPT2U_05)



N

0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

BATT	BURIED ATT
BFPL	BURIED FPL
BGT	BURIED GAS
BFOAB	BURIED FIBER OPTIC
	RIGHT-OF-WAY
	CATCH BASIN
D	STORM DRAINAGE MANHOLE
S	SANITARY SEWER MANHOLE
E	ELECTRICAL MANHOLE
T	TELEPHONE MANHOLE
	BACK FLOW PREVENTER
	FIRE HYDRANT
TV	CABLE TV COMMUNICATION BOX
M	WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: **OPTION 2 - UPDATE STORM DRAINAGE PUMP STATION**

TITLE: **CIVIL**
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

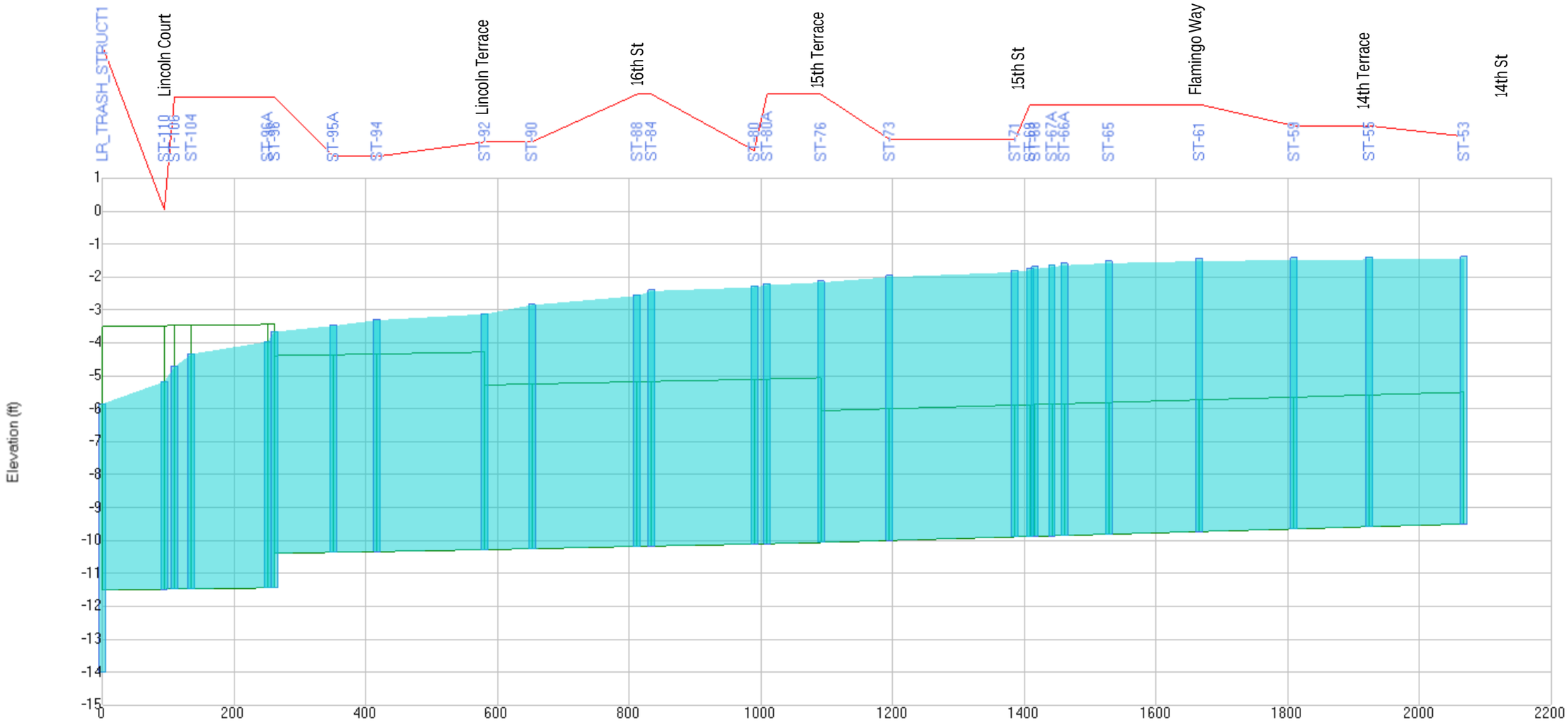
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT2U_06.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: **OPT2U_06**

Exhibit B



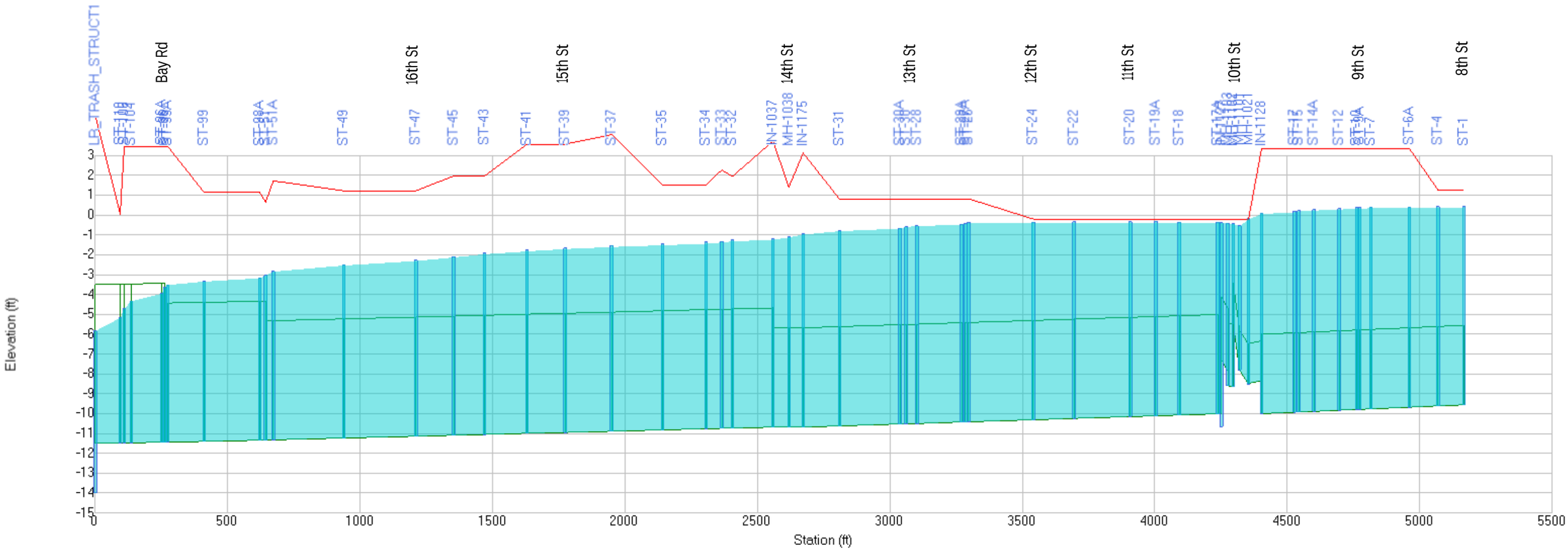
West - East
Lincoln Rd from
Proposed Pump Station
to Bay Rd

North - South
Bay Rd from Lincoln Rd to 14th St

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



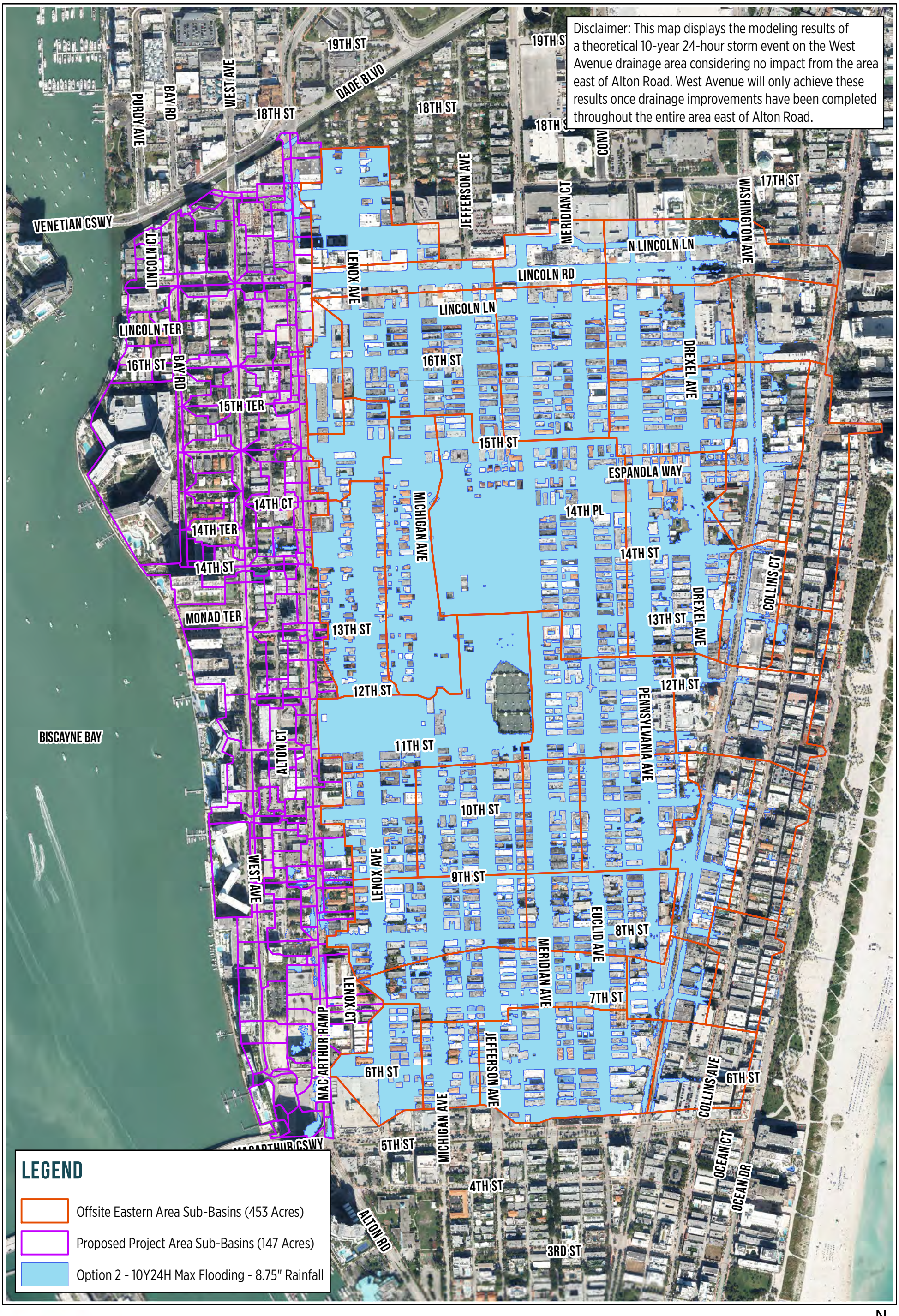
West - East
Lincoln Rd from
Proposed Pump Station
to West Avenue

North - South
West Ave from Lincoln Rd to 8th Street

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



Document Name: OPT2CLIP_10Y24H_wBasins

Date Saved: 7/17/2020 3:01:28 PM

CITY OF MIAMI BEACH

Feasibility Study

Option 2 (147 Ac)

10YR 24HR Design Storm Event

1 inch = 600 feet

N

0 600 1,200 Feet

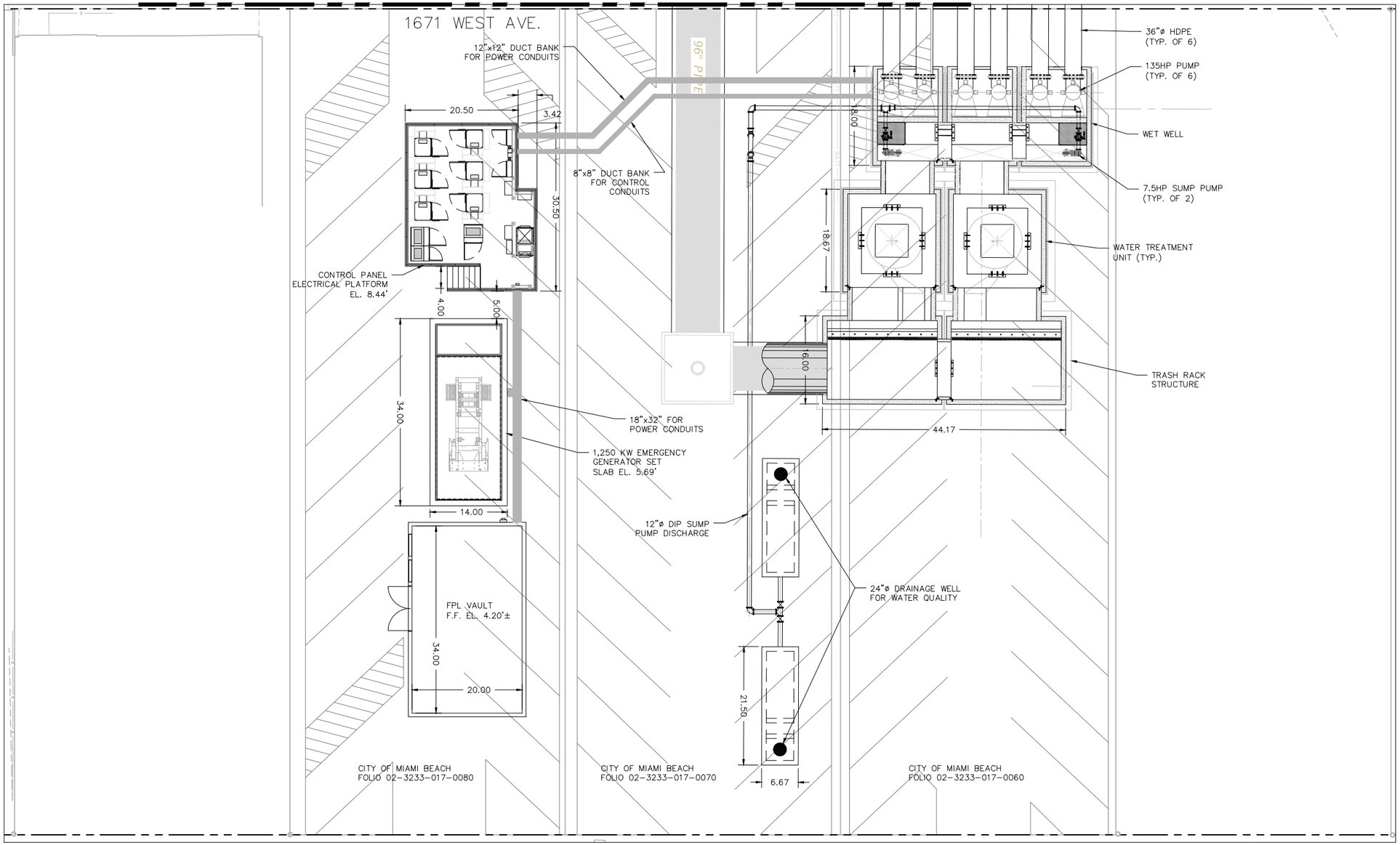
ces CONSULTANTS

APPENDIX C

OPTION 3: Plans, ICPR 4 Flood Maps, and Hydraulic Grade Lines

Exhibit B

MATCH LINE - WEST AVENUE (SEE SHEET OPT3A_02)



N

0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 3A
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

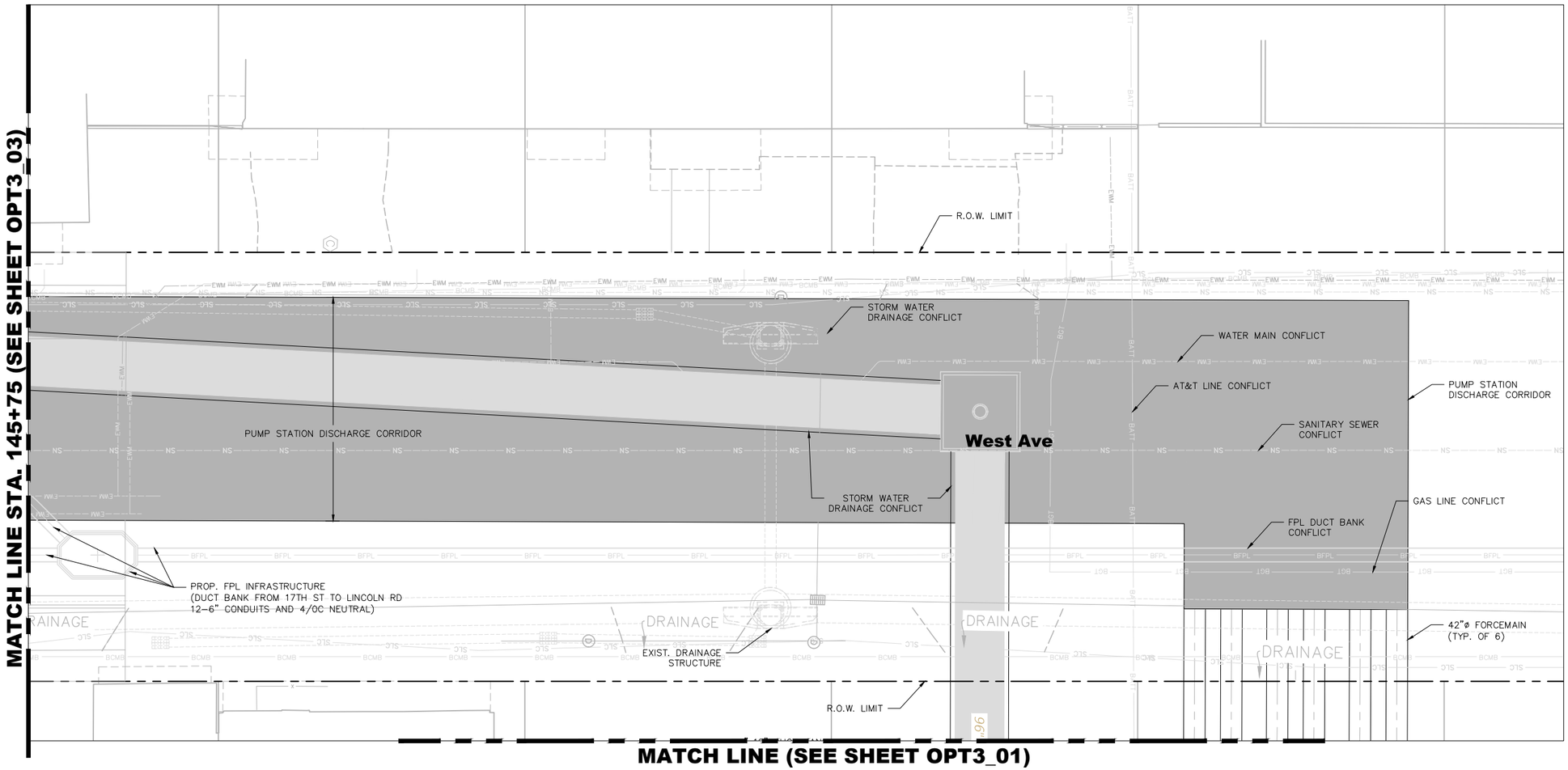
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT3A_01.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT3A_01

Exhibit B



N

0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 3 STORM DRAINAGE PUMP STATION

TITLE: CIVIL PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

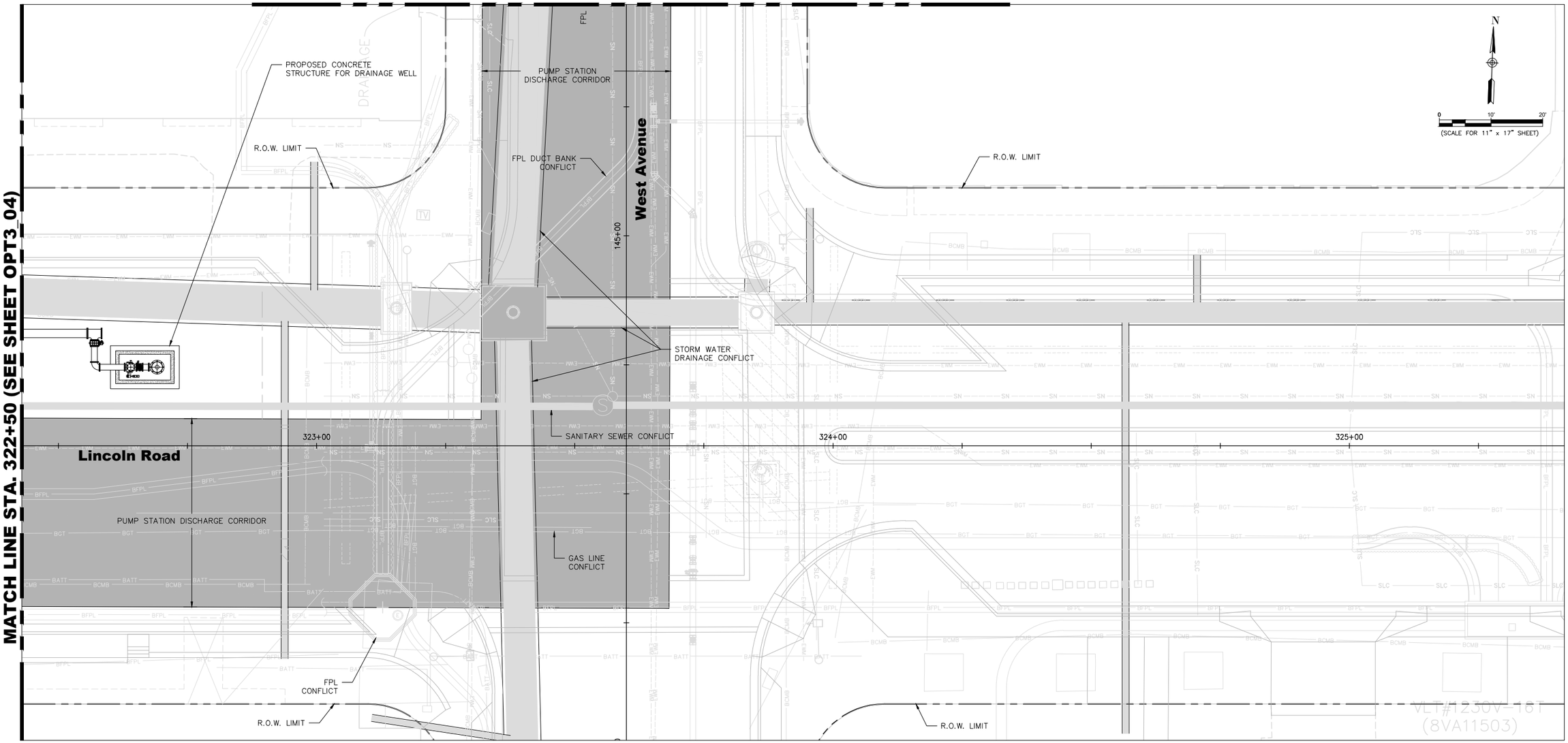
NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT3_02.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT3_02

Exhibit B

MATCH LINE STA. 145+50 (SEE SHEET OPT3_02)

MATCH LINE STA. 322+50 (SEE SHEET OPT3_04)



LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL 33139

NEIGHBORHOOD:
OPTION 3
STORM DRAINAGE PUMP STATION

TITLE:
CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

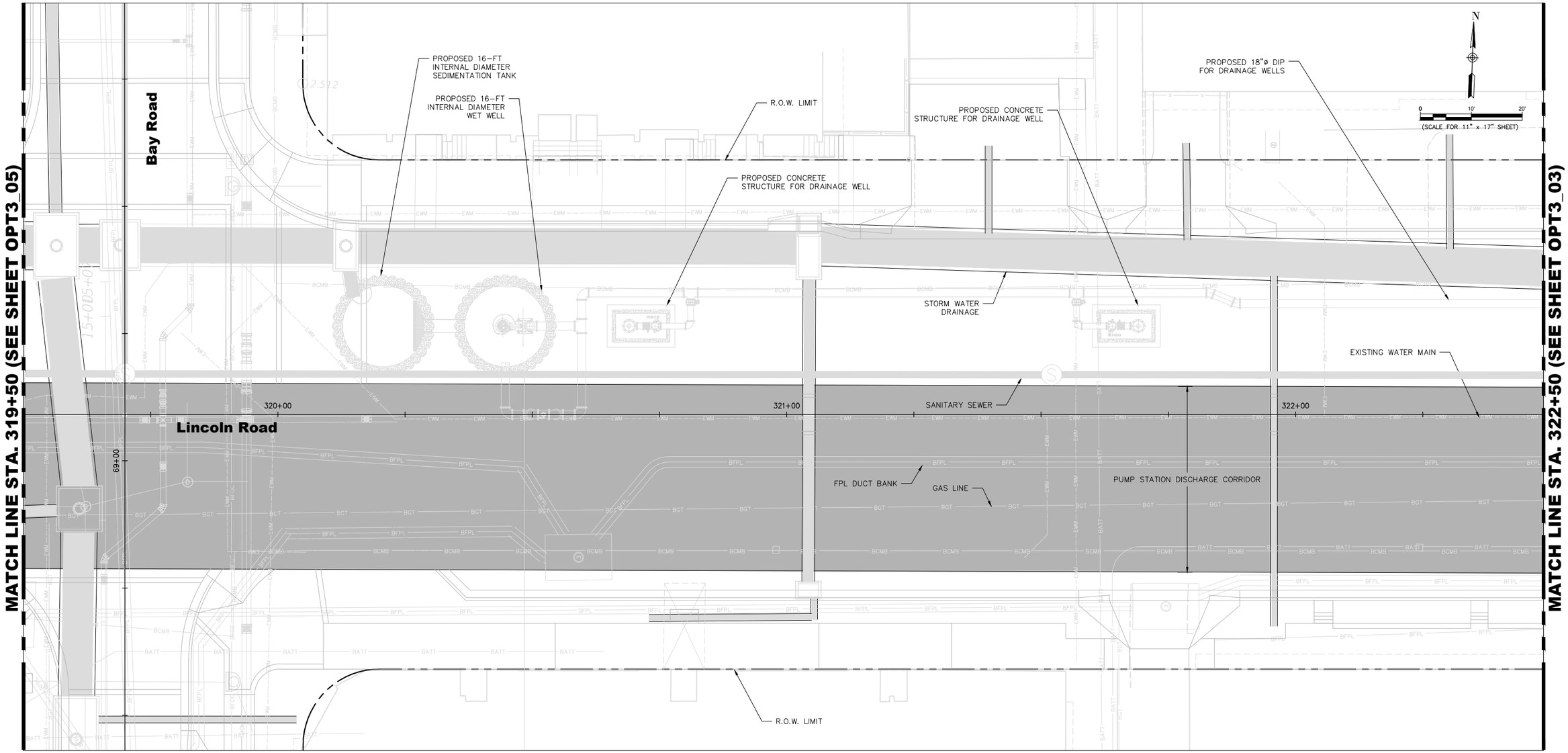
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT3_03.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT3_03

Exhibit B



LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD:
OPTION 3
STORM DRAINAGE PUMP STATION

TITLE:
CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

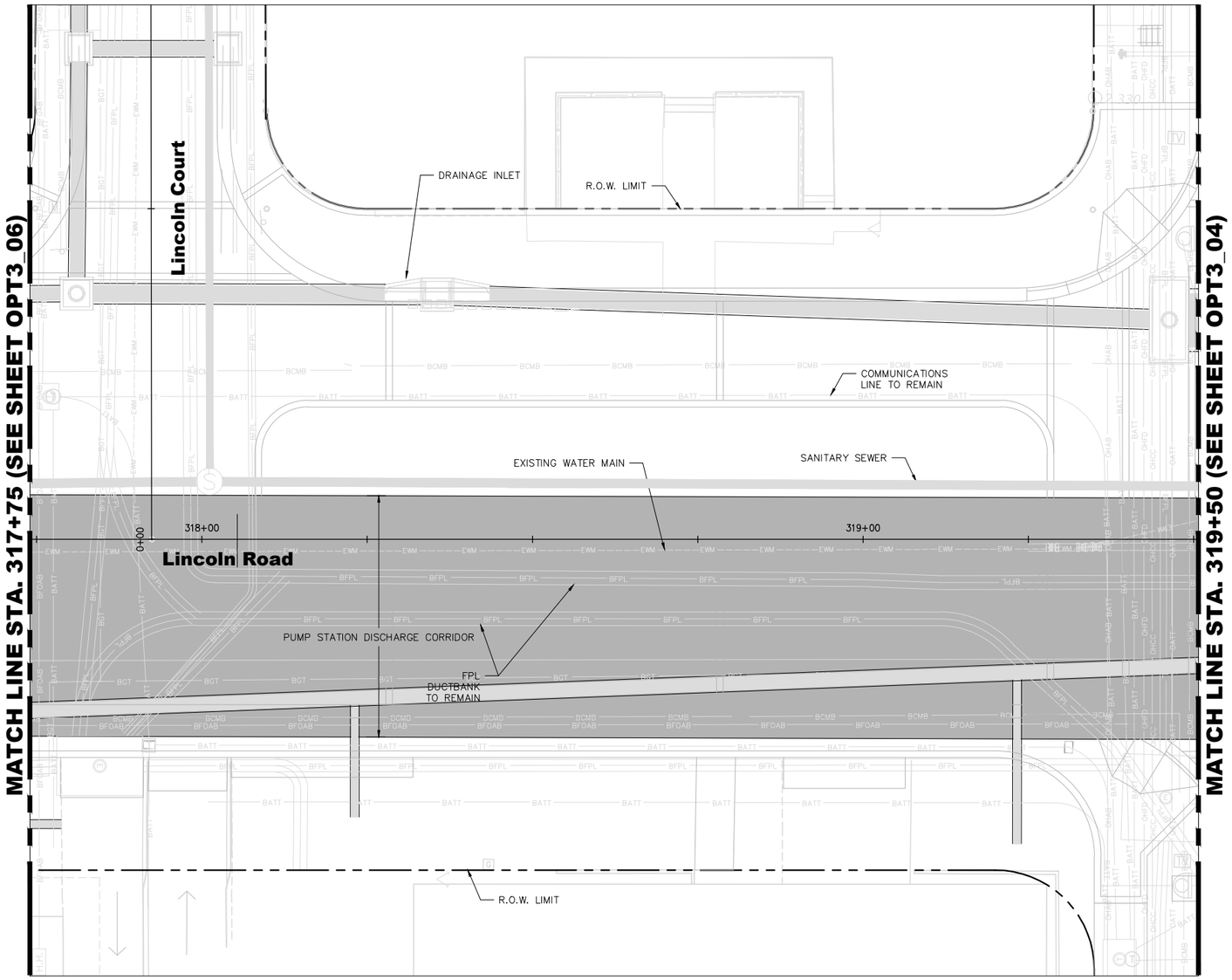
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT3_04.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT3_04

Exhibit B



N

0 10' 20'

(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL 33139

NEIGHBORHOOD:

OPTION 3
STORM DRAINAGE PUMP STATION

TITLE:

CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

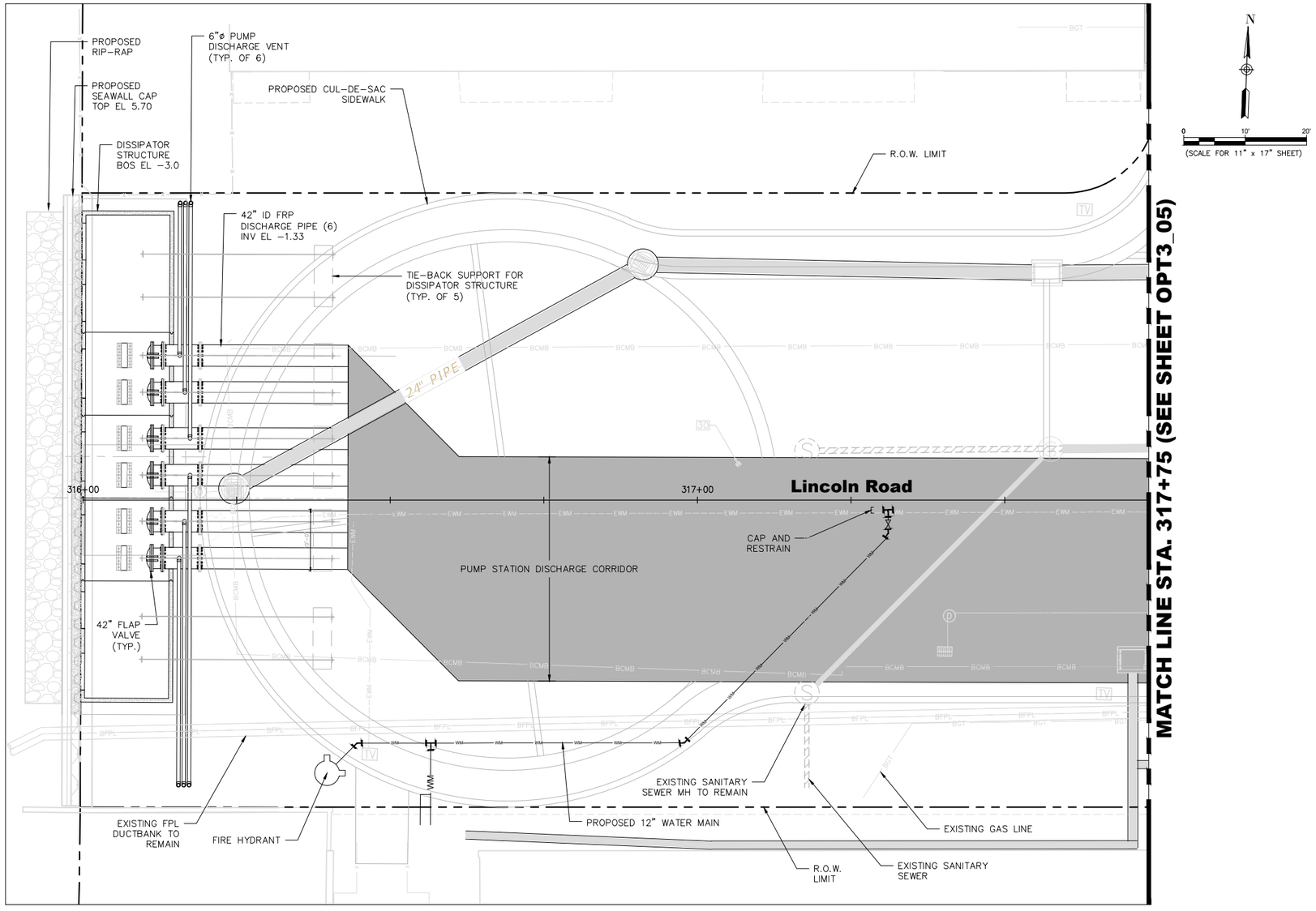
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT3_05.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: **OPT3_05**

Exhibit B



LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 3
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

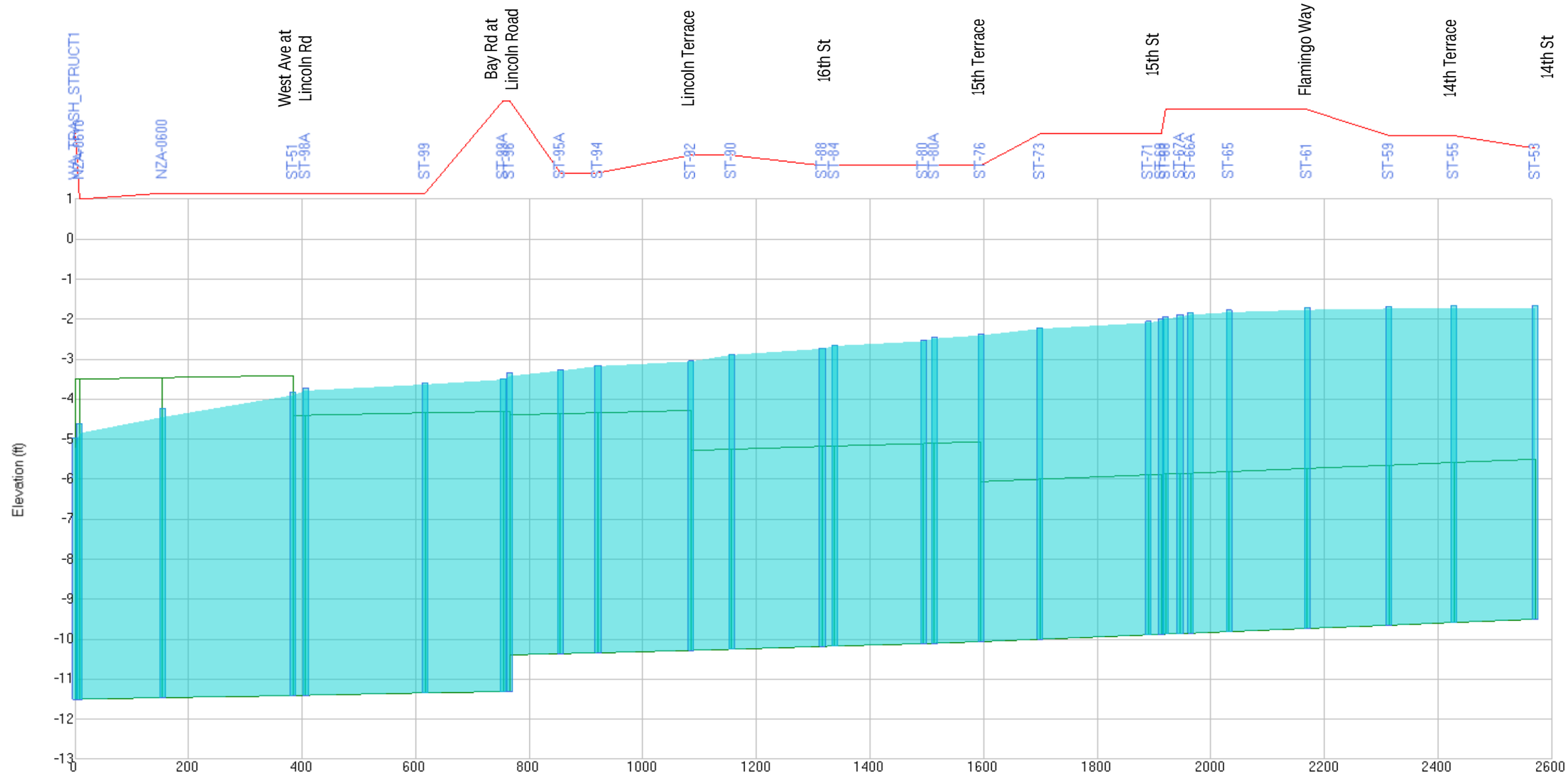
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT3_06.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: OPT3_06

Exhibit B



North - South
West Ave from
Proposed Pump Station
to Lincoln Rd

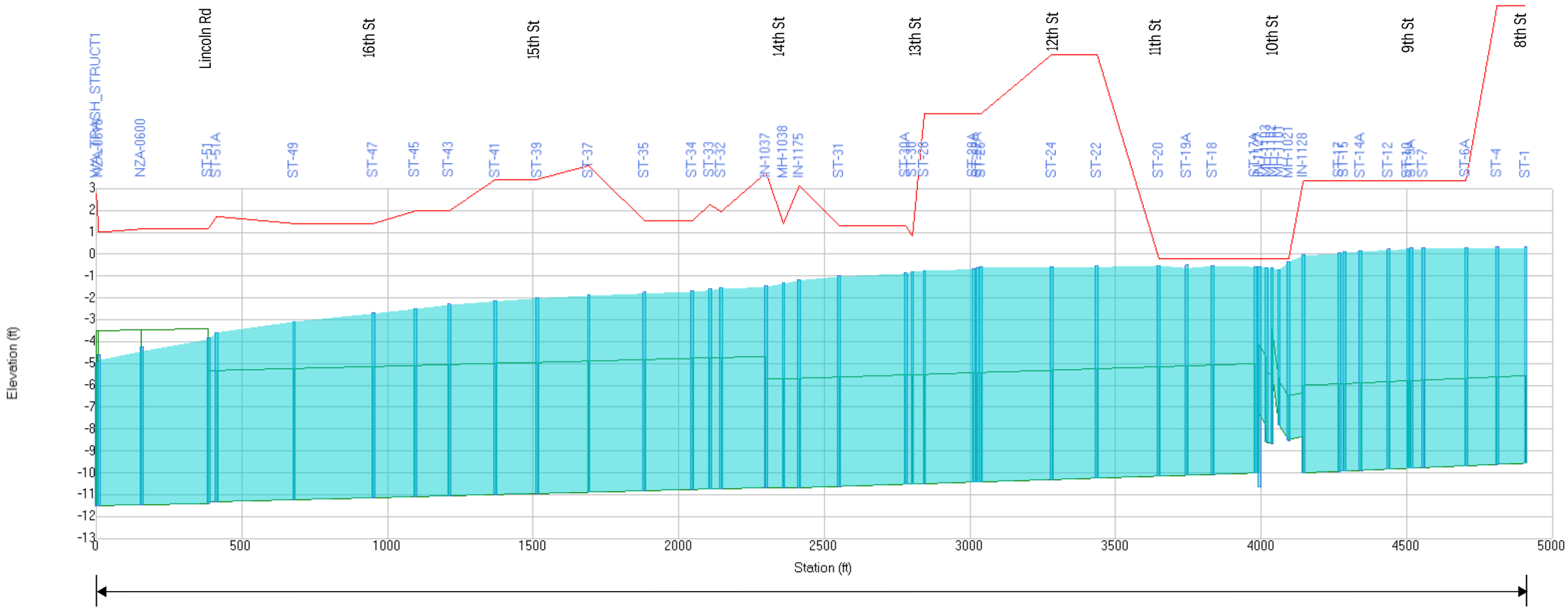
East - West
Lincoln Rd from West
Ave to Bay Rd

North - South
Bay Rd from Lincoln Rd to 14th St

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B

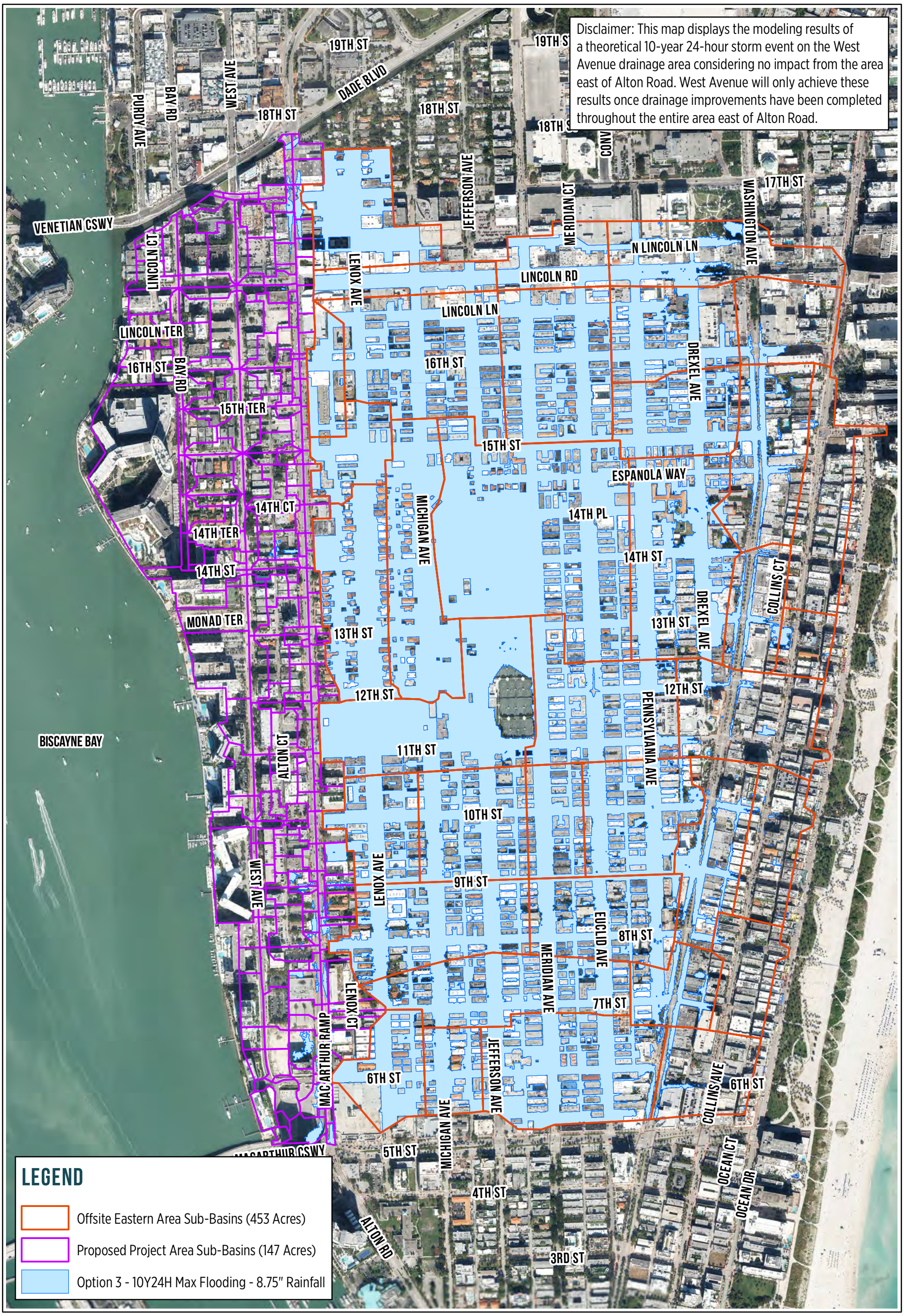


North - South
West Ave from North of Lincoln Rd to 8th Street

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



Document Name: OPT3CLIP_10Y24H_wBasins

Date Saved: 7/10/2020 6:41:52 PM

CITY OF MIAMI BEACH

Feasibility Study
Option 3 (147 Ac)
10YR 24HR Design Storm Event

1 inch = 600 feet

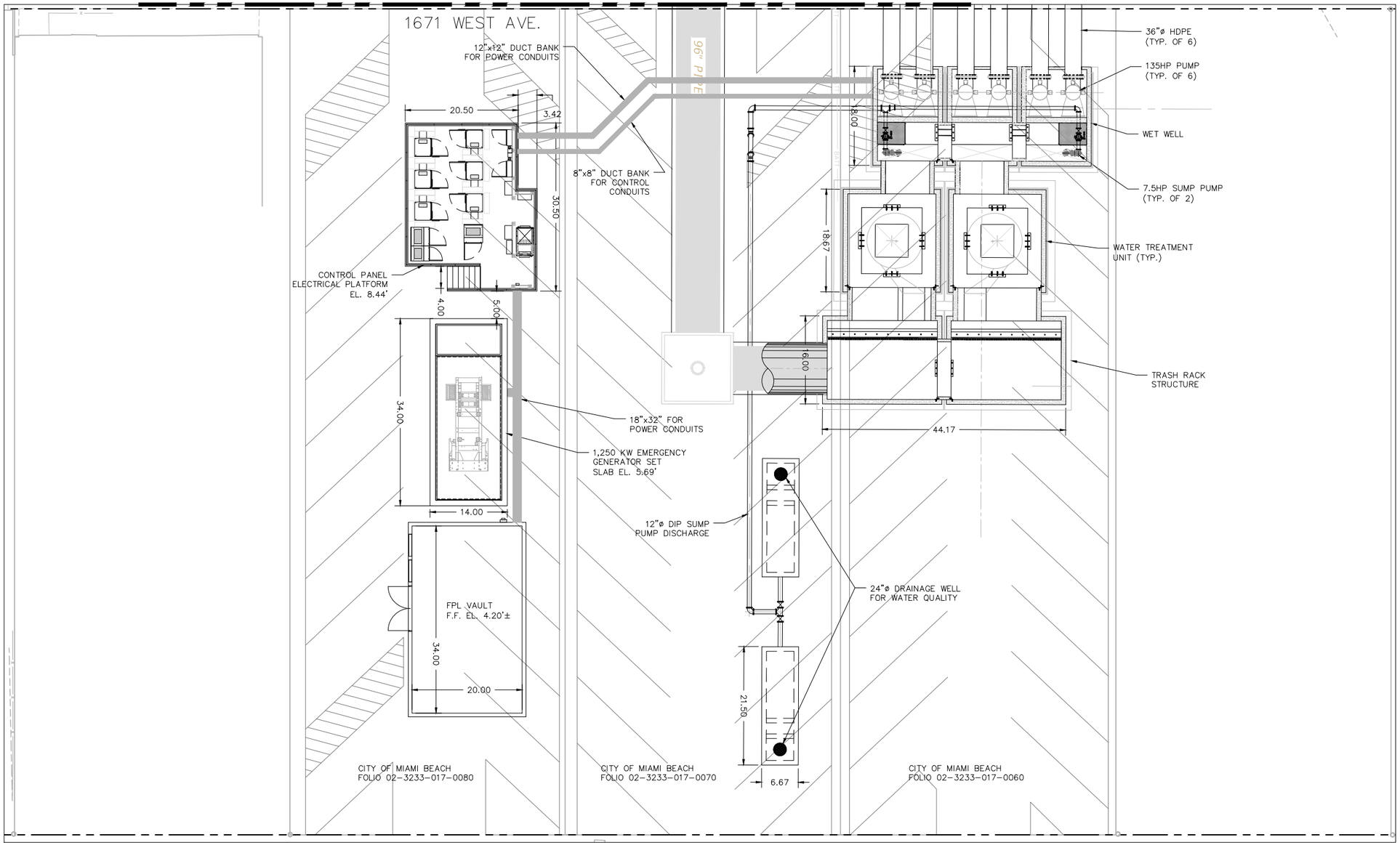
N

0 600 1,200 Feet

ces CONSULTANTS

Exhibit B

MATCH LINE - WEST AVENUE (SEE SHEET OPT3A_02)



N

0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 3A
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

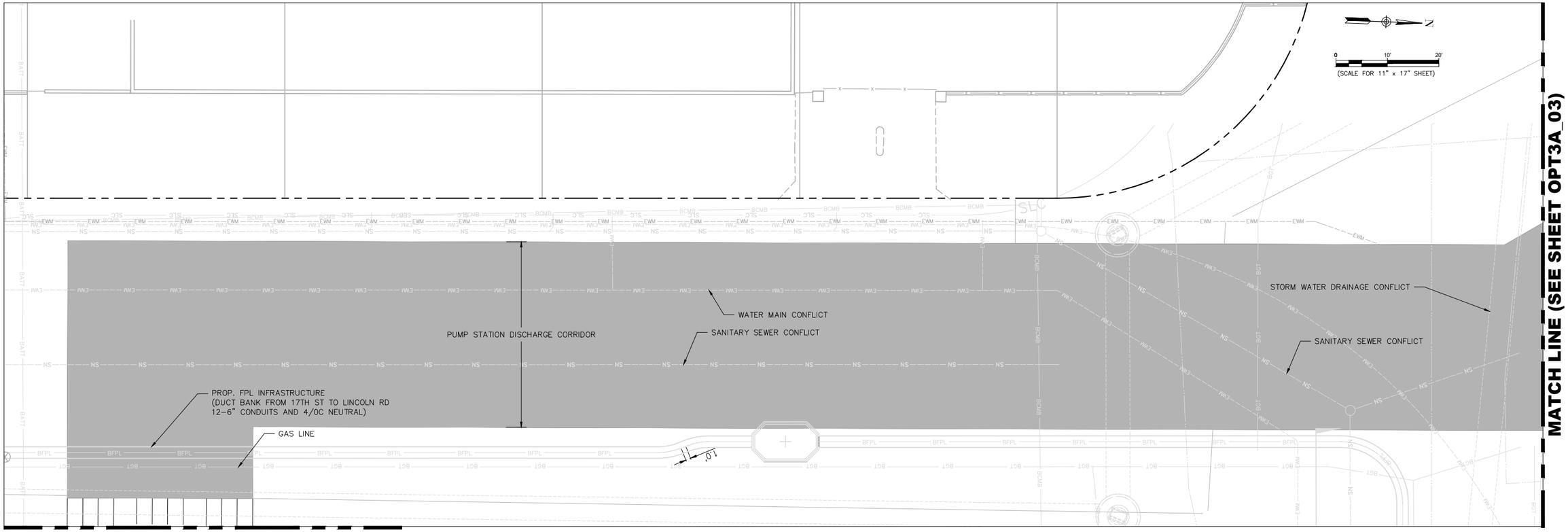
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT3A_01.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT3A_01

Exhibit B



MATCH LINE (SEE SHEET OPT3A_01)

LEGEND:

BATT	BURIED ATT
BFPL	BURIED FPL
BGT	BURIED GAS
BFOAB	BURIED FIBER OPTIC
	RIGHT-OF-WAY
	CATCH BASIN
D	STORM DRAINAGE MANHOLE
S	SANITARY SEWER MANHOLE
E	ELECTRICAL MANHOLE
T	TELEPHONE MANHOLE
	BACK FLOW PREVENTER
	FIRE HYDRANT
TV	CABLE TV COMMUNICATION BOX
M	WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 3A
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

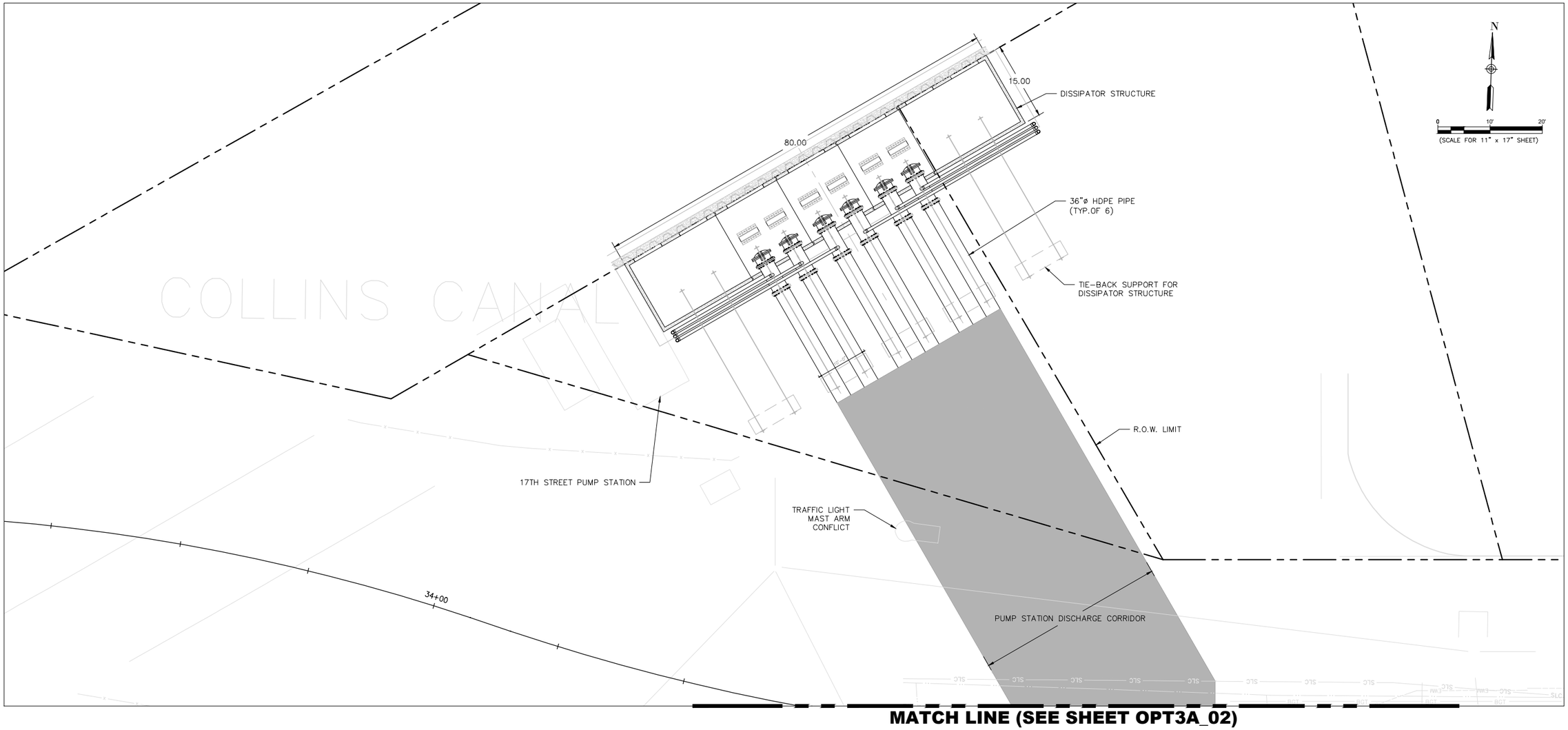
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT3A_02.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT3A_02

Exhibit B



LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 3A
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

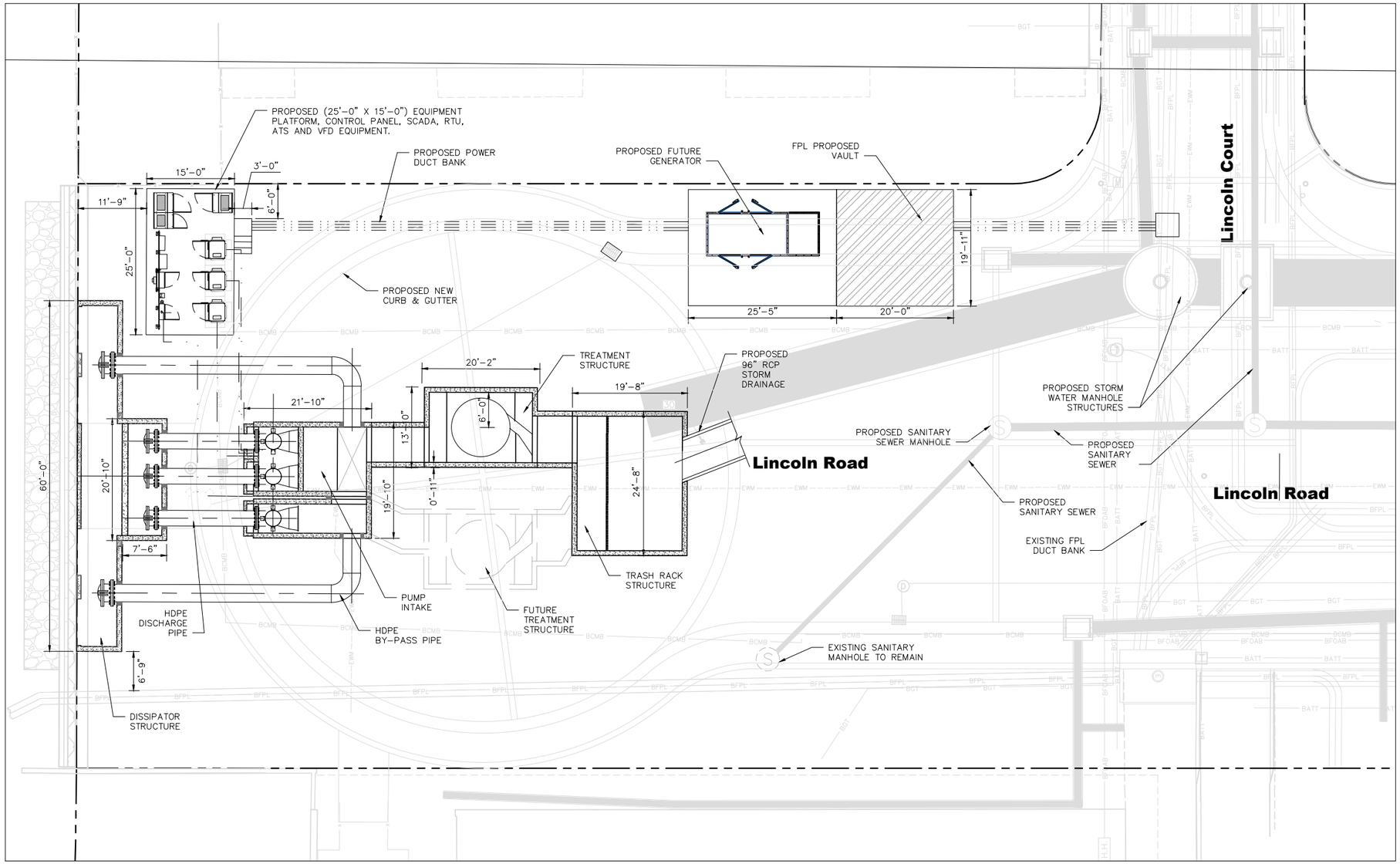
NO	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT3A_03.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT3A_03

APPENDIX D

OPTION 4: Plans, ICPR 4 Flood Maps, and Hydraulic Grade Lines

Exhibit B



N

0 10' 20'

(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD:

OPTION 4
STORM DRAINAGE PUMP STATION

TITLE:

CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

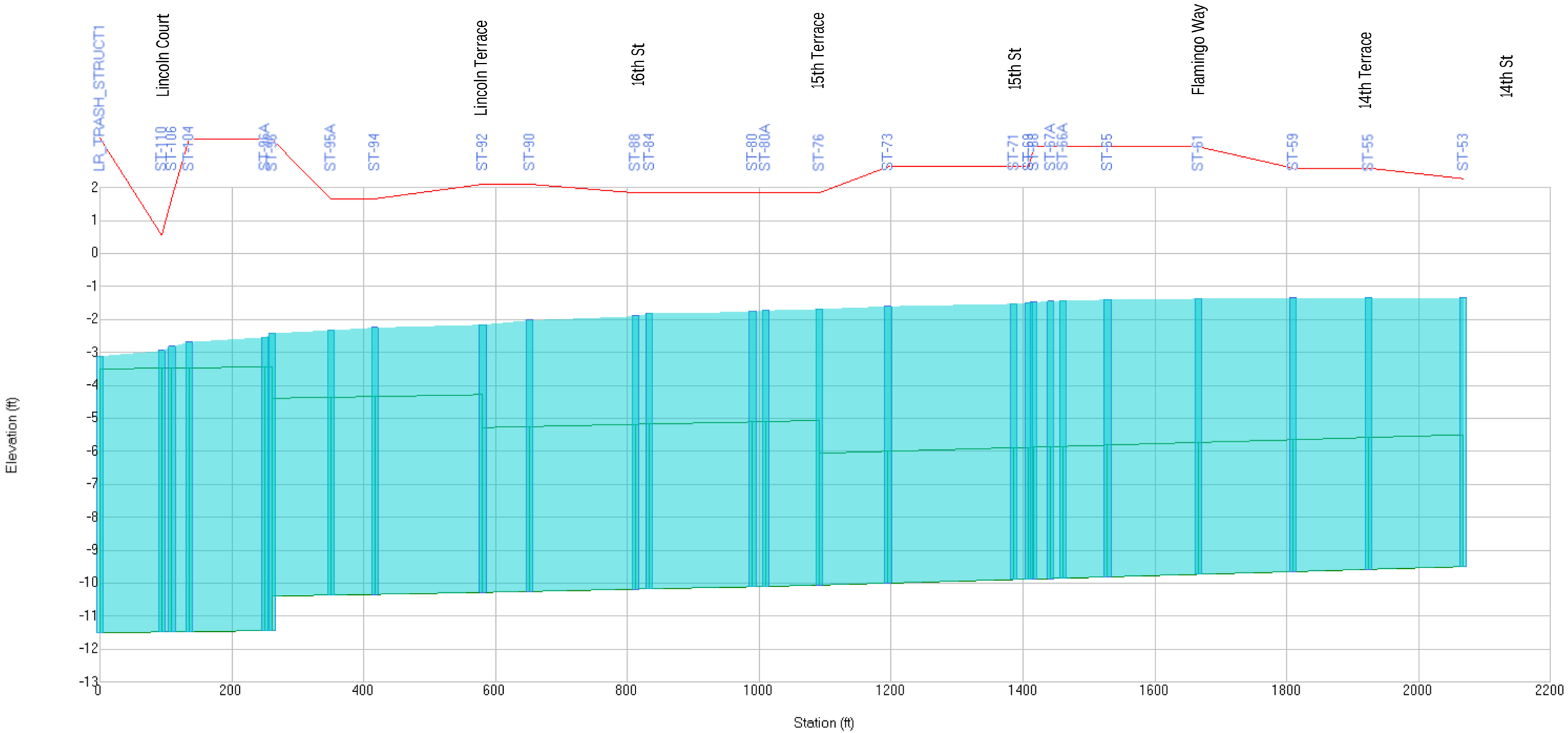
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT4_01.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: OPT4_01

Exhibit B



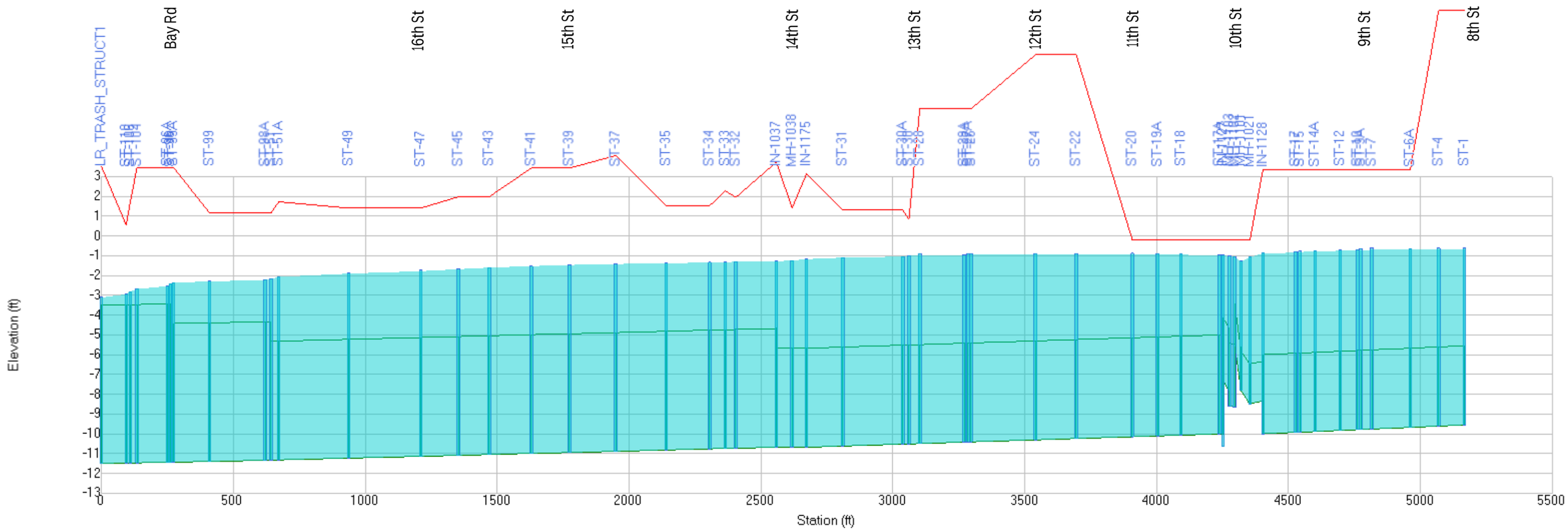
West - East
Lincoln Rd from
Proposed Pump Station
to Bay Rd

North - South
Bay Rd from Lincoln Rd to 14th St

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



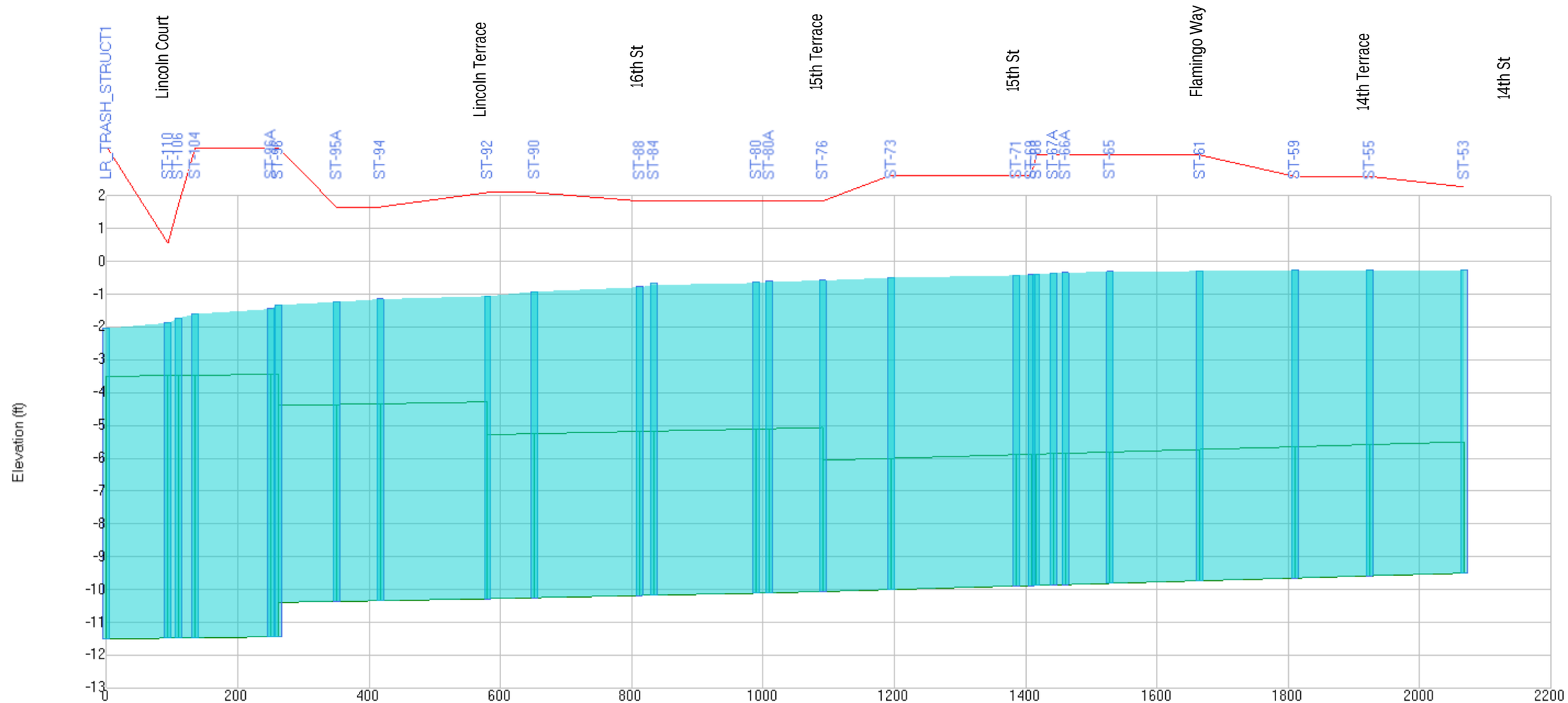
West - East
Lincoln Rd from
Proposed Pump Station
to West Avenue

North - South
West Ave from Lincoln Rd to 8th Street

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



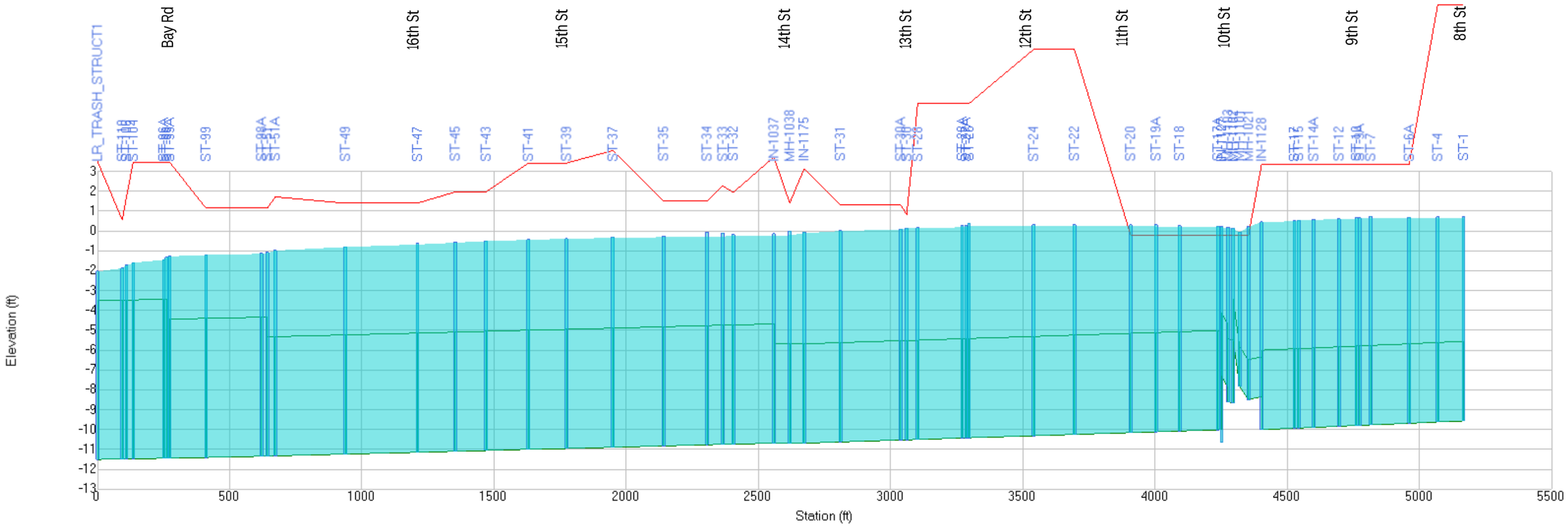
West - East
Lincoln Rd from
Proposed Pump Station
to Bay Rd

North - South
Bay Rd from Lincoln Rd to 14th St

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



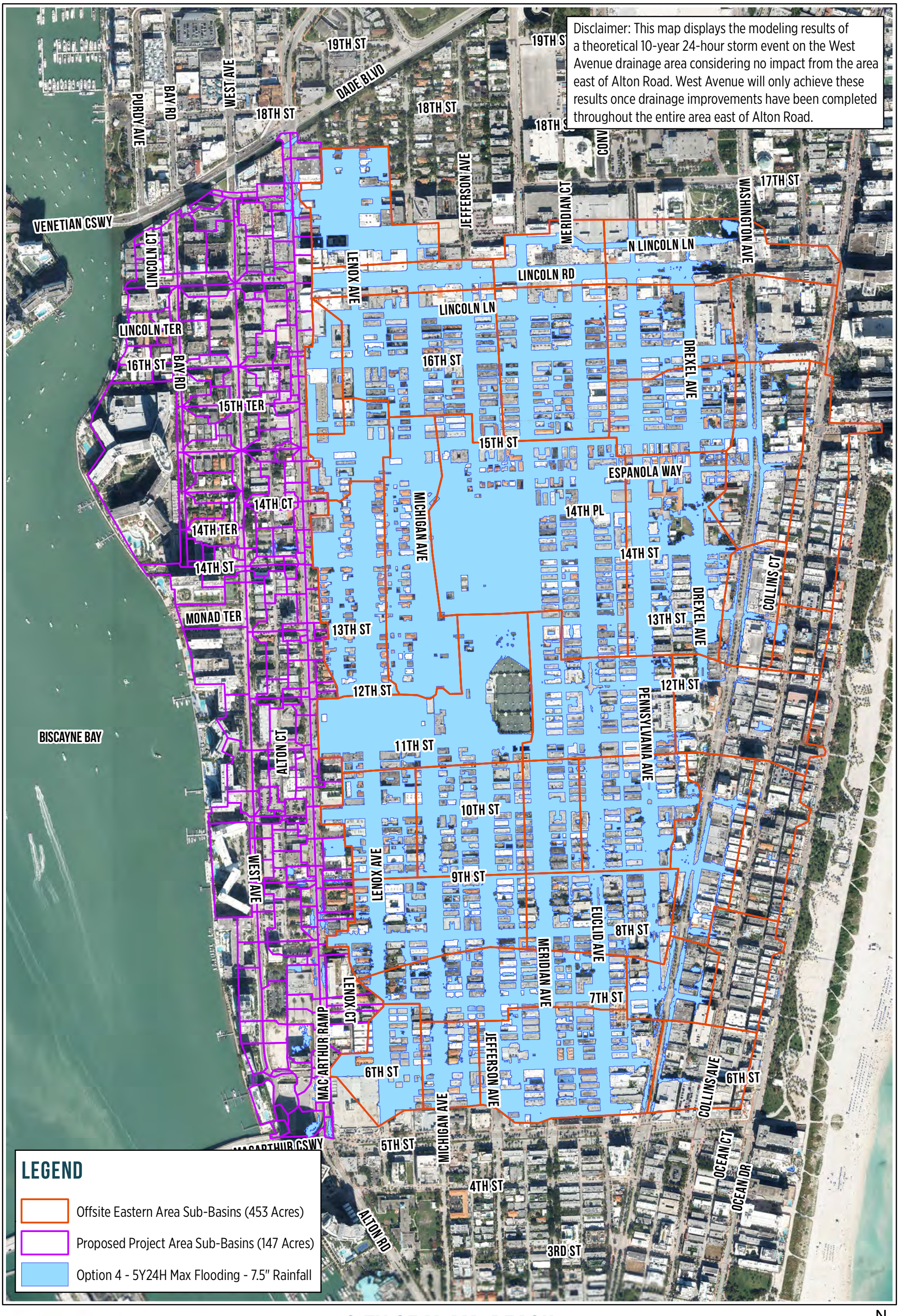
West - East
Lincoln Rd from
Proposed Pump Station
to West Avenue

North - South
West Ave from Lincoln Rd to 8th Street

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



Document Name: OPT4CLIP_5Y24H_wBasins

Date Saved: 7/17/2020 3:28:48 PM

CITY OF MIAMI BEACH

Feasibility Study

Option 4 (147 Ac)

5YR 24HR Design Storm Event

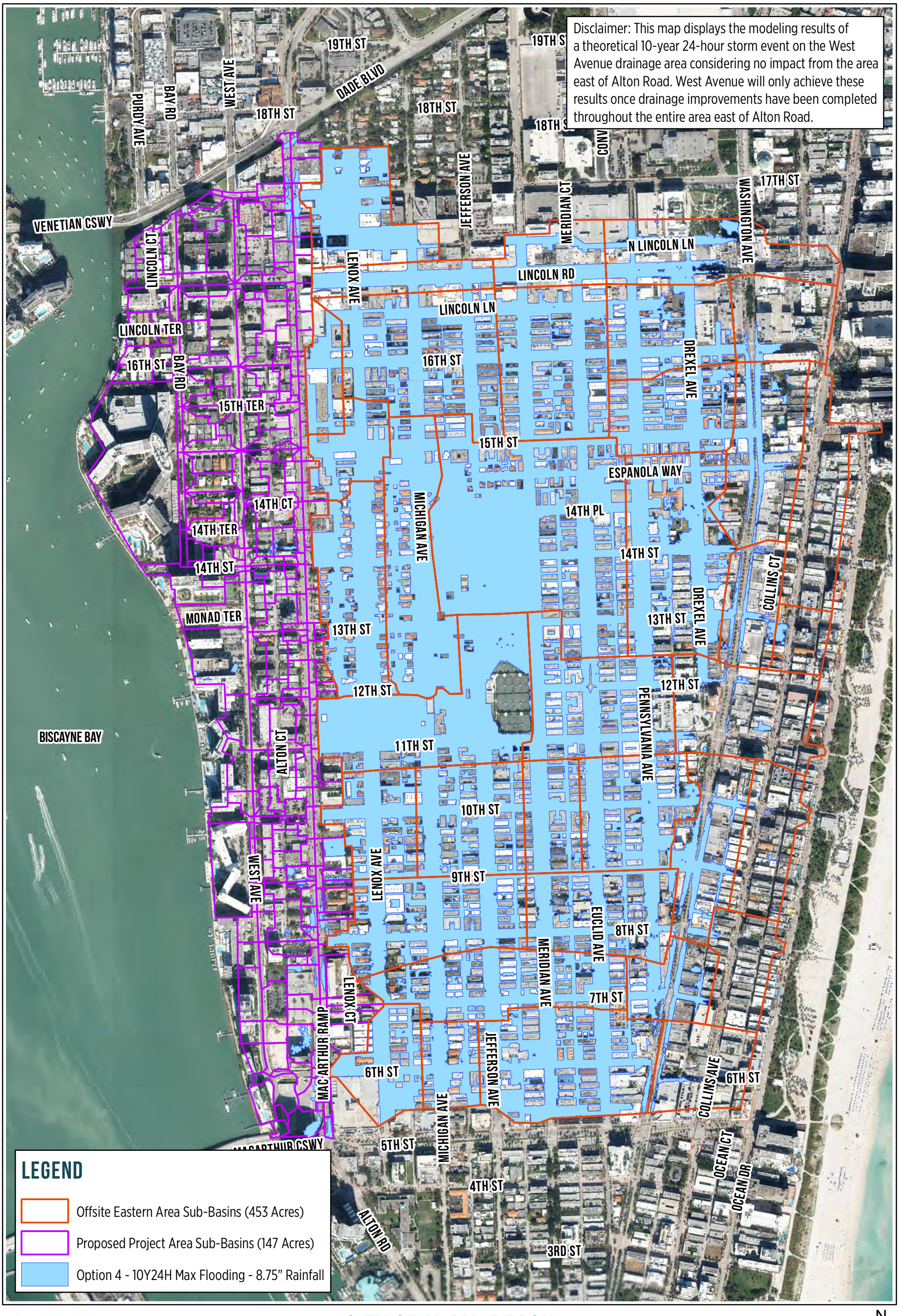
1 inch = 600 feet

N

0 600 1,200 Feet

CES CONSULTANTS

Exhibit B



Document Name: OPT4CLIP_10Y24H_wBasins

Date Saved: 7/17/2020 3:22:12 PM

ces CONSULTANTS

CITY OF MIAMI BEACH

Feasibility Study

Option 4 (147 Ac)

10YR 24HR Design Storm Event

1 inch = 600 feet

N

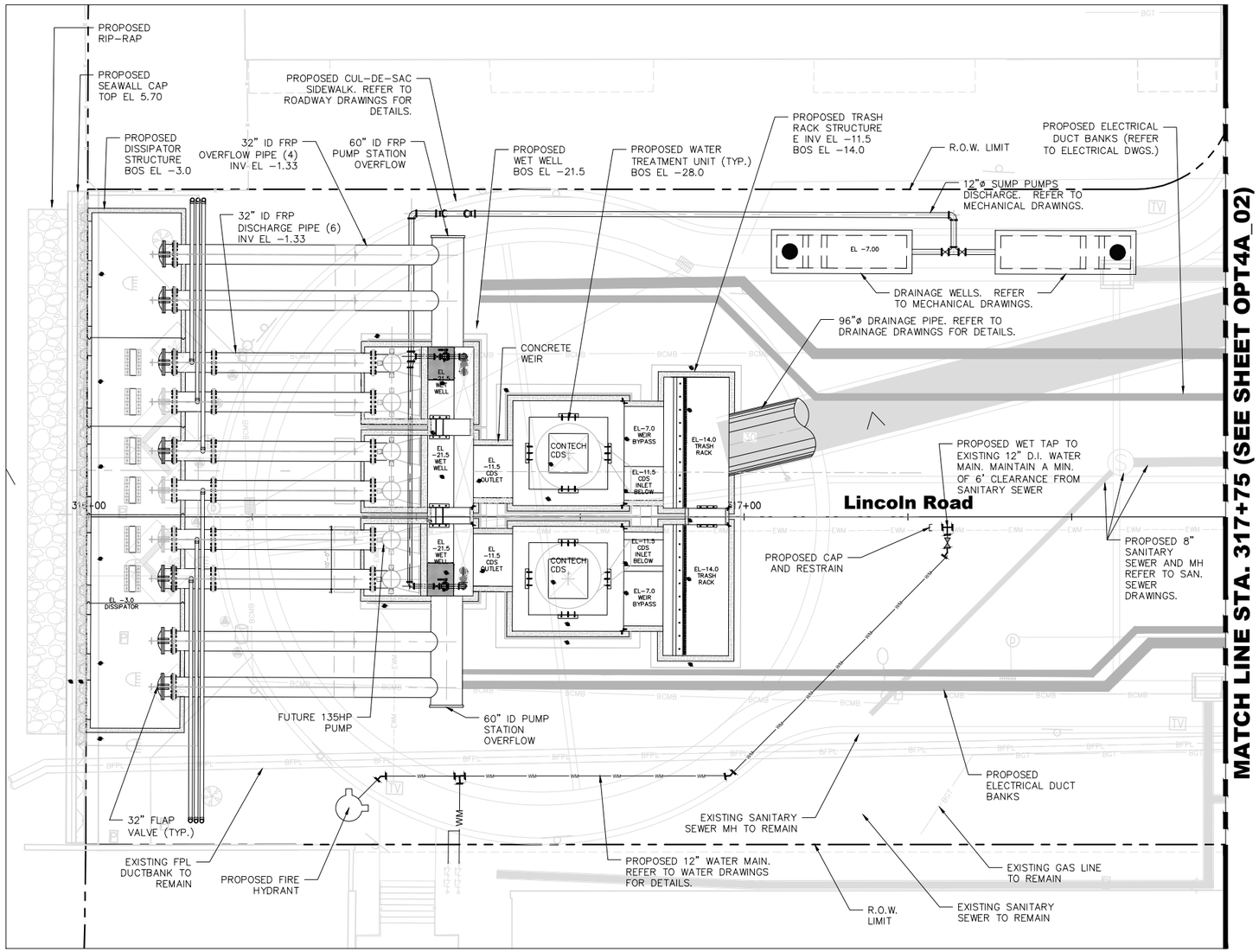
0 600 1,200 Feet

Exhibit B

APPENDIX E

OPTION 4A: Plans, ICPR 4 Flood Maps, and Hydraulic Grade Lines

Exhibit B



N

0 10' 20'

(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 4A
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

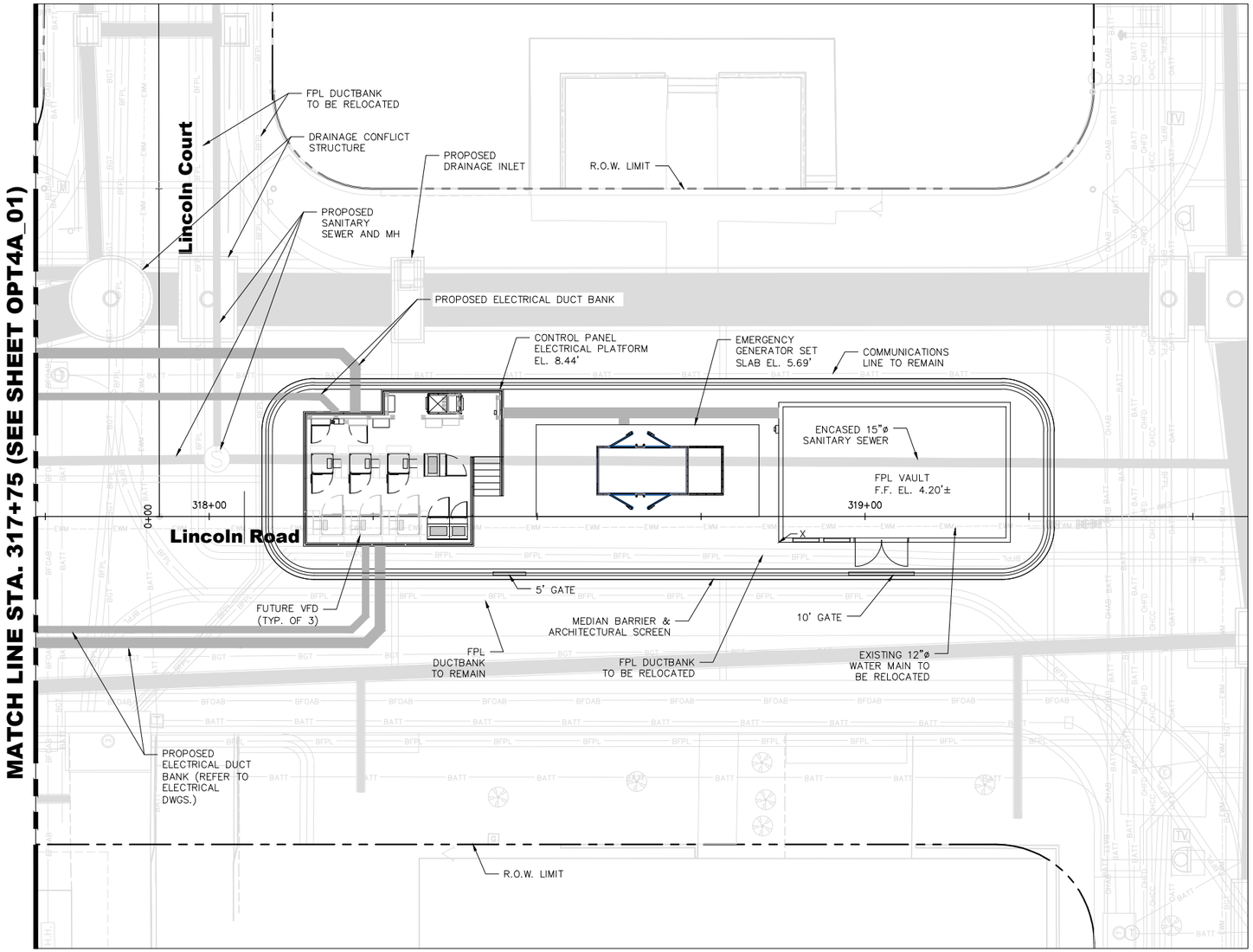
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT4A_01.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: OPT4A_01

Exhibit B



N

0 10' 20'

(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 4A
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT4A_02.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: OPT4A_02

Exhibit B

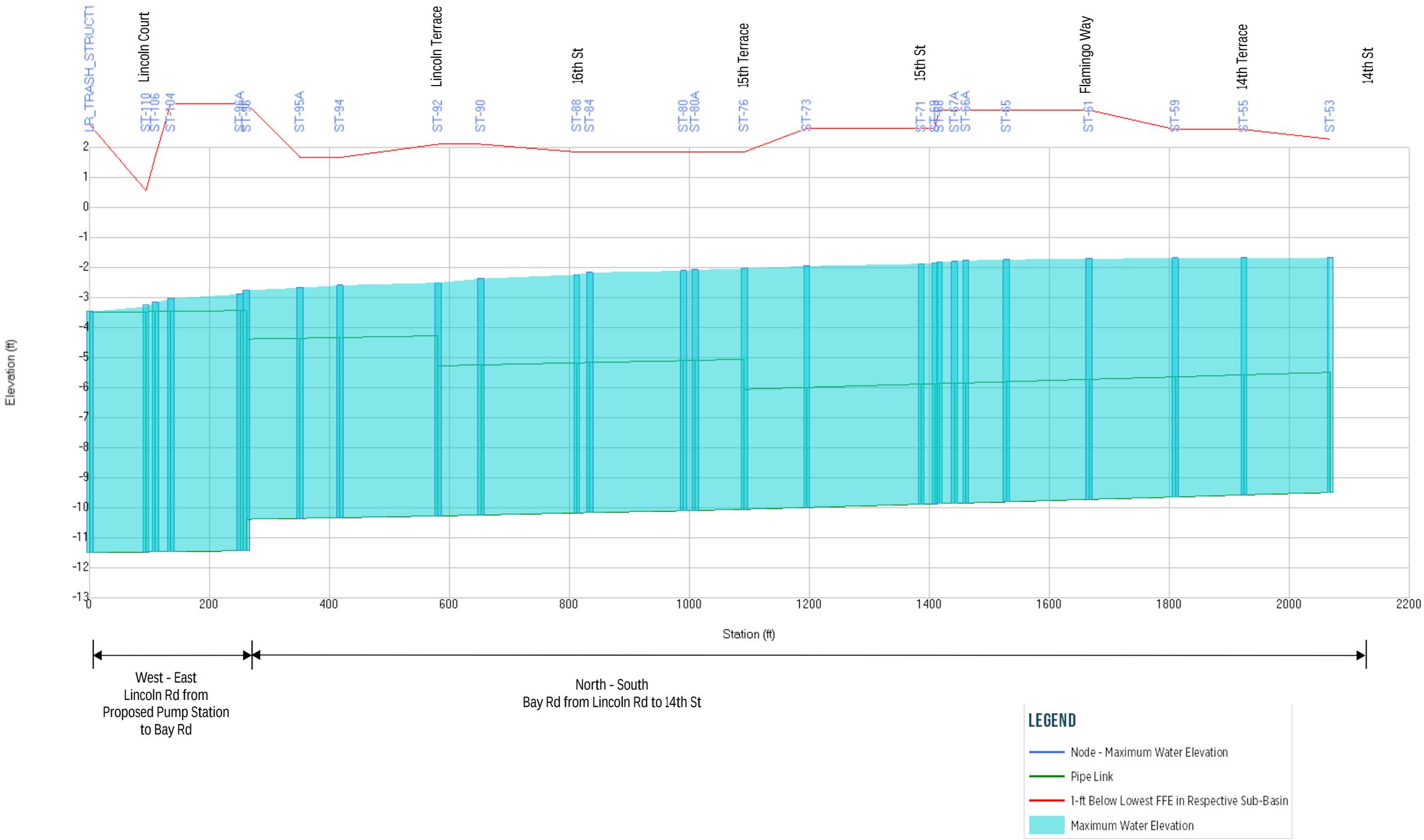
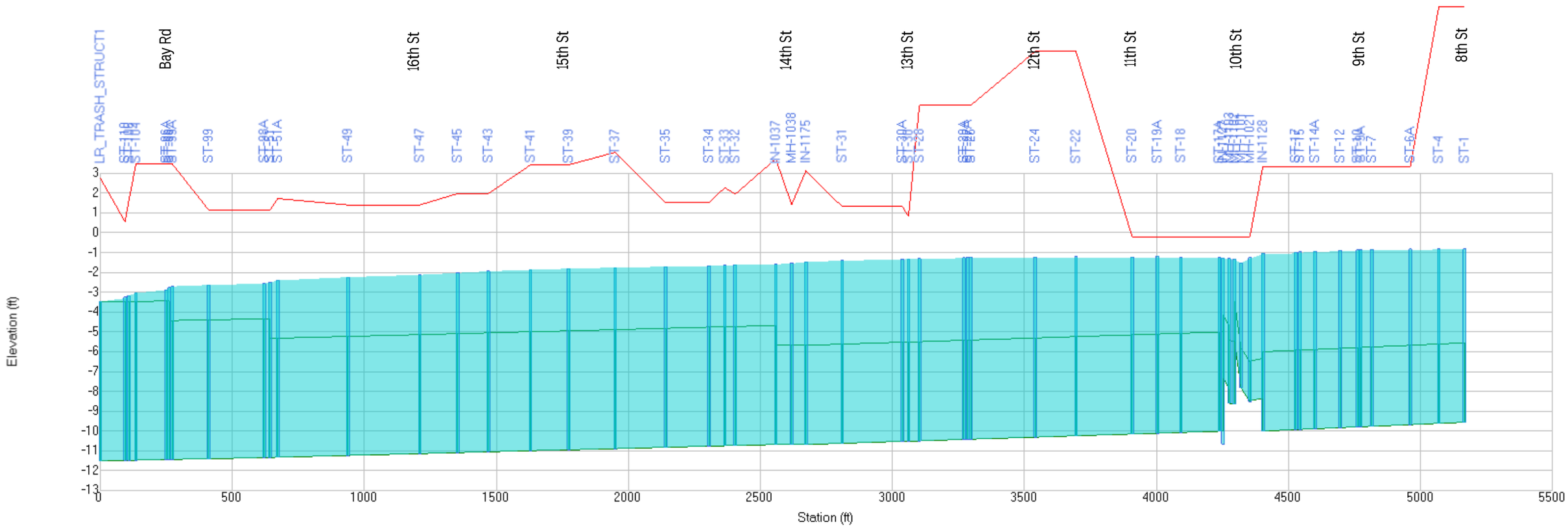

LR_TRASH_STRUCT1
Lincoln Court
Lincoln Terrace
16th St
15th Terrace
15th St
Flamingo Way
14th Terrace
14th St
ST-110
ST-106
ST-104
ST-96A
ST-95
ST-95A
ST-94
ST-92
ST-90
ST-88
ST-84
ST-80
ST-80A
ST-76
ST-73
ST-71
ST-68
ST-67A
ST-66A
ST-65
ST-61
ST-59
ST-55
ST-53
Elevation (ft)
Station (ft)
West - East
Lincoln Rd from
Proposed Pump Station
to Bay Rd
North - South
Bay Rd from Lincoln Rd to 14th St
LEGEND
Node - Maximum Water Elevation
Pipe Link
1-ft Below Lowest FFE in Respective Sub-Basin
Maximum Water Elevation

Exhibit B



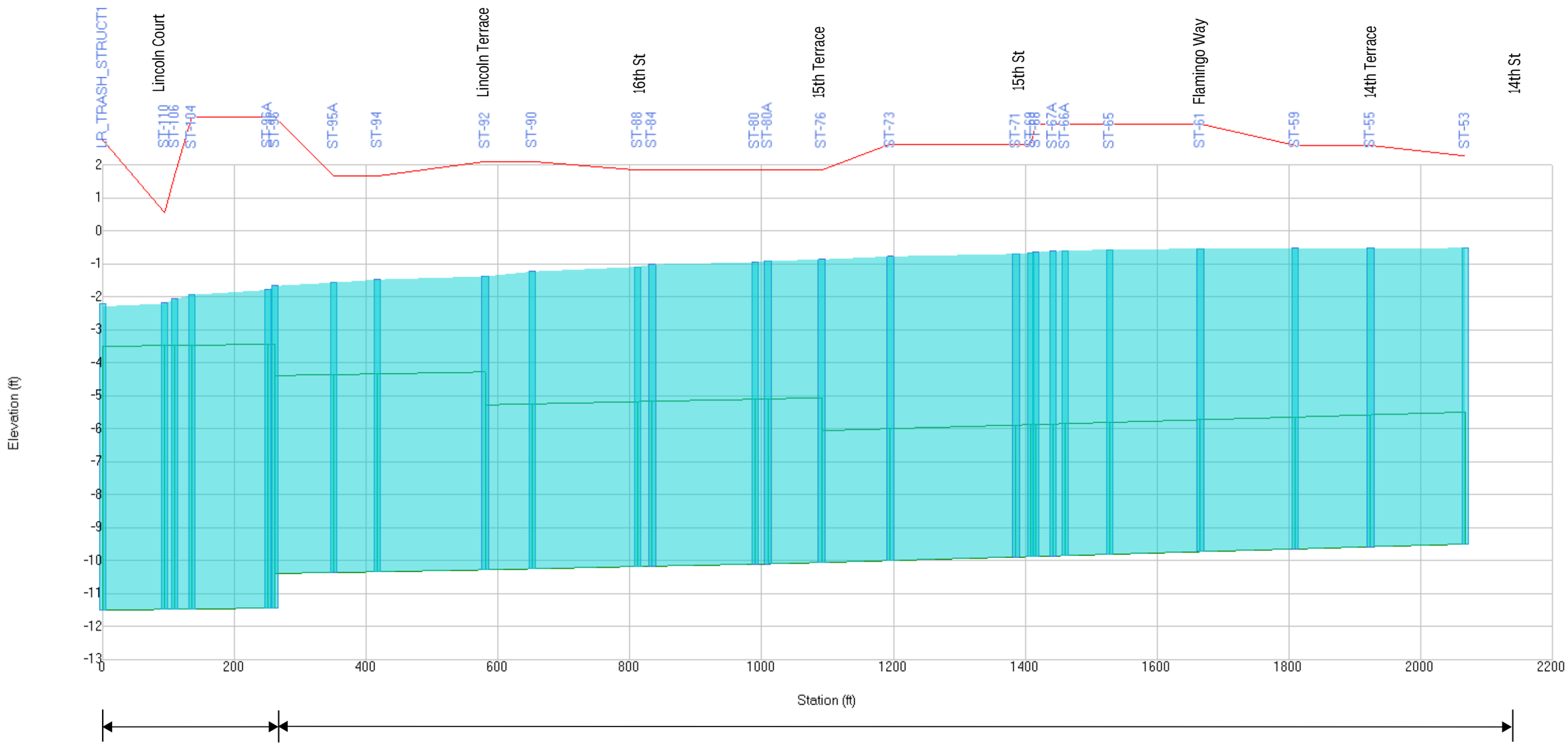
West - East
Lincoln Rd from
Proposed Pump Station
to West Avenue

North - South
West Ave from Lincoln Rd to 8th Street

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

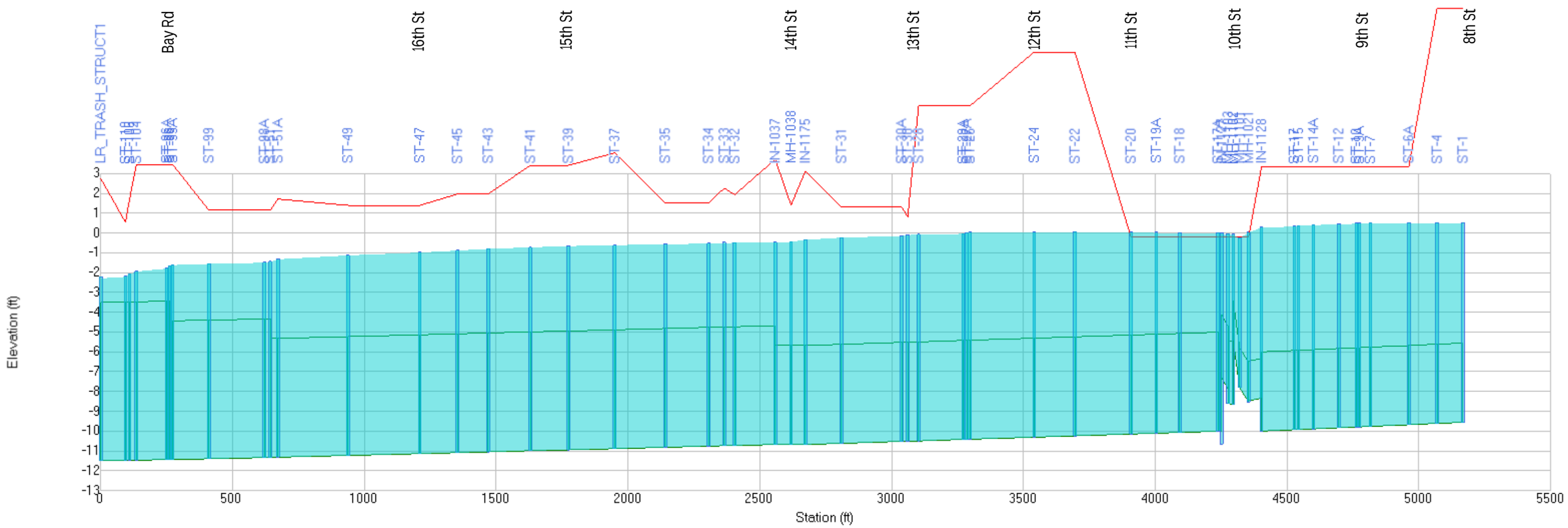
Exhibit B



LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



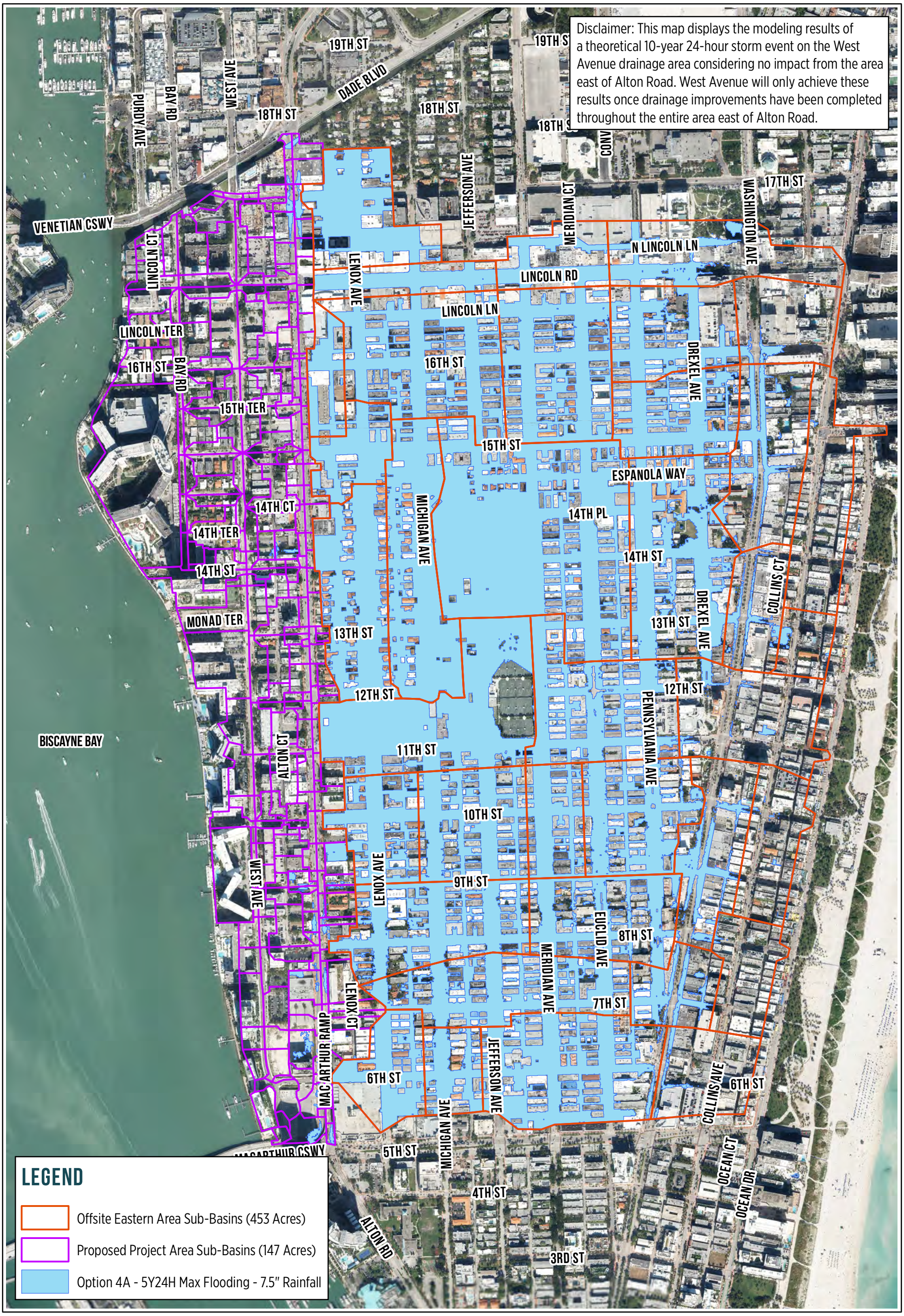
West - East
Lincoln Rd from
Proposed Pump Station
to West Avenue

North - South
West Ave from Lincoln Rd to 8th Street

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



Date Saved: 7/17/2020 3:33:48 PM

Document Name: OPT4ACLIP_5Y24H_wBasins

CITY OF MIAMI BEACH

Feasibility Study
Option 4A (147 Ac)
5YR 24HR Design Storm Event

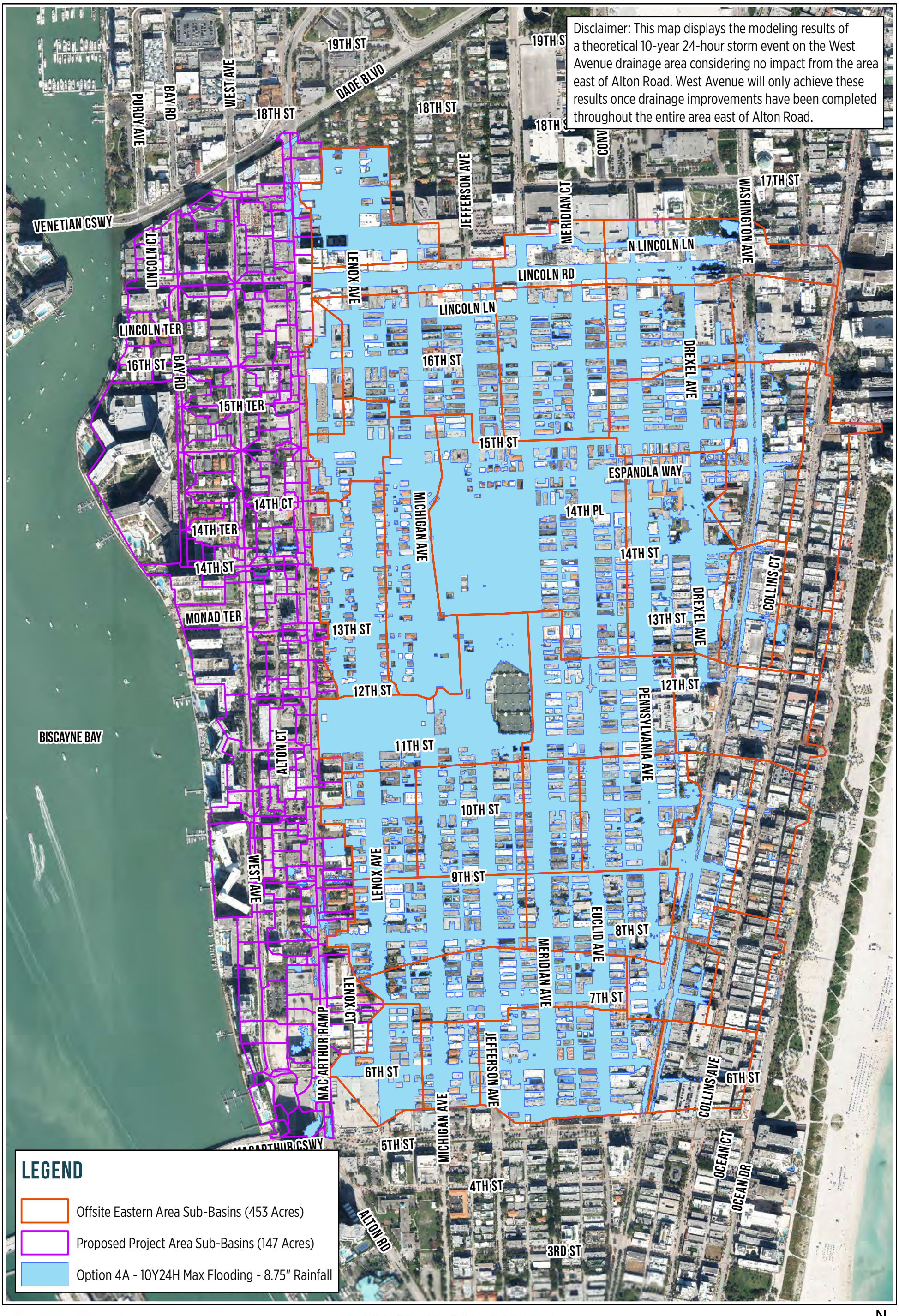
1 inch = 600 feet

N

0 600 1,200 Feet

CONSULTANTS

Exhibit B



Document Name: OPT4ACLIP_10Y24H_wBasins

Date Saved: 7/17/2020 3:40:01 PM

ces CONSULTANTS

CITY OF MIAMI BEACH

Feasibility Study

Option 4A (147 Ac)

10YR 24HR Design Storm Event

1 inch = 600 feet

N

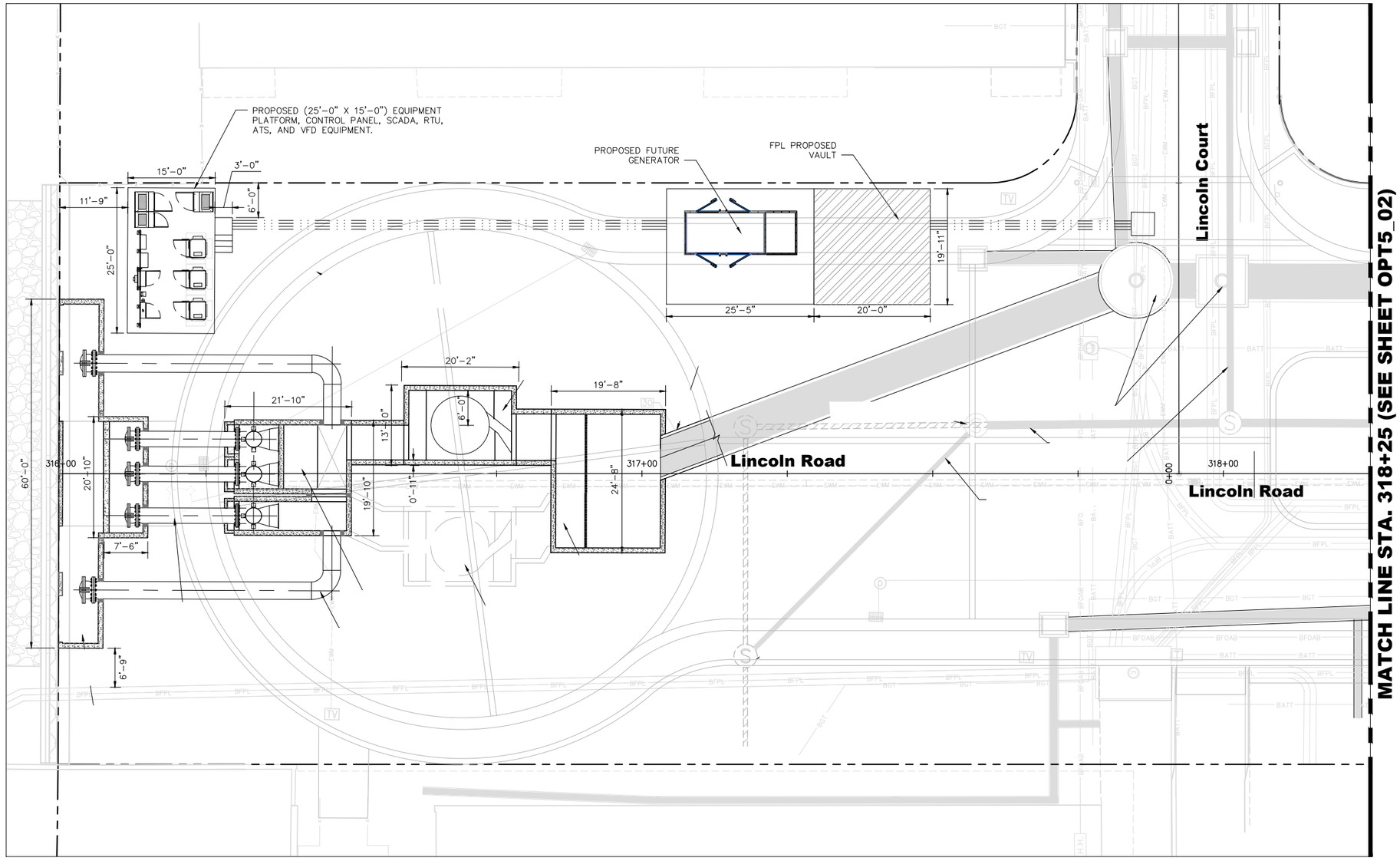
0 600 1,200 Feet

Exhibit B

APPENDIX F

OPTION 5: Plans, ICPR 4 Flood Maps, and Hydraulic Grade Lines

Exhibit B



N

0 10' 20'

(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 5
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

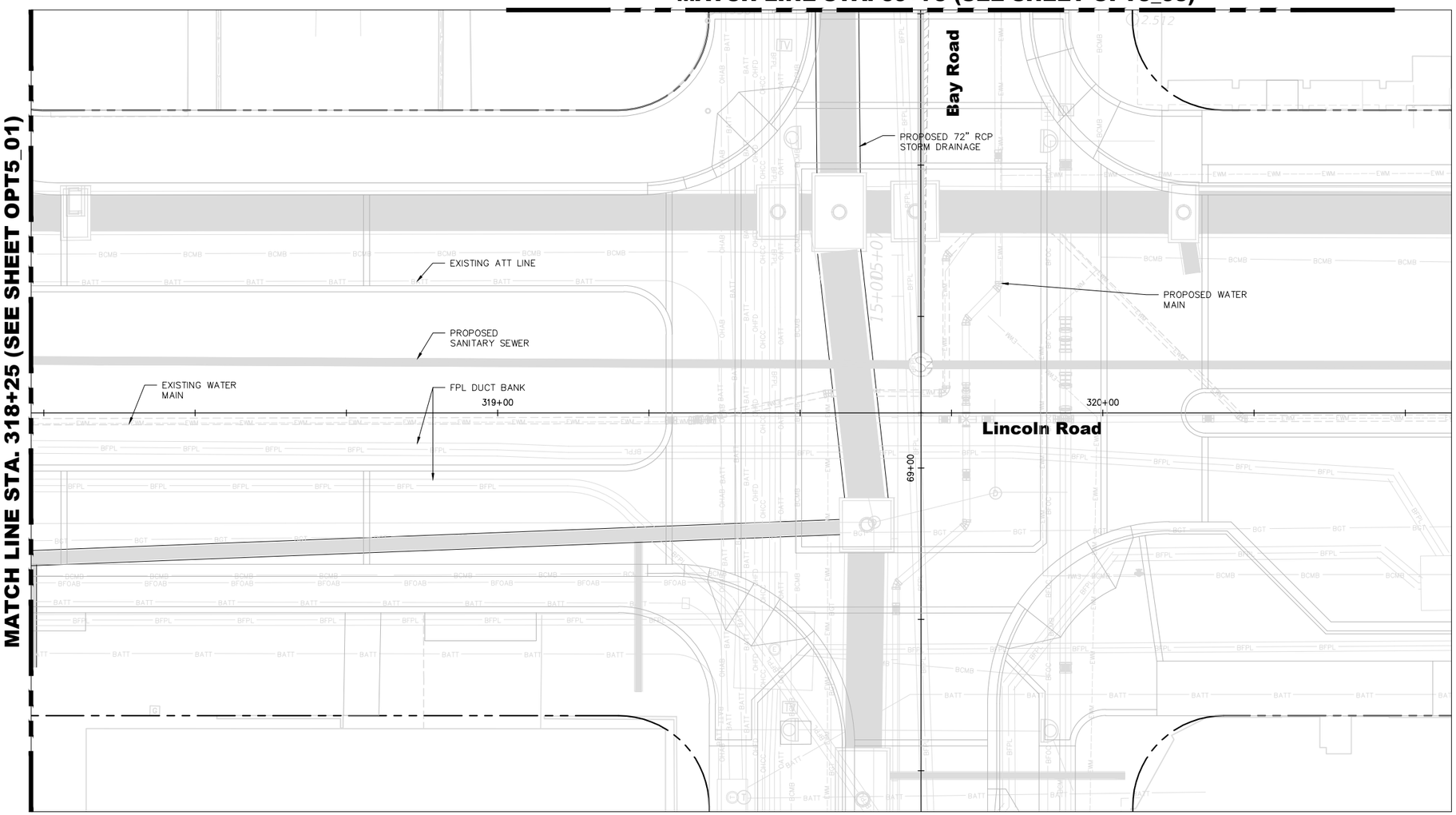
NO	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT5_01.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: OPT5_01

Exhibit B

MATCH LINE STA. 69+75 (SEE SHEET OPT5_03)

MATCH LINE STA. 318+25 (SEE SHEET OPT5_01)



N

0 10' 20'

(SCALE FOR 11" x 17" SHEET)

LEGEND:

BATT	BURIED ATT
BFPL	BURIED FPL
BGT	BURIED GAS
BFOAB	BURIED FIBER OPTIC
	RIGHT-OF-WAY
	CATCH BASIN
D	STORM DRAINAGE MANHOLE
S	SANITARY SEWER MANHOLE
E	ELECTRICAL MANHOLE
T	TELEPHONE MANHOLE
	BACK FLOW PREVENTER
	FIRE HYDRANT
TV	CABLE TV COMMUNICATION BOX
M	WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 5
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

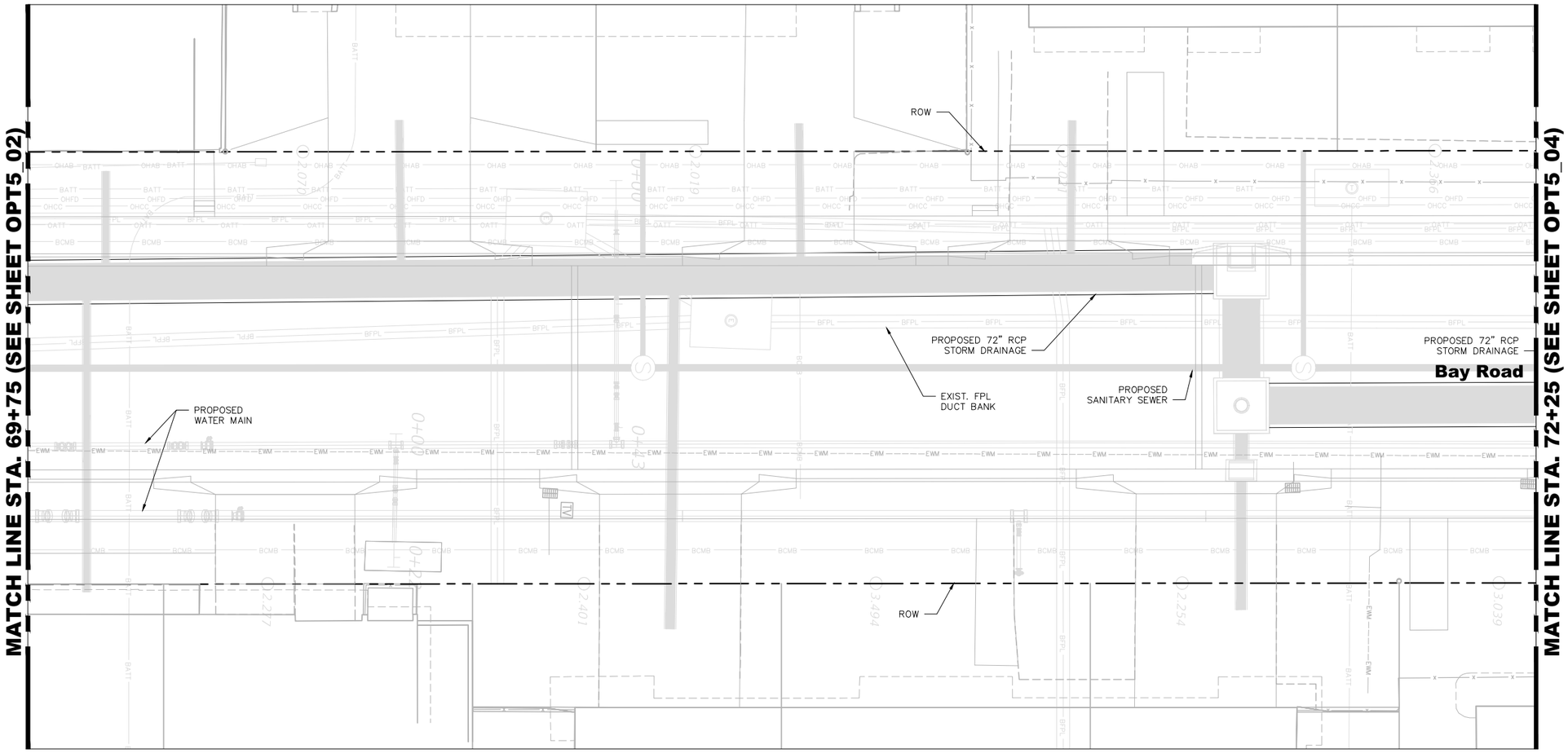
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT5_02.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: OPT5_02

Exhibit B



(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BURIED ATT
- BURIED FPL
- BURIED GAS
- BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 5
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

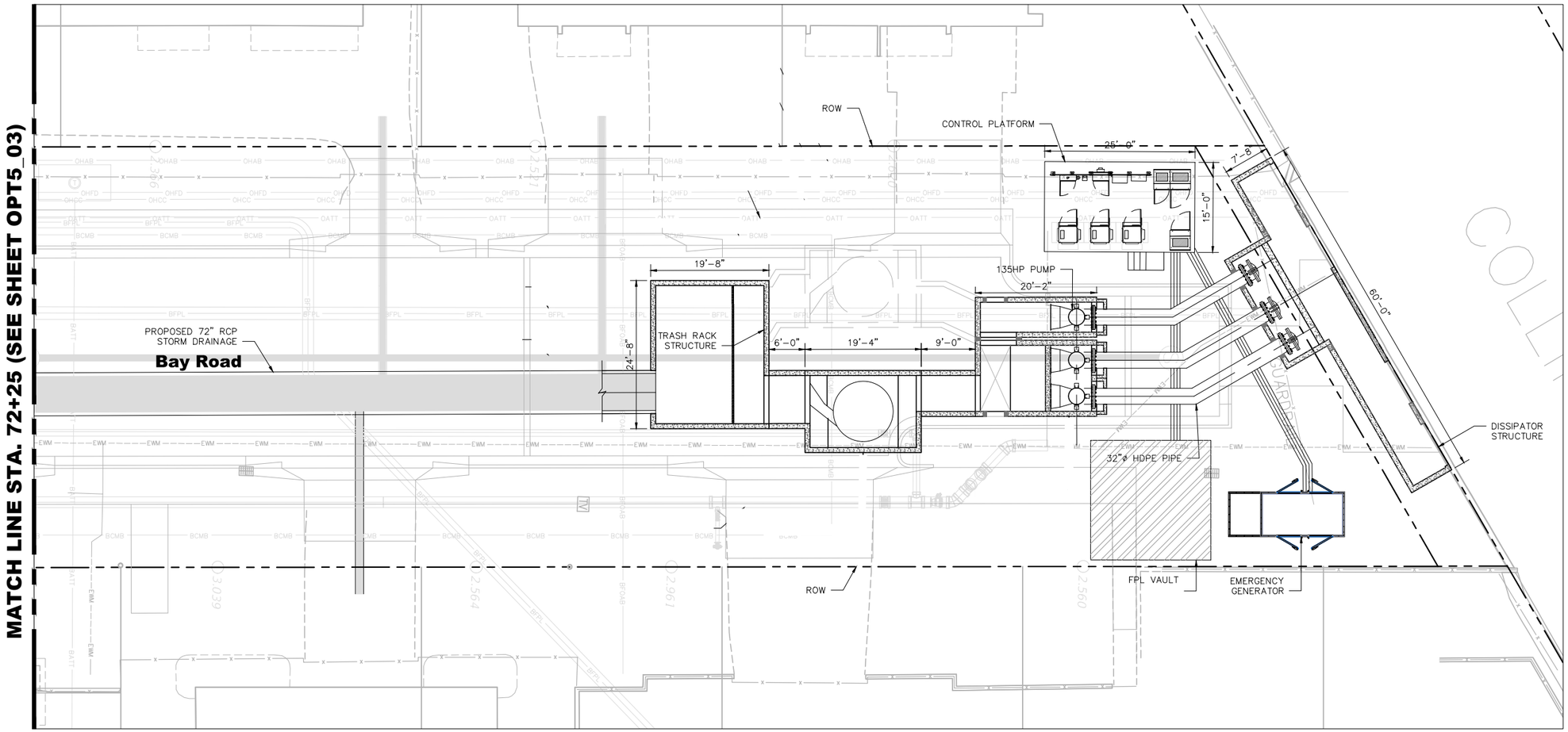
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT5_03.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: OPT5_03

Exhibit B



0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 5
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

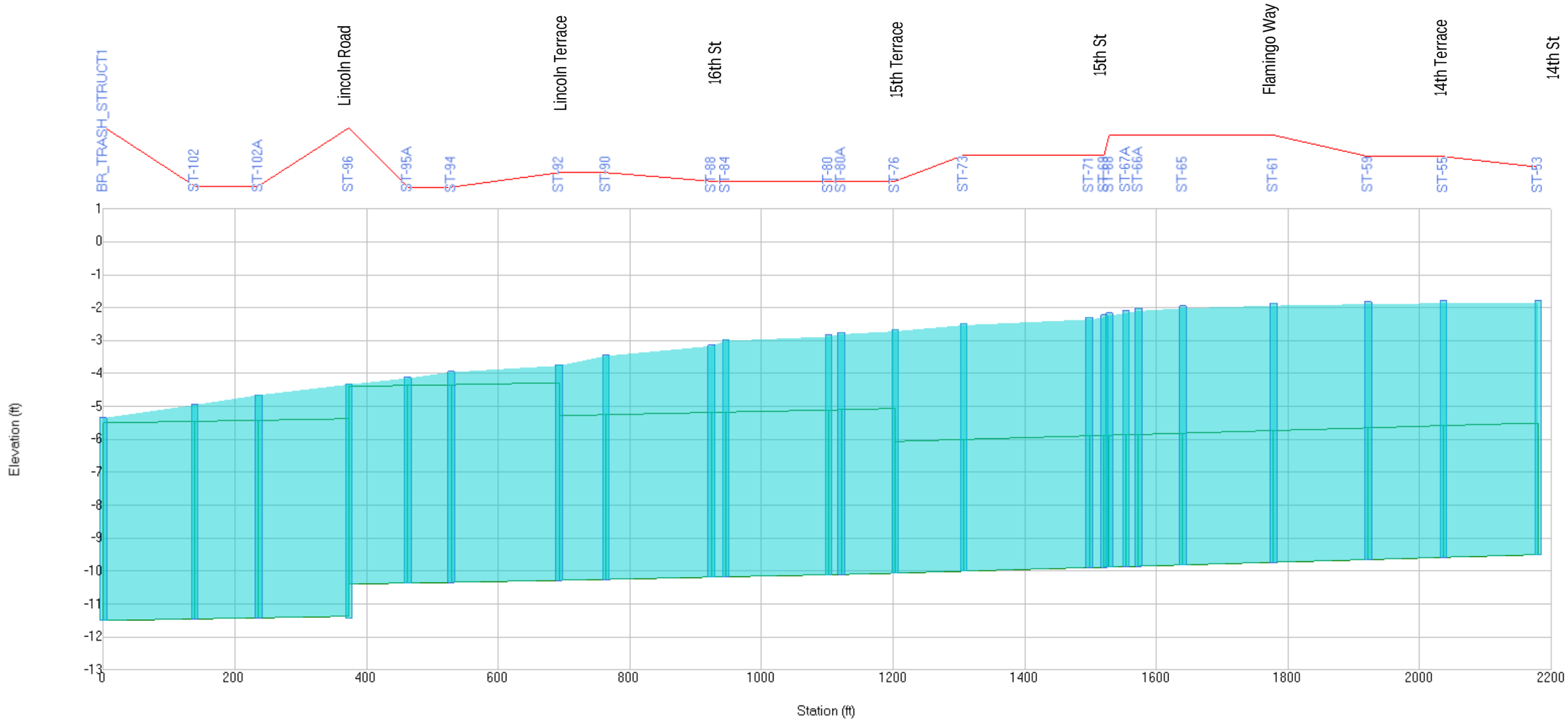
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT5_04.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT5_04

Exhibit B

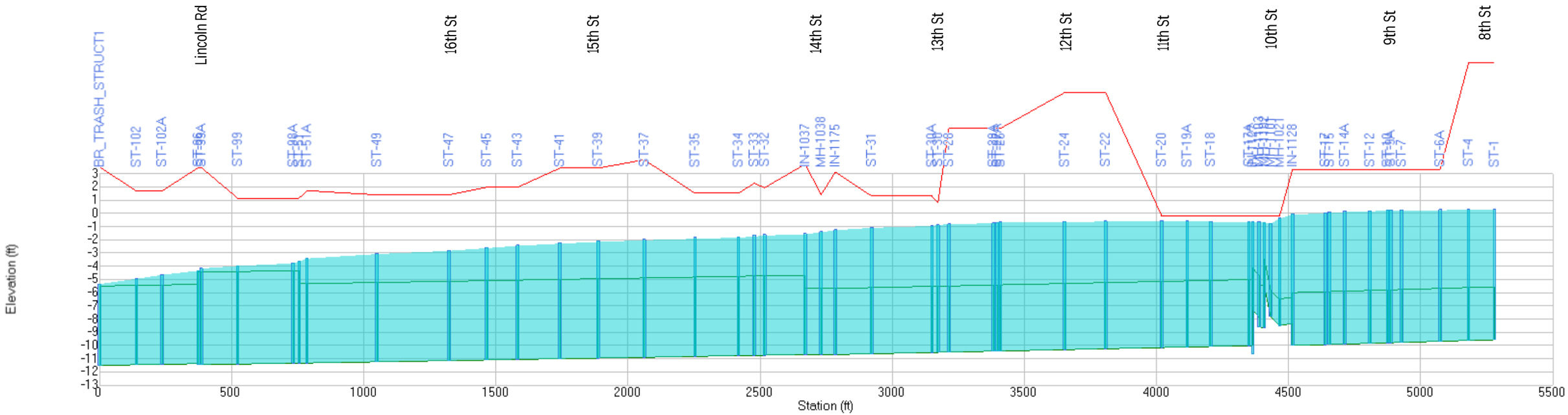


North - South
Bay Rd from Bay Rd PS to 14th St

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



North - South
Bay Rd from
Bay Rd PS to
Lincoln Rd

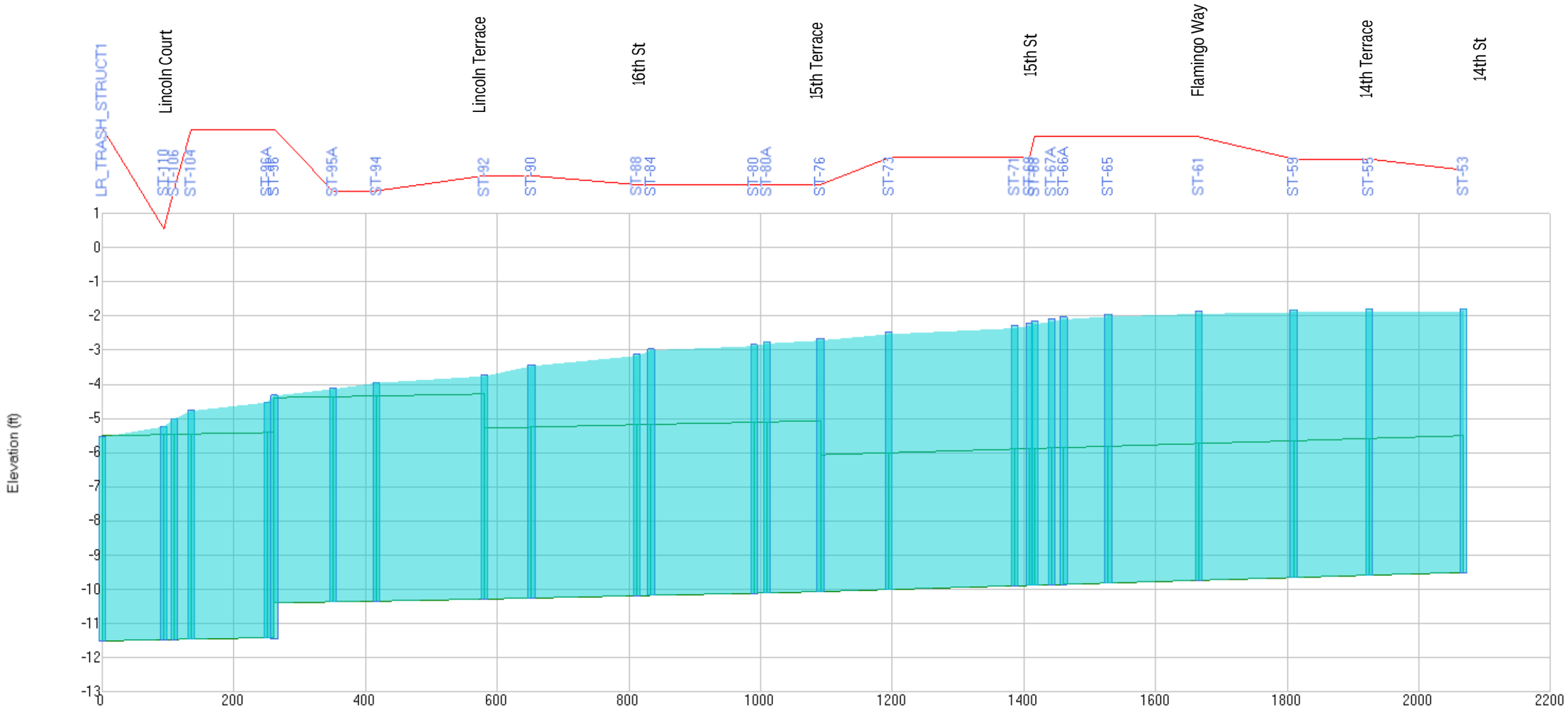
West - East
Lincoln Rd from
Bay Rd to West
Ave

North - South
West Ave from Lincoln Rd to 8th Street

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



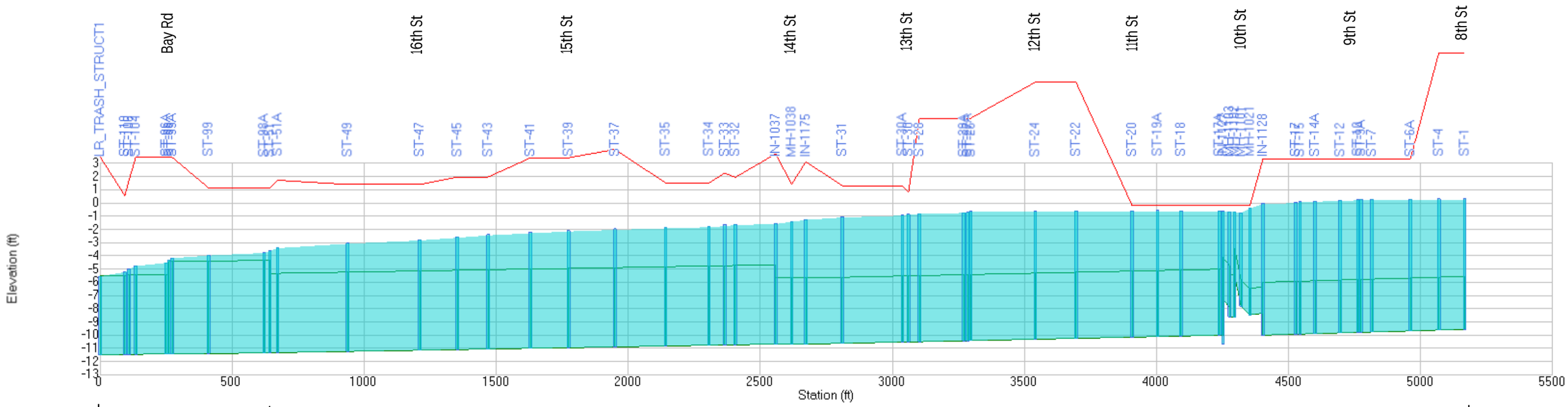
West - East
Lincoln Rd from Lincoln Rd PS to Bay Rd

North - South
Bay Rd from Lincoln Rd to 14th St

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



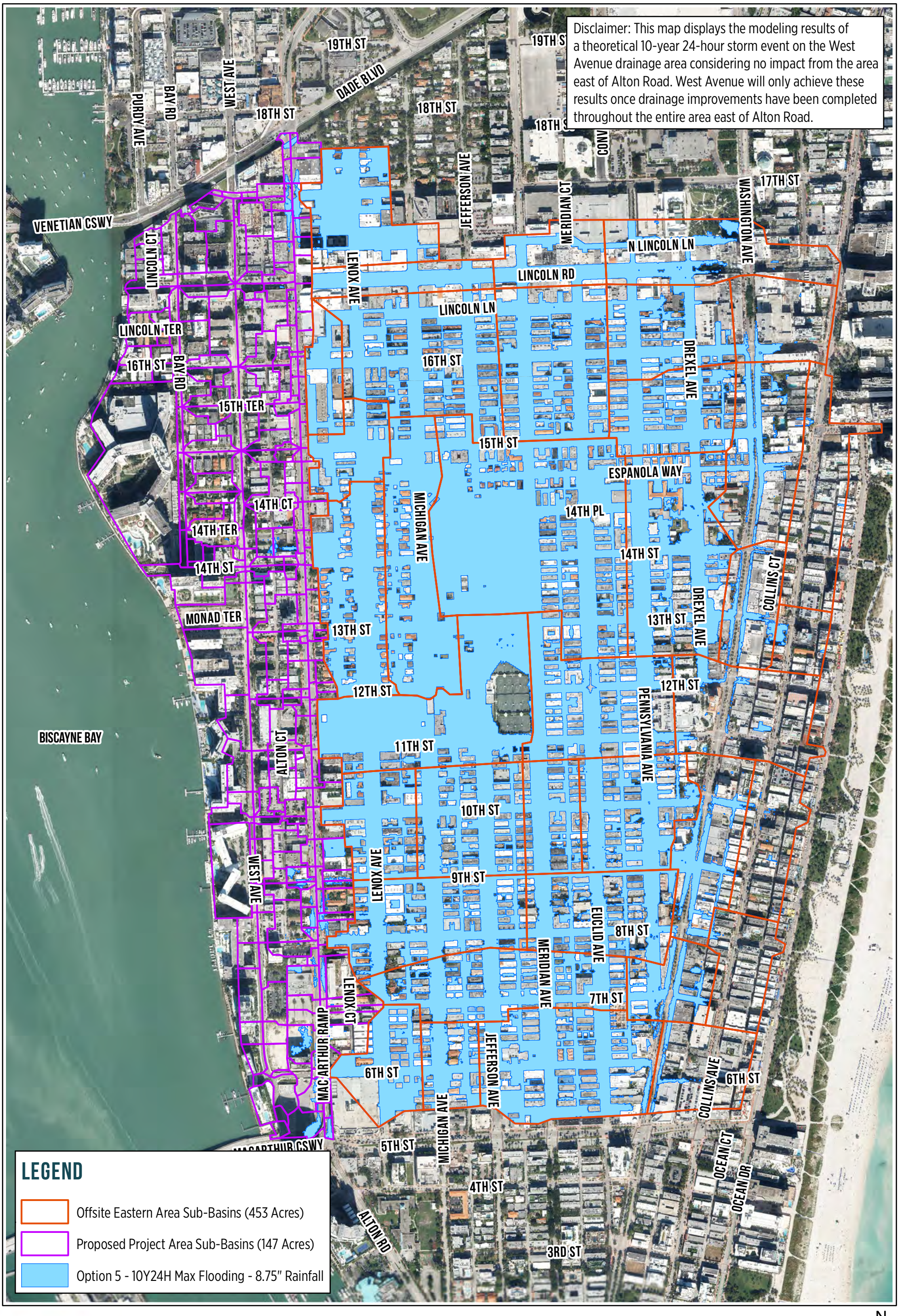
West - East
Lincoln Rd from Lincoln Rd PS to West Ave

North - South
West Ave from Lincoln Rd to 8th Street

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



Document Name: OPT5CLIP_10Y24H_wBasins

Date Saved: 7/14/2020 3:24:14 PM

cES CONSULTANTS

CITY OF MIAMI BEACH

Feasibility Study

Option 5 (147 Ac)

10YR 24HR Design Storm Event

1 inch = 600 feet

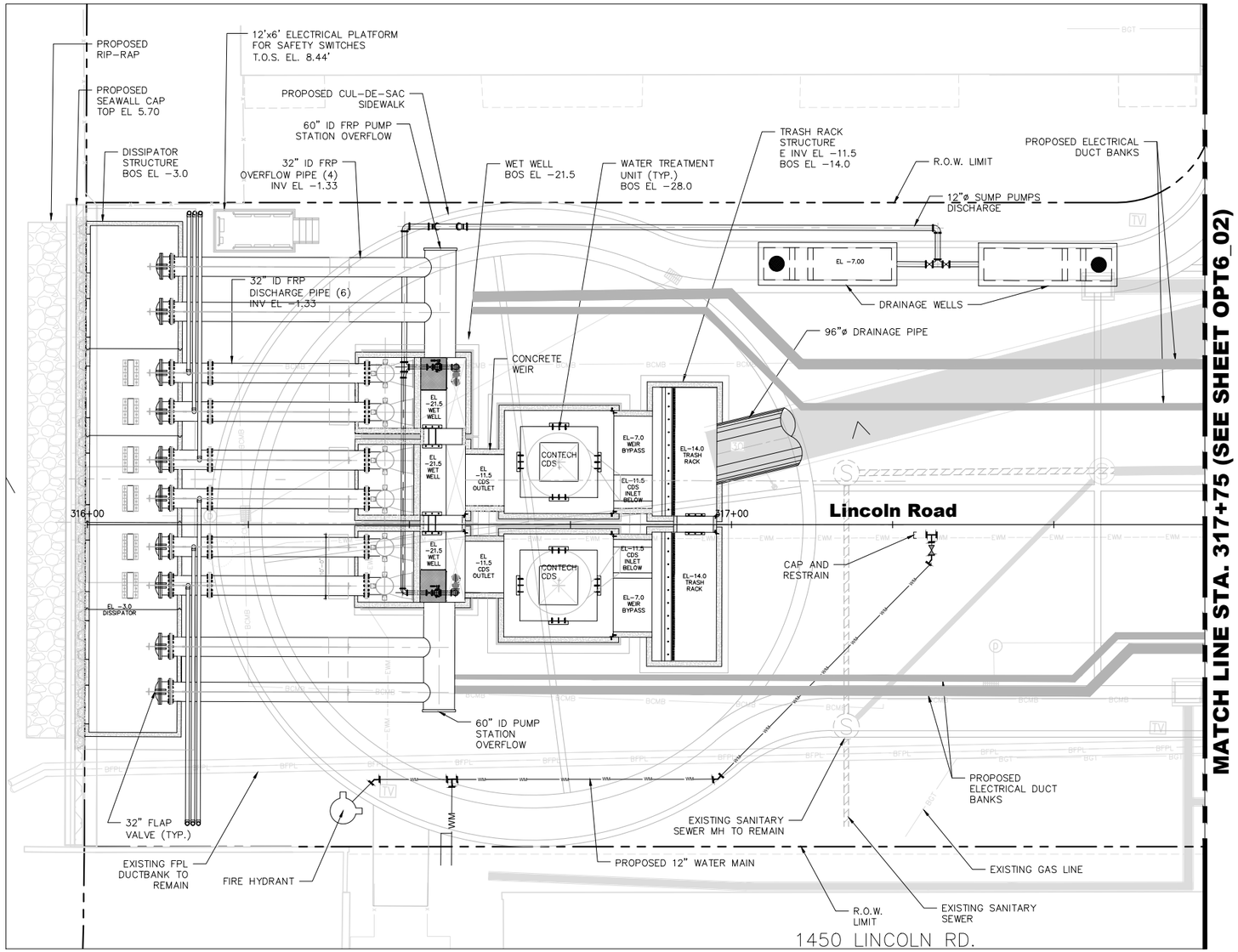
N

0 600 1,200 Feet

APPENDIX G

OPTION 6: Plans, ICPR 4 Flood Maps, and Hydraulic Grade Lines

Exhibit B



N

0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: **OPTION 6 STORM DRAINAGE PUMP STATION**

TITLE: **CIVIL PROPOSED SITE PLAN - PUMP STATION**

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

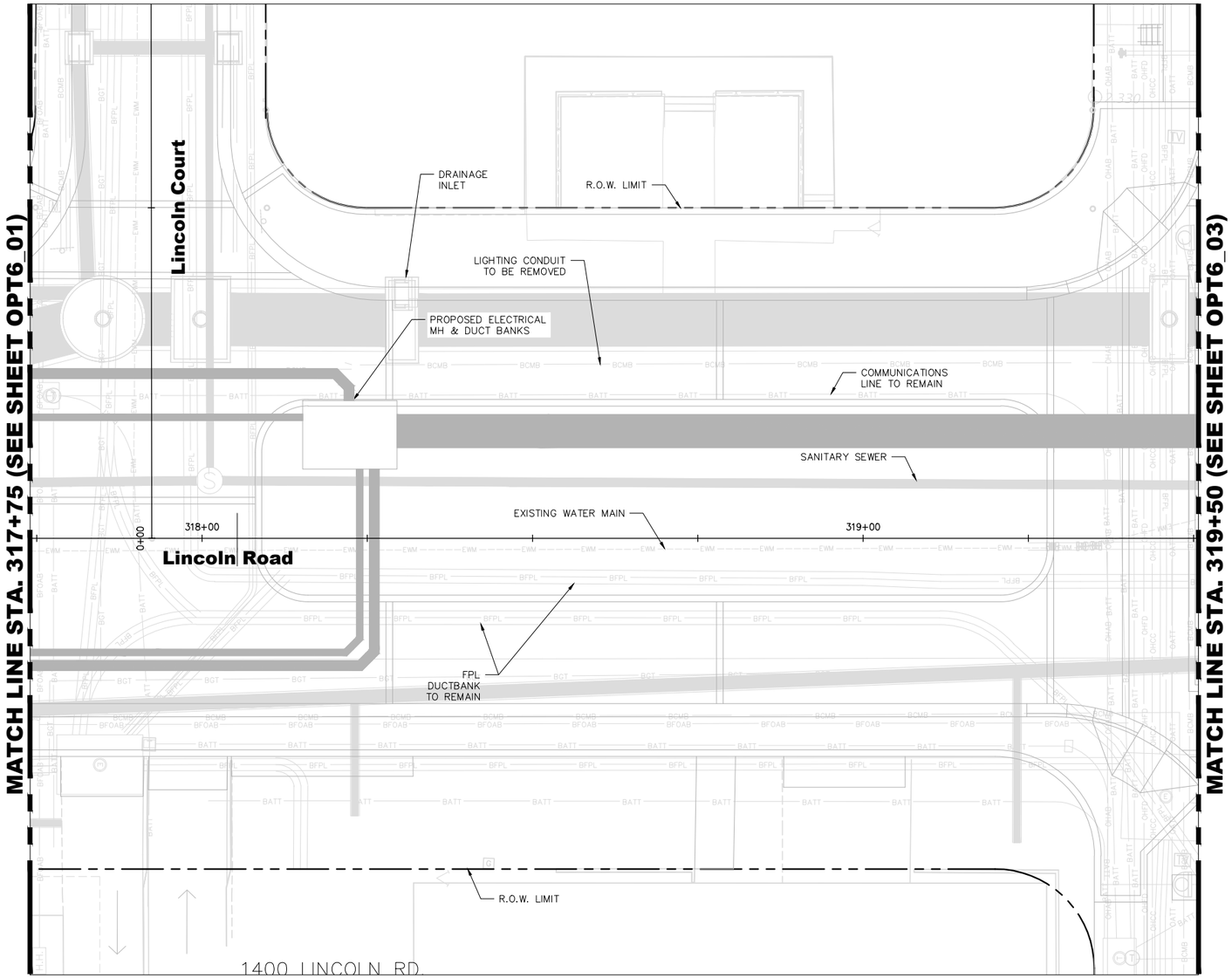
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT6_01.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT6_01

Exhibit B



N

0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 6
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

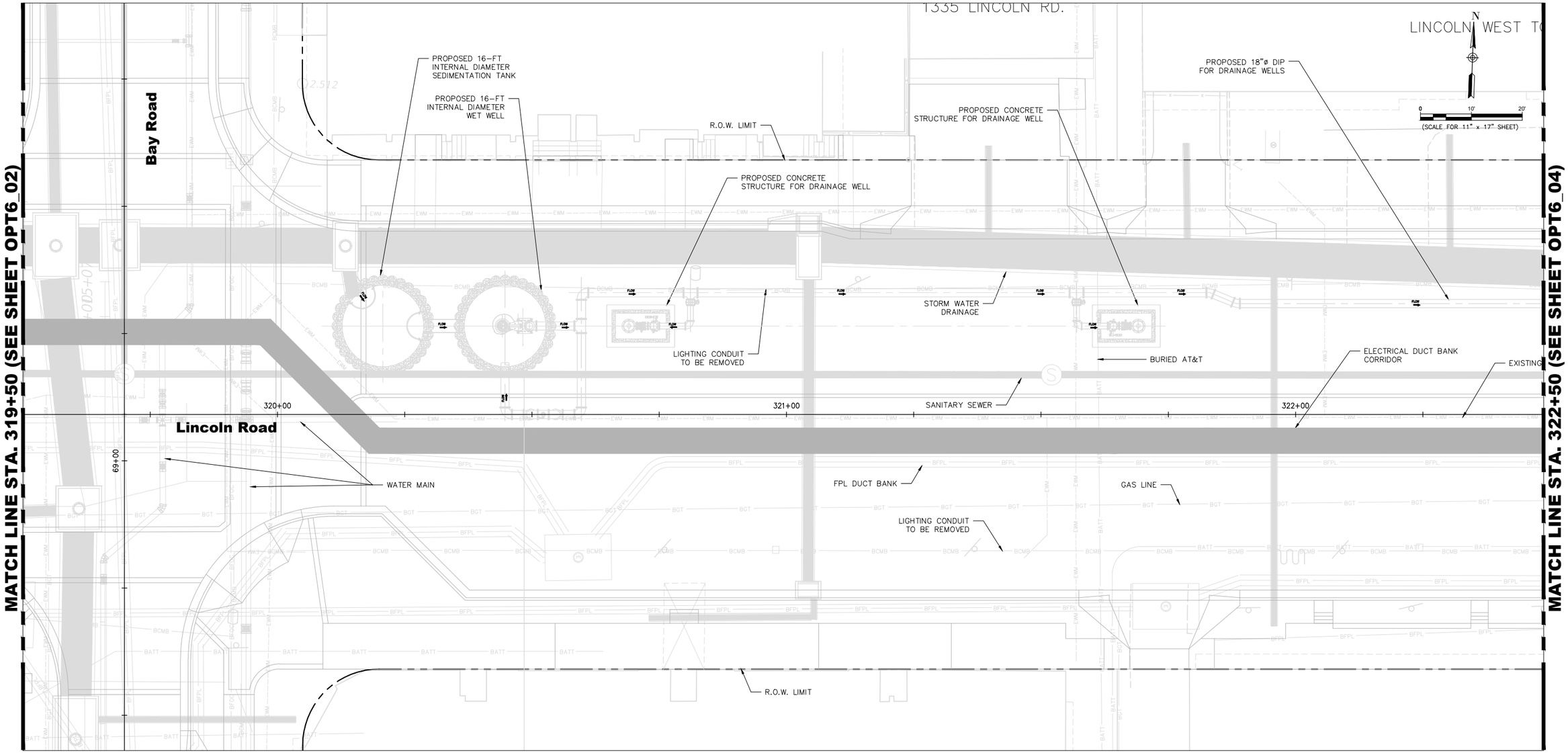
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT6_02.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: OPT6_02

Exhibit B



LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: **OPTION 6 STORM DRAINAGE PUMP STATION**

TITLE: **CIVIL PROPOSED SITE PLAN - PUMP STATION**

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

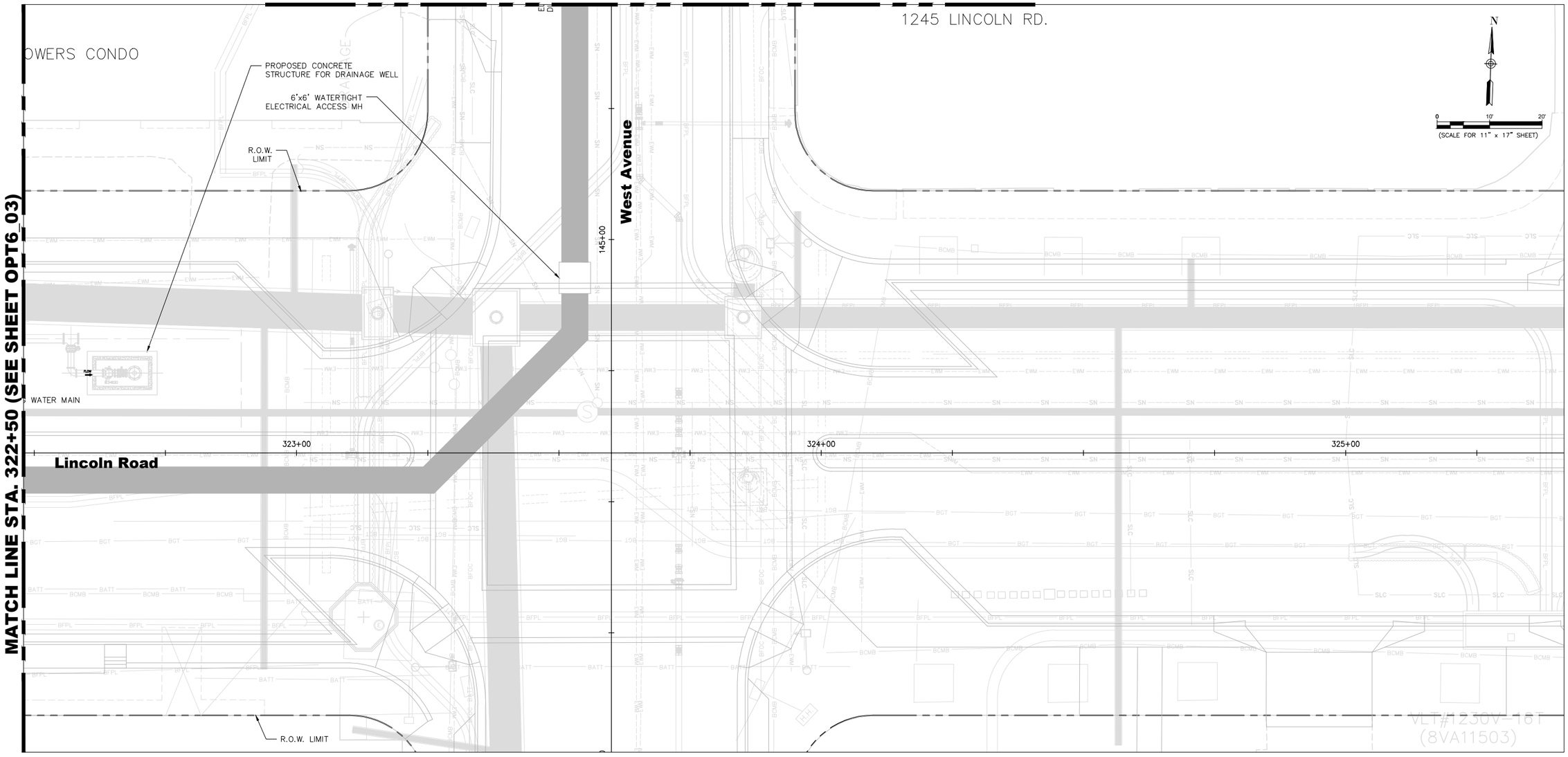
ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG. No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT6_03.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: OPT6_03

Exhibit B

MATCH LINE STA. 145+50 (SEE SHEET OPT6_05)



MATCH LINE STA. 322+50 (SEE SHEET OPT6_03)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 6
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

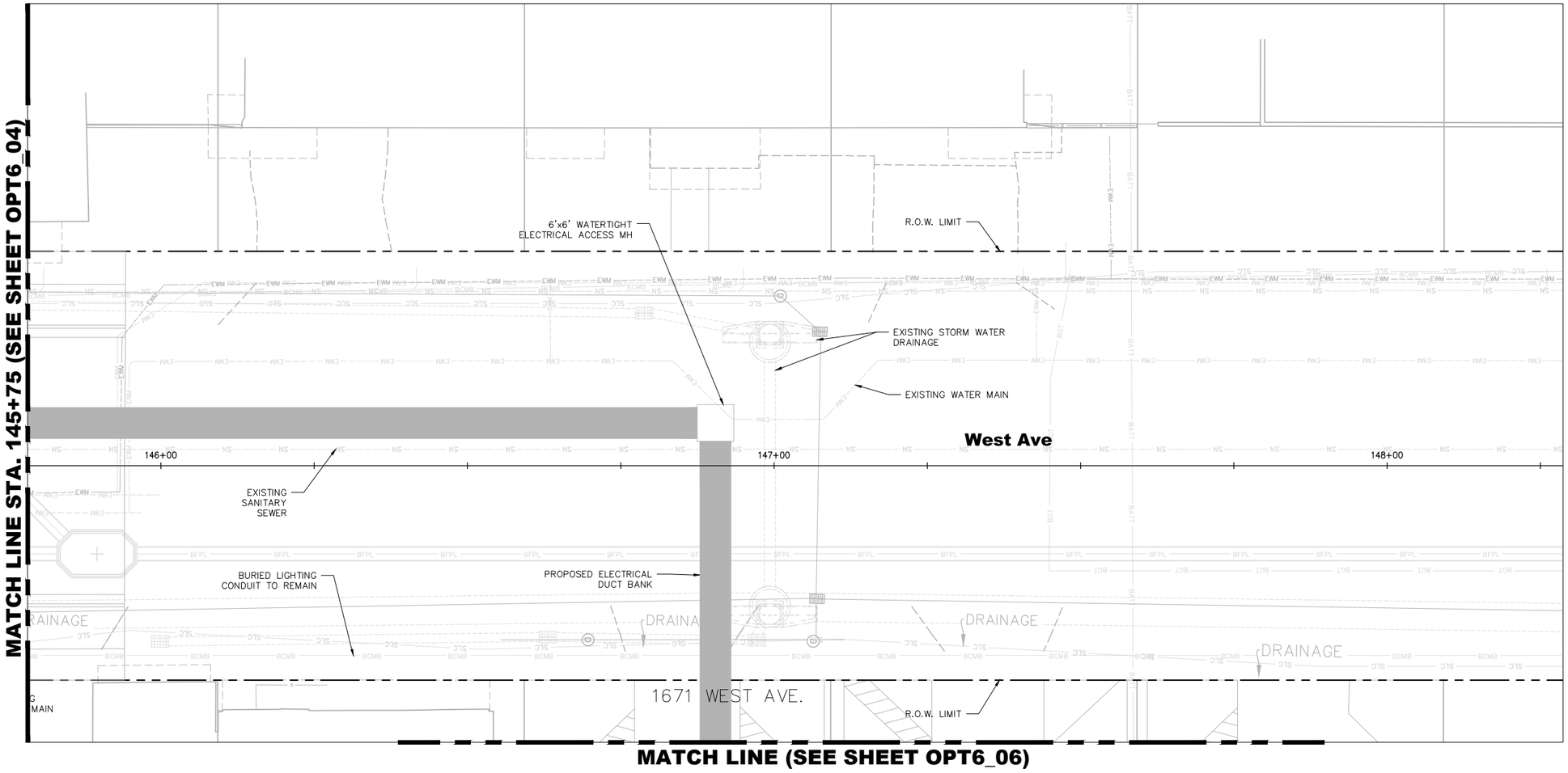
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT6_04.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: OPT6_04

Exhibit B



0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BURIED ATT
- BURIED FPL
- BURIED GAS
- BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 6 STORM DRAINAGE PUMP STATION

TITLE: CIVIL PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

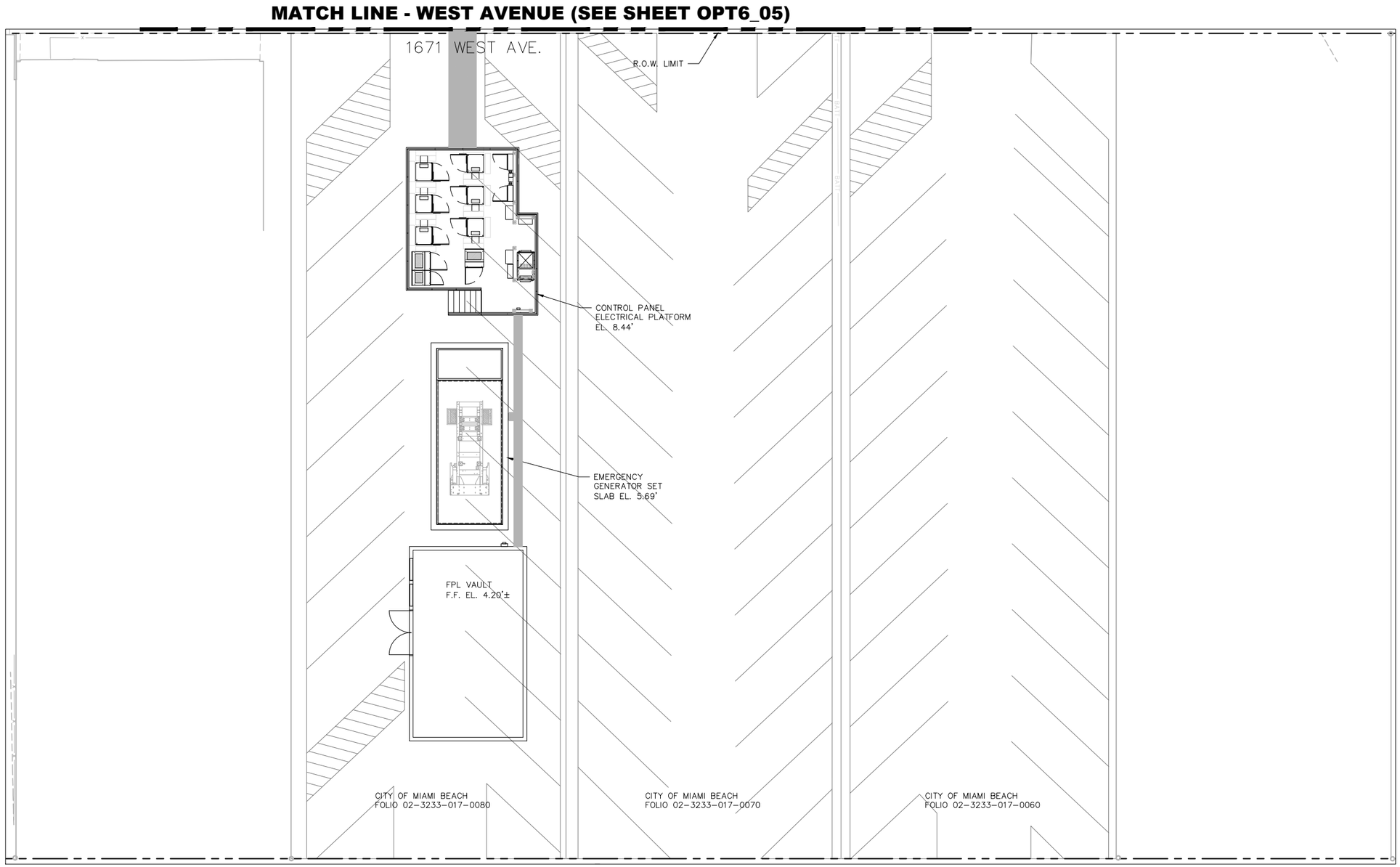
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT6_05.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT6_05

Exhibit B



N

0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 6
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

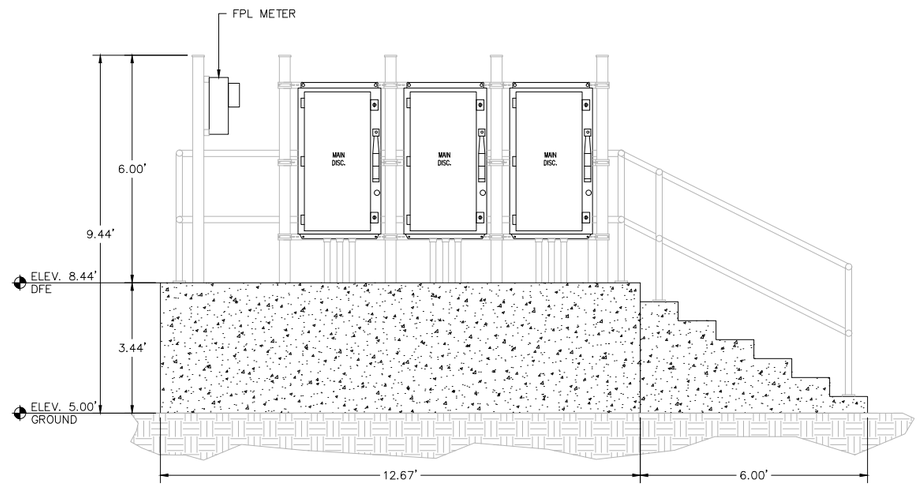
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

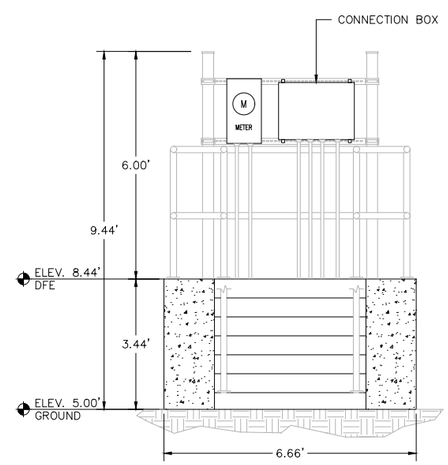
NO	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT6_06.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: OPT6_06

Exhibit B



A / OPT6-01 **SECTION**
SCALE: 1"=2'



B / OPT6-01 **SECTION**
SCALE: 1"=2'

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: **OPTION 6 STORM DRAINAGE PUMP STATION**

TITLE: **CIVIL SECTIONS**

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

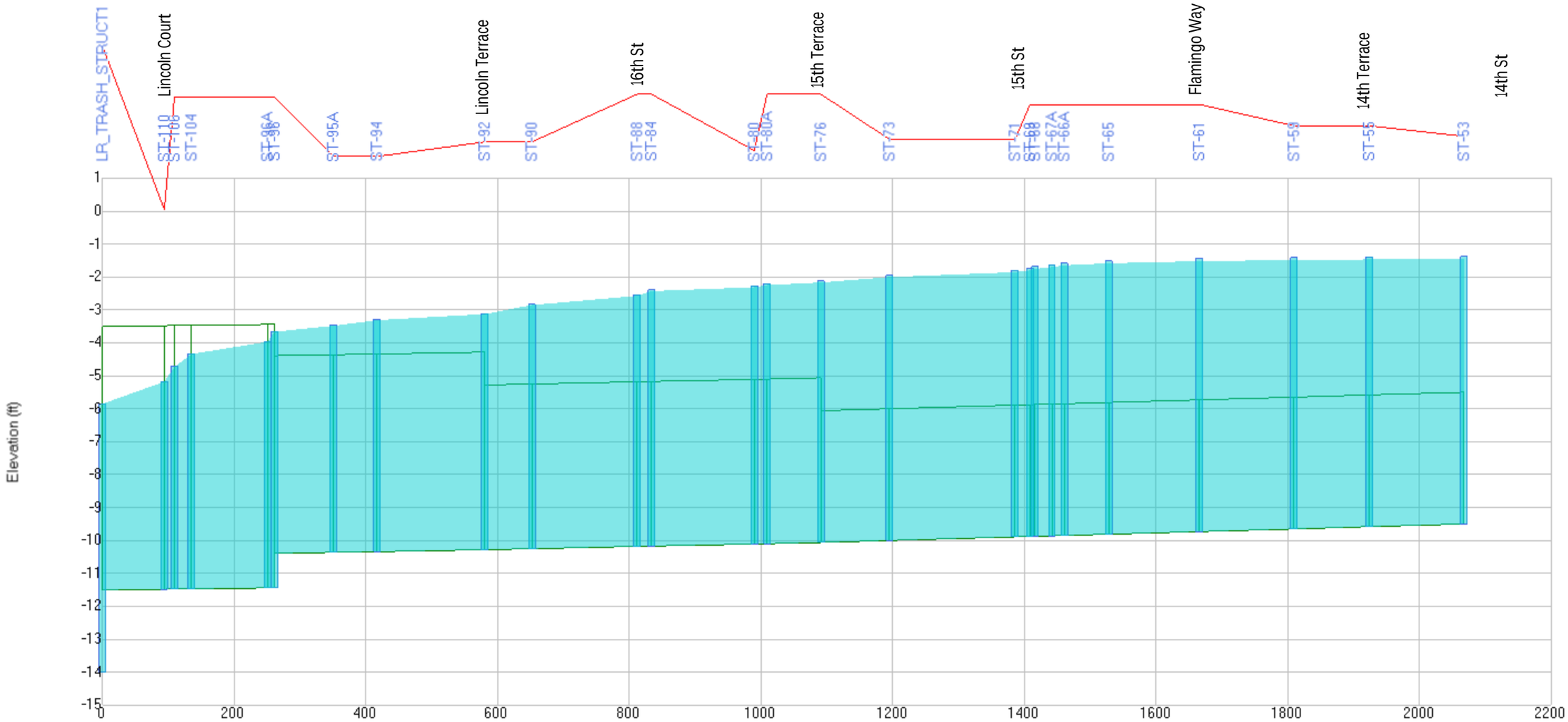
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT6_07.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: **OPT6_07**

Exhibit B



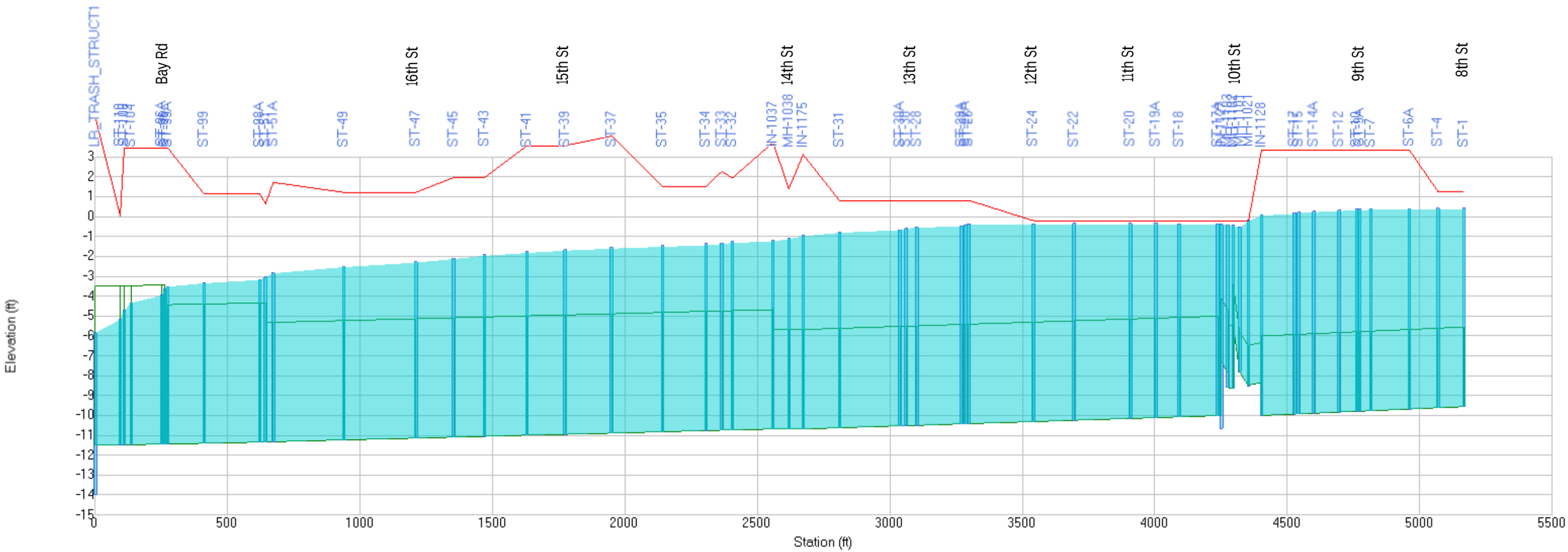
West - East
Lincoln Rd from
Proposed Pump Station
to Bay Rd

North - South
Bay Rd from Lincoln Rd to 14th St

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



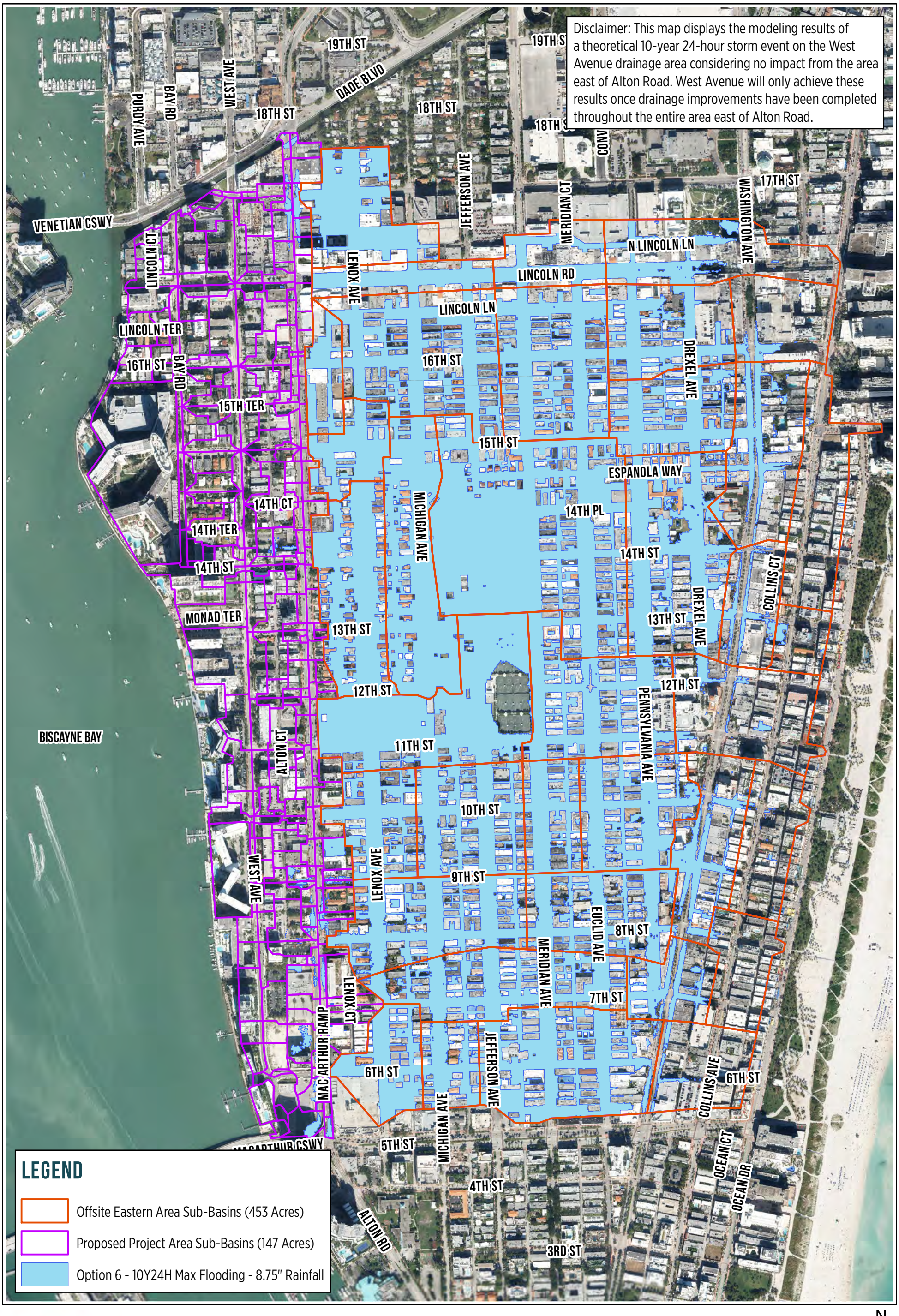
West - East
Lincoln Rd from
Proposed Pump Station
to West Avenue

North - South
West Ave from Lincoln Rd to 8th Street

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



Document Name: OPT6CLIP_10Y24H_wBasins

Date Saved: 7/17/2020 3:10:29 PM

CITY OF MIAMI BEACH

Feasibility Study

Option 6 (147 Ac)

10YR 24HR Design Storm Event

1 inch = 600 feet

N

0 600 1,200 Feet

ces CONSULTANTS

Exhibit B

APPENDIX H

OPTION 7: Plans, ICPR 4 Flood Maps, and Hydraulic Grade Lines

Exhibit B

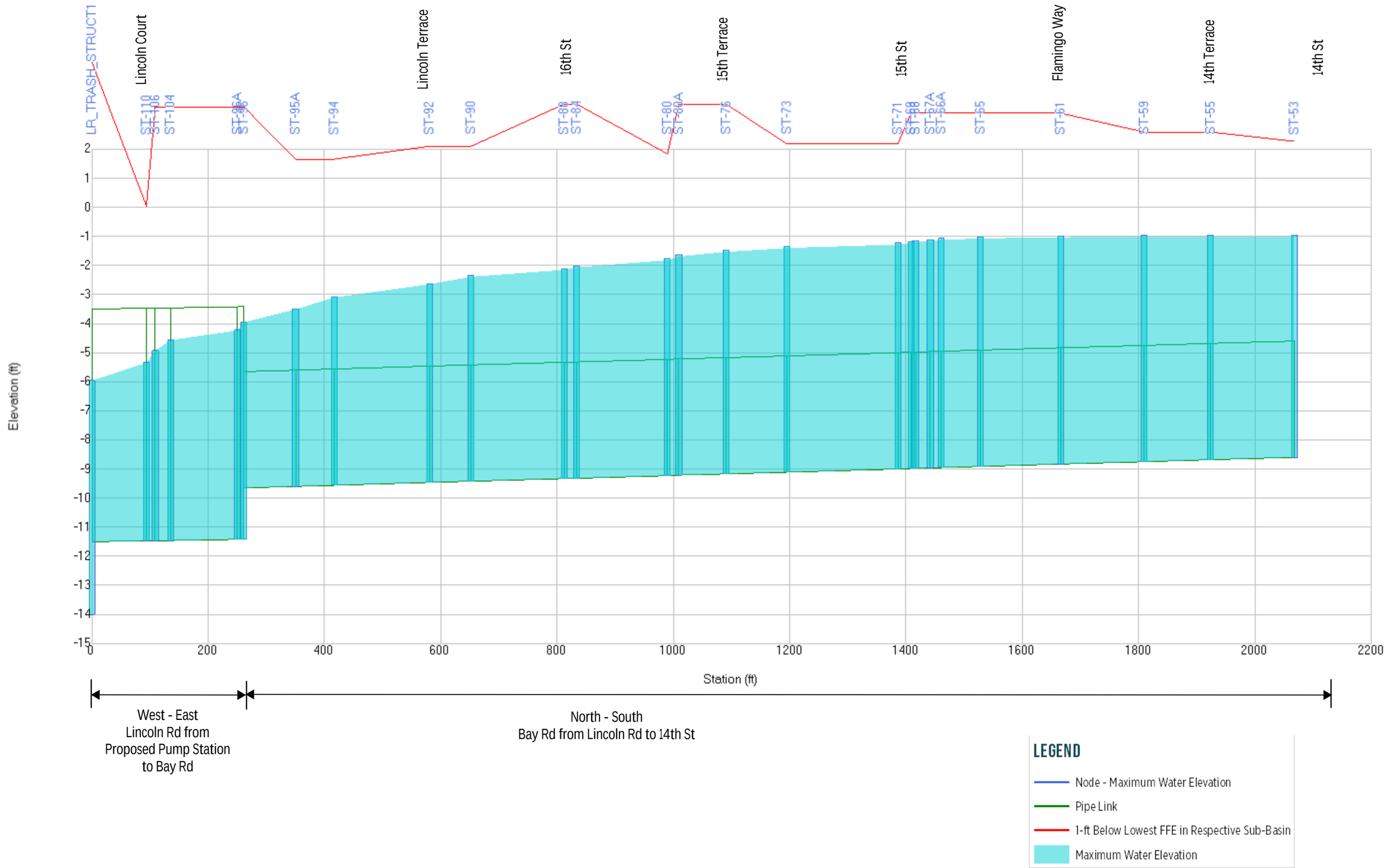
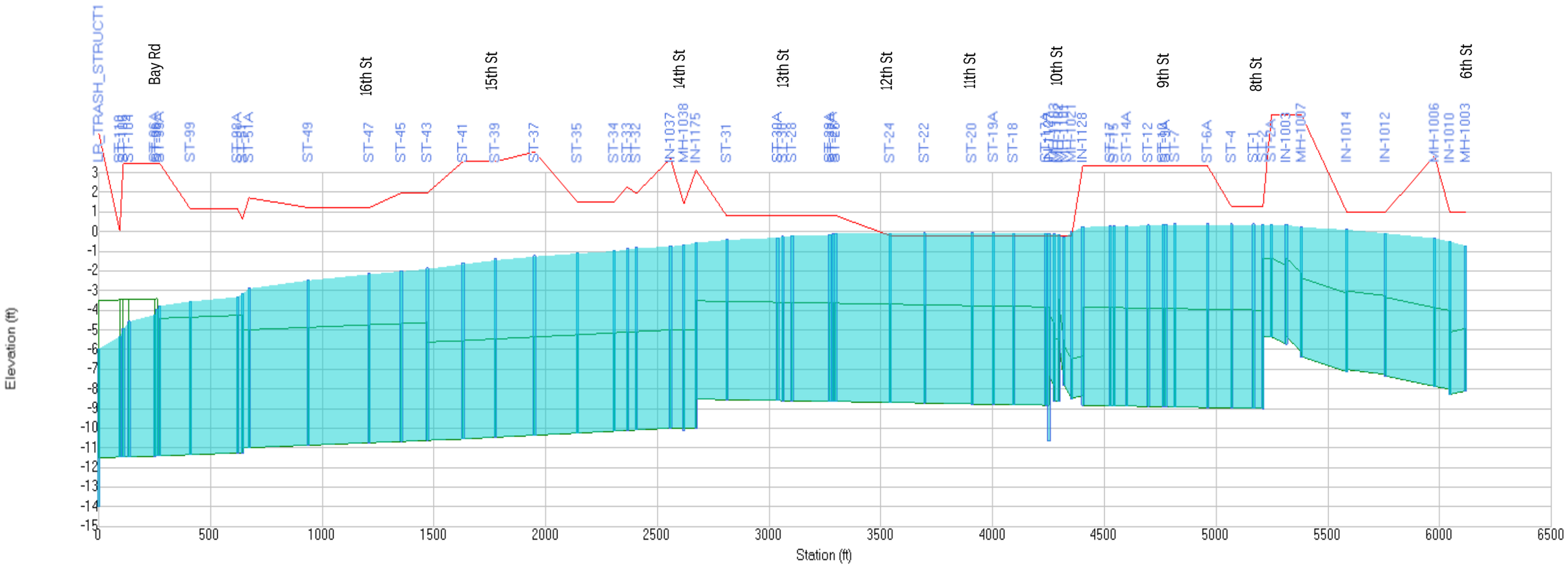

LR_TRASH_STRUCT1
Lincoln Court
Lincoln Terrace
16th St
15th Terrace
15th St
Flamingo Way
14th Terrace
14th St
ST-110
ST-106
ST-104
ST-95A
ST-94
ST-92
ST-90
ST-88
ST-84
ST-80
ST-76
ST-73
ST-71
ST-67A
ST-66A
ST-65
ST-61
ST-59
ST-55
ST-53
Elevation (ft)
Station (ft)
West - East
Lincoln Rd from
Proposed Pump Station
to Bay Rd
North - South
Bay Rd from Lincoln Rd to 14th St
LEGEND
Node - Maximum Water Elevation
Pipe Link
1-ft Below Lowest FFE in Respective Sub-Basin
Maximum Water Elevation

Exhibit B



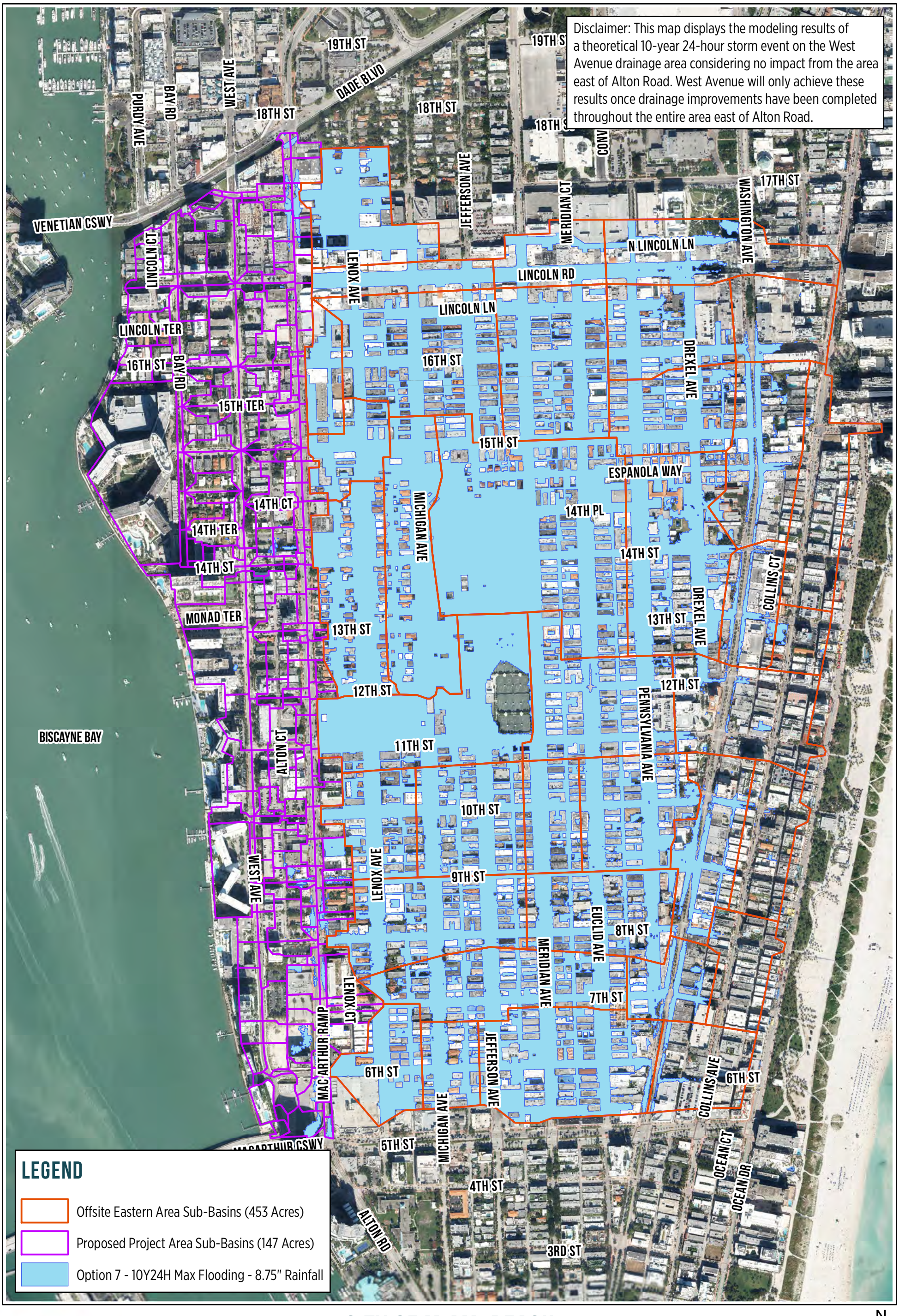
West - East
Lincoln Rd from
Proposed Pump Station
to West Avenue

North - South
West Ave from Lincoln Rd to 6th Street

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



Document Name: OPT7CLIP_10Y24H_wBasins

Date Saved: 7/16/2020 2:53:31 PM

CITY OF MIAMI BEACH

Feasibility Study

Option 7 (147 Ac)

10YR 24HR Design Storm Event

1 inch = 600 feet

N

0 600 1,200 Feet

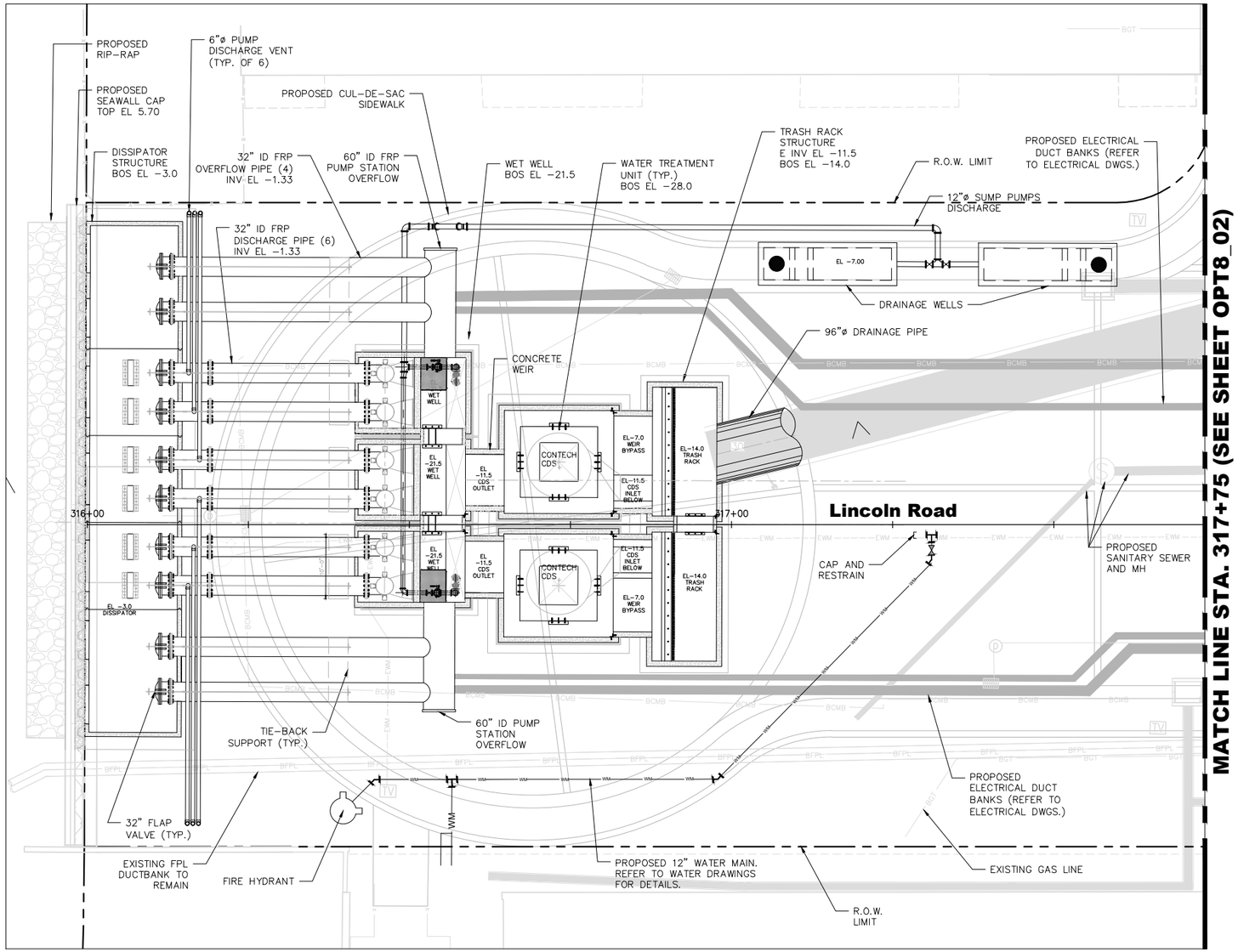
CES CONSULTANTS

Exhibit B

APPENDIX I

OPTION 8: Plans, ICPR 4 Flood Maps, and Hydraulic Grade Lines

Exhibit B



N

0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: **OPTION 8**
STORM DRAINAGE PUMP STATION

TITLE: **CIVIL**
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

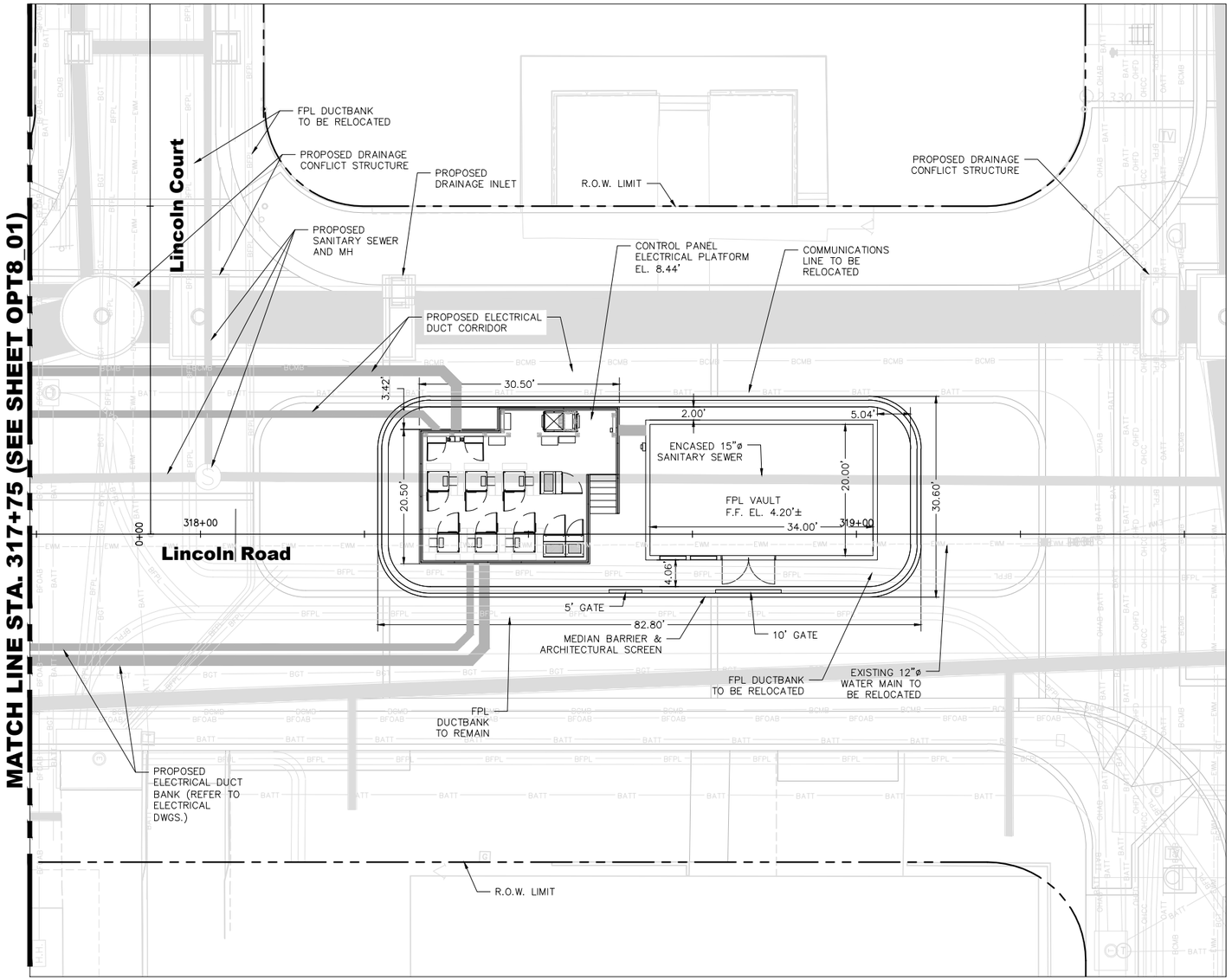
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT8_01.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: **OPT8_01**

Exhibit B



LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: **OPTION 8 STORM DRAINAGE PUMP STATION**

TITLE: **CIVIL PROPOSED SITE PLAN - PUMP STATION**

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

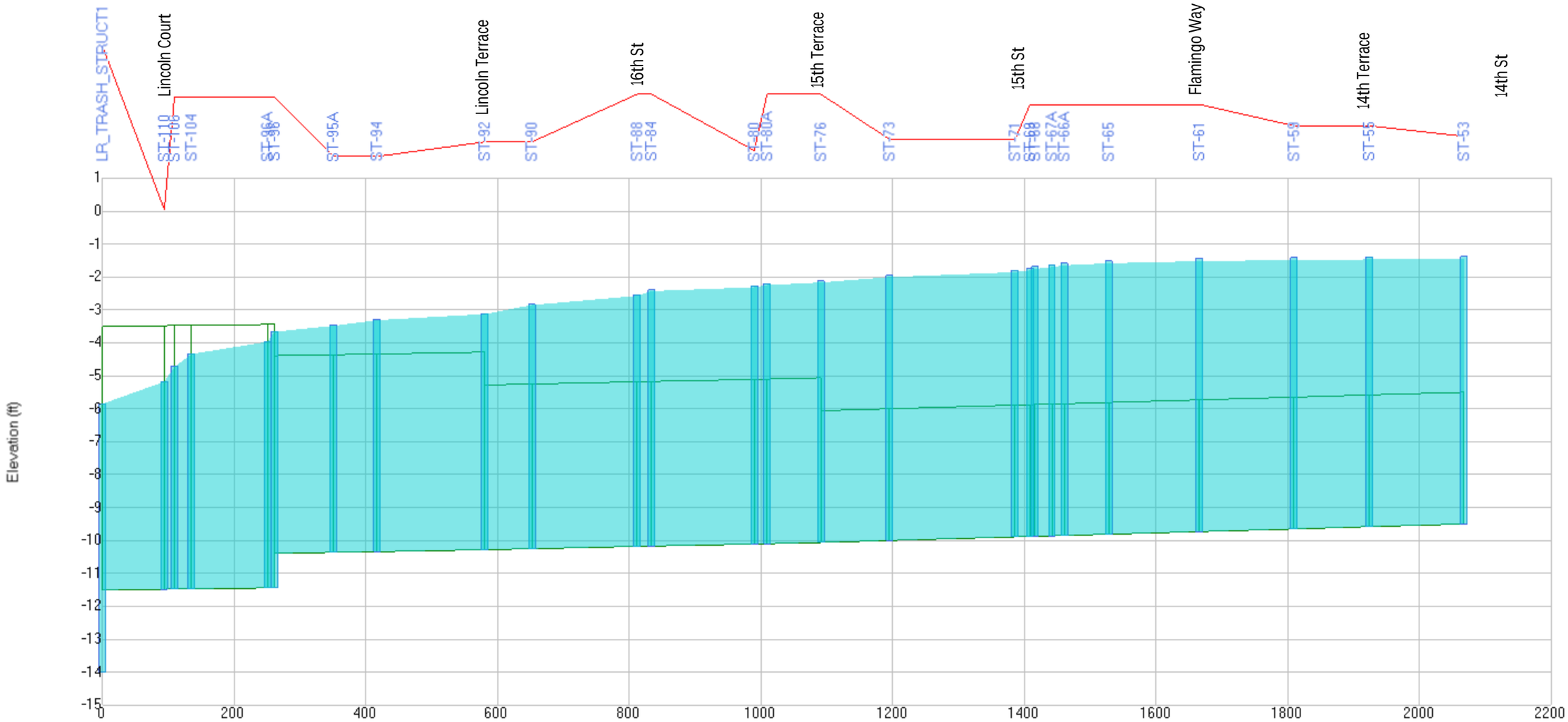
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT8_02.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: **OPT8_02**

Exhibit B



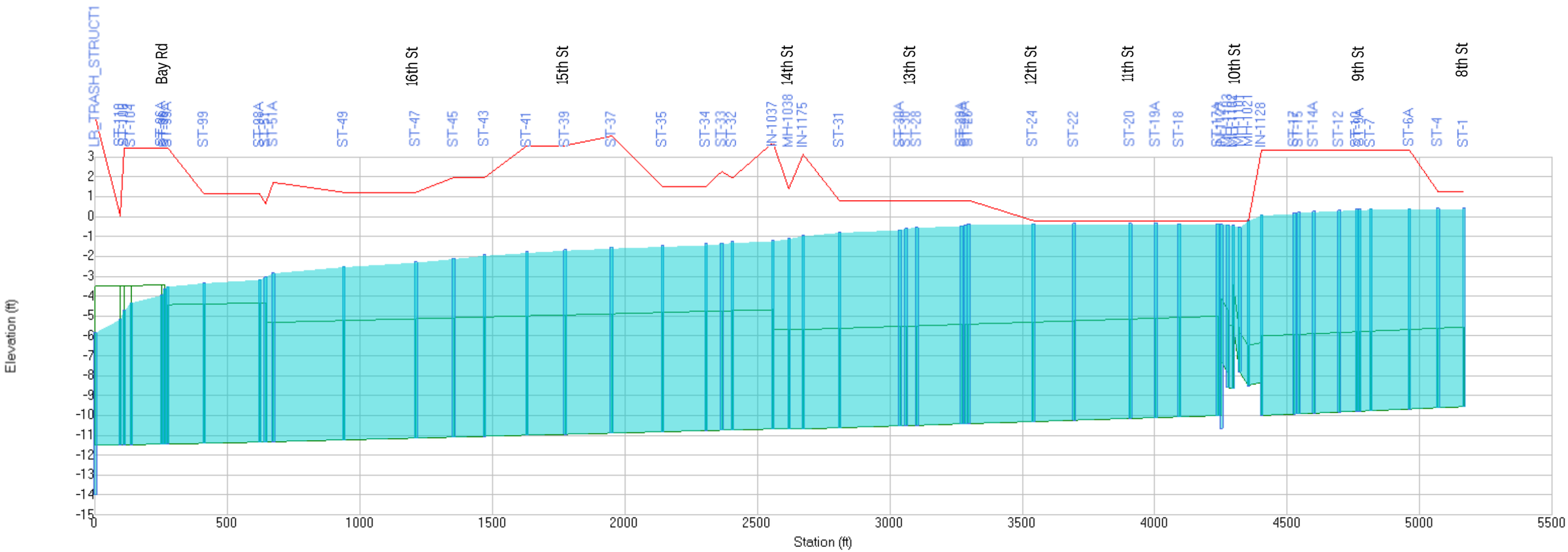
West - East
Lincoln Rd from
Proposed Pump Station
to Bay Rd

North - South
Bay Rd from Lincoln Rd to 14th St

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



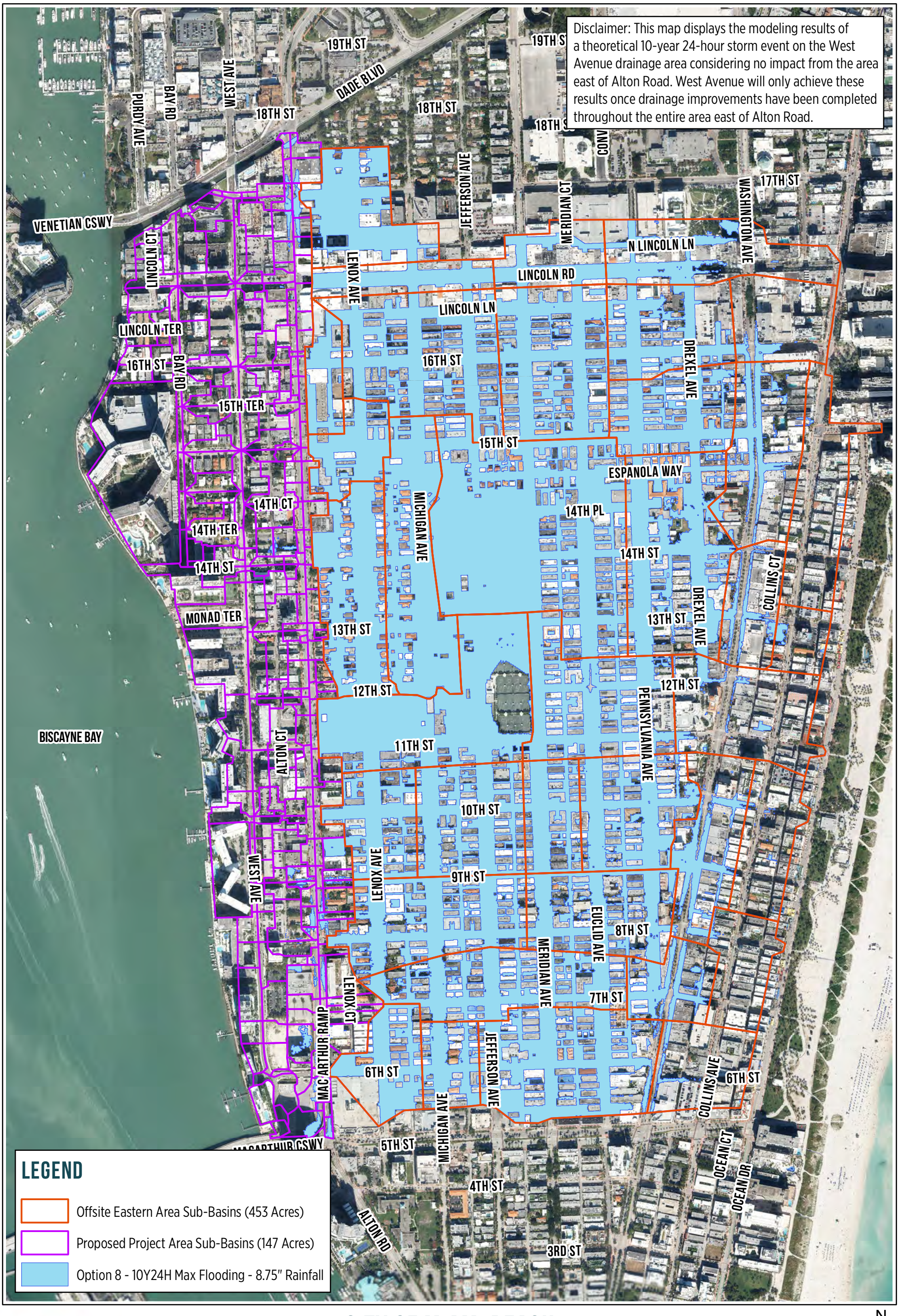
West - East
Lincoln Rd from
Proposed Pump Station
to West Avenue

North - South
West Ave from Lincoln Rd to 8th Street

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



Document Name: OPT8CLIP_10Y24H_wBasins

Date Saved: 7/17/2020 3:12:14 PM

ces CONSULTANTS

CITY OF MIAMI BEACH

Feasibility Study

Option 8 (147 Ac)

10YR 24HR Design Storm Event

1 inch = 600 feet

N

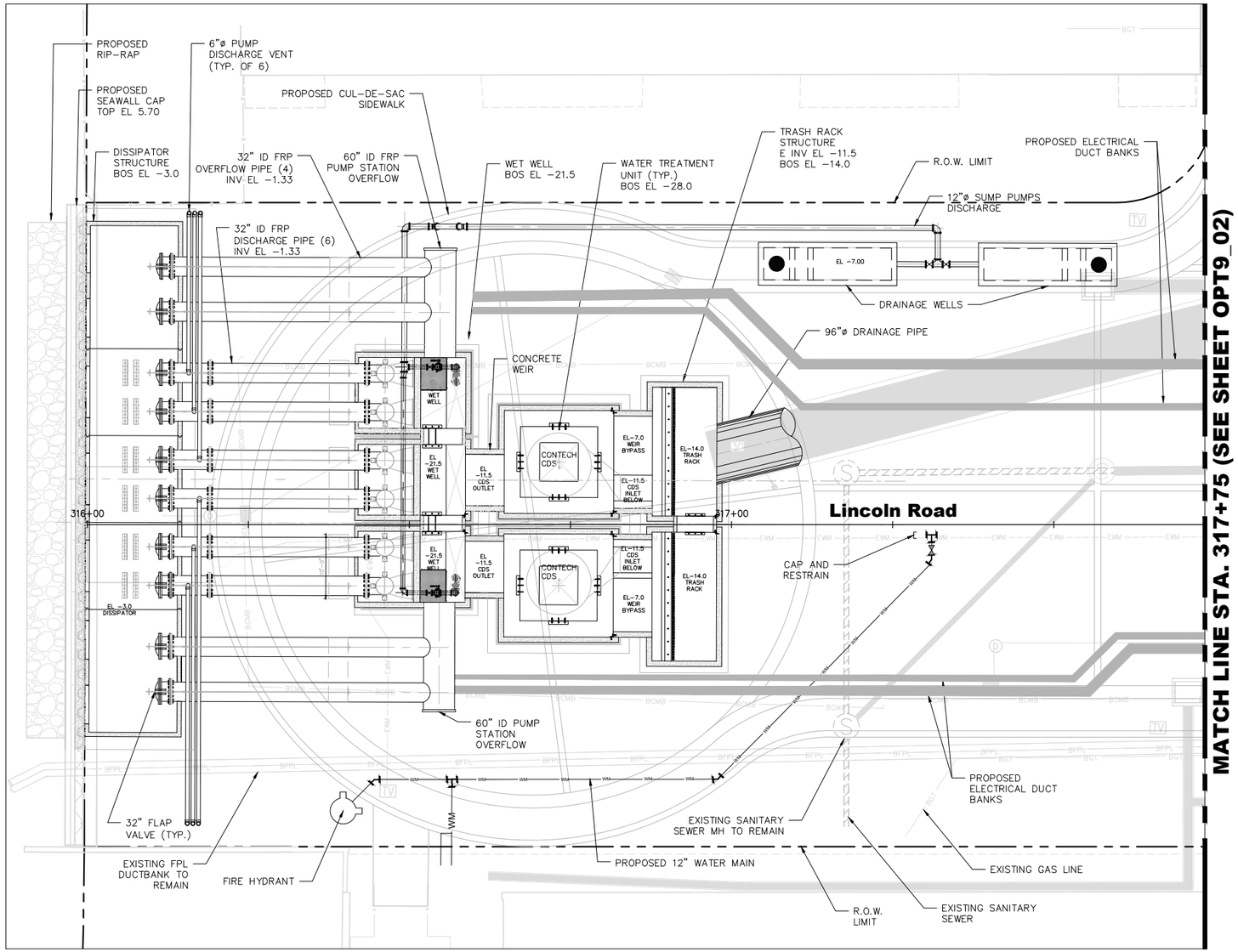
0 600 1,200 Feet

Exhibit B

APPENDIX J

OPTION 9: Plans, ICPR 4 Flood Maps, and Hydraulic Grade Lines

Exhibit B



N

0 10' 20'

(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: **OPTION 9**
STORM DRAINAGE PUMP STATION

TITLE: **CIVIL**
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

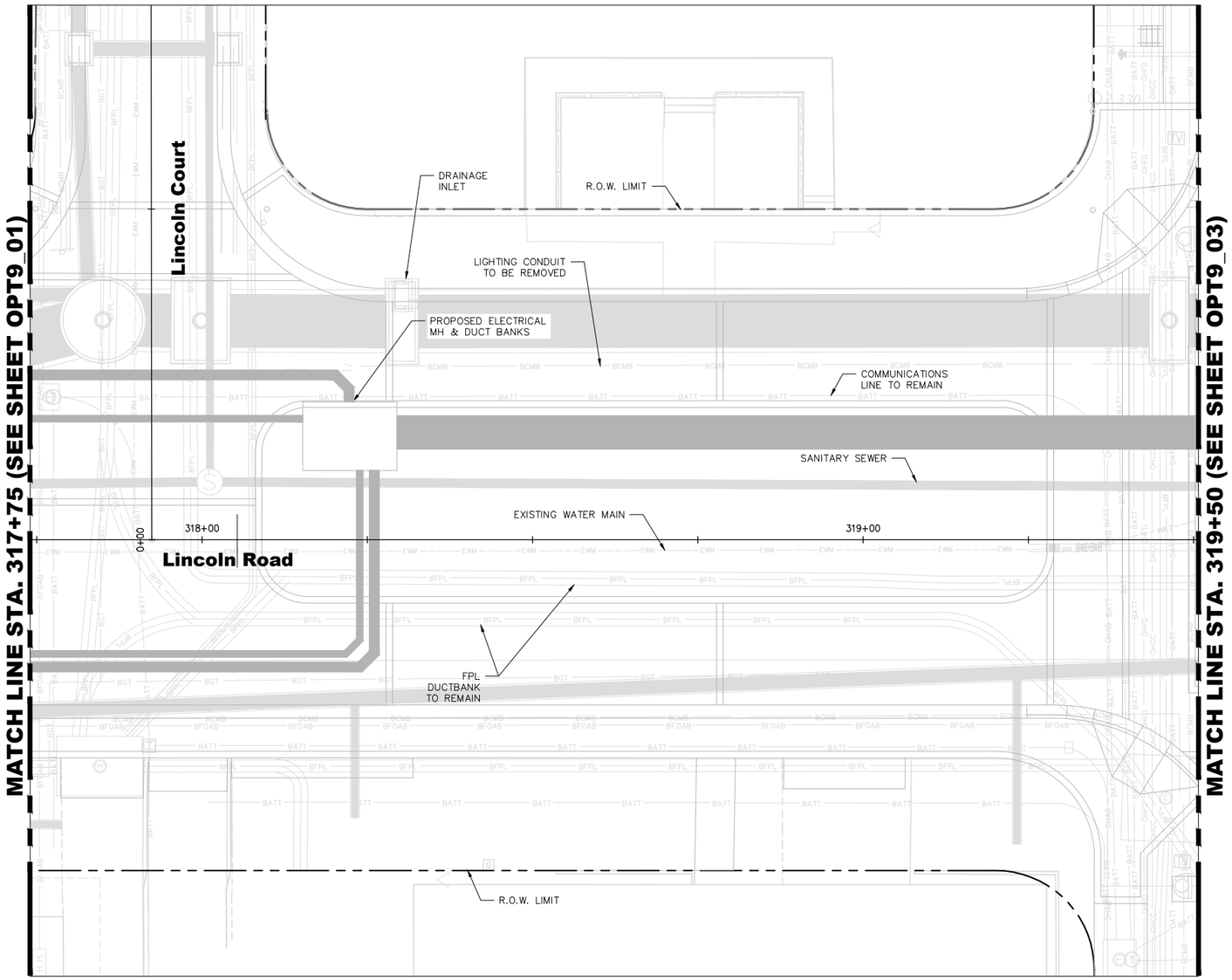
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT9_01.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: **OPT9_01**

Exhibit B



N

0 10' 20'
(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL 33139

NEIGHBORHOOD: OPTION 9
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

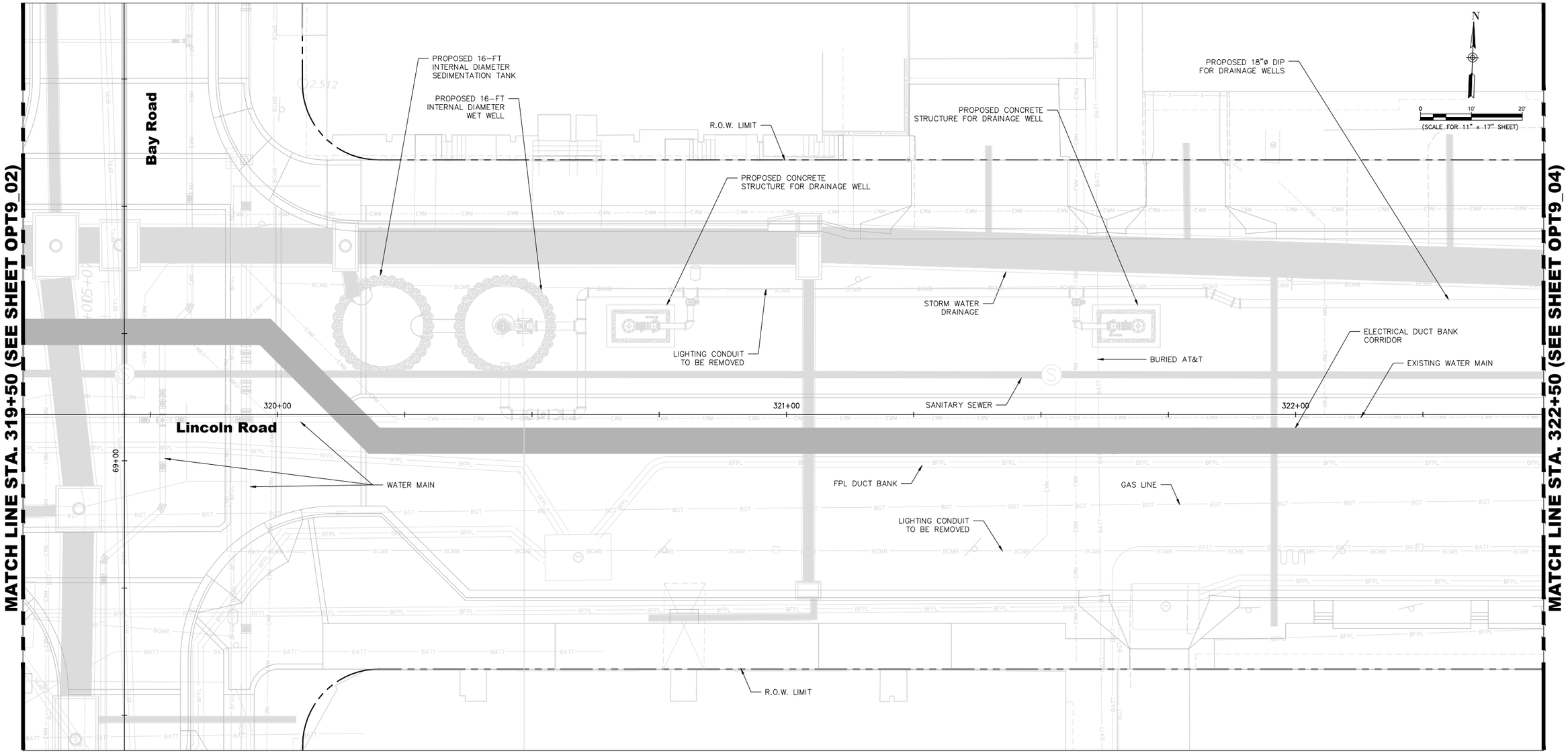
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT9_02.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: OPT9_02

Exhibit B



LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: **OPTION 9**
STORM DRAINAGE PUMP STATION

TITLE: **CIVIL**
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

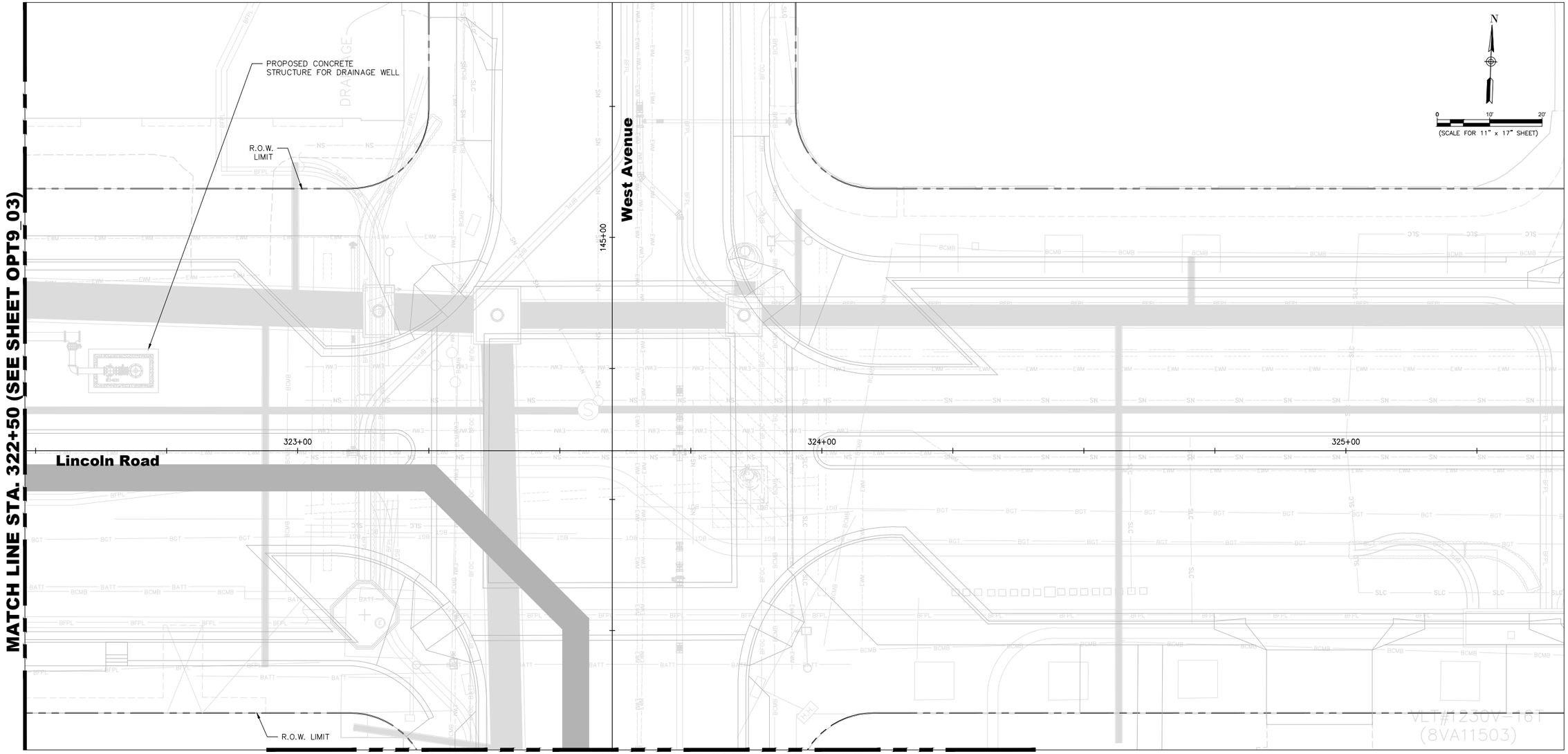
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT9_03.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: **OPT9_03**

Exhibit B



LEGEND:

- BATT — BURIED ATT
- BFPL — BURIED FPL
- BGT — BURIED GAS
- BFOAB — BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: OPTION 9
STORM DRAINAGE PUMP STATION

TITLE: CIVIL
PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

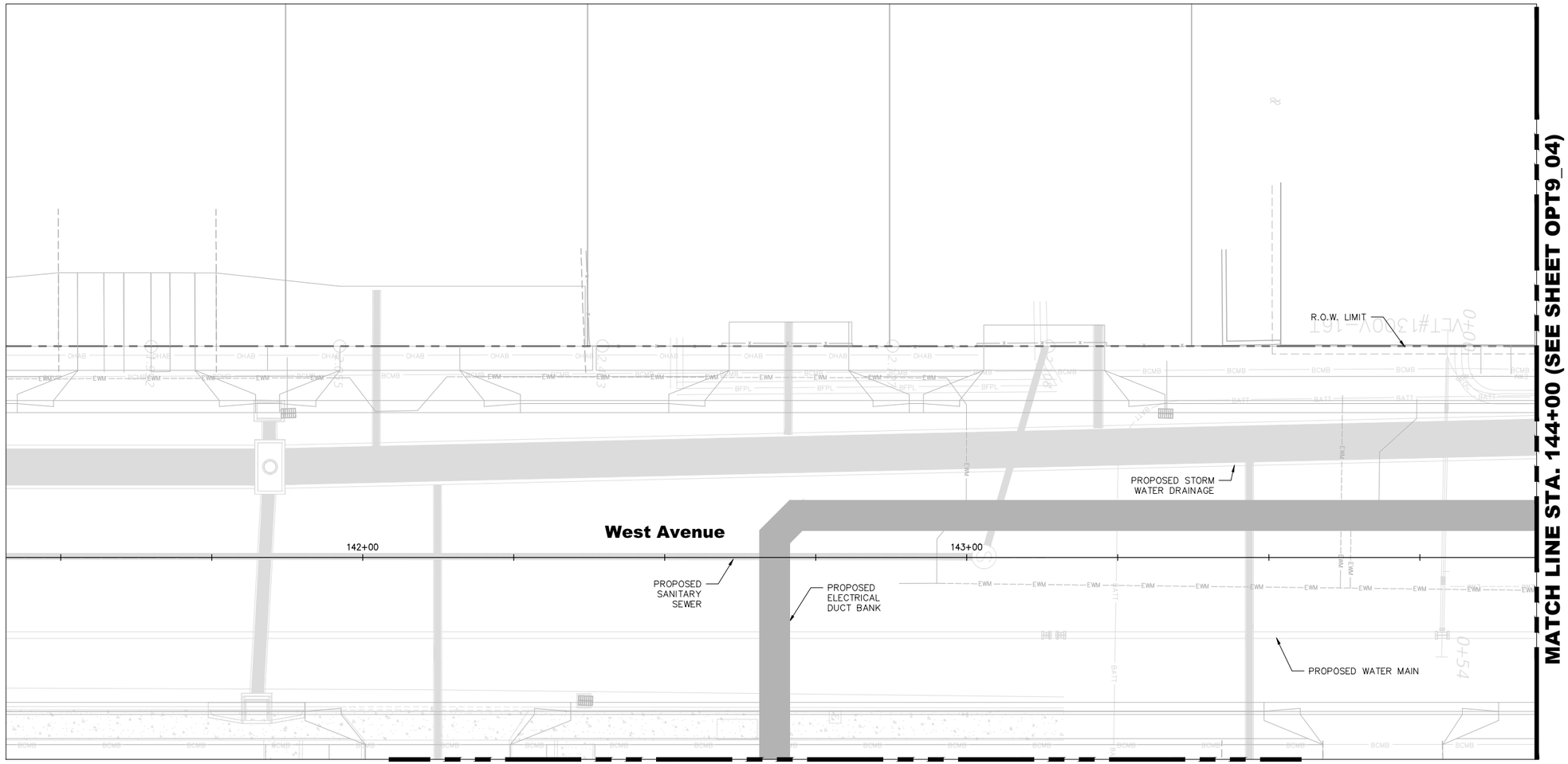
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT9_04.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT9_04

Exhibit B



(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BURIED ATT
- BURIED FPL
- BURIED GAS
- BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL 33139

NEIGHBORHOOD: OPTION 9 STORM DRAINAGE PUMP STATION

TITLE: CIVIL PROPOSED SITE PLAN - PUMP STATION

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

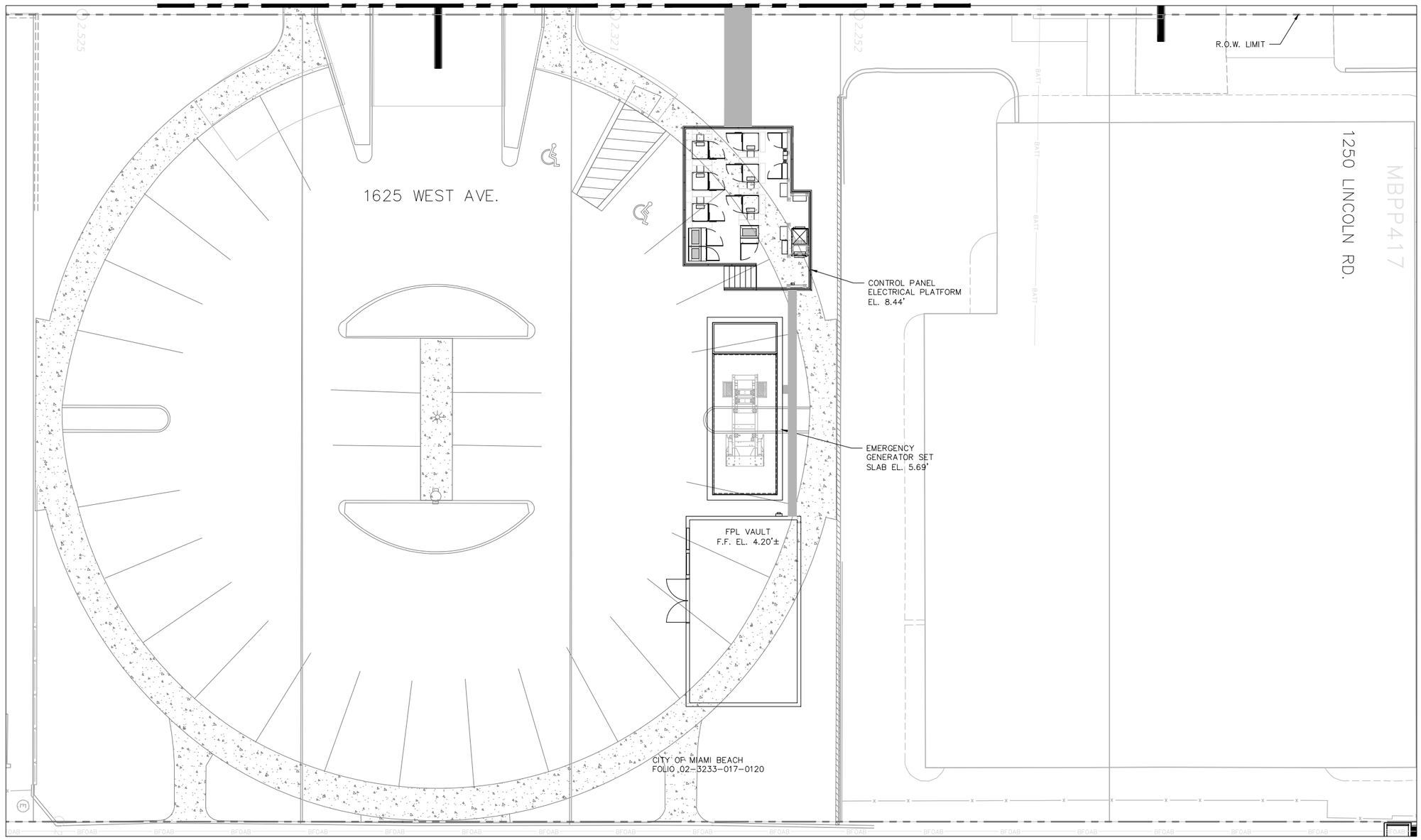
ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO.	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT9_05.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-KB
Date: 10/25/19 Sheet: _____ Drawing: OPT9_05

Exhibit B

MATCH LINE - WEST AVENUE (SEE SHEET OPT9_05)



(SCALE FOR 11" x 17" SHEET)

LEGEND:

- BURIED ATT
- BURIED FPL
- BURIED GAS
- BURIED FIBER OPTIC
- RIGHT-OF-WAY
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- BACK FLOW PREVENTER
- FIRE HYDRANT
- CABLE TV COMMUNICATION BOX
- WATER METER BOX

NOT FOR CONSTRUCTION

MIAMIBEACH
PUBLIC WORKS DEPARTMENT
1700 CONVENTION CENTER DRIVE, MIAMI BEACH, FL.33139

NEIGHBORHOOD: **OPTION 9 STORM DRAINAGE PUMP STATION**

TITLE: **CIVIL PROPOSED SITE PLAN - PUMP STATION**

CES CONSULTANTS

CITY MANAGER: JIMMY L. MORALES
DIRECTOR: ROY COLEY, P.E.
CITY ENGINEER: NELSON PEREZ-JACOME, P.E.

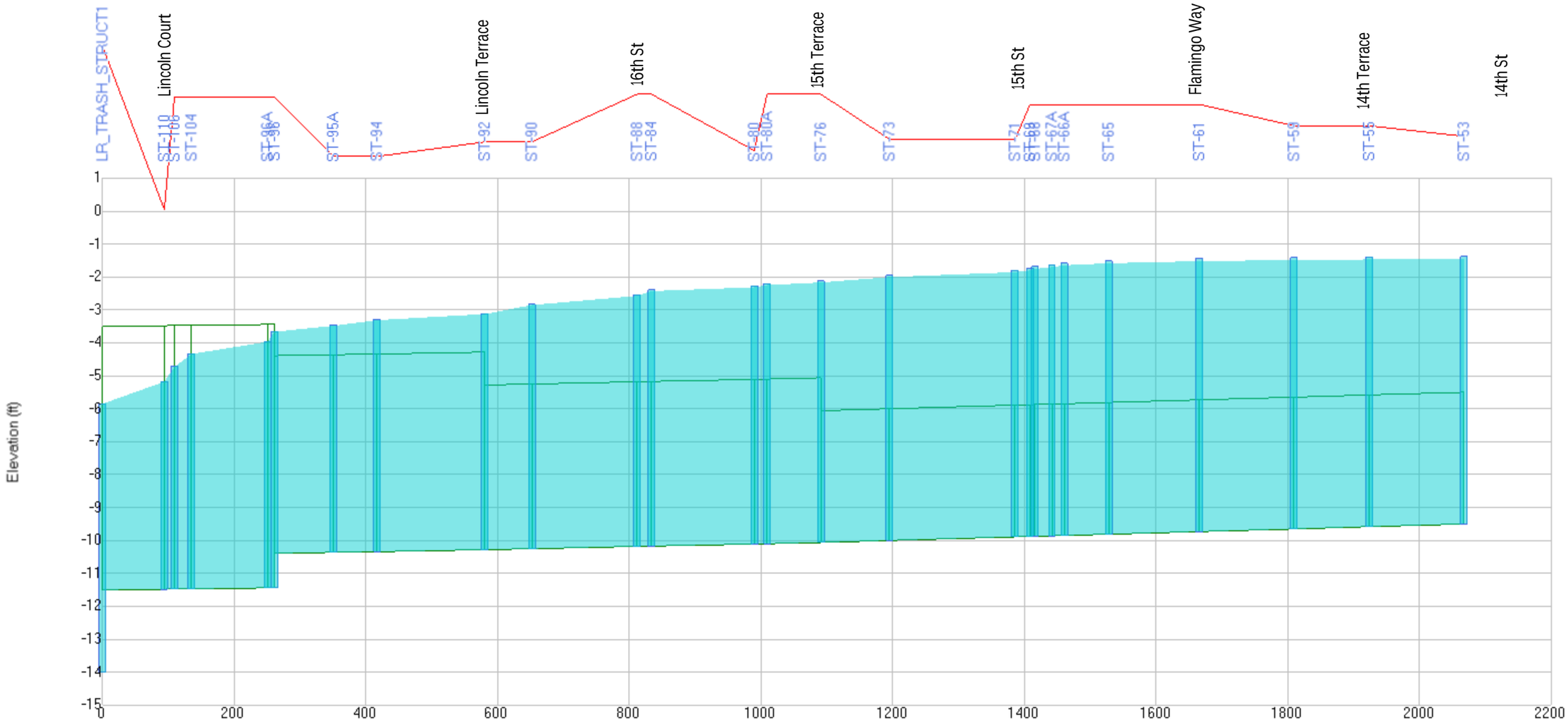
ENG. OF RECORD: J.A.C.
DESIGN ENGINEER: J.T.
DRAWN BY: J.T.
CHECKER: J.R.
SCALE: AS NOTED

ENGINEER OF RECORD:
JOSE A. CARABALLO, PE
FL REG No.73064

NO	DATE	REVISION	APP'D. BY
1	07/XX/20	SUBMITTAL	

File Name: OPT9_06.dwg
Survey Reference:
Field Book: _____ Page: _____ Work Order: 2016-091-K8
Date: 10/25/19 Sheet: _____ Drawing: OPT9_06

Exhibit B



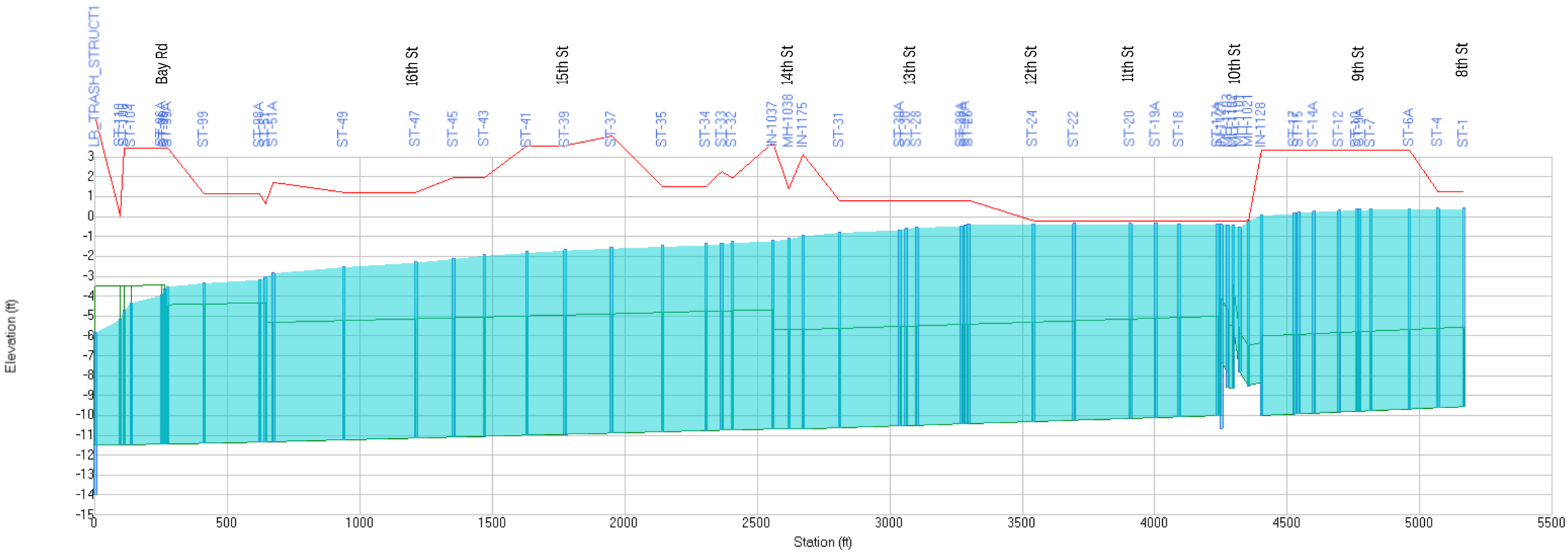
West - East
Lincoln Rd from
Proposed Pump Station
to Bay Rd

North - South
Bay Rd from Lincoln Rd to 14th St

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



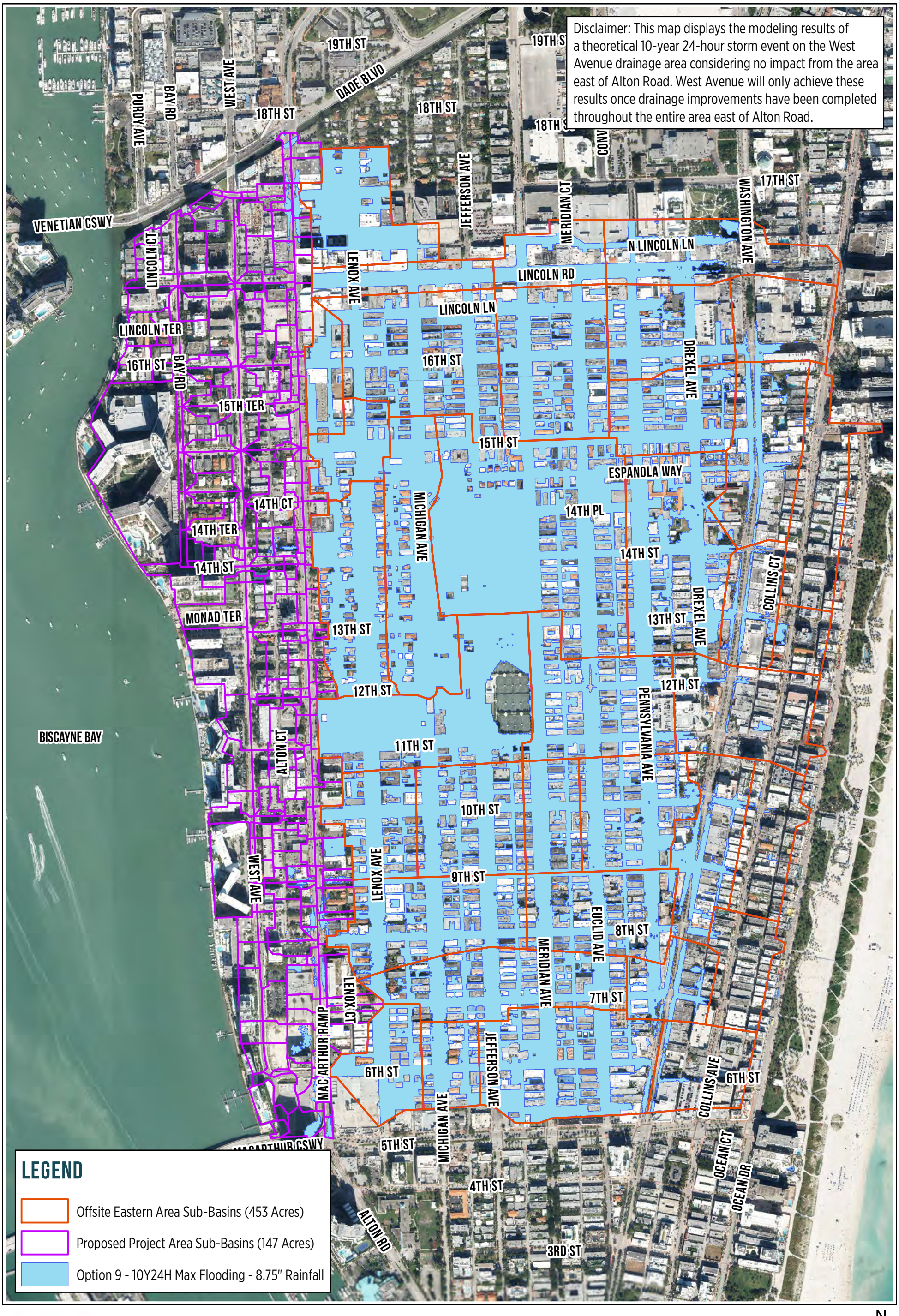
West - East
Lincoln Rd from
Proposed Pump Station
to West Avenue

North - South
West Ave from Lincoln Rd to 8th Street

LEGEND

- Node - Maximum Water Elevation
- Pipe Link
- 1-ft Below Lowest FFE in Respective Sub-Basin
- Maximum Water Elevation

Exhibit B



Document Name: OPT9CLIP_10Y24H_wBasins

Date Saved: 7/17/2020 3:13:22 PM

ces CONSULTANTS

CITY OF MIAMI BEACH

Feasibility Study

Option 9 (147 Ac)

10YR 24HR Design Storm Event

1 inch = 600 feet

N

0 600 1,200 Feet