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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 125 Planning Unit # 125 Estimated Acres 28

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) ADV

Average External Yarding Distance (AEYD) 700 [ft] Average Slope 50 [%]

Number of Landings 2 Harvest Method CCR

Remarks:
FAIRLY STRAIGHT FORWARD CABLE. CLIFF IN MID OF UNIT EXCLUDED. OLD RD TEMPLATE RUNS ALONG BOTTOM OF W PORTION. TAILHOLDS AVAILABLE

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
N/A

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Species Composition

Species	% of Stand	Avg. DBH
DF	85	
C	5	
OTH	10	

Improvements and Resources

Check all that apply and show on map

- ☑ Survey Monuments
- ☐ Gate
- ☐ Arch Site
- ☐ Culvert
- ☐ Trail
- ☑ Spring
- ☐ Stream
- ☐ Nest/Den
- ☐ Fence
- ☑ Other

Other PROPERTY LINE

Remarks:

SPRING TO NE EXCLUDED. PROPERTY LINE TO E

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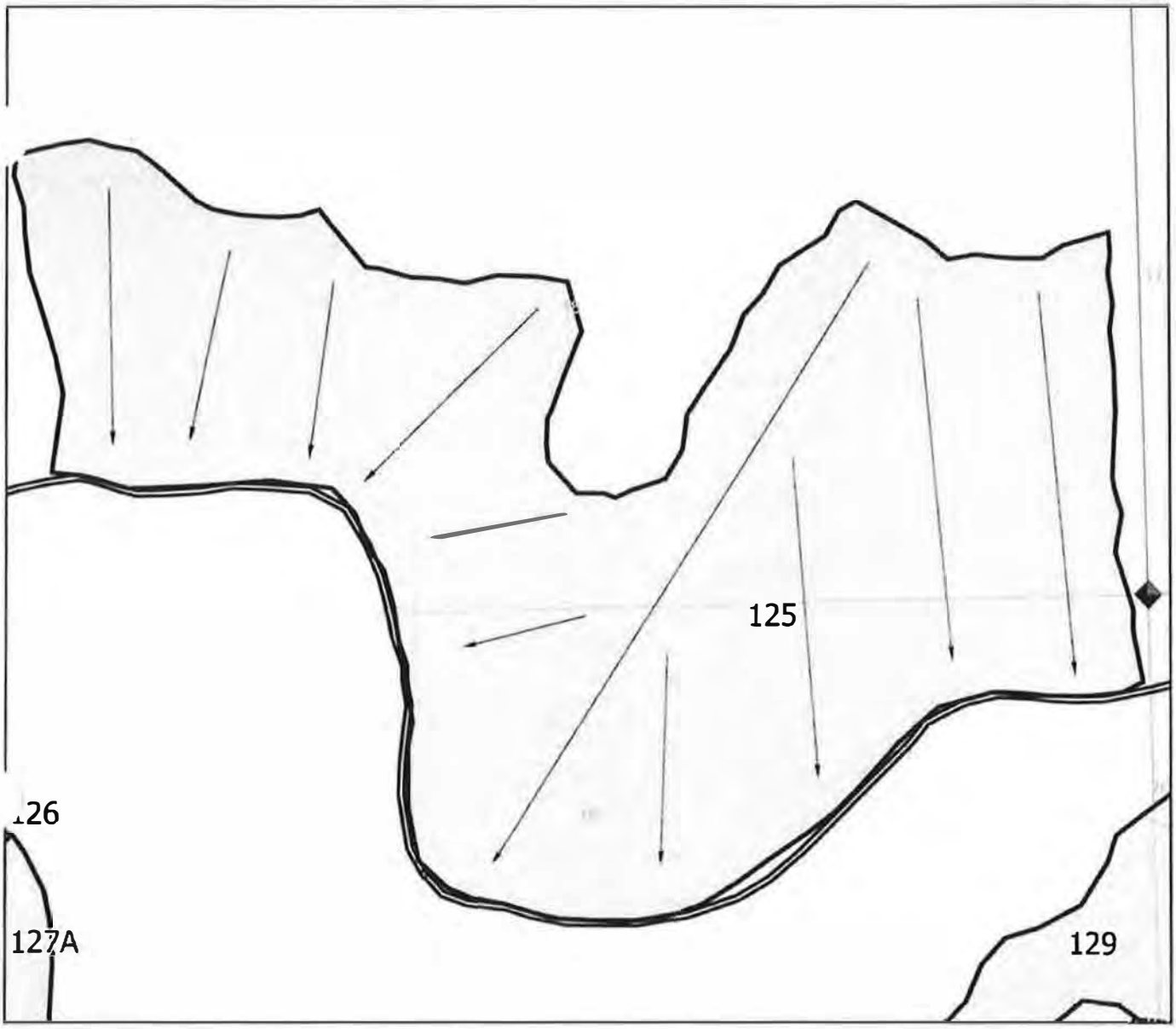

UNIT 125

Harvest Unit Layout and Logging Plan

0 140 280 560 Feet

Legend

- Existing Trails
- Commercial Units
- Survey Monuments
- Skid/Yard Direction
- Forest Service Ownership
- Non-Forest Service Ownership
- Existing Roads

N

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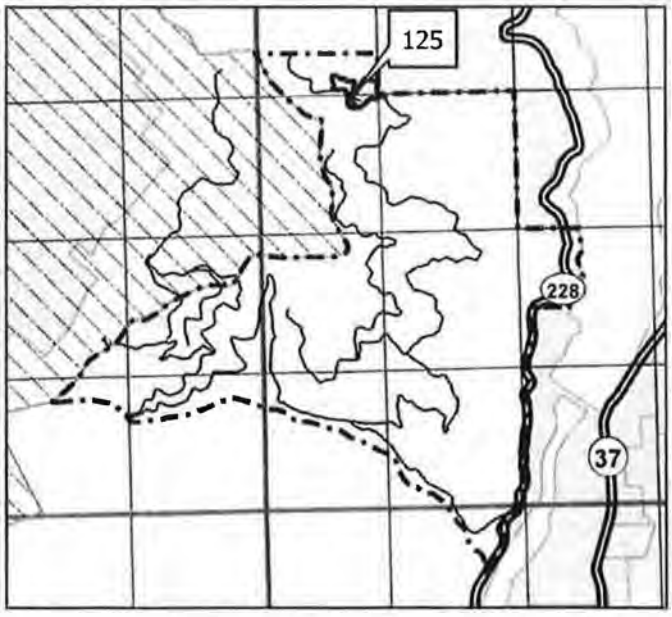
B. Hoffman
10/06/2025



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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 126 Planning Unit # 126 Estimated Acres 15

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAV

Average External Yarding Distance (AEYD) 780 [ft] Average Slope 40 [%]

Number of Landings 1 Harvest Method CCR

Remarks:

SOMEWHAT STEEP TRACTOR UNIT, EXCLUDED STEEP SLOPES OUTSIDE OF OPERATING CONSTRAINTS. UNIT 127A WILL SKID THROUGH + LAND WITH.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:

N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
C	5	
OTH	10	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☒ Trail
- ☐ Other

Other _____

Remarks:

TRAIL TO S OF UNIT

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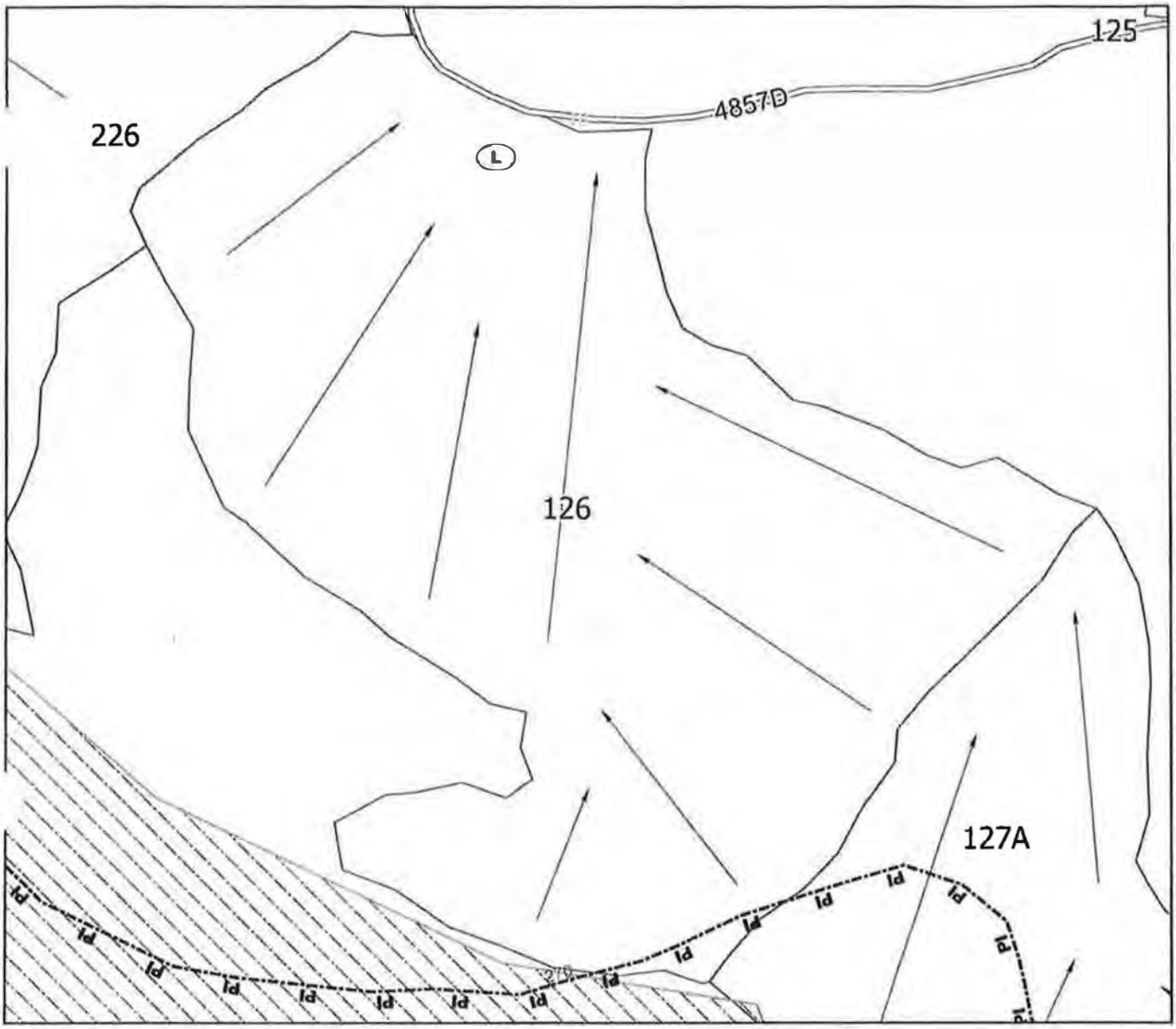

UNIT 126
Harvest Unit Layout and Logging Plan

0 105 210 420 Feet

Legend

- Pl Existing Trails
- Commercial Units
- L Landing
- Skid/Yard Direction
- Forest Service Ownership
- OU3 EPA Boundary
- Existing Roads

N

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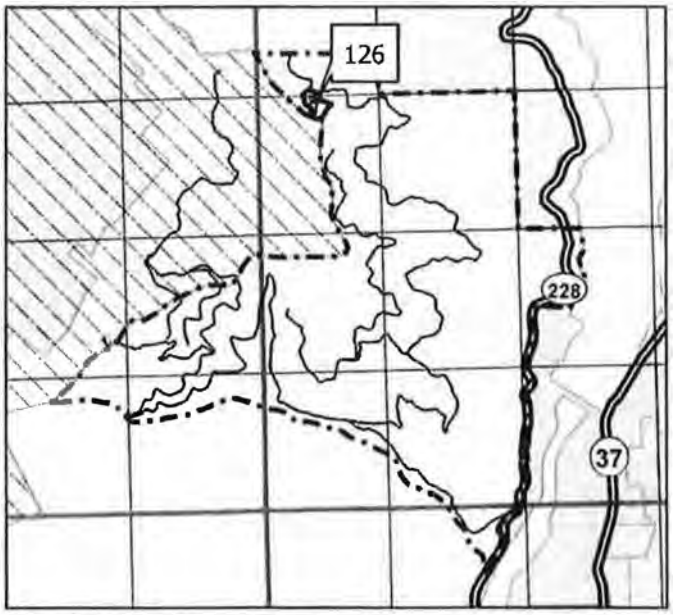

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 127 Planning Unit # 127 Estimated Acres 37

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAVORABLE

Average External Yarding Distance (AEYD) 500 [ft] Average Slope 40 [%]

Number of Landings 2 Harvest Method ST

Remarks:
VERY SKINNY UNIT BETWEEN RD + 003. WILL LIKELY REQUIRE LOTS OF SHORT SKIDS + SMALL LANDINGS. AREAS EXCLUDED FOR STEEP SLOPES

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	10	
OTH	5	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☒ Other

Other OV3

Remarks:

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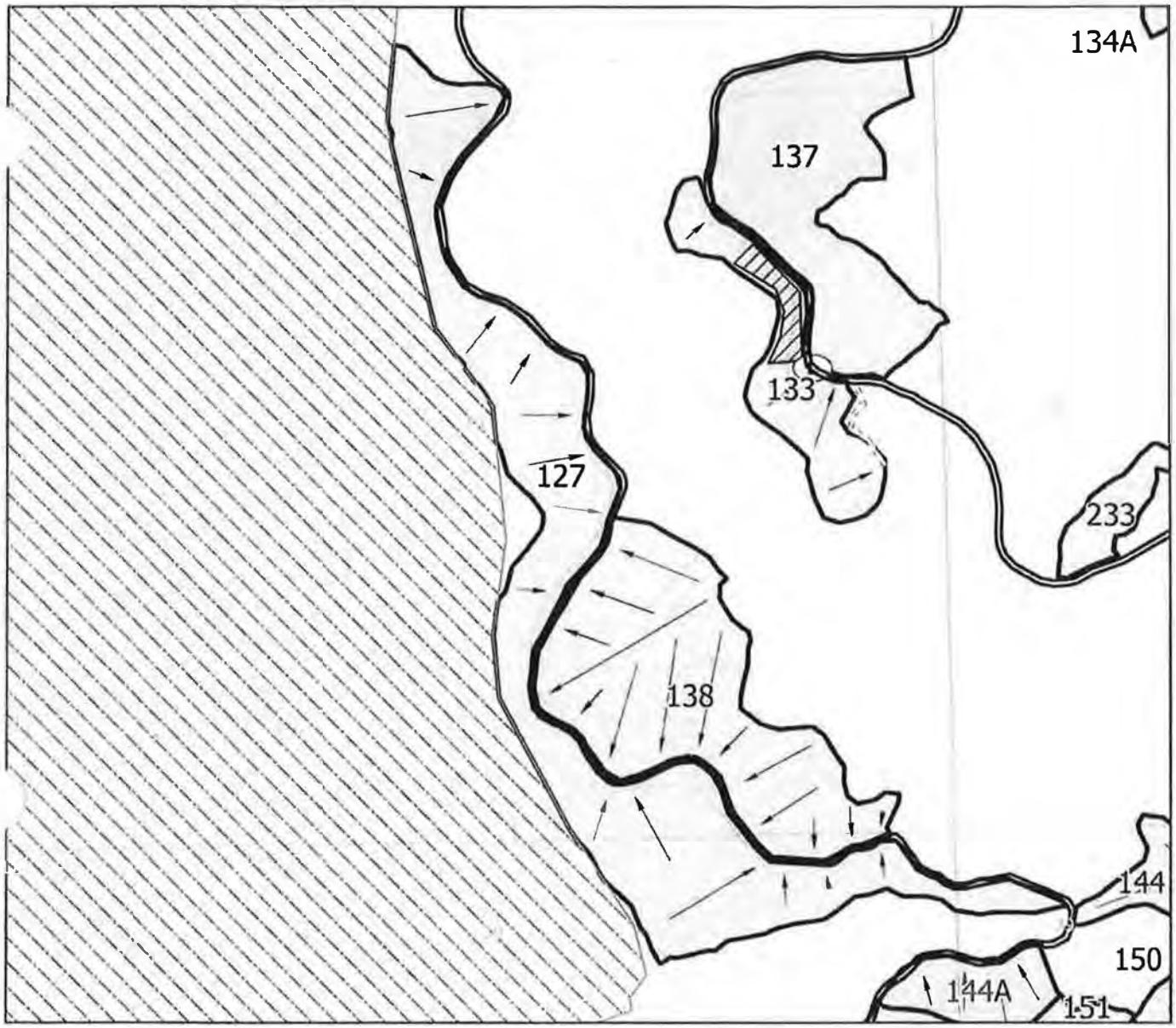

UNIT 127
Harvest Unit Layout and Logging Plan

0 370 740 1,480 Feet

Legend

- Commercial Units
- Landing
- Skid/Yard Direction
- Directional Falling
- Existing Skid Trails
- Forest Service Ownership
- OU3 EPA Boundary
- Existing Roads

N

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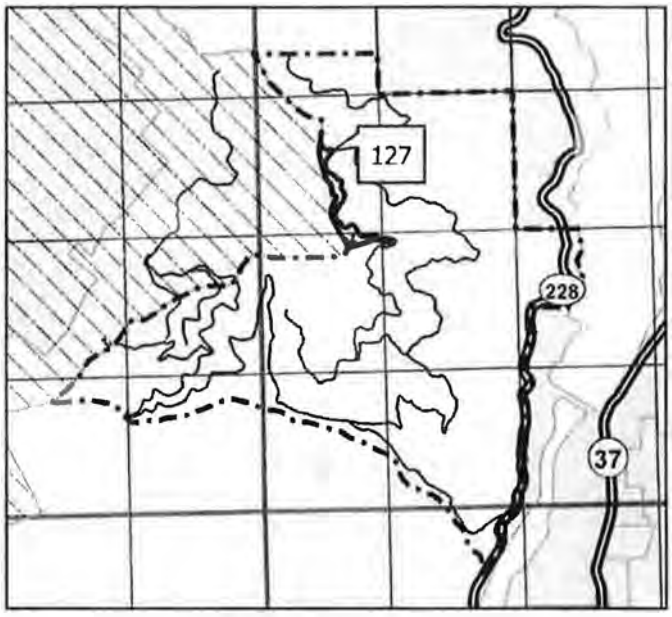

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 127A Planning Unit # 127 Estimated Acres 12

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAV

Average External Yarding Distance (AEYD) 670 [ft] Average Slope 40 [%]

Number of Landings 1 Harvest Method ST

Remarks:
CONSTRUCT EXC. SKID TRAIL ON S END OF UNIT TO GET AROUND RIDGE. UNIT WILL SKID DOWN THROUGH 126 + SHARE LANDING. TRAIL THROUGH MID OF UNIT, WILL LIKELY CROSS W/ SKID TRAILS.

Roads

New Specified Roads NO New Temp Roads NO

Length ~ [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
N/A

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Species Composition

Species	% of Stand	Avg. DBH
DF	85	
DTH	15	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☒ Trail
- ☐ Other

Other OU3

Remarks:

OU3 TO W OF UNIT

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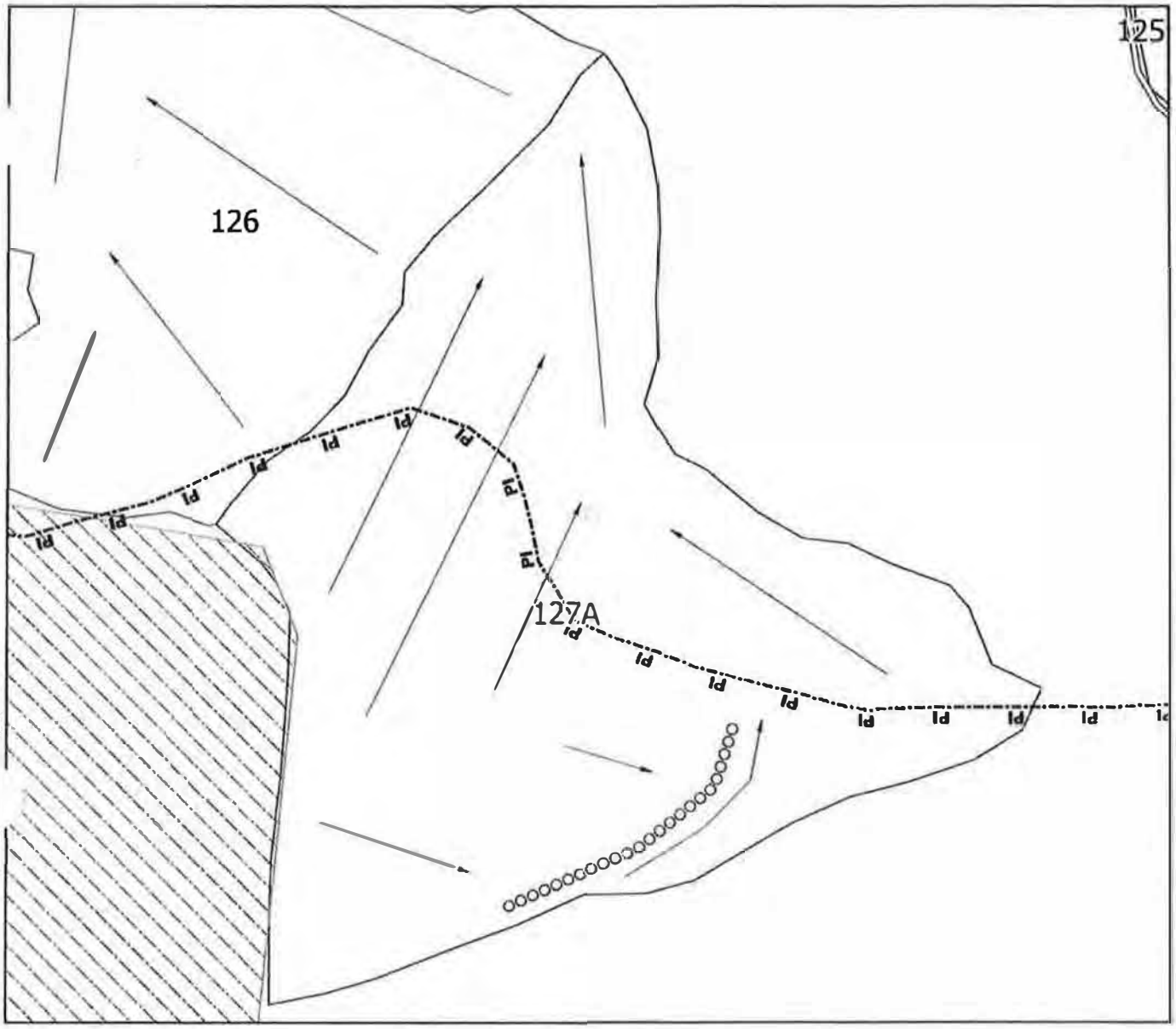

UNIT 127A
Harvest Unit Layout and Logging Plan

0 105 210 420 Feet

Legend

- Pl Existing Trails
- Commercial Units
- Skid/Yard Direction
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- OU3 EPA Boundary
- Existing Roads

N

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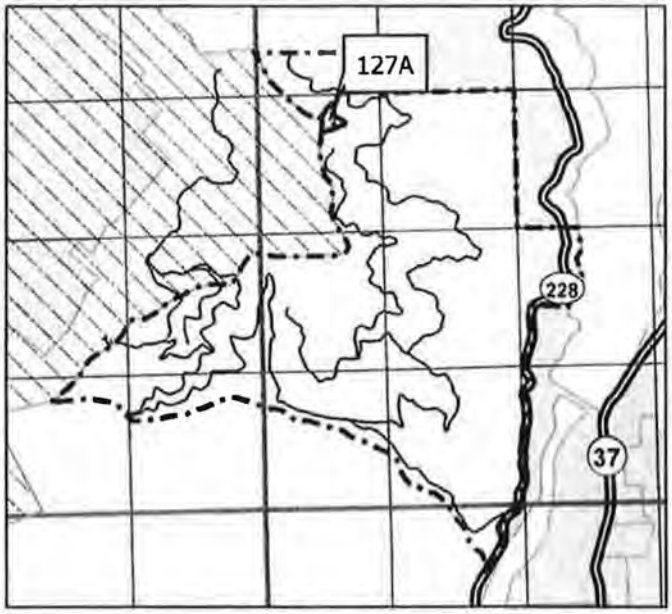

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Logging Systems & Unit Layout Card

NEPA Project Mitchell Jackpot **Sale** Alexander Creek Treatment Area

Harvest Unit #: 129 NEPA Unit #: _____ Estimated Acres: 10
Prescription: _____ Estimated Cut MBF /Acre: _____ mbf/acre

Species Composition

Species	% of Stand	Avg. DBH
Western Larch	75 %	13 "
Douglas Fir	22 %	14 "
Grand Fir	3 %	10 "
Other:	%	"

Coarse Woody Debris
Type: (Logs) (Limbs) (Branches)
Amount: High (Medium) Low

Loggings Systems
Proposed Harvest System: (**Tractor**) **Skyline** Other: _____ # of Landings: 2
Average Slope: _____ % Avg. Yarding Distance: _____ ' Max Yarding Distance: _____ '
Adverse Skidding? Yes (No)
% Adverse Skid: _____ % Max Adverse Skid Distance: _____ '
-Directional Falling? Yes No -Unusual Obstacles? Yes No If yes, show on map

Roads
Primary Haul Road #: FS 4857, 4879, 4873 Haul Road Surface: (Native) Gravel
Clearing and Grubbing/ Reconstruction required? (Yes) No
New Specified Road in Unit? Yes No -Spec. Road #: _____
New Temp Road in Unit? Yes No
-Temp Road Name: _____ Average Side Slope: _____ % Length: _____ '
-Residual CCF/acre: _____ ccf/acre -Does the temp cross water? Yes No

Improvements and Resources
Circle all located in or adjacent to the unit and show on map:

Culvert Road Sign Fence Gate Bearing Tree

Stream Spring Nest Survey monument

Property posts Weeds Cattleguard Arch. Site

Other: Alexander Trail Head, located on map!

Comments and Notes

Unit # 129 is about 10 acres. All will be favorable skidding with two landing options. One landing sits to the north of unit @ Rd 4857 The other landing sits south east of unit. Skidding distance ranges from 680 ft to 1,300 ft If both landings can be used, favorable skidding can be kept under 1,300 ft. This stand has a higher percentage of Western Larch with an average DBH of 13", but has some 15" to 20" larch in unit. There are some mistle in the larch. Douglas fir in the unit, about a quarter of the stand is Douglas fir, small amount of grand fir in unit. There is a fairly large rock that sits @ Eastern part of unit near the road, can be easily worked around. (Located on hand drawn map) There is no streams, or meadows in unit. There is a trail (Alexander) that runs through the southern portion of unit. Slopes in unit range from 10% to 35%.

NOTE: Have common flagging layed out @ north boundary of unit 128.5 and original of unit 129. The flagging doesn't go all the way to west portion of unit 128 If new system and temp Road can be put in @ top of 128, The orginal portion of 129 can be layed in for skyline.

Why were areas dropped or excluded?

Western portion of unit was excluded due to too steep of ground for tractor ground. If the new system and temp Road is able to be put in @ the north of unit 128.5, the area excluded for 129 will be able to be sky line logged. Area is shown on map!

Prepared by: Jason Hagestad Date 8/25/2024

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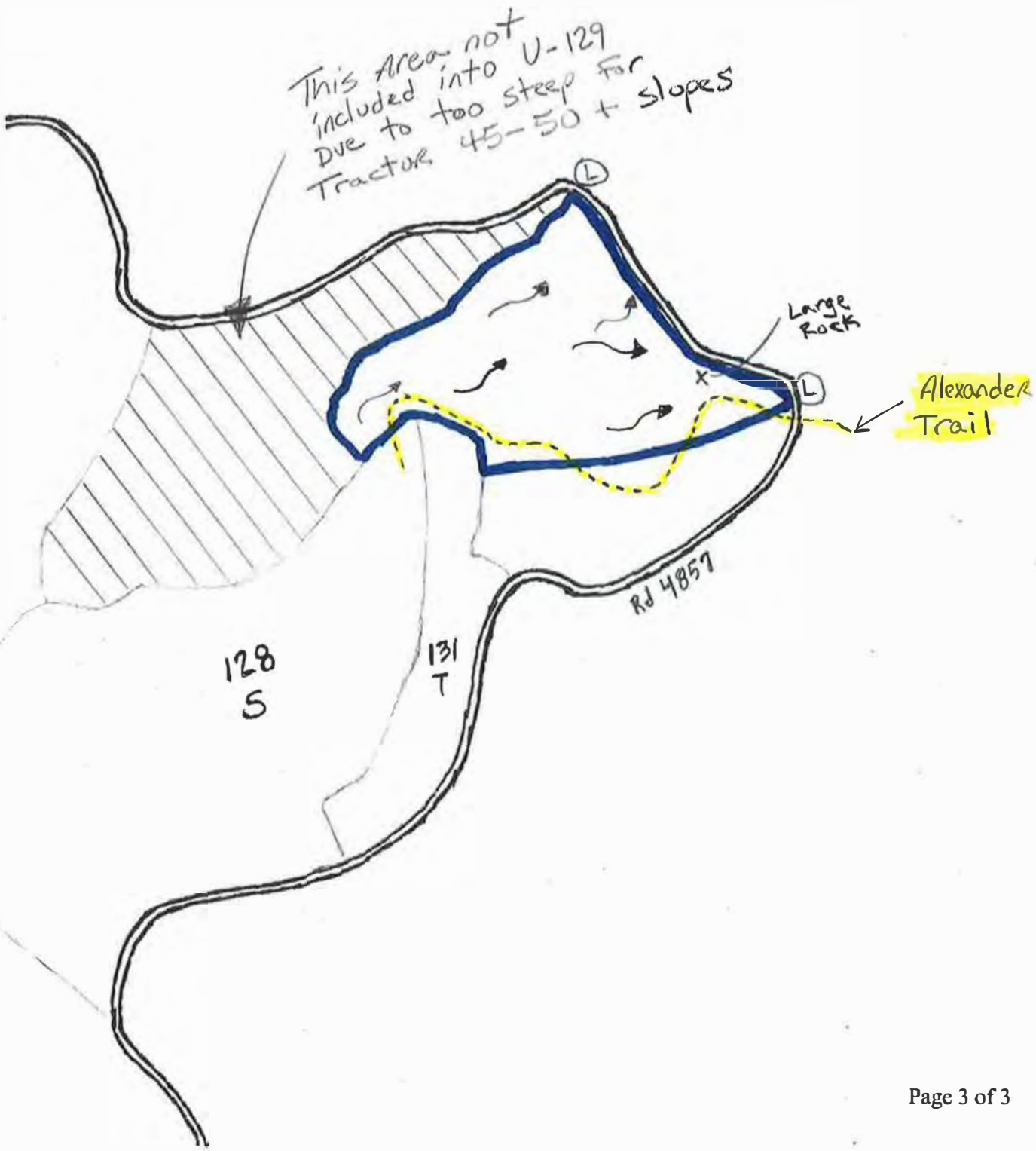
Legend

- Unit Boundary
- Yarding Direction – Skyline
- Yarding Direction - Tractor
- Proposed Log Landing Location
- Alexander Trail
- Area Dropped

- Existing Road
- Temporary Road (existing/proposed)
- Stream
- Riparian Buffer
- DIR Directional Falling

Unit #: 129

N



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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 130 Planning Unit # 130 Estimated Acres 19

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) ADV

Average External Yarding Distance (AEYD) 930 [ft] Average Slope 35 [%]

Number of Landings 1 Harvest Method CCR

Remarks:
FAIRLY STRAIGHT FORWARD CABLE UNIT BASED ON VISIBLE CORRIDORS. HAS BEEN DONE THIS WAY PREVIOUSLY. WILL REQUIRE NEW TEMP ON RELATIVELY FLAT BENCH IN NW CORNER. UTILIZE EXISTING TEMPLATE TO S + SWING TO LANDING SMALL AMOUNT OF UNIT THAT THIS ACCESSES

Roads

New Specified Roads NO New Temp Roads YES

Length 200 [ft] Avg. Side Slope 20 [%] Vol/Acre 10 [CCF/ac]

Remarks:
NEW TEMP TO GET OVER BENCH IN NW CORNER + YARD ALONG PROPERTY LINE

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Species Composition

Species	% of Stand	Avg. DBH
DF	30	
L	30	
C	25	
DTH	15	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☑ Other

Other PROPERTY LINE

Remarks:

PROPERTY LINE ON N BNDRY OF UNIT

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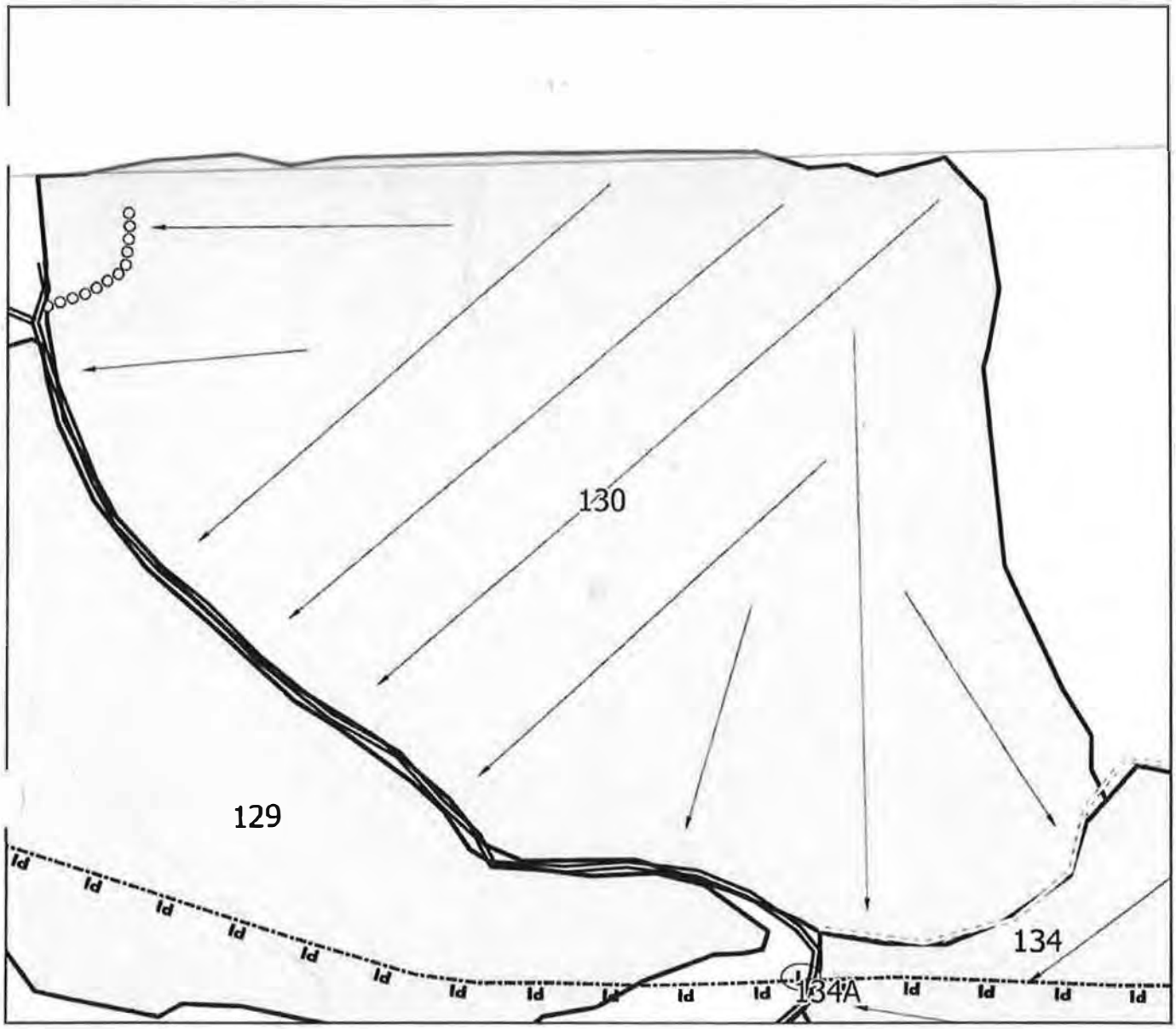

UNIT 130
Harvest Unit Layout and Logging Plan

0 105 210 420 Feet

Legend

- Existing Trails
- Commercial Units
- Landing
- Skid/Yard Direction
- Existing Skid Trails
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- Non-Forest Service Ownership
- Existing Roads

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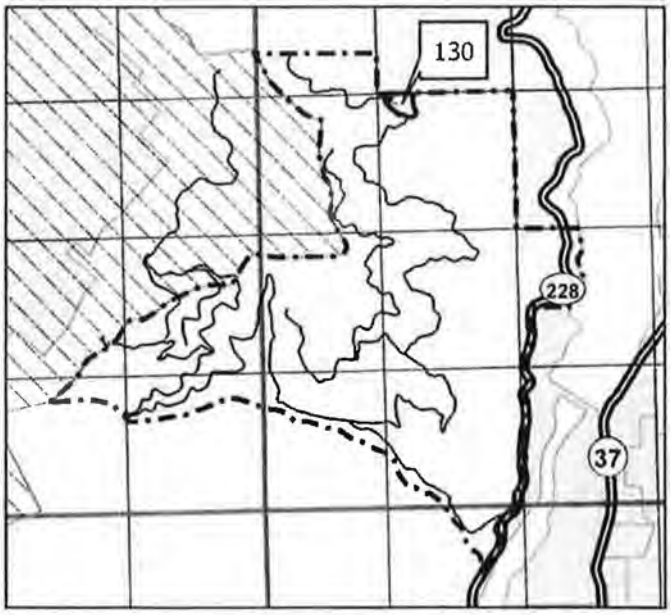

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 133 Planning Unit # 133 Estimated Acres 9

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAV

Average External Yarding Distance (AEYD) 350 [ft] Average Slope 45 [%]

Number of Landings 1 Harvest Method IMP

Remarks:

UTILIZE SKID TRAIL TO ACCESS S PORTION. DIR FALLING NEEDED IN STEEP MIDDLE PORTION OF UNIT, LIKELY PIGGY BACK OFF OF 137 LANDINGS.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:

N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
OTH	10	
L	5	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

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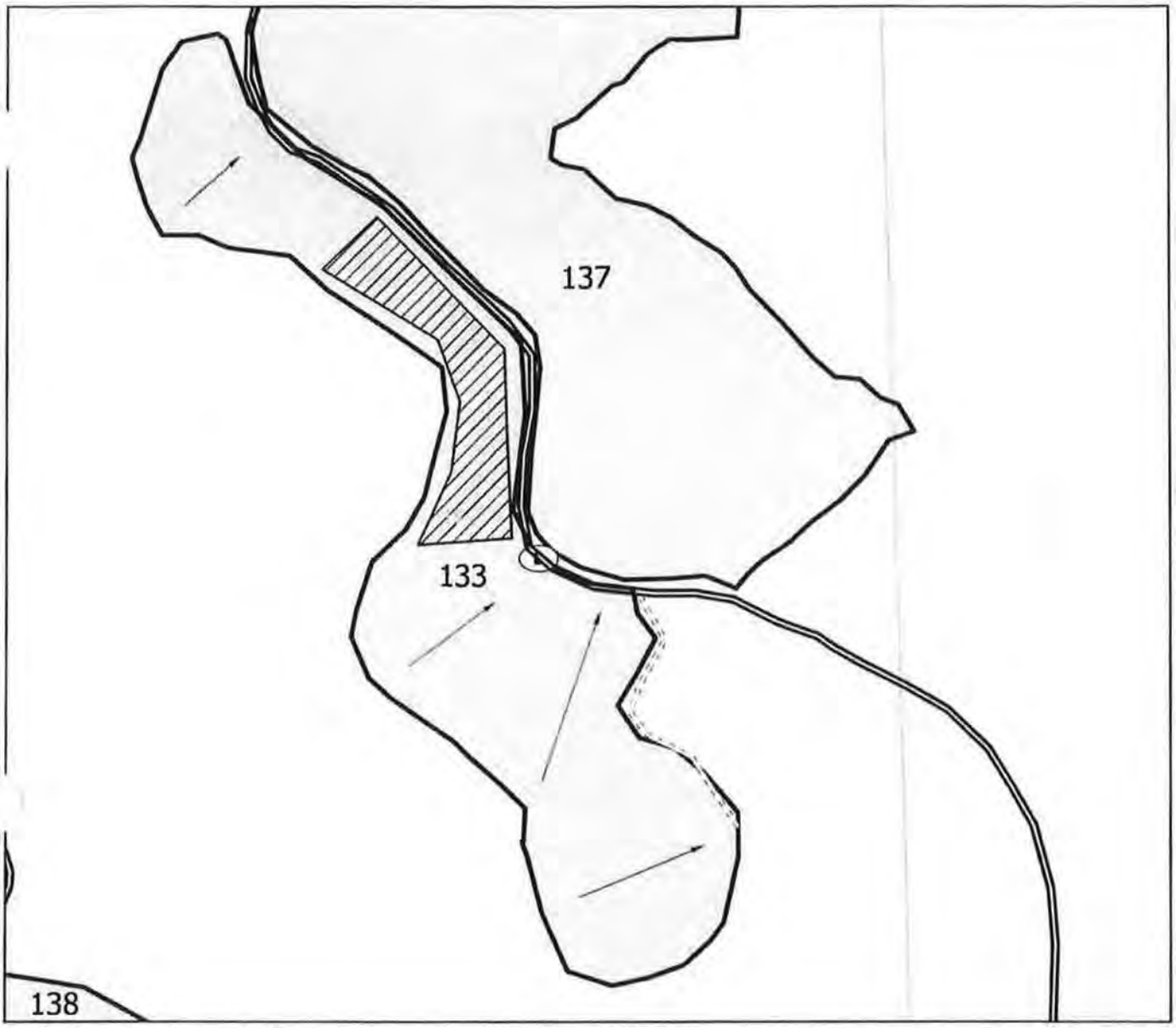

UNIT 133
Harvest Unit Layout and Logging Plan

0 137.5 275 550 Feet

Legend

- Commercial Units
- Landing
- Skid/Yard Direction
- Directional Falling
- Existing Skid Trails
- Forest Service Ownership
- Existing Roads

N

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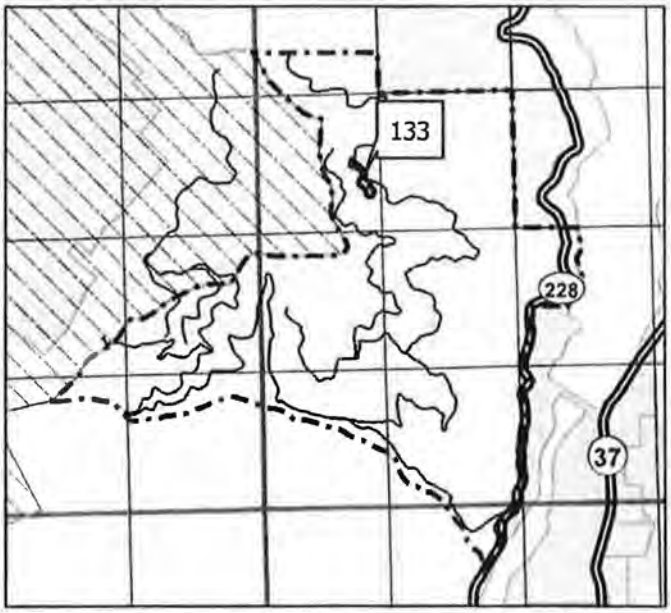

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 134 Planning Unit # 134 Estimated Acres 6

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAV / FLAT

Average External Yarding Distance (AEYD) 640 [ft] Average Slope 20 [%]

Number of Landings 1 Harvest Method SW

Remarks:

UTILIZE NEW ~~SKID TR~~ TEMP RD TO S + EXISTING TEMPLATE TO N TO SKID TO LANDING, CAN USE FLAT RIDGE IN MIDDLE TOO BUT MAY DISRUPT TRAIL + REQUIRE MORE REHAB.

Roads

New Specified Roads ~~NO~~ New Temp Roads YES

Length 500 [ft] Avg. Side Slope 35 [%] Vol/Acre 20 [CCF/ac]

Remarks:

BUILT FOR NEIGHBORING UNIT 134A

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Species Composition

Species	% of Stand	Avg. DBH
DF	80	
L	5	
OTH	15	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☒ Trail
- ☐ Other

Other _____

Remarks:

TRAIL RUNS ALONG RIDGE THROUGH MID OF UNIT

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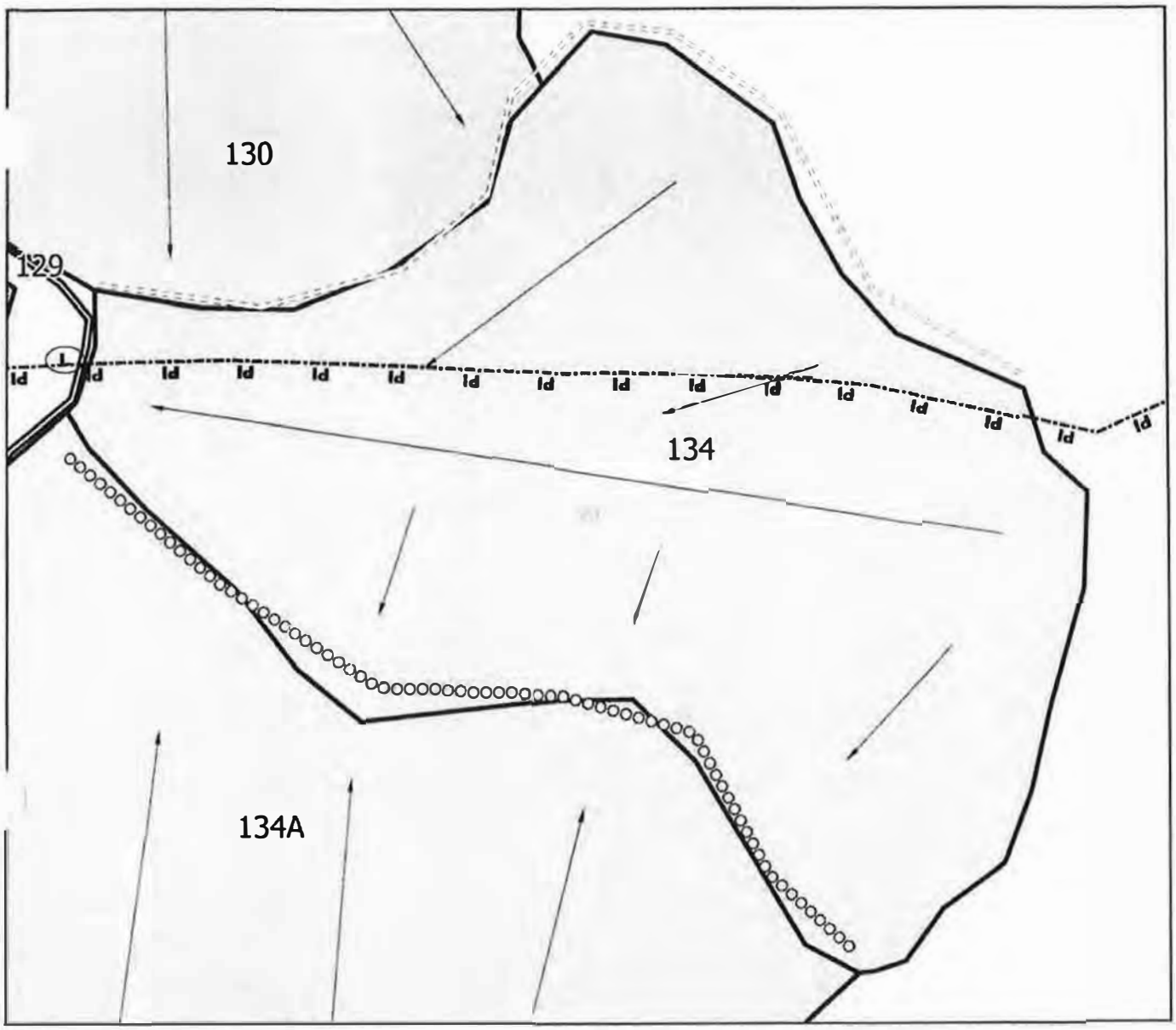

UNIT 134
Harvest Unit Layout and Logging Plan

0 65 130 260 Feet

Legend

- Existing Trails
- Commercial Units
- Landing
- Skid/Yard Direction
- Existing Skid Trails
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- Existing Roads

N

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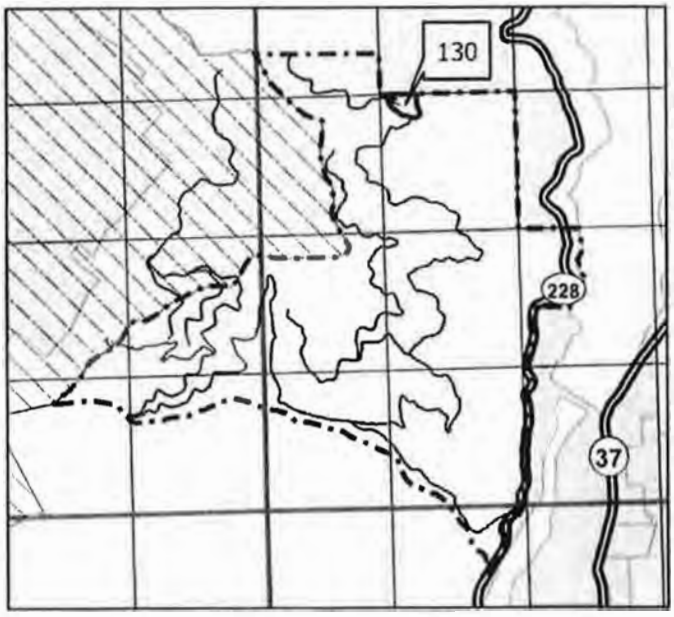
10/06/2025



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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 134A Planning Unit # 134 Estimated Acres 12

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System CABLE (ORSY) Direction (Adverse/Favorable) ADV

Average External Yarding Distance (AEYD) 550 [ft] Average Slope 48 [%]

Number of Landings 1 Harvest Method SW

Remarks:
FAIRLY STRAIGHT FORWARD CABLE UNIT W/ ORSY PIECE TO E.

Roads

New Specified Roads NO New Temp Roads YES

Length 500 [ft] Avg. Side Slope 20 [%] Vol/Acre 20 [CCF/ac]

Remarks:
CONSTRUCT EXC SKID TRL ON NE EDGE + SWING TO RD

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	90	
OTH	10	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

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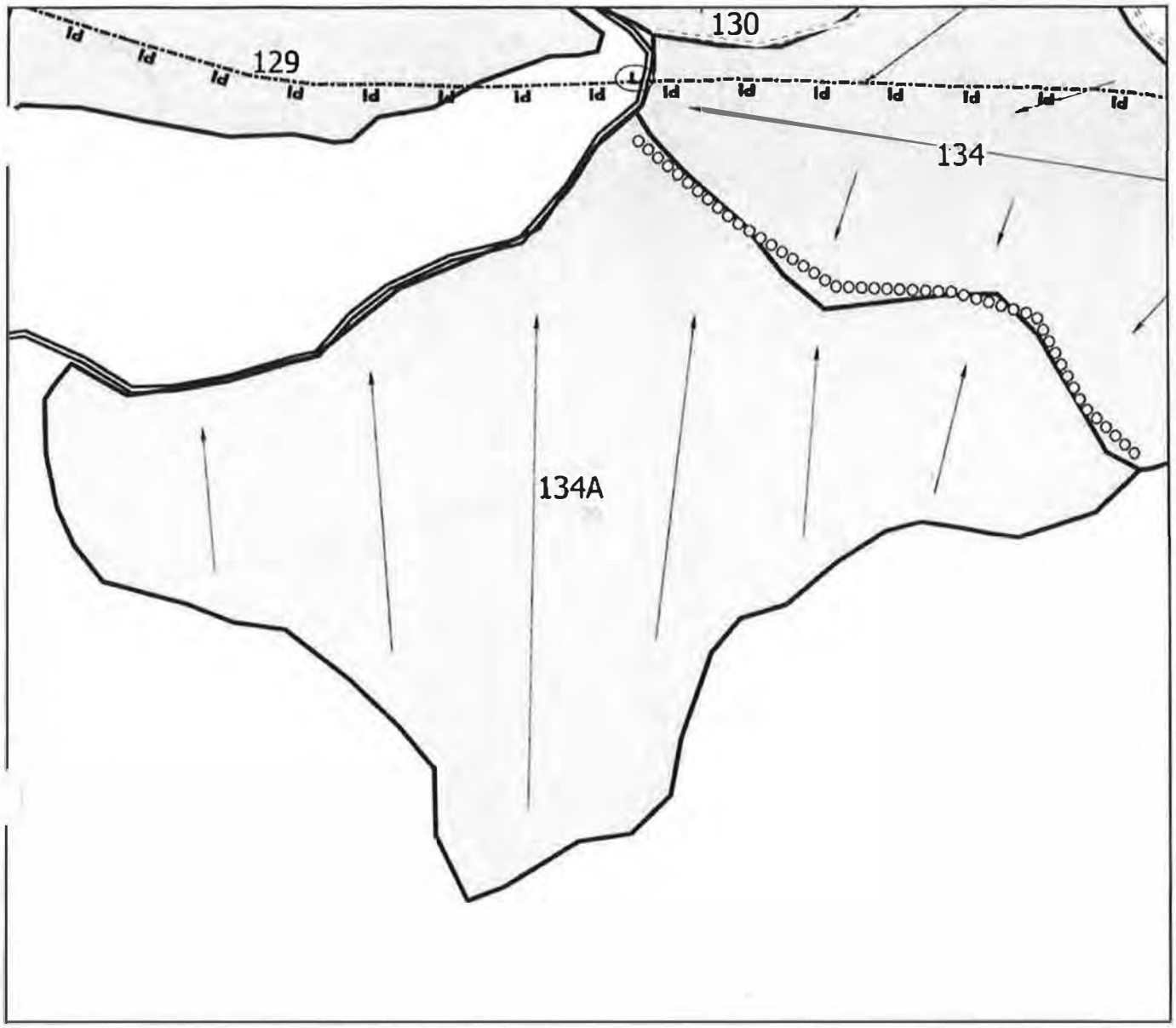

UNIT 134A
Harvest Unit Layout and Logging Plan

0 105 210 420 Feet

Legend

- Existing Trails
- Commercial Units
- Landing
- Skid/Yard Direction
- Existing Skid Trails
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- Existing Roads

N

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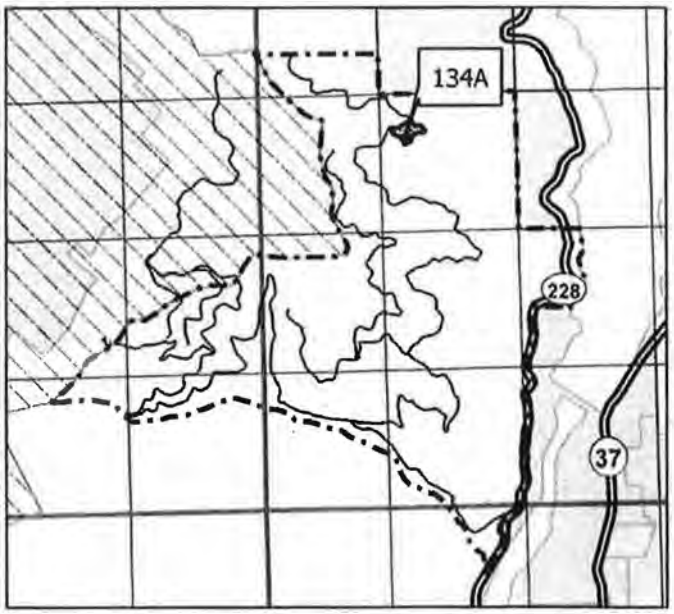
10/06/2025



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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 135 Planning Unit # 135 Estimated Acres 4

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAV

Average External Yarding Distance (AEYD) 470 [ft] Average Slope 35 [%]

Number of Landings 1 Harvest Method IMP

Remarks:
STRAIGHT FORWARD, SMALL TRACTOR UNIT. SKID ALL DOWN MIDDLE FLAT. DIR FALL TO W ALONG STEEP PORTION ABOVE POWERLINE CORRIDOR

Roads

New Specified Roads NO New Temp Roads NO

Length ✓ [ft] Avg. Side Slope ✓ [%] Vol/Acre ✓ [CCF/ac]

Remarks:

****For Informational Purposes Only****

Species Composition

Species	% of Stand	Avg. DBH
DF	90	
OTH	10	

Improvements and Resources

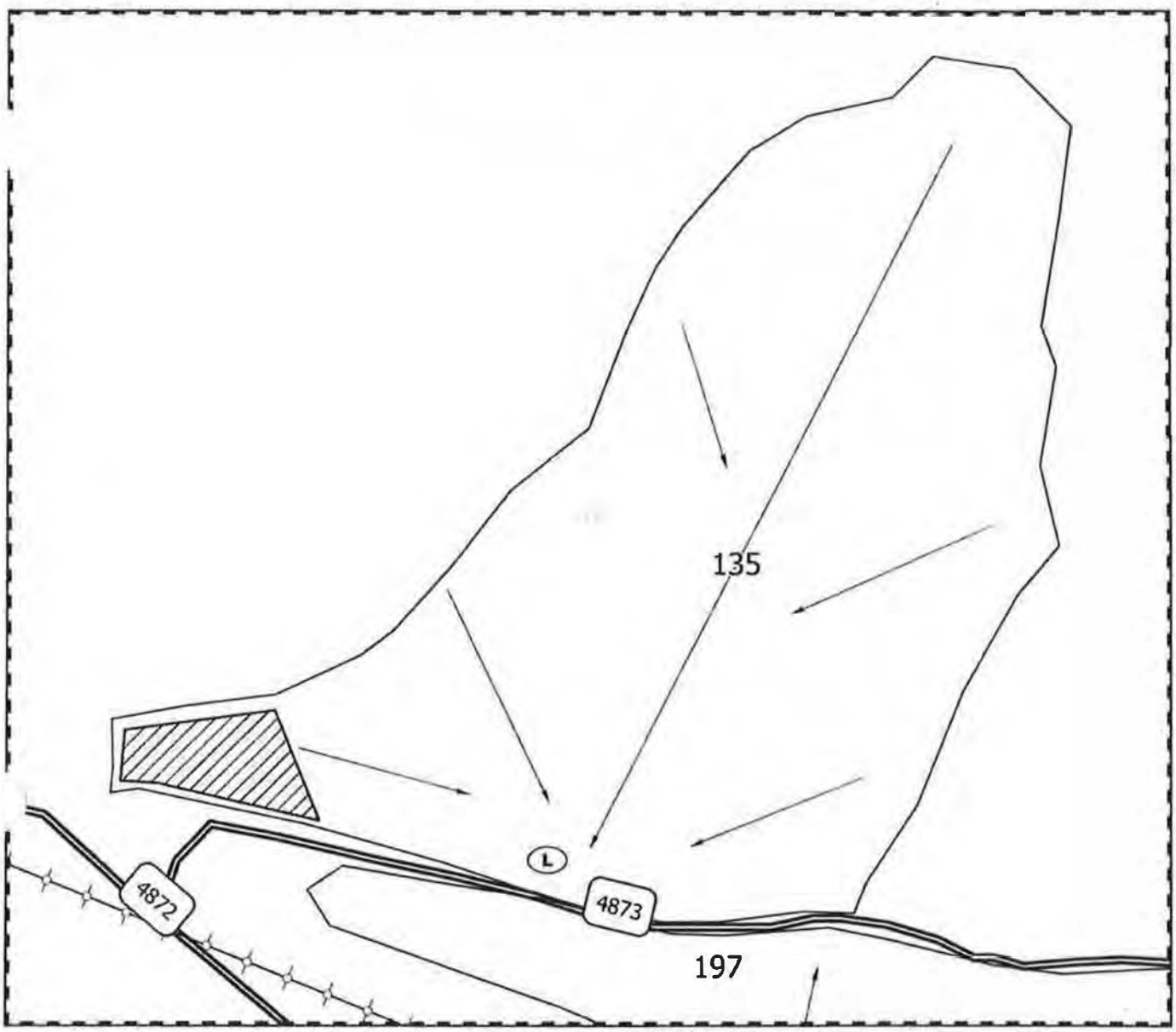
Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☒ Other

Other POWERLINE

Remarks:
POWERLINE TO S OF UNIT

For Informational Purposes Only



UNIT 135
Harvest Unit Layout and Logging Plan

0 55 110 220 Feet

Legend

- Commercial Units
- L Landing
- Skid/Yard Direction
- Directional Falling
- Forest Service Ownership
- Existing Roads

N

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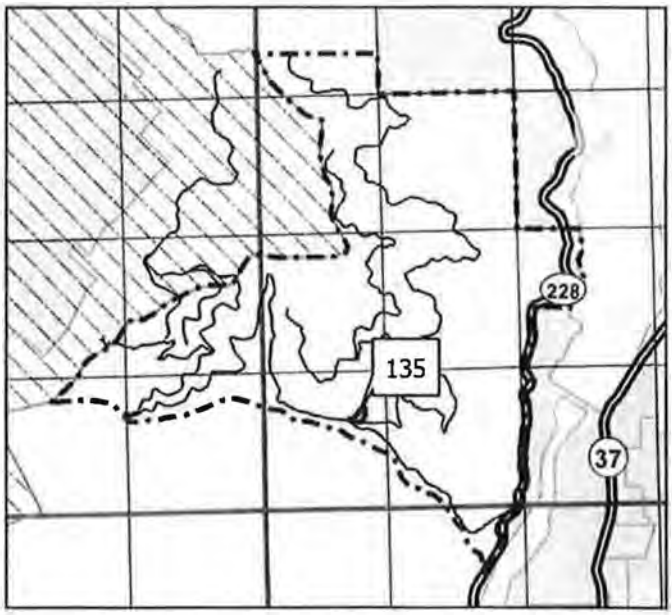

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 135A Planning Unit # 135 Estimated Acres 6

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAV

Average External Yarding Distance (AEYD) 400 [ft] Average Slope 38 [%]

Number of Landings 1 Harvest Method IMP

Remarks:
SMALL RIDGE TOP UNIT, EXCLUDED STEEP + LOW VOLUME AREAS. DIR FALL ALONG RD TO E MAY BE NECESSARY.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks: N/A

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Species Composition

Species	% of Stand	Avg. DBH
DF	90	
OTH	10	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

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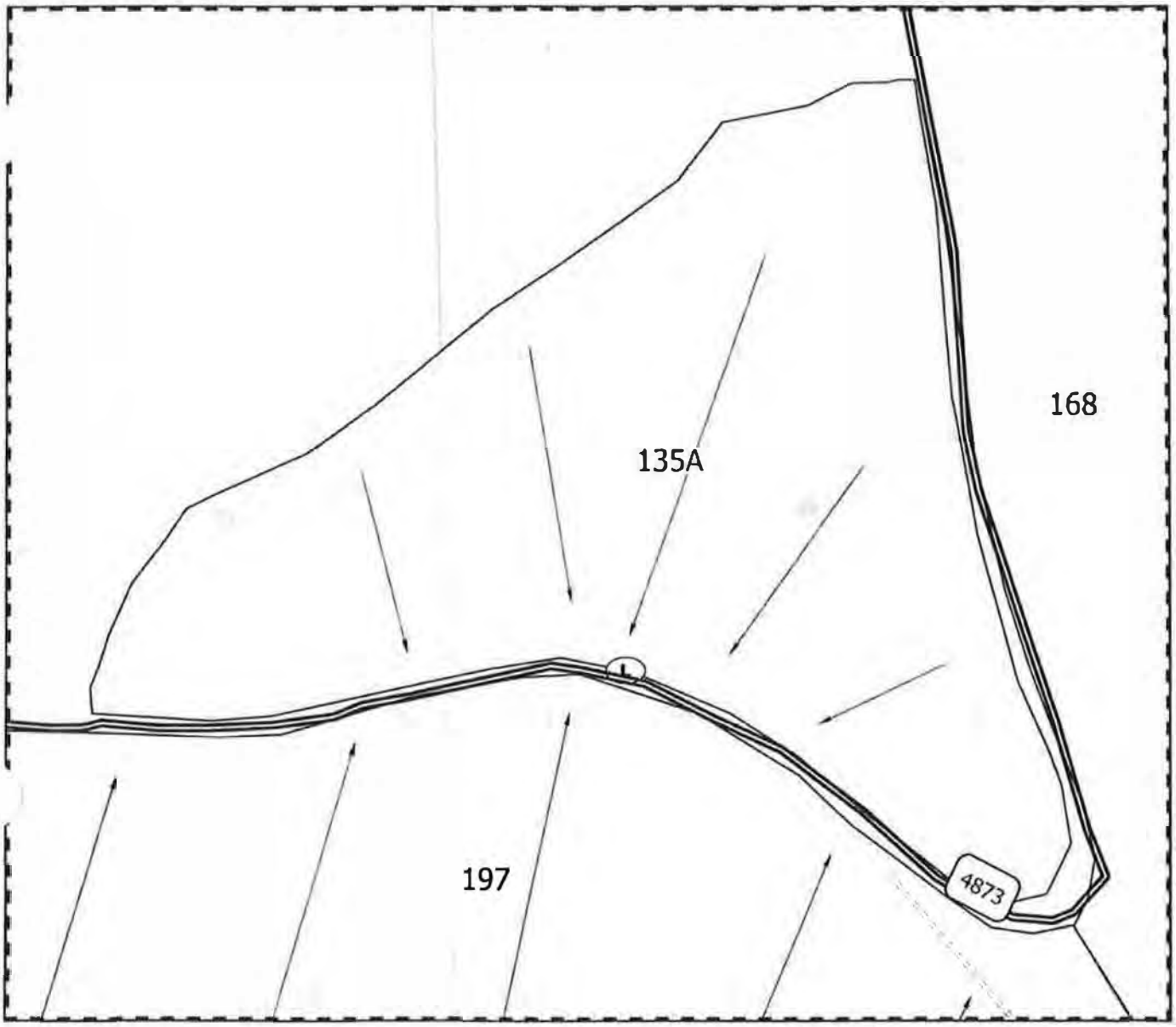

UNIT 135A
Harvest Unit Layout and Logging Plan

0 75 150 300 Feet

Legend

- Commercial Units
- Landing
- Skid/Yard Direction
- Existing Skid Trails
- Forest Service Ownership
- Existing Roads

N

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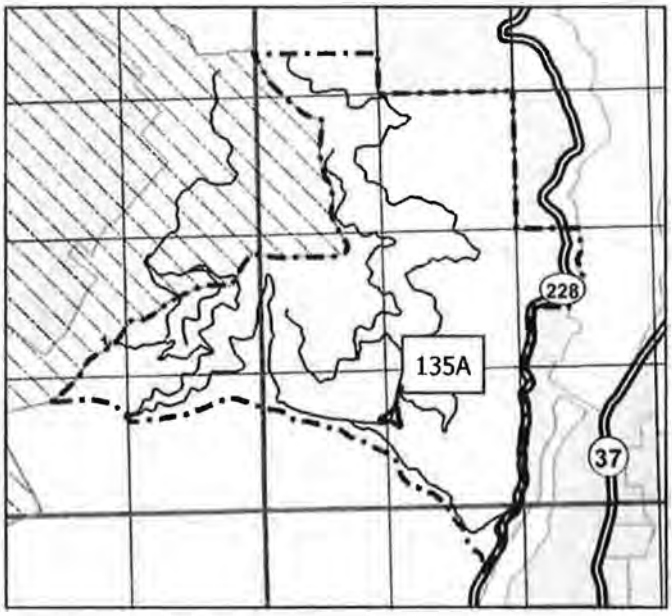

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Logging Systems & Unit Layout Card

NEPA Project: **Mitchell Jackson CERCLA** **Sale:** **Alexander Creek Area**

Harvest Unit #: **137** NEPA Unit #: **137** Estimated Acres: **19**
Prescription: **Improvement** Estimated Cut MBF /Acre: **6** mbf/acre

Species Composition

Species	% of Stand	Avg. DBH
WL	**50** %	**12** "
DF	**35** %	**12** "
GF	**8** %	**8** "
Other: **ES, LPP**	**7** %	**8** "

Coarse Woody Debris
Type: **Logs** Limbs **Branches**
Amount: High **Medium** Low

Loggings Systems
Proposed Harvest System: Tractor **Skyline** Other: _____ # of Landings: **9-10**
Average Slope: **35%** Avg. Yarding Distance: **400 ft.** Max Yarding Distance: **700 ft.**
Adverse Skidding? Yes **No**
% Adverse Skid: **N/A** Max Adverse Skid Distance **N/A ft.**
-Directional Falling? Yes **No** -Unusual Obstacles? Yes **No** If yes, show on map

Roads
Primary Haul Road #: **4857–> 4879 -> 4873->4872** Haul Road Surface: **Native** Gravel
Clearing and Grubbing/ Reconstruction required? **Yes** No
New Specified Road in Unit? Yes **No** -Spec. Road #: **N/A**
New Temp Road in Unit? Yes **No**
-Temp Road Name: **N/A** Average Side Slope: _____ % Length: _____'
-Residual CCF/acre: _____ ccf/acre -Does the temp cross water? Yes No

Improvements and Resources
Circle all located in or adjacent to the unit and show on map:

Culvert Road Sign Fence Gate Bearing Tree

Stream Spring Nest Survey monument

Property posts Weeds Cattleguard Arch. Site

Other: _____

Comments and Notes

Southern most boundary follows an old fireline for old CC unit. This old CC unit is numbered as P-51 for the M.J. Project. Western and Northern boundary follow the 4857 Road. The Eastern boundary follows another old fireline for another old CC unit that is currently numbered P-49.

Unit crosses over the headwaters of what is labeled as Peace Creek, however no sign of a channel was found anywhere in the draw. There are Cottonwood, Aspen, and brush that is more likely found in wetland habitats. Very few conifer species are growing in the draw bottom until the upper 1/4 of the unit. For this reason, the boundary does not cross the draw in the lower half. The west side of the draw in this lower half follows old blue boundary paint that buffered out of the bottom. It is okay to use a tailhold on the opposite side of the draw, but it is strongly suggested that we do not yard across the bottom of the draw. Unit can be easily harvested without yarding cut trees across.

Unit consists of mostly WL and DF in that order with both species having good, larger sized (15"+ DBH) representatives scattered throughout. Other species mixed in include LPP, GF, ES. Found some Pini conks and DMT in the WL, but there are some good WL as well.

Unit is listed as an improvement. Consider changing to a seed tree given the size classes and current spacing of trees present.

Why were areas dropped or excluded?

Dropped a couple of acres in the bottom half of unit in the bottom of the draw. Buffer was not necessary, but seemed the right thing to do since it is mostly Aspen and Cottonwood anyway.

Prepared by: R. Tardif Date 09/30/2024

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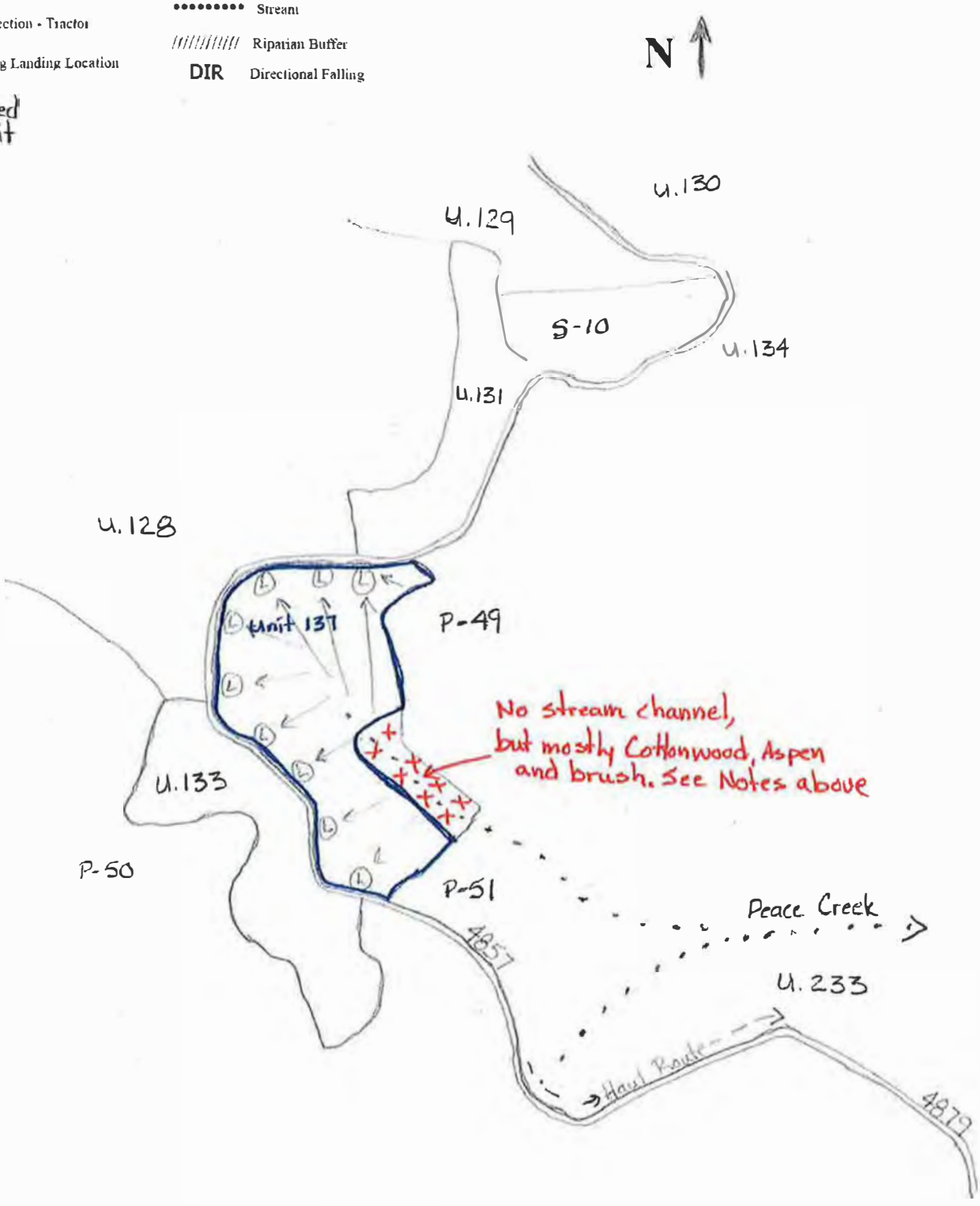
Legend

- Unit Boundary
- Yarding Direction – Skyline
- Yarding Direction - Tractor
- (L) Proposed Log Landing Location
- Existing Road
- Temporary Road (existing/proposed)
- Stream
- Riparian Buffer
- DIR Directional Falling
- XX Area dropped from unit

Unit #: 137



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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKS ON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 138 Planning Unit # 138 Estimated Acres 23

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) ADVERSE

Average External Yarding Distance (AEYD) 690 [ft] Average Slope 47 [%]

Number of Landings 1 Harvest Method ST

Remarks:
STRAIGHT FORWARD CABLE. DRAW IN N OF UNIT YARD STRAIGHT UP THEN SIDES FROM RD IN EITHER DIRECTION

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	80	
L	15	
GF	5	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

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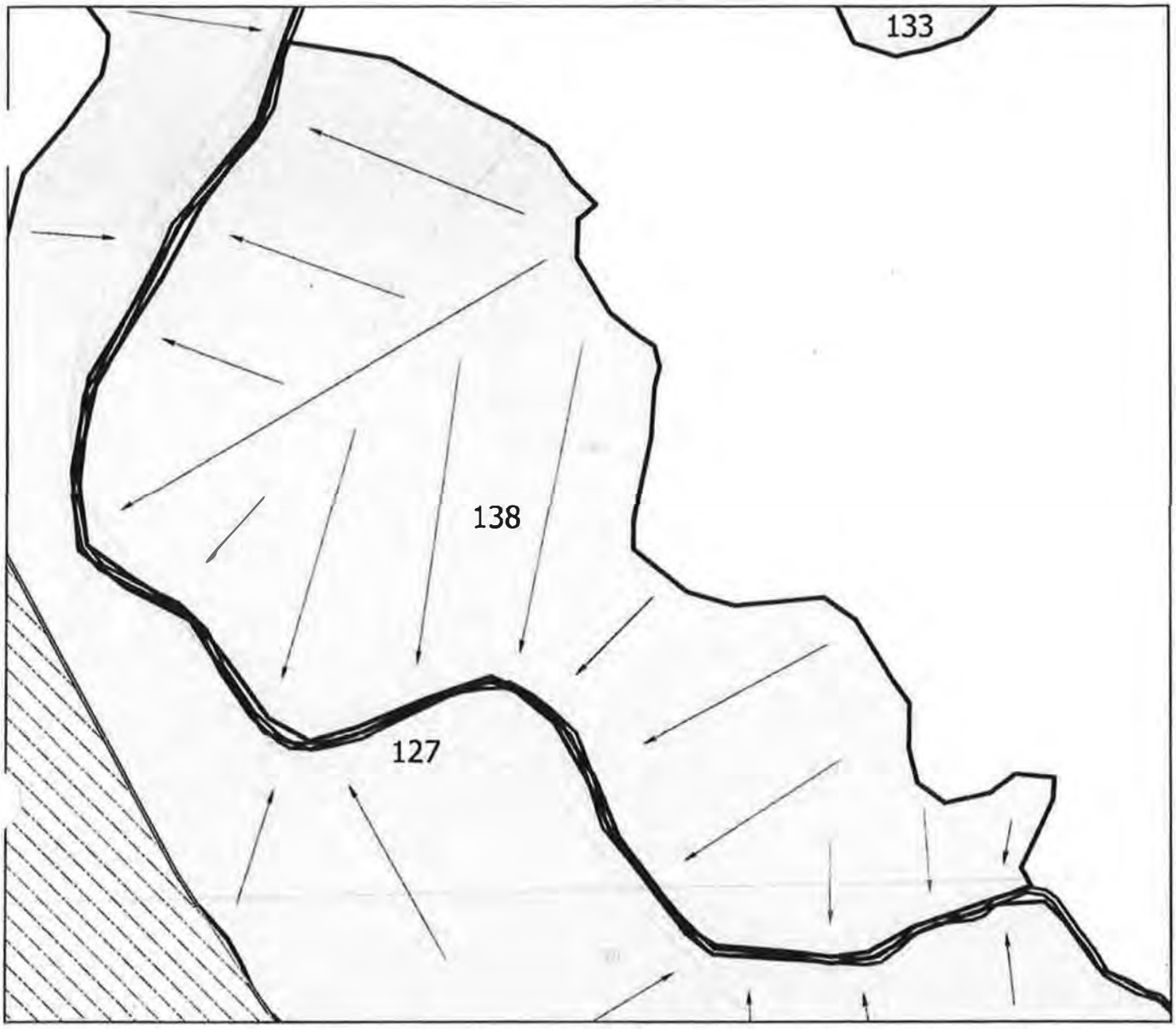

UNIT 138
Harvest Unit Layout and Logging Plan

0 140 280 560 Feet

Legend

- Commercial Units
- Skid/Yard Direction
- Forest Service Ownership
- OU3 EPA Boundary
- Existing Roads

N

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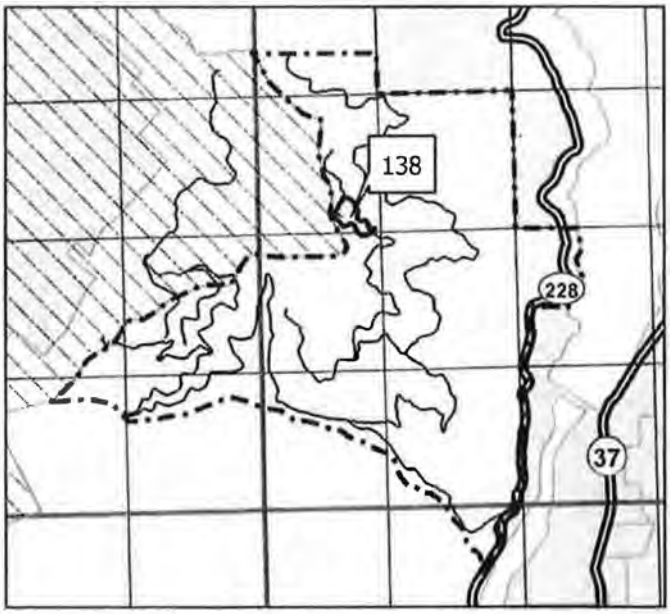

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 141 Planning Unit # 141 Estimated Acres 10

Layout Person(s) BRENT HOFFMAN, AH, LSP Layout Date

Logging Systems

Logging System TRACT Direction (Adverse/Favorable) FAV

Average External Yarding Distance (AEYD) 1000 [ft] Average Slope 45 [%]

Number of Landings 1 Harvest Method IMP

Remarks:
STEEP BROKEN TERRAIN ON E PORTION, DIR. FALL UP OR DOWN. USE EXC SKID TRL THAT EXISTS TO W TO GET AROUND OTHER DIFFICULT TERRAIN. PORTIONS OF S EDGE SKID OUT TO 145 LANDING.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks: N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	80	
OTH	20	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

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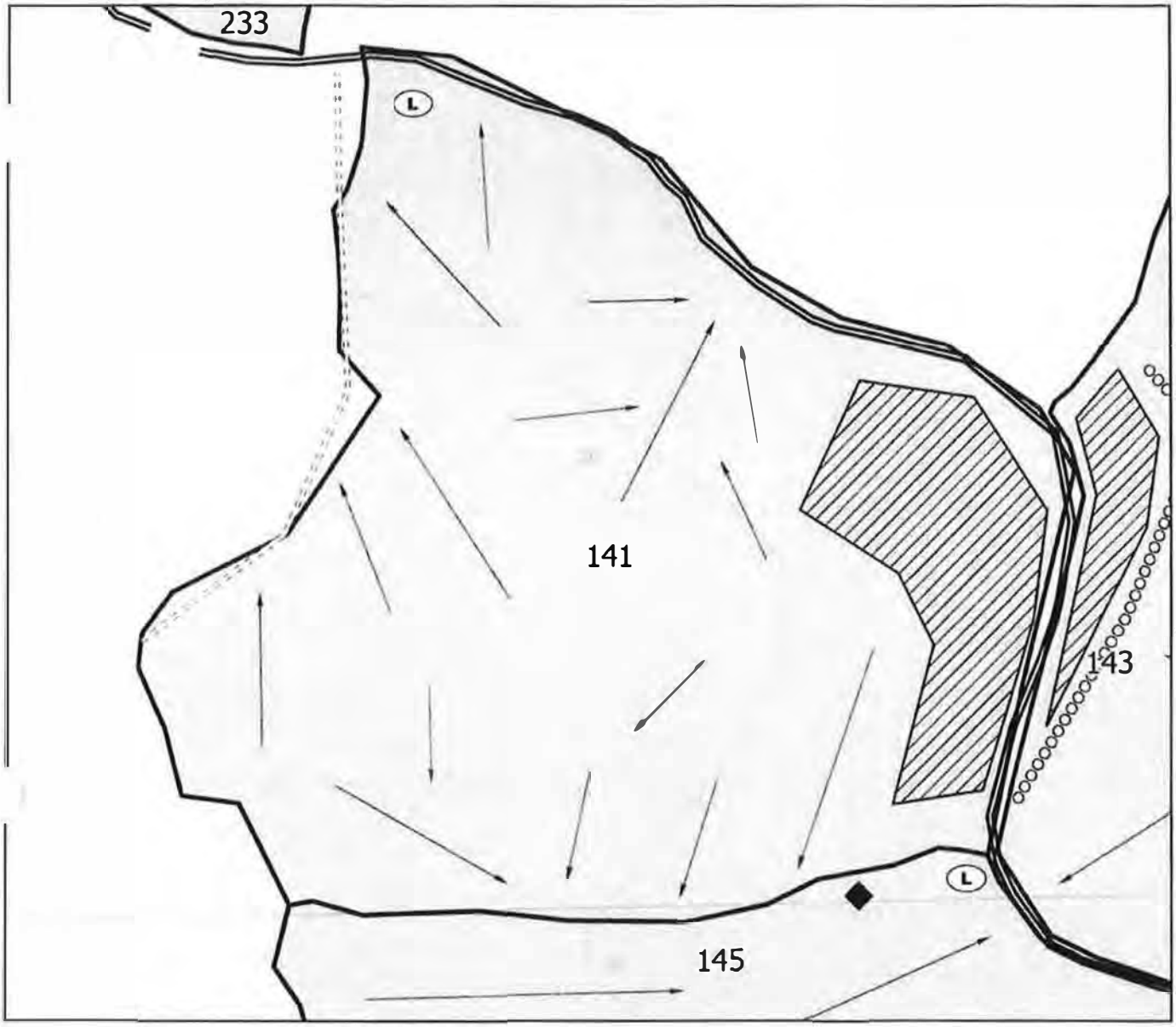

UNIT 141
Harvest Unit Layout and Logging Plan

0 115 230 460 Feet

Legend

- Commercial Units
- Survey Monuments
- L Landing
- Skid/Yard Direction
- Directional Falling
- Existing Skid Trails
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- Existing Roads

N

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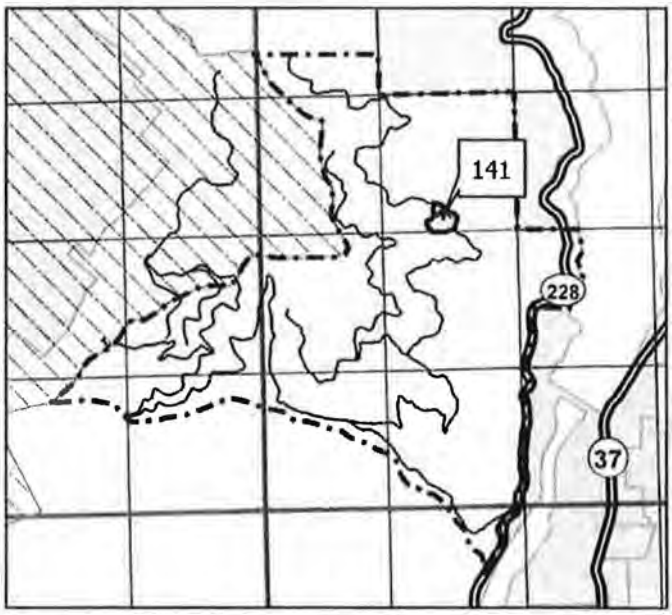

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MI TCHELLJACKSON IRSC - POWERHOUSE

Harvest Unit # 143 Planning Unit # 143 Estimated Acres 10

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) _____

Average External Yarding Distance (AEYD) 470 [ft] Average Slope 43 [%]

Number of Landings 1 Harvest Method ST

Remarks:
STEEP PORTION B/W ROAD + PROPOSED EXC SKID/ TEMP RD. TEMP LOCATION IS ON A BENCH. SHOULD BE STRAIGHT FORWARD SKIDS OTHERWISE.

Roads

New Specified Roads NO New Temp Roads YES

Length 400 [ft] Avg. Side Slope 10 [%] Vol/Acre 10 [CCF/ac]

Remarks:

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	10	
OTH	5	

Improvements and Resources

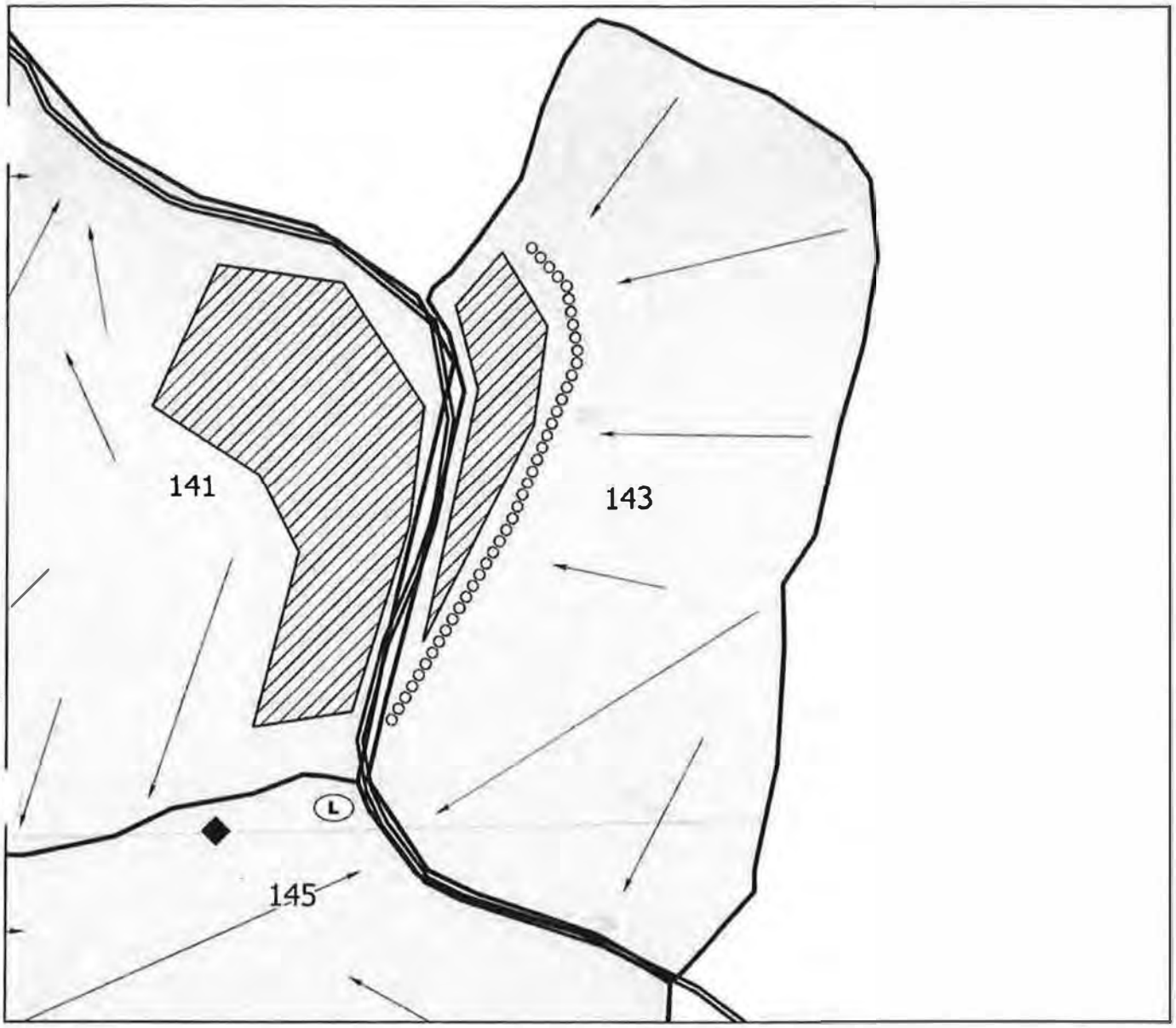
Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

****For Informational Purposes Only****



UNIT 143

Harvest Unit Layout and Logging Plan

0 105 210 420 Feet

Legend

- Commercial Units
- Survey Monuments
- Landing
- Skid/Yard Direction
- Directional Falling
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- Existing Roads

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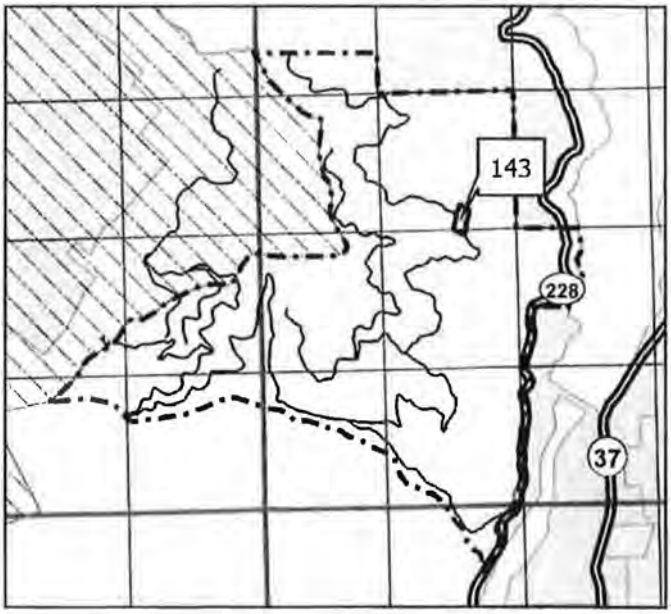
N



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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 144 Planning Unit # 144 Estimated Acres 9

Layout Person(s) BRENT HOFFMAN, AH Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAV

Average External Yarding Distance (AEYD) 890 [ft] Average Slope 40 [%]

Number of Landings 1 Harvest Method IMP

Remarks:
RIDGETOP UNIT. SKID OUT THROUGH OTHER SURROUNDING UNITS 150 + 145.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
NA

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	90	
OTH	10	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

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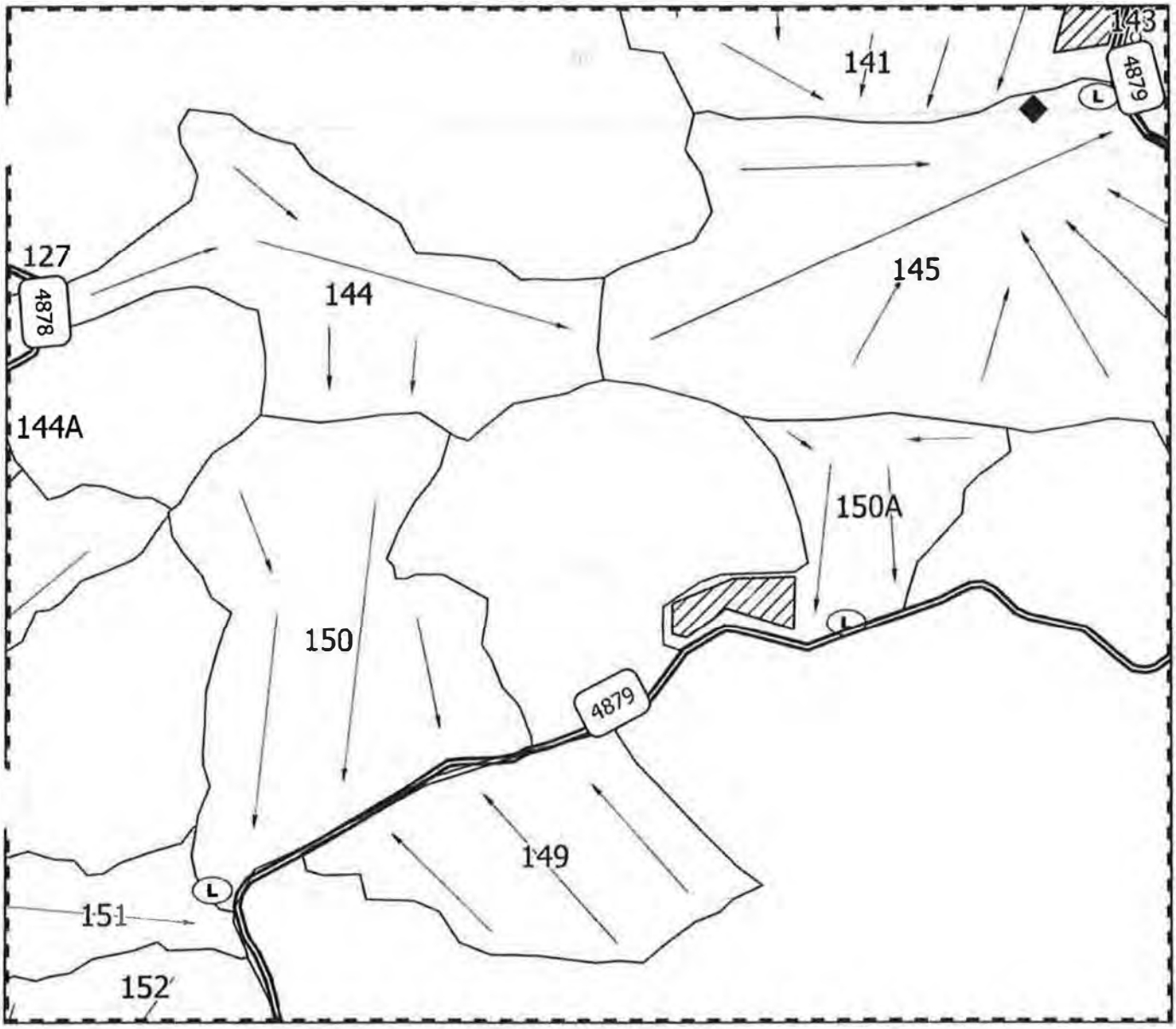

UNIT 144

Harvest Unit Layout and Logging Plan

0 190 380 760 Feet

Legend

- Commercial Units
- Survey Monuments
- Landing
- Skid/Yard Direction
- Directional Falling
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- Existing Roads

N

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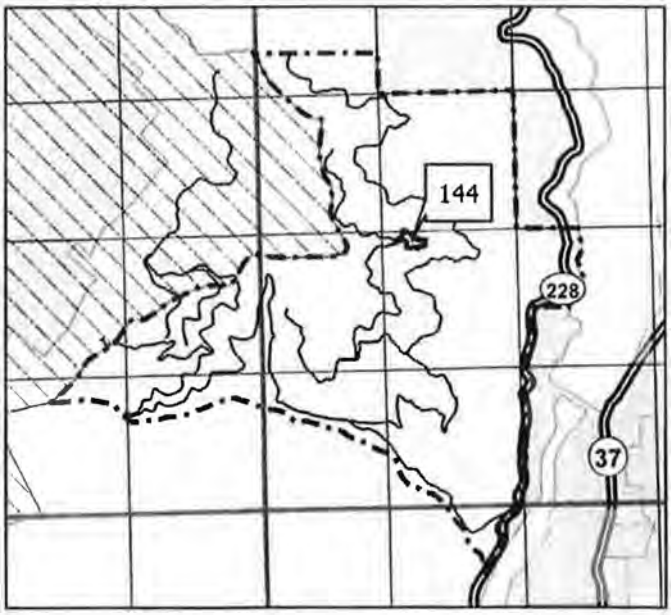

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 144A Planning Unit # 144 Estimated Acres 5

Layout Person(s) BRENT HOFFMAN Layout Date

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) ADV

Average External Yarding Distance (AEYD) 250 [ft] Average Slope 50 [%]

Number of Landings 1 Harvest Method IMP

Remarks:

UNIT IS VERY STEEP, SHORT SKIDS BELOW RD. LEAVE TAILHOLDS IN 151

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:

N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
OTH	15	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

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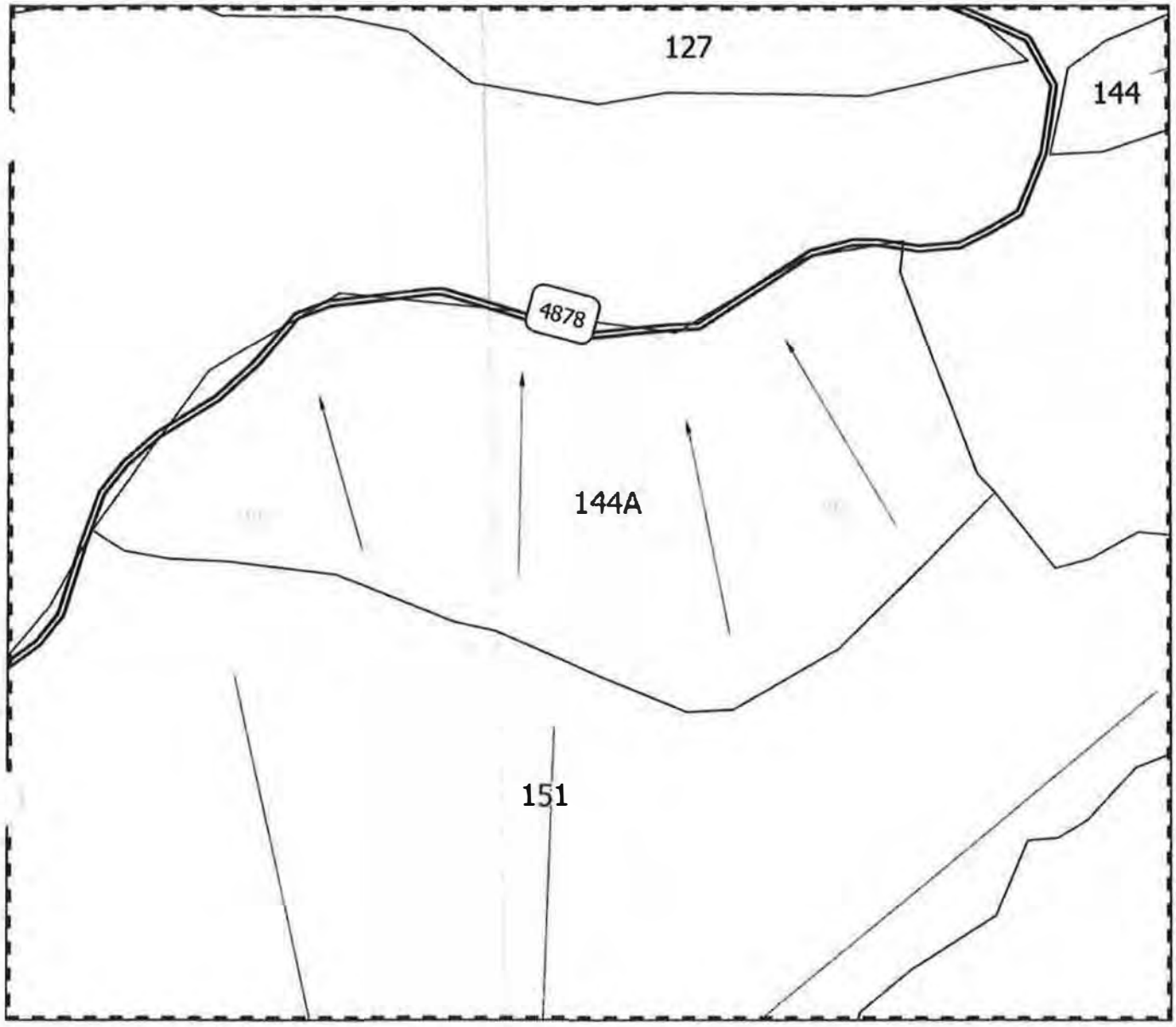

UNIT 144A
Harvest Unit Layout and Logging Plan

0 75 150 300 Feet

Legend

- Commercial Units
- Skid/Yard Direction
- Forest Service Ownership
- Existing Roads

N

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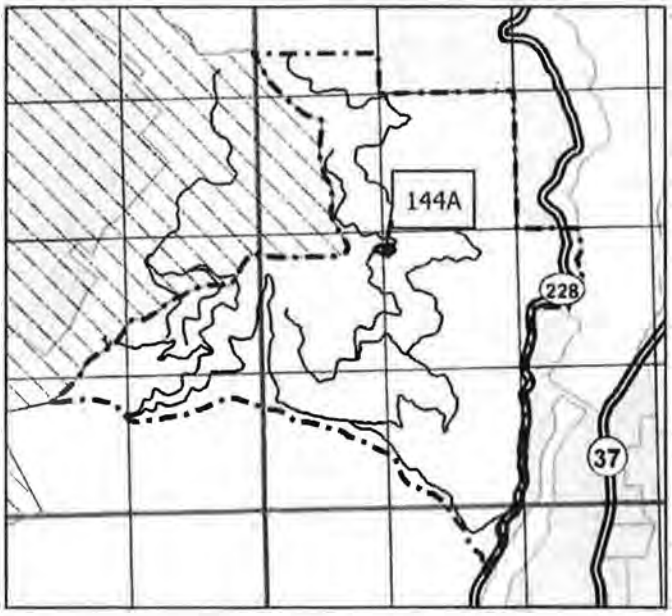

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 145 Planning Unit # 145 Estimated Acres 19

Layout Person(s) BRENT HOFFMAN, LSP, AH Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAVORABLE

Average External Yarding Distance (AEYD) 1250 [ft] Average Slope 39 [%]

Number of Landings 1 Harvest Method ST

Remarks:
MAJOR COLLECTOR TRAIL DOWN DRAW IN N MIDDLE OF UNIT. E ALONG RD FROM PROPOSED LANDING LOCATION IS STEEP & MAY REQUIRE DIR FELLING OR SKIDDING BACK INTO UNIT TO COLLECTOR. U. 141 WILL LIKELY SKID THROUGH THIS UNIT.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
NSR

****For Informational Purposes Only****

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	10	
GF	5	

Improvements and Resources

Check all that apply and show on map

- ☒ Survey Monuments
- ☐ Gate
- ☐ Arch Site
- ☐ Culvert
- ☐ Trail
- ☐ Spring
- ☐ Stream
- ☐ Nest/Den
- ☐ Fence
- ☐ Other

Other _____

Remarks:

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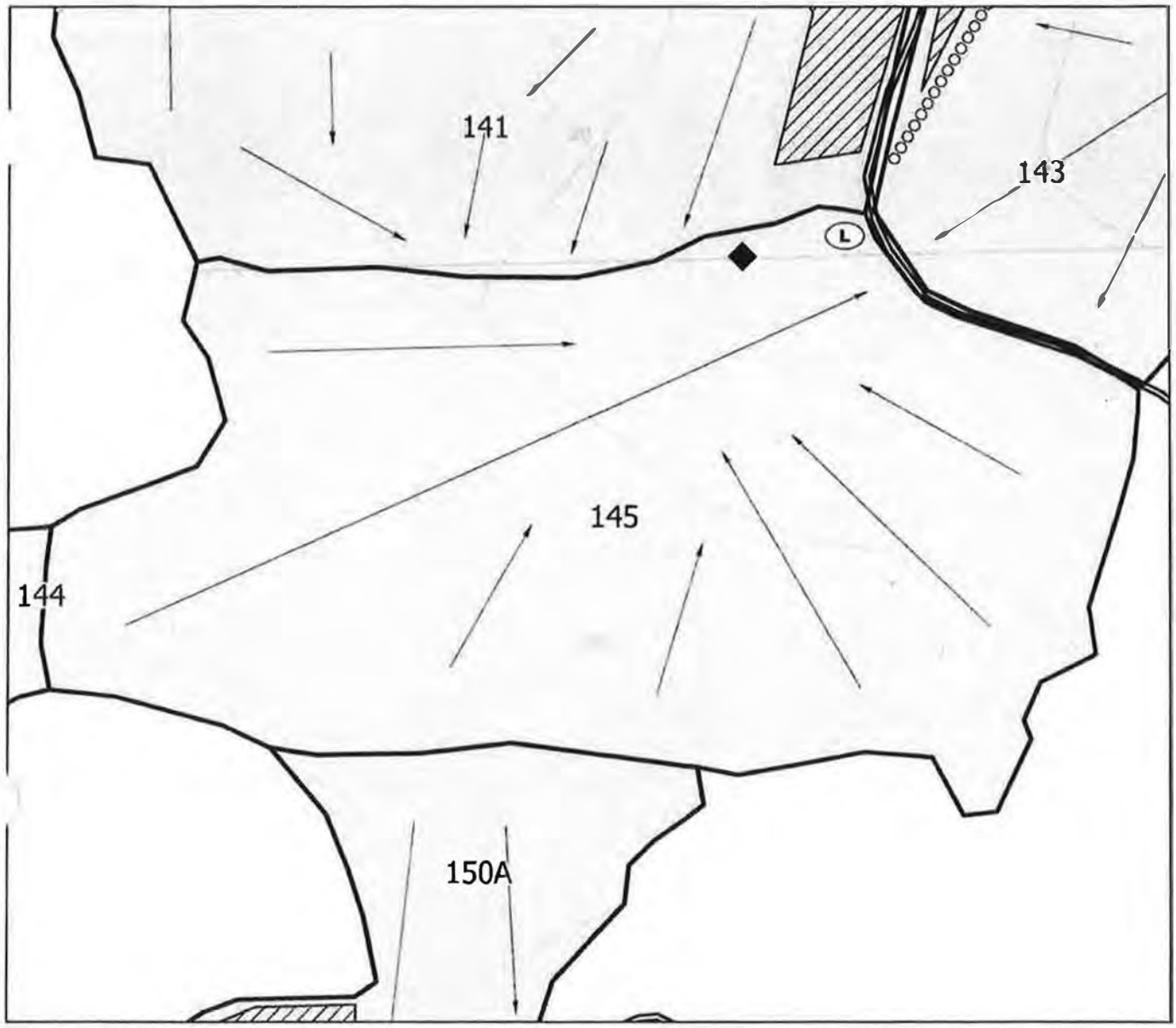

UNIT 145
Harvest Unit Layout and Logging Plan

0 120 240 480 Feet

Legend

- Commercial Units
- Survey Monuments
- Landing
- Skid/Yard Direction
- Directional Falling
- Existing Skid Trails
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- Existing Roads

N

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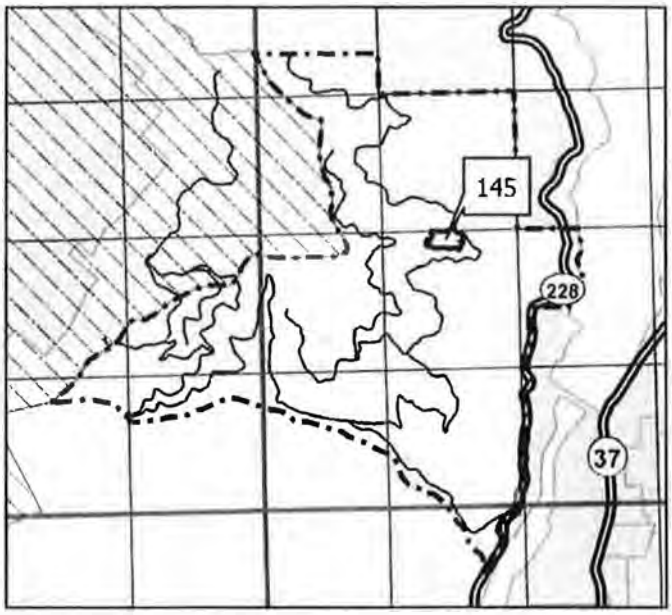

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 149 Planning Unit # 149 Estimated Acres 6

Layout Person(s) BRENT HOFFMAN Layout Date

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) ADV

Average External Yarding Distance (AEYD) 460 [ft] Average Slope 40 [%]

Number of Landings 1 Harvest Method SW

Remarks:
STRAIGHT FORWARD SKYLINE UNIT. RHCA TO SW.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	10	
OTH	5	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☒ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks: STREAM TO SW

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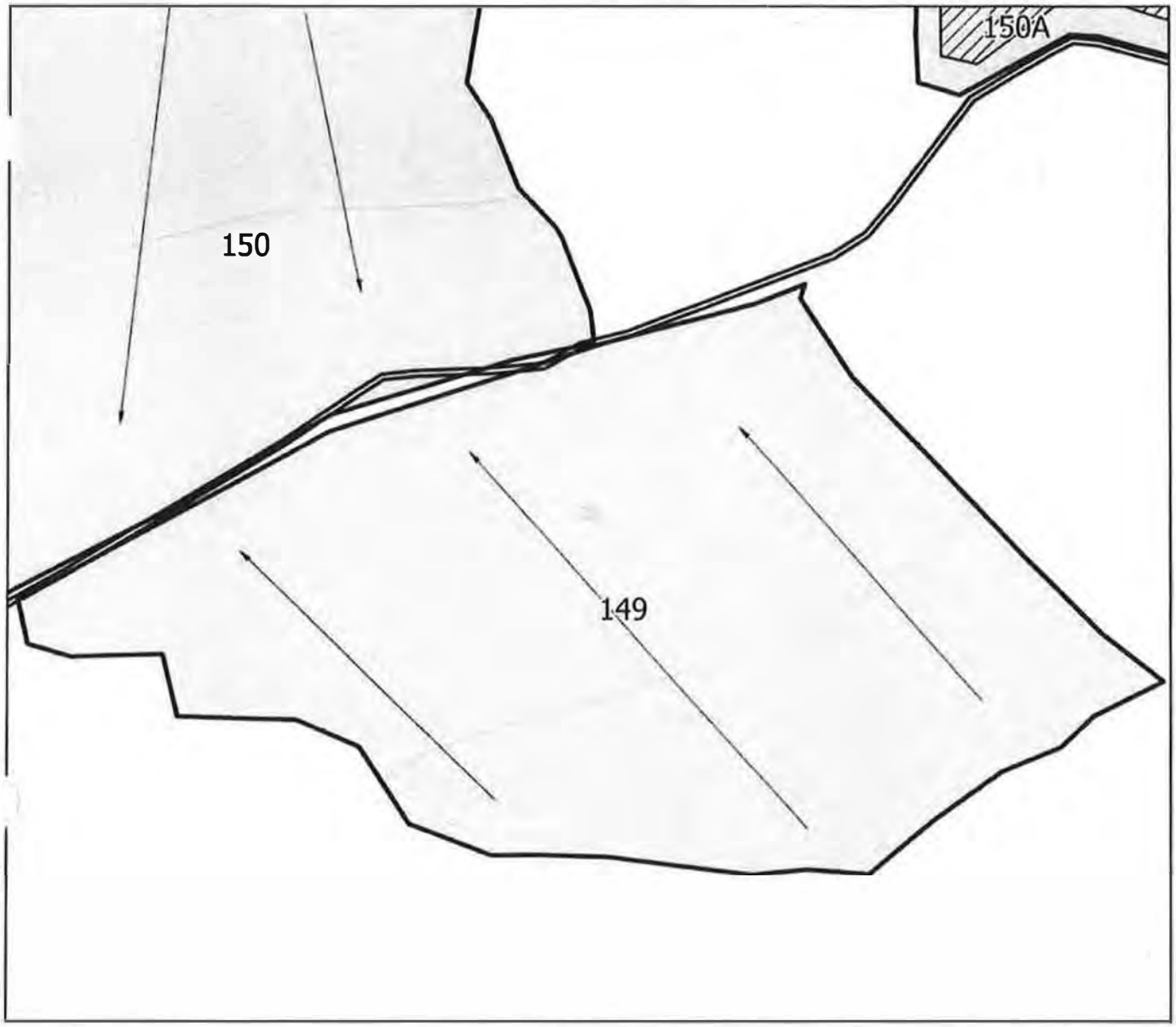

UNIT 149
Harvest Unit Layout and Logging Plan

0 75 150 300 Feet

Legend

- Commercial Units
- Skid/Yard Direction
- Directional Falling
- Forest Service Ownership
- Existing Roads

N

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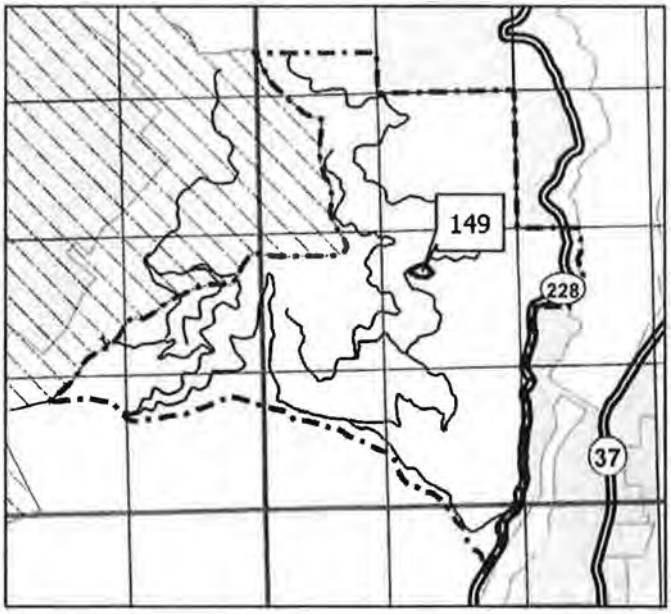

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 150 Planning Unit # 150 Estimated Acres 11

Layout Person(s) BRENT HOFFMAN, AH Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAV

Average External Yarding Distance (AEYD) 810 [ft] Average Slope 40 [%]

Number of Landings 1 Harvest Method SW

Remarks:
SOMEWHAT STEEP UNIT, CAN SKID ON AVENUES BETWEEN DIFFICULT TERRAIN, LAND W/ 151

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
NRA

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	10	
OTH	5	

Improvements and Resources

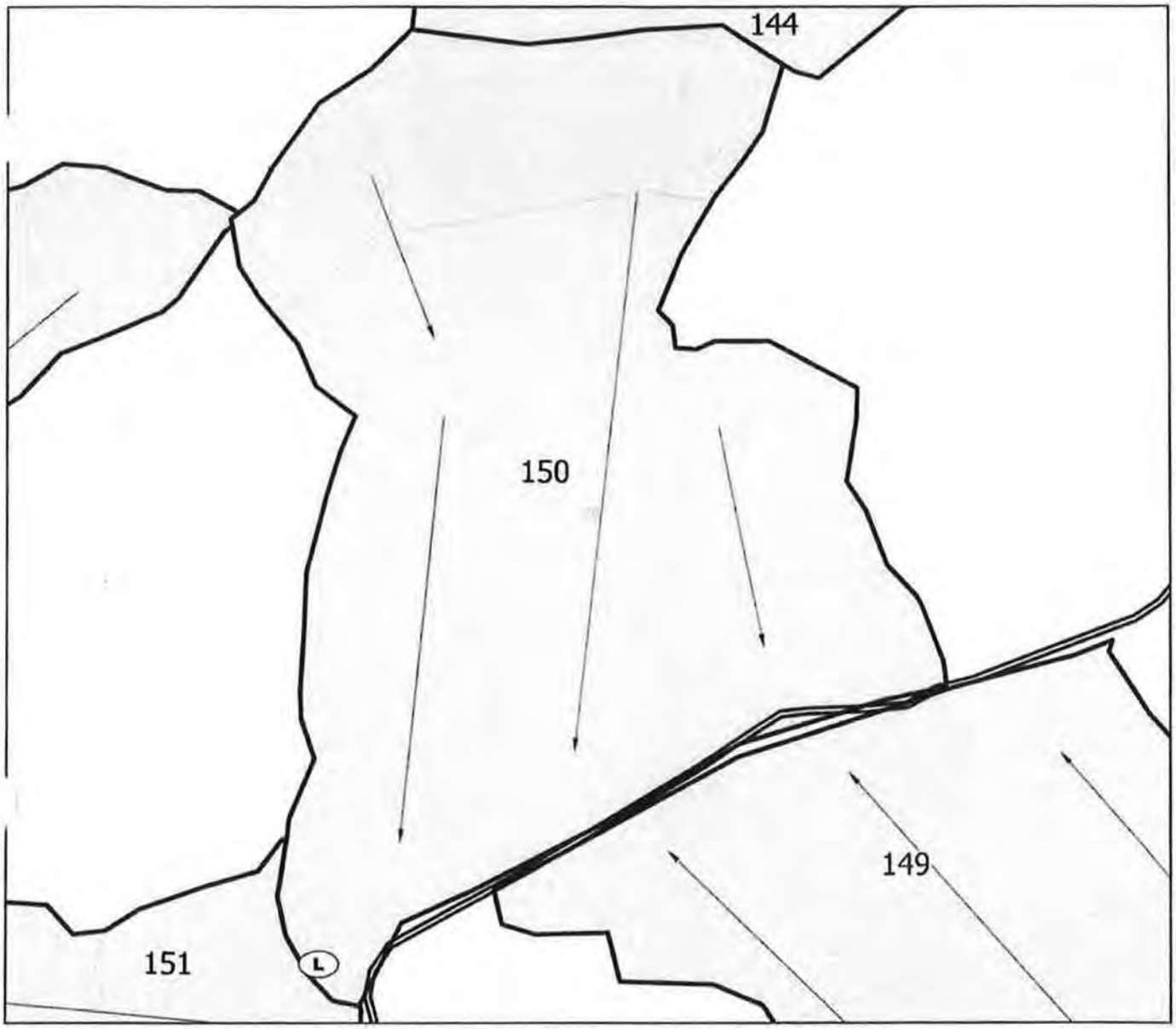
Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

****For Informational Purposes Only****



UNIT 150
Harvest Unit Layout and Logging Plan

0 95 190 380 Feet

Legend

- Commercial Units
- Landing
- Skid/Yard Direction
- Forest Service Ownership
- Existing Roads

N

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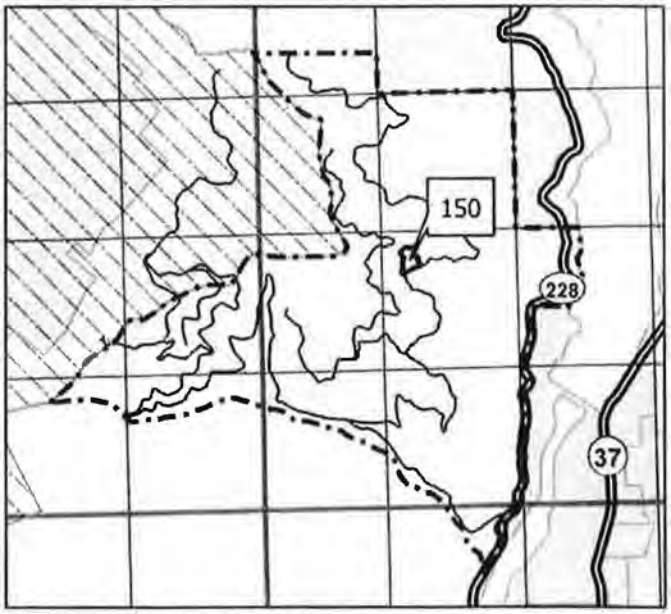

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 150A Planning Unit # 150 Estimated Acres ~~14~~ 4

Layout Person(s) BRENT HOFFMAN Layout Date

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAVORABLE

Average External Yarding Distance (AEYD) 420 [ft] Average Slope 45 [%]

Number of Landings 1 Harvest Method SW

Remarks:

STEEP AREAS WITHIN UNIT, PORTION TO W SHOULD BE DIR FELLED TO RD. SHOULD BE AVENUES TO SKID ON ALLOWABLE SLOPES. N OF UNIT IS RIDGE + COMMON BNDRY W/ 145.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:

N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	90	
L	5	
GF+O	5	

Improvements and Resources

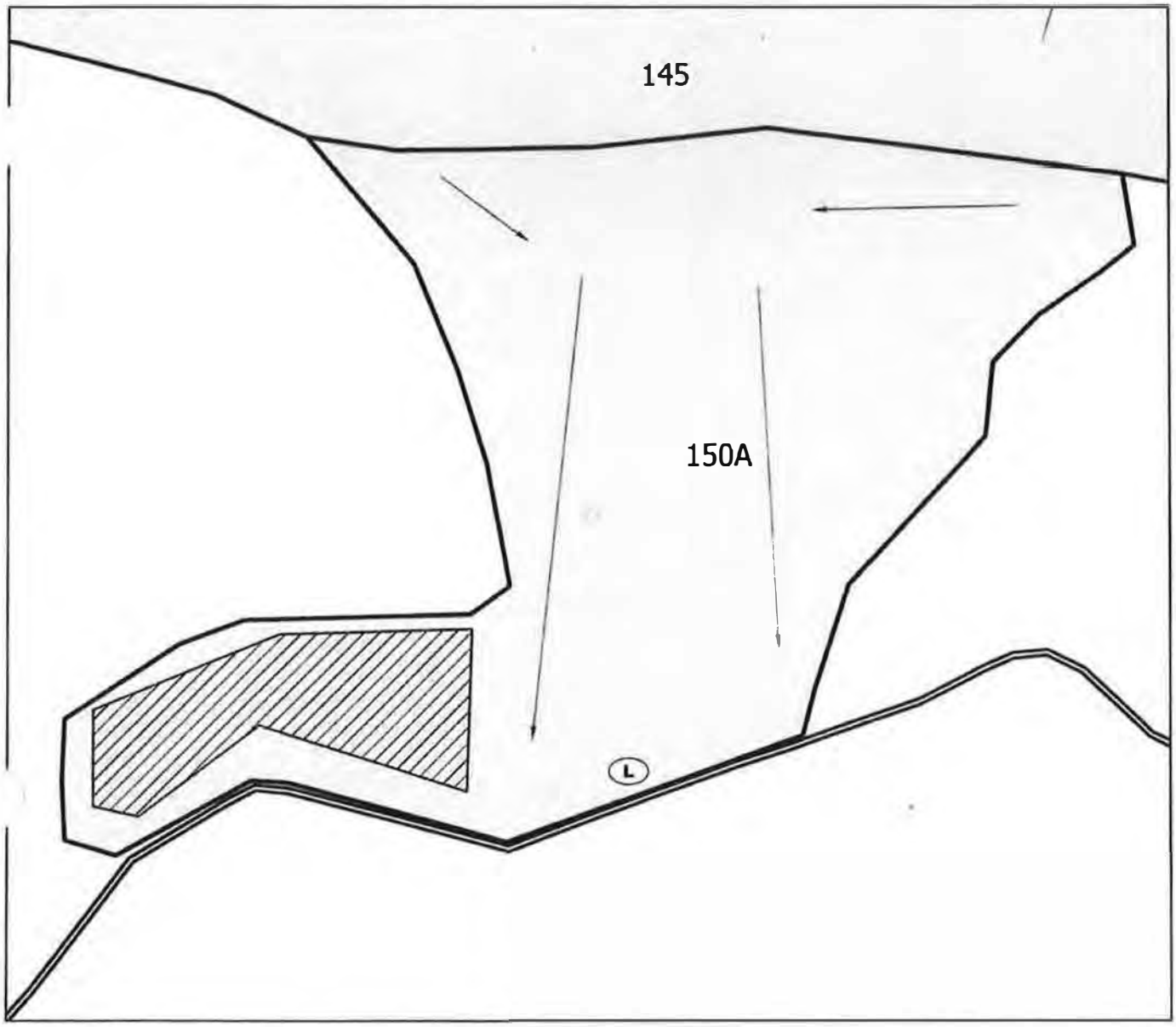
Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

For Informational Purposes Only



UNIT 150A
Harvest Unit Layout and Logging Plan

0 60 120 240 Feet

Legend

- Commercial Units
- Landing
- Skid/Yard Direction
- Directional Falling
- Forest Service Ownership
- Existing Roads

N

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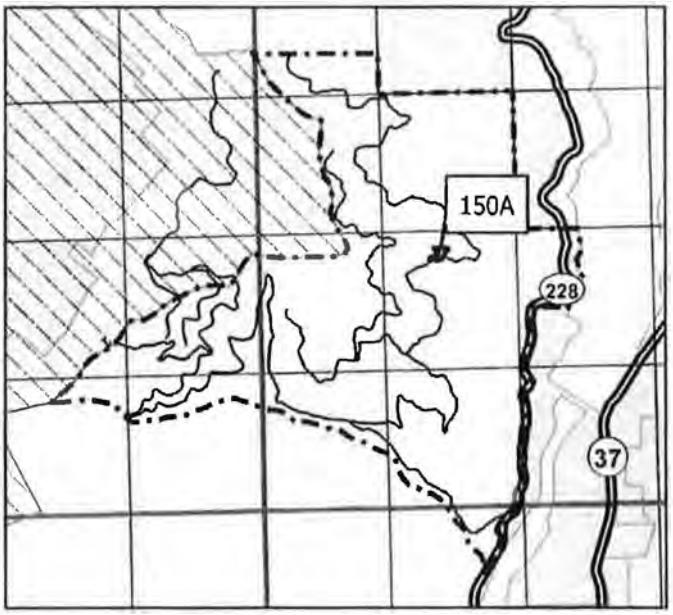

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 151 Planning Unit # 151 Estimated Acres 36

Layout Person(s) BRENT HOFFMAN, AW Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAV

Average External Yarding Distance (AEYD) 1440 [ft] Average Slope 38 [%]

Number of Landings 1 Harvest Method SW

Remarks:
STEEP AREA TO E EXCLUDED. CAN SKID AROUND UTILIZING TERRAIN FEATURES LIKE BENCHES. WILL SHARE LANDING W/ 150

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	10	
OTH	5	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

For Informational Purposes Only

UNIT 151
Harvest Unit Layout and Logging Plan

0 120 240 480 Feet

Legend

- Commercial Units
- L Landing
- Skid/Yard Direction
- Forest Service Ownership
- Existing Roads

N

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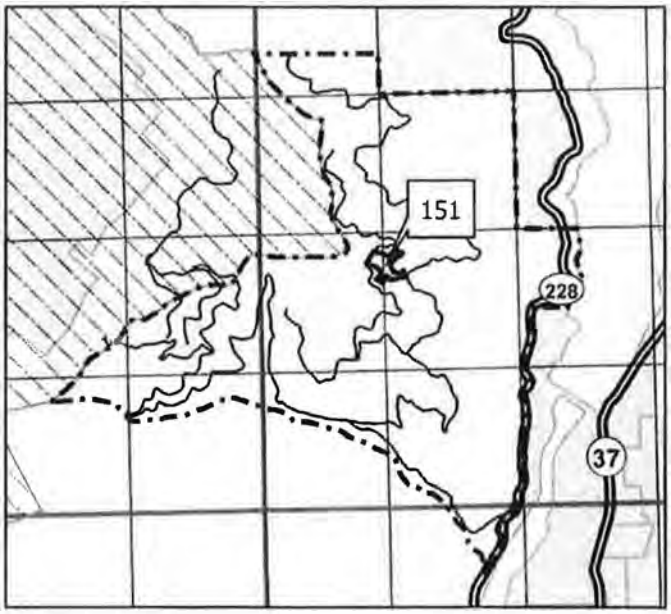

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 152 Planning Unit # 152 Estimated Acres 36

Layout Person(s) BRENT HOFFMAN, AH Layout Date _____

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) ADV

Average External Yarding Distance (AEYD) 800 [ft] Average Slope 60 [%]

Number of Landings 2 Harvest Method CCR

Remarks:
FAIRLY STRAIGHT FORWARD SKYLINE UNIT. EXC SKID TRL TO S MAY BE NEEDED TO SWING THAT PORTION OF UNIT. MAINTAIN TAIL HOLDS IN 151

Roads

New Specified Roads NO New Temp Roads YES

Length 300 [ft] Avg. Side Slope 20 [%] Vol/Acre 1.0 [CCF/ac]

Remarks:
EXC SKID TRAIL TO SWING TO S

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Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	10	
OTH	5	

Improvements and Resources

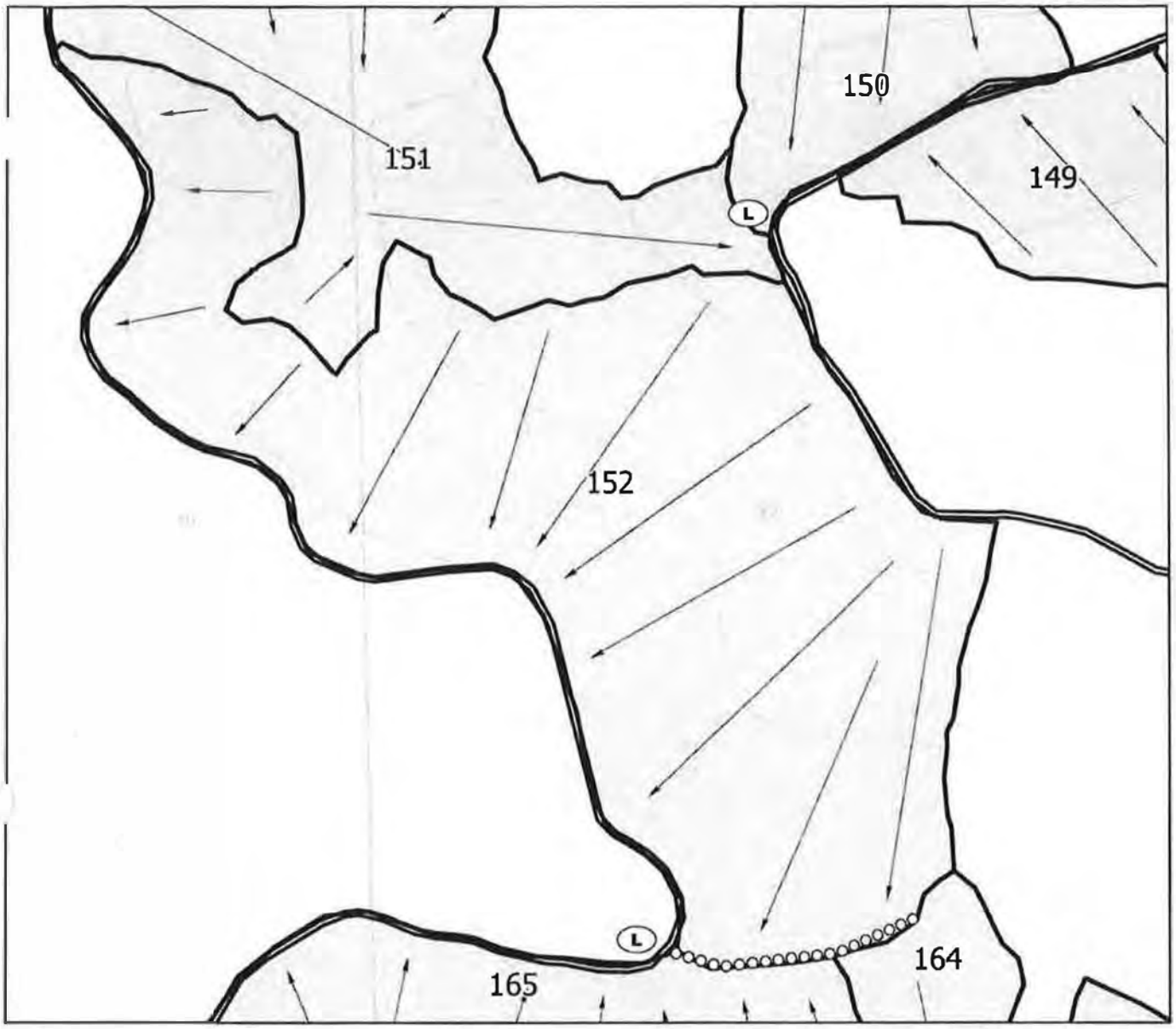
Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

****For Informational Purposes Only****



UNIT 152
Harvest Unit Layout and Logging Plan

0 185 370 740 Feet

Legend

- Commercial Units
- Landing
- Skid/Yard Direction
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- Existing Roads

N

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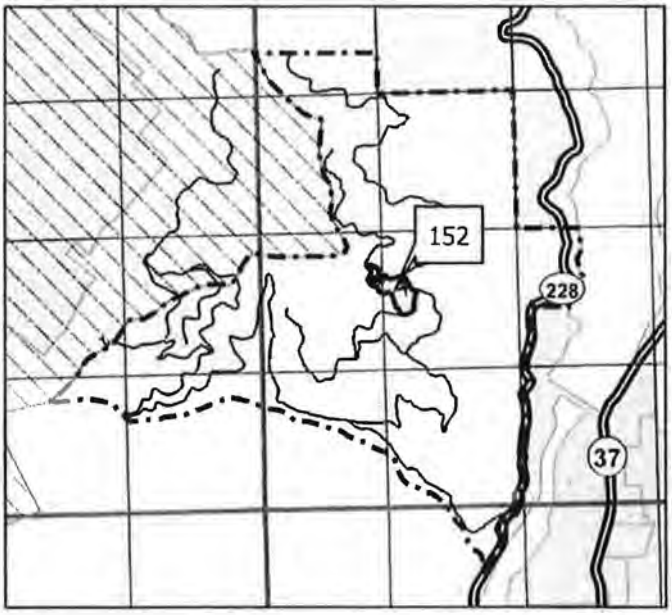

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 156 Planning Unit # 156 Estimated Acres 3

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) ADVERSE

Average External Yarding Distance (AEYD) 1170 [ft] Average Slope 20 [%]

Number of Landings 1 Harvest Method IMP

Remarks:

SMALL TRACTOR UNIT. HOLD OVER "BEAUTY STRIP" SKID TO N AT START OF OLD DEBOM RD. AREA TO S EXCLUDED FOR BOTANY.. SKID THROUGH OLD UNIT TO W TO MAINTAIN LEAVE TREES IN 156

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:

N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
PF	90	
GF	5	
L	5	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☒ Other

Other BOTANY, RD 228

Remarks:

AREA TO S OF UNIT EXCLUDED FOR BOTANY, AVOID DISTURBANCE. FILL SLOPE OF 228 RD, PROTECT TO EXTENT POSSIBLE

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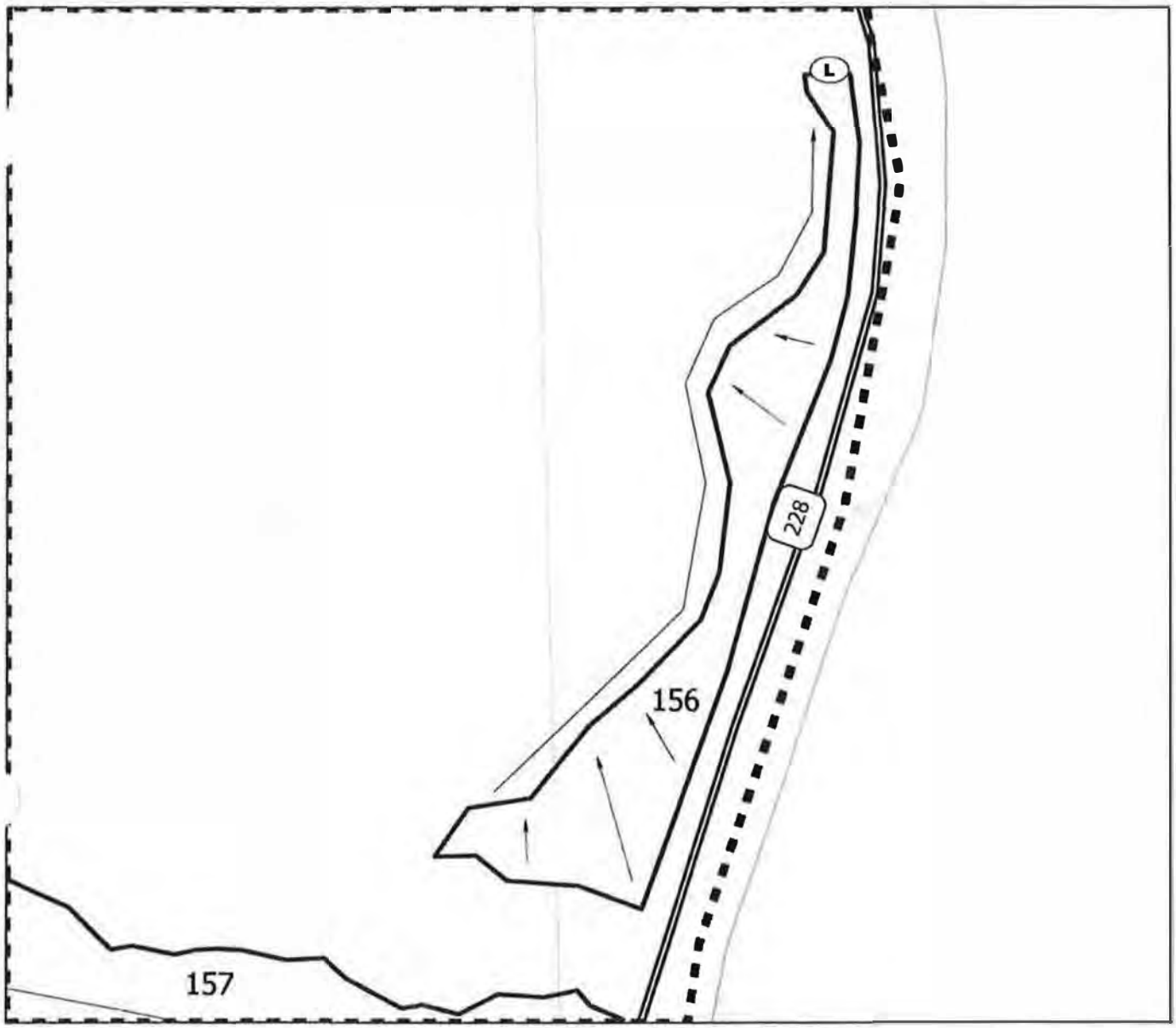

UNIT 156
Harvest Unit Layout and Logging Plan

0 120 240 480 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- L Landing
- Skid/Yard Direction
- Forest Service Ownership
- Non-Forest Service Ownership
- Existing Roads

N

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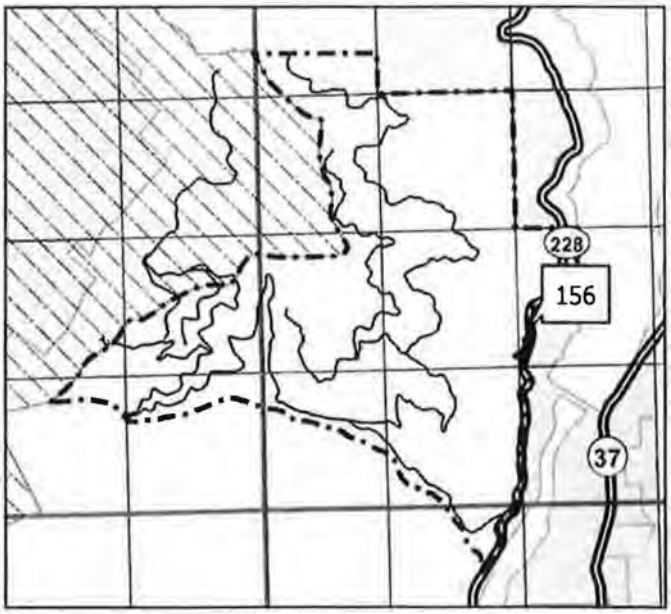

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 157 Planning Unit # 157 Estimated Acres 16

Layout Person(s) BREN THOFFMAN Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAV

Average External Yarding Distance (AEYD) 1500 [ft] Average Slope 30 [%]

Number of Landings 1 Harvest Method CCR

Remarks:
MAY REQUIRE SHORT ADVERSE SKID IN N FINGER TO GET AROUND AREA EXCLUDED FOR BOTANY. SMALL DIR FELLING PORTION TO W ABOVE OLD DECCOM RD.

Roads

New Specified Roads NO New Temp Roads YES

Length 120 [ft] Avg. Side Slope 30 [%] Vol/Acre 10 [CCF/ac]

Remarks:
JUMP UP OFF 228 RD

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	10	
OTH	5	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☒ Other

Other: BOTANY AREA

Remarks:

BOTANY AREA EXCLUDED TO N

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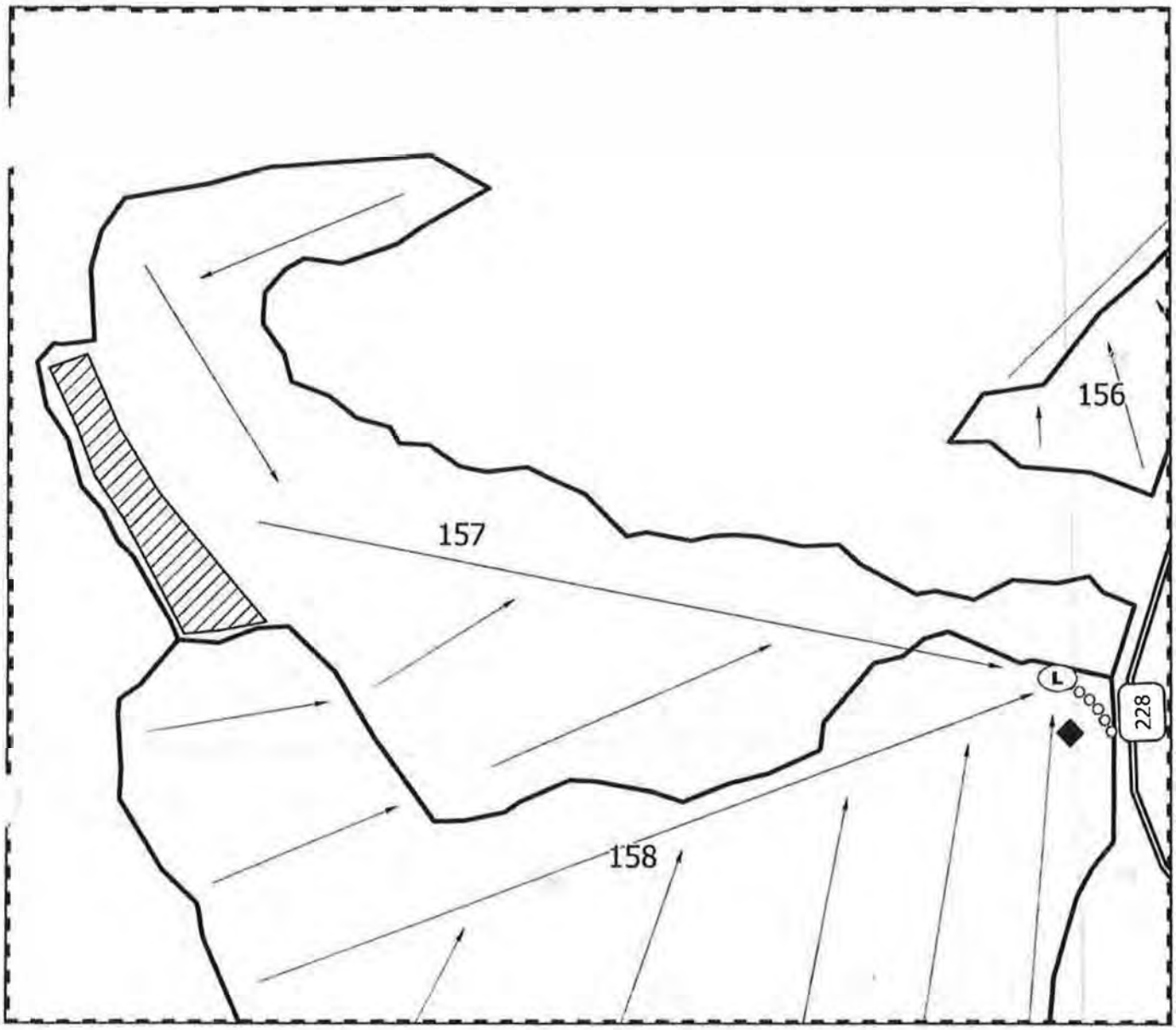

UNIT 157
Harvest Unit Layout and Logging Plan

0 120 240 480 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Survey Monuments
- Landing
- Skid/Yard Direction
- Directional Falling
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- Existing Roads

N

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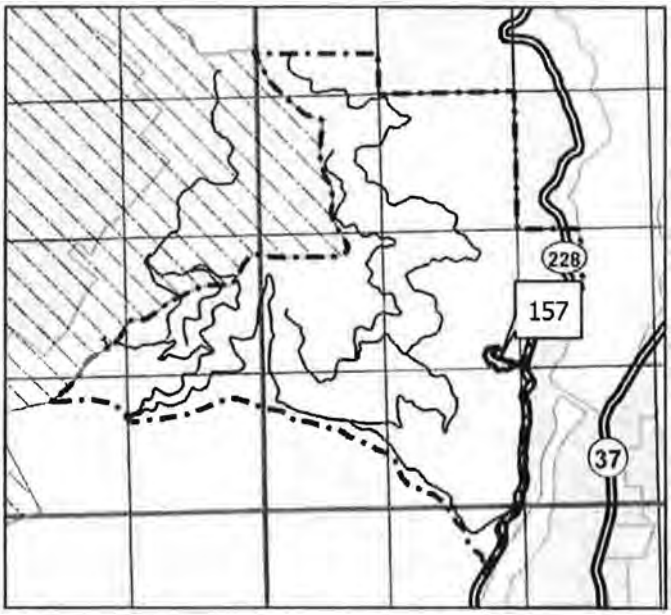

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 158 Planning Unit # 158 Estimated Acres 16

Layout Person(s) BRENT HOFFMAN Layout Date

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAV

Average External Yarding Distance (AEYD) 1330 [ft] Average Slope 30 [%]

Number of Landings 1 Harvest Method ST

Remarks:
FAIRLY STRAIGHT FORWARD TRACTOR UNIT. SPLIT W/ 157 FOR Rx BUT WILL SKID AS IF ONE UNIT. COLLECTOR TRAIL ALONG GRADUAL SLOPE AREA ALONG COMMON BNDRY

Roads

New Specified Roads NO New Temp Roads YES

Length 120 [ft] Avg. Side Slope 30 [%] Vol/Acre 10 [CCF/ac]

Remarks:
NEED JUMP UP ROAD TO GET OFF 228. ALSO UTILIZED BY 157

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	10	
OTH	5	

Improvements and Resources

Check all that apply and show on map

- [x] Survey Monuments
- [ ] Spring
- [ ] Gate
- [ ] Stream
- [ ] Arch Site
- [ ] Nest/Den
- [ ] Culvert
- [ ] Fence
- [ ] Trail
- [x] Other

Other 228 RD

Remarks:

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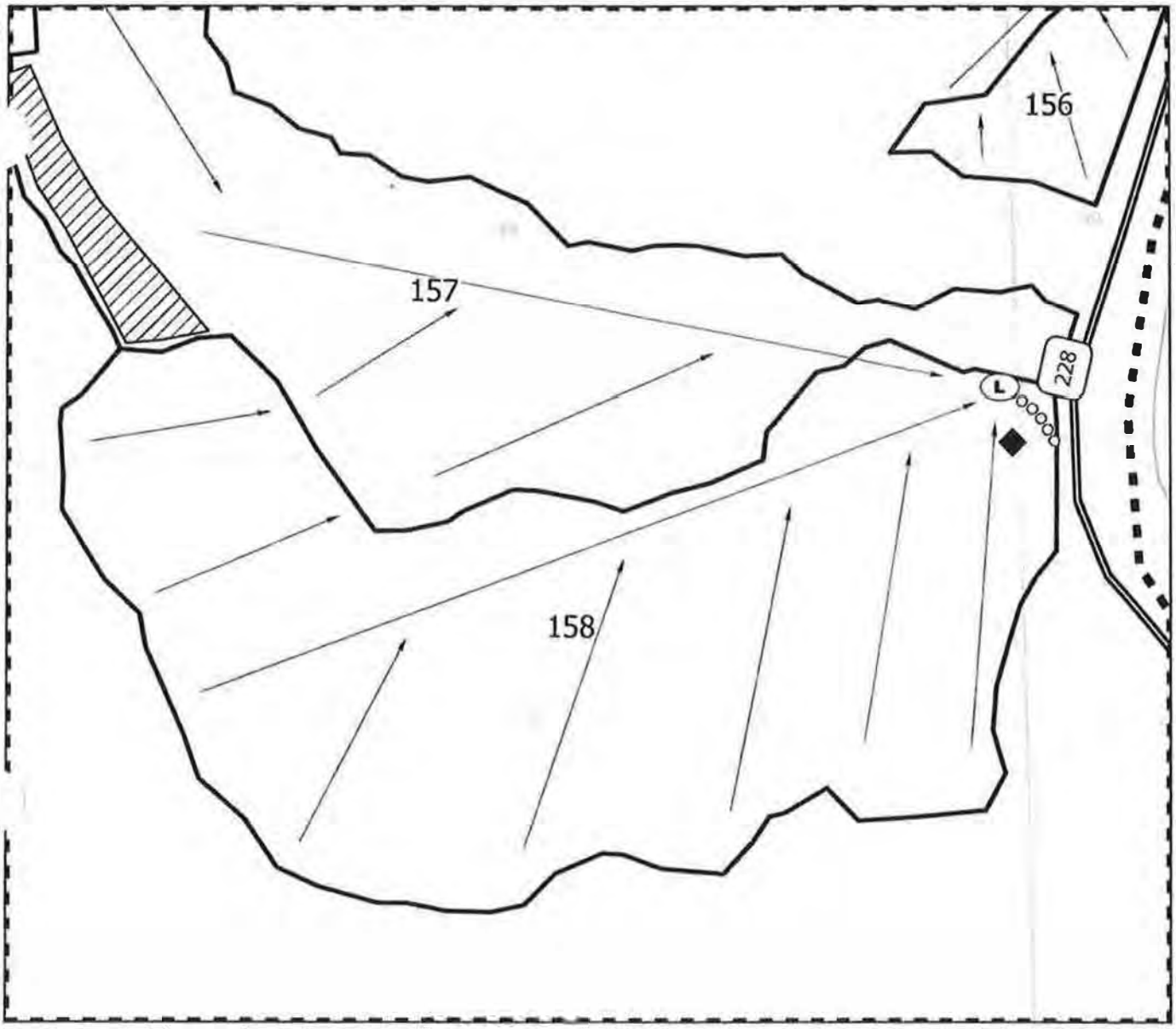

UNIT 158
Harvest Unit Layout and Logging Plan

0 120 240 480 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Survey Monuments
- Landing
- Skid/Yard Direction
- Directional Falling
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- Non-Forest Service Ownership
- Existing Roads

N

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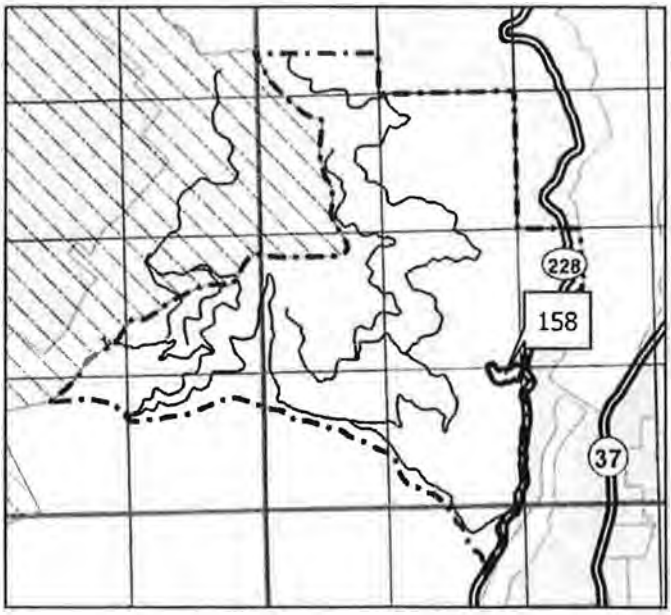

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 162 Planning Unit # 162 Estimated Acres 31

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) ADVERSE

Average External Yarding Distance (AEYD) 750 [ft] Average Slope 45 [%]

Number of Landings 2 Harvest Method ST

Remarks:
FAIRLY STRAIGHT FORWARD LINE UNIT. RIDGE ALONG COMMON W/ 163 VERY STEEP. OLD SKID TRL / ROAD TEMPLATE THROUGH TOP OF UNIT

Roads

New Specified Roads NO New Temp Roads YES

Length 500 [ft] Avg. Side Slope 20 [%] Vol/Acre 10 [CCF/ac]

Remarks:
USE OF TEMP RD ON S END OF UNIT ALONG OLD UNIT BNDRY TO ACCESS FAR SE CORNER

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	75	
L	20	
GF	5	

Improvements and Resources

Check all that apply and show on map

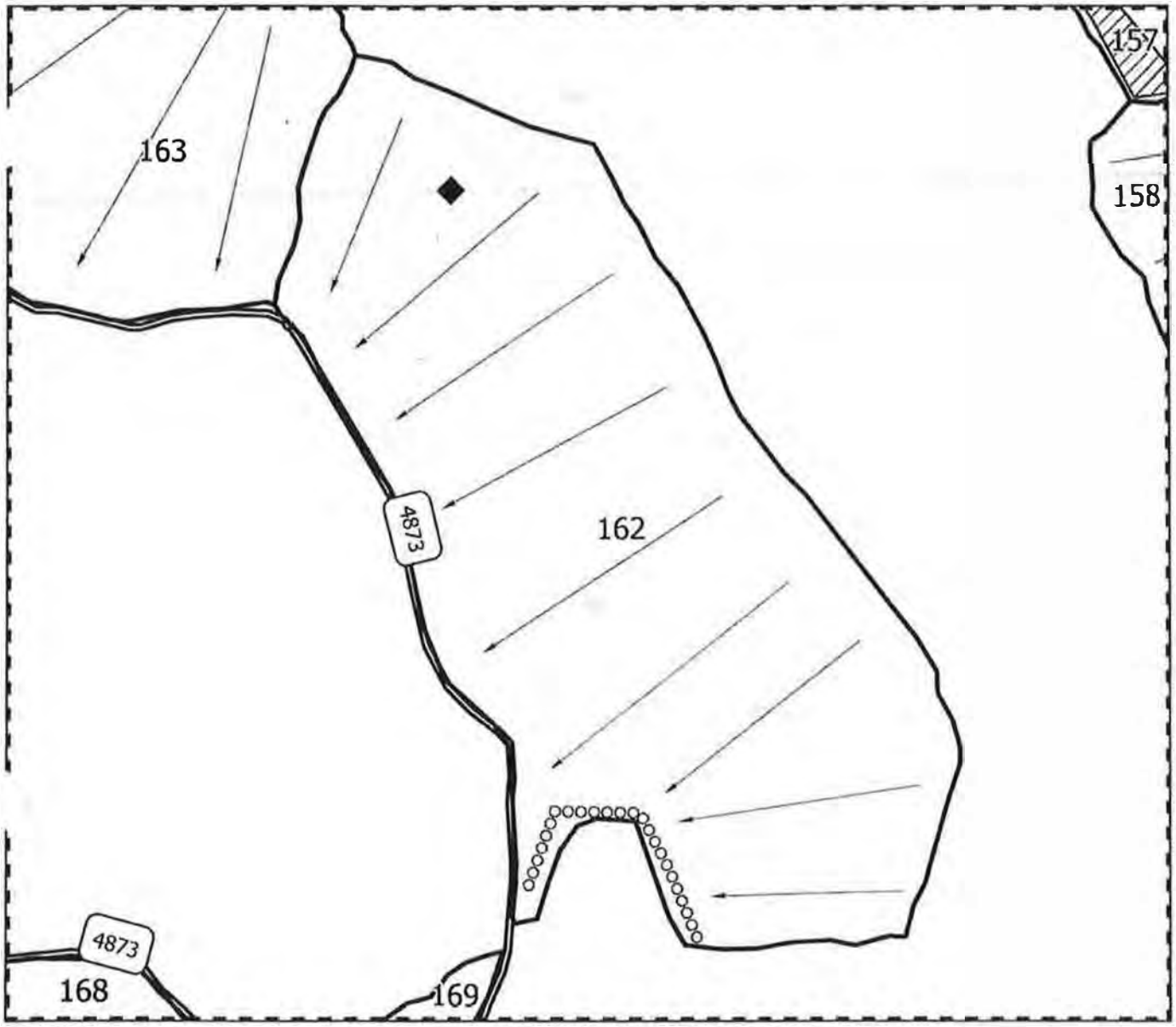
- ☒ Survey Monuments
- ☐ Gate
- ☐ Arch Site
- ☐ Culvert
- ☐ Trail
- ☐ Spring
- ☐ Stream
- ☐ Nest/Den
- ☐ Fence
- ☐ Other

Other _____

Remarks:

SURVEY MONUMENT IN N OF UNIT

****For Informational Purposes Only****



UNIT 162
Harvest Unit Layout and Logging Plan

0 180 360 720 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Survey Monuments
- Skid/Yard Direction
- Directional Falling
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- Existing Roads

N

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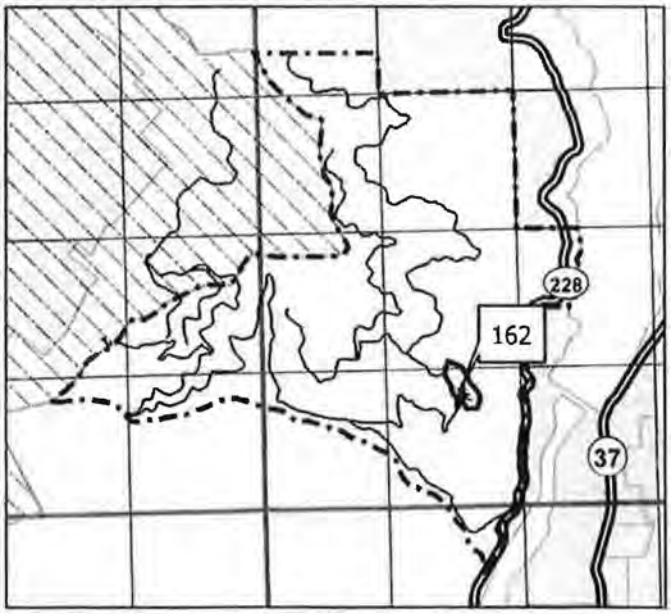

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 163 Planning Unit # 163 Estimated Acres 29

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) ADV

Average External Yarding Distance (AEYD) 820 [ft] Average Slope 34 [%]

Number of Landings 2 Harvest Method CCR

Remarks:
ONCE 100-200 FT BELOW RD, UNIT SLOPE BECOMES MORE GRADUAL. RECOMMEND MECH FELLING + YARDING.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	10	
UTH	5	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☑ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:
GATE ON 4879 RD

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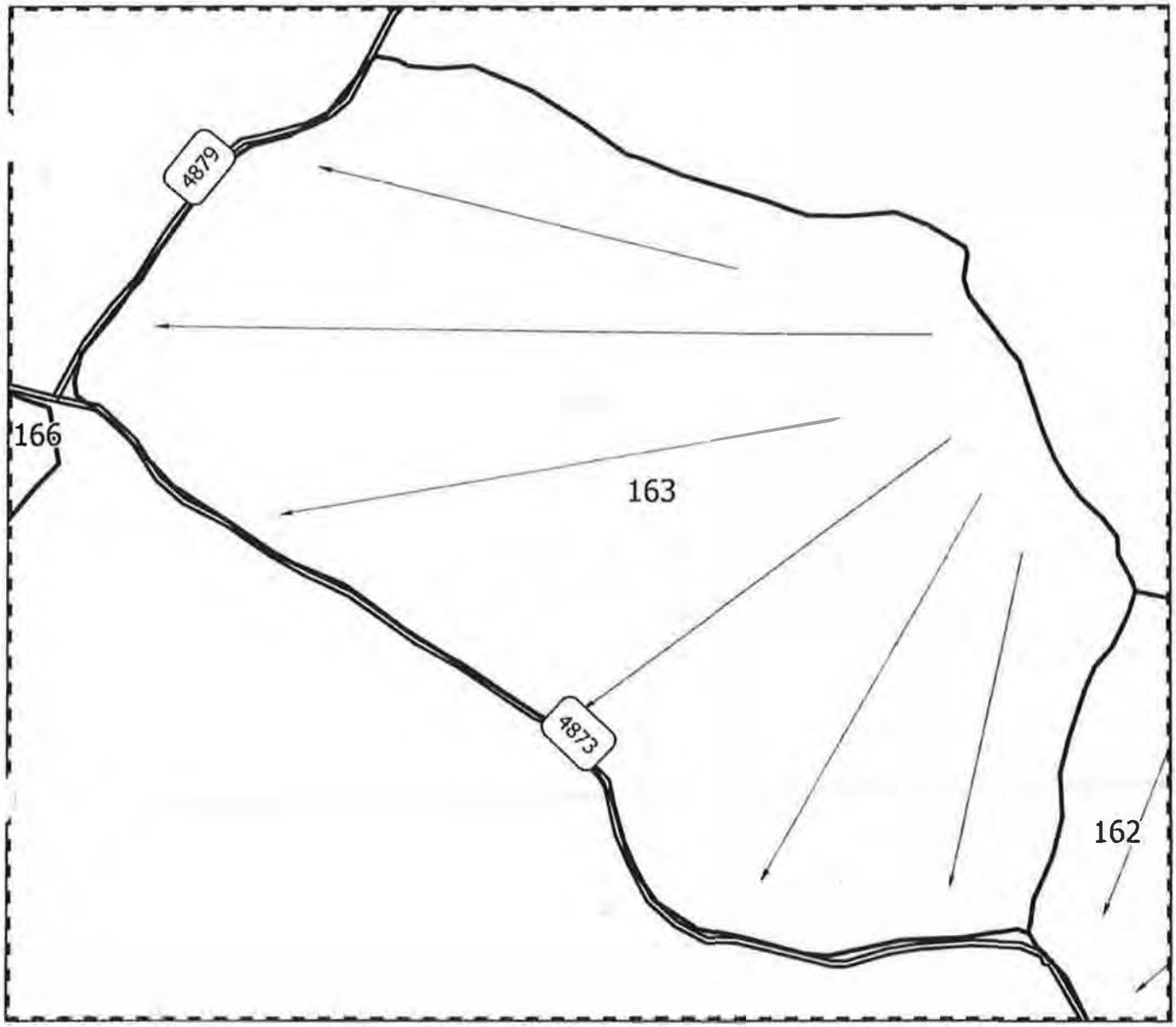

UNIT 163
Harvest Unit Layout and Logging Plan

0 130 260 520 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Skid/Yard Direction
- Forest Service Ownership
- Existing Roads

N

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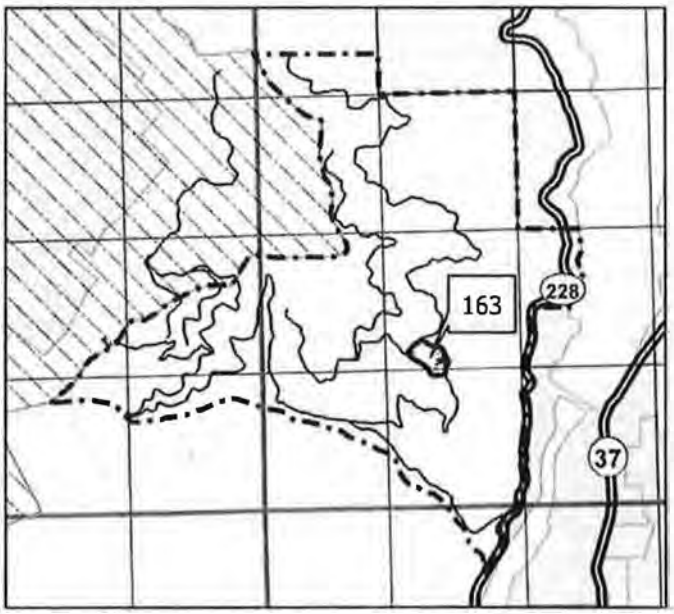

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 164 Planning Unit # 164 Estimated Acres 14

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAV

Average External Yarding Distance (AEYD) 780 [ft] Average Slope 40 [%]

Number of Landings 1 Harvest Method 1MP

Remarks:
PORTIONS OF UNIT ARE STEEP & OCASIONAL ROCK OUTCROPS BUT CAN UTILIZE DIR. FALL & AVENUES AROUND THEM TO SKID, STEEP DRAW AND MAJOR ROCK OUTCROP W/ LOW VOL EXCLUDED FROM UNIT

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	75	
OTH	25	

Improvements and Resources

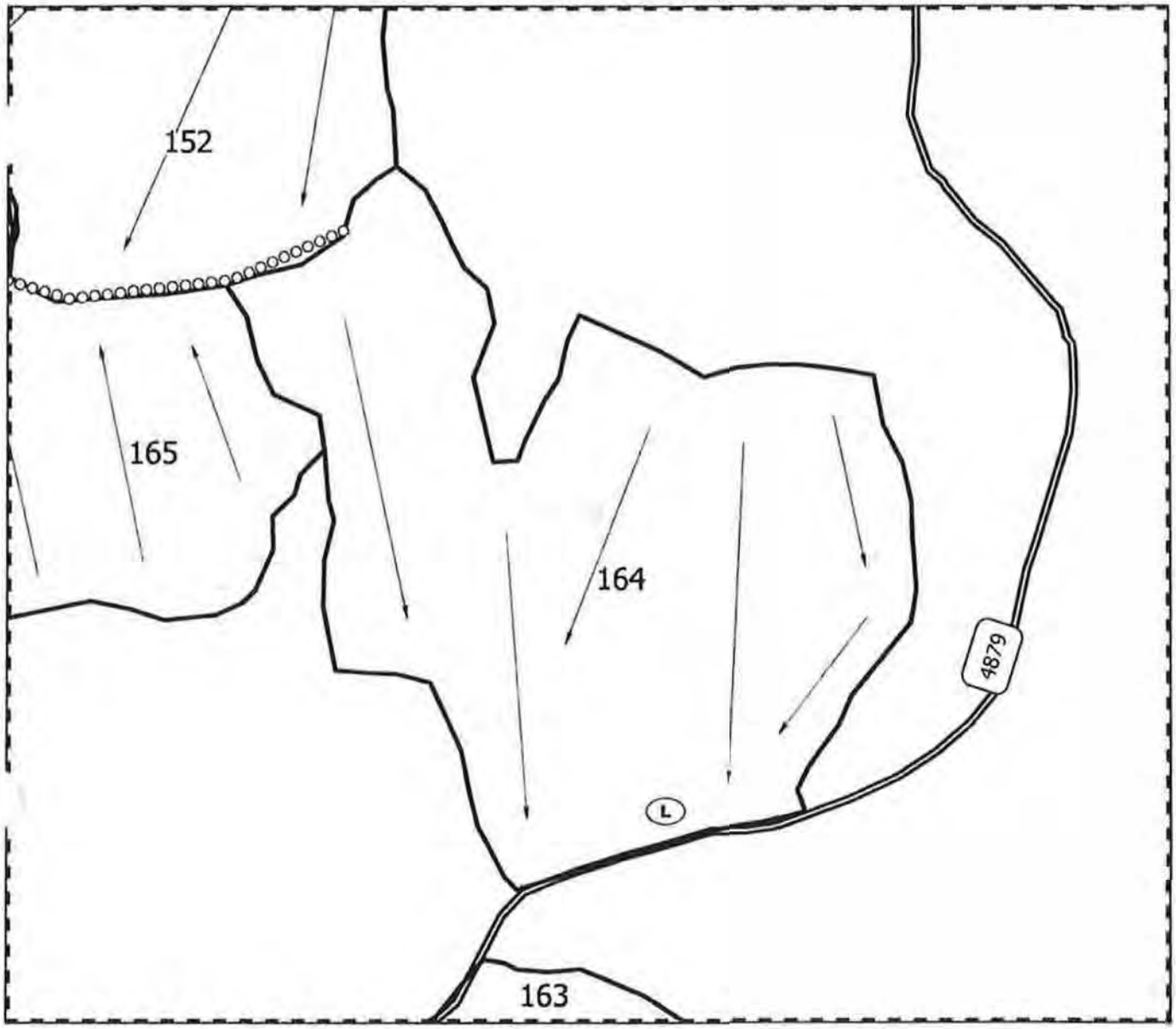
Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

For Informational Purposes Only



UNIT 164
Harvest Unit Layout and Logging Plan

0 130 260 520 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Landing
- Skid/Yard Direction
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- Existing Roads

N

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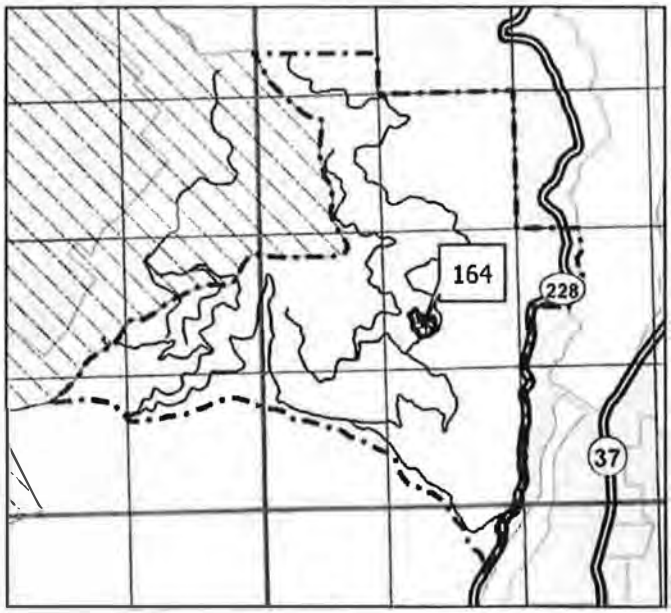

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 165 Planning Unit # 165 Estimated Acres 27

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) ADV

Average External Yarding Distance (AEYD) 550 [ft] Average Slope 41 [%]

Number of Landings 2 Harvest Method IMP

Remarks:
PRETTY NARROW SKYLINE UNIT BELOW 4878 RD + ABOVE OLD UNIT. MAY REQUIRE EXC SKID ON E END TO YARD THAT SMALL PORTION OF UNIT, THIS IS ALONG A GRADUAL RIDGE, WILL BE ADVERSE UP TO 4878. NARROW PORTION IN MIDDLE OF UNIT MAY NEED DIR FALL + SHOVEL

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks: N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	90	
OTH	10.	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Gate
- ☐ Arch Site
- ☐ Culvert
- ☐ Trail
- ☐ Spring
- ☐ Stream
- ☐ Nest/Den
- ☐ Fence
- ☐ Other

Other _____

Remarks:

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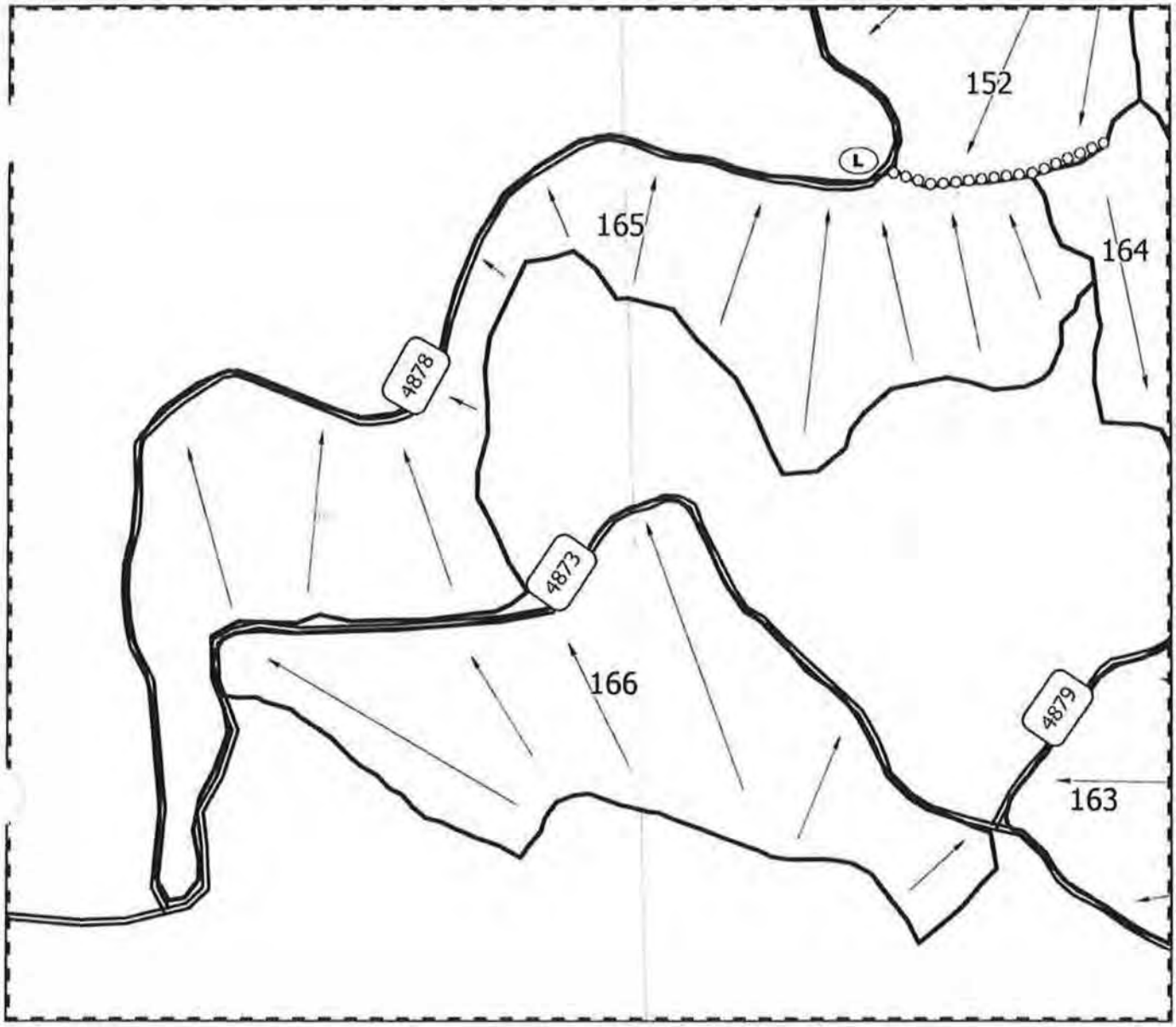

UNIT 165

Harvest Unit Layout and Logging Plan

0 210 420 840 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Landing
- Skid/Yard Direction
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- Existing Roads

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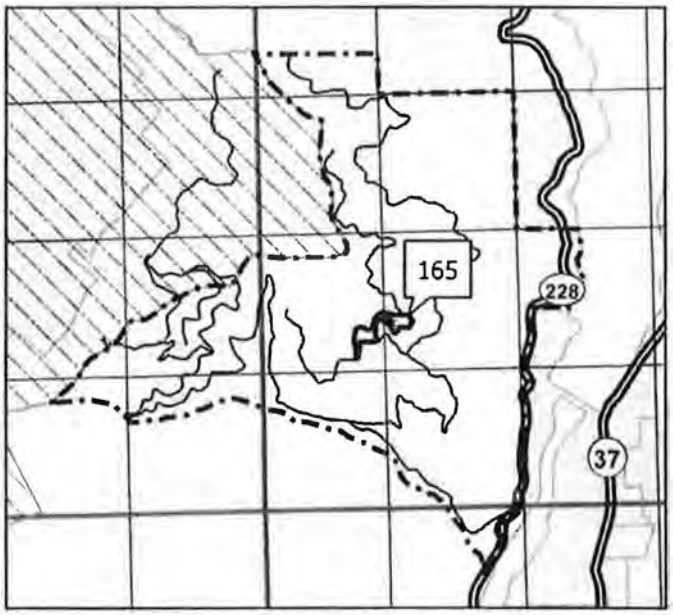
N



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Logging Systems & Unit Layout Card

NEPA Project Mitchell Jackson **Sale** Powerhouse

Harvest Unit #: 166 NEPA Unit #: 166 Estimated Acres: 17
Prescription: ST Estimated Cut MBF /Acre: _____ mbf/acre

Species Composition

Species	% of Stand	Avg. DBH
DF	50 %	"
PP	20 %	- "
GF/ES	30 %	- "
Other: -	- %	- "

Coarse Woody Debris
Type: <Blank>
Amount: <Blank>

Loggings Systems
Proposed Harvest System: ☐ Tractor ■ Skyline Other: _____ # of Landings: 8
Average Slope: 30 % Avg. Yarding Distance: 400 ' Max Yarding Distance: 800 '
Adverse Skidding? Yes ☐ No ☐
% Adverse Skid: _____ % Max Adverse Skid Distance: _____ '
Directional Falling? Yes ☐ No ☐ Unusual Obstacles? Yes ☐ No ☐

Roads
Primary Haul Road #: 4872 Haul Road Surface: <Blank>
Clearing and Grubbing/ Reconstruction required? Yes ☐ No ■
New Specified Road in Unit? Yes ☐ No ■ -Spec. Road #: _____
New Temp Road in Unit? Yes ☐ No ■
-Temp Road Name: _____ Average Side Slope: _____ % Length: _____ '
-Residual CCF/acre: _____ ccf/acre -Does the temp cross water? Yes ☐ No ☐

Improvements and Resources
Check all that apply and show on map:

Bearing Tree ☐
Survey monument ☐
Fence ☐
Gate ☐
Culvert ☐
Stream ☐
Spring ■
Nest ☐
Cattleguard ☐
Property Posts ☐
Arch. Site ☐

Other: _____

Comments and Notes

Layout drops the two southern fingers of the planning shape.

Tail holds exist, large diameter WL on the edge and outside of the unit. Units concave shape should allow for good deflection across the unit. Unit is relatively flat, would recommend mechanical falling.

Small spring to the SW is buffered out of the unit. No other water or signs of water were found.

Most of the trees in the unit are poor quality. Some good PP and WL spread throuhgout. Leave all of these. Lots of gross GF and some decent ES. Do not leave ES unless clumped, they will blow over.

SD PP/WL/WP

Why were areas dropped or excluded?

Spring, non-operable

Prepared by: B. Hoffman Date 05/08/2024

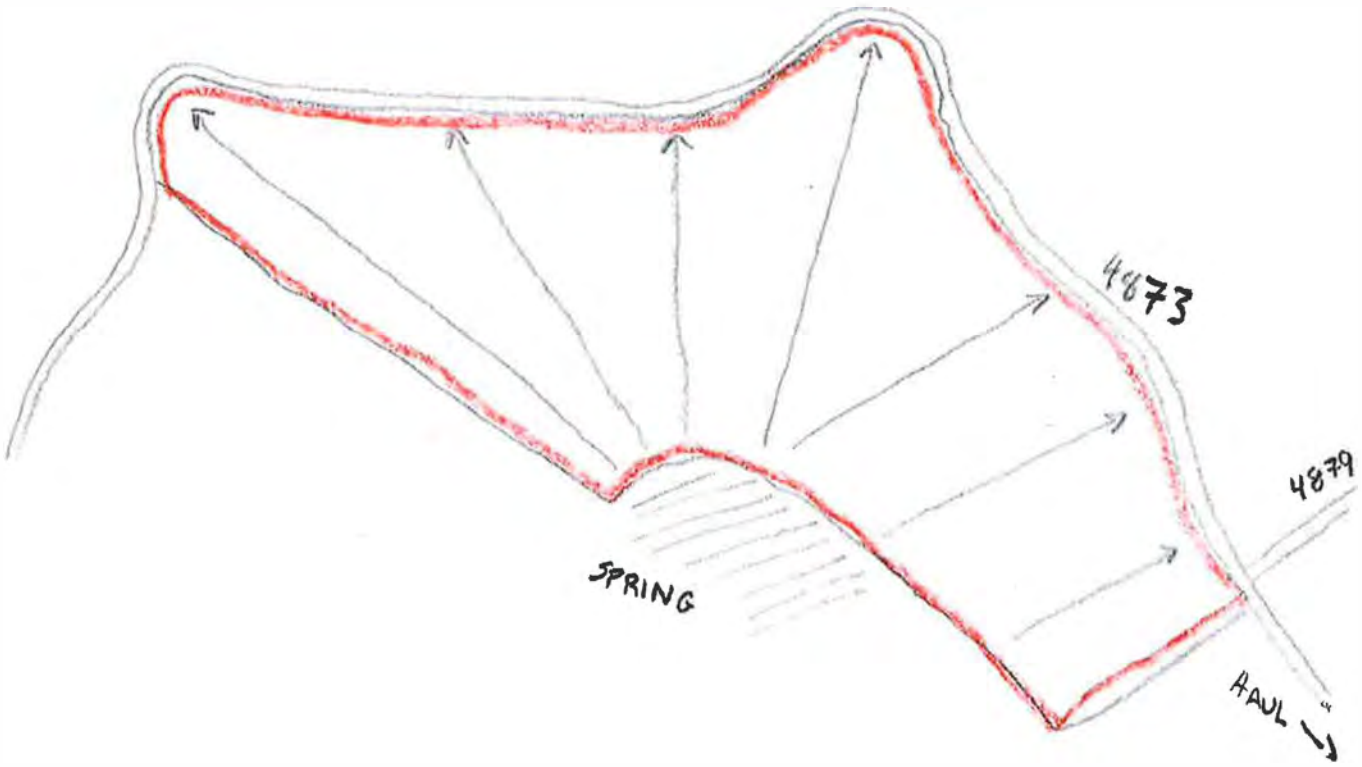
****For Informational Purposes Only****

Legend

- Unit Boundary
- Yarding Direction – Skyline
- ~~Yarding Direction – Tractor~~
- 1. Proposed Log Landing Location
- Existing Road
- Temporary Road (existing/proposed)
- Stream
- Riparian Buffer
- DIR Directional Falling

Unit #: 166

N



Prepared by: B. HOFFMAN Date 05/08/2024

For Informational Purposes Only

Logging Systems & Unit Layout Card

NEPA Project Mitchell / Jackson CERCLA **Sale** Alexander Creek Treatment Area

Harvest Unit #: 168 NEPA Unit #: 168 Estimated Acres: 42
Prescription: Shelterwood Estimated Cut MBF /Acre: 7 mbf/acre

Species Composition

Species	% of Stand	Avg. DBH
DF	60%	11"
PP	20%	11"
WL	10%	9"
Other:	10%	9"

Coarse Woody Debris
Type: Logs Limbs Branches
Amount: High **Medium** Low

Loggings Systems
Proposed Harvest System: Tractor **Skyline** Other: _____ # of Landings: 13
Average Slope: 43% Avg. Yarding Distance: 700 ft. Max Yarding Distance: 1,200 ft.
Adverse Skidding? Yes **No**
% Adverse Skid: _____% Max Adverse Skid Distance: _____'
-Directional Falling? Yes **No** -Unusual Obstacles? Yes **No** If yes, show on map

Roads
Primary Haul Road #: 4873 -> 4872 Haul Road Surface: **Native** Gravel
Clearing and Grubbing/ Reconstruction required? **Yes** No
New Specified Road in Unit? Yes **No** -Spec. Road #: _____
New Temp Road in Unit? Yes **No**
-Temp Road Name: _____ Average Side Slope: _____% Length: _____'
-Residual CCF/acre: _____ ccf/acre -Does the temp cross water? Yes No

Improvements and Resources
Circle all located in or adjacent to the unit and show on map:

Culvert Road Sign Fence Gate Bearing Tree

Stream Spring Nest Survey monument

Property posts Weeds Cattleguard Arch. Site

Other: _____

Comments and Notes

Bordered on three sides by the 4873 Road. GIS map shows a stream near the west side of the unit, this does NOT exist. Can tailhold and skid across as needed to reach entire unit.

DF most prominent species with PP and WL about equal. Good representatives of each available in the larger diameter classes (15"+).

Suggest LTM with possible SD to leave all PP.

Why were areas dropped or excluded?

N/A

Prepared by: **R. Tardif** Date **05/29/2024**

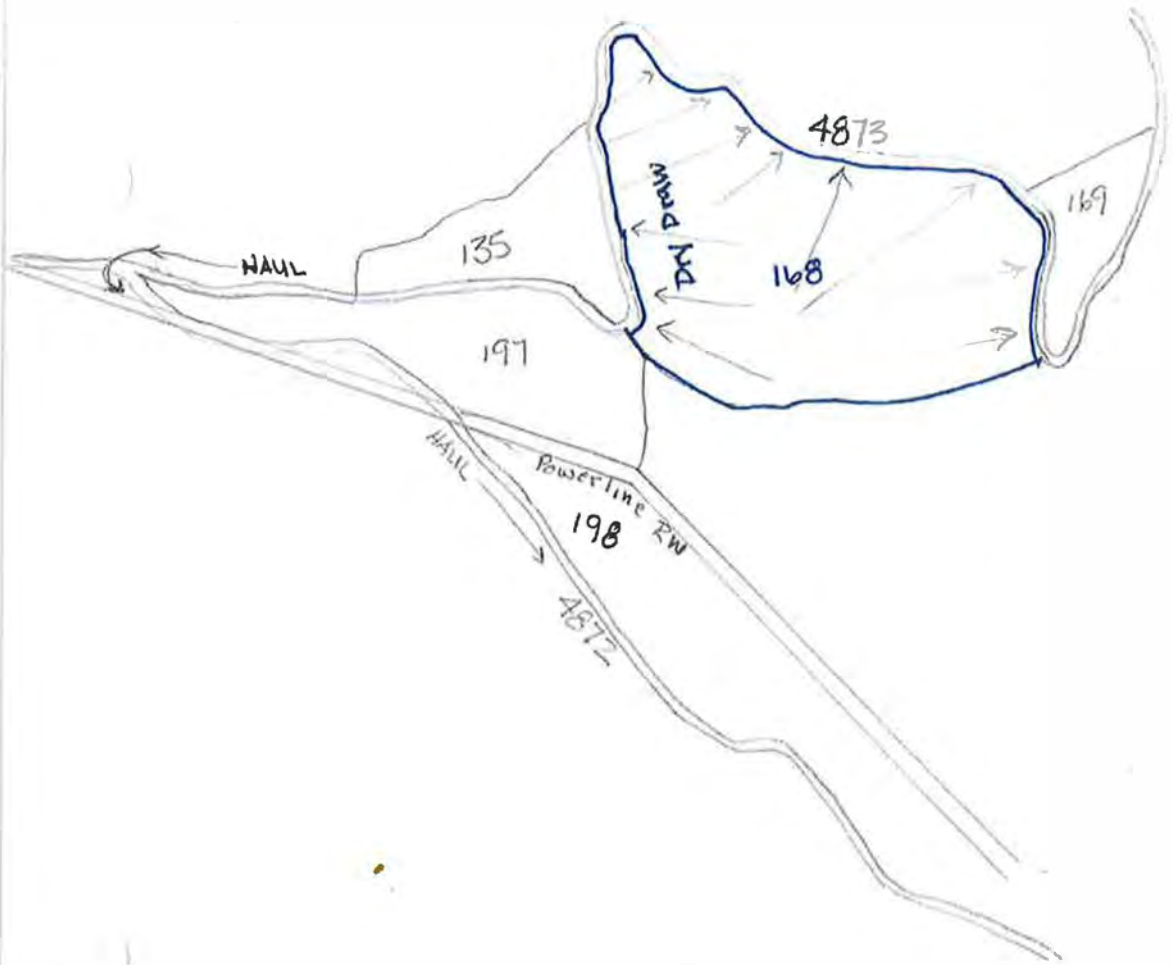
****For Informational Purposes Only****

Legend

- Unit Boundary
- Yarding Direction – Skyline
- Yarding Direction - Tractor
- Proposed Log Landing Location
- Existing Road
- Temporary Road (existing/proposed)
- Stream
- Riparian Buffer
- DIR Directional Falling

Unit #: 168

N



For Informational Purposes Only

Logging Systems & Unit Layout Card

NEPA Project Mitchell Jackson **Sale** Powerhouse

Harvest Unit #: 169 NEPA Unit #: 169 Estimated Acres: 4
Prescription: Shelterwood Estimated Cut MBF /Acre: _____ mbf/acre

Species Composition

Species	% of Stand	Avg. DBH
DF	80 %	10-15 "
PP	15 %	15 "
WL	5 %	>10 "
Other:	%	"

Coarse Woody Debris
Type: (Logs) (Limbs) (Branches)
Amount: High (Medium) Low

Loggings Systems
Proposed Harvest System: (**Tractor**) **Skyline** Other: _____ # of Landings: 2
Average Slope: 15-25 % Avg. Yarding Distance: 250 ' Max Yarding Distance: 500 '
Adverse Skidding? Yes (No)
% Adverse Skid: _____ % Max Adverse Skid Distance: _____ '
-Directional Falling? Yes (No) -Unusual Obstacles? Yes (No) If yes, show on map

Roads
Primary Haul Road #: 12736 Haul Road Surface: (Native) Gravel
Clearing and Grubbing/ Reconstruction required? Yes (No)
New Specified Road in Unit? Yes (No) -Spec. Road #: _____
New Temp Road in Unit? Yes (No)
-Temp Road Name: _____ Average Side Slope: _____ % Length: _____ '
-Residual CCF/acre: _____ ccf/acre -Does the temp cross water? Yes No

Improvements and Resources
Circle all located in or adjacent to the unit and show on map:

Culvert Road Sign Fence Gate Bearing Tree

Stream Spring Nest Survey monument

Property posts Weeds Cattleguard Arch. Site

Other: _____

Comments and Notes

Small tractor unit located in between roads. North boundary follows a dry draw, was checked for water. Borders a fuels unit to the north. Majority of stand is Douglas fir with a few pine and larch scattered throughout. Suggested marking species designation of ponderosa pine and larch, leave tree mark Douglas fir.

Why were areas dropped or excluded?

Prepared by: L. DeLong Date 4/12/24

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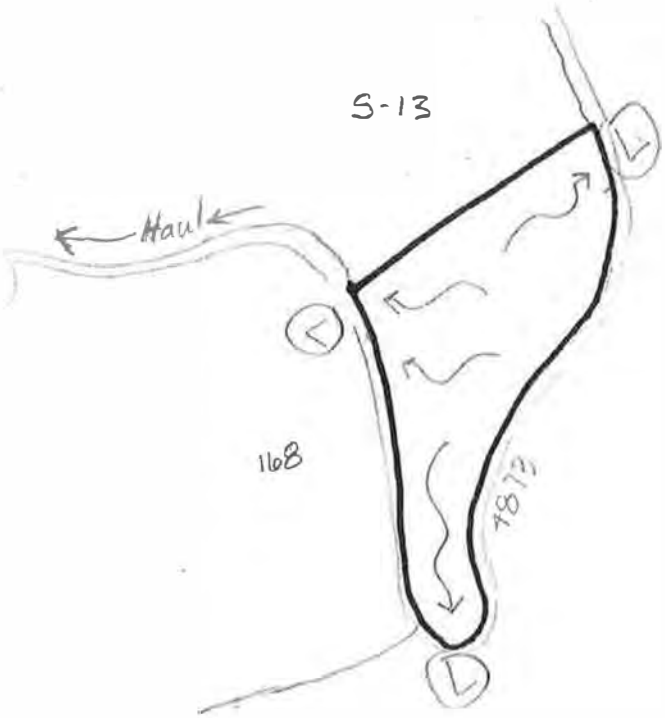
MAP: **Unit #:** 169

Legend

Unit Boundary	T Tractor Logging
Yarding Direction – Skyline	F Forwarder/Cut to Length Logging
Yarding Direction - Tractor	S Skyline Logging
(1) Proposed Log Landing Location	Hel Helicopter Logging
Existing Road	J Jammer
Temporary Road (constructed/existing)	TL Track Line Machine
Stream Channel	Dir Directional Falling
Riparian Buffer	W Surface Water
	XXX Dropped Areas

N



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Logging Systems & Unit Layout Card

NEPA Project Mitchell / Jackson CERCLA **Sale** Alexander Creek Treatment Area

Harvest Unit #: 173 NEPA Unit #: 173 Estimated Acres: 10
Prescription: Sheltersood Estimated Cut MBF /Acre: 6 mbf/acre

Species Composition

Species	% of Stand	Avg. DBH
DF	60 %	10 "
PP	20 %	11 "
WL	10 %	10 "
Other: LPP & Other	10 %	8 "

Coarse Woody Debris
Type: Logs Limbs Branches
Amount: High Medium Low

Loggings Systems
Proposed Harvest System: [Tractor] Skyline Other: _____ # of Landings: 1
Avcrage Slope: 37 % Avg. Yarding Distance: 600 ft. Max Yarding Distance: 1,050 ft.
Adverse Skidding? Yes [No]
% Adverse Skid: _____ % Max Adverse Skid Distance: _____'
-Directional Falling? Yes [No] -Unusual Obstacles? Yes [No] If yes, show on map

Roads
Primary Haul Road #: 4873 -> 4872 Haul Road Surface: [Native] Gravel
Clearing and Grubbing/ Reconstruction required? [Yes] No
New Specified Road in Unit? Yes [No] -Spec. Road #: _____
New Temp Road in Unit? [Yes] No
-Temp Road Name: T-66 Average Side Slope: 35 % Length: 1,200 ft.
-Residual CCF/acre: 15 ccf/acre -Does the temp cross water? Yes [No]

Improvements and Resources
Circle all located in or adjacent to the unit and show on map:

Culvert Road Sign Fence [Gate] Bearing Tree

Stream Spring Nest Survey monument

Property posts Weeds Cattleguard Arch. Site

Other: _____

Comments and Notes

Western boundary is on temp road. Temp road centerline is flagged in pink / black candy stripe.

Stand is mostly DF with some good larger diameter PP and a few WL. DMT is present in WL but not in high concentrations.

Probably best to LTM entire unit.

Some steeper areas but does "bench out" enough to turn around skidders. Evidence of old PP salvage just above temp road location. May possibly need excavated skid trail just above cut slope for safer access.

Why were areas dropped or excluded?

N/A

Prepared by: **R. Tardif** Date **05/29/2024**

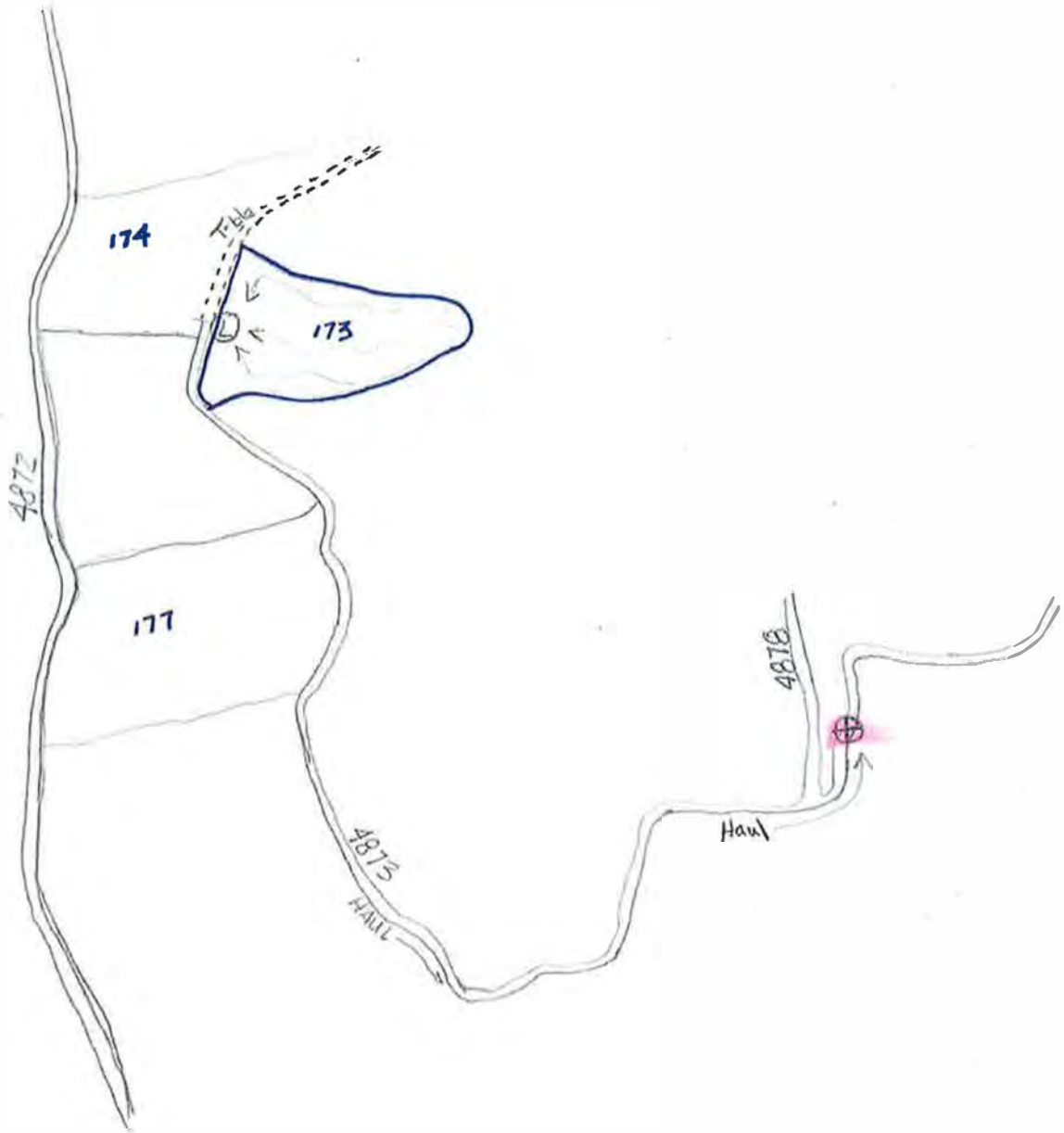
****For Informational Purposes Only****

Legend

- Unit Boundary
- Yarding Direction – Skyline
- Yarding Direction - Tractor
- Proposed Log Landing Location
- Existing Closure - Gate
- Existing Road
- Temporary Road (existing/proposed)
- Stream
- Riparian Buffer
- DIR Directional Falling

Unit #: 173

N



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Logging Systems & Unit Layout Card

NEPA Project: Mitchell / Jackson CERCLA Project **Sale:** Alexander Cr. Treatment Area

Harvest Unit #: 174 NEPA Unit #: 174 Estimated Acres: 13
Prescription: CCR Estimated Cut MBF /Acre: 10 mbf/acre

Species Composition

Species	% of Stand	Avg. DBH
DF	70 %	12"
WL	15 %	10"
PP	10 %	10"
Other: LPP, GF, etc.	5 %	9"

Coarse Woody Debris
Type: Logs Limbs Branches
Amount: High **Medium** Low

Loggings Systems
Proposed Harvest System: Tractor **Skyline** Other: _____ # of Landings: 4
Average Slope: 55 % Avg. Yarding Distance: 500 ft. Max Yarding Distance: 700 ft.
Adverse Skidding? Yes **No**
% Adverse Skid: _____ % Max Adverse Skid Distance: _____'
-Directional Falling? Yes **No** -Unusual Obstacles? Yes **No** If yes, show on map

Roads
Primary Haul Road #: 4873 -> 4872 Haul Road Surface: **Native** Gravel
Clearing and Grubbing/ Reconstruction required? **Yes** No
New Specified Road in Unit? Yes **No** -Spec. Road #: _____
New Temp Road in Unit? **Yes** No
-Temp Road Name: T-66 Average Side Slope: 35% Length: 1,200 ft.
-Residual CCF/acre: 24 ccf/acre -Does the temp cross water? Yes **No**

Improvements and Resources
Circle all located in or adjacent to the unit and show on map:

Culvert Road Sign Fence Gate Bearing Tree

Stream Spring Nest Survey monument

Property posts Weeds Cattleguard Arch. Site

Other: _____

Comments and Notes

Southern boundary against old CC, 20 foot tall regen within old unit. Northern boundary is common with fuels unit S-29. Eastern boundary is T-66 and Western is 4872 road. Unit shares a common boundary with unit 173 for the first 200 – 250 feet of T-66.

NW corner of unit has more GF than rest of unit and some WRC and ES. Draw on north boundary is dry, but kept the boundary on the south side of it.

Intermediate supports are needed, but unit can be done with tail holds on cut slope of 4872 road.

Why were areas dropped or excluded?

Prepared by: **R. Tardif** Date **06/06/2024**

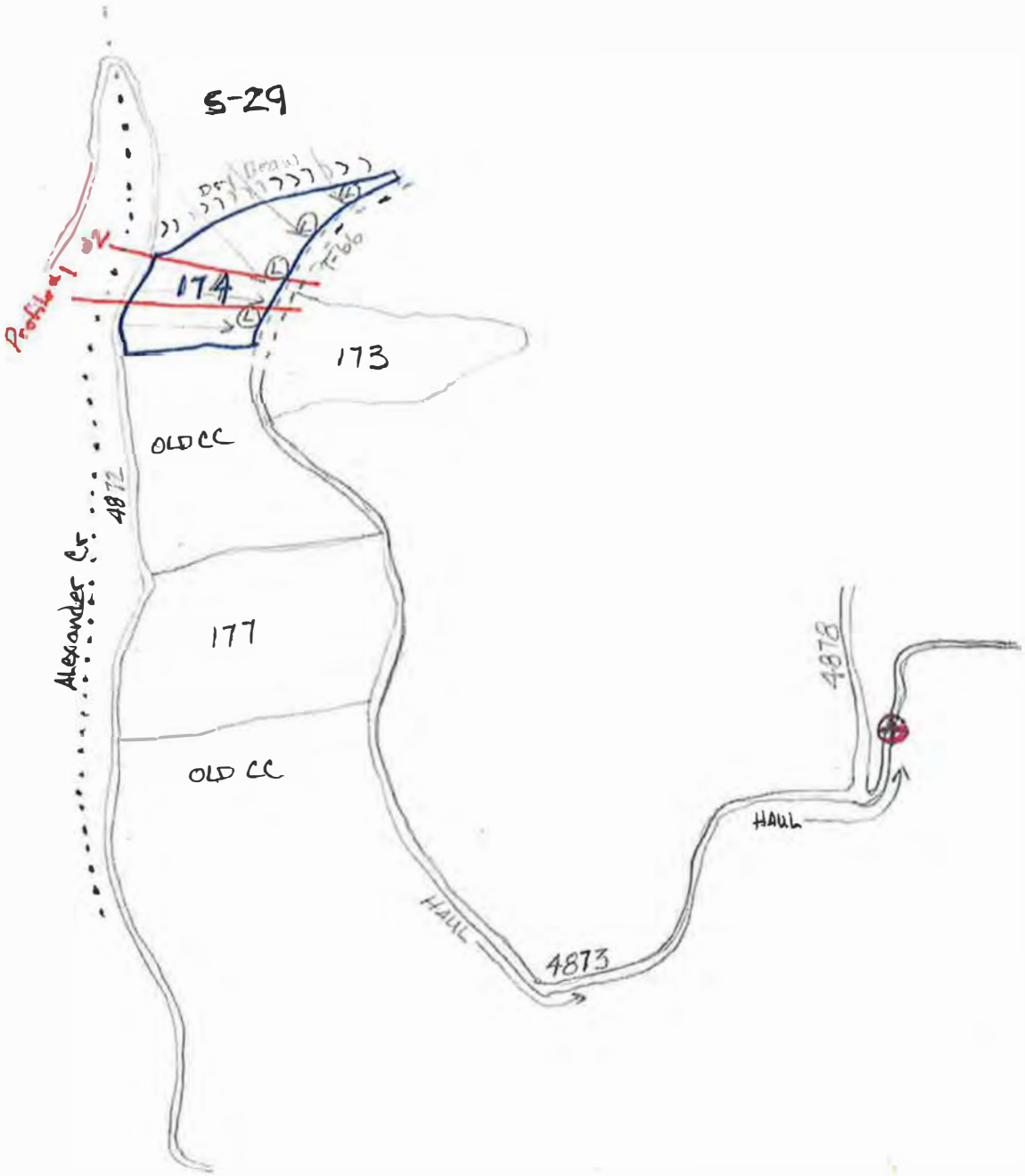
****For Informational Purposes Only****

Legend

- Unit Boundary
- Yarding Direction – Skyline
- Yarding Direction - Tractor
- Proposed Log Landing Location
- Existing Closure - Gate
- Existing Road
- Temporary Road (existing/proposed)
- Stream
- Riparian Buffer
- DIR Directional Falling

Unit #: 174

N



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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 175 Planning Unit # 175 Estimated Acres 27

Layout Person(s) BRENT HOFFMAN Layout Date

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) ADV

Average External Yarding Distance (AEYD) 740 [ft] Average Slope 65 [%]

Number of Landings 2 Harvest Method ST

Remarks:
BLIND LEADS EXCLUDED OR PICKED UP IN U. 175A (ORSY). STEEP SKYLINE UNIT. SOME POCKETS OF LOW VOL RIGHT BELOW RD BUT NOT FAR BELOW IS BETTER.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	10	
OTH	5	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☒ Other

Other OU3 TO NW

Remarks:

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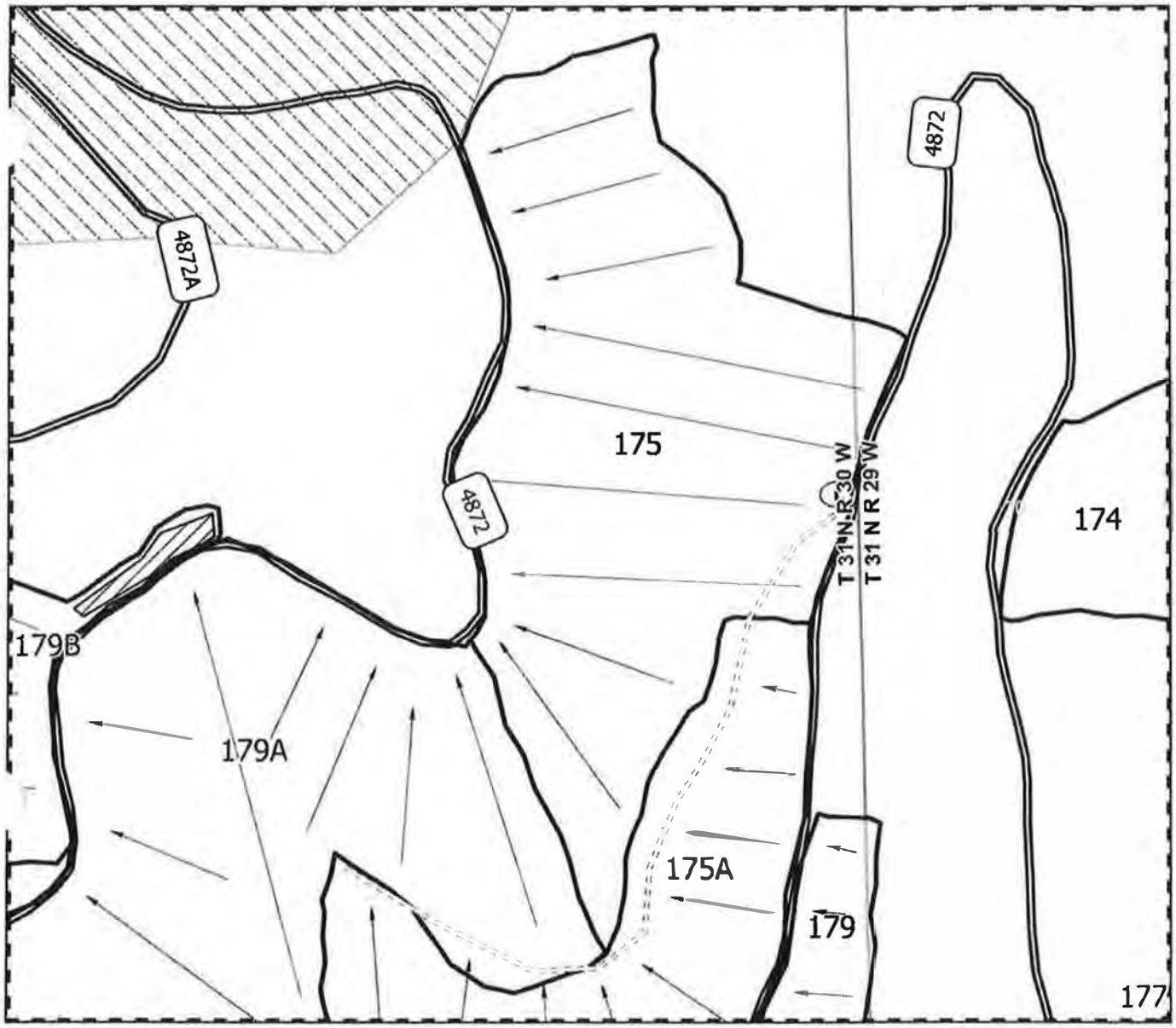

UNIT 175
Harvest Unit Layout and Logging Plan

0 210 420 840 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Landing
- Skid/Yard Direction
- Directional Falling
- Existing Skid Trails
- Forest Service Ownership
- OU3 EPA Boundary
- Existing Roads

N

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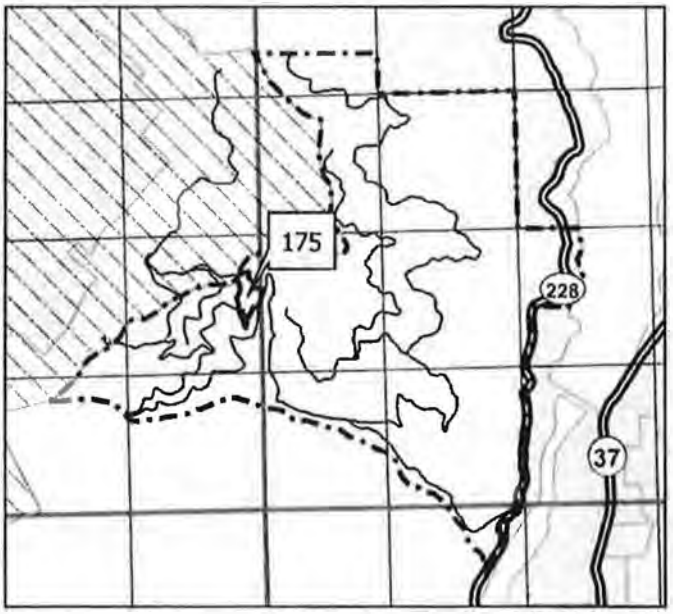

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 175A Planning Unit # 175+179 Estimated Acres 15

Layout Person(s) BRENT HOFFMAN Layout Date

Logging Systems

Logging System ORSY Direction (Adverse/Favorable) ADV

Average External Yarding Distance (AEYD) 390 [ft] Average Slope 46 [%]

Number of Landings 1 Harvest Method ST

Remarks:
UNIT CREATED FROM AREAS W/ BLIND LEADS ON BOTTOM ENDS OF 179A + 175. EXISTING SKID TRAIL TO BE USED TO CABLE + SWING DOWN TO DESIGNATED LANDING.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	10	
OTH	5	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

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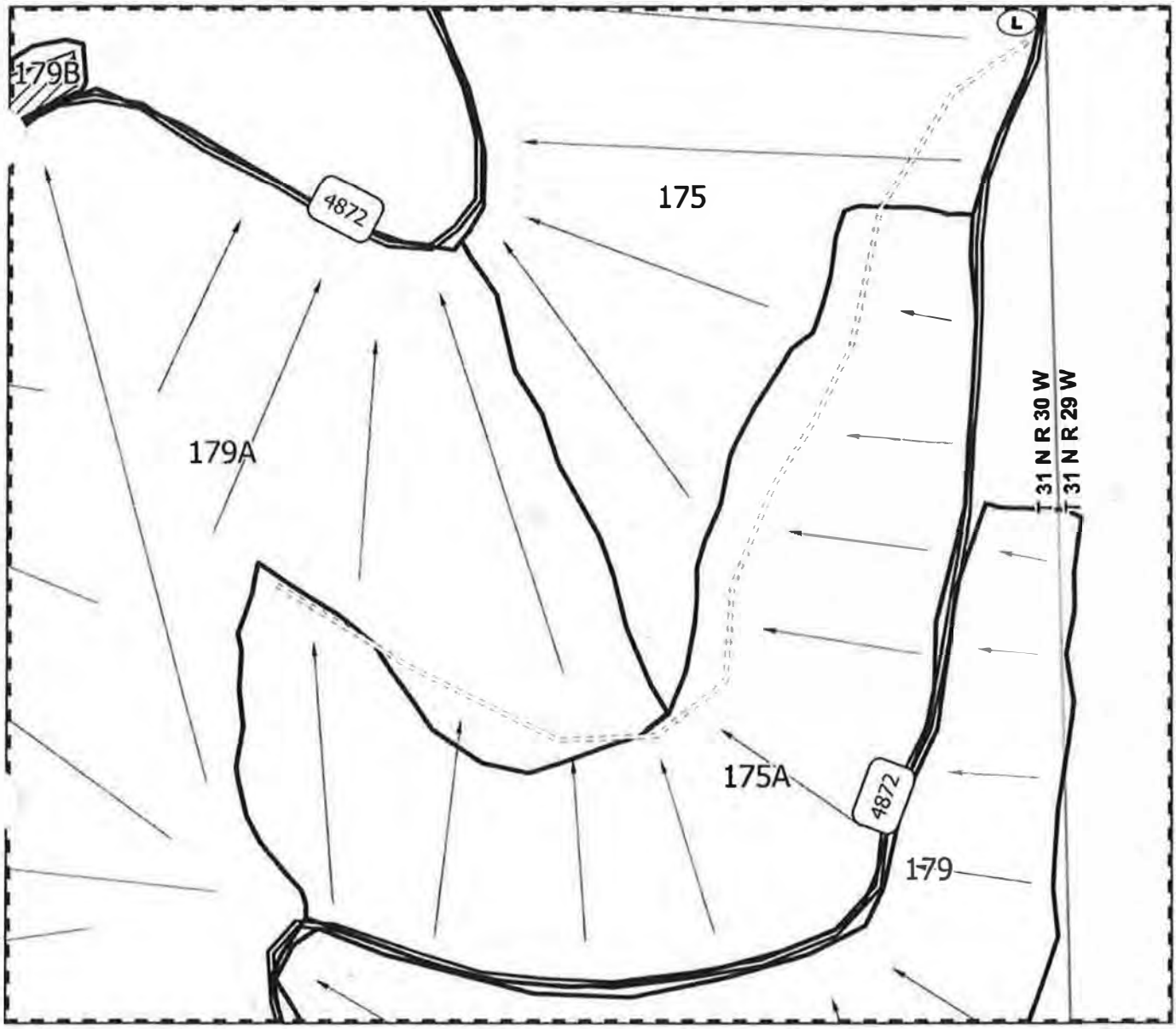

UNIT 175A
Harvest Unit Layout and Logging Plan

0 137.5 275 550 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Landing
- Skid/Yard Direction
- Directional Falling
- Existing Skid Trails
- Forest Service Ownership
- Existing Roads

N

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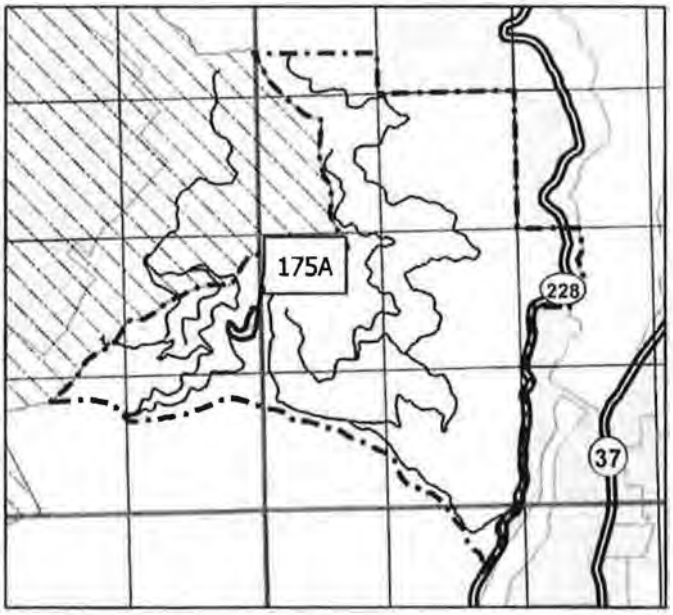
10/06/2025



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Logging Systems & Unit Layout Card

NEPA Project: **Mitchell / Jackson CERCLA Project** **Sale: Alexander Cr. Treatment Area**

Harvest Unit #: **177** NEPA Unit #: **177** Estimated Acres: **21**
Prescription: **CCR** Estimated Cut MBF /Acre: **10** mbf/acre

Species Composition

Species	% of Stand	Avg. DBH
DF	**60** %	**12"**
WL	**15** %	**10"**
PP	**15** %	**10"**
Other: **LPP, GF, etc.**	**10** %	**9"**

Coarse Woody Debris
Type: Logs Limbs Branches
Amount: High **Medium** Low

Loggings Systems
Proposed Harvest System: Tractor Skyline Other: **ORSY** # of Landings: **4**
Average Slope: **58 %** Avg. Yarding Distance: **700 ft.** Max Yarding Distance: **1,100 ft.**
Adverse Skidding? Yes **No**
% Adverse Skid: _____ % Max Adverse Skid Distance: _____
-Directional Falling? Yes **No** -Unusual Obstacles? Yes **No** If yes, show on map

Roads
Primary Haul Road #: **4873 -> 4872** Haul Road Surface: **Native** Gravel
Clearing and Grubbing/ Reconstruction required? **Yes** No
New Specified Road in Unit? Yes **No** -Spec. Road #: _____
New Temp Road in Unit? Yes **No**
-Temp Road Name: _____ Average Side Slope: _____ Length: _____
-Residual CCF/acre: _____ ccf/acre -Does the temp cross water? Yes No

Improvements and Resources
Circle all located in or adjacent to the unit and show on map:

Culvert Road Sign Fence Gate Bearing Tree

Stream Spring Nest Survey monument

Property posts Weeds Cattleguard Arch. Site

Other: _____

Comments and Notes

Unit is bordered on the North and South by old CC units with 20-25 foot tall regen. Eastern boundary is 4873 Road and Western is 4872 road.

Unit has sparce overstory near the bottom with thick understory. Cut volume in this area is closer to 6 MBF per acre with 10-12 MBF per acre in the upper portion of unit.

Intermediate supports are needed to get whole unit. but unit can be done with tail holds on cut slope of 4872 road. Will probably have to close the 4872 road when logging the south half of unit. The tailhold will likely need to cross the road and be located on the west side of Alexander Creek in order to work.

This unit is best suited for an Off-Road Skyline Yarder (Excaliner). Unit has a bench that is nearly 500 feet wide on the south end narrowing to less than 100 feet on the north side. Can easily build an excavated skid trail on edge of bench at no more than 20%. Requires an adverse skid to swing the logs to the 4873 road to a landing.

Why were areas dropped or excluded?

Prepared by: **R. Tardif** Date **06/06/2024**

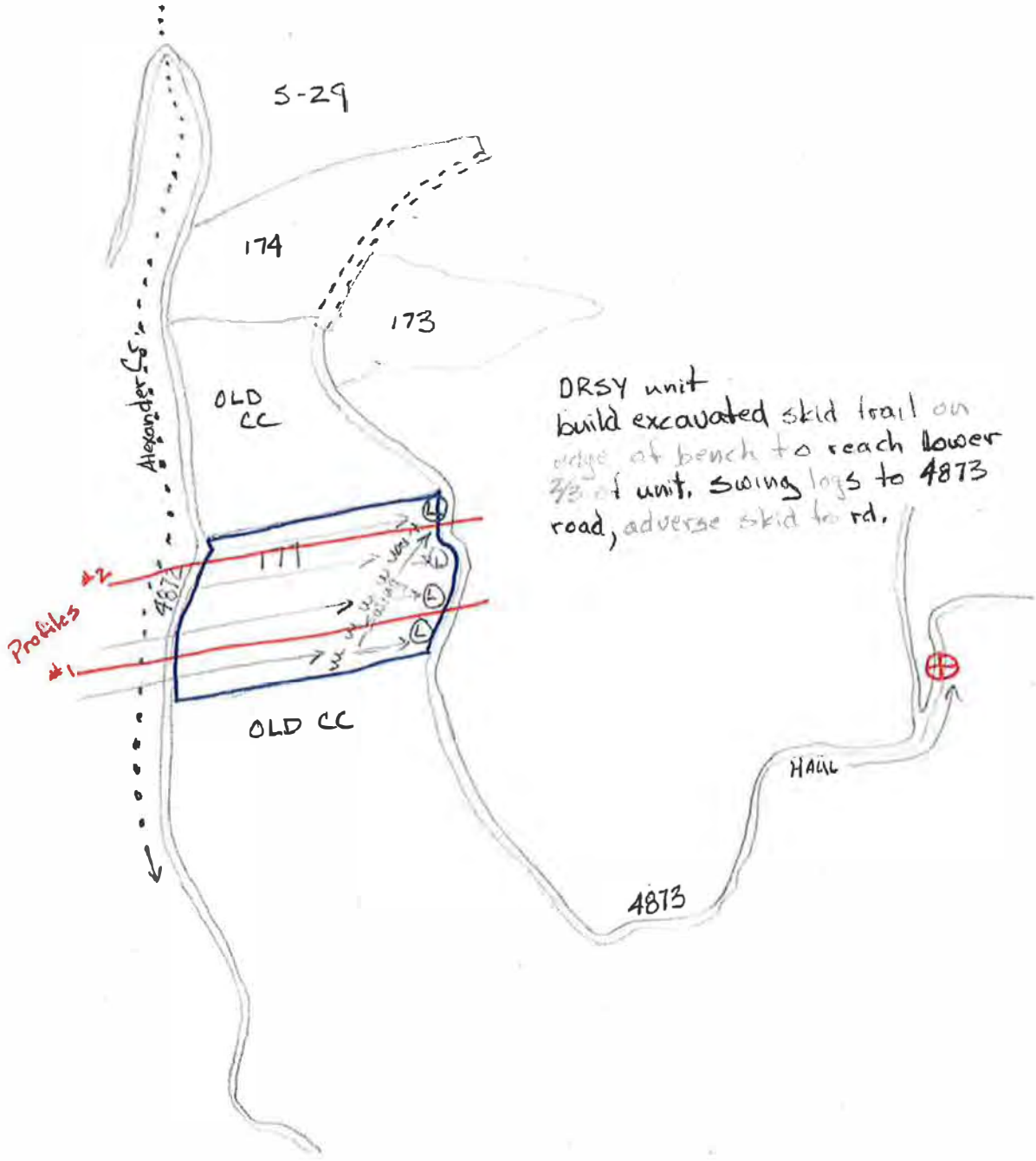
****For Informational Purposes Only****

Legend

- Unit Boundary
- Yarding Direction – Skyline
- Yarding Direction - Tractor
- Proposed Log Landing Location
- Existing Road
- Temporary Road (existing/proposed)
- Stream
- Riparian Buffer
- DIR Directional Falling
- ⊕ Existing Closure - Gate

Unit #: 177

N



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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 179 A, 179B, 179 Planning Unit # 179 Estimated Acres 179-21 179A-41 179B-11

Layout Person(s) BRENT HOFFMAN Layout Date

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) ADV

Average External Yarding Distance (AEYD) 179-530 A-850 B-580 [ft] Average Slope 179-60 A-45 B-40 [%]

Number of Landings 3 Harvest Method ST

Remarks:
UNITS SPLIT BECAUSE OF RDS + HAUL DISTANCE. ALL FAIRLY STRAIGHT FORWARD LINE UNITS. BLIND LEADS DROPPED FROM 179A + PICKED UP IN 175A. SOME DIR FALLING IN 179B

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	60	
L	20	
OTH	20	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☒ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:
RHCA TO E OF 179, BUFFERED OUT

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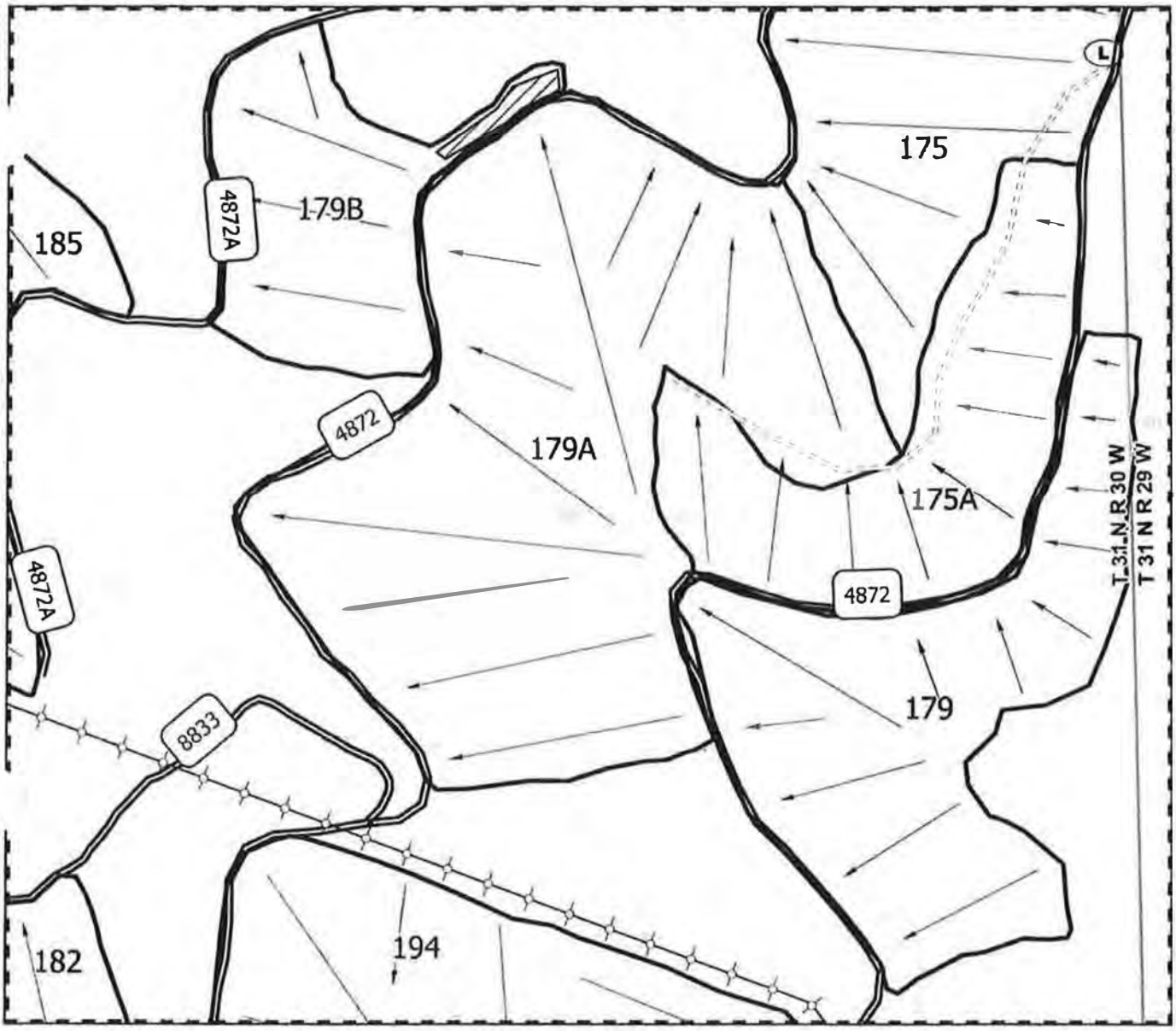

UNIT 179, 179A, 179B
Harvest Unit Layout and Logging Plan

0 237.5 475 950 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Landing
- Skid/Yard Direction
- Directional Falling
- Existing Skid Trails
- Forest Service Ownership
- Existing Roads

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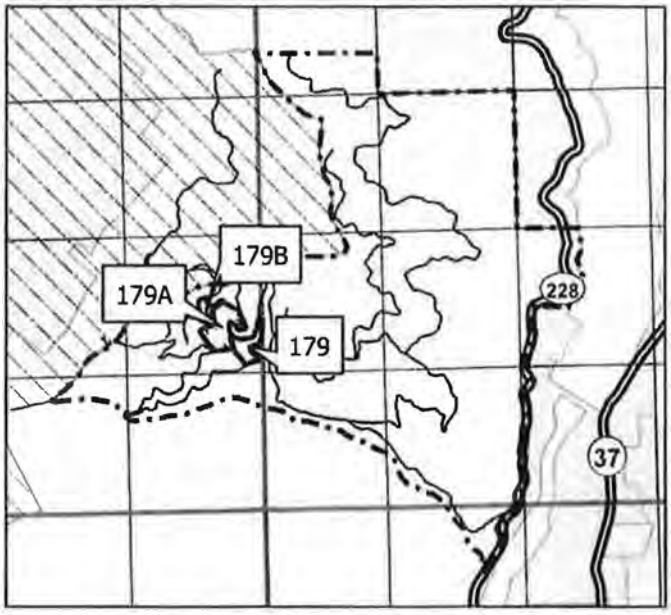
10/06/2025

N



For Informational Purposes Only

HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 182 Planning Unit # 182 Estimated Acres 28

Layout Person(s) BRENT HOFFMAN Layout Date

Logging Systems

Logging System ORSY Direction (Adverse/Favorable) ADVERSE

Average External Yarding Distance (AEYD) 540 [ft] Average Slope 43 [%]

Number of Landings 1 Harvest Method ST

Remarks:

USE OF EXISTING EXC SKID TRAIL TO SWING WESTERN PART OF UNIT. EASTERN PART OF UNIT WILL HAVE TO SWING W OR ADVERSE HAUL UP TO 4872B, 8833 RD TO W IS NOT USEABLE FOR HAUL

Roads

New Specified Roads NO New Temp Roads YES

Length 200 [ft] Avg. Side Slope 30 [%] Vol/Acre 5 [CCF/ac]

Remarks:

TEMP RD CONNECTING 4872B + 8833 NEEDED FOR HAUL. HAULING PROHIBITED ON 8833 TO E, NOT SUITABLE

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	80	
L	20	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

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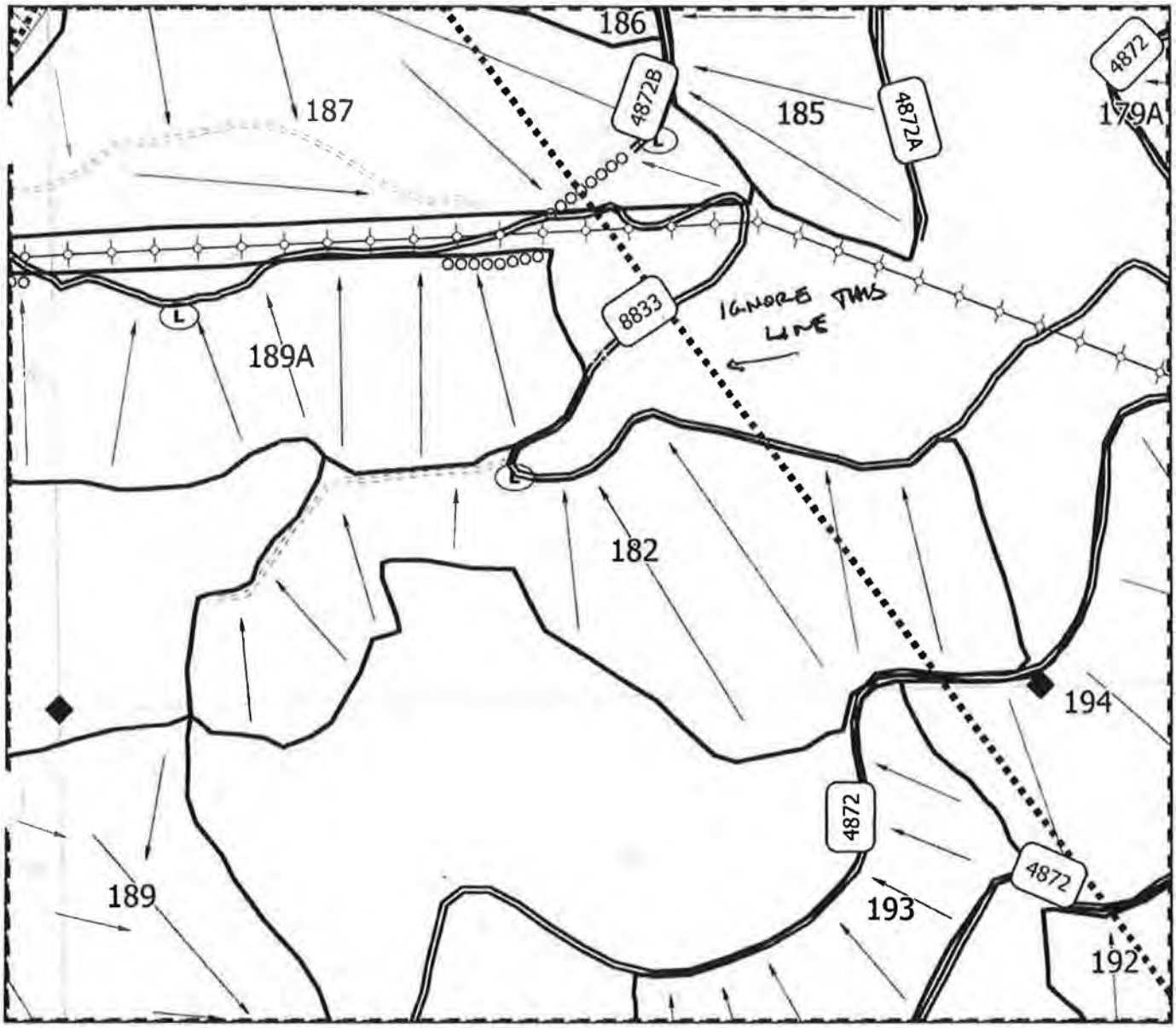

UNIT 182
Harvest Unit Layout and Logging Plan

0 237.5 475 950 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Survey Monuments
- Landing
- Skid/Yard Direction
- Existing Skid Trails
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- OU3 EPA Boundary
- Existing Roads
- PROTECT IMPROVEMENT - TRAIL

N

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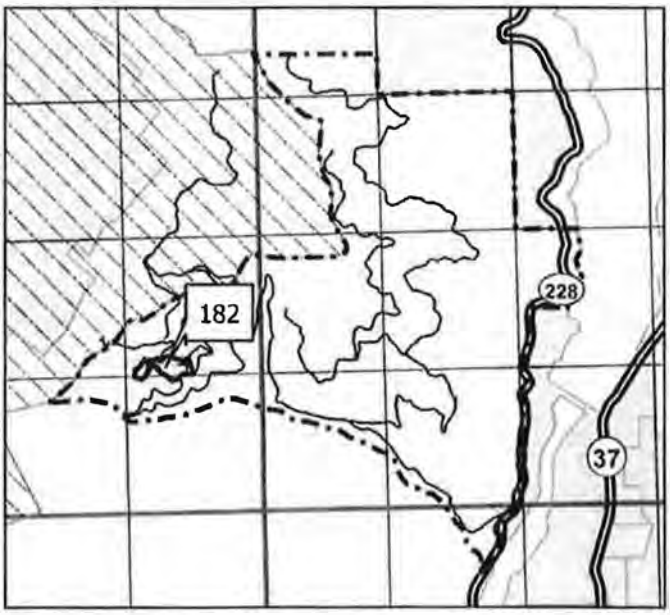

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 185 Planning Unit # 185 Estimated Acres 19

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) ADVERSE

Average External Yarding Distance (AEYD) 600 [ft] Average Slope 50 [%]

Number of Landings 1 Harvest Method ST

Remarks:

EST LANDINGS @ 1/20 AC BUT WILL LIKELY BE MORE OF SMALLER SIZE. STRAIGHT FORWARD LINE UNIT. WILL YARD PARALLEL TO POWERLINE, SEE DIRECTION IN CONTRACT PACKAGE

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:

N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	90	
L	10	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☒ Other

Other POWERLINE

Remarks:

POWERLINE ADJACENT TO S OF UNIT

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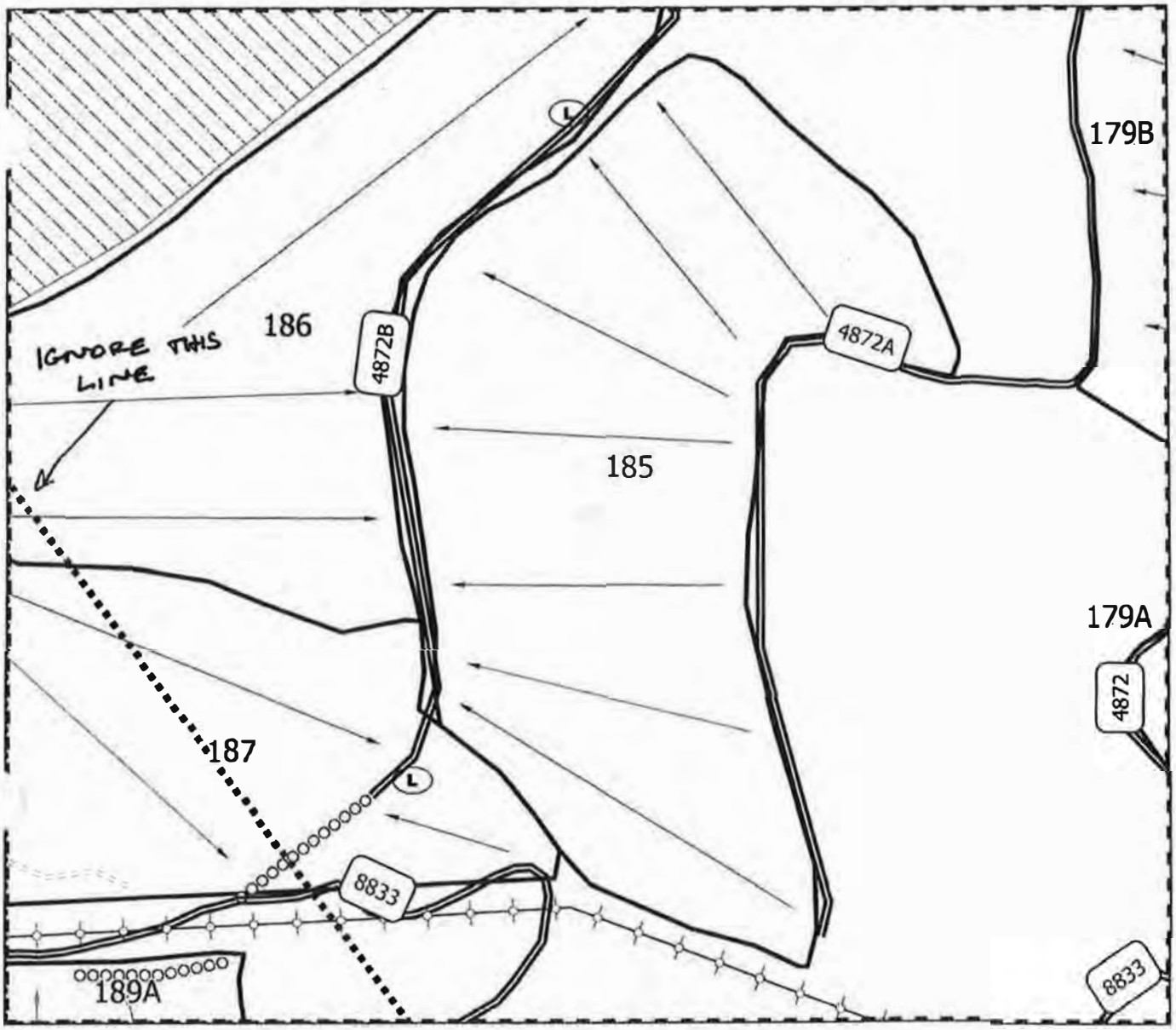

UNIT 185
Harvest Unit Layout and Logging Plan

0 150 300 600 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Landing
- Skid/Yard Direction
- Existing Skid Trails
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- OU3 EPA Boundary
- Existing Roads

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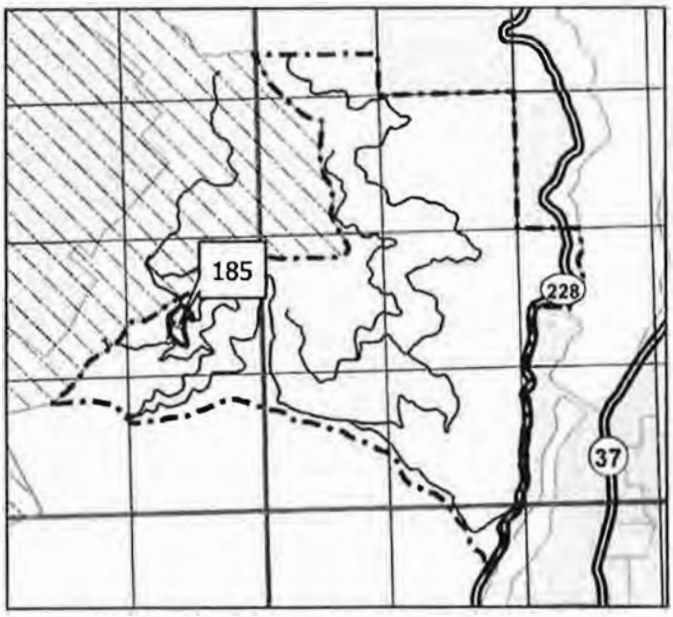
N



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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 186 Planning Unit # 186 Estimated Acres 15

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAVORABLE

Average External Yarding Distance (AEYD) 620 [ft] Average Slope 30 [%]

Number of Landings 1 Harvest Method ST

Remarks:

ROCKY RIDGE ON S BNDRY, LOW VOL. OU3 BNDRY ON RIDGE TO NW, SEE FACT SHEET.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:

N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	15	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☒ Other

Other DU3

Remarks:

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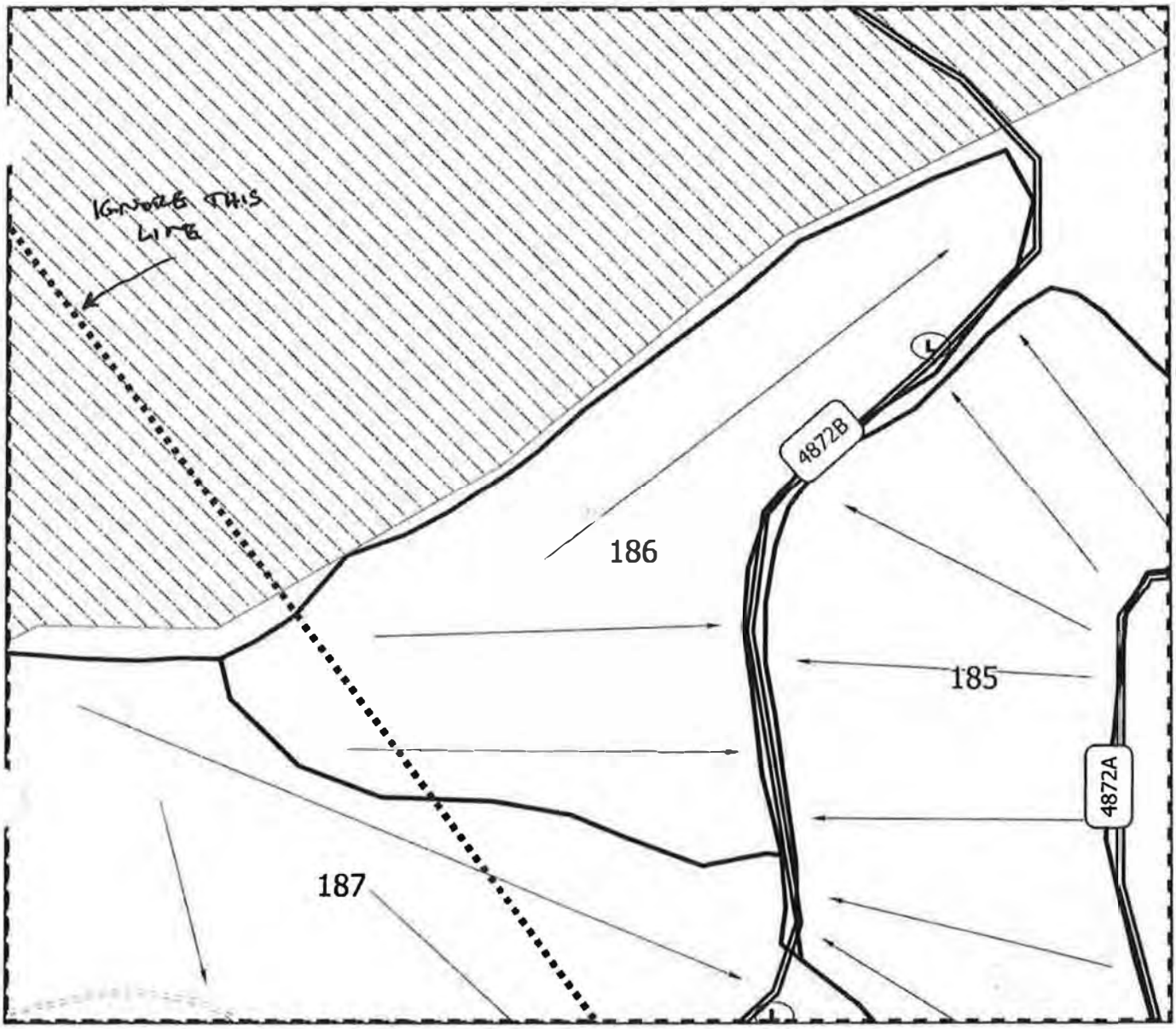

UNIT 186
Harvest Unit Layout and Logging Plan

0 150 300 600 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Landing
- Skid/Yard Direction
- Existing Skid Trails
- Forest Service Ownership
- OU3 EPA Boundary
- Existing Roads

N

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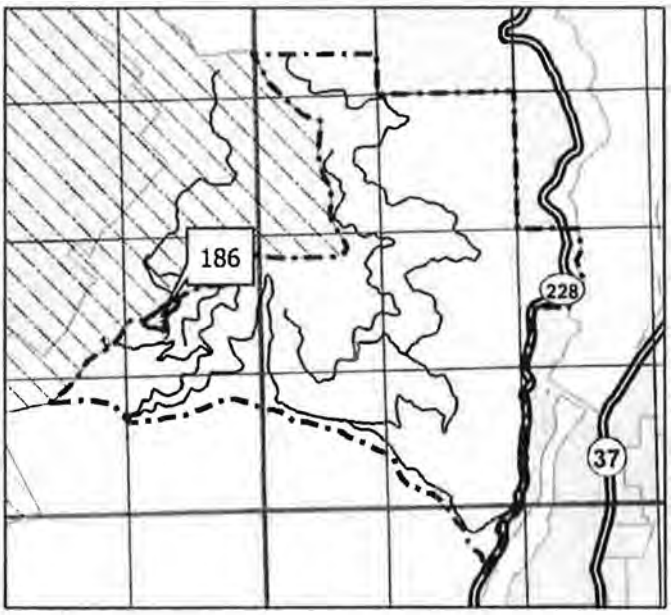

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 187 Planning Unit # 187 Estimated Acres 28

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAVORABLE

Average External Yarding Distance (AEYD) 1520 [ft] Average Slope 30 [%]

Number of Landings 1 Harvest Method IMP

Remarks:
ROCKY RIDGE ON COMMON W/ 186. UTILIZE EXISTING SKID TRAIL TEMPLATE ABOVE POWERLINE TO AVOID SKIDDING @ POWERLINE ROAD. MAY REQUIRE PACKING OF TREES IN PORTION OF UNIT DIRECTLY ADJACENT TO POWERLINE. OLD LOOKOUT ACCESS RD THROUGH UNIT.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
N/A

****For Informational Purposes Only****

Species Composition

Species	% of Stand	Avg. DBH
DF	80	
L	15	
GF	5	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☒ Trail
- ☒ Other

Other ~~OHV~~, POWERLINE

Remarks:

TRAIL ALONG W EDGE OF UNIT BUT MOSTLY EXTERIOR. POWERLINE TO S OF UNIT. AVOID SKID ON POWERLINE ROAD.

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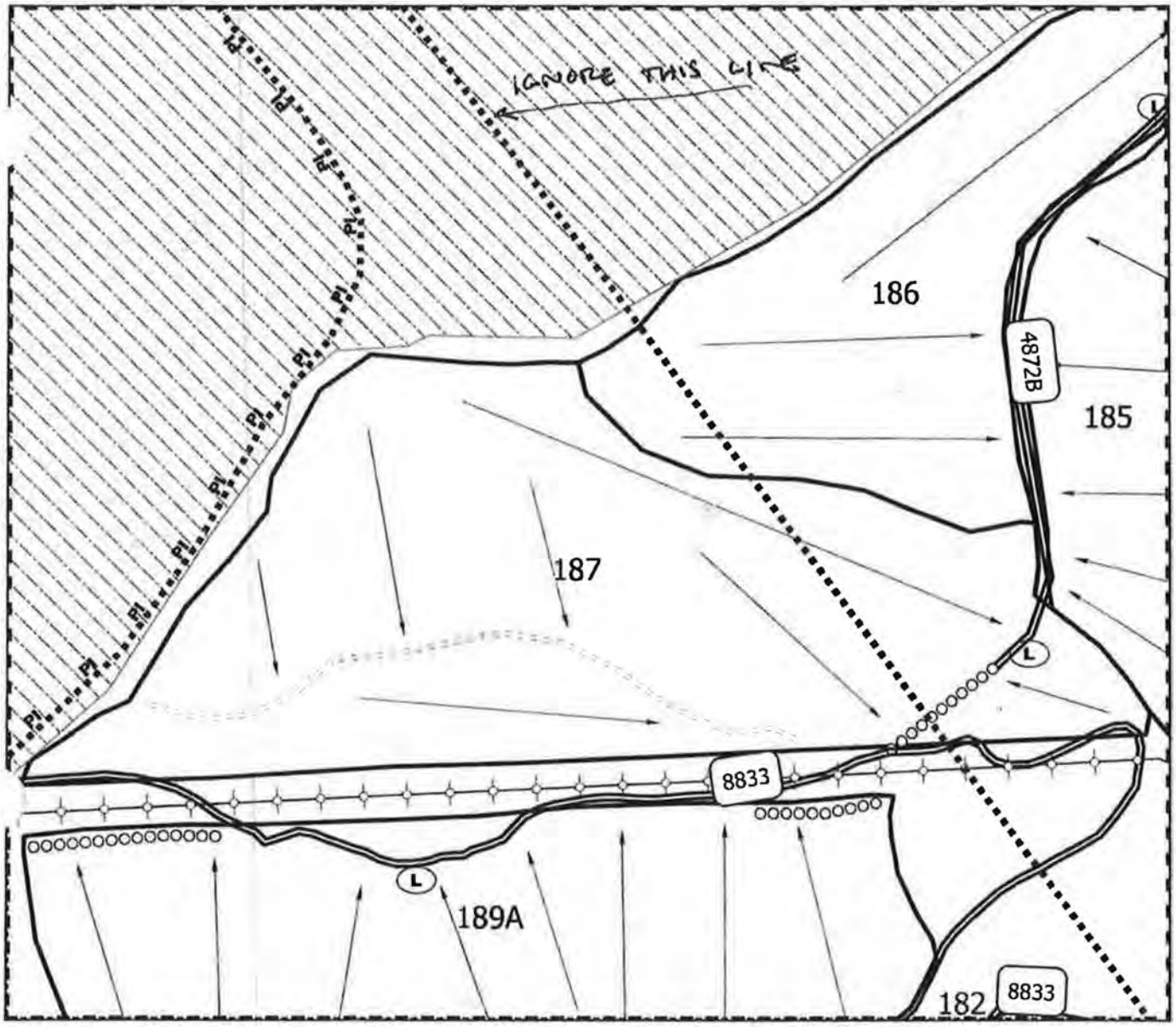

UNIT 187
Harvest Unit Layout and Logging Plan

0 185 370 740 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Landing
- Skid/Yard Direction
- Existing Skid Trails
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- OU3 EPA Boundary
- Existing Roads
- PROTECT IMPROVEMENT - TRAIL

N

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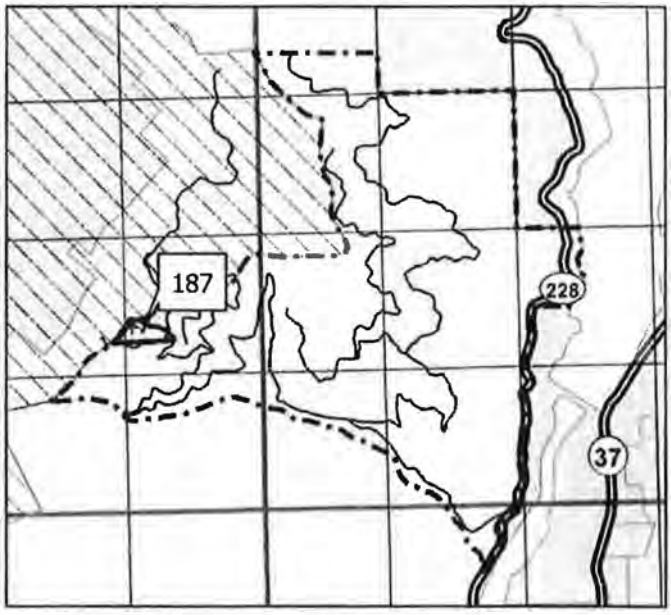

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 189 Planning Unit # 189 Estimated Acres 34

Layout Person(s) BRENT HOFFMAN Layout Date

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAVORABLE

Average External Yarding Distance (AEYD) 1100 [ft] Average Slope 40 [%]

Number of Landings 2 Harvest Method ST

Remarks:

PORTION OF THIS UNIT TO W WILL SKID OUT THROUGH 202. STEEP CUT SLOPE ALONG RD 4872 JUST AFTER SWITCHBACK TO AVOID. SHOULD BE FAIRLY STRAIGHT FORWARD. PORTION OF UNIT BETWEEN SWITCHBACKS WILL NEED TO UTILIZE DIRECTIONAL FALLING

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:

N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	10	
OTH	5	

Improvements and Resources

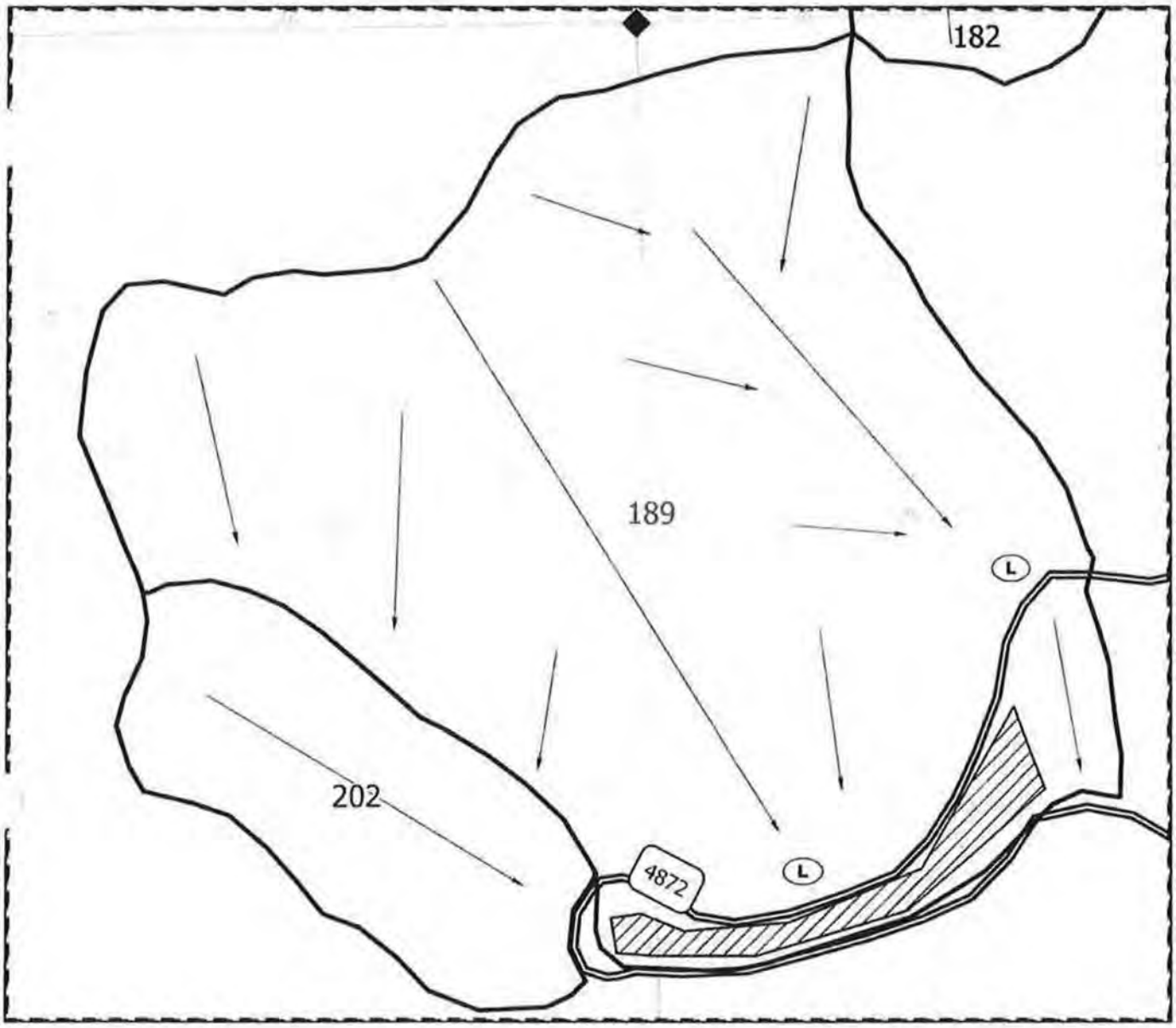
Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

For Informational Purposes Only



UNIT 189
Harvest Unit Layout and Logging Plan

0 140 280 560 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Survey Monuments
- L Landing
- Skid/Yard Direction
- Directional Falling
- Forest Service Ownership
- Existing Roads

N

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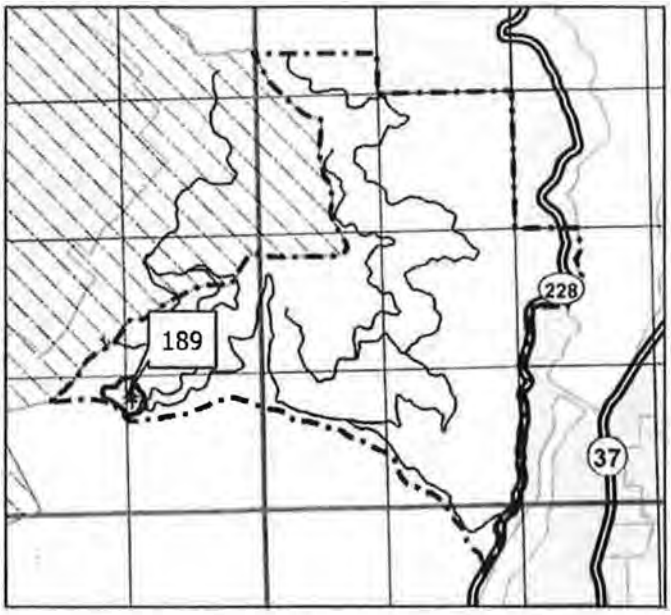

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 189A Planning Unit # 189A Estimated Acres 22

Layout Person(s) BRENT HOFFMAN Layout Date

Logging Systems

Logging System ORSY Direction (Adverse/Favorable) ADV

Average External Yarding Distance (AEYD) 540 [ft] Average Slope 50 [%]

Number of Landings 1 Harvest Method ST

Remarks:

UNIT REQUIRES THE CONST OF 2 EXC SKID TRAILS IN ORDER TO GET LINE MACHINES OUT OF POWERLINE COORIDOR. LOCATED ON E + W SIDES OF UNIT. MATERIAL CAN BE SWUNG TO LANDINGS ON 8833 ROAD. WILL HAUL OUT 4872A USING TEMP CONNECTOR RD

Roads

New Specified Roads NO New Temp Roads YES

Length 2 x 300 [ft] Avg. Side Slope 30 [%] Vol/Acre 10 [CCF/ac]

Remarks:

2 EXC SKID TRAILS + THE 8833 + 4872A CONNECTOR TEMP RD

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	10	
OTH	5	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☒ Other

Other POWERLINE

Remarks:

POWERLINE TO N, CONST SKID TRAILS TO GET EQUIP AWAY FROM CORRIDOR. SEE OPS REQUIREMENTS DOCS IN CONTRACT PACKAGE

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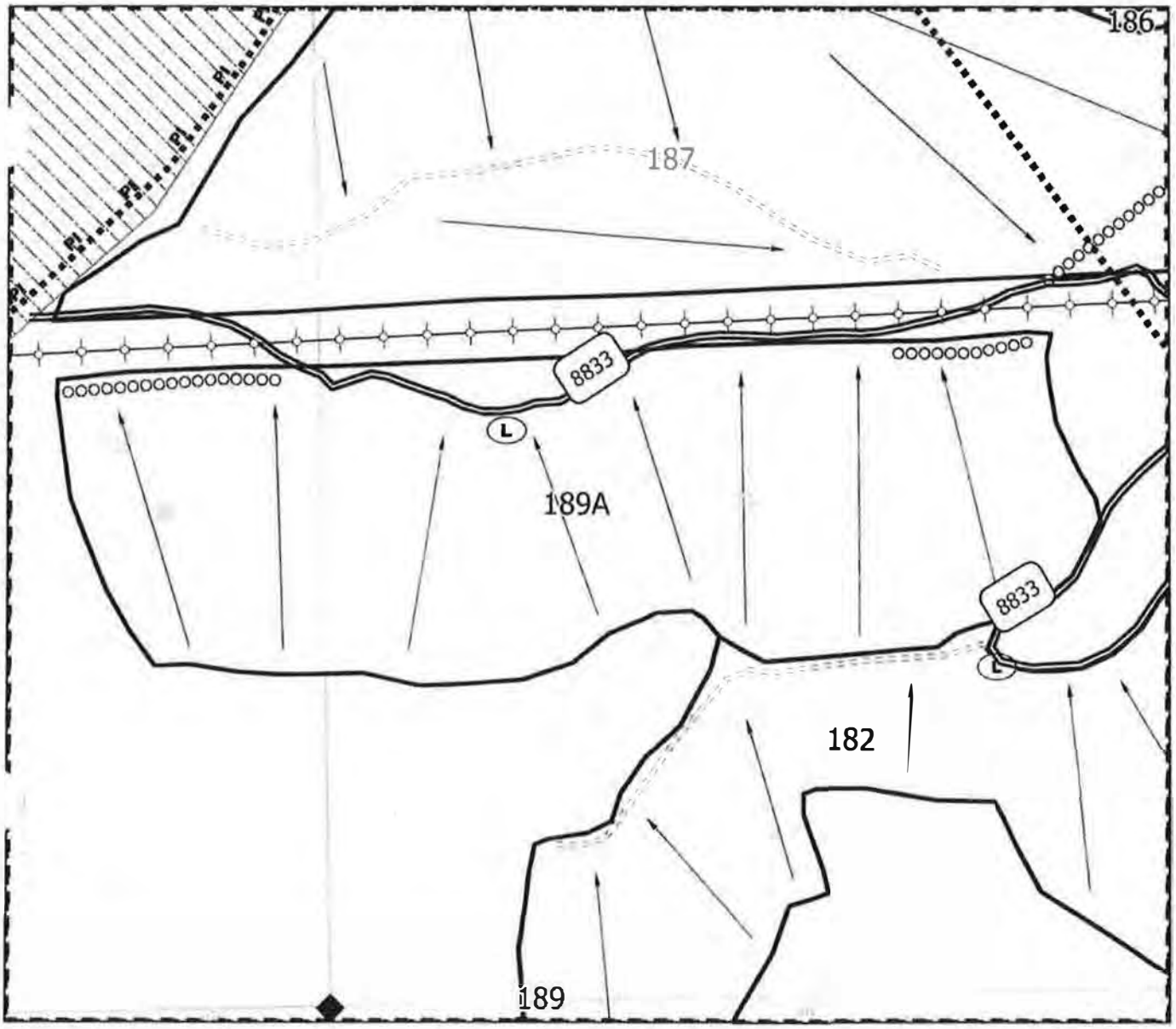

UNIT 189A
Harvest Unit Layout and Logging Plan

0 162.5 325 650 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Survey Monuments
- Landing
- Skid/Yard Direction
- Existing Skid Trails
- Proposed Temp Roads/ Exc Skid Trails
- Forest Service Ownership
- OU3 EPA Boundary
- Existing Roads
- PROTECT IMPROVEMENT - TRAIL

N

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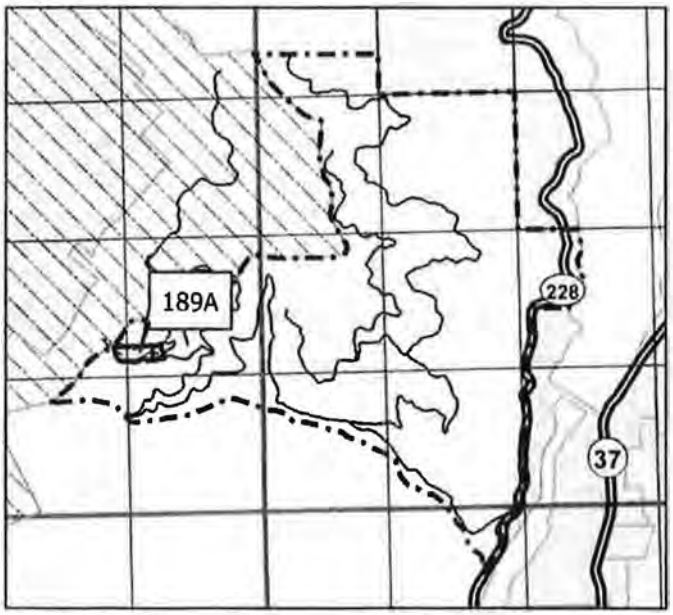

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 192 Planning Unit # 192 Estimated Acres 28

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) ADVERSE

Average External Yarding Distance (AEYD) 720 [ft] Average Slope 40 [%]

Number of Landings 2 Harvest Method IMP

Remarks:
FAIRLY STRAIGHT FORWARD, EXCLUDED BLIND LEADS. MORE GRADUAL SLOPE ON E END OF UNIT ADJACENT TO POWERLINE.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	75	
GF	15	
L	10	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☒ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☒ Other

Other POWERLINE

Remarks:

STREAM TO S OF UNIT IN DRAW.
POWERLINE TO E OF UNIT, SEE OPS PROCEDURES IN CONTRACT PACKAGE, MINIMAL IMPACT.

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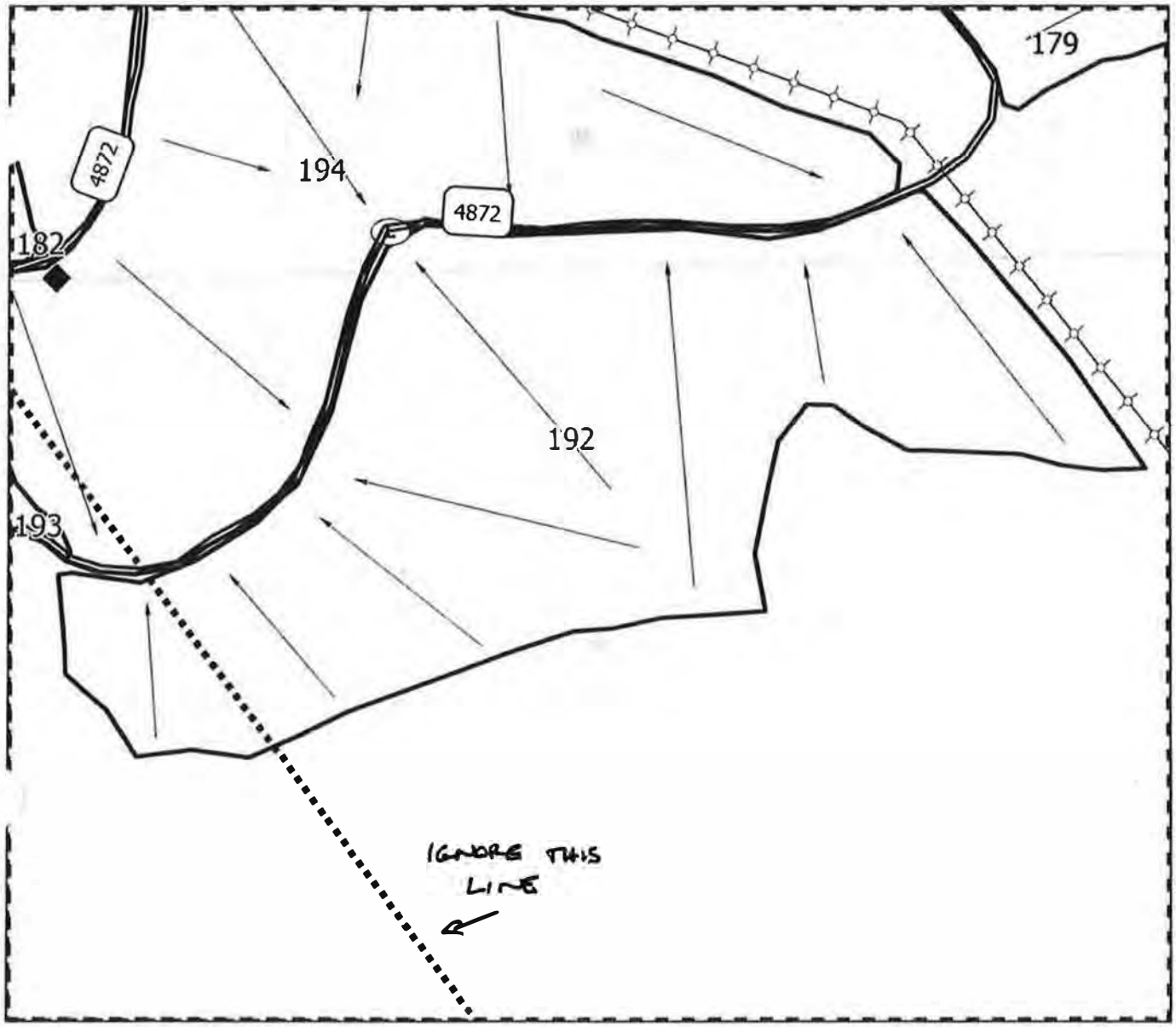

UNIT 192

Harvest Unit Layout and Logging Plan

0 180 360 720 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Survey Monuments
- Landing
- Skid/Yard Direction
- Forest Service Ownership
- Existing Roads

N

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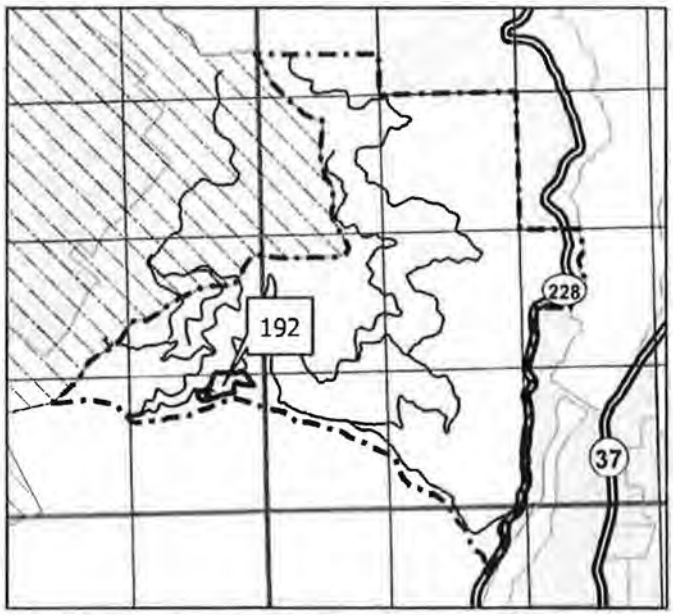

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 192 A Planning Unit # 192 Estimated Acres 5

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) ADV

Average External Yarding Distance (AEYD) 260 [ft] Average Slope 35 [%]

Number of Landings 1 Harvest Method IMP

Remarks:

SMALL CABLE UNIT SPLIT FROM 192 DUE TO CLIFF BAND + LOW VOLUME IN BETWEEN. STRAIGHT FORWARD OPS. RHCA TO S OF UNIT. LOTS OF TAILHOLD OPTIONS.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:

N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	80	
OTH	15	
L	5	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☒ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other _____

Remarks:

STREAM TO S, BUFFERED OUT

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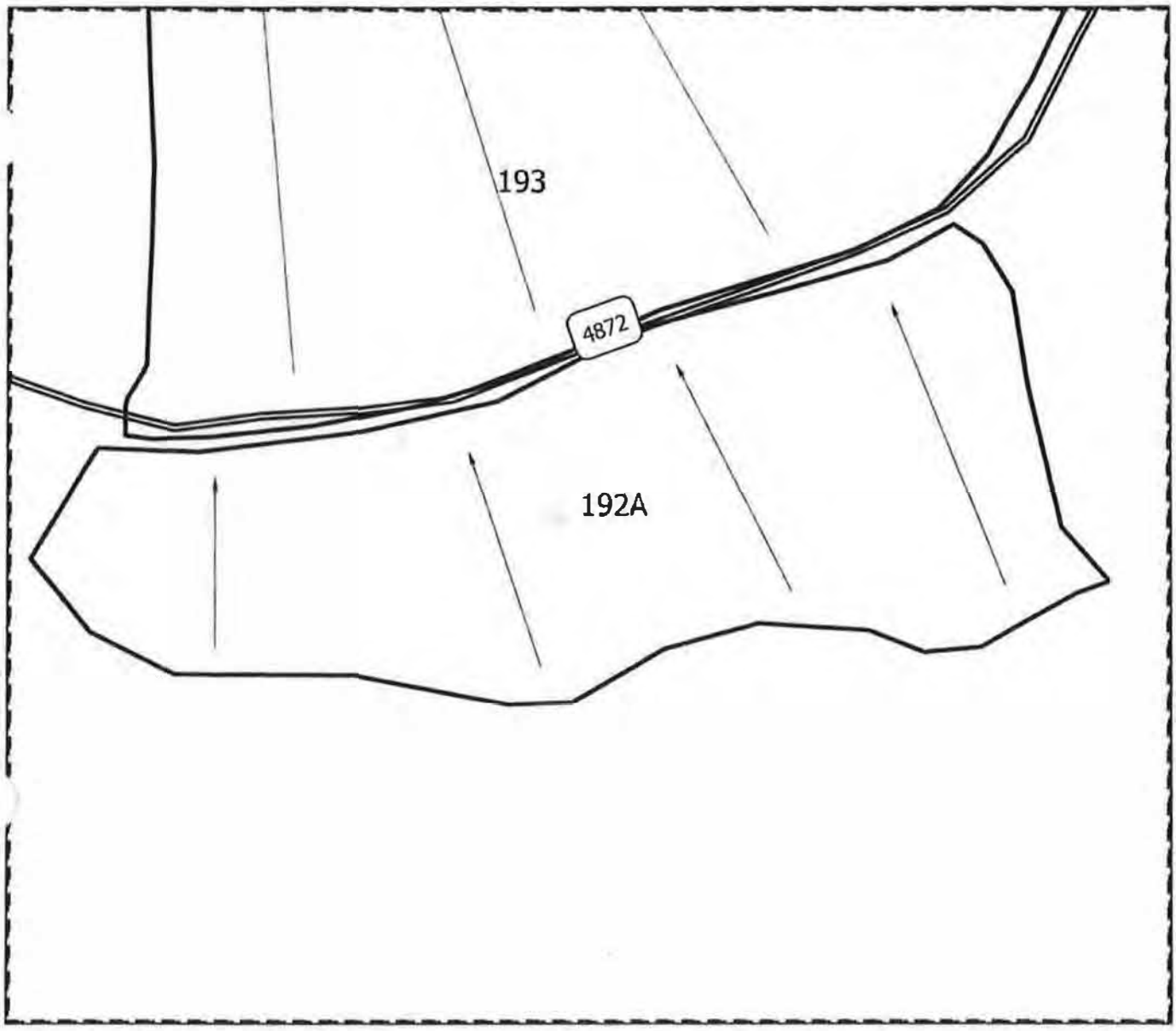

UNIT 192A
Harvest Unit Layout and Logging Plan

0 70 140 280 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Skid/Yard Direction
- Forest Service Ownership
- Existing Roads

N

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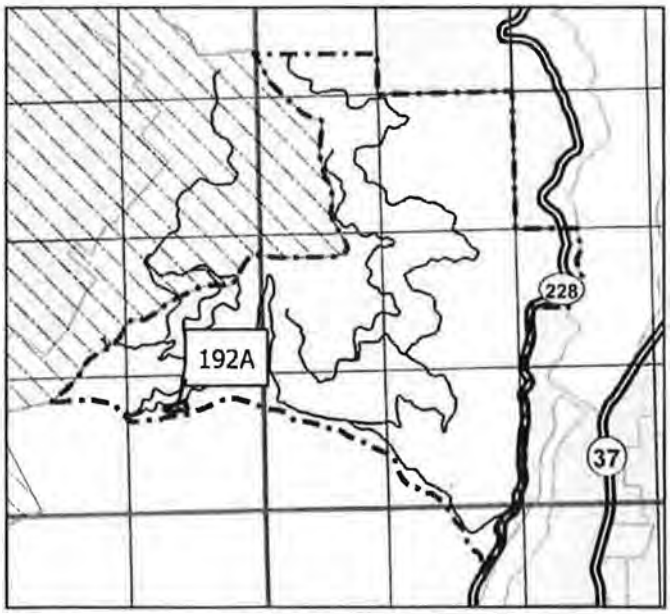
10/06/2025



For Informational Purposes Only

Logging Systems & Unit Layout Card

NEPA Project: Mitchell / Jackson CERCLA **Sale: Alexander Creek Treatment Area**

Harvest Unit #: **193** NEPA Unit #: **193** Estimated Acres: **8**
Prescription: **Seed Tree** Estimated Cut MBF /Acre: **5** mbf/acre

Species Composition

Species	% of Stand	Avg. DBH
DF	**80** %	**10"**
WL	**10** %	**8"**
PP	**5** %	**12"**
Other:	**5** %	**8"**

Coarse Woody Debris
Type: Logs Limbs **Branches**
Amount: High **Medium** Low

Loggings Systems
Proposed Harvest System: Tractor **Skyline** Other: _____ # of Landings: **4**
Average Slope: **50%** Avg. Yarding Distance: **350 ft.** Max Yarding Distance: **400 ft.**
Adverse Skidding? Yes **No**
% Adverse Skid: _____ % Max Adverse Skid Distance: _____'
-Directional Falling? **Yes** No -Unusual Obstacles? Yes **No** If yes, show on map

Roads
Primary Haul Road #: **4872** Haul Road Surface: **Native** Gravel
Clearing and Grubbing/ Reconstruction required? **Yes** No
New Specified Road in Unit? Yes **No** -Spec. Road #: _____
New Temp Road in Unit? Yes **No**
-Temp Road Name: _____ Average Side Slope: _____ % Length: _____'
-Residual CCF/acre: _____ ccf/acre -Does the temp cross water? Yes No

Improvements and Resources
Circle all located in or adjacent to the unit and show on map:

Culverts Road Sign Fence Gate Bearing Tree

Stream Spring Nest Survey monument

Property posts Weeds Cattleguard Arch. Site

Other: **Mobile guy back or ORSY needed due to lack of larger trees above unit to tie to.**

Comments and Notes

Eastern boundary is common with west side of unit 194 and includes dry draw that was intended to be included in 194. The west side of this draw is too steep for ground-based skidding. Southern and northern boundaries are on the 4872 road. Western boundary is common with unit 191.

Unit 191 is a commercial thin unit with trees averaging 4 to 6 inch at DBH. Therefore unit 193 will need to be harvested with an ORSY machine or assisted with a mobile guy back.

Unit is heavy to DF with WL scattered throughout and a few PP. Could SD to leave all PP, but since the unit is only 8 acres and PP is such a small percentage of the overstory, this would not save much time in marking. WL does have some DMT with a few "ratty" looking smaller-sized trees. Suggest LTM this unit.

Unit has a small (approx. 1 acre) opening just above southern boundary with a small rock outcrop within creating a blind lead. Only about 6 cut trees lie below this outcrop and can be directionally felled to road and skidded to a landing in unit 194. This area is not significant enough to take out of unit.

Why were areas dropped or excluded?

Prepared by: **R. Tardif** Date **06/03/2024**

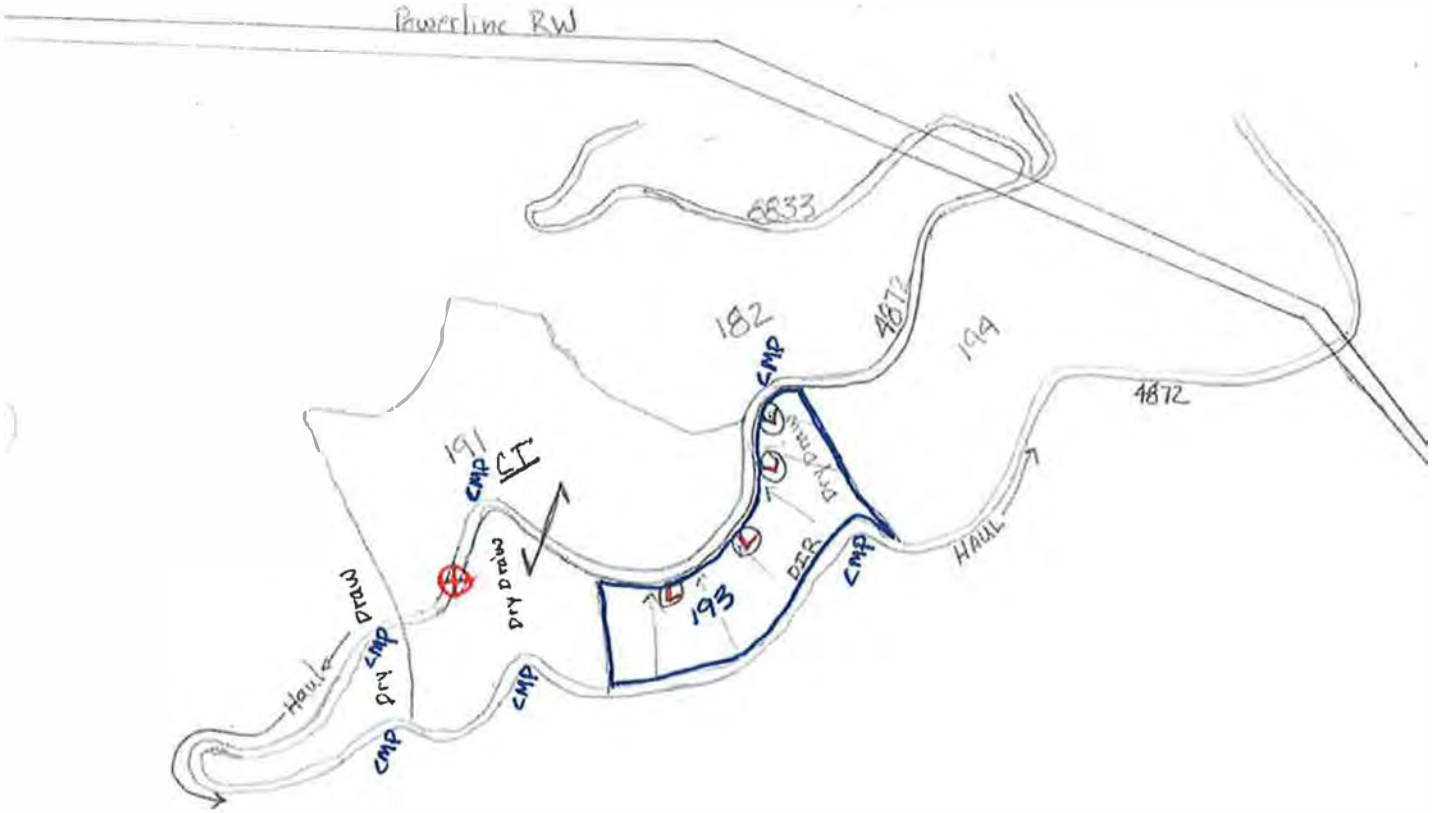
****For Informational Purposes Only****

Legend

- Unit Boundary
- Yarding Direction – Skyline
- Yarding Direction - Tractor
- Proposed Log Landing Location
- Existing Road
- Temporary Road (existing/proposed)
- Stream
- Riparian Buffer
- DIR Directional Falling
- Existing Closure - Gate
- CMP Corregated Metal Pipe (culvert)

Unit #: 193

N



For Informational Purposes Only

Logging Systems & Unit Layout Card

NEPA Project: Mitchell / Jackson CERCLA **Sale:** Alexander Creek Treatment Area

Harvest Unit #: 194 NEPA Unit #: 194 Estimated Acres: 30
Prescription: Improvement Estimated Cut MBF /Acre: 5 mbf/acre

Species Composition

Species	% of Stand	Avg. DBH
DF	65 %	10 "
PP	20 %	10 "
WL	10 %	9 "
Other: LPP, Other	5 %	8 "

Coarse Woody Debris
Type: Logs Limbs (Branches)
Amount: High Medium **Low**

Loggings Systems
Proposed Harvest System: **Tractor** Skyline Other: _____ # of Landings: 2
Average Slope: 35 % Avg. Yarding Distance: 500 ft. Max Yarding Distance: 700 ft.
Adverse Skidding? Yes **No**
% Adverse Skid: _____ % Max Adverse Skid Distance: _____'
-Directional Falling? Yes **No** -Unusual Obstacles? Yes **No** If yes, show on map

Roads
Primary Haul Road #: 4872 Haul Road Surface: **Native** Gravel
Clearing and Grubbing/ Reconstruction required? **Yes** No
New Specifiecd Road in Unit? Yes **No** -Spec. Road #: _____
New Temp Road in Unit? Yes **No**
-Temp Road Name: N/A Average Side Slope: _____ % Length: _____'
-Residual CCF/acre: _____ ccf/acre -Does the temp cross water? Yes No

Improvements and Resources
Circle all located in or adjacent to the unit and show on map:

(Culvert) Road Sign Fence Gate Bearing Tree

Stream Spring Nest (Survey monument)

Property posts Weeds Cattleguard Arch. Site

Other: _____

Comments and Notes

Eastern boundary is the edge of the Powerline RoW. The 4872 road serves as the south and north boundaries. The western boundary is in the draw near the western edge of the unit. A survey monument with two associated BT's is in place near the NW corner of the unit. This needs to be protected.

Overstory is heavy to DF, but has some really nice DF of larger diameter classes throughout. WL and PP are a lesser component, but still have representatives of larger diameter classes. Suggest LMT the entire unit.

Map shows a stream bisecting the unit in the eastern half. This stream does **NOT** exist on the ground but should avoid skidding down the center of the draw. Could LTM a little heavier in the draw.

The draw near the western boundary is dry as well, but again, do not skid down or through the draw. Consider LTM a little heavier here as well.

Why were areas dropped or excluded?

Dropped approximately 3 acres on the western edge of the unit. This area is too steep for ground-based harvesting. Suggest we add this area to unit 193, a skyline unit directly adjacent.

Prepared by: **R. Tardif** Date **05/29/2024**

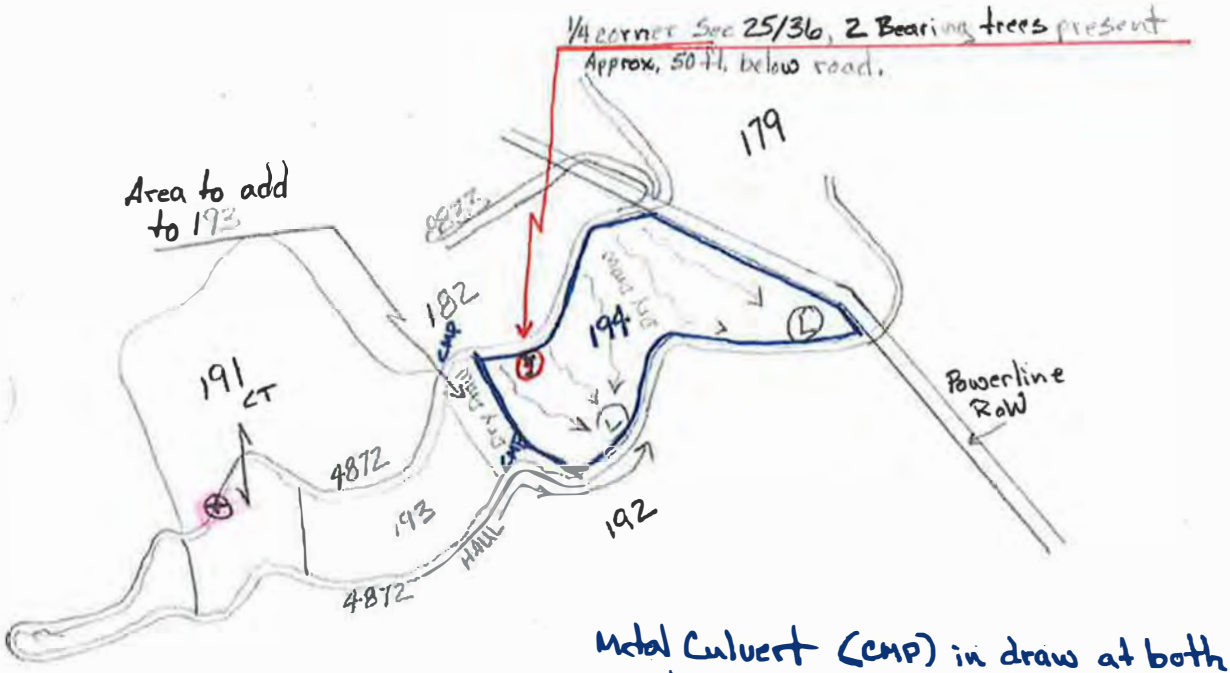
****For Informational Purposes Only****

Legend

- Unit Boundary
- Yarding Direction – Skyline
- Yarding Direction - Tractor
- Proposed Log Landing Location
- Existing Road
- Temporary Road (existing/proposed)
- Stream
- Riparian Buffer
- DIR Directional Falling
- ⊕ Existing Closure - Gate

Unit #: 194

N



Metal Culvert (CMP) in draw at both road crossings.

For Informational Purposes Only

Logging Systems & Unit Layout Card

NEPA Project Mitchell Jackson **Sale** Powerhouse

Harvest Unit #: 196 NEPA Unit #: 196 Estimated Acres: 6.23
Prescription: Improvement Estimated Cut MBF /Acre: _____ mbf/acre

Species Composition

Species	% of Stand	Avg. DBH
DF	90 %	10-15 "
PP	10 %	>10 "
	%	"
Other:	%	"

Coarse Woody Debris
Type: Logs (Limbs) (Branches)
Amount: High Medium (Low)

Loggings Systems
Proposed Harvest System: (Tractor) **Skyline** Other: _____ # of Landings: 2
Average Slope: 35 % Avg. Yarding Distance: 100 ' Max Yarding Distance: 120 '
Adverse Skidding? Yes (No)
% Adverse Skid: _____ % Max Adverse Skid Distance: _____ '
-Directional Falling? Yes (No) -Unusual Obstacles? Yes (No) If yes, show on map

Roads
Primary Haul Road #: 4872 Haul Road Surface: (Native) Gravel
Clearing and Grubbing/ Reconstruction required? Yes (No)
New Specified Road in Unit? Yes (No) -Spec. Road #: _____
New Temp Road in Unit? Yes (No)
-Temp Road Name: _____ Average Side Slope: _____ % Length: _____ '
-Residual CCF/acre: _____ ccf/acre -Does the temp cross water? Yes No

Improvements and Resources
Circle all located in or adjacent to the unit and show on map:

Culvert Road Sign Fence Gate Bearing Tree

Stream Spring Nest Survey monument

Property posts Weeds Cattleguard Arch. Site

Other: Powerline/powerline corrider

Comments and Notes

Small tractor unit above road and below powerline corridor. Discernable boundary on the north and south side. There is a 200ft section in the middle of the unit that is scree/rocky slopes measuring around 55-60%. Should not operate equipment in this section. Suggest to marking crew to mark all merchantable timber in this section. Suggested marking species designate ponderosa pine and leave tree mark Douglas fir.

Why were areas dropped or excluded?

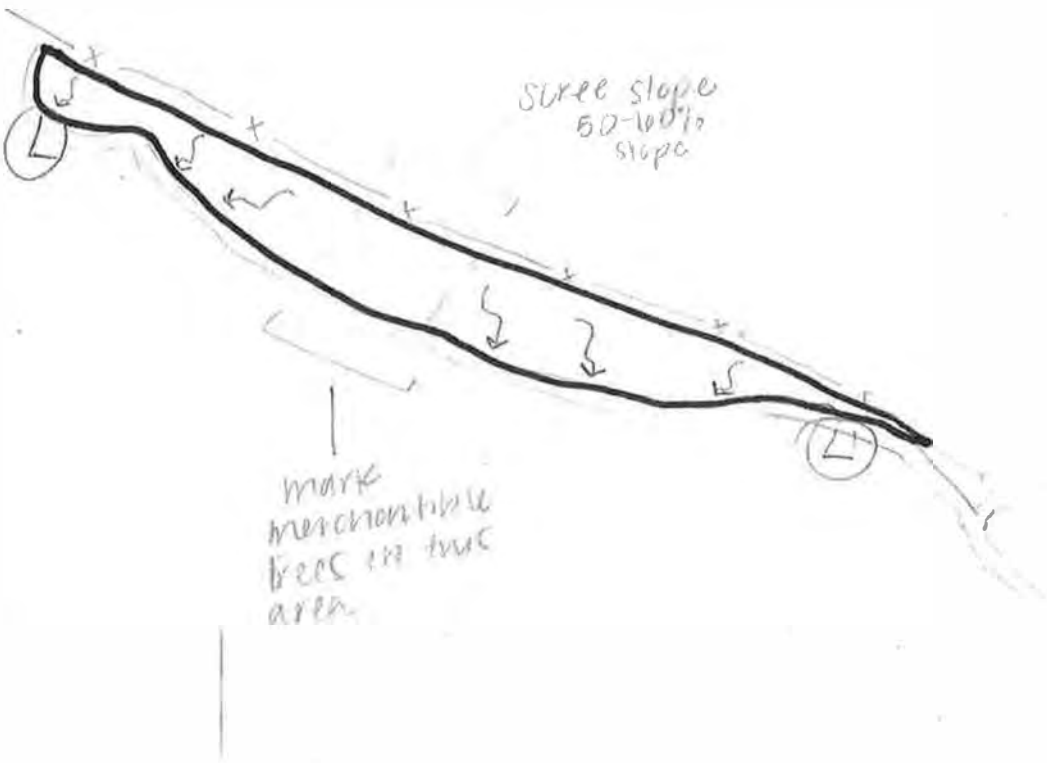
Prepared by: L.DeLong Date 4/11/24

MAP: **Unit #:** 196

Legend

———	Unit Boundary	T	Tractor Logging
➘	Yarding Direction – Skyline	F	Forwarder/Cut to Length Logging
➙	Yarding Direction - Tractor	S	Skyline Logging
(1)	Proposed Log Landing Location	Hel	Helicopter Logging
═══	Existing Road	J	Jammer
=====	Temporary Road (constructed/existing)	TL	Track Line Machine
••••••••••	Stream Channel	Dir	Directional Falling
//////////	Riparian Buffer	W	Surface Water
		XXX	Dropped Areas

N ↑



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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 197 Planning Unit # 197 Estimated Acres 14

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System CABLE Direction (Adverse/Favorable) ADVERSE

Average External Yarding Distance (AEYD) 330 [ft] Average Slope 50 [%]

Number of Landings 1 Harvest Method 1 MP

Remarks:

MAY REQUIRE SHORT EXT SKID TRL TO ACCESS FAR E PORTION, EASY TO BUILDING ALONG RIDGE. S UNIT EDGE IS ALONG POWERLINE COORIDOR, TAIL HOLDS AVAILABLE WITHIN UNIT, DO NOT CROSS COORIDOR W/ CABLE, SEE PROCEDURES IN CONTRACT PACKAGE.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:

N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	90	
L	5	
GF	5	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☑ Other

Other POWERLINE

Remarks:

POWERLINE TO S OF UNIT, SEE PROCEDURES IN CONTRACT PACKAGE

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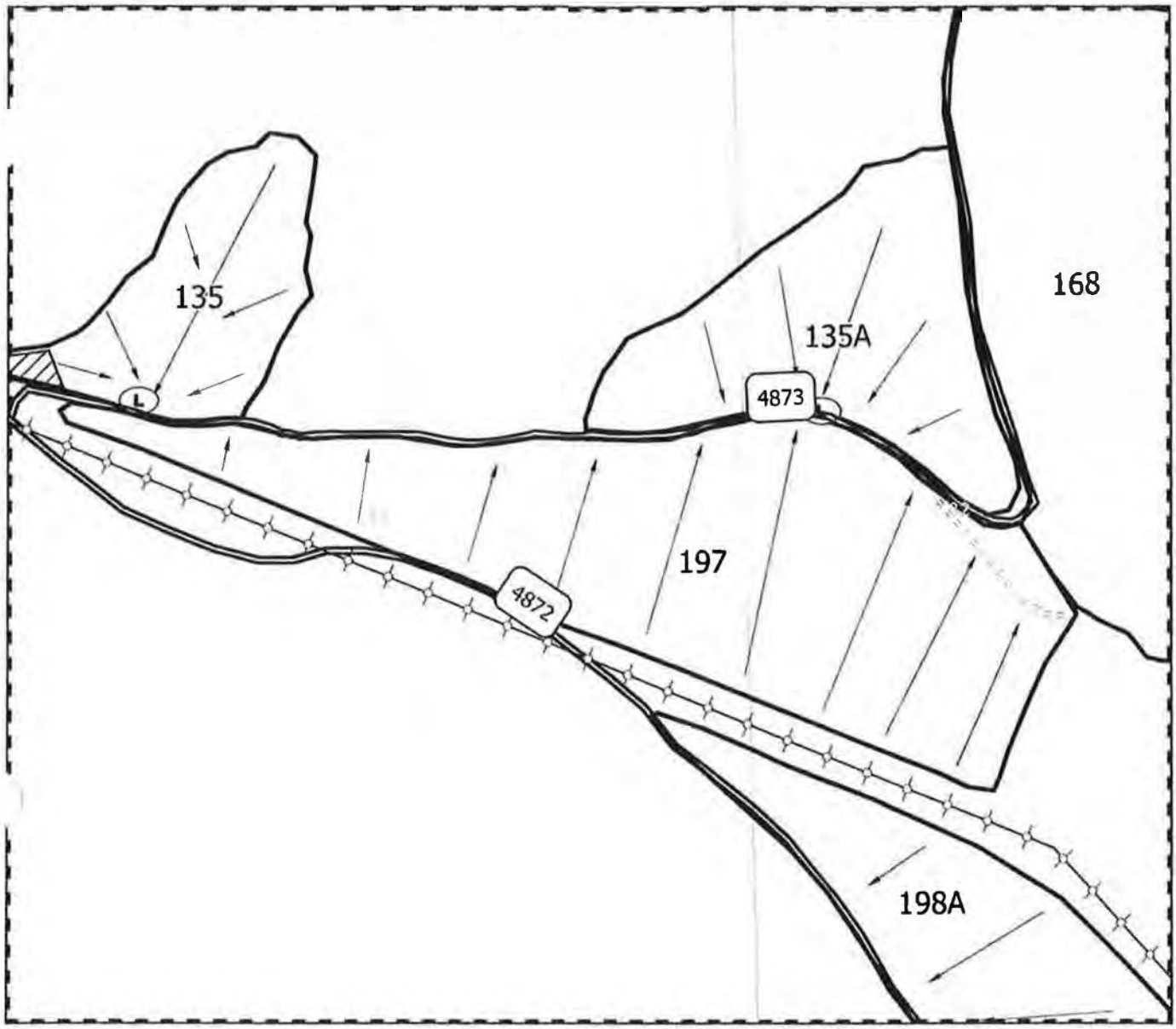


UNIT 197
Harvest Unit Layout and Logging Plan

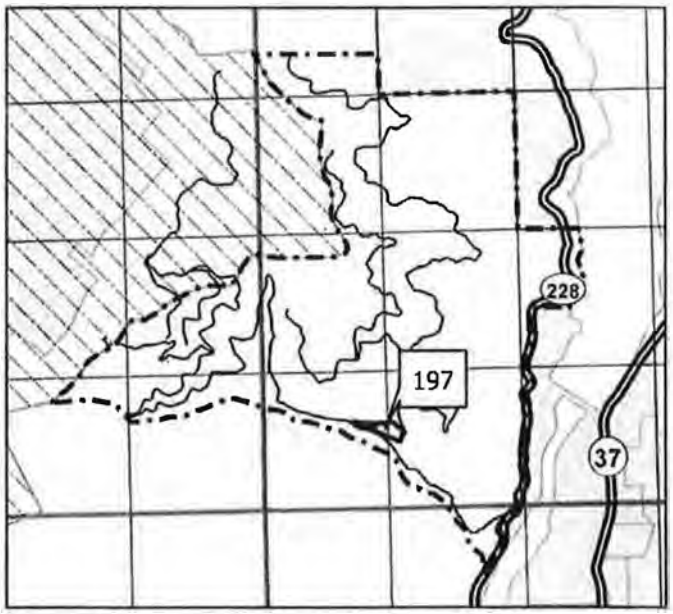
0 170 340 680 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Landing
- Skid/Yard Direction
- Directional Falling
- Existing Skid Trails
- Forest Service Ownership
- Existing Roads

N

NAD 1983 UTM 11N
B. Hoffman
10/06/2025



For Informational Purposes Only

Logging Systems & Unit Layout Card

NEPA Project Mitchell Jackson **Sale** Powerhouse

Harvest Unit #: 198 NEPA Unit #: 198 Estimated Acres: 6
Prescription: IMP Estimated Cut MBF /Acre: _____ mbf/acre

Species Composition

Species	% of Stand	Avg. DBH
DF	60 %	"
PP	20 %	- "
WL	20 %	- "
Other: -	- %	- "

Coarse Woody Debris
Type: <Blank>
Amount: <Blank>

Loggings Systems
Proposed Harvest System: ■ Tractor ☐ Skyline Other: _____ # of Landings: 1
Average Slope: 10 % Avg. Yarding Distance: 600 ' Max Yarding Distance: 1000 '
Adverse Skidding? Yes ☐ No ■
% Adverse Skid: _____ % Max Adverse Skid Distance: _____ '
Directional Falling? Yes ☐ No ■ Unusual Obstacles? Yes ☐ No ■

Roads
Primary Haul Road #: 4872 Haul Road Surface: <Blank>
Clearing and Grubbing/ Reconstruction required? Yes ☐ No ■
New Specified Road in Unit? Yes ☐ No ■ -Spec. Road #: _____
New Temp Road in Unit? Yes ☐ No ■
-Temp Road Name: _____ Average Side Slope: _____ % Length: _____ '
-Residual CCF/acre: _____ ccf/acre -Does the temp cross water? Yes ☐ No ☐

Improvements and Resources
Check all that apply and show on map:

Bearing Tree ☐ Stream ☐ Arch. Site ☐
Survey monument ☐ Spring ☐
Fence ☐ Nest ☐
Gate ☐ Cattleguard ☐
Culvert ☐ Property Posts ☐

Other: Power line

Comments and Notes

Southern portion of planning shape 198.

Unit is all tractorable. Mostly flat. Skid the whole unit to the southern end in an attempt to stay away from the powerline with landing equipment.

Leave all PP. Some nice WL to keep as well. Fill in the gaps with DF. Most of the cut volume will be DF.

SD PP/WL/WP

Why were areas dropped or excluded?

Unit is two detached pieces. Split into two units.

Prepared by: B. Hoffman Date 03/21/2024

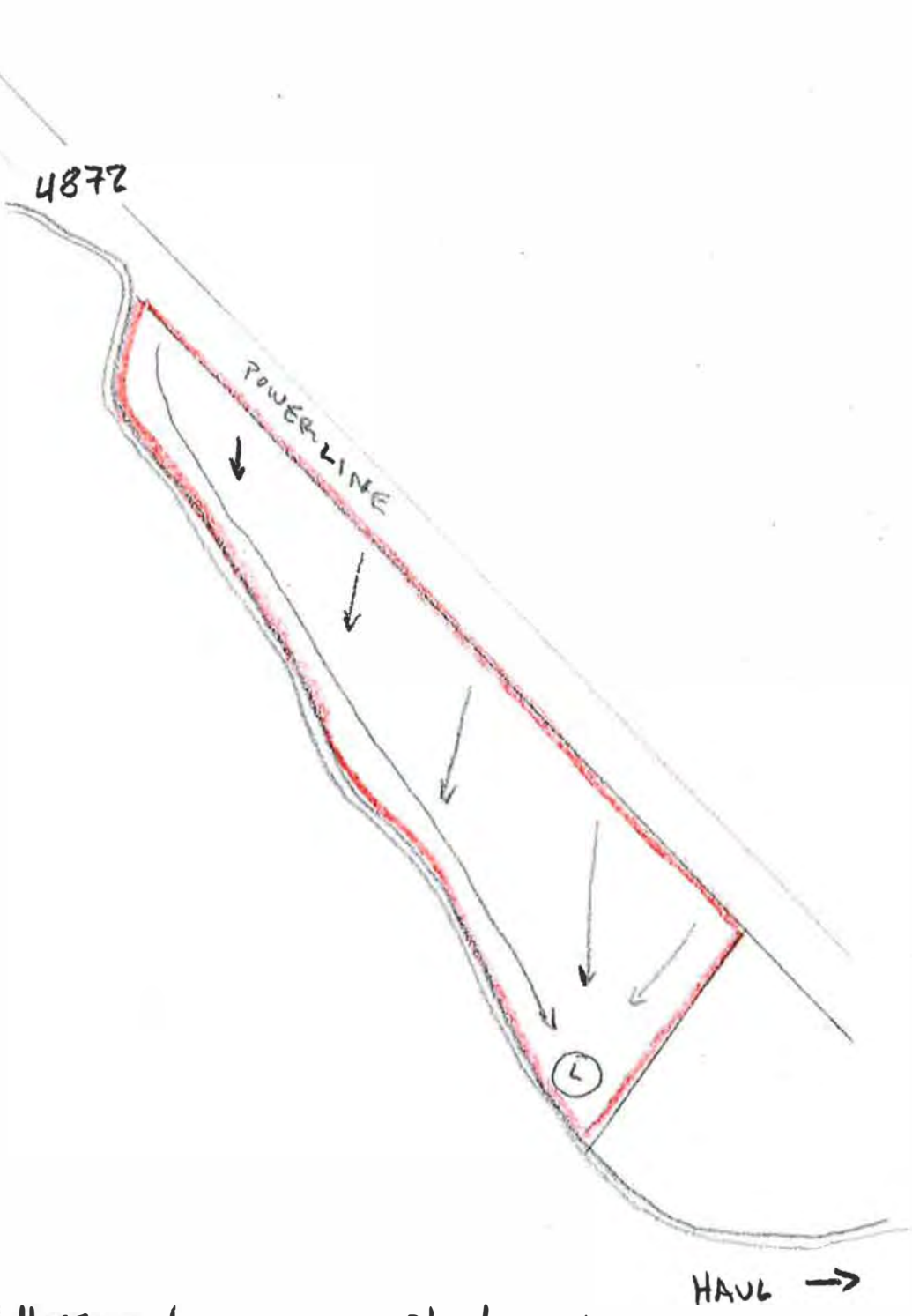
****For Informational Purposes Only****

Legend

- Unit Boundary
- Yarding Direction – Skyline
- Yarding Direction - Tractor
- (L) Proposed Log Landing Location
- Existing Road
- Temporary Road (existing/proposed)
- Stream
- ////////// Riparian Buffer
- DIR Directional Falling

Unit #: 198

N



Prepared by: B. HOFFMAN Date 03/21/2024

For Informational Purposes Only

Logging Systems & Unit Layout Card

NEPA Project Mitchell Jackson **Sale** Powerhouse

Harvest Unit #: 198A NEPA Unit #: 198 Estimated Acres: 15
Prescription: IMP Estimated Cut MBF /Acre: _____ mbf/acre

Species Composition

Species	% of Stand	Avg. DBH
DF	60 %	"
PP	30 %	- "
WL	10 %	- "
Other: -	- %	- "

Coarse Woody Debris
Type: <Blank>
Amount: <Blank>

Loggings Systems
Proposed Harvest System: ■ Tractor ☐ Skyline Other: _____ # of Landings: 2
Average Slope: 35 % Avg. Yarding Distance: 200 ' Max Yarding Distance: 350 '
Adverse Skidding? Yes ☐ No ■
% Adverse Skid: _____ % Max Adverse Skid Distance: _____ '
Directional Falling? Yes ■ No ☐ Unusual Obstacles? Yes ☐ No ☐

Roads
Primary Haul Road #: 4872 Haul Road Surface: <Blank>
Clearing and Grubbing/ Reconstruction required? Yes ☐ No ■
New Specified Road in Unit? Yes ☐ No ■ -Spec. Road #: _____
New Temp Road in Unit? Yes ☐ No ■
-Temp Road Name: _____ Average Side Slope: _____ % Length: _____ '
-Residual CCF/acre: _____ ccf/acre -Does the temp cross water? Yes ☐ No ☐

Improvements and Resources
Check all that apply and show on map:

Bearing Tree ☐ Stream ☐ Arch. Site ☐
Survey monument ☐ Spring ☐
Fence ☐ Nest ☐
Gate ☐ Cattleguard ☐
Culvert ☐ Property Posts ☐

Other: Power line

Comments and Notes

Northern portion of planning shape 198.

Unit is located in between the powerline and the Alexander Creek road. The southern half is relatively flat with slopes around 10-20%. The northern half is steeper with slopes around 30-40%. There are some existing excavated skid trails that can be used to move around steep parts. Directional felling will also be needed in small areas that are to steep to operate on.

Stand composition mostly the same as U. 198. Some isolated wet site species in the small dry draw running through the middle of the unit. Leave all PP and nice WL.

SD PP/WP/WL

Why were areas dropped or excluded?

Planning shape is two detached pieces. Split into two units.

Prepared by: B. Hoffman Date 03/21/2024

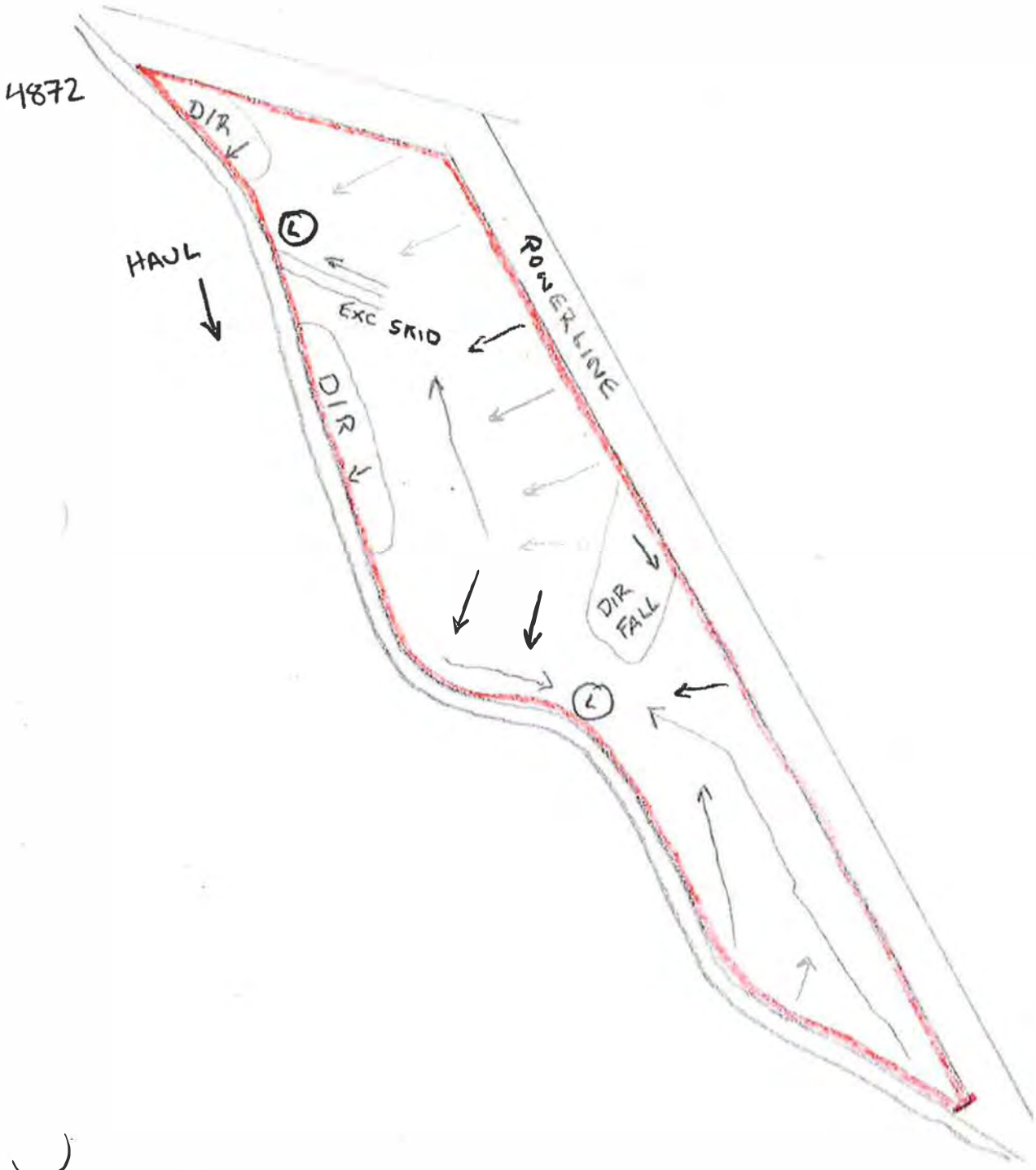
****For Informational Purposes Only****

Legend

- Unit Boundary
- Yarding Direction – Skyline
- Yarding Direction - Tractor
- L — Proposed Log Landing Location
- Existing Road
- Temporary Road (existing/proposed)
- Stream
- Riparian Buffer
- DIR — Directional Falling

Unit #: 198A

N



Prepared by: B. HOFFMAN Date 03/21/2024

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Logging Systems & Unit Layout Card

NEPA Project Mitchell Jackson **Sale** Powerhouse

Harvest Unit #: 199 NEPA Unit #: 199 Estimated Acres: 11
Prescription: IMP Estimated Cut MBF /Acre: _____ mbf/acre

Species Composition

Species	% of Stand	Avg. DBH
DF	70 %	- "
PP	30 %	- "
-	- %	- "
Other: -	- %	- "

Coarse Woody Debris
Type: <Blank>
Amount: Low

Loggings Systems
Proposed Harvest System: ■ Tractor ☐ Skyline Other: _____ # of Landings: 1
Average Slope: 30 % Avg. Yarding Distance: 350 ' Max Yarding Distance: 450 '
Adverse Skidding? Yes ☐ No ■
% Adverse Skid: - % Max Adverse Skid Distance: - '
Directional Falling? Yes ■ No ☐ Unusual Obstacles? Yes ☐ No ☐

Roads
Primary Haul Road #: 4872 Haul Road Surface: <Blank>
Clearing and Grubbing/ Reconstruction required? Yes ☐ No ■
New Specified Road in Unit? Yes ☐ No ■ -Spec. Road #: _____
New Temp Road in Unit? Yes ☐ No ■
-Temp Road Name: _____ Average Side Slope: _____ % Length: _____ '
-Residual CCF/acre: _____ ccf/acre -Does the temp cross water? Yes ☐ No ☐

Improvements and Resources
Check all that apply and show on map:

Bearing Tree ☐	Stream ☐	Arch. Site ☐
Survey monument ☐	Spring ☐	
Fence ☐	Nest ☐	
Gate ☐	Cattleguard ☐	
Culvert ☐	Property Posts ☐	

Other: _____

Comments and Notes

Layout mostly follows planning shape. Some small exclusions along S edge to avoid rock outcrops.

Large DF component, will be most of the removal vol. Evidence of some root disease in DF. Some large concentrations of PP within unit. Reccomend leave most of these. Some DF may need to be left to meet Rx.

SD PP/WP

Why were areas dropped or excluded?

Prepared by: B. Hoffman Date 03/13/2024

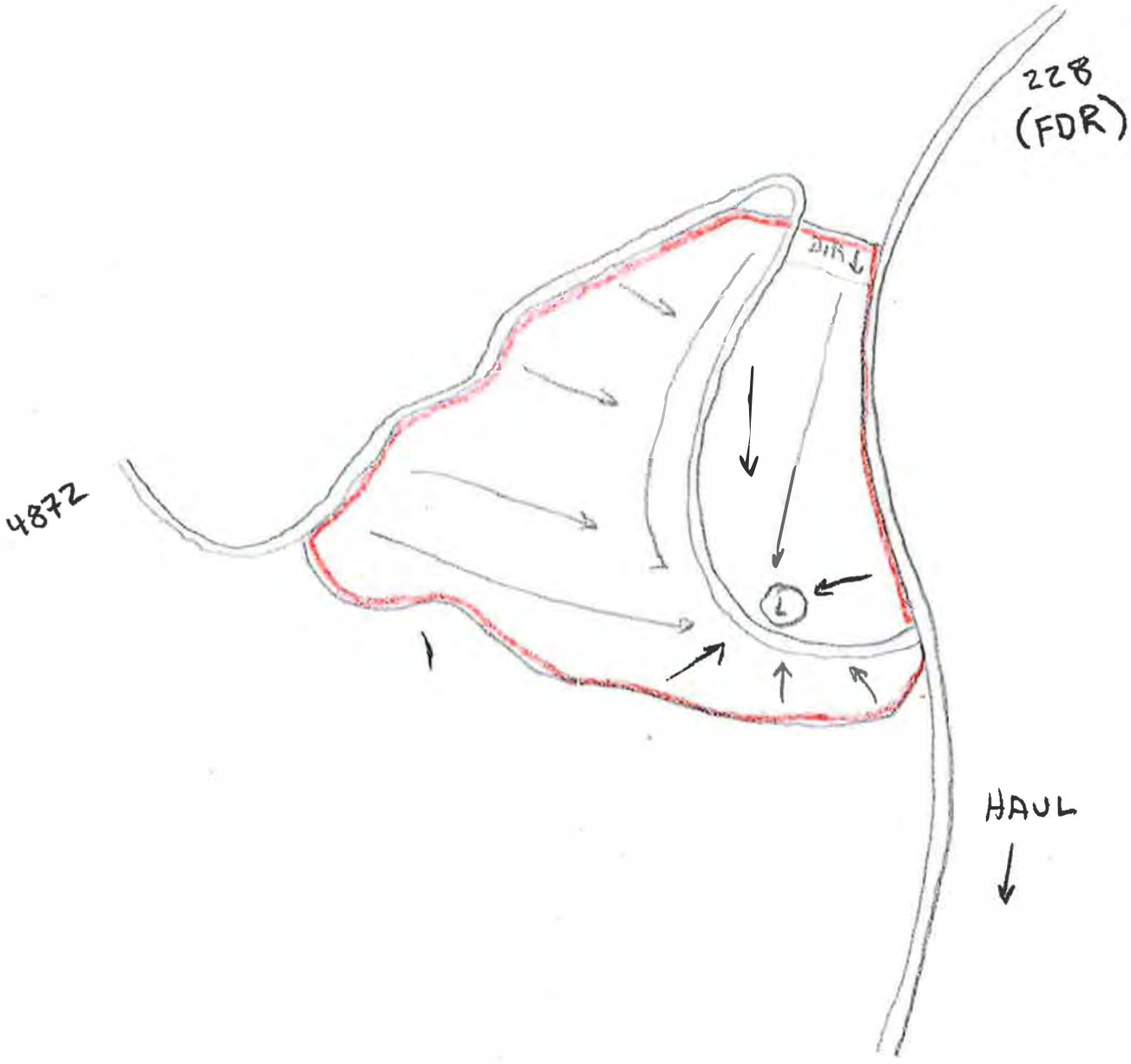
****For Informational Purposes Only****

Legend

- Unit Boundary
- Yarding Direction – Skyline
- Yarding Direction - Tractor
- L — Proposed Log Landing Location
- Existing Road
- Temporary Road (existing/proposed)
- Stream
- Riparian Buffer
- DIR — Directional Falling

Unit #: 199

N



Prepared by: B. HOFFMAN Date 03/13/2024

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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 202 Planning Unit # 202 Estimated Acres 6

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAV.

Average External Yarding Distance (AEYD) 780 [ft] Average Slope 38 [%]

Number of Landings 1 Harvest Method IMP

Remarks:
SMALL UNIT ON EDGE OF "ROADLESS". FAIRLY STRAIGHT FORWARD SKID TO RD 4872. PARTS OF U. 189 WILL SKID THROUGH THIS UNIT.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:
N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	80	
OTH	15	
L	~~05~~	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☒ Other

Other ROADLESS AREA

Remarks:

ROADLESS AREA TO W. NO ADDITIONAL OPERATING CONSTRAINTS FROM THIS

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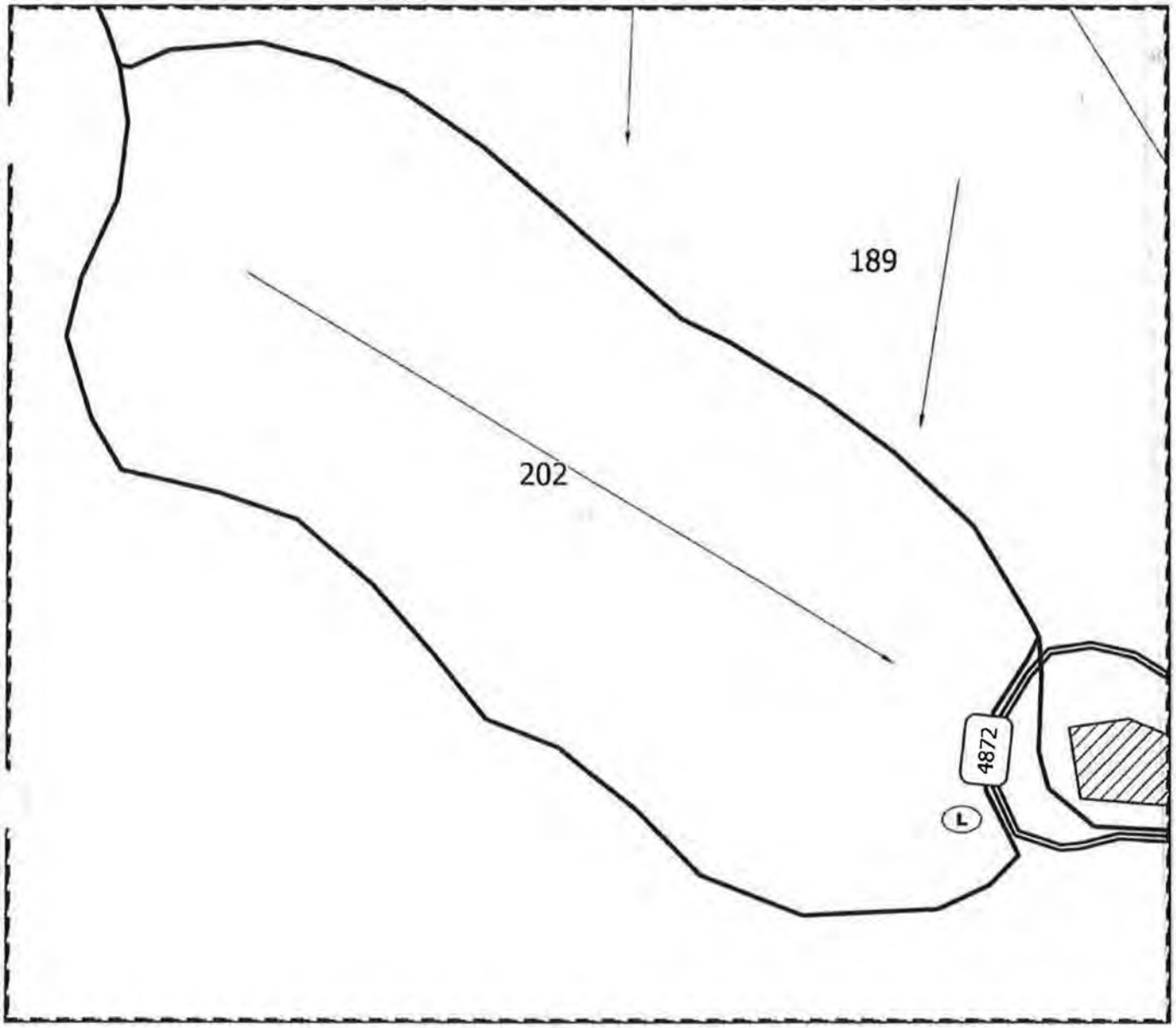

UNIT 202
Harvest Unit Layout and Logging Plan

0 70 140 280 Feet

Legend

- Mitchell Jackson Project Boundary
- Commercial Units
- Landing (L)
- Skid/Yard Direction
- Directional Falling
- Forest Service Ownership
- Existing Roads

N

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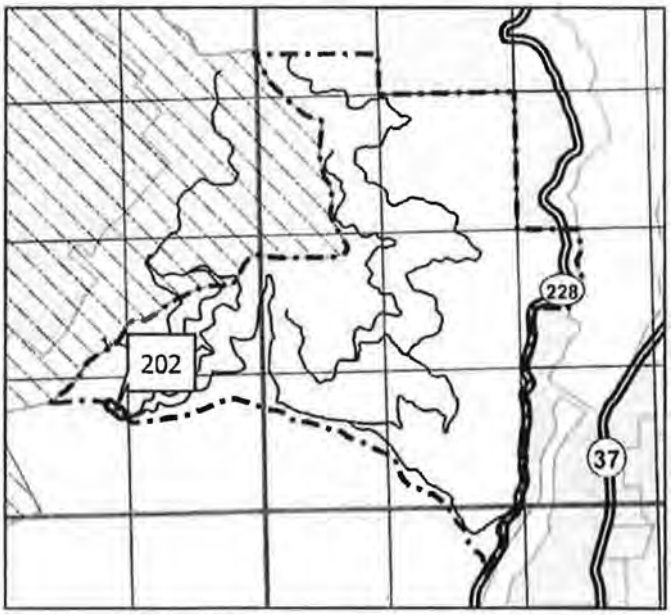
B. Hoffman
10/06/2025



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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 226 Planning Unit # 226 Estimated Acres 29

Layout Person(s) BRENT HOFFMAN Layout Date

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) FAV

Average External Yarding Distance (AEYD) 950 [ft] Average Slope 35 [%]

Number of Landings 2 Harvest Method ST

Remarks:

SOME COMPLEX TERRAIN FEATURES + STEEP SLOPES IN MIDDLE OF UNIT, SHOULD BE ABLE TO OPERATE AROUND USING AVENUES IN GENERAL AREAS DESIGNATED ON MAP.

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:

N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	35	
L	35	
C	20	
OTH	10	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☐ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☒ Trail
- ☒ Other

Other DU3

Remarks:

DU3 + TRAIL TO SW OF UNIT

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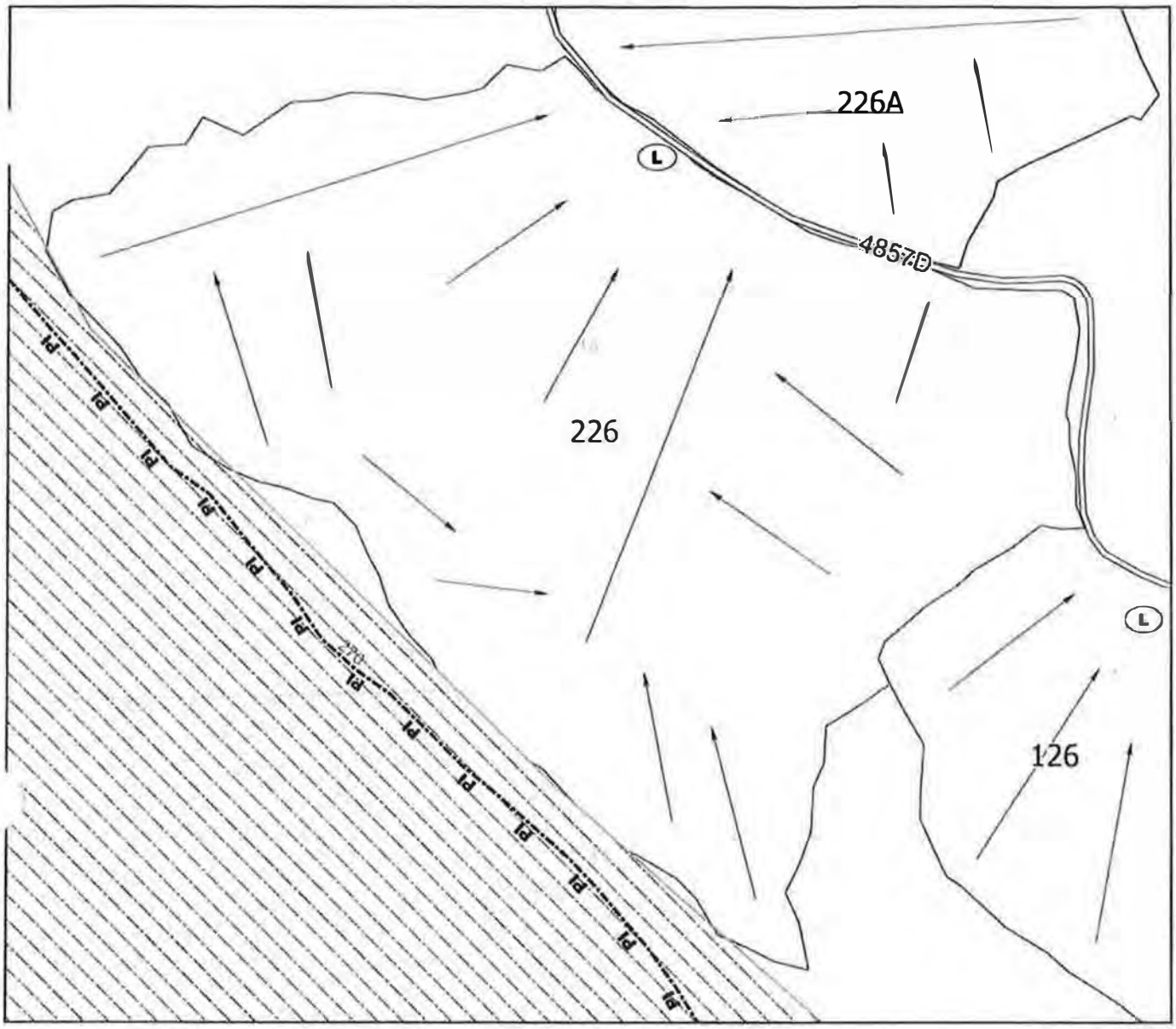

UNIT 226
Harvest Unit Layout and Logging Plan

0 140 280 560 Feet

Legend

- Commercial Units
- Landing
- Skid/Yard Direction
- Forest Service Ownership
- OU3 EPA Boundary
- Existing Roads

N

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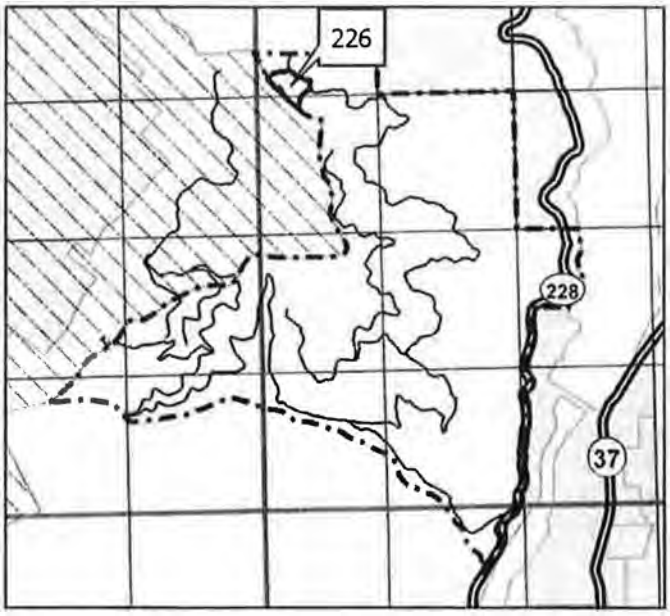
B. Hoffman
09/30/2025



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HARVEST UNIT LAYOUT AND LOGGING PLAN

LIBBY RANGER DISTRICT – KOOTENAI NATIONAL FOREST

Project MITCHELL JACKSON Sale MITCHELL JACKSON IRSC - POWERHOUSE

Harvest Unit # 226A Planning Unit # 226 Estimated Acres 8

Layout Person(s) BRENT HOFFMAN Layout Date _____

Logging Systems

Logging System TRACTOR Direction (Adverse/Favorable) ADV

Average External Yarding Distance (AEYD) 780 [ft] Average Slope 30 [%]

Number of Landings 1 Harvest Method IMP

Remarks:

SMALL ADVERSE TRACTOR UNIT, STEEPEST PARTS ARE ALONG SOUTHERN EDGE. THESE AREAS SHOULD SKID DOWN TO MAIN COLLECTOR THEN UP TO ROAD 4857D. MAIN COLLECTOR SOMEWHERE IN N HALF OF UNIT. WILL LIKELY BE ABLE TO SHARE LANDING W/ 226

Roads

New Specified Roads NO New Temp Roads NO

Length — [ft] Avg. Side Slope — [%] Vol/Acre — [CCF/ac]

Remarks:

N/A

For Informational Purposes Only

Species Composition

Species	% of Stand	Avg. DBH
DF	85	
L	5	
OTH	10	

Improvements and Resources

Check all that apply and show on map

- ☐ Survey Monuments
- ☐ Spring
- ☐ Gate
- ☒ Stream
- ☐ Arch Site
- ☐ Nest/Den
- ☐ Culvert
- ☐ Fence
- ☐ Trail
- ☐ Other

Other 1

Remarks:

RIPARIAN AREA TO N

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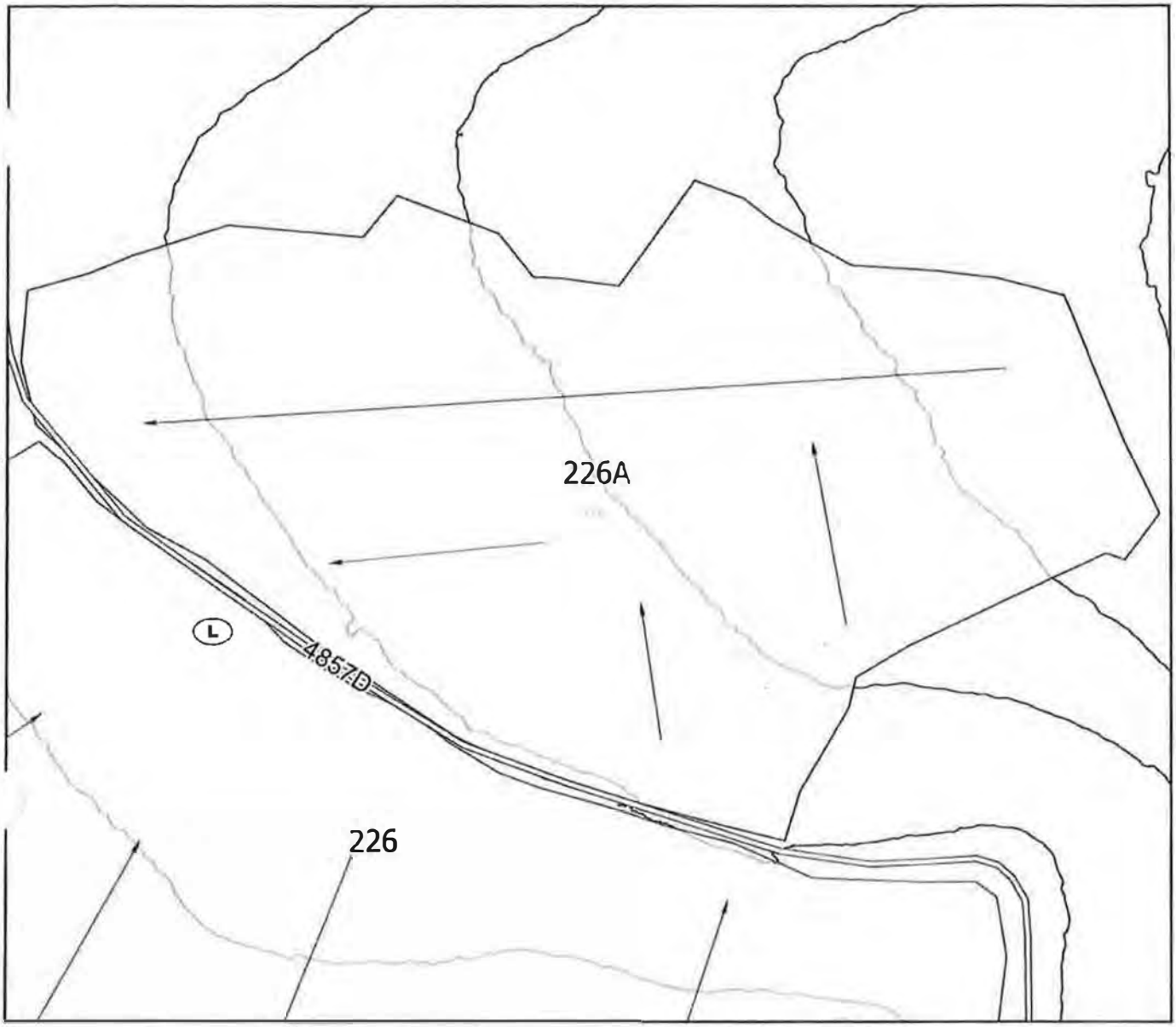

UNIT 226A
Harvest Unit Layout and Logging Plan

0 75 150 300 Feet

Legend

- Commercial Units
- L Landing
- Skid/Yard Direction
- Forest Service Ownership
- Existing Roads

N

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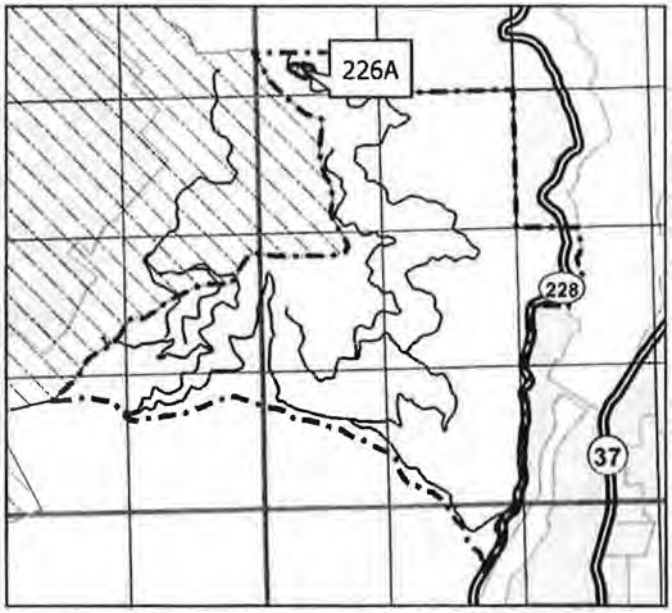
B. Hoffman
09/30/2025



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Logging Systems & Unit Layout Card

NEPA Project: Mitchell Jackson CERCLA **Sale:** Alexander Creek Area

Harvest Unit #: 233 NEPA Unit #: 233 Estimated Acres: 8
Prescription: Improvement Estimated Cut MBF /Acre: 5 mbf/acre

Species Composition

Species	% of Stand	Avg. DBH
DF	30 %	10 "
GF	30 %	9 "
WL	20 %	8 "
Other: ES, WRC, LPP	7 %	8 "

Coarse Woody Debris
Type: [Logs] Limbs
[Branches]
Amount: [High] Medium
Low

Loggings Systems
Proposed Harvest System: Tractor [Skyline] Other: _____ # of Landings: 5-6
Average Slope: 35% Avg. Yarding Distance: 300 ft. Max Yarding Distance: 500 ft.
Adverse Skidding? Yes [No]
% Adverse Skid: ____ Max Adverse Skid Distance 0 ft.
-Directional Falling? Yes [No] -Unusual Obstacles? Yes [No] If yes, show on map

Roads
Primary Haul Road #: 4857-> 4879 -> 4873->4872 Haul Road Surface: [Native] Gravel
Clearing and Grubbing/ Reconstruction required? [Yes] No
New Specified Road in Unit? Yes [No] -Spec. Road #: N/A
New Temp Road in Unit? Yes [No]
-Temp Road Name: N/A Average Side Slope: _____ % Length: _____
-Residual CCF/acre: _____ ccf/acre -Does the temp cross water? Yes No

Improvements and Resources
Circle all located in or adjacent to the unit and show on map:

[Culvert] Road Sign Fence Gate Bearing Tree

Stream [Spring] Nest Survey monument

Property posts Weeds Cattleguard Arch. Site

Other: _____

Comments and Notes

Southern most boundary follows the decommissioned portion of the 4879 road. Northern is buffered off the bottom of the draw which is labeled as Pease Creek. The Eastern edge follows an old CC unit that is numbered as P-55 for the M.J. Project.

Unit is drawn to buffer the headwaters of what is labeled as Peace Creek. No continuous stream channel exists the entire length of the unit. Channel is broken and hard to follow. Very little water flows on the surface in this location. Appears to only hold snowmelt for a short time. There are Cottonwood, Aspen, and brush that is more likely found in wetland habitats with some cedar, spruce, grand-fir and a few other softwood species growing throughout the bottom. Some old blue boundary paint was found on the eastern edge, but no paint was observed within the unit.

This unit is labeled as an Improvement harvest unit; however, it appears to need a regeneration style of harvest. No PP was seen within the unit and WL is not the prominent species. WL also has a fair amount of DMT. DF is the dominant species with GF a close second. ES and WRC as also represented nearly as well as WL. Consider a change in RX.

Unit will need to be yarded through a portion of unit P-56; a unit designated for PCT. The other option would be to use an ORSY to yard to the decommissioned portion of the 4879 road and use that portion to swing to a landing at the 4879/4857 junction.

Why were areas dropped or excluded?

Dropped a very small piece along the Western edge of the planning polygon. Thers is no stream channel between this unit and P-51 below the 4857. However, there is surface flow that starts in the ditch line of the 4857 and crosses the road via a culvert. This surface flow goes back under ground within 50 feet below the 4857 and does not return to the surface. After a site visit with the hydrologist, this was buffered ~ 50 feet on the side and below.

Prepared by: R. Tardif Date 09/30/2024

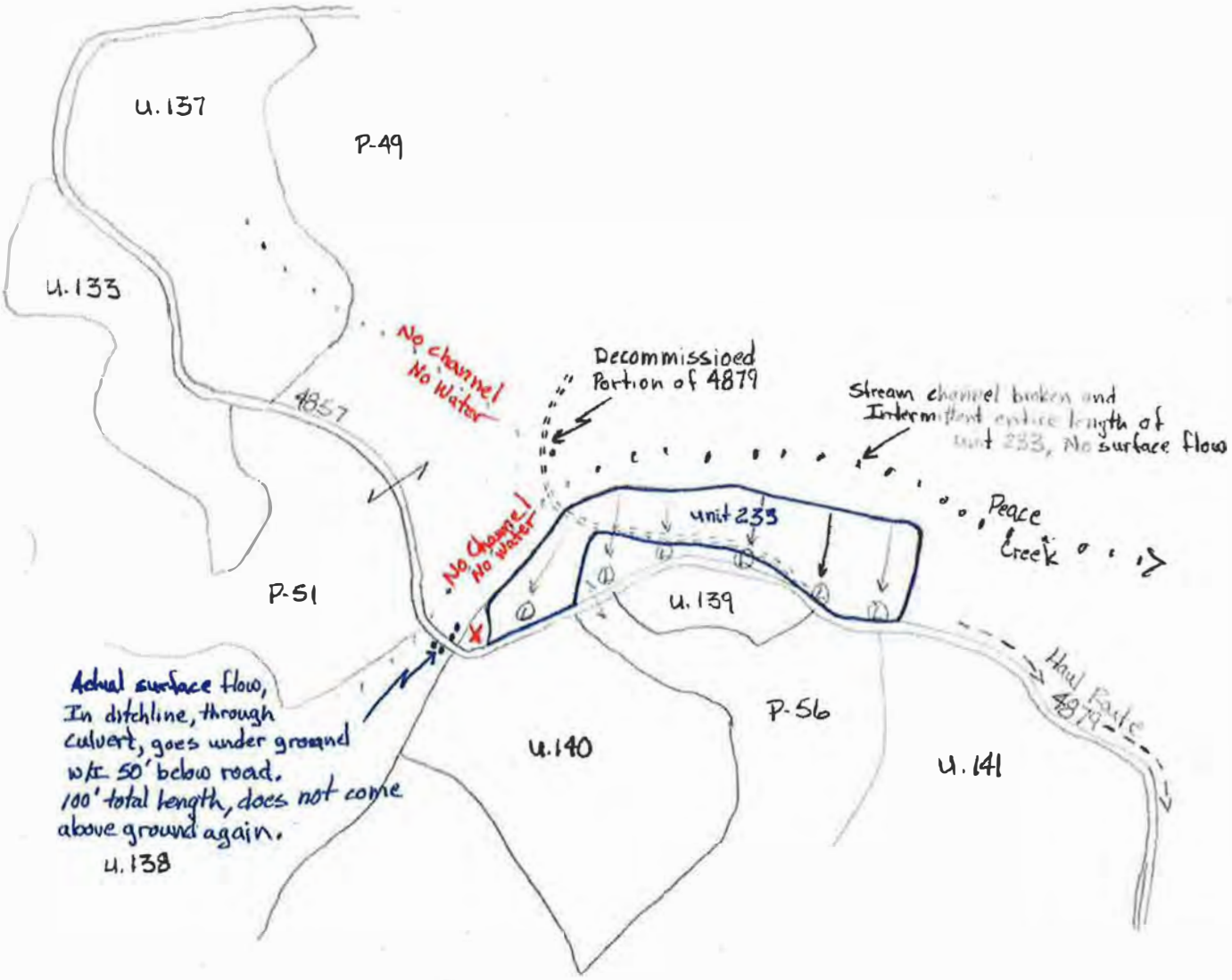
****For Informational Purposes Only****

Legend

- Unit Boundary
- Yarding Direction – Skyline
- Yarding Direction - Tractor
- (L) Proposed Log Landing Location
- ✘ Area dropped from Unit
- Existing Road
- Temporary Road (existing/proposed)
- Stream
- Riparian Buffer
- DIR Directional Falling

Unit #: 233

N



Prepared by: _____ Date _____