

CAT DADDY TIMBER SALE
LOGGING FEASIBILITY REPORT

November 15, 2012

PREPARED BY _____

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Powers Ranger District
Rogue River - Siskiyou National Forest

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K303 Trailer mounted uphill/downhill

- 3-drum unit for uphill logging

Built on vehicle

- Single axle trailer

Tower

- 24' (7,2m) standard
- 28' (8,4m) with the tower extension

Line capacity

- Skyline 1650' of 9/16" (500m of 14mm)
- Mainline 2250' of 5/16" (550m of 8,5mm)
- Guyline 3 or 4 x 100' of 5/8" (30m of 16mm)
- Haulbackline 2900' of 3/8" (980m of 9mm)

Additional equipment

- Radio remote control

Tractive forces

- Skyline winch: up to 9700 lbs (44kN) in the tension section
- Mainline winch: up to 3970 lbs (18kN) at average drum
- Haulback winch: up to 3970 lbs (18kN) at average drum

Line speed

- Mainline: max. 1115 ft/min (340m/m)

Power station

- Deutz 4-cylinder Diesel engine with 88HP (65kW) and full hydrostatic transmission



GENERAL INFORMATION

Cat Daddy Timber Sale is proposed within Late-Successional Reserves and Riparian Reserves land allocations. The sale area is located along ridge tops and side slopes near Panther Creek, bald mountain Creek, and unnamed tributaries within the Elk River Watershed, Powers Ranger District (see Overview Map). The project is the result of the Environmental Assessment for Coastal Healthy Forest Treatments and is being offered for sale in 2012. This report describes logging systems used for cost analysis and appraisal.

The sale area legal description:

T. 33 S., R. 13 W., Sections 19 and 30;

T. 33 S., R. 14 W., Sections 24, 25, 26 and 35;

Willamette Baseline and Meridian, Curry County, Oregon

The timber sale consists of 5 Subdivisions totaling 153 acres. The stands are young second growth plantations and are to be thinned to remove approximately 50% of the standing volume (in upland areas) by removing mostly the under story. The intent is to release the dominant trees for increased vigor and reducing fuels by removing and treating logging slash and non-saw log material. Units are to be thinned using a Designation by Description method. The timber is to be harvested by using skyline and ground based systems.

CRITICAL ELEMENTS AND PROBLEM AREAS

1. Maintain the Riparian Reserves in all streams. Streams are outside of the units and have no cut buffers that are at a minimum of 25 feet. To facilitate log suspension with skyline operations, corridors for cable rigging would be allowed to pass through Riparian Reserves. A maximum clearing width of 12 ft. is required and logs may be yarded through this corridor if necessary. Corridors must be spaced at a minimum of 200 feet apart if they pass through Riparian Reserves.
2. Dead trees or snags are to be retained. If they interfere with the safety of operation, they can be cut and retained on site.
3. Haul over native surfaced and gravel surfaced roads will cease when the travel way becomes wet and water is observed moving off the running surface of the road and/or to ditches or culverts which would lead to a stream.
4. Temporary roads built will be closed after the season of use and winterized by water barring and other suitable measures if not obliterated before the raining season. They will be closed and obliterated by re-contouring as close to the natural condition as is feasible and drainage restored upon conclusion of operations.
5. Precautions to minimize the threat of introducing noxious weeds on National Forest lands by requiring washing of all equipment.
6. Ground based on slopes less than 30 percent.
7. Seasonal restrictions due to adjacent Marbled Murrelet stands.
8. Machine piles shall be covered by operator.

TAIL TREES

Recommended minimum diameters (dbh in inches) for west coast Douglas-fir tail trees:

SKYLINE Size (inches)	Rigging Height (feet)					
	30	40	50	60	70	80
5/8	13.5	16.0	18.5	20.5	22.5	24.5
¾	14.5	17.0	19.5	22.0	24.5	26.5
7/8	15.0	18.0	20.5	23.0	25.5	28.0
1	16.0	19.0	21.5	24.5	27.0	29.0
1 1/8	16.5	20.0	22.5	25.5	28.0	30.5
1 1/4	17.5	21.0	23.5	26.5	29.0	31.5
1 3/8	18.0	21.5	24.5	27.5	30.0	32.5
1 1/2	18.5	22.5	25.0	28.5	31.0	33.5
1 5/8	19.5	23.0	26.0	29.0	31.5	34.5
1 3/4	20.0	23.5	26.5	30.0	32.5	35.5
1 7/8	20.5	24.5	27.5	30.5	33.5	36.5
2	21.0	25.0	28.5	31.5	34.5	37.5

Note: Table is for sound, straight Douglas-fir. Add 2 inches to above diameters when using other conifer species.

DOUBLE TREE INTERMEDIATE SUPPORT SYSTEM

Recommended rigging guidelines for a double tree intermediate support system:

Dragging Load Size (pounds)	Intermediate Support Minimum Line Size (inches) (or greater)	Rigging Height in Inches in Tree	
		Less than 30 ft.	Between 30 & 40 ft. (dbh)
0 – 5000	7/16	11.0	13.0
5000 – 6000	1/2	12.0	14.0
6000 – 8000	9/16	12.5	14.5
8000 – 10000	5/8	13.0	15.0
10000 – 14000	3/4	14.0	16.0
14000 – 19000	7/8	14.5	17.0
19000 – 25000	1	15.5	18.5
25000 – 32000	1 1/8	16.0	19.5
32000 – 40000	1 1/4	17.0	20.5
40000 – 48000	1 3/8	17.5	21.5

Note: Line sizes are based on IWRC extra-improved plow steel (Cable Logging Systems, p25). Smaller rope of equivalent breaking strength is acceptable. Tree diameters are for firmly rooted, sound, straight Douglas-fir trees. Other conifer trees may be used provided the loads are reduced 25 percent. For example, a 13-inch Western Hemlock support tree rigged at 30 feet can carry a maximum 7500-pound load.

OPERATIONAL AND APPRAISAL DATA

Skidder Selection(s)	Loader Selection(s)	Limb-Bucker Selection(s)
Cat-535C-Winch, Grapple – Cat 527 Winch, Grapple	Link-Belt 240LX	Danzco pull through

Yarder Selection(s)	Carriage Selection(s)	Landing Tractor Selection(s)	Loader Selection(s)	Limb-Bucker Selection(s)
Koller K303, Trailer	Acme-8	D6 (used)	Link-Belt 240LX	Danzco pull through

TEMPORARY ROADS

Unit	Road Prism	Length (ft)
2	New	1,010
2	New	198
2	Existing	678
2	Existing	1109
6	Existing	2,260
7	Existing	233
7	New	243
7	Existing	2,108
10	Existing	221
10	Existing	509
10	New	466
10	Existing	1,249
11	New	272
11	New	902
11	Existing	1,191
11	Existing	446
11	Existing	398



The ACME Model 8 is powered by a fully enclosed 8 hp Kohler® diesel engine, and is Talkie Tooter® radio controlled. The unit, featuring our patented skyline clamp with replaceable aluminum jaws, 6" skyline sheaves, and our patented hydraulic slack pulling system readily passes over intermediate supports during operation.

The ACME Model 8 has been designed with the logger and today's logging practices in mind. We have assembled our hydraulic slack pulling system into a package smaller than was ever before thought possible. At 700 Lb., the ACME Model 8 is the smallest and the lightest motorized slack pulling carriage available today, but do not let that fool you! Its hydraulic slack puller gives it superior performance despite its small size. In Fact, the light weight actually adds to its performance. These features, together with its hydraulic performance, make it a clear choice for the logger who is looking for a lightweight, versatile carriage that is built to outperform the competition.



CAT 527 Tracked Skidder w/ Cable



CAT 525 Wheeled Skidder w/ Grapple

SUBDIVISION SUMMARY

Unit Number	Total Acreage	Logging System	Volume		TONS
			MBF	CCF	
2	22	Ground-Based/Skyline	467	900	2,643
6	21	Skyline	433	836	2,455
7	25	Ground-Based/Skyline	510	984	2,890
10	60	Ground-Based/Skyline	1,244	2,400	7,047
11	25	Ground-Based/Skyline	519	1,000	2,936
Total	153	---	3,173	6,121	17,971

Tractor	Unit	Total \$'s Misc Cost	Average % Slope To Landing	Average Skidding Distance Feet	Misc. Total \$'s Explanation (Text)
Unit #	Acres				
2	6	1,000	-10.0%	110	landing construction
7	10	500	-12.0%	148	landing construction
10	21	1,000	-25.0%	133	landing construction
11	8	750	-16.0%	112	landing construction

Cable	Unit	Total \$'s Misc Cost	Average % Slope To Landing	Average Yarding Distance Feet	Misc. Total \$'s Explanation (Text)
Unit #	Acres				
2	17	750	50%	126	landing construction
6	21	1,000	63%	253	landing construction
7	15	500	60%	290	landing construction
10	38	1,000	43%	230	landing construction
11	17	1,250	50%	278	landing construction

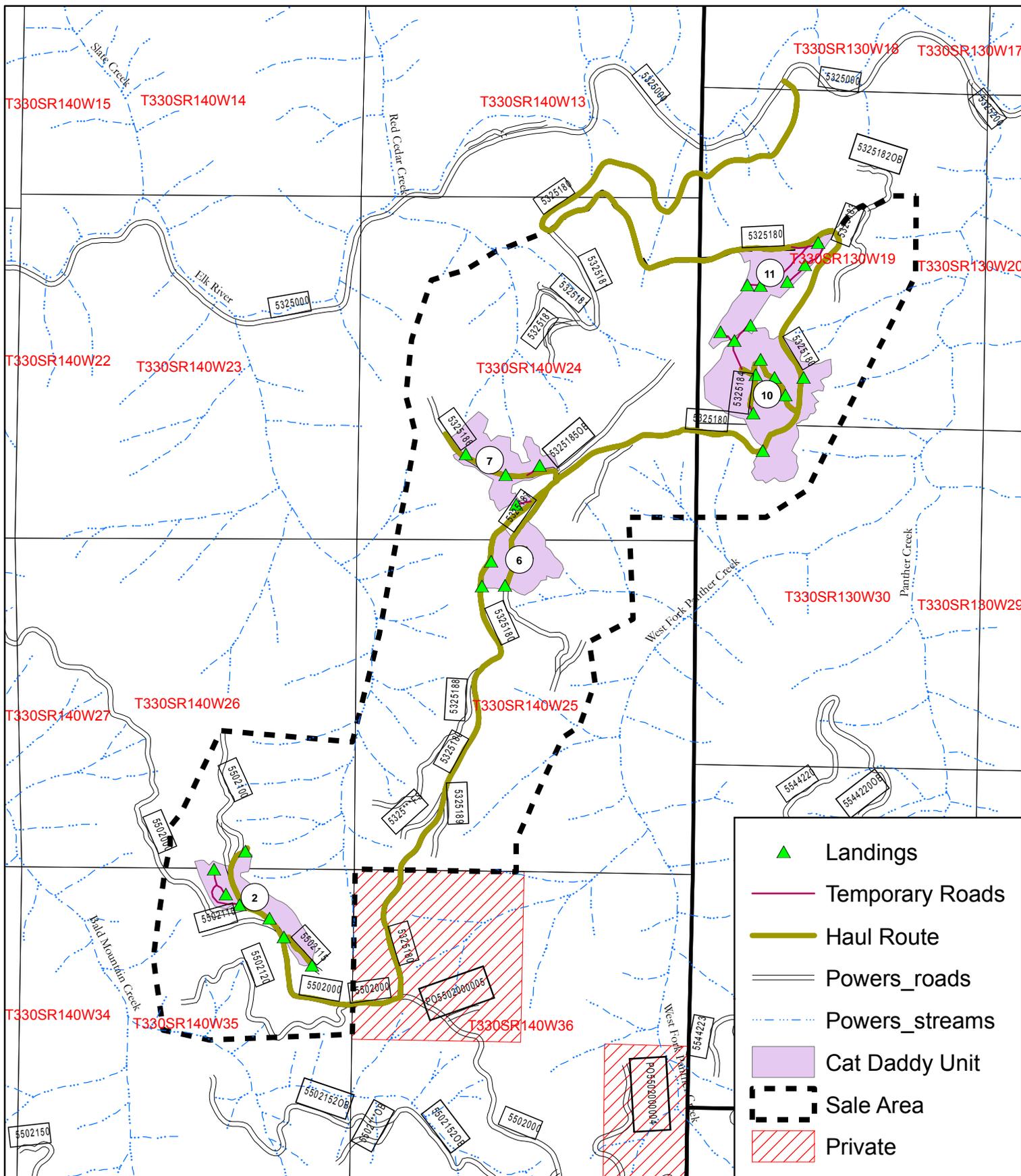


DANZCO De-limber



Link-Belt 240 LX loader

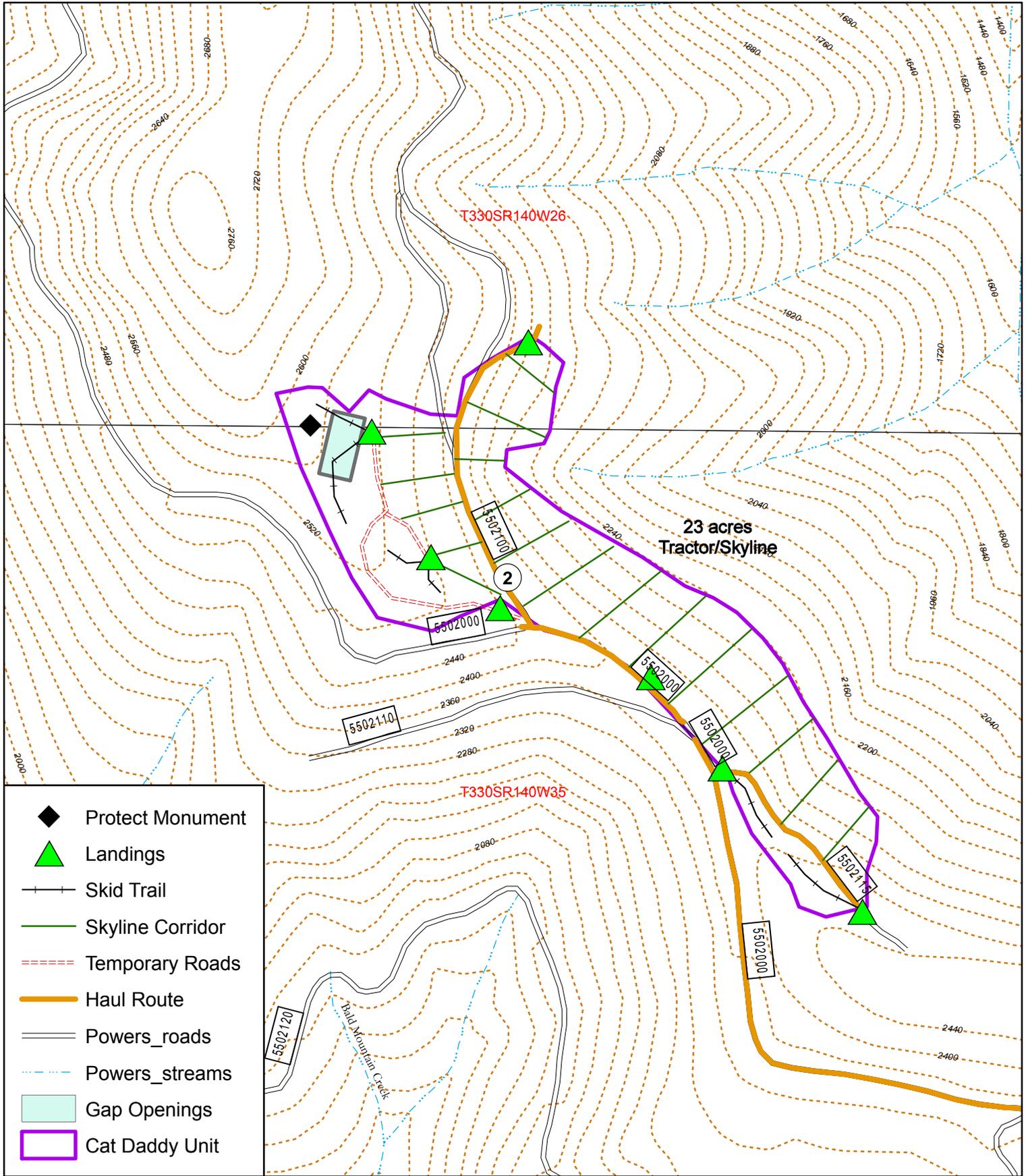
Sale Area Logging Feasibility Cat Daddy Timber Sale Overview



1 inch = 2000 feet

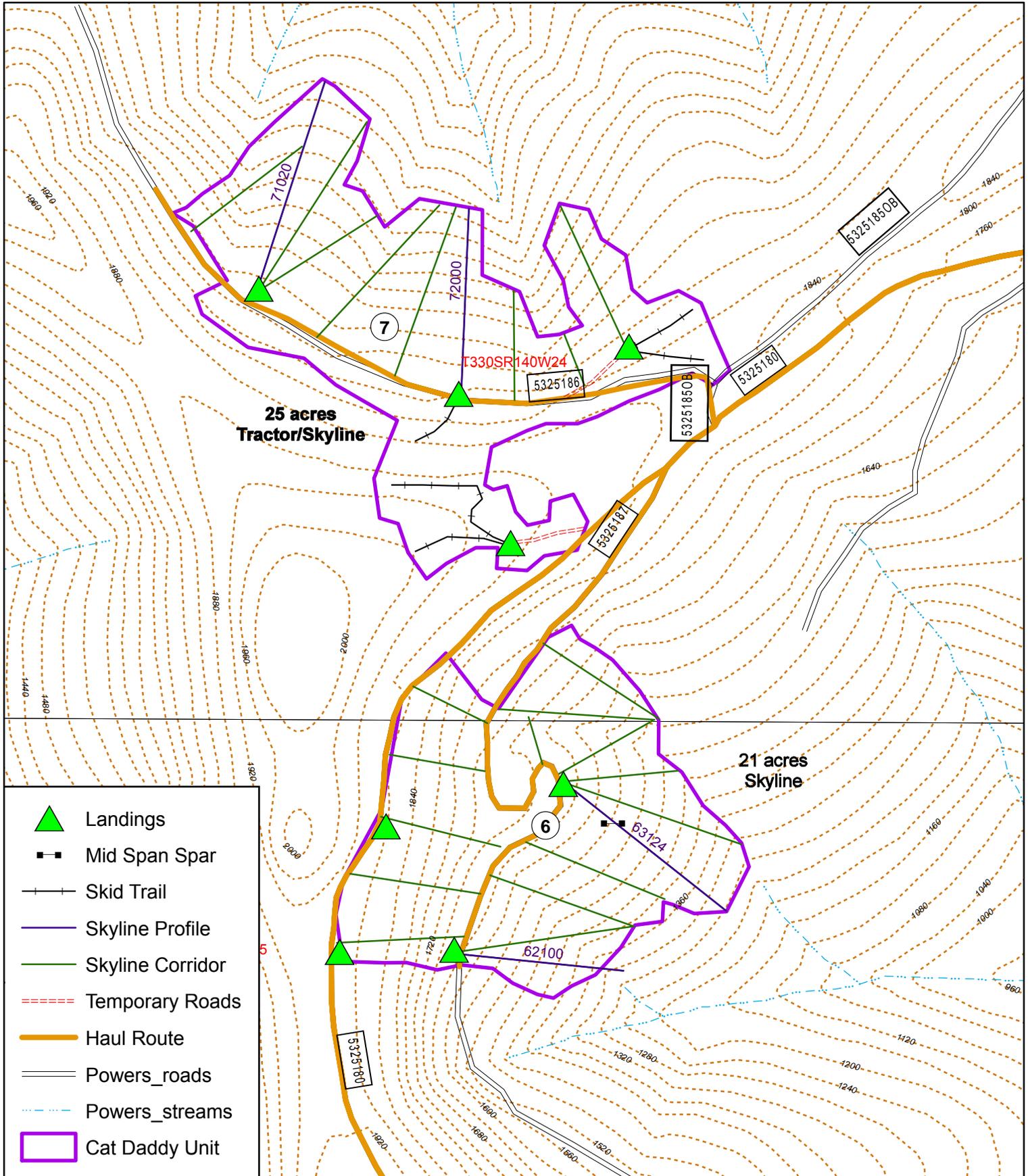


Sale Area Logging Feasibility Cat Daddy Timber Sale Subdivision 2



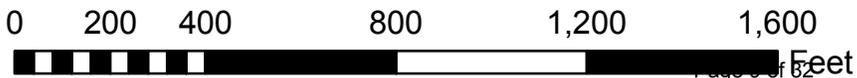
- Protect Monument
- Landings
- Skid Trail
- Skyline Corridor
- Temporary Roads
- Haul Route
- Powers_roads
- Powers_streams
- Gap Openings
- Cat Daddy Unit

Sale Area Logging Feasibility Cat Daddy Timber Sale Subdivisions 6 & 7



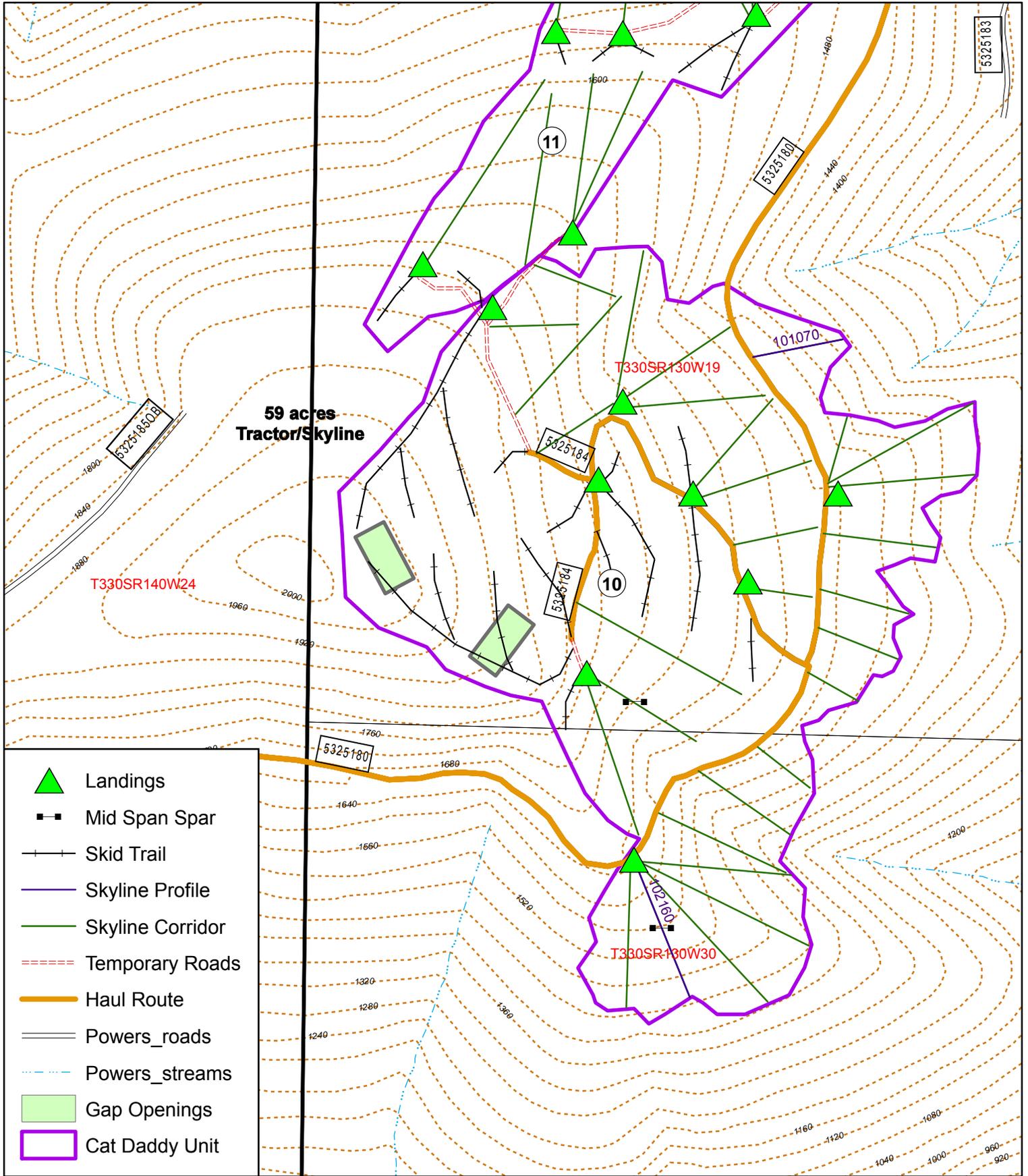
- Landings
- Mid Span Spar
- Skid Trail
- Skyline Profile
- Skyline Corridor
- Temporary Roads
- Haul Route
- Powers_roads
- Powers_streams
- Cat Daddy Unit

1 inch = 400 feet



Contour Interval 40'

Sale Area Logging Feasibility Cat Daddy Timber Sale Subdivision 10



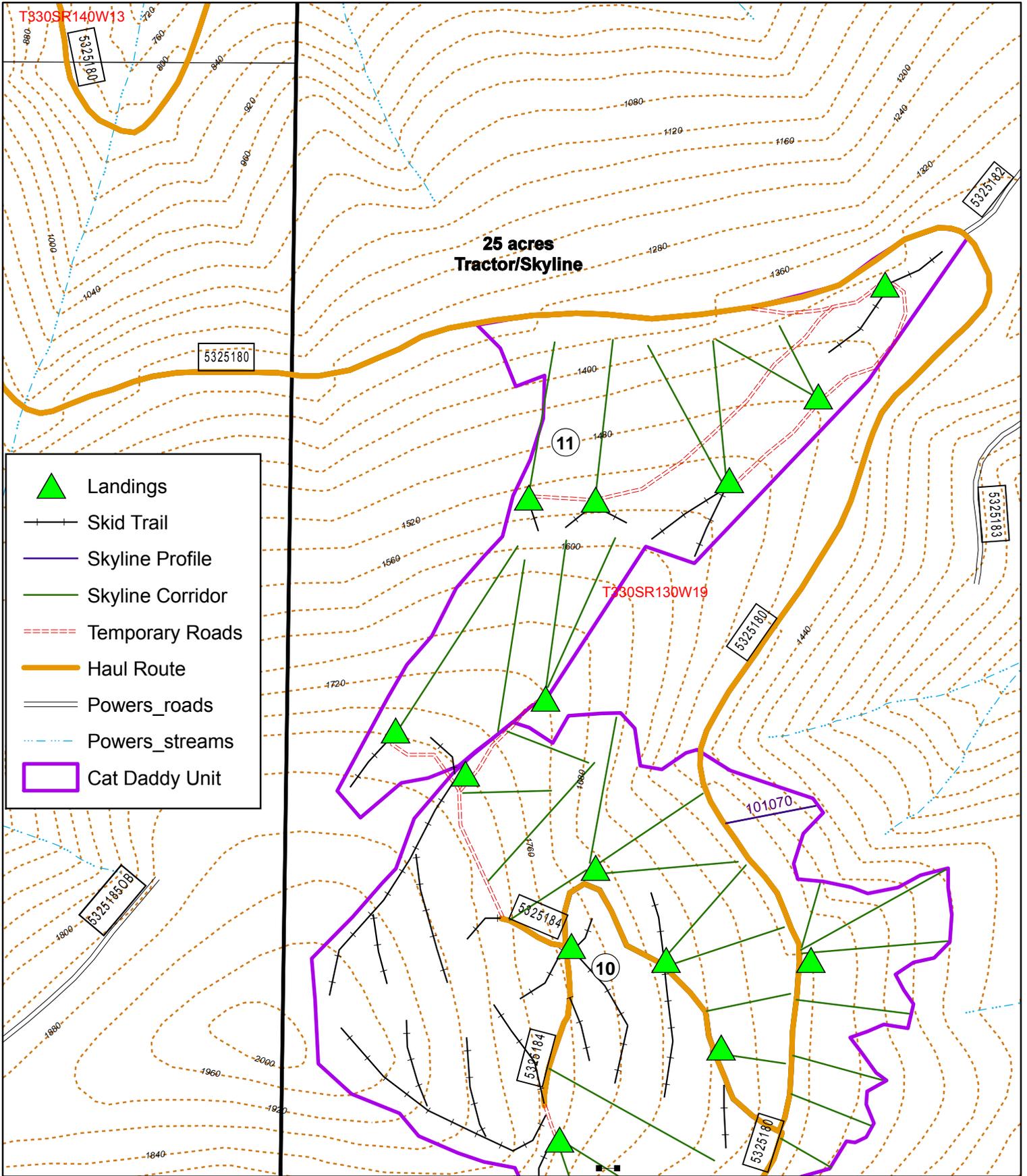
- ▲ Landings
- Mid Span Spar
- +— Skid Trail
- Skyline Profile
- Skyline Corridor
- - - - - Temporary Roads
- Haul Route
- Powers_ roads
- - - - - Powers_streams
- Gap Openings
- Cat Daddy Unit

1 inch = 400 feet

0 200 400 800 1,200 1,600 Feet

Contour Interval 40'

Sale Area Logging Feasibility Cat Daddy Timber Sale Subdivision 11



- ▲ Landings
- Skid Trail
- Skyline Profile
- Skyline Corridor
- Temporary Roads
- Haul Route
- Powers_road
- Powers_streams
- Cat Daddy Unit

SkylineXL 3.01 Profile Analysis - Yarder and Carriage Selections

Yarder...

Select a Yarder
Koller K303, trailer

Tower height feet	Yarder horsepower
28	88

Max brake torque	Mainline ft-lbs	Haulback ft- lbs
torque		

Operating line	Line Dia inches	Line type	Weight per foot	Design tension lbs	Line length feet	Empty drum dia-inches	Empty drum width-inches
skyline	0.6250	EIPS	0.72	13,733	1,200		
mainline	0.3750	EIPS	0.26	5,000	1,300		
haulback	0.3750	EIPS	0.26	5,000	2,890		
slackpulling							

Carriage...

Select a Carriage
Acme 08, motorized

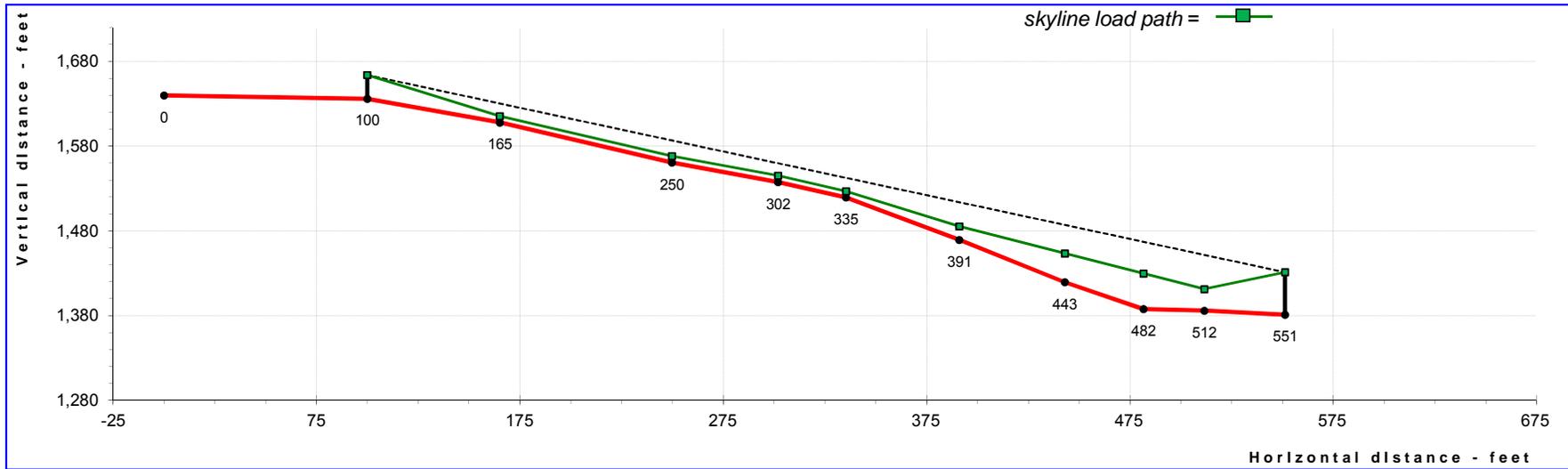
Weight pounds	Carriage horsepower	Skyline clamp	Slackpull method	Multispan capable	# drums required
700	8	yes	carriage	yes	2

Line	Min dia-in	Max dia-in	Length-ft	Diameter-in
skyline	0.5625	0.8750		
mainline	0.3750	0.6250		
dropline				

Torque

goto database maintenance

SkylineXL 3.01 Profile Analysis - Analysis Input



Profile name: 6-2-100

Analysis type	Selected yarder	Selected carriage
Live	Koller K303, trailer	Acme 08, motorized

Log geometry	Values
tag length - ft	10.0
log length - ft	40.0
log diameter - in	12.0

Min payload - lbs	At horiz dist - ft
1,103	335

Current analysis phase = 1

LIVE sky options

Specified clearance

Lift only

Drop only

Lift-drop location

0

100

165

250

302

The above options for LIVE skyline analysis only

Supports	Horizontal distance-ft	Rigging height-ft
head spar	100	28
tail spar	551	50
Int support 1		
Int support 2		
Int support 3		

Analysis name: 6-2-100

Yarding parameters errors (NONE)...

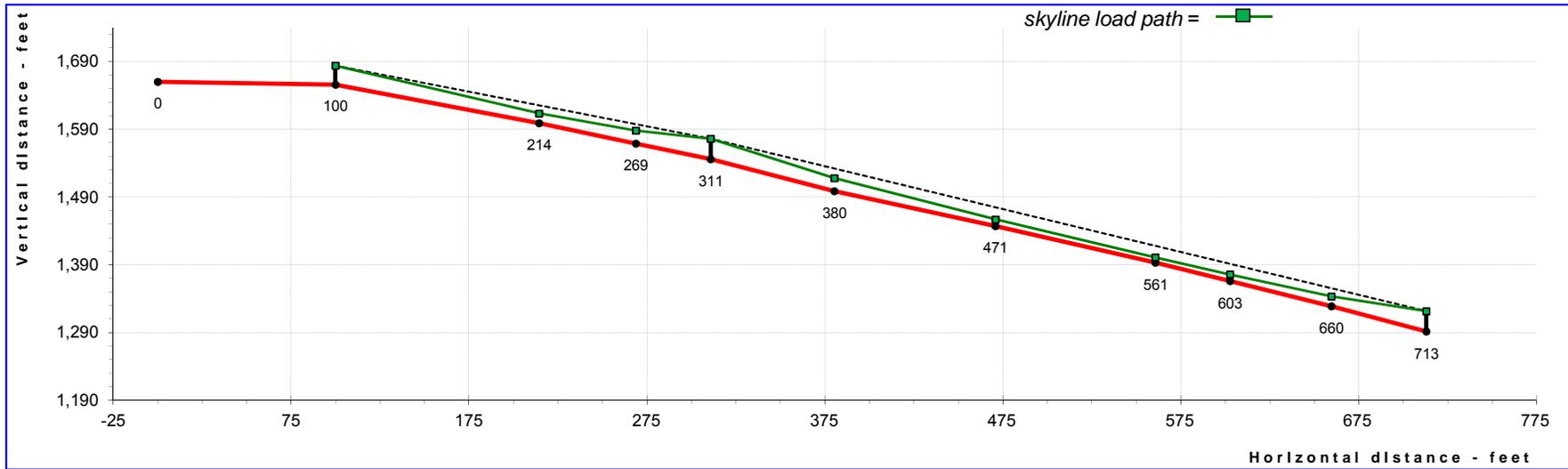
Profile date: 3/1/12

Yarding parameters	Inner distance	Outer distance
yarding limits-feet	165	512
landing cut (-) or fill (+) feet		

Susp type	Log Susp and Clearance Table	Clearance feet
SELECT		
partial		1.1

If horizontal distance selection error, then cell shading is red

SkylineXL 3.01 Profile Analysis - Analysis Input



Profile name: 6-3-124

Analysis type	Selected yarder	Selected carriage
Multi-span	Koller K303, trailer	Acme 08, motorized

Log geometry	Values
tag length - ft	10.0
log length - ft	40.0
log diameter - in	12.0

Min payload - lbs	At horiz dist - ft
1,908	471

Supports	Horizontal distance-ft	Rigging height-ft
head spar	100	28
tail spar	713	30
Int support 1	311	30
Int support 2		
Int support 3		

Analysis name:

Yarding parameters errors (NONE)...

Profile date: 3/1/12

Yarding parameters	Inner distance	Outer distance
yarding limits-feet	214	660
landing cut (-) or fill (+) feet		

Susp type	Log Susp and Clearance Table	Clearance feet
SELECT		
partial		1.1

If horizontal distance selection error, then cell shading is red

Current analysis phase = 1

LIVE sky options

Specified clearance

Lift only

Drop only

Lift-drop location

100

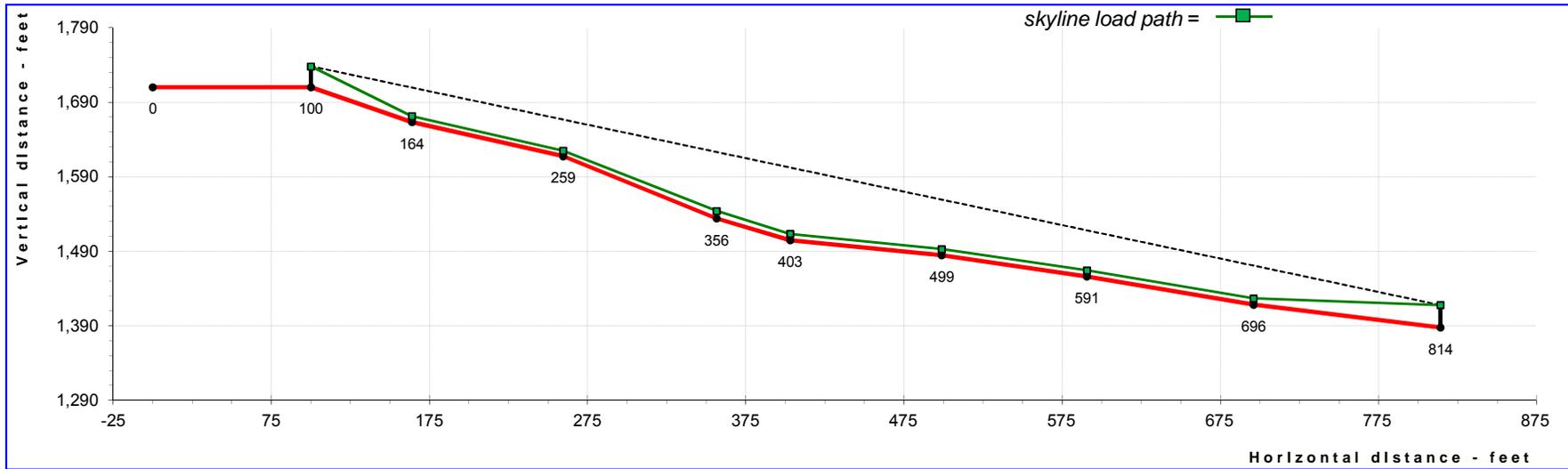
214

269

311

The above options for LIVE skyline analysis only

SkylineXL 3.01 Profile Analysis - Analysis Input



Profile name: 7-1-020

Analysis type	Selected yarder	Selected carriage
Live	Koller K303, trailer	Acme 08, motorized

Log geometry	Values
tag length - ft	10.0
log length - ft	40.0
log diameter - in	12.0

Min payload - lbs	At horiz dist - ft
4,925	259

Supports	Horizontal distance-ft	Rigging height-ft
head spar	100	28
tail spar	814	30
Int support 1		
Int support 2		
Int support 3		

Analysis name: 7-1-020

Yarding parameters errors (NONE)...

Profile date: 3/1/12

Yarding parameters	Inner distance	Outer distance
yarding limits-feet	164	696
landing cut (-) or fill (+) feet		

Susp type	Log Susp and Clearance Table	Clearance feet
partial		1.1

If horizontal distance selection error, then cell shading is red



Current analysis phase = 1

LIVE sky options

Specified clearance

Lift only

Drop only

Lift-drop location

0

100

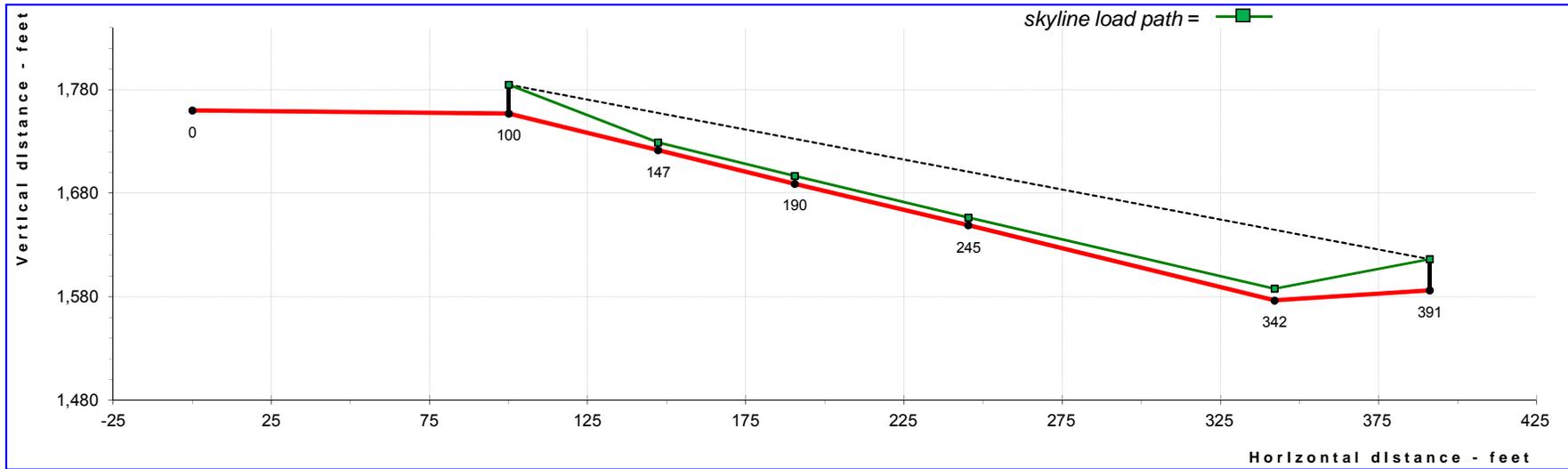
164

259

356

The above options for LIVE skyline analysis only

SkylineXL 3.01 Profile Analysis - Analysis Input



Profile name: 7-2-000

Analysis type	Selected yarder	Selected carriage
Live	Koller K303, trailer	Acme 08, motorized

Log geometry	Values
tag length - ft	10.0
log length - ft	40.0
log diameter - in	12.0

Min payload - lbs	At horiz dist - ft
4,971	147

Current analysis phase = 1

LIVE sky options

Specified clearance

Lift only

Drop only

Lift-drop location

0

100

147

190

245

The above options for LIVE skyline analysis only

Supports	Horizontal distance-ft	Rigging height-ft
head spar	100	28
tail spar	391	30
Int support 1		
Int support 2		
Int support 3		

Analysis name: 7-2-000

Yarding parameters errors (NONE)...

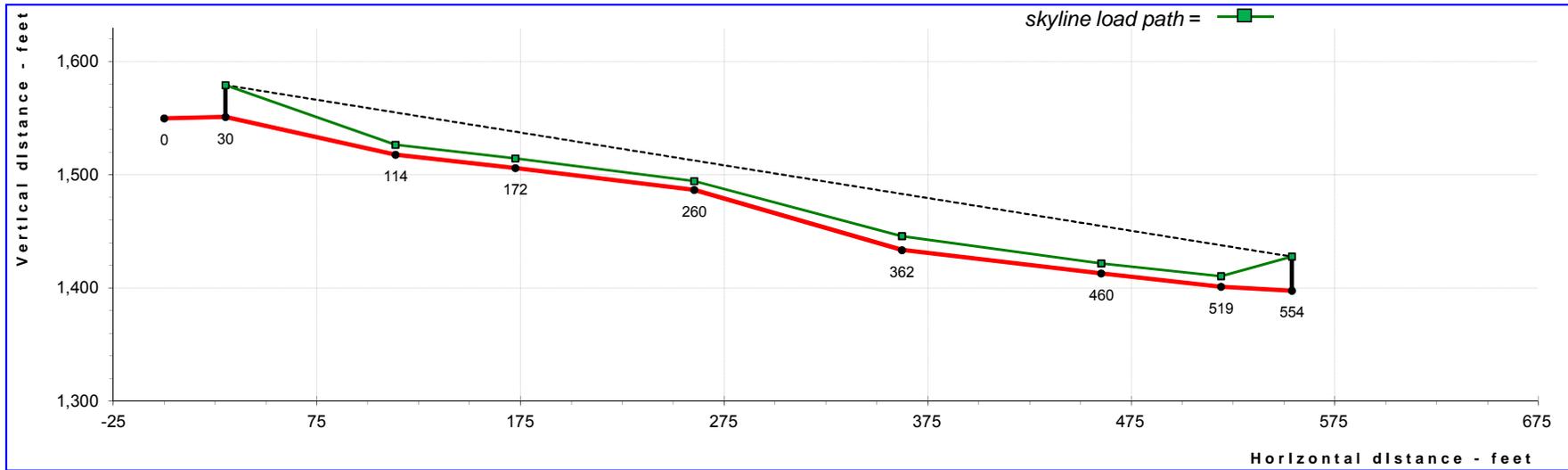
Profile date: 3/1/12

Yarding parameters	Inner distance	Outer distance
yarding limits-feet	147	342
landing cut (-) or fill (+) feet		

Susp type	Log Susp and Clearance Table	Clearance feet
SELECT		
partial		1.1

If horizontal distance selection error, then cell shading is red

SkylineXL 3.01 Profile Analysis - Analysis Input



Profile name: 10-1-070

Analysis type	Selected yarder	Selected carriage
Live	Koller K303, trailer	Acme 08, motorized

Log geometry	Values
tag length - ft	10.0
log length - ft	40.0
log diameter - in	12.0

Min payload - lbs	At horiz dist - ft
1,427	260

Current analysis phase = 1

LIVE sky options

Specified clearance

Lift only

Drop only

Lift-drop location

0

30

114

172

260

The above options for LIVE skyline analysis only

Supports	Horizontal distance-ft	Rigging height-ft
head spar	30	28
tail spar	554	30
Int support 1		
Int support 2		
Int support 3		

Analysis name: 10-1-070

Yarding parameters errors (NONE)...



Profile date: 2/23/12

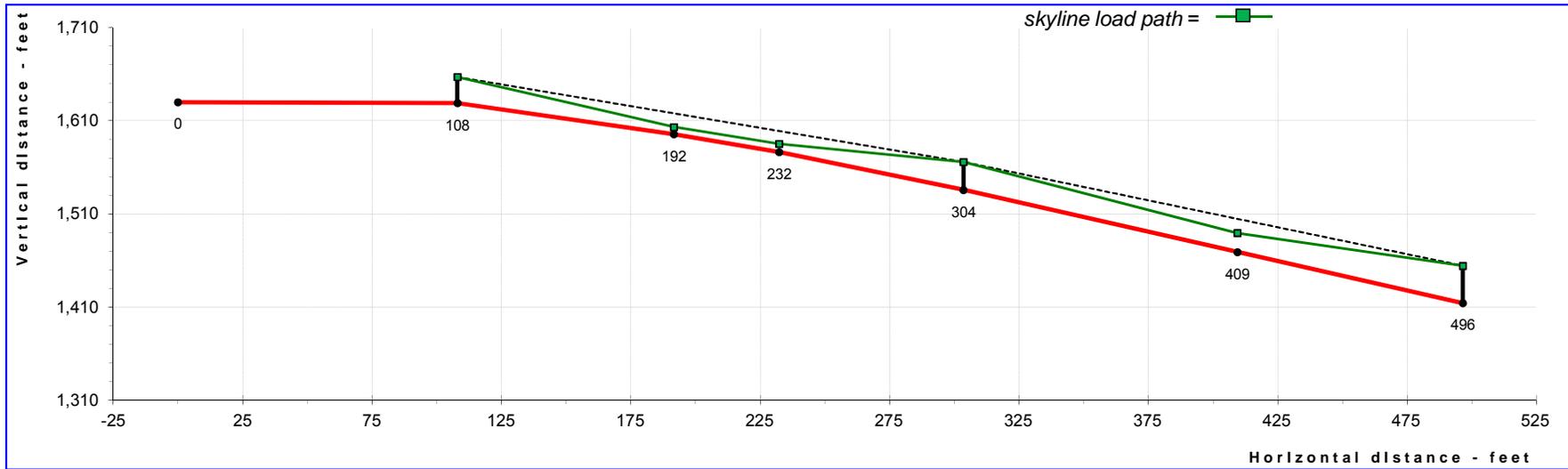
Yarding parameters	Inner distance	Outer distance
yarding limits-feet	114	519
landing cut (-) or fill (+) feet		

Susp type	Log Susp and Clearance Table	Clearance feet
partial		1.1

If horizontal distance selection error, then cell shading is red



SkylineXL 3.01 Profile Analysis - Analysis Input



Profile name: 10-2-160

Analysis type	Selected yarder	Selected carriage
Multi-span	Koller K303, trailer	Acme 08, motorized

Log geometry	Values
tag length - ft	10.0
log length - ft	40.0
log diameter - in	12.0

Min payload - lbs	At horiz dist - ft
3,802	409

Supports	Horizontal distance-ft	Rigging height-ft
head spar	108	28
tail spar	496	40
Int support 1	304	30
Int support 2		
Int support 3		

Analysis name: 10-2-160

Yarding parameters errors (NONE)...

Profile date: 2/27/12

Yarding parameters	Inner distance	Outer distance
yarding limits-feet	192	409
landing cut (-) or fill (+) feet		

Susp type	Log Susp and Clearance Table	Clearance feet
partial		1.1

If horizontal distance selection error, then cell shading is red



Current analysis phase = 1

LIVE sky options

Specified clearance

Lift only

Drop only

Lift-drop location

0

108

192

232

304

The above options for LIVE skyline analysis only

