

## **Attachment B - Specifications**

**RFx number: 300022858 Contract Title: Navigational Aid Contract for CPRA**

### **INSPECTIONS, DIAGNOSTIC TESTING, MAINTENANCE REPAIRS AND/OR REPLACEMENT OF NAVIGATIONAL AIDS AND DAYMARKS**

#### **1.0 Scope of Work**

The scope of work shall consist of quarterly inspections, diagnostic testing, maintenance repairs, and/or replacement of navigational aids for 156 existing navigational aid lights for 13 separate projects statewide. Each project also has daymarks and/or warning signs that may require replacement during the term of the contract. The Contractor shall furnish all replacement parts, transportation, equipment and personnel to perform inspections, diagnostic testing, complete repair and/or replacement of navigational aids, as directed by the Engineer.

#### **2.0 Cost Solicitation and Contract Term**

The Office of State Procurement (OSP), on behalf of the Coastal Protection and Restoration Authority (CPRA) is soliciting bids for the inspection, testing, maintenance, repair and/or replacement of 159 aids to navigation, daymark signs and warning signs as described in Section 4.0 of these specifications. The proposed contract shall be for a period of 1 year beginning with the date of award. At the option of the State of Louisiana, the contract may be extended for two additional 12 month periods. If the contract is extended, the unit prices established in the initial contract will remain unchanged. All quantities in the bid are estimated based on anticipated inspections and maintenance needs for 1 year.

#### **3.0 General Requirements**

- 3.1 The Contractor shall have a minimum of five years' experience in the business of servicing aids to navigation systems as their primary business with Original Equipment Manufacturer (OEM) trained employees.
- 3.2 The Contractor shall provide competent, qualified and trained personnel to perform the work. Service technicians shall have at least three years' experience in testing, diagnosing and repairing aids to navigations.
- 3.3 The Contractor shall have the capability of repairing or replacing existing navigational systems and signs within 24 hours of determining that a navigational aid is not functioning or of receiving notice or approval from CPRA.

- 3.4 The Contractor shall maintain navigation lights and signs in accordance with all applicable sections of the U.S. Coast Guard regulations regarding “Aids to Navigation”.
- 3.5 All equipment, products, and materials shall be new, of good quality, and installed in accordance with the manufacturer’s instructions. At the request of the CPRA project manager, the Contractor shall provide receipts of newly purchased parts along with submittal of invoices.
- 3.6 A non-mandatory pre-bid conference will be held at the location and on the date provided in the Bid Solicitation. Failure to attend the pre-bid will not null or void a vendor’s bid, but attendance is encouraged. A site visit will not be held and is not mandatory. Although the site visit is not mandatory, it is recommended that all prospective bidders visit the sites to evaluate field conditions and the necessary resources required to perform the work. All questions regarding the scope of work shall be in writing and emailed to the Office of State Purchasing (OSP) after the Pre-bid conference, but no later than the deadline to receive written inquiries, as listed in the Calendar of Events on page 2 of Attachment A – Special Terms and Conditions. Oral statements will not be binding or legally effective. OSP will post an addendum in response to all written questions arising at the Pre-Bid Conference. All prospective bidders may contact OSP for any additional information.
- 3.7 CPRA has been granted all of the temporary easements, servitudes, and right-of-way agreements from public and private landowners in order to perform the work. All work shall be performed from the water. Any damage to existing marsh as a result of the Contractor’s negligence shall be repaired at the Contractor’s expense.
- 3.8 The Contractor shall minimize all obstructions to navigation in compliance with pertinent U.S. Coast Guard regulations while conducting the work. The Contractor shall promptly move any floating marine vessel/equipment which blocks safe passage of other marine vessels.
- 3.9 To ensure the safety of the Contractor’s personnel, it is required that the contracting party provide a minimum of a two person (boat operator and service technician) crew during inspections, diagnostic testing and maintenance of navigational aids and daymark sign replacement.

#### 4.0 Project Locations and Description of Navigational Aids and Daymarks

##### 4.1 **Rockefeller Shoreline Stabilization Project (ME-0018)**

The Rockefeller Shoreline Stabilization (ME-0018) project is located along the Rockefeller Wildlife Refuge Gulf of Mexico shoreline in Cameron Parish, LA, starting at Joseph's Harbor Canal and extends westward approximately three miles. The rock breakwater is constructed of a rock riprap with a lightweight aggregate core above a bedding stone. The project is designed to reduce shoreline erosion along the Gulf of Mexico and to promote natural vegetative and accretion landward from over-washing of the structure. ***(See Exhibit A for Project Map, Daymarks and Sign Details)***. Permission to access the refuge shall be obtained from Mr. Trosclair by using the contact information below:

Rockefeller Refuge  
5476 Grand Chenier Hwy.  
Grand Chenier , La. 70643  
337-538-2276 phone  
337-491-2595 fax  
[ptrosclair@wlf.louisiana.gov](mailto:ptrosclair@wlf.louisiana.gov)

There are 18 navigational aid lights, two daymarks, and warning signs along the rock breakwater. The navigational aid lights and daymark signs are located west of the entrance to the Gulf of Mexico from Joseph's Harbor Canal.

***(See Exhibit A for Navigational Light locations and Exhibit N for Models)***

Navigational Aid Lights *(See Section 9.0 for specifications)*

13 – SC-35/W Pharos Marine Automatic Power System

5 – SL-15/W Sealite Navigation System

Daymark Signs/Warning Signs *(See Sections 7.0 and 8.0 for specifications)*

2 – Daymark Signs (Type A)

12 - Warning Signs (Type 2)

##### 4.2 **Naomi Outfall BA-0003c (Goose Bayou)**

The Naomi Outfall Management (BA-0003c) project was constructed to re-introduce freshwater from the Mississippi River into adjacent marshes through a set of eight siphons and is located within the Barataria Basin in Jefferson and Plaquemines Parishes, La. The project is bounded by the Barataria Waterway (BBW) and the town of Lafitte to the west, the Mississippi River back protection levee and the community of Naomi to the east, and extends to the south of the Pen and includes the Dupre Cut portion of the BBW ***(See Exhibit B for Project Map, Daymarks and Sign Details)***. The project consists of two fixed crest rock weirs

with boat bays, across Goose Bayou and Bayou Dupont Canal and are only accessible by boat. **The Bayou Dupont Canal Structure is not part of this scope of work and does not require maintenance.** The nearest boat launch facilities for accessing both structures are the Jean Lafitte Harbor and located along the Barataria Waterway in Lafitte, LA. .

***(See Exhibit B for Navigational Light locations and Exhibit N for Models)***

### **Goose Bayou**

The Goose Bayou structure is equipped with five navigational aid lights, daymark signs, and warning signs mounted on separate timber cluster and single piles. Below are navigational lights and signage that will require maintenance:

Navigational Aid Lights *(See Section 9.0 for specifications)*

- 1 – FA-249/G Pharos Marine Automatic Power System
- 2 – FA-249/R Pharos Marine Automatic Power System
- 1 – SC-35/G Pharos Marine Automatic Power System
- 1 – SC-35/R Pharos Marine Automatic Power System

Daymark Signs/Warning Signs *(See Sections 7.0 and 8.0 for specifications)*

- 4 – Daymark Signs (Type B)
- 10 - Warning Signs (Type 1)
- 4 – Directional Signs (Type 4)

### **4.3 Fort Livingston (BA-0005)**

Fort Livingston is accessible by boat only, and is located in Jefferson Parish on the western-most end of West Grand Terre Island in Barataria Pass. The heavy stone structure was built around Fort Livingston to protect it from erosion and its total length is 1,500 linear feet. **(See Exhibit C for Project Map and Sign Details)**

Fort Livingston is equipped with two navigational aid lights, daymark signs and warning signs mounted on separate timber cluster and single piles. Below are navigational lights and signage that will require maintenance:

***(See Exhibit C for Navigational Light locations and Exhibit N for Models)***

Navigational Aid Lights *(See Section 9.0 for specifications)*

- 2 – FA-249/W Pharos Marine Automatic Power System

Warning Signs/Daymark Signs *(See Sections 7.0 and 8.0 for specifications)*

- 4 – Daymark Signs (Type C)
- 3 – Warning Signs (Type 3)

#### 4.4 Oaks/Avery Canal (TV-0013b)

The Oaks/Avery Structures (TV-0013b) project consists of a low sill rock weir with navigational lights and signs, constructed at the mouth of the Avery Canal at its convergence with Vermilion Bay (**See Exhibit D for Project Map, Daymarks and Sign Details**). The structural component was originally part of the TV-13a CWPPRA project but was removed and constructed independently.

The Avery Canal Structure is located in Iberia Parish almost due south of Avery Island, La. and is only accessible by boat. The nearest boat launch is Don's Boat Landing located at 5515 West LA Highway 688, Erath, LA 70533. The structure is equipped with two navigational aid lights, daymark signs, and warning signs supported by timber pile clusters. Below are navigational lights and signage that will require maintenance:

Navigational Aid Lights (See Section 9.0 for specifications)

- 1 – FA-249/R Pharos Marine Automatic Power System
- 1 – SL-60 Sealite Navigation System

***(See Exhibit D for Navigational Light locations and Exhibit N for Models)***

Warning Signs/Daymark Signs (See Sections 7.0 and 8.0 for specifications)

- 4 – Daymark Signs (Type 5)
- 3 - Warning Signs (Type 2)
- 1 - Warning Sign (6' x 8' "CAUTION – STAY TO CENTER OF CHANNEL")

#### 4.5 MRGO Closure Structure (PO-0038)

The Mississippi River Gulf Outlet (MRGO) channel is located southeast of New Orleans in Orleans and St. Bernard Parishes. The MRGO Closure Structure is accessible only by water via the MRGO. The site is located near the 36 mile marker of the channel, southeast of Bayou La Loutre (**See Exhibit E for Project Map, Daymarks and Sign Details**). Due to the construction of the IHNC Surge Barrier, the only access to the MRGO from the north is through Lake Borgne. Navigation access to the MRGO from the south is through the Baptiste Collette alternate route via Breton Sound to the MRGO. The MRGO Closure structure is equipped with seven navigational aid lights mounted on timber piles and concrete piles, including warning signs. Below are navigational lights and signage that will require maintenance:

***(See Exhibit E for Navigational Light locations and Exhibit N for Models)***

Navigational Aid Lights (See Section 9.0 for specifications)

- 7 – SC-35-W Pharos Marine Automatic Power System

Daymark Signs/Warning Signs (See Sections 7.0 and 8.0 for specifications)

There are no daymark signs at this location. There are Type 1 warning signs at this location that will require replacement as needed and requested by CPRA. Warning signs read: “DANGER WATERWAY CLOSED AHEAD” and “DANGER ROCKS”.

**4.6 Quintana Canal and Cypremort Point (TV-0072)**

Quintana Canal and Cypremort Point are located in the Teche/Vermilion Basin on the southern bank of Quintana Canal in St. Mary Parish near the community of Cypremort Point (**See Exhibit F for Project Map, Daymarks and Sign Details**). The nearest boat launch is located on LA Hwy 319 in St. Mary Parish at the entrance to Cypremort State Park.

The Quintana Canal and Cypremort Point project has a total of five navigational aid lights located at the coordinates below:

Marker A	29 deg 43' 31.1999" N	91 deg 51' 44.4453" W
Marker B	29 deg 43' 40.7478" N	91 deg 51' 32.1088" W
Marker C	29 deg 43' 50.2007" N	91 deg 51' 18.0133" W
Marker D	29 deg 43' 52.2469" N	91 deg 51' 18.6962" W
Marker E	29 deg 43' 59.6341" N	91 deg 51' 15.2899" W

The Quintana/Cypremort Point project has five navigational aid lights mounted on timber piles. Below are navigational lights and signage that will require maintenance:

***(See Exhibit F for Navigational Light locations and Exhibit N for Models)***

Navigational Aid Lights (See Section 9.0 for specifications)

5 – SC-35 Pharos Marine Automatic Power System

Warning Signs (See Sections 7.0 and 8.0 for specifications)

There are Type 3 warning signs at this location. Warning signs read: “DANGER BREAKWATER”.

**4.7 Biloxi Marsh Shoreline Protection Project (PO-0072)**

The Biloxi Marsh Shoreline Protection (PO-0072) Project is intended to stabilize up to seven miles of shoreline along Lake Borgne from Jahncke’s Ditch to Bayou Grande through the installation of a rock breakwater with lightweight aggregate core. (**See Exhibit G for Project Map and Sign Details**) The project is also intended to help maintain the marsh as a protective barrier to the City of New Orleans and

surrounding area against surge and waves during tropical events. The nearest boat launch is Blackie Campo or the Breton Sound Marina.

The Biloxi Marsh Shoreline Protection project has 28 navigational aid lights mounted to timber warning signs along the shoreline adjacent to the rock breakwaters. Below are navigational lights and signage that will require maintenance:

***(See Exhibit G for Navigational Light locations and Exhibit N for Models)***

Navigational Aid Lights *(See Section 9.0 for specifications)*

28 – FA-249 Pharos Marine Automatic Power System

Warning Signs *(See Sections 7.0 and 8.0 for specifications)*

There are warning signs attached to each navigational aid support structure that may require replacement as part of this contract. The warning signs are Type 2 as described in Section 8.0 of the specifications.

#### **4.8 GIWW Critical Area Restoration – Segment 4 (TE-0043)**

The GIWW Bank Restoration (TE-0043) project is located in Terrebonne Parish along the south bank of the Gulf Intracoastal Waterway (GIWW) approximately 10 miles east of the Lower Atchafalaya River and approximately 10 miles from Houma, La. **(See Exhibit H for Project Map and Sign Details)**. The project consists of a rock dike with a lightweight aggregate core and extends approximately 5,800 feet along the southern shoreline of the GIWW. The project is intended to slow the erosion of the existing marsh. The nearest boat launch for access to the site is Bob's Bayou Black Marina along Hwy 182 between Houma, La. and Chacahoula, La.

The rock dike is equipped with three navigational aid lights mounted on single timber piles. Below are navigational lights and signage that will require maintenance:

***(See Exhibit H for Navigational Light locations and Exhibit N for Models)***

Navigational Aid Lights *(See Section 9.0 for specifications)*

3 – FA-249/W Pharos Marine Automatic Power System

Warning Signs *(See Sections 7.0 and 8.0 for specifications)*

There are existing warning signs along the rock dike within the project area that will require replacement as needed and requested by CPRA. There is one type of warning sign within the limits of the project area: Type 1.

#### **4.9 Living Shoreline Demonstration Project (PO-0148)**

The Living Shoreline Demonstration Project (PO-0148) – is a demonstration project located along the shoreline of Bay Eoli in St. Bernard Parish and is exposed to the Chandeleur and Breton Sounds. **(See Exhibit I for Project Map and Sign Details)** The project consists of four different types of products (Shorejax, OysterBreaks, Wave Attenuating Devices (WADs), and Reef Balls) to provide shoreline protection and stimulate oyster growth.

A total of 53 navigational aid lights and structures were installed along the shoreline to notify boaters of shoreline structures. Below are navigational lights and signage that will require maintenance:

***(See Exhibit I for Navigational Light locations and Exhibit N for Models)***

Navigational Aid Lights *(See Section 9.0 for specifications)*

46 – SC-35/W- Pharos Marine Automatic Power System

7 - MLED-120/W Solachan Tideland Signal Navigational System

Warning Signs *(See Sections 7.0 and 8.0 for specifications)*

There are existing warning signs along the shoreline treatments within the project area that will require replacement as needed and requested by CPRA. There is one type of warning sign within the limits of the project area: Type 2.

#### **4.10 Barataria Landbridge Shoreline Protection CU#7 (BA-0027c)**

The Barataria Land Bridge Shoreline Protection (BA-0027c) Project is located 14 miles south of the town of Lafitte in Jefferson and Lafourche Parishes, Louisiana. The project consists of a rock revetment along the west bank of Bayou Perot and north bank of Little Lake.

Construction Unit No. 7 & 8 of the Barataria Land Bridge Shoreline Protection project is the only construction unit with navigational aid lights along the shoreline. Construction Unit No. 7 & 8 contains approximately 22 navigational aid lights along the west bank of Bayou Perot and north bank of Little Lake **(See Exhibit J for Project Map and Sign Details)**. Below are navigational lights and signage that will require maintenance:

***(See Exhibit J for Navigation Light locations and Exhibit N for Models)***

Navigational Aid Lights *(See Section 9.0 for specifications)*

22 – SC-35-W Pharos Marine Automatic Power System



Warning Signs (See Sections 7.0 and 8.0 for specifications)

There are existing warning signs along the shoreline of Construction Units No. 7 & 8 that may require replacement at some point during the duration of the contract. There is one type of warning sign within the limits of the project area: Type 2.

#### **4.11 Queen Bess Island Restoration Project (BA-0202)**

The Queen Bess (BA-0202) project is located in Jefferson Parish in the Barataria Basin, approximately three miles north/northeast of Grand Isle, Louisiana (**See Exhibit K for Project Map and Sign Details**). The purpose of the project was to restore suitable colonial waterbird nesting and brood rearing habitat on the island from its current size of less than five acres to approximately 36 acres.

The rock breakwaters along the south side of the Queen Bess Island project have navigational aid lights mounted to the top of timber pilings with attached warning signs. Below are navigational lights and signage that will require maintenance:

***(See Exhibit K for Navigation Light locations and Exhibit N for Models)***

Navigational Aid Lights (See Section 9.0 for specifications)

8 – SC-35/W- Pharos Marine Automatic Power System

Warning Signs (See Sections 7.0 and 8.0 for specifications)

There are existing warning signs along the existing offshore and island breakwaters within the project area that will require replacement as needed and requested by CPRA. There is one type of warning sign within the limits of the project area: Type 1.

#### **4.12 West Grand Terre Beach and Island Restoration (BA-0197)**

The West Grand Terre Beach and Island Restoration Project is located northeast of Grand Isle, La., near the mouth of Barataria Bay in Jefferson Parish, La., and extends approximately 4.3 miles from the Barataria Pass to Pass Abel (**See Exhibit L for Project Map and Sign Details**).

The navigational aids on the West Grand Terre are located on the front side of the island on the rock spur and along the rock breakwaters on the north side of the island. Below are navigational lights and signage that will require maintenance:

***(See Exhibit L for Navigational Light locations and Exhibit N for Models)***

Navigational Aid Lights (See Section 9.0 for specifications)

4 – SC-35/W- Pharos Marine Automatic Power System

Warning Signs (See Sections 7.0 and 8.0 for specifications)

There are existing warning signs along the existing offshore and island breakwaters within the project area that will require replacement as needed and requested by CPRA. There is one type of warning sign within the limits of the project area: Type 1.

**4.13 Cameron-Creole Freshwater Introduction (CS-0049)**

The Cameron-Creole Freshwater Introduction project is located near the eastern boundary of the Calcasieu-Sabine basin and is situated along the northeastern perimeter of the Cameron-Creole Watershed Unit on the Gulf Intracoastal Waterway (GIWW) just west of the Gibbstown Bridge at La. Hwy 27, and is in open water south of the GIWW. The intent of the project is to restore the function and sustainability of the Cameron-Creole Watershed by introducing fresh water from the GIWW into the marshes. **(See Exhibit M for Project Map and Sign Details).**

***(See Exhibit M for Navigational Light locations and Exhibit N for Models)***

Navigational Aid Lights (See Section 9.0 for specifications)

2 – SC-35/W- Pharos Marine Automatic Power System

Warning Signs (See Sections 7.0 and 8.0 for specifications)

There are existing warning signs on the GIWW side of the Water Control Structure that will require replacement as requested by CPRA. There is one type of warning sign within the limits of the project area: Type 2.

**5.0 Quarterly Inspections and Diagnostic Testing**

- 5.1 The Contractor shall be required to perform quarterly inspections (four times a year; January, April, July and October) of all navigational aids and daymark signs at locations outlined in Section 4.0. The Contractor shall provide personnel, transportation and equipment necessary to complete inspections and diagnostic testing of the electrical components of the navigational aids systems (battery, solar panel, photocell, lamp changers and bulbs/lamps, etc.) to confirm that the navigational aids are in good working condition. A visual inspection of all navigational aid signs/daymark signs and the timber support sub-structure (timber dolphin) will also be required to determine their condition.
- 5.2 Compensation for inspection, diagnostic testing and repairs shall be made once per quarter unless otherwise directed by CPRA. Additional trips resulting from the inability of the Contractor to secure parts, provide reliable transportation, lack of planning, etc. will be at the Contractor's expense.

- 5.3 During quarterly inspections, care shall be taken to minimize maintenance due to neglect or improper inspection procedures.
- 5.4 Prior to quarterly inspections, the Contractor shall notify the CPRA project manager or designated personnel and provide a tentative inspection schedule for approval by CPRA.
- 5.5 In the case of unplanned events (tropical storms, hurricanes, reports of inoperable navigational aids, etc.), the Contractor may be instructed by CPRA to perform unscheduled inspections and maintenance repairs for navigational aids systems, daymark signs and warning sign replacement. The Contractor will not be responsible for any structural failure (timber pile cluster) or damage resulting from adverse weather conditions. The Contractor shall be reimbursed for equipment, personnel and transportation under the contract rate of scheduled quarterly inspections. Required parts for repairs shall be made at the contract rates established in the schedule of contract bid items.

## **6.0 Navigational Aid Maintenance and Replacement**

- 6.1 The Contractor shall provide all replacement parts, tools, equipment, transportation and personnel necessary to complete the repair and/or replacement of navigational aids, daymark signs and warning signs which are determined to be non-functional as a result of the Contractor's inspections or at the direction of CPRA. No additional compensation shall be made for additional site trips resulting from the Contractor's inability to acquire needed equipment or parts.
- 6.2 The Contractor shall be responsible for responding to any and all reported navigational aid outages within 24 hours. Should weather conditions prevent the Contractor from responding to reported outages in the allowed time, the Contractor shall provide CPRA a written explanation of the reason they were unresponsive to the reported outage.
- 6.3 Upon completion of navigational aid repairs and replacement, the Contractor shall provide a report to CPRA. The contents of the report are outlined in Section 10.0 of these specifications.
- 6.4 In some cases, it may be determined that the navigational system needs replacement in lieu of maintenance repairs to the existing system. All replacements shall include cost for delivery and installation. Prior to total replacement of navigational aids with a model other than the existing model, the

Contractor shall outline damaged parts and provide written reasons for replacement of the model, and obtain prior approval before replacing navigational lights from CPRA.

## **7.0 Daymark Signs**

- 7.1 All daymark signs shall abide by U.S. Coast Guard regulations.
- 7.2 Signs shall be secured to timber piles with 3- 5/8" x 8" stainless steel lag screws with 1-1/4" O.D. stainless steel washers.
- 7.3 Daymark signs shall be installed on the existing timber piles at the same location and elevation of existing signs. Port side daymark signs are 3.0' square shape and starboard side daymark signs are 4.0' triangle shape.
- 7.4 All daymark signs shall be in concurrence with U.S. Coast Guard regulations. All daymark signs shall be constructed from a grade 6061-T6 aluminum. All lag screws and washers shall comply with ASTM Type 316 S.S. Neoprene washers shall be installed between all aluminum signs and steel angles.

### **7.5 Daymark Signs**

Type "A" – Starboard Side Daymark Signs (4.0' x 4.0' Triangle) – The border shall be a 2" retro-reflective material of red color. The area inside the borders shall be a retro-reflective material of white color. The numbers shall be centered on the sign and shall be 12" retro-reflective black.

Port Side Daymark Signs (3.0' x 3.0' Square) - The border shall be a 2" retro-reflective material of green color. The area inside the border shall be a retro-reflective material of white color. The numbers shall be centered on the sign and shall be 12" retro-reflective black.

Type "B" – Starboard Daymark Signs (4.0' x 4.0' Triangle) – The border shall be a 2" retro-reflective material of dark red color. The area inside the borders shall be a retro-reflective material of light red color. The numbers shall be centered on the sign and shall be 18" retro-reflective dark red.

Port Side Daymark Signs (3.0' x 3.0' Square) - The border shall be a 2" retro-reflective material of dark green color. The area inside the border shall be a retro-reflective material of light green color. The numbers shall be centered on the sign and shall be 18" retro-reflective dark green.

Type "C" – Daymark Signs shall be installed on the existing timber piles at the same location and elevation of existing signs. Daymark signs shall be 4.0' triangle shape. The border shall be a 2" retro-reflective material of orange color. The area inside the borders shall be a retro-reflective material of light red color.

## **8.0 Warning Signs**

- 8.1 All warning signs shall abide by U.S. Coast Guard regulations.
- 8.2 Warning signs shall be installed on the existing timber piles at the same location and elevation of existing warning signs. The Contractor will not be required to replace any timber sign support structures. The Contractor will be required, at the request of the owner, to replace warning signs within the project area. CPRA shall provide location of signs to be replaced.
- 8.3 A map showing the overall project area can be found in the Exhibits attached to this solicitation. The Contractor shall be required to travel to any location within the limits of the project as requested by CPRA. As-built drawings of sign details are shown in the Exhibits attached to this solicitation.
- 8.4 Payment for warning signs shall be per each as shown in the bid items. Bid items for signs shall include the sign, all bolts, washers, and other hardware necessary to secure the warning signs to the existing structure. Should CPRA request that the sign replacements be performed outside of the scheduled quarterly inspections, payment for transportation, personnel, equipment and other incidental work items will be paid at the lump sum rate as outlined in the schedule of bid items.
- 8.5 All warning signs shall be constructed in accordance with details provided in the solicitation attachments and exhibits. Neoprene washers shall be installed between all aluminum signs and steel angles.

## 8.6 Sign Types

- Type 1      Size: 4.0' x 4.0' Warning Sign  
Construction: 3/16 Plate 606 Aluminum  
Color: Lettering Field – Retro-reflective (White)  
Border – 2" Retro-reflective (Orange)  
Lettering – Black Letters  
Reads: "DANGER–OBSTRUCTION–PROCEED WITH CAUTION"  
"DANGER–OBSTRUCTION–DO NOT PROCEED"  
"DANGER–ROCK WEIR"
- Type 2      Size: 3.0' x 3.0' Warning Sign  
Construction: 3/16 Plate 606 Aluminum  
Color: Lettering Field – Retro-reflective (White Field)  
Border – 2" Retro-reflective (Orange)  
Lettering – Black Letters  
Reads: "DANGER–DO NOT PROCEED"  
"DANGER-ROCK SILL"  
"DANGER-BREAKWATER"  
"DANGER-OBSTRUCTION"  
"DANGER – ROCK"
- Type 3      Size: 2.0' x 2.0' Warning Sign  
Construction: 3/16 Plate 606 Aluminum  
Color: Lettering Field – Retro-reflective (White Field)  
Border – 2" Retro-reflective (Orange)  
Lettering – Black Letters  
Reads: "DANGER-ROCK-NO TRESPASSING"
- Type 4      Size: 18" x 36" Directional Sign  
Construction: 3/16 Plate 606 Aluminum  
Color: Lettering Field – Retro-reflective (White Field)  
Border – 2" Retro-reflective (Orange)  
Lettering – Black Letters
- Type 5      Size: 9" x 18" Directional Sign  
Construction: 3/16 Plate 606 Aluminum  
Color: Lettering Field – Retro-reflective (White Field)  
Border – 2" Retro-reflective (Orange)  
Lettering – Black Letters

## 9.0 **Navigation Aid Equipment Specifications**

### **Pharos Marine Automatic Power Solar Power Class C Zone with FA-249 Lanterns – (See Exhibit N for Data Sheet)**

The Automatic Power, Inc. model FA—249 with Single Lift Assembly – Solar Powered Class C Zone lanterns, acrylic lens, 1x4 LED Flashes, internal and external photocells and Class C Zone Aluminum Light Stand w/ Battery Box.

The Pharos Marine Automatic Power navigational aids system is Model SC-35, Self-Contained LED Marine Lantern (3 – 6.3 NM at 0.77 T/ 3.5 – 7.8 NM at 0.85T), high intensity, energy efficient fan beam LED, weather resistant, high impact resistant polycarbonate materials, solar powered, and integrated bird deterrent.

### **Sealite Model SL60 (See Exhibit N for Data Sheet)**

The Sealite Navigational Aids system is model SL60 (2-3nm+ Solar Marine Lantern), with six ultra-high intensity LEDs, Lens and base moulded from UV-stabilized LEXAN polycarbonate, LED lens and Sealite’s 360 degree Omnidirectional LED reflector and Bird deterrent spike.

### **Tideland MLED 120 (See Exhibit N for Data Sheet)**

The Tideland Signal navigation system is model no. MLED-120 Solachan with DA-65M LED Diode Array, 4 tier (White), high intensity light, OMNIBUS flasher for visible range in excess of 6.4 nautical miles, sunswitch, 12 V solar system connected to 12V, 105 A.H. rechargeable maintenance free battery.

## 10.0 **Contract Deliverables**

- 10.1 Inspections: Within five days following quarterly inspections, the Contractor shall submit an inspection report including the project locations, date and time of inspections, weather conditions, pile identification numbers of each light inspected, name of technician performing inspections, summary of diagnostic testing performed and results, before and after photos of nav-aids/daymark/warning signs, conditions of navigational aids, signage and timber substructure, list of parts requiring repairs, maintenance work completed and any other pertinent information related to the work. The Contractor shall submit a sample report to CPRA for approval prior to beginning work.
- 10.2 Final acceptance shall be granted once it is determined by CPRA that all navigational aids, daymarks and warning signs are satisfactorily repaired or replaced and are in working order. In order to process payment, the Contractor shall include in their invoice a detailed list of replacement parts required for navigational aid maintenance, warning and daymark sign replacement.