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ROAD EVALUATION REPORT for
STAPP & SHOWER'S PASS ROAD
BRIDGVILLE, CALIFORNIA
APN 317-033-006

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Introduction:

The subjects of this road evaluation are Shower's Pass and Stapp Road, located between Bridgeville and Kneeland in Eastern Humboldt County, CA. Evaluation of the access roads leading to APN 317-033-006 was conducted on April 23rd, 2019 by Stephen G. Nesvold, P.E. and Ben Voelz, Engineering Technician, of Omsberg & Preston. This evaluation was undertaken to determine if the road network used to access the project site meets the intent of the County's Road Category 4 standards.

Background:

Shower's Pass Road (County road #6GOW) is a publicly maintained dirt/gravel road that has been evaluated by Humboldt County Public Works and meets the requirements for Road Category 4 Standards for Cannabis Projects from the Kneeland Road turnoff to Shower's Pass mile post (MP) 4.0. Stapp Road (County road #7H010) is a county-maintained road from the intersection of Shower's Pass road to the private gate 3.1 miles past the intersection. The remainder of Stapp road is a gated, private access dirt/gravel road that provides access to many parcels in the areas surrounding the Mad River north of Bridgeville. This report focuses on the un-evaluated 4.4-mile portion of Shower's Pass Road (from MP 4.0 to Stapp Road intersection (MP 8.4)), the 3.1-mile stretch of County maintained Stapp Road and the 5-mile private portion of Stapp Road to the project site, for a total road evaluation length of 12.5 miles. An aerial photo of the road evaluation route can be seen in Figure 1.



Figure 1: Route Map showing the road network used to access the project site. "4-Mile Post" is the 4-mile marker from the start of Shower's Pass Road.

Findings:

Estimated Adjusted Daily Traffic (ADT)

No traffic counts or estimates were made for the ADT across Shower's Pass and Stapp Road. Traffic was very light on April 23rd, 2019, the day the road evaluation was carried out. We estimate the ADT as being less than 400 vehicles per day for the majority of the roads being evaluated.

Sight Distance

At MP 4.9 on Shower's Pass road, a curve has poor sight distance and has recommended improvements. Otherwise, narrow spots have adequate turnout-options and/or sight distance and meet the intent of Road Category 4 standards. Other minor problem areas are identified in the "Supporting Information" section of the report.

Road Drainage

Shower's Pass Road: Severe erosion with steep travel ways was observed from MP 7.5-8.3. See recommendation table for possible improvements.

Stapp Road (Public): Drainage issues observed at MP 2.5 and 2.7, possible rolling dip installation needed. Further drainage maintenance by the county is needed at MP 1.8 and 2.3.

Stapp Road (Private): Drainage issues observed at MP 2.5, see recommendation section for improvements.

Assessment of culverts is not part of this report.

Recommendations:

The following table (Table 2) contains recommendations for improvements at specific MP markers. Shower's Pass Road runs from MP markers 4.0 – 8.4, the public portion of Stapp road runs from MP markers 0.0 – 3.0, and the gated portion of Stapp Road runs from MP markers 0.0 – 5.0.

Sight Distance

We recommend a turnout be constructed at MP 4.9 on Shower's Pass Road due to inadequate sight distance around the curve. This improvement would be appropriate for a single applicant to be responsible for.

Road Drainage/Realignment

Shower's Pass Recommendations: The portion of Shower's Pass road from MP 7.5-8.4 is severely eroded through insufficient drainage pathways. In our judgment this portion of Shower's Pass Road is the highest priority for repairs, through drainage grading, rocking & construction of 2-3 turnouts. This would be a large undertaking that should not be shouldered by a single applicant if there are other residents/applicants using this road for access to their parcels.

Stapp Road – Public Recommendations: Severe ponding in the roadways was observed at MP 1.8 within the county-maintained portion of Stapp road. Ponding alleviation is recommended to avoid any further road degradation. Severe potholes were also observed at MP 2.3 and 2.5.

Stapp Road – Private Recommendations: A rolling dip that drains to the right is proposed at MP 2.5 to aid in erosion control. Additionally, the private section of Stapp Road from MP 4.1-4.3 is not suitable for 2-wheel drive passenger vehicles (too steep) without costly realignment requiring new easements. It is recommended that only cultivation and drying is allowed on site to minimize use on this portion of Stapp Road. The road is currently adequate for these purposes.

Finally, we recommend a Road Maintenance Association (RMA) be formed between the client and other cannabis permit applicants or residents to address the recommendations outlined in this report. The following table (Table 1) is a list of cannabis application numbers for parcels that have pending cannabis applications with the county that also access their parcels from Stapp Road. This information was gathered from Humboldt County's Accela online database.

Table 1: A list of pending cannabis applicants that access their parcels from Stapp Road.

Cannabis APPs #	APN	Applicant
12556	317-182-021	LSK Art, LLC
12967	221-131-016	Cannabusiness Law, Inc.
11099	317-033-008	Macras Land Co. Inc.
11989	317-182-020	Edward Cox (Individual)
10854	317-182-019	Edward Cox (Individual)
11636	317-182-013	Michael McBeth (Individual)

Conclusion:

The road network leading to the subject parcel (APN 317-033-006) will meet Road Category 4, provided that the indicated recommendations are carried out by the client, additional parties that use the roads for access, and/or Humboldt County Public Works. Some improvement recommendations for this project would be costly and should not be shouldered by a single applicant. An alternative way to distribute the costs of construction could be splitting the cost with additional applicants, only doing a portion of this improvement or doing a cooperative project with County Public Works. If you have any questions or comments, please don't hesitate to contact our office.

Table 2: A table containing road evaluation data and recommendations for improvements

Mile Marker (Road Specific)	Contineuous Mile Marker (From 4mi Post)	Travel Way (ft)	Site Visit Notes	Recommendations	Priority
4.0	0.0	15	Start of Road Eval., 4-Mile post on Shower's Pass Road. Could use rocked turnout in this area	Install RH turnout	Low
4.2	0.2	-	Turn off to Fort Baker Ranch		
4.3	0.3	-	Rock query		
4.5	0.5	18	GSD		
4.9	0.9	-	Curve w/ inadequate S.D., shave off curve - Pictures	Remove material from RH cut-bank for better sight distance. Deposit material on roadway & cover with gravel	Med
5.0	1.0	16	GSD		
5.5	1.5	18	wet area, 2ft L & 3ft R shoulder		
6.0	2.0	20	5 ft L shoulder, one lane bridge over creek		
6.5	2.5	19	2 ft L shoulder		
7.0	3.0	16	GSD		
7.5	3.5	16	GSD, with turnout	Severe erosion from MP 3.5-4.2, recommend regrading lead-off ditches and constructing a RH Turnout	High
7.7	3.7	-	Erosion - pictures		
8.0	4.0	18	1 ft shoulder both sides.		
8.2	4.2	-	Start of down grade (± 500 ft), needs grading for out-bound traffic		
0.0	4.4	-	Turn out, Start of public Stapp Rd.		
0.1	4.5	17	GSD		
0.6	5.0	20	3 ft shoulder both sides		
1.1	5.5	23	3 ft L shoulder, GSD		
1.6	6.0	17	2ft R shoulder, GSD		
1.9	6.3	-	water holes	County drainage maintinace needed + RH Turnout	Med
2.1	6.5	-	Culvert too short		
2.1	6.5	13	2ft L shoulder		
2.4	6.8	-	Drainage problems -see pictures, O.K. site distance	County drainage maintinace needed	Med
2.6	7.0	14	GSD, Rough due to drainage issues, needs more x-slope & rolling dips	Insall Rolling dip and rocked drainage outlet	Med
2.8	7.2	-	sever erosion/drainage causing rough road - see pictures	Insall Rolling dip and rocked drainage outlet	Med
0.0	7.5	15	GSD, end of couty road maintained road (Still Stapp Rd.)		
0.5	8.0	22	3ft shoulder both sides		
1.0	8.5	19	6ft R shoulder, GSD		
1.5	9.0	18	3ft L shoulder, GSD		
2.0	9.5	12	GSD		
2.5	10.0	13	Rolling dip + turn out	Install Rolling Dip and RH Turnout	Med
2.8	10.3	-	major creek crossing		
3.1	10.6	19	GSD + Turn out		
3.5	11.0	20	GSD		
4.1	11.6	18	Steep Grade (18-24%), 4WD necessary for access		
4.3	11.8	18	Steep Grade (18-24%), 4WD necessary for access		
4.4	11.9	-	Another cannabis farm		
4.6	12.1	15	GSD		
5.0	12.5	-	Ending point - Aleksandrov Farm		

Key: L-Left; R-Right; GSD-Good Sight Distance; RS-Right Side (Looking to project site); (E)-Existing

Road Evaluation – Supporting Information (Imagery)

Shower's Pass & Stapp Road

April 23rd, 2019

Steven Nesvold, P.E. and Ben Voelz

Mile 4.0 (4-mile Marker on Shower's Pass Road): 0+15+0=15ft wide road prism; Good visibility and sight distance. Recommend a constructing a rocked turnout in this area.

Forward



Backward



Mile 4.5 (Shower's Pass Road): 0+18+0=18ft wide road prism; Good visibility and sight distance.
Forward



Backward



Mile 4.9 (Shower's Pass Road): $0+16+2=18$ ft wide road prism; curve with inadequate site distance and visibility, recommend "shaving" off rounded corner on left side of top photo for better visibility.

Forward



Mile 5.0 (Shower's Pass Road): 0+16+0=16ft wide road prism; Good visibility and sight distance.
Forward



Backward

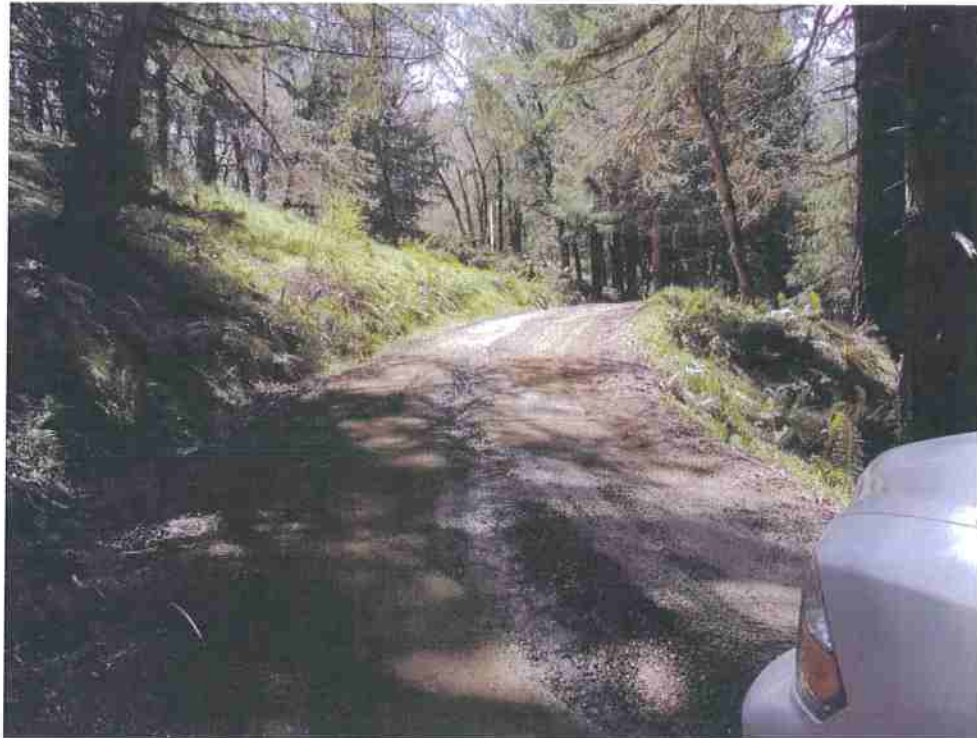


Mile 5.5 (Shower's Pass Road): $2+13+3=18$ ft wide road prism; Good visibility and sight distance; wet area, consider installing drainage features.

Forward



Backward



Mile 6.0 (Shower's Pass Road): 5+15+0=20ft wide road prism; Good visibility and sight distance, one lane bridge with turnouts on both sides of the bridge.

Forward



Backward



Mile 6.5 (Shower's Pass Road): 2+17+0=19ft wide road prism; Good visibility and sight distance;
Turnouts forward and backward.
Forward



Backward



Mile 7.0 (Shower's Pass Road): 0+16+0=16ft wide road prism; Good visibility and sight distance; Turnouts forward and backward.

Forward



Backward



Mile 7.5 (Shower's Pass Road): 0+16+0=16ft wide road prism; Start of severe roadway erosion, continues until Stapp Road turnoff. Adequate visibility and sight distance.

Forward



Backward



Mile 7.7 (Shower's Pass Road): 0+16+0=16ft wide road prism; Continuation of severe roadway erosion, continues until Stapp Road turnoff. Adequate visibility and sight distance.

Backward



Mile 8.0 (Shower's Pass Road): $1+16+1=18$ ft wide road prism; Good visibility and sight distance; turnouts backwards and forwards.

Forward



Backward



Mile 0.0 (Stapp Road): $0+17+1=17$ ft wide road prism; Shower's Pass Road Intersection at Shower's Pass MP 8.4; Good visibility and sight distance; 0.1 miles from turnout
Forward



Backward



Mile 0.5 (Stapp Road): $3+20+3=26$ ft wide road prism; Adequate visibility and sight distance; wide enough for two lane traffic

Forward



Backward



Mile 1.0 (Stapp Road): 3+23+0=26ft wide road prism; Good visibility and site distance; Large turn-outs forward and backward.

Forward



Backward



Mile 1.5 (Stapp Road): 0+17+2=19ft wide road prism; Adequate sight distance and visibility;
Turnouts forward and backward.

Forward



Backward



Mile 1.8 (Stapp Road): 2+13+0=15ft wide road prism; Severe ponding in the roadway, propose rocked culvert to alleviate drainage problem. Good visibility and sight distance; Turnouts needed. Backward



Mile 2.0 (Stapp Road): 2+13+0=15ft wide road prism; Adequate visibility and O.K. sight distance;
No turnouts & culvert too short.

Forward



Backward



Mile 2.3 (Stapp Road): 0+16+3=19ft wide road prism; Adequate visibility and sight distance;
Drainage issues causing severe pot-holes.

Forward



Mile 2.5 (Stapp Road): 0+14+0=14ft wide road prism; Good visibility and sight distance; Turnouts needed; Rough road due to drainage issues, needs more cross-slope.

Forward



Backward



Mile 2.7 (Stapp Road): 0+14+0=14ft wide road prism; Good visibility and sight distance; Turnouts needed; Rough road due to drainage issues, needs more cross-slope.

Forward



Mile 0.0 (Stapp Road – Private): 0+15+0=15ft wide road prism; Good visibility and sight distance; Turnouts forward and backward; Location of locked private gate on Stapp Road.

Forward



Backward



Mile 0.5 (Stapp Road – Private): $3+16+3=22$ ft wide road prism; Good visibility and sight distance; Turnouts forward and backward.

Forward



Backward



Mile 1.0 (Stapp Road – Private): $0+13+6=19$ ft wide road prism; Good visibility and sight distance; Turnouts backwards and forwards.

Forward



Backward



Mile 1.5 (Stapp Road – Private): $0+15+3=18$ ft wide road prism; Good visibility and sight distance; Turnout forwards.

Forward



Backward



Mile 2.0 (Stapp Road – Private): $0+13+6=19$ ft wide road prism; Good visibility and sight distance; Turnouts backwards and forwards.

Forward



Backward



Mile 2.5 (Stapp Road – Private): $2+13+2=17$ ft wide road prism; Adequate visibility and sight distance; Turnout right; Needs rolling dip.

Forward



Backward



Mile 2.8 (Stapp Road – Private): 0+18+0=18ft wide road prism; Major stream crossing (Showers Creek), adequate site distance. See CDFW LSAA Notification No. 1600-2017-0444-R1 for crossing rights, Issued 03/13/18.

Forward



Backward



Mile 3.0 (Stapp Road — Private): 0+19+0=19ft wide road prism; Good visibility and sight distance; Turnout left hand side.

Forward



Backward



Mile 3.5 (Stapp Road – Private): 0+20+0=20ft wide road prism; Good visibility and sight distance; Large turnout & intersection.

Forward



Backward



Mile 4.1 (Stapp Road – Private): 0+18+0=18ft wide road prism; Good visibility and sight distance; Steep Grade (8-24% Slope), 4WD necessary at all times.

Forward



Backward



Mile 4.3 (Stapp Road – Private) 0+18+0=18ft wide road prism; Good visibility and sight distance; Steep Grade (8-24% Slope), 4WD necessary at all times

Forward



Backward



Mile 4.6 (Stapp Road – Private) 1+15+2=18ft wide road prism; Good visibility and sight distance; Turnouts forward and backward.

Forward



Backward



Mile 5.0 (Stapp Road – Private) 0+18+0=18ft road prism; Entrance to project site, good visibility and sight distance. (No pictures taken)