

GULF STATE PIER ORIGINAL CONSTRUCTED / REBUILT IN 2007-2009



PROPERTIES

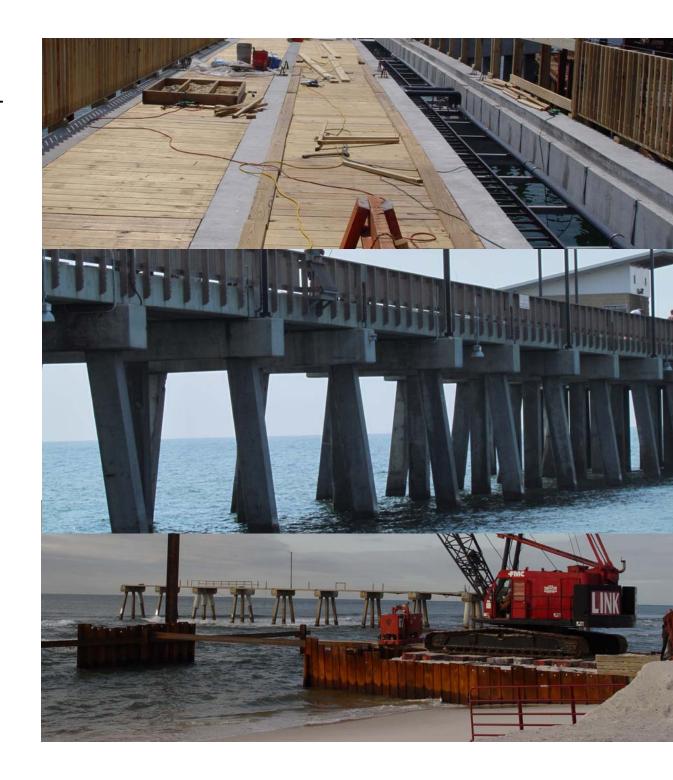
- 1,540' long 20' above water surface
- 20' wide

CONSTRUCTION MATERIALS:

- Concrete Piling Substructure
- Wooden Deck Panels
- Wooden Posts and Handrails

ORIGINAL STRUCTURAL DESIGN 2007-2009 IMAGES

- The pier was originally constructed in 2007. The structure for the pier utilizes 24" square precast driven concrete piles for it's foundation. Battered piles were used for lateral stability. Precast concrete bents are typically spaced 35-ft. on center along the length of the pier. Precast concrete stringers @ 6-ft. on center are used to span between the main bents.
- The original design called for 6" modular pre-cast concrete planks for decking but this was changed during the original construction to a treated southern yellow pine wood decking.



STATE OF ALABAMA

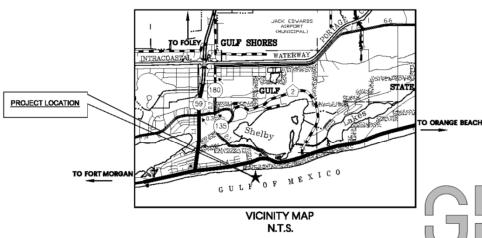
DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES
ENGINEERING SECTION - STATE PARKS DIVISION

GULF STATE PARK 2019 PIER RENOVATION PROJECT GULF SHORES, ALABAMA

NOVEMBER 1, 2019

PROJECT NUMBERS:

GMC CMOB# - 190282 GMC AMOB# - 190020



ABC # - 2019448

GMC

BUILDING COMMUNITIES

STATE OF ALABAMA:

GOVERNOR: KAY IVEY

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES:

COMMISSIONER: CHRISTOPHER M. BLANKENSHIP

DIRECTOR OF ALABAMA STATE PARKS DIVISION:

GREGORY M. LEIN

CHIEF OF ENGINEERING SECTION: TERRY N. BOYD, PE, PLS

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RENOVATION PROJECT DESIGN TEAM:

ARCHITECTURAL GOODWYN, MILLS & CAWOOD, INC.

CIVIL ENGINEERING GOODWYN, MILLS & CAWOOD, INC.

STRUCTURAL ENGINEERING BARTER & ASSOCIATES, INC.

ELECTRICAL ENGINEERING DELL CONSULTING

PLUMBING ENGINEERING DELL CONSULTING

DELL CONSULTING

OVERSHE



Daphne, AL 36528 T 251626.2628 GMCNETWORK.COM



. No. 2019448 IC No: CMOB19028; IC No: AMOB19002



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2019/2020 GULF STATE PIER RENOVATION DESIGN TEAM

CIVIL ENGINEERING AND

ARCHITECTURE:



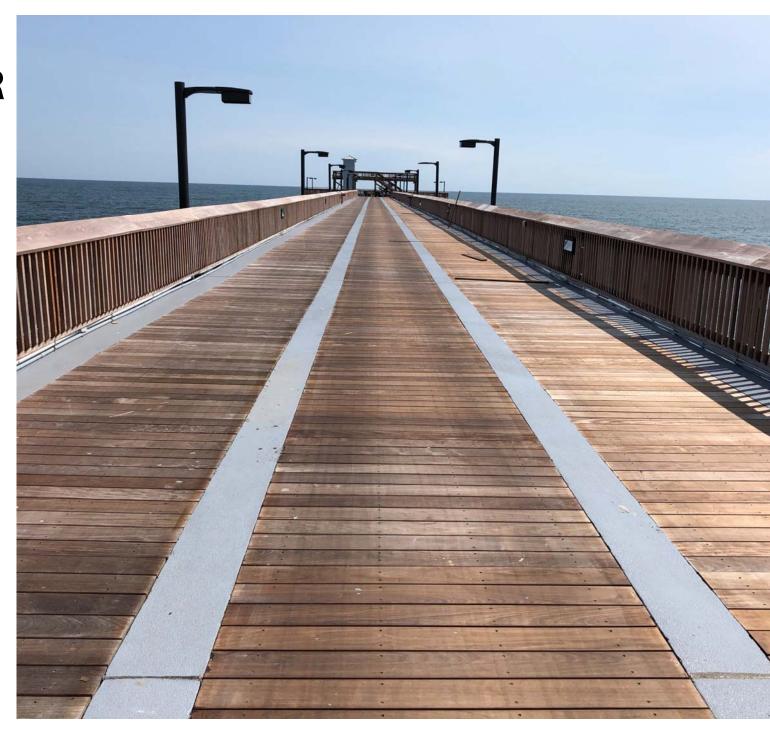
GOODWYN MILLS & CAWOOD, INC.

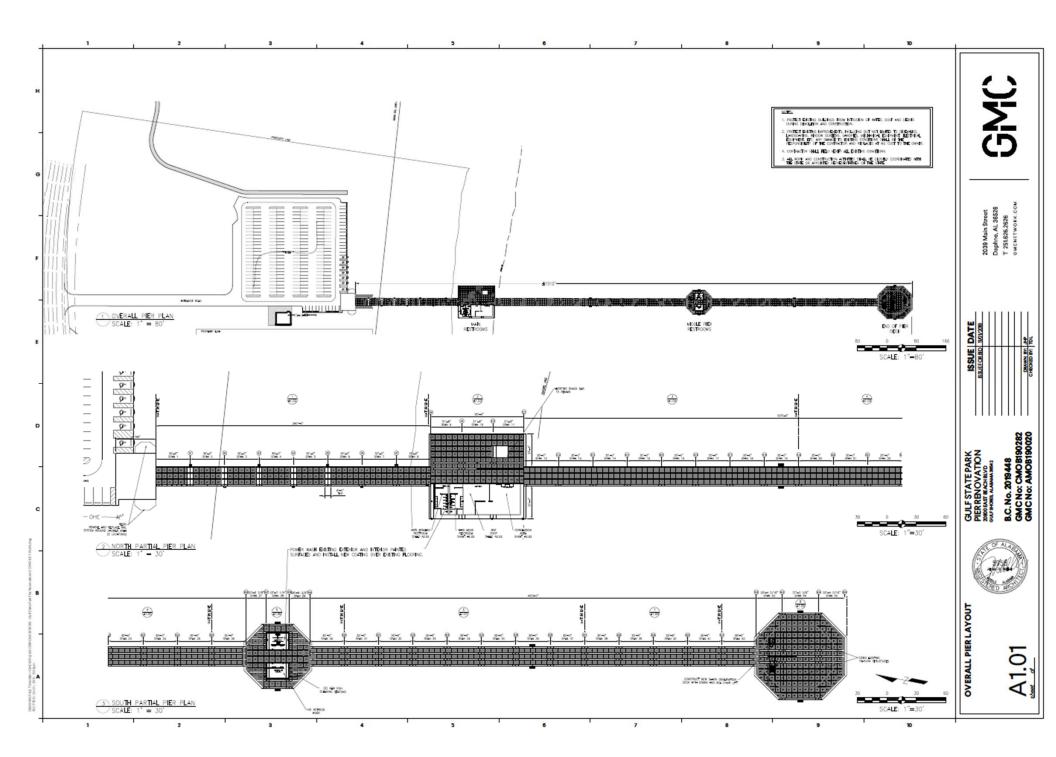
STRUCTURAL ENGINEERING:



ELECTRICAL ENGINEERING,
MECHANICAL ENGINEERING,
PLUMBING ENGINEERING:







PIER DECKING REPLACEMENT OPTIONS

1. TREATED PINE

- PRO'S ECONOMICAL
- CON'S LIFESPAN, PREVIOUS ISSUES

2. THRUFLOW/SURE STEP DECKING

- PRO'S LIGHTWEIGHT, WATER FLOWS THROUGH
- CON'S STRUCTURAL SUPPORT, CRACKING, COST

3. TREX / COMPOSITE DECKING

- PRO'S LIFESPAN, LOW MAINTENANCE
- CON'S STRUCTURAL SUPPORT, SURFACE TEMPERATURE, COST

4. IPE

- PRO'S LOW MAINTENANCE, LIFESPAN, STRUCTURAL SUPPORT
- CON'S COST



RESEARCH OF NEW DECKING MATERIALS - WAREHOUSE HOUSING IPE MATERIALS





RENOVATION STRUCTURAL SCOPE

- The exposed top surface of the concrete stringers was delaminated in certain locations. Surface repairs were made where required structurally and a new coating was added to preserve the concrete from additional delamination.
- The pine boards had reached their lifespan by delaminating including whole panel failures in numerous locations.



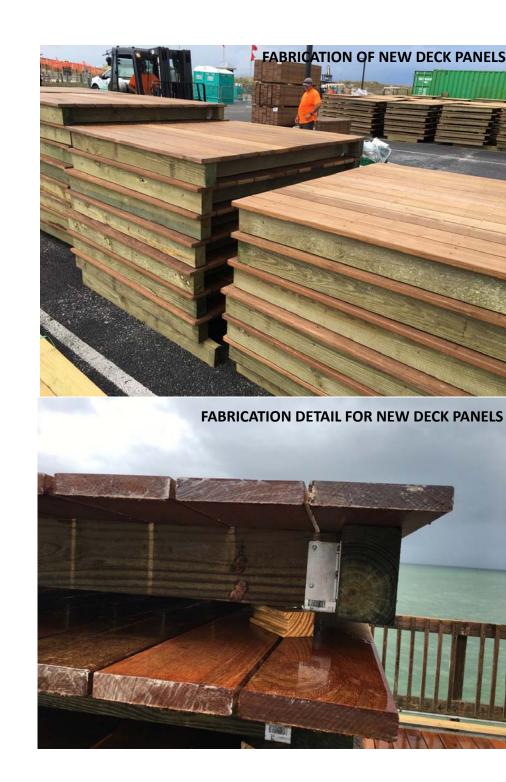
EXISTING CONCRETE DELAMINATION

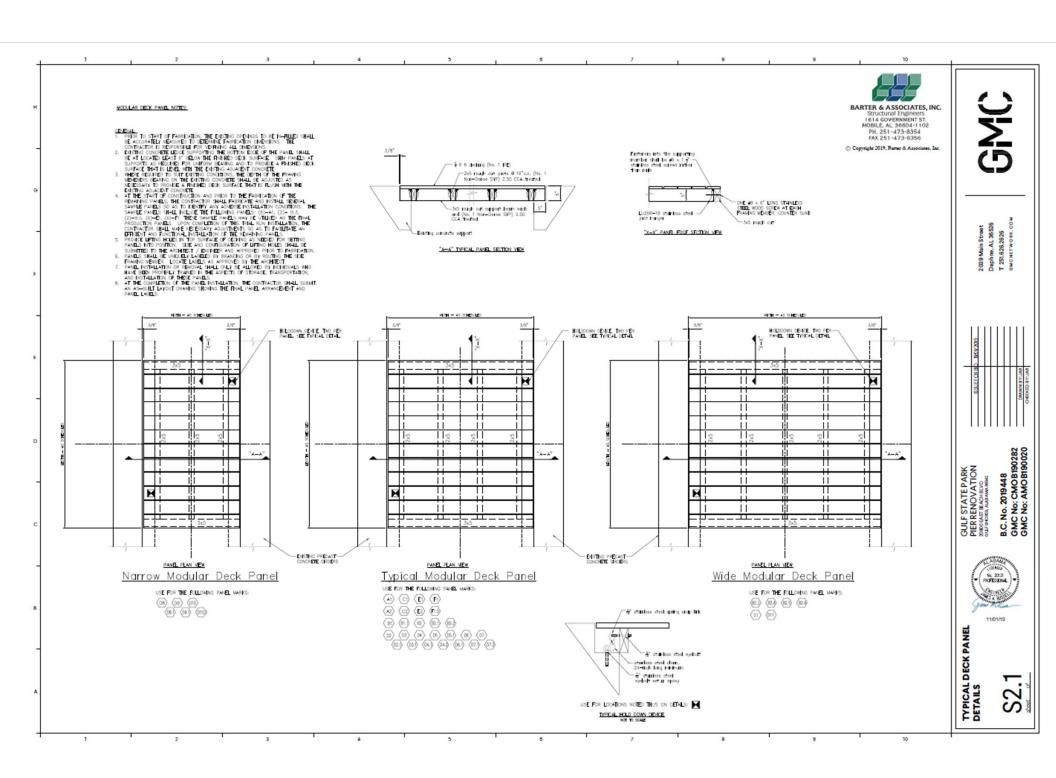


EXISTING DECK DELAMINATION

RENOVATION STRUCTURAL SCOPE

- •The new modular IPE deck panels were pre-fabricated on site in approximately 6-ft. lengths. Sub-framing was of 2x and 3x rough cut Southern yellow pine material.
- •All fasteners and attachment hardware were stainless steel.
- Prefabricated panels spanned between adjacent concrete stringers and were supported on the existing 6-inch deep concrete ledge.
- Modular decking panels were loose laid and were intended to "blow out" when subjected to impact from high velocity dynamic wave action.





RENOVATION STRUCTURAL SCOPE

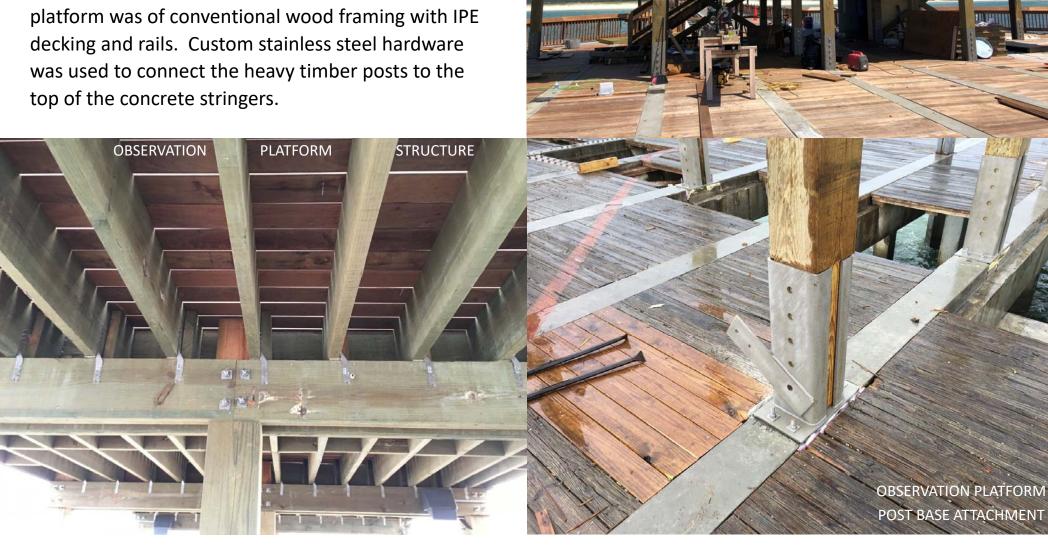
- •All existing treated wood pine decking panels were replaced with new IPE decking panels.
- •All existing handrails were removed and reconstructed with IPE material.





RENOVATION STRUCTURAL SCOPE

• A shark observation tower with ADA lift was planned for the far south end of the pier. The observation platform was of conventional wood framing with IPE decking and rails. Custom stainless steel hardware was used to connect the heavy timber posts to the top of the concrete stringers.





• DECKING AND HANDRAIL UPGRADES:

 COORDINATION OF DECKING PANELS AND HANDRAIL REPLACMENT WITH IPE (BRAZILIAN WALNUT) MATERIALS.

• ASTHETIC UPGRADES:

- COORDINATED REPLACEMENT OF EXPANSION EALANTS
- COORDINATION OF REPAIRING THE EXISTING CONCRETE GRIDERS WITH STRUCTURAL PATCH REPAIRS AND A NEW EPOXY / URETHANE COATING (NEOGARD) SYSTEM.

NATION OF RESTROOM RENOVATION:
NEW EPOXY FLOORING, NEW TOILET PARITIONS, NEW ADA
AND STANDARD WATER CLOSETS AND URINALS, NEW ADA
COMPLIANT SINKS, ETC.

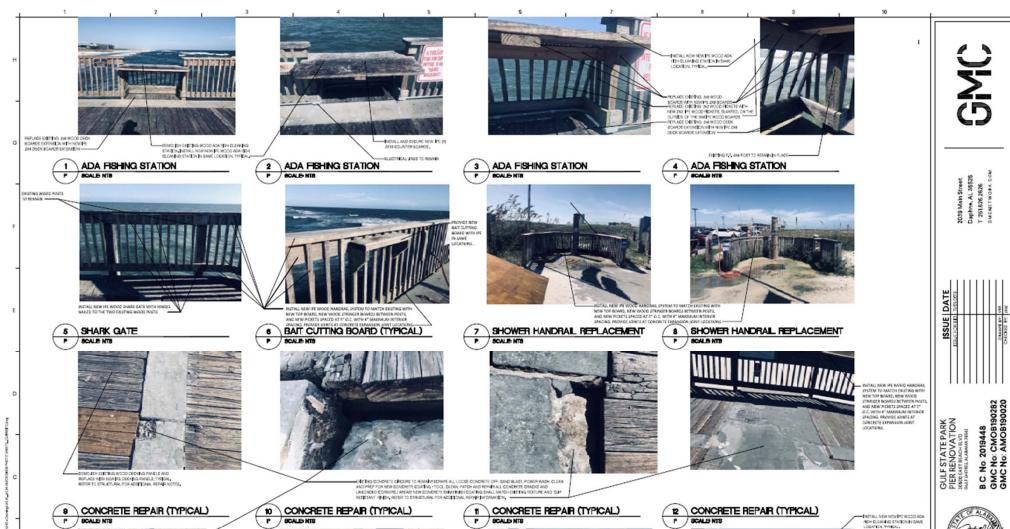
NEW TRANSATION COUNTER AND DESK SYSTEM

ROVIDED A NEW CUSTOM DESIGNED ADA COMPLIANT TRANSACTION COUNTER DESK SYSTEM FOR EMPLOYEES

OBSERVATION PLATFORM:

- PROVIDED A NEW CUSTOM OBSERVATION PLATFORM DESIGN WITH A NEW ADA COMPLIANT WHEELCHAIR LIFT, STAIRWAY, AND PLATFORM TO OVERLOOK THE GULF OF MEXICO AND VIEW MARINE LIFE UNDER THE SEA.
- COORDINATION OF DISCIPLINES:
 - o STRUCTURAL, PLUMBING, MECHANICAL, AND ELECTRICAL.
- CLARUS FUSION SYSTEM AND NEW FISH CLEANING STATION





MISCELLANEOUS PHOTOS

14 EXPANSION JOINT REPAIR (TYPICAL)

NETALL NEW EXPANSION JOINT BACK ROD AND SEALANT FOR ALL CONDRETE DEPARED VIONES

P

SCALE: NTS

DEMOLIEH ENETHS WOOD DEDKING PAYELE AND REFLADE WITH NEW IPE DEDKING PAYELS, TYPICAL. REFER TO STRUCTURAL FOR ADOPTONAL REFAR

13

SCALE NTS

P

CONCRETE REPAIR (TYPICAL)

RENOVE ENETTING EXPANSION JOINT AND INSTALL NEW EXPANSION JOINT BACK ROD AND SEALANT FOR ALL JOINTS 15 EXPANSION JOINT REPAIR (TYPICAL) P SCALE: NTS

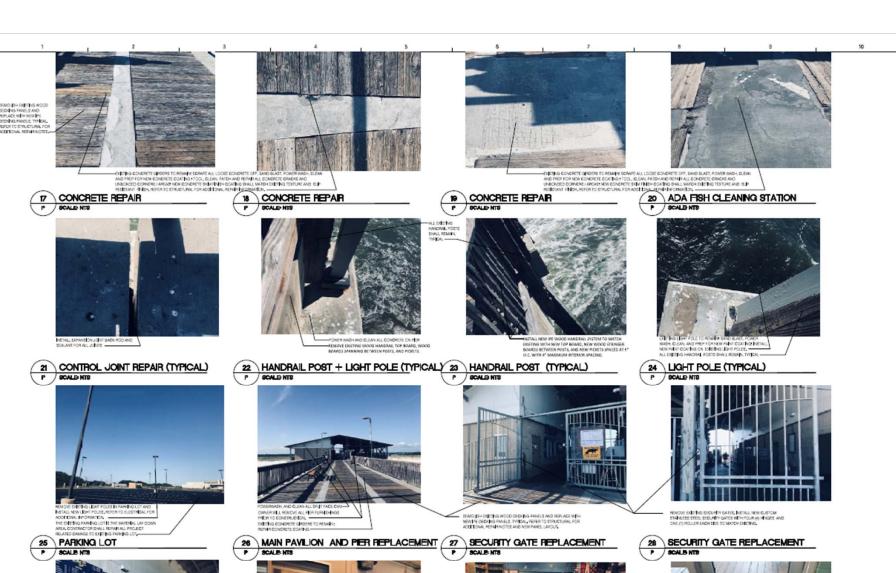
PROVIDE NEW FISHING AREA STRIPING OVER NEW I'VE OBOXING PANELING -FISHING OUTLINE

16

• SCALE NTS

10

INSTALL NEW IPE WOOD HAND! LINITIAL NEW IP WOOD HARDRAN STREM TO MACTOR EMITING WITH NEW TOP BOARD, NEW WOOD STRINGER BOARDS BETWEEN POST AND NEW SHOUTE SPACED AT 5" O.C. WITH 4" MADMIAN INTERIOR SPACING PROVIDE SONTS AT CONCRETE BYPANISCH JORY! LOCATIONS.



GULF STATE PARK
PIER RENOVATION
30000 EAST BEACH (BLVD)
GULF PROFEE ALARMAN 38542 B.C. No. 2019448 GMC No: CMOB19 GMC No: AMOB19

2039 Main Street Daphne, AL 36526 T 251626.2626

UNDER ENETTING TRANSACTION WINDS CONCESSIONS NEW COUNTER

30

P

SCALE NTS

DEPOSIDIO LOGISMO TO VATIOH BURROUND**®**NG

- DATING CONCRETE PLOOPING TO REMINE SCAWE ALL LODGE OF POWER WASH. HENDING ALL CONCRETE CHARGE AND UNSONDED OF LOVELING THE CHARGE AND UNSONDED OF LOVELING THE CHARGE AND UNSONDED OF LOVELING THE CHARGE AND THE CHAR CHOPETE OFF, BAND BLAST OR BAND DOWN THE CONCRETE FLOOR.

CHOSING, CLEAN, AND MEET FOR NEW COATING ENTITIES, INSTALL NEW BOLF
DOX FLOOR COATING SYSTEM WITH SUP RESISTANT FINISH. BAIT SHOP NEW FLOOR COATING

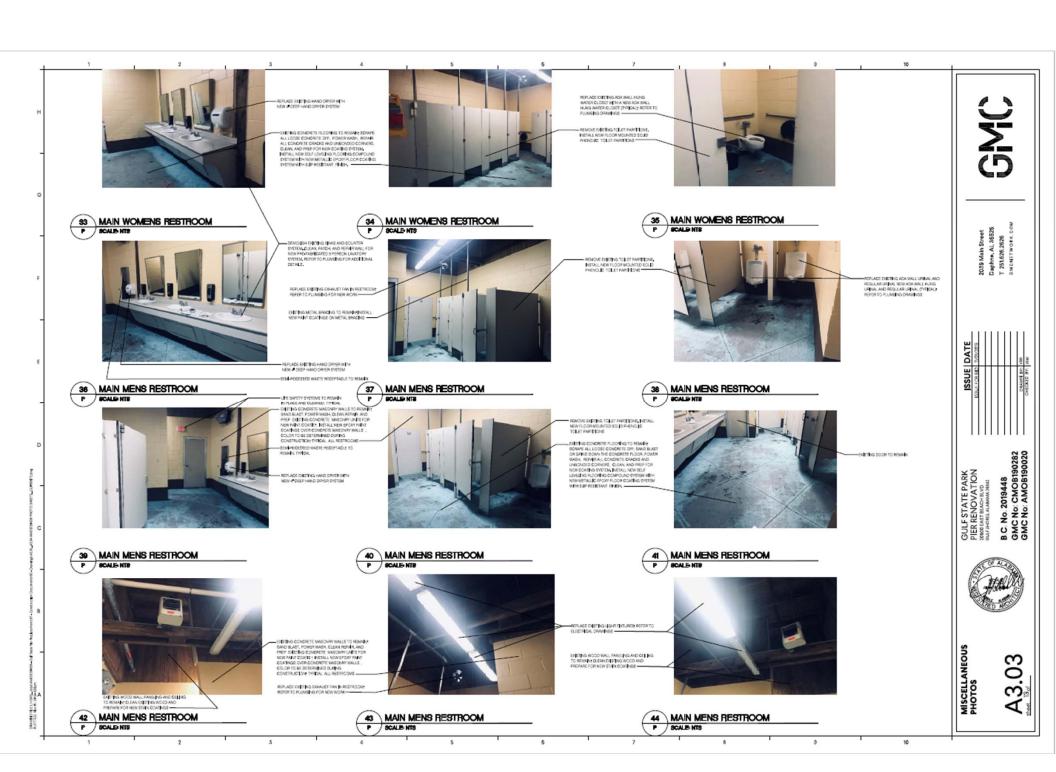
32 BAIT SHOP NEW FLOOR COATING P SCALD NTS

OWERWASH ENGINE MITAL PANILING

FOMERWARK CLEAN AND REPAIR ENERTH SO COMPRETE BASE NETTALL NEW PRINT COMPINES OWN BASE TO MATCH EDITTING COLOR, TYPICAL.

MAIN BUILDING EXTERIOR REPAIR P SCALE NTS

31 SCALE: NTS





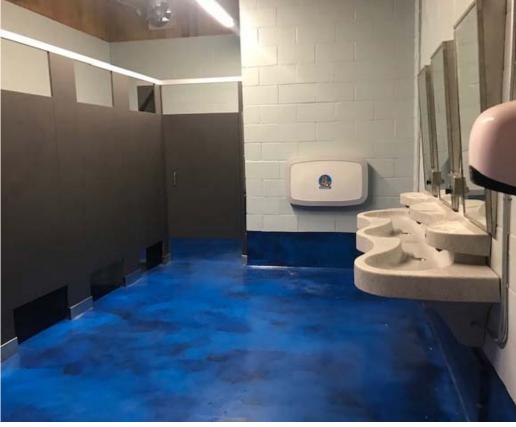
BEFORE AND AFTER MAIN MENS RESTROOM





BEFORE AND AFTER MAIN WOMENS RESTROOM





BEFORE AND AFTER MID-PIER RESTROOMS

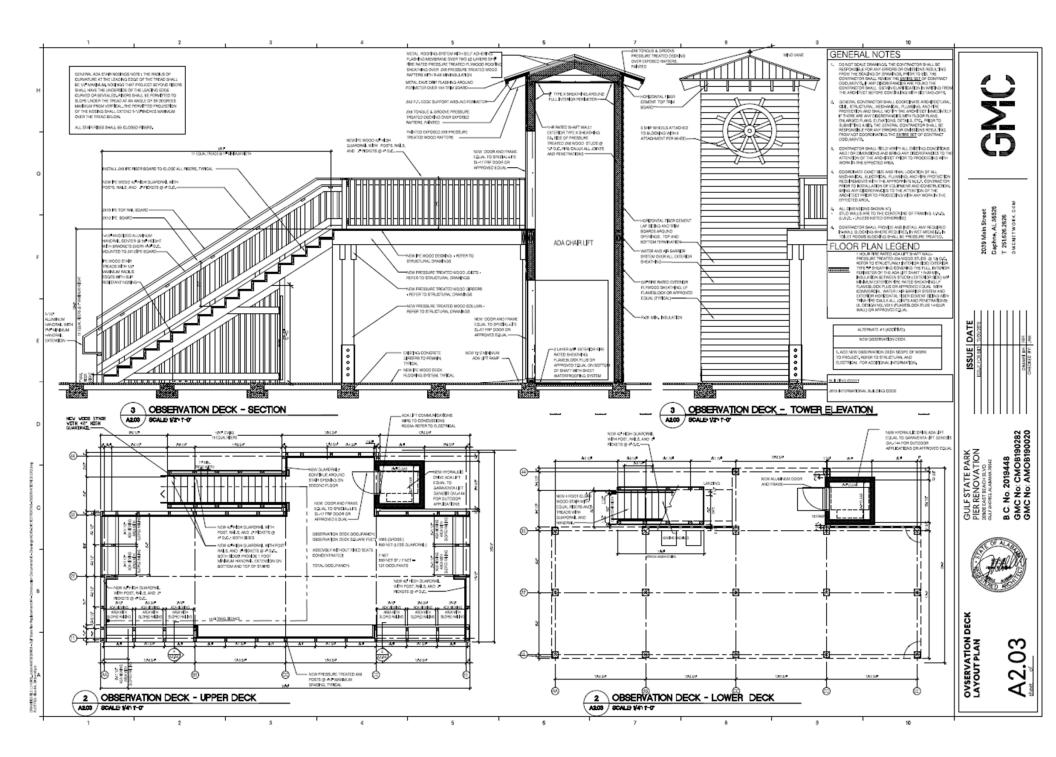
WOMENS MID-PIER

MENS MID-PIER



BEFORE AND AFTER TRANSACTION COUNTER





OBSERVATION PLATFORM

GULF VIEW FACADE

ADA LIFT TOWER AND STAIR FACADE





OBSERVATION DECK







BEFORE AND AFTER DECKING PANELS



BEFORE AND AFTER ENTRANCE RAMP



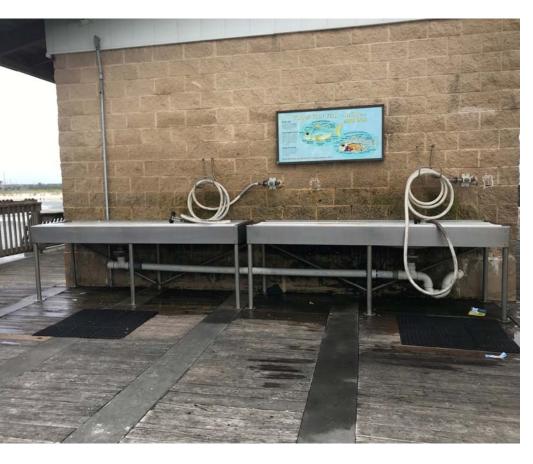


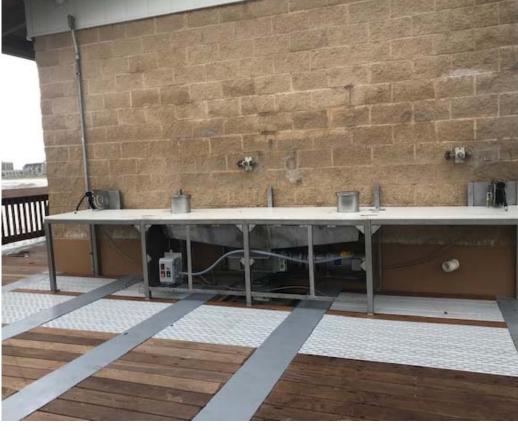
BEFORE AND AFTER ADA FISHING AREA





BEFORE AND AFTER FISHING CLEANING STATION





CLARUS FUSION SYSTEM

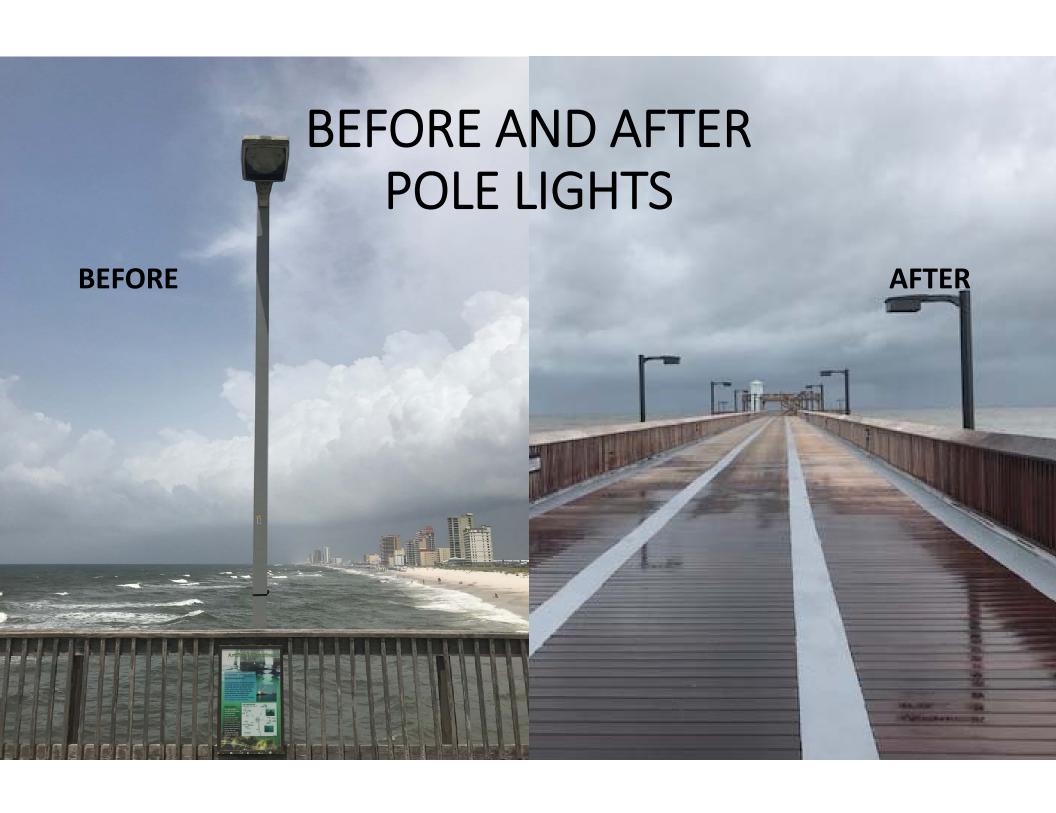
- Gulf Shores Utilities required the effluent discharged to be below 280 mg/BOD
- Due to the installation of the EcoTech Fish Cleaning Table with Grinder, onsite pretreatment was necessary
- Two 1,000 gallon septic tanks and one 800 gallon Clarus Fusion Pretreatment System were installed to remove BOD prior to discharge into the City sewer system



BEFORE AND AFTER RAIL LIGHTS









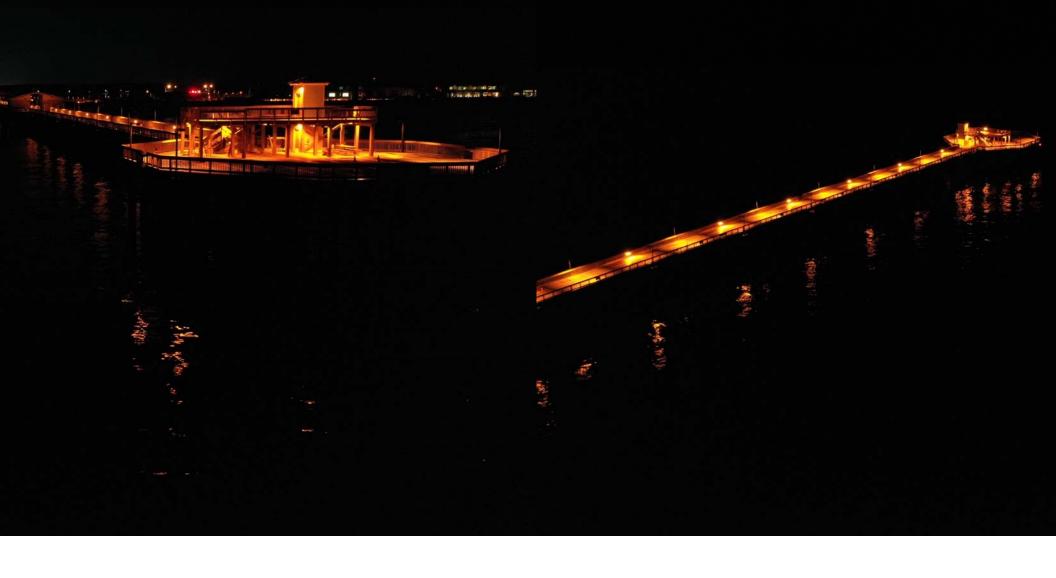
RENOVATION ELECTRICAL SCOPE

- The lighting on the project was to be upgraded one for one to gain the most impact to improve the lighting but within the allowed budget. The existing electrical conduit and wire was to be re-used.
- The new fixtures were to be Turtle Friendly Amber LED 560 nanometer wavelength or longer to comply with the Federal Fish and Wildlife requirements.

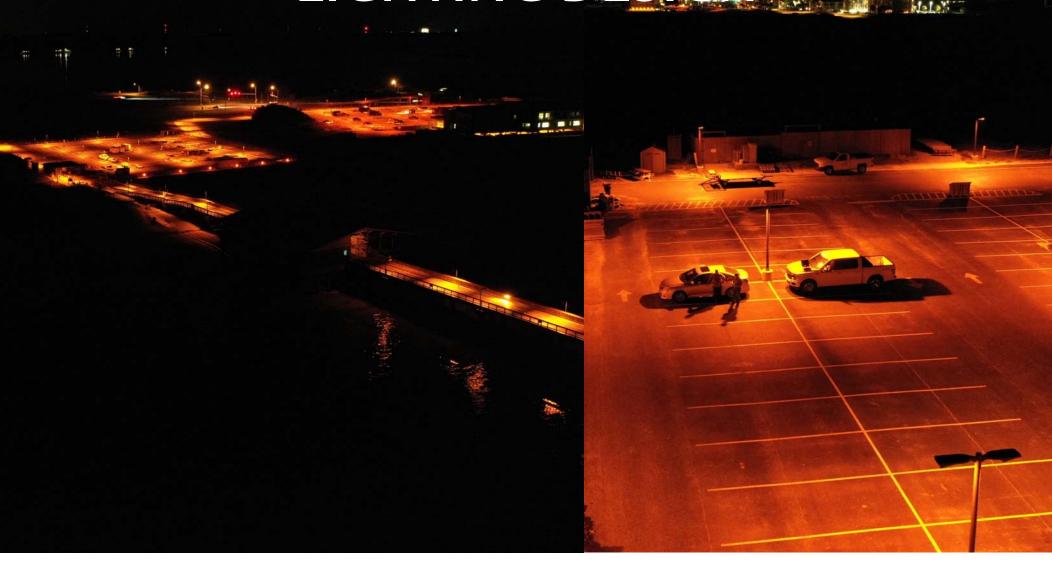
PROJECT CHALLENGES:

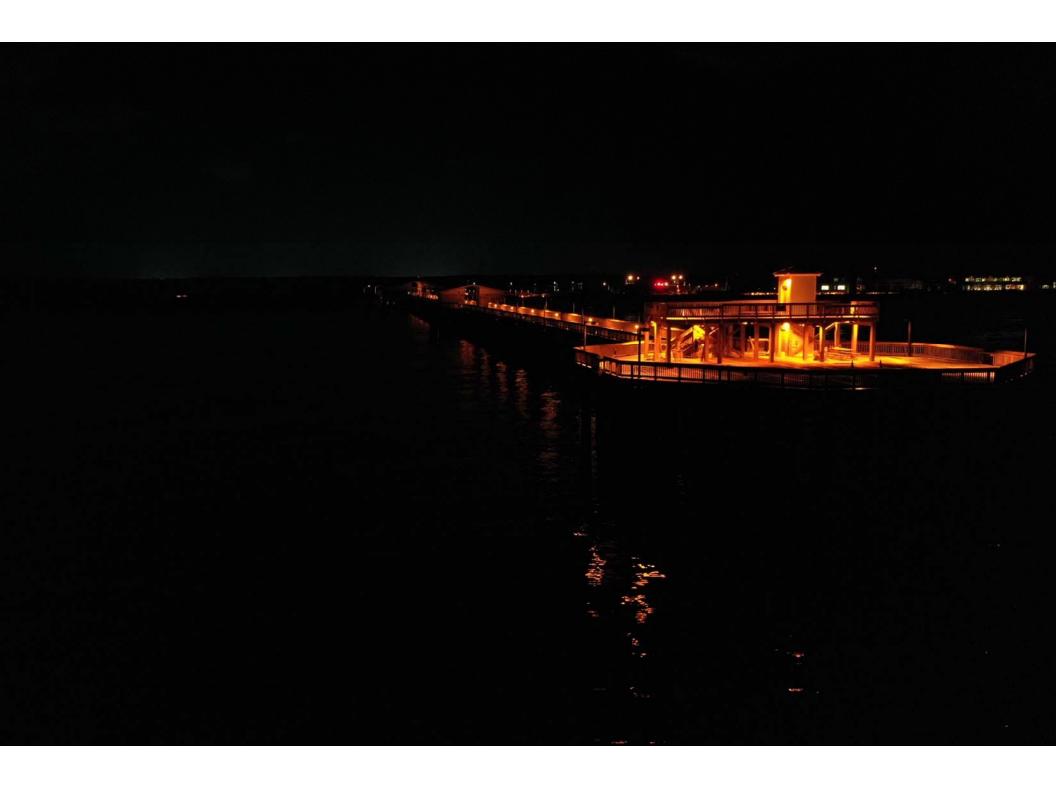
- Provide new lighting complying with Turtle Friendly regulations.
- Using the same locations rather than completely new lighting locations.
- Maintaining enough light to meet the Justice Department requirements for ADA – accommodating wheelchair travel to the end of the pier.
- The new fixtures had shields to minimize glare and prevent (as much as feasible) the source to be seen from the water.
- Poles were reduced from 25' to 12' to comply with Fish and Wildlife requirements.
- The bollards were provided with shields to prevent source to be seen from beachside.

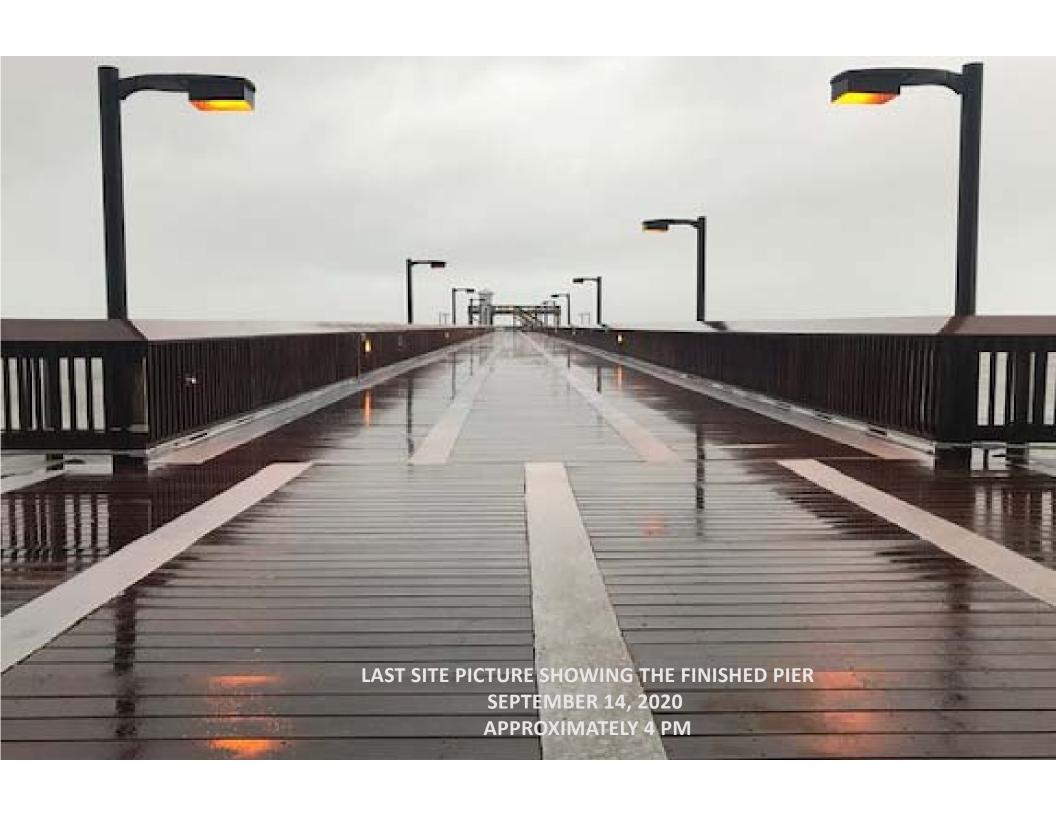
NEW TURTLE FRIENDLY LIGHTING DESIGN



NEW TURTLE FRIENDLY LIGHTING DESIGN









QUESTIONS?

