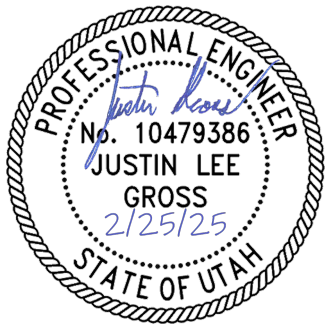
Preliminary Calculations

Project State/Province: Utah
Resort Name: Snowbasin
Lift Name: Becker
Lift Type: Detachable
Carrier Capacity: 4P

LPOA Project Number: C52356

Calculations Compiled: February-25



Civil Engineer
Foundations, Profile, and Structural

Preliminary Lift Equipment Data Sheet

Area:	Snowbasin	Date:	2/13/2025
Lift Name:	Becker	Job #:	C52356
Lift Type:	Detachable - 4P		

General Specifications

Capacity Initial:	1880	pph		
Capacity Final:	2400	pph		
Vertical Rise:	391.27	m	1283.69	ft
Slope Length:	1734.17	m	5689.53	ft
Line Gauge:	4.80	m	15.75	ft
Carrier Capacity:	4	place		
Drive Location:	Top			
Tension Location:	Bottom			
Rotation:	CCW			

Initial Capacity Specifications

Number of Carriers:	94			
Speed Uphill:	5.08	m/s	1000	fpm
Speed Downhill:	5.08	m/s	1000	fpm
Downhill Loading:	10	%		
Overhauling:	No			
Carrier Spacing:	38.91	m	127.66	ft
	7.7	sec		

Final Capacity Specifications

Number of Carriers:	119			
Speed Uphill:	5.08	m/s	1000	fpm
Speed Downhill:	5.08	m/s	1000	fpm
Downhill Loading:	10	%		
Overhauling:	No			
Carrier Spacing:	30.48	m	100.00	ft
	6.0	sec		

TBD: To Be Determined N/A: Not Applicable

Preliminary Lift Equipment Data Sheet

Area:	Snowbasin	Date:	2/13/2025
Lift Name:	Becker	Job #:	C52356
Lift Type:	Detachable - 4P		

Haul Rope Specifications

Rope Diameter:	40.0 mm	1.57 in	Safety Factor:	5.25	
Rope Weight:	5.71 daN/m	3.91 lbs/ft	Rope Construction:	6x25 FW	
Min. Break Strength:	115000 daN	258530 lbs	Maximum Angle:	32.0	°
Preliminary Max Tension:	21901 daN	49235 lbs			

Drive Equipment

Drive Bullwheel Ø:	4.00 m	13.12 ft		
Gearbox or Direct Drive:	Gearbox		Gearbox Primary Ratio:	55.2 :1
Gearbox Manufacturer:	Kissling		Auxiliary Input Ratio:	1 :1
Gearbox Model:	PK23M-SB600HW		Evacuation Input Ratio:	2 :1
Primary Drive:	Electric Motor		Quantity of Motors:	1
Manufacturer:	ABB		Connection:	Flexible Coupling
Model:	M3BP 400LKD 6		Speed:	1338 RPM
Power:	448 kW	600 HP		
Auxiliary Drive:	Diesel Engine		Quantity of Engines:	2
Manufacturer:	Cummins		Power Per Unit:	400 HP
Model:	QSM11		Connection:	Drive Line
Torque Converter:	Twin Disc TD 8-1750			
Evacuation Drive:	Use Either Auxiliary		Quantity of Engines:	2

Braking Equipment

Service Brake		**Emergency Brake**	
Model:	LP Service Brake	Model:	Poma 10T Disc
Quantity:	1	Quantity:	1
Location:	High Speed Input	Location:	Bullwheel
Rollback Brake			
Model:	Poma 10T Disc		
Quantity:	1		
Location:	Bullwheel		

TBD: To Be Determined N/A: Not Applicable

Preliminary Lift Equipment Data Sheet

Area:	Snowbasin	Date:	2/13/2025
Lift Name:	Becker	Job #:	C52356
Lift Type:	Detachable - 4P		

Carrier and Grip Equipment

Carrier

Carrier Manufacturer:	Leitner-Poma
Carrier Model:	EEZII 4P
Restraint Bar:	w/ Footrest
Carrier Weight:	295 daN 663 lbs

Grip

Grip Manufacturer:	Leitner
Grip Model:	LPOA-N
Grip Slip Test Value:	950 daN 2136 lbs

Line Equipment

Number of Towers:	23
Sheave Train Type:	Leitner-Poma Ø450mm Standard

Tension Equipment

Tension Location:	Bottom	Nominal Pressure:	53 Bar
Tension Force:	19600 daN 44063 lbs	Maximum Pressure:	58 Bar
Number of Cylinders:	2	Minimum Pressure:	47 Bar

Electrical System

Drive

Manufacturer:	Leitner	Voltage:	480 VAC
Model:	LeitDrive	Controller:	VFD
Quantity:	4		

Control System

Manufacturer:	Leitner-Poma of America, Inc.	Anti-collision MFG:	Leitner-Poma
Model:	2025 Detachable Chair	Deropement Circuit:	CPS + Brittle Bar

Explanation of Line Calculations

CALCULATIONS EXECUTED BY COMPUTER

1) ROPELINE CALCULATION

a) LOADING CASES

Analysis of the lift line under all design loading conditions is required to insure that there is no possibility of insufficient sheave loading occurring under any combination of specified operating conditions. For example when a lift is designed for parking of carriers during poor weather conditions the design loading cases differ slightly from a standard lift. Having carriers on one side of the line and bare cable on the other side of the line becomes a design loading condition rather than a special case, which only occurs during construction or maintenance.

In determining of tower loadings, sags, tensions, etc. the cable is assumed to have an evenly distributed load. This is an approximation used to simplify the calculations without causing undue error. In the case of extreme point loads such as with a tram this method should not be used. The following calculations determine the distributed loads used in the design loading cases.

LIFT CAPACITY	=	C (people/hr)
CABLE SPEED	=	V (m/s)
DOWNHILL LOAD	=	D (%)
CARRIER CAPACITY	=	N (people/carrier)
CARRIER SPACING	=	S (m/carrier)
CARRIER INTERVAL	=	I (sec/carrier)
WEIGHT OF EMPTY CARRIER	=	WC (dan/carrier)
WEIGHT OF ONE PASSENGER	=	WP (daN/passenger)
WEIGHT OF BARE CABLE	=	WB (dan/m)

DISTRIBUTED LOADS (daN/m)

BARE = WB

EMPTY = WB + WC/S

FULL = WB + WC/S + (WPxN)/S

DOWN = WB + WC/S + (WPxNxD)/S

b) FORMULAE FOR CALCULATING LINE LOADS

ASSUMPTIONS:

- Catenary curve is assimilated to a parabolic arc
- Friction factor at each tower is constant
- Cable is uniformly loaded along entire lift line
- Tower loading occurs at theoretical working point where parabolic arcs intersect

TENSIONS:

The tensioning system supplies a constant force to the cable which is the basis of the line calculation. In general the calculations begin where the tensioning force is applied and progress to the other end of the lift, adding or subtracting friction accordingly. Using this tensioning force the tower loadings and span geometry for each loading case are calculated.

TOWER LOADS:

The calculation of load at each tower is an iterative process involving the determination of friction at that particular tower. The incoming and outgoing tensions at the tower are initially assumed to be equal. Load and friction are then calculated and the outgoing tension is adjusted to account for this friction. The process is iterated using the new outgoing tension until convergence occurs at the correct friction value. The correct loading, tension and geometry values are then included in the table for that particular loading case after which the next tower is calculated. The accompanying diagram and formulae shown on the next page detail these calculations.

EXAMPLE OF CALCULATIONS:

- cable traveling in uphill direction
- uniform line weight = w

$$T'_n = T_{n-1} + (DY_{n-1} \times w)$$

$$TAVG_{n-1} = (T_{n-1} + T'_n)/2$$

$$SAG_{n-1} = \frac{w * (DX_{n-1})^2}{8 * TAVG_{n-1} * \cos^2(\alpha_{n-1})}$$

$$\tan(\beta_n) = (DY_{n-1} + 4 * SAG_{n-1})/DX_{n-1}$$

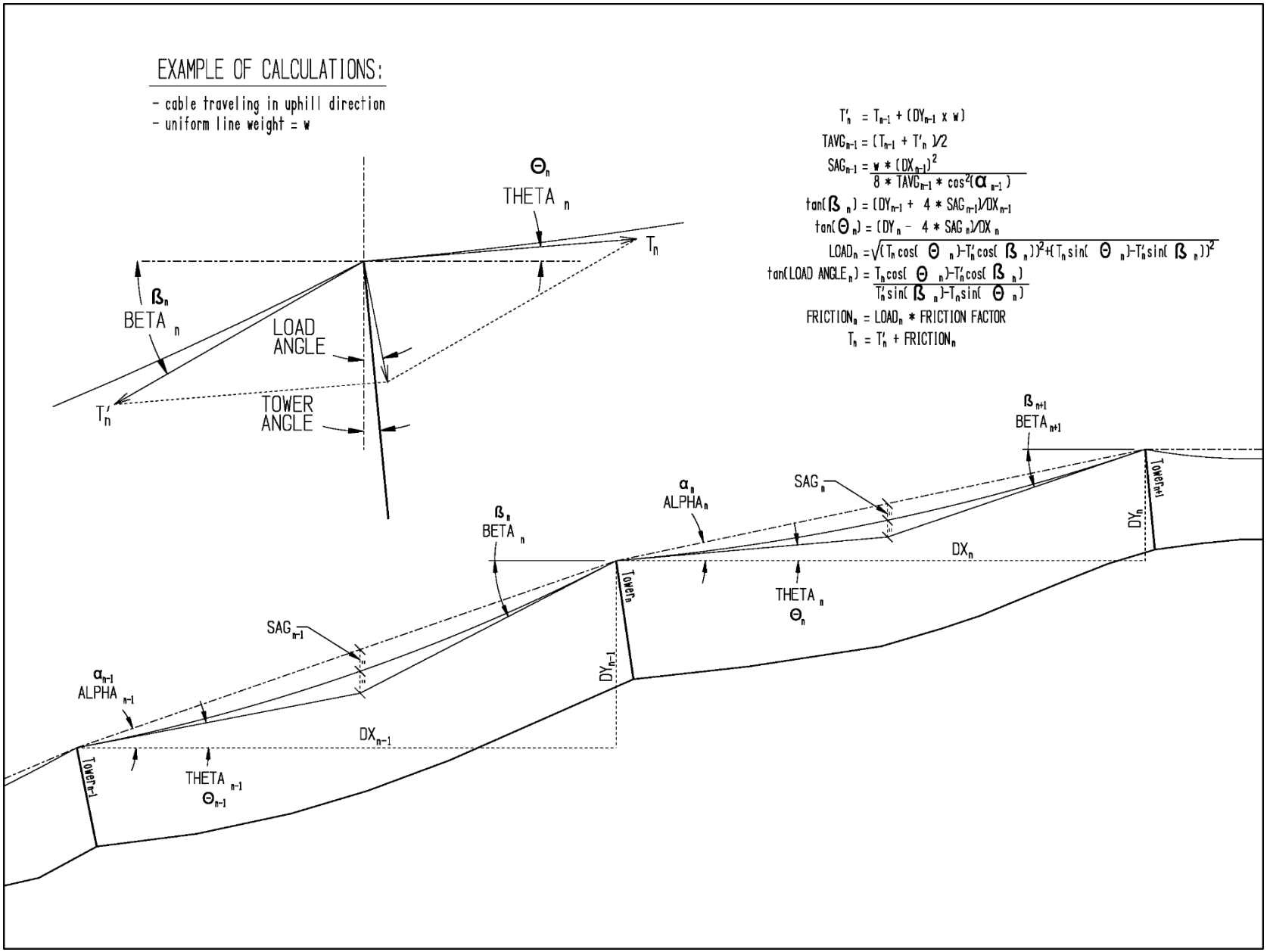
$$\tan(\Theta_n) = (DY_n - 4 * SAG_n)/DX_n$$

$$LOAD_n = \sqrt{(T_n \cos(\Theta_n) - T'_n \cos(\beta_n))^2 + (T_n \sin(\Theta_n) - T'_n \sin(\beta_n))^2}$$

$$\tan(\text{LOAD ANGLE}_n) = \frac{T_n \cos(\Theta_n) - T'_n \cos(\beta_n)}{T'_n \sin(\beta_n) - T_n \sin(\Theta_n)}$$

$$FRICTION_n = LOAD_n * \text{FRICTION FACTOR}$$

$$T_n = T'_n + FRICTION_n$$



c) DETERMINATION OF LINE EQUIPMENT

When determining what line equipment may be used on each tower a number of checks are performed to insure that applicable code requirements are met. Both the ANSI B77.1-2011 (United States) and the CAN/CSA-Z98-07 (Canada) are considered and the most restrictive requirement of the two is used. Poma also includes special restrictions above and beyond those detailed in the codes such as the 33% overload case, which is described in "TABLES".

d) TABLES

SUMMARY TABLE:

The summary table is headed with project number, ski area name, lift name and "SUMMARY TABLE". This is followed by a listing of each distributed load value used in evaluating the various loading cases. The table headings are as follows:

TOWER	This details the tower number or point of cable deviation. RBW = return bullwheel, DBW = drive bullwheel, *** = a point in the terminal where the cable deviates.
SIDE	U = up, D = down
MAX SAG	This is the maximum sag value found for the span uphill of the tower
MIN CURVE	This is the minimum radius of cable arc which corresponds to the MAX SAG discussed above
MAX BOA	The maximum break over angle for the sheave train is equal to the maximum absolute value of (BETA - THETA) which is used to calculate the maximum deflection per sheave.
MAX TENS	Maximum tension at the tower (either T or T') of all design loading cases
MIN TENS	Minimum tension (either T or T') of all design loading cases
MAX LOAD	Maximum load of all design loading cases
MIN LOAD	Minimum load of all design loading cases
33% OVER LOAD	This is a Poma safety requirement to insure that an overload will not cause deropement. MIN TENS and a distributed load of 1.33 * FULL is used in the adjacent spans to calculate this load. If a compression sheave train deropes under this condition it is changed to a support/compression.
30% UNDER TENS	This is a code requirement which considers the effect of a temporary reduction in tension due a sudden line surge. This check uses MIN TENS * .7 and FULL distributed load in the adjacent spans to calculate the load. If a compression sheave train wants to derope under these conditions support/compression is required.

50% OVER TENS	When a tower lies below the straight line drawn between two adjacent towers there is the possibility that a large increase in tension could cause a deropement. A fixed grip lift is checked using MAX TENS * 1.5 and a distributed load of EMPTY in the adjacent spans to determine this load. For a detachable lift the possibility of having bare cable is greatly increased. Therefore MAX TENS * 1.5 and distributed load of BARE in the adjacent spans is used. If a sheave train wants to derope under these conditions support/compression is required.
SHEAVE TRAIN	support sheaves are indicated with S compression sheaves are indicated with C

LOADING CASE TABLES:

There is a separate table included for each design loading case as described in "LOADING CASES". At the top of each table is found the project number, ski area name and lift name. This information is followed by the applicable loading case and distributed line loads used in the calculations. The following list describes the table headings which differ from those found in the summary table.

SAG	calculated sag for the span uphill of the tower
CURVE	radius of assimilated arc used in drawing of profile
BETA	downhill cable tangent angle (see example)
THETA	uphill cable tangent angle (see example)
K	ratio of sag/span for span uphill of tower
DX	horizontal distance of uphill span (see example)
DY	vertical distance of uphill span (see example)
TENS	cable tension T (see example)
LD ANGLE	load angle with vertical (see example)
LOAD	load on sheave train, + = support, - = compression

e) DETERMINATION OF TERMINAL EQUIPMENT

DRIVE BULLWHEEL:

In determination of the frictions and line loads at each tower a kinetic friction factor of .025 is normally used. This has proven to accurately predict the friction losses on a sheave due to compression of the liner, bearing friction, and so on although the actual friction does change somewhat with climactic conditions. In order to be conservative in the calculation of terminal equipment the UPHILL FULL / DOWNHILL EMPTY case is recalculated using a nominal friction factor (normally .03). This results in the calculation of a higher incoming tension on the drive bullwheel ($T_{.03}$) and a lower outgoing tension ($t_{.03}$). These values are used in calculation of the nominal torque placed on the drive bullwheel and thus the gearbox.

NOMINAL TORQUE	=	($T_{.03}$ - $t_{.03}$)	*	DRIVE BW DIA/2
daN·m	=	daN	*	m

All of the standard loading cases are checked to determine if the lift will produce overhauling torque. This will determine if any special retarding devices are required to insure that the lift cannot run away with a downhill load. The program checks each case to see if t > T.

IF t > T	OVERHAULING TORQUE	=	(t - T)	*	DRIVE BW DIA/2
	daN·m	=	daN	*	m

IF T > t OVERHAULING TORQUE = 0

Design speeds of the drive bullwheel.

FULL SPEED RPM=	FULL SPEED	*	60	/	(DRIVE BW DIA * π)
AUX SPEED RPM =	AUX SPEED	*	60	/	(DRIVE BW DIA * π)
EVAC SPEED RPM	=	EVAC SPEED	*	60	/ (DRIVE BW DIA * π)
Rev/min	=	(m/s)	*	(s/min)	/ (m/rev)

To determine the radial force applied to the drive bullwheel and therefore transferred to its supporting shaft all of the design loading cases are searched to find the maximum total force.

MAX CABLE LOAD	=	$(T+t)_{max}$
daN	=	daN

Allowable adherence is determined by the angle of cable wrap around the drive bullwheel (usually 180° or less) and the coefficient of friction of the bullwheel liner. The maximum kinetic adherence should not exceed the value calculated in the following formula. f=coefficient of friction (.205), a= angle of wrap in radians.

ALLOWABLE ADHERENCE	=	e^{fa}
ADHERENCE	=	T/t

Rotation from above refers to the direction of rotation of the drive bullwheel when viewed from above. Therefore a CCW lift would mean that the right hand side would be going uphill when viewed from the bottom of the lift.

GEARBOX:

This section details the required parameters for the various input shafts of the gearbox given the proper ratios, included are torque and speed of the input shaft for the stated line speed. As an example the requirements for the auxiliary input are calculated as follows.

Torque = NOMINAL TORQUE / (MAIN RATIO * AUX RATIO * AUX EFFICIENCY)
daN·m = daN·m

Speed = AUX SPEED RPM * MAIN RATIO * AUX RATIO
rev/min = rev/min

TENSION SYSTEM:

TENSION SYSTEM FORCE is the total force produced by the tensioning system and applied to the tension bullwheel. Tension system force is denoted by T_o.

TENSION PER SIDE = $T_o/2$.

When considering the use hydraulic rams it is assumed that all the rams are of the same size and they are pulling the carriage.

AREA OF HYDRAULIC RAM = (CYLINDER BORE^2 - SHAFT DIA^2) * $\pi/4$
cm^2 = cm^2 - cm^2

TENSION SYSTEM PRESSURE = T_o / (AREA * NUMBER OF HYDRAULIC RAMS)
Bars = daN / cm^2

For a lift with parking the carriage travel is determined by using the difference in total cable length under bare/bare condition and the total cable length under full/full condition. For a lift without parking the empty/empty and full/full cases are used. Carriage travel may consist of a number of components including environmental factors such as temperature. For the practical purposes of sizing the runways only the change in sag and elastic stretching of the cable due to change in tension are considered in this calculation.

CABLE:

TOTAL CABLE LENGTH is calculated for the full/full case, MAXIMUM TENSION is determined by searching all design loading cases, MINIMUM SHEAR RATIO the ratio of minimum tension to weight of a fully loaded carrier, MAXIMUM RADIAL ACCELERATION relates to the sheave spacing, arc of the sheave train and speed of the carrier passing over it. MAXIMUM CABLE INCLINATION is determined by searching all design loading cases for the maximum value of BETA. SIMULTANEOUS BREAKOVER SPANS is a measure of how many spans have a length approximately equal to a multiple of the carrier spacing. MAXIMUM DEFLECTION PER SHEAVE is a function of maximum break over angle divided by number of sheaves.

BRAKES:

Self-explanatory

ELECTRIC MOTOR:

These calculations assume that the electric motor is connected to the main gearbox input with V-Belts or some other form of power transmission. Otherwise ELECTRIC INPUT RATIO should be 1.

$$\text{POWER Hp} = \frac{(T-t) * (\text{DRIVE BW DIA}/2) * \text{FULL SPEED RPM} * .001404}{\text{MAIN GEARBOX EFFICIENCY} * \text{ELECTRIC INPUT EFFICIENCY}}$$

$$\text{SPEED rpm} = \text{FULL SPEED RPM} * \text{MAIN RATIO} * \text{ELECTRIC RATIO}$$

$$\text{STARTING TORQUE daN·m} = \frac{\text{DRIVE BW STARTING TORQUE}}{\text{MAIN RATIO} * \text{ELECTRIC RATIO} * \text{MAIN EFFIC} * \text{ELEC EFFIC}}$$

CARRIERS:

Self-explanatory

2) TOWER and TOWER FOOTING STRUCTURAL CALCULATIONS

a) GENERAL TERMINOLOGY

L	=	length of foundation
W	=	width of foundation
H	=	overall height of the foundation
D	=	depth of foundation below ground
Mlong	=	overturning moment in the longitudinal direction
Mtransv	=	overturning moment in the transverse direction
Mright	=	righting moment
Vlong	=	horizontal force in the longitudinal direction
Vtransv	=	horizontal force in the transverse direction
Vresist	=	resisting force in the horizontal direction
fp_{max}	=	maximum soil pressure
Fp_{allow}	=	allowable soil pressure
Σ vert	=	total vertical force = total resultant at soil
ϕ	=	soil friction coefficient

Refer to the spread footing diagram.

b) GENERAL DESIGN

Note: Any dimensions referred to as length are parallel to the centerline of the ropeway and width are perpendicular to the centerline of the ropeway.

The controlling load combination is determined. Typically, wind across the ropeway line, transverse, combined with the static forces longitudinal to the line is the worst case. The maximum wind occurs during non-operation, therefore, the static forces due to the haul rope with empty carriers is used.

A different load combination combines a reduced wind acting simultaneously with ice accumulation. Again, the empty carrier, non-operation, longitudinal static forces are used. This combination may control for sites with severe ice accumulation and long spans between towers.

Various wind orientations, seismic orientations, avalanche, and snow creep forces are also considered on a site specific basis.

The tower base forces are determined for the tower design. The square root of the sum of the squares of the longitudinal and transverse components for the bending moment and the horizontal force are used.

Mresult = bending moment at the base of the tower = $(M_{long}^2 + M_{transv}^2)^{½}$

Vresult = horizontal shear at the base of the tower = $(V_{long}^2 + V_{transv}^2)^{½}$

P = vertical load at the base of the tower (not including foundation)

Leitner-Poma uses two basic anchor bolt groups, the 4 bolt and the 8 bolt. In special cases a 12 bolt group is sometimes used. The anchor bolt groups are designed to exceed the strength of the maximum tower section that can be placed on them.

Two basic foundation types are used by Leitner-Poma. The Spread Footing model assumes only soil bearing under the spread. The Block Footing model assumes soil bearing upon the sides of the excavation as well as soil bearing under the footing. Each of these models is discussed more thoroughly below.

Under normal conditions the density of concrete is assumed to be CONC = 23.6 KN/m^3 = 150 lbs/ft^3. When there is excessive ground water present the effects of buoyancy are taken into account.

c) SPREAD FOOTING DESIGN

A general maximum aspect ratio used is 1.5:1. On rare occasion this ration may be violated slightly. The width is typically greater than the length due to the fact that transverse wind forces applied to the foundation are much greater across the line than along the line. An exception occasionally arises when avalanche or snow creep acts on the tower. This is a case by case situation.

Design for soil bearing follows common accepted engineering methods. For example, the eccentricity of the soil reaction is calculated for both the longitudinal and transverse axes. The eccentricity determines whether a triangular or trapezoidal soil bearing pattern occurs. It is worth noting that ropeway towers typically have significant overturning in both the longitudinal and transverse axes. The calculated soil bearing takes this into account.

The overturning and sliding forces are also handled using accepted engineering methods.

The density of backfill is assumed to be FILL = 17.3 KN/m^3 = 110 lbs/ft^3.

Refer to the diagram on the following page.

Four main design factors are checked to insure adequacy.

Mright/Mover > 1.5. Mover = Vx *H. The two directions are checked individually.

Vresist/Vslide > 1.5. Vresist is due to friction at the concrete to soil interface and/or passive earth pressure. Vslide = Vresult

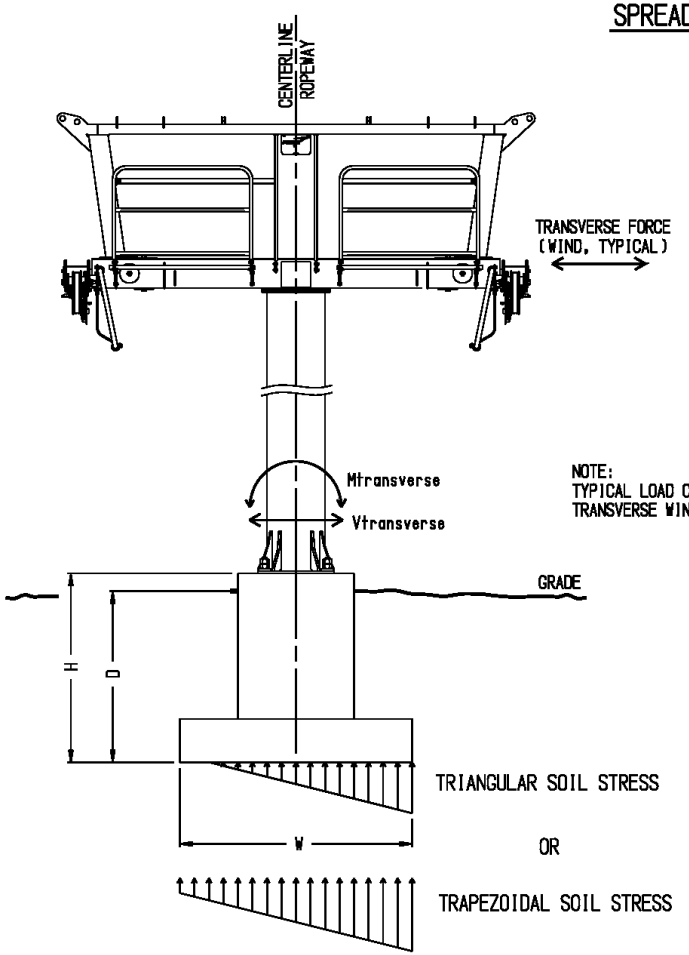
fp max < Fp

If the vertical design load P is negative, wanting to pull the footing out of the ground, then;

Abs(P)/Tension > 2.0

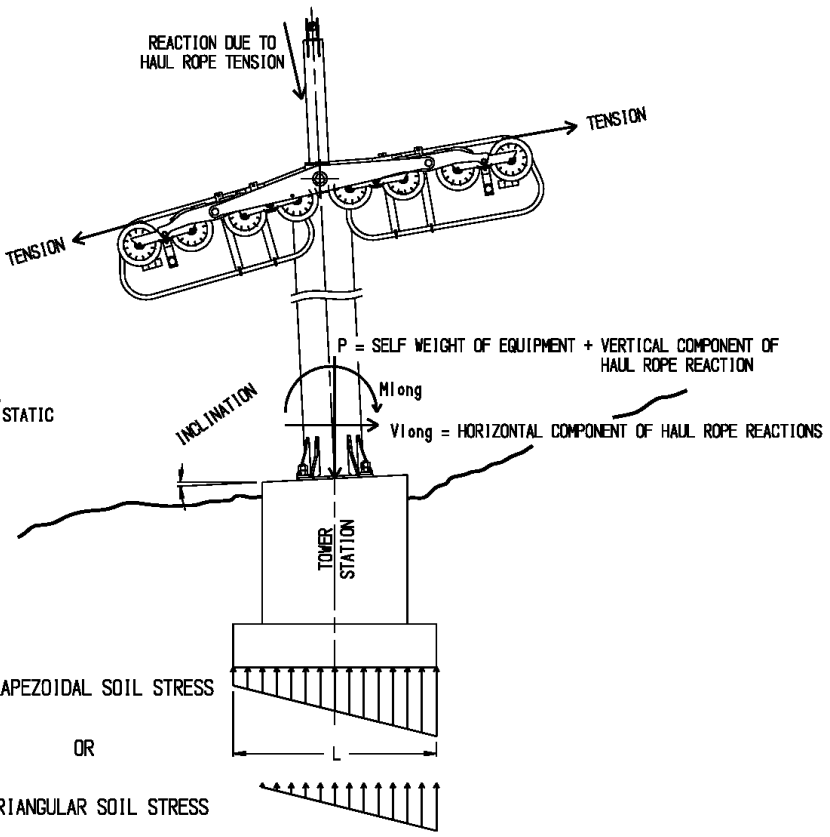
The concrete and the reinforcement are designed using common engineering methods and meet the local standard.

SPREAD FOOTING MODEL



TRANSVERSE FORCES

NOTE:
TYPICAL LOAD COMBINATION SHOWN,
TRANSVERSE WIND + LONGITUDINAL STATIC



VERTICAL AND LONGITUDINAL STATIC FORCES

d) BLOCK FOOTING DESIGN

Additional Terminology for the Block Footing:

X = width of bottom soil pressure triangular distribution
LATERAL REACTION = sum of horizontal soil bearing
CONC = density of concrete

Review:

Mresult = overturning moment at the base of the tower = $(M_{long}^2 + M_{transv}^2)^{½}$

Vresult = horizontal shear at the base of the tower = $(V_{long}^2 + V_{transv}^2)^{½}$

P = vertical load at the base of the tower = Σvert

The block footing model assumes all forces are acting across, transverse to, the ropeway line.

Similar to the spread footing, four main design factors are checked to insure adequacy.

Mright/Mover > 1.5. Mover = Mresult + Vresult * H

Vresist/Vslide > 1.5. Vresist is due to friction at the concrete to soil interface. Vslide = Vresult

fp max < Fp

If the vertical design load P is negative, wanting to pull the footing out of the ground, then;

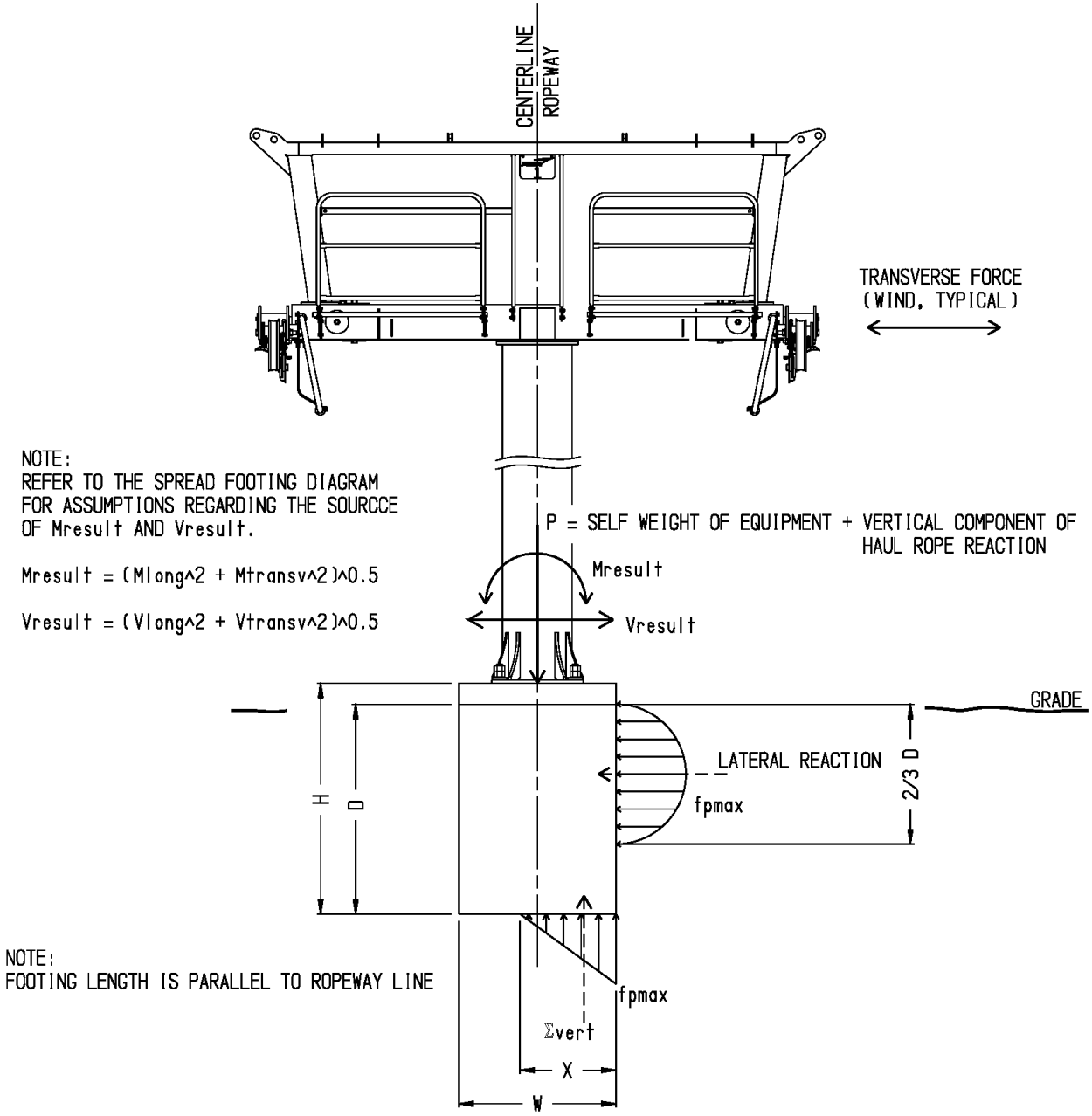
Abs(P)/Tension > 2.0

The maximum soil bearing, fpmax, is assumed to equal the allowable soil bearing, Fp. The vertical soil bearing is assumed to be a triangular stress pattern. The lateral soil bearing is assumed to be a parabolic stress pattern with a height of 2/3 of the depth. The length, L, of the block footing is longer along the ropeway line than the width, W, across the line. This is to engage more lateral soil bearing with more footing surface area.

Summing the moments due to the lateral reaction acting at its height + Σvert acting through a triangular stress pattern of width X = 0, X can be found.

The righting moment, Mright, is calculated about the centerline at the bottom of footing. It is the sum of the lateral force at its distance above the bottom of the footing + Σvert times the eccentricity.

BLOCK FOOTING MODEL



VERTICAL WITH RESULTANT HORIZONTAL AND MOMENT FORCES

e) ROCK ANCHORED FOOTING DESIGN

Rock Anchored Footings are modeled as spread footings with additional anchors. The location of the anchor, in plan view, creates an eccentricity to the center of rotation. The maximum allowable tension of the anchor(s) with the eccentricity(s) provides an additional righting moment and is added to the basic foundation righting moment. In some cases the anchor is pre-tensioned. The maximum allowable tension load of the anchor(s) is added as a point(s) load to the gravity(self) load of the foundation. The static compression stress under the footing is increased by the pretension load(s). For both pre-tensioned and non-pre-tensioned the compression stress under the foundation is increased during a wind or seismic event.

The rock anchored footing can be either constructed on exposed rock surface or loose soil may be removed and filled against the foundation. If fill is replaced against the footing no passive earth pressure is assumed.

4) TERMINAL FOOTING STRUCTURAL CALCULATIONS

The terminals fouindations are a spread footing design. The haul rope tension is a static force pulling the terminal along the ropeway line, longitudinally. This the primary horizontal force and overturning. The tension is either due to empty carriers, non-operational, or fully loaded carriers, operational.

Transverse forces may be either wind or seismic. Wind and seismic are not used simultaneously. If transverse wind controls the empty tension is used. If transverse seismic controls then fully loaded tension is used.

Many other forces are also taken into consideration. For terminals that have buildings a snow load is considered as well as a floor variable, aka live, load. Some of Leitner-Poma's return terminals are open frame and snow accumulation is considered to be negligable. For these return terminals there is no floor variable load either.

Longitudinal wind or seismic forces may add to the tension Longitudinal wind or seismic is not used simultaneously with transverse wind or seismic. Again, if wind controls then empty tension is used. If seismic controls then fully loaded tension is used.

The terminal foundation calculation is organized as follows:

Page 1. The longitudinal static forces are used to determine a the size of the spread for soil bearing, overturning, and sliding as stated below.. The overall height of the foundation is generally determined by the topography of the original and final grade.

Page 2. The transverse forces are superimposed to check the chosen foundation size.

Page 3. The spread footing bending capacity, shear capacity, and tension reinforcement is checked using local standards. On this page the results of several load combinations are also used to check the same reinforcemetn bar.

Three main design factors are checked to insure adequacy.

Mright/Mover > 2.0. Mover = Vx *H. The two directions are checked individually.

Vresist/Vslide > 2.0. Vresist is due to friction at the concrete to soil interface and/or passive earth pressure. Vslide = Vresult

fp max < Fp

The concrete and the reinforcement are designed using common engineering methods and meet the local standard.

4) MISCELLANEOUS FOUNDATION INFORMATION

a) GENERAL:

For the sake of keeping the submittal documents a reasonable size the calculations that are submitted are abbreviated. The abbreviated versions demonstrate the principal assumptions, methods, and show the worst case results. The complete calculations show many repetitive methods for load cases, soil bearing, sliding, overturning, concrete, and reinforcement. The load combinations and therefore repeated design checks that do not control are not provided on paper. Complete calculations are available if needed. Complete calculations will only be provided electronically.

Line Calculations
Initial Capacity

1880 pph @ 5.08 m/s

Snowbasin
Becker

February-25

Project Number: C52356i. Snowbasin Resort. 'Becker.' 02/14/25
Lift Speed: 5.08 m/s Lift Capacity: 1880 pph

SUMMARY TABLE
FULL: 21.06 daN/m. EMPTY: 13.29 daN/m. BARE: 5.71 daN/m. DOWN: 14.07 daN/m.

TOWER	SIDE	MAX SAG	MIN CURVE	MAX BOA	MAX TENS	MIN TENS	MAX LOAD	MIN LOAD	33% OVER LOAD	30% UNDER TENS	50% OVER TENS	SHEAVE TRAIN
RBW	U	0.00	465	0.2	9800	9800	0	0	0	0	0	---
RBW	D	0.00	697	0.2	9800	9800	0	0	0	0	0	---
***	U	0.00	501	-20.1	9886	9800	-3440	-3458	-3407	-2382	0	---
***	D	0.00	737	-20.2	9800	9714	-3426	-3428	-3399	-2361	0	---
***	U	0.01	474	20.8	9982	9891	3583	3537	0	0	0	---
***	D	0.00	685	20.7	9719	9632	3470	3445	0	0	0	---
***	U	0.01	475	2.3	9992	9980	395	310	0	0	0	2S
***	D	0.01	684	2.1	9632	9623	346	300	0	0	0	2S
1	U	0.60	508	-18.1	10070	9986	-3147	-3345	-2950	-2029	0	12C
1	D	0.43	720	-19.0	9621	9542	-3159	-3179	-3025	-1915	0	8C
2	U	1.93	506	18.6	10493	10285	3378	2323	0	0	0	8S
2	D	1.40	699	16.5	9770	9689	2786	2210	0	0	0	8S
3	U	1.48	520	9.5	10816	10532	1797	534	0	0	0	4S
3	D	1.08	709	7.1	9886	9835	1218	530	0	0	0	4S
4	U	0.79	533	7.2	11087	10710	1390	360	0	0	344	4S
4	D	0.59	718	5.3	10014	9963	923	361	0	0	348	4S
5	U	1.27	608	-12.6	11327	10844	-2483	-2821	-1900	-1244	0	8C
5	D	0.97	807	-14.3	10109	10011	-2505	-2541	-2194	-1049	0	8C
6	U	1.40	653	6.4	12096	11378	1348	298	0	0	231	4S
6	D	1.09	849	4.8	10537	10454	879	306	0	0	252	2S
7	U	0.47	653	14.6	12988	11910	3285	2072	0	0	0	6S
7	D	0.37	827	13.4	11057	10903	2570	1927	0	0	0	6S
8	U	0.50	651	11.1	13386	12187	2573	1579	0	0	0	6S
8	D	0.40	813	10.2	11215	11065	1987	1462	0	0	0	6S
9	U	2.38	662	8.8	13665	12382	2104	808	0	0	0	4S
9	D	1.93	817	7.5	11317	11173	1477	775	0	0	0	4S
10	U	0.24	678	9.5	14153	12689	2332	1059	0	0	0	4S
10	D	0.19	826	8.3	11567	11403	1677	996	0	0	0	4S
11	U	2.24	683	10.2	14311	12791	2529	1212	0	0	0	4S
11	D	1.86	824	9.1	11589	11419	1834	1132	0	0	0	4S
12	U	1.46	738	-9.4	14502	12921	-2366	-2657	-1215	-716	0	8C
12	D	1.23	881	-10.7	11630	11447	-2171	-2207	-1668	-403	0	8C
13	U	0.05	766	5.3	15213	13414	1398	550	0	0	0	4S
13	D	0.04	905	4.7	12028	11850	975	520	0	0	0	2S
14	U	4.25	763	10.5	15398	13511	2807	1274	0	0	0	6S
14	D	3.65	891	9.5	12080	11875	2001	1182	0	0	0	4S
15	U	1.58	822	5.9	16345	14132	1683	25	2663	2035	-687	1C/4S/1C
15	D	1.37	948	4.7	12634	12422	1027	106	1616	2096	-370	1C/4S/1C
16	U	0.21	834	10.2	17102	14584	3038	1564	0	0	0	6S
16	D	0.19	950	9.6	13064	12799	2188	1422	0	0	0	4S
17	U	0.36	829	10.3	17360	14754	3124	1828	0	0	0	6S
17	D	0.32	934	10.0	13129	12857	2284	1631	0	0	0	4S
18	U	0.77	833	9.3	17537	14883	2834	1453	0	0	0	6S
18	D	0.69	931	8.8	13143	12875	2021	1309	0	0	0	4S

19 U	1.94	868	-8.0	17618	14949	-2469	-2525	-1173	-694	0	8C
19 D	1.75	963	-8.7	13106	12838	-1980	-1996	-1494	-328	0	8C
20 U	4.94	898	11.9	18343	15409	3800	1336	0	0	0	6S
20 D	4.52	982	11.1	13476	13173	2590	1266	0	0	0	6S
21 U	0.30	931	9.9	19303	16026	3342	1281	0	0	0	6S
21 D	0.28	1007	9.4	13997	13672	2282	1189	0	0	0	4S
22 U	0.22	932	7.4	19538	16193	2508	1310	0	0	0	4S
22 D	0.21	1001	7.2	14055	13738	1757	1153	0	0	0	4S
23 U	0.05	934	6.0	19670	16291	2070	1126	0	0	0	4S
23 D	0.05	997	5.9	14065	13754	1450	982	0	0	0	4S
*** U	0.00	935	1.9	19695	16336	661	337	0	0	0	2S
*** D	0.00	997	1.9	14035	13748	459	296	0	0	0	2S
*** U	0.00	1007	20.6	19872	16348	7073	4674	0	0	0	---
*** D	0.00	1054	20.6	14023	13626	4989	3920	0	0	0	---
*** U	0.00	951	-20.3	20041	16490	-5840	-7023	-5778	-4041	0	---
*** D	0.00	979	-20.3	13894	13502	-4776	-4870	-4741	-3300	0	---
DBW U	0.00	0	0.0	20041	16636	0	0	0	0	0	---
DBW D	0.00	0	0.0	13772	13502	0	0	0	0	0	---

Project Number: C52356i. Snowbasin Resort. 'Becker.' 02/14/25
Lift Speed: 5.08 m/s Lift Capacity: 1880 pph

Loading case: UPHILL FULL = 21.06 daN/m DOWNHILL EMPTY = 13.29 daN/m

TOWER	SIDE	SAG	CURVE	BETA	THETA	K	DX	DY	TENS	LD ANGLE	LOAD	SHEAVE TRAIN
RBW	U	0.00	465	0.00	-0.24	0.0010	3.86	0.00	9800	0.00	0	---
RBW	D	0.00	737	0.00	-0.15	0.0007	3.86	0.00	9800	0.00	0	---
***	U	0.00	501	0.24	20.36	0.0002	0.86	0.32	9886	8.89	-3440	---
***	D	0.00	780	0.15	20.38	0.0001	0.86	0.32	9800	11.67	-3428	---
***	U	0.01	474	20.46	-0.30	0.0013	5.00	0.00	9982	11.49	3583	---
***	D	0.00	725	20.44	-0.20	0.0009	5.00	0.00	9719	8.71	3468	---
***	U	0.01	475	0.30	-1.96	0.0016	6.10	-0.17	9992	0.60	395	2S
***	D	0.01	724	0.20	-1.84	0.0011	6.10	-0.17	9632	-2.25	342	2S
1	U	0.60	508	-1.23	16.82	0.0104	45.61	16.20	10067	6.38	-3147	12C
1	D	0.40	762	-1.35	17.73	0.0070	45.61	16.20	9621	9.60	-3179	8C
2	U	1.93	506	22.20	3.60	0.0211	87.24	13.20	10493	14.31	3378	8S
2	D	1.32	739	21.33	5.18	0.0145	87.24	13.20	9757	11.84	2733	8S
3	U	1.48	520	13.48	3.93	0.0183	77.47	11.23	10816	10.13	1797	4S
3	D	1.03	749	11.97	5.25	0.0127	77.47	11.23	9864	7.18	1154	4S
4	U	0.79	533	12.47	5.27	0.0132	57.31	8.45	11087	10.30	1390	4S
4	D	0.56	758	11.20	6.20	0.0093	57.31	8.45	9984	7.27	871	4S
5	U	1.27	608	11.45	24.07	0.0118	66.67	34.88	11327	16.34	-2483	8C
5	D	0.92	851	10.55	25.08	0.0085	66.67	34.88	10075	19.24	-2541	8C
6	U	1.40	653	30.95	24.55	0.0118	71.95	38.48	12096	29.18	1348	4S
6	D	1.03	893	30.04	25.52	0.0087	71.95	38.48	10475	26.35	826	2S
7	U	0.47	653	31.50	16.93	0.0082	45.80	15.82	12988	25.63	3285	6S
7	D	0.35	868	30.64	17.46	0.0062	45.80	15.82	10966	22.62	2510	6S
8	U	0.50	651	21.13	10.08	0.0092	49.43	10.78	13386	17.03	2573	6S
8	D	0.38	852	20.62	10.60	0.0070	49.43	10.78	11113	14.19	1938	6S
9	U	2.38	662	14.49	5.65	0.0202	110.03	20.38	13665	11.50	2104	4S
9	D	1.84	857	13.98	6.75	0.0156	110.03	20.38	11208	8.94	1412	4S
10	U	0.24	678	15.19	5.72	0.0065	35.51	4.51	14153	11.89	2332	4S
10	D	0.19	865	14.15	6.05	0.0051	35.51	4.51	11444	8.67	1614	4S
11	U	2.24	683	8.74	-1.42	0.0202	110.49	6.24	14311	5.09	2529	4S
11	D	1.78	862	8.42	-0.45	0.0160	110.49	6.24	11463	2.56	1769	4S
12	U	1.46	738	7.84	17.21	0.0132	84.81	32.11	14502	11.10	-2366	8C
12	D	1.17	922	6.89	17.92	0.0106	84.81	32.11	11502	13.83	-2207	8C
13	U	0.05	766	24.11	18.83	0.0024	15.41	5.44	15213	22.90	1398	4S
13	D	0.04	946	23.45	18.95	0.0019	15.41	5.44	11874	19.77	933	2S
14	U	4.25	763	20.05	9.57	0.0237	154.02	42.96	15398	16.24	2807	6S
14	D	3.49	931	19.94	10.66	0.0195	154.02	42.96	11923	13.87	1925	4S
15	U	1.58	822	21.27	15.36	0.0134	94.75	32.35	16345	19.74	1683	1C/4S/1C
15	D	1.32	989	20.29	15.95	0.0112	94.75	32.35	12446	16.69	941	1C/4S/1C
16	U	0.21	834	22.21	11.99	0.0052	36.17	8.53	17102	18.53	3038	6S
16	D	0.18	990	21.66	12.19	0.0044	36.17	8.53	12852	15.50	2116	4S
17	U	0.36	829	14.53	4.19	0.0073	48.81	5.03	17360	10.79	3124	6S
17	D	0.31	973	14.34	4.44	0.0062	48.81	5.03	12913	7.96	2224	4S
18	U	0.77	833	7.57	-1.71	0.0108	71.70	0.94	17537	4.36	2834	6S
18	D	0.66	969	7.32	-1.37	0.0092	71.70	0.94	12924	1.55	1955	4S
19	U	1.94	868	3.21	11.26	0.0152	111.06	29.88	17618	5.81	-2469	8C
19	D	1.69	1002	2.87	11.77	0.0132	111.06	29.88	12887	8.75	-1996	8C
20	U	4.94	898	18.73	6.81	0.0244	183.08	41.62	18343	14.19	3800	6S
20	D	4.35	1021	18.25	7.53	0.0215	183.08	41.62	13235	11.46	2468	6S
21	U	0.30	931	18.54	8.59	0.0061	46.34	8.20	19303	14.99	3342	6S
21	D	0.27	1045	17.87	8.74	0.0054	46.34	8.20	13726	11.88	2181	4S
22	U	0.22	932	11.47	4.10	0.0054	40.64	3.81	19538	9.22	2508	4S
22	D	0.20	1038	11.31	4.23	0.0049	40.64	3.81	13781	6.34	1701	4S
23	U	0.05	934	6.61	0.57	0.0026	19.61	0.40	19670	5.02	2070	4S
23	D	0.05	1035	6.48	0.63	0.0024	19.61	0.40	13789	2.12	1406	4S
***	U	0.00	935	1.77	-0.15	0.0007	5.00	0.00	19695	2.24	661	2S
***	D	0.00	1034	1.71	-0.14	0.0006	5.00	0.00	13759	-0.65	444	2S
***	U	0.00	1007	0.15	-20.44	0.0001	0.86	-0.32	19872	-8.73	7073	---
***	D	0.00	1094	0.14	-20.43	0.0001	0.86	-0.32	13748	-11.56	4889	---
***	U	0.00	951	-20.38	-0.12	0.0005	3.86	0.00	20041	-11.66	-7023	---
***	D	0.00	1016	-20.39	-0.11	0.0005	3.86	0.00	13621	-8.84	-4776	---
DBW	U	0.00	0	0.00	0.00	0.0000	0.00	0.00	20041	0.00	0	---
DBW	D	0.00	0	0.00	0.00	0.0000	0.00	0.00	13502	0.00	0	---

Project Number: C52356i. Snowbasin Resort. 'Becker.' 02/14/25
Lift Speed: 5.08 m/s Lift Capacity: 1880 pph

Loading case: UPHILL EMPTY = 13.29 daN/m DOWNHILL EMPTY = 13.29 daN/m

TOWER	SIDE	SAG	CURVE	BETA	THETA	K	DX	DY	TENS	LD ANGLE	LOAD	SHEAVE TRAIN
RBW	U	0.00	737	0.00	-0.15	0.0007	3.86	0.00	9800	0.00	0	---
RBW	D	0.00	737	0.00	-0.15	0.0007	3.86	0.00	9800	0.00	0	---
***	U	0.00	794	0.15	20.38	0.0001	0.86	0.32	9886	8.85	-3458	---
***	D	0.00	780	0.15	20.38	0.0001	0.86	0.32	9800	11.67	-3428	---
***	U	0.00	751	20.44	-0.19	0.0008	5.00	0.00	9980	11.54	3560	---
***	D	0.00	725	20.44	-0.20	0.0009	5.00	0.00	9719	8.71	3468	---
***	U	0.01	752	0.19	-1.83	0.0010	6.10	-0.17	9988	0.61	352	2S
***	D	0.01	724	0.20	-1.84	0.0011	6.10	-0.17	9632	-2.25	342	2S
1	U	0.38	804	-1.36	17.83	0.0066	45.61	16.20	10070	6.82	-3345	12C
1	D	0.40	762	-1.35	17.73	0.0070	45.61	16.20	9621	9.60	-3179	8C
2	U	1.24	789	21.24	5.40	0.0136	87.24	13.20	10356	14.74	2846	8S
2	D	1.32	739	21.33	5.18	0.0145	87.24	13.20	9757	11.84	2733	8S
3	U	0.96	804	11.75	5.46	0.0119	77.47	11.23	10561	10.04	1159	4S
3	D	1.03	749	11.97	5.25	0.0127	77.47	11.23	9864	7.18	1154	4S
4	U	0.52	817	11.00	6.35	0.0086	57.31	8.45	10732	10.11	869	4S
4	D	0.56	758	11.20	6.20	0.0093	57.31	8.45	9984	7.27	871	4S
5	U	0.84	928	10.40	25.29	0.0078	66.67	34.88	10915	16.43	-2821	8C
5	D	0.92	851	10.55	25.08	0.0085	66.67	34.88	10075	19.24	-2541	8C
6	U	0.95	973	29.85	25.74	0.0080	71.95	38.48	11399	29.22	817	4S
6	D	1.03	893	30.04	25.52	0.0087	71.95	38.48	10475	26.35	826	2S
7	U	0.32	954	30.44	17.60	0.0056	45.80	15.82	11977	25.44	2671	6S
7	D	0.35	868	30.64	17.46	0.0062	45.80	15.82	10966	22.62	2510	6S
8	U	0.35	943	20.49	10.77	0.0064	49.43	10.78	12239	17.05	2070	6S
8	D	0.38	852	20.62	10.60	0.0070	49.43	10.78	11113	14.19	1938	6S
9	U	1.66	952	13.82	7.12	0.0141	110.03	20.38	12418	11.90	1449	4S
9	D	1.84	857	13.98	6.75	0.0156	110.03	20.38	11208	8.94	1412	4S
10	U	0.17	966	13.79	6.18	0.0045	35.51	4.51	12731	11.41	1689	4S
10	D	0.19	865	14.15	6.05	0.0051	35.51	4.51	11444	8.67	1614	4S
11	U	1.58	969	8.30	-0.04	0.0142	110.49	6.24	12838	5.56	1863	4S
11	D	1.78	862	8.42	-0.45	0.0160	110.49	6.24	11463	2.56	1769	4S
12	U	1.04	1046	6.48	18.25	0.0093	84.81	32.11	12987	10.94	-2657	8C
12	D	1.17	922	6.89	17.92	0.0106	84.81	32.11	11502	13.83	-2207	8C
13	U	0.03	1072	23.14	19.01	0.0017	15.41	5.44	13438	22.51	969	4S
13	D	0.04	946	23.45	18.95	0.0019	15.41	5.44	11874	19.77	933	2S
14	U	3.07	1062	19.88	11.27	0.0171	154.02	42.96	13561	17.00	2033	6S
14	D	3.49	931	19.94	10.66	0.0195	154.02	42.96	11923	13.87	1925	4S
15	U	1.16	1126	19.73	16.30	0.0098	94.75	32.35	14154	19.45	845	1C/4S/1C
15	D	1.32	989	20.29	15.95	0.0112	94.75	32.35	12446	16.69	941	1C/4S/1C
16	U	0.16	1132	21.32	12.33	0.0039	36.17	8.53	14641	18.25	2292	6S
16	D	0.18	990	21.66	12.19	0.0044	36.17	8.53	12852	15.50	2116	4S
17	U	0.27	1121	14.20	4.63	0.0054	48.81	5.03	14816	10.84	2468	6S
17	D	0.31	973	14.34	4.44	0.0062	48.81	5.03	12913	7.96	2224	4S
18	U	0.57	1124	7.13	-1.08	0.0080	71.70	0.94	14936	4.46	2135	6S
18	D	0.66	969	7.32	-1.37	0.0092	71.70	0.94	12924	1.55	1955	4S
19	U	1.44	1171	2.58	12.24	0.0113	111.06	29.88	15012	5.98	-2525	8C
19	D	1.69	1002	2.87	11.77	0.0132	111.06	29.88	12887	8.75	-1996	8C
20	U	3.72	1198	17.80	8.31	0.0184	183.08	41.62	15473	14.48	2555	6S
20	D	4.35	1021	18.25	7.53	0.0215	183.08	41.62	13235	11.46	2468	6S
21	U	0.23	1229	17.15	8.94	0.0046	46.34	8.20	16084	14.47	2300	6S
21	D	0.27	1045	17.87	8.74	0.0054	46.34	8.20	13726	11.88	2181	4S
22	U	0.17	1227	11.12	4.40	0.0041	40.64	3.81	16240	9.19	1902	4S
22	D	0.20	1038	11.31	4.23	0.0049	40.64	3.81	13781	6.34	1701	4S
23	U	0.04	1229	6.31	0.71	0.0020	19.61	0.40	16331	4.94	1592	4S
23	D	0.05	1035	6.48	0.63	0.0024	19.61	0.40	13789	2.12	1406	4S
***	U	0.00	1230	1.63	-0.12	0.0005	5.00	0.00	16348	2.19	497	2S
***	D	0.00	1034	1.71	-0.14	0.0006	5.00	0.00	13759	-0.65	444	2S
***	U	0.00	1324	0.12	-20.43	0.0001	0.86	-0.32	16495	-8.75	5859	---
***	D	0.00	1094	0.14	-20.43	0.0001	0.86	-0.32	13748	-11.56	4889	---
***	U	0.00	1252	-20.39	-0.09	0.0004	3.86	0.00	16636	-11.65	-5840	---
***	D	0.00	1016	-20.39	-0.11	0.0005	3.86	0.00	13621	-8.84	-4776	---
DBW	U	0.00	0	0.00	0.00	0.0000	0.00	0.00	16636	0.00	0	---
DBW	D	0.00	0	0.00	0.00	0.0000	0.00	0.00	13502	0.00	0	---

Project Number: C52356i. Snowbasin Resort. 'Becker.' 02/14/25
Lift Speed: 5.08 m/s Lift Capacity: 1880 pph

Loading case: UPHILL BARE = 5.71 daN/m DOWNHILL BARE = 5.71 daN/m

TOWER	SIDE	SAG	CURVE	BETA	THETA	K	DX	DY	TENS	LD ANGLE	LOAD	SHEAVE TRAIN
RBW	U	0.00	1716	0.00	-0.06	0.0003	3.86	0.00	9800	0.00	0	---
RBW	D	0.00	1716	0.00	-0.06	0.0003	3.86	0.00	9800	0.00	0	---
***	U	0.00	1847	0.06	20.40	0.0001	0.86	0.32	9887	8.82	-3476	---
***	D	0.00	1815	0.06	20.40	0.0001	0.86	0.32	9800	11.64	-3445	---
***	U	0.00	1747	20.42	-0.08	0.0004	5.00	0.00	9977	11.58	3537	---
***	D	0.00	1686	20.42	-0.08	0.0004	5.00	0.00	9716	8.76	3445	---
***	U	0.00	1749	0.08	-1.70	0.0004	6.10	-0.17	9985	0.62	310	2S
***	D	0.00	1686	0.08	-1.70	0.0005	6.10	-0.17	9630	-2.24	300	2S
1	U	0.17	1872	-1.50	18.81	0.0029	45.61	16.20	10072	7.25	-3537	12C
1	D	0.17	1773	-1.49	18.77	0.0030	45.61	16.20	9621	10.05	-3371	8C
2	U	0.54	1811	20.29	7.21	0.0059	87.24	13.20	10223	15.17	2323	8S
2	D	0.58	1696	20.33	7.11	0.0063	87.24	13.20	9629	12.30	2210	8S
3	U	0.42	1825	9.99	7.02	0.0052	77.47	11.23	10312	9.94	534	4S
3	D	0.45	1706	10.08	6.93	0.0056	77.47	11.23	9649	7.08	530	4S
4	U	0.23	1839	9.47	7.48	0.0038	57.31	8.45	10385	9.91	360	4S
4	D	0.25	1716	9.55	7.42	0.0041	57.31	8.45	9700	7.06	361	4S
5	U	0.38	2078	9.29	26.58	0.0035	66.67	34.88	10512	16.52	-3150	8C
5	D	0.41	1911	9.35	26.49	0.0038	66.67	34.88	9740	19.34	-2893	8C
6	U	0.44	2129	28.64	27.04	0.0037	71.95	38.48	10718	29.27	298	4S
6	D	0.48	1958	28.72	26.94	0.0040	71.95	38.48	9866	26.40	306	2S
7	U	0.15	2036	29.21	18.37	0.0026	45.80	15.82	10990	25.22	2072	6S
7	D	0.17	1859	29.31	18.31	0.0029	45.80	15.82	10078	22.38	1927	6S
8	U	0.16	1993	19.73	11.58	0.0030	49.43	10.78	11120	17.08	1579	6S
8	D	0.18	1808	19.80	11.50	0.0033	49.43	10.78	10121	14.22	1462	6S
9	U	0.79	1996	13.03	8.89	0.0067	110.03	20.38	11201	12.39	808	4S
9	D	0.88	1804	13.10	8.72	0.0075	110.03	20.38	10146	9.48	775	4S
10	U	0.08	2003	12.08	6.73	0.0022	35.51	4.51	11344	10.84	1059	4S
10	D	0.09	1804	12.25	6.67	0.0024	35.51	4.51	10243	8.03	996	4S
11	U	0.77	2001	7.75	1.65	0.0069	110.49	6.24	11400	6.13	1212	4S
11	D	0.85	1793	7.81	1.46	0.0077	110.49	6.24	10243	3.20	1132	4S
12	U	0.51	2156	4.81	19.53	0.0046	84.81	32.11	11510	10.75	-2940	8C
12	D	0.57	1908	5.00	19.38	0.0052	84.81	32.11	10251	13.61	-2559	8C
13	U	0.02	2174	21.92	19.23	0.0008	15.41	5.44	11707	22.01	550	4S
13	D	0.02	1924	22.07	19.20	0.0009	15.41	5.44	10370	19.21	520	2S
14	U	1.53	2141	19.66	13.45	0.0086	154.02	42.96	11770	17.98	1274	6S
14	D	1.74	1885	19.69	13.15	0.0097	154.02	42.96	10388	14.99	1182	4S
15	U	0.59	2224	17.68	17.56	0.0050	94.75	32.35	12015	19.05	25	1C/4S/1C
15	D	0.67	1962	17.96	17.39	0.0057	94.75	32.35	10604	16.24	106	1C/4S/1C
16	U	0.08	2202	20.12	12.79	0.0020	36.17	8.53	12239	17.88	1564	6S
16	D	0.09	1934	20.29	12.72	0.0023	36.17	8.53	10786	15.07	1422	4S
17	U	0.14	2172	13.75	5.24	0.0028	48.81	5.03	12334	10.92	1828	6S
17	D	0.16	1894	13.82	5.14	0.0032	48.81	5.03	10799	8.05	1631	4S
18	U	0.30	2172	6.53	-0.19	0.0041	71.70	0.94	12399	4.60	1453	6S
18	D	0.34	1884	6.62	-0.34	0.0048	71.70	0.94	10787	1.71	1309	4S
19	U	0.75	2262	1.70	13.60	0.0059	111.06	29.88	12469	6.22	-2580	8C
19	D	0.87	1942	1.84	13.36	0.0068	111.06	29.88	10760	9.03	-2155	8C
20	U	1.97	2278	16.50	10.45	0.0097	183.08	41.62	12673	14.90	1336	6S
20	D	2.29	1950	16.73	10.05	0.0113	183.08	41.62	10877	11.96	1266	6S
21	U	0.12	2302	15.13	9.45	0.0025	46.34	8.20	12942	13.72	1281	6S
21	D	0.14	1966	15.51	9.35	0.0029	46.34	8.20	11083	11.00	1189	4S
22	U	0.09	2291	10.62	4.85	0.0022	40.64	3.81	13022	9.16	1310	4S
22	D	0.11	1947	10.72	4.76	0.0026	40.64	3.81	11100	6.31	1153	4S
23	U	0.02	2290	5.87	0.92	0.0011	19.61	0.40	13072	4.83	1126	4S
23	D	0.02	1939	5.96	0.88	0.0013	19.61	0.40	11093	1.99	982	4S
***	U	0.00	2291	1.41	-0.06	0.0003	5.00	0.00	13082	2.11	337	2S
***	D	0.00	1937	1.46	-0.07	0.0003	5.00	0.00	11070	-0.74	296	2S
***	U	0.00	2466	0.06	-20.42	0.0000	0.86	-0.32	13199	-8.77	4674	---
***	D	0.00	2049	0.07	-20.42	0.0000	0.86	-0.32	11063	-11.58	3920	---
***	U	0.00	2332	-20.40	-0.05	0.0002	3.86	0.00	13315	-11.63	-4685	---
***	D	0.00	1903	-20.40	-0.06	0.0003	3.86	0.00	10963	-8.82	-3855	---
DBW	U	0.00	0	0.00	0.00	0.0000	0.00	0.00	13315	0.00	0	---
DBW	D	0.00	0	0.00	0.00	0.0000	0.00	0.00	10867	0.00	0	---

Project Number: C52356i. Snowbasin Resort. 'Becker.' 02/14/25
Lift Speed: 5.08 m/s Lift Capacity: 1880 pph

Loading case: UPHILL FULL = 21.06 daN/m DOWNHILL FULL = 14.07 daN/m

TOWER	SIDE	SAG	CURVE	BETA	THETA	K	DX	DY	TENS	LD ANGLE	LOAD	SHEAVE TRAIN
RBW	U	0.00	465	0.00	-0.24	0.0010	3.86	0.00	9800	0.00	0	---
RBW	D	0.00	697	0.00	-0.16	0.0007	3.86	0.00	9800	0.00	0	---
***	U	0.00	501	0.24	20.36	0.0002	0.86	0.32	9886	8.89	-3440	---
***	D	0.00	737	0.16	20.37	0.0001	0.86	0.32	9800	11.68	-3426	---
***	U	0.01	474	20.46	-0.30	0.0013	5.00	0.00	9982	11.49	3583	---
***	D	0.00	685	20.45	-0.21	0.0009	5.00	0.00	9719	8.71	3470	---
***	U	0.01	475	0.30	-1.96	0.0016	6.10	-0.17	9992	0.60	395	2S
***	D	0.01	684	0.21	-1.85	0.0011	6.10	-0.17	9632	-2.25	346	2S
1	U	0.60	508	-1.23	16.82	0.0104	45.61	16.20	10067	6.38	-3147	12C
1	D	0.43	720	-1.34	17.63	0.0074	45.61	16.20	9621	9.56	-3159	8C
2	U	1.93	506	22.20	3.60	0.0211	87.24	13.20	10493	14.31	3378	8S
2	D	1.40	699	21.44	4.98	0.0153	87.24	13.20	9770	11.79	2786	8S
3	U	1.48	520	13.48	3.93	0.0183	77.47	11.23	10816	10.13	1797	4S
3	D	1.08	709	12.16	5.08	0.0134	77.47	11.23	9886	7.19	1218	4S
4	U	0.79	533	12.47	5.27	0.0132	57.31	8.45	11087	10.30	1390	4S
4	D	0.59	718	11.36	6.08	0.0098	57.31	8.45	10014	7.29	923	4S
5	U	1.27	608	11.45	24.07	0.0118	66.67	34.88	11327	16.34	-2483	8C
5	D	0.97	807	10.67	24.94	0.0089	66.67	34.88	10109	19.23	-2505	8C
6	U	1.40	653	30.95	24.55	0.0118	71.95	38.48	12096	29.18	1348	4S
6	D	1.09	849	30.17	25.38	0.0091	71.95	38.48	10537	26.34	879	2S
7	U	0.47	653	31.50	16.93	0.0082	45.80	15.82	12988	25.63	3285	6S
7	D	0.37	827	30.76	17.38	0.0065	45.80	15.82	11057	22.65	2570	6S
8	U	0.50	651	21.13	10.08	0.0092	49.43	10.78	13386	17.03	2573	6S
8	D	0.40	813	20.70	10.52	0.0074	49.43	10.78	11215	14.18	1987	6S
9	U	2.38	662	14.49	5.65	0.0202	110.03	20.38	13665	11.50	2104	4S
9	D	1.93	817	14.06	6.57	0.0164	110.03	20.38	11317	8.89	1477	4S
10	U	0.24	678	15.19	5.72	0.0065	35.51	4.51	14153	11.89	2332	4S
10	D	0.19	826	14.32	6.00	0.0053	35.51	4.51	11567	8.73	1677	4S
11	U	2.24	683	8.74	-1.42	0.0202	110.49	6.24	14311	5.09	2529	4S
11	D	1.86	824	8.47	-0.62	0.0167	110.49	6.24	11589	2.50	1834	4S
12	U	1.46	738	7.84	17.21	0.0132	84.81	32.11	14502	11.10	-2366	8C
12	D	1.23	881	7.06	17.79	0.0111	84.81	32.11	11630	13.85	-2171	8C
13	U	0.05	766	24.11	18.83	0.0024	15.41	5.44	15213	22.90	1398	4S
13	D	0.04	905	23.58	18.93	0.0020	15.41	5.44	12028	19.82	975	2S
14	U	4.25	763	20.05	9.57	0.0237	154.02	42.96	15398	16.24	2807	6S
14	D	3.65	891	19.96	10.44	0.0204	154.02	42.96	12080	13.77	2001	4S
15	U	1.58	822	21.27	15.36	0.0134	94.75	32.35	16345	19.74	1683	1C/4S/1C
15	D	1.37	948	20.49	15.83	0.0116	94.75	32.35	12634	16.72	1027	1C/4S/1C
16	U	0.21	834	22.21	11.99	0.0052	36.17	8.53	17102	18.53	3038	6S
16	D	0.19	950	21.77	12.15	0.0046	36.17	8.53	13064	15.53	2188	4S
17	U	0.36	829	14.53	4.19	0.0073	48.81	5.03	17360	10.79	3124	6S
17	D	0.32	934	14.38	4.38	0.0065	48.81	5.03	13129	7.95	2284	4S
18	U	0.77	833	7.57	-1.71	0.0108	71.70	0.94	17537	4.36	2834	6S
18	D	0.69	931	7.38	-1.46	0.0096	71.70	0.94	13143	1.53	2021	4S
19	U	1.94	868	3.21	11.26	0.0152	111.06	29.88	17618	5.81	-2469	8C
19	D	1.75	963	2.96	11.63	0.0137	111.06	29.88	13106	8.72	-1980	8C
20	U	4.94	898	18.73	6.81	0.0244	183.08	41.62	18343	14.19	3800	6S
20	D	4.52	982	18.38	7.32	0.0223	183.08	41.62	13476	11.42	2590	6S
21	U	0.30	931	18.54	8.59	0.0061	46.34	8.20	19303	14.99	3342	6S
21	D	0.28	1007	18.06	8.70	0.0056	46.34	8.20	13997	11.95	2282	4S
22	U	0.22	932	11.47	4.10	0.0054	40.64	3.81	19538	9.22	2508	4S
22	D	0.21	1001	11.36	4.19	0.0050	40.64	3.81	14055	6.35	1757	4S
23	U	0.05	934	6.61	0.57	0.0026	19.61	0.40	19670	5.02	2070	4S
23	D	0.05	997	6.52	0.61	0.0025	19.61	0.40	14065	2.13	1450	4S
***	U	0.00	935	1.77	-0.15	0.0007	5.00	0.00	19695	2.24	661	2S
***	D	0.00	997	1.73	-0.14	0.0006	5.00	0.00	14035	-0.64	459	2S
***	U	0.00	1007	0.15	-20.44	0.0001	0.86	-0.32	19872	-8.73	7073	---
***	D	0.00	1054	0.14	-20.43	0.0001	0.86	-0.32	14023	-11.56	4989	---
***	U	0.00	951	-20.38	-0.12	0.0005	3.86	0.00	20041	-11.66	-7023	---
***	D	0.00	979	-20.38	-0.11	0.0005	3.86	0.00	13894	-8.84	-4870	---
DBW	U	0.00	0	0.00	0.00	0.0000	0.00	0.00	20041	0.00	0	---
DBW	D	0.00	0	0.00	0.00	0.0000	0.00	0.00	13772	0.00	0	---

Project Number: C52356i. Snowbasin Resort. 'Becker.' 02/14/25
Lift Speed: 5.08 m/s Lift Capacity: 1880 pph

Loading case: UPHILL EMPTY = 13.29 daN/m DOWNHILL FULL = 14.07 daN/m

TOWER	SIDE	SAG	CURVE	BETA	THETA	K	DX	DY	TENS	LD ANGLE	LOAD	SHEAVE TRAIN
RBW	U	0.00	737	0.00	-0.15	0.0007	3.86	0.00	9800	0.00	0	---
RBW	D	0.00	697	0.00	-0.16	0.0007	3.86	0.00	9800	0.00	0	---
***	U	0.00	794	0.15	20.38	0.0001	0.86	0.32	9886	8.85	-3458	---
***	D	0.00	737	0.16	20.37	0.0001	0.86	0.32	9800	11.68	-3426	---
***	U	0.00	751	20.44	-0.19	0.0008	5.00	0.00	9980	11.54	3560	---
***	D	0.00	685	20.45	-0.21	0.0009	5.00	0.00	9719	8.71	3470	---
***	U	0.01	752	0.19	-1.83	0.0010	6.10	-0.17	9988	0.61	352	2S
***	D	0.01	684	0.21	-1.85	0.0011	6.10	-0.17	9632	-2.25	346	2S
1	U	0.38	804	-1.36	17.83	0.0066	45.61	16.20	10070	6.82	-3345	12C
1	D	0.43	720	-1.34	17.63	0.0074	45.61	16.20	9621	9.56	-3159	8C
2	U	1.24	789	21.24	5.40	0.0136	87.24	13.20	10356	14.74	2846	8S
2	D	1.40	699	21.44	4.98	0.0153	87.24	13.20	9770	11.79	2786	8S
3	U	0.96	804	11.75	5.46	0.0119	77.47	11.23	10561	10.04	1159	4S
3	D	1.08	709	12.16	5.08	0.0134	77.47	11.23	9886	7.19	1218	4S
4	U	0.52	817	11.00	6.35	0.0086	57.31	8.45	10732	10.11	869	4S
4	D	0.59	718	11.36	6.08	0.0098	57.31	8.45	10014	7.29	923	4S
5	U	0.84	928	10.40	25.29	0.0078	66.67	34.88	10915	16.43	-2821	8C
5	D	0.97	807	10.67	24.94	0.0089	66.67	34.88	10109	19.23	-2505	8C
6	U	0.95	973	29.85	25.74	0.0080	71.95	38.48	11399	29.22	817	4S
6	D	1.09	849	30.17	25.38	0.0091	71.95	38.48	10537	26.34	879	2S
7	U	0.32	954	30.44	17.60	0.0056	45.80	15.82	11977	25.44	2671	6S
7	D	0.37	827	30.76	17.38	0.0065	45.80	15.82	11057	22.65	2570	6S
8	U	0.35	943	20.49	10.77	0.0064	49.43	10.78	12239	17.05	2070	6S
8	D	0.40	813	20.70	10.52	0.0074	49.43	10.78	11215	14.18	1987	6S
9	U	1.66	952	13.82	7.12	0.0141	110.03	20.38	12418	11.90	1449	4S
9	D	1.93	817	14.06	6.57	0.0164	110.03	20.38	11317	8.89	1477	4S
10	U	0.17	966	13.79	6.18	0.0045	35.51	4.51	12731	11.41	1689	4S
10	D	0.19	826	14.32	6.00	0.0053	35.51	4.51	11567	8.73	1677	4S
11	U	1.58	969	8.30	-0.04	0.0142	110.49	6.24	12838	5.56	1863	4S
11	D	1.86	824	8.47	-0.62	0.0167	110.49	6.24	11589	2.50	1834	4S
12	U	1.04	1046	6.48	18.25	0.0093	84.81	32.11	12987	10.94	-2657	8C
12	D	1.23	881	7.06	17.79	0.0111	84.81	32.11	11630	13.85	-2171	8C
13	U	0.03	1072	23.14	19.01	0.0017	15.41	5.44	13438	22.51	969	4S
13	D	0.04	905	23.58	18.93	0.0020	15.41	5.44	12028	19.82	975	2S
14	U	3.07	1062	19.88	11.27	0.0171	154.02	42.96	13561	17.00	2033	6S
14	D	3.65	891	19.96	10.44	0.0204	154.02	42.96	12080	13.77	2001	4S
15	U	1.16	1126	19.73	16.30	0.0098	94.75	32.35	14154	19.45	845	1C/4S/1C
15	D	1.37	948	20.49	15.83	0.0116	94.75	32.35	12634	16.72	1027	1C/4S/1C
16	U	0.16	1132	21.32	12.33	0.0039	36.17	8.53	14641	18.25	2292	6S
16	D	0.19	950	21.77	12.15	0.0046	36.17	8.53	13064	15.53	2188	4S
17	U	0.27	1121	14.20	4.63	0.0054	48.81	5.03	14816	10.84	2468	6S
17	D	0.32	934	14.38	4.38	0.0065	48.81	5.03	13129	7.95	2284	4S
18	U	0.57	1124	7.13	-1.08	0.0080	71.70	0.94	14936	4.46	2135	6S
18	D	0.69	931	7.38	-1.46	0.0096	71.70	0.94	13143	1.53	2021	4S
19	U	1.44	1171	2.58	12.24	0.0113	111.06	29.88	15012	5.98	-2525	8C
19	D	1.75	963	2.96	11.63	0.0137	111.06	29.88	13106	8.72	-1980	8C
20	U	3.72	1198	17.80	8.31	0.0184	183.08	41.62	15473	14.48	2555	6S
20	D	4.52	982	18.38	7.32	0.0223	183.08	41.62	13476	11.42	2590	6S
21	U	0.23	1229	17.15	8.94	0.0046	46.34	8.20	16084	14.47	2300	6S
21	D	0.28	1007	18.06	8.70	0.0056	46.34	8.20	13997	11.95	2282	4S
22	U	0.17	1227	11.12	4.40	0.0041	40.64	3.81	16240	9.19	1902	4S
22	D	0.21	1001	11.36	4.19	0.0050	40.64	3.81	14055	6.35	1757	4S
23	U	0.04	1229	6.31	0.71	0.0020	19.61	0.40	16331	4.94	1592	4S
23	D	0.05	997	6.52	0.61	0.0025	19.61	0.40	14065	2.13	1450	4S
***	U	0.00	1230	1.63	-0.12	0.0005	5.00	0.00	16348	2.19	497	2S
***	D	0.00	997	1.73	-0.14	0.0006	5.00	0.00	14035	-0.64	459	2S
***	U	0.00	1324	0.12	-20.43	0.0001	0.86	-0.32	16495	-8.75	5859	---
***	D	0.00	1054	0.14	-20.43	0.0001	0.86	-0.32	14023	-11.56	4989	---
***	U	0.00	1252	-20.39	-0.09	0.0004	3.86	0.00	16636	-11.65	-5840	---
***	D	0.00	979	-20.38	-0.11	0.0005	3.86	0.00	13894	-8.84	-4870	---
DBW	U	0.00	0	0.00	0.00	0.0000	0.00	0.00	16636	0.00	0	---
DBW	D	0.00	0	0.00	0.00	0.0000	0.00	0.00	13772	0.00	0	---

Project Number: C52356i. Snowbasin Resort. 'Becker.' 02/14/25
Lift Speed: 5.08 m/s Lift Capacity: 1880 pph

Drive BW

Nominal Torque	14595.350	daNm
Overhauling Torque	0.000	daNm
Full Speed RPM	24.255	rev/min
Aux. Speed RPM	19.404	rev/min
Evac. Speed RPM	9.702	rev/min
Max Cable Load (T+t)	33812.930	daN
Allowable Adherence	1.904	
Adherence (T/t)	1.484	
Rotation (from above)	CCW	

Gearbox

Main Gearbox Ratio	55.180			
Main Input	263.337 daNm	1338.404 rpm	5.080 m/s	
Aux. Input Ratio	1.000			
Aux. Input	293.894 daNm	1070.723 rpm	4.064 m/s	
Evac. Input Ratio	2.000			
Evac. Input	146.947 daNm	1070.723 rpm	2.032 m/s	

Tension System

Tension System Force	19600.000	daN
Tension Per Side	9800.000	daN
Area of Hydraulic Ram	107.675	cm2
Number of Hydraulic Rams	2.000	
Tension System Pressure	91.014	bars
Carriage Travel	0.111	m

Cable

Cable Diameter	40.000	mm
Total Cable Length	3510.721	m
Breaking Strength	111220.000	daN
Maximum Tension	20040.840	daN
Safety Factor	5.550	
Minimum Shear Ratio	15.972	
Maximum Radial Acceleration	2.000	m/s/s
Maximum Cable Inclination	31.499	deg
Simultaneous Breakover Spans	6.000	
Maximum Deflection per Sheave	2.539	deg

Brakes

Service Brakes	1xPP2200
Emergency Brakes	1x10TONNE
Antirollback Brakes	1x10TONNE

Electric Motor

Required Power	494.842	h.p.
Speed	1338.404	rpm
Electric Input Ratio	1.000	

Carriers

Number	94	
Spacing	38.911	m
Carrier Capacity	4.000	persons/carrier
Trip Time	5.759	min
Empty Weight	295.000	

ENERAL
Project number ----------> C52356i
Lift model ----------> LPA4P
Lift type ----------> Detachable Quad
Initial speed (m/s)----------> 5.08
Final speed (m/s) ----------> 5.08
Aux speed (m/s) ----------> 4.064
Evac speed (m/s) ----------> 2.032
Init capacity (pp/h) ----------> 1880
Final capacity (pp/h) ----------> 1880
Percent Download (%)----------> 10
Parking (y/n)----------> N
Rotation ----------> CCW
Metric (y/n) ----------> Y

LINE
Cable diameter (mm) ----------> 40.0
Cable core type ----------> Solid
Cable weight (daN/m) ----------> 5.71
Breaking strength (daN) ----------> 111220.0
Max cable tens (daN) ----------> 24700.0
Acceleration rate ----------> 0.35
Kinetic Friction factor ----------> 0.025
Nominal Friction factor ----------> 0.030
Friction at Bullwheels ----------> 0.001
Max sheave load [supp] (daN) ----------> 700
Min sheave load [comp] (daN) ----------> -400
Max radial accel (m/s/s) ----------> 2.0
Auto-incline towers (y/n) ----------> N
Chairs in terminal ----------> 2.25
Line Gage (m) ----------> 4.8
Multiple Break Over Window ----------> 3.5

DRIVE
Drive location (top/bottom) ----------> Top
Drive BW diameter (m) ----------> 4.
Angle of wrap ----------> 180.0
Gear Box model ----------> PK23M-SB600HW
Allowable Torque (daNm)----------> 22000.
Allowable Tension (daN) ----------> 80000.
Gear box ratio ----------> 55.18
Auxilliary ratio ----------> 1.00
Evac ratio ----------> 2.00
Gear box efficiency ----------> 0.9
Auxilliary efficiency ----------> 0.9
Evac efficiency ----------> 0.9
Electric motor v-belt ratio ----------> 1.0
Electric motor v-belt efficiency ----------> 1.0
Electric motor type ---------->
Electric motor connection ---------->
Aux motor type ---------->
Aux motor connection ---------->
Evac motor type ---------->
Evac motor connection ---------->
Service Brakes ----------> 1xPP2200
Diameter of service brake track (mm)----------> 317.0
Area of service brake pad (cm2)----------> 142.5
Emergancy Brakes ----------> 1x10TONNE
E-brake ram area (cm2) ----------> 85.48
Diameter of emergancy brake track (cm)----------> 317.0
Area of emergancy brake shoe (cm2)----------> 322.0

TENSION
Tension location (top/bottom) ----------> Bottom
Initial tension force (daN) ----------> 19600.
Final tension force [0 if unknown] (daN) -------> 19600.
Max allowable ram pressure (bars)----------> 150
Diameter of ram piston (mm) ----------> 76.2
Diameter of cylinder bore (mm) ----------> 139.7
Number of hydraulic rams ----------> 2
Return BW diameter (m) ----------> 4.

CARRIER
Type of carrier ----------> Quad Chair
Grip type (detachable/fixed)----------> Detachable

Carrier capacity (persons / carrier) ----------> 4
Empty carrier weight (daN)----------> 295
Carrier sail area (sq m) ----------> 0.420
Carrier sail area with ice (sq m) ----------> 0.758
Passenger weight (daN) ----------> 75.6

TOWERS
Diameter of comm line (mm)----------> 106
Height of comm line above flange (m) ----------> 1.55
Area of x-arm (sq m) ----------> 0.4369
Height of x-arm above flange (m) ----------> 0.71
Weight of x-arm (daN) ----------> 760.0
Sheave diameter (mm) ----------> 436
Sheave weight (kg) ----------> 16
Distance between sheave (m) ----------> 0.573
Height of sheave above flange (m) ----------> 0.15
Tower tube diameter (m) ----------> 0.61
Tower tube weight (daN/m) ----------> 138.0

2s weight (daN) ----------> 118
2s wp constant (mm)----------> 182
4s weight (daN) ----------> 260
4s wp constant (mm)----------> 258
6s weight (daN) ----------> 500
6s wp constant (mm)----------> 350
8s weight (daN) ----------> 665
8s wp constant (mm)----------> 350
8c weight (daN) ----------> 665
8c wp constant (mm)----------> -8
12c weight (daN) ----------> 1275
12c wp constant (mm)----------> -389
16c weight (daN) ----------> 1875
16c wp constant (mm)----------> -414
1c/4s/1c weight (daN) ----------> 395
1c/4s/1c wp constant (mm) ----------> 258
2s/8c/2s weight (daN) ----------> 920
2s/8c/2s wp constant (mm) ----------> -8
2s/4c/2s weight (daN) ---------->
2s/4c/2s wp constant (mm) ----------> -87
2c/4s/2c weight (daN) ---------->
2c/4s/2c wp constant (mm) ----------> 258

tower #	xwpu,	ywpu,	xwpd,	ywpd,	xgnd,	ygnd,	per incl,	tower length,	wpu,	wpd,	above ground,	tower sides(B, U, D)
RBW	62.44	1994.80	62.44	1994.80	62.44	1994.80	0.00	0.00	0.00	0.00	0.00	B
***	66.30	1994.80	66.30	1994.80	66.30	1994.80	0.00	0.00	0.00	0.00	0.00	B
***	67.16	1995.12	67.16	1995.12	67.16	1995.12	0.00	0.00	0.00	0.00	0.00	B
***	72.16	1995.12	72.16	1995.12	72.16	1995.12	0.00	0.00	0.00	0.00	0.00	B
1	78.26	1994.95	78.26	1994.95	78.50	1989.98	5.00	4.80	0.00	0.00	0.18	B
2	123.87	2011.15	123.87	2011.15	124.43	1999.75	5.00	11.23	0.00	0.00	0.18	B
3	211.11	2024.35	211.11	2024.35	211.77	2010.93	5.00	13.26	0.00	0.00	0.18	B
4	288.58	2035.58	288.58	2035.58	289.18	2023.34	5.00	12.08	0.00	0.00	0.18	B
5	345.89	2044.03	345.89	2044.03	347.00	2032.80	10.00	11.11	0.00	0.00	0.18	B
6	412.56	2078.91	412.56	2078.91	413.88	2065.50	10.00	13.30	0.00	0.00	0.18	B
7	484.51	2117.39	484.51	2117.39	485.83	2103.98	10.00	13.30	0.00	0.00	0.18	B
8	530.31	2133.21	530.31	2133.21	531.45	2121.60	10.00	11.49	0.00	0.00	0.18	B
9	579.74	2143.99	579.74	2143.99	580.36	2131.38	5.00	12.45	0.00	0.00	0.18	B
10	689.77	2164.37	689.77	2164.37	690.39	2151.80	5.00	12.41	0.00	0.00	0.18	B
11	725.28	2168.88	725.28	2168.88	725.28	2156.15	0.00	12.55	0.00	0.00	0.18	B
12	835.77	2175.12	835.77	2175.12	836.89	2163.77	10.00	11.23	0.00	0.00	0.18	B
13	920.58	2207.23	920.58	2207.23	921.87	2194.17	10.00	12.94	0.00	0.00	0.18	B
14	935.99	2212.67	935.99	2212.67	937.43	2198.09	10.00	14.47	0.00	0.00	0.18	B
15	1090.01	2255.63	1090.01	2255.63	1091.55	2240.04	10.00	15.49	0.00	0.00	0.18	B
16	1184.76	2287.98	1184.76	2287.98	1185.86	2276.82	10.00	11.03	0.00	0.00	0.18	B
17	1220.93	2296.51	1220.93	2296.51	1221.55	2283.89	5.00	12.46	0.00	0.00	0.18	B
18	1269.74	2301.54	1269.74	2301.54	1269.74	2285.51	0.00	15.85	0.00	0.00	0.18	B
19	1341.44	2302.48	1341.44	2302.48	1341.97	2291.73	5.00	10.58	0.00	0.00	0.18	B
20	1452.50	2332.36	1452.50	2332.36	1453.73	2319.89	10.00	12.35	0.00	0.00	0.18	B
21	1635.58	2373.98	1635.58	2373.98	1636.82	2361.37	10.00	12.49	0.00	0.00	0.18	B
22	1681.92	2382.18	1681.92	2382.18	1682.47	2370.91	5.00	11.10	0.00	0.00	0.18	B
23	1722.56	2385.99	1722.56	2385.99	1722.56	2374.51	0.00	11.30	0.00	0.00	0.18	B
***	1742.17	2386.39	1742.17	2386.39	1742.17	2386.39	0.00	0.00	0.00	0.00	0.00	B
***	1747.17	2386.39	1747.17	2386.39	1747.17	2386.39	0.00	0.00	0.00	0.00	0.00	B
***	1748.03	2386.07	1748.03	2386.07	1748.03	2386.07	0.00	0.00	0.00	0.00	0.00	B
DBW	1751.89	2386.07	1751.89	2386.07	1751.89	2386.07	0.00	0.00	0.00	0.00	0.00	B

ift name ----------> Becker
Ski Area ----------> Snowbasin Resort
Location ----------> Utah
Date ----------> August 2024
Designer ----------> B. Shepardson
Surveyor ----------> Area Topo
Survey unit (M/F) ----------> M
Reference elevation (M)----------> 1960.
Reference Station (M)----------> 0.

0. 1983.96
43.66 1991.66 1000 SNOW LD EL
52.10 1991.45 1458 GND
58.83 1991.65 1457 GND
60.96 1991.72 200 RP2
64.66 1991.59 1456 GND
73.25 1993.00 1455 GND 9.45
78.50 1993.93 1454 GND
84.48 1994.75 1452 GND 9.45
91.51 1996.02 1450 GND 10%ss 9.80
95.94 1996.39 1449 GND 9.45
104.33 1997.20 1448 GND
109.43 1997.73 1446 GND 9.45
123.18 1999.63 1444 GND 10%ss 9.80
125.00 1999.81 1447 GND 9.45
130.16 2000.59 1443 GND 9.45
137.01 2001.61 1441 GND 10%ss 9.80
146.66 2002.69 1439 GND 20%ss 10.14
156.11 2004.13 1437 GND 9.45
170.72 2006.11 1436 GND 9.45
186.91 2008.17 1434 GND 10%ss 9.80
200.86 2010.03 1433 GND 9.45
214.02 2011.11 1431 GND 20%ss 10.14
223.48 2012.61 1430 GND 9.45
234.04 2014.37 1429 GND
248.36 2016.43 1427 GND
256.44 2018.15 1426 GND MTB TRL
260.55 2019.34 1424 GND
267.98 2020.76 1423 GND 9.45
278.71 2022.09 1421 GND 10%ss 9.80
291.22 2023.58 1419 GND 9.45
302.31 2024.83 1417 GND 10%ss 9.80
309.99 2025.73 1416 GND 9.45
313.94 2026.15 1414 GND 10%ss 9.80
323.03 2027.60 1413 GND 9.45
331.24 2028.70 1411 GND 10%ss 9.80
339.63 2030.53 1409 GND 10%ss 9.80
344.29 2031.91 1407 GND 10%ss 9.80
350.60 2033.98 1405 GND 20%ss 10.14
356.18 2036.03 1404 RD 10.06
360.20 2036.57 1403 RD
361.92 2036.78 1402 RD 10.06
362.55 2036.91 1400 GND 35%ss 11.27
366.27 2039.31 1398 GND 25%ss 10.93
367.91 2040.24 1396 GND 20%ss 10.75
374.24 2044.04 1394 GND 10%ss 10.41
380.58 2047.82 1392 GND 20%ss 10.75
385.84 2051.48 1390 GND 20%ss 10.75
389.11 2053.74 1389 GND 10.06
391.58 2053.32 1387 GND MTB TRL 20%ss 10.75
394.89 2055.88 1385 GND 30%ss 11.10
401.73 2059.22 1383 GND 30%ss 11.10
409.67 2063.29 1381 GND 25%ss 10.93
413.88 2065.50 1379 GND 25%ss 10.93
421.70 2069.39 1377 GND 20%ss 10.75
430.41 2073.87 1375 GND 20%ss 10.75
439.86 2078.84 1373 GND 20%ss 10.75
449.53 2085.02 1371 GND 25%ss 10.93
459.30 2091.33 1369 GND 25%ss 10.93
468.04 2096.25 1367 GND 30%ss 11.10
477.28 2100.42 1365 GND 30%ss 11.10
482.63 2102.66 1364 GND 10.06
484.26 2103.26 1362 GND 30%ss 11.10
487.24 2104.62 1360 GND 30%ss 11.10
491.06 2106.57 1358 GND 25%ss 10.93

494.78 2109.51 1356 GND 10%ss 10.41
498.05 2111.20 1354 GND 10%ss 10.41
498.80 2111.37 1353 RD 10.06
503.30 2111.44 1352 RD
507.74 2111.46 1351 RD
508.63 2111.58 1350 GND
512.23 2116.05 1349 GND 10.06
517.56 2117.78 1348 GND
527.70 2120.72 1346 GND
534.79 2122.38 1345 GND 10.06
536.06 2122.76 1343 GND 10%ss 10.41
539.28 2123.63 1341 GND 10%ss 10.41
543.36 2124.58 1339 GND 10%ss 10.41
551.51 2126.86 1337 GND 10%ss 10.41
553.12 2127.14 1336 GND 10.06
569.32 2129.49 1334 GND 30%ss 11.10
576.71 2130.56 1332 GND 30%ss 11.10
580.36 2131.38 1331 GND 10.06
581.59 2131.54 1329 GND 25%ss 10.93
585.63 2132.21 1327 GND 20%ss 10.75
592.45 2133.29 1325 GND 25%ss 10.93
600.38 2134.86 1323 GND 25%ss 10.93
614.88 2136.98 1321 GND 20%ss 10.75
627.66 2138.91 1319 GND 15%ss 10.58
639.43 2140.92 1317 GND 15%ss 10.58
656.00 2144.52 1315 GND 10%ss 10.41
669.78 2147.95 1313 GND 10%ss 10.41
680.15 2150.16 1311 GND 10%ss 10.41
690.39 2151.80 1310 GND 10.06
691.79 2152.07 1308 GND 20%ss 10.75
697.83 2153.30 1306 GND 15%ss 10.58
704.34 2154.78 1304 GND 10%ss 10.41
714.24 2156.32 1302 GND 25%ss 10.93
720.34 2156.60 1300 GND 20%ss 10.75
725.28 2156.15 1298 GND 15%ss 10.58
729.26 2155.63 1296 GND 15%ss 10.58
733.13 2154.97 1294 GND 10%ss 10.41
744.89 2154.48 1292 GND 10%ss 10.41
751.65 2154.97 1291 GND 10.06
757.12 2155.40 1289 GND
763.43 2156.03 1288 GND
769.31 2156.79 1287 GND
773.97 2156.04 1286 GND 10.06
775.71 2155.95 1285 RD
778.86 2156.13 1284 RD
780.88 2156.27 1283 RD
789.97 2156.93 1282 GND 10.06
801.25 2157.72 1281 GND
809.82 2158.69 1280 GND
818.83 2159.74 1278 GND 10.06
828.08 2161.13 1276 GND 20%ss 10.75
832.41 2162.36 1274 GND 25%ss 10.93
836.89 2163.77 1273 GND 10.06
838.23 2164.27 1271 GND 40%ss 11.44
840.60 2165.44 1269 GND 25%ss 10.93
846.06 2167.18 1267 GND 25%ss 10.93
852.50 2169.05 1265 GND 30%ss 11.10
860.53 2171.62 1263 GND 25%ss 10.93
866.28 2173.92 1261 GND 30%ss 11.10
871.21 2175.69 1259 GND 30%ss 11.10
876.30 2177.49 1257 GND 30%ss 11.10
880.11 2178.88 1255 GND 25%ss 10.93
883.31 2179.51 1253 GND 25%ss 10.93
890.35 2181.04 1251 GND 25%ss 10.93
894.60 2182.10 1249 GND 50%ss 11.79
900.52 2185.33 1247 GND 50%ss 11.79
905.19 2188.22 1245 GND 35%ss 11.27
908.87 2190.29 1242 RD 10.06
911.94 2190.52 1241 RD
915.20 2190.92 1240 RD 10.06
921.11 2193.78 1238 GND 70%ss 12.48
921.87 2194.17 1243 GND 65%ss 12.31
923.45 2194.82 1236 GND 65%ss 12.31
928.25 2196.52 1234 GND 55%ss 11.96
933.37 2197.85 1230 GND 50%ss 11.79

935.88 2198.03 1228 GND 60%ss 12.14
937.43 2197.90 1232 GND 10.06
939.37 2198.17 1226 GND 60%ss 12.14
942.38 2198.79 1233 GND 10.06
944.05 2199.02 1224 GND 45%ss 11.62
949.32 2199.97 1222 GND 40%ss 11.44
953.94 2200.70 1220 GND 45%ss 11.62
957.98 2200.61 1218 GND 55%ss 11.96
960.70 2201.34 1217 STRM 10.06
964.06 2201.69 1216 STRM
967.80 2203.26 1215 STRM
973.87 2205.11 1213 GND
979.62 2207.00 1212 GND 10.06
988.62 2209.34 1211 GND
995.02 2211.02 1210 GND
996.93 2211.25 1209 RD 10.06
1005.70 2213.22 1208 RD
1009.75 2214.23 1207 RD
1012.39 2214.86 1205 GND 10.06
1017.30 2215.90 1203 GND 15%ss 10.58
1024.41 2217.66 1201 GND 20%ss 10.75
1029.59 2218.88 1199 GND 30%ss 11.10
1035.49 2220.17 1197 GND 45%ss 11.62
1041.37 2222.63 1195 GND 30%ss 11.10
1047.31 2224.76 1193 GND 45%ss 11.62
1052.16 2226.73 1191 GND 30%ss 11.10
1058.24 2228.84 1189 GND 25%ss 10.93
1065.63 2231.75 1187 GND 25%ss 10.93
1070.15 2233.18 1185 GND 35%ss 11.27
1076.81 2235.41 1183 GND 30%ss 11.10
1083.04 2237.16 1182 GND 10.06
1084.29 2237.52 1180 GND 30%ss 11.10
1088.16 2238.88 1178 GND 25%ss 10.93
1095.39 2241.36 1176 GND 30%ss 11.10
1104.86 2244.91 1174 GND 25%ss 10.93
1111.33 2247.46 1172 GND 30%ss 11.10
1115.09 2249.53 1170 GND 20%ss 10.75
1121.95 2252.27 1168 GND 35%ss 11.27
1130.31 2256.12 1166 GND 40%ss 11.44
1134.98 2258.04 1164 GND 40%ss 11.44
1141.87 2260.82 1162 GND 40%ss 11.44
1151.68 2264.31 1160 GND 45%ss 11.62
1161.42 2267.87 1158 GND 35%ss 11.27
1172.30 2271.66 1156 GND 40%ss 11.44
1182.10 2275.68 1154 GND 30%ss 11.10
1185.86 2276.82 1153 GND 10.06
1187.31 2277.08 1151 GND 30%ss 11.10
1194.42 2278.68 1149 GND 25%ss 10.93
1202.68 2280.94 1147 GND 20%ss 10.75
1209.50 2282.54 1145 GND 20%ss 10.75
1215.98 2283.37 1143 GND 20%ss 10.75
1222.56 2283.99 1141 GND 20%ss 10.75
1226.42 2284.47 1139 GND 15%ss 10.58
1234.60 2286.05 1137 GND 20%ss 10.75
1242.18 2287.30 1135 GND 20%ss 10.75
1250.52 2287.56 1133 GND 20%ss 10.75
1256.01 2286.79 1131 GND 20%ss 10.75
1261.41 2286.06 1129 GND 20%ss 10.75
1269.74 2285.51 1128 GND 10.06
1270.85 2285.46 1126 GND 15%ss 10.58
1276.55 2285.54 1124 GND 15%ss 10.58
1283.55 2285.77 1122 GND 15%ss 10.58
1297.43 2287.06 1120 GND 15%ss 10.58
1311.49 2288.57 1119 GND 10.06
1322.10 2289.21 1118 GND 10.06
1335.79 2290.60 1116 GND 10%ss 10.41
1341.97 2291.73 1115 GND 10.06
1343.32 2292.11 1113 GND 20%ss 10.75
1349.28 2292.79 1111 GND 25%ss 10.93
1358.01 2293.26 1109 GND 30%ss 11.10
1365.14 2293.43 1107 GND 35%ss 11.27
1378.82 2293.01 1105 GND 50%ss 11.79
1387.96 2293.54 1103 GND 55%ss 11.96
1393.58 2295.23 1101 GND 55%ss 11.96
1401.76 2298.13 1099 GND 45%ss 11.62

1407.19 2300.09 1097 GND 45%ss 11.62
1411.56 2301.51 1095 GND MTB TRL 55%ss 11.96
1414.41 2302.86 1093 GND 40%ss 11.44
1417.11 2304.25 1091 GND 40%ss 11.44
1423.53 2307.01 1089 GND 40%ss 11.44
1428.18 2309.14 1087 GND 35%ss 11.27
1433.89 2311.76 1085 GND 25%ss 10.93
1439.66 2314.46 1083 GND 20%ss 10.75
1447.13 2317.35 1081 GND 25%ss 10.93
1453.73 2319.89 1079 GND 55%ss 11.96
1455.86 2321.02 1077 GND 30%ss 11.10
1458.06 2321.91 1076 GND 10.06
1459.85 2321.86 1075 RD
1463.93 2321.69 1074 RD
1466.84 2321.57 1073 RD 10.06
1467.06 2321.58 1071 GND 40%ss 11.44
1469.46 2321.69 1069 GND 60%ss 12.14
1473.74 2322.83 1067 GND 45%ss 11.62
1479.72 2323.99 1065 GND 30%ss 11.10
1485.12 2324.08 1063 GND 25%ss 10.93
1494.60 2323.68 1061 GND 35%ss 11.27
1501.50 2322.97 1059 GND 50%ss 11.79
1512.50 2323.24 1057 GND 50%ss 11.79
1526.49 2324.24 1055 GND 55%ss 11.96
1535.39 2325.90 1053 GND 45%ss 11.62
1551.07 2330.30 1051 GND 45%ss 11.62
1565.96 2335.55 1049 GND 40%ss 11.44
1573.49 2339.23 1047 GND 30%ss 11.10
1576.90 2339.85 1045 GND 45%ss 11.62
1584.58 2343.24 1043 GND 50%ss 11.79
1592.46 2346.81 1041 GND 45%ss 11.62
1601.06 2350.27 1039 GND 35%ss 11.27
1607.63 2352.56 1037 GND 35%ss 11.27
1614.15 2354.96 1035 GND 30%ss 11.10
1622.19 2357.64 1034 GND 10.06
1622.98 2358.00 1032 GND 15%ss 10.58
1630.90 2359.78 1030 GND 20%ss 10.75
1640.42 2362.34 1028 GND 15%ss 10.58
1651.42 2365.31 1026 GND 15%ss 10.58
1662.14 2367.08 1024 GND 30%ss 11.10
1670.42 2369.18 1023 GND 10.06
1671.71 2369.37 1021 GND 15%ss 10.58
1679.38 2370.59 1019 GND 15%ss 10.58
1687.57 2371.43 1017 GND 15%ss 10.58
1696.77 2371.98 1015 GND 15%ss 10.58
1705.67 2372.47 1013 GND 10%ss 10.41
1715.00 2373.78 1012 GND 10.06
1722.56 2374.51 1011 GND
1723.57 2374.49 1010 GND 10.06
1725.58 2374.83 1008 GND 10%ss 10.41
1733.79 2375.83 1006 GND 10%ss 10.41
1748.14 2377.54 1005 GND
1754.08 2378.62 201 DP2
1754.61 2378.83 1004 GND
1758.41 2380.06 1003 GND
1761.42 2380.77 1002 GND
1814.34 2388.74

Line Calculations
Final Capacity

2400 pph @ 5.08 m/s

Snowbasin
Becker

February-25

Project Number: C52356fc. Snowbasin Resort. 'Becker.' 12/06/24
Lift Speed: 5.08 m/s Lift Capacity: 2400 pph

SUMMARY TABLE
FULL: 25.31 daN/m. EMPTY: 15.39 daN/m. BARE: 5.71 daN/m. DOWN: 16.38 daN/m.

TOWER	SIDE	MAX SAG	MIN CURVE	MAX BOA	MAX TENS	MIN TENS	MAX LOAD	MIN LOAD	33% OVER LOAD	30% UNDER TENS	50% OVER TENS	SHEAVE TRAIN
RBW	U	0.00	387	0.3	9800	9800	0	0	0	0	0	---
RBW	D	0.00	598	0.2	9800	9800	0	0	0	0	0	---
***	U	0.00	417	-20.1	9886	9800	-3430	-3453	-3394	-2372	0	---
***	D	0.00	633	-20.2	9800	9714	-3420	-3423	-3391	-2351	0	---
***	U	0.01	394	20.8	9984	9891	3596	3537	0	0	0	---
***	D	0.01	588	20.7	9720	9633	3477	3445	0	0	0	---
***	U	0.01	395	2.4	9994	9980	419	310	0	0	0	2S
***	D	0.01	588	2.1	9633	9624	359	300	0	0	0	2S
1	U	0.72	423	-17.4	10069	9987	-3039	-3291	-2806	-1921	0	12C
1	D	0.50	619	-18.6	9621	9543	-3100	-3125	-2947	-1807	0	8C
2	U	2.29	425	20.1	10568	10318	3668	2323	0	0	0	8S
2	D	1.62	603	17.3	9809	9720	2945	2210	0	0	0	8S
3	U	1.75	439	11.3	10955	10596	2143	534	0	0	0	6S
3	D	1.25	613	8.1	9952	9890	1408	530	0	0	0	4S
4	U	0.93	451	8.5	11281	10802	1674	360	0	0	344	4S
4	D	0.68	622	6.1	10100	10038	1078	361	0	0	348	4S
5	U	1.49	517	-11.4	11553	10958	-2298	-2730	-1591	-1010	0	8C
5	D	1.11	700	-13.5	10212	10107	-2398	-2444	-2037	-812	0	8C
6	U	1.62	561	7.5	12476	11563	1637	298	0	0	226	4S
6	D	1.24	742	5.5	10723	10619	1037	306	0	0	249	4S
7	U	0.54	567	15.4	13541	12179	3619	2072	0	0	0	8S
7	D	0.42	728	14.0	11328	11145	2747	1927	0	0	0	6S
8	U	0.57	567	11.7	14012	12493	2848	1579	0	0	0	6S
8	D	0.45	717	10.6	11518	11336	2132	1462	0	0	0	6S
9	U	2.71	579	9.9	14347	12714	2461	808	0	0	0	4S
9	D	2.18	722	8.2	11641	11463	1671	775	0	0	0	4S
10	U	0.27	595	10.3	14930	13069	2683	1059	0	0	0	6S
10	D	0.22	732	9.0	11933	11732	1864	996	0	0	0	4S
11	U	2.55	601	11.0	15116	13184	2892	1212	0	0	0	6S
11	D	2.10	730	9.7	11961	11752	2028	1132	0	0	0	4S
12	U	1.65	649	-8.3	15329	13332	-2207	-2578	-795	-395	0	8C
12	D	1.38	782	-9.9	12012	11796	-2063	-2110	-1476	-70	0	8C
13	U	0.05	678	5.8	16183	13890	1632	550	0	0	0	4S
13	D	0.04	807	5.1	12487	12264	1101	520	0	0	0	2S
14	U	4.77	677	11.3	16401	14001	3228	1274	0	0	0	6S
14	D	4.08	796	10.2	12548	12294	2227	1182	0	0	0	6S
15	U	1.77	734	7.0	17542	14718	2140	25	3319	2526	-790	1C/4S/1C
15	D	1.53	851	5.6	13196	12926	1281	106	1966	2587	-418	1C/4S/1C
16	U	0.24	749	10.7	18447	15243	3446	1564	0	0	0	6S
16	D	0.21	855	10.1	13694	13366	2399	1422	0	0	0	4S
17	U	0.40	745	10.7	18750	15436	3482	1828	0	0	0	6S
17	D	0.36	842	10.3	13774	13437	2465	1631	0	0	0	6S
18	U	0.86	750	9.7	18957	15580	3215	1453	0	0	0	6S
18	D	0.77	840	9.2	13795	13462	2218	1309	0	0	0	4S

19 U	2.15	781	-7.3	19042	15652	-2437	-2510	-836	-433	0	8C
19 D	1.94	868	-8.1	13755	13427	-1932	-1952	-1361	-47	0	8C
20 U	5.46	812	12.9	19910	16175	4479	1336	0	0	0	8S
20 D	4.99	889	12.0	14196	13817	2955	1266	0	0	0	6S
21 U	0.33	845	10.7	21061	16888	3911	1281	0	0	0	6S
21 D	0.31	914	10.0	14804	14396	2584	1190	0	0	0	4S
22 U	0.25	847	7.6	21340	17078	2837	1309	0	0	0	6S
22 D	0.23	909	7.4	14873	14476	1922	1152	0	0	0	4S
23 U	0.06	850	6.2	21495	17189	2333	1127	0	0	0	4S
23 D	0.05	907	6.1	14888	14497	1581	983	0	0	0	4S
*** U	0.00	850	2.0	21524	17238	750	337	0	0	0	2S
*** D	0.00	906	1.9	14855	14491	504	296	0	0	0	2S
*** U	0.00	916	20.6	21717	17251	7736	4674	0	0	0	---
*** D	0.00	958	20.6	14842	14362	5284	3920	0	0	0	---
*** U	0.00	865	-20.3	21901	17401	-6159	-7670	-6088	-4257	0	---
*** D	0.00	890	-20.3	14705	14231	-5031	-5151	-4992	-3471	0	---
DBW U	0.00	0	0.0	21901	17555	0	0	0	0	0	---
DBW D	0.00	0	0.0	14576	14231	0	0	0	0	0	---

Project Number: C52356fc. Snowbasin Resort. 'Becker.' 12/06/24
Lift Speed: 5.08 m/s Lift Capacity: 2400 pph

Loading case: UPHILL FULL = 25.31 daN/m DOWNHILL EMPTY = 15.39 daN/m

TOWER	SIDE	SAG	CURVE	BETA	THETA	K	DX	DY	TENS	LD ANGLE	LOAD	SHEAVE TRAIN
RBW	U	0.00	387	0.00	-0.29	0.0012	3.86	0.00	9800	0.00	0	---
RBW	D	0.00	637	0.00	-0.17	0.0008	3.86	0.00	9800	0.00	0	---
***	U	0.00	417	0.29	20.35	0.0002	0.86	0.32	9886	8.91	-3430	---
***	D	0.00	674	0.17	20.37	0.0001	0.86	0.32	9800	11.68	-3423	---
***	U	0.01	394	20.47	-0.36	0.0016	5.00	0.00	9984	11.46	3596	---
***	D	0.00	626	20.45	-0.23	0.0010	5.00	0.00	9719	8.70	3474	---
***	U	0.01	395	0.36	-2.04	0.0019	6.10	-0.17	9994	0.59	419	2S
***	D	0.01	626	0.23	-1.88	0.0012	6.10	-0.17	9633	-2.26	354	2S
1	U	0.72	423	-1.15	16.27	0.0125	45.61	16.20	10066	6.14	-3039	12C
1	D	0.47	659	-1.32	17.45	0.0081	45.61	16.20	9621	9.48	-3125	8C
2	U	2.29	425	22.71	2.64	0.0251	87.24	13.20	10568	14.08	3668	8S
2	D	1.52	640	21.61	4.65	0.0167	87.24	13.20	9792	11.71	2877	8S
3	U	1.75	439	14.39	3.13	0.0216	77.47	11.23	10955	10.19	2143	6S
3	D	1.18	651	12.47	4.80	0.0146	77.47	11.23	9923	7.21	1326	4S
4	U	0.93	451	13.23	4.71	0.0156	57.31	8.45	11281	10.40	1674	4S
4	D	0.64	660	11.64	5.87	0.0107	57.31	8.45	10063	7.32	1011	4S
5	U	1.49	517	12.00	23.44	0.0138	66.67	34.88	11553	16.29	-2298	8C
5	D	1.05	742	10.87	24.71	0.0097	66.67	34.88	10168	19.21	-2444	8C
6	U	1.62	561	31.50	23.96	0.0137	71.95	38.48	12476	29.16	1637	4S
6	D	1.17	784	30.38	25.15	0.0099	71.95	38.48	10643	26.33	969	4S
7	U	0.54	567	32.01	16.60	0.0094	45.80	15.82	13541	25.73	3619	8S
7	D	0.40	767	30.97	17.24	0.0070	45.80	15.82	11211	22.68	2671	6S
8	U	0.57	567	21.44	9.75	0.0106	49.43	10.78	14012	17.02	2848	6S
8	D	0.43	754	20.83	10.38	0.0079	49.43	10.78	11388	14.18	2069	6S
9	U	2.71	579	14.81	4.95	0.0230	110.03	20.38	14347	11.31	2461	4S
9	D	2.07	760	14.20	6.27	0.0176	110.03	20.38	11502	8.80	1588	4S
10	U	0.27	595	15.85	5.51	0.0074	35.51	4.51	14930	12.11	2683	6S
10	D	0.21	769	14.61	5.90	0.0057	35.51	4.51	11776	8.83	1784	4S
11	U	2.55	601	8.95	-2.05	0.0229	110.49	6.24	15116	4.87	2892	6S
11	D	2.00	767	8.56	-0.91	0.0180	110.49	6.24	11801	2.40	1945	4S
12	U	1.65	649	8.46	16.73	0.0149	84.81	32.11	15329	11.17	-2207	8C
12	D	1.31	821	7.34	17.57	0.0118	84.81	32.11	11848	13.88	-2110	8C
13	U	0.05	678	24.54	18.75	0.0027	15.41	5.44	16183	23.08	1632	4S
13	D	0.04	845	23.78	18.89	0.0021	15.41	5.44	12290	19.90	1047	2S
14	U	4.77	677	20.13	8.81	0.0267	154.02	42.96	16401	15.89	3228	6S
14	D	3.90	833	19.99	10.08	0.0218	154.02	42.96	12347	13.61	2130	6S
15	U	1.77	734	21.94	14.94	0.0150	94.75	32.35	17542	19.87	2140	1C/4S/1C
15	D	1.46	889	20.81	15.62	0.0124	94.75	32.35	12955	16.79	1172	1C/4S/1C
16	U	0.24	749	22.59	11.85	0.0058	36.17	8.53	18447	18.64	3446	6S
16	D	0.20	893	21.96	12.08	0.0049	36.17	8.53	13424	15.59	2308	4S
17	U	0.40	745	14.67	4.00	0.0081	48.81	5.03	18750	10.76	3482	6S
17	D	0.34	878	14.45	4.28	0.0069	48.81	5.03	13497	7.94	2388	6S
18	U	0.86	750	7.76	-1.99	0.0120	71.70	0.94	18957	4.31	3215	6S
18	D	0.73	876	7.48	-1.60	0.0102	71.70	0.94	13515	1.51	2134	4S
19	U	2.15	781	3.49	10.84	0.0169	111.06	29.88	19042	5.73	-2437	8C
19	D	1.86	905	3.10	11.42	0.0146	111.06	29.88	13476	8.68	-1952	8C
20	U	5.46	812	19.12	6.17	0.0269	183.08	41.62	19910	14.07	4479	8S
20	D	4.80	926	18.58	6.99	0.0237	183.08	41.62	13887	11.36	2799	6S
21	U	0.33	845	19.11	8.44	0.0067	46.34	8.20	21061	15.20	3911	6S
21	D	0.29	950	18.37	8.61	0.0060	46.34	8.20	14457	12.07	2455	4S
22	U	0.25	847	11.61	3.98	0.0060	40.64	3.81	21340	9.23	2837	6S
22	D	0.22	945	11.44	4.12	0.0053	40.64	3.81	14522	6.35	1851	4S
23	U	0.06	850	6.74	0.51	0.0029	19.61	0.40	21495	5.05	2333	4S
23	D	0.05	942	6.59	0.57	0.0026	19.61	0.40	14535	2.15	1525	4S
***	U	0.00	850	1.83	-0.17	0.0007	5.00	0.00	21524	2.26	750	2S
***	D	0.00	942	1.76	-0.15	0.0007	5.00	0.00	14503	-0.63	485	2S
***	U	0.00	916	0.17	-20.44	0.0001	0.86	-0.32	21717	-8.73	7736	---
***	D	0.00	996	0.15	-20.44	0.0001	0.86	-0.32	14491	-11.55	5158	---
***	U	0.00	865	-20.38	-0.13	0.0006	3.86	0.00	21901	-11.66	-7670	---
***	D	0.00	925	-20.38	-0.12	0.0005	3.86	0.00	14357	-8.84	-5031	---
DBW	U	0.00	0	0.00	0.00	0.0000	0.00	0.00	21901	0.00	0	---
DBW	D	0.00	0	0.00	0.00	0.0000	0.00	0.00	14231	0.00	0	---

Project Number: C52356fc. Snowbasin Resort. 'Becker.' 12/06/24
Lift Speed: 5.08 m/s Lift Capacity: 2400 pph

Loading case: UPHILL EMPTY = 15.39 daN/m DOWNHILL EMPTY = 15.39 daN/m

TOWER	SIDE	SAG	CURVE	BETA	THETA	K	DX	DY	TENS	LD ANGLE	LOAD	SHEAVE TRAIN
RBW	U	0.00	637	0.00	-0.17	0.0008	3.86	0.00	9800	0.00	0	---
RBW	D	0.00	637	0.00	-0.17	0.0008	3.86	0.00	9800	0.00	0	---
***	U	0.00	685	0.17	20.37	0.0001	0.86	0.32	9886	8.86	-3453	---
***	D	0.00	674	0.17	20.37	0.0001	0.86	0.32	9800	11.68	-3423	---
***	U	0.00	649	20.45	-0.22	0.0010	5.00	0.00	9980	11.52	3566	---
***	D	0.00	626	20.45	-0.23	0.0010	5.00	0.00	9719	8.70	3474	---
***	U	0.01	649	0.22	-1.87	0.0012	6.10	-0.17	9989	0.61	364	2S
***	D	0.01	626	0.23	-1.88	0.0012	6.10	-0.17	9633	-2.26	354	2S
1	U	0.44	695	-1.33	17.56	0.0076	45.61	16.20	10069	6.70	-3291	12C
1	D	0.47	659	-1.32	17.45	0.0081	45.61	16.20	9621	9.48	-3125	8C
2	U	1.43	684	21.50	4.91	0.0156	87.24	13.20	10393	14.62	2990	8S
2	D	1.52	640	21.61	4.65	0.0167	87.24	13.20	9792	11.71	2877	8S
3	U	1.10	699	12.23	5.04	0.0136	77.47	11.23	10630	10.06	1331	6S
3	D	1.18	651	12.47	4.80	0.0146	77.47	11.23	9923	7.21	1326	4S
4	U	0.59	712	11.41	6.06	0.0099	57.31	8.45	10828	10.16	1010	4S
4	D	0.64	660	11.64	5.87	0.0107	57.31	8.45	10063	7.32	1011	4S
5	U	0.96	810	10.69	24.95	0.0089	66.67	34.88	11026	16.40	-2730	8C
5	D	1.05	742	10.87	24.71	0.0097	66.67	34.88	10168	19.21	-2444	8C
6	U	1.08	855	30.16	25.40	0.0091	71.95	38.48	11587	29.21	961	4S
6	D	1.17	784	30.38	25.15	0.0099	71.95	38.48	10643	26.33	969	4S
7	U	0.37	843	30.74	17.41	0.0064	45.80	15.82	12250	25.50	2837	8S
7	D	0.40	767	30.97	17.24	0.0070	45.80	15.82	11211	22.68	2671	6S
8	U	0.39	835	20.67	10.57	0.0072	49.43	10.78	12548	17.05	2206	6S
8	D	0.43	754	20.83	10.38	0.0079	49.43	10.78	11388	14.18	2069	6S
9	U	1.87	845	14.02	6.70	0.0158	110.03	20.38	12755	11.79	1626	4S
9	D	2.07	760	14.20	6.27	0.0176	110.03	20.38	11502	8.80	1588	4S
10	U	0.19	859	14.20	6.04	0.0051	35.51	4.51	13115	11.55	1862	6S
10	D	0.21	769	14.61	5.90	0.0057	35.51	4.51	11776	8.83	1784	4S
11	U	1.77	863	8.43	-0.44	0.0159	110.49	6.24	13236	5.42	2043	6S
11	D	2.00	767	8.56	-0.91	0.0180	110.49	6.24	11801	2.40	1945	4S
12	U	1.16	932	6.88	17.95	0.0105	84.81	32.11	13396	10.99	-2578	8C
12	D	1.31	821	7.34	17.57	0.0118	84.81	32.11	11848	13.88	-2110	8C
13	U	0.04	959	23.43	18.96	0.0019	15.41	5.44	13917	22.62	1085	4S
13	D	0.04	845	23.78	18.89	0.0021	15.41	5.44	12290	19.90	1047	2S
14	U	3.42	952	19.93	10.77	0.0191	154.02	42.96	14057	16.78	2242	6S
14	D	3.90	833	19.99	10.08	0.0218	154.02	42.96	12347	13.61	2130	6S
15	U	1.29	1014	20.19	16.02	0.0109	94.75	32.35	14745	19.54	1072	1C/4S/1C
15	D	1.46	889	20.81	15.62	0.0124	94.75	32.35	12955	16.79	1172	1C/4S/1C
16	U	0.17	1022	21.59	12.23	0.0043	36.17	8.53	15305	18.34	2494	6S
16	D	0.20	893	21.96	12.08	0.0049	36.17	8.53	13424	15.59	2308	4S
17	U	0.30	1013	14.30	4.50	0.0060	48.81	5.03	15502	10.83	2645	6S
17	D	0.34	878	14.45	4.28	0.0069	48.81	5.03	13497	7.94	2388	6S
18	U	0.63	1017	7.26	-1.27	0.0088	71.70	0.94	15638	4.43	2323	6S
18	D	0.73	876	7.48	-1.60	0.0102	71.70	0.94	13515	1.51	2134	4S
19	U	1.60	1059	2.77	11.95	0.0125	111.06	29.88	15715	5.93	-2510	8C
19	D	1.86	905	3.10	11.42	0.0146	111.06	29.88	13476	8.68	-1952	8C
20	U	4.09	1087	18.08	7.85	0.0202	183.08	41.62	16247	14.39	2891	8S
20	D	4.80	926	18.58	6.99	0.0237	183.08	41.62	13887	11.36	2799	6S
21	U	0.25	1119	17.58	8.83	0.0051	46.34	8.20	16952	14.63	2582	6S
21	D	0.29	950	18.37	8.61	0.0060	46.34	8.20	14457	12.07	2455	4S
22	U	0.19	1118	11.23	4.31	0.0045	40.64	3.81	17130	9.20	2063	6S
22	D	0.22	945	11.44	4.12	0.0053	40.64	3.81	14522	6.35	1851	4S
23	U	0.04	1120	6.40	0.67	0.0022	19.61	0.40	17232	4.97	1723	4S
23	D	0.05	942	6.59	0.57	0.0026	19.61	0.40	14535	2.15	1525	4S
***	U	0.00	1121	1.67	-0.13	0.0006	5.00	0.00	17251	2.20	541	2S
***	D	0.00	942	1.76	-0.15	0.0007	5.00	0.00	14503	-0.63	485	2S
***	U	0.00	1207	0.13	-20.43	0.0001	0.86	-0.32	17406	-8.74	6187	---
***	D	0.00	996	0.15	-20.44	0.0001	0.86	-0.32	14491	-11.55	5158	---
***	U	0.00	1141	-20.39	-0.10	0.0004	3.86	0.00	17555	-11.65	-6159	---
***	D	0.00	925	-20.38	-0.12	0.0005	3.86	0.00	14357	-8.84	-5031	---
DBW	U	0.00	0	0.00	0.00	0.0000	0.00	0.00	17555	0.00	0	---
DBW	D	0.00	0	0.00	0.00	0.0000	0.00	0.00	14231	0.00	0	---

Project Number: C52356fc. Snowbasin Resort. 'Becker.' 12/06/24
Lift Speed: 5.08 m/s Lift Capacity: 2400 pph

Loading case: UPHILL BARE = 5.71 daN/m DOWNHILL BARE = 5.71 daN/m

TOWER SIDE TRAIN	SAG	CURVE	BETA	THETA	K	DX	DY	TENS	LD ANGLE	LOAD	SHEAVE
RBW U	0.00	1716	0.00	-0.06	0.0003	3.86	0.00	9800	0.00	0	---
RBW D	0.00	1716	0.00	-0.06	0.0003	3.86	0.00	9800	0.00	0	---
*** U	0.00	1847	0.06	20.40	0.0001	0.86	0.32	9887	8.82	-3476	---
*** D	0.00	1815	0.06	20.40	0.0001	0.86	0.32	9800	11.64	-3445	---
*** U	0.00	1747	20.42	-0.08	0.0004	5.00	0.00	9977	11.58	3537	---
*** D	0.00	1686	20.42	-0.08	0.0004	5.00	0.00	9716	8.76	3445	---
*** U	0.00	1749	0.08	-1.70	0.0004	6.10	-0.17	9985	0.62	310	2S
*** D	0.00	1686	0.08	-1.70	0.0005	6.10	-0.17	9630	-2.24	300	2S
1 U	0.17	1872	-1.50	18.81	0.0029	45.61	16.20	10072	7.25	-3537	12C
1 D	0.17	1773	-1.49	18.77	0.0030	45.61	16.20	9621	10.05	-3371	8C
2 U	0.54	1811	20.29	7.21	0.0059	87.24	13.20	10223	15.17	2323	8S
2 D	0.58	1696	20.33	7.11	0.0063	87.24	13.20	9629	12.30	2210	8S
3 U	0.42	1825	9.99	7.02	0.0052	77.47	11.23	10312	9.94	534	6S
3 D	0.45	1706	10.08	6.93	0.0056	77.47	11.23	9649	7.08	530	4S
4 U	0.23	1839	9.47	7.48	0.0038	57.31	8.45	10385	9.91	360	4S
4 D	0.25	1716	9.55	7.42	0.0041	57.31	8.45	9700	7.06	361	4S
5 U	0.38	2078	9.29	26.58	0.0035	66.67	34.88	10512	16.52	-3150	8C
5 D	0.41	1911	9.35	26.49	0.0038	66.67	34.88	9740	19.34	-2893	8C
6 U	0.44	2129	28.64	27.04	0.0037	71.95	38.48	10718	29.27	298	4S
6 D	0.48	1958	28.72	26.94	0.0040	71.95	38.48	9866	26.40	306	4S
7 U	0.15	2036	29.21	18.37	0.0026	45.80	15.82	10990	25.22	2072	8S
7 D	0.17	1859	29.31	18.31	0.0029	45.80	15.82	10078	22.38	1927	6S
8 U	0.16	1993	19.73	11.58	0.0030	49.43	10.78	11120	17.08	1579	6S
8 D	0.18	1808	19.80	11.50	0.0033	49.43	10.78	10121	14.22	1462	6S
9 U	0.79	1996	13.03	8.89	0.0067	110.03	20.38	11201	12.39	808	4S
9 D	0.88	1804	13.10	8.72	0.0075	110.03	20.38	10146	9.48	775	4S
10 U	0.08	2003	12.08	6.73	0.0022	35.51	4.51	11344	10.84	1059	6S
10 D	0.09	1804	12.25	6.67	0.0024	35.51	4.51	10243	8.03	996	4S
11 U	0.77	2001	7.75	1.65	0.0069	110.49	6.24	11400	6.13	1212	6S
11 D	0.85	1793	7.81	1.46	0.0077	110.49	6.24	10243	3.20	1132	4S
12 U	0.51	2156	4.81	19.53	0.0046	84.81	32.11	11510	10.75	-2940	8C
12 D	0.57	1908	5.00	19.38	0.0052	84.81	32.11	10251	13.61	-2559	8C
13 U	0.02	2174	21.92	19.23	0.0008	15.41	5.44	11707	22.01	550	4S
13 D	0.02	1924	22.07	19.20	0.0009	15.41	5.44	10370	19.21	520	2S
14 U	1.53	2141	19.66	13.45	0.0086	154.02	42.96	11770	17.98	1274	6S
14 D	1.74	1885	19.69	13.15	0.0097	154.02	42.96	10388	14.99	1182	6S
15 U	0.59	2224	17.68	17.56	0.0050	94.75	32.35	12015	19.05	25	1C/4S/1C
15 D	0.67	1962	17.96	17.39	0.0057	94.75	32.35	10604	16.24	106	1C/4S/1C
16 U	0.08	2202	20.12	12.79	0.0020	36.17	8.53	12239	17.88	1564	6S
16 D	0.09	1934	20.29	12.72	0.0023	36.17	8.53	10786	15.07	1422	4S
17 U	0.14	2172	13.75	5.24	0.0028	48.81	5.03	12334	10.92	1828	6S
17 D	0.16	1894	13.82	5.14	0.0032	48.81	5.03	10799	8.05	1631	6S
18 U	0.30	2172	6.53	-0.19	0.0041	71.70	0.94	12399	4.60	1453	6S
18 D	0.34	1884	6.62	-0.34	0.0048	71.70	0.94	10787	1.71	1309	4S
19 U	0.75	2262	1.70	13.60	0.0059	111.06	29.88	12469	6.22	-2580	8C
19 D	0.87	1942	1.84	13.36	0.0069	111.06	29.88	10760	9.03	-2155	8C
20 U	1.97	2278	16.49	10.45	0.0097	183.08	41.62	12673	14.90	1336	8S
20 D	2.29	1950	16.73	10.05	0.0113	183.08	41.62	10877	11.96	1266	6S
21 U	0.12	2302	15.13	9.45	0.0025	46.34	8.20	12942	13.72	1281	6S
21 D	0.14	1966	15.51	9.35	0.0029	46.34	8.20	11083	11.00	1190	4S
22 U	0.09	2291	10.62	4.85	0.0022	40.64	3.81	13022	9.16	1309	6S
22 D	0.11	1947	10.72	4.76	0.0026	40.64	3.81	11100	6.31	1152	4S
23 U	0.02	2290	5.87	0.92	0.0011	19.61	0.40	13072	4.83	1127	4S
23 D	0.02	1939	5.96	0.88	0.0013	19.61	0.40	11093	1.99	983	4S
*** U	0.00	2291	1.41	-0.06	0.0003	5.00	0.00	13082	2.11	337	2S
*** D	0.00	1937	1.46	-0.07	0.0003	5.00	0.00	11070	-0.74	296	2S
*** U	0.00	2466	0.06	-20.42	0.0000	0.86	-0.32	13199	-8.77	4674	---
*** D	0.00	2049	0.07	-20.42	0.0000	0.86	-0.32	11063	-11.58	3920	---
*** U	0.00	2332	-20.40	-0.05	0.0002	3.86	0.00	13315	-11.63	-4685	---
*** D	0.00	1903	-20.40	-0.06	0.0003	3.86	0.00	10963	-8.82	-3855	---
DBW U	0.00	0	0.00	0.00	0.0000	0.00	0.00	13315	0.00	0	---
DBW D	0.00	0	0.00	0.00	0.0000	0.00	0.00	10867	0.00	0	---

Project Number: C52356fc. Snowbasin Resort. 'Becker.' 12/06/24
Lift Speed: 5.08 m/s Lift Capacity: 2400 pph

Loading case: UPHILL FULL = 25.31 daN/m DOWNHILL FULL = 16.38 daN/m

TOWER	SIDE	SAG	CURVE	BETA	THETA	K	DX	DY	TENS	LD ANGLE	LOAD	SHEAVE TRAIN
RBW	U	0.00	387	0.00	-0.29	0.0012	3.86	0.00	9800	0.00	0	---
RBW	D	0.00	598	0.00	-0.18	0.0008	3.86	0.00	9800	0.00	0	---
***	U	0.00	417	0.29	20.35	0.0002	0.86	0.32	9886	8.91	-3430	---
***	D	0.00	633	0.18	20.37	0.0002	0.86	0.32	9800	11.69	-3420	---
***	U	0.01	394	20.47	-0.36	0.0016	5.00	0.00	9984	11.46	3596	---
***	D	0.01	588	20.45	-0.24	0.0011	5.00	0.00	9720	8.69	3477	---
***	U	0.01	395	0.36	-2.04	0.0019	6.10	-0.17	9994	0.59	419	2S
***	D	0.01	588	0.24	-1.89	0.0013	6.10	-0.17	9633	-2.26	359	2S
1	U	0.72	423	-1.15	16.27	0.0125	45.61	16.20	10066	6.14	-3039	12C
1	D	0.50	619	-1.30	17.31	0.0086	45.61	16.20	9621	9.42	-3100	8C
2	U	2.29	425	22.71	2.64	0.0251	87.24	13.20	10568	14.08	3668	8S
2	D	1.62	603	21.74	4.41	0.0177	87.24	13.20	9809	11.65	2945	8S
3	U	1.75	439	14.39	3.13	0.0216	77.47	11.23	10955	10.19	2143	6S
3	D	1.25	613	12.71	4.59	0.0155	77.47	11.23	9952	7.22	1408	4S
4	U	0.93	451	13.23	4.71	0.0156	57.31	8.45	11281	10.40	1674	4S
4	D	0.68	622	11.84	5.72	0.0113	57.31	8.45	10100	7.35	1078	4S
5	U	1.49	517	12.00	23.44	0.0138	66.67	34.88	11553	16.29	-2298	8C
5	D	1.11	700	11.02	24.54	0.0103	66.67	34.88	10212	19.20	-2398	8C
6	U	1.62	561	31.50	23.96	0.0137	71.95	38.48	12476	29.16	1637	4S
6	D	1.24	742	30.53	24.99	0.0104	71.95	38.48	10723	26.33	1037	4S
7	U	0.54	567	32.01	16.60	0.0094	45.80	15.82	13541	25.73	3619	8S
7	D	0.42	728	31.12	17.15	0.0074	45.80	15.82	11328	22.71	2747	6S
8	U	0.57	567	21.44	9.75	0.0106	49.43	10.78	14012	17.02	2848	6S
8	D	0.45	717	20.92	10.28	0.0084	49.43	10.78	11518	14.17	2132	6S
9	U	2.71	579	14.81	4.95	0.0230	110.03	20.38	14347	11.31	2461	4S
9	D	2.18	722	14.29	6.05	0.0185	110.03	20.38	11641	8.74	1671	4S
10	U	0.27	595	15.85	5.51	0.0074	35.51	4.51	14930	12.11	2683	6S
10	D	0.22	732	14.81	5.84	0.0060	35.51	4.51	11933	8.90	1864	4S
11	U	2.55	601	8.95	-2.05	0.0229	110.49	6.24	15116	4.87	2892	6S
11	D	2.10	730	8.63	-1.11	0.0189	110.49	6.24	11961	2.33	2028	4S
12	U	1.65	649	8.46	16.73	0.0149	84.81	32.11	15329	11.17	-2207	8C
12	D	1.38	782	7.54	17.41	0.0124	84.81	32.11	12012	13.90	-2063	8C
13	U	0.05	678	24.54	18.75	0.0027	15.41	5.44	16183	23.08	1632	4S
13	D	0.04	807	23.92	18.86	0.0022	15.41	5.44	12487	19.96	1101	2S
14	U	4.77	677	20.13	8.81	0.0267	154.02	42.96	16401	15.89	3228	6S
14	D	4.08	796	20.02	9.82	0.0228	154.02	42.96	12548	13.49	2227	6S
15	U	1.77	734	21.94	14.94	0.0150	94.75	32.35	17542	19.87	2140	1C/4S/1C
15	D	1.53	851	21.05	15.48	0.0129	94.75	32.35	13196	16.83	1281	1C/4S/1C
16	U	0.24	749	22.59	11.85	0.0058	36.17	8.53	18447	18.64	3446	6S
16	D	0.21	855	22.09	12.02	0.0051	36.17	8.53	13694	15.63	2399	4S
17	U	0.40	745	14.67	4.00	0.0081	48.81	5.03	18750	10.76	3482	6S
17	D	0.36	842	14.50	4.21	0.0072	48.81	5.03	13774	7.93	2465	6S
18	U	0.86	750	7.76	-1.99	0.0120	71.70	0.94	18957	4.31	3215	6S
18	D	0.77	840	7.54	-1.70	0.0107	71.70	0.94	13795	1.50	2218	4S
19	U	2.15	781	3.49	10.84	0.0169	111.06	29.88	19042	5.73	-2437	8C
19	D	1.94	868	3.20	11.26	0.0152	111.06	29.88	13755	8.66	-1932	8C
20	U	5.46	812	19.12	6.17	0.0269	183.08	41.62	19910	14.07	4479	8S
20	D	4.99	889	18.72	6.75	0.0246	183.08	41.62	14196	11.31	2955	6S
21	U	0.33	845	19.11	8.44	0.0067	46.34	8.20	21061	15.20	3911	6S
21	D	0.31	914	18.59	8.56	0.0062	46.34	8.20	14804	12.15	2584	4S
22	U	0.25	847	11.61	3.98	0.0060	40.64	3.81	21340	9.23	2837	6S
22	D	0.23	909	11.49	4.07	0.0056	40.64	3.81	14873	6.35	1922	4S
23	U	0.06	850	6.74	0.51	0.0029	19.61	0.40	21495	5.05	2333	4S
23	D	0.05	907	6.64	0.55	0.0027	19.61	0.40	14888	2.16	1581	4S
***	U	0.00	850	1.83	-0.17	0.0007	5.00	0.00	21524	2.26	750	2S
***	D	0.00	906	1.79	-0.16	0.0007	5.00	0.00	14855	-0.62	504	2S
***	U	0.00	916	0.17	-20.44	0.0001	0.86	-0.32	21717	-8.73	7736	---
***	D	0.00	958	0.16	-20.44	0.0001	0.86	-0.32	14842	-11.55	5284	---
***	U	0.00	865	-20.38	-0.13	0.0006	3.86	0.00	21901	-11.66	-7670	---
***	D	0.00	890	-20.38	-0.12	0.0005	3.86	0.00	14705	-8.84	-5151	---
DBW	U	0.00	0	0.00	0.00	0.0000	0.00	0.00	21901	0.00	0	---
DBW	D	0.00	0	0.00	0.00	0.0000	0.00	0.00	14576	0.00	0	---

Project Number: C52356fc. Snowbasin Resort. 'Becker.' 12/06/24
Lift Speed: 5.08 m/s Lift Capacity: 2400 pph

Loading case: UPHILL EMPTY = 15.39 daN/m DOWNHILL FULL = 16.38 daN/m

TOWER	SIDE	SAG	CURVE	BETA	THETA	K	DX	DY	TENS	LD ANGLE	LOAD	SHEAVE TRAIN
RBW	U	0.00	637	0.00	-0.17	0.0008	3.86	0.00	9800	0.00	0	---
RBW	D	0.00	598	0.00	-0.18	0.0008	3.86	0.00	9800	0.00	0	---
***	U	0.00	685	0.17	20.37	0.0001	0.86	0.32	9886	8.86	-3453	---
***	D	0.00	633	0.18	20.37	0.0002	0.86	0.32	9800	11.69	-3420	---
***	U	0.00	649	20.45	-0.22	0.0010	5.00	0.00	9980	11.52	3566	---
***	D	0.01	588	20.45	-0.24	0.0011	5.00	0.00	9720	8.69	3477	---
***	U	0.01	649	0.22	-1.87	0.0012	6.10	-0.17	9989	0.61	364	2S
***	D	0.01	588	0.24	-1.89	0.0013	6.10	-0.17	9633	-2.26	359	2S
1	U	0.44	695	-1.33	17.56	0.0076	45.61	16.20	10069	6.70	-3291	12C
1	D	0.50	619	-1.30	17.31	0.0086	45.61	16.20	9621	9.42	-3100	8C
2	U	1.43	684	21.50	4.91	0.0156	87.24	13.20	10393	14.62	2990	8S
2	D	1.62	603	21.74	4.41	0.0177	87.24	13.20	9809	11.65	2945	8S
3	U	1.10	699	12.23	5.04	0.0136	77.47	11.23	10630	10.06	1331	6S
3	D	1.25	613	12.71	4.59	0.0155	77.47	11.23	9952	7.22	1408	4S
4	U	0.59	712	11.41	6.06	0.0099	57.31	8.45	10828	10.16	1010	4S
4	D	0.68	622	11.84	5.72	0.0113	57.31	8.45	10100	7.35	1078	4S
5	U	0.96	810	10.69	24.95	0.0089	66.67	34.88	11026	16.40	-2730	8C
5	D	1.11	700	11.02	24.54	0.0103	66.67	34.88	10212	19.20	-2398	8C
6	U	1.08	855	30.16	25.40	0.0091	71.95	38.48	11587	29.21	961	4S
6	D	1.24	742	30.53	24.99	0.0104	71.95	38.48	10723	26.33	1037	4S
7	U	0.37	843	30.74	17.41	0.0064	45.80	15.82	12250	25.50	2837	8S
7	D	0.42	728	31.12	17.15	0.0074	45.80	15.82	11328	22.71	2747	6S
8	U	0.39	835	20.67	10.57	0.0072	49.43	10.78	12548	17.05	2206	6S
8	D	0.45	717	20.92	10.28	0.0084	49.43	10.78	11518	14.17	2132	6S
9	U	1.87	845	14.02	6.70	0.0158	110.03	20.38	12755	11.79	1626	4S
9	D	2.18	722	14.29	6.05	0.0185	110.03	20.38	11641	8.74	1671	4S
10	U	0.19	859	14.20	6.04	0.0051	35.51	4.51	13115	11.55	1862	6S
10	D	0.22	732	14.81	5.84	0.0060	35.51	4.51	11933	8.90	1864	4S
11	U	1.77	863	8.43	-0.44	0.0159	110.49	6.24	13236	5.42	2043	6S
11	D	2.10	730	8.63	-1.11	0.0189	110.49	6.24	11961	2.33	2028	4S
12	U	1.16	932	6.88	17.95	0.0105	84.81	32.11	13396	10.99	-2578	8C
12	D	1.38	782	7.54	17.41	0.0124	84.81	32.11	12012	13.90	-2063	8C
13	U	0.04	959	23.43	18.96	0.0019	15.41	5.44	13917	22.62	1085	4S
13	D	0.04	807	23.92	18.86	0.0022	15.41	5.44	12487	19.96	1101	2S
14	U	3.42	952	19.93	10.77	0.0191	154.02	42.96	14057	16.78	2242	6S
14	D	4.08	796	20.02	9.82	0.0228	154.02	42.96	12548	13.49	2227	6S
15	U	1.29	1014	20.19	16.02	0.0109	94.75	32.35	14745	19.54	1072	1C/4S/1C
15	D	1.53	851	21.05	15.48	0.0129	94.75	32.35	13196	16.83	1281	1C/4S/1C
16	U	0.17	1022	21.59	12.23	0.0043	36.17	8.53	15305	18.34	2494	6S
16	D	0.21	855	22.09	12.02	0.0051	36.17	8.53	13694	15.63	2399	4S
17	U	0.30	1013	14.30	4.50	0.0060	48.81	5.03	15502	10.83	2645	6S
17	D	0.36	842	14.50	4.21	0.0072	48.81	5.03	13774	7.93	2465	6S
18	U	0.63	1017	7.26	-1.27	0.0088	71.70	0.94	15638	4.43	2323	6S
18	D	0.77	840	7.54	-1.70	0.0107	71.70	0.94	13795	1.50	2218	4S
19	U	1.60	1059	2.77	11.95	0.0125	111.06	29.88	15715	5.93	-2510	8C
19	D	1.94	868	3.20	11.26	0.0152	111.06	29.88	13755	8.66	-1932	8C
20	U	4.09	1087	18.08	7.85	0.0202	183.08	41.62	16247	14.39	2891	8S
20	D	4.99	889	18.72	6.75	0.0246	183.08	41.62	14196	11.31	2955	6S
21	U	0.25	1119	17.58	8.83	0.0051	46.34	8.20	16952	14.63	2582	6S
21	D	0.31	914	18.59	8.56	0.0062	46.34	8.20	14804	12.15	2584	4S
22	U	0.19	1118	11.23	4.31	0.0045	40.64	3.81	17130	9.20	2063	6S
22	D	0.23	909	11.49	4.07	0.0056	40.64	3.81	14873	6.35	1922	4S
23	U	0.04	1120	6.40	0.67	0.0022	19.61	0.40	17232	4.97	1723	4S
23	D	0.05	907	6.64	0.55	0.0027	19.61	0.40	14888	2.16	1581	4S
***	U	0.00	1121	1.67	-0.13	0.0006	5.00	0.00	17251	2.20	541	2S
***	D	0.00	906	1.79	-0.16	0.0007	5.00	0.00	14855	-0.62	504	2S
***	U	0.00	1207	0.13	-20.43	0.0001	0.86	-0.32	17406	-8.74	6187	---
***	D	0.00	958	0.16	-20.44	0.0001	0.86	-0.32	14842	-11.55	5284	---
***	U	0.00	1141	-20.39	-0.10	0.0004	3.86	0.00	17555	-11.65	-6159	---
***	D	0.00	890	-20.38	-0.12	0.0005	3.86	0.00	14705	-8.84	-5151	---
DBW	U	0.00	0	0.00	0.00	0.0000	0.00	0.00	17555	0.00	0	---
DBW	D	0.00	0	0.00	0.00	0.0000	0.00	0.00	14576	0.00	0	---

Project Number: C52356fc. Snowbasin Resort. 'Becker.' 12/06/24
Lift Speed: 5.08 m/s Lift Capacity: 2400 pph

Drive BW

Nominal Torque	16980.090	daNm
Overhauling Torque	0.000	daNm
Full Speed RPM	24.255	rev/min
Aux. Speed RPM	19.404	rev/min
Evac. Speed RPM	9.702	rev/min
Max Cable Load (T+t)	36476.620	daN
Allowable Adherence	1.904	
Adherence (T/t)	1.539	
Rotation (from above)	CCW	

Gearbox

Main Gearbox Ratio	55.180			
Main Input	308.877 daNm	1338.404 rpm	5.080 m/s	
Aux. Input Ratio	1.000			
Aux. Input	341.913 daNm	1070.723 rpm	4.064 m/s	
Evac. Input Ratio	2.000			
Evac. Input	170.957 daNm	1070.723 rpm	2.032 m/s	

Tension System

Tension System Force	19600.000	daN
Tension Per Side	9800.000	daN
Area of Hydraulic Ram	107.675	cm2
Number of Hydraulic Rams	2.000	
Tension System Pressure	91.014	bars
Carriage Travel	0.159	m

Cable

Cable Diameter	40.000	mm
Total Cable Length	3511.320	m
Breaking Strength	111220.000	daN
Maximum Tension	21900.698	daN
Safety Factor	5.078	
Minimum Shear Ratio	15.974	
Maximum Radial Acceleration	2.000	m/s/s
Maximum Cable Inclination	32.011	deg
Simultaneous Breakover Spans	3.000	
Maximum Deflection per Sheave	2.529	deg

Brakes

Service Brakes	1xPP2200
Emergency Brakes	1x10TONNE
Antirollback Brakes	1x10TONNE

Electric Motor

Required Power	580.417	h.p.
Speed	1338.404	rpm
Electric Input Ratio	1.000	

Carriers

Number	119	
Spacing	30.480	m
Carrier Capacity	4.000	persons/carrier
Trip Time	5.760	min
Empty Weight	295.000	

ENERAL
Project number ----------> C52356fc
Lift model ----------> LPA4P
Lift type ----------> Detachable Quad
Initial speed (m/s)----------> 5.08
Final speed (m/s) ----------> 5.08
Aux speed (m/s) ----------> 4.064
Evac speed (m/s) ----------> 2.032
Init capacity (pp/h) ----------> 1800
Final capacity (pp/h) ----------> 2400
Percent Download (%)----------> 10
Parking (y/n)----------> N
Rotation ----------> CCW
Metric (y/n) ----------> Y

LINE
Cable diameter (mm) ----------> 40.0
Cable core type ----------> Solid
Cable weight (daN/m) ----------> 5.71
Breaking strength (daN) ----------> 111220.0
Max cable tens (daN) ----------> 24700.0
Acceleration rate ----------> 0.35
Kinetic Friction factor ----------> 0.025
Nominal Friction factor ----------> 0.030
Friction at Bullwheels ----------> 0.001
Max sheave load [supp] (daN) ----------> 700
Min sheave load [comp] (daN) ----------> -400
Max radial accel (m/s/s) ----------> 2.0
Auto-incline towers (y/n) ----------> N
Chairs in terminal ----------> 2.87
Line Gage (m) ----------> 4.8
Multiple Break Over Window ----------> 3.5

DRIVE
Drive location (top/bottom) ----------> Top
Drive BW diameter (m) ----------> 4.
Angle of wrap ----------> 180.0
Gear Box model ----------> PK23M-SB600HW
Allowable Torque (daNm)----------> 22000.
Allowable Tension (daN) ----------> 80000.
Gear box ratio ----------> 55.18
Auxilliary ratio ----------> 1.00
Evac ratio ----------> 2.00
Gear box efficiency ----------> 0.9
Auxilliary efficiency ----------> 0.9
Evac efficiency ----------> 0.9
Electric motor v-belt ratio ----------> 1.0
Electric motor v-belt efficiency ----------> 1.0
Electric motor type ---------->
Electric motor connection ---------->
Aux motor type ---------->
Aux motor connection ---------->
Evac motor type ---------->
Evac motor connection ---------->
Service Brakes ----------> 1xPP2200
Diameter of service brake track (mm)----------> 317.0
Area of service brake pad (cm2)----------> 142.5
Emergancy Brakes ----------> 1x10TONNE
E-brake ram area (cm2) ----------> 85.48
Diameter of emergancy brake track (cm)----------> 317.0
Area of emergancy brake shoe (cm2)----------> 322.0

TENSION
Tension location (top/bottom) ----------> Bottom
Initial tension force (daN) ----------> 19600.
Final tension force [0 if unknown] (daN) -------> 19600.
Max allowable ram pressure (bars)----------> 150
Diameter of ram piston (mm) ----------> 76.2
Diameter of cylinder bore (mm) ----------> 139.7
Number of hydraulic rams ----------> 2
Return BW diameter (m) ----------> 4.

CARRIER
Type of carrier ----------> Quad Chair
Grip type (detachable/fixed)----------> Detachable

Carrier capacity (persons / carrier) ----------> 4
Empty carrier weight (daN)----------> 295
Carrier sail area (sq m) ----------> 0.420
Carrier sail area with ice (sq m) ----------> 0.758
Passenger weight (daN) ----------> 75.6

TOWERS
Diameter of comm line (mm)----------> 106
Height of comm line above flange (m) ----------> 1.55
Area of x-arm (sq m) ----------> 0.4369
Height of x-arm above flange (m) ----------> 0.71
Weight of x-arm (daN) ----------> 760.0
Sheave diameter (mm) ----------> 436
Sheave weight (kg) ----------> 16
Distance between sheave (m) ----------> 0.573
Height of sheave above flange (m) ----------> 0.15
Tower tube diameter (m) ----------> 0.61
Tower tube weight (daN/m) ----------> 138.0

2s weight (daN) ----------> 118
2s wp constant (mm)----------> 182
4s weight (daN) ----------> 260
4s wp constant (mm)----------> 258
6s weight (daN) ----------> 500
6s wp constant (mm)----------> 350
8s weight (daN) ----------> 665
8s wp constant (mm)----------> 350
8c weight (daN) ----------> 665
8c wp constant (mm)----------> -8
12c weight (daN) ----------> 1275
12c wp constant (mm)----------> -389
16c weight (daN) ----------> 1875
16c wp constant (mm)----------> -414
1c/4s/1c weight (daN) ----------> 395
1c/4s/1c wp constant (mm) ----------> 258
2s/8c/2s weight (daN) ----------> 920
2s/8c/2s wp constant (mm) ----------> -8
2s/4c/2s weight (daN) ---------->
2s/4c/2s wp constant (mm) ----------> -87
2c/4s/2c weight (daN) ---------->
2c/4s/2c wp constant (mm) ----------> 258

tower #	xwpu,	ywpu,	xwpd,	ywpd,	xgnd,	ygnd,	per incl,	tower length,	wpu,	wpd,	above ground,	tower sides(B, U, D)
RBW	62.44	1994.80	62.44	1994.80	62.44	1994.80	0.00	0.00	0.00	0.00	0.00	B
***	66.30	1994.80	66.30	1994.80	66.30	1994.80	0.00	0.00	0.00	0.00	0.00	B
***	67.16	1995.12	67.16	1995.12	67.16	1995.12	0.00	0.00	0.00	0.00	0.00	B
***	72.16	1995.12	72.16	1995.12	72.16	1995.12	0.00	0.00	0.00	0.00	0.00	B
1	78.26	1994.95	78.26	1994.95	78.50	1989.98	5.00	4.80	0.00	0.00	0.18	B
2	123.87	2011.15	123.87	2011.15	124.43	1999.75	5.00	11.23	0.00	0.00	0.18	B
3	211.11	2024.35	211.11	2024.35	211.77	2010.93	5.00	13.26	0.00	0.00	0.18	B
4	288.58	2035.58	288.58	2035.58	289.18	2023.34	5.00	12.08	0.00	0.00	0.18	B
5	345.89	2044.03	345.89	2044.03	347.00	2032.80	10.00	11.11	0.00	0.00	0.18	B
6	412.56	2078.91	412.56	2078.91	413.88	2065.50	10.00	13.30	0.00	0.00	0.18	B
7	484.51	2117.39	484.51	2117.39	485.83	2103.98	10.00	13.30	0.00	0.00	0.18	B
8	530.31	2133.21	530.31	2133.21	531.45	2121.60	10.00	11.49	0.00	0.00	0.18	B
9	579.74	2143.99	579.74	2143.99	580.36	2131.38	5.00	12.45	0.00	0.00	0.18	B
10	689.77	2164.37	689.77	2164.37	690.39	2151.80	5.00	12.41	0.00	0.00	0.18	B
11	725.28	2168.88	725.28	2168.88	725.28	2156.15	0.00	12.55	0.00	0.00	0.18	B
12	835.77	2175.12	835.77	2175.12	836.89	2163.77	10.00	11.23	0.00	0.00	0.18	B
13	920.58	2207.23	920.58	2207.23	921.87	2194.17	10.00	12.94	0.00	0.00	0.18	B
14	935.99	2212.67	935.99	2212.67	937.43	2198.09	10.00	14.47	0.00	0.00	0.18	B
15	1090.01	2255.63	1090.01	2255.63	1091.55	2240.04	10.00	15.49	0.00	0.00	0.18	B
16	1184.76	2287.98	1184.76	2287.98	1185.86	2276.82	10.00	11.03	0.00	0.00	0.18	B
17	1220.93	2296.51	1220.93	2296.51	1221.55	2283.89	5.00	12.46	0.00	0.00	0.18	B
18	1269.74	2301.54	1269.74	2301.54	1269.74	2285.51	0.00	15.85	0.00	0.00	0.18	B
19	1341.44	2302.48	1341.44	2302.48	1341.97	2291.73	5.00	10.58	0.00	0.00	0.18	B
20	1452.50	2332.36	1452.50	2332.36	1453.73	2319.89	10.00	12.35	0.00	0.00	0.18	B
21	1635.58	2373.98	1635.58	2373.98	1636.82	2361.37	10.00	12.49	0.00	0.00	0.18	B
22	1681.92	2382.18	1681.92	2382.18	1682.47	2370.91	5.00	11.10	0.00	0.00	0.18	B
23	1722.56	2385.99	1722.56	2385.99	1722.56	2374.51	0.00	11.30	0.00	0.00	0.18	B
***	1742.17	2386.39	1742.17	2386.39	1742.17	2386.39	0.00	0.00	0.00	0.00	0.00	B
***	1747.17	2386.39	1747.17	2386.39	1747.17	2386.39	0.00	0.00	0.00	0.00	0.00	B
***	1748.03	2386.07	1748.03	2386.07	1748.03	2386.07	0.00	0.00	0.00	0.00	0.00	B
DBW	1751.89	2386.07	1751.89	2386.07	1751.89	2386.07	0.00	0.00	0.00	0.00	0.00	B

ift name ----------> Becker
Ski Area ----------> Snowbasin Resort
Location ----------> Utah
Date ----------> August 2024
Designer ----------> B. Shepardson
Surveyor ----------> Area Topo
Survey unit (M/F) ----------> M
Reference elevation (M)----------> 1960.
Reference Station (M)----------> 0.

0. 1983.96
43.66 1991.66 1000 SNOW LD EL
52.10 1991.45 1458 GND
58.83 1991.65 1457 GND
60.96 1991.72 200 RP2
64.66 1991.59 1456 GND
73.25 1993.00 1455 GND 9.45
78.50 1993.93 1454 GND
84.48 1994.75 1452 GND 9.45
91.51 1996.02 1450 GND 10%ss 9.80
95.94 1996.39 1449 GND 9.45
104.33 1997.20 1448 GND
109.43 1997.73 1446 GND 9.45
123.18 1999.63 1444 GND 10%ss 9.80
125.00 1999.81 1447 GND 9.45
130.16 2000.59 1443 GND 9.45
137.01 2001.61 1441 GND 10%ss 9.80
146.66 2002.69 1439 GND 20%ss 10.14
156.11 2004.13 1437 GND 9.45
170.72 2006.11 1436 GND 9.45
186.91 2008.17 1434 GND 10%ss 9.80
200.86 2010.03 1433 GND 9.45
214.02 2011.11 1431 GND 20%ss 10.14
223.48 2012.61 1430 GND 9.45
234.04 2014.37 1429 GND
248.36 2016.43 1427 GND
256.44 2018.15 1426 GND MTB TRL
260.55 2019.34 1424 GND
267.98 2020.76 1423 GND 9.45
278.71 2022.09 1421 GND 10%ss 9.80
291.22 2023.58 1419 GND 9.45
302.31 2024.83 1417 GND 10%ss 9.80
309.99 2025.73 1416 GND 9.45
313.94 2026.15 1414 GND 10%ss 9.80
323.03 2027.60 1413 GND 9.45
331.24 2028.70 1411 GND 10%ss 9.80
339.63 2030.53 1409 GND 10%ss 9.80
344.29 2031.91 1407 GND 10%ss 9.80
350.60 2033.98 1405 GND 20%ss 10.14
356.18 2036.03 1404 RD 10.06
360.20 2036.57 1403 RD
361.92 2036.78 1402 RD 10.06
362.55 2036.91 1400 GND 35%ss 11.27
366.27 2039.31 1398 GND 25%ss 10.93
367.91 2040.24 1396 GND 20%ss 10.75
374.24 2044.04 1394 GND 10%ss 10.41
380.58 2047.82 1392 GND 20%ss 10.75
385.84 2051.48 1390 GND 20%ss 10.75
389.11 2053.74 1389 GND 10.06
391.58 2053.32 1387 GND MTB TRL 20%ss 10.75
394.89 2055.88 1385 GND 30%ss 11.10
401.73 2059.22 1383 GND 30%ss 11.10
409.67 2063.29 1381 GND 25%ss 10.93
413.88 2065.50 1379 GND 25%ss 10.93
421.70 2069.39 1377 GND 20%ss 10.75
430.41 2073.87 1375 GND 20%ss 10.75
439.86 2078.84 1373 GND 20%ss 10.75
449.53 2085.02 1371 GND 25%ss 10.93
459.30 2091.33 1369 GND 25%ss 10.93
468.04 2096.25 1367 GND 30%ss 11.10
477.28 2100.42 1365 GND 30%ss 11.10
482.63 2102.66 1364 GND 10.06
484.26 2103.26 1362 GND 30%ss 11.10
487.24 2104.62 1360 GND 30%ss 11.10
491.06 2106.57 1358 GND 25%ss 10.93

494.78 2109.51 1356 GND 10%ss 10.41
498.05 2111.20 1354 GND 10%ss 10.41
498.80 2111.37 1353 RD 10.06
503.30 2111.44 1352 RD
507.74 2111.46 1351 RD
508.63 2111.58 1350 GND
512.23 2116.05 1349 GND 10.06
517.56 2117.78 1348 GND
527.70 2120.72 1346 GND
534.79 2122.38 1345 GND 10.06
536.06 2122.76 1343 GND 10%ss 10.41
539.28 2123.63 1341 GND 10%ss 10.41
543.36 2124.58 1339 GND 10%ss 10.41
551.51 2126.86 1337 GND 10%ss 10.41
553.12 2127.14 1336 GND 10.06
569.32 2129.49 1334 GND 30%ss 11.10
576.71 2130.56 1332 GND 30%ss 11.10
580.36 2131.38 1331 GND 10.06
581.59 2131.54 1329 GND 25%ss 10.93
585.63 2132.21 1327 GND 20%ss 10.75
592.45 2133.29 1325 GND 25%ss 10.93
600.38 2134.86 1323 GND 25%ss 10.93
614.88 2136.98 1321 GND 20%ss 10.75
627.66 2138.91 1319 GND 15%ss 10.58
639.43 2140.92 1317 GND 15%ss 10.58
656.00 2144.52 1315 GND 10%ss 10.41
669.78 2147.95 1313 GND 10%ss 10.41
680.15 2150.16 1311 GND 10%ss 10.41
690.39 2151.80 1310 GND 10.06
691.79 2152.07 1308 GND 20%ss 10.75
697.83 2153.30 1306 GND 15%ss 10.58
704.34 2154.78 1304 GND 10%ss 10.41
714.24 2156.32 1302 GND 25%ss 10.93
720.34 2156.60 1300 GND 20%ss 10.75
725.28 2156.15 1298 GND 15%ss 10.58
729.26 2155.63 1296 GND 15%ss 10.58
733.13 2154.97 1294 GND 10%ss 10.41
744.89 2154.48 1292 GND 10%ss 10.41
751.65 2154.97 1291 GND 10.06
757.12 2155.40 1289 GND
763.43 2156.03 1288 GND
769.31 2156.79 1287 GND
773.97 2156.04 1286 GND 10.06
775.71 2155.95 1285 RD
778.86 2156.13 1284 RD
780.88 2156.27 1283 RD
789.97 2156.93 1282 GND 10.06
801.25 2157.72 1281 GND
809.82 2158.69 1280 GND
818.83 2159.74 1278 GND 10.06
828.08 2161.13 1276 GND 20%ss 10.75
832.41 2162.36 1274 GND 25%ss 10.93
836.89 2163.77 1273 GND 10.06
838.23 2164.27 1271 GND 40%ss 11.44
840.60 2165.44 1269 GND 25%ss 10.93
846.06 2167.18 1267 GND 25%ss 10.93
852.50 2169.05 1265 GND 30%ss 11.10
860.53 2171.62 1263 GND 25%ss 10.93
866.28 2173.92 1261 GND 30%ss 11.10
871.21 2175.69 1259 GND 30%ss 11.10
876.30 2177.49 1257 GND 30%ss 11.10
880.11 2178.88 1255 GND 25%ss 10.93
883.31 2179.51 1253 GND 25%ss 10.93
890.35 2181.04 1251 GND 25%ss 10.93
894.60 2182.10 1249 GND 50%ss 11.79
900.52 2185.33 1247 GND 50%ss 11.79
905.19 2188.22 1245 GND 35%ss 11.27
908.87 2190.29 1242 RD 10.06
911.94 2190.52 1241 RD
915.20 2190.92 1240 RD 10.06
921.11 2193.78 1238 GND 70%ss 12.48
921.87 2194.17 1243 GND 65%ss 12.31
923.45 2194.82 1236 GND 65%ss 12.31
928.25 2196.52 1234 GND 55%ss 11.96
933.37 2197.85 1230 GND 50%ss 11.79

935.88 2198.03 1228 GND 60%ss 12.14
937.43 2197.90 1232 GND 10.06
939.37 2198.17 1226 GND 60%ss 12.14
942.38 2198.79 1233 GND 10.06
944.05 2199.02 1224 GND 45%ss 11.62
949.32 2199.97 1222 GND 40%ss 11.44
953.94 2200.70 1220 GND 45%ss 11.62
957.98 2200.61 1218 GND 55%ss 11.96
960.70 2201.34 1217 STRM 10.06
964.06 2201.69 1216 STRM
967.80 2203.26 1215 STRM
973.87 2205.11 1213 GND
979.62 2207.00 1212 GND 10.06
988.62 2209.34 1211 GND
995.02 2211.02 1210 GND
996.93 2211.25 1209 RD 10.06
1005.70 2213.22 1208 RD
1009.75 2214.23 1207 RD
1012.39 2214.86 1205 GND 10.06
1017.30 2215.90 1203 GND 15%ss 10.58
1024.41 2217.66 1201 GND 20%ss 10.75
1029.59 2218.88 1199 GND 30%ss 11.10
1035.49 2220.17 1197 GND 45%ss 11.62
1041.37 2222.63 1195 GND 30%ss 11.10
1047.31 2224.76 1193 GND 45%ss 11.62
1052.16 2226.73 1191 GND 30%ss 11.10
1058.24 2228.84 1189 GND 25%ss 10.93
1065.63 2231.75 1187 GND 25%ss 10.93
1070.15 2233.18 1185 GND 35%ss 11.27
1076.81 2235.41 1183 GND 30%ss 11.10
1083.04 2237.16 1182 GND 10.06
1084.29 2237.52 1180 GND 30%ss 11.10
1088.16 2238.88 1178 GND 25%ss 10.93
1095.39 2241.36 1176 GND 30%ss 11.10
1104.86 2244.91 1174 GND 25%ss 10.93
1111.33 2247.46 1172 GND 30%ss 11.10
1115.09 2249.53 1170 GND 20%ss 10.75
1121.95 2252.27 1168 GND 35%ss 11.27
1130.31 2256.12 1166 GND 40%ss 11.44
1134.98 2258.04 1164 GND 40%ss 11.44
1141.87 2260.82 1162 GND 40%ss 11.44
1151.68 2264.31 1160 GND 45%ss 11.62
1161.42 2267.87 1158 GND 35%ss 11.27
1172.30 2271.66 1156 GND 40%ss 11.44
1182.10 2275.68 1154 GND 30%ss 11.10
1185.86 2276.82 1153 GND 10.06
1187.31 2277.08 1151 GND 30%ss 11.10
1194.42 2278.68 1149 GND 25%ss 10.93
1202.68 2280.94 1147 GND 20%ss 10.75
1209.50 2282.54 1145 GND 20%ss 10.75
1215.98 2283.37 1143 GND 20%ss 10.75
1222.56 2283.99 1141 GND 20%ss 10.75
1226.42 2284.47 1139 GND 15%ss 10.58
1234.60 2286.05 1137 GND 20%ss 10.75
1242.18 2287.30 1135 GND 20%ss 10.75
1250.52 2287.56 1133 GND 20%ss 10.75
1256.01 2286.79 1131 GND 20%ss 10.75
1261.41 2286.06 1129 GND 20%ss 10.75
1269.74 2285.51 1128 GND 10.06
1270.85 2285.46 1126 GND 15%ss 10.58
1276.55 2285.54 1124 GND 15%ss 10.58
1283.55 2285.77 1122 GND 15%ss 10.58
1297.43 2287.06 1120 GND 15%ss 10.58
1311.49 2288.57 1119 GND 10.06
1322.10 2289.21 1118 GND 10.06
1335.79 2290.60 1116 GND 10%ss 10.41
1341.97 2291.73 1115 GND 10.06
1343.32 2292.11 1113 GND 20%ss 10.75
1349.28 2292.79 1111 GND 25%ss 10.93
1358.01 2293.26 1109 GND 30%ss 11.10
1365.14 2293.43 1107 GND 35%ss 11.27
1378.82 2293.01 1105 GND 50%ss 11.79
1387.96 2293.54 1103 GND 55%ss 11.96
1393.58 2295.23 1101 GND 55%ss 11.96
1401.76 2298.13 1099 GND 45%ss 11.62

1407.19 2300.09 1097 GND 45%ss 11.62
1411.56 2301.51 1095 GND MTB TRL 55%ss 11.96
1414.41 2302.86 1093 GND 40%ss 11.44
1417.11 2304.25 1091 GND 40%ss 11.44
1423.53 2307.01 1089 GND 40%ss 11.44
1428.18 2309.14 1087 GND 35%ss 11.27
1433.89 2311.76 1085 GND 25%ss 10.93
1439.66 2314.46 1083 GND 20%ss 10.75
1447.13 2317.35 1081 GND 25%ss 10.93
1453.73 2319.89 1079 GND 55%ss 11.96
1455.86 2321.02 1077 GND 30%ss 11.10
1458.06 2321.91 1076 GND 10.06
1459.85 2321.86 1075 RD
1463.93 2321.69 1074 RD
1466.84 2321.57 1073 RD 10.06
1467.06 2321.58 1071 GND 40%ss 11.44
1469.46 2321.69 1069 GND 60%ss 12.14
1473.74 2322.83 1067 GND 45%ss 11.62
1479.72 2323.99 1065 GND 30%ss 11.10
1485.12 2324.08 1063 GND 25%ss 10.93
1494.60 2323.68 1061 GND 35%ss 11.27
1501.50 2322.97 1059 GND 50%ss 11.79
1512.50 2323.24 1057 GND 50%ss 11.79
1526.49 2324.24 1055 GND 55%ss 11.96
1535.39 2325.90 1053 GND 45%ss 11.62
1551.07 2330.30 1051 GND 45%ss 11.62
1565.96 2335.55 1049 GND 40%ss 11.44
1573.49 2339.23 1047 GND 30%ss 11.10
1576.90 2339.85 1045 GND 45%ss 11.62
1584.58 2343.24 1043 GND 50%ss 11.79
1592.46 2346.81 1041 GND 45%ss 11.62
1601.06 2350.27 1039 GND 35%ss 11.27
1607.63 2352.56 1037 GND 35%ss 11.27
1614.15 2354.96 1035 GND 30%ss 11.10
1622.19 2357.64 1034 GND 10.06
1622.98 2358.00 1032 GND 15%ss 10.58
1630.90 2359.78 1030 GND 20%ss 10.75
1640.42 2362.34 1028 GND 15%ss 10.58
1651.42 2365.31 1026 GND 15%ss 10.58
1662.14 2367.08 1024 GND 30%ss 11.10
1670.42 2369.18 1023 GND 10.06
1671.71 2369.37 1021 GND 15%ss 10.58
1679.38 2370.59 1019 GND 15%ss 10.58
1687.57 2371.43 1017 GND 15%ss 10.58
1696.77 2371.98 1015 GND 15%ss 10.58
1705.67 2372.47 1013 GND 10%ss 10.41
1715.00 2373.78 1012 GND 10.06
1722.56 2374.51 1011 GND
1723.57 2374.49 1010 GND 10.06
1725.58 2374.83 1008 GND 10%ss 10.41
1733.79 2375.83 1006 GND 10%ss 10.41
1748.14 2377.54 1005 GND
1754.08 2378.62 201 DP2
1754.61 2378.83 1004 GND
1758.41 2380.06 1003 GND
1761.42 2380.77 1002 GND
1814.34 2388.74

Foundation Calculations

Snowbasin
Becker

February-25

Drawing Index

Area:	Snowbasin	Date:	2/13/2025
Lift Name:	Becker	Job #:	C52356
Lift Type:	Detachable - 4P		

Drawing Index

Profile	C52356
Foundations	
Foundation Return:	41676189
Foundation Line - 4 Bolt Spread:	41676190
Foundation Line - 8 Bolt Spread:	41676158
Foundation Drive:	41676150

LEITNER POMA

Becker

Snowbasin Resort
Utah

Leitner-Poma of America, Inc. – 2746 Seeber Drive – Grand Junction, CO, USA 81506
P (970) 241-4442 – F (970) 241-3023 – www.leitner-poma.com

PROFILE DATA

			INITIAL	FINAL
LIFT MODEL:	LPA4P			
ROTATION:	CCW	SPEED:	5.08 m/s	5.08 m/s
CARRIER TYPE:	Quad Chair	CAPACITY UP:	1880.00 pph	2400.00 pph
GRIP TYPE:	DETACHABLE	CAPACITY DOWN:	10.00 %	10.00 %
CABLE DIAMETER:	40.00 mm	SPACING:	38.91 m	30.48 m
SLOPE LENGTH:	1734.17 m	INTERVAL:	7.66 sec	6.00 sec
VERTICAL RISE:	391.27 m	CARRIERS:	94	119
AVERAGE GRADE:	23.16 %	TRIP TIME:	5.76 min	5.76 min
LINE GAUGE:	4.80 m	TENSION PRESSURE:	91.01 bars	91.01 bars
DRIVE LOCATION:	TOP	TENSION FORCE:	19600.00 daN	19600.00 daN
TENSION LOCATION:	BOTTOM	ORIGIN OF SURVEY:	Area Topo	

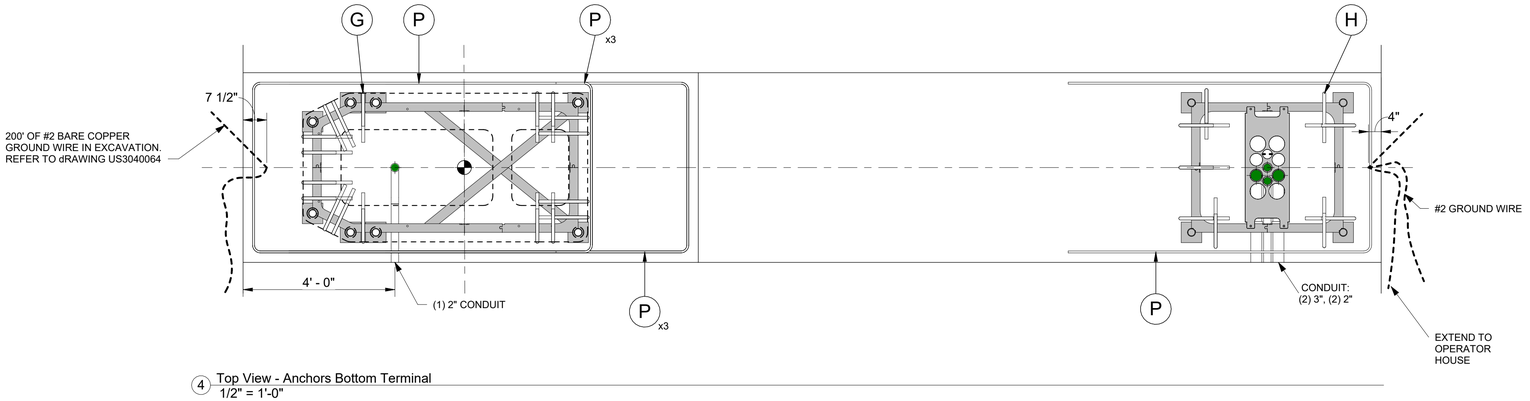
E			
D			
C			
B			
A	Increased initial capacity to 1880pph to use 94 carriers. Reduced carrier quantity for final capacity.	Design	02/17/25

DRAWN BY: B. Shepardson	C52356fc A	CHECKED BY:
DATE: August 2024		SCALE: 1/1000 1/100

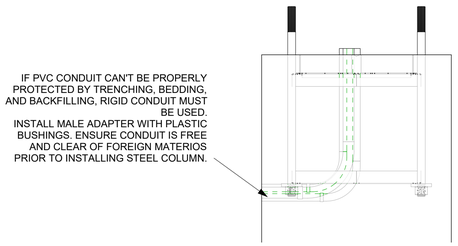
TOWER NUMBER			RBW	***	1	2	3	4	5	6	7	8
LAYOUT	TOP OF CONCRETE STATION	(m)	-----	-----	78.50	124.43	211.77	289.18	347.00	413.88	485.83	531.45
	TOP OF CONCRETE ELEVATION	(m)	-------	-------	1990.16	1999.93	2011.11	2023.52	2032.98	2065.68	2104.16	2121.78
	SLOPE DISTANCE BETWEEN TOWERS	(m)		----	----	46.96	88.05	78.40	58.59	74.45	81.59	48.90
TOWERS	TOWER TUBE LENGTH	(m)	0.00	0.00	4.80	11.23	13.26	12.08	11.11	13.30	13.30	11.49
	INCLINATION	(%)	0.00	0.00	5.00	5.00	5.00	5.00	10.00	10.00	10.00	10.00
	LINE GAUGE	(m)	RETURN BWO = 4.00	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80
	UPHILL LINE EQUIPMENT		---	---	12C	8S	6S	4S	8C	4S	8S	6S
	DOWNHILL LINE EQUIPMENT		---	---	12C	8S	4S	4S	8C	4S	6S	6S
	FOUNDATION DRAWING NUMBER		---	---	---	---	---	---	---	---	---	---

TOWER NUMBER			9	10	11	12	13	14	15	16	17
LAYOUT	TOP OF CONCRETE STATION	(m)	580.36	690.39	725.28	836.89	921.87	937.43	1091.55	1185.86	1221.55
	TOP OF CONCRETE ELEVATION	(m)	2131.56	2151.98	2156.33	2163.95	2194.35	2198.27	2240.22	2277.00	2284.07
	SLOPE DISTANCE BETWEEN TOWERS	(m)	49.88	111.91	35.16	111.87	90.25	16.05	159.73	101.23	36.38
TOWERS	TOWER TUBE LENGTH	(m)	12.45	12.41	12.55	11.23	12.94	14.47	15.49	11.03	12.46
	INCLINATION	(%)	5.00	5.00	0.00	10.00	10.00	10.00	10.00	10.00	5.00
	LINE GAUGE	(m)	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80
	UPHILL LINE EQUIPMENT		4S	6S	6S	8C	4S	6S	1C/4S/1C	6S	6S
	DOWNHILL LINE EQUIPMENT		4S	4S	4S	8C	4S	6S	1C/4S/1C	4S	6S
	FOUNDATION DRAWING NUMBER		---	---	---	---	---	---	---	---	---

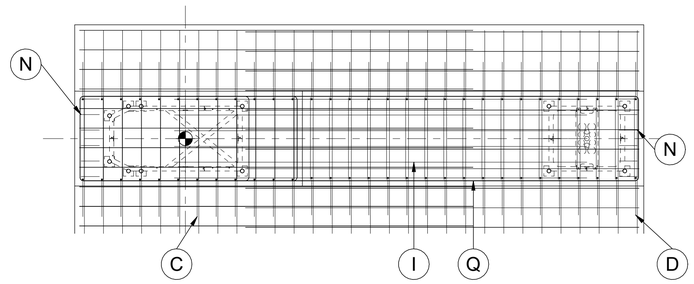
TOWER NUMBER			18	19	20	21	22	23	***	DBW
LAYOUT	TOP OF CONCRETE STATION	(m)	1269.74	1341.97	1453.73	1636.82	1682.47	1722.56	-------	-------
	TOP OF CONCRETE ELEVATION	(m)	2285.69	2291.91	2320.07	2361.55	2371.09	2374.69	-------	-------
	SLOPE DISTANCE BETWEEN TOWERS	(m)	48.22	72.50	115.25	187.73	46.64	40.25	-----	----
TOWERS	TOWER TUBE LENGTH	(m)	15.85	10.58	12.35	12.49	11.10	11.30	0.00	0.00
	INCLINATION	(%)	0.00	5.00	10.00	10.00	5.00	0.00	0.00	0.00
	LINE GAUGE	(m)	4.80	4.80	4.80	4.80	4.80	4.80	4.80	DRIVE BWO = 4.00
	UPHILL LINE EQUIPMENT		6S	8C	8S	6S	6S	4S	---	---
	DOWNHILL LINE EQUIPMENT		4S	8C	6S	4S	4S	4S	---	---
	FOUNDATION DRAWING NUMBER		---	---	---	---	---	---	---	---



4 Top View - Anchors Bottom Terminal
1/2" = 1'-0"

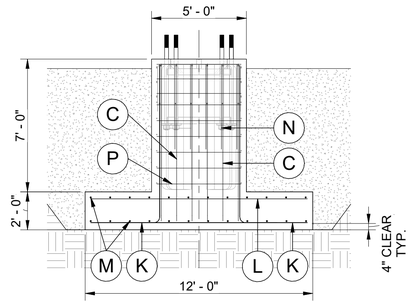


5 Conduit - Front Bottom Terminal
1/2" = 1'-0"

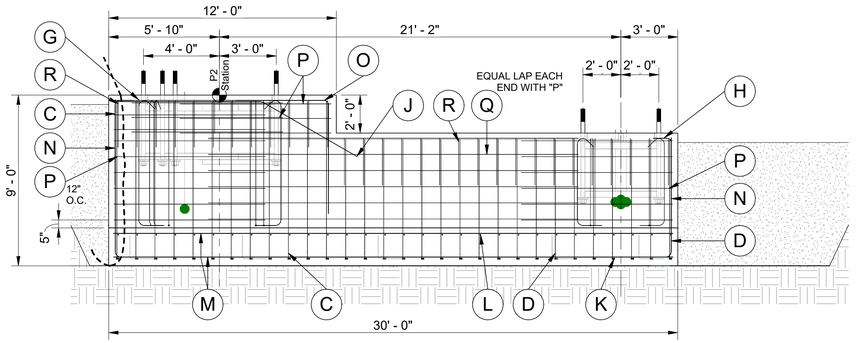


INDEX "M" NOT SHOWN UNDER PEDASTAL FOR CLARITY

3 Top View - Bottom Terminal
1/4" = 1'-0"



1 Back View - Bottom Terminal
1/4" = 1'-0"



2 Right View - Bottom Terminal
1/4" = 1'-0"

STRUCTURAL FOUNDATION NOTES:

- CONSTRUCTION SHALL CONFORM TO THE ACI 318 STANDARD. COLD WEATHER CONCRETING SAHLL CONFORM TO ACI 306.
- CONCRETE SHALL HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4500 P.S.I. IF A TEST HISTORY IS NOT ON RECORD WITH THE SUPPLIER A MINIMUM OF 505 lbs OF CEMENT PER CUBIC YARD SHALL BE SUPPLIED WITHA MAXIMUM WATER CEMENT RATIO OF 0.45. CEMENT SHALL BE TYPE IA AND CONFORM TO ASTM C150 (TYPE III MAY BE SUBSTITUTED WITH APPROVAL BY THE L-POA ENGINEER). AGGREGATE SHALL BE A NOMINAL SIZE OF 3/4" WITH A MAXIMUM SIZE OF 1" AND CONFORM TO ASTM C33. THE PROJECT FOREMAN MAY ORDER HIGHER STRENGTH AS DESIRED. THE PROJECT FOREMAN MAY ORDER ADMIXTURES AS DESIRED. ADMIXTURES DOSAGES SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATIONS. COMBINATIONS OF ADMIXTURES SHALL BE COMPATIBLE. CONCRETE SHALL BE AIR ENTRAINED WITH 5% AIR WITH A RANGE OF ±1.5%. AIR ENTRAINMENT SHALL CONFORM TO ASTM C260 AND BE VERIFIED PER ASTM C172. THE FOLLOWING ADMIXTURES ARE PERMITTED:
  1. RETARDER CONFORMING TO ASTM C494 TYPE B
  2. ACCELERATOR CONFORMING TO ASTM C494 TYPE C
  3. WATER REDUCING RETARDER ASTM C494 TYPE D
  4. WATER REDUCING ACCELERATOR ASTM C494 TYPE E.

  HIGH RANGE WATER REDUCING AND SUPER PLASTICIZER ADMIXTURES CONFORMING TO ASTM C494 TYPE F ARE NOT PERMITTED. FLYASH, SILICA FUME, AND OTHER POZZOLANS ARE NOT PERMITTED WITHOUT APPROVAL OF THE L-POA ENGINEER.
- A MINIMUM OF 2 TEST CYLINDERS SHALL BE CAST FOR EACH FOUNDATION (OR PORTION OF FOUNDATION SEPERATED BY COLD JOINTS) OR A MINIMUM OF TWO TEST CYLINDERS SHALL BE CAST FOR EACH TRUCK (WHICHEVER REQUIRES THE MOST SAMPLES BE TAKEN. CYLINDERS SHALL BE LABELED FOR ALL FOUNDATIONS (OR PORTIONS THEREOF) APPROPRIATELY. CYLINDERS TAKEN FROM TRUCKS SUPPLYING MORE THAN ONE FOUNDATION SHALL BE LABELED FOR ALL FOUNDATIONS (OR PORTIONS THEREOF) APPROPRIATELY. ONE CYLINDER OF EACH PAIR IS TO BE TESTED AT 28 DAYS PER ASTM C39. THE SECOND CYLINDER IS TO BE RESERVED FOR SUBSEQUENT TESTING IF REQUIRED.
- REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. REINFORCEMENT TO BE WELDED SHALL CONFORM TO ASTM A706. REINFORCING STEEL CLEAR COVER TO FACE OF CONCRETE IS:
  1. 3" MINIMUM FOR CONCRETE CAST AGAINST EARTH
  2. 2" MINIMUM FOR CONCRETE CAST AGAINST A FORMED OR FINISHED SURFACE.

  REINFORCING STEEL SHALL BE CLEAN, WITH NO OIL, MUD, OR RUST SCALE ON BONDING SURFACE. LAP SPLICES ADDED IN THE FIELD ARE PERMITTED PER THE FOLLOWING SCHEDULE:
  1. #4 - 30" MINIMUM
  2. #5 - 36" MINIMUM
  3. #6 - 48" MINIMUM
  4. #8 - 72" MINIMUM

  SHORTER LAP SPLICES MAY BE PERMITTED WITH APPROVAL BY THE ENGINEER OF RECORD.
  BENT REINFORCEMENT BAR IS DETAILED WITH OUT TO OUT DIMENSIONS. TOLERANCES SHALL CONFORM TO CRSI STANDARDS. STRAIGHT LENGTHS OF BENT BARS ARE BASED ON OUTSIDE RADIUS LENGTH. NO ATTEMPT TO PREDICT DROP LENGTHS IS MADE. DETAILED CLEAR COVER MAY EXCEED MINIMUM CLEAR COVER.
- FOOTINGS SHALL BE PLACED IN UNDISTURBED NATIVE SOIL. ORGANIC SOIL AND FOREIGN OBJECTS ARE TO BE REMOVED. FOOTING DESIGN IS BASED ON AN ALLOWABLE SOIL BEARING PRESSURE AS DEFINED IN THE TABLE. IF THE ALLOWABLE SOIL BEARING PRESSURE VARIES FROM THAT LISTED CONTACT THE L-POA ENGINEER. IF WATER APPEARS IN THE EXCAVATION OR ON THE SURFACE CONTACT THE L-POA ENGINEER. BACKFILL SHALL HAVE NO ORGANICS. BACKFILL NEED NOT BE COMPACTED UNLESS REQUIRED BY THE OWNER.

Rebar Bend Schedule

In.	Qty.	Bend Detail	Type	Bar Length	Total Length	Weight
C	30	24" / 100"	#8	10' - 1"	302' - 6"	810 lb
D	42	24" / 76"	#8	8' - 1"	339' - 6"	909 lb
G	18	80"	#8	8' - 8"	156' - 0"	418 lb
H	9	56"	#8	6' - 8"	60' - 0"	161 lb
I	6	261"	#8	21' - 9"	130' - 6"	349 lb
J	6	150° / 10 / 92"	#8	13' - 6"	81' - 0"	217 lb
K	30	137"	#8	11' - 5"	342' - 6"	917 lb
L	30	137"	#6	11' - 5"	342' - 6"	516 lb

Rebar Bend Schedule

In.	Qty.	Bend Detail	Type	Bar Length	Total Length	Weight
M	48	249"	#8	20' - 9"	996' - 0"	2666 lb
N	12	54"	#6	5' - 4"	64' - 0"	96 lb
O	6	69° / 72"	#6	10' - 9"	64' - 6"	97 lb
P	21	96" / 54" / 96"	#5	20' - 3"	425' - 3"	445 lb
Q	12	234"	#5	19' - 6"	234' - 0"	245 lb
R	30	30" / 30" / 53"	#5	9' - 2"	275' - 0"	288 lb
S	10	18" / 15° / 20"	#4	6' - 5"	64' - 2"	43 lb
	310				3877' - 5"	8174 lb

Type	Weight
#4	43 lbf
#5	977 lbf
#6	709 lbf
#8	6445 lbf
	8174 lbf

Volume
58.9 CY

ITEM	ITEM NAME	CUT SIZE(S)	QTY	MATERIAL	WT/EA	ITEM NUMBER	INFO	SL
1	A-BOLT CAGE ASSY/ P2/P3-8B LPA		1			41370608		
2	A-BOLT CAGE ASSY/ P1-4B CONDUIT LPA		1			41370650		

SPECS / / / / / / /

REV	DESCRIPTION OF REVISION	DATE	BY
00	Preliminary Drawing Issued	02/14/2025	MLM

/

MODEL YEAR
2025

Foundations
Snowbasin, Becker - C52356

LPA Bottom (Return) Terminal Foundation

/

DRAWING PROJECTION | CAD Program Revit | DRAWING FORMAT D 22 x 34"

GRAND JUNCTION COLORADO, USA | SKILIFTS CHAIRLIFTS GONDOLAS TRAMWAYS | CABLE TRANSPORT SYSTEMS

LEITNER POMA

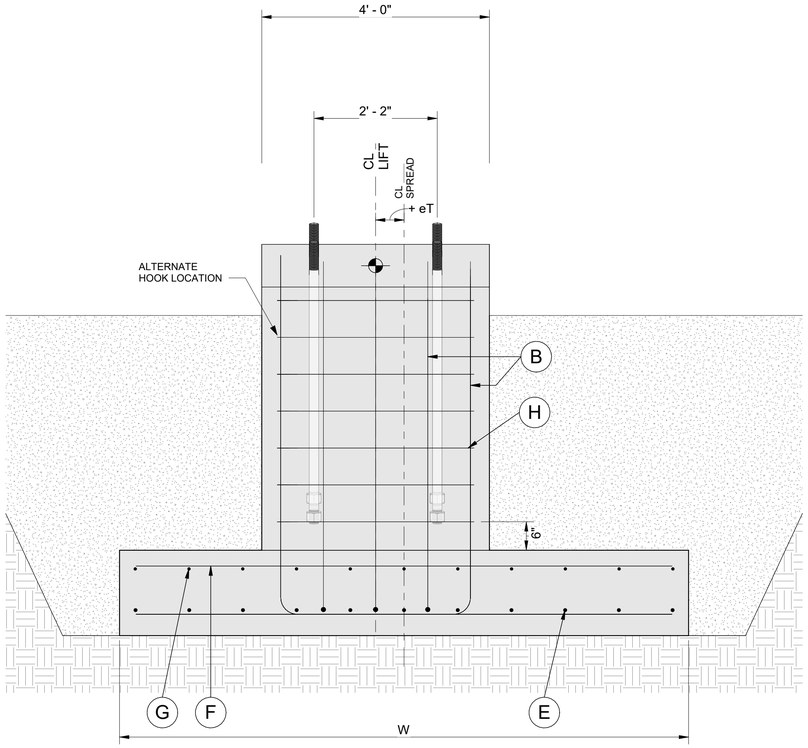
DRAWING STATUS	Preliminary	PRINT DATE	/
DESIGNED BY	MWL	SECURITY LEVEL	---
DRAWN BY	MLM	DATE DRAWN	/
CHECKED BY	JLG	SCALE (S)	As indicated

REFERENCE (OTHER) /

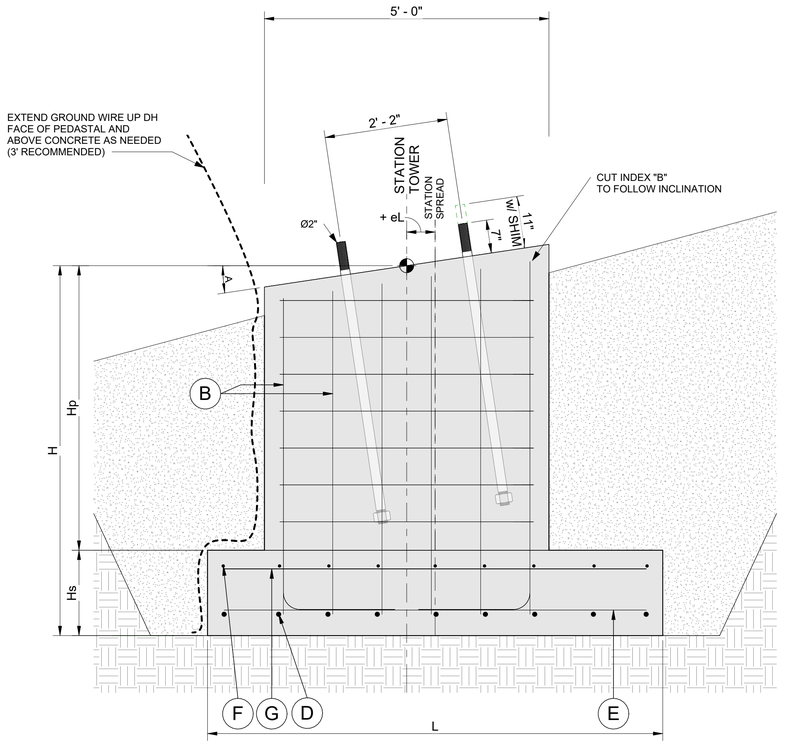
DRAWING & ITEM NUMBER
41676189_00

Foundation Schedule - Spread

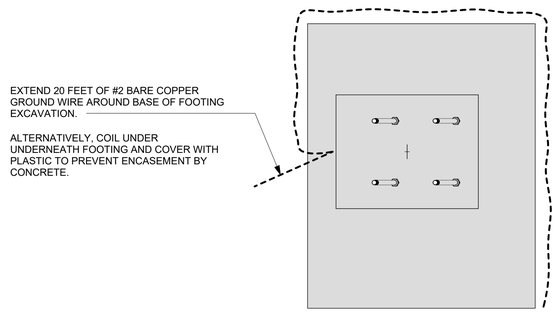
Tower	Bearing Pressure	A (%)	W	L	H	Hp	Hs	eL	eT	Volume	Anchor Bolt Assy#	Adj. Shim
T1	4.00 ksf	5	10' - 0"	7' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	7.59 yd³	41286730	Yes
T2	4.00 ksf	5	12' - 0"	8' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	9.04 yd³	41286729	No
T3	4.00 ksf	5	11' - 0"	8' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	8.59 yd³	41286729	No
T4	4.00 ksf	5	10' - 0"	7' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	7.59 yd³	41286729	No
T5	4.00 ksf	10	13' - 0"	9' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	10.20 yd³	41286729	No
T6	4.00 ksf	10	12' - 0"	8' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	9.04 yd³	41286729	No
T7	4.00 ksf	10	13' - 0"	9' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	10.20 yd³	41286729	No
T8	4.00 ksf	10	11' - 0"	8' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	8.59 yd³	41286729	No
T9	4.00 ksf	5	11' - 0"	8' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	8.59 yd³	41286729	No
T10	4.00 ksf	5	11' - 0"	8' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	8.59 yd³	41286729	No
T11	4.00 ksf	0	11' - 0"	8' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	8.59 yd³	41286729	No
T12	4.00 ksf	10	13' - 0"	9' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	10.20 yd³	41286729	No
T13	4.00 ksf	10	11' - 0"	8' - 0"	7' - 0"	5' - 6"	1' - 6"	0"	0"	8.96 yd³	41286729	No
T14	4.00 ksf	10	13' - 0"	9' - 0"	7' - 0"	5' - 6"	1' - 6"	0"	0"	10.57 yd³	41286729	No
T16	4.00 ksf	10	11' - 0"	8' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	8.59 yd³	41286729	No
T17	4.00 ksf	5	11' - 0"	8' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	8.59 yd³	41286729	No
T18	4.00 ksf	0	12' - 0"	8' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	9.04 yd³	41286729	No
T19	4.00 ksf	5	13' - 0"	9' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	10.20 yd³	41286729	No
T22	4.00 ksf	5	10' - 0"	7' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	7.59 yd³	41286729	No
T23	4.00 ksf	0	10' - 0"	7' - 0"	6' - 6"	5' - 0"	1' - 6"	0"	0"	7.59 yd³	41286730	Yes
20										177.98 yd³		



1 4 Bolt Spread - Front View
3/4" = 1'-0"



2 4 Bolt Spread - Right View
3/4" = 1'-0"



3 Top View - 4 Bolt Spread
3/8" = 1'-0"

STRUCTURAL FOUNDATION NOTES:

- CONSTRUCTION SHALL CONFORM TO THE ACI 318 STANDARD. COLD WEATHER CONCRETING SAHLL CONFORM TO ACI 306.
- CONCRETE SHALL HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4500 P.S.I. IF A TEST HISTORY IS NOT ON RECORD WITH THE SUPPLIER A MINIMUM OF 505 lbs OF CEMENT PER CUBIC YARD SHALL BE SUPPLIED WITHA MAXIMUM WATER CEMENT RATIO OF 0.45. CEMENT SHALL BE TYPE IA AND CONFORM TO ASTM C150 (TYPE III MAY BE SUBSTITUTED WITH APPROVAL BY THE L-POA ENGINEER). AGGREGATE SHALL BE A NOMINAL SIZE OF 3/4" WITH A MAXIMUM SIZE OF 1" AND CONFORM TO ASTM C33. THE PROJECT FOREMAN MAY ORDER HIGHER STRENGTH AS DESIRED. THE PROJECT FOREMAN MAY ORDER ADMIXTURES AS DESIRED. ADMIXTURES DOSAGES SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATIONS. COMBINATIONS OF ADMIXTURES SHALL BE COMPATIBLE. CONCRETE SHALL BE AIR ENTRAINED WITH 5% AIR WITH A RANGE OF ±1.5%. AIR ENTRAINMENT SHALL CONFORM TO ASTM C260 AND BE VERIFIED PER ASTM C172. THE FOLLOWING ADMIXTURES ARE PERMITTED:
  1. RETARDER CONFORMING TO ASTM C494 TYPE B
  2. ACCELERATOR CONFORMING TO ASTM C494 TYPE C
  3. WATER REDUCING RETARDER ASTM C494 TYPE D
  4. WATER REDUCING ACCELERATOR ASTM C494 TYPE E.

  HIGH RANGE WATER REDUCING AND SUPER PLASTICIZER ADMIXTURES CONFORMING TO ASTM C494 TYPE F ARE NOT PERMITTED. FLYASH, SILICA FUME, AND OTHER POZZOLANS ARE NOT PERMITTED WITHOUT APPROVAL OF THE L-POA ENGINEER.
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- REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. REINFORCEMENT TO BE WELDED SHALL CONFORM TO ASTM A706. REINFORCING STEEL CLEAR COVER TO FACE OF CONCRETE IS:
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  REINFORCING STEEL SHALL BE CLEAN, WITH NO OIL, MUD, OR RUST SCALE ON BONDING SURFACE. LAP SPLICES ADDED IN THE FIELD ARE PERMITTED PER THE FOLLOWING SCHEDULE:
  1. #4 - 30" MINIMUM
  2. #5 - 36" MINIMUM
  3. #6 - 48" MINIMUM
  4. #8 - 72" MINIMUM

  SHORTER LAP SPLICES MAY BE PERMITTED WITH APPROVAL BY THE ENGINEER OF RECORD.
  BENT REINFORCEMENT BAR IS DETAILED WITH OUT TO OUT DIMENSIONS. TOLERANCES SHALL CONFORM TO CRSI STANDARDS. STRAIGHT LENGTHS OF BENT BARS ARE BASED ON OUTSIDE RADIUS LENGTH. NO ATTEMPT TO PREDICT DROP LENGTHS IS MADE. DETAILED CLEAR COVER MAY EXCEED MINIMUM CLEAR COVER.
- FOOTINGS SHALL BE PLACED IN UNDISTURBED NATIVE SOIL. ORGANIC SOIL AND FOREIGN OBJECTS ARE TO BE REMOVED. FOOTING DESIGN IS BASED ON AN ALLOWABLE SOIL BEARING PRESSURE AS DEFINED IN THE TABLE. IF THE ALLOWABLE SOIL BEARING PRESSURE VARIES FROM THAT LISTED CONTACT THE L-POA ENGINEER. IF WATER APPEARS IN THE EXCAVATION OR ON THE SURFACE CONTACT THE L-POA ENGINEER. BACKFILL SHALL HAVE NO ORGANICS. BACKFILL NEED NOT BE COMPACTED UNLESS REQUIRED BY THE OWNER.

4 Bolt Spread - Rebar Bend Schedule

In.	Qty.	Bend Detail	Type	Bar Length	Total Length	Weight	A	B*	C	D
B	360	C / B	#8	<varies>	2988' - 0"	7998 lbf	0' - 0"	*(H)*	2' - 0"	0' - 0"
D	181	B	#8	<varies>	1981' - 9"	5304 lbf	0' - 0"	*(W - 7")*	0' - 0"	0' - 0"
E	249	B	#6	<varies>	1872' - 9"	2820 lbf	0' - 0"	*(L - 7")*	0' - 0"	0' - 0"
F	181	B	#5	<varies>	1980' - 5"	2071 lbf	0' - 0"	*(W - 7")*	0' - 0"	0' - 0"
G	249	B	#5	<varies>	1872' - 9"	1958 lbf	0' - 0"	*(L - 7")*	0' - 0"	0' - 0"
H	140	E / B / D / C	#4	16' - 6"	2310' - 0"	1546 lbf	0' - 5"		4' - 6"	3' - 6"
	1360				13005' - 8"	21696 lbf				

*See Project Rebar Bend Schedule for footing specific rebar schedule.

Type	Weight
#4	1546 lb
#5	4029 lb
#6	2820 lb
#8	13302 lb
	21696 lb

Volume
177.98 yd³

ITEM	ITEM NAME	CUT SIZE(S)	QTY	MATERIAL	WT/EA	ITEM NUMBER	INFO	SL
2	4-BOLT CAGE ASSY-10" THREAD/LINE TOWER		2			41286730		
1	4-BOLT CAGE ASSY-6" THREAD/LINE TOWER		18			41286729		

SPECS / / / / / / /

REV	DESCRIPTION OF REVISION	DATE	BY
00	Preliminary Drawing Issued	02/14/2025	MLM

/

MODEL YEAR 2025

Foundations
Snowbasin, Becker - C52356

4 Bolt Spread Footing/Line

/

DRAWING PROJECTION | CAD Program Revit | DRAWING FORMAT D 22 x 34"

GRAND JUNCTION COLORADO, USA

SKIJETS CHAIRLIFTS GONDOLAS TRAMWAYS

CABLE TRANSPORT SYSTEMS

LEITNER POMA

DRAWING STATUS	Preliminary	PRINT DATE	/
DESIGNED BY	MWL	SECURITY LEVEL	---
DRAWN BY	MLM	DATE DRAWN	/
CHECKED BY - AS REQD -	JLG	SCALE (B)	As indicated

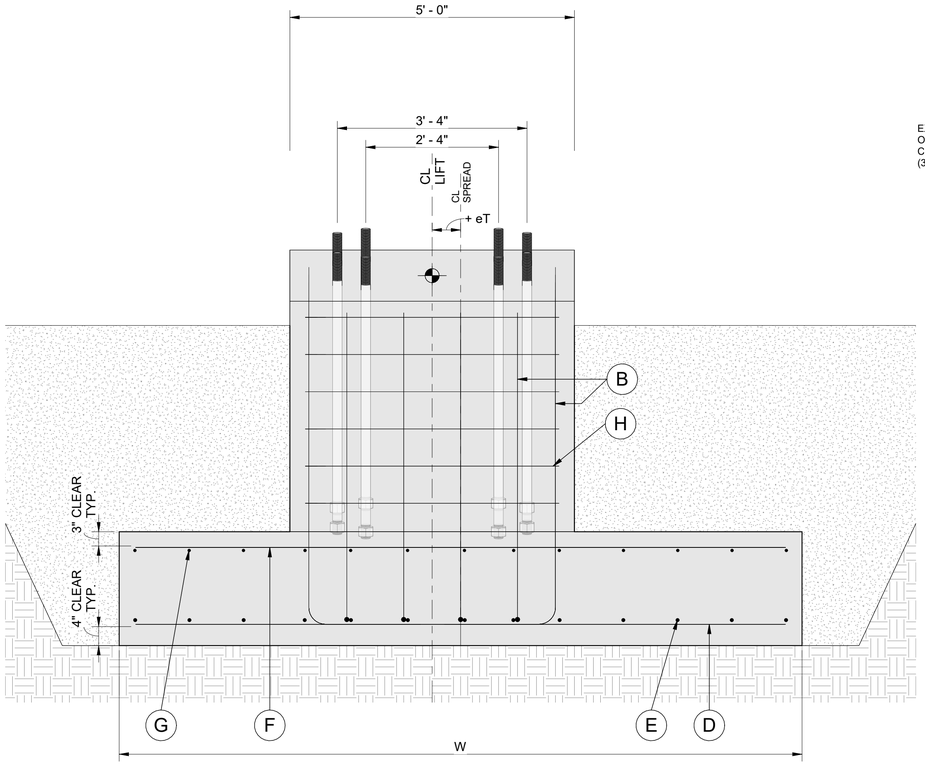
REFERENCE /OTHER /

DRAWING & ITEM NUMBER

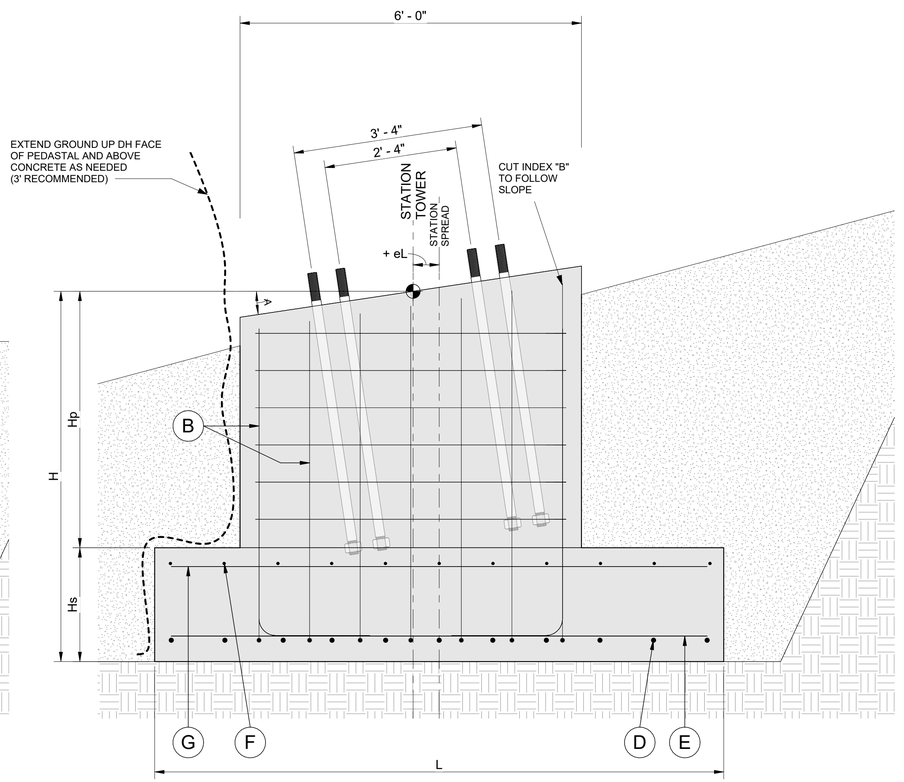
41676190_00

Foundation Schedule - Spread

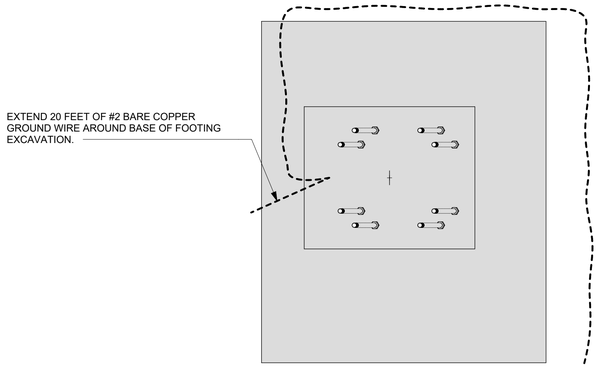
Tower	Bearing Pressure	A (%)	W	L	H	Hp	Hs	eL	eT	Volume	Anchor Bolt Assy#	Adj. Shim
T15	4.00 ksf	10	13' - 0"	9' - 0"	6' - 6"	4' - 6"	2' - 0"	0"	0"	13.67 yd³	41285731	No
T20	4.00 ksf	10	13' - 0"	9' - 0"	7' - 0"	5' - 0"	2' - 0"	0"	0"	14.22 yd³	41285731	No
T21	4.00 ksf	10	13' - 0"	9' - 0"	6' - 6"	4' - 6"	2' - 0"	0"	0"	13.67 yd³	41285731	No
3										41.56 yd³		



1 8 Bolt Spread - Front View
3/4" = 1'-0"



2 8 Bolt Spread - Right View
3/4" = 1'-0"



4 Top View - 8 Bolt Spread
3/8" = 1'-0"

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  3. WATER REDUCING RETARDER ASTM C494 TYPE D
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  2. #5 - 36" MINIMUM
  3. #6 - 48" MINIMUM
  4. #8 - 72" MINIMUM

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Structural Foundation Notes

12" = 1'-0"

8 Bolt Spread - Rebar Bend Schedule

In.	Qty.	Bend Detail	Type	Bar Length	Total Length	Weight	A	B*	C	D
B	66	C B	#8	<varies>	557' - 3"	1492 lbf	0' - 0"	(H)	2' - 0"	0' - 0"
D	30	B	#8	12' - 5"	372' - 6"	997 lbf	0' - 0"	(W - 7")	0' - 0"	0' - 0"
E	42	B	#6	8' - 5"	353' - 6"	532 lbf	0' - 0"	(L - 7")	0' - 0"	0' - 0"
F	30	B	#5	12' - 5"	372' - 6"	389 lbf	0' - 0"	(W - 7")	0' - 0"	0' - 0"
G	42	B	#5	8' - 5"	353' - 6"	370 lbf	0' - 0"	(L - 7")	0' - 0"	0' - 0"
H	18	E B D C	#4	20' - 6"	369' - 0"	247 lbf	0' - 5"		5' - 6"	4' - 6"
	228				2378' - 3"	4027 lbf				

*See Project Rebar Bend Schedule for footing specific rebar schedule.

Type	Weight
#4	247 lb
#5	759 lb
#6	532 lb
#8	2489 lb
	4027 lb

Volume
41.56 yd³

ITEM	ITEM NAME	CUT SIZE(S)	QTY	MATERIAL	WT/EA	ITEM NUMBER	INFO	SL
1	8-BOLT CAGE ASSY-6" THREAD/LINE TOWER		3			41286731		

SPECS / / / / / / /

REV	DESCRIPTION OF REVISION	DATE	BY
00	Preliminary Drawing Issued	02/14/2025	MLM

/

Foundations
Snowbasin, Becker - C52356

MODEL YEAR 2025

8 Bolt Spread Footing/Line

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DRAWING PROJECTION | CAD Program Revit | DRAWING FORMAT D 22 x 34"

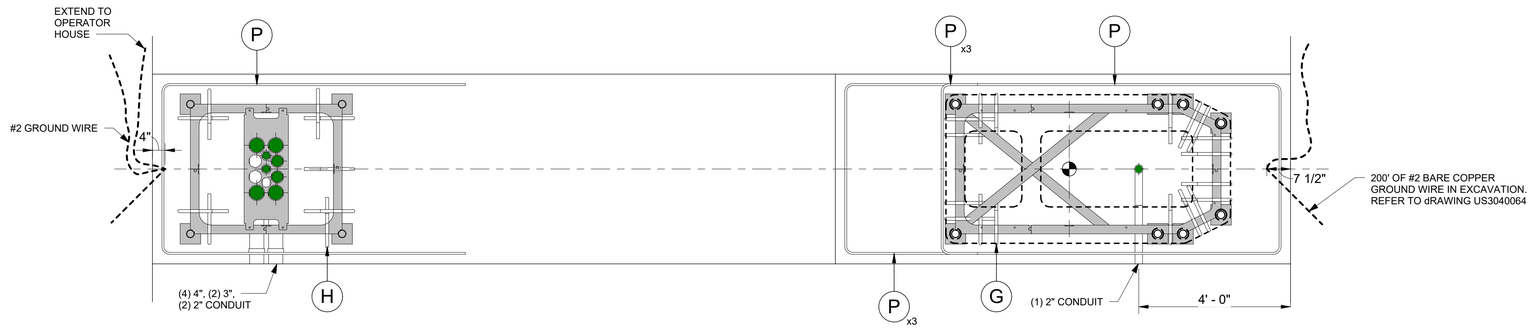
GRAND JUNCTION COLORADO, USA
SKILIFTS CHAIRLIFTS GONDOLAS TRAMWAYS
CABLE TRANSPORT SYSTEMS
LEITNER POMA

DRAWING STATUS	Preliminary	PRINT DATE	/
DESIGNED BY	MWL	SECURITY LEVEL	---
DRAWN BY	MLM	DATE DRAWN	/
CHECKED BY	JLG	SCALE (S)	As indicated

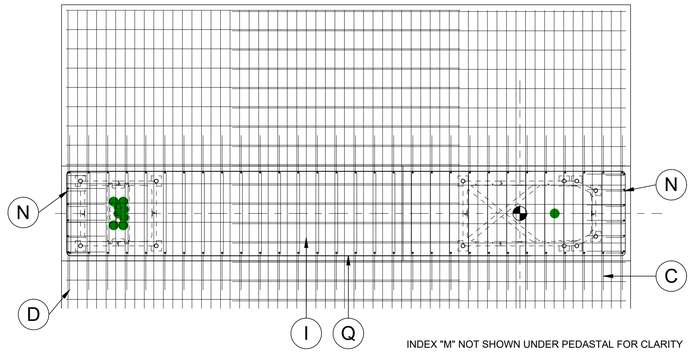
REFERENCE /OTHER /

DRAWING & ITEM NUMBER

41676158_00

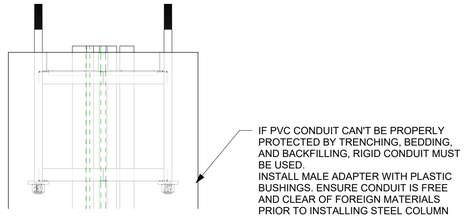


2 Top View - Anchors Top Terminal
1/2" = 1'-0"

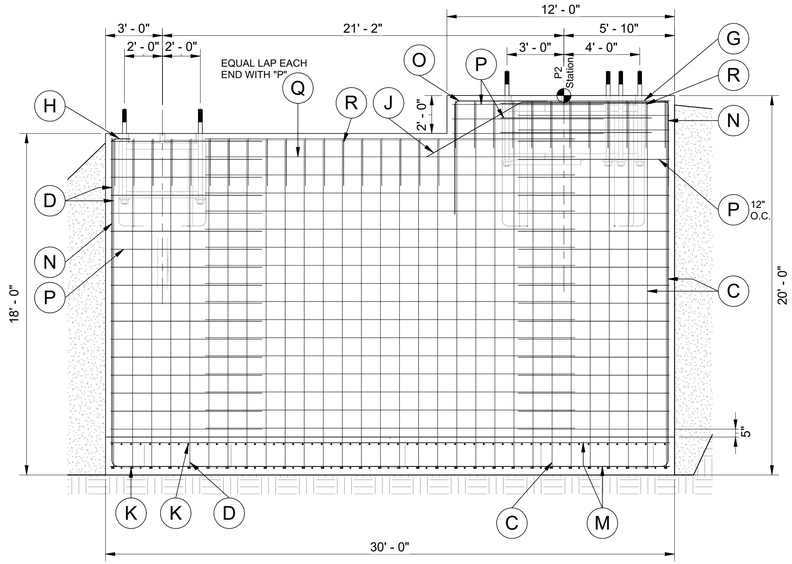


INDEX "M" NOT SHOWN UNDER PEDASTAL FOR CLARITY

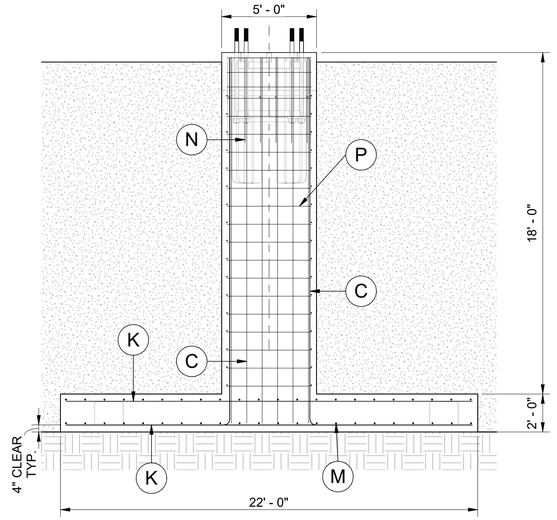
4 Top View - Top Terminal
1/4" = 1'-0"



5 Conduit - Front Top Terminal
1/2" = 1'-0"



3 Right View - Top Terminal
1/4" = 1'-0"



1 Back View - Top Terminal
1/4" = 1'-0"

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Rebar Bend Schedule

In.	Qty.	Bend Detail	Type	Bar Length	Total Length	Weight
C	30	24" / 232"	#8	21' - 1"	632' - 6"	1693 lb
D	42	24" / 208"	#8	19' - 1"	801' - 6"	2145 lb
G	18	80"	#8	8' - 8"	156' - 0"	418 lb
H	9	56"	#8	6' - 8"	60' - 0"	161 lb
I	6	261"	#8	21' - 9"	130' - 6"	349 lb
J	6	150° / 92" / 10"	#8	13' - 6"	81' - 0"	217 lb
K	118	257"	#8	21' - 5"	2527' - 2"	6764 lb
M	88	249"	#8	20' - 9"	1826' - 0"	4888 lb

Rebar Bend Schedule

In.	Qty.	Bend Detail	Type	Bar Length	Total Length	Weight
N	12	54"	#6	5' - 4"	64' - 0"	96 lb
O	6	59" / 72"	#6	10' - 9"	64' - 6"	97 lb
P	43	96" / 54" / 96"	#5	20' - 3"	870' - 9"	910 lb
Q	34	234"	#5	19' - 6"	663' - 0"	693 lb
R	30	30" / 53" / 30"	#5	9' - 2"	275' - 0"	288 lb
S	10	18" / 15" / 16"	#4	6' - 5"	64' - 2"	43 lb
	452				8216' - 1"	18762 lb

Type	Weight
#4	43 lbf
#5	1891 lbf
#6	193 lbf
#8	16634 lbf
	18762 lbf

Volume
142.2 CY
8.1 CY

ITEM	ITEM NAME	CUT SIZE(S)	QTY	MATERIAL	WT/EA	ITEM NUMBER	INFO	SL
1	A-BOLT CAGE ASSY/ P2/P3-8B LPA		1			41370608		
2	A-BOLT CAGE ASSY/ P1-4B CONDUIT LPA		1			41370650		

SPECS / / / / / / /

REV	DESCRIPTION OF REVISION	DATE	BY
00	Preliminary Drawing Issued	02/14/2025	MLM

/

MODEL YEAR 2025

Foundations
Snowbasin, Becker - C52356

LPA Top (Drive) Terminal Foundation

/

DRAWING PROJECTION: CAD Program Revit | DRAWING FORMAT: D 22 x 34"

GRAND JUNCTION COLORADO, USA

SKILIFTS CHAIRLIFTS GONDOLAS TRAMWAYS

CABLE TRANSPORT SYSTEMS

LEITNER POMA

DRAWING STATUS	Preliminary	PRINT DATE	/
DESIGNED BY	MWL	SECURITY LEVEL	---
DRAWN BY	MLM	DATE DRAWN	/
CHECKED BY +E-RECO-	JLG	SCALE (S)	As indicated

REFERENCE /OTHER: /

DRAWING & ITEM NUMBER: 41676150_00