



## **LOGAN DIVING & SALVAGE**

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### **UNDERWATER INVESTIGATION INTRACOASTAL WATERWAY AND CALLALISA CREEK SUBAQUEOUS CROSSINGS For UTILITIES COMMISSION NEW SMYRNA BEACH**

UNDERWATER AND HYDROGRAPHIC SURVEY SERVICES WERE REQUESTED TO PERFORM INSPECTIONS OF THE FOLLOWING SUBAQUEOUS CROSSINGS: 12" DUCTILE IRON WM (NORTH BRIDGE), 8" CAST IRON RECLAIM (SOUTH BRIDGE), 16" DUCTILE IRON WM (SOUTH BRIDGE), 16" DUCTILE IRON WM (CALLALISA CREEK).

DIVERS UTILIZING SURFACE SUPPLIED AIR DIVING EQUIPMENT WITH HARD WIRE COMMUNICATIONS INSPECTED EACH INDIVIDUAL UTILITY CROSSING. DIVING OPERATIONS WERE CONDUCTED FROM A 24' DIVE BOAT. UNDERWATER VIDEO WAS UTILIZED TO DOCUMENT EXISTING CONDITIONS OF ALL EXPOSED AND SUSPENDED PIPE LOCATED DURING THE INSPECTION.

PIPELINE LOCATION ON EACH SHORELINE WAS PROVIDED BY UCNSB REPRESENTATIVES.

HYDROGRAPHIC SURVEYS WERE CONDUCTED TO ESTABLISH AND DOCUMENT THE EXISTING UNDERWATER GROUND LINE PROFILES FOR EACH CROSSING. ATTACHED DRAWINGS ESTABLISH CURRENT BATHYMETRY AT THE TIME OF INSPECTION.

DIVING INSPECTION FINDINGS ARE AS FOLLOWS:

#### **12" DUCTILE IRON WATER MAIN NORTH BRIDGE:**

12" DUCTILE IRON WATER MAIN WAS INSPECTED ON MARCH 2, 2017.

DIVERS MADE PERPENDICULAR PASSES ALONG THE PIPELINES BASELINE SEARCHING FOR EXPOSED PIPE. EXPOSED AND SUSPENDED PIPE WAS LOCATED DURING THE INSPECTION OF THIS PIPELINE CROSSING.

121' OF THE 12" DI WM WAS FOUND EXPOSED, OF THE 121' OF EXPOSURE, 20' OF THE 12" DI WM WAS FOUND COMPLETELY SUSPENDED AND UNSUPPORTED.

## **12" DUCTILE IRON WATER MAIN NORTH BRIDGE CONTINUED:**

PIPE LINE EXPOSURE AND SUSPENSION WAS VIDEOED STARTING AT THE WEST SIDE AND MOVING EAST.

STA. 5+35 TO STA. 5+15 PIPE WAS SUSPENDED 24" MAXIMUM

STA. 5+05 TO STA. 4+14 PIPE WAS FOUND TO BE EXPOSED, SOME PARTS OF THE PIPE WERE COVERED BUT THE JOINTS WERE EXPOSED ON AVERAGE 30 – 50%.

THE PIPE WAS FOUND COVERED WITH HARD/SOFT MARINE GROWTH WITH NO VISIBLE DAMAGE NOTED TO PIPE. DURING THE REPAIR ON JANUARY 13, 2014 THE PIPE WAS CLEANED WITH A CAVIDYNE CAVIBLASTER. DIVERS NOTED HEAVY PITTING ON THE PIPE AND 50% OF COATING INTACT AFTER CLEANING AT THAT STATION.

CLAMPS AND SPOOL PIECE INSTALLED ON JANUARY 17, 2014 WERE FOUND 50% EXPOSED BETWEEN STA. 4+85 AND STA. 4+80. NO MOVEMENT, DAMAGE, OR LEAKS NOTED ON REPAIR CLAMPS AND SPOOL PIECE.

## **16" DUCTILE IRON WATER MAIN CALLALISA CREEK**

16" DUCTILE IRON WATER MAIN WAS INSPECTED ON MARCH 2, 2017.

DIVERS MADE PERPENDICULAR PASSES ALONG THE PIPELINES BASELINE SEARCHING FOR EXPOSED PIPE. NO EXPOSED AND SUSPENDED PIPE WAS LOCATED DURING THE INSPECTION OF THIS PIPELINE CROSSING.

THE PIPELINE WAS FOUND BURIED FOR THE ENTIRETY OF THE CROSSING

## **16" DUCTILE IRON WATER MAIN SOUTH BRIDGE**

16" DUCTILE IRON WATER MAIN WAS INSPECTED ON MARCH 3, 2017.

DIVERS MADE PERPENDICULAR PASSES ALONG THE PIPELINES BASELINE SEARCHING FOR EXPOSED PIPE. NO EXPOSED AND SUSPENDED PIPE WAS LOCATED DURING THE INSPECTION OF THIS PIPELINE CROSSING.

THE CREW ALSO WALKED THE AREAS OF THE RESIDENTIAL DOCKS ON THE EAST SIDE OF THE INTRACOASTAL WATERWAY AT LOW TIDE SEARCHING FOR EXPOSED PIPE.

THE PIPELINE WAS FOUND BURIED FOR THE ENTIRETY OF THE CROSSING.

## **8" CAST IRON RECLAIM MAIN SOUTH BRIDGE**

8" CAST IRON RECLAIM MAIN WAS INSPECTED ON MARCH 3, 2017.

DIVERS MADE PERPENDICULAR PASSES ALONG THE PIPELINES BASELINE SEARCHING FOR EXPOSED PIPE. NO EXPOSED AND SUSPENDED PIPE WAS LOCATED DURING THE INSPECTION OF THIS PIPELINE CROSSING. THE CREW ALSO WALKED THE AREAS OF THE RESIDENTIAL DOCKS ON THE EAST SIDE OF THE INTRACOASTAL WATERWAY AT LOW TIDE SEARCHING FOR EXPOSED PIPE.

THE PIPELINE WAS FOUND BURIED FOR THE ENTIRETY OF THE CROSSING.

### **SYNOPSIS:**

## **12" WM NORTH BRIDGE CROSSING**

EXPOSED AND SUSPENDED PIPE CONTINUES TO BE THE CRITICAL ISSUE WITH THIS CROSSING. UNSCHEDULED EMERGENCY REPAIRS OF JANUARY 2014 TO THE FAILED JOINT ARE IN PLACE, SECURE AND FUNCTIONING AS DESIGNED.

120' OF EXPOSED PIPE AND 20' OF UNSUPPORTED SUSPENDED PIPE WERE DOCUMENTED DURING INSPECTION.

PRIMARY AND IMMEDIATE CONCERN IS THE SUSPENDED AND UNSUPPORTED PIPE AND JOINTS INVOLVED. THE UNSUPPORTED JOINT/S MAY MOVE OR HAVE ALREADY MOVED TO MAXIMUM JOINT DEFLECTION WITH NO SUPPORT AND BE EXPERIENCING EXCESSIVE STRESS/STRAIN ON THE JOINTS. THIS CONDITION CAN LEAD TO - AND CAUSE UNSCHEDULED DISRUPTION IN SERVICE/FAILURE IF LEFT UNSUPPORTED.

SECONDARY CONCERN IS THE EXPOSED PIPE AND JOINT SECTIONS. EXPOSED PIPE IS SUBJECT TO AND VULNERABLE TO GROUND TACKLE DAMAGE FROM VESSELS, DAMAGE FROM TRANSITORY SUBMERGED DEBRIS AND DEBRIS BUILD UP. AN ABANDONED ANCHOR WAS FOUND WEDGED BENEATH THE PIPE.

CEMENT BAGS INSTALLED TO SUPPORT THE FAILED JOINT PRIOR TO SECTIONING AND REPAIR IN JANUARY 2014 ARE INDUCING SILTATION AND HAVE ADDED SIGNIFICANT SAND/SEDIMENT TO THE STATIONS WHERE INSTALLED.

CROSSING SIGNS ARE IN PLACE AND SERVICEABLE.

## **16" DUCTILE IRON WATER MAIN CALLALISA CREEK**

THIS PIPELINE IS BURIED FOR THE ENTIRETY OF THE CROSSING AS INTENDED DURING INSTALLATION AND IS CURRENTLY IN GOOD SERVICEABLE CONDITION.

WEST BANK CROSSING SIGN IS MISSING, EAST BANK OBSCURED BY TREES.

## 16" DUCTILE IRON WATER MAIN SOUTH BRIDGE

THIS PIPELINE IS BURIED FOR THE ENTIRETY OF THE CROSSING AS INTENDED DURING INSTALLATION AND IS CURRENTLY IN GOOD SERVICEABLE CONDITION.

## 8" CAST IRON RECLAIM MAIN SOUTH BRIDGE

THIS PIPELINE IS BURIED FOR THE ENTIRETY OF THE CROSSING AS INTENDED DURING INSTALLATION AND IS CURRENTLY IN GOOD SERVICEABLE CONDITION.

BOTH THE 16" AND 8" CROSSINGS REQUIRE CROSSING SIGNS.

\*BOTH THE **16" AND 8"** CROSSINGS WERE FOUND EXPOSED IN 2001 AND REBURIED WITH THE CEMENT BAG METHOD TO REPAIR THE CROSSING. CEMENT BAGGING INSTALLATION PROFILE INDUCED SAND AND SEDIMENT SILTATION AS INTENDED AND THE CROSSINGS ARE STILL BURIED AS DESIGNED TODAY.

## RECOMMENDATIONS

### 12" WM NORTH BRIDGE CROSSING:

- 1) CLEAN THE EXPOSED AND SUSPENDED PIPE OF ALL MARINE GROWTH AND INSPECT FOR EXCESSIVE CORROSION, JOINT GEOMETRY, AND DOCUMENT/CONFIRM OVERALL EXISTING CONDITION
- 2) SUPPORT AND STABILIZE THE UNSUPPORTED SUSPENDED PIPE SECTION VIA THE CEMENT BAG METHOD.
- 3) REBURY THE EXPOSED PIPELINE SECTIONS TO FURTHER STABILIZE AND INDUCE PROTECTIVE SILTATION

### 16" AND 8" SOUTH BRIDGE CROSSINGS

- 4) INSTALL CROSSING SIGNS ON BOTH SHORES, BOTH CROSSINGS.

### 16" CALLALISA CREEK

- 5) REPLACE WEST BANK CROSSING SIGN.
- 6) EAST SIGN OBSCURED BY TREES, REMOVE OVER GROWTH.

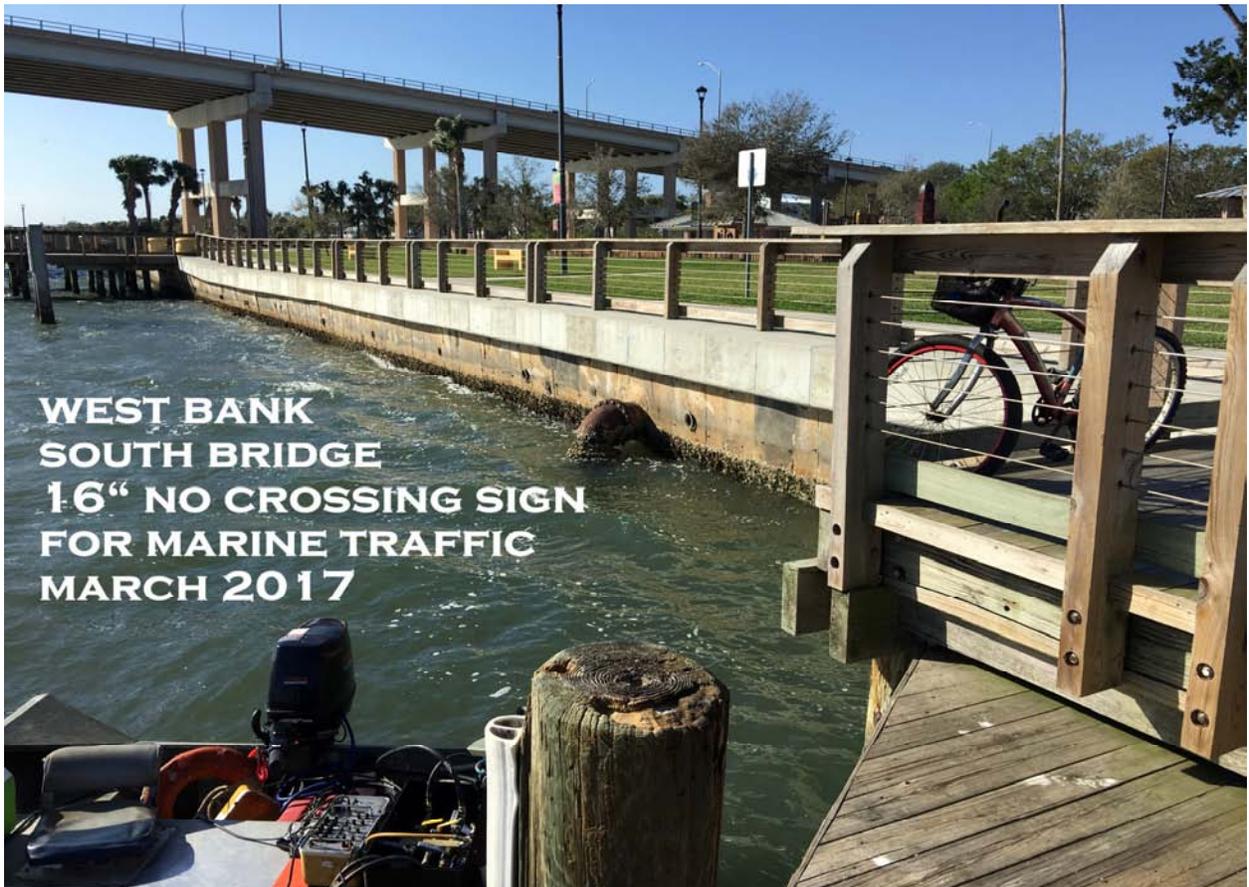
## ALL SUBAQUEOUS CROSSINGS:

- A) BUDGET AND SCHEDULE FOR DIVING INSPECTION ANNUALLY TO ENSURE ALL PIPELINES REMAIN BURIED AND PROTECTED.

SCOTT C. ANDERSON  
PRESIDENT  
LOGAN DIVING & SALVAGE  
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**WEST BANK CROSSING SIGN  
NORTH BRIDGE 12"**



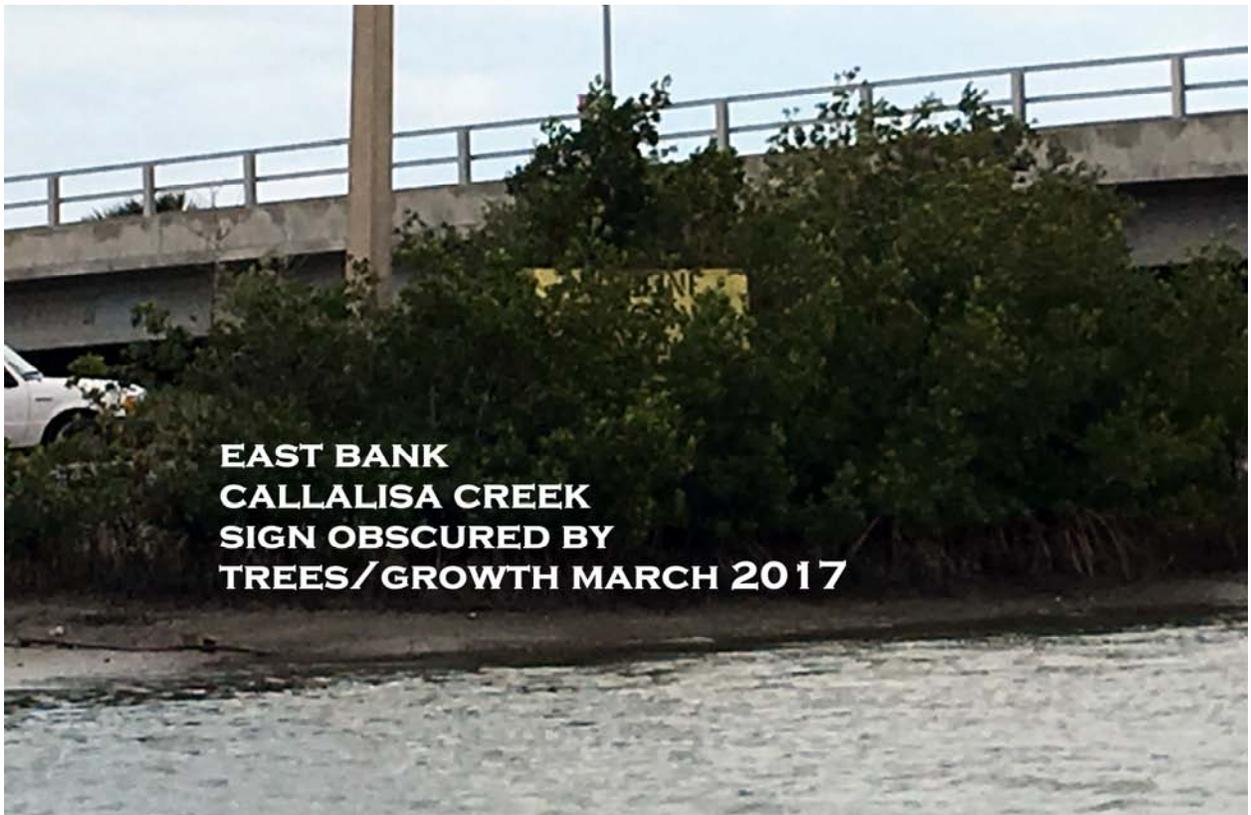
**WEST BANK  
SOUTH BRIDGE  
1.6" NO CROSSING SIGN  
FOR MARINE TRAFFIC  
MARCH 2017**



**WEST BANK SOUTH BRIDGE  
16" AND 8" NO CROSSING SIGNS  
FOR MARINE TRAFFIC MARCH 2017**



**WEST BANK CALLALISA CREEK  
CROSSING SIGN MISSING  
MARCH 2017**



**EAST BANK  
CALLALISA CREEK  
SIGN OBSCURED BY  
TREES/GROWTH MARCH 2017**