



MEMO

TO: Ragged Mountain Recreation Area Foundation Board of Directors  
FROM: Jeff Kuller  
DATE: 4/9/10  
SUBJECT: Recommendation to Purchase Used Triple Chairlift

As you are most likely aware, the Town of Camden has the opportunity to purchase a 1984 Riblet Triple Chairlift from Shawnee Peak. Shawnee plans to replace this lift beginning in the next week or so, and they would like to know very soon if they will be selling it to us.

Two offers have been made by Chet Homer the owner of Shawnee Peak: A) \$40,000 paid immediately and \$80,000 due in the future when we begin installation; or B) \$110,000 paid immediately for the entire lift. Either way, the lift must be delivered to our site within the next couple months. Their preference is to load it directly onto trucks and ship it to our site as it is being removed.

In order to determine what the lift is worth and if it would fit our needs we contacted George Kruger an independent ski lift installer (who also gave us an estimate on doing all the lift work for our project, and who will be doing the lift removal and replacement work for Shawnee) and Ross Stevens a lift engineer who has done work for us in the past and is engineering the new lift at Shawnee. George thought the lift was worth \$75,000. Ross felt that \$100,000 was a fair price.

In addition, Ross wrote us a letter indicating that he thought this lift would be a good fit for the Snow Bowl for the following reasons:

- The motor is actually somewhat larger than we need. It could be replaced for some energy savings.
- The existing drive is in good condition but could be upgraded with some newer technology.
- The lift has been well maintained.
- The lift has a design speed of 450 ft/min with 179 chairs spaced 49.1 ft resulting in an uphill capacity of 1650 ppl/hr. Shawnee runs it at 425 ft/min to accommodate many intermediate level skiers, giving a capacity of 1518 ppl/hr. The current uphill capacity of both our chairlift and Big T-bar combined is 1480 ppl/hr, so even at the slower speed the new lift would meet our needs. If we install a lift with higher capacity it would put our lift capacity out of sync with our trail capacity, resulting in overcrowding on our trails.

With new numbers we have assembled on the cost of engineering, shipping, relocating our existing chairlift, and installing all of the lifts as proposed in the redevelopment plan, we now project our costs to be about \$100,000 over the last budget created on 8/29/08. This assumes we buy a triple chairlift for \$100,000. From what I can tell we are unlikely to find another suitable chairlift for that price and for the associated shipping costs from such a nearby location. We could certainly wait for another lift to become available, however in these economic times there is very little lift upgrading taking place at North American ski areas. Therefore I recommend we contact Chet Homer soon to attempt to purchase this lift.

I urge your immediate attention to this decision. Chet is a motivated seller and I learned just today that Song Mountain in NY State is now looking for a similar lift. I will be leaving on a vacation this Thursday, returning on April 30.

## Knowlton, Richard L.

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**From:** Knowlton, Richard L.  
**Sent:** Thursday, July 29, 2010 5:20 PM  
**To:** Bob Gordon (rgordon@brimstoneconsulting.com)  
**Cc:** Roberta Smith; jkuller@town.camden.me.us  
**Subject:** Snow Bowl Chairlift  
**Attachments:** Riblet Chair Purchase and Installation Estimate.xls

Greetings Bob,

At the RMRA Redevelopment Committee meeting last Friday, the Committee unanimously recommended the negotiation and purchase of the Riblet triple chairlift from Shawnee Peak in Bridgton for redeployment at the Snow Bowl. With this message, we ask that the RMRA Foundation initiate further discussions with Chet Homer, owner of the lift and Shawnee Peak, towards this end. The Redevelopment Committee is in hopes that the Foundation, and not the Town of Camden, can procure the lift as it is at this time. Primary reasons for this somewhat unusual approach include:

- **Timing.** The current owner has returned the deposit made by the Foundation and is actively seeking a buyer. A negotiation and purchase by the Town of Camden may take weeks or months. Used lifts suitable for redeployment at the Snow Bowl are few and far between. Currently, there is only one other known option in North America.
- **Public Perception.** While the initial purchase of the lift components represents only a small portion of the total cost of an installed and operating chairlift, the impression that the Town is committing funds for a new chairlift at this time could appear to many as premature support for the full project; the "the cart before the horse" so to speak.

Through the due diligence completed on this potential opportunity, we have developed the following materials:

- A preliminary plan, profile and capacity design of a new chairlift on Ragged Mountain that extends from the base lodge to the top of the long t-bar. This was completed by Ross Stevens of Stevens Engineering.
- An assessment of the 1984 Riblet chairlift components that are available for purchase and an inventory, with estimated costs, of additional components necessary to complete a reinstallation of this lift on Ragged Mountain. This was also completed by Ross Stevens of Stevens Engineering.
- An estimate of the full installed and operating costs of this chairlift on Ragged Mountain. This was a joint effort of Fitzzy, Rick Knowlton and George Kruger, a lift installation contractor.

Our estimate of installed cost suggests that this lift could be completed for our current project budget of \$750,000 if the lift components available from Shawnee Peak can be purchased for \$100,000 or less. This is less than the original asking price of \$120,000. If you are in agreement with our suggested temporary ownership of these components by the Foundation, then our assumption is that members of the Foundation would take the lead in the negotiations with Mr. Homer.

Please discuss this with your Board and let me know what you would like from the Redevelopment Committee. I could put together information packets, attend a Board meeting, etc. I have copied you on my correspondence with Chet Homer over the past few weeks, so you are aware that he will be forwarding a purchase and sale agreement that he used to purchase a used lift from Loon Mountain in New Hampshire in hopes of assisting us in putting a deal together.

Look forward to hearing from you,  
Rick

## Camden Parks and Recreation Department

7/14/2010

## Estimate of Installed Cost of Riblet Chair from Shawnee Peak, Bridgton ME

1 Purchase Price of Chairlift Components	\$	100,000
2 Preliminary Engineering and Assessment	\$	8,500
3 Transport Lift Components to Camden	\$	12,800
4 Purchase/Fab Additional Lift Components		
Drive terminal steel leg support	\$	6,000
Drive terminal bullwheel retention device	\$	4,000
DC Electric Drive	\$	28,100
Return terminal bullwheel retention device	\$	4,000
New Haul Rope (installed)	\$	78,400
New low voltage control & communications wiring	\$	33,500
Tower steel tube and bases supply and fabrication	\$	23,000
Tower flanges design and fabrication	\$	22,500
Tower lifting frames	\$	60,000
<hr/>		
Subtotal for Chairlift Component Purchase	\$	380,800
5 Final Engineering for Installation	\$	15,000
6 Clearing, Grading, Roadwork (3,900 feet/9 acres)	\$	40,000
7 Base and summit sitework/grading/erosion control	\$	12,000
7 Tower/Terminal Foundation blasting (8 of 19 for 80 cy)	\$	10,000
8 Terminal Foundation Concrete form and pour (35 cy)	\$	35,000
9 Anchor Bolts and grout	\$	3,400
10 Equipment rental (crane and all terrain forklift)	\$	11,000
11 Electrical disconnect & distribution panels @ drive terminal	\$	8,000
12 Rewire drive terminal	\$	10,000
13 Installation Labor (5 men, 6 weeks) and expenses	\$	96,000
14 Miscellaneous fabrication work	\$	25,000
15 Paint full lift and towers	\$	22,000
16 Contractor Mobilization, OH, Profit (15%)	\$	43,110
17 Drive Terminal Operator Station	\$	4,000
18 Return Terminal Ramp and Operator Station	\$	9,000
19 Contingency	\$	25,000
<hr/>		
Subtotal for Chairlift Installation	\$	368,510
<hr/>		
<b>Total Cost of Triple Chairlift</b>	<b>\$</b>	<b>749,310</b>



**STEVENS  
ENGINEERING**

P.O. Box 1945 New London, NH 03257  
Tele: (603) 526-2493 Fax: (603) 526-2003

May 18, 2010

Mr. Jeff Kuller, Director  
Camden Parks & Recreation Department  
P.O. Box 1207  
Camden, Maine 048403

Subject: Riblet Triple Chairlift  
Camden Snow Bowl

Dear Jeff:

Stevens Engineering has recently completed a preliminary engineering design for the relocation of the Shawnee Peak, Riblet triple chairlift to Camden Snow Bowl. The design documentation was emailed to you in .pdf format yesterday and 3 original copies are included in this mailed package. The design is called *preliminary* as it is based upon photogrammetric mapping that has been made available to us from Horizons Engineering. Although the accuracy of the mapping is approximate, it is a good representation of how the Riblet chairlift design will fit on the hill at Camden Snow Bowl. We anticipate that some changes in the actual contour of the hill are likely once the proposed chairlift route is field-surveyed. When the survey information is obtained, we can proceed with the final engineering design for the chairlift relocation.

The design documentation consists of Preliminary Lift Engineering Data and Preliminary Plan and Profile drawings (2 sheets) and is based upon the actual parts and equipment of the Shawnee Peak Riblet triple chairlift. The Preliminary Lift Engineering Data is a summary of the geometry and engineering performance characteristics of the chairlift once located at Camden Snow Bowl. At its maximum speed of 450 ft/min the chairlift will deliver an uphill capacity of approximately 1800 people per hour with a chair loading interval of 6 seconds. It will have 175 chairs spaced at approximately 45 feet and the uphill ride will take approximately 8.2 minutes. As we anticipated previously, the chairlift will use less horsepower at Camden Snow Bowl that it did at Shawnee Peak. The existing 300 hp motor and electric drive could therefore likely be downsized to 250 hp.

The Preliminary Plan and Profile drawings show the proposed chairlift in the location that has been identified by Horizons Engineering. The existing ski trails and ground contours are shown (based upon photogrammetric mapping) and the proposed location of chairlift terminals and towers are shown. The chairlift profile has been engineered according to the actual Riblet chairlift equipment available from Shawnee Peak. We have strategically used all of the sheave assemblies from Shawnee in the most appropriate locations on the proposed towers. Approximately 17 towers will be required due to the gently rolling shape of the hill. Ski-under clearance is possible under the entire length of the proposed chairlift with the exception of the first few hundred feet between the drive terminal and tower #2.

This chairlift can be operated any speed less than its maximum of 450 ft/min. Looking forward to the final design, there are many adjustments that can be made and fine-tuning that can be accomplished

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www.stevens-engineering.com

based upon input and preferences from you and your associates at Camden Snow Bowl. In the meanwhile, it is my professional opinion that the Shawnee Peak Riblet chairlift will be a very good fit at Camden Snow Bowl.

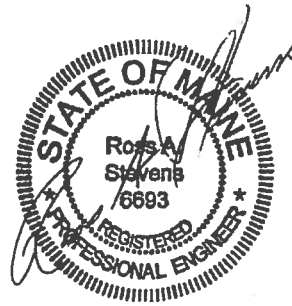
Please do not hesitate to contact me for discussion or if there is any additional information that you may need.

Sincerely,  
STEVENS ENGINEERING



Ross A. Stevens, P.E.

Cc: Bill Fitzcharles





CLIENT: CAMDEN SNOWBOWL  
 LIFT: RIBLET TRIPLE CHAIRLIFT  
 LOCATION: CAMDEN, MAINE

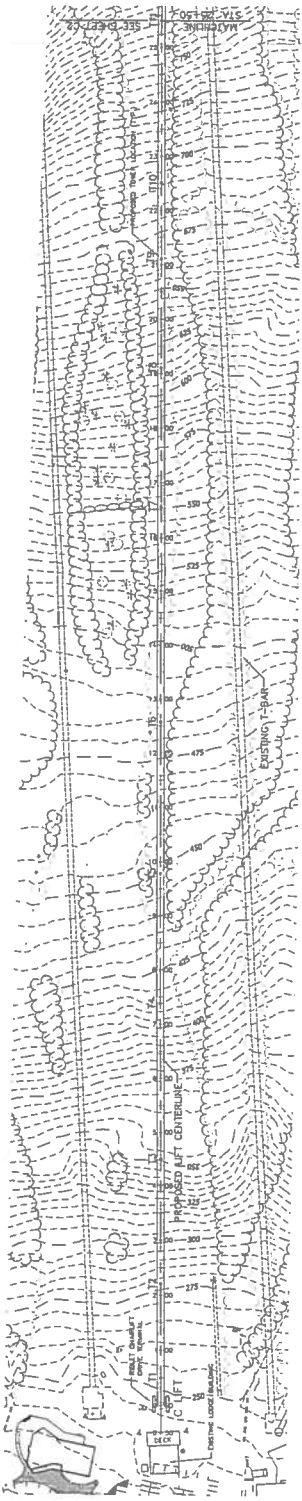
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**PRELIMINARY LIFT ENGINEERING DATA**

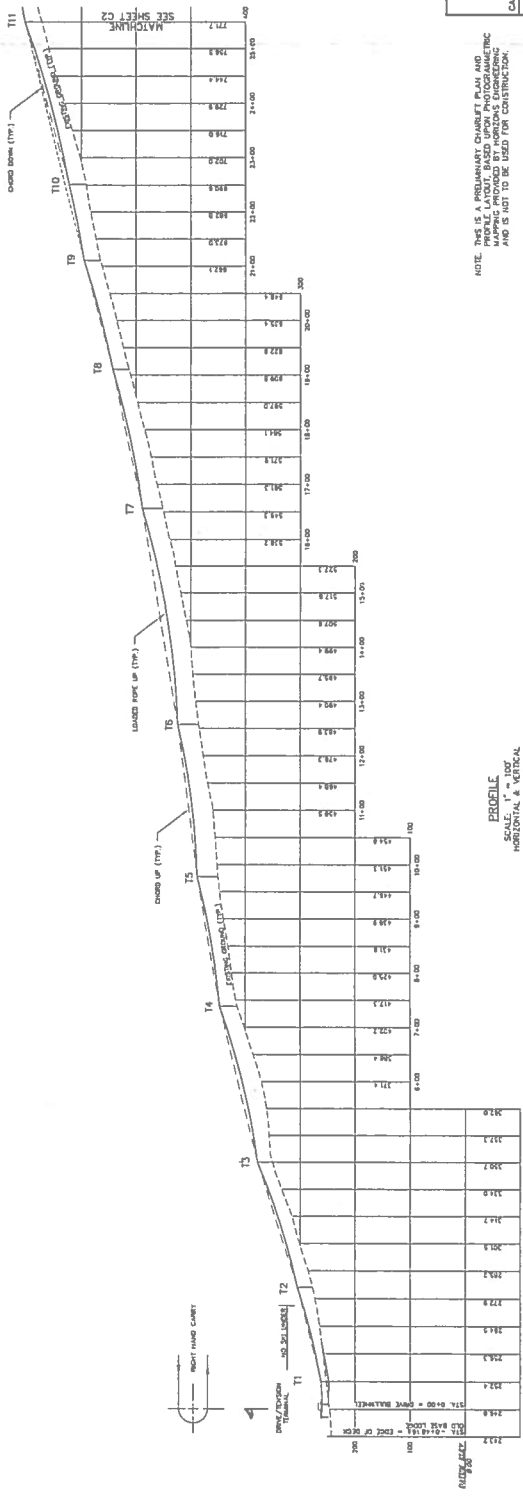
VERTICAL RISE (FT.).....	786.71	ROPE SPEED.....	450															
HORIZONTAL LENGTH (FT.).....	3612.46	CARRIER SPACING.....	45.08															
SLOPE LENGTH (FT.).....	3697.13	LOADING INTERVAL.....	6.01															
AVERAGE GRADE (%).....	21.78	CAPACITY.....	1798															
% DOWNHILL LOADING	0	VTFH.....	1414572															
DRIVE AT.....	BOTTOM	ROTATION.....	CCW															
TENSION AT.....	BOTTOM	INSTALLED	2011															
DESIGN SNOW DEPTH FT.	3	INSTALLATION #.....																
<b>ROPE DATA:</b>	<b>HAUL ROPE</b>	<b>HYDRAULIC TENSION</b>																
SPLICED LENGTH (FT.)	7889.18	# OF CYLINDERS	2															
DIAMETER (IN)	1.500	OPER. PRES. (PSI)	1175															
DIAMETER (MM)	38.00	CYLINDER DIA. (IN.)	6.00															
CONSTRUCTION	6 X 25	ROD DIA. (IN.)	2.25															
CORE	FIBER	NET AREA (S.I.)	24.30															
WEIGHT (LB/FT)	4.05	(Per Cylinder)																
GRADE	XXIP																	
TENSILE STRENGTH (LBS)	222000																	
<b>DESIGN FACTOR</b>	<b>5.63</b>																	
TENSIONER FORCE (LBS.)	57101	<b>ROPE FRICTION</b>																
NO. OF HYDRAULIC RAMS	2	<table border="1"> <tr> <td></td> <td style="text-align: center;">UP</td> <td style="text-align: center;">DOWN</td> </tr> <tr> <td>LOADED =</td> <td style="text-align: center;">2276</td> <td style="text-align: center;">882</td> </tr> <tr> <td>EMPTY =</td> <td style="text-align: center;">882</td> <td style="text-align: center;">882</td> </tr> <tr> <td>BARE =</td> <td style="text-align: center;">499</td> <td style="text-align: center;">499</td> </tr> <tr> <td>LINE FRICTION COEF. =</td> <td colspan="2" style="text-align: center;">0.035</td> </tr> </table>			UP	DOWN	LOADED =	2276	882	EMPTY =	882	882	BARE =	499	499	LINE FRICTION COEF. =	0.035	
	UP	DOWN																
LOADED =	2276	882																
EMPTY =	882	882																
BARE =	499	499																
LINE FRICTION COEF. =	0.035																	
<b>NO. CARRIERS.....</b>	<b>175</b>																	
CARRIER CAPACITY.....	3	EFF. up =	0.75															
CARRIER WEIGHT (EST.) (LBS.).....	140.0	EFF. dn =	0.50															
LINE GAGE (FT)	12.0	PERSON WT.	170															
TRIP TIME (min).....	8.2																	
UNIT WEIGHT LOADED (LBS).....	18.47	EMPTY....	7.16															
TENSION DROPS LOADED (LBS).....	16805	EMPTY....	4747															
HAUL ROPE TENSIONS (LBS).....	MAX =	39401	MIN = 22448															
BULLWHEEL DIAMETER (FT).....	BOTTOM =	12.00	TOP = 12.00															
<b>BULLWHEEL LOAD @ MAX. TORQ.....</b>	<b>BOTTOM =</b>	<b>57101</b>	<b>TOP = 78654</b>															
MAXIMUM DRIVE WHEEL TORQUE (FT-LBS).....		73235																
<b>SLIPPAGE RATIO.....</b>	<b>1.54</b>	FRICITION FACTOR.....	0.138															
SHEAR RATIO (1/value)	34.53	DRIVE REDUCTION.....	146.50															
		DRIVE EFFICIENCY.....	85.00															
		MOTOR SPEED (RPM)..	1750															
		(DRIVE REGULATED)																
HORSEPOWER REQUIRED AT DRIVE BULLWHEEL.....		167																
<b>THEORETICAL MOTOR HORSEPOWER.....</b>		<b>196</b>	<b>MOTOR HP 300</b>															

**MAP KEY**

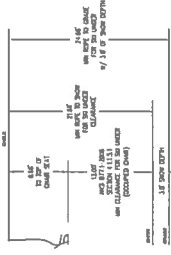
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- EXISTING 5" CONTOUR
- EXISTING TRENCH
- PROPOSED TRENCH FOR PLAN
- PROPOSED TRENCH FOR PROFILE
- PROPOSED TRENCH FOR CONSTRUCTION



**PLAN VIEW**  
SCALE: 1" = 100'



**PROFILE**  
SCALE: 1" = 100'  
HORIZONTAL & VERTICAL



**PRELIMINARY PLAN AND PROFILE**

**CAMDEN SNOW BOWL  
RIBLET TRIPLE CHAIRLIFT**



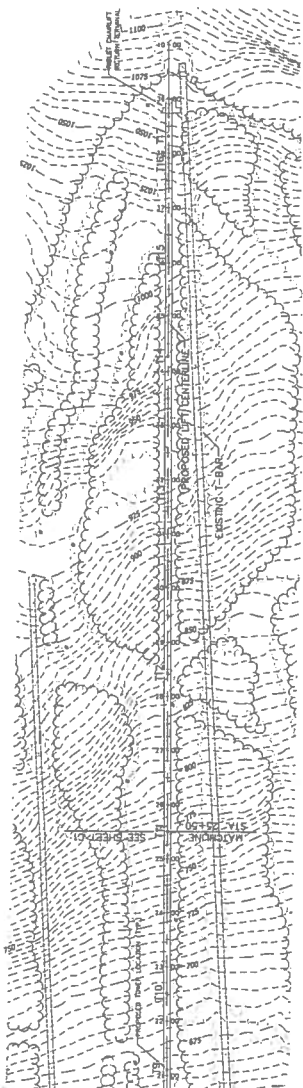
P.O. BOX 111111, WASHINGTON, D.C. 20011  
www.stevenson-engineers.com

C1

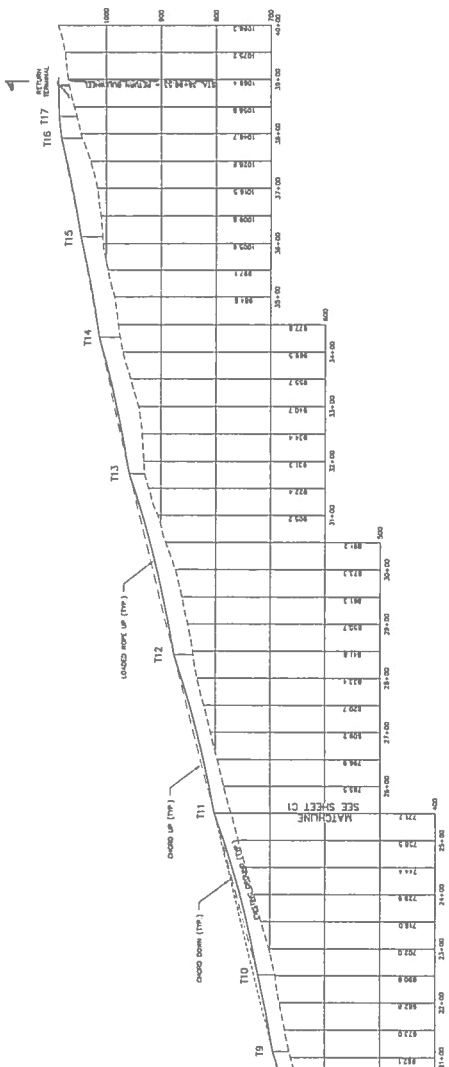
Drawn By: J. HARRIS  
Checked By: R.L. BRADY  
Scale: 1" = 100' H & V  
Date: 02/22/10

NOTE: THIS IS A PRELIMINARY CHAIRLIFT PLAN AND PROFILE LAYOUT, BASED UPON PHOTOGRAMMETRIC DATA. THIS LAYOUT IS NOT TO BE USED FOR CONSTRUCTION.

NO.	REVISION	DATE
1		
2		
3		
4		



PLAN VIEW  
SCALE: 1" = 100'



PROFILE  
SCALE: 1" = 100'  
HORIZONTAL & VERTICAL

PRELIMINARY  
PLAN AND PROFILE

CAMDEN SNOW BOWL  
RIBLET TRIPLE CHAIRLIFT



C2

Checked By: S.A. STEVENS  
Drawn By: J. WOODS  
Scale: 1" = 100' P.S. 19  
Date: 05/22/09

Rev.	By	Date
5		
4		
3		
2		
1		
Rev.		





**STEVENS  
ENGINEERING**

P.O. Box 1945 New London, NH 03257  
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May 26, 2010

Mr. Jeff Kuller, Director  
Camden Parks & Recreation Department  
P.O. Box 1207  
Camden, Maine 048403

Subject: Riblet Triple Chairlift  
Camden Snow Bowl

Dear Jeff:

On April 13<sup>th</sup> I visited Shawnee Peak with Bill Fitzcharles for the specific purpose of looking-over the Riblet chairlift and CTEC towers that are in storage at Shawnee Peak. The Riblet chairlift will use mostly the CTEC towers that are available when the lift is relocated to Camden Snow Bowl. Bill and I spent the day measuring the existing CTEC towers and taking inventory of tower equipment, looking over the drive terminal and machinery and looking over the mid-station and top terminal areas of the lift. We took some engineering notes of the specific machinery and machinery name plate data in the drive terminal and determined the extent to which some of the equipment and modifications to existing equipment would be necessary when the lift is relocated. As you may know, when a lift is relocated it must be upgraded to meet current standards in effect at the time it is installed. In this case, the primary standard is: ANSI B77.1-2006, American National Standard for Passenger Ropeways – Aerial Tramways, Aerial Lifts, Surface Lifts, Tows and Conveyors – Safety Requirements. I will provide you with a collection of digital photographs that I have taken of the Riblet chairlift. I will be able to attach a few photos to this report and will put the remainder on disc and will them to you.

Generally, the existing Riblet triple chairlift at Shawnee Peak is in good condition and has been well maintained. There are 175 carriers available with this chairlift. During the last 2 years we have modified the chair restraint bars at the request of Shawnee Peak to provide some additional space for passengers sitting in the chairs. To my knowledge, there have been no other modifications made to the chairlift. The following list if items represents necessary or required expenditures to accomplish the relocation and recommendations for improving/updating the existing Riblet chairlift equipment.

#### Drive Terminal

- **Necessary** - The drive terminal is a 4 legged, combined overhead drive-tension terminal with hydraulic tensioning. The 4 steel support legs are embedded in the existing concrete footings; thus, when the drive terminal is dismantled the legs will need to be cut-off above the footings. A new length of steel tube (about 5') will need to be added to each leg when the lift is reinstalled.
- **Required** – A bullwheel retention device must be installed.
- **Recommended** - The Sabina electric drive is somewhat antiquated. It will need a device that can monitor the lift deceleration rate. It is recommended that this electric drive be replaced with a new and up to date electric drive.
- **Recommended** - The existing electric motor is a 300 Hp motor. Although this motor could be used at Camden Snow Bowl our preliminary engineering calculations indicate that a 250 Hp electric motor will

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serve the needs of the Riblet chairlift installation at Camden Snow Bowl. A new motor with less horsepower will result in operational cost savings in the long run.

#### Line Equipment

- **Necessary** - The haul rope must be replaced as it has reached the end of its useful service life.
- **Necessary** – A new communications cable, connecting hardware and terminal boots will need to be installed.
- **Necessary** - According to our preliminary profile calculations for the Relocated Riblet chairlift at Shawnee Peak approximately 17 towers will be required. Bill Fitzcharles and I verified that there are 10 CTEC towers in storage at Shawnee Peak and we took measurements on these towers. Towers #1 and #7 on the existing Riblet chairlift are still standing on the lift line and these 2 towers will be available to Camden Snow Bowl also. New base flanges for these 2 towers will be required as the existing Riblet base flanges are embedded in the existing concrete tower footings. There are 5 remaining tower bases as a result of Shawnee Peak using portions of steel tower tube for the relocation of their CTEC chairlift. In summary, there are 12 towers and 5 tower bases available. This is enough for the Camden Snow Bowl installation according to our preliminary profile engineering calculations. Additional 20" dia. x 1/4" wall steel tube will be needed to make-up the tower masts for the 5 existing tower bases.
- **Necessary** - All sheave assemblies from the existing Riblet chairlift are available and will be used at Camden Snow Bowl. At Camden Snow Bowl the entire Riblet tower top (including sheave assemblies) from each Riblet chairlift tower will be used and installed on the CTEC tower masts. Stevens Engineering will design a steel flange connection for the Riblet tower tops and CTEC tower masts so that the tower tops can be bolted to the tower masts. As mentioned previously, 2 of the towers will consist entirely of Riblet original equipment.
- **Recommendation** - The existing Riblet tower tops presently do not have lifting frames. Although not a requirement of the ANSI B 77.1-2006 Standard, lifting frames are extremely beneficial in the performance of routine and preventive maintenance on ski lift towers. Camden Snow Bowl should consider the possibility of adding lifting frames to all support towers or, at a minimum, obtaining or fabricating a portable lifting device that could be used on all support towers.

#### Return Terminal

- **Required** - The return terminal will need a bullwheel retention device.

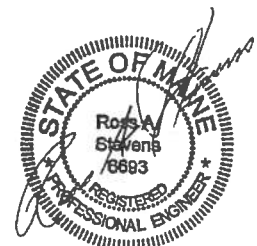
Sincerely,  
STEVENS ENGINEERING



Ross A. Stevens, P.E.

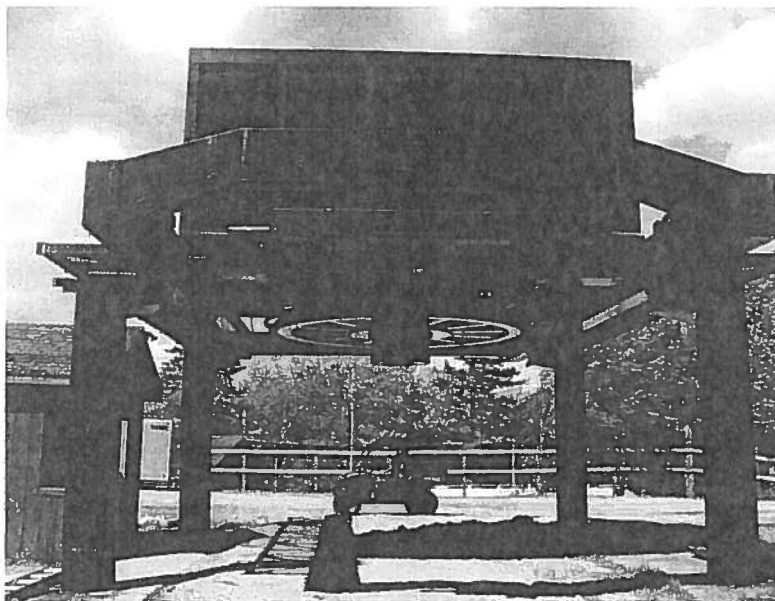
Cc: Bill Fitzcharles

steveng@tds.net  
www.stevens-engineering.com

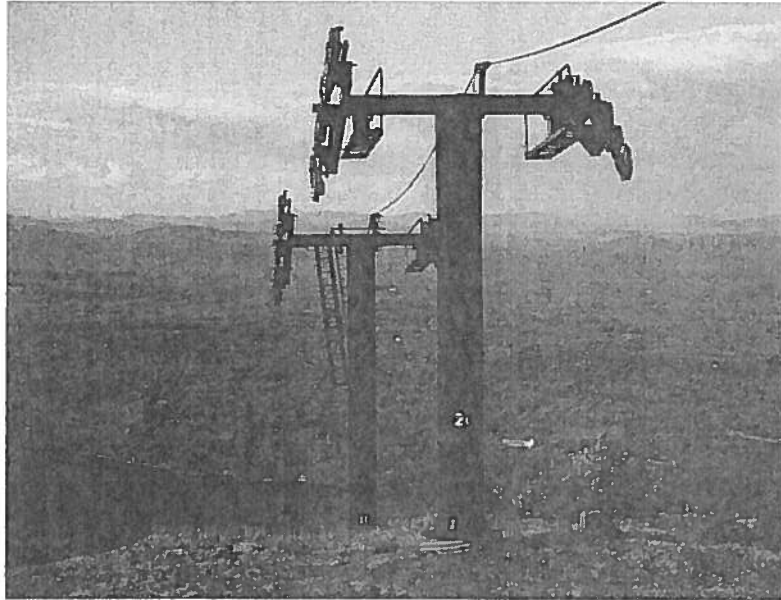




Riblet Drive Terminal and Tower #1



Riblet Drive Terminal



Top Riblet Towers



Riblet Return Terminal

## **Knowlton, Richard L.**

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**From:** Ross Stevens [steveng@tds.net]  
**Sent:** Friday, July 02, 2010 3:17 PM  
**To:** Knowlton, Richard L.  
**Subject:** RE: Riblet Chairlift equipment upgrade budget

1. The existing 300 hp motor is in good condition and was reportedly serviced by Tom Bates of New Hampshire Electric Motors within the last few years. Presumably it is the original motor that came with the Riblet chairlift. Tom Bates is of the opinion that there would be no significant operating cost savings by going with a motor of smaller horsepower. Using this motor will save you about \$25,000!
2. YES. You will just need additional steel tower tubing and plates for the tower tops. This is a matter of fabrication for someone like George Kruger. All of the sheave assemblies from the Shawnee Peak installation will be used at Camden Snow Bowl according to our "preliminary design".
3. The auxiliary drive is OK.
4. I counted 175 carriers at Shawnee Peak. This is the same number of carriers that our preliminary design for the Camden Snow Bowl lift called for. The existing carriers appear to be in good condition.

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**From:** Knowlton, Richard L. [mailto:RLKnowlton@aquaamerica.com]  
**Sent:** Wednesday, June 30, 2010 11:49 AM  
**To:** Ross Stevens  
**Subject:** RE: Riblet Chairlift equipment upgrade budget

Hi Ross,

Thanks for the report and the estimate. I do have a few questions:

1. Why would you suggest the existing 300 hp motor is "practical to use"? Was its age and condition assessed?
2. Does the tower work estimate include additional complete towers and sheave assemblies as necessary to complete our installation? I was under the impression that we would need additional complete towers.
3. Auxiliary drive is ok?
4. Carrier chairs are all ok and there is an adequate quantity?

Thanks,  
Rick

---

**From:** Ross Stevens [mailto:steveng@tds.net]  
**Sent:** Tuesday, June 29, 2010 3:46 PM  
**To:** Knowlton, Richard L.  
**Subject:** Riblet Chairlift equipment upgrade budget

For your use.



# STEVENS ENGINEERING

P.O. Box 1945 New London, NH 03257  
Tele: (603) 526-2493 Fax: (603) 526-2003

MEMO TO: Richard Knowlton  
SUBJECT: Camden Parks & Recreation Department  
FROM: Ross Stevens, P.E.  
DATE: June 29, 2010

Attached please find the following budget items relating to the Shawnee Peak, Riblet triple chairlift relocation. These items are presented in the same order as the recommendations in my letter report dated May 26, 2010.

## Drive Terminal

Replace 4 24" dia. x 5' long steel legs for the drive terminal.	Budget	\$6,000
Bullwheel retention device (design, fabricate and install)	Budget	\$4,000
New Regenerative, DC Electric Drive (supply and install) (Includes start-up and acceptance testing)	Budget	\$28,100
New 250 Hp Reliance DC Electric Motor <i>(Existing 300 Hp motor from Shawnee Peak will be practical to use at Camden Snow Bowl)</i>	Budget	\$25,125

## Line Equipment

New Haul Rope (installed)	Budget	\$78,400
New Communications Cable, all tower wiring and new low voltage control system	Budget	\$33,500
Tower tube and tower base (supply and fabrication)	Budget	\$23,000
Tower flanges (design and fabrication)	Budget	\$22,500
Tower lifting frames	Budget	\$60,000

## Return Terminal

Bullwheel retention device (design, fabricate and Install)	Budget	\$4,000
Total (excluding new electric motor)	Budget	\$259,500