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



Applicant N	Name: Green Flash Farms	APN: 221-121-007, 221-131-001
Planning &	& Building Department Case/File No.: 12366	
Road Name	Access to property from Thomas Road e: We Call Clarks Butte Road (consequence) See Attached Map	complete a separate form for each road)
From Road	1 (Cross street): Thomas Road	
To Road (C	Cross street): Deed end, last property on road. Road ser	ves two properties.
Length of r	road segment: 0.8 to Property line, 0.4 on to house center mi	les Date Inspected: 8/1/18
Road is ma	intained by: County Other Land owner mainta	maintain Thomas Road from County Intersection tins internal ownership on Clarks Butte Rd. Park, State Park, BLM, Private, Tribal, etc)
Check one o	of the following:	and, but the best firm, believed, the
Box 1	The entire road segment is developed to Category 4 r checked, then the road is adequate for the proposed u	
Box 2 🗵	The entire road regment is developed to the equivalent	
	then the road is adequate for the proposed use without	
ECEIVED UG - 6 2019 Imboldt County		at further review by the applicant.  a roadway that is generally 20 feet in Pinch points include, but are not limited to, verts, etc. Pinch points must provide arough the pinch point which allows the
ECEIVED UG - 6 2019 umboldt County	An equivalent road category 4 standard is defined as width, but has pinch points which narrow the road. It one-lane bridges, trees, large rock outcroppings, cult visibility where a driver can see oncoming vehicles the oncoming vehicle to stop and wait in a 20 foot wide s	at further review by the applicant.  a roadway that is generally 20 feet in Pinch points include, but are not limited to, verts, etc. Pinch points must provide arough the pinch point which allows the ection of the road for the other vehicle to ralent of road category 4 or better. The road use and further evaluation is necessary.
ECEIVED UG - 6 2019 Imboldt County annabis Svcs.  Box 3	An equivalent road category 4 standard is defined as width, but has pinch points which narrow the road. It one-lane bridges, trees, large rock outcroppings, cult visibility where a driver can see oncoming vehicles the oncoming vehicle to stop and wait in a 20 foot wide s pass.  The entire road segment is not developed to the equive may or may not be able to accommodate the proposed Part B is to be completed by a Civil Engineer licensed atts in PART A are true and correct and have been made	at further review by the applicant.  a roadway that is generally 20 feet in Pinch points include, but are not limited to, verts, etc. Pinch points must provide arough the pinch point which allows the ection of the road for the other vehicle to ralent of road category 4 or better. The road is use and further evaluation is necessary. It by the State of California.
ECEIVED UG - 6 2019 Imboldt County annabis Svcs.  Box 3   The statemen	An equivalent road category 4 standard is defined as width, but has pinch points which narrow the road. It one-lane bridges, trees, large rock outcroppings, cult visibility where a driver can see oncoming vehicles the oncoming vehicle to stop and wait in a 20 foot wide s pass.  The entire road segment is not developed to the equive may or may not be able to accommodate the proposed Part B is to be completed by a Civil Engineer licensed atts in PART A are true and correct and have been made	a roadway that is generally 20 feet in Pinch points include, but are not limited to, verts, etc. Pinch points must provide arough the pinch point which allows the ection of the road for the other vehicle to ralent of road category 4 or better. The road is use and further evaluation is necessary.
ECEIVED UG - 6 2019 Imboldt County Jannabis Svcs.  Box 3   The statemen	An equivalent road category 4 standard is defined as width, but has pinch points which narrow the road. It one-lane bridges, trees, large rock outcroppings, cult visibility where a driver can see oncoming vehicles the oncoming vehicle to stop and wait in a 20 foot wide s pass.  The entire road segment is not developed to the equive may or may not be able to accommodate the proposed Part B is to be completed by a Civil Engineer licensed atts in PART A are true and correct and have been made	a roadway that is generally 20 feet in Pinch points include, but are not limited to, verts, etc. Pinch points must provide arough the pinch point which allows the ection of the road for the other vehicle to ralent of road category 4 or better. The road is use and further evaluation is necessary. It by the State of California.



- 🗸 🤌 Intersection Thomas-Clarks Butte Rd
- Intersection Thomas Rd-Luke diveway 2,800¹
- ✓ ♣ CB Rd Luke-Prop Line 1,433¹
- ✓ ♣ CB Rd Prop Line to Top Hill 453¹
- V 🏞 Top Hill House 1,458
- √ δ Top Hill to SE 1 2,011
- ✓ ♣ Top Hill-SE 2 457¹
- ∨ 🔊 Top to NW Site 3 580'

### OLDT COUNTY DEPARTMENT OF PUBLIC ORKS ROAD EVALUATION REPORT

Planning Division HECEIVED

rippiteanti	ine: Green Flas	sh Farms	APN: _	221-121-007, 221-131-001
Planning &	Building Departm	ent Case/File No.: 123	366	
Road Name	: We Call Clarks E		(complete	a separate form for each road)
From Road	See Attached Ma (Cross street):	Thomas Road		
To Road (C	ross street): _D	eed end, last property on road.	Road serves two	properties.
Length of re	ad segment: 0.8 to	Property line, 0.4 on to house of		Date Inspected: 8/1/18
Road is mai	ntained by: C	ounty Other Land own	er maintains inter	Thomas Road from County Intersectional ownership on Clarks Butte Rd. ate Park, BLM, Private, Tribal, etc.
Check one of	the following:	,	,	, , , , , , , , , , , , , , , , , , , ,
Box 1				dards (20 feet wide) or better. If out further review by the applicant.
Box 2 🗵		regment is developed to the didequate for the proposed us		oad category 4 standard. If checked review by the applicant.
	width, but has pi one-lane bridges, visibility where a	nch points which narrow the , trees, large rock outcroppi driver can see oncoming ve	e road. Pinch po ings, culverts, etc chicles through t	vay that is generally 20 feet in instruction into include, but are not limited to, inch points must provide the pinch point which allows the fine road for the other vehicle to
		agment is not developed to t	the equivalent of	road category 4 or better. The road
Box 3 🔲		eginent is not developed to the able to accommodate the impleted by a Civil Engineer		
he statement	Part B is to be consin PART A are to	e able to accommodate the mpleted by a Civil Engineer	licensed by the	
he statement	Part B is to be consin PART A are to	e able to accommodate the mpleted by a Civil Engineer	licensed by the	State of California.
The statement neasuring the Signature	Part B is to be consin PART A are to	e able to accommodate the mpleted by a Civil Engineer	licensed by the	State of California.





- 🗸 🥬 Intersection Thomas-Clarks Butte Rd
- ✓ ♣ Intersection Thomas Rd-Luke diveway 2,800¹
- ✓ S CB Rd Luke-Prop Line 1,433¹
- CB Rd Prop Line to Top Hill 453'
- V 🚵 Top Hill House 1,458
- : ✓ 🗞 Top Hill to SE 1 2,011'
- ✓ 🚵 Top Hill-SE 2 457'
- V 🔊 Top to NW Site 3 580'

## HUMBOLDT COUNTY DEPARTMENT OF PUBLIC WORKS ROAD EVALUATION REPORT

PART A:	Part A may be completed by the applicant	
Applicant N	Nathan Monschke and Lisa Melin-Monschke A	PN: 221-081-004
Planning &	Building Department Case/File No.: 10653	
Road Name	Calman Crack Bood (Cogmont 1)	mplete a separate form for each road)
	(Cross street): Maple Hills Road	
	Thomas Road	
To Road (C	Joss streety.	10/2/2017
Length of ro	oad segment: 1.7 miles	Date Inspected: 10/3/2017
Road is mai	intained by: 🔽 County 🗌 Other	
Check one of	(State, Forest Service, National Pa f the following:	ark, State Park, BLM, Private, Tribal, etc)
Box 1	The entire road segment is developed to Category 4 roachecked, then the road is adequate for the proposed use	
Box 2	The entire road segment is developed to the equivalent then the road is adequate for the proposed use without f	
	An equivalent road category 4 standard is defined as a width, but has pinch points which narrow the road. Pin one-lane bridges, trees, large rock outcroppings, culver visibility where a driver can see oncoming vehicles throughout oncoming vehicle to stop and wait in a 20 foot wide sec pass.	nch points include, but are not limited to, rts, etc. Pinch points must provide ough the pinch point which allows the
Box 3 🗸	The entire road segment is not developed to the equival- may or may not be able to accommodate the proposed u Part B is to be completed by a Civil Engineer licensed by	use and further evaluation is necessary.
The statement neasuring the	ts in PART A are true and correct and have been made by croad.	me after personally inspecting and
_	Jal Moselle	10/12/17
Signature	V =	Date
Joel Mo	onschke	
Name Printed		PECEIVED
Important: Read	the instructions before using this form. If you have questions, please call the De	pt. of Public Works Land Use Division at 707.445,7205.
		Humboldt County Cannabis Svcs

# 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 Galifornia. Complete a separate form for each road.

Road Name:	Salmon Creek Road (Segment 1)	Date Inspected: 10/3/17	APN: 221-081-004
From Road:	Maple Hills Road	(Post Mile N/A )	Planning & Building Department Case/File No.:
To Road:	Thomas Road	(Post Mile N/A)	
		of the road (including other known ca	nnabis projects)?
		for information on other nearby projects.)	92
ADT:	640 Date(s	s) measured: See explanation in Technical	Memorandum Section 2.3
Method	used to measure ADT: Counte	ers Estimated using ITE Trip Gen	neration Book
Is the Al	OT of the road less than 400?	Yes No	
Ame		w volume and shall comply with the design of Transportation Officials (AASHTO) Guid Officials (AASHTO). Guid Officials (AASHTO).	
AAS		the applicable policies for the design of local of Highways and Streets, commonly known a	
		the road that include, but are not limit on of Very Low-Volume Local Roads (	· · · · · · · · · · · · · · · · · · ·
A. Pat	tern of curve related crashes.		
		e attached sheet for Post Mile (PM) lo	
_	Annual Control	s such as skid marks, scarred trees, or s	scarred utility poles
		e attached sheet for PM locations.	
	estantial edge rutting or encroach		
		e attached sheet for PM locations.	
	tory of complaints from residents		
		check if written documentation is attached)	
	asured or known speed substantia ck one: ☐ No. ☐ Yes.	ally higher than the design speed of the	e road (20+ MPH higher)
F. Nee	ed for turn-outs.		
Che	ck one: No. Yes, see	attached sheet for PM locations.	-d
3. Conclusio	ons/Recommendations per AASH	TO. Check one:	
	ne roadway can accommodate the projects identified above.	cumulative increased traffic from thi	s project and all known
cannabis		e cumulative increased traffic from this ecommendations on the attached reported and is attached.)	
Tł		increased traffic from the proposed us	se. It is not possible to
	the location and limits of the road		
	tements in PART B are true and	correct and have been made by	
me after persona	lly evaluating the road.	10/12/17	- 781 15
Signature of Civi	l Engineer	Date	
Important: Read the	nstructions before using this form. If you ha	ve questions, please call the Dept. of Public Works	Land Use Division at 707.445.7205.

850 G Street, Suite K, Arcata, CA 95521 phone 707.822.9607

### TECHNICAL MEMORANDUM

DATE:

13 October 2017

TO:

**Humboldt County Department of Public Works** 

FROM:

Joel Monschke, Stillwater Sciences

Road Evaluation for APN 221-081-004 (Blido Property):

SUBJECT:

Segment 1 - 1.7 miles of Humboldt County maintained Salmon Creek Road from

Maple Hills Road junction to Thomas Road turnoff

I hereby state that all work described in the attached Technical Memorandum follows accepted engineering practice and was completed under my direction. This Technical Memorandum summarizes results from an evaluation conducted on the access road leading to APN 221-081-004 per guidance from the Humboldt County Department of Public Works. The Blido property is located approximately 8 miles from US-101 and approximately 2 miles from mile 4.1 of Thomas Road where the county-maintained road ends. Based on physical characteristics of the access road, the 7.8-mile access road to the Blido property has been divided into 4 segments as follows:

- Segment 1 (Subject of this Technical Memorandum) 1.7 miles of County-maintained road (Salmon Creek Road) from Maple Hills Road junction to the Thomas Road junction.
- Segment 2 4.1 miles of county-maintained Thomas Road, from Salmon Creek Road junction to end of County-maintained segment.
- **Segment 3** 1.6 miles of private community-maintained road (Thomas Road) from Mile 4.1 of Thomas Road to Salmon Creek School.
- **Segment 4** 0.4 miles of private community-maintained road from Thomas Road to Blido property.



Joel Monschke, P.E.

Civil Engineer

Stillwater Sciences

### 1 INTRODUCTION

Stillwater Sciences has been contracted to conduct road evaluation the proposed cannabis project on APN 221-081-004. On 3 October 2017, the field evaluation was conducted by Stillwater Sciences engineer (Joel Monschke). Information in this Technical Memorandum pertains to Segment 1 (See Figure 1) covering 1.7 miles of County-maintained road from Salmon Creek Road/Maple Hills Road to the Thomas Road junction.

### 2 EXPECTED INCREASE IN USE DUE TO CANNABIS PROJECT

#### 2.1 Cannabis Project on APN 221-081-004

The cannabis project proposed on APN 221-081-004 has the potential to increase traffic on the roads evaluated herein because cultivation covers ~40,000 SF. However, the applicant strives to reduce impacts to all access roads by reusing soil, storing all water onsite (no water deliveries), and utilizing an onsite gravel quarry to maintain the roads on the property.

### 2.2 Other Cannabis Projects in the Vicinity

Areas accessed by Salmon Creek Road were delineated into eight sub-areas so that projected use could be estimated along the various road segments evaluated in this project. Humboldt County Department of Public Works provided Stillwater with a list of cannabis permit applications in the vicinity. The number of cannabis applicants and number of parcels were tallied by sub-area and are shown in Table 1.

Cannabis Sub-area Description of sub-area permit **Parcels** applications Lower Salmon Salmon Creek Road from Maple Hills Road to Thomas 4 29 Creek Road Road/Salmon Creek Road split Upper Salmon Salmon Creek Road from Thomas Road/Salmon Creek 9 Creek Road Road split to terminus Thomas Road from Thomas Road/Salmon Creek Road Thomas Trunk 14 49 Road split to Main/Upper Thomas Road split Lower Thomas Main Thomas Road from Main/Upper Thomas Road 16 41 Road split to Salmon Creek School Upper Thomas Lower Thomas Road from Main/Lower Thomas Road 17 36 Road split to terminus Main Thomas Upper Thomas Road from Main/Upper Thomas Road 7 14 Road split to terminus Lower Samuels Lower Samuels Ranch Loop Road (Thomas Road) from 12 52 School to Serendipity sign Ranch Loop Upper Samuels Upper Samuels Ranch Loop Road (Thomas Road) from 13 55 Ranch Loop School to Serendipity sign

Table 1. Access road area users.

All of these sub-areas are accessed by the road (Segment 1) evaluated in this Technical Memorandum. Therefore, all 92 cannabis permit applications and 320 parcels contribute to use of Segment 1. Most of the cannabis applications involve permitting existing cultivation, so the traffic is not likely to significantly increase from those projects compared to the last several years. However, it is expected that the cumulative impacts of all these projects will result in incremental increases in road use considering that there are multiple new permit applications and that as farmers come into compliance they often significantly upgrade their operations.

#### 2.3 Average Daily Traffic Estimate

Stillwater Sciences' engineer estimated average daily trips based on traffic observations during the road evaluation, number of properties utilizing the access road, and engineering judgement. There are approximately 320 parcels that utilize Segment 1. If each parcel accounts for two trips per day, that equates to approximately 640 total trips per day (~50 trips per hour during a typical 12-hour day (8 am to 8 pm). This is generally consistent with the observations made during the road evaluation. While there are likely busier times of day, and busier periods of the year, we believe that this is a reasonably accurate estimate for this road evaluation.

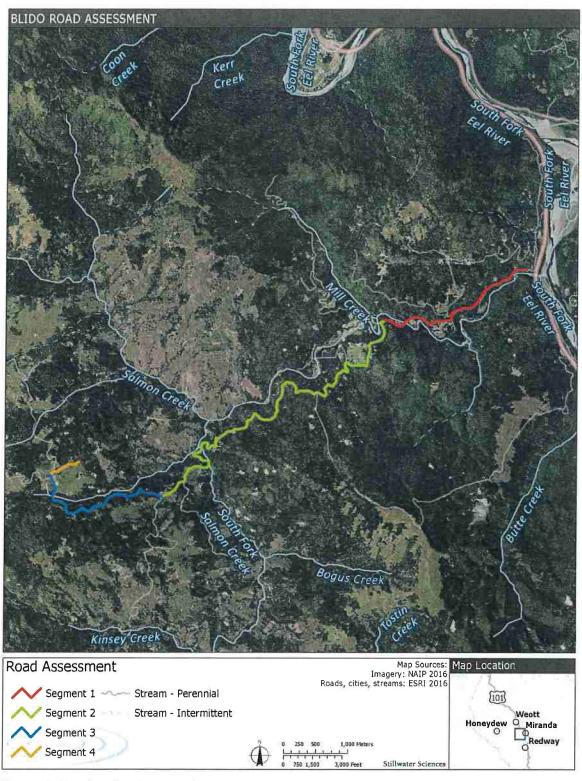


Figure 1. Road evaluation overview map.

### 3 FIELD OBSERVATIONS

#### 3.1 General Observations

Overall, the 1.7 miles of County Road is in relatively good condition. There is evidence of skid marks at several locations. The greatest safety concerns on the segment are one pinch point at mile 0.3 and a narrow segment with blind curves from miles 0.8 to 1.0.

### 3.2 Description of Specific Road Segments

A detailed map of the road segment is shown on Figure 2. The beginning of the segment from mile 0 to 0.7 was generalized as a sub-segment because of its uniform characteristics. Measurements were taken along the road segment after mile 0.7 at 0.1 mile intervals as shown in Figure 2:

- Mile 0 to 0.7 (Beginning at Maple Hills Road): Paved, with yellow stripe, 18–24 foot (ft) width with 2-ft gravel shoulders, "equivalent category 4 road" with exception of one pinch point at mile 0.3 (14 ft width with no shoulders) caused by recent debris slide and tree (see photo in Appendix A). The pinch point is at a blind corner making it dangerous.
- Mile 0.8: relatively narrow section, 16-ft road width, no shoulder, deep ditch.
- Mile 0.9: Relatively narrow section, 15-ft road width with 1-ft shoulders.
- Mile 1.0: 18-ft road width with 1-ft shoulders.
- Mile 1.1: 20-ft road width with 1-ft shoulders.
- Mile 1.2: 24-ft road width with 1-ft shoulders.
- Mile 1.3: 16-ft road width with 1-ft shoulders—pinch point with decent visibility.
- Mile 1.4: 22-ft road width with 2-ft shoulders.
- Mile 1.45: 28-ft width bridge with no shoulder.
- Mile 1.5: 24-ft road width with 2-ft shoulders.
- Mile 1.6: 24-ft road width with 2-ft shoulders.
- Mile 1.7: Thomas Road/Salmon Creek Road split, 32-ft road width with 2-ft ft shoulders (end of Segment 1)

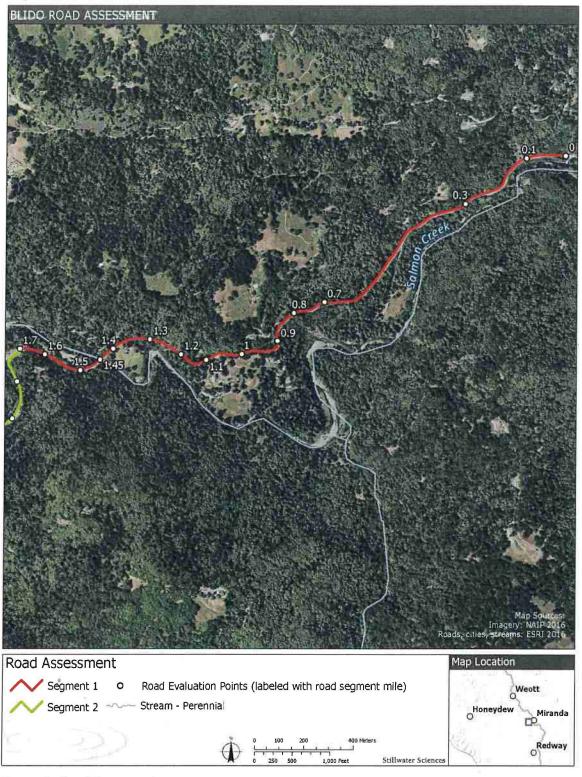


Figure 2. Road Segment 1 map.

#### 4 RECOMMENDATIONS

### 4.1 Specific Recommendations for this Road Segment

- Mile 0.3: We recommend removing trees and dirt that has slumped off cut slope. Widening roadway to 20 feet with shoulders, need to consider environmental impact (high priority).
- Mile 0.8 to 1: This is a trickier road segment to widen due to a deep landslide in the
  vicinity. However, minor improvements to the roadway could improve safety and width
  including paving work to stabilize the inboard ditch and outboard edge of the roadway at
  select locations and fix pavement edges that are broken and treacherous at numerous
  locations.

It is unrealistic to expect one or several cannabis cultivators to make the road improvements recommended herein. Therefore, we suggest developing a public-private partnership between Humboldt County and residents/cultivators within the Salmon Creek community to work together to improve the County-maintained access road. As necessary, cultivator contribution could be calculated based on a sliding scale that takes into consideration the square footage of cultivation area and length of County-maintained road utilized.

### Appendix A

### Photos

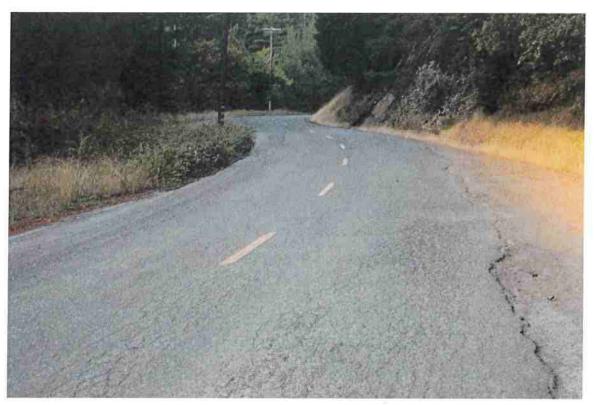


Photo 1. Mile 0.1 Category 4 segment with yellow stripe, typical of segment from 0.0 to 0.7.

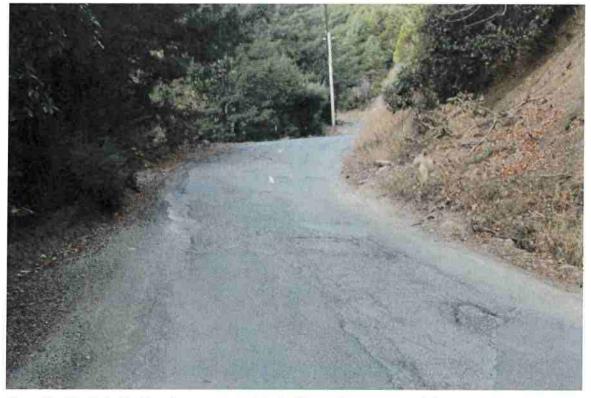


Photo 2. Mile 0.3: Pinch point at recent debris slide and tree; 14' width, no shoulder, blind corner, dangerous spot.



Photo 3. Mile 0.8: relatively narrow section, 16' width, no shoulder, deep ditch.



Photo 4. Mile 0.9: relatively narrow section, 15' width, 1' shoulders.



Photo 5. Mile 1.0: 18' width, 1' shoulder.



Photo 6. Mile 1.1: 20' width, 1' shoulders.



Photo 7. Mile 1.1: Logging truck on road.

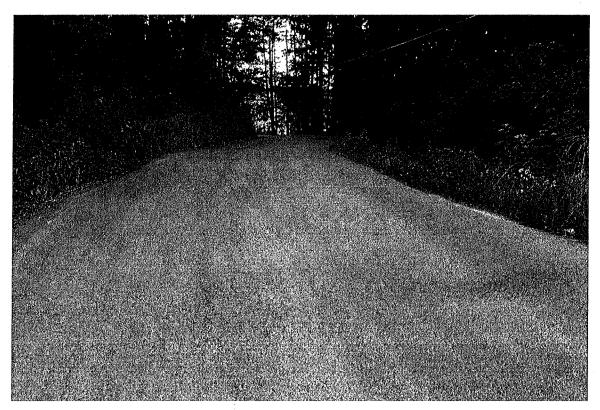


Photo 8. Mile 1.2: 24' width, 1' shoulders.

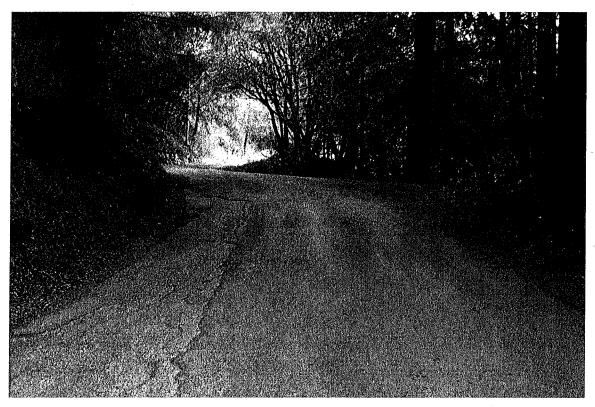


Photo 9. Mile 1.3: 16' width, 1' shoulders pinch point, OK visibility.

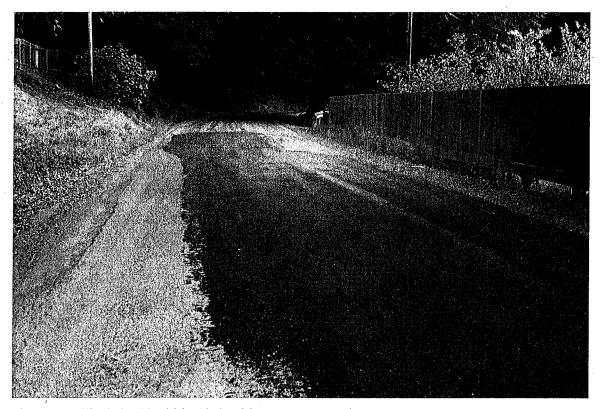


Photo 10. Mile 1.4: 22' width, 2' shoulders.



Photo 11. Mile 1.45: 28' width bridge, no shoulders.

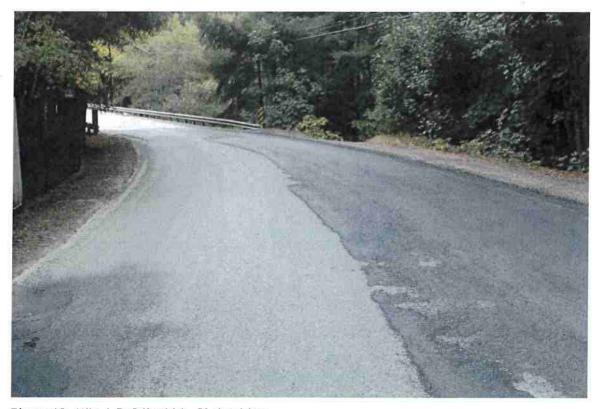


Photo 12. Mile 1.5: 24' width, 2' shoulders.

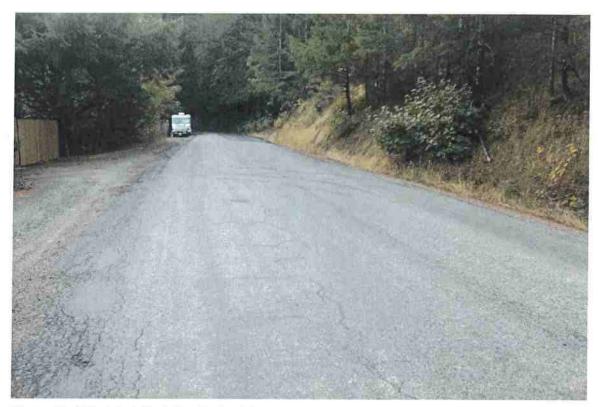


Photo 13. Mile 1.6: 24' width, 2' shoulders.



Photo 14. Mile 1.7: Thomas/ Salmon Creek Road split, 32' width, 2' shoulders (end of Segment 1).

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



PART A:	Part A may be completed by the applicant	
Applicant Na	Nathan Monschke and Lisa Melin-Monschke	PAPN: 221-081-004
Planning &	Building Department Case/File No.: 10653	
Road Name	Thomas Road (Segment 2)	_ (complete a separate form for each road)
From Road	(Cross street): Salmon Creek Road	
To Road (Cı	ross street): Mile 4.1 (end of county-mainta	ined segment)
Length of ro	ad segment: 4.1	miles Date Inspected: 10/3/2017
Road is main		onal Park, State Park, BLM, Private, Tribal, etc)
Box 1	The entire road segment is developed to Categor checked, then the road is adequate for the propos	•
Box 2	The entire road segment is developed to the equition the road is adequate for the proposed use w	
	An equivalent road category 4 standard is define width, but has pinch points which narrow the roo one-lane bridges, trees, large rock outcroppings visibility where a driver can see oncoming vehicle oncoming vehicle to stop and wait in a 20 foot w pass.	ad. Pinch points include, but are not limited to, culverts, etc. Pinch points must provide les through the pinch point which allows the
Box 3 🗸	The entire road segment is not developed to the emay or may not be able to accommodate the property B is to be completed by a Civil Engineer lice	posed use and further evaluation is necessary.
The statements neasuring the	s in PART A are true and correct and have been n road.	nade by me after personally inspecting and
ford	Moralle_	10/12/17
		Date
Joel Mo	nschke	
Name Printed		
Burn antonne Danel 4	he instructions before using this form. If you have questions whose a	all the Diet of Dublic Wante I and line Division at 707 446 7706

# 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 Galifornia. Complete a separate form for each road.

Road Name:	Thomas Road (Segment 2)	Date Inspected:	0/3/17	APN: 221-081-004
From Road:	Salmon Creek Road	(Post Mile N/A	)	Planning & Building Department Case/File No.:
To Road:	Mile 4.1 (end of county-maintained segment)	(Post Mile N/A	)	Department Case/ He (40.
Number (Contact ADT: Method	used to measure ADT: Counters	luded in ADT calcula	tions: projects.)	79 orandum Section 2.3
If Y Ame Very If No AAS	DT of the road less than 400? Yes ES, then the road is considered very low voluerican Association of State Highway and Trand Low-Volume Local Roads (ADT \( \leq 400 \)). Com O, then the road shall be reviewed per the appoint of A Policy on Geometric Design of Highwon 3 below.	sportation Officials (AA splete sections 2 and 3 be licable policies for the d	SHTO) <i>Guidelind</i> elow. lesign of local roa	es for Geometric Design of ds and streets presented in
AASHTO A. Pat Cho B. Phy Ch C. Sub	vsical evidence of curve problems such teck one: No. Yes, see attact ostantial edge rutting or encroachment.	thed sheet for Post M as skid marks, scarre hed sheet for PM loc	ile (PM) location trees, or scarrations.	r ≤400) for guidance.)
Che E. Mer Che F. Nee Che 3. Conclusion	eck one: No. Yes (check is asured or known speed substantially higher control one). Yes. eck one: No. Yes. eck one: No. Yes, see attack one/Recommendations per AASHTO. One roadway can accommodate the cumular projects identified above.	f written documentation is gher than the design so where the sheet for PM local Check one:	speed of the roa ations. fic from this pro	oject and all known
cannabis   Neighborhood The address in A map showing attached. The sta	the roadway can accommodate the cumular projects identified above, if the recommod traffic Management Plan is also required and in the roadway cannot accommodate increased traffic.  The location and limits of the road being tements in PART B are true and correctly evaluating the road.	nendations on the atta s attached.) ased traffic from the p g evaluated in PART	proposed use. It	done. ( check if a
Signature of Civi	il Engineer	Date		
Daniel the	instructions before using this form. If you have quest	lone please call the Bunt of	Public Works Land	Use Division at 787 445 7705



850 G Street, Suite K, Arcata, CA 95521 phone 707.822.9607 fax 707.822.9608

### TECHNICAL MEMORANDUM

DATE:

13 October 2017

TO:

**Humboldt County Department of Public Works** 

FROM:

Joel Monschke, Stillwater Sciences

SUBJECT:

Road Evaluation for APN 221-081-004 (Blido Property):

Segment 2 -4.1 miles of County-maintained Thomas Road from Salmon Creek Road

junction to end of County-maintained segment.

I hereby state that all work described in the attached Technical Memorandum follows accepted engineering practice and was completed under my direction. This Technical Memorandum summarizes results from an evaluation conducted on the access road leading to APN 221-081-004 per guidance from the Humboldt County Department of Public Works. The Blido property is located approximately 8 miles from US-101 and approximately 2 miles from mile 4.1 of Thomas Road where the county-maintained road ends. Based on physical characteristics of the access road, the 7.8-mile access road to the Blido property has been divided into 4 segments as follows:

- Segment 1 1.7 miles of County-maintained road (Salmon Creek Road) from Maple Hills Road junction to the Thomas Road junction.
- **Segment 2 (Subject of this Technical Memorandum)** 4.1 miles of county-maintained Thomas Road, from Salmon Creek Road junction to end of County-maintained segment.
- **Segment 3** 1.6 miles of private community-maintained road (Thomas Road) from Mile 4.1 of Thomas Road to Salmon Creek School.
- **Segment 4** 0.4 miles of private community-maintained road from Thomas Road to Blido property.



Joel Monschke, P.E.

Civil Engineer

Stillwater Sciences

### 1 INTRODUCTION

Stillwater Sciences has been contracted to conduct road evaluation the proposed cannabis project on APN 221-081-004. On 3 October 2017, the field evaluation was conducted by Stillwater Sciences engineer (Joel Monschke). Information in this Technical Memorandum pertains to Segment 2 (See Figure 1) covering 4.1 miles of county-maintained Thomas Road from the Salmon Creek Road junction to mile 4.1 where Thomas Road becomes community-maintained.

### 2 EXPECTED INCREASE IN USE DUE TO CANNABIS PROJECT

### 2.1 Cannabis Project on APN 221-081-004

The cannabis project proposed on APN 221-081-004 has the potential to increase traffic on the roads evaluated herein because cultivation covers ~40,000 SF. However, the applicant strives to reduce impacts to all access roads by reusing soil, storing all water onsite (no water deliveries), and utilizing an onsite gravel quarry to maintain the roads on the property.

### 2.2 Other Cannabis Projects in the Vicinity

Areas accessed by Salmon Creek Road were delineated into eight sub-areas so that projected use could be estimated along the various road segments evaluated in this project. Humboldt County Department of Public Works provided Stillwater with a list of cannabis permit applications in the vicinity. The number of cannabis applicants and number of parcels were tallied by sub-area and are shown in Table 1.

Cannabis permit Sub-area **Description of sub-area** Parcels applications Lower Salmon Salmon Creek Road from Maple Hills Road to Thomas 4 29 Creek Road Road/Salmon Creek Road split Upper Salmon Salmon Creek Road from Thomas Road/Salmon Creek 9 44 Road split to terminus Creek Road Thomas Road from Thomas Road/Salmon Creek Road Thomas Trunk 14 49 split to Main/Upper Thomas Road split Road Lower Thomas Main Thomas Road from Main/Upper Thomas Road 16 41 Road split to Salmon Creek School Upper Thomas Lower Thomas Road from Main/Lower Thomas Road 17 36 split to terminus Road Main Thomas Upper Thomas Road from Main/Upper Thomas Road 7 14 Road split to terminus Lower Samuels Lower Samuels Ranch Loop Road (Thomas Road) from 12 52 School to Serendipity sign Ranch Loop Upper Samuels Ranch Loop Road (Thomas Road) from Upper Samuels 13 55 School to Serendipity sign Ranch Loop

Table 1. Access road area users.

Six of these sub-areas (Thomas Trunk Road, Lower Thomas Road, Upper Thomas Road, Main Thomas Road, Lower Samuels Ranch Loop and Upper Samuels Ranch Loop) are accessed by the road (Segment 2) evaluated in this Technical Memorandum. Therefore, 79 cannabis permit applications and 247 parcels contribute to use of Segment 1. Most of the cannabis applications involve permitting existing cultivation, so the traffic is not likely to significantly increase from those projects compared to the last several years. However, it is expected that the cumulative impacts of all these projects will result in incremental increases in road use considering that there are multiple new permit applications and that as farmers come into compliance they often significantly upgrade their operations.

### 2.3 Average Daily Traffic (ADT) Estimate

Stillwater Sciences' engineer estimated average daily trips based on traffic observations during the road evaluation, number of properties utilizing the access road, and engineering judgement. There are approximately 247 parcels that utilize Segment 2. If each parcel accounts for two trips per day, that equates to approximately 494 total trips per day (~40 trips per hour during a typical 12-hour day (8 am to 8 pm). This is generally consistent with the observations made during the road evaluation. While there are likely busier times of day, and busier periods of the year, we believe that this is a reasonably accurate estimate for this road evaluation.

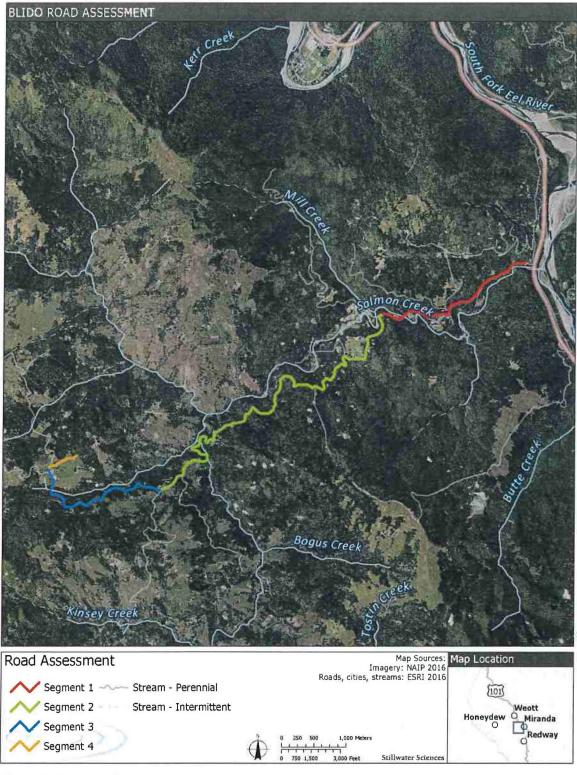


Figure 1. Road evaluation overview map.

#### 3 FIELD OBSERVATIONS

#### 3.1 General Observations

Overall, the 4.1 miles of paved county-maintained road is in relatively good condition and appears to be accommodating the current traffic load. There was no evidence of skid marks or scarred trees. This segment of road is ranges in width from 15' to 20' wide except for several narrower pinch points as shown in the photos in Appendix A and described in Section 3.2 below.

### 3.2 Description of Specific Road Segments

The following measurements were taken along this road segment at 0.1 mile intervals as shown on Figure 2:

- Mile 0.1: Pinch point at tree; 15-ft road width with 1-ft shoulders. The visibility is fair.
- Mile 0.2: 18-ft road width with 1-ft shoulder.
- Mile 0.3: 18-ft road width with 1-ft shoulder.
- Mile 0.4: 18-ft road width with 1-ft shoulder.
- Mile 0.45: Pinch point at tree; 16-ft road width with decent visibility.
- Mile 0.5: 18-ft road width with 1-ft shoulder.
- Mile 0.6: 24-ft road width with 2-ft shoulder,
- Mile 0.7: 20-ft road width with 2-ft shoulder.
- Mile 0.8: 30-ft road width with 1-ft shoulder.
- Mile 0.9: 24-ft road width with 2-ft shoulder.
- Mile 1.0: 15-ft-wide pinch point with 1-ft shoulder caused by tree at blind corner.
- Mile 1.1: 20-ft road width with 1-ft shoulder.
- Mile 1.2: 20-ft road width with 1-ft shoulder.
- Mile 1.3: 22-ft road width with 2-ft shoulder.
- Mile 1.4: 22-ft road width with 1-ft shoulder.
- Mile 1.5: 20-ft road width with 1-ft shoulder.
- Mile 1.6: 20-ft road width with 2-ft shoulder.
- Mile 1.7: 20-ft road width with 1-ft shoulder.
- Mile 1.8: 20-ft road width with 2-ft shoulder.
- Mile 1.9: 18-ft road width with 1-ft shoulder.
- Mile 2.0: 15-ft road width with 1-ft shoulder.
- Mile 2.1: 18-ft road width with 1-ft shoulder.
- Mile 2.15: 15-ft-wide pinch point with 1-ft shoulder.
- Mile 2.2: 20-ft road width with 1-ft shoulder.
- Mile 2.3: 20-ft road width with 2-ft shoulder.
- Mile 2.35: ~15-ft-wide pinch point at partial road failure
- Mile 2.4: 16-ft road width with 1-ft shoulder. Dangerous blind corner.
- Mile 2.5: 18-ft road width with 2-ft shoulder.

- Mile 2.6: The culvert at this location was recently repaired. The short segment over the culvert is gravel and 18-ft wide with 2-ft shoulder.
- Mile 2.7: 20-ft road width and 2-ft shoulder.
- Mile 2.8: 18-ft road width with 1-ft shoulder.
- Mile 2.9: 18-ft road width with 1-ft shoulder.
- Mile 3.0: 15-ft road width with 1-ft shoulder.
- Mile 3.1: 20-ft road width with 1-ft shoulder.
- Mile 3.15: Dangerous pinch point at blind corner. The road is 15-ft wide with 1-ft shoulder.
- Mile 3.2: 20-ft road width with 2-ft shoulder.
- Mile 3.3: 16-ft-wide bridge with no shoulder. Limited visibility at western edge of bridge due to vegetation.
- Mile 3.4: 16-ft road width with 1-ft shoulder. Pinch point at downgradient at downgradient extent of blind corner.
- Mile 3.5: 18-ft road width with 1-ft shoulder. Very steep, sharp corner where large trucks often get stuck.
- Mile 3.6: 12-ft road width with 2-ft shoulder. Pinch point but decent visibility with turnouts.
- Mile 3.65: 12-ft road width with 1-ft shoulder. Blind corner.
- Mile 3.7:12-ft road width with 10ft shoulder. Partially blind corner with deep ditch.
- Mile 3.8: 18-ft road width with 1-ft shoulder.
- Mile 3.9: 15-ft road width with 2-ft shoulder, broken pavement edges make segment more treacherous.
- Mile 4.0: 15-ft road width with 2-ft shoulder, broken pavement edges make segment more treacherous.
- Mile 4.1: 20-ft road width with 2-ft shoulders at intersection with Upper Thomas Road. End of County-maintained road (and end of segment 2).

#### 4 RECOMMENDATIONS

### 4.1 Specific Recommendations for this Road Segment

- Mile 0.1: Cut vegetation to improve visibility, upgrade pavement to allow for minimal 18' wide driving surface width where feasible
- Mile 1.0: We recommend widening the roadway including removal of a Douglas Fir tree to improve the road width and visibility at the blind corner.
- Mile 1.9 to mile 2.2: There are some pinch points along this segment, but the segment traverses steep terrain so widening would be difficult and have potentially significant environmental impacts. Recommend signage reminding drivers to slow down and stay on their side of the road.
- Mile 2.4: We recommend widening the corner on the inside to improve width and visibility at the blind corner. Also nearby at mile 2.35, need to repair slumping outboard edge of road.

- Mile 3.15: We recommend widening corner on inside to improve road width and visibility on dangerous blind corner. This is probably the most dangerous corner on the road.
- Mile 3.3: We recommend removing vegetation on western extent of bridge to improve visibility.
- Mile 3.4: We recommend widening corner on inside to improve width and visibility at blind corner.
- Mile 3.5: Although the width and visibility on this corner is adequate, it is very steep and dangerous because large trucks frequently get stuck. We recommend re-engineering the corner to reduce grade and lengthen radius of curve. This work could potentially utilize the cut material from the other road widening sites.
- Mile 3.65 to mile 3.7: Potential locations to widen several corners on inside to improve road width and visibility at blind curves.
- Mile 3.7: Potential location to widen corner on inside to improve road width and visibility at partially blind curve.

It is unrealistic to expect one or several cannabis cultivators to make the road improvements recommended herein. Therefore, we suggest developing a public-private partnership between Humboldt County and residents/cultivators within the Salmon Creek community to work together to improve the County-maintained access road. As necessary, cultivator contribution could be calculated based on a sliding scale that takes into consideration the square footage of cultivation area and length of County-maintained road utilized.

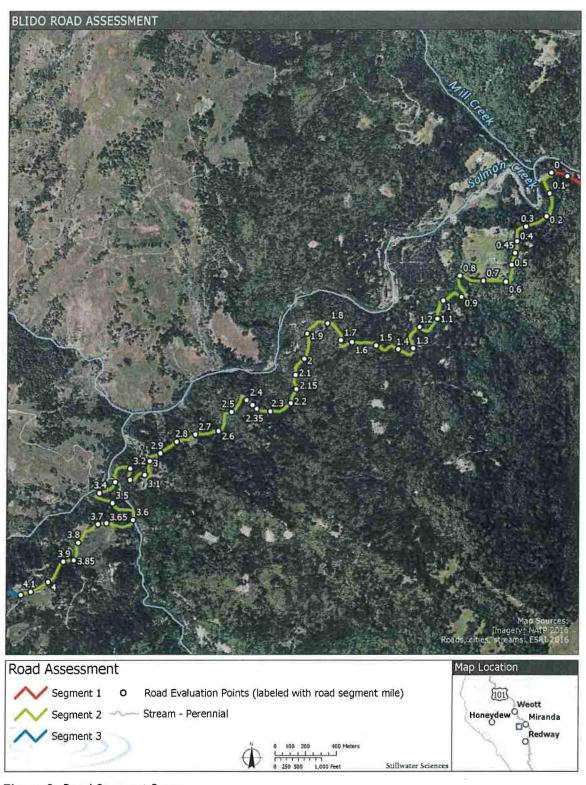


Figure 2. Road Segment 2map.

### Appendix A

### **Photos**

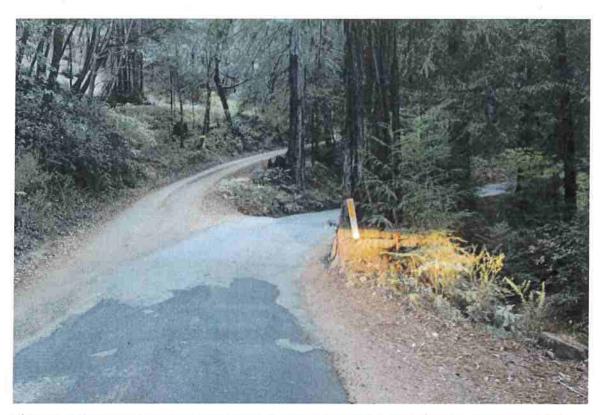


Photo 1. Mile 0.1: Pinch point at tree: 15-ft road width with 1-ft shoulders, decent visibility.

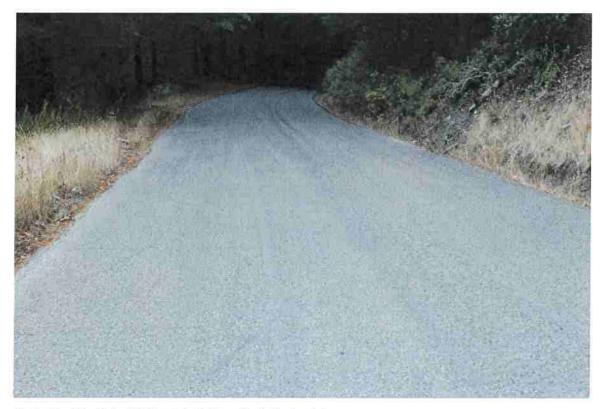


Photo 2. Mile 0.2: 18-ft road width with 1-ft shoulders.



Photo 3. Mile 0.3: 18-ft road width with 1-ft shoulders.

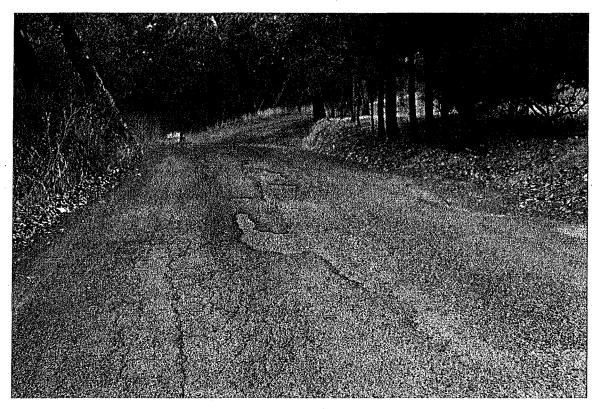


Photo 4. Mile 0.4: 18-ft road width with 1-ft shoulders.



Photo 5. Mile 0.45: Pinch point at tree, 16-ft road width, decent visibility.



Photo 6. Mile 0.5: 18-ft road width with 1-ft shoulders.

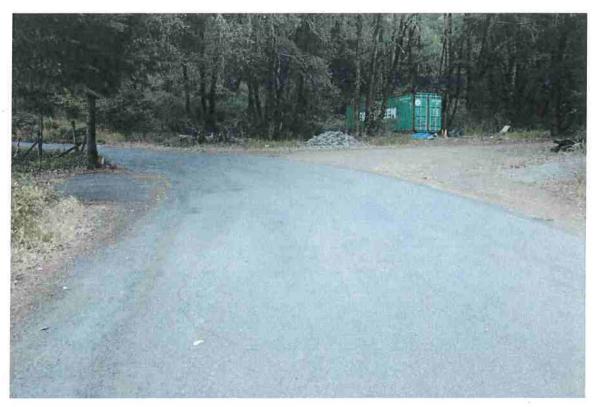


Photo 7. Mile 0.6: 24-ft road width with 2-ft shoulders.

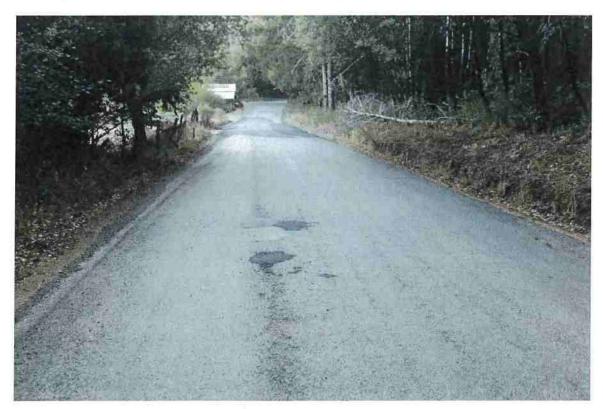


Photo 8. Mile 0.7: 20-ft road width with 2-ft shoulders.



Photo 9. Mile 0.8: 30-ft road width with 1-ft shoulders.

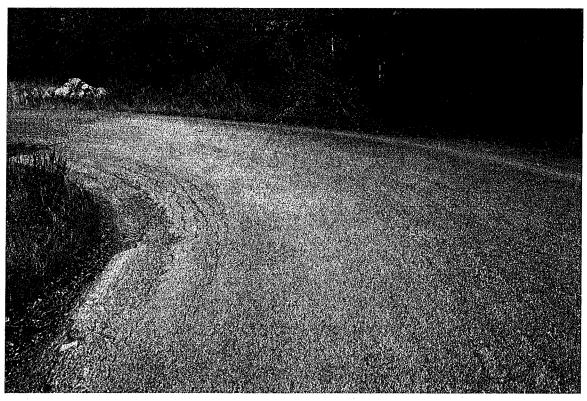
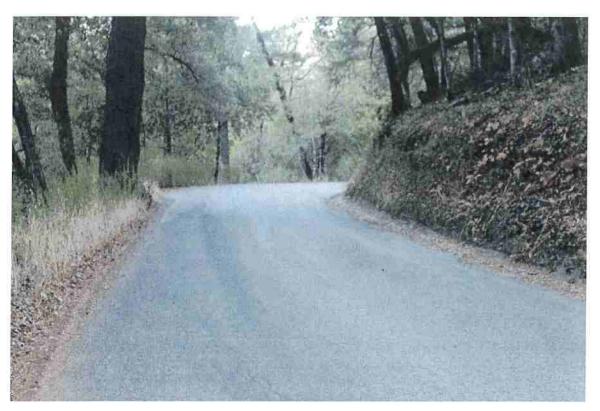


Photo 10. Mile 0.9: 24-ft road width with 2-ft shoulders.



**Photo 11.** Mile 1.0: Pinch point at tree on blind corner; 15-ft road width with 1-ft shoulder. Recommend widening.



Photo 12. Mile 1.1: 20-ft road width with 2-ft shoulders.

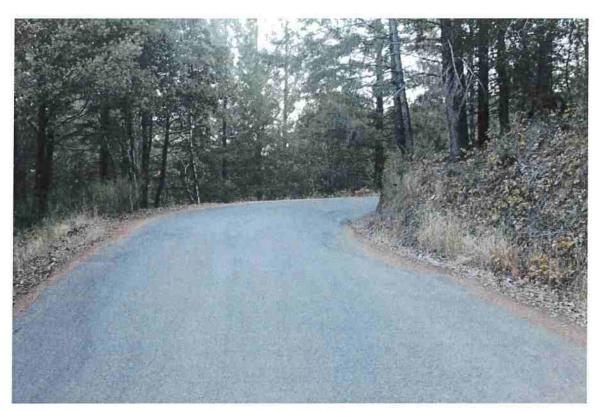
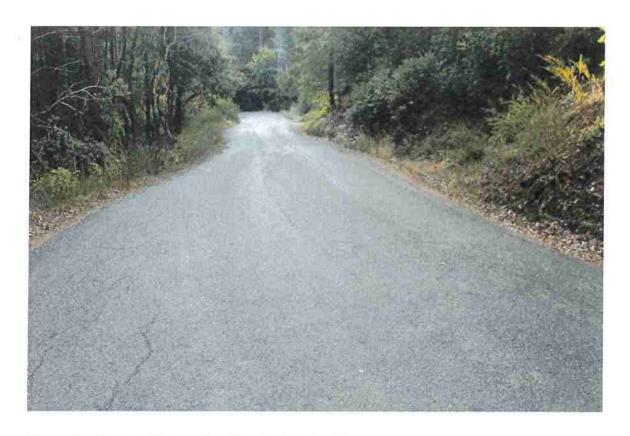


Photo 13. Mile 1.2: 20-ft road width with 1-ft shoulders.



Photo 14. Mile 1.3: 22-ft road width with 2-ft shoulders.





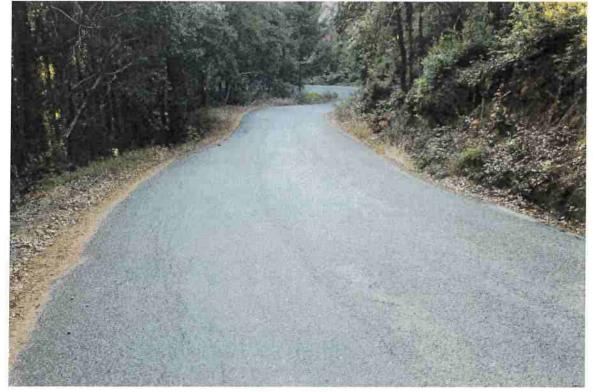


Photo 16. Mile 1.5: 20-ft road width with 1-ft shoulders.

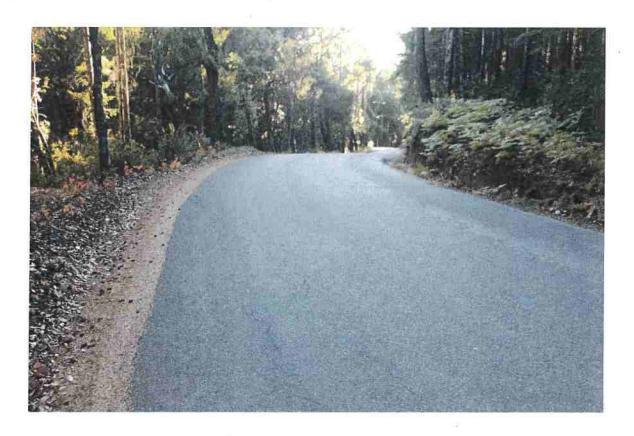


Photo 17. Mile 1.6: 20-ft road width with 2-ft shoulders.



Photo 18. Mile 1.7: 20-ft road width with 1-ft shoulders.

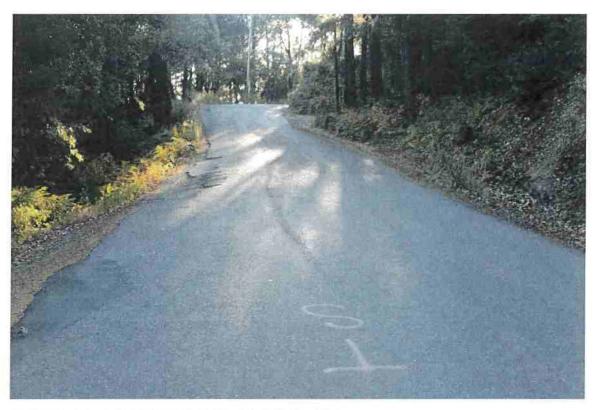


Photo 19. Mile 1.8: 20-ft road width with 2-ft shoulders.



Photo 20. Mile 1.9: 18-ft road width with 2-ft shoulders.

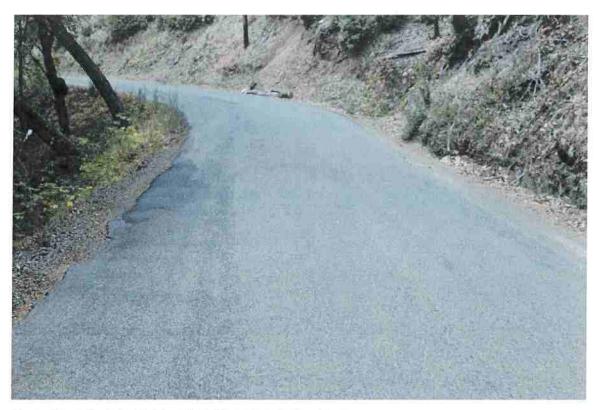


Photo 21. Mile 2.0: 15-ft road width with 1-ft shoulders.



Photo 22. Mile 2.1: 18-ft road width with 1-ft shoulders.

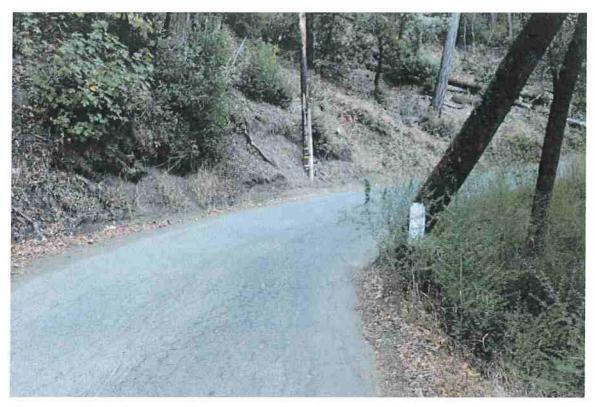


Photo 23. Mile 2.15: Pinch point at tree, 15-ft road width, 1-ft shoulder.

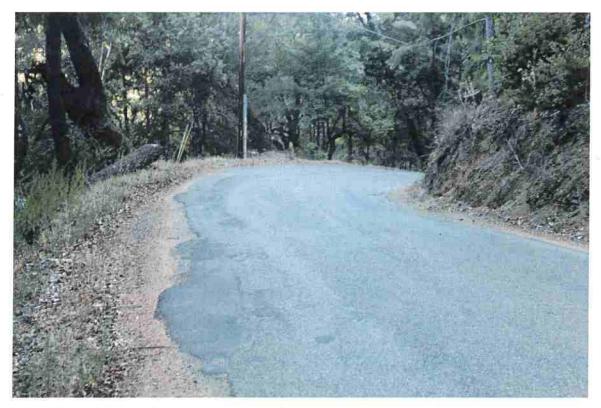


Photo 24. Mile 2.2: 20-ft road width with 1-ft shoulders.

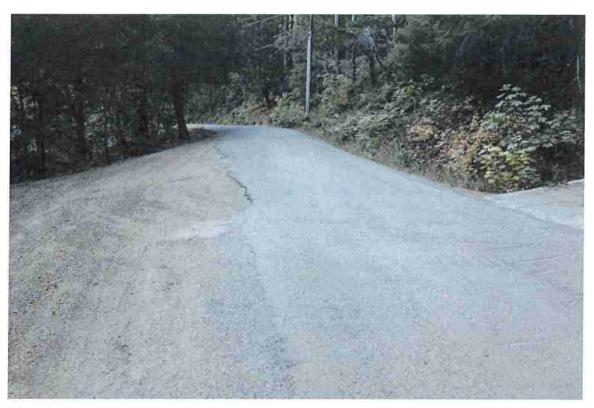


Photo 25. Mile 2.3: 20-ft road width with 2-ft shoulders.



Photo 26. Mile 2.35: -15-ft road width pinch point at partial road failure.

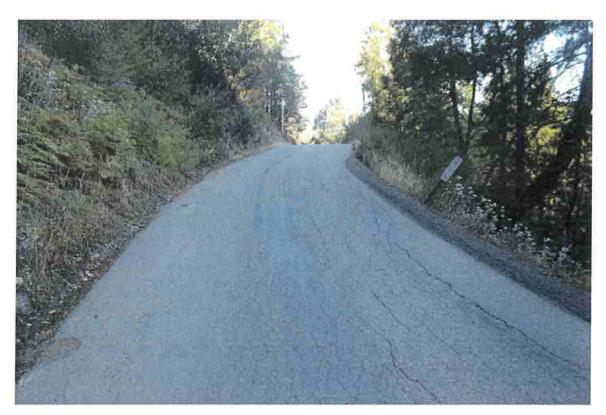
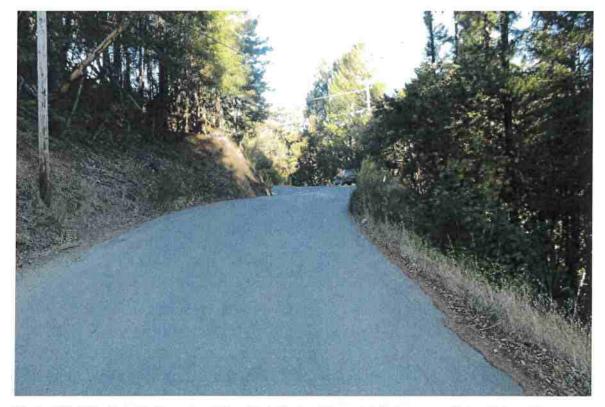


Photo 27. Mile 2.37: ~15-ft road width pinch point past partial road failure.



**Photo 28.** Mile 2.4: 16-ft road width with 1-ft shoulders at blind corner. Potential spot to widen corner on the inside to improve width and visibility.

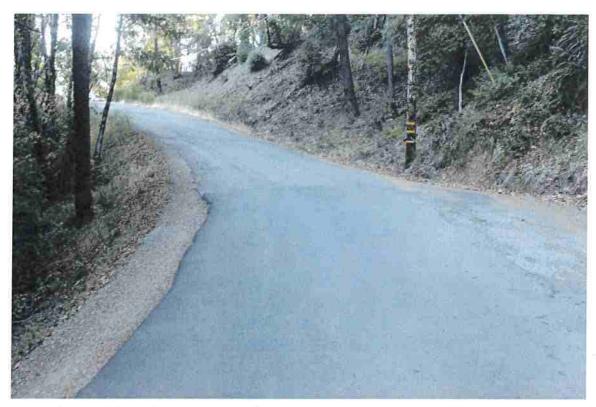


Photo 29. Mile 2.5: 18-ft road width with 2-ft shoulders.



**Photo 30.** Mile 12.6: Recent culver repair, short gravel segment. 18-ft road width with 2-ft shoulders.



Photo 31. Mile 2.7: 20-ft road width with 2-ft shoulders.

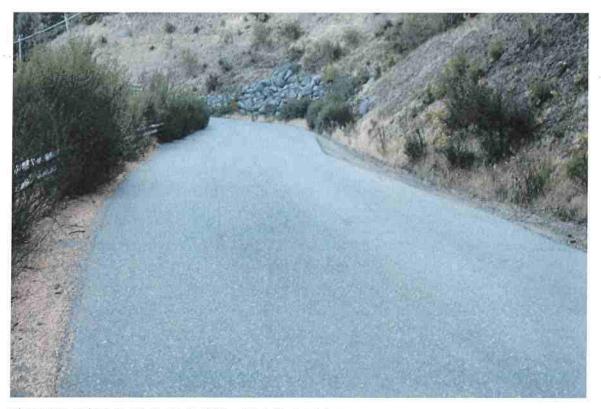


Photo 32. Mile 2.8: 18-ft road width with 1-ft shoulders.



Photo 33. Mile 2.9: 18-ft road width with 1-ft shoulders.

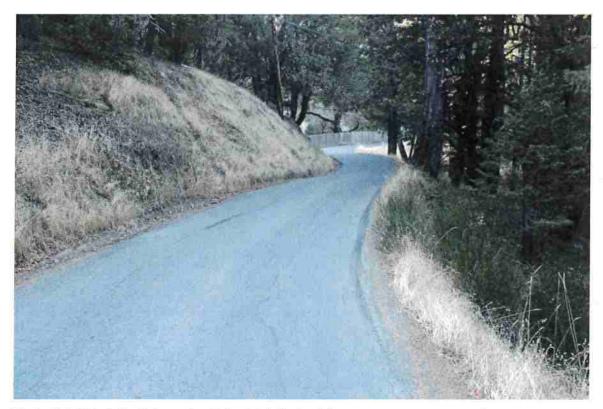


Photo 34. Mile 3.0: 15-ft road width with 1-ft shoulders.

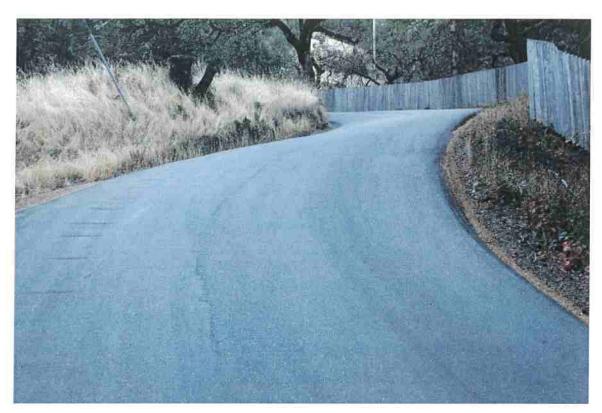
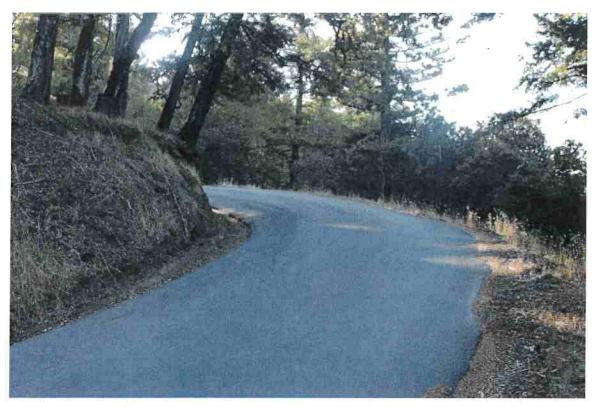


Photo 35. Mile 3.1: 20-ft road width with 1-ft shoulders.



**Photo 36.** Mile 3.15: Dangerous pinch point at blind corner. 15-ft road width with 1-ft shoulders. Potential spot to widen corner on inside to improve width and visibility.



Photo 37. Mile 3.2: 20-ft road width with 2-ft shoulders.



Photo 38. Mile 3.3: 16-ft wide bridge, no shoulders. Recommend removing vegetation on west extent of bridge to improve visibility.

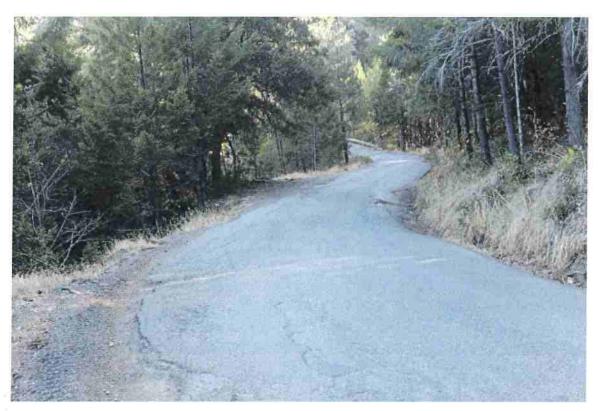
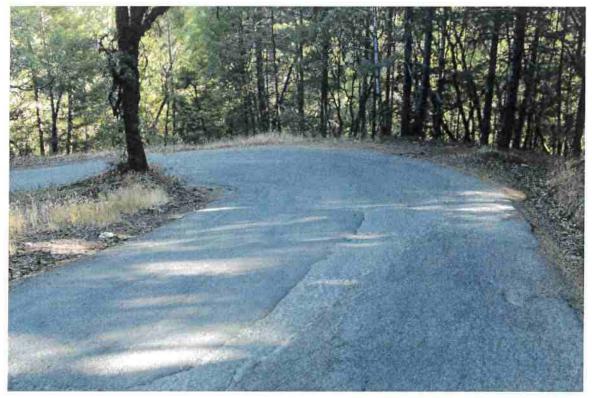
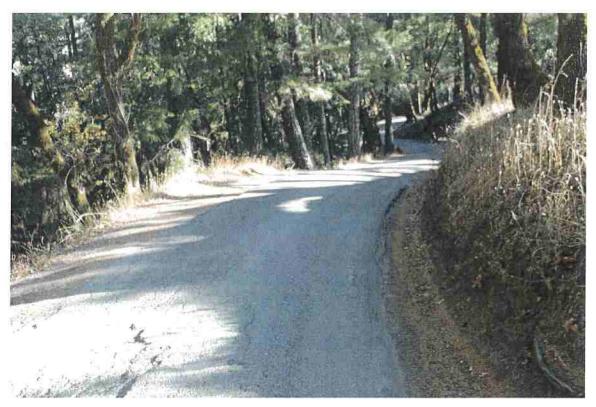


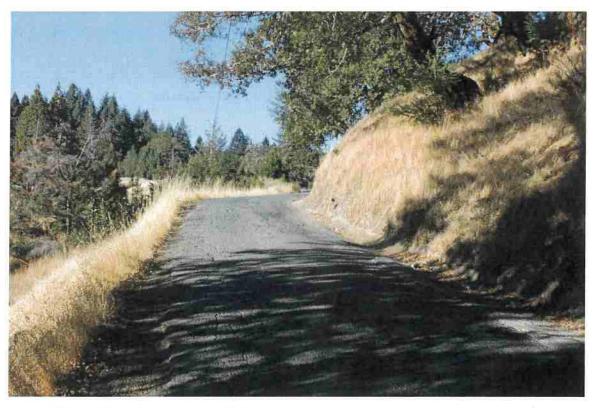
Photo 39. Mile 3.4: 16-ft road width with 1-ft shoulder. Pinch point at downgradient extent of blind corner. Potential spot to widen corner on inside to improve width and visibility.



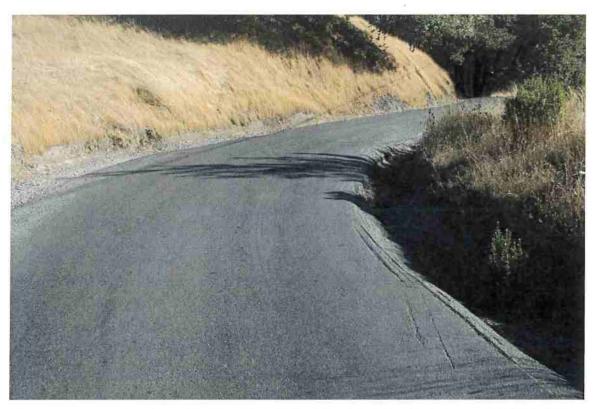
**Photo 40.** Mile 3.5: 18-ft road width with 1-ft shoulder. Very steep, sharp corner where trucks often get stuck. Consider re-engineering grade and curve radius.



**Photo 41.** Mile 3.6: 12-ft road width with 2-ft shoulders. Pinch point but decent visibility with turnouts.



**Photo 42.** Mile 3.65: Blind corner - 12-ft road width with 1-ft shoulders. Potential location to widen corner on inside to improve width and visibility.



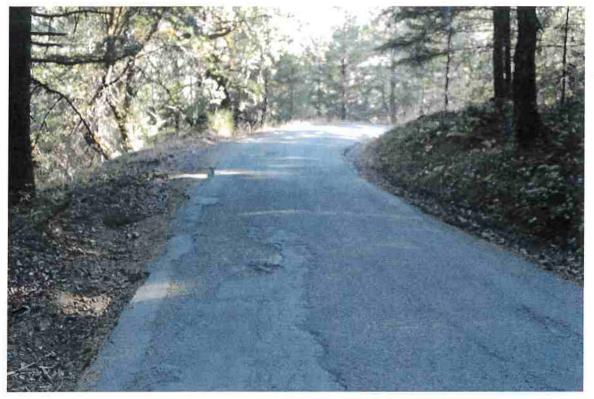
**Photo 43.** Mile 3.7: 12-ft road width with 1-ft shoulder. Partially blind corner with deep ditch. Potential spot to widen corner on inside to improve width and visibility.



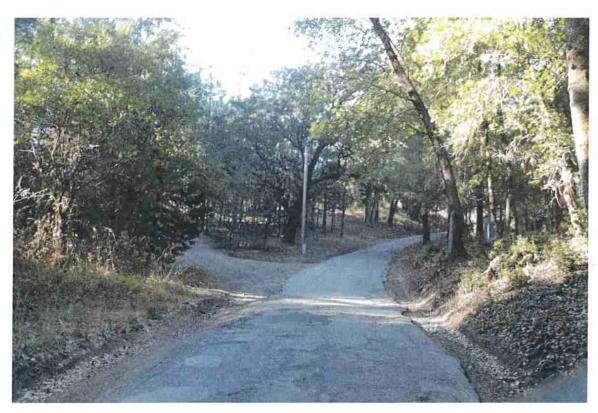
Photo 44. Mile 3.8: 18-ft road width with 1-ft shoulders.



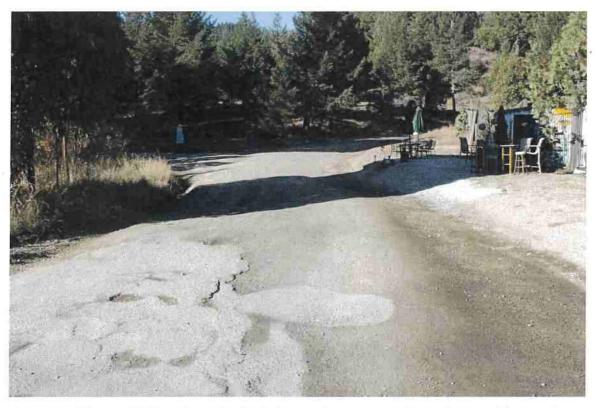
**Photo 45.** Mile 3.85: Blind corner at intersection with Lower Thomas Road. 16-ft road width with 1-ft shoulders. Potential location to widen corner on inside to improve visibility.



**Photo 46.** Mile 3.9: 15-ft road width with 2-ft shoulders. Broken pavement edges make segment more treacherous.



**Photo 47.** Mile 4.0: 15-ft road width with 2-ft shoulders. Broken pavement edges make segment more treacherous.



**Photo 48.** Mile 4.1: 20-ft road width with 2-ft shoulders. Intersection with Upper Thomas Road and end of County-maintained road. End of Segment 2.

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

PART A:	Part A may be completed by the applicant		
Applicant N	Name: Nathan Monschke and Lisa Melin-Monschke APN:	21-081-004	
Planning &	& Building Department Case/File No.: 10653		
Road Nam	Thomas Road (Segment 3) (complete of	a separate form for each road)	
From Road	d (Cross street): Mile 4.1 (end of county-maintained segmen	IUN 2 6 2019	
To Road (C	Cross street): Mile 5.7 (Salmon Creek Schoo	Humbolds o	
Length of r	road segment: 1.6 miles D	ate Inspected: 10/3/2017	
Road is ma	intained by: County Other Private/commun		
Check one o	(State, Forest Service, National Park, State of the following:	te Park, BLM, Private, Tribal, etc	
Box 1	The entire road segment is developed to Category 4 road stand checked, then the road is adequate for the proposed use without		
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.		
e e	An equivalent road category 4 standard is defined as a roadwell width, but has pinch points which narrow the road. Pinch point one-lane bridges, trees, large rock outcroppings, culverts, etc. visibility where a driver can see oncoming vehicles through the oncoming vehicle to stop and wait in a 20 foot wide section of pass.	nts include, but are not limited to, Pinch points must provide e pinch point which allows the	
Box 3 🗸	The entire road segment is not developed to the equivalent of r may or may not be able to accommodate the proposed use and Part B is to be completed by a Civil Engineer licensed by the S	further evaluation is necessary.	
The statemen	ats in PART A are true and correct and have been made by me after a cond.	ter personally inspecting and	
_	al Mosselle	10/12/17	
Signature		Date	
Joel Mo	onschke, Stillwater Sciences		
Name Printe	od		
Important Resc	d the instructions before using this form. If you have questions blease call the Bent of Pub	lie Works I and I'm 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:	Thomas Road (Segment 3)	Date Inspected: 10/3	APN: 221-081-004
From Road:	Mile 4.1 (end of county-maintained segment)	(Post Mile N/A	) Planning & Building Department Case/File No.
To Road:	Mile 5.7 (Salmon Creek School)	(Post Mile N/A	
1. What is	the Average Daily Traffic (ADT) of the	road (including other k	known cannabis projects)?
	er of other known cannabis projects inc		
(Contact	the Planning & Building Department for info	ormation on other nearby p	rojects.) 32
ADT:	Date(s) mea	sured: See explanation in	Technical Memorandum Section 2.3
Method	used to measure ADT: Counters	Estimated using ITE	Trip Generation Book
Is the Al	OT of the road less than 400? ✓ Yes	☐ No	
Ame	ES, then the road is considered very low volu crican Association of State Highway and Tran • Low-Volume Local Roads (ADT ≤400). Com	sportation Officials (AASI	ITO) Guidelines for Geometric Design of
If NO AAS	O, then the road shall be reviewed per the app IHTO A Policy on Geometric Design of Highton 3 below.	licable policies for the desi	ign of local roads and streets presented in
	site specific safety problems with the ro O Guidelines for Geometric Design of V		
A. Pat	tern of curve related crashes.		
		hed sheet for Post Mile	•
	sical evidence of curve problems such		
		hed sheet for PM locati	ons.
	estantial edge rutting or encroachment.		
		hed sheet for PM locati	ons.
	tory of complaints from residents or law		10
		written documentation is atta	
	asured or known speed substantially hig ck one: 📝 No. 🔲 Yes.	gner man me design spe	ted of the road (20+ Wirth higher)
F. Nee	ed for turn-outs.		
Che	ck one: No. Yes, see attac	hed sheet for PM locati	ons.
<ol><li>Conclusion</li></ol>	ons/Recommendations per AASHTO.	Check one:	
	ne roadway can accommodate the cumu projects identified above.	lative increased traffic	from this project and all known
cannabis	ne roadway can accommodate the cumus projects identified above, if the recommod Traffic Management Plan is also required and i	endations on the attach	
	ne roadway cannot accommodate increaccreased traffic.	sed traffic from the pro	oposed use. It is not possible to
	the location and limits of the road being		
	tements in PART B are true and correctly avaluating the road	t and have been made b	ру
me aner nersons	lly evaluating the road.	10/12/17	(SE VI.)
Signature of Civi		Date	
Ininormat: Read the i	instructions before using this form. If you have quest	lons, please call the Dept. of Pu	blic Works Land Use Division at 707.445.7205.



850 G Street, Suite K, Arcata, CA 95521 phone 707.822.9607 fax 707.822.9608

#### **TECHNICAL MEMORANDUM**

DATE:

13 October 2017

TO:

**Humboldt County Department of Public Works** 

FROM:

Joel Monschke, Stillwater Sciences

Road Evaluation for APN 221-081-004 (Blido Property):

SUBJECT:

Segment 3 - 1.6 miles of private community-maintained Thomas Road from mile 4.1

of Thomas Road to Salmon Creek School.

I hereby state that all work described in the attached Technical Memorandum follows accepted engineering practice and was completed under my direction. This Technical Memorandum summarizes results from an evaluation conducted on the access road leading to APN 221-081-004 per guidance from the Humboldt County Department of Public Works. The Blido property is located approximately 8 miles from US-101 and approximately 2 miles from mile 4.1 of Thomas Road where the county-maintained road ends. Based on physical characteristics of the access road, the 7.8-mile access road to the Blido property has been divided into 4 segments as follows:

- **Segment 1** 1.7 miles of County-maintained road (Salmon Creek Road) from Maple Hills Road junction to the Thomas Road junction.
- Segment 2 4.1 miles of county-maintained Thomas Road, from Salmon Creek Road junction to end of County-maintained segment.
- **Segment 3 (Subject of this Technical Memorandum)** 1.6 miles of private community-maintained road (Thomas Road) from Mile 4.1 of Thomas Road to Salmon Creek School.
- **Segment 4** 0.4 miles of private community-maintained road from Thomas Road to Blido property



Joel Monschke, P.E.

Civil Engineer

Stillwater Sciences

#### 1 INTRODUCTION

Stillwater Sciences has been contracted to conduct road evaluation the proposed cannabis project on APN 221-081-004. On 3 October 2017, the field evaluation was conducted by Stillwater Sciences engineer (Joel Monschke). Information in this Technical Memorandum pertains to Segment 3 (See Figure 1) covering 1.6 miles of private community-maintained road (Thomas Road) from Mile 4.1 of Thomas Road to Salmon Creek School.

#### 2 EXPECTED INCREASE IN USE DUE TO CANNABIS PROJECT

#### 2.1 Cannabis Project on APN 221-081-004

The cannabis project proposed on APN 221-081-004 has the potential to increase traffic on the roads evaluated herein because cultivation covers ~40,000 SF. However, the applicant strives to reduce impacts to all access roads by reusing soil, storing all water onsite (no water deliveries), and utilizing an onsite gravel quarry to maintain the roads on the property.

#### 2.2 Other Cannabis Projects in the Vicinity

Areas accessed by Salmon Creek Road were delineated into eight sub-areas so that projected use could be estimated along the various road segments evaluated in this project. Humboldt County Department of Public Works provided Stillwater with a list of cannabis permit applications in the vicinity. The number of cannabis applicants and number of parcels were tallied by sub-area and are shown in Table 1.

Sub-area	Description of sub-area	Cannabis permit applications	Parcels
Lower Salmon	Salmon Creek Road from Maple Hills Road to Thomas	4	29
Creek Road	Road/Salmon Creek Road split		
Upper Salmon	Salmon Creek Road from Thomas Road/Salmon Creek	9	44
Creek Road	Road split to terminus	·	
Thomas Trunk	Thomas Road from Thomas Road/Salmon Creek Road	14	49
Road	split to Main/Upper Thomas Road split	14	49.
Lower Thomas	Main Thomas Road from Main/Upper Thomas Road	16	41
Road	split to Salmon Creek School	. 10	
Upper Thomas	Lower Thomas Road from Main/Lower Thomas Road	17	36
Road	split to terminus	1 /	30
Main Thomas	Upper Thomas Road from Main/Upper Thomas Road	7	14
Road	split to terminus	,	
Lower Samuels	Lower Samuels Ranch Loop Road (Thomas Road) from	12	52
Ranch Loop			34
Upper Samuels	Upper Samuels Ranch Loop Road (Thomas Road) from	13	55
Ranch Loop	School to Serendipity sign		

Table 1. Access road area users.

Three of the sub-areas (Main Thomas Road, Lower Samuels Ranch Loop and Upper Samuels Ranch Loop) are accessed by the road (Segment 3) evaluated in this Technical Memorandum. Therefore, 32 cannabis permit applications and 121 parcels contribute to use of Segment 1. Most of the cannabis applications involve permitting existing cultivation, so the traffic is not likely to significantly increase from those projects compared to the last several years. However, it is expected that the cumulative impacts of all these projects will result in incremental increases in road use considering that there are multiple new permit applications and that as farmers come into compliance they often significantly upgrade their operations.

#### 2.3 Average Daily Traffic (ADT) Estimate

Stillwater Sciences' engineer estimated average daily trips based on traffic observations during the road evaluation, number of properties utilizing the access road, and engineering judgement. There are approximately 121 parcels that utilize Segment 3. If each parcel accounts for two trips per day, that equates to approximately 242 total trips per day (~20 trips per hour during a typical 12-hour day (8 am to 8 pm). This is generally consistent with the observations made during the road evaluation. While there are likely busier times of day, and busier periods of the year, we believe that this is a reasonably accurate estimate for this road evaluation.

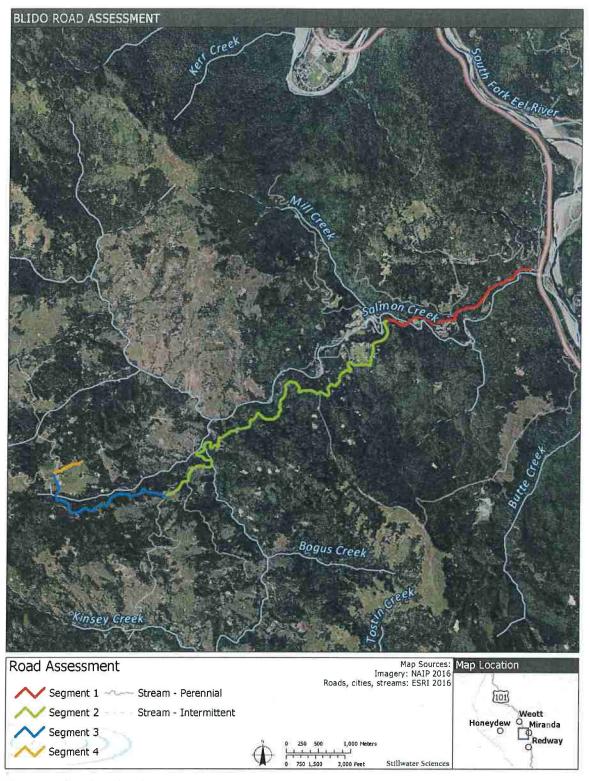


Figure 1. Road evaluation overview map.

#### 3 FIELD OBSERVATIONS

#### 3.1 General Observations

Overall, the 1.7 miles of County Road is in relatively good condition The greatest safety concerns on the segment are pinch points at various culvert crossings but the visibility in this segment is adequate and only one pinch point is located at a blind corner. With the exception of this one pinch point, this road segment functions as "equivalent to a category 4 road".

#### 3.2 Description of Specific Road Segments

The following measurements were taken along this road segment at 0.1 mile intervals as shown on Figure 2:

- Mile 0.1: 18-ft road width with 1-ft shoulders.
- Mile 0.2: 16-ft road width with no shoulder at culvert crossing and decent visibility.
- Mile 0.3: 20-ft road width with 2-ft shoulders.
- Mile 0.35: 16-ft road width pinch point at culvert with partially blind corner. Inboard ditch eroding into the road.
- Mile 0.4: 18-ft road width with 1-ft shoulder.
- Mile 0.5: 18-ft road width with 1-ft shoulder.
- Mile 0.55: 16-ft road width with no shoulder, pinch point at culvert with decent visibility.
- Mile 0.6: 18-ft road width with 1-ft shoulder.
- Mile 0.7: 18-ft road width with 1-ft shoulders.
- Mile 0.8: 22-ft road width with 1-ft shoulder.
- Mile 0.9: 18-ft road width with 1-ft shoulder.
- Mile 1.0: 16-ft road width with no shoulder at culvert crossing with decent visibility.
- Mile 1.1: 18-ft road width with no shoulder and decent visibility.
- Mile 1.2: 18-ft road width with no shoulder at culvert crossing and decent visibility.
- Mile 1.3: 18-ft road width with 2-ft shoulders.
- Mile 1.4: 20-ft road width with 2-ft shoulders.
- Mile 1.5: 18-ft road width with 1-ft shoulders.
- Mile 1.6: 18-ft road width with 1-ft shoulders. (End of segment at Salmon Creek School.)

#### 4 RECOMMENDATIONS

#### 4.1 Specific Recommendations for this Road Segment

• Mile 0.35: replace culvert to widen road at pinch point. Armor inboard ditch to eliminate erosion of the road. Note that this is a moderate priority as compared to the recommendations in Segment 2 (County-maintained Thomas Road).

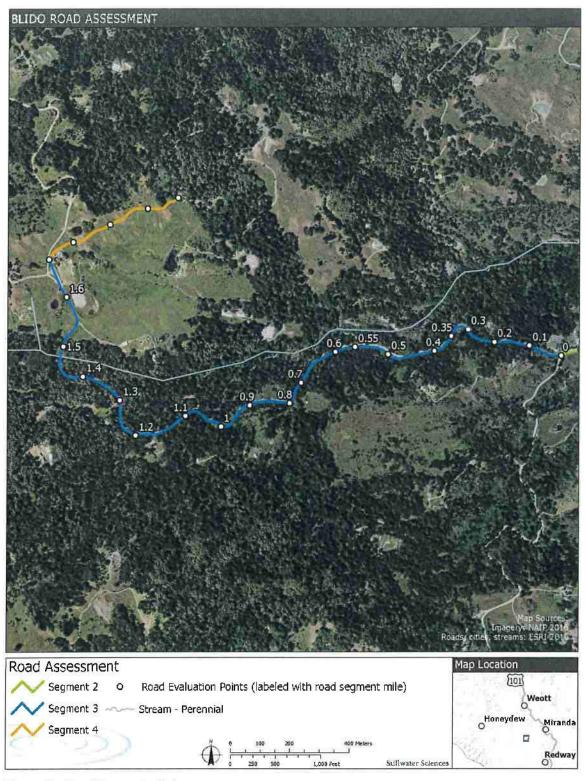


Figure 2. Road Segments 2-4 map.

# Appendix A

Photos



Photo 1. Mile 0.1: 18-ft road width with 1-ft shoulder (begin of segment).



**Photo 2.** Mile 0.2: 16-ft road width with no shoulder at culvert crossing. The road could be widened at the culvert but there is decent visibility at the site so widening is not necessary.

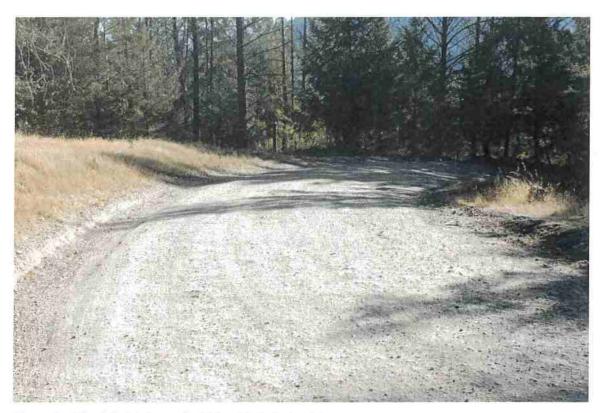


Photo 3. Mile 0.3: 20-ft road width with 2-ft shoulder.



Photo 4. Mile 0.35: Inboard ditch eroding into road.

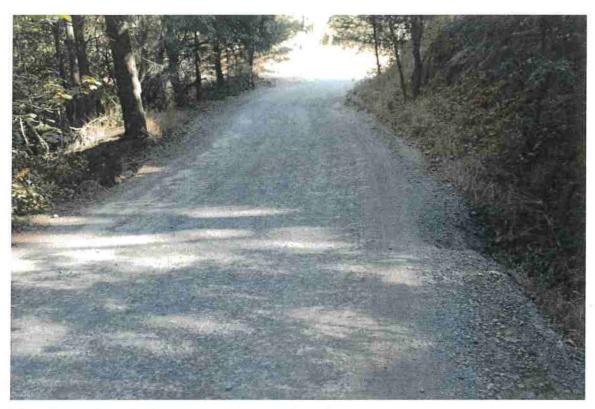


Photo 5. Mile 0.35: Pinch point at culvert; 16-ft road width with no shoulder and partial blind corner.

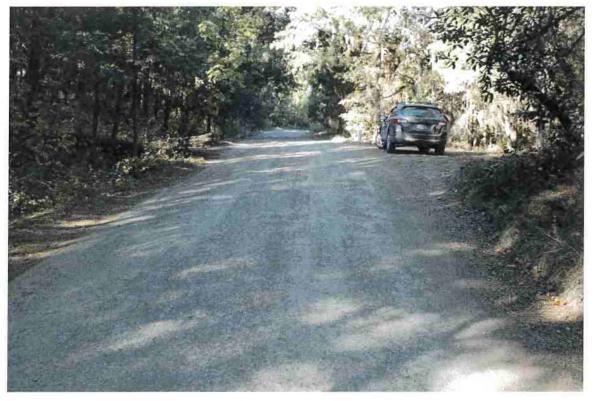


Photo 6. Mile 0.4: 18-ft road width with 1-ft shoulder.



Photo 7. Mile 0.5: 18-ft road width with 1-ft shoulder.



**Photo 8.** Mile 0.55: Pinch point at culvert; 16-ft road width with no shoulder. The road could be widened at the culvert location but there is decent visibility.

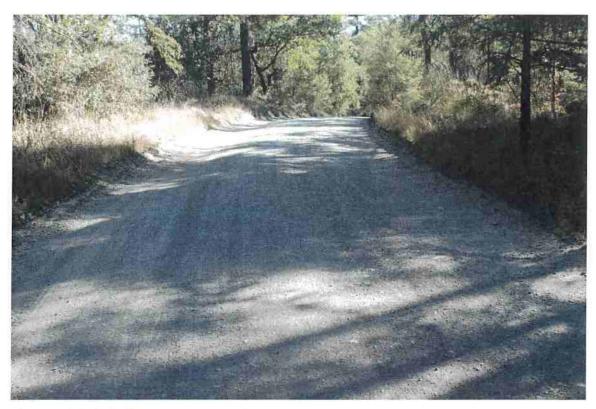


Photo 9. Mile 0.6: 18-ft road width with 1-ft shoulder.

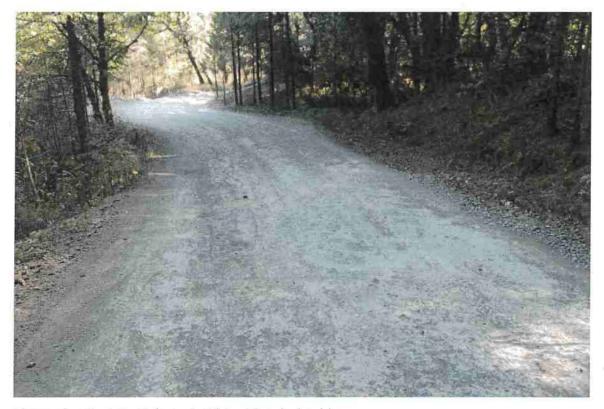


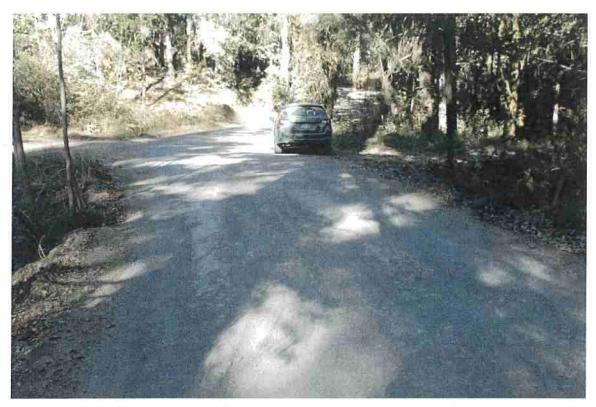
Photo 10. Mile 0.7: 18-ft road width with 1-ft shoulder.



Photo 11. Mile 0.8: 22-ft road width with 1-ft shoulder.



Photo 12. Mile 0.9: 18-ft road width with 1-ft shoulder.



**Photo 13.** Mile 1.0: 16-ft road width with no shoulder at culvert crossing. The road could be widened at this location but not necessary because there is decent visibility.

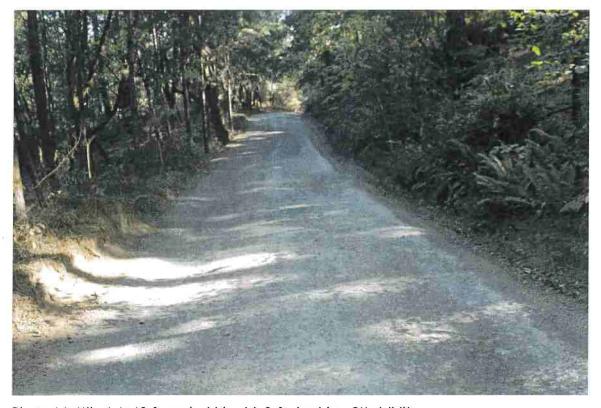


Photo 14. Mile 1.1: 18-ft road width with 2-ft shoulder; OK visibility.

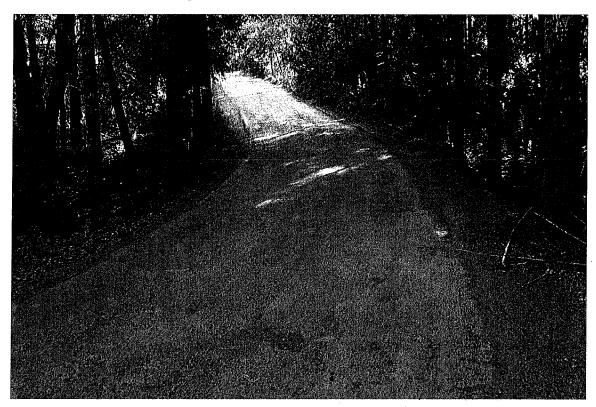


Photo 15. Mile 1.2: 18-ft road width with no shoulder at culvert crossing with decent visibility.



Photo 16. Mile 1.3: 18-ft road width with 2-ft shoulders.



Photo 17. Mile 1.4: 20-ft road width with 2-ft shoulder.

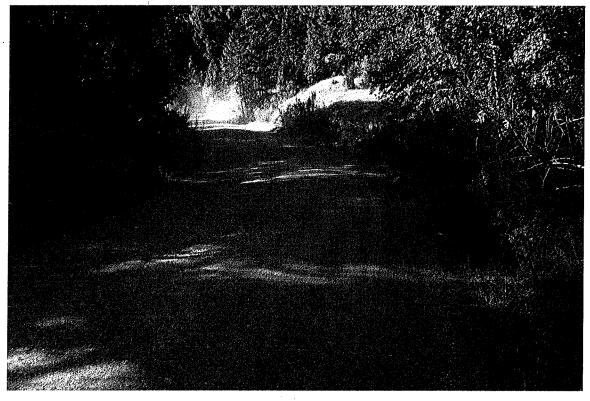


Photo 18. Mile 1.5: 18-ft road width with 1-ft shoulders.



**Photo 19.** Mile 1.6: 18-ft road width with 1-ft shoulder. End of Segment 3 at Salmon Creek School.

# HUMBOLDT COUNTY DEPARTMENT OF PUBLIC WORKS ROAD EVALUATION REPORT

Appricant r	Name: Alisha	Stone	APN:	221-091-021 & -023	
		tment Case/File No.:	12530 & 12522	-	
Road Nam	Unner Samue	ls Ranch Loop Road (F	(complete	a separate form for each road)	
From Road	l (Cross street):	Salmon Cree	k School	· · ·	
To Road (C	Cross street):	APN 221-091	-023	·	
Length of r	oad segment:	.4	miles	Date Inspected: 9/28/2018	
Road is ma	intained by:	County  Other	Community-ma	intained	
	f the following:	·	ervice, National Park, S	ate Park, BLM, Private, Tribal, etc	
Box 1			<u> </u>	dards (20 feet wide) or better. If out further review by the applicant.	
Box 2 🔲	The entire road segment is developed to the equivalent of a road category 4 standard. If checke then the road is adequate for the proposed use without further review by the applicant.				
	width, but has pone-lane bridg visibility where	pinch points which na es, trees, large rock o a a driver can see once	rrow the road. Pinch po utcroppings, culverts, et oming vehicles through t	vay that is generally 20 feet in ints include, but are not limited to, Pinch points must provide he pinch point which allows the f the road for the other vehicle to	
processes.	may or may no	t be able to accommo	late the proposed use an	road category 4 or better. The road further evaluation is necessary.	
3 [ <u>√</u> ]	Part B is to be	ompioiod by a Civii i	Engineer licensed by the	State of California.	
ne statemen easuring the	ts in PART A are			· · · · · · · · · · · · · · · · · · ·	
ne statemen easuring the	ts in PART A are			State of California.	
ne statemen easuring the	ts in PART A are			State of California.  fter personally inspecting and	
easuring the	ts in PART A are e road. al Monelle		have been made by me a	State of California.  fter personally inspecting and  10/1/2018	

#### 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. 221-091-021 & -023 Upper Samuels Ranch Loop Road (First 1.4 Miles) Date Inspected: Road Name: Planning & Building Salmon Creek School From Road: (Post Mile N/A Department Case/File No.: 12530 & 12522 To Road: APN 221-091-023 (Post Mile N/A 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.) Date(s) measured: See explanation in Technical Memorandum Section 2.3 ADT: 110 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 \( \leq 400 \)). 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. Yes, see attached sheet for Post Mile (PM) locations. Check one: \( \sqrt{No.} \) 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. 10/1/2018

Signature of Civil Engineer

Date

IN VIII

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



850 G Street, Suite K, Arcata, CA 95521 phone 707.822.9607 fax 707.822.9608

#### TECHNICAL MEMORANDUM

DATE:

1 October 2018

TO:

**Humboldt County Department of Public Works** 

FROM:

Joel Monschke, Stillwater Sciences

Road Evaluation for APNs 221-091-021 & 221-091-023 (Leach/Stone Property):

SUBJECT:

Segment 4 - 1.4 miles of private community-maintained road from Salmon Creek

School to APN 221-091-023.

I hereby state that all work described in the attached Technical Memorandum follows accepted engineering practice and was completed under my direction. This Technical Memorandum summarizes results from an evaluation conducted on the access road leading to APNs 221-091-021 and 221-091-023 per guidance from the Humboldt County Department of Public Works. The Leach/Stone properties are located approximately 9 miles from US-101 and approximately 3 miles from mile 4.1 of Thomas Road where the county-maintained road ends. Based on physical characteristics of the access road, the 8.8-mile access road to the Blido property has been divided into 4 segments as follows:

- Segment 1–1.7 miles of County-maintained road (Salmon Creek Road) from Maple Hills Road junction to the Thomas Road junction.
- **Segment 2** 4.1 miles of county-maintained Thomas Road, from Salmon Creek Road junction to end of County-maintained segment.
- Segment 3 1.6 miles of private community-maintained road (Thomas Road) from Mile 4.1 of Thomas Road to Salmon Creek School.
- Segment 4 (Subject of this Technical Memorandum) 1.4 miles of private community-maintained road from Salmon Creek School to APNs 221-091-021 and 221-091-023.



Joel Monschke, P.E.

Civil Engineer

Stillwater Sciences

#### 1 INTRODUCTION

Stillwater Sciences has been contracted to conduct road evaluation the proposed cannabis projects on APNs 221-091-021 and 221-091-023. On 28 September 2018, the field evaluation was conducted by Stillwater Sciences engineer (Joel Monschke). Information in this Technical Memorandum pertains to Segment 4 (see Figure 1), covering 1.4 miles of private community-maintained road from Thomas Road to the Leach/Stone property.

#### 2 EXPECTED INCREASE IN USE DUE TO CANNABIS PROJECT

### 2.1 Cannabis Project on APNs 221-091-021 & 221-091-023

The cannabis project proposed on APNs 221-091-021 and 221-091-023 is a very small family run operation covering less than 3,000 SF. Therefore, the projects will not significantly increase traffic. Additionally, the applicant strives to reduce impacts to all access roads by reusing soil, storing all water onsite (no water deliveries), and utilizing an onsite gravel quarry to maintain the roads on the property.

#### 2.2 Other Cannabis Projects in the Vicinity

Areas accessed by Salmon Creek Road were delineated into eight sub-areas so that projected use could be estimated along the various road segments evaluated in this project. Humboldt County Department of Public Works provided Stillwater with a list of cannabis permit applications in the vicinity. The number of cannabis applicants and number of parcels were tallied by sub-area and are shown in Table 1.

Sub-area	Description of sub-area	Cannabis permit applications	Parcels
Lower Salmon	Salmon Creek Road from Maple Hills Road to Thomas	4	29
Creek Road	Road/Salmon Creek Road split		
Upper Salmon	Salmon Creek Road from Thomas Road/Salmon Creek	. 9	44
Creek Road	Road split to terminus	. 9	
Thomas Trunk	Thomas Road from Thomas Road/Salmon Creek Road	14	49
Road	split to Main/Upper Thomas Road split	14	
Lower Thomas	Main Thomas Road from Main/Upper Thomas Road	16	41
Road	split to Salmon Creek School	10	41 .
Upper Thomas	Lower Thomas Road from Main/Lower Thomas Road	17	. 26
Road	split to terminus	17	36
Main Thomas	Upper Thomas Road from Main/Upper Thomas Road	7	14
Road	split to terminus	′	
Lower Samuels	Lower Samuels Ranch Loop Road (Thomas Road) from	12	
Ranch Loop			52
Upper Samuels			
Ranch Loop	School to Serendipity sign	13	55

Table 1. Access road area users.

The road evaluated in this Technical Memorandum (Segment 4) is within the Upper Samuels Ranch Loop Road sub-section. Approximately 55 parcels utilize this access road including 13 cannabis permit applicants. Most of the cannabis applications involve permitting existing cultivation, so the traffic is not likely to significantly increase from those projects compared to the last several years. However, it is expected that the cumulative impacts of all these projects will result in incremental increases in road use considering that as farmers come into compliance they often significantly upgrade their operations.

## 2.3 Average Daily Traffic (ADT) Estimate

Stillwater Sciences' engineer estimated average daily trips based on traffic observations during the road evaluation, number of properties utilizing the access road, and engineering judgement. There are approximately 55 parcels that utilize Segment 4. If each parcel accounts for two trips per day, that equates to approximately 110 total trips per day (~9 trip per hour during a typical 12-hour day (8 am to 8 pm). This is generally consistent with the observations made during the road evaluation. While there are likely busier times of day, and busier periods of the year, we believe that this is a reasonably accurate estimate for this road evaluation.

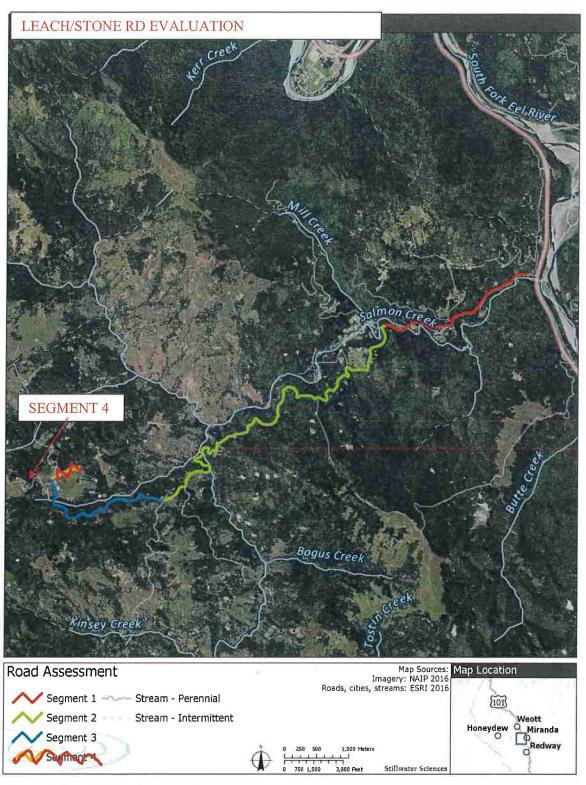


Figure 1. Road evaluation overview map.

#### 3 FIELD OBSERVATIONS

#### 3.1 General Observations

This 1.4 miles of gravel-surfaced private community-maintained road appears to be accommodating the current traffic load with no evidence of skid marks or scarred trees. This segment of road is generally 16 to 18-feet wide with 1-foot to 2-foot shoulders and decent visibility as shown in the photos in Appendix A and described in Section 3.2 below.

#### 3.2 Description of Specific Road Segments

The following measurements were taken along this road segment at 0.1 mile intervals:

- Mile 0.0: 18-ft road width with 1-ft shoulders.
- Mile 0.1: 18-ft road width with 1-ft shoulders.
- Mile 0.2: 18-ft road width with 1-ft shoulders.
- Mile 0.25: 15-ft road width at pinch point with tree.
- Mile 0.3: 18-ft road width with 1-ft shoulders.
- Mile 0.4: 18-ft road width with 1-ft shoulders.
- Mile 0.5: 18-ft road width with 2-ft shoulders.
- Mile 0.6: 16-ft road width with 1-ft shoulders.
- Mile 0.7: 18-ft road width with 1-ft shoulders.
- Mile 0.8: 18-ft road width with 2-ft shoulders.
- Mile 0.9: 16-ft road width with 2-ft shoulders.
- Mile 1.0: 15-ft road width with 1-ft shoulders.
- Mile 1.1: 18-ft road width with 1-ft shoulders.
- Mile 1.2: 16-ft road width with 2-ft shoulders.
- Mile 1.3: 16-ft road width with 2-ft shoulders.
- Mile 1.4: 15-ft road width with 2-ft shoulders.

#### 4 RECOMMENDATIONS

#### 4.1 General Recommendations for this Road Segment

This segment of road is in relatively good condition, and for the most part is developed to a category 4 equivalent. We recommend continuing to maintain road runoff drainage features and brushing, especially for the segment between mile 0.0 and 0.4.



Figure 2. Road Segment 4 map.

# Appendix A

**Photos** 

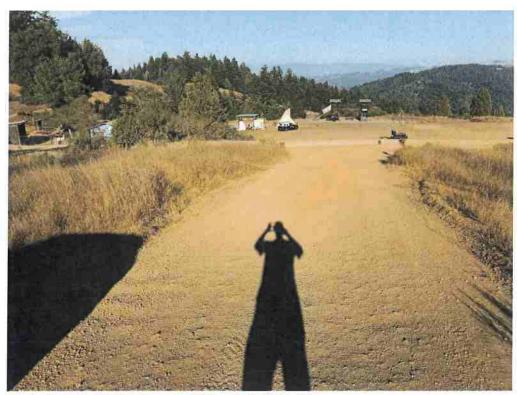


Photo 1. Mile 0.0: 18-ft road width with 1-ft shoulders.



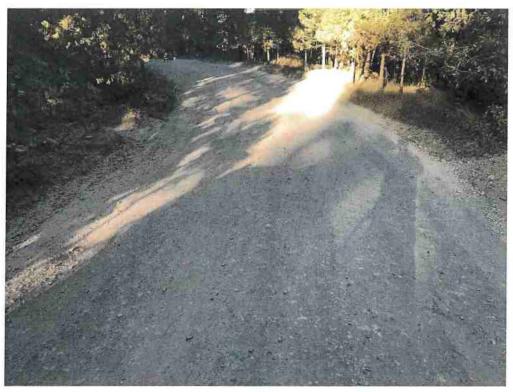
Photo 2. Mile 0.1: 18-ft road width with 1-ft shoulders.



Photo 3. Mile 0.2: 18-ft road width with 1-ft shoulders.



Photo 4. Mile 0.25: 15-ft road width at pinch point with tree.



**Photo 5.** Mile 0.3: 18-ft road width with 1-ft shoulders.

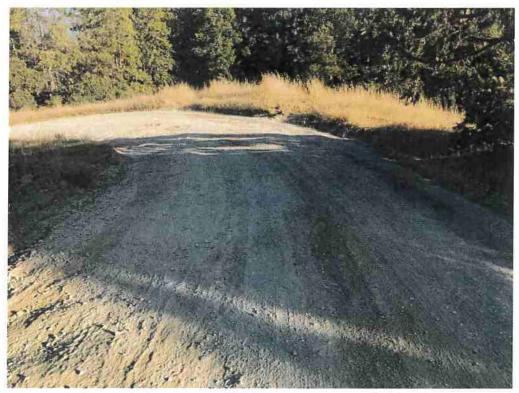


Photo 6. Mile 0.4: 18-ft road width with 1-ft shoulders.

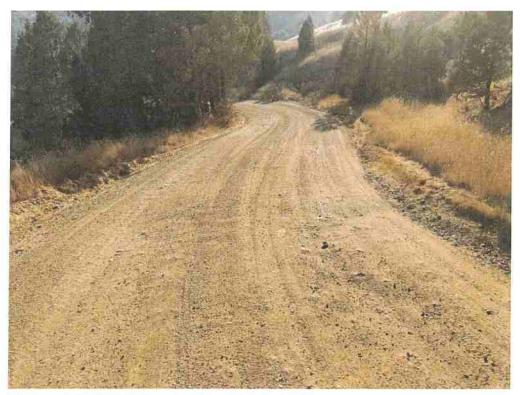


Photo 7. Mile 0.5: 18-ft road width with 2-ft shoulders.

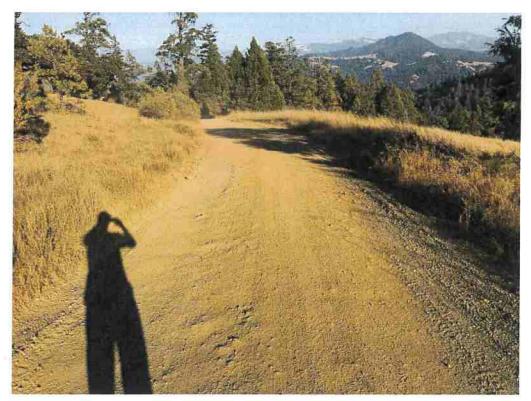


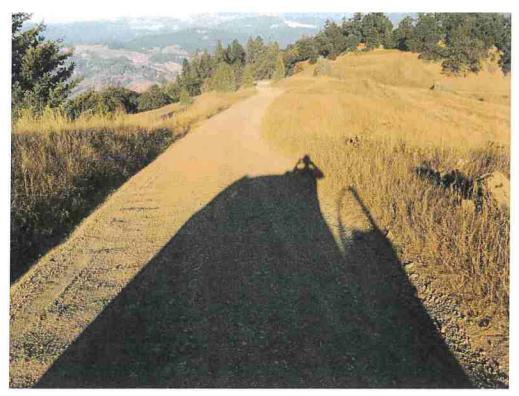
Photo 8. Mile 0.6: 16-ft road width with 1-ft shoulders.



Photo 9. Mile 0.7: 18-ft road width with 1-ft shoulders.



Photo 10. Mile 0.8: 18-ft road width with 2-ft shoulders.



**Photo 11.** Mile 0.9: 16-ft road width with 2-ft shoulders.

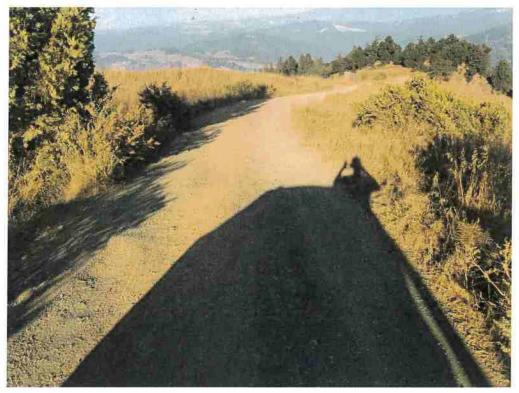


Photo 12. Mile 1.0: 15-ft road width with 1-ft shoulders.

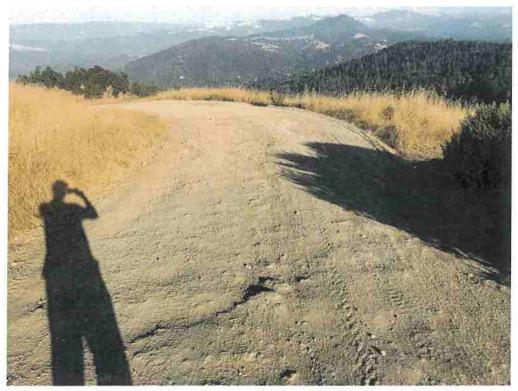


Photo 13. Mile 1.1: 18-ft road width with 1-ft shoulders.

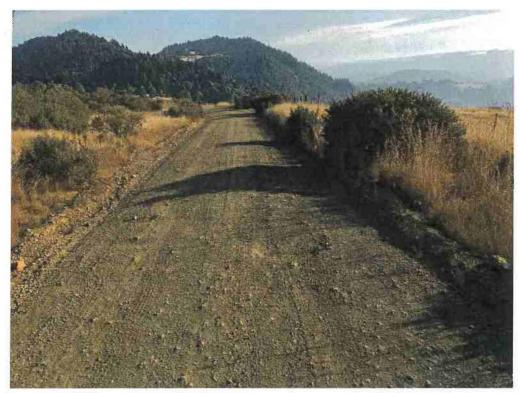


Photo 14. Mile 1.2: 16-ft road width with 2-ft shoulders.

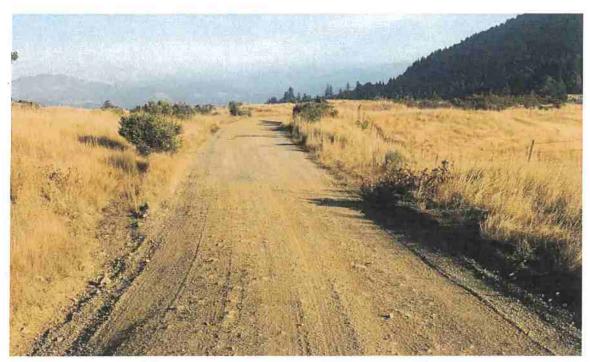


Photo 15. Mile 1.3: 16-ft road width with 2-ft shoulders.



Photo 16. Mile 1.4: 15-ft road width with 2-ft shoulders.