

**HUMBOLDT COUNTY DEPARTMENT OF PUBLIC WORKS  
ROAD EVALUATION REPORT**

**PART A:** *Part A may be completed by the applicant*

Applicant Name: Humboldt Gardens, LLC

APN: 107-233-013

Planning & Building Department Case/File No.: \_\_\_\_\_

Road Name: Private Access Road (complete a separate form for each road)

From Road (Cross street): Mattole Road

To Road (Cross street): Private Access Road to Parcel Entrance

Length of road segment: 1.24 miles Date Inspected: December 5, 2018

Road is maintained by: ☐ County ☒ Other Private  
(State, Forest Service, National Park, State Park, BLM, Private, Tribal, etc)

Check one of the following:

**Box 1** ☐ The entire road segment is developed to Category 4 road standards (20 feet wide) or better. If checked, then the road is adequate for the proposed use without further review by the applicant.

**Box 2** ☐ The entire road segment is developed to the equivalent of a road category 4 standard. If checked, then the road is adequate for the proposed use without further review by the applicant.

*An equivalent road category 4 standard is defined as a roadway that is generally 20 feet in width, but has pinch points which narrow the road. Pinch points include, but are not limited to, one-lane bridges, trees, large rock outcroppings, culverts, etc. Pinch points must provide visibility where a driver can see oncoming vehicles through the pinch point which allows the oncoming vehicle to stop and wait in a 20 foot wide section of the road for the other vehicle to pass.*

**Box 3** ☒ The entire road segment is not developed to the equivalent of road category 4 or better. The road may or may not be able to accommodate the proposed use and further evaluation is necessary. Part B is to be completed by a Civil Engineer licensed by the State of California.

The statements in PART A are true and correct and have been made by me after personally inspecting and measuring the road. A map showing the location and limits of the road being evaluated in PART A is attached.

Signature

Date

Name Printed

**Important: Read the instructions before using this form. If you have questions, please call the Dept. of Public Works Land Use Division at 707.445.7205.**

**PART B: Only complete Part B if Box 3 is checked in Part A. Part B is to be completed by a Civil Engineer licensed by the State of California. Complete a separate form for each road.**

Road Name: Private Access Road Date Inspected: December 5, 2018 APN: 107-233-013  
From Road: Mattole Road (Post Mile approx. 4.5) Planning & Building  
To Road: Private Access Road (Post Mile 0.6) Department Case/File No.:

1. What is the Average Daily Traffic (ADT) of the road (including other known cannabis projects)?

Number of other known cannabis projects included in ADT calculations:  
(Contact the Planning & Building Department for information on other nearby projects.)

ADT: 3 Date(s) measured: December 5, 2018 to December 6, 2018

Method used to measure ADT: ☒ Counters ☐ Estimated using ITE Trip Generation Book

Is the ADT of the road less than 400? ☒ Yes ☐ No

If YES, then the road is considered very low volume and shall comply with the design standards outlined in the American Association of State Highway and Transportation Officials (AASHTO) *Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤ 400)*. Complete sections 2 and 3 below.

If NO, then the road shall be reviewed per the applicable policies for the design of local roads and streets presented in AASHTO *A Policy on Geometric Design of Highways and Streets*, commonly known as the "Green Book". Complete section 3 below.

2. Identify site specific safety problems with the road that include, but are not limited to: (Refer to Chapter 3 in AASHTO *Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤ 400)* for guidance.)

A. Pattern of curve related crashes.

Check one: ☒ No. ☐ Yes, see attached sheet for Post Mile (PM) locations.

B. Physical evidence of curve problems such as skid marks, scarred trees, or scarred utility poles

Check one: ☒ No. ☐ Yes, see attached sheet for PM locations.

C. Substantial edge rutting or encroachment.

Check one: ☒ No. ☐ Yes, see attached sheet for PM locations.

D. History of complaints from residents or law enforcement.

Check one: ☒ No. ☐ Yes (☐ check if written documentation is attached)

E. Measured or known speed substantially higher than the design speed of the road (20+ MPH higher)

Check one: ☒ No. ☐ Yes.

F. Need for turn-outs.

Check one: ☒ No. ☐ Yes, see attached sheet for PM locations.

3. Conclusions/Recommendations per AASHTO. Check one:

☒ The roadway can accommodate the cumulative increased traffic from this project and all known cannabis projects identified above.

☐ The roadway can accommodate the cumulative increased traffic from this project and all known cannabis projects identified above, if the recommendations on the attached report are done. (☐ check if a *Neighborhood Traffic Management Plan* is also required and is attached.)

☐ The roadway cannot accommodate increased traffic from the proposed use. It is not possible to address increased traffic.

A map showing the location and limits of the road being evaluated in PART B is attached. The statements in PART B are true and correct and have been made by me after personally evaluating the road.

Signature of Civil Engineer

Date

7/15/18



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**HUMBOLDT COUNTY DEPARTMENT OF PUBLIC WORKS  
ROAD EVALUATION REPORT**

**PART A:** *Part A may be completed by the applicant*

Applicant Name: Humboldt Gardens, LLC APN: 107-234-013

Planning & Building Department Case/File No.: \_\_\_\_\_

Road Name: Private Access Road (complete a separate form for each road)

From Road (Cross street): Mattole Road

To Road (Cross street): Private Access Road to Parcel Entrance

Length of road segment: 2.2 miles Date Inspected: December 5, 2018

Road is maintained by: ☐ County ☒ Other Private  
(State, Forest Service, National Park, State Park, BLM, Private, Tribal, etc)

Check one of the following:

**Box 1** ☐ The entire road segment is developed to Category 4 road standards (20 feet wide) or better. If checked, then the road is adequate for the proposed use without further review by the applicant.

**Box 2** ☐ The entire road segment is developed to the equivalent of a road category 4 standard. If checked, then the road is adequate for the proposed use without further review by the applicant.

*An equivalent road category 4 standard is defined as a roadway that is generally 20 feet in width, but has pinch points which narrow the road. Pinch points include, but are not limited to, one-lane bridges, trees, large rock outcroppings, culverts, etc. Pinch points must provide visibility where a driver can see oncoming vehicles through the pinch point which allows the oncoming vehicle to stop and wait in a 20 foot wide section of the road for the other vehicle to pass.*

**Box 3** ☒ The entire road segment is not developed to the equivalent of road category 4 or better. The road may or may not be able to accommodate the proposed use and further evaluation is necessary. Part B is to be completed by a Civil Engineer licensed by the State of California.

The statements in PART A are true and correct and have been made by me after personally inspecting and measuring the road. A map showing the location and limits of the road being evaluated in PART A is attached.

Signature

Date

Name Printed

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**PART B: Only complete Part B if Box 3 is checked in Part A.** Part B is to be completed by a Civil Engineer licensed by the State of California. Complete a separate form for each road.

Road Name: Private Access Road Date Inspected: December 5, 2018 APN: 107-234-013  
From Road: Mattole Road (Post Mile approx. 4.5) Planning & Building  
To Road: Private Access Road (Post Mile           ) Department Case/File No.:

1. What is the Average Daily Traffic (ADT) of the road (including other known cannabis projects)?

Number of other known cannabis projects included in ADT calculations:  
(Contact the Planning & Building Department for information on other nearby projects.)

ADT: 3 Date(s) measured: December 5, 2018 to December 6, 2018

Method used to measure ADT: ☒ Counters ☐ Estimated using ITE Trip Generation Book

Is the ADT of the road less than 400? ☒ Yes ☐ No

If YES, then the road is considered very low volume and shall comply with the design standards outlined in the American Association of State Highway and Transportation Officials (AASHTO) *Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤400)*. Complete sections 2 and 3 below.

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2. Identify site specific safety problems with the road that include, but are not limited to: (Refer to Chapter 3 in AASHTO *Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤400)* for guidance.)

A. Pattern of curve related crashes.

Check one: ☒ No. ☐ Yes, see attached sheet for Post Mile (PM) locations.

B. Physical evidence of curve problems such as skid marks, scarred trees, or scarred utility poles

Check one: ☒ No. ☐ Yes, see attached sheet for PM locations.

C. Substantial edge rutting or encroachment.

Check one: ☒ No. ☐ Yes, see attached sheet for PM locations.

D. History of complaints from residents or law enforcement.

Check one: ☒ No. ☐ Yes (☐ check if written documentation is attached)

E. Measured or known speed substantially higher than the design speed of the road (20+ MPH higher)

Check one: ☒ No. ☐ Yes.

F. Need for turn-outs.

Check one: ☒ No. ☐ Yes, see attached sheet for PM locations.

3. Conclusions/Recommendations per AASHTO. Check one:

☒ The roadway can accommodate the cumulative increased traffic from this project and all known cannabis projects identified above.

☐ The roadway can accommodate the cumulative increased traffic from this project and all known cannabis projects identified above, if the recommendations on the attached report are done. (☐ check if a Neighborhood Traffic Management Plan is also required and is attached.)

☐ The roadway cannot accommodate increased traffic from the proposed use. It is not possible to address increased traffic.

A map showing the location and limits of the road being evaluated in PART B is attached. The statements in PART B are true and correct and have been made by me after personally evaluating the road.

[Signature]  
Signature of Civil Engineer

7/15/18  
Date



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# Road Evaluation Report

Prepared For:

Humboldt Gardens, LLC

APN: 107-233-013 & 107-234-013

A handwritten signature in blue ink, consisting of stylized initials, is written over a horizontal line.

Signature of Civil Engineer



Seal

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## **Abbreviations**

<b>PM</b>	<b>Postmile</b>
<b>SWRCB</b>	<b>State Water Resources Control Board</b>
<b>SMP</b>	<b>Site Management Plan</b>
<b>AASHTO</b>	<b>American Association of State Highway and Transportation Officials</b>
<b>CMP</b>	<b>Corrugated Metal Pipe</b>
<b>CPP</b>	<b>Corrugated Plastic Pipe</b>
<b>CDFW</b>	<b>California Department of Fish and Wildlife</b>

## **Introduction:**

Green Road Consulting performed a road evaluation study to determine whether commercial cannabis cultivation activities will impact the current road systems on APN 104-121-017. This parcel is accessed using a private road, which directly intersects Mattole Road, a designated Category 4 road according to the Cannabis Standard Conditions for Humboldt County. The entirety of Mattole Road is maintained by the California Department of Transportation (CalTrans).

## **Background:**

On May 6, 2018, the Humboldt County Board of Supervisors passed Ordinance No. 2599 defining the rules and regulations of commercial cultivation, processing, manufacturing, distribution, testing and sale of cannabis for medicinal or adult use outside the coastal zone. Section 55.4.12 of the ordinance describes the performance standards related to all commercial cannabis activities at cultivation sites that must be met for the applicant to be eligible for a commercial cannabis cultivation permit issued by Humboldt County. As defined in Section 55.4.12.1.8, roads must conform to the following three (3) standards:

Standard 1: Dead End Road Length,

Standard 2: Functional Capacity,

Standard 3: Protection for Water Quality and biological Resources on Private Road Systems.

Humboldt County has also deemed it necessary that a road maintenance association be formed for all road systems providing access to three or more parcels seeking a Commercial Cannabis license. If a special permit regarding the functional capacity is required, Humboldt County mandates that all property owners utilizing the same road system be sent notice of the project, in addition to all parcels within 300 feet of the project parcel boundaries.

## **Methods:**

All road systems related to commercial cannabis cultivation must comply with the standards set forth in Section 55.4.12.1.8 of Humboldt County Ordinance No. 2599. These standards include roads being located less than 2-miles from the nearest intersection with a Category 4 road (Standard 1), roads providing access to the parcel(s) must meet or exceed the Category 4 road standard (Standard 2), and all private road systems and driveways providing access to parcel(s) shall be designed, maintained, or retrofitted in accordance with "A Water Quality and Stream Habitat Protection Manual for County Road Maintenance in Northwestern California Watersheds" (Standard 3). Where road standards are not met, a special permit is required.

A NanoCount 1000 totalizing vehicle counter was used to determine the Average Daily Traffic (ADT) on the private access road leading to the parcel. The 24-hour study was initiated at 2 PM on 12/5/2018 and concluded at 2 PM on 12/6/2018. The NanoCount 1000 uses a single-channel receiver connected to flexible surgical tubing to accurately count the number of vehicles (or axles) by sensing changes in pressure when a vehicle tire runs over the hollow tubing.

A GPS unit (2 to 4-meter accuracy) was used to mark locations where the NanoCount 1000 was installed for the study. The GPS unit also tracks the location of the user by marking a point every 15 seconds used to determine the dead-end road length. The location tracks obtained with the GPS unit were used in conjunction with Humboldt County Web GIS and ESRI ArcMap to determine accurate measurements of road segments (Figure 1).



## Results:

Summary of Road Characteristics throughout private road system:

*Table 1: Summary of road characteristics throughout private road system off Category 4 Mattole Road. Descriptions of the road conditions as observed at the time of the site inspection can be seen in Road Images.*

Parcel Road PM	Distance (mi)	Slope (%)	Width (ft)	Surface Material	Pinch Points and Narrow Section	Pullouts	Notes
0		6.3	12.3	Rock and dirt			Needs road drainage features
	0.4					7	Generators and lights on some pullouts
0.4		6.7	12	Rock and dirt	Narrow section with pullouts		
	0.4					1	
0.8		5.4	11.5	Rock and dirt	Narrow section with pullout		
	0.2					1	
1				Rock and dirt	Pinch point		
	0.2					2	
1.2		8.7	20	Rock and dirt			
	0.2					3	
1.4							
	0.2					4	
1.6		3.8	17.5	Rock/gravel			
	0.4					7	
2		9.3	25.5	Rock/gravel			
	0.4					2	
2.4		4.7	15.8	Rock and dirt			
	0.4				Two (2) pinch points with one (1) pullout	1	
2.8		5	13.5	Rock and dirt			
	0.4					6	
3.2		8.8	13.5	Rock and dirt			
	0.4					3	Clear rock debris on the road
3.6		11.9	17.4	Rock and dirt			
	0.4					5	
4		3.9	14.6	Rock and dirt			
	0.375					4	
4.375		2.7	12.5	Rock and dirt	Narrow section before intersection to Mattole Road		

Table 1 outlines the road conditions that were identified at the time of the site inspection. Road features such as slope and width were measured at 0.4-mile intervals for 1 mile, from the location of a flat on APN 107-234-013 through 107-233-013 to the private access road entrance. The entire road consisted of rock and dirt as the surface material with 46 pullouts counted in total. Attributes of significance included the need of drainage features to prevent road failure from erosion and clearing of fallen tree branches and rocks.

As outlined in the AASHTO Guidelines for Geometric Design of Very Low-Volume Local Roads (American Association of State Highway and Transportation Officials 2001), “evidence of site-specific safety problems may be: a pattern of curve-related crashes; physical evidence of curve problems such as skid roads, scarring on trees or utility poles, substantial edge rutting or encroachments; a history of complaints from neighbors and/ or local police; or measured or known speeds higher than the current operational speed of the road system.”

**Pinch Points:**

Three (3) obvious pinch points were observed at the time of the site inspection. Pinch points observed were caused by a few fallen branches on narrow roads that shall be removed. Road feature identifications at the time of the site inspection also included generators and lights in some of the pullouts. As stated in the ASSHTO referenced NCHRP Report 362, it was found that “crash rates for unpaved roads are lower for narrower roadway widths. Therefore, existing unpaved roads should not generally be widened as a safety measure unless there is evidence of a site-specific safety problem that may be corrected by widening.”

**Road Images:**



*Figure 1: PM 0 on APN: 107-234-013.*

Between PM 0 and PM 0.4 there were seven (7) pullouts that were identified. Obstructions on the pullouts that may interfere with one-way traffic included generators and lights.



*Figure 2: PM 0.4 on APN: 107-234-013.*



One (1) pullout was observed between PM 0.4 and PM 0.8.



*Figure 3: PM 0.8.*

Three (3) pullouts and one (1) pinch point were observed between PM 0.8 and PM 1.2.



*Figure 4: PM 1.2.*

Seven (7) pullouts were observed between PM 1.2 and PM 1.6.



*Figure 5: PM 1.6.*

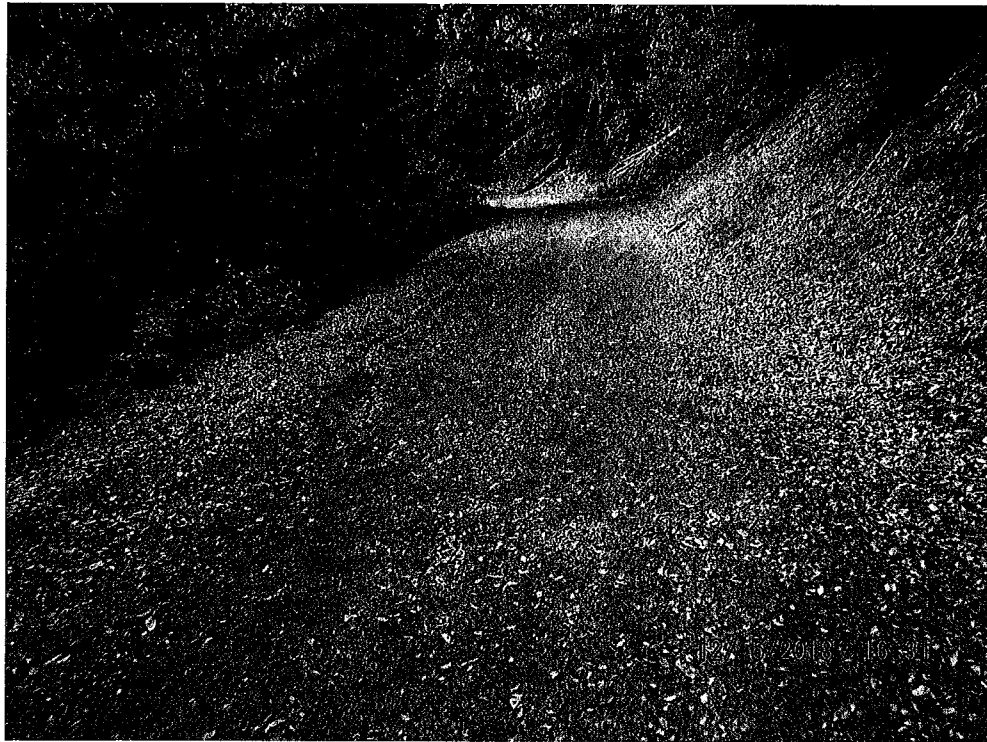
Seven (7) pullouts were observed between PM 1.6 and PM 2.0.



*Figure 6: PM 2.0.*



Two (2) pullouts were observed between PM 2.0 and PM 2.4.



*Figure 7: PM 2.4.*

One (1) pullout and two (2) pinch points were observed between PM 2.0 and PM 2.4.



*Figure 8: PM 2.8.*

Six (6) pullouts were observed between PM 2.8 and PM 3.2.



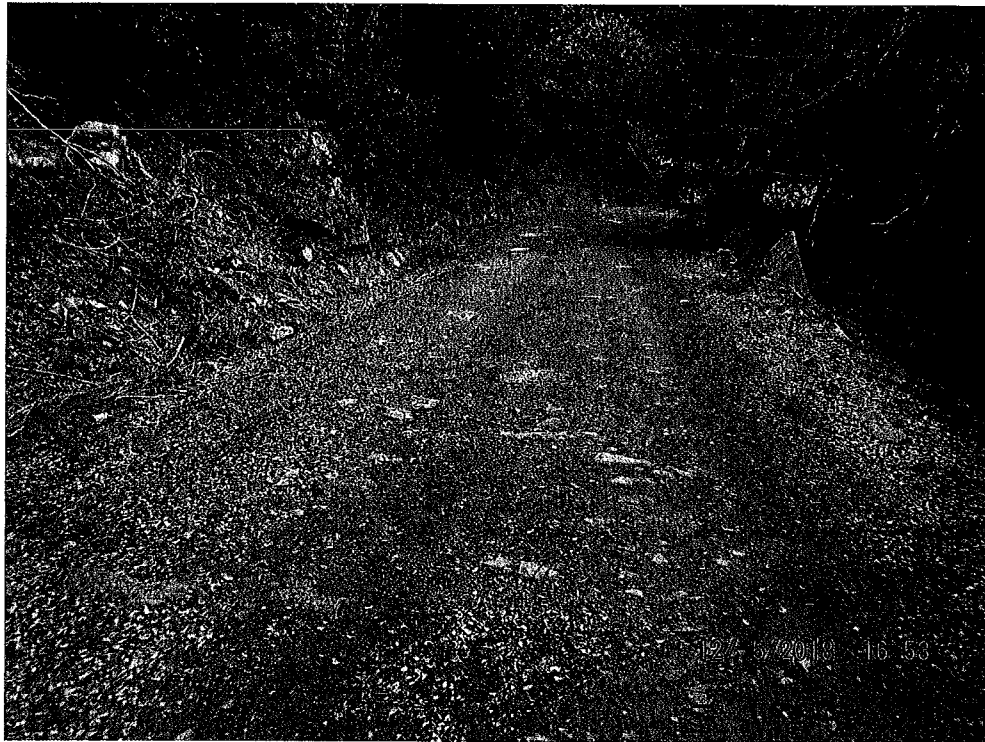
*Figure 9: PM 3.2.*

Three (3) pullouts were observed between PM 3.2 and PM 3.6, as well as fallen rocks on the road.



*Figure 10: PM 3.6.*

Five (5) pullouts were observed between PM 3.6 and PM 4.0.



*Figure 11: PM 4.0.*

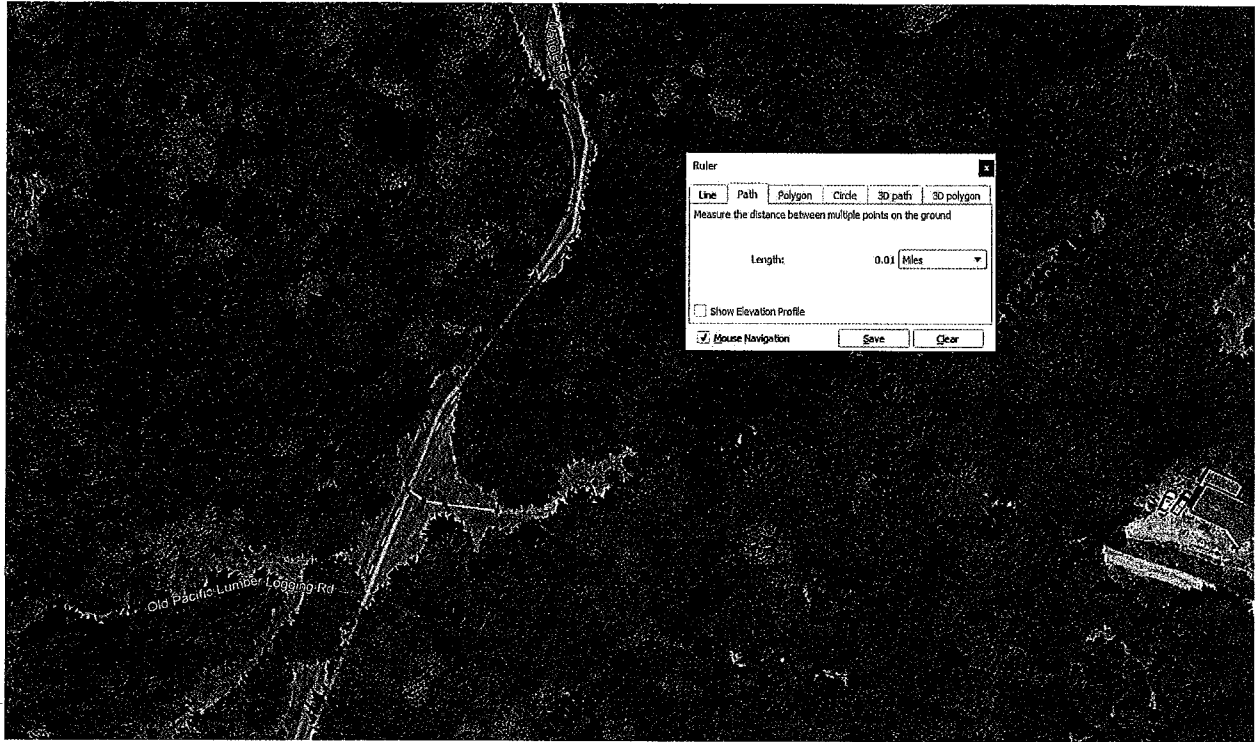
Four (4) pullouts were observed between PM 4.0 and PM 4.375.



*Figure 12: PM 4.375.*

### Standard 1 – Dead End Road Length

Using Google Earth Pro's polygon measurement tool, the length of road from the nearest designated Category 4 road (Mattole Road) to the private access road entrance was determined to be approximately 0.01 miles. This is less than the 2.0 miles required by Humboldt County (Figure 1).



*Figure 13: Snapshot Google Earth polygon measurement tool used to determine the distance traveled to reach the private driveway to the applicants parcel from Mattole Road.*



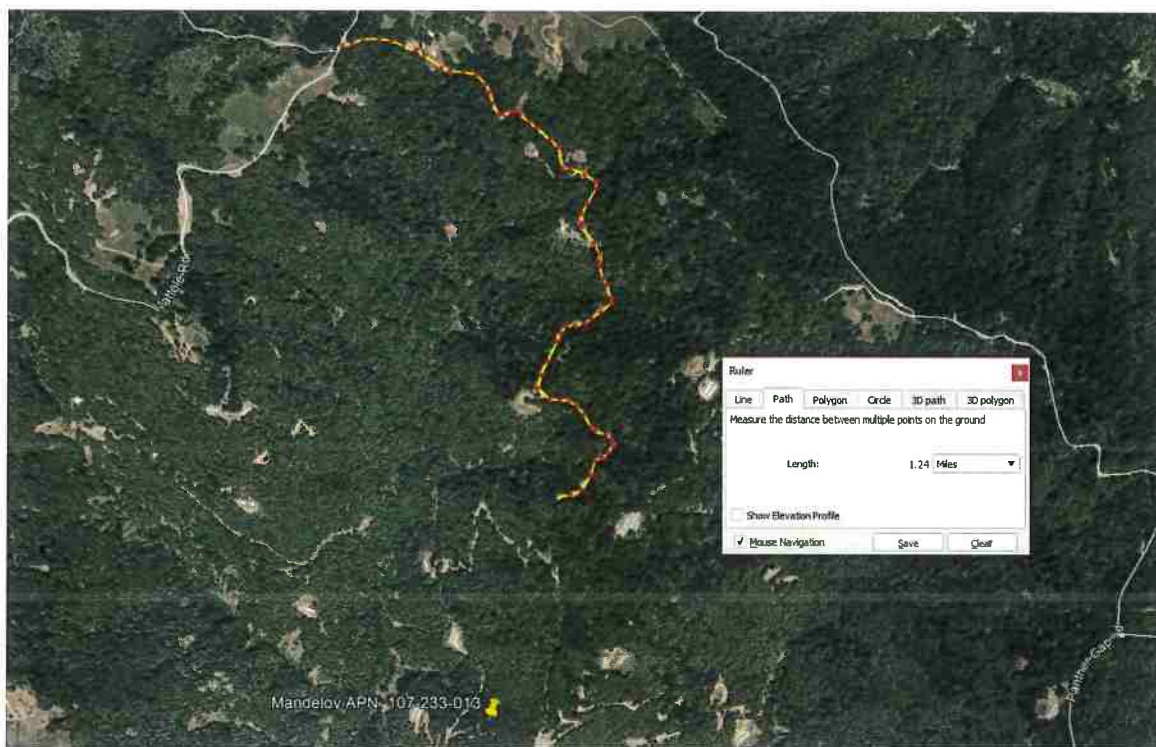


Figure 14: Snapshot of Google Earth polygon measurement tool used to determine the distance traveled to reach the parcel boundary on APN: 107-233-013 from the private access road which is approximately 1.24 miles.

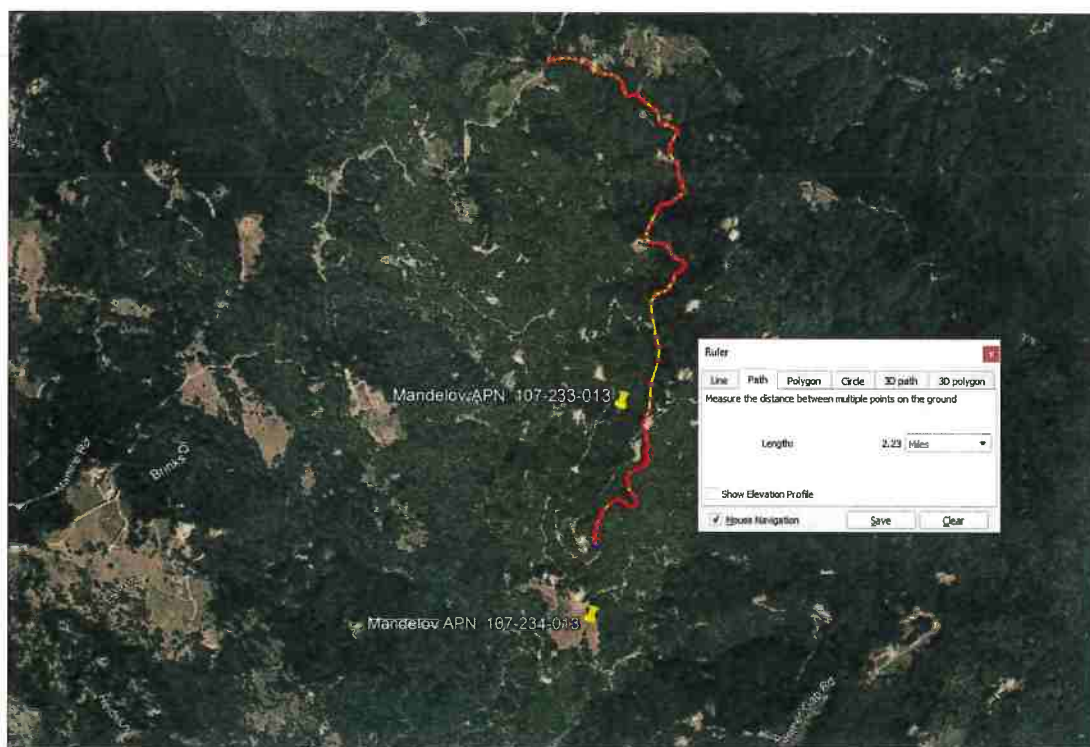


Figure 15: Snapshot of Google Earth polygon measurement tool used to determine the distance traveled to reach the parcel boundary on APN: 107-234-013 from the private access road, which is approximately 2.2 miles.



## Standard 2 – Functional Capacity

The Average Daily Traffic (ADT) was used to determine the functional capacity of the private access road, from County maintained Panther Gap to the parcel entrance. The Average Daily Traffic (ADT) for the 0.01-mile section of private access road, from Mattole Road to the parcel entrance was 3 (Table 1). This value defines the Unnamed Private Road, from the intersection of Mattole Road to the parcel entrance as a very low-volume local road according to the AASHTO design manuals. A Civil Engineer licensed by the State of California has completed Section 2 and Section 3 of the Humboldt County Department of Public Works Road Evaluation Report.

*Table 2: Summary of the data collected over the 24-hour road study.*

Segment	Length (miles)	Count (vehicles)
Mattole Road to Private Road Entrance	0.01	3

### Pinch Points:

Pinch points on the private road within the parcel were observed and marked. Their locations on the road were marked in the site overview map (attached CAD map).

## Standard 3 – Protection for Water Quality and biological Resources on Private Road Systems

Evaluation of the design, functionality, and performance conditions of all segments of private roadways will be conducted by a licensed engineer. This shall include design measures to minimize impacts from point source and non-point source pollution, sediment delivery, runoff velocity. Drainage features shall be evaluated to ensure adequate design, functionality, and performance of culverts and other discrete drainage systems and develop conclusions regarding compliance and conformance with best management practices for the defined road system.

The attached summaries of the road conditions running through the parcels is outlined in the Restoration Plans completed by Green Road Consulting. The attached Remediation Plans can be seen attached in Appendix A.

An initial assessment of the roads running through APN 107-233-013 indicated that sections of the road had poor drainage, and a slide area. Basic maintenance will include the installation of rolling dips to disperse runoff and ensure adequate drainage. Specific road issues and mitigation is outlined in the following section. All roads will need to be brought up to the standards set forth in the Pacific Watershed Associates (PWA) “Handbook for Forest, Ranch, and Rural Roads” in order to minimize the impact these roads will have on nearby watercourses.

The initial assessment of APN 107-234-013 determined that all roads on site required significant maintenance in order to reduce erosion and mitigate sediment delivery to nearby watercourses. Road issues and mitigation measure are as follows:

- A 170-foot section of dirt road has been significantly eroded from concentrated runoff from the access road above. This section of road will be decommissioned, as it is no longer usable. At least four (4) waterbars will be cut into the road surface to drain runoff away from the flat below. The road surface will be covered with straw and seeded for stability. The deep scour will be lined with rock to stop further erosion. The end of the deep scour will have straw wattle installed across the opening to slow runoff and catch sediment that still makes it through the remediation features described above and in the following section.
- The road leading to Site A from the North is currently draining to a short access road leading to the West flat. This concentrated runoff is resulting in heavy erosion and scouring of the road surface, contributing to significant sediment deposition downstream (see previous section). Four (4) rolling dips will be built into this road surface to dissipate runoff, placed at the locations

indicated on the attached map. This is particularly important where the decommissioned road meets the main access road, where runoff currently enters the eroded area.

- A bend in the road on a grassy slope on the western boundary of the parcel is not functioning properly, showing signs of concentrated road runoff and surface erosion. The road intercepts runoff from a grassy slope, denying drainage to a pseudo-wetland area. The inboard ditch on the Northern section of the bend will be widened and deepened and will be lined with rock. Two 18" drainage relief culverts will be installed to drain the ditch across the road. Six to ten-inch rock will be placed at the outlets of these culverts to dissipate flow. A rocked drainage ditch will be installed at the end of this ditch, at the location indicated on the attached map, to drain runoff any remaining runoff away from the road surface.
- The inboard ditch on the southern part of the road loop (see previous section) is not functioning properly and requires maintenance. The ditch will be widened and deepened and will be lined with rock. Two 18" drainage relief culverts will be installed to drain the ditch across the road. Six to ten-inch rock will be placed at the outlets of these culverts to dissipate flow., which will drain the inboard ditch to the downhill side of the road.
- The 1,800 feet of dirt access road on the southern portion of this parcel will be decommissioned once all remediation work has been completed on the flat. Five (5) stream crossings will be removed with the stream channels returned to original contours. Road surface restoration shall be implemented as a crew works West along the road, remediating the road surface behind them. This includes the ripping (decompacting) and out-sloping of the road surface and installation of cross-road drains (like waterbars, but permanent and much more substantial) every 50-100 feet (see attached map for specific placement of road cuts). Cross road drains will be lined with rock and seeded on the banks. The surface shall then be covered with straw and seeded to promote revegetation of the road area and cut/fill slopes, as well as to stabilize the surface in the short-term. Once completed, the entrance to this road shall be blocked from motor vehicle passage. An LSAA permit will be obtained from CDFW before stream crossing channels are restored.

All access roads on the property shall be maintained to the standards specified in the Handbook for Forest, Ranch & Rural Roads, prepared by Pacific Watershed Associates (2014).

## Conclusion

Three road standards must be met for the applicant to be in compliance with Humboldt County Ordinance No. 2599: Dead End Road Length, Functional Capacity, and Protection for Water Quality and Biological Resources on Private Road Systems. Green Road Consulting performed a road evaluation study to determine whether commercial cannabis cultivation activities will impact the current road systems on APN 107-233-010. A summary of the results can be found below:

- The Dead-End Road Length from the nearest Category 4 road (Mattole Road) to the parcel entrance is 0.01 miles.
- Over a 24-hour car counting study, a total of 3 vehicles utilized the road system accessing the applicants parcel (Table 2), defining the segment of road as very low-volume according to the AASHTO design manuals.
- The condition of these roads is adequate to support commercial cultivation operations in addition to the current regular non-commercial use
- Three (3) locations with pinch points were identified during the site inspection that pose a risk to the private roadway during the active growing season.
- The project shall meet all three road system standards once the road segment (stream crossing) is upgraded as described in Humboldt County Ordinance No. 2599 Performance Standards for Road Systems described in section 55.4.12.1.8.

It is recommended that SMP methods be implemented on the private road leading to the parcel entrance for the environmental remediation conditions to be addressed. The initial site visit found no significance in the current state of the roads regarding pinch points. Precise pinch point numbers and locations shall be addressed in a future site inspection.

A Road Evaluation Report provided by the Humboldt County Department of Public Works has been completed by a licensed civil engineer.