

INDEX SPECIFICATIONS LORING

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1. GENERAL**1.01 WORK COVERED BY CONTRACT DOCUMENTS**

The contractor shall construct a 100' x 12' main float and a 20' x12' transition float as the main bid. Additive Alternative 1 is for as many 6' x 20' shore tie floats that we can have constructed with remaining funds available after the main float. If funds still remain Additive Alternate 2 is for a 10' x 16' airplane float. The Service Area may want to construction different combinations of the alternatives to get as much improvements to the float system as funds are available.

A. Contractor's duties:

1. Except as specifically noted, provide and pay for:
 - a. Labor, materials and equipment;
 - b. Tools, construction equipment and machinery;
 - c. Water, heat, and other utilities required for construction; and
 - d. Other facilities and services necessary for proper execution and completion of Work.
 - e. All fuel and lubricants for Marine vessels and equipment.
2. Pay legally required sales, consumer, and use taxes.
3. Secure and pay for, as necessary for proper execution and completion of Work, and as applicable at time of receipt of bids:
 - a. Permits;
 - b. Government fees; and
 - c. Licenses.
4. Give required notices.
5. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of work.
6. Promptly submit written notice to Owner of observed variance of Contract Documents from legal requirements. It is not Contractor's responsibility to make certain that drawings and specifications comply with codes and regulations.
7. Enforce strict discipline and good order among employees. Do not employ on Work:
 - a. Unfit persons; and/or
 - b. Persons not skilled in assigned task.

END OF SECTION

SECTION 01011

GENERAL PROJECT REQUIREMENTS

1. GENERAL

1.01 PROJECT COORDINATION

It shall be the responsibility of the Contractor to coordinate all work to be performed under this contract. This coordination shall encompass all work to be performed by the Contractor, his or her subcontractors, the Owner and any public agencies and utilities, which may be involved.

1.02 ACCESS TO THE WORK

Access to the work shall be provided as may be required by the Owner and his or her representatives from the Ketchikan Gateway Borough and by the Loring Service Area. The Contractor shall provide access to the work for representatives of the Alaska Department of Environmental Conservation and OSHA.

1.03 OVERTIME INSPECTION

Normal working time is defined as an eight-hour day and or forty (40) hour week including paid holidays. The contractor shall notify the Owner when overtime will be performed and the anticipated duration. Adequate time shall be allowed for the Owner to arrange for inspection. The Contractor shall not perform overtime work without the approval of the Owner. The Owner may bill the contractor for any overtime inspection required.

1.04 CONTRACTOR'S SUPERINTENDENT

The Contractor shall at all times have a competent superintendent at the job site who shall be acceptable to the Owner and capable of reading and thoroughly understanding the plans and specifications and who shall have authority to receive instructions from the Owner. The superintendent shall have full authority to execute the orders or directions of the Owner without delay, and to supply promptly such materials, tools, plant, equipment (including gas masks or other necessary safety equipment), and labor as may be required regardless of whether or not work is to be performed by the Contractor's own forces or those of a subcontractor. The fact that an approved subcontractor is performing any portion of the work shall not relieve the Contractor of this requirement.

1.05 TRESPASS

The Contractor will be solely responsible for any trespass upon adjacent property or injury thereto resulting from or in connection with his or her operations. He or she will be liable for any claims that may be made on account of trespass or the deposit of debris of any kind upon private property.

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

1. GENERAL

1.01 CONTENTS

This section deals with the measurement and payment provisions of the project and gives a general description of the various bid items.

1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

Unit Prices: Section 01026

2. MEASUREMENT

2.01 RESPONSIBILITY FOR MEASUREMENT

The Owner's Engineer shall make all measurements, and determine all quantities and amounts of work done under the Contract. At the time measurements are made for quantity determinations, the Contractor or his or her authorized assistant shall be present to verify such measurements. From quantity figures so ascertained, it will be the Contractor's responsibility to prepare a monthly periodical estimate of the work accomplished to date. This estimate shall be submitted to the Engineer for his or her review and check no later than the twentieth (20th) day of each month. The form for such monthly estimates shall be subject to the approval of the Engineer.

2.02 DESCRIPTION OF TALLY METHOD FOR PAYMENT QUANTITIES:

- A. When items are specified to be paid for by the cubic yard, ton, or truck count, the following tally system will be used:
 1. All trucks to be employed on this work shall be measured by the Engineer to determine the capacity of each truck. The Contractor shall verify any such measurements. Trucks shall not haul quantities in excess of state legal load limits.
 2. Each truck shall be clearly numbered with no duplication numbers.
 3. Duplicate tally tickets shall be prepared to accompany each truckload of material delivered on the project. The tickets shall bear at least the following information:
 - a. Truck Number;
 - b. Quantity delivered in cubic yards or tons as applicable;
 - c. Driver's name and date;
 - d. Location of delivery by street and stationing on each street; and
 - e. Place for receipting by the Resident Project Representative.
 4. It will be the Contractor's responsibility to see that a ticket is given to the Engineer on the project for each truckload of material delivered. Pay quantities will be prepared on a basis of said tally tickets.

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- B. When the bid item stipulates quantities by weight they shall be weighed on scales that are in accordance with the requirements of the state highway department for similar use. Certified weight bills shall be furnished.
- C. If this method is impracticable, or if the bid item stipulates payment by cubic yards, then the weight of the material delivered shall be computed from the volume of material delivered on the basis of one (1) cubic yard of crushed or backfill gravel weighing 3,400 pounds and one (1) cubic yard of crushed rock weighing 3,400 pounds.

2.03 MEASUREMENT FOR PIPELINES

Measurement for payment shall be along the pipe from center to center of fittings and through the valves.

2.04 TEMPLATE QUANTITIES

Where pay limit dimensions are shown on the Contract Drawings for excavation, re-paving, bedding, or other work, the quantity to be measured for payment shall be the lesser of actual quantities furnished, or computed quantities to pay limit lines.

2.05 SCHEDULE OF VALUES

When bid units are lump sum the Owner may request and approve a Schedule of Values for each bid item to assist in the evaluation and development of payments for Contractor's pay requests.

2.06 MEASUREMENT FOR LUMP SUM ITEMS

Measurement shall be the Resident Project Representative's estimate of percentage completion for line items in the approved Schedule of Values.

2.07 MEASUREMENT FOR FITTINGS

Where pipe fittings are paid by weight, the weight shall be the manufacturer's published fitting body weight, exclusive of bolts, glands, gaskets, linings, or coatings. No separate payment will be made for fasteners, gaskets, or standard glands for MJ fittings.

2.08 VALUE OF ON-SITE MATERIALS

For purposes of progress payment computations, the value of On-Site Materials shall be taken as 90 percent of invoice amount including freight only for materials landed in Ketchikan.

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MEASUREMENT AND PAYMENT

3. PAYMENT

3.01 PROGRESS PAYMENTS

Monthly payments, based on the estimated progress of the work, will be made to the Contractor. The Engineer will make an estimate of the amount of work completed and the value of such completed work. He or she shall also make an estimate of the amount and value of acceptable material to be incorporated in the completed work, which has been delivered and properly stored at or near the site or at a location acceptable to the Owner.

With this estimate as a base, a partial payment shall be made to the Contractor, which partial payment shall be equal to the value of completed work as computed from the above estimate plus the value of accepted materials which are in a condition or state of fabrication ready to be incorporated into the completed structure and which are held in storage on or near the work, less such amounts as may have been previously paid, less such other amounts as may be deductible or as may be owing and due to Owner for any cause and less an amount to be retained in protection of Owner's interests.

Quantities used for progress estimates shall be considered only approximate and provisional, and shall be subject to recalculation, adjustment and correction by the Engineer in subsequent progress estimates and in final estimates. Payment for materials, inclusion of any quantities in progress estimates, or failure to disapprove the work at the time of progress estimates shall not be construed as acceptance of the corresponding work or materials.

The estimates upon which partial payments are based are not represented to be accurate estimates and all quantities shown therein are subject to correction in the final estimate. If the Contractor uses such estimates as a basis for making payment to subcontractors, he or she does so at his or her own risk, and he or she shall bear all loss that may result.

No material, supplies, or equipment incorporated into the work shall be purchased subject to chattel mortgage, under a conditional sale, or other agreement by which an interest therein, or in any part thereof, is retained by the seller, material person, or the supplier. The Contractor, by accepting a progress or final payment, as applicable, warrants good title to all materials and supplies purchased for or incorporated into the work.

3.02 PAYMENT FOR UNIT PRICE ITEMS

A. Payments to be made to the Contractor will be made according to the unit price schedule in Section 01026.

END OF SECTION

1. GENERAL**1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**

A. Summary of Work: Section 01010

1.02 CONSTRUCTION SCHEDULE

All work performed by the Contractor shall be scheduled and monitored using appropriate scheduling techniques. The Contractor shall utilize this schedule in the preparation for and the execution of the work (including the activities of all contractor employees and equipment, subcontractors, equipment vendors, suppliers, etc.). Development and approval of the schedule is specified in Section 01210.

The construction schedule shall be revised by the Contractor monthly to reflect the following:

- A. Change in sequence and/or duration of any work item.
- B. Delay in completion of any work item or sequence of work items.
- C. Delays in submittals and equipment deliveries.
- D. All change orders and other contract modifications.

Three (3) copies of the initial and revised schedules shall be provided to the Engineer immediately after completion by the Contractor.

Each week at a meeting with the Engineer, and appropriate subcontractors, the Contractor shall present and discuss the project status to date and a detailed bar graph schedule of the next two (2) full calendar weeks work that the Contractor intends to execute. All indicated work shall be keyed to the related activities in the construction schedule.

In the event construction schedules are used as the basis for computing delay and impact costs, or time extensions for contract changes or claims, all "float" shall be considered as vested in the Owner.

1.03 MEETINGS

- A. The Contractor shall attend weekly progress meetings at mutually agreed times.
- B. Hold Called Meetings as progress of work dictates.
- C. Location of meetings: All meetings will originate in Ketchikan, as designated during the preconstruction conference, with attendance either in person or telephonically allowed.

D. Attendance:

1. Engineer.
2. Contractor.
3. Other Contractors (if any).
4. Subcontractors as pertinent to agenda.
5. Safety Representative (Optional).
6. Representatives of Governmental or other Regulatory Agencies.

E. Minimum Agenda:

1. Review and approve minutes of previous meeting.
2. Review work progress since last meeting.
3. Note field observations, problems and decisions.
4. Identify problems which impede planned progress.
5. Review off-site fabrication problems.
6. Develop corrective measures and procedures to regain planned schedule.
7. Revise Construction Schedule as indicated.
8. Plan progress during next work period.
9. Coordinate projected progress with other Contractors.
10. Review submittal schedules, expedite as required to maintain schedule.
11. Maintaining of quality and work standards.
12. Review changes proposed by Owner for:
 - a. Effect on Construction Schedule.
 - b. Effect on Completion Date.
13. Complete other current business.

END OF SECTION

1.01 GENERAL

The Contractor shall assemble and submit project data and samples to the Engineer as specified in each specification section for review and determination of conformance with the intent of the plans and specifications. The review and checking by the Engineer will be specifically limited to the project data and samples specified in these specifications.

1.02 PROJECT DATA

Project data and samples shall be approved by the Engineer prior to placement of purchase orders for equipment and materials. Equipment and materials for which project data and samples are specified, which are constructed, installed or incorporated prior to review, check and approval by the Engineer may not be accepted by the Owner.

The review by the Engineer of product data or other submittals is only for conformance with the general design concept of the project and does not extend to consideration of structural integrity, safety, detailed compliance with contract requirements or any other obligation of the Contractor. Any action shown is subject to the requirements of the plans and specifications.

The Contractor is responsible for preparation and review of all shop drawings confirming and correlating all dimensions; fabricating and construction techniques; coordinating his or her work with that of all other trades; and the satisfactory performance of his or her entire work in strict accordance with the contract documents. The review of project data by the Engineer shall not relieve the Contractor from his or her obligation to fully perform all contract requirements, nor shall such review give rise to any right of action or suit in favor of the Contractor or third persons, against the Engineer or the Owner.

1.03 MINIMUM REQUIREMENTS

- A. Shop and supplemental drawings shall be assembled, labeled with reference to specification section and/or drawing number, detail number and location with the delivery date and all pertinent data needed to fully describe the element or item of the work.
- B. Shop and supplemental drawings shall indicate all rough-in, backing or blocking, space requirements and that field measurements have been verified for conformity to the contract documents, code requirements, where applicable, and necessary coordination with any other parts of the work.
- C. The Contractor shall sign the drawings or project data transmittal to certify that he or she has reviewed the shop and supplemental drawings submittal, verified all field measurements and complied with all applicable provisions of the contract documents.

1.04 DISTRIBUTION

The Contractor shall provide copies of project data and shop and supplemental drawings, as provided in the General Conditions, or six copies, whichever is greater. The Engineer shall return one marked copy to the Contractor.

1.05 LIMITATION OF SUBMITTALS AND REVIEWS

The Contractor shall submit project data and samples for equipment and materials which meet or exceed the requirements of the specifications. Accordingly, it is considered reasonable that the Contractor provide project data and samples which are complete and acceptable, in the judgment of the Engineer, by the second submission of specific project data and samples. The Owner reserves the right to and will withhold such amount from payments due to the Contractor to cover the cost of review by the Engineer of third and subsequent submissions of specific project data and samples.

The Contractor's progress schedule shall include time for the submittal of project data and samples and for the re-submittal of project data and samples rejected by the Engineer.

1.06 PAYMENT

No separate or additional payment will be made for the work and/or materials specified herein. All costs of such work and/or materials shall be considered as incidental to the project and shall be included in the appropriate lump sum or unit price bid.

END OF SECTION

1. GENERAL**1.01 GENERAL SAMPLING AND TESTING REQUIREMENTS**

All of the work under this contract shall be fully tested in accordance with the specifications. The Contractor shall furnish all labor and materials for the testing of the materials he or she proposes to employ.

It shall be the Contractor's responsibility to obtain and pay for the services of an approved testing laboratory which shall take all samples and perform all tests as stipulated which is necessary for initial verification that the materials to be utilized in the construction do conform to the various specifications. The Contractor shall furnish two certified copies of the results of all tests to the Engineer.

1.02 INITIAL TESTING

All sampling and testing necessary to determine results of construction techniques and procedures shall be performed by a qualified laboratory retained by the Contractor. Such sampling and testing shall be as necessary to provide compliance with the requirements of the specifications and shall include the tests listed in the specifications and any and all additional tests which may be required or requested by the Engineer and/or Owner.

1.03 SUBSEQUENT TESTING

All sampling and testing necessary to determine results of construction and procedures shall be performed by the qualified laboratory retained by the Contractor. Such sampling and testing shall be as necessary to determine compliance with the requirements of the specifications and shall specifically include the tests listed in the specifications and any and all additional tests which may be necessary to properly identify components and control the work.

1.04 OPERATIONAL TESTING

It is the intent of the Owner to have a complete and operable system. All of the work shall be fully tested and inspected in accordance with the specifications.

1.05 PAYMENT

No separate or additional payment will be made for the work and/or materials specified herein. All costs of such work and/or materials shall be considered as incidental to the project and shall be included in the appropriate lump sum or unit price bid.

END OF SECTION

1 GENERAL**1.1 DESCRIPTION**

The WORK in this section shall include all labor, materials, tools and equipment necessary for fabrication, handling and transporting to a local Ketchikan Barge Company's Dock the complete timber float system, along with the associated connecting hardware, and all other related Work in accordance with the requirements of the Contract Documents and as shown on the Plans.

1.2 REFERENCES

- A. AWPA (American Wood Preservers Association), 2002 Standards.
- B. WWPA (Western Wood Products Association) Western Lumber Grading Rules, 1998
- C. AISC (American Institute of Steel Construction) Code of Standard Practice – Manual of Steel Construction (ASD).
- D. ASTM (American Society of Testing Materials) Specifications

1.3 SUBMITTALS

- A. Timber Fabrication Shop Drawings for all fabricated timber items.
- B. Timber Float Assembly Drawings. Timber Float Assembly Drawings shall illustrate and demonstrate all elements (timbers, steel weldments, assemblies, hardware and foam billets) that make up each typical type of float module, as well as the location and position of the elements on the float.
- C. Timber Grading and Pressure Treatment Certification for all timbers utilized for fabrication of float components.
- D. Timber Treatment product for field treatment of float timbers. Submit product specifications from the manufacturer for field treatment of both ACZA treated timbers and creosote treated timbers.
- E. Structural Steel Submittals per Section 05120 - Metal Fabrication. Steel fabrication drawings must be approved by the ENGINEER prior to cutting, drilling and treatment of timbers. CONTRACTOR shall coordinate shop drawing submittals between float fabricator and steel fabricator so as to submit both timber and steel fabrication shop drawings simultaneously.
- F. Coated Polystyrene Flotation Billet Shop Drawings. Submit complete shop drawings illustrating geometry, chamfers, and any required notches for each billet type.
- G. UHMW (Ultra High Molecular Weight) Polyethylene - Submit product specific material specifications and Fabrication Shop Drawings for each type of UHMW piece.
- H. Steel Pipe Hinge Assembly – Submit drawing of proposed hinge assembly with bid.

Submit rubber bushing material specifications and a completely assembled hinge assembly sample consisting of a rubber bushing with UHMW sleeve and a galvanized steel pipe hinge segment. Critical fit up tolerances will be verified with this sample.

- I. Non-Skid Coating – Submit for ENGINEER approval the manufacturer’s published literature, for the specific product, along with samples of coated, aluminum plate which demonstrate the level of coarseness which the product provides.
- J. Aluminum Transition Plate Assembly – Aluminum Transition plate will be a 6061-T6 marine grade diamond plated or a non-skid surface referenced later.
- K. Float Handling Plan – CONTRACTOR shall coordinate with the float fabricator and all transport companies to submit a float handling plan for review and approval, by the ENGINEER, prior to handling and transporting of any float units. Plan shall describe all lifting equipment and devices as well as proposed transport configuration of multiple float units.
- L. Float Fabricator’s Quality Assurance Program – Submit copy of quality assurance program float fabricator proposes to use during the float fabrication process.
- M. Product Data: Provide technical data on billet coating product. Data shall include product description, color, performance characteristics, and limitations.

2. PRODUCTS

- 2.1 MATERIALS – All materials for float components shall conform to the Contract Documents and as shown on the Plans. Purchase orders shall contain all necessary information to ensure that materials purchased will comply with the fore mentioned documents. The fabricator shall inspect all materials, upon arrival, for conformance with the purchase orders, and the fabricator shall confirm that mill certificates and test reports are provided and that they correctly identify the materials delivered. If a supplier proposes a substitute for any material, the proposed substitution shall be submitted to the ENGINEER for approval prior to commencing any work involving use of the proposed substitute material. Supplier shall supply specified materials if the proposed substitution is not approved by the ENGINEER.

- A. All glued-laminated members shall be manufacturer with Coast Region Douglas Fir that conforms to AITC Standard No. 117-87 specifications and shall be manufactured in balanced combinations having equal design values for both the positive and negative bending. The glulam members shall have an industrial finish, shall be for exterior use and have design values equal to or exceeding the following when loaded perpendicular to the widest faces of the laminations.

Bending (Fb) = 2,200 psi
 Horizontal Shear (Fv) = 165 psi
 Modulus of Elasticity (E) = 1,700,000 psi

Unless otherwise noted, all glued-laminated timbers shall be pressure treated with creosote per AWWA C-28 to a minimum retention of 12 pounds per cubic foot.

Fabrication and drilling of timber shall be completed as much as possible before pressure treatment. Field drilled holes, cuts and minor damaged areas shall be field treated per AWPA M-4, with an ENGINEER approved treatment product. Mastic complying with ASTM D450 shall be used to treat shop drilled holes in side beams and diaphragms at angled piano hinges. Glued-laminated timber ends that have been field cut after treatment shall be scatter nailed with 3-inch copper nails at 2 inches on-center each way in addition to field treatment. Bolt holes shall be 1/8 inch oversized. Glulam waters on the gangway landing float shall be treated with ACZA per AWPA C-2 to a net dry salt retention of not less than 0.6 pounds per cubic foot.

- B. All sawn timber shall be surfaced four sides (S4S), unless otherwise noted on the Plans, and conform to No. 1 and better Coastal Region Douglas Fir, according to WCLIB Grading Rules. No individual timber shall fall outside the specified grade. Each piece of lumber shall be stamped with a grade mark, which identifies the grading and certification, and shall be so marked as to be legible after pressure treatment. All sawn timber shall be pressure treated. Sawn timber located above waterline shall be pressure treated with ACZA per AWPA C-2 to a net dry salt retention of not less than 0.6 pounds per cubic foot. Sawn timber located below waterline shall be pressure treated with creosote per AWPA C-28 to a minimum retention of 12 pounds per cubic foot. Fabrication and drilling of timber shall be done as much as possible before pressure treatment. Field drilled holes, cuts and minor damaged areas shall be field treated per AWPA M-4, with an ENGINEER approved treatment product. Bolt holes shall be 1/8 inch oversized.

Deck timbers shall be S1S2E, kerfed as shown on the plans, with 1/8 inch chamfered top edges. Only whole, full-width and full length deck timbers shall be installed on any float unit. Upon arrival to project site, gap widths between installed deck timbers shall be a minimum of 1/8-inch and a maximum of 3/8-inch. As much as possible, deck timbers shall be evenly spaced along entire length of float unit. CONTRACTOR shall determine total number of deck boards required to achieve the spacing requirements indicated above, and shall layout deck boards along entire length of each float unit prior to nailing of timbers. Aesthetics are important for deck timbers; consequently, fabricator should ensure deck material has minimal amount of wane. Deck timbers containing wane shall be installed with wane facing down and top face rough cut per specifications.

All bullrail timbers shall have edges with a radius of 1/4 –inch.

- C. Flotation billets shall be closed-cell, expanded polystyrene, in accordance with ASTM C578 and ASTM D1621. Minimum requirements shall be as follows:
1. Density – between 0.9 and 1.1 pounds per cubic foot
 2. Contain not greater than 5% regrind material
 3. Compressive Strength – 10 psi minimum at 10% deformation
 4. Flexural Strength – 25 psi minimum
 5. 4% maximum water absorption by volume as tested by ASTM C-272
 6. All floatation billets shall be coated on all sides with “Polyshield SS 100”, or approved equal, coating of sixty-five (65) mils in thickness, minimum. All

utility trenches shall be coated on all sides to a thickness of seventy-five (75) mils, minimum. Coating shall be spray applied and cured per manufacturer recommendations. Alternative coatings shall either meet or exceed the characteristics of this material and be acceptable to the governing agencies for construction in the marine environment.

All floatation billets shall be of one piece, as shown on the Plans, without laminations or glued joints. Billet dimensional tolerances shall be as follows: (Submit billet geometry for ENGINEER review)

1. Width – Maximum of ¼ inch-gap between billet and adjacent, glulam beam.
 2. Length – Maximum of ¼ -inch gap between billet and adjacent, glulam diaphragm.
- D. Miscellaneous steel plates and shapes shall be ASTM A36, galvanized per ASTM A123 or A153, and comply with Section 05120 – Metal Fabrication.
- E. Fabricated metal weldments and assemblies including pipe hinges, piano-hinged transition plates and pile hoops shall comply with Section 05120 – Metal Fabrication.
- F. Electrical access plates shall be of aluminum diamond plate, with flame-sprayed texture, and shall comply with Section 05120 – Metal Fabrication.
- G. Bolts, piano hinge connection rods, and miscellaneous hardware shall comply with Section 05120 – Metal Fabrication.
- H. All Ultra High Molecular Weight (UHMW) Polyethylene components shall be manufactured from virgin polyethylene material shall be U.V. stabilized and shall be partially cross-linked. UHMW components shall be black in color, unless otherwise noted, and edges chamfered as shown on Plans.
- I. Pipe Hinge Rubber Bushings shall comply with the following requirements:

Property	Requirement	ASTM Test
Min. Tensile Strength	2000 psi Min.	ASTM D412
Hardness Shore A Durometer	70 +/- 5	ASTM D2240
Ultimate Elongation	300%	ASTM D412
Compression Set	25%	ASTM D395, Method B
Ozone Resistance	No Cracks	ASTM D1171, Method B
Water Resistance	10% Max, Swell	ASTM D471
Low Temp. Resistance	Non-Brittle	ASTM D2137, Method A
Heat Resistance		ASTM D573
Max. Change in Hardness	+10 pts.	
Max. Change in Tensile Strg.	-25%	
Max. Change in Ult. Elong.	-25%	
Tear Resistance	200 ppi Min.	ASTM D624

Physical Constraints. – Fit-up of each pipe hinge connection is critical. Pipe hinge rubber bushings must fit snugly into pipe segments to not allow appreciable movement within the pipe. Contractor shall coordinate with bushing manufacturer and metal fabricator to produce sample bushings and a sample hinge assembly, complete with galvanized coating, and using pipe from the single batch of pipe proposed to be used for the project. This sample assembly shall be used to determine final bushing outside diameter required to achieve a fit that is snug-tight within the galvanized pipe. Initially fabricated bushings may need to be turned down, on a lathe, to achieve the final fit-up requirements. A sample bushing of the dimensions as determined by the method described above, complete with the required, pressed-fit UHMW sleeve, and shall be submitted to the ENGINEER for approval prior to fabrication of bushings to be used for this project. Submit sample drawing with Bid.

- J. Non-Skid Coating. The top surfaces of all transition plates shall be coated with “Sure-Grip”, or approved equal, in Safety Yellow, to a minimum 60 mil DFT. “Sure-Grip” is available from Farwest Painting Manufacturing Company in Tukwila, WA. The coating shall be applied in the shop, specifically per manufacturer’s recommendations. Finish shall have nape that provides adequate non-skid characteristics acceptable to industry standards. Damaged finish shall be cause for rejection. Supplier shall provide samples of coated, aluminum plate with various roughnesses to the ENGINEER for approval. Supply 2 gallons spare paint.
- K. All materials shall conform to good workmanship, acceptable industry standards and manufacturer’s recommendations.

2.2 DELIVERY, STORAGE, AND PROTECTION

- A. All timber shall be protected during transportation to and from treatment facilities. There shall be no mechanical damage to timbers from steel banding, handling, etc. Timber shall be stored above ground on pallets, platforms or other supports.
- B. All other float materials shall be protected during shipping and handling. Materials shall be stored above ground on pallets, platforms or other supports, and be protected from excessive exposure to moisture prior to fabrication.
- C. Protect float timber and flotation billets during handling and transport to jobsite.

3. EXECUTION

3.1 FABRICATION

- A. Quality Assurance. Fabrication shall not start until all shop drawings have been approved. The float Fabricator must have an ongoing quality assurance program approved by a qualified, independent source. At the option of the ENGINEER the Fabricator shall submit a copy of their operational quality assurance program, and shall not fabricate any floats until the ENGINEER has approved this quality assurance program. The objectives of the quality assurance program are as

follows:

1. Completed products shall conform completely to all governing codes and specifications stipulated in the Design Contract Documents, and Plans.
2. Quality Assurance Program is an integral part of the ongoing manufacturing activities of the Fabricator.

Although periodic inspections may be carried out by the ENGINEER, the purpose of these inspections is to note general conformance to the design documents. It is still the responsibility of the Fabricator to produce a quality product, in complete conformance with the design documents, and to document and correct any non-conformance. All documentation, including that submitted, shall be kept on file by the Fabricator, for review, if requested by the OWNER or ENGINEER.

Fabricator shall provide, to the ENGINEER, suitable documentation showing a minimum of three (3) previously successful float fabrication projects, including current names, addresses and contact numbers of the corresponding float owners.

- B. Fabrication Facility. The fabrication facility shall provide the proper environment and physical conditions necessary for construction of high quality timber float units. The facility shall provide adequate work space, equipment, level working surfaces, and protection from direct sunlight, wind, and moisture. The Fabricator shall have the capability to carry out the following work in-house or on a contract basis.
- Design of lifting and erection devices not shown on the Drawings.
 - Preparation of Shop Fabrication Drawings.
 - Receiving, checking and storing of materials for the floats.
 - Dimensional checking and verification.
 - Resolution of non-conformities.
 - Documentation of all stages of work with capability of tracing all major components.
 - Handling, storing, shipping and delivery
- C. The float units shall be assembled as shown on the Plans. All float units shall be clearly identified with the date of manufacture, and specific float designation per Plans. Any float materials damaged during transport and delivery and/or during handling and fabrication operations shall be repaired or replaced by the Fabricator, at the discretion of the ENGINEER, and at no additional cost to the OWNER.
- D. Walking surfaces of installed float units shall be level and flush with adjoining float units. Maximum height variation between adjoining surfaces shall be 1/8-inch.
- E. Deck of overall float unit shall be within the following level tolerances under design dead load:
1. Maximum transverse freeboard differential for float units shall be one-inch.
 2. Maximum longitudinal freeboard differential for float units shall be one-inch.
- F. The manufacturer shall be required to perform quality control of the coated flotation billets, checking for adequate coating thickness and for the presence of any holes in

the coating which expose the polystyrene. Application of the coating shall be accomplished with multiple layers or in such a manner as to minimize holes caused from trapped gases within the polystyrene.

3.2 TRANSPORT AND DELIVERY

- A. The CONTRACTOR shall assume full responsibility for any damages or losses resulting from the handling or transporting of float units and/or any float components during loading, shipping, transport and delivery to a local Ketchikan barge company's dock.
- B. Any float unit and/or float components damaged during transport and delivery and/or during any other handling operations prior to final acceptance shall be repaired or replaced by the CONTRACTOR at the discretion of the ENGINEER and at no additional cost to the OWNER.

END OF SECTION

1. GENERAL**1.2 DESCRIPTION**

All material and equipment incorporated into this project shall be new unless otherwise noted on the plans. Material not specifically noted in these General Notes or elsewhere on the drawings shall be submitted by the Supplier for approval by the Engineer. Approved will be based on conformance to current standards utilized by the Owner. All materials shall conform to good, acceptable industry standards and manufacture's recommendations.

1.2 REFERENCES

- E. International Code Council (ICC). "International Building Code (IBC) 2006.
- F. American Association of State Highway Bridge (AASHTO). "Standards Specifications for Highway Bridges. Seventeenth Edition, 2002".
- G. American Society for Testing and Materials (ASTM) Standards, current edition.
- H. American Institute of Steel Construction (AISC), "Manual of Steel Construction, Allowable Stress Design, Ninth Edition".
- I. American Institute of Steel Construction (AISC), "Manual of Steel Construction, Load and Resistance Factor Design, Third Edition".
- J. American Welding Society (AWS), "D1.1 Structural Welding Code – Steel, current edition."
- K. American Concrete Institute (ACI), "ACI Manual of Concrete Practice, current edition.
- L. American Concrete Institute (ACI), "318-05 Building Code Requirements for Structural Concrete and Commentary".

1.3 SUBMITTALS

The following is a partial list of required submittals for this project. The Engineer may require additional submittals.

- N. Steel certification for all steel.
- O. Coating certification for all steel.
- P. Steel coating repair methods.
- Q. AWS weld procedure specifications for all welding.
- R. AWS welder qualification records for welders working on this project.
- S. On site testing of filed welding of piles.
- T. Steel fabrication shop drawings.
- U. Non slip surface sample.
- V. Mill Test reports and Manufacturer's Mill Certificate.

2. PRODUCTS**2.1 MATERIALS and CONSTRUCTION**

All material and equipment incorporated into this project shall be new unless otherwise noted on the plans. Material not specifically supply noted in these specifications or elsewhere on the drawings shall be submitted by the Supplier for approval by the ENGINEER. Approval will be based on conformance to current standards utilized by the Owner. All materials shall conform to good workmanship, acceptable industry standards

and manufacturer's recommendations.

Structural Steel

- D. Wide Flange Shapes shall be A992 Grade 50.
- E. HP Shapes shall be A572 Grade 50.
- F. Plate and Flatbar shall be A572 Grade 50, unless otherwise noted.
- G. Rectangular and Square HSS shall be ASTM A500 grade B
- H. Round HSS shall be ASTM A500 Grade B or C.
- I. Pipe sections with 12" O.D. or less shall be ASTM A53 Grade B, type E or S.
- J. Channels shall be minimum ASTM A36.
- K. Angles shall be minimum ASTM A36.

All steel shall be galvanized unless otherwise noted.

Bolts and other hardware

All connecting bolts for steel to steel shall be ASTM A325 with threads excluded from the shear plane. All steel to concrete and anchor bolts shall be ASTM F1554, Grade 55, or as specified on the drawings. All other bolts shall be ASTM A307 with heavy hex nuts or as otherwise shown on the drawings. All bolts shall be galvanized, unless otherwise noted. For bolts in treated wood, swab field drilled bolt holes with preservative before installing bolts.\

All stainless steel bolts, screws, nuts, washers, piano hinge rods and miscellaneous hardware called out as stainless steel (S.S.) shall be Type 316.

Washers are required under both head and nut of all bolts unless otherwise noted. Cut washers shall be ¼ inch thick plate with diameter to match equivalent malleable iron washer. Cut washers or economy heads are required wherever bolt heads or nuts bear against wood.

Threaded sleeves shall have compatible threads to the fastener being attached. Sleeves shall be able to develop the full strength of the fasteners being attached.

Steel Welding

All field and shop steel welding shall conform per AWS D1.1 Structural Welding Code – Steel, current edition.

Deposited filler metal shall meet Charpy V-Notch requirements of 20 ft-lbs at -20 8F and have chemistry similar to the base metal as approved by the Engineer. Filler metals shall only be used in welding positions recommended by the manufacturer. Welding consumables shall be stored and their condition shall be maintained per AWS Section 5.

Pre-heat shall be based on material grade and thickness shown herewith, per AWS tables. Uniformity of pre-heat shall conform to AWS stipulations.

Welding personnel shall be qualified per AWS to weld procedures and weld positions necessary for the joint details specified herewith. All steel fabrication shop drawings shall reference the weld procedure specification for each weld detailed. Weld procedure specifications shall be submitted with the shop drawings. Submittals verifying welder qualifications must be transmitted to the Owner for approval prior to any welding.

No welding through galvanized coating shall be performed. The galvanizing within 2" of the weld shall be removed prior to welding and repaired as discussed in coating repair.

All welds shall be visually inspected to comply with the visual inspection criteria, for statically loaded non-tubular and tubular connections, per AWS Section 6.

Where noted by contractor's submittal, non-destructively test welds using UT (Ultrasonic Inspection), RT (Radiographic Inspection), MT (Magnetic Particle Inspection) methods, per AWS Section 6. Acceptance criteria shall be for non-cyclic loading. Welds failing shall be repaired at the Contractor's expense, which will also include all costs for retesting, to achieve passing inspection test.

Galvanizing

All bolts, nuts, washers, sleeves, weldments, shapes, and other miscellaneous metals and hardware shall be hot-dip galvanized per ASTM A123 or A153 as appropriate, unless otherwise noted. Fabrications and fabricated hardware shall be hot dipped galvanized after fabrication.

Spray Metalizing

Spray metalize with zinc per Steel Structures Painting Council (SSPC) Guide # 23. A minimum dry coating thickness of 6 mils is required for steel that is at or above elevation 21'. For steel located below elevation 21', a minimum dry coating thickness of 12 mils is required. Contractor shall mask off all areas that will be field welded such as pile, plate or stud locations. Areas of steel encased in concrete within 2" of any concrete edge may be left bare.

Spray Metalizing may also be used as an alternate to hot-dip galvanizing.

The following items shall be spray metalized:

- A. Floating Dock Mooring Dolphin pile caps
- B. Breasting and Mooring Dolphin pile caps
- C. Other specifically noted items

Non-Slip Surface

Non-Skid Coating. The top surfaces of all full piano hinges shall be coated with "Sure-Grip", or approved equal, in Safety Yellow, to a minimum 60 mil DFT. "Sure-Grip" is available from *Farwest Painting Manufacturing Company* in Tukwila, WA. The coating shall be applied in the shop, specifically per manufacturer's recommendations. Finish

shall have nape that provides adequate non-skid characteristics acceptable to industry standards. Damaged finish shall be cause for rejection. Supplier shall provide samples of coated, galvanized steel plate with various roughnesses to the ENGINEER for approval. Supply 2 gallons spare paint.

The following items shall have non-slip surfaces unless otherwise noted:

- A. Transition plates
- B. Gangway deck plate
- C. Mooring Bollard attachment plates
- D. Other specifically noted items.

Coating Repair

All damaged galvanizing and spray Metalizing, including that removed for welding, shall be repaired per ASTM A780 and modified as follows:

Repair using hot zinc sticks to a minimum thickness of 12 mils, followed with a top coat of painted on zinc rich paint (clean, warm area then rub in zinc stick, cool and brush paint zinc rich paint).

2.2 DELIVERY, STORAGE, AND PROTECTION

- C. Protect steel piles and miscellaneous metal during handling and transport to jobsite. Loring Representative should inspect the piles after shipping from Seattle to Ketchikan and before shipping to Loring.
- D. The CONTRACTOR shall assume full responsibility for any damages or losses resulting from the handling or transporting of steel piles and/or any miscellaneous steel components during loading, shipping, transport and delivery to the fabrication and/or project site as well as the subsequent handling required on site for installation.
- E. Any steel piles and/or any miscellaneous steel components damaged during transport and delivery and/or during any other handling operations prior to final acceptance shall be repaired or replaced by the CONTRACTOR at the discretion of the ENGINEER and at no additional cost to the OWNER.

END OF SECTION