FRANK JONES

SandyHill

March 25, 1988

Mr. Arthur Wright
S. D. Warren Company
89 Cumberland Street
Westbrook, ME 04092

Dear Art:

Attached is the final specifications for the Wet Lap Machine with the changes we discussed by phone on March 25th.

The following changes to your purchase order #43745 should be made to bring the purchase order into agreement with the machine specifications:

A - Scope

1. 316L should be 316.

5.a Three frame mounted control panels 316 SS construction with front access door, pre-wired and piped to internal terminal strips and bulkhead fittings.

5.b 316L should be 316.

C - Payment Terms

Insert "proof of shipment" in place of receipt (third payment paragraph) and "to" in place of at.

D - Scheduling

Change second sentence to read "the machine will be delivered complete around November 1, 1988. Reference shipping schedule Section 800 "Agreement" in specifications.

E - Engineering Information Schedule

Change "by April 1, 1988" to read per submitted engineering schedule.

F - Equipment Delivery

Replace with "Reference shipping schedule" Section 800 "Agreement" in specifications.

Sandy Hill Corporation
Hudson Falls, New York 12839-0803/Telex 145364/Phone (518) 747-3381
Telefax (518) 747-0880

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J - Performance Warranty
Change date to March 25, 1988.

Sincerely yours,

Charles E. Pound
Sales Engineer

CEP/mw
Enc.

SandyHill

Specification No. 1886-86-02-2

Covering

Wet Lap Pulp Machine

S. D. Warren Company

Westbrook

Maine

March 25, 1988

Sandy Hill Corporation
Hudson Falls, New York 12839/Telex 145364/Phone (518) 747-3381
Telefax (518) 747-0880

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Once in operation it is expected that the wet lap machine will be operated in such a manner as to absorb production capacity changes caused by pulp mill and/or paper machine(s) swings, consistent with the design data for the wet lap machine.

This will enable S. D. Warren to operate their plant in a manner that maximizes the efficiency and return on investment of their new pulp mill, while maintaining machine uptime during pulp MILL problems.

The wet lap line will also allow S. D. Warren to market hardwood pulp to their other plant locations, or other companies to yield the maximum benefits based on current market conditions.

Installation time is further reduced due to the pre-erection of the major components at Sandy Hill's Hudson Falls location or the location of their supplies to assure all bolting and framing dimensions are correct before being delivered to the mill site.

S. D. Warren is strongly encouraged to visit Sandy Hill during this phase of the construction to familiarize its people with the equipment and installation techniques employed.

Cylinder Mould Description

The mould drum is of double cylinder type with multiple cell walls supporting the outer deck which is of solid perforated stainless steel. The cylinder is completely fabricated with sloping cells to permit a rapid drainage of the white water to the suction box. Each cell wall forms a complete separate drainage section. The drum has 95 individual sections.

The suction box is located at the tending side of the cylinder. A positive vacuum seal is provided consisting of a replaceable phenolic laminate on the suction box against the stainless steel valve seat on the drum. The

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Section 100 - General

This specification outlines a new Kamyr Wet Lap Machine for S. D. Warren's Westbrook, ME plant as depicted in Sandy Hill's Proposal Drawing No. P-0-1886-86, and detailed in Section 300 - Equipment Listing - of this proposal.

This proposal conforms to the "Instructions and Conditions Governing Proposals" Appendix G, submitted to Sandy Hill Corporation, 27 Allen Street, Hudson Falls, NY (the vendor), by S. D. Warren Company, subsidiary of Scott Paper Company, Westbrook, ME (the owner).

Copies of this proposal will be distributed in accord with these instructions per Section I, Item B.

The Kamyr Wet Lap Machine to be supplied will consist of a 96" x 96" mould and vat, two H-700 presses, drives for the mould, presses and the cutter layboy (LAYBOY SUPPLIED BY S.D. WARREN, LAYBOY DRIVE SUPPLIED BY SANDY HILL), the foundation sill beams, and frame mounted controls for the operation of the mould and presses. Drive control components will be a combination of frame mounted controls to effect draw control and emergency stop situations, along with loose controls to be remotely mounted by S. D. Warren to control the remaining drive functions.

The unit will produce an average of 130 tons per day, 220 tons per day peak production of 100% hardwood pulp at a final consistency of 48% to 50% solids, and deliver this web to a cutter layboy to be supplied by S. D. Warren for sheeting and stacking.

The wet lap machine will be located in the existing wood room on the present barking drum foundations as indicated by Sandy Hill Drawing No. 1-20445, Revision 1.

Production guarantees for this machine are listed in Section 700 of this proposal.

drum is supported on spherical roller bearings and is drawn up to the suction box by a small controlled force through Belleville washers located at the bearing on the suction box. The vacuum tends to draw the drum closer to the suction box and hence improves the seal with increased vacuum. The phenolic laminate acts as a thrust bearing to balance the load incurred by the vacuum. Filtered water is required to lubricate the wearing surfaces.

The mould is equipped with a hot water shower, two pneumatically loaded press rolls, two lead-off rolls and a wire cleaning shower. The mould is further equipped with air discharge, the pulp sheet being lifted off the cylinder drum by positive air pressure within the drainage channels directly onto the discharge doctor. The air thus introduced also assists in cleaning the wire. A traveling trim squirt is provided to form a tail to feed the press section.

The operation of the mould takes place as follows:

The sheet formation starts immediately as the cylinder submerges below the vat level, the first half of the sheet formation being effected by the static head of the stock in the vat. The second half of the sheet formation takes place under vacuum, which vacuum is maintained at the displacement shower and during pressing action. A positive vacuum break is provided prior to the air discharge.

Press Description

The press consists of two heavy cast iron rolls, supported in spherical roller bearings and loaded by hydraulic cylinders. Lubrication of the bearings is normally by static oil or grease.

The rolls are grooved to permit removal of the water as it is pressed out of the sheet. The grooves on the first press are relatively coarse with finer

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grooves on the second press. The water squeezed out from the bottom side of the pulp sheet drops directly to the saveall pan from the lower roll. The water squeezed out from the top side of the sheet is first collected by a water doctor riding on the pulp sheet and then passes through funnels at each end to the saveall pan below.

Guide rolls are provided at the discharge from the nip to avoid reabsorption of the water squeezed out from the sheet. Further provided is a support roll and tension roll arrangement with a rotary position transducer for draw control of the press. The tension roll is pneumatically controlled and can be raised when threading the pulp sheet.

Both top and bottom rolls are equipped with scrapers with replaceable blades to keep the grooves clean.

"Sonar" ultrasonic controls (or equal) are provided to automatically raise the top press roll in case of sheet breakage, to avoid unnecessary wear of the press roll grooves.

There is appreciable expansion of the sheet due to the pressing action. A "Mount Hope" roll is provided, leading into the second press to spread the sheet and thus minimize wrinkling.

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Feltless Pulp Machine suitable for the following operating conditions:

Design Production Rate	130	TPD
Maximum Production Capacity Approximately)	220	TPD
Stock Consistency Entering Former	1:0	% AD
Pulp Consistency Leaving Cylinder Mould	25-30	% AD
Pulp Consistency Leaving Press Section	50-55	% AD
Normal Operating Speed	125	FPM
Speed Range	38-150	FPM
Mould Face Wire	96	Inches

Motor Sizes are as follows::

Cylinder Mould	20	HP Variable Speed
Press (Each)	50	HP Variable Speed
Vacuum Pump	60	HP @ 1150 RPM
Cutter/Layboy	30	HP Variable Speed

Water Requirements are as follows:

Mould Hot Water Shower 180-200° F.	150	GPM @ 10 PSI
Mould Sealing Water (Filtered F.W.)	50	GPM @ 75 PSI
Mould Wire Cleaning Shower	55	GPM @ 75 PSI
Mould Tail Cutting Shower	.5	GPM @ 150 PSI

Air Requirements for Mould Discharge: 70 CFM @ 12" Water Column

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Section 300 - Equipment Listing

Cylinder Mould Specifications 8' Diameter x 96" Working Width

Quantity	Description	
1	Cylinder Mould	
	Inclusions:	Outer deck 9/32" perforated (316 S/S) Perforations approximately 5/16" diameter on 1/2" triangular spacing Inner deck 3/16" (316 stainless steel) Division strips 3/16" (316 stainless steel) Internal reinforcing rings 3/4" mild steel Valve Seats 3/4" (316 stainless steel) Bearings 23044 sealed with double Garlock klozures
1	Suction Box	
	Inclusions:	Fabricated of 3/4" mild steel suitably reinforced with all parts in contact with stock or white water lined with 16 gauge 316 stainless steel Valve seal phenolic resin or equivalent Filtrate discharge connection 20" O.D. Vacuum connection 14" O.D.
1	Vat	
	Inclusions:	3/16" (316 S/S) supported by suction box on one side and stainless lined mild steel frame on opposite side. Vat equipped with cleanout opening and cover, and 10" dump valve connection (valve excluded)

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Quantity	Description	
1	Inlet Box	
	Inclusions:	Fabricated from 1/8" 316 stainless steel (Floor supports not included)
2	Riding Rolls	
	Inclusions:	Pre-press roll 16-3/4" O.D. grooved JADESTONE cover. Pneumatic loading cylinders 8" diameter x 6" stroke. Bearings - 22317. Press roll 18-3/4" O.D. grooved JADESTONE cover. Pneumatic loading cylinder 12" diameter x 6" stroke. Bearings - 22317.
2	Discharges	
	Inclusions:	Lead-off rolls 9" O.D. JADESTONE cover. Bearings 1209. Air blow-off with stainless steel doctor and delivery chute. Fan - 700 CFM at 12" water column complete with 5 HP TEFC (SIEMENS ALLIS PE 21) motor direct coupled to fan Motor Starter and breaker by customer
2	Showers	
	Inclusions:	Hot water shower 3-1/2" O.D. stainless steel Wire cleaning shower 3-1/2" O.D. stainless steel Trim squirt to cut tail
1 Set	Deckle Straps	
	Inclusions:	5/8" x 1" stainless steel
1 Set	Sealing Strips	
	Inclusions:	3-Ply Balata belting 3-1/2" wide

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Quantity	Description	
1	Facing Wire	
	Inclusions:	316 stainless steel, 24 Mesh double-twist 98" x 26'-0" long (included by Sandy Hill but installed by customer).
1	Load Control Station	
	Inclusions:	Stainless steel enclosure Necessary operator devices Wired internally to terminal strips Piped internally to bulkhead fittings
1	Separator	
	Material:	316 stainless steel
	Dimensions:	Approximately 4' diameter x 14' high
1	Vacuum Pump	
	Make:	Nash
	Model:	CL1502
	Inclusions:	Spray nozzles, silencer, v-belt drive, 60 HP Seimans Allis PE21 TEFC motor Starter and breaker by S.D. Warren
1	Vacuum Breaker Valve	
	Inclusions:	Manual adjustment

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S.D.Warren - 300-4
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Item 302 - Press Specifications - H-700 x 102" Face

Quantity	Description	
2	H-700 Presses consisting of:	
4	Press Rolls	
	Inclusions:	Rolls 27-7/8" diameter cast iron
		Trunnions SAE 4140 steel
		Bearings - 24156
2	Tension Rolls	
	Inclusions:	6" Standard pipe JADESTONE covered
		Bearings - 2109
		Swing arms and cross shaft
		Rotary position transducer
2	Lead-out Rolls	
	Inclusions:	5" Diameter, JADESTONE covered.
1	Lead Roll	
	Inclusions:	5"" Standard pipe, JADESTONE covered
1	Mt. Hope Roll	
	Inclusions:	6-1/4" Diameter fixed bow
2 Pairs	Press Frames	
	Construction:	Fabricated steel
2 Pairs	Lever Arms	
	Construction:	Fabricated steel

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Quantity	Description	
2	Support Rolls	
	Inclusions:	6" standard pipe, JADESTONE covered
2 Pairs	Press Loading	
	Inclusions:	12" diameter hydraulic cylinders
		Press designed for a nip pressure of 2800 lbs. per lineal inch
2	Water Doctors	
	Inclusions:	302 STAINLESS STEEL blade supported in steel holder
		End funnels
2	Scrapers	
	Inclusions:	Brass blade supported in steel holder
2 Sets	Linkage Pins	
	Construction:	Chrome plated steel for easy removal
2	Sheet Break Detector	
	Inclusions:	"Sonac" ultrasonic (or equal)
2	Local Control Stations	
	Inclusions:	Stainless steel enclosures
		Necessary operator devices
		Wired internally to terminal strip
		Piped internally to bulkhead fittings

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S.D.Warren - 300-6
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Item 303 - Drive Specification

Quantity	Description
Cylinder Mould	
1	Gear Reducer Inclusions: Falk reducer FC3 1080 with enclosed gears between reducer and cylinder including baseplate for motor and reducer, and 1060T high speed coupling
1	Microprocessor Control Design: 20 HP DC - 300
1	SPSV DC Motor Design: 20 HP 1150 RPM motor Frame size 2513AT Enclosure size 90" x 24" x 20" Inclusions: DC Motor digital tachometer
*1	ISOLATION TRANSFORMER DESIGN: 34 KVA (IN ORIGINAL PROPOSAL 2/16/88)
Press Drives	
2	Gear Reducers Inclusions: Falk reducer FC2-1090 with enclosed helical gears between reducer and press, high speed Falk coupling 1070T Base plate for motor and reducer
2	Microprocessor Controllers Design: 50 HP, DC - 300

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Quantity	Description	
2	SPSV DC Motor	
	Design:	50 HP 1150 RPM Motor
		Frame size 366AT
		Enclosure size 90" x 60" x 20"
	Inclusions:	2 - DC Motor digital tachometers
*2	ISOLATION TRANSFORMERS	
	DESIGN:	63 KVA (IN 2/16/88 PROPOSAL)

Cutter Drive

1	Microprocessor Controller	
	Design:	30 HP DC-300
1	SPSV DC Motor	
	Design:	30 HP, 1750 RPM Motor
		Frame size 2513AT
		Enclosure size 90" x 24" x 24"
	Inclusions:	DC Motor digital tachometer
1	Coupling	
	Inclusions:	Falk high speed coupling between motor and gear reducer (S.D. Warren to supply bore dia. and key size of high speed gear reducer shaft)
1	Isolation Transformer	
	Design:	175 KVA

*THE 175 KVA ISOLATION TRANSFORMER INCLUDES ALL THE ISOLATION TRANSFORMER, KVA REQUIREMENTS FOR THE WET LAP MACHINE. THE ONE (1) 34 KVA AND TWO (2) 63 KVA ISOLATION TRANSFORMERS ARE NO LONGER REQUIRED.

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Miscellaneous Controls

Quantity	Description
4	Line/Independent Selector Switch Mounted on each of the above drives
1	Handheld Programmer
1 Set	Loose Operator Devices for the drive to be mounted at customer's master control station
1	Hydraulic Power Unit Inclusions: Two pumps with motors Heater Cooler Reservoir Filters Starters and breakers by S. D. Warren

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S.D.Warren - 300-9
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Item 304 - Foundation Beam Specification

Quantity	Description	
2	Machine Direction Sill Beams	
	Dimension:	34' long each
	Material	Fabricated carbon steel rectangular design
3	Cross Machine Girts	
	Dimension:	18" x 108"
	Material:	Carbon steel, 18" pipe, extra heavy wall
	Inclusions:	Flanged ends to bolt to sill beams

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S.D.Warren - 300-10
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Item 305 - Suggested Spare Mechanical Parts

Quantity	Description
3	Mould Face Wires Design: 24 Mesh double twist, 98" x 26'-0" long
1	Spare Suction Seal Material: Ryertex
2	Hydraulic Rod Seals - Miller P/N 051-KR015-250 Inclusions: 2-1/2" Bolted bushing
2	Bore Repair Kits for 12" Pistons - Miller P/N 091-KB001-1200 Inclusions: Seals Wear Rings Tube end seals
1	Replacement Hydraulic Filter - Miller P/N 580-80071

Suggested Electrical Spare Parts

1	20 HP DC-300 Microprocessor Control
1	50 HP DC-300 Microprocessor Control
1	30 HP DC-300 Microprocessor Control
1	20 HP 1150 RPM SPSV DC Motor w/Digital Tachometer
1	50 HP 1150 RPM SPSV DC Motor w/Digital Tachometer
1	30 HP 1750 RPM SPSV DC Motor w/Digital Tachometer

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