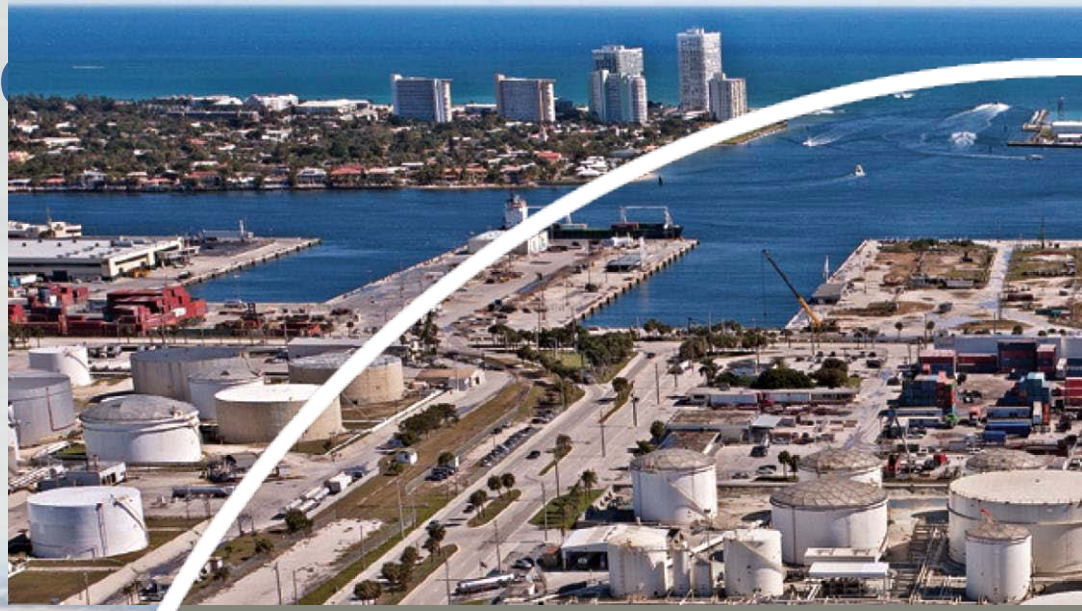
PORT EVERGLADES NAVIGATION IMPROVEMENT PROJECT

BROWARD COUNTY, FL

INDUSTRY DAY
AUGUST 21, 2018



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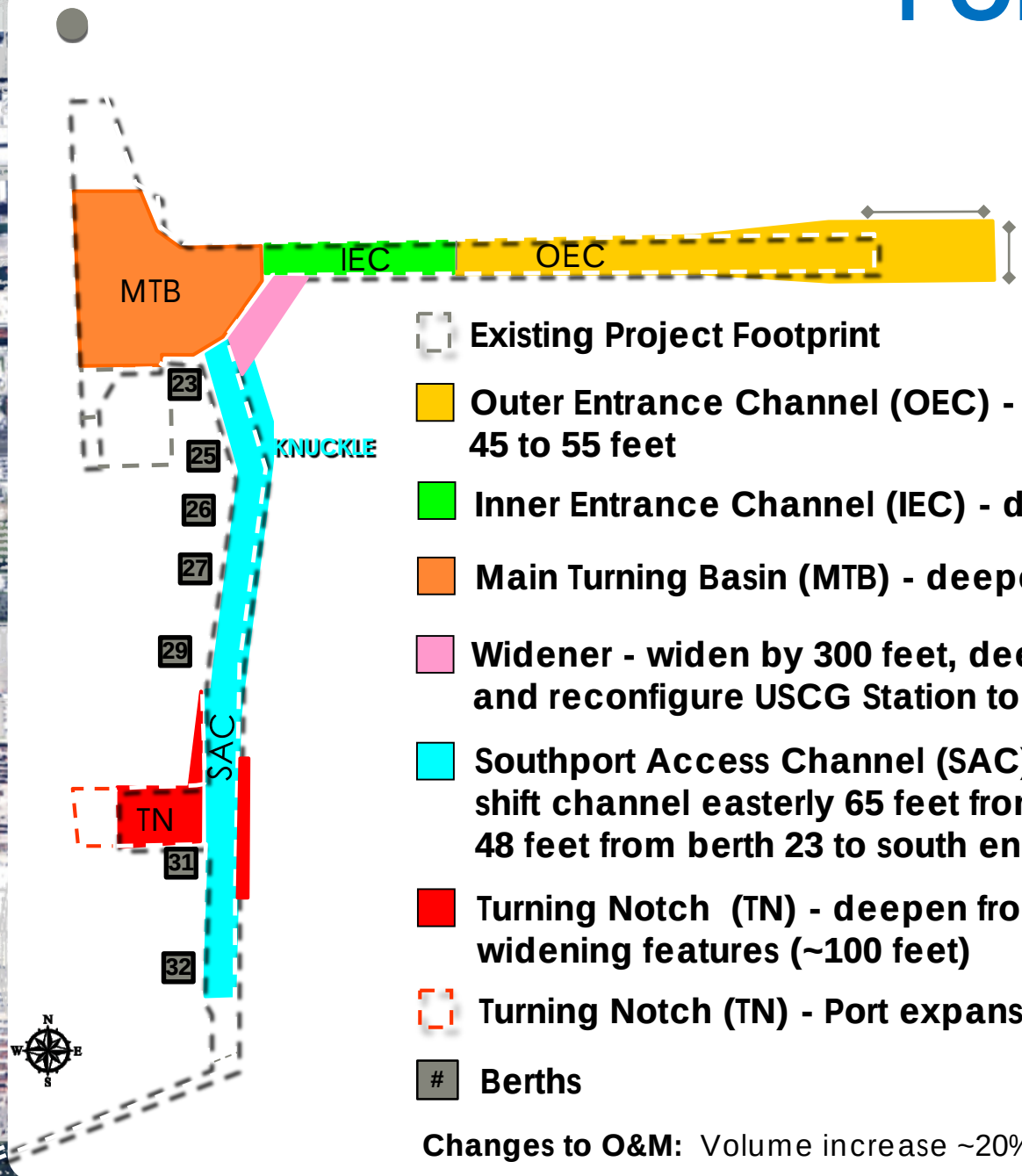
BROWARD COUNTY FLORIDA

PORT EVERGLADES



- Existing Project Footprint
- Outer Entrance Channel (OEC) - extend, widen, and deepen from 45 to 55 feet
- Inner Entrance Channel (IEC) - deepen from 42 to 48 feet
- Main Turning Basin (MTB) - deepen from 42 to 48 feet
- Widener - widen by 300 feet, deepen to 48 feet; and reconfigure USCG Station to the east
- Southport Access Channel (SAC) - widen by 250 feet at the knuckle; shift channel easterly 65 feet from berth 23 to 29; deepen from 42 to 48 feet from berth 23 to south end of 32
- Turning Notch (TN) - deepen from 42 to 48 feet plus minor widening features (~100 feet)
- Turning Notch (TN) - Port expansion plus USACE deepening to 48 feet
- # Berths

Changes to O&M: Volume increase ~20%: from existing ~21,000 cy to ~27,000 cy

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PORT EVERGLADES CONTRACTS

(Mostly) Upland Contracts

-US Coast Guard Station Ft. Lauderdale Reconfiguration (Advertise Fall 2019)

-34,000 SF 3-story bldg. vertical construction

-relocation of boat basin

-temporary housing services while construction underway

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PORT EVERGLADES CONTRACTS

Marine Dredging and Construction Contract(s)

-Advertise Fall 2019

~5MCY dredged from new Federal channel, placed in ODMDS

-7500 FT “environmentally friendly” bulkhead adjacent to Southport Access Channel (SAC) to allow flushing to mangroves

-Artificial reef construction /possible seagrass habitat creation

-Environmental monitoring

-Coral relocation

-5 year period of performance

Coral propagation

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GEOTECHNICAL INFORMATION

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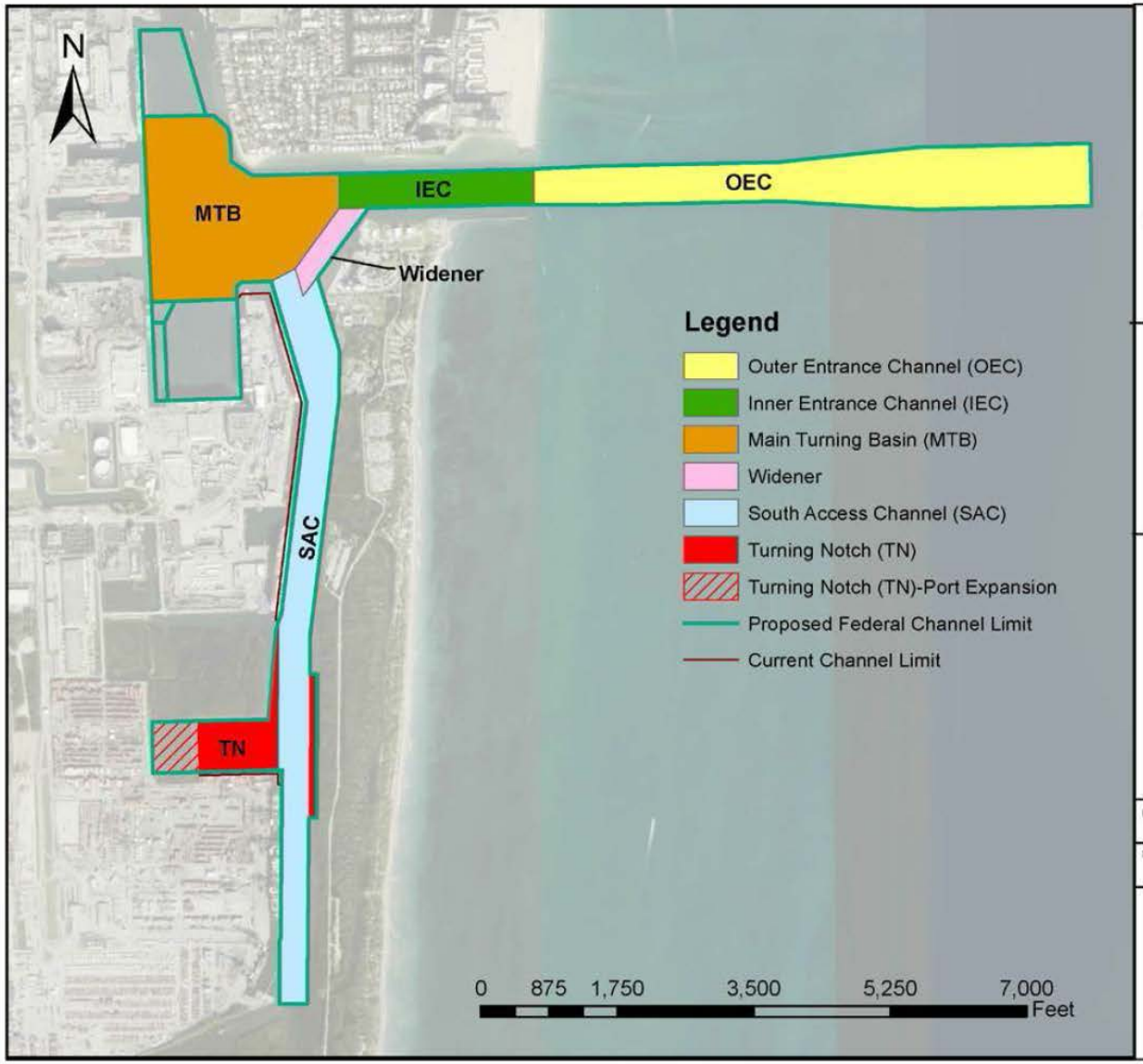

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GEOTECHNICAL DRAWINGS

NOT FOR CONSTRUCTION

PORT EVERGLADES HARBOR DEEPENING PROJECT

Project Segments/Areas

Dsn by: KRH	Ckd by: KRH
Dwn by: KRH	Dated: 31JUL18

FIGURE

1

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PORT EVERGLADES GEOTECHNICAL INFORMATION

Ninety two (92) core borings drilled 2016-2018.

Offshore (OEC and IEC) – Thin layer of fine sand (SP) overlying generally hard limestone and sandstone rock. This bedrock can generally be described as “hard” or “competent”. Dredge depth of -57 feet MLLW for OEC; -50 feet MLLW for IEC.

Inshore (MTB, Widener, SAC, and Turning Notch) – Surficial sediments are comprised primarily of silty sand (SM) and sandy silt (ML) overlying limestone and sandstone rock. Bedrock ranges from soft to very hard. The fines and less resistant rock are a concern for sediment generation during the dredging process. Dredge depth of -50 feet MLLW for all listed areas.

Unconfined Compressive Strength (UCS) values for rock within the dredge prism range from 124 to 5,503 psi.

UCS values for rock within the Environmentally Friendly Bulkhead (EFB) areas (adjacent to SAC) range from 173 to 7,764 psi.

Rock with UCS values up to 16,000 psi has been reported in the project area.

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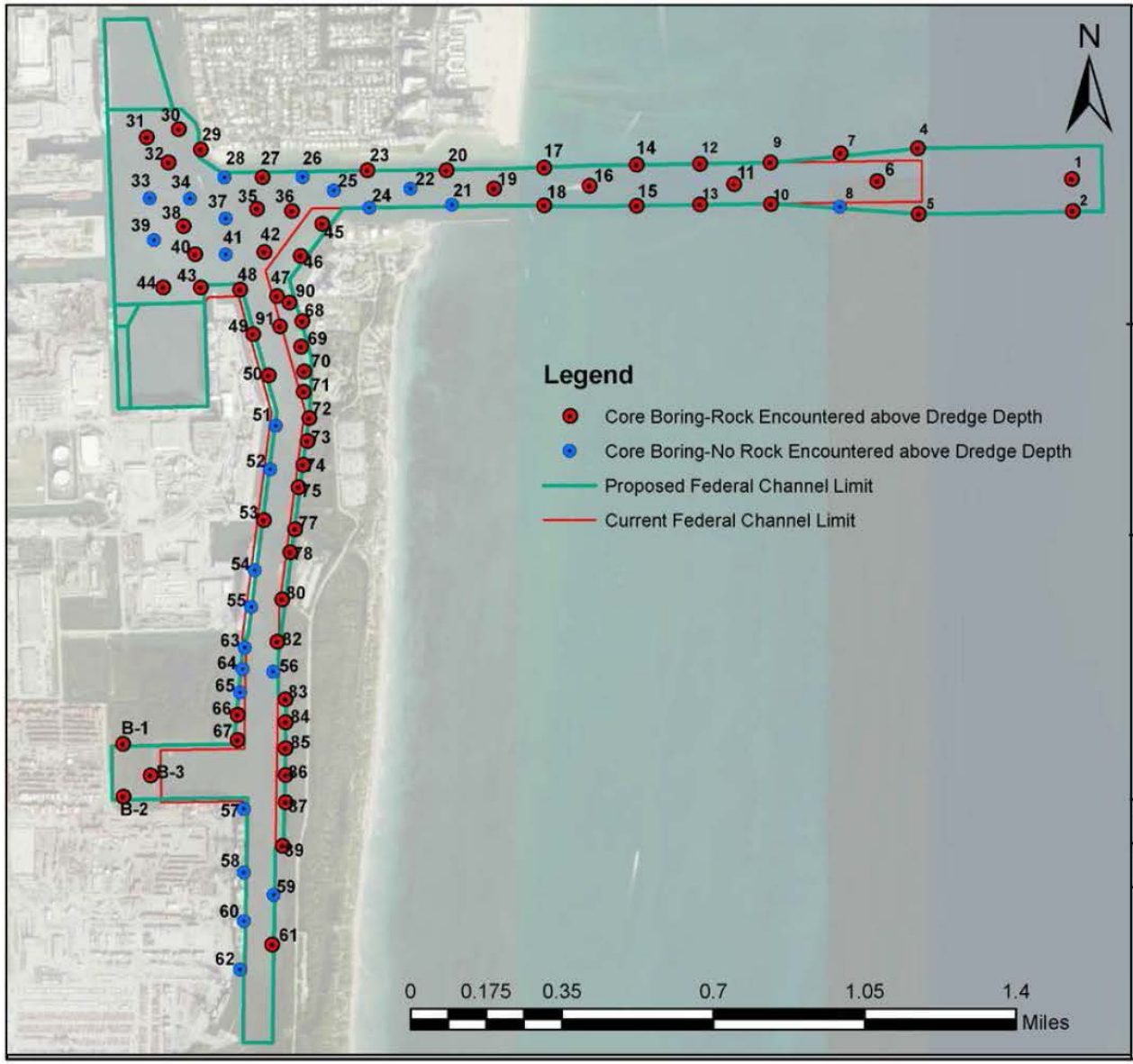

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GEOTECHNICAL DRAWINGS

NOT FOR CONSTRUCTION

PORT EVERGLADES HARBOR DEEPENING PROJECT

Core Boring Location Map

Dsn by: KRH	Ckd by: KRH
Dwn by: KRH	Dated: 31July18

FIGURE

2

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PORT EVERGLADES MINIMIZATION TECHNIQUES

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PORT EVERGLADES MINIMIZATION TECHNIQUES

Why are we doing this?

-Environmental operating principles dictate that construction actions must avoid and minimize impacts before mitigation is considered.
-Lessons learned from the Miami Harbor Deepening showed fines released from dredging rock and silts have an effect on benthic habitat.
-Sedimentation / turbidity cannot be controlled once it leaves the dredge and accurately measuring is difficult
-Best way to minimize sedimentation effects is to prevent the introduction of additional sediments into the system

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PORT EVERGLADES MINIMIZATION TECHNIQUES

Implementation

-Additional DRAFT specification language

-takes into consideration the type of material dredged, type of dredge equipment being used and the location of work

-define new operational parameters

-to be applied to deepening and widening contract only

-needs to be finalized to complete the permitting and environmental

-Need to understand the impact on the contractor's ability to feasibly complete the contract working under these restrictions

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PORT EVERGLADES MINIMIZATION TECHNIQUE #1

ISSUE: Introducing sedimentation during coral spawning season or when temperatures are high may contribute to stress to corals

MEASURE: Restrict Dredging in Entrance Channel During Coral Window—July-September (see following slide)

IMPLEMENTATION: Section 35 20 23; Section 1.4

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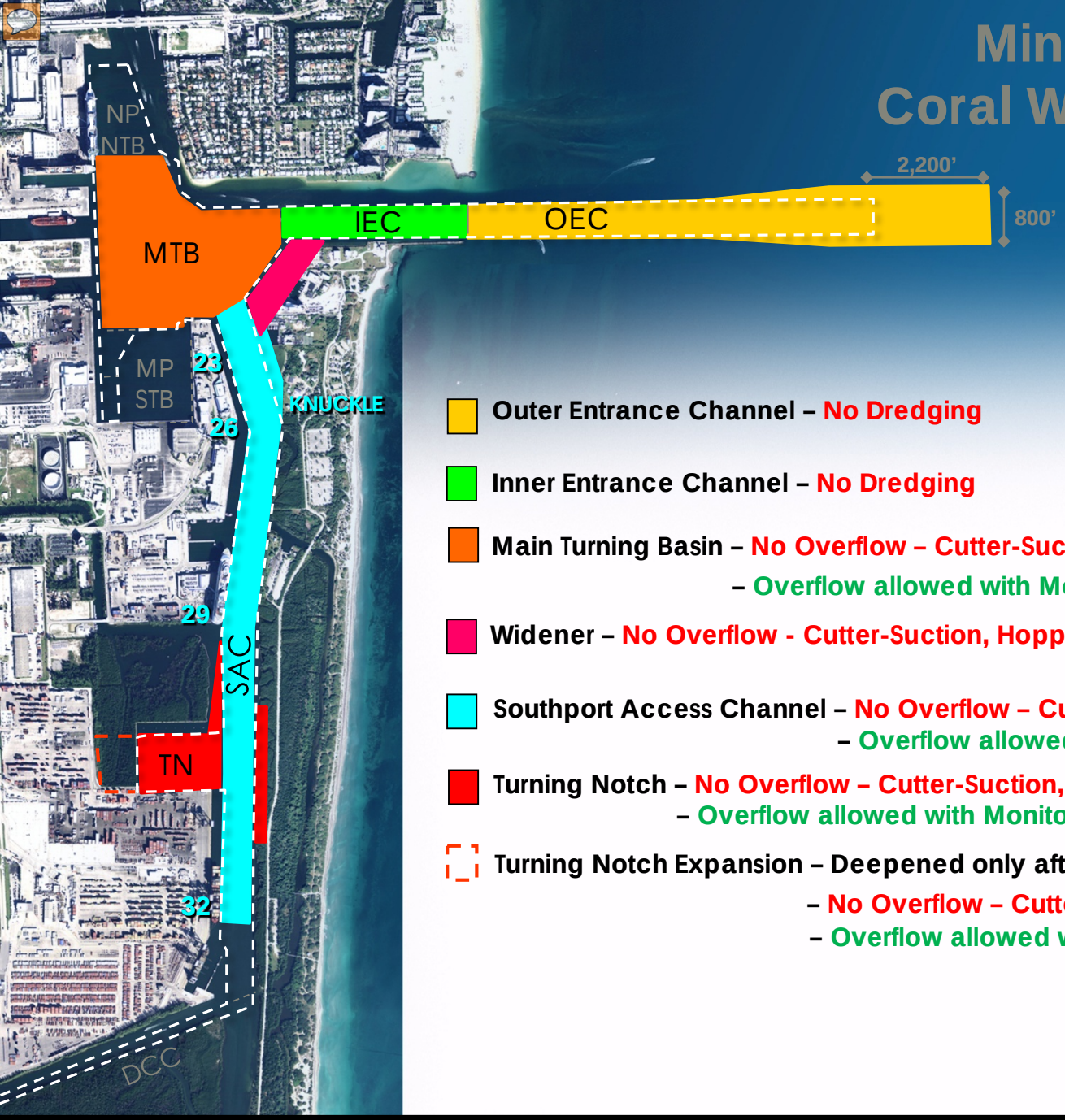
Minimization Measure
Coral Window Restrictions
July-September



- Outer Entrance Channel – No Dredging
- Inner Entrance Channel – No Dredging
- Main Turning Basin – No Overflow – Cutter-Suction, Hopper
  - Overflow allowed with Monitoring – Mechanical
- Widener – No Overflow - Cutter-Suction, Hopper and Mechanical
- Southport Access Channel – No Overflow – Cutter-Suction, Hopper
  - Overflow allowed with Monitoring – Mechanical
- Turning Notch – No Overflow – Cutter-Suction, Hopper
  - Overflow allowed with Monitoring – Mechanical
- Turning Notch Expansion – Deepened only after Port expansion
  - No Overflow – Cutter-Suction, Hopper
  - Overflow allowed with Monitoring – Mechanical

PORT EVERGLADES MINIMIZATION TECHNIQUE #2

ISSUE: Introduction/re-suspension of fine sediments into the system can settle out on adjacent sensitive benthic habitat. Limiting sediments escaping into the water column will reduce sedimentation.

MEASURE: Limit overflow of certain dredge methods in certain areas (see following slide)

IMPLEMENTATION: Section 35 20 23; Section 1.4

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Minimization Measure Overflow Allowance October-June

- Outer Entrance Channel – No Overflow - Cutter-Suction, Hopper and Mechanical
- Inner Entrance Channel – No Overflow – Cutter-Suction
  – Overflow allowed with Monitoring – Hopper,
  – Mechanical
- Main Turning Basin – No Overflow – Cutter-Suction, Hopper
  – Overflow allowed with Monitoring – Mechanical
- Widener – No Overflow - Cutter-Suction, Hopper and Mechanical
- Southport Access Channel – No Overflow – Cutter-Suction, Hopper
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- Turning Notch – No Overflow – Cutter-Suction, Hopper
  – Overflow allowed with Monitoring – Mechanical
- Turning Notch Expansion – Deepened only after Port expansion
  – No Overflow – Cutter-Suction, Hopper
  – Overflow allowed with Monitoring – Mechanical

PORT EVERGLADES MINIMIZATION TECHNIQUE #3

ISSUE: When suction is not engaged with a cutter suction dredge in an effort to pre-treat rock, the fine particle "rock flour" sediments are introduced in the system that can be detrimental to corals.

MEASURE: No "Rock Chopping" Allowed--SUCTION ONLY

rock chopping definition: operating the cutter-head without the suction function engaged

IMPLEMENTATION: Section 35 20 23; Section 1.4.7

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PORT EVERGLADES MINIMIZATION TECHNIQUE #4

ISSUE: Allowing anchoring outside of the channel will cause additional benthic impacts.

MEASURE: No anchoring outside of channel limits and spudding is only allowed in areas that a confirmed to have no benthic resources.

IMPLEMENTATION: Section 35 20 23; Section 1.4.1.e.&f.

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QUESTIONS AND COMMENTS?

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