BAY STREET INNOVATION CORRIDOR

Concept of Operations

FIN: 61741-DS-001

TRANSPORTATION SYSTEMS MANAGEMENT AND OPERATIONS

October 15, 2019

PROFESSIONAL ENGINEER CERTIFICATE

I hereby certify that I am a registered professional engineer in the State of Florida practicing with HNTB Corporation to operate as an engineering business CA 6500 by the State of Florida Department of Business and Processional Regulation, Board of Engineers, and that I prepared or approved the evaluation, findings, opinions, conclusions, or technical advice hereby reported for:

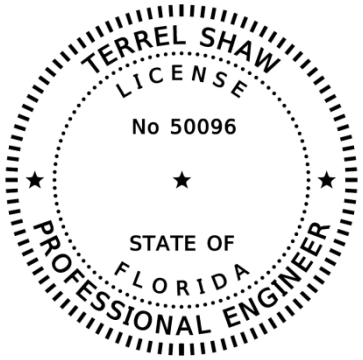
Project: *Bay Street Innovation Corridor*

Document: *Concept of Operations*

Counties: *Duval*

Client: *Florida Department of Transportation*

This Concept of Operations contains detailed engineering information that fulfills the details of the operational concept for the project. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering and planning as applied through professional judgment and experience.



Terrel Shaw, State of Florida, Professional Engineer No. ***50096.*** This item was electronically signed and sealed by Terrel Shaw, P.E. on ***October 15, 2019*** using a SHA-1 authentication code.

Printed copies of this document are not considered signed and sealed and the ***SHA-1 authentication code*** must be verified on any electronic copies.

Contents

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List of Acronyms and Abbreviations

AV.....Autonomous Vehicles
FDOT.....Florida Department of Transportation
IDE.....Integrated Data Exchange
JRTC.....Jacksonville Region Transportation Center
RTMC.....Regional Traffic Management Center
TMC.....Traffic Management Center
TPO.....Transporation Planning Organization
TSM&O.....Transportation System Management and Operations

1 INTRODUCTION

1.1 BACKGROUND

The Bay Street corridor is the heart of Jacksonville's downtown. Significant developments are currently proposed along the corridor which is the primary access to downtown and the Sports Complex during special events. This corridor is a prime candidate for the integration of Transportation System Management and Operation (TSM&O) strategies and technologies considering the unique needs in this corridor.

The Bay Street Innovation Corridor is intended to be the initial "signature" project for mobility as part of the Smart Region Plan adopted in 2017 by the North Florida Transportation Planning Organization (North Florida TPO) and partner agencies.

2 PURPOSE

The purpose of the project is to use proven TSM&O strategies and technologies to improve traffic flow and safety by using vehicle detection sensors, street flood warning sensors, smart lighting and wayfinding.

2.1 SYSTEMS ENGINEERING

The concept of operations has been developed to be consistent with the FHWA's system engineering "V" for the ITS system deployment. The "V" consists of two distinct sides as shown in **Figure 1**. The left side consists of updating the regional ITS architecture, concept exploration, developing the concept of operations, synthesizing the design for the overall system, and starting implementation in the field. The right side consists of testing, implementation, operation, and maintenance of the overall system. The central core of the "V" connects the two sides of "V" by implementing the system validation plan, device testing plan, and system verification. The systems engineering "V" covers the entire project life cycle ranging from the need definition to the system operation and maintenance.

The FHWA defines system engineering as an interdisciplinary approach and means to enable the realization of successful systems. It focuses on defining customer needs and required functionality early in the development cycle, documenting requirements, and then proceeding with design synthesis and system validation while considering the complete problem.

Systems engineering integrates all disciplines and specialty groups into a team effort forming a structured development process that proceeds from concept to production to operation. Systems engineering considers both the business and the technical needs of all customers with the goal of providing a quality product that meets the user needs. Systems engineering processes identify the role of stakeholders as the key aspect in the project life cycle.

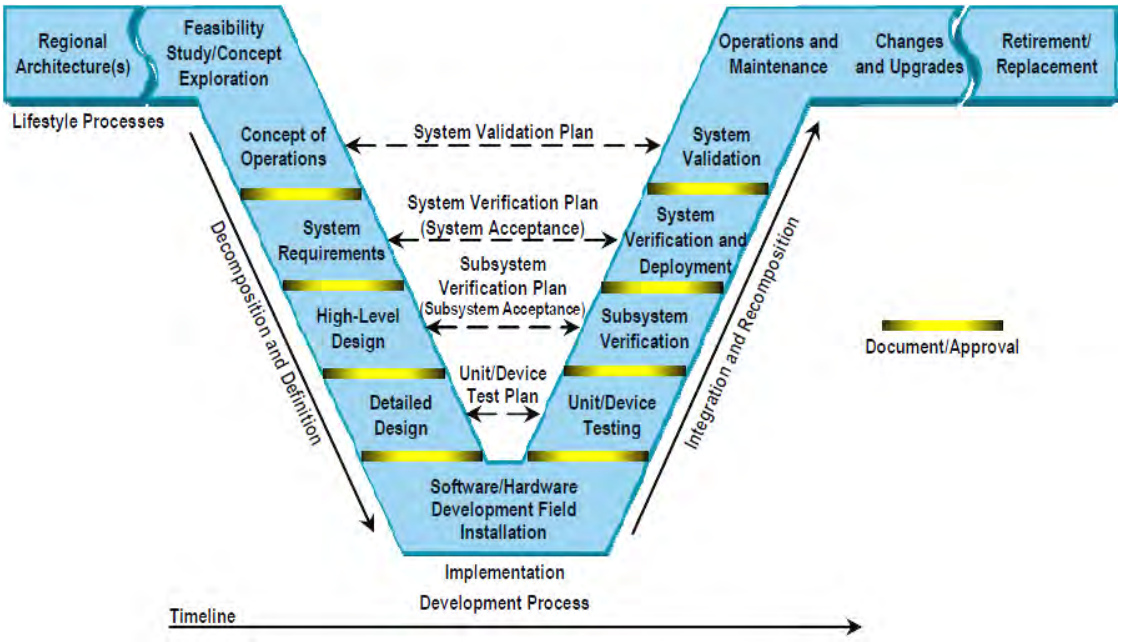


Figure 1 – Systems Engineering "V" Diagram

2.2 DOCUMENT OUTLINE

The concept of operations will act as a reference document for the stakeholders to provide details on how the system will behave and interact with the end users. Following is the sectional outline of this document:

Section 3. System Overview: Project definition and scope and existing system background will be discussed in this section.

Section 4. Justification of the Proposed System: justification of the system and the anticipated constrains will be discussed in this section.

Section 5. This section will briefly describe the concept of the proposed system and it will provide modes of operations.

Section 6. Stakeholders' Roles and Responsibilities: The stakeholders' roles and responsibilities are discussed in this section as it pertains to their roles in Bay Street Innovation Planning implementation.

Section 7. System Deployment: The following areas will be discussed in detail in this section. This will describe the estimated cost, power supply, and communication.

3 SYSTEMS OVERVIEW

3.1 PROJECT DEFINITION AND SCOPE

The scope of the project is limited to the North Florida TPO service area that falls within the Florida Department of Transportation (FDOT) District 2 boundary. The limits of the project are along Bay Street from the Jacksonville Region Transportation Center (JRTC) at Lee Street to the A. P. Randolph Street and Gator Bowl Boulevard intersection and from A. P. Randolph Street to East Duval Street. Neither Bay Street nor Gator Bowl Boulevard are on the state-highway system. The corridor intersects SR 23 (Acosta Bridge ramps), US 1/US 17 (Main Street) and SR 228 (Hart Bridge ramps). **Figure 2** shows the limits on Bay Street.

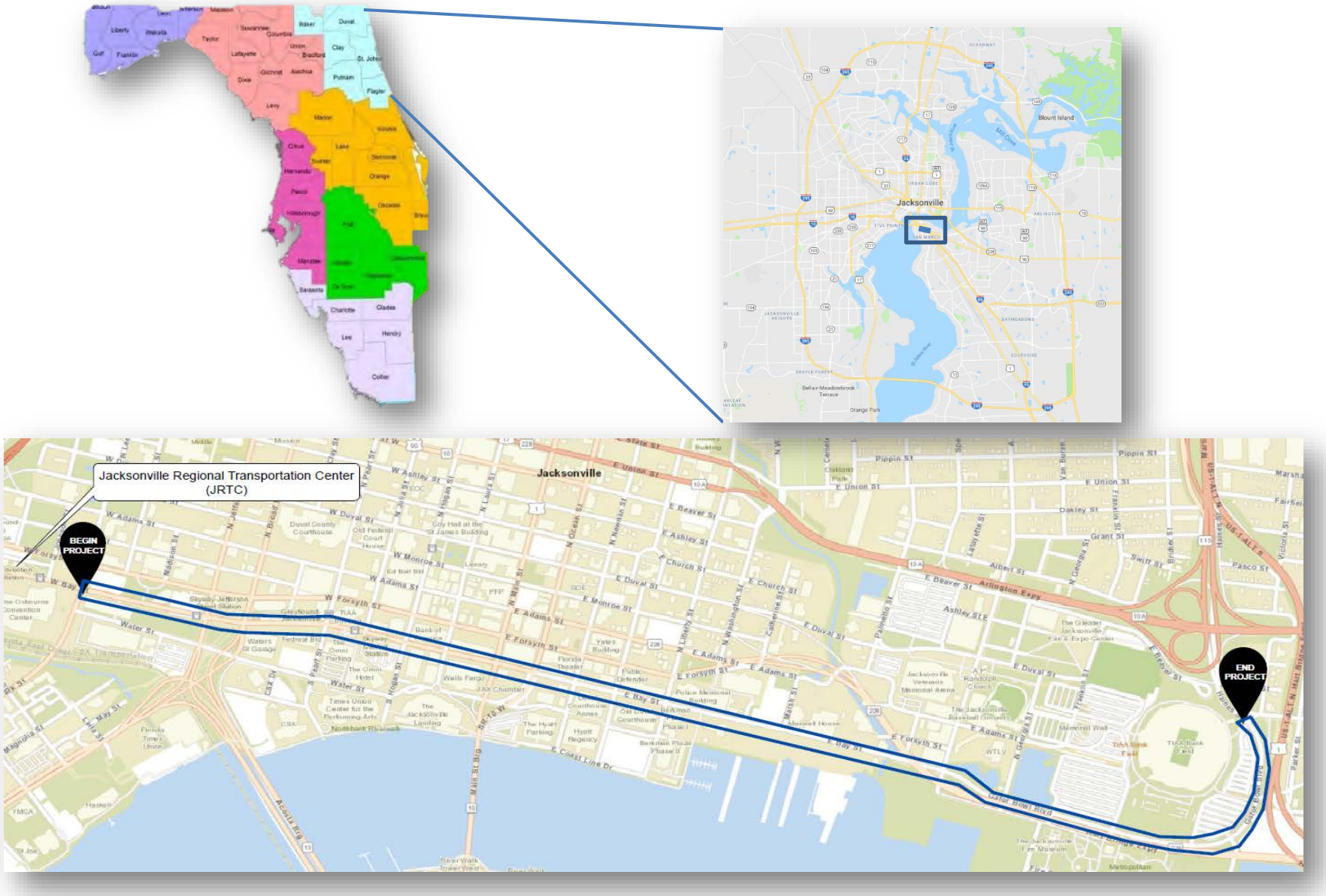


Figure 2 Bay Street Limits

3.2 System Background

In cooperation with North Florida TPO, the Jacksonville Transportation Authority (JTA) is proposing to develop the nation's first transit network to be implemented in the country using Autonomous Vehicles (AV) shuttles along Bay Street in Downtown Jacksonville from the JRTC to Daily's Place on Gator Bowl Boulevard.

This project will equip Bay Street with advanced connected communication technology, safety sensors, and other smart features that can support the AV shuttles, economic development opportunities and connectivity for people along this revitalizing corridor.

4 Justification of the Proposed System

This section describes the shortcomings of the current system or situation that motivate development of a new system or modification of an existing system and also describes the nature of the anticipated constrains for the proposed system.

4.1 Justification for JTA

Bay Street Innovation Corridor is of interest to Jacksonville for several reasons. This includes improving travel time, public safety, and integrate data exchange.

Connected signals will communicate with each other and adapt to changing traffic conditions to reduce the amount of time that the cars spend idling. Connected signal technology monitors vehicles and makes changes in real time to avoid congestion wherever possible.

Reducing the speeds will enhance the viability of AVs in mixed traffic environments since the recommended running speed for AVs is between 25 to 30 mph. Slower speeds will also attract more bicyclists and pedestrians and may help reduce the severity of crashes. Also, technologies such as Bluetooth, ITS pedestrian detection devices and new mid-block pedestrian crossing will help improve safety to bicyclist and pedestrians.

In addition, the deployment of an Integrated Data Exchange (IDE) is a fundamental building block in the Innovation Corridor. Without the development of way for information to be shared and data analytics to be performed the implementation of the field equipment and operation of an AV system will not function to its full potential.

4.2 Anticipated Constraints

Even though AVs can represent a beneficial change to the transportation system, such as travel time reduction, fuel efficiency, crash reduction, and public safety. There is still some uncertainty

on how the interactions with other components of the transportation system (bicyclist and pedestrians) will occur. To address these concerns, educating and informing people about this new technology can help improve the safety on the roads.

5 CONCEPT OF THE PROPOSED SYSTEM

This section will describe the components of the proposed system and modes of operation.

5.1 CURRENT SYSTEM DESCRIPTION

Bay Street will be equipped with advanced technology that can support the AV shuttles. The following components are proposed as part of the project:

- Conversion to a Two-Way Road - Micro-resurfacing, signing, pavement markings and signalization changes to convert the sections of Bay Street from one-way to two-way.
- Public Broadband Network - Wireless communications infrastructure to be provided by the private sector through a license agreement allowing use for public sector applications.
- Integrated Data Exchange - Foundational activity for the sharing of information for all IoT devices and stakeholders
- Smart and Connected Signals - Connected vehicle technologies to improve travel times, reliability and safety for vehicles and pedestrians within the corridor.
- Pedestrian Sensors - Identify pedestrians crossing at the mid-block to provide enhanced lighting at night and to notify drivers through connected vehicle technologies
- Street Flood Notification System - Identifies locations where street flooding is eminent or occurring to route travelers around this safety hazard.
- Solar Path - Use of solar panels to generate the power needed for the smart technology in the corridor.
- Public Safety and Surveillance - Surveillance and detection of safety conditions within the corridor.
- Wayfinding and Event Management - Provide applications, on-street kiosks and in-vehicle information for travelers to optimize their route and minimize congestion.
- Smart Lighting - Use of sensors and LED to optimize power consumption and improve safety.
- Smart Waste Management - Use smart trash cans to optimize resources for the handling and removing waste in the street environment.

Because of the scale and complexity of the project, the first phase of the project was reduced but will still include many of the elements of the ultimate vision for the corridor. The first phase of the project will consist of:

1. Smart and connected signals at 17 locations
2. Street flood warning sensors at four locations
3. Smart lighting from Liberty Street to Talleyrand Avenue
4. Wayfinding smart kiosks at six locations
5. Solar Path at seven locations

These locations are shown in **Table 1** and in **Figure 3.**

Table 1. Equipment Locations

1 Smart Signals

	Bay Street Intersection with	Type	Vehicle Detection Systems	Ped Detector	Transit Priority System
1	Park Street/Lee Street	Signal	3	2	1
2	Jefferson Street	Signal	3	1	1
3	Broad Street	Signal	3	1	1
4	Clay Street	Signal	2	2	1
5	Pearl Street	Signal	2	2	1
6	Julia Street	Signal	2	2	1
7	Hogan Street	Signal	2	2	1
8	Laura Street	Signal	3	2	1
9	Main Street	Signal	2	2	1
10	Ocean Street	Signal	3	2	1
11	Newnan Street	Signal	4	4	1
12	Midblock Pedestrian Crossing at Law Library	Unsignalized			
13	Market Street	Signal	4	2	1
14	Liberty Street	Signal	4	2	1
15	Catherine Street	Unsignalized			
16	Marsh Street	Unsignalized			
17	Lafayette Street	Unsignalized			
18	A. P. Randolph Street	Signal	3	2	1
19	North Georgia Street	Unsignalized			
20	Lot J Pedestrian Signal	Signal		2	1
21	Festival Park Drive	Unsignalized			
22	Talleyrand Avenue	Signal	3	2	
23	East Duval Street	Signal	3	2	
	Total		**46**	**34**	**15**

2 *Street Flood Warning System*

	Bay Street Intersection with	Sensors
1	Coastline Drive at Pearl Street	1
2	Coastline Drive at Newnan Street	1
3	Coastline Drive at Liberty Street	1
4	Bay Street Bridge over Hogan Creek	1
	Total	**4**

3 *Street Lighting*

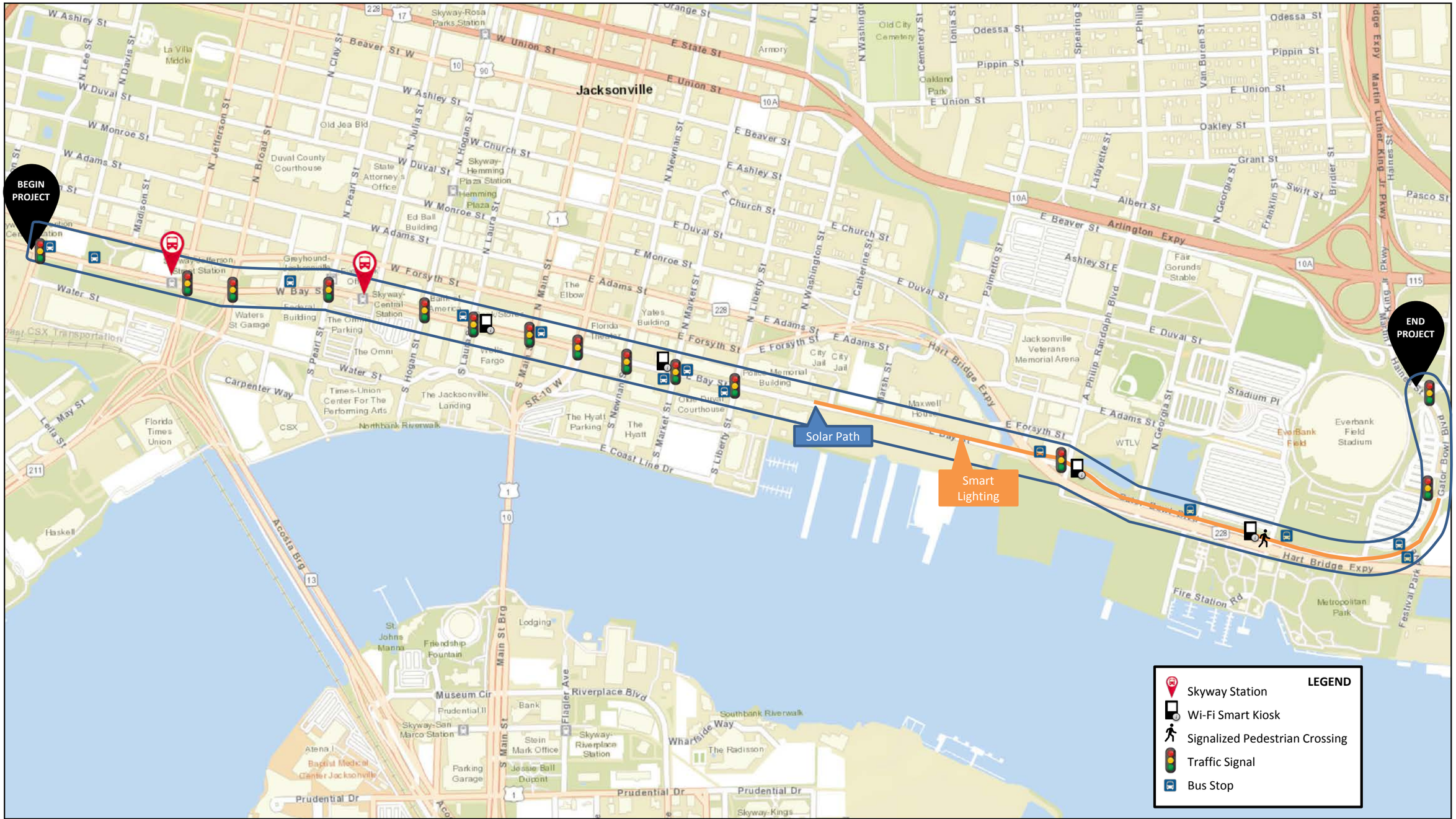
	Bay Street Intersection with	Lighting Upgrade
1	Liberty Street	22
2	Catherine Street	5
3	Marsh Street	20
4	Lafayette Street	5
5	A. P. Randolph Street	6
6	North Georgia Street	9
7	Lot J Pedestrian Signal	12
8	Festival Park Drive	4
9	Talleyrand Avenue	
	Total	**83**

4 *Wayfinding - Rideshare, Transit and Special Event Management Information*

	Bay Street Intersection with	Kiosks
1	Laura Street	2
2	Market Street	2
3	A. P. Randolph Street	1
4	Lot J Pedestrian Signal	1
	Total	**6**

5 *Solar Path*

	Bay Street Intersection With	Sensor
1	Newman Street	1
2	Market Street	1
3	Liberty Street	1
4	A. P. Randolph Street	1
5	Lot J Pedestrian Signal	1
6	Festival Park Drive	1
7	Talleyrand Avenue	1
	Total	**7**



HNTB

Figure 3 – Phase I Implementation

Document Path: J:\Kennedy\Bay Street\GIS\Bay_Overall.mxd

5.2 Modes of Operation

Bay Street will be equipped with the most advanced technology that would help collect data to improve reliable travel time and safety. It would have reliable broadband wireless to create a more attractive street environment and will help support the CV technologies. This technology will be implement with the proposed wayfinding kiosks which will be installed along the corridor.

6 Stakeholders Roles and Responsibilities

This section identifies the stakeholder groups and their roles and responsibilities for this project. These stakeholders are identified as part of the FDOT District 2 ITS architecture. **Table 4** provides the list of stakeholders as it applies to the North Florida TPO region and their involvement in the Bay Street Innovation corridor.

Table 2. Stakeholders

Stakeholder	*Bay Street Innovation Planning*	*Implementation*
Planning organization (North Florida TPO)	Yes	No
Transit agency (Jacksonville Transportation Authority)	Yes	Yes
Transportation/public works agency (FDOT, County and City)	Yes	Yes

6.1 North Florida TPO

The North Florida TPO may act as a lead stakeholder to establish mutual agency agreements between different stakeholders. They can apply the knowledge about the region as a whole (not just a single jurisdiction) and help establish the inter-jurisdictional agreement efficiently leveraging their ongoing relationships with the local agencies. The North Florida TPO should ensure that the focus of Bay Street Innovation planning should be to relieve traffic congestion, travel time, and safety within the corridor.

The planning agency may also provide access to resources, such as the GIS database and demand models, which may not be available with other agencies to use in developing Bay Street Innovation planning.

6.2 Transit Agency - Jacksonville Transportation Authority

The local transit agency in the northeast Florida region is JTA. The following are the roles and responsibilities of the transit agencies:

- Participate in the meetings where stakeholders select preferred Bay Street Innovation plans and sign off on the selected Bay Street Innovation plans.

- Provide transit schedules to the transportation agencies to include in the AV shuttles.
- Evaluate transit performance during the AV shuttles operation.
- Develop an expanded schedule to accommodate any additional traffic demand.
- Disseminate information on transit operators and passengers as well as provide passengers with the information on the AV shuttles and Bay Street Innovation Plan.
- Participate in the discussion of changes in timing plans necessary for the efficient of the AV shuttles operation.

6.3 TRANSPORTATION/PUBLIC WORKS AGENCY

The FDOT District 2 Traffic Engineering and Operations Office consists of TMCs operating 24 hours a day, seven days a week. The TMCs are operated by a group of trained and qualified personnel, who help in managing traffic incidents as well as disseminating timely traveler information using dynamic message signs and using traffic cameras to monitor roadway congestion, incidents and delay. However, not all roadways within the northeast Florida region have ITS devices such as traffic cameras, radar detectors, etc. to monitor traffic congestion and incidents. The goal of the transportation and public works agency is to constantly monitor congestion on the roadways, and to assess travel time and delays.

The FDOT Maintenance Office and county and local public works departments play an important role in the operation of the AV shuttles in the Bay Street corridor. Following are the roles and responsibilities of the transportation and public works agencies:

- Share plans and maps that are available for the benefit of the group. Share technical data that is required to support this effort.
- Constantly monitor the congestion and incident conditions on the project corridor and determine travel time and delay information.
- Share and/or exchange the ITS and traffic data with other agencies for an appropriate plan of action. The ITS data could be the traffic camera feeds, DMS information, traffic detector data, etc., where available.
- Monitor traffic conditions on transit routes if surveillance is available.
- Determine time-period restrictions based on traffic conditions and time of day as to when the AV shuttles works best.
- Generate and maintain the contact list of all responsible stakeholders in the region participating in the AV shuttle implementation and operation.
- Adjust and modify traffic signal timing based on traffic demand. Coordination between local agencies that operate and maintain the traffic signals in the region is desired to develop an alternate signal timing plan to accommodate any additional traffic.

7 System Deployment

7.1 Estimated Cost

The estimated cost of the proposed equipment for the ultimate phase is approximately $5,747,797, and the estimated cost for phase I is approximately $803,093. The following tables shows a summary cost of the proposed equipment for the ultimate phase and the first phase.

Table 3. Summary of Proposed Equipment for the Ultimate Phase

Element	Costs
Cost for Conversion One-way to Two-way	$918,000
Broadband Wireless	$ -
Integrated Data Exchange	$2,500,000
Smart Signals	$400,000
Mid-block Pedestrian Sensors	$136,500
Street Flood Warnings	$43,538
Solar Path (Phase I)	$70,000
Public Safety Street Surveillance	$282,294
Wayfinding and Event Management	$720,000
Smart Lighting	$628,125
Smart Street Waste Management	$49,300
Total	**$5,747,757**

Note: These costs are not mutually exclusive. For example, the costs for smart signals includes the costs for conversion of several of the signals from one-way to two-way operations.

Table 4. Summary of Proposed Equipment for Phase I

Element		Cost
Smart Signals		$394,036
Street Flood Warning System		$28,658
Street Lighting		$99,391
Wayfinding - Rideshare, Transit and Special Event Management Information		$138,000
Solar Path		$70,000
Subtotal		**$730,085**
Mobilization	5%	$36,504
Maintenance of Traffic	5%	$36,504
Total Construction		**$803,093**

Cost estimates were prepared using unit prices paid by the FDOT on recent deployments.

7.2 POWER SUPPLY CONSIDERATIONS

The Bay Street Innovation corridor is a process of improving traffic flow and safety using the latest technologies. There are no power supply modifications required as part of the process.

7.3 DEVICE COMMUNICATIONS CONSIDERATIONS

Fiber optic cable (FOC) already exist on the project corridor. System interconnect includes Ethernet switches and Ethernet interfaces with traffic signal controllers. The fiber optic cable or wireless networks tie into an area wide FOC communication network which provides remote communication capabilities between the signals and the Regional Traffic Management Center (RTMC). **Figure 4** shows the existing FOC network at the downtown area.

Figure 4 – Downtown Fiber Optic Network

THE BAY JAX innovation corridor

Concept Layout

0 0.05 0.1 0.2 0.3 0.4 Miles

CITY OF JACKSONVILLE NOTES

GENERAL

All construction shall be performed in accordance with the approved plans and comply with all standard city policies and practices. City approval is contingent upon any required state or federal permit approvals such as those from the Department of Environmental Protection or the St. Johns River Water Management District (SJRWMD).

UTILITY WORK

Plan approval through Development Services does not include utilities. Proposed water, sewer or electric construction must be approved separately through the respective utility company. In most cases, this will be:

JEA
JEA Tower - 4th Floor
21 W. Church Street
Jacksonville, FL 32202
http://www.jea.com/business/services/devandbuild/developers.asp

WORK WITHIN THE RIGHT-OF-WAY

CITY: Except for new subdivision infrastructure construction, all work performed within a City of Jacksonville right-of-way or easement requires a Right-of-way Permit. The contractor performing the proposed work must have a current Right-of-way Bond on file with Development Services. Right-of-way Permit applications are processed at:

Development Services Customer Service Counter
Edward Ball Building, 2nd Floor
214 N. Hogan St.
Jacksonville, FL 32202
(904) 255-8572
http://row.jaxdev.info/

STATE: All work performed within a state right-of-way requires a permit from the Florida Department of Transportation (FDOT). It is the developer's responsibility to obtain required FDOT permits or maintenance-of-traffic approvals for work within FDOT right-of-ways. The FDOT regional office can be contacted at (904) 360-5200 Any changes to the approved plans needed for FDOT approval must be submitted to Development Services as revisions.

Adjacent State Roads: _____

RAILROAD: Railroad companies may require special approvals or permits to work within their right-of-ways. It is the developer's responsibility to obtain permission from any railroad right-of-way owner before performing any work within their right-of-way.

STORMWATER

Annual reports in compliance with the SJRWMD stormwater permits are required from the maintenance entity of all stormwater management facilities. Send copies of the reports to:

Engineering and Construction Management
Edward Ball Building, 10th Floor
214 N. Hogan St.
Jacksonville, FL 32202
http://www.coj.net/Departments/Public+Works/Engineering+and+Construction+Management/

The owner of any project one (1) acre or larger is required to provide a Notice of Intent (NOI) in accordance with criteria set forth in the city's NPDES permit within 48 hours of beginning construction. Send NOI and NOI fee to:

Florida Department of Environmental Protection
NPDES Stormwater Notices Center, Mail Station #2510
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
(888) 336-8312
http://www.dep.state.fl.us/water/stormwater/npdes/

The contractor shall contact the Environmental Quality Division, Erosion and Sedimentation Control Section (ESC) to provide verification that applicable stormwater permits have been obtained and to schedule a pre-construction ESC site inspection:

Environmental Quality Division
407 North Laura Street, Third Floor
Jacksonville, FL, 32202
(904) 255-7222

FIRE MARSHALL

Plan review and approval does not relieve the contractor of complying with all applicable State Fire Codes.

Underground mains and hydrants shall be installed, completed, and in service prior to construction work.

Underground contractor shall submit to the Fire Marshall for approval complete specs for all underground pipe and fittings relating to fire protection PRIOR to installation and inspection. Contractor shall include manufacturer's name and pipe ID along with contractor's state license number.

LANDSCAPE

A Site Work Permit is required for this project.

☐ Tree Fund payment is due: _____ inches at $_____ = $_____

☐ Article 25 funds are due: _____ inches at $_____ = $_____

TRAFFIC ENGINEERING

TRAFFIC SIGNS

Metro Name (each) _____

Standard (each) _____

Stop/Yield (each) _____

Design (per plat) 1 per plat

Installation (per hour) 1 per 2 signs (rounded up)

___ Streetlights Required

NOTE: Traffic sign costs change from time to time. Consult Attachment 8 of the Land Development Procedures Manual (http://ldpm.jaxdev.com/) for the current rates before paying for any sign installations.

No lane closures allowed from 7 a.m. till 9 a.m. and from 4 p.m. till 6 p.m.

ENGINEER OF RECORD:

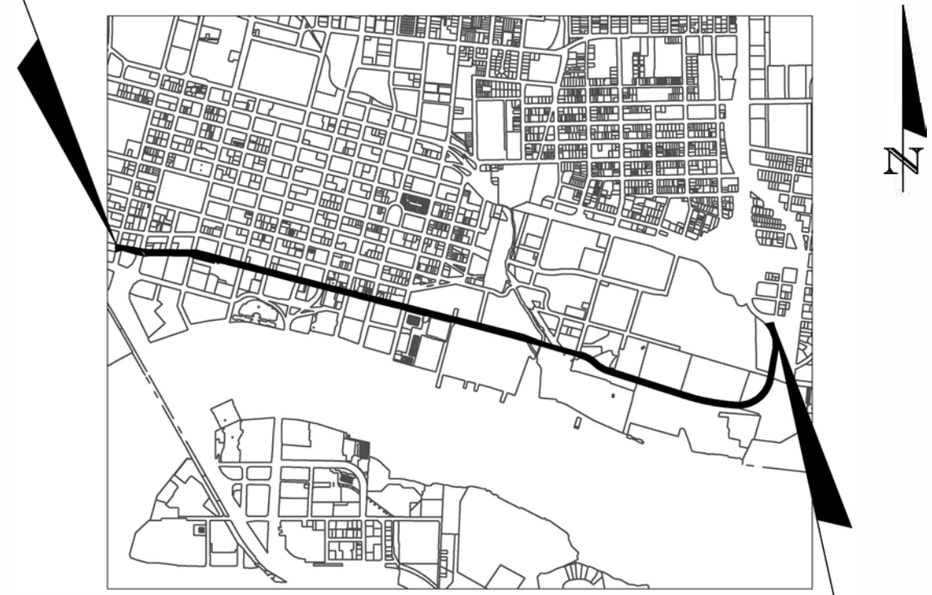
TERREL SHAW, P.E. NO.: 50096
HNTB CORPORATION
4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FL 32256
PHONE NO. (904) 296-0207

THE BAY JAX
innovation corridor

PHASE I

THE BAY JACKSONVILLE INNOVATION CORRIDOR

BEGIN PROJECT
BAY STREET



END PROJECT
BAY STREET

VICINITY MAP
NTS

Sheet Index

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SHEET NO.	*SHEET DESCRIPTION*
1	*KEY SHEET*
2	*GENERAL NOTES/DETAIL AND LEGEND SHEET*
3-20	*PLAN SHEETS*

PLAN APPROVAL

Date _____ Development Services Division (Chief) _____

Date _____ Review Group (Reviewer) _____

Plan approval is valid for five years after the initial approval date. Revisions made after the initial approval date do not extend this five-year time frame.

PLAN APPROVAL IS SUBJECT TO THE FOLLOWING NOTES AND CONDITIONS:

GENERAL PROJECT INFORMATION

GENERAL
City Development Number _____
Concurrency Application Number _____
Property Appraiser Number (RE #) _____
Zoning Designation _____
Zoning Application(s) (if any) _____
PUD Ordinance Number _____
FIRM – Community – Panel _____
Flood Zones (Show in Plans) _____
Base Flood Elev. (Show in Plans) _____
Vertical Datum Used for Project _____
JEA Availability Number _____

SUBDIVISION
PSD Number _____
City or Private Inspection _____
Public or Private Roads _____
Subdivision ("911") Disk Provided? _____

NON-SUBDIVISION
North American Industry Classification System (NAICS) _____
Impervious Area (Sq. Ft.) _____

NOT FOR CONSTRUCTION

GENERAL NOTES

ITS NOTES:

1. NOTIFY THE CITY OF JACKSONVILLE TRAFFIC ENGINEERING DEPARTMENT AT LEAST, 2 BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION.
2. MAINTAINING AGENCY:
   JACKSONVILLE TRAFFIC ENGINEERING
   1007 SUPERIOR STREET
   JACKSONVILLE,FL 32254
   (904) 255-7533
3. IF ANY PUBLIC LAND CORNER WITHIN THE LIMITS OF CONSTRUCTION IS IN DANGER OF BEING DESTROYED AND HAS NOT BEEN PROPERLY REFERENCED, IMMEDIATELY NOTIFY THE ENGINEER IN CONJUNCTION WITH THE DISTRICT LOCATION SURVEYOR.
4. ENSURE THAT FIELD TERMINATED PIGTAILS/DROP CABLES WILL HAVE SUFFICIENT LENGTH TO REACH FROM THE PATCH PANEL TO THE SPLICE BOX WHILE ALSO ACCOUNTING FOR THE PROPOSED SLACK OF THE FIBER CABLE IN THE SPLICE BOX.
5. ALL CABINET WIRING SHALL BE NEATLY BUNDLED AND CLEARLY IDENTIFIED WITH PERMANENT LEGIBLE TAGS THAT ARE SECURELY ATTACHED TO EACH CABLE. THE TAGGING SYSTEM PROPOSED SHALL BE SUBMITTED FOR APPROVAL WITH THE OTHER EQUIPMENT SUBMITTAL'S REQUIRED FOR THIS PROJECT. THE COST SHALL BE INCIDENTAL TO THE INSTALLATION OF THE CABINET.
6. POWER ASSEMBLY SERVICE POLES FOR ITS DEVICE CABINETS SHALL BE 12' TYPE II SERVICE POLES AND SHALL BE EMBEDDED 4' IN THE GROUND.

PAY ITEM NOTES:

1. 660-4-12 - VEHICLE DETECTION SYSTEM- VIDEO, FURNISH & INSTALL ABOVE GROUND EQUIPMENT, SHALL BE A MODEL GRIDMART SPECTRA 360, SINGLE CAMERA SYSTEM.
2. 663-1-111 - SIGNAL PRIORITY AND PREMPTION SYSTEM, FURNISH & INSTALL GPS, CABINET.
3. 663-1-112 - SIGNAL PRIORITY AND PREMPTION SYSTEM, FURNISH & INSTALL GPS,DETECTOR. (OPTICOM GPS)
4. 633-9999 - SIGNAL PRIORITY AND PREMPTION ATMS.NOW SOFTWARE UPGRADE, FURNISH ONLY (COJ TO INSTALL).
5. 665-1-12 - PEDESTRIAN DETECTOR, FURNISH & INSTALL, ACCESSIBLE.
6. 690-999 - CONNECTED VEHICLE RSU (FURNISH & INSTALL).

LEGEND:

- EXISTING PEDESTRIAN HEAD
- EXISTING SIGNAL MAST ARM
- EXISTING CONTROLLER
- EXISTING FIBER
- PROPOSED VEHICLE DETECTION ABOVE GROUND
- PROPOSED PEDESTRIAN DETECTOR
- PROPOSED SIGNAL PRIORITY AND PREEMPTION SYSTEM
- PROPOSED WIRELESS COMMUNICATION DEVICE FOR FLOOD SENSOR
- PROPOSED FLOOD SENSOR
- PROPOSED PEDESTRIAN SENSOR
- PROPOSED UNDERGROUND FIBER OPTIC (COMMUNICATIONS)
- PROPOSED ELECTRIC FIBER OPTIC
- PARKING
- DIRECTION OF TRAFFIC
- PARKING GARAGE/LOTS
- VEHICLE ENTRANCE

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS	
DATE	DESCRIPTION

HNTB
4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

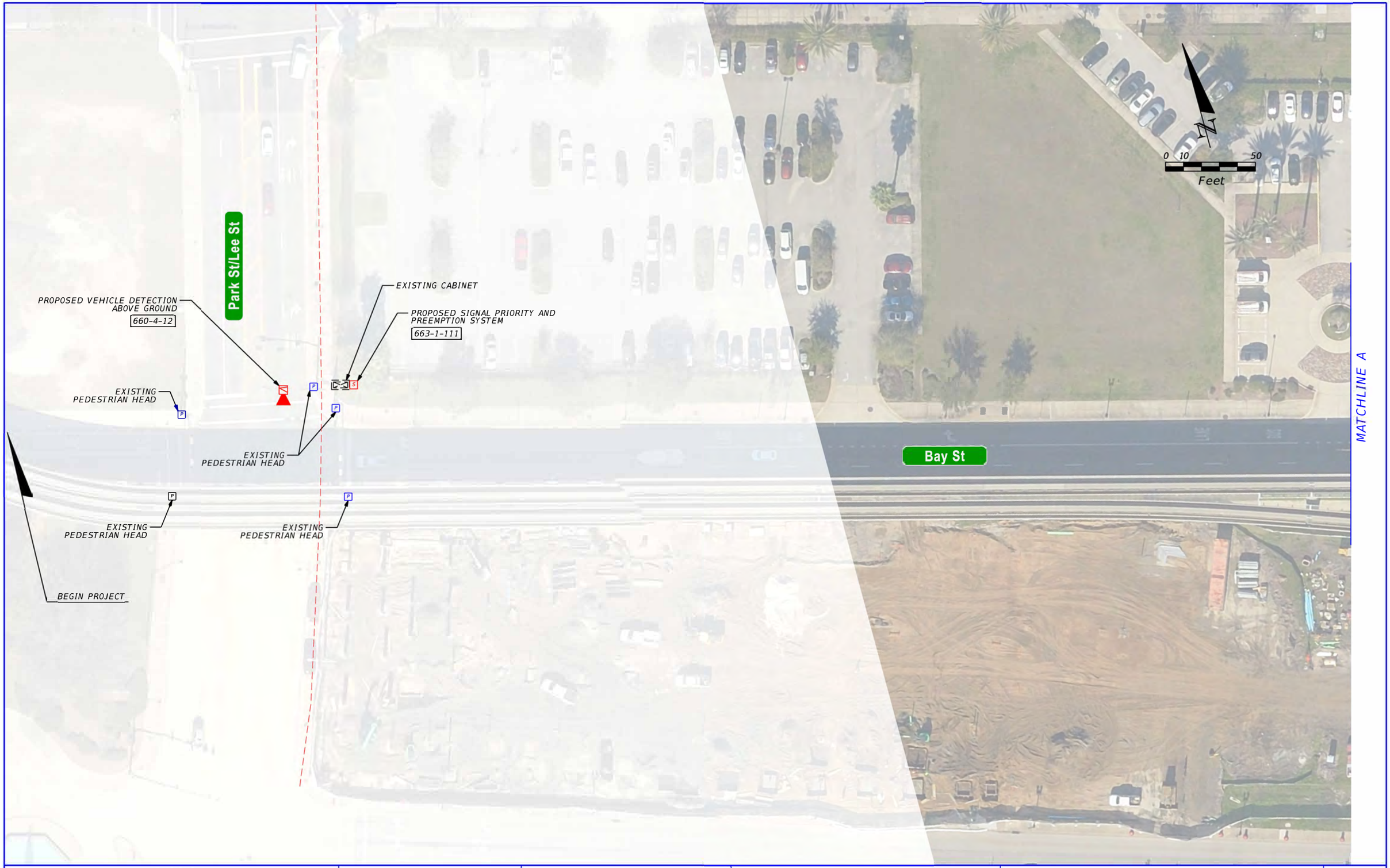
ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

GENERAL NOTES DETAILS AND LEGEND

SHEET NO.



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ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 1
SHEET (1)

SHEET NO.

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REVISIONS	
DATE	DESCRIPTION

HNTB
4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET SMART CORRIDOR PHASE 1 SHEET (2)

SHEET NO.

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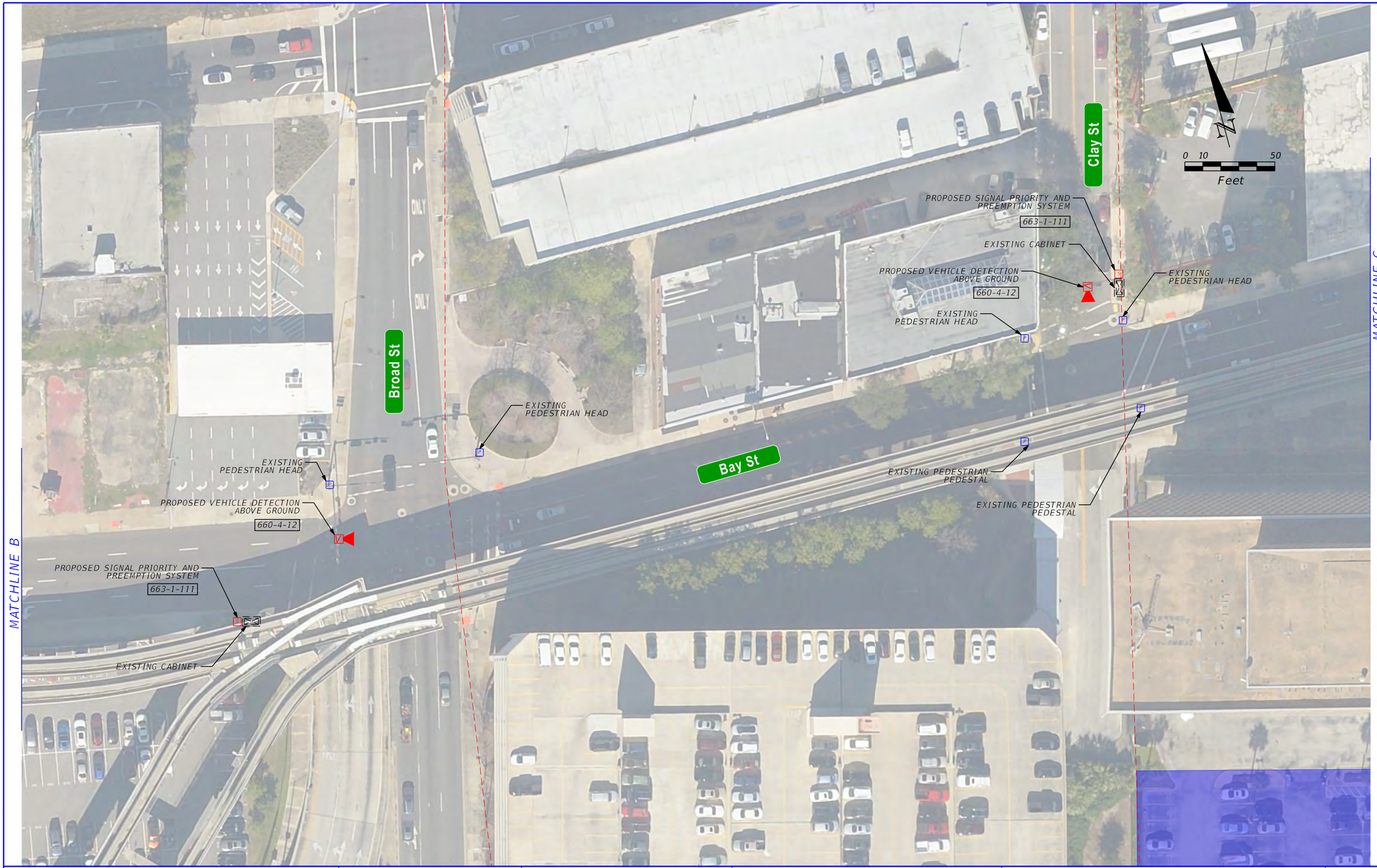

MATCHLINE B

MATCHLINE C

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4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 1
SHEET (3)

SHEET NO.

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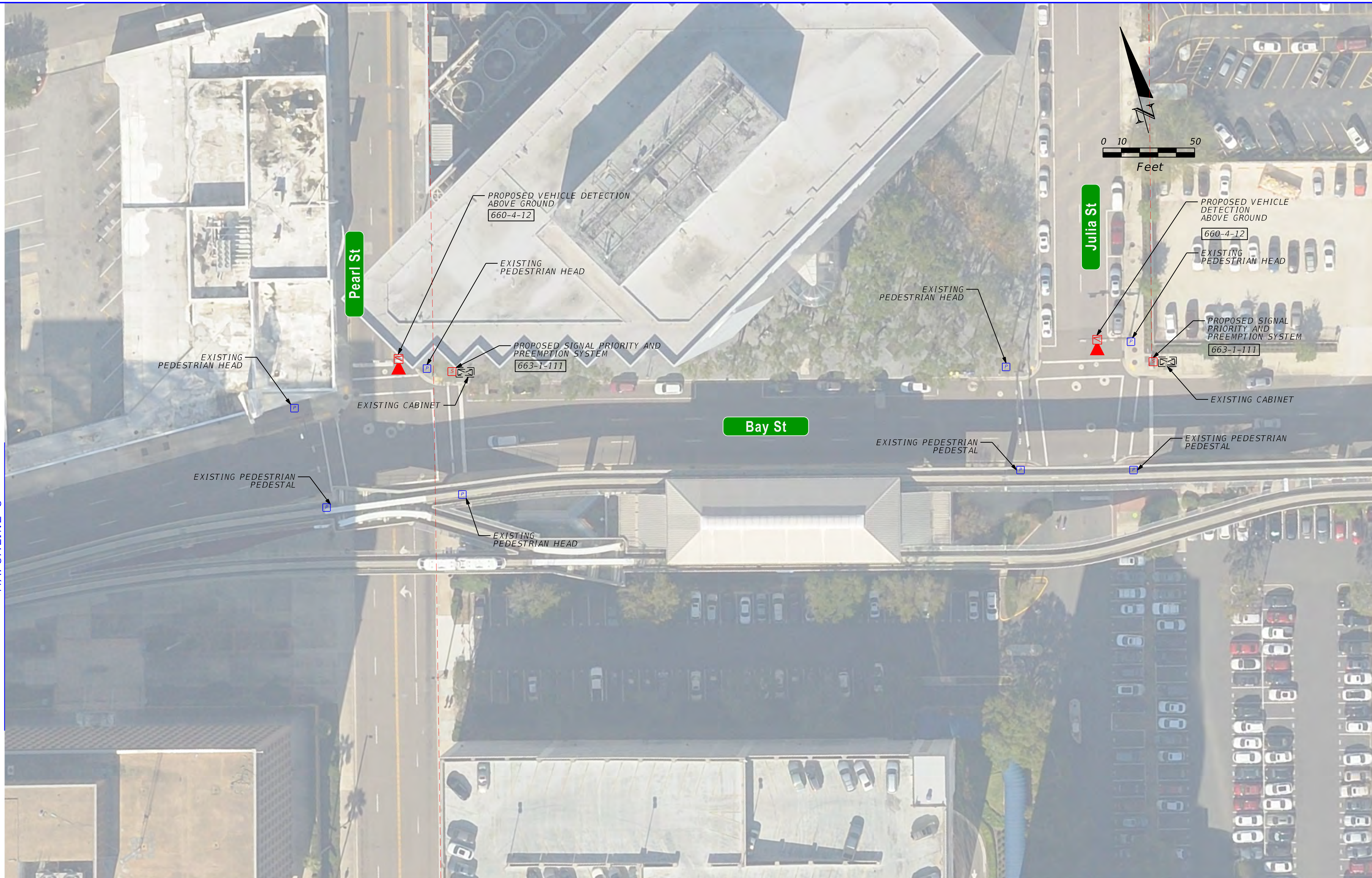

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PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 1
SHEET (4)

SHEET NO.

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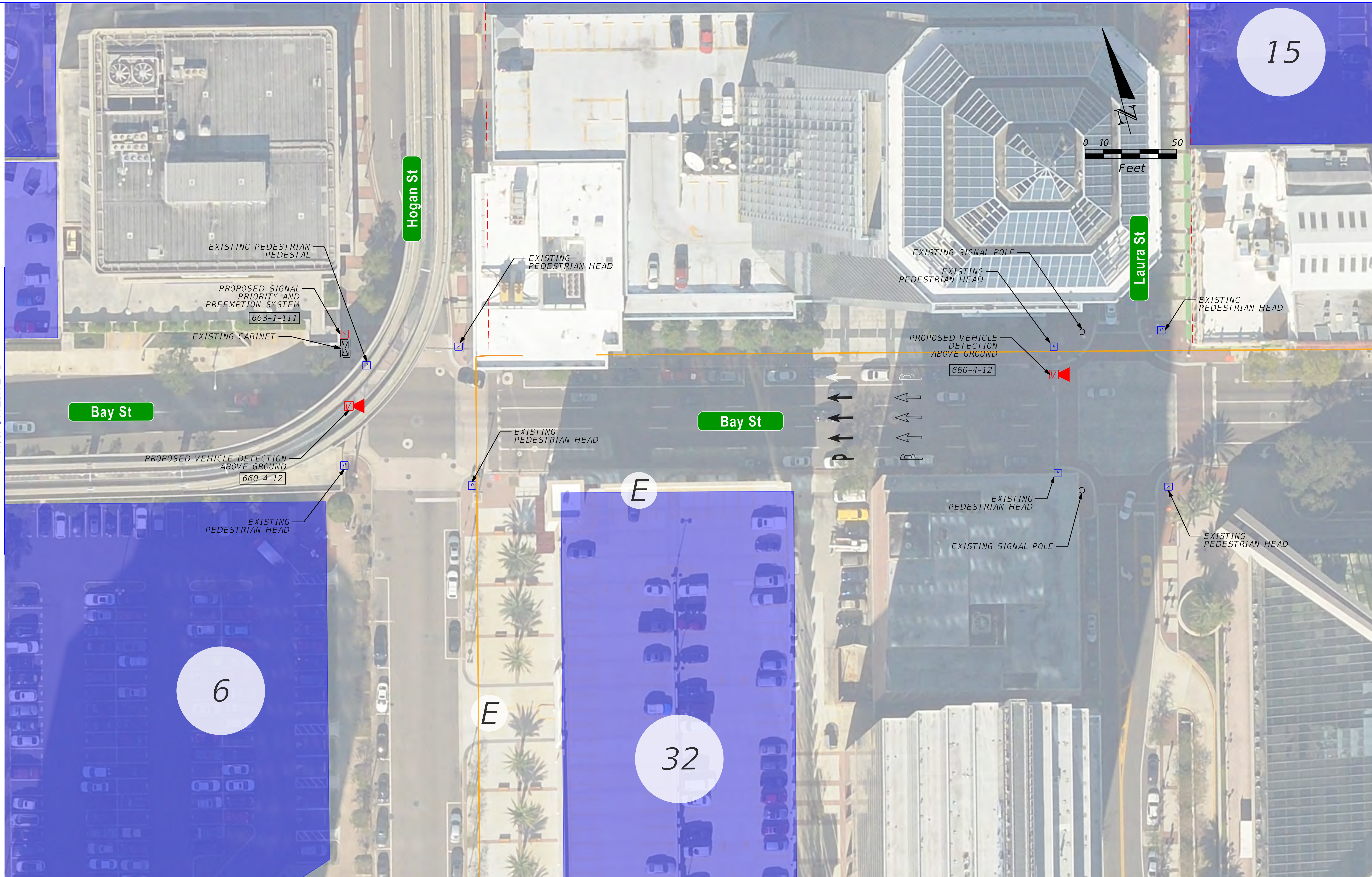

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4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET SMART CORRIDOR PHASE 1 SHEET (5)

SHEET NO.

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16

33

34

34

17

Main St

Ocean St

Bay St

Wells Fargo

EXISTING PEDESTRIAN HEAD

EXISTING CABINET

PROPOSED SIGNAL PRIORITY AND PREEMPTION SYSTEM

663-1-111

PROPOSED VEHICLE DETECTION ABOVE GROUND

660-4-12

EXISTING PEDESTRIAN HEAD

EXISTING PEDESTRIAN HEAD

EXISTING PEDESTRIAN HEAD

EXISTING PEDESTRIAN HEAD

PROPOSED VEHICLE DETECTION ABOVE GROUND

660-4-12

PROPOSED WIRELESS COMMUNICATION DEVICE FOR FLOOD SENSOR

PROPOSED SIGNAL PRIORITY AND PREEMPTION SYSTEM

663-1-111

EXISTING CABINET

EXISTING PEDESTRIAN PEDESTAL

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MATCHLINE E

MATCHLINE F

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4651 SALISBURY ROAD
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FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 1
SHEET (6)

SHEET NO.

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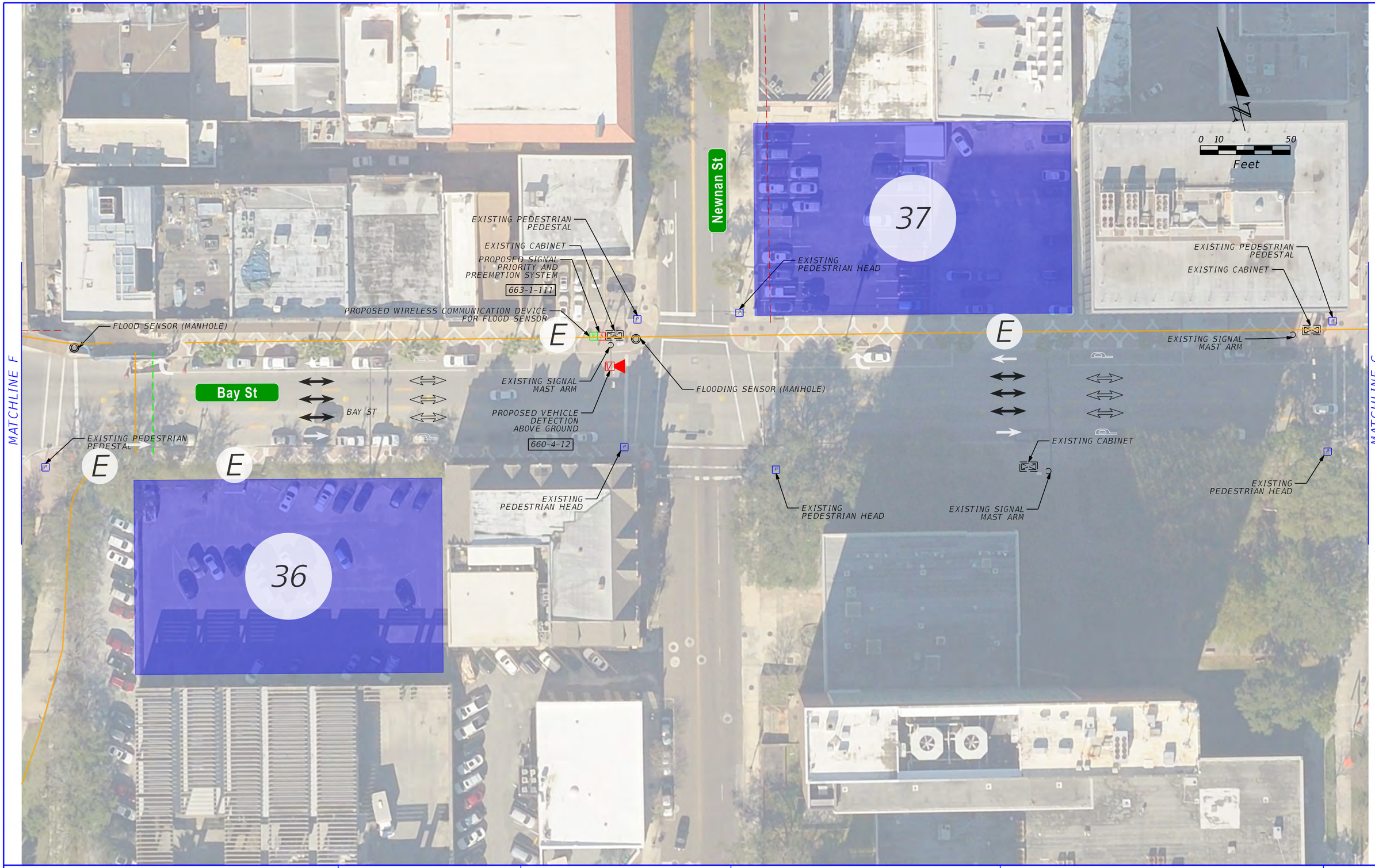

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4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 1
SHEET (7)

SHEET NO.

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4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 1
SHEET (8)

SHEET NO.

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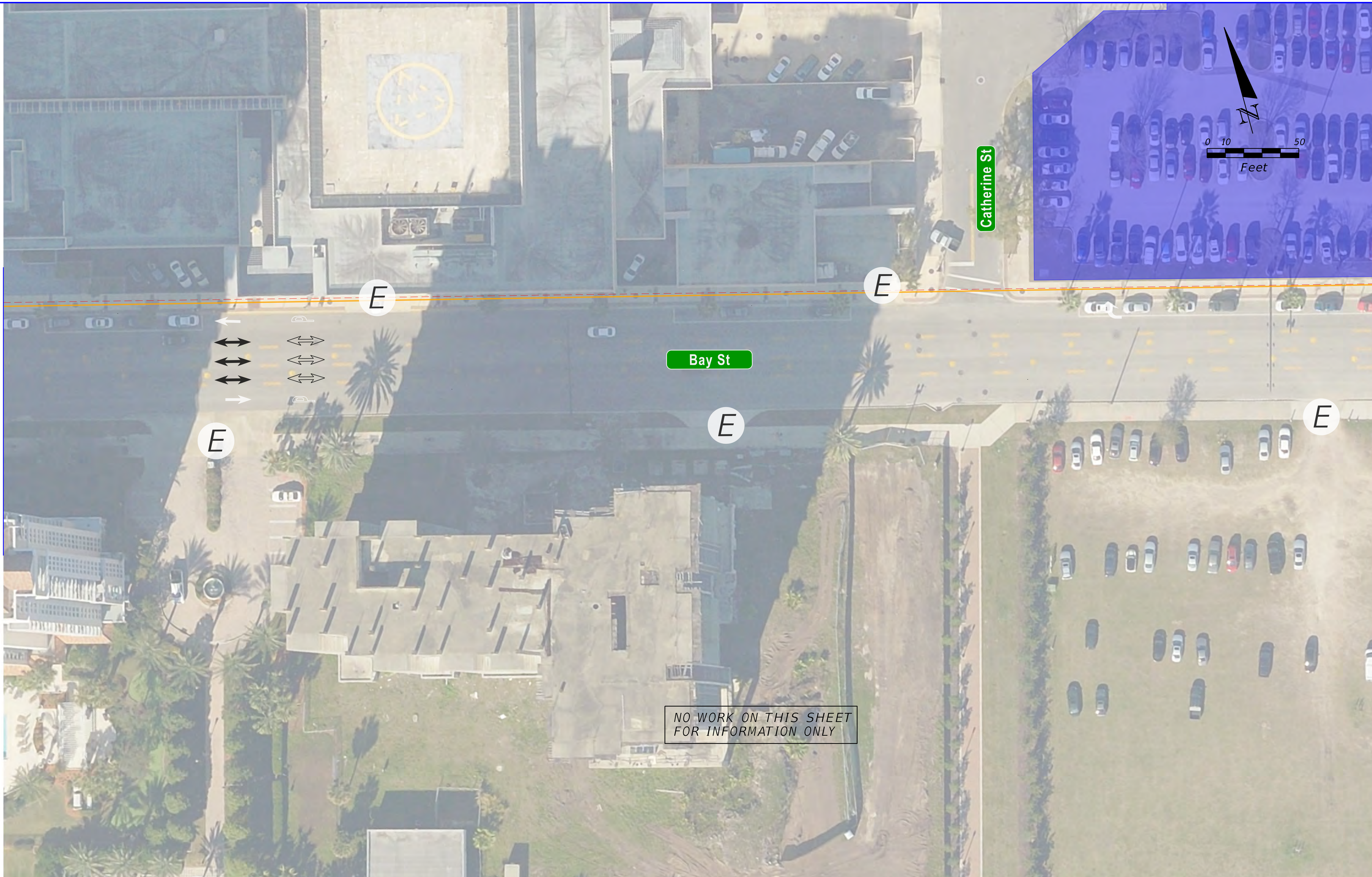

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4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT
OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 1
SHEET (9)

SHEET
NO.

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SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

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FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 1
SHEET (10)

SHEET NO.

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MATCHLINE J

MATCHLINE K

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DATE	DESCRIPTION

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SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 1
SHEET (11)

SHEET NO.

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4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET SMART CORRIDOR PHASE 1 SHEET (12)

SHEET NO.

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REVISIONS	
DATE	DESCRIPTION

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4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 1
SHEET (13)

SHEET NO.

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DATE	DESCRIPTION

HNTB
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SUITE 320
JACKSONVILLE, FLORIDA 32256
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ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 1
SHEET (14)

SHEET NO.

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HNTB
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JACKSONVILLE, FLORIDA 32256
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FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 1
SHEET (15)

SHEET NO.

MATCHLINE P

MATCHLINE O

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REVISIONS	
DATE	DESCRIPTION

HNTB
4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET SMART CORRIDOR PHASE 1 SHEET (16)

SHEET NO.

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MATCHLINE P

REVISIONS	
DATE	DESCRIPTION

HNTB
4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 1
SHEET (17)

SHEET NO.

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HNTB
4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 1
SHEET (18)

SHEET NO.

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CITY OF JACKSONVILLE NOTES

GENERAL

All construction shall be performed in accordance with the approved plans and comply with all standard city policies and practices. City approval is contingent upon any required state or federal permit approvals such as those from the Department of Environmental Protection or the St. Johns River Water Management District (SJRWMD).

UTILITY WORK

Plan approval through Development Services does not include utilities. Proposed water, sewer or electric construction must be approved separately through the respective utility company. In most cases, this will be:

JEA
JEA Tower - 4th Floor
21 W. Church Street
Jacksonville, FL 32202
http://www.jea.com/business/services/devandbuild/developers.asp

WORK WITHIN THE RIGHT-OF-WAY

CITY: Except for new subdivision infrastructure construction, all work performed within a City of Jacksonville right-of-way or easement requires a Right-of-way Permit. The contractor performing the proposed work must have a current Right-of-way Bond on file with Development Services. Right-of-way Permit applications are processed at:

Development Services Customer Service Counter
Edward Ball Building, 2nd Floor
214 N. Hogan St.
Jacksonville, FL 32202
(904) 255-8572
http://row.jaxdev.info/

STATE: All work performed within a state right-of-way requires a permit from the Florida Department of Transportation (FDOT). It is the developer's responsibility to obtain required FDOT permits or maintenance-of-traffic approvals for work within FDOT right-of-ways. The FDOT regional office can be contacted at (904) 360-5200 Any changes to the approved plans needed for FDOT approval must be submitted to Development Services as revisions.

Adjacent State Roads: _____

RAILROAD: Railroad companies may require special approvals or permits to work within their right-of-ways. It is the developer's responsibility to obtain permission from any railroad right-of-way owner before performing any work within their right-of-way.

STORMWATER

Annual reports in compliance with the SJRWMD stormwater permits are required from the maintenance entity of all stormwater management facilities. Send copies of the reports to:

Engineering and Construction Management
Edward Ball Building, 10th Floor
214 N. Hogan St.
Jacksonville, FL 32202
http://www.coj.net/Departments/Public+Works/Engineering+and+Construction+Management/

The owner of any project one (1) acre or larger is required to provide a Notice of Intent (NOI) in accordance with criteria set forth in the city's NPDES permit within 48 hours of beginning construction. Send NOI and NOI fee to:

Florida Department of Environmental Protection
NPDES Stormwater Notices Center, Mail Station #2510
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
(888) 336-8312
http://www.dep.state.fl.us/water/stormwater/npdes/

The contractor shall contact the Environmental Quality Division, Erosion and Sedimentation Control Section (ESC) to provide verification that applicable stormwater permits have been obtained and to schedule a pre-construction ESC site inspection:

Environmental Quality Division
407 North Laura Street, Third Floor
Jacksonville, FL, 32202
(904) 255-7222

FIRE MARSHALL

Plan review and approval does not relieve the contractor of complying with all applicable State Fire Codes.

Underground mains and hydrants shall be installed, completed, and in service prior to construction work.

Underground contractor shall submit to the Fire Marshall for approval complete specs for all underground pipe and fittings relating to fire protection PRIOR to installation and inspection. Contractor shall include manufacturer's name and pipe ID along with contractor's state license number.

LANDSCAPE

A Site Work Permit is required for this project.

☐ Tree Fund payment is due: _____ inches at $_____ = $_____

☐ Article 25 funds are due: _____ inches at $_____ = $_____

TRAFFIC ENGINEERING

TRAFFIC SIGNS

Metro Name (each) _____

Standard (each) _____

Stop/Yield (each) _____

Design (per plat) 1 per plat

Installation (per hour) 1 per 2 signs (rounded up)

___ Streetlights Required

NOTE: Traffic sign costs change from time to time. Consult Attachment 8 of the Land Development Procedures Manual (http://ldpm.jaxdev.com/) for the current rates before paying for any sign installations.

No lane closures allowed from 7 a.m. till 9 a.m. and from 4 p.m. till 6 p.m.

ENGINEER OF RECORD:

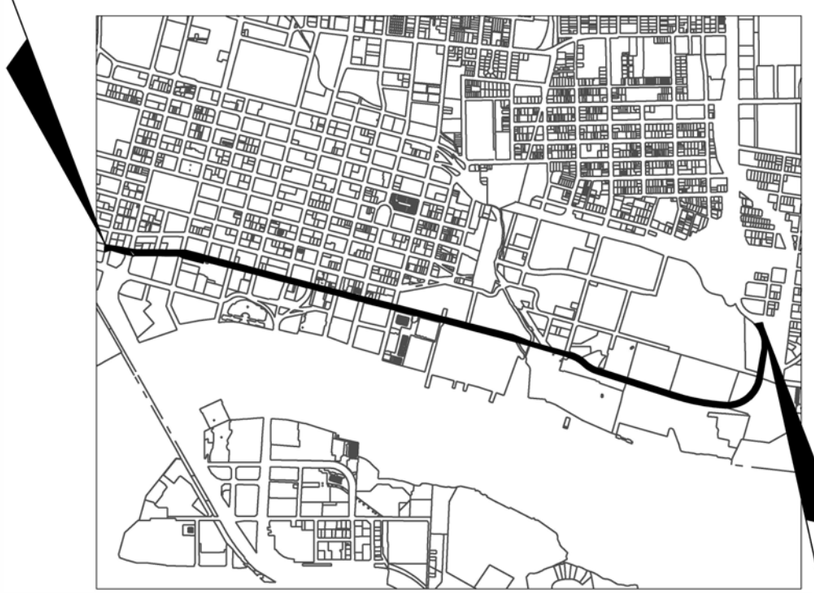
TERREL SHAW, P.E. NO.: 50096
HNTB CORPORATION
4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FL 32256
PHONE NO. (904) 296-0207

THE BAY JAX
innovation corridor

PHASE II

THE BAY JACKSONVILLE INNOVATION CORRIDOR

BEGIN PROJECT
BAY STREET



END PROJECT
BAY STREET

VICINITY MAP
NTS

Sheet Index

INDEX

SHEET NO.	*SHEET DESCRIPTION*
1	*KEY SHEET*
2	*GENERAL NOTES/DETAIL AND LEGEND SHEET*
3-20	*PLAN SHEETS*

PLAN APPROVAL

_____ _____
Date Development Services Division (Chief)

_____ _____
Date Review Group (Reviewer)

Plan approval is valid for five years after the initial approval date. Revisions made after the initial approval date do not extend this five-year time frame.

PLAN APPROVAL IS SUBJECT TO THE FOLLOWING NOTES AND CONDITIONS:

GENERAL PROJECT INFORMATION

GENERAL
City Development Number _____
Concurrency Application Number _____
Property Appraiser Number (RE #) _____
Zoning Designation _____
Zoning Application(s) (if any) _____
_____
PUD Ordinance Number _____
FIRM – Community – Panel _____
Flood Zones (Show in Plans) _____
Base Flood Elev. (Show in Plans) _____
Vertical Datum Used for Project _____
JEA Availability Number _____

SUBDIVISION
PSD Number _____
City or Private Inspection _____
Public or Private Roads _____
Subdivision ("911") Disk Provided? _____

NON-SUBDIVISION
North American Industry
Classification System (NAICS) _____
Impervious Area (Sq. Ft.) _____

NOT FOR CONSTRUCTION

GENERAL NOTES

ITS NOTES:

1. NOTIFY THE CITY OF JACKSONVILLE TRAFFIC ENGINEERING DEPARTMENT AT LEAST, 2 BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION.

2. MAINTAINING AGENCY:
   JACKSONVILLE TRAFFIC ENGINEERING
   1007 SUPERIOR STREET
   JACKSONVILLE,FL 32254
   (904) 255-7533

3. IF ANY PUBLIC LAND CORNER WITHIN THE LIMITS OF CONSTRUCTION IS IN DANGER OF BEING DESTROYED AND HAS NOT BEEN PROPERLY REFERENCED, IMMEDIATELY NOTIFY THE ENGINEER IN CONJUNCTION WITH THE DISTRICT LOCATION SURVEYOR.

4. ENSURE THAT FIELD TERMINATED PIGTAILS/DROP CALBES WILL HAVE SUFFICIENT LENGTH TO REACH FROM THE PATCH PANEL TO THE SPLICE BOX WHILE ALSO ACCOUNTING FOR THE PROPOSED SLACK OF THE FIBER CABLE IN THE SPLICE BOX.

5. ALL CABINET WIRING SHALL BE NEATLY BUNDLED AND CLEARLY IDENTIFIED WITH PERMANENT LEGIBLE TAGS THAT ARE SECURELY ATTACHED TO EACH CABLE. THE TAGGING SYSTEM PROPOSED SHALL BE SUBMITTED FOR APPROVAL WITH THE OTHER EQUIPMENT SUBMITTAL'S REQUIRED FOR THIS PROJECT. THE COST SHALL BE INCIDENTAL TO THE INSTALLATION OF THE CABINET.

6. POWER ASSEMBLY SERVICE POLES FOR ITS DEVICE CABINETS SHALL BE 12' TYPE II SERVICE POLES AND SHALL BE EMBEDDED 4' IN THE GROUND.

LIGHTING NOTES:

7. SPARE CONDUIT SHALL BE PLACED AT ALL PAVEMENT CROSSINGS. SPARE CONDUIT SHALL BE CAPPED AND SEALED AT BOTH ENDS.

8. PRIOR TO ANY EQUIPMENT ORDER, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL EQUIPMENT SPECIFICATION OR DESIGN DATA FOR ALL MATERIAL PROPOSED FOR THE PROJECT. THESE MUST SPECIFICALLY INCLUDE:
   A) LUMINAIRE PHOTOMETRICS
   B) LOAD CENTER ELECTRICAL EQUIPMENT
   C) POLE SHOP DRAWINGS
   D) POLE STRENGTH CALCULATIONS
   E) POLE FRANGIBILITY TEST
   F) BOLT SPECIFICATIONS AND BOLT CIRCLE DIAMETER

9. FLORIDA STATUTE 553.851(1998) AND 556(2004) REQUIRES THAT BEFORE EXCAVATING, NOTICE SHALL BE GIVEN TO THE UTILITY OWNER A MINIMUM OF TWO (2) DAYS AND A MAXIMUM OF FIVE (5) DAYS IN ADVANCE OF CONSTRUCTION, EXCLUDING SATURDAY, SUNDAY AND LEGAL HOLIDAYS. NOT ALL UTILITY COMPANIES ARE MEMBERS OF "SUNSHINE" 1-800-432-4770. COORDINATE WITH ROADWAY AND TRACK PLANS.

10. THE LOCATIONS OF EXISTING LIGHT POLES, AS SHOWN ON THESE PLANS, ARE APPROXIMATE AND ARE SHOWN AS NOTICE TO THE CONTRACTOR THAT UNDERGROUND UTILITIES EXIST. THE CONTRACTOR SHALL STAKE ALL POLE LOCATIONS AND NOTIFY UTILITY OWNER(S) FOR LOCATION AND STAKING OF UNDERGROUND FACILITIES BEFORE EXCAVATING.

11. THE LOCATION OF THE POLES, CONDUCTORS, CONDUITS, JUNCTION BOXES AND SERVICE POLES ARE DIAGRAMMATIC ONLY AND MAY BE SHIFTED BY THE ENGINEER TO ACCOMMODATE LOCAL CONDITIONS AND EXISTING UTILITY LOCATIONS.

12. ALUMINUM POLES, LUMINAIRES AND BASES SHALL BE DESIGNED AND FABRICATED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" AND SHALL HAVE BEEN TESTED BY FHWA-APPROVED METHODS. CERTIFICATION FOR TESTS SHALL BE SUBMITTED WITH THE SHOP DRAWINGS.

13. SUBMITTAL DATA SHALL INCLUDE COMPUTER PRINTOUT SHOWING HORIZONTAL FOOTCANDLE LEVELS TO BE OBTAINED USING THE SUBMITTED LUMINAIRES ON THIS PROJECT. AT FINAL INSPECTION.

14. IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (N.E.C.), IDENTIFY ALL CIRCUITS AND EQUIPMENT WITH "LAMACOID TAGS". INSTALL SIMILAR TAGS OF STAINLESS STEEL IDENTIFYING THE CIRCUIT FOR EACH LUMINAIRE AT ACCESS HANDHOLE FOR EACH POLE.

15. ALL ELECTRICAL WORK SHALL MEET ALL REQUIREMENTS OF THE LATEST EDITIONS OF THE N.E.C., THE NATIONAL ELECTRICAL SAFETY CODE AND THE STATE OF FLORIDA D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. ALL COMPONENTS SHALL BE PROPERLY GROUNDED AND BONDED PER N.E.C. REQUIREMENTS.

16. THE CONTRACTOR SHALL NOTIFY POWER COMPANY AT LEAST (2) WORKING DAYS PRIOR TO ANY INSTALLATION THAT IS WITHIN THE MINIMUM CLEARANCE DISTANCES ESTABLISHED BY OSHA STANDARD, PART 1926, SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION. THE POWER COMPANY SHALL ASSIST THE CONTRACTOR, PROVIDE PROTECTION FOR ENERGIZED CONDUCTORS AT INSTALLATION SITE, OR TAKE OTHER SAFETY PRECAUTIONS AS NECESSARY. EXTREME CAUTION SHALL BE EXERCISED AT ALL TIMES IN PERFORMANCE OF WORK AROUND THE PRIMARY HIGH VOLTAGE COMPONENTS.

17. PULLING INSTRUCTIONS: CONNECT PULLING DEVICES TO COPPER WIRE AND NOT TO JACKET AND MEET MANUFACTURER'S REQUIREMENTS. USE PULLING COMPOUND PER MANUFACTURER'S REQUIREMENTS. ALL BENDS SHALL NOT BE LESS THAN RECOMMENDED BY N.E.C. OR N.E.S.C. FOR CABLE USED. PULL CABLE SHALL BE POLYESTER. STEEL CABLE OR FISH TAPES SHALL NOT BE UTILIZED.

18. STAKE ALL POLE LOCATIONS AND REQUEST UTILITY COMPANIES TO LOCATE AND STAKE UNDERGROUND UTILITIES PRIOR TO EXCAVATING.

19. FURNISH AND INSTALL AN ALUMINUM IDENTIFICATION TAG ON EACH LIGHT POLE. TAGS SHALL BE 2"x8" IN SIZE WITH BLACK LETTERS ON YELLOWBACKGROUND, ATTACHED WITH APPROVED ADHESIVE (NO SCREWS OR RIVETS). NUMBERS SHALL BE AS SHOWN ON THE POLE DATA SHEET ON THE POLE IDENTIFICATION TAG DETAIL. COST OF TAGS SHALL BE INCLUDED IN THE BID ITEMS FOR LIGHT POLE COMPLETE FOR PROPOSED POLES. TAG SHALL BE PLACED 5 FEET ABOVE GRADE AND FACING ROADWAY. THE CONTRACTOR SHALL COORDINATE WITH FDOT FOR PROPER NUMBERING SEQUENCE OF LOAD CENTER AND CIRCUITS.

20. ALL CONDUITS UNDER ROADWAY (AND/OR SIDEWALK) SHALL BE INSTALLED PRIOR TO INSTALLATION OF ROADWAY BASE AND SURFACE (OR CONCRETE), EXCEPT WHERE OTHERWISE SPECIFIED IN THE PLANS. ALL CONDUITS UNDER RAILROAD TRACKS ARE TO BE CONCRETE ENCASED AND A MINIMUM OF 36" BELOW THE BOTTOM OF RAILROAD TIES.

21. DIRECTIONAL BORE OPERATIONS IF USED SHALL MEET THE REQUIREMENTS OF FDOT'S UTILITY ACCOMMODATION MANUAL (LATEST EDITION).

22. THE CONTRACTOR WILL HAND DIG THE FIRST 4 FEET OF THE HOLE FOR THE POLE FOUNDATION AND CIRCUIT.

23. NO LIGHT POLES, PULL BOXES OR LOAD CENTERS SHALL BE INSTALLED WITHIN ANY DITCHES OR AREAS THAT MAY CAUSE WATER INTRUSION.

24. ALL CONDUIT TRENCHES SHALL BE BACKFILLED COMPLETELY TO PROVIDE SAFE CROSSING BY THE END OF EACH WORKING DAY OR WHENEVER THE WORK ZONE BECOMES INACTIVE. DO NOT OPEN ANY AREA THAT CANNOT BE BACKFILLED IN THE SAME DAY/NIGHT OPERATION.

25. PULL BOXES AT LIGHT POLES LOCATED ON SLOPES STEEPER THAN 1:4 ARE RECOMMENDED TO BE INSTALLED AT A 90 DEGREE COUNTERCLOCKWISE POSITION.

26. ALL PULL BOX COVERS SHALL BE MARKED "LIGHTING". ALL PULL BOX COVERS SHALL BE NON-METALLIC EXCEPT FOR PULL BOX LOCATED WITHIN PAVEMENT OR DRIVEWAY AREAS WHERE A TRAFFIC RATED PULL BOX WILL BE NEEDED. ALL PULL BOX METAL COVERS SHALL BE PROVIDED WITH A GROUND LUG.

27. THE LIGHTING SYSTEM WILL BE MAINTAINED BY THE CONTRACTOR ONLY DURING CONSTRUCTION. ONCE CONSTRUCTION HAS BEEN COMPLETED, FDOT WILL BE RESPONSIBLE FOR MAINTENANCE.

28. CONDUIT LOCATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. CONDUIT MUST BE PLACED WITHIN THE RIGHT-OF-WAY BUT CAN BE ADJUSTED TO FIT AROUND THE EXISTING AND PROPOSED UTILITIES. WHERE PLANNED LOCATION OF LIGHTING CONDUIT RUNS 36" UNDER PAVEMENT IS FOUND TO CONFLICT WITH UNDERGROUND UTILITIES, THE LIGHTING CONDUIT POSITION SHALL BE ALTERED VERTICALLY OR HORIZONTALLY TO AVOID THE CONFLICT AS RECOMMENDED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. COST OF SUCH TREATMENT WILL BE INCIDENTAL TO PAY ITEMS PROVIDED. THE CONTRACTOR IS TO TAKE EXTRA CARE AND HAND DIG THE CONDUIT AT ALL UTILITY CONFLICTS.

29. CONTRACTOR SHALL PREPARE ACCURATELY DIMENSIONED "AS BUILT" PLANS OF FINAL POLE, CONTROLLER, PULL BOX, LOAD CENTER CABINET, CABLE AND CONDUIT LOCATIONS. PLANS SHALL BE REVIEWED, APPROVED BY THE ENGINEER AND SUBMITTED TO THE RESIDENT ENGINEER. COST OF SUCH PREPARATION SHALL BE INCIDENTAL TO PAY ITEMS PROVIDED.

30. ALL SPLICES SHALL BE MADE IN PULL BOXES ONLY WITH COMPRESSION SLEEVES OR SPLIT BOLT CONNECTIONS AND WATER-PROOFED.

31. SPLICES AND CONNECTIONS MADE IN PULL BOXES SHALL BE LIMITED TO THE SERVICE POINT AND CONDUIT JUNCTION WITH MULTI-DIRECTIONAL CONDUITS AS INDICATED ON PLANS. THE CONNECTION MADE AT THESE POINTS SHOULD USE HEAT SHRINK OR CAPS TO WATER-PROOF THESE CONNECTIONS.

32. INSPECT ALIGNMENT OF EACH INDIVIDUAL POLE AND FIXTURE AS FOLLOWS:

    A) POLE ALIGNMENT: WITHIN ONE HALF DEGREE OF VERTICAL +/-, CONFIRM VERTICAL ALIGNMENT, VIEWING FROM ADJACENT SERIES OF POLES, IN BOTH DIRECTIONS.

    B) FIXTURE ALIGNMENT: WITHIN ONE DEGREE OF HORIZONTAL +/-, USING CALIBRATED LEVEL ALONG BOTH AXES OF CUT-OFF FIXTURE FACE, WITH LENS ONLY.

33. ALL CONDUITS SHALL BE MANDREL TESTED AND CLEANED. CONDUITS PLACED FOR FUTURE USE SHALL HAVE A POLYESTER CORD PULLED IN PLACE AND CAPPED, WITH NOTATION INSIDE CONDUIT AS TO LOCATION OF OPPOSITE END. PLACE DUCT MARKER OR PULL BOXES TO MARK END OF EMPTY CONDUITS.

34. MAINTAIN POWER TO THE ENTIRE LOAD CENTER AND MAINTENANCE OF EXISTING AND PROPOSED LIGHT POLES AND ALL EXISTING TEMPORARY AND PROPOSED LIGHTING FIXTURES WITHIN THE PROJECT LIMITS FOR THE DURATION OF THE CONTRACT. THIS WILL INCLUDE, BUT IS NOT LIMITED TO, THE ROUTING MAINTENANCE AND/OR ANY DAMAGE BY CONTRACTOR TO LUMINAIRES, FUSES, BALLAST POLES, BASES, OR ANY INCIDENTAL PARTS. NO MORE THAN 10% OF THE LIGHTS SHALL BE OUT IN ANY ONE CIRCUIT.

35. NECESSARY CARE SHALL BE TAKEN SUCH THAT EXISTING POLES AND LUMINAIRES TO REMAIN OR TO BE RELOCATED ARE NOT DAMAGED DURING CONSTRUCTION. DAMAGED POLES AND LUMINAIRES, AS DETERMINED BY THE RESIDENT ENGINEER, SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTORS EXPENSE.

PAY ITEMS:

695-5-1 - TMS VEHICLE SOLAR POWER UNIT, FURNISH & INSTALL.
715-1-211 - LUMINAIRE, FURNISH & INSTALL EXIST. ROADWAY, COBRA H.
751-31-AB - KIOSK,ROADSIDE/SHARED USE DISPLAY.

LEGEND:

- EXISTING PEDESTRIAN HEAD
- EXISTING SIGNAL MAST ARM
- EXISTING CONTROLLER
- EXISTING DOUBLE HEAD STREET LIGHT
- EXISTING VEHICLE DETECTION ABOVE GROUND
- EXISTING PEDESTRIAN DETECTOR
- EXISTING SIGNAL PRIORITY AND PREEMPTION SYSTEM
- EXISTING WIRELESS COMMUNICATION DEVICE FOR FLOOD SENSOR
- EXISTING FLOOD SENSOR
- EXISTING PEDESTRIAN SENSOR
- EXISTING FIBER OPTIC
- PROPOSED UNDERGROUND FIBER OPTIC (COMMUNICATIONS)
- PROPOSED EXISTING ELECTRIC FIBER
- PARKING
- DIRECTION OF TRAFFIC
- PARKING GARAGE/LOTS
- VEHICLE ENTRANCE
- PROPOSED WIRELESS COMMUNICATIONS
- PROPOSED WI-FI SMART KIOSK

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REVISIONS	
DATE	DESCRIPTION

HNTB
4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

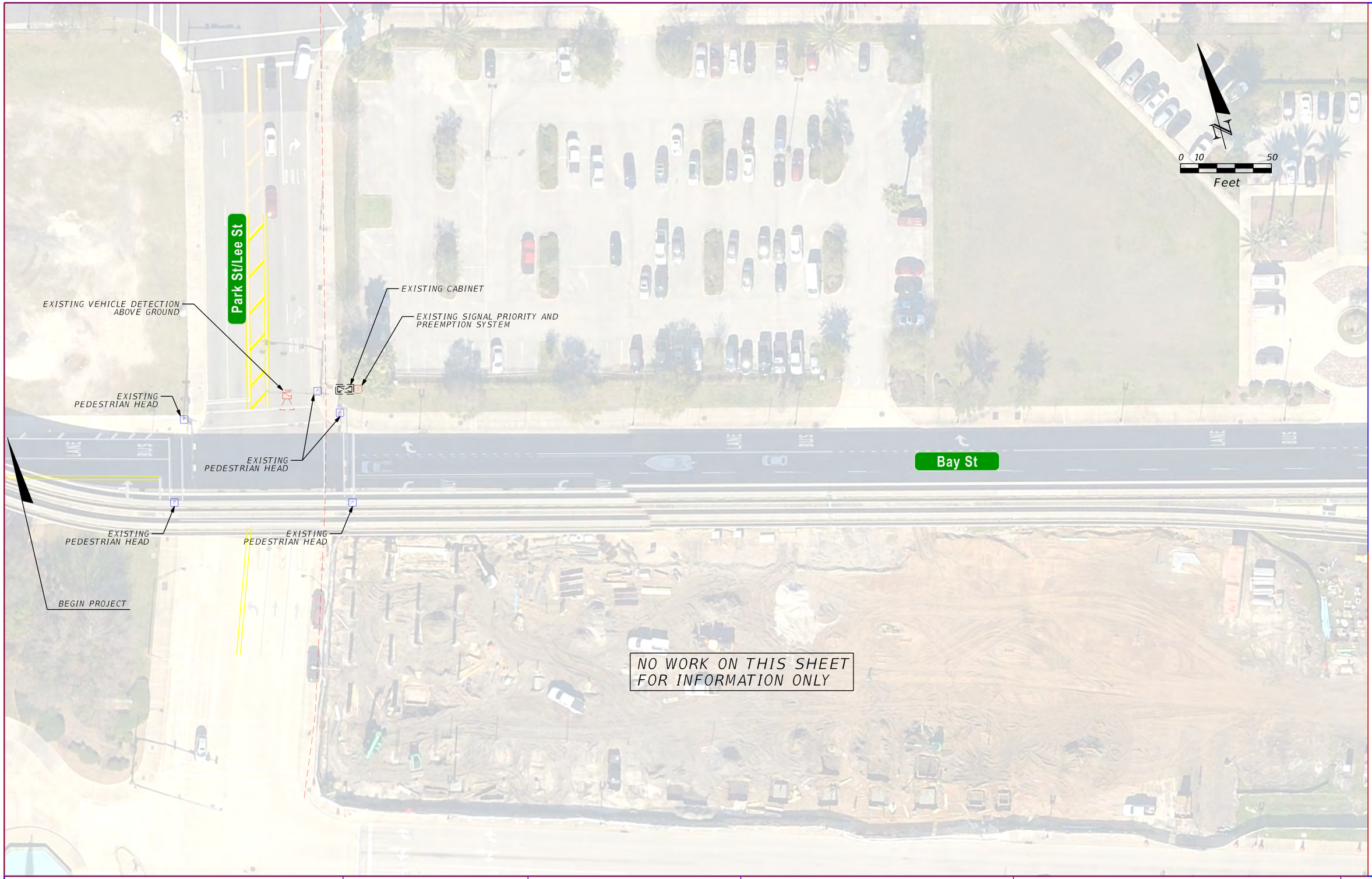
ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

GENERAL NOTES DETAILS AND LEGEND

SHEET NO.



MATCHLINE A

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FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 2
SHEET (1)

SHEET NO.

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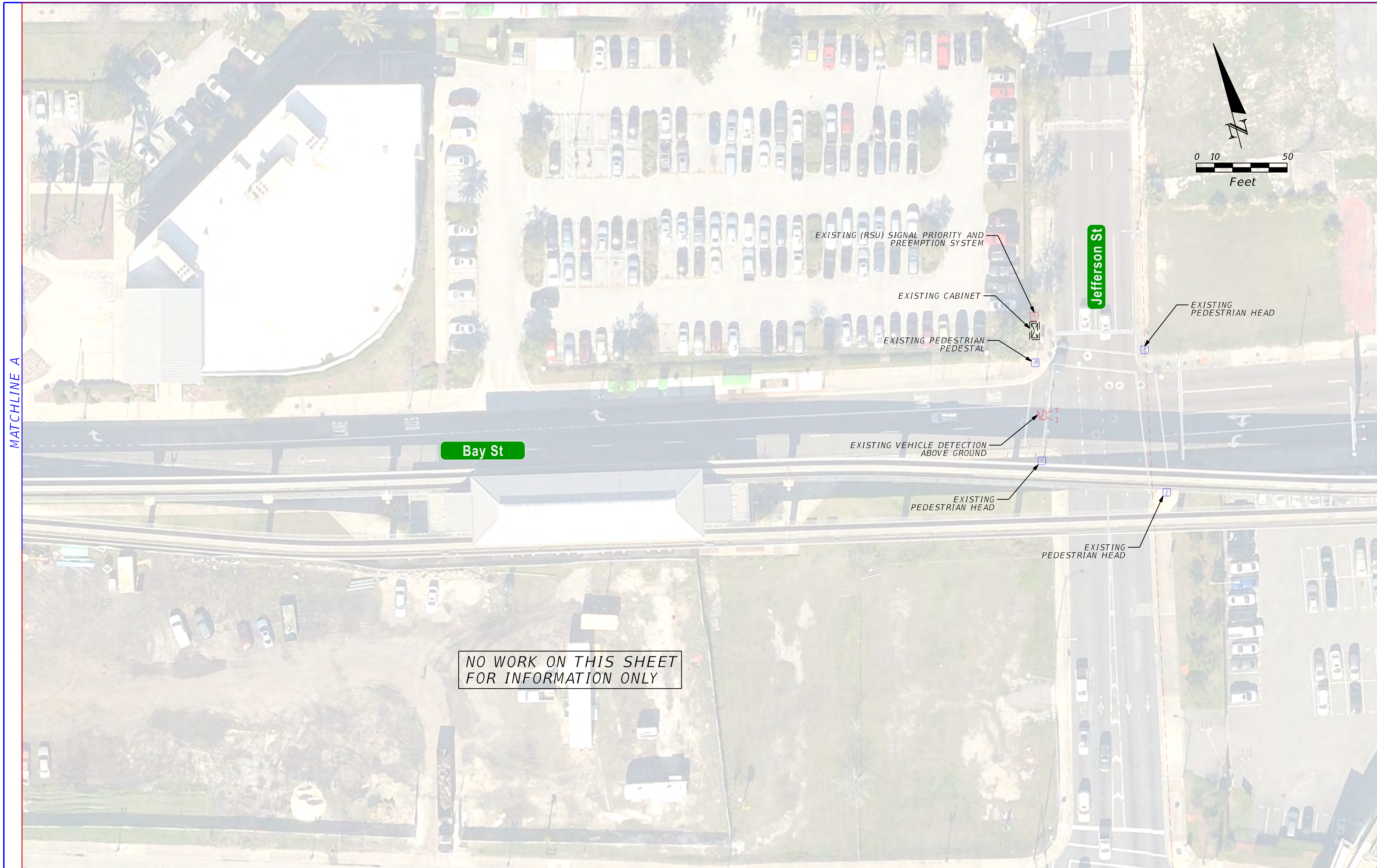

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FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 2
SHEET (2)

SHEET NO.

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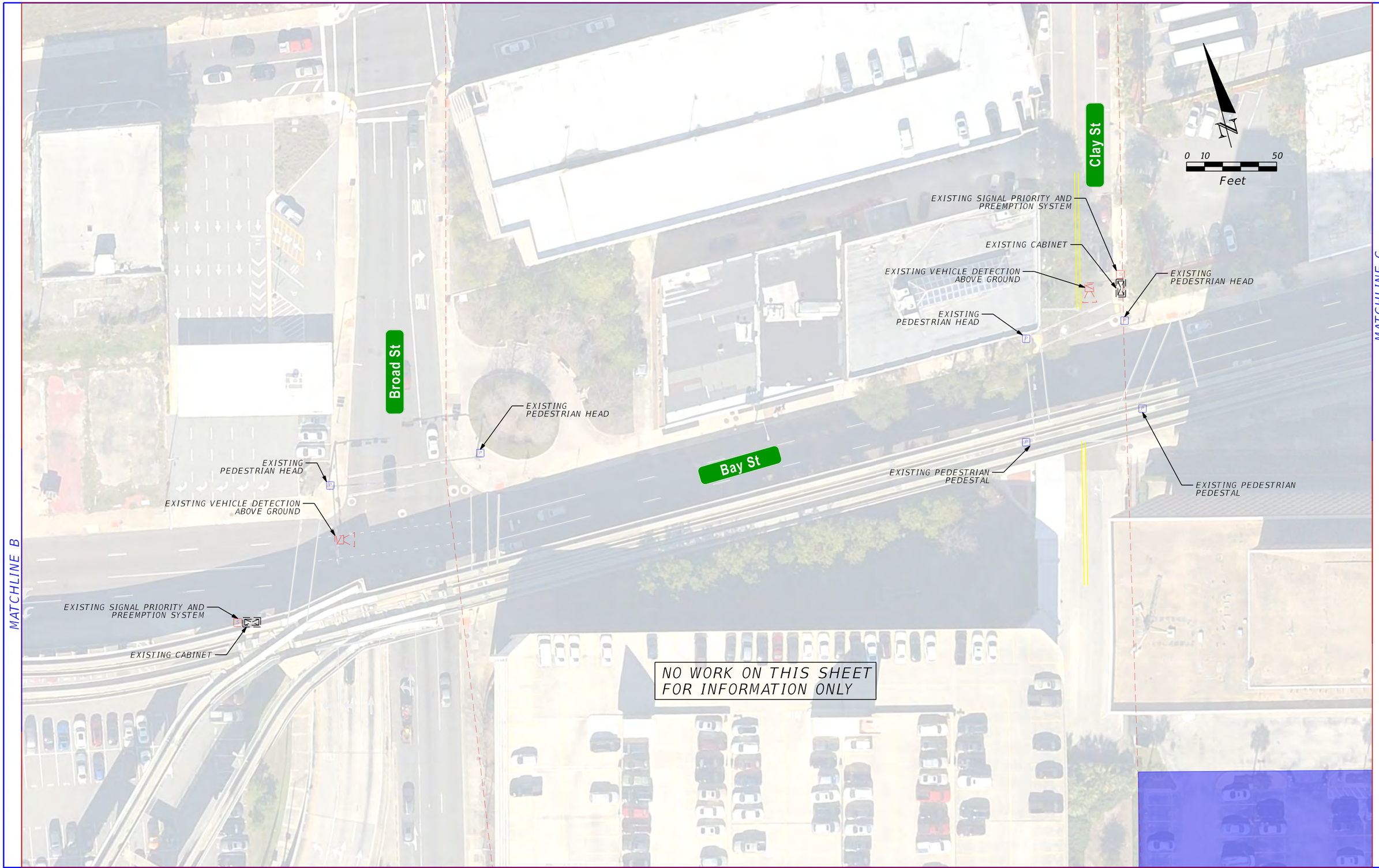

MATCHLINE B

MATCHLINE C

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SUITE 320
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PHONE: (904) 296-0207

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FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 2
SHEET (3)

SHEET NO.

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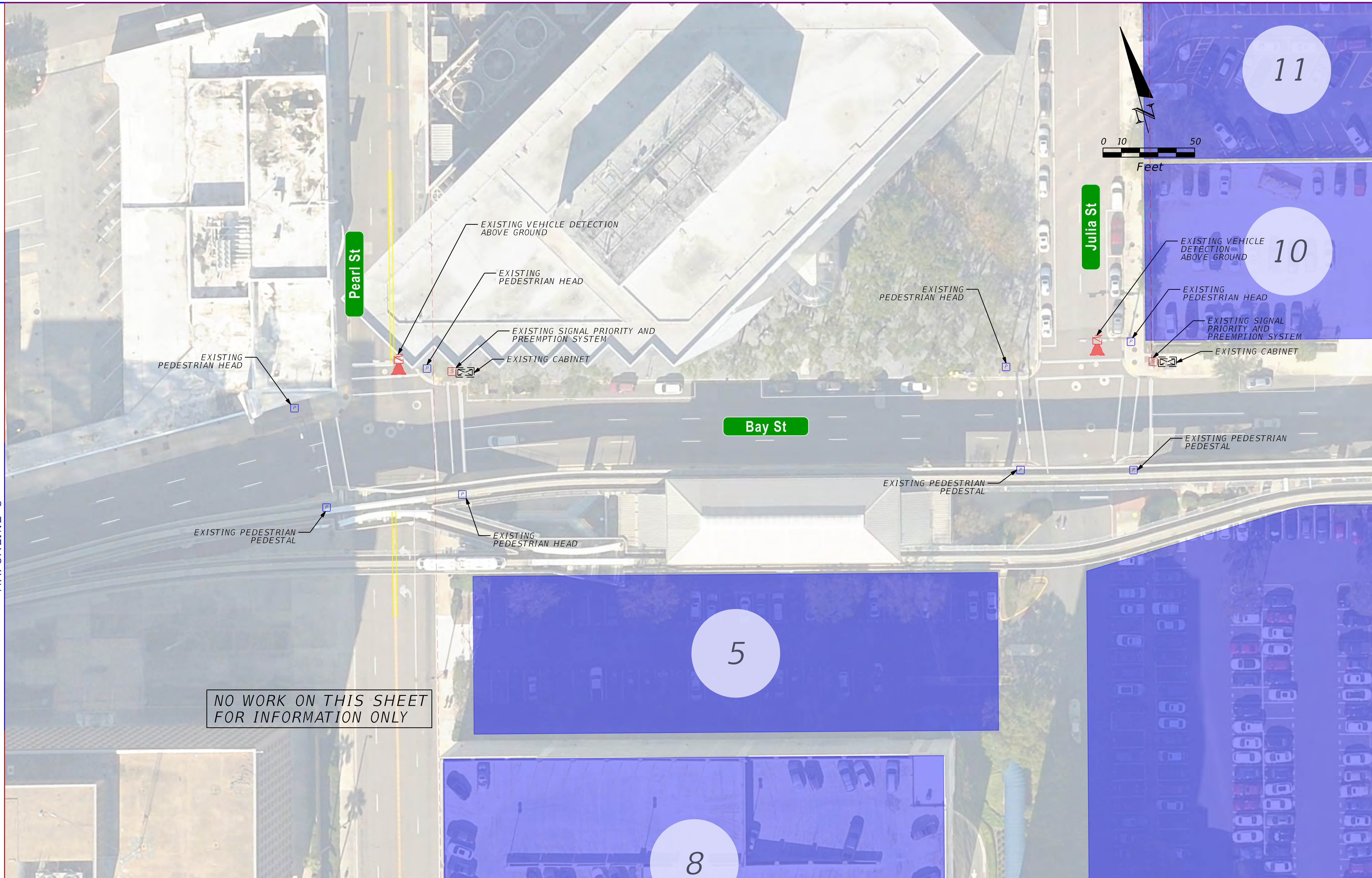

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PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 2
SHEET (4)

SHEET NO.

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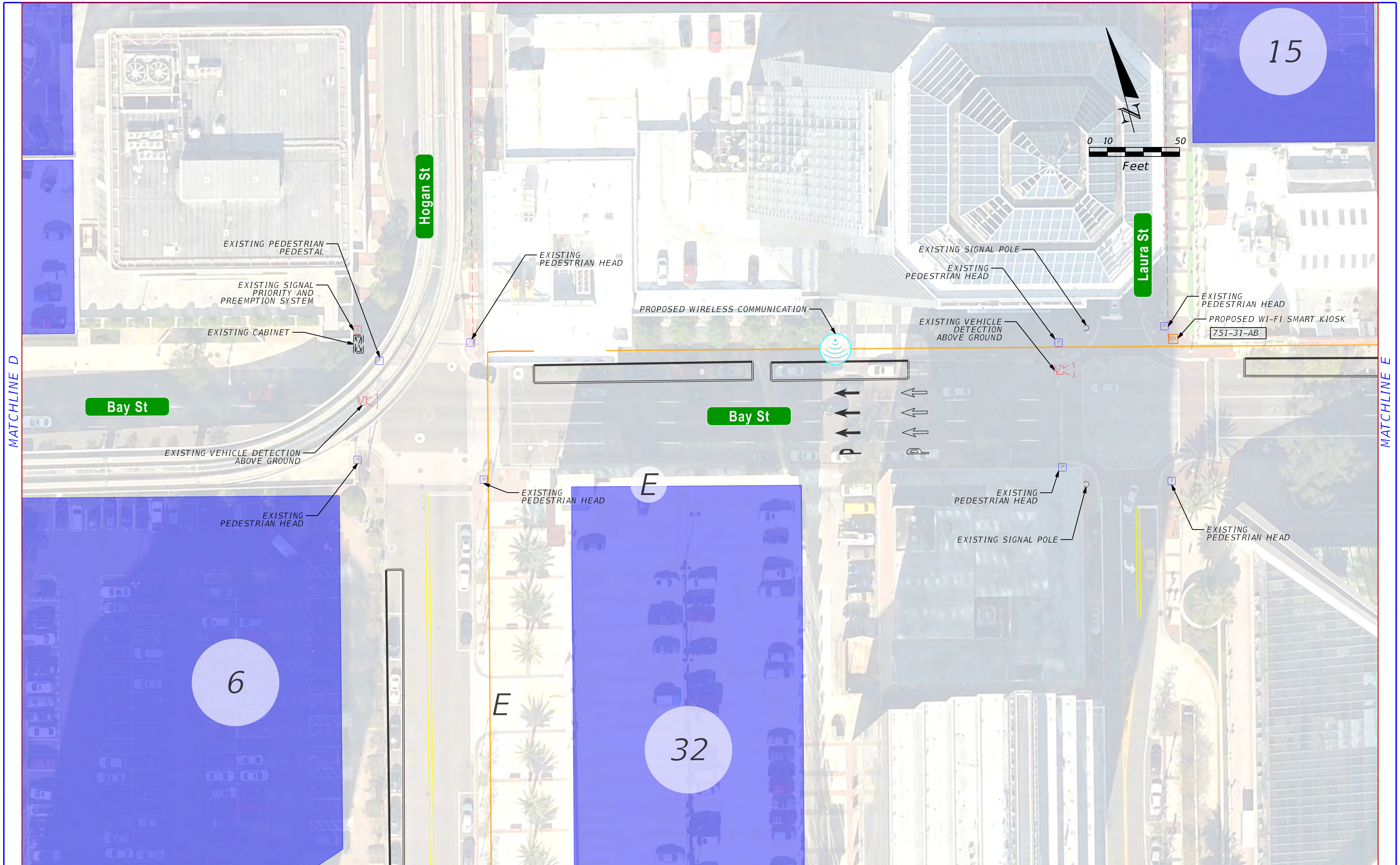

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PHONE: (904) 296-0207

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FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET SMART CORRIDOR PHASE 2
SHEET (5)

SHEET NO.

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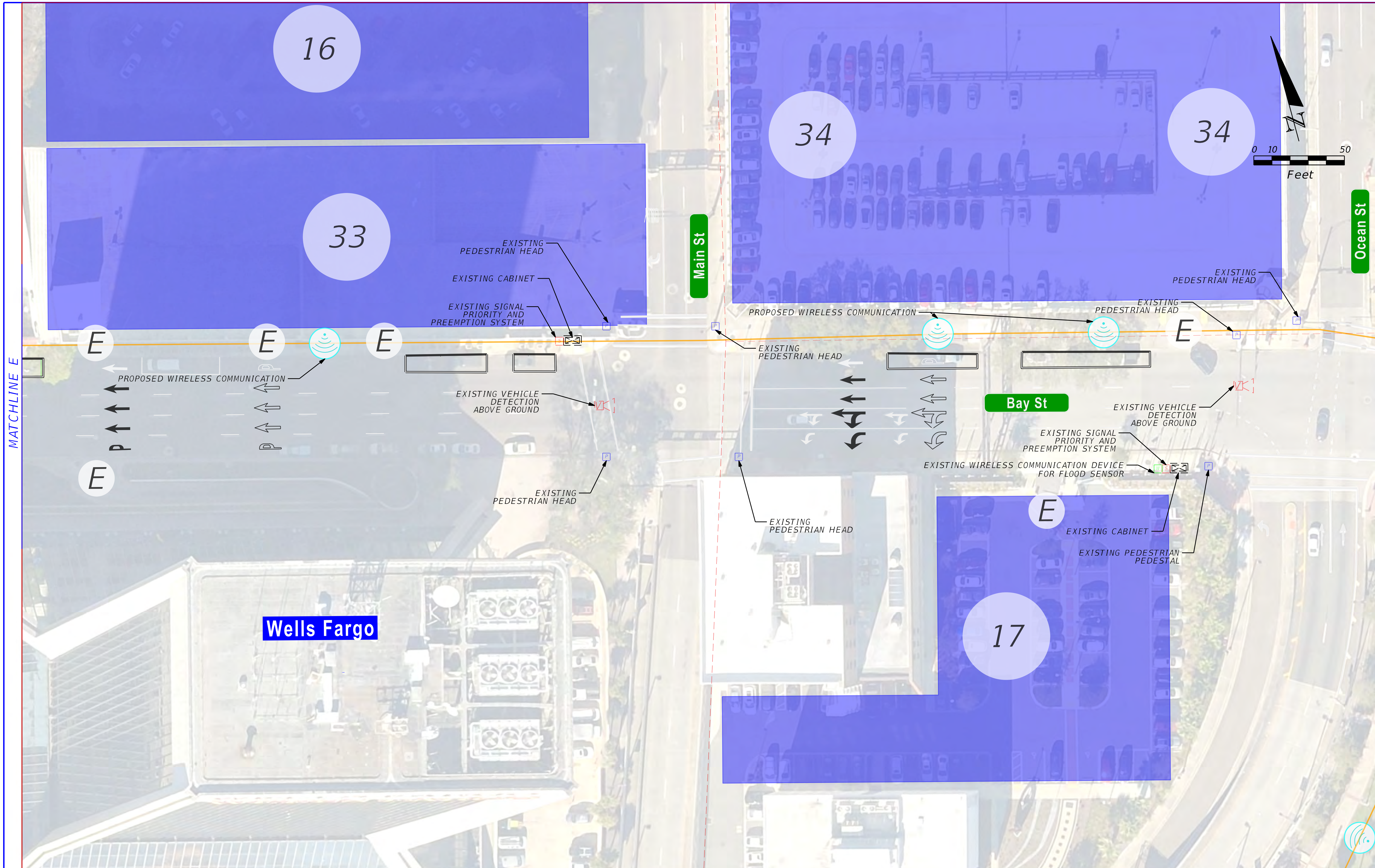

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SUITE 320
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PHONE: (904) 296-0207

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FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET SMART CORRIDOR PHASE 2
SHEET (6)

SHEET NO.

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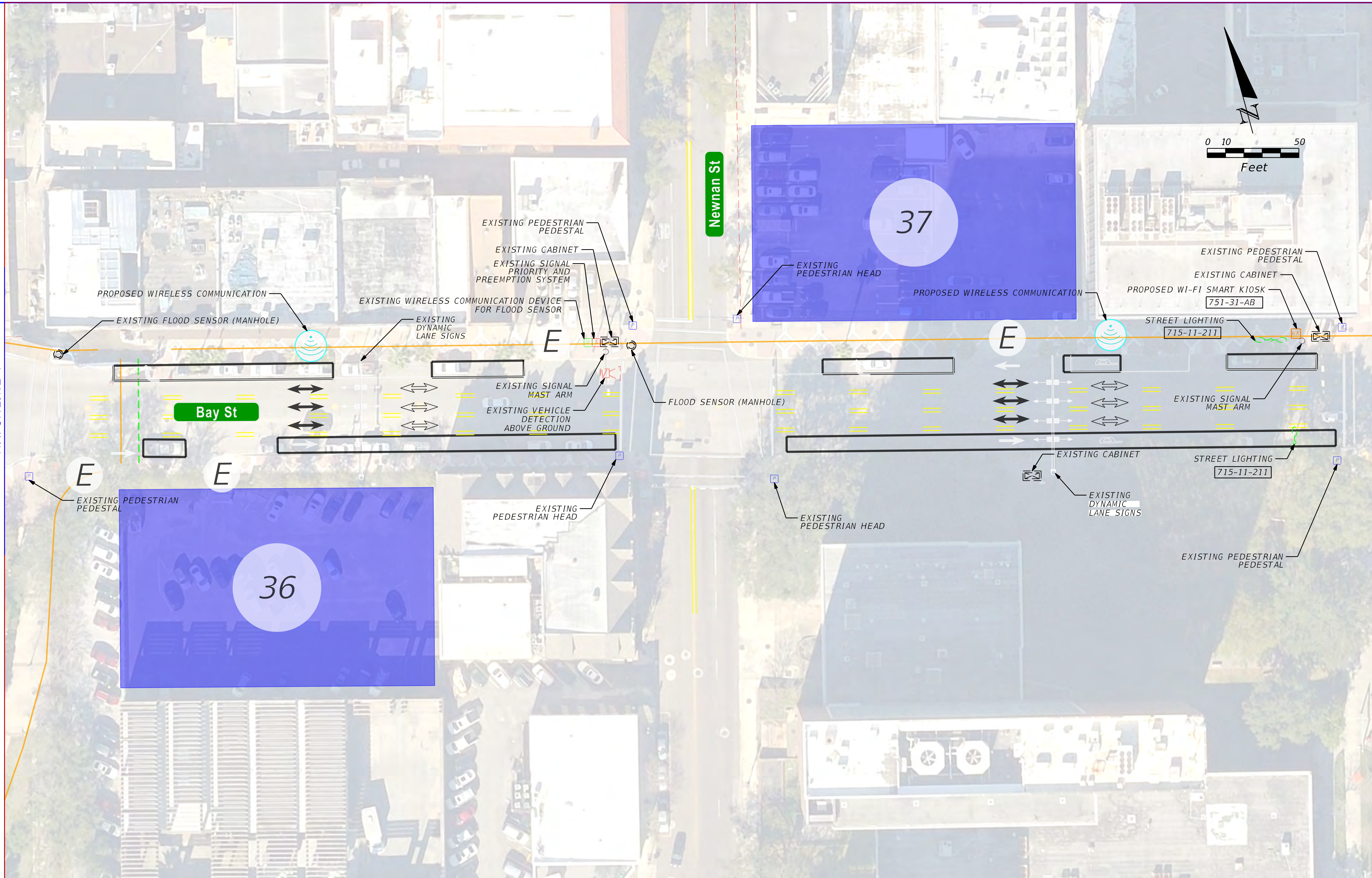

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REVISIONS	
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4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET SMART CORRIDOR PHASE 2 SHEET (7)

SHEET NO.

MATCHLINE G

MATCHLINE H

20

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21

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0 10 50

Feet

Liberty St

Bay St

Market St

LOADING ZONE
7 AM - 6 PM
1 HOUR LIMIT

EXISTING VEHICLE DETECTION ABOVE GROUND

EXISTING CABINET

EXISTING SIGNAL PRIORITY AND PREEMPTION SYSTEM

EXISTING WIRELESS COMMUNICATION DEVICE FOR FLOOD SENSOR

STREET LIGHTING
715-11-211

EXISTING PEDESTRIAN HEAD

FLOOD SENSOR (MANHOLE)

EXISTING SIGNAL MAST ARM

STREET LIGHTING
715-11-211

EXISTING PEDESTRIAN PEDESTAL

EXISTING DYNAMIC LANE SIGNS

EXISTING CABINET

EXISTING SIGNAL MAST ARM

STREET LIGHTING
715-11-211

STREET LIGHTING
715-11-211

PROPOSED WIRELESS COMMUNICATION

STREET LIGHTING
715-11-211

F

PROPOSED WIRELESS COMMUNICATION

EXISTING PEDESTRIAN DETECTION

STREET LIGHTING
715-11-211

STREET LIGHTING
715-11-211

EXISTING PEDESTRIAN HEAD

EXISTING CABINET

EXISTING SIGNAL PRIORITY AND PREEMPTION SYSTEM

EXISTING VEHICLE DETECTION ABOVE GROUND

EXISTING PEDESTRIAN HEAD

STREET LIGHTING
715-11-211

STREET LIGHTING
715-11-211

STREET LIGHTING
715-11-211

EXISTING DYNAMIC LANE SIGNS

STREET LIGHTING
715-11-211

E

STREET LIGHTING
715-11-211

STREET LIGHTING
715-11-211

EXISTING PEDESTRIAN HEAD

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SUITE 320
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PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 2
SHEET (8)

SHEET NO.

slenis
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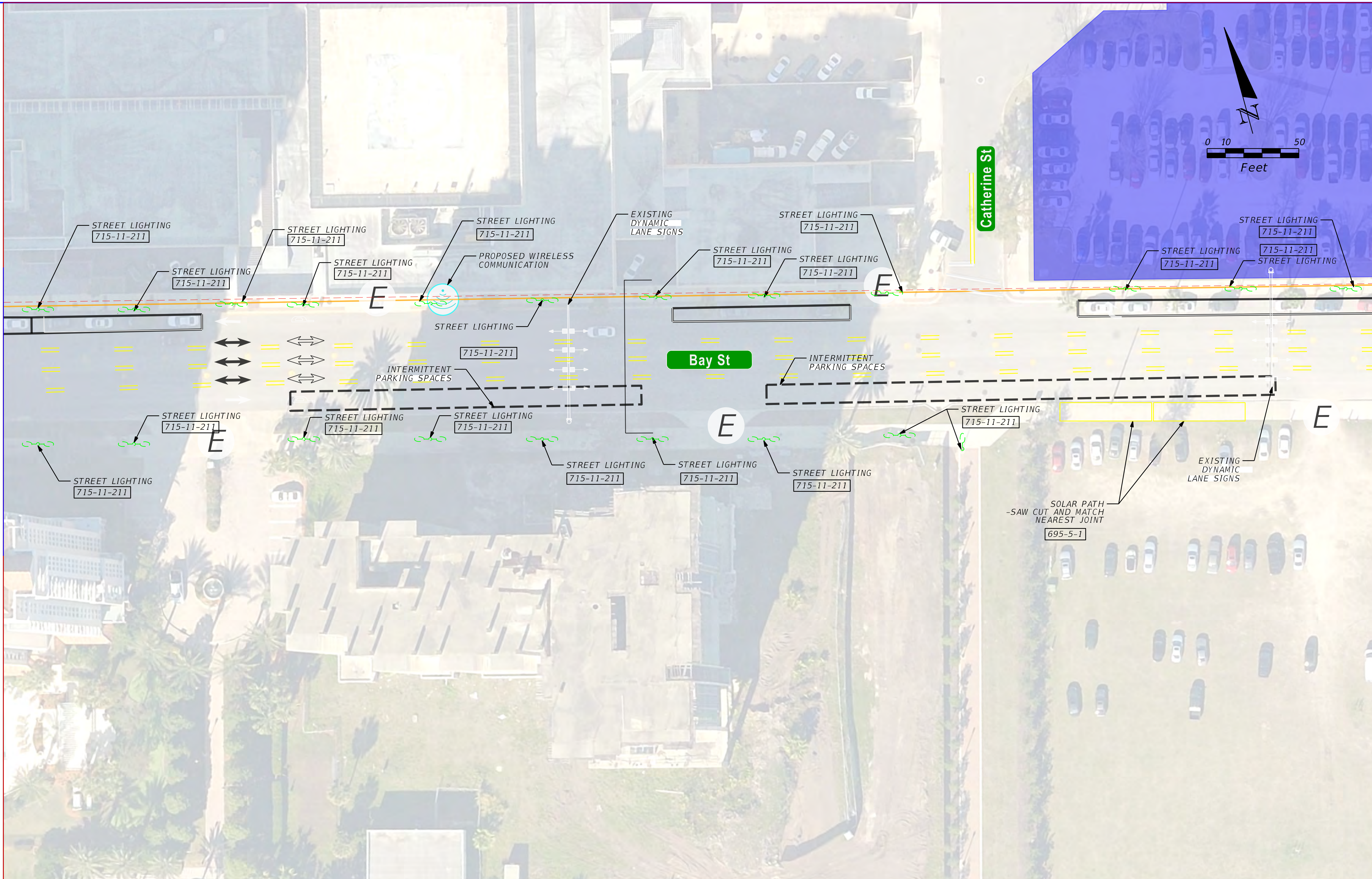

MATCHLINE I

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REVISIONS	
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FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT
OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 2
SHEET (9)

SHEET
NO.

MATCHLINE I

MATCHLINE J

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FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 2
SHEET (10)

SHEET NO.

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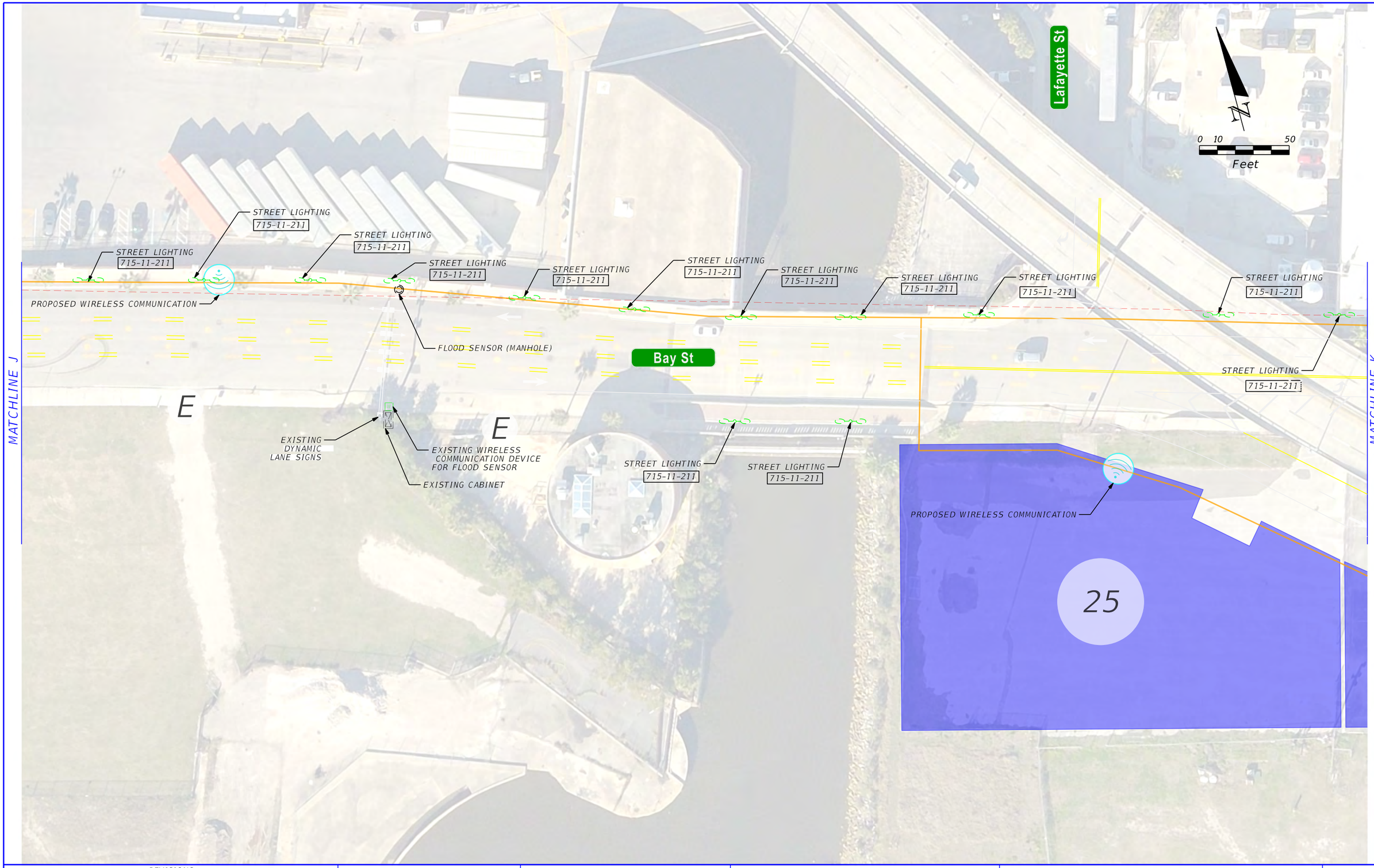

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SUITE 320
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FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 2
SHEET (11)

SHEET NO.

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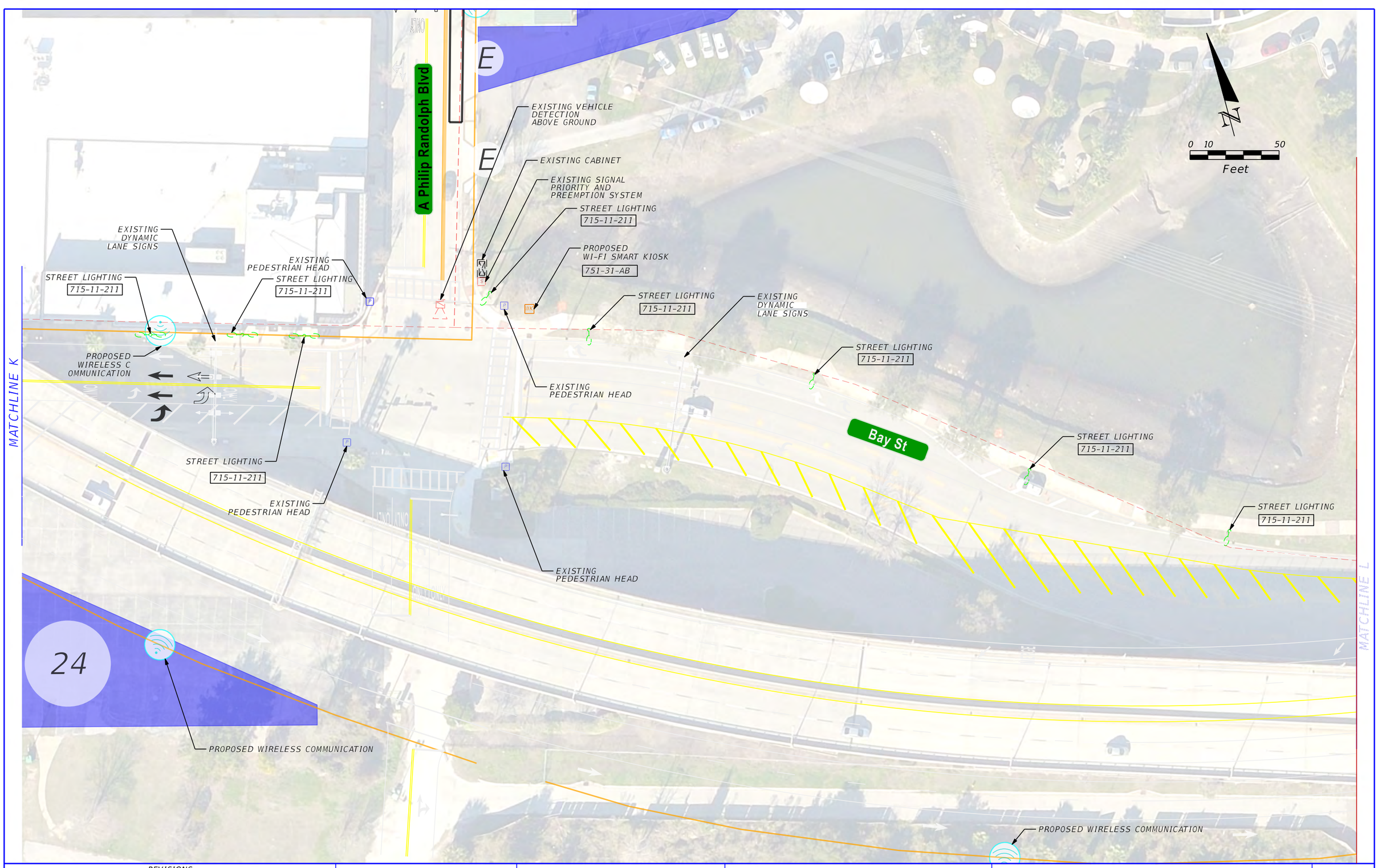

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PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET SMART CORRIDOR PHASE 2 SHEET (12)

SHEET NO.

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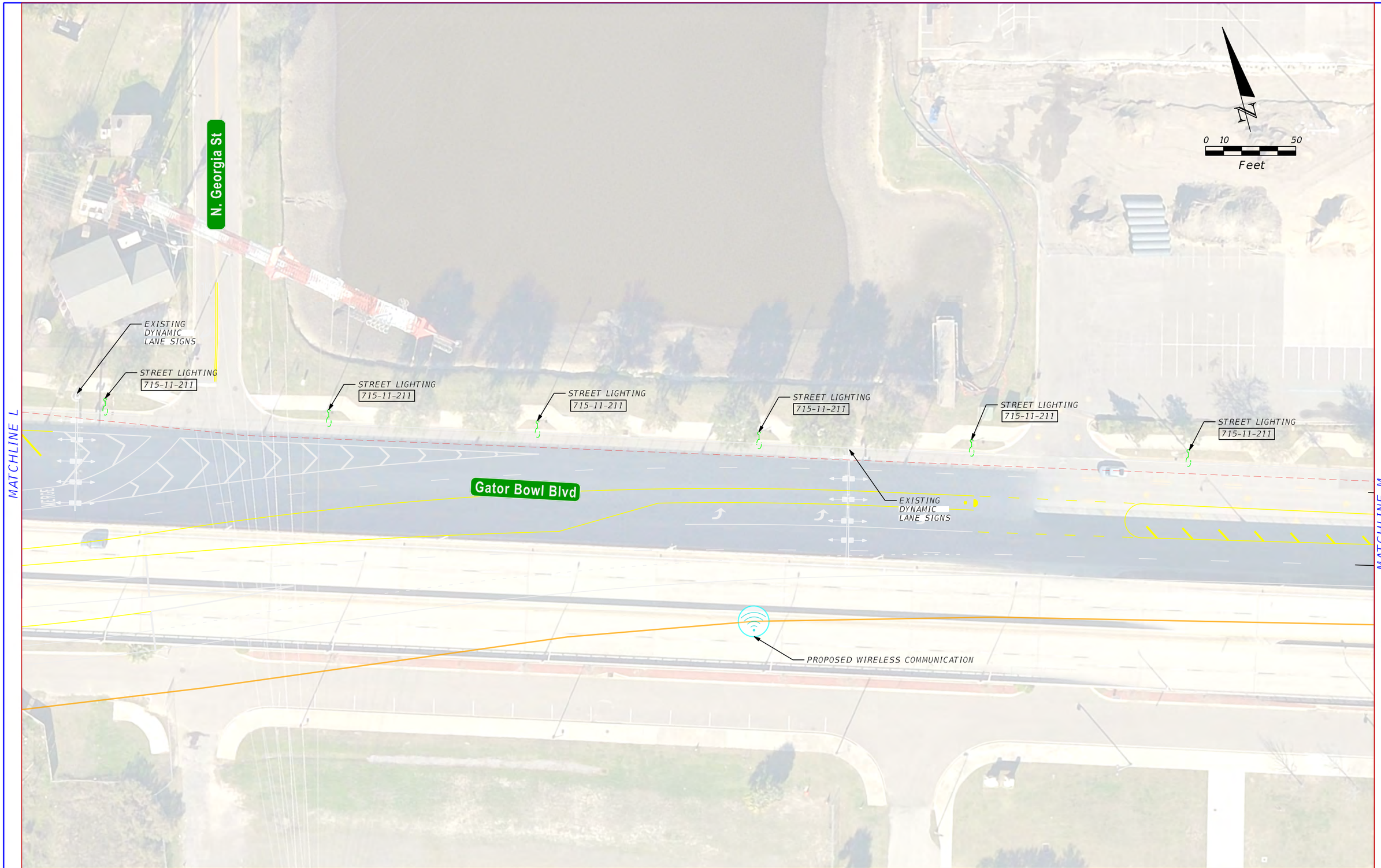

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SUITE 320
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PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 2
SHEET (13)

SHEET NO.

slenis

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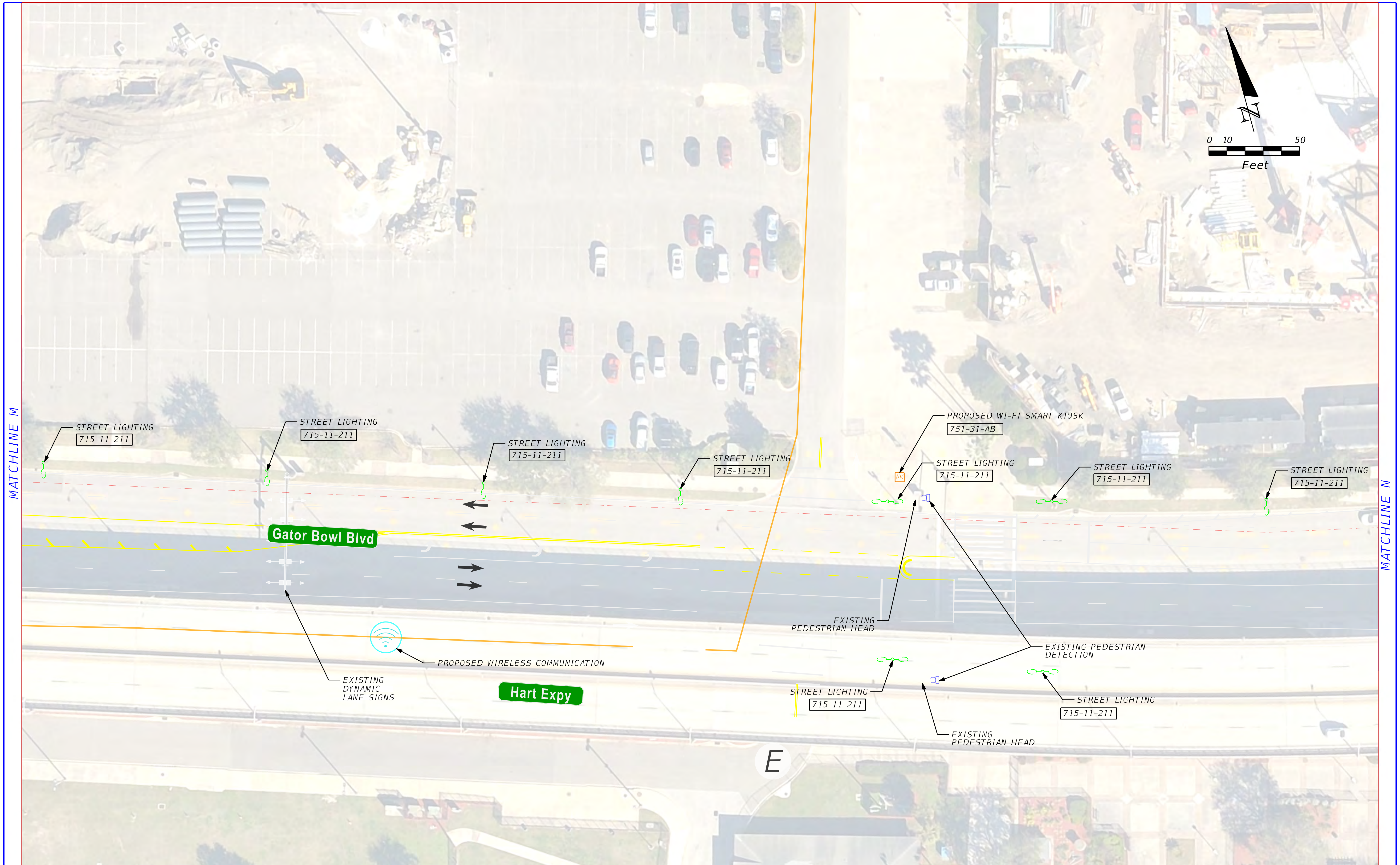

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FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET SMART CORRIDOR PHASE 2 SHEET (14)

SHEET NO.

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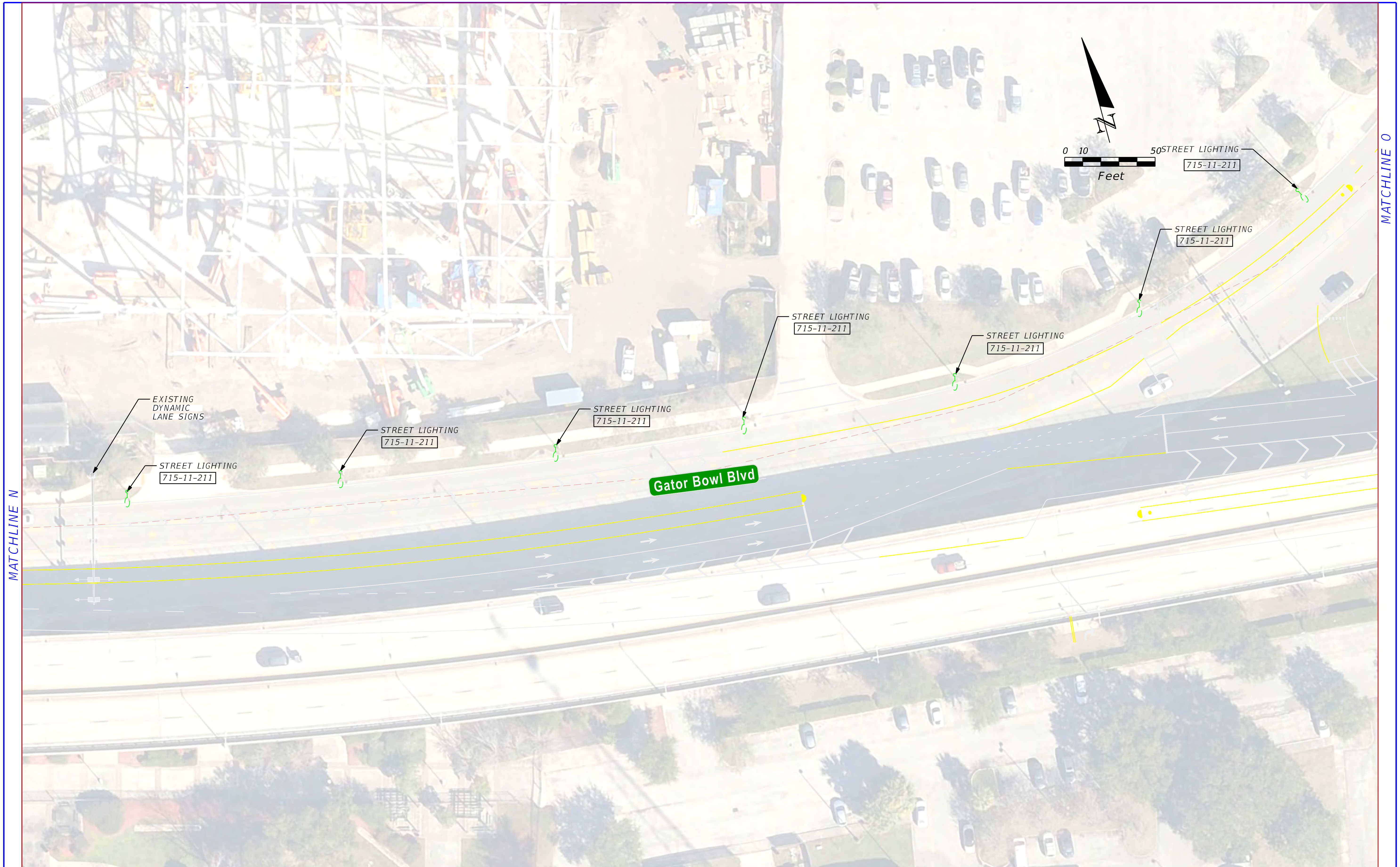

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4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

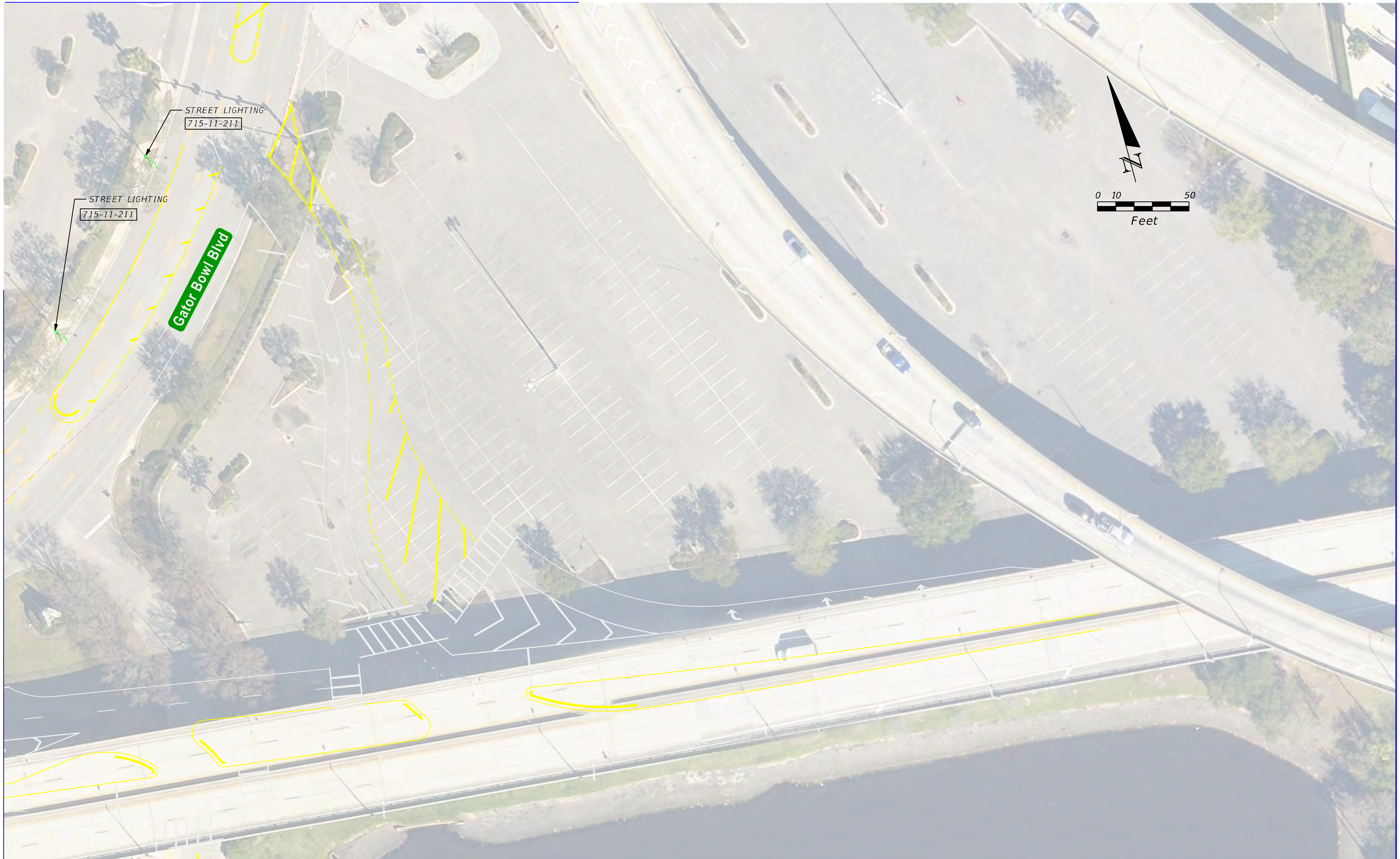
BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 2
SHEET (15)

SHEET NO.

MATCHLINE P

MATCHLINE O



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REVISIONS	
DATE	DESCRIPTION

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4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT
OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 2
SHEET (16)

SHEET
NO.

slenis

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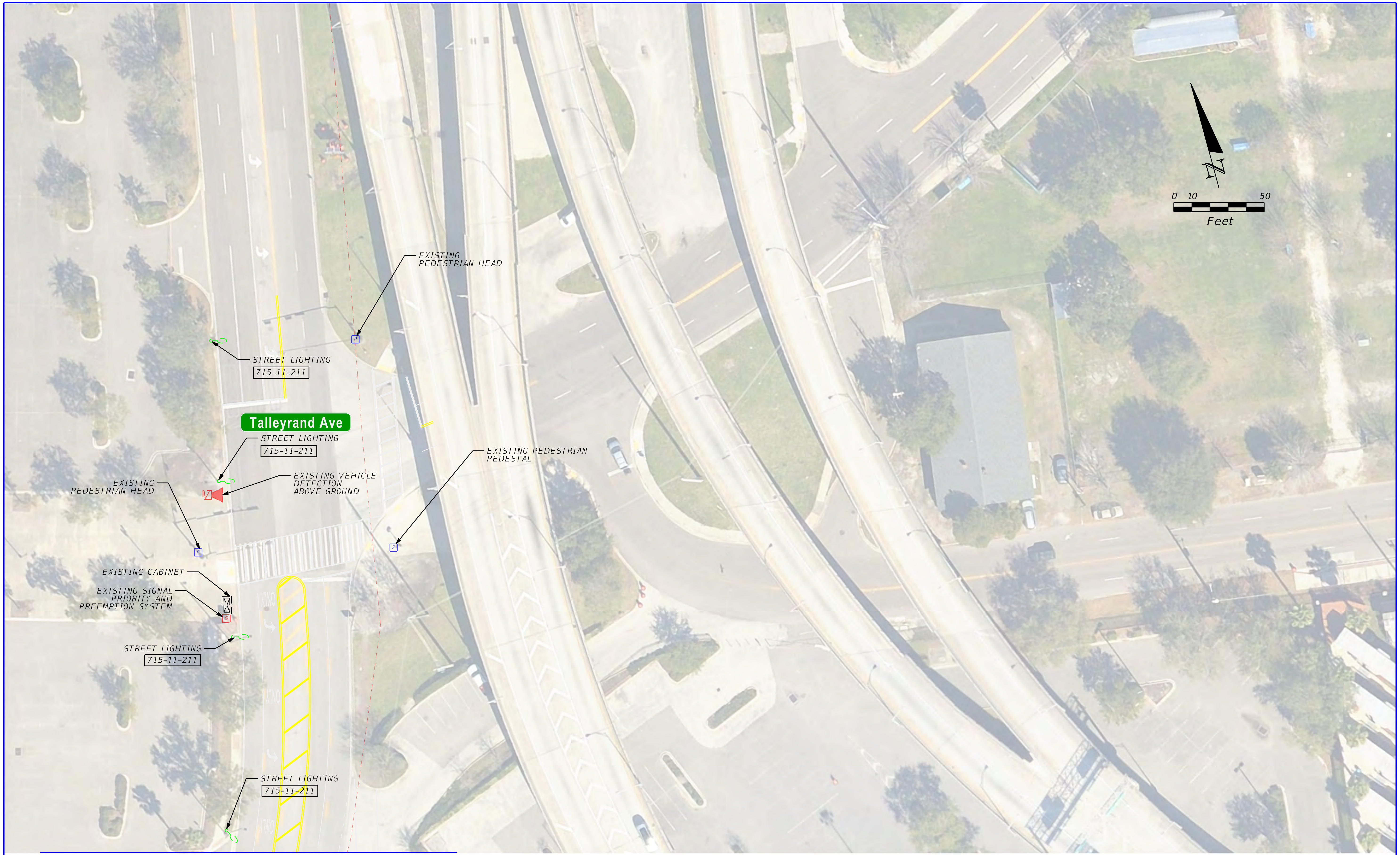

MATCHLINE P

REVISIONS	
DATE	DESCRIPTION

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4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

ENGINEER OF RECORD: TERREL SHAW, P.E.
FLORIDA REGISTRATION NO.: 50096

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BAY STREET CORRIDOR

BAY STREET SMART CORRIDOR PHASE 2 SHEET (17)

SHEET NO.

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DATE	DESCRIPTION

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4651 SALISBURY ROAD
SUITE 320
JACKSONVILLE, FLORIDA 32256
PHONE: (904) 296-0207

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FLORIDA REGISTRATION NO.: 50096

FLORIDA DEPARTMENT OF TRANSPORTATION

BAY STREET CORRIDOR

BAY STREET
SMART CORRIDOR PHASE 2
SHEET (18)

SHEET NO.

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