

REQUEST FOR PROPOSAL

**Fox River Navigation System
Boat Transfer Station
Rapide Croche Lock
Kaukauna, WI**

**For The
Fox River Navigational System Authority
1008 Augustine Street
Kaukauna, WI 54130**

**Proposal Closing Date
4:00 P.M.
April 3, 2017**

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Additional Information included in ShareFile sites:

- Bid Form & Non-Collusion Affidavit
- Appendix A - Summary of Work
 - a. Proposed Rapide Croche Boat Transfer Station Design Drawings
- Appendix B – Preliminary Engineering Study Report
- Appendix C – Additional Information
 - a. Location Map – Rapide Croche Lock
 - b. Existing Rapide Croche Lock Construction Drawings
 - c. 2013 Seawall Construction Sketches (existing walls)
 - d. Conceptual Dredge Area Sketch
 - e. Intermediate Hot Water Study
 - f. EIR Report
 - g. EA Report
 - h. Historical Documentation and Preservation Recommendations
- Further information is available on the following website:
<http://foxlocks.org/boat-transfer-facility/>

To access ShareFile sites:

- Click on the following links:
 - RFP and Appendix A: <https://omni.sharefile.com/d-sed1f3d80bc74d81b>
 - Appendices B & C: <https://omni.sharefile.com/d-s72ba5181195448fa>
- You will be required to provide information (name and email) prior to downloading the files

Section 1

General Information

Section 1 provides the general purpose of the Request for Proposal (RFP), the RFP process and schedule.

1.1 Introduction

The FRNSA is requesting proposals for the modification of the existing lock and installation of a new boat transfer station at the Rapide Croche Lock in Kaukauna, Wisconsin. The work on existing structures will generally include removal of the lock gates, mechanics, stop logs, and portions of the lock walls. The new station work will include new concrete work, building construction, installation of a bridge crane and supporting structure, as well as all associated piping and equipment for the hot water baths and pre-wash system. Additional items that will be required on the site will include docks, access stairs, ADA lift(s), fencing, guardrails/handrails, and site work including ADA compliant ramps and a truck access road with retaining walls.

Proposals are to include a proposed construction schedule.

1.2 RFP Schedule

- Mandatory walk-through at 1 PM February 21, 2017 at the Rapide Croche Lock
 - All general contractors bidding are required to attend.
- Proposals must be received by 4 PM April 3, 2017 at the FRNSA office 1008 Augustine Street, Kaukauna, WI 54130.
 - See Section 5.1 for required documents.
- Proposals scheduled for review by the FRNSA on April 12, 2017.
- Interviews (if necessary) will be scheduled for the week of April 17, 2017.

All interested parties shall Pre-Register for the mandatory walk-through by Monday, February 20th. Contact Jessica with FRNSA via email at jakstulewicz@foxlocks.org and copy Bob Stark at rstark@foxlocks.org. Pre-registration emails shall include your company name, attendees' names, phone numbers and email addresses.

All questions during the bidding process shall be submitted electronically via email to Cari Bodoh at cari.bodoh@omni.com. Answers will then be provided to all contractors in attendance at the mandatory walk-through in an addendum.

1.3 Selection Procedure

The proposals submitted in response to the RFP will be reviewed by the FRNSA Capital Projects Subcommittee to determine the proposal most advantageous to the Fox River Navigational System Authority.

1.4 Selection Criteria

Following the review of the proposal responses, the Subcommittee will evaluate the proposal based on cost and noted alternates. Other items taken into consideration will be as follows:

- Balance cost-effective and cost-efficient construction
- Schedule and completion date
- Project approach
- Previous experience for similar projects

1.5 Project Schedule

- Proposal due April 3, 2017
- Present to Capital Projects Committee and Board April 25, 2017
- Sign contract April 25, 2017
- Project completion by May 11, 2018

1.6 Budget and Cost

The total cost shall consist of an all-inclusive estimate of the total project cost identifying the components of the project cost including, at a minimum, design and construction, contingency, and other fees. Costs shall be provided identifying the base bid and alternates for the project.

Section 2 Existing Conditions

Section 2 provides the general and existing conditions that apply to the project and the project site.

2.1 Project Site Description

The project is located at the Rapide Croche Lock located on the Fox River in Outagamie County, WI. The lock is in the community of Kaukauna at the end of Lock Road. The work site will consist of the Rapide Croche Lock chamber, landside and island side. Appendix C includes a location map.

2.2 Survey Property Information

The land survey maps are available in the FRNSA office. A full site survey is requested in Appendix A.

2.3 Utility Information

The Contractor shall be responsible for utility location.

2.4 Covenants and Restrictions

The land covenants, restrictions, and land easements and leases are on file in the FRNSA office.

2.5 Existing Plans and Specifications

There are existing plans and various specifications located in the FRNSA office for the Rapide Croche Lock. These plans are incomplete and may not depict "as built" conditions. Appendix C includes many of the existing drawings.

2.6 Soils and Contamination Information

Corps of Engineers and WDNR studies have evaluated canal sediment for contamination in the lock system. These studies were completed in the early 1990's and concluded that while there was contamination, levels were not hazardous and dredge spoils could be landfilled at approved sites in the area. In addition, the Corps of Engineers completed environmental assessments of facilities and lands prior to transfer to the State of Wisconsin. Sediment is anticipated to be removed from the canal and river, and the Contractor will be responsible to meet applicable environmental requirements. Responsibility for any hazardous soil disposal will be a negotiated exception to the contract. See Section 4.3 of Appendix A for further information.

2.7 Historic Information

The Rapide Croche Lock is listed on the National Register of Historic Places. The nomination and designation reports are on file in the FRNSA office and at the Wisconsin Historical Society. There are also other historic and archaeological studies completed by the Corps of Engineers. **Approval of the work needs to be obtained from SHPO. A historic study may be required based on consultation with SHPO.**

Section 3 Project Requirements

Section 3 lists the project objectives and the performance requirements.

3.1 Project Objectives

The four primary objectives of the project are:

- i. Modify the lock to a functional boat transfer station.
- ii. Provide safe facilities meeting applicable federal, state and local codes.
- iii. Balance cost effective and cost efficient construction.
- iv. Provide environmentally sound construction and operation.

3.2 Limits of Construction

The construction limits for this project includes the lock, and extends upstream and downstream from the lock, as well as onto the island and landside of the lock. See preliminary plans included in Appendix A.

3.3 Functional Performance Requirements

- Balance cost-effective and cost-efficient construction
- Provide environmentally sound construction and operation
- The project construction shall maintain the historic integrity of the lock system.

3.4 Design Specifications

The design and construction shall meet national standards for engineering construction projects where feasible. Existing infrastructure should be restored "as-is" unless safety, function, code, or cost factors can justify the change. Any proposed change (including any and all changes that may be established by any other provision of this document) shall be approved in writing by the FRNSA. No change that would have a negative impact on the status of the locks and navigation system as a National Register listed cultural resource will be considered.

Work scope items are anticipated as follows:

3.4.1 See **Appendix A** for summary of work

3.4.2 Alternate Bid Items to be completed by May 11, 2018

1. Base Bid- Perform work in summary with completion by May 11, 2018
2. Alternate #1 – Install a new well on the island.
3. Alternate #2 – Fully install showers and provide commercial grade washer and dryer in the laundry room.
4. Alternate #3 – Construct new storage garage on mainland.
5. Alternate #4 – Install a new well and equipment on the mainland.
6. Alternate #5 – Install new natural gas lines to both the toilet rooms and operations buildings. Install natural gas water heater in the toilet and operations building for hot water chambers, and natural gas furnaces in both buildings.
7. Alternate #6 – Install new propane tank, to be hidden behind new mainland garage. Install propane gas lines from tank to new toilet rooms and operations buildings. Install propane gas water heaters in toilet and operations buildings (for hot water chambers), and propane furnaces in both buildings.
8. Alternate #7 – Install a communications / notification system for boaters to contact operators upon arrival to piers.

3.5 Aesthetic Criteria

Design and construction shall maintain the historic integrity and aesthetics of the existing site.

3.6 Required Dredging

Dredging is anticipated for this project and shall be confined to the amount necessary for construction and function. This shall include the construction area and possibly the lock chamber. Wisconsin Statutes 237.13 exempt dredging and waterway work on the "lock structure" covered by Chapter 30 and 31. Dredge spoils shall be disposed of under appropriate environmental standards. See Appendix A for additional information.

3.7 Codes and Standards

The project shall comply with appropriate codes and standards. These include all applicable state and federal laws, rules, codes and regulations, the exception being local municipal codes and regulations.

3.8 Storm Water and Erosion Controls

The project shall incorporate storm water and erosion control measures and comply with State standards.

3.9 Engineering Standards

Generally accepted minimum design and construction standards shall be followed.

3.10 Site Access

Access to the site is at the end of Lock Road. Access is available to the west side of the lock chamber with motorized track or rubber tire equipment. There is currently not available motorized equipment access to the island on the east side of the lock chamber.

3.11 DNR Permitting & Approvals

Contractor shall be responsible to apply and pay for the required DNR permits and plan reviews.

Based on a Pre-Application meeting with the DNR to discuss preliminary plans, it is anticipated that the following Permits and Plan Approvals will be required:

- Dredging: Ch. 30 Permit.....\$603
 - Include time in schedule for 30-day public notice.
- Dam Plan Approval: Ch. 31 Permit.....\$500
- Stormwater Permit (if > 1 acre disturbed).....\$500+
 - Based on preliminary area determinations, this permit is not required. Final determination of area disturbed and permit requirement shall be by contractor.
- Wastewater: General Permit.....No Cost
 - DNR Wastewater Plan and Spec Approval will be required to approve holding tanks and process plan.
 - County Application with DSPS will be required for holding tanks.
- Fisheries: No work in upstream or downstream channels from ice-out to June 15th. All dredging shall be planned for summer or fall.

The cost of these items shall be included in all base bids, and approval time shall be incorporated in the tentative schedule noted in section 5.6.

Section 4 Contract Requirements

This section outlines the basic contract terms and conditions. Following FRNSA selection of the Contractor, the formal design-build contract contents will be negotiated and approved.

4.1 Period of Performance

The contract period of performance shall be as stated in the proposal incorporated in contract. A completion date of May 11, 2018 is required.

4.2 Contractor Responsibilities

The Contractor shall be responsible for the professional quality of the boat transfer station construction process. FRNSA's review, approval or acceptance of any services of the contract shall not waive any rights under the contract and the contractor shall remain liable to FRNSA in accordance with applicable law for damages caused by negligent performance. The contractor will be required to provide a performance bond.

Contractor shall be responsible to apply and pay for the required DNR permits and plan reviews.

The Contractor will be required to pay not less than the State of Wisconsin Prevailing Wage Rates for the project and all classifications of work.

4.3 Owner Responsibilities

The extent and character of the work to be done shall be subject to the general oversight, direction, supervision, control and approval of the FRNSA. The FRNSA shall provide guidance and general support to the Contractor. The FRNSA shall designate a project manager to serve as principal contact and liaison for the project. An independent consultant with lock maintenance experience will be retained by the FRNSA to address technical issues including design, construction and project management and provide FRNSA with advice and assistance when required.

4.4 State Requirements

The contract is governed by the law of the State of Wisconsin. Exclusive venue for any dispute in the contract is in Outagamie County, Wisconsin.

4.5 General Conditions

The FRNSA reserves the authority to make final decisions, approve change orders, make determinations under claims, approvals, payments, time extensions, or settle disputes when the Contractor is performing construction management, inspection, or the administration of the contract. These decisions shall be addressed within a 30-day time period and may require FRNSA board approval. The Contractor shall maintain and provide to the FRNSA project management and expense records. Design-Build plans shall be signed by a registered professional engineer.

4.6 Dispute Resolution

The contract shall include a dispute resolution process.

Section 5 Proposal Deliverables

This section lists the expected deliverables the Contractor will provide in responding to the RFP. See Appendix A- Section 1 for additional requirements.

5.1 Contractor Responsibility

The Contractor shall provide digital reproducible and 8 hard copy proposals for review by the FRNSA, including Bid Bond.

Each proposal must be accompanied by a bid bond, certificate of annual bid bond and a certified check, bank's draft, bank's check, or postal money order made payable to the Fox River Navigational System Authority for 5% of the total amount bid. Certified checks shall be drawn on the account of the bidder submitting the proposal. Failure to furnish a bid guarantee in the proper form and amount, by the time set for opening of bids, may be cause for rejection of the bid.

5.2 Project Approach

The Contractor shall specify the overall project approach to be followed for the project. This description should address the project objectives and those items deemed critical to the successful completion of the project. Alternate design and construction methods may be proposed if the design and construction is in accordance with historical requirements and is a more economical approach to construct the boat transfer station.

5.3 Drawings and Specifications

The Contractor shall provide and discuss drawings, plans and specifications that are necessary for the project. The contractor shall provide as-built drawings, plans, and specifications in both digital (AutoCAD and pdf versions) and hard copy format to the FRNSA at the completion of the project.

5.4 Quality Control

The Contractor shall describe quality control techniques and the process to be followed to meet the performance objectives.

5.5 Contractor Qualifications

The Contractor shall provide background materials relative to qualifications and experience of the company and personnel involved.

5.6 Schedule

The Contractor shall present a tentative schedule of design and construction, and key milestones for coordination with the FRNSA.

5.7 Dredging Procedures

The Contractor shall include proposed dredging plan and procedures (hydraulic or mechanical removal, dewatering) within proposal. Assume downstream access to

channel will be an off-site location, and upstream access will be the ACOE driveway noted on plan.

5.8 Rapide Croche Lock Boat Transfer Station Cost Proposal

The Contractor shall provide a total cost of work for the project as specified above. Cost for alternatives shall be listed separately along with a separate work scope. A list of inclusions and exclusions shall also be included with the provided cost.

REQUEST FOR PROPOSAL
APPENDIX A
Summary of Work

Fox River Navigation System
Boat Transfer Station
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For The
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Appendix A - Section 1 Design-Build Requirements

The following information and design recommendations are for your use and do not constitute the final design. FRNSA has the final say for any changes. Final code verification and design are the responsibility of the selected design-build contractor.

1.1 Original Basis for Design

A study was completed by STS/AECOM in 2008 and is included in Appendix B for reference.

1.2 Updated Current Design

The current plan has been laid out with consideration for a second future lane. The operations building on the island has been located such that a second crane/lane can be installed without relocating the new building. See Section 7 for future bridge crane width.

This design has been submitted to SHPO, DNR and ACOE, and shall be followed for process and basic layout as it has been preliminarily approved.

See chart of updates on pages 5 and 6 made from the original design to the current design.

1.3 Final Design

Design-build contractor selected shall confirm the layout and requirements laid out in the attached drawings and documentation. Contractor shall submit drawings and calculations as required for State and/or other approval, and acquire all permits required to proceed.

The goal of this design is for the boat transfer station to be a barrier to aquatic invasive species. See Appendix B for original report by STS/AECOM and Intermediate Hot Water Study.

During the final design phase by the selected design-build contractor, the preliminary site and building layouts will be available upon request in 2D AutoCAD as a basis for design information only.

Design criteria (confirm with FRNSA):

- Boat lengths up to 65 feet
- Beam up to 18 feet
- Weight up to 36-tons
- Boat draft no greater than 6 feet (including propellers)
- Total boat height not greater than 29 feet (draft plus masts/superstructure of boats)

Electrical design shall be all-encompassing including site lighting and equipment requirements.

Additional design criteria is included in the following sections and preliminary drawings.

1.4 Project Deliverables

At the completion of the project, the design-build contractor shall provide manuals for all the equipment, as well as coordinate with FRNSA to develop process procedure manuals and procedures for yearly start-up and winterizing of the systems. Diagrams showing lifting strap style, configuration and pick locations for each anticipated boat type shall also be provided by the contractor for use by the transfer station operators as part of the procedure manual.

Contractor and associated equipment vendors shall provide on-site training for FRNSA operators on cranes, process equipment and HACCP procedures. Hazard Analysis and Critical Control Point (HACCP) plan shall address the critical and operating parameters for station including documentation, record keeping and guidance for station operators. The HACCP plan is currently being finalized by Dr. Phil Moy.

Aquatic Invasive Species (AIS) Control and Monitoring Plan includes additional background of the AIS species prevalent, cleansing details, and other key factors pertaining to boat transfer at the Rapide Croche site. This final report is anticipated to be available during the final design process.

Both the HACCP Plan and the AIS final reports will be provided to selected contractor upon completion of reports. HACCP shall be included in the operations manual.

The Intermediate Hot Water Study has been included in Appendix C. This study provides additional background and design requirements of the AIS control process system and equipment.

The contractor shall provide as-built drawings, plans, and specifications in both digital (AutoCAD and pdf versions) and hard copy format to the FRNSA at the completion of the project.

FRNSA Rapide Croche Boat Transfer Station DESIGN DEVELOPMENT (from Original STS-Aecom Report to Current OMNINI Layout)	
Component	Notes / reasoning for changes made
BOAT SIZE CRITERIA	Based upon FRNSA request to accommodate larger boats
	Based upon FRNSA request to accommodate larger boats
	Based upon FRNSA request to accommodate larger boats
	Based upon feedback from the public surveyed in the St Norbert study
GENERAL BOATER PROCEDURES	Due to changing lifting equipment from Mobile Hoist/Fork Truck to Bridge crane system.
PRE-WASH ZONE	Added to ensure sides of boat are rinsed in Pre-Wash Zone.
HOT WATER CHAMBER (MAIN)	Boat Driver needs a way to reboard their boat to run motor and clean intake lines for AIS. This was not addressed in the original report.
	Deeper at center to accommodate Sailboat 6 ft drafts (per St Norbert study). It was sloped to minimize the need for additional water, heating, etc.
	Temp was increased to account for temperature loss when boats are placed in bath and to reduce the time that boats may have to wait for the critical temperature to be reached.
	Needed for flooding bilge, live wells, and other misc cavities within boats.
HOT WATER CHAMBER (SMALL EQUIP)	Relocated in order to make cleaning process more efficient for personnel and easily accessible if a second lane is added in the future.
	By having 2 baths, 1 canoe and 1 large boat can be processed at the same time.
	Water will be drained from inside canoe/kayak into main Hot Water Chamber in order to reduce Canoe/Kayak weight.
	Original report did not address how the submerged Canoes/Kayaks would be lifted.
	Temp was increased to account for temperature loss when boats are placed in bath and to reduce the time that boats may have to wait for the critical temperature to be reached.
DECK ELEVATION	Based upon FRNSA request to reduce the downstream lifting height, Changed from 19.5 ft to 3 ft at the Downstream, and 9.5 ft to 2 ft at the Upstream by lowering and sloping the deck.
	Safety of lift is increased with lower lift height.
	Boaters' sense of safety also increased with lower lift height.
	Lowering the deck also decreased the amount of backfill needed below the new deck.
	The sloped deck shown is lower below the 100 yr Upstream water level, a FRP stop log backup system is needed on site should these water levels occur.
	Original study had everything at top of existing lock height and in full view.
LIFTING EQUIPMENT	Offer the most flexibility in boat sizing and strapping. Hoist and crane beams move in both directions to adjust for varying boat widths and lengths. A custom mobile hoist is required.
	Can store cranes on steel frame / rails thru winter, no need for special winter storage
	Remote operation. Mobile Hoist/Fork Truck required an on-board driver to operate.
	Crane operator will stand on deck and have better sight lines over driving equipment with a load.
	Crane is one piece of equipment to train on, while more training would be required for mobile hoist and fork truck.
	Fork truck option needs to turn around while a boat is loaded. More liability.

FRNSA Rapide Croche Boat Transfer Station DESIGN DEVELOPMENT (from Original STS-Aecom Report to Current OMNMI Layout)	
Component	Notes / reasoning for changes made
Items Modified from 2008 Study	Boaters do not have to back up on either end of lift station with bridge crane. Visually appears more stable than Fork Truck, which calms boater concerns. More cost effective as one equipment system can accommodate all boat sizes. Since the Bridge Crane runs on a structure above the deck, the deck can be sloped as needed to minimize the lifting height at each end. The mobile hoist/fork truck option would have limited the grade slope to 10%. Mobile Hoist and fork truck required access right to the edge of the deck and required proper curbing and experienced operators. Bridge Crane End Trucks have stops at each end built into steel beam, system cannot go off of tracks.
GENERAL SITE	Original report did not account for ADA access on all passenger routes. All sidewalks shall meet ADA standards, including a maximum overall 1:12 slope and cross slope of 0.015.
	A Lower Station Deck meant the need for an additional stair for the Boat Driver to access their boat in Hot Water chamber
	Longer piers to accommodate processing longer boats.
	Original report did not address parking.
	Original report did not address how the Underground Sludge Holding tank on the island would be emptied periodically.
	Original report called for adding a Premanufactured Restroom facility to the site. The garage location was determined to be a better option for the restrooms as it is already on site and would maintain the look of the original site.
	Added to maintain the current appearance of the site.
	Added to maintain water flow and reduce the amount of stagnant water.
	Original report Mobile Hoist/Fork Layout required a much wider lane due to turn around radius requirements. Expansion on the original layout would have required island tree removal and may have not been an option due to space required.
EXISTING BUILDINGS	Original report showed this building removed.
RECENT MODIFICATIONS TO CURRENT LAYOUT	Maintaining existing gravel driveway to south of house and changing to concrete at ramp down to deck level
	Maintaining required ACOE easement and water access
	Meets the proposed use of area for picnics and future overnight docking without adding more structures to the lot
	Expanded parking lot area
	Replace existing garage to include expanded restroom facilities with future showers, and a pavilion area on the south. Use masonry construction in order to provide tornado shelter.
	Add new storage building/garage to replace storage lost at existing garage
	Added grooves to the sloped concrete deck to roughen surface in pre-wash
	Revised piping plan: eliminate north bypass culvert and increase south bypass culvert to 30 cfs; Alternate: Island well
	Need to confirm that upstream river water can be used in hot water system, with new water to be routed from south bypass culvert instead of drilling for a new well

Appendix A - Section 2 Site Work

The following information and design recommendations are for your use and do not constitute the final design. FRNSA has the final say for any changes. Final code verification and design are the responsibility of the selected design-build contractor.

2.1 General Site Pre-Work:

A full survey of the site will be required prior to commencing design work. Existing Army Corps of Engineers Benchmark No.19 is present near the dam on the island and has been noted on plan sheet S-001. This benchmark shall be used as a basis for the survey work.

The full survey shall also include:

- Bedrock Elevations at upstream and downstream channel ends shall be verified.
 - See "1934 RC Rock Fdtn Elevs" drawing for reference.

Existing concrete mainland walkways to remain will also need to be surveyed to verify that the current slopes will satisfy ADA and Wisconsin codes. If they do not comply with code, include replacement in final design and project cost.

Other required General Site Pre-Work items shall include:

- Soil testing on both the mainland and island.
- Locate existing underground utilities.
- An archaeological investigation on both the island and mainland.
- **Alternate #5:** provide new natural gas line to site for use in operations and toilet buildings for contractor supplied and installed water heaters and furnaces.
 - WPS is the utility company for natural gas at Rapide Croche. Per conversations with WPS, the nearest gas line is at the intersection of State Hwy 96 and Lock Road.
 - Per WPS, the approximate cost to run the gas line to the existing shed just south of the garage on the site is \$ 30,000 (not including boring or site restoration).
- **Alternate #6:** provide and install propane tank and pad on mainland to fuel contractor supplied and installed propane water heaters and furnaces in operations and toilet buildings.
 - Install gas lines under the station deck to the operations building on the island.
 - The new gas lines shall be designed and installed so that they meet the standards of natural gas lines, should natural gas become available on site in the future.
 - Tank, piping and heater sizes shall be determined during final design.
 - A portion of the landscape allowance in Section 2.4 shall include installing shrubs to hide the tank from view.

2.2 General Site:

The downstream river water contains Aquatic Invasive Species (AIS). Special care will be required to ensure that downstream water does not contaminate the upstream channel. Any equipment used in the downstream must be properly submerged or sprayed down in a minimum of 140°F water prior to use upstream. Any equipment that cannot be sprayed down must be left sit dry on the mainland for a minimum of 5 days before usage may commence upstream. Contractor must maintain a solid barrier between upstream and downstream channel at all times.

All site work shall follow proper procedures for erosion control, grading, and excavation.

All other miscellaneous site work is as follows:

- All bids shall include an allowance for FRNSA standard signage.
- Design of adequate site lighting shall meet code.
 - Light fixtures shall be Baselite Corp model S316/49/PM10-W, 12" Rad-4'OAH/49/INC/PR4/3STP12049
 - Shade= S316
 - Color= 49 (Galvanized)
 - Mount= PM10-W 12" Rad-4'OAH, Color 49 (Galvanized)
 - Lamp= LED (warm white, low end frequency)
 - Globe = PR4
 - Pole= 3STP12049 (3" Straight Pole, 12 ft long, Color 49-Galv)
 - Fixture shall be firmly secured to top of pole, no rotation allowed
 - All light poles will need to be verified for bridge crane clearance. Existing light poles may be rotated or relocated to eliminate any conflicts. Any lights removed shall be relocated and used elsewhere on site.
 - Verify power requirements for lighting.
- See Section 7 of Appendix A for bridge crane power requirements.
- See Section 8 of Appendix A for process equipment to determine power requirements.

Site shall be restored to original conditions at completion.

2.3 Existing Lock Work

Based on FRNSA site observation, turtles and other wildlife are present within the lock chamber. Relocation of wildlife will need to be coordinated prior to construction work.

Existing valve assemblies, tripods, steel spars, gates & gearing, walkways, and any other lock mechanics will need to be removed to make room for the new transfer station footprint. All mechanisms shall be removed with care and salvaged for future FRNSA use.

Retain all existing guardrail and repair and repaint. Blue paint color shall be Ace brand #225A120 Safety Blue Gloss. Modifications to the rail will be required at the waste hauler entrance through the station, as well as at all new stair and ships ladder access locations.

All existing bollards shall remain in their existing locations, repaired, and repainted with safety yellow paint. Yellow paint shall be Ace brand #225A121 Safety Yellow Gloss. Should any bollards conflict with the bridge crane support columns, waste hauler entrance, or new access stairs, remove and salvage the bollards for future FRNSA use.

If required, black paint shall be Ace brand #225A105 Gloss Black.

The condition of all existing lock walls, both on the face and top surfaces, shall be reviewed with repair recommendations prior to any of the following cuts listed below are made. The following items shall be performed prior to new installations:

- The under sill/ valve platform voids shall be filled with lean concrete prior to backfilling.
- The concrete tripod platforms shall be removed at upstream end on both mainland and island to allow access for the new waste hauler road.
- Cuts in the existing lock walls will be required at:
 - The waste hauler entrance road
 - Hot water chamber access stair

- Cuts in the existing wing walls will be required at:
 - The upstream mainland wing wall for access to new launch pier
 - The downstream mainland wing wall for access to new launch pier
- Cuts in the cutoff walls will be required at the upstream island location to make room for new operations building access road.

The existing concrete seawalls will need to be verified under the new soil and water conditions, and either modified or replaced with new walls. The seawall heights will also need to be coordinated with the new deck elevation. See attached "2013 Seawall Construction Sketches" in Appendix C for reference. Existing stop logs located adjacent to the seawalls will also need to be removed and site cleared / disposed.

After the lock preparation work listed above has been performed, the lock chamber will need to be backfilled with granular fill up to the new concrete deck elevation. Backfilling shall be coordinated with the installation of new piping for the water heating and treatment systems (Ref. Section 8).

Once the lock chamber has been backfilled according to the specification listed above, a new concrete slab shall be placed to serve as the transfer station deck.

The concrete deck must be designed with the following specifications:

- Design must be able to withstand wheel loads from waste hauler vehicular traffic.
- No anchorage between the new concrete deck and the existing lock walls is allowed per request by SHPO.
- Install retrofit PVC waterstops at all slab edges
- All sloping deck surfaces must be roughened. Groove concrete surface at Pre-Wash area, as well as west of the hot water chamber, with grooves running with the slope.
 - The surface of the concrete deck shall have a finish to match existing surface and texture of existing lock walls
- The concrete deck must be coordinated with the type and locations of the following:
 - Pre-Fab Trench Drains (Ref. Section 5)
 - Hot Water Chamber- Both Main and Small Equipment (Ref. Section 6)
 - Recirculation Chamber (Ref. Section 6)
 - Concrete Piers and Footings for Bridge Crane support columns (Ref. Section 7)

Due to the height difference between the transfer station deck and the new operations building, an access stair will be required near the hot water chamber deck area. This stair shall be designed and installed as a free-standing stair or ships ladder and be located within the existing lock walls. No attachments will be allowed to the existing lock walls.

2.4 Island Site Work

A new Operations building with access road and retaining walls shall be constructed on the island. Reference Section 3 for building information. New piping will connect the operations building to the new transfer station deck, as well as to an underground sludge holding tank and a new pre-wash unit. These items are further explained in Section 8.

Construction of all the items listed above shall be performed in a way that maintains as much of the existing tree line as possible. All bids should include a \$ 5,000.00 allowance for a new berm and/or plantings to camouflage all new island structures and shall include mainland landscaping also.

Install new security fencing around perimeter of site on island. Fencing to match mainland fence design noted in Section 2.5 of Appendix A.

Install new waste hauler driveway and concrete retaining walls to access operations building.

- All exposed concrete walls shall have a finish to match existing surface and texture of existing lock walls.

Install water bypass culvert, see Section 8.1.

2.5 Mainland Site Work

Existing stop logs are located at the north property edge near the current garage. These shall become property of the contractor.

The existing driveway requires improvements and regrading. Special care shall be taken to coordinate driveway elevations with the following site areas:

- Sidewalk extending from the lock wall to the existing Locktender house.
- Army Corps of Engineers (COE) driveway extending west from the current driveway
- New waste hauler sloped concrete slab to transfer station deck.

Maintain the current driveway widths. Provide (2) pull-off areas along the access driveway, as it is not a 2-lane width. Locate pull-off areas at locations to provide the best site lines and disrupt the fewest trees. Final location of these areas shall be approved by FRNSA during final design.

Minimally trim existing tree line along access driveway for construction traffic.

The improved driveway shall also include a new parking lot pad near the location of the existing garage. All areas shall follow compaction standards for all driveway base layers. The finished surface of both the driveway and parking lot shall consist of crushed gravel. The final parking stall requirements shall be coordinated with FRNSA, base bid on preliminary drawings.

The current site entrance gate located near the Northeast property corner (Reference sheet S-001) shall be cleaned and painted. Install a new post on the south side of the driveway to hold the gate in the open position.

The current cyclone security fence location shall be maintained but replaced with new 8'-0" tall fencing. The new fence type selected shall have spear tops to eliminate the need for the existing barbed wire and meet historical time-period design. Final design of fence shall be approved by FRNSA and SHPO prior to fabrication. Two security gates will be required: one at the waste hauler truck entrance and one at the sidewalk south of the Locktender House.

Install new off-hour security fencing at downstream and upstream ends, across deck and walkway where shown on preliminary plans. Fencing in these locations shall be accordion-type or similar, to maintain clearance during working hours as swinging gates will block access.

Access sidewalks will be required for all boat passengers to disembark their boats and commute to the other end of the transfer station on foot. These paths must meet ADA and Wisconsin code requirements.

- Existing sidewalks shall be utilized where possible.
- All stairs and ramps shall be poured concrete.
- Concrete retaining walls shall be installed where required.

- All exposed concrete walls shall have a finish to match existing surface and texture of existing lock walls.
- An ADA lift is required at the downstream end. Contractor will be responsible to coordinate installation with selected vendor. Preferred model *Garaventa Genesis Wheelchair Lift Enclosure* supplied by *Access Elevator, Inc.*

Install guardrail and handrail at all stair and ramp locations to meet code requirements. Guardrail shall be provided at top of all retaining walls to meet code and historical requirements.

A new toilet facility and alternate storage garage shall be constructed on the mainland near the north property line. See Section 3 of Appendix A for further building information.

All bids shall include a planting allowance (see Island Site Work). Anticipated planting areas include a planter at the downstream passenger stair and around the perimeter of the new toilet facility.

The existing flag pole shall be refurbished. Match color and patina of existing pole.

Appendix A - Section 3 Building Structures

The following information and design recommendations are for your use and do not constitute the final design. FRNSA has the final say for any changes. Final code verification and design are the responsibility of the selected design-build contractor.

3.1 Operations Building on Island

A new building shall be erected on the island to house all operations of the transfer station. This structure will feature three different rooms: a storage room, an operations room, and a process room.

The storage area will have an 8'-0"x8'-0" exterior garage door on the west wall. This area is intended to be utilized for storage of miscellaneous crane equipment and the removable bulkhead system.

The operations room shall include a master electrical panel. Refer to Section 8 and include all controls based on final design.

Reference Detail 1 on Sheet S-005 for a preliminary building layout. Process room size shall be coordinated with final water heating & treatment system equipment. See Section 8 for equipment specifications.

The building shall be an insulated heated structure. Walls shall be constructed of split-faced block on standard frost wall foundations with a 6-inch curb. Color of split-face block shall be a natural color to blend in to the nature surrounding the building. All building finishes shall be coordinated with FRNSA. Roof shall consist of wood trusses with sheathing and asphalt shingles. Roof shall be a hip configuration with a 4:12 pitch to minimize overall height of the building (per SHPO request for reduced visibility of new structures). Final building size shall be based on equipment sizes. Increase building toward downstream end only. Current layout on preliminary drawings allows for future second lane and deck expansion.

Alternate #7: Design and install communications / boater notification sensor system to notify operators of boat arrival at launch pier on either end of transfer station. Final system to be determined during final design.

3.2 Existing Locktender Shack

The existing Locktender shack condition shall be field verified. Selected design-build contractor shall coordinate repair plan with FRNSA to restore or replicate materials. Repair plan shall incorporate materials that will match the original Locktender shack to keep the structure historically correct to meet SHPO requirements.

Testing is required for hazardous materials (asbestos, lead, mold). Remediation shall be performed as required.

3.3 Toilet Facility

A new 24'-0" x 28'-0" Toilet Facility and Pavilion building is to be located over the 24'-0" x 24'-0" footprint of the existing garage. The existing garage and concrete slabs under and to the east shall be removed and site cleared as required to make room for the new building.

The building shall house (2)-ADA unisex toilet rooms with direct access to the north face of the building. Toilets and sinks shall be provided for each bathroom, with plumbing installed for future showers. A separate room shall be built adjacent to the restrooms and is intended to be used as a future laundry room. Plumbing and electrical shall be installed in this room for future washer & dryer installation. Each room shall have (1) floor drain installed and routed into sanitary piping. Electric heat anticipated for this building.

Alternate #2: Provide cost to finish the showers and install an electric commercial washer & dryer in the laundry room.

Water for the toilet and laundry rooms shall be supplied from the existing well north of the Locktender house. Existing well shall be reviewed and repaired as necessary. Should this well be deemed beyond repair, there is a second existing well located south of the existing garage that may be used as an alternate option. See S-003 for approximate location of the existing wells. New supply lines are anticipated to be heated with an on-demand water heater in each of the toilet and laundry rooms. Waste shall be routed into a new underground waste holding tank, located north of the new toilet facility, adjacent to the parking lot for ease of access for waste hauler trucks. Base bid on 5,000-gallon holding tank. Final size to be determined during final design.

Alternate #4: Provide cost to drill new well on mainland if existing wells do not meet required needs.

Alternate #5: Provide cost for a natural gas heater to be utilized for heating the water in the toilet and laundry rooms, as well as natural gas furnace. Natural gas water heater and furnace shall be designed, provided and installed by contractor. See Section 2 for new natural gas line installation and costs.

Alternate #6: Provide cost to design, provide and install a propane water heater and furnace for the toilet and laundry rooms. See Section 2 for propane tank and piping installation.

The toilet and laundry room portion of this building shall be designed to meet FEMA storm shelter requirements. It is anticipated that this area will feature a precast concrete cap with wood trusses framing above the cap to create the required 4:12 roof pitch. Reference FEMA P-320 standard for design requirements.

The building shall be an insulated, heated structure and utilize the same materials and aesthetics of the new operations building, including roof slope and building materials. Pavilion area shall have standard frost walls and footings designed for future block in-fill at openings shown.

FRNSA display is anticipated to be located on north wall of pavilion area. Confirm final location with FRNSA during final design.

3.4 Alternate #3: Storage Garage

FRNSA mainland site storage shall be relocated to a new 22'-0" x 30'-0" storage garage located to the north of the parking lot. The new structure shall include (2)-8'-0"x8'-0" garage doors and (1) mandoor. The building shall be an unheated structure and utilize the same materials and aesthetics of the new operations building, including roof slope and building materials.

Appendix A - Section 4 Upstream & Downstream Channel

The following information and design recommendations are for your use and do not constitute the final design. FRNSA has the final say for any changes. Final code verification and design are the responsibility of the selected design-build contractor.

4.1 Floating Launch Piers

Floating piers were selected to allow for variation in water levels while meeting ADA requirements. Piers shall be hinged at the lock end at the fixed elevation shown on plan sheet S-003. Pier elevations and lengths shall be based on S-003. Coordinate with FRNSA on winterization procedures as required.

4.2 Solar Powered Aeration System

A solar powered aeration system will be required at the mainland side of the channel at both the upstream and downstream ends. The purpose of this system is to prevent stagnant water, and the growth of blue green algae. Recommended *Solaer Solar Powered Pond Aerator- 2 acres* by *Living Water Aeration* or comparable system. All aeration tubing will need to be anchored to the river bed, or weighted, and routed outside the main channel path to ensure no there are no interferences with boat propellers.

4.3 Dredging

A large quantity of sediment is deposited at the outfall area further down the downstream channel. Dredging will be required downstream and a portion of the upstream channel to ensure a 6-foot deep channel exists for boaters to access the transfer station from the main river channel. The cost for sediment removal and disposal shall be included in all bids, as well as the cost for DNR permitting requirements. Disposal shall be to an approved location. Sediment testing will be completed prior to bid date, and results will be shared once testing is completed.

Include cost for hauling sediment to approved waste site, assumed to be in Green Bay. Also include tipping fees. Provide a unit cost per cubic yard should the quantities be more or less than estimated, as well as a total cost based on STS dredge sketch in Appendix C.

All base bids shall include a dredging allowance of 150 CY of upstream sediment and 3,000 CY of downstream sediment. These preliminary quantities have been based on the STS conceptual dredge area sketch from 2006. Quantities shall be confirmed during the final design phase.

All dredging areas shall maintain the current channel centerline, with an approximate channel width of 40 feet. Width to be confirmed in the final design. Should any downed trees or shoreline vegetation fall within the dredging limits, coordination with DNR Fisheries department will be required to minimize the disruption of these shoreline woody environments.

4.4 Removable Bulkhead System

Due to the upstream 100-yr flood levels being higher than the upstream deck elevation, a FRP stop log system as produced by *Plasti-Fab* (or equal) will be required. Embedded stainless steel tracks will need to be provided in end walls, with removable braced stainless steel frames between.

A gantry crane (or similar equipment) will be required to be used to transport the FRP sections to and from the operations building. A storage rack system shall be installed inside the operations building garage for proper storage of the FRP sections. The cost of both these items shall be included in all bids.

A similar bulkhead system shall be installed at the downstream end to protect the ADA lift from 100-yr flood levels.

4.5 Future

During design phase, make considerations and suggest locations for future floating docks both upstream and downstream, either offset from current design or an extension of the current design. Future docks are anticipated to be used for overnight docking.

Appendix A - Section 5 Pre-Wash Area

The following information and design recommendations are for your use and do not constitute the final design. FRNSA has the final say for any changes. Final code verification and design are the responsibility of the selected design-build contractor.

5.1 Pre-Fab Trench Drain

Install prefabricated trench drains (ACO, Zurn or equal) in the pre-wash deck area. Bottom trench shall be installed the full width of the lock. Slope the concrete to the east of the drain back to the trench as shown on the current drawings in order to contain the pre-wash water from flowing directly into the downstream water.

See Section 8 for piping information. See Section 2 for deck requirements.

5.2 Automated 'Carwash' Sprayer System

The system shall be designed and installed to meet the following requirements:

- Water does not need to be heated.
- This system shall be at 1,500 psi pressure. Adjustability of the sprays is needed to rinse off the sides of the boats.
- FRNSA prefers a system that runs on rails rather than long sprayers each side. Rails may be embedded in deck or supported from the bridge crane columns.

See Section 8 for piping information.

5.3 Water Supply Hoses with Spray Wands

Provide and install (2) water supply hoses and reels with spray wands to be utilized in the Pre-Wash area. Mount hose reels to bridge crane column. Spray wands must be capable of dispensing water at a 1,500 psi pressure and do not need to be heated.

See Section 8 for piping information.

Appendix A - Section 6 Hot Water Bath Area Structure

The following information and design recommendations are for your use and do not constitute the final design. FRNSA has the final say for any changes. Final code verification and design are the responsibility of the selected design-build contractor.

6.1 Hot Water Chamber Structure & Accessories

A large Hot Water Chamber will be required for boats to undergo the water treatment process listed in Section 8. The chamber must be designed and installed to meet the following criteria:

- The chamber shall be constructed of concrete walls and floor.
- Design shall withstand hydrostatic loading and 140°F+/- 10°F sustained temperature (future).
- The wall height and normal water level shall be coordinated for the water displacement of all boats that meet the criteria listed in Section 1.3.
- Concrete tank bottom shall slope as shown on preliminary plans to accommodate larger draft boats while minimizing water volume.
- Insulation shall be installed around tank walls and under tank bottom
- PVC waterstop shall be installed at the full perimeter of the tank bottom and at wall joints.

Refer to Section 8 for temperature gauge, retractable cover, adjustable surface skimmer, and piping requirements.

The large Hot Water Chamber will also require a personnel access platform. This platform is to allow access for the boat owners to board their boat and run the pumps for bilges and live wells, and motor/engine while in the hot water bath. A platform will provide a designated safe path for public access.

The platform shall be designed and installed as a hinged or retractable system to accommodate a variety of boat widths. It shall run along the north side of hot water bath with access from east end of Small Equipment Hot Water Chamber. The platform edge shall include a boat bumper system or similar protection.

6.2 Small Equipment Hot Water Chamber Structure

The Small Equipment Hot Water Chamber has been sized with dimensions based on a large sea kayak. Design and installation of this concrete chamber shall encompass the same insulation and waterstop criteria listed for the Hot Water Chamber in Section 6.1.

Refer to Section 8 for evacuation pump and piping requirements.

6.3 Recirculation Chamber Structure

The Recirculation Chamber shall be a concrete chamber, following the same insulation and waterstop criteria listed for the Hot Water Chamber in Section 6.1.

Refer to Section 8 for equipment and piping requirements.

Appendix A - Section 7

Bridge Crane and Supporting Structure

The following information and design recommendations are for your use and do not constitute the final design. FRNSA has the final say for any changes. Final code verification and design are the responsibility of the selected design-build contractor.

7.1 Bridge Crane and Remotes

Provide 480V/3ph power to power the bridge cranes. Existing site electric is routed from the dam and will require upgrading to 480V/3ph power. We are working with Kaukauna Utilities to determine upgrade anticipated cost and requirements and will forward once determined.

Remotes shall be:

- Include (2) master crane remotes [preferred] or (1) master + (1) slave + (1) spare master. Confirm with FRNSA
- Manufactured by *HBC*
- Include a lanyard and/or belt clip
- Shall be watertight
- Shall not have joystick or belly box

Cranes:

- Kinetic Equipment, Appleton, WI was involved in the preliminary crane design
- Bridge cranes shall be Demag V-girder cranes due to the aesthetics and open design. Additional stops/locks should not be required during high winds or winter storage periods with open girder design.
- Capacity as noted on drawings.
- Hoists and end trucks to have VFD (variable frequency drives) for multiple speeds
- Limit sway when braking by changing braking speed and limiting crane travel speed. FRNSA to determine if sway is acceptable or if additional modifications need to be made to meet their expectations prior to completion.
- Install laser limiter or physical limit switches at ends of runways
- Provide (2) sets of straps to pick boats. Final strap style and type to be determined during final design based upon consultation with various boat manufacturers to determine the recommended placement of lift straps and configuration.
- Photos of the proposed crane are included on the drawings

7.2 Jib Crane at Small Equipment Hot Water Chamber

Mount to the bridge crane column nearest to the Hot Water Chamber. Jib shall be sized based on distance to small equipment hot water bath chamber and capacity on the largest anticipated kayak or canoe. Evac pump shall be provided to reduce canoe and kayak weight prior to lift. Jib capacity is anticipated to be 500 lb. with final capacity determined during final design based on operation procedures (using pump to empty kayaks and canoes).

7.3 Supporting Structure and Future Crane

Design free-standing steel structure, concrete foundations and associated connections to support (2)-top-running cranes. Paint steel Safety Blue noted in Section 2.3.

- Crane configuration shall provide maximum lift height with minimal overall structure height
- Bridge structure on south side of rails shall be designed for future bridge crane
 - Coordinate with FRNSA to determine capacity and bridge span to plan for future lane. Potential project at Menasha Lock shall be basis.
- Install heavy-duty end stops with bolted connections.

Appendix A- Section 8 Water Heating & Treatment Systems

The current Water Heating & Treatment System was based on the *Preliminary Engineering Study Report* provided by *STS/AECOM*. This report is included in the attachments as reference only. The following information and design recommendations are for your use and do not constitute the final design. FRNSA has the final say for any changes. Final code verification and design are the responsibility of the selected design-build contractor.

8.1 Water Bypass Culvert

A new bypass culvert shall be installed below ground on the island, with the path of flow starting at the upstream and moving towards the downstream. The purpose of the culvert is to maintain water flow at both ends and prevent stagnant water. The culvert shall maintain a flushing rate and discharge volume of approximately 30 cubic feet per second. The downstream invert shall be placed at a minimum of 2 ft above 100-yr flood levels to minimize the potential of AIS transferring upstream. The upstream invert shall be placed at an elevation to eliminate any possibility of water flowing from downstream to upstream during flood conditions. It is anticipated that a pump system be installed at the upstream end to pull water from the upstream pool and into the culvert to maintain the flushing rate. Provide screening or other filtration at end of pump intake in the upstream pool to reduce sediment, algae and other potential debris from entering the treatment system.

The culvert might also serve as the water source for the transfer station water cleaning, heating & treatment systems. In the final design, the requirements of the treatment system shall be reviewed to determine if potable water is required or if the upstream water can be used to fill and replenish the treatment tanks.

Alternate #1: Provide cost to drill and install equipment for a new well to meet residential system requirements on the island.

8.2 General Piping

All new piping and culverts shall be located below ground. Coordinate all final pipe locations and elevations with future lane expansion plans. Reference sheet S-006 of supporting new layout drawings for approximate piping locations.

Expected usage requirements shall be coordinated with FRNSA to determine volumes. All underground piping shall be designed to withstand above ground surcharge loading of standard vehicular traffic.

All piping and deck pool chambers shall be drained and properly prepped for unheated winter conditions at the end of the operation season. Coordinate with FRNSA to develop operating procedures for winterization and yearly start-up.

8.3 Water Preparation Treatment

Unless a well is deemed necessary, a portion of the water from the bypass culvert shall be routed into the treatment process through a filtration system that will trap any large particles that may cause damage to the process equipment, pass through a pump, and then split to the Pre-Wash piping or heater system. The heater system must be able to increase the water temperature to a high enough temperature (to be determined) so that the water will flow into the hot water chambers at a high enough temperature to maintain a consistent 120°F in the chambers. Balance cost effectiveness of heater system with operating costs with a minimum

90% efficiency rating. Size building and electrical or gas system for future heating units to heat water to 140°F+/-10°F.

Once the water has been heated, the pipe will carry the water to the Hot Water Chamber after being treated from a 55-gallon drum of sodium hypochlorite located in the operations building. The intent of adding sodium hypochlorite to the main water lines is to limit bacteria growth of the Hot Water Chamber water. The drum shall be equipped with a meter to read and adjust levels. Once it has adequate amounts of sodium hypochlorite, it shall be routed to the north face of the operations building and out to the Hot Water Chamber.

Alternate #5: Natural gas shall be installed to operations building for a gas hot water heater for the Chambers and furnace to heat building. Heater and furnace to be designed, provided and installed by contractor. See Section 2 for gas line installation and costs.

Alternate #6: Propane gas shall be installed to operations building from a propane tank to a gas hot water heater for the hot water chambers and furnace for the building. Water heater and furnace to be provided and installed by contractor. See Section 2 for gas line installation and costs.

8.4 Pre-Wash Area

Unheated, untreated water shall flow through two systems in the Pre-Wash Area. The intent of the Pre-Wash Area is to remove AIS species from the sides of the boat and any other areas that may not be submerged when set in the Hot Water Chamber.

The first system shall be an automated 'Carwash' like sprayer system. The second system will be water supply hoses for operators to utilize on miscellaneous recesses on the boats. Refer to Section 5 of Appendix A for further details of these items.

All rinse water from the Pre-Wash area will run down the sloped deck surface into a pre-fabricated trench drain system (Reference Section 5 for type). The trench drain water will then be piped into an underground pre-wash treatment unit located on the island.

The pre-manufactured water treatment unit shall be capable of removing pollutants from the collected pre-wash water, as well as removing grit and sediment from the water. Water must be treated to meet DNR quality and temperature standards so that the water can be discharged downstream after treatment. Recommended unit is a *Vortech Treatment Unit* by *Contech Stormwater Solutions* or comparable system by another vendor.

Once water has been passed through the pre-wash treatment unit, it shall be piped back into the water bypass culvert and discharged downstream.

8.5 Hot Water Cleansing Chamber Area

Once the second water line in the operations building has been treated with sodium hypochlorite, it shall be routed into the main Hot Water Chamber where boats will undergo AIS treatment. This main chamber shall have a retractable cover to assist in maintaining the water temperature. The main chamber shall also have an adjustable surface skimmer to be used for removing larger particle matter that may come off boats during treatment.

Provide and install a hot water supply hose adjacent to the hot water chamber to flood bilges, live wells, and other boat cavities while maintaining temperatures that meet that the critical control requirements. Design the hose so it is sized to output a large enough volume to fill boat

chambers and maintain temperature. Provide and install evacuation pump to empty boat chambers after required contact time at proper temperature.

Water from the Main Hot Water Chamber will then be fed into the Small Equipment Hot Water Chamber adjacent to the main chamber. The Small Equipment Hot Water Chamber is intended to be used for cleaning small boater equipment, such as skis, paddles and anchors, as well as canoes and kayaks. An evacuation pump shall be provided to remove the water from the canoes and kayaks after they have been submerged for the allotted cleaning time.

The two hot water chambers shall have piping to move water into a separate pool area on the deck called the Recirculation Chamber. This chamber shall feature a submersible pump, a heater to control water temperature, and a water quality treatment system. The water quality treatment system shall be capable of removing sediment and will require supply lines of coagulant and polymer. It is recommended that a 55-gallon drum of each material, equipped with meter to read and adjust levels, be located within the operations building with supply lines feeding the materials into the Recirculation Chamber.

Both hot water chambers, as well as the Recirculation Chamber shall be equipped with several temperature sensors to monitor the temperature. All temperature sensors shall be equipped with alarms to sound when water temperature falls below critical levels per HACCP report.

A minimum of (2) portable handheld temperature probes with thermal reading sensors with real-time readout shall be provided by the contractor. These portable probes are intended to be used by the operators for monitoring temperature in miscellaneous boat compartments (live wells, bait wells, bilges, anchor compartments, etc.).

8.6 Water Discharge Treatment

Once water has gone through the Recirculation Chamber treatment process, it shall be piped back into the operations building and into a Dissolved Air Flotation System (DAF Unit) located inside the building. Recommended unit is a *Krofta Multifloat DAF Treatment Unit* by *Ecolab Krofta Technologies* or comparable system by another vendor.

Clarified effluent water shall be piped back into the Operations building pump for recirculation through the system.

Discharge water, floating solids, sediment, and other waste from the DAF unit shall be piped into an underground sludge holding tank at the upstream side of the Island. The tank will be emptied periodically throughout the operation season by a waste hauler truck. Base bid on 5,000-gallon holding tank. Final size to be determined during final design. Provide anchor system on holding tank due to potential buoyancy.

A gauge shall be installed at the exterior of underground sludge holding tank to allow for operators to visually monitor the tank levels.

