



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J.R. "JOEY" HOPKINS
SECRETARY

December 12, 2023

Addendum No. 01

Contract No.: DA00596

WBS Element: 16.401

M/V Frisco Credit Dry Dock (CDD)

To Whom it May Concern:

Reference is made to the proposal and plans previously furnished for this project.

The following revisions have been made to the proposal and plans:

Page 6, "Interested Parties List:" special provision has been removed from this proposal. The Interested Parties List requirement is covered in the January 2024 Standard Specifications for Roads and Structures. Please replace the original Page 6, "Interested Parties List" special provision with the attached revised Page 6, "Interested Parties List".

Page 42, "U.S. Coast Guard Inspections" has been revised to clarify U.S. Coast Guard Inspections are only applicable to "affected" work. Please replace the original Page 42, "U.S. Coast Guard Inspections" with the attached revised Page 42, "U.S. Coast Guard Inspections".

Page 67, "Sea Chest, Strainer, and Valve Inspection: 8.4 Requirements" has been revised to omit "condemned by the USCG Inspector or NCDOT Representative". Please replace the original Page 67, "Sea Chest, Strainer, and Valve Inspection 8.4 Requirements" with the attached revised Page 67, "Sea Chest, Strainer, and Valve Inspection 8.4 Requirements".

Page 73, "Painting – General: 11.4 Requirements" has been revised to omit "failed". Please replace the original Page 73 "Painting – General: 11.4 Requirements" with the attached revised Page 73, "Painting – General: 11.4 Requirements".

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Page 80, “15.0 Blasting and Painting Hull Below DLWL: 15.1 Description” and “15.0 Blasting and Painting Hull Below DLWL: 15.4 Requirements” has been revised to include “Rudders, Skegs, and Appendages” Please replace the original Page 80, “15.0 Blasting and Painting Hull Below DLWL: 15.1 Description” and “15.0 Blasting and Painting Hull Below DLWL: 15.4 Requirements” with the attached revised Page 80, “15.0 Blasting and Painting Hull Below DLWL: 15.1 Description” and “15.0 Blasting and Painting Hull Below DLWL: 15.4 Requirements”.

Page 88, “19.4.1 Remove and Inspect Rudder, Rudder Stock and Rudder Tube” item i) has been revised to include “to SSPC-SP3 or equivalent”. Additionally, item n) has been revised to include rudder blade to be repaired “under a Supplemental Agreement”, if needed. Please replace the original Page 88, “19.4.1 Remove and Inspect Rudder, Rudder Stock and Rudder Tube” with the attached revised Page 88, “19.4.1 Remove and Inspect Rudder, Rudder Stock and Rudder Tube”.

Page 89, “19.4.3 Reinstall Rudder, Rudder Stock” item e) has been revised to include “retaining ring” and omit “Rudder Stock seal with new contractor furnished seal.”. Please replace the original Page 89, “19.4.3 Reinstall Rudder, Rudder Stock” with the attached revised Page 89, “19.4.3 Reinstall Rudder, Rudder Stock”.

Page 90, “19.4.3 Reinstall Rudder, Rudder Stock” has been revised to omit item “g) Re-install any rope guards removed with new Contractor furnished rope guards.” Please replace the original Page 90, “19.4.3 Reinstall Rudder, Rudder Stock” with the attached revised Page 90, “19.4.3 Reinstall Rudder, Rudder Stock”.

Page 91, “20.4.1 Remove and Inspect Propeller, Tailshaft, Stern Tube, and Bearings” item a) has been revised to add “polish”. Additionally, item f) has been revised to add “to SSPC-SP3 or equivalent.” Please replace the original Page 91, “20.4.1 Remove and Inspect Propeller, Tailshaft, Stern Tube, and Bearings” with the attached revised Page 91, “20.4.1 Remove and Inspect Propeller, Tailshaft, Stern Tube, and Bearings”.

Page 92, “20.4.2 Tailshaft and Propeller Reinstall” item a) has been revised to add “cartridge” Please replace the original Page 92, “20.4.2 Tailshaft and Propeller Reinstall” with the attached revised Page 92, “20.4.2 Tailshaft and Propeller Reinstall”.

Page 97, “23.0 Rescue Boat Davit – Inspection and Restoration & Rescue Boat Gate Repair: 23.4 Requirements” has been revised to add “zero” Please replace the original Page 97, “23.0 Rescue Boat Davit – Inspection and Restoration & Rescue Boat Gate Repair: 23.4 Requirements” with the attached revised Page 97, “23.0 Rescue Boat Davit – Inspection and Restoration & Rescue Boat Gate Repair: 23.4 Requirements”.

Page 98, “24.0 Renew Windows Gaskets: 24.4 Requirements” has been revised to omit “Fit all Wheelhouse windows with roll-up polyester film window shades with smoke tint and reflective coating. Provide metal clips at bottom of windows for shade restraint.” Please replace the original Page 98, “24.0 Renew Windows Gaskets: 24.4 Requirements” with the attached revised Page 98, “24.0 Renew Windows Gaskets: 24.4 Requirements”.

Page 101, “26.0 Steel Crop and Renew: 26.4 Requirements” has been revised to omit “Remove and reinstall all interferences as necessary to accomplish all work” and add “Removal and reinstallation of all interferences to be covered under Supplemental Agreement.” Please replace the original Page 101, “26.0 Steel Crop and Renew: 26.4 Requirements” with the attached revised Page 101, “26.0 Steel Crop and Renew: 26.4 Requirements”.

We apologize for the inconvenience.

Sincerely,

Jeremy Remme, PE
Engineering Supervisor III
Ferry Division

Cc: C.W. Bridgers, Jr., PE
R.W. Midgett, PE
R.K. Sawyer, PE
M.B. Gill, PE
B.N Braswell, PE
D. B. Otts, PE
C.E. Slachta
J.E. Dixon
C.A. Midgett

INTERESTED PARTIES LIST:

(6-21-22)(Rev. 1-16-24)

102

SP1-G02

~~Revise the *Standard Specifications* as follows:~~

~~The *Interested Parties List* sign up process is not applicable to this contract.~~

~~Page 1-13, Article 102-3 PROPOSALS AND INTERESTED PARTIES LIST, lines 12-15, delete the first paragraph.~~

~~Page 1-14, Article 102-8 PREPARATION AND SUBMISSION OF BIDS, lines 43-44, delete the first sentence of the first paragraph.~~

BOND REQUIREMENTS:

(6-1-16)(Rev. 1-16-24)

102-8, 102-10

SPD 01-420A

A Bid Bond is required in accordance with Article 102-10 of the *Standard Specifications* for Roads and Structures.

Contract Payment and Performance Bonds are required in accordance with Article 103-7 of the *Standard Specifications*.

CONTRACT TIME AND LIQUIDATED DAMAGES:

(7-1-95) (Rev. 12-18-07)

108

SP1 G10 A

The date of availability for this contract is **January 17, 2024**.

The completion date for this contract is **May 15, 2024**.

Except where otherwise provided by the contract, observation periods required by the contract will not be a part of the work to be completed by the completion date and/or intermediate contract times stated in the contract. The acceptable completion of the observation periods that extend beyond the final completion date shall be a part of the work covered by the performance and payment bonds.

The liquidated damages for this contract are **One Thousand One Hundred Dollars (\$1,100.00)** per calendar day.

PROSECUTION OF WORK:

(7-1-95) (Rev. 8-21-12)

108

SP1 G15R

The Contractor will be required to prosecute the work in a continuous and uninterrupted manner from the time he begins the work until completion and final acceptance of the project. The Contractor will not be permitted to suspend his operations except for reasons beyond his control or except where the Engineer has authorized a suspension of the Contractor's operations in writing.

In the event that the Contractor's operations are suspended in violation of the above provisions, the sum of **\$ 500.00** will be charged the Contractor for each and every calendar day that such suspension takes place. The said amount is hereby agreed upon as liquidated damages due to extra engineering and maintenance costs and due to increased public hazard resulting from a suspension of the work. Liquidated damages chargeable due to suspension of the work will be additional to any liquidated damages that may become chargeable due to failure to complete the work on time.

RESTORE/RESTORATION: To return a structure, system, assembly, or component to its pre-disassembled or inspected condition preserved, protected, secured, intact in all respects and ready to perform its intended function. To restore a structure, system, or assembly, using the same components found in the structure, system, or assembly during disassembly. Re-assembly includes complete restoration, reconstruction, and reconstitution of all running, rotating, sliding, reciprocating, oscillating, and structural components or pipe to permit the structure, system, or assembly to operate or exist in the state it was found in at disassembly, except all soft parts, seals, grommets, non-metallic bushings, plastics, and gaskets shall be renewed at re-assembly without further requirement in the Specifications or Special Provisions. Generally used to describe restoration and reconstruction of removed structure, fluid systems, insulation, outfit, surface finish, deck covering, paint, cargo, furnishing, protective coating, wall hanging, trim, other solid object, fuel, water, lubricant, or ballast.

TEST: To conduct a procedure per an OEM, industry, or regulatory standard or description to certify a structure's, assembly's, or component's suitability for continued service, prove the integrity of a new, restored, or reassembled structure, assembly, or component, and to validate satisfactory performance for its intended service.

WORKING DAY: Any day except Saturday and Sunday or one of the following holidays: January 1, the third Monday of January, the third Monday of February, Memorial Day, July 4, Labor Day, November 11, Thanksgiving Day, the day after Thanksgiving, and Christmas Day. When any of these holidays fall on a Sunday, the following Monday shall be counted a nonworking day. When the holiday falls on a Saturday, the preceding Friday shall be counted a nonworking day. The days between December 25 and January 1 will be classified as nonworking days.

NON-HAZARDOUS AND HAZARDOUS WASTE: Materials either removed from the vessel or produced during the repair process. Examples include but are not limited to run off from sand or water blasting of the vessel, paint, oil, fuel, joiner materials, steel, pipe, wiring or other materials associated with vessel repairs.

U.S. COAST GUARD INSPECTION:

The Contractor shall call out; schedule and coordinate Coast Guard inspections, and have all **affected** work inspected and approved by the U.S. Coast Guard (USCG). The Coast Guard Inspector must approve all USCG-inspected work before the NCDOT Representative will accept it.

Payment

Fees for certificates, including associated inspection fees and expenses of regulatory bodies shall be paid by the Contractor and shall be incidental to the unit contract prices of the various bid items in this project and no further payment will be made.

8.0 SEA CHEST, STRAINER, AND VALVE INSPECTION:

8.1 Description

This section describes the requirements to remove, disassemble, open, clean and inspect **all** the vessel's valves listed in section 8.5 "Table of Valves" Contractor to also open, clean, and inspect all sea chests and strainers. Written condition found report to be submitted to NCDOT representative within 3 days of inspection. After inspection and approval from NCDOT representative that any needed work is completed, Contractor to reassemble all strainers and sea chests. Contractor shall not reassemble any strainers or sea chests without the approval of NCDOT Representative.

Contractor shall take into consideration work associated with "Sea Water Cooling Systems Inspection and Maintenance" of this section and closely coordinate this work.

Contractor to note the valve Lockout/Tagout procedures described in Take Control and Dry Dock the [M/V Frisco]."

8.2 References

- 8.2.1 DWG NC-220-0017 – Vents, Fills and Sounds
- 8.2.2 DWG NC-220-1041 – Bilge Piping
- 8.2.3 DWG NC-220-1042 – Fuel Oil Piping
- 8.2.4 DWG NC-220-1044B – Generator Engine Cooling Piping
- 8.2.5 DWG NC-220-1044C – Main Engine Cooling Piping
- 8.2.6 DWG NC-220-1047 – Fire Main Piping
- 8.2.7 DWG NC-220-1049 – Potable Water Piping
- 8.2.8 DWG NC-220-1057 – Sewage and MSD Piping

8.3 Owner Furnished Equipment:

See item a) in section 8.4.

8.4 Requirements

The Contractor shall complete the following work on all valves listed in section 8.5 Table of valves.

- a) Disassemble all valves listed in section 8.5, Table of Valves for USCG and NCDOT Representative inspection of the interior valve body, seats, under bonnet, stem, and packing housing. All valves less than 3" ~~condemned by the USCG Inspector or NCDOT Representative~~ shall be replaced by the Contractor at no additional expense. All valves 3" and above condemned by the USCG Inspector or NCDOT Representative shall be replaced or repaired by the NCDOT and returned to the contractor.
- b) The Contractor shall remove all cover plates in the bulkheads for unrestricted access to the valves and the voids, as indicated in the "Open, Clean and Certify Gas Free Holds and Enclosed Areas" section of these Special Provisions.
- c) Blue the seat contact areas of the discs and perform a blue fit check of the valve seats in the presence of the USCG Inspector and NCDOT Representative.

The Contractor shall grit blast the hull, decks, superstructure and ~~failed~~ blocking areas to a SSPC-SP10 "Near-White Blast Cleaning". Grit blasted surfaces shall have a profile depth of 2 to 4 mils. Immediately after grit blasting, clean affected spaces and surfaces of blasting material and residue.

Upon completion of blasting and before inspection of a blasted area, all grit shall be removed from the inspection area by blowing down with air or other means. Upon completion of inspection and acceptance of blasted area by the NCDOT Representative, and before paint application, all blasting media shall be removed from all surfaces. Decks shall be broom clean.

The blasted areas shall be coated the same day with paint to hold the blast. If the blasted areas cannot be coated before the surface remains exposed overnight, sand sweep to remove rust bloom prior to applying the paint. Care must be exercised to see that dust and grit are not imbedded in soft paint in the areas adjacent to the blasting.

Ensure that prior to beginning superstructure blasting, the edges of the stripe on the curtain plates and the stacks are measured for applying paint to proper location.

Carefully mask and protect machinery, motors, electrical panels and boxes, wiring, ventilation ducts, tank vents, void vents, name plates, identification labels, valve stems, fire hoses, bright work, glass trim, windows, wiring, light fixtures, navigation lights, public address system speakers, radar and other such items and materials which could be damaged by water, abrasive blasting, dust associated with the process, or other surface preparation techniques, or which could have their function and appearance degraded by blasting or paint over-spray. If removal is required, note, and map the location of all items removed and provide to NCDOT representative. Upon completion of painting, all items removed shall be re-installed in their original locations and shall be restored to their pre-removal form, appearance, and function. When reinstalling removed items replace non stainless hardware with 316 grade stainless hardware, ensure all bolt holes in brackets have fasteners installed. If fasteners are stripped or broken, they shall be replaced with 316 fasteners.

Ventilation fans shall be sealed and protected prior to surface preparation work in the immediate vicinity. They shall be unsealed upon completion and acceptance of all application of paint. Care shall be taken to ensure that blasting media does not enter vents, and louvers are not damaged during grit blasting. Vent screens installed in vent bells shall be protected against blasting and painting. Any damage shall be renewed to like new condition at no cost to the department.

All plastic and brass signs in affected work areas shall be removed and provided to NCDOT representative prior to painting or grit blasting. Note and map the location of signs and provide locations to NCDOT representatives. Upon completion of final paint coating, all signs will be supplied by NCDOT and shall be re-installed by the Contractor in their original location, using new 316 Stainless Steel fasteners where applicable. Installation workmanship of all signs is to match the location, levelness, cleanliness, neatness, and overall quality of the original installation, and shall be to

15.0 BLASTING AND PAINTING - HULL BELOW DLWL:

15.1 Description

This section describes the requirements for blasting and painting the ferry hull (underwater body), from the keel to 12" above the design load waterline, **including rudders, skegs, and appendages**.

After high-pressure water washing of the hull, as outlined in the "High-Pressure Water Wash – Hull Below DLWL" section, the Contractor shall blast and paint the hull below the DLWL.

15.2 References

15.2.1 "General Painting Instructions" as part of these Special Provisions

15.3 Owner Furnished Equipment

None

15.4 Requirements

The Contractor shall blast the hull, **rudders, skegs, and appendages** below the DLWL by abrasive blast to a SSPC-SP-10 "Near-White Blast Cleaning". Contractor shall mechanically or by hand SSPC-SP-11 all areas that are not accessible by blasting.

After surface preparation, dry the area with clean dry compressed air. The Contractor shall assure that the areas to be painted are free of dust, dirt, salt, loose paint, moisture, and other contaminants before painting.

Anti-corrosive paint at the perimeter of the blasted areas shall be feathered or otherwise made tight to eliminate paint failure points and present a clean mechanically etched surface for a secure bond with new Primer applied to the blasted surfaces. Coat all bare metal areas the same day they are exposed by blasting. Apply anti-corrosive paint by conventional industrial airless spray or compressed air spray equipment, contractor may utilize brush application for small touch up jobs.

The Contractor shall confirm the Manufacturer's minimum and maximum "dry to self-re-coat" criteria and apply the second anti-corrosive coat inside this window. The anti-corrosive coating system in these selected areas shall be:

- Primer Coat 1 - Epoxy: Amercoat 370 light buff applied @ 4.0-6.0 Mils DFT
- Primer Coat 2 - Epoxy: Amercoat 370 oxide red applied @ 4.0-6.0 Mils DFT
- Stripe Coat - Epoxy: Amercoat 370 pearl gray applied @ 4.0-6.0 Mils DFT
- Third Coat - Antifouling: ABC #3 black applied @ 4.0-6.0 Mils DFT
- Finish Coat – Antifouling: ABC #3 red applied @ 4.0-6.0 Mils DFT

- d) Set aside the parts and protect them for re-installation or return to NCDOT if being replaced. Mark the matched rudders, tillers and rudder stocks, indexed to their corresponding ends of the ferry.
- e) Suspend, or otherwise support both rudders stock then, remove the lock plates, thrust washers, bearing keepers, and separate the tillers from the rudder stocks.
- f) Lower the rudder stocks from the ship and transport to an inside machine shop for inspection and measurement.
- g) Protect the carrier bearings with temporary cover.
- h) Using telescoping bore gauges, inspect bearings and bushings in rudder tube. Measurements are to be taken at four quadrants, in three separate locations along the length of the bearings and bushings (both ends and the middle). Provide a written report with photos on the condition of the vessels' rudder stock bearings to the NCDOT Representative.
- i) Contractor shall remove the lower bushing and upper carrier bearing and thoroughly descale the rudder tubes to **SSPC-SP3 or equivalent**.
- j) Using telescoping bore gauges Rudder Tube Measurements are to be taken at four quadrants every 1' along the rudder tube. Provide a written report with photos on the condition of the vessels' rudder stock tube to the NCDOT Representative
- k) Inspect and measure the wear down on rudder stock at all bearing surface wear down areas. All wear down readings to be taken at three locations along the length of each journal or bearing, and at four circumferential quadrants of each journal, bearing, or bushing.
- l) Thoroughly clean both rudder stocks, mount in a lathe and check by dial indicator or laser methods, for straightness (TIR). Inspect palm welds for cracks. Contractor shall provide a written report measurements of the conditions of the rudder stocks, rudders, and carrier bearing to NCDOT withing 24hours of taking measurements.
- m) Tiller arm connection points to be inspected for wear, and renewed if necessary, as determined by NCDOT representative.
- n) Rudder blade to be repaired **under a Supplemental Agreement**, if needed. After repair, rudder blade to be blasted and painted in accordance with Paint section of these specs. Anodes to be renewed after painting. Anodes to be paid under Special Provision "Zinc Anode".

NOTE: If the ship's structure is to be used to handle the rudder stocks, the Contractor shall demonstrate to the NCDOT Representative that the structure will support the load. The Contractor may temporarily stiffen the structure to handle the rudders stocks, at the Contractor's discretion and risk, but shall restore the structure and coatings to the as found condition, or better, upon completion of this work item.

CHECK POINT – REVIEW FINDINGS WITH NCDOT. NCDOT Representative shall review rudder inspection report. NCDOT Representative shall either approve the existing rudder and rudder stock for reinstallation on the vessel, or order that a new rudder or rudder stock be installed. If a new rudder stock is required, it shall be supplied by NCDOT.

19.4.2 LINE BORE RUDDER TUBES

- a) Contractor will line bore rudder tubes, in way of lower bushing, until at least 85% of tube is skimmed down to clean metal, as approved by NCDOT, to ensure a good seat with the new lower bushing.
- b) After line boring is complete, contractor will measure again and document the new rudder tube inner diameters with telescoping bore gauge provided report to NCDOT representative.

CHECKPOINT: NCDOT Representative to confirm sufficient clean metal prior to taking measurements and installing new bushings.

- c) All lower bushing and the upper carrier bearings to be replaced with new. Rudder lower bushing shall be fitted with Duramax Dura Blue rudder bushing material and installed in accordance with manufacturer's instructions based on newly bored rudder tube inner diameter measurements, ensuring an interference fit as required by the Manufacturer.

19.4.3 REINSTALL RUDDER, RUDDER STOCK

- a) **NOTE: Contractor shall not reinstall existing rudder without express, written direction to do so by the NCDOT Representative.**
- b) Reassemble the rudder stocks and tillers to the steering gear in the reverse order of disassembly. Renew the lock plate bolts with SAE Grade 8. Tack weld lock plate.
- c) Lubricate rudder carrier bearings and the carrier, by hand packing, before stock installation. Remove the existing grease fittings and replace them all with new stainless-steel fittings. Renew the upper rudder stock rings seals with the same type and size as removed. Secure all loose gland studs and double-nut the studs or use Nylock nuts after installation and adjusting of new O-rings seals. Check and lubricate the bearings again, through installed fittings and cavities prior to trials. Cycle the rudders from side to side and lubricate until grease extrudes from the bearing vents.
- d) Measure and record final upper carrier bearing clearances and lower bushing clearances. Submit findings to NCDOT within 24hrs of taking readings.
- e) Replace **retaining ring**. ~~Rudder Stock seal with new contractor furnished seal.~~

- f) Hang the rudders and make them up to the rudder stocks in the reverse order of disassembly. Renew all rudder palm bolts with SAE Grade 5 fitted fasteners. Tack weld palm nuts to the bolt. Tack weld straps to secure palm connection.
- g) ~~Re-install any rope guards removed with new Contractor furnished rope guards.~~

19.5 Tests, Trials, and Documentation

Contractor to provide all written reports as outlined in the "Requirements" section of this work item and shall provide all necessary reports to the NCDOT Representative.

Provide NCDOT Representative with target bolt torque for rudder palm bolts, prior to tightening. Measure and report the torque applied to the rudder palm bolts to the NCDOT Representative.

Contractor shall perform all tests and inspections as outlined in the "Requirements" section of this work item and shall provide all necessary reports to the NCDOT Representative and USCG Inspector.

19.6 Payment

The lump sum contract bid price for *Generic Ferry Item (Rudder Removals and Inspections)* shall be the total compensation for all labor, equipment, tools, and materials to accomplish the work detailed in this Special Provisions for both rudders, including testing and trials and all time necessary in dry dock to complete the work involved. No further compensation will be made.

20.0 PROPELLER AND TAILSHAFT INSPECTION:

20.1 Description

This section describes the requirements to remove, inspect, and re-install both propellers and tailshafts.

20.2 References

20.2.1 DWG NC-220-0011 Shafting, Bearings, & Stern Tubes

20.2.2 DWG NC-220-0062 Stern Tube Circulating Diagram (Shaft Cooling)

20.3 Owner Furnished Equipment

NCDOT furnished tail shaft and propellers, if needed as determined by NCDOT representative. All other materials shall be contractor furnished.

20.4 Requirements

This work must be coordinated with the rudder and rudder stock removal. While in dry dock, the Contractor shall first mark Port and STBD propellers to ensure correct location on reinstall. Remove and inspect propellers for damage. Contractor to provide report on propeller measurements. Repairs may be covered by supplemental agreement. If major damage is found, NCDOT representative shall make decision if new owner furnished propellers will be installed.

Tailshaft wear down readings to be taken at all accessible locations. Written reports with findings will be submitted to NCDOT representative withing 24hours of collecting readings. Tailshafts to be removed, cleaned, and inspected. Stern Tube to be cleaned and inspected. All to be reassembled.

Where new steel is installed or existing paint was damaged by the work performed under this requirement, the areas shall be prepared for and painted to the satisfaction of the NCDOT Representative.

20.4.1 REMOVE AND INSPECT PROPELLER, TAILSHAFT, STERN TUBE, AND BEARINGS

- a) Remove both Propellers. Clean and inspect for cracks, chips, dings, bends, twists, and other damages, **and polish**. Written report of condition to be submitted to NCDOT representative with 24hrs of removal.
- b) Remove Stern Shaft Seal. **NOTE:** Stern shaft seal is Wartsilla TM-PSE-4-1 mechanical Shaft Seal.
- c) Measure and record bearing clearance readings between Aft and Forward Stern Tube Bearings and tail shaft, and split roller bearing and tailshaft. Submit findings to NCDOT representative.
- d) Remove both Tailshafts.
- e) Using telescoping bore gauges, inspect all bearings in stern tube and split roller bearing in engine room. Measurements are to be taken at four quadrants, in three separate locations along the length of the bearings (both ends and the middle). Provide a written report on the condition of the vessels' tail shaft bearings to the NCDOT Representative.
- f) Contractor shall remove the FWD and AFT cutlass bearings thoroughly descale the stern tubes **to SSPC-SP3 or equivalent**.
- g) Using telescoping bore gauges inspect stern tubes. Measurements are to be taken at four quadrants every 3' along the stern tube and every 2" in way of cutlass bearings. Provide a written report on the condition of the vessels' stern tube to the NCDOT Representative
- h) Inspect and measure the wear down on tailshaft at all bearing surface/sleeve wear down areas. All wear down readings to be taken at three locations along the length of each journal or bearing, and at four circumferential quadrants of each journal or bearing.
- i) Thoroughly clean both tailshafts, mount in a lathe and check by dial indicator or laser methods, for straightness (TIR). Inspect and measure sleeves for wear. Contractor shall provide a written report measurements of the conditions of the tailshafts, sleeves, and bearings to NCDOT withing 24hours of taking measurements.

NOTE: If the ship's structure is to be used to handle the tailshafts, the Contractor shall demonstrate to the NCDOT Representative that the structure will support the load. The Contractor may temporarily stiffen the structure to handle the tailshafts, at the Contractor's discretion and risk, but shall restore the structure and coatings to the as found condition, or better, upon completion of this work item.

CHECK POINT – REVIEW FINDINGS WITH NCDOT. NCDOT Representative shall review tailshaft and stern tube inspection report. NCDOT Representative shall either approve the existing tailshaft for reinstallation on the vessel, or order that a new tailshaft be installed. If a new tailshaft is required, it shall be supplied by NCDOT. If new tailshafts are installed, then a blue fit with propellers will be required to the USCG satisfaction. **Contractor shall not reinstall existing tailshaft without express, written direction to do so by the NCDOT Representative.**

20.4.2 TAILSHAFT AND PROPELLERS REINSTALL

- a) Contractor to supply and install new Forward Stern Tube Cutlass Bearing, new Aft Stern Tube Cutlass Bearing, and new Line Shaft Split Roller Pillow Block Bearing **Cartridge**. **Note:** Cutlass bearings flange bolt patterns to be drilled to match existing, including tapping jacking bolt locations for future cutlass bearing removal.
- b) Reassemble the tailshaft, new mechanical seals, rope guards, and keeper tabs in the reverse order of disassembly. All hardware to be replaced with new contractor supplied as called out in the referenced drawing.
- c) Measure and record final bearing clearances. Submit findings to NCDOT within 24hrs of taking readings.
- d) Replace tailshaft seals with new contractor furnished Wartsilla TM-PSE-04-1 mechanical Shaft Seals as called out in the referenced drawing. Contractor to return old mechanical seal to NCDOT.
- e) Reinstall propellers. If new tailshafts are used, propellers will be required to be blue fit to the USCG satisfaction. Contractor to cover costs for up to four fits on each tailshaft. If any additional fit ups needed to be covered by Supplemental Agreement.

20.5 Tests, Trials, and Documentation

Contractor shall perform all tests and inspections as outlined in the "Requirements" section of this work item and shall provide all necessary reports to the NCDOT Representative and USCG Inspector.

20.6 Payment

The lump sum contract bid price for *Generic Ferry Item (Propeller and Tailshaft Inspections)* shall be the total compensation for all labor, equipment, tools and materials to accomplish the work detailed in this Special Provisions for both propellers, including testing and trials and all time necessary in dry dock to complete the work involved. No further compensation will be made.

23.4 Requirements

NOTE: Before the Contractor begins work on the Davit, Contractor will coordinate with NCDOT to remove the rescue boat. The rescue boat will be refurbished by NCDOT and returned to the Contractor. Contractor will re-install returned rescue boat after all work in this technical specification and all painting work is complete.

The contractor shall inspect davit, cable, winch, brakes, and sheeves and provide a condition found report to NCDOT Representative. Inspection shall include pedestal/foundation frame, column, slewing gear, davit arm, sheaves, winch, brakes, electrical systems, hydraulic systems, wire rope, hook, lashing and boat chocks.

Contractor shall remove old wire rope. Contractor shall clean, repair, and prep for paint, and paint the Davit, Column, and Foundation. Painting requirements are covered under specification "Blasting and Painting – Superstructure" and "Painting – General". The sheeves shall be opened, cleaned, inspected, re-bushed by the contractor and reinstalled. All grease **zero** fittings, lines, and ports to be cleaned and renewed. **CHECKPOINT**

The winch motor and brakes shall be inspected and replaced if necessary. If replacement is needed, NCDOT will provide a complete winch and brake system. Minor winch/brake repairs may be covered under supplemental agreement.

Contractor to replace Davit cable, check proper operation of Thern Winch and Davit movement. Contractor to perform slewing and lowering test under 110% of SWL. SWL is 1,500 lbs. Test to be completed with 1,650 lbs. Certified test results to be provided to NCDOT Representative. **CHECKPOINT**

After inspection and restoration is completed, contractor shall protect Davit assembly from overspray.

Contractor shall also inspect and repair rescue boat gate and rescue boat gate keeper pins to allow proper, safe, gate operation. **CHECKPOINT**

23.5 Tests, Trials, and Documentation:

Contractor shall ensure proper operation of 1500# Capacity Rescue Boat Davit and Rescue Gate with NCDOT representative present. Contractor shall load test davit slewing and lowering to 110% SWL in presence of NCDOT representative and USCG and provide certified results of load test.

23.6 Payment

The lump sum contract bid price for *Generic Miscellaneous Item (Rescue Boat Davit- Inspection, Restoration, and Rescue Gate Repair)* shall be the total compensation for all labor, equipment, tools, and materials to accomplish the work detailed in this Special Provisions, including inspecting, restoring, repairing, and testing and trials. No further compensation will be made.

24.0 RENEW WINDOWS GASKETS:**24.1 Description**

This section describes the requirement to remove and renew all non-bolted windows and gaskets. Including the Passenger Lounge, Crew Deck and Wheelhouse.

24.2 References

24.2.1 DWG NC-220-0056 – Door, Window, Hardware Schedule

24.3 Owner Furnished Equipment

None

24.4 Requirements

The Contractor shall remove all non-bolted windows and gaskets. (Bolted windows do not need to be removed). The Contractor shall clean, weld out and renew the metal around the existing windows to prevent further leaking. Contractor shall budget to replace up to 5 sq ft of steel under this line item. Any steel work beyond 5 sq ft is to be covered under a supplemental agreement.

Passenger lounge windows to be tinted to 25% with UV protection. Once accomplished the contractor shall use the existing windows and reinstall with new gaskets and new stainless-steel hardware and hurricane clips. ~~Fit all Wheelhouse windows with roll-up polyester film window shades with smoke tint and reflective coating. Provide metal clips at bottom of windows for shade restraint.~~

NOTE: Care shall be taken to prevent any outside elements from entering the areas while work is being performed. This work shall be accomplished prior to or after blasting but not in conjunction with blasting.

Contractor shall mechanically or by hand surface prep, and paint to correct color as the superstructure, in accordance with Section 11 “Painting-General Special Provisions”.

24.5 Test, Trials, and Documentation

None

24.6 Payment

The Lump sum contract bid price for *Generic Miscellaneous Item (Renew Window Gaskets)* shall be the total compensation for removal and replacement of all window gaskets, welding, labor, equipment, tools and new materials to accomplish the work detailed in this Special Provisions, including testing and trials. No further compensation will be made.

25.6 Payment

The Lump sum contract bid price for *Generic Miscellaneous Item (HVAC Modifications)* shall be the total compensation for removal and replacement of all Chiller and Heat Pump Systems, welding, labor, equipment, tools and new materials to accomplish the work detailed in this Special Provisions, including testing and trials. No further compensation will be made.

26.0 STEEL CROP AND RENEW:

26.1 Description

This section describes the requirement to crop and renew steel bulkheads and deck plating and hull plating.

26.2 References

- 26.2.1 DWG NC-220-008 Hull Structure
- 26.2.2 DWG NC-220-1010 WT Bulkheads
- 26.2.3 DWG NC-220-0021 Insulation & Fire Boundary Diagram
- 26.2.4 DWG NC-220-1024 Fwd End Bottom and Deck Scantlings
- 26.2.5 DWG NC-220-1025 Fwd End Longitudinal and Transverse Sections
- 26.2.6 DWG NC-220-1026 Aft End Bottom and Deck Scantlings
- 26.2.7 DWG NC-220-1027 Aft End Longitudinal and Transverse Sections
- 26.2.8 DWG NC-220-0032 Lower House Structure
- 26.2.9 DWG NC-220-0033 Upper House Structure
- 26.2.10 DWG NC-220-0036 Bulwarks and Details
- 26.2.11 DWG NC-220-0038 Misc Sections and Details

26.3 Owner Furnished Equipment

None

26.4 Requirements

Bulkhead - Contractor to crop and renew superstructure bulkhead plating and stiffeners as required up to 75 sqft.

Deck - Contractor to crop and renew deck plating and stiffeners as required up to 25 sqft.

Hull – Contractor to crop and renew hull plating and stiffeners up to 150 sqft.

All disturbed or new steel to be painted in line with applicable “Blast and Paint” requirement. All steel repairs shall be fit and/or scribed as appropriate to existing structure and plating in accordance with Regulatory standards. All welding to be double continuous. Clean tank and surrounding area after all work is complete.

~~Remove and reinstall all interferences as necessary to accomplish all work.~~

Removal and reinstallation of all interferences to be covered under Supplemental Agreement.