

## Final Minutes of Field Trips to JA-17B Grave Creek Road

**General Land Office (GLO) Field Survey Sub-Committee  
Inventory Trips, August 2, 2012 & August 22, 2012  
9:00 a.m. - 11:30 p.m.**



### References

1. Map 1. Applegate Trail Site JA-17B Grave Creek Road (Base Map is Assessor Map).
2. Map 2. Applegate Trail Site JA-17B Grave Creek Road (Base Map is 1856 GLO Map)
3. Appendix A. August 2, 2012 Participants: GLO Field Review SubCommittee Members
4. Appendix BA. Selected 1855 GLO Grave Creek Road Survey Notes
5. Appendix BB. Copy Of Original 1855 GLO Survey Notes
6. Appendix C. OCTA's *Cardinal Rules of Applegate Trail Verification: JA-17B Grave Creek Road*
7. March 16, 2010 *JR Of Applegate Trail: Grave Creek Road (JA-17B) Final Brochure.*
8. October 18, 2011 *Oregon General Land Office Surveyors: 1850s. Final Brochure.*
9. Applegate Trail Grave Creek Project Paper.



*Photo 1. Group In Covered Bridge Interpretive Center Parking Lot: Christine, Chris, Rene, Joe, Jim, and Bob*

**Purpose** Members of the GLO Field Sub-Committee (*SubCommittee*), Hugo Emigrant Trails Committee (HETC), to inventory and mark GLO point of interest (POI) "JA-17B Grave Creek Road" of the Applegate Trail (*Trail*).

**Participants** The members of the *SubCommittee* that participated on the August 2, 2012 field trip were Jim Ford, Rene Ford, Joe Neiderheiser, Mike Walker, and Chris Wytcherley. Bob Black from Trails West was also a participant (Photo 1 & Photo 2; Appendix AA). A follow-up quality control field trip on August 22, 2012 had most of the same participants (Appendix AB)

**Accomplishments** Field trip with consensus on location of *Trail* site JA-17B was marked with a 2" flat-cap Berntsen metal survey marker monument identified as "JA-17" (JA-17B). JA-17B was 369.7' west of the center



*Photo 2. JA-17B In Russell Field: Jim, Joe, Bob, and Mike on Sunny Valley Road*

line of the Sunny Valley Road (SVR) and 504.57' west of ¼ Corner Monument along the section line between sections 2 and 11, T. 34 S., R. 6 W.

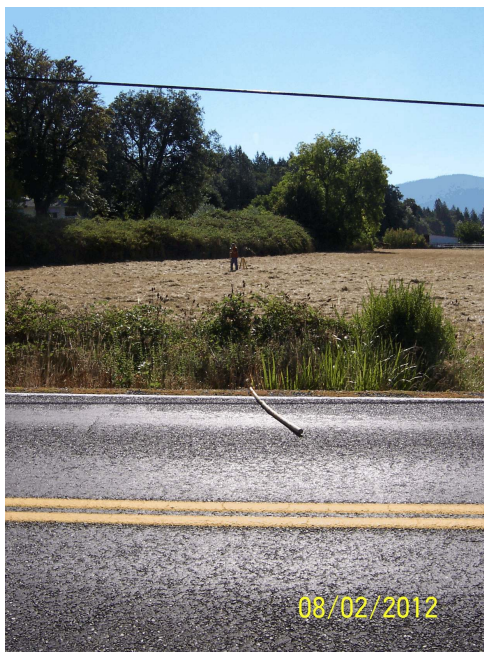
An intermediate surveyed point, “JA-17B Rebar Offset”, was located with a rebar along the section line between sections 2 and 11. The surveyed “JA-17B Rebar Offset” location was 63' 5" (63.42') west of the center line of the SVR.

The final JA-17B Offset location marked with a Berntsen metal survey marker was located on the road right-of-way fenced boundary 33.25' west of the center line of the SVR. The “JA-17B Offset” will be used in the future to identify other features identified in the 1855 GLO survey notes (i.e., Grave Creek House).

The Berntsen survey markers look similar to USGS and Josephine County corner section monuments (*Applegate Trail Aluminum Survey Marker Program*).



*Photo 3. Looking West Along Section Line Between Section 2 & 11 Toward JA-17B In Pasture From Sunny Valley Road Where Joe Is Standing*



*Photo 4. Chris At 1/4 Corner Monument 134.87' East of the Center Line of the Sunny Valley Road*

- JA-17B Berntsen Survey Marker was surveyed **504.57'** west of ¼ Corner Monument.
- JA-17B Berntsen Survey Marker was surveyed **369.7'** west of the center line of the Sunny Valley Road (SVR).
- JA-17B Intermediate Offset Rebar Marker was surveyed **198.29'** west of ¼ Corner Monument
- JA-17B Intermediate Offset Rebar Marker was surveyed **63.42'** west of the center line of the SVR.
- JA-17B Intermediate Offset Rebar Marker was surveyed **30.17'** west of JA-17B Final Offset at the fence line.
- JA-17B Final Offset Berntsen Survey Marker was measured **33.25'** west of the center line of the SVR.
- The ¼ Corner monument was surveyed **134.87'** east of the center line of the SVR

### **1855 GLO JA-17B SURVEYED GRAVE CREEK ROAD**

**Fact:** The Applegate Trail site JA-17B Grave Creek Road is located on private property in the pasture north of Grave Creek and west of the SVR (Photo 3). The administrator of the private property is Roger Russell, one of the owners. The *SubCommittee* had permission to walk the pasture via a permission request by Joe Neiderheiser and/or Rene Ford.

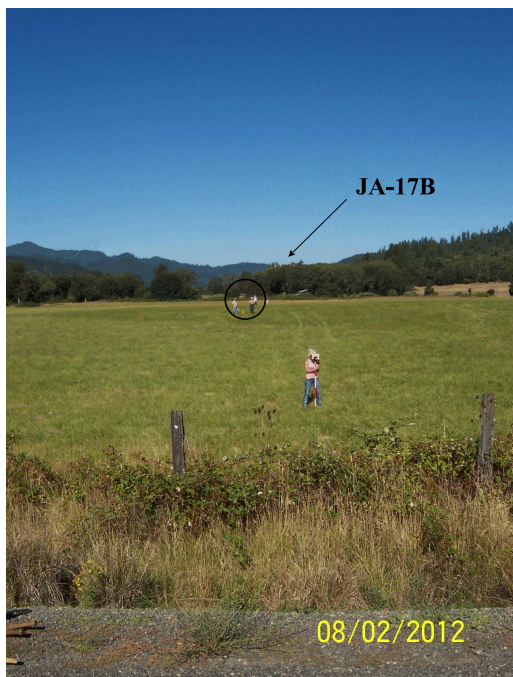
**Fact:** The only applicable corner that was set from original GLO evidence and not apportioned in was the Section Corner to Sections 1, 2, 11, and 12, T.34S., R.6W., W.M.). Between two older surveys along this section line of sections 2 and 11, one from H.C. Perkins and the other from Marvin Ramsey, there is an enormous discrepancy of over 110'.

**Fact:** The ¼ Corner between Sections 2 & 11, T.34S., R.6W., W.M. was apportioned in and located by the Josephine County Surveyor's Office (JCSO; Map 1; Photos 4 & 5). The ¼ Corner Monument was recorded as 134.87' east of the center line of the SVR.



*Photo 5. Chris At 1/4 Corner Monument*

**Fact:** The **average JA-17B** is located 47.775 chs (3,153.15') west from Section Corner 1, 2, 11, & 12, T.34S., R.6W., W.M. ( $3,128.4' + 3,177.9' = 6,306.3' / 2 = 3,153.15'$ ; see footnote 4, Appendix BA)



*Photo 6. JA-17B 369.7' West of Center Line Of Sunny Valley Road*

**Fact:** The **average JA-17B** is 504.57' west on a True Line (i.e., 269°50' true bearing, or south S89°50' on a quadrant bearing) between sections 2 & 11 from the ¼ Corner between Sections 2 & 11, T. 34 S., R. 6 W. (Appendix BA & BB).

**Fact:** The Applegate Trail's orientation at JA-17B is north-south (i.e., GLO survey notes = *Jacksonville Road c N & S*; Appendix BA).

**Fact:** Roger Russell, landowner, had previously located a pipe 25' West and a few feet north of JA 17 B. This is a splayed pipe 8" in the ground he said.

**Josephine County Surveyor's Office (JCSO) Located Quarter Corner** The ¼ Corner between Sections 2 & 11, T.34S., R.6W., W.M., had been previously located by the JCSO. It was relocated by personnel from the JCSO at 8:30 a.m., August 2, 2012.

### **BEARING & DISTANCE WORK**

Bearing and distance work was from the ¼ Corner between Sections 2 & 11, T.34S., R.6W.

**Field Work For JA-17B** A Warren-Knight Company staff compass model No. 40-1300 was used to measure the true line/bearing from the ¼ Corner between Sections 2 & 11. An electronic Nikon Total Station DTM-A5, was used for measuring distances.

**Field Work** A surveying distance instrument, a Nikon Total Station DTM-A5, was used to locate JA-17B 504.57' west on a true line/bearing from the ¼ Corner between Sections 2 & 11, T.34S., R.6W. (Appendix BA).

This JA-17B location 504.57' west of the ¼ Corner was 369.7' west of the center line of the SVR ( $504.57' - 198.29' = 306.28' + 63.42' = 369.7'$ ). Photos 6 & 7.

This point was marked with a HETC 2" flat-cap Berntsen metal survey marker with the identification "JA-17" (JA-17B) (see HETC *Applegate Trail Aluminum Survey Marker Program* brochure). (Photos 9 & 10) The JA-17B monument marked as "JA-17" will be used in the future to identify other features identified in the 1855 GLO survey notes.



Photo 7. JA-17B (Christine in foreground)

**Field Work for JA-17B Final Offset Berntsen Survey Marker** The Warren-Knight Company staff compass and Nikon Total Station DTM-A5 were also used to survey and locate an Intermediate Offset Rebar Marker location, west 198.29' (i.e., 269°50' true bearing, or south S89°50' on a quadrant bearing) on True Line from the ¼ Corner between Sections 2 & 11, T.34S., R.6W. This location was marked with a rebar.



Photo 8. JA-17B (l/r: Jim, Joe, Bob, & Rene)

The final "JA-17B Final Offset Berntsen Survey Marker" was measured and marked with a Berntsen metal survey marker located to the east of the Intermediate Offset Rebar Marker location on the road right-of-way fenced boundary 33.25' west of the center line of the SVR. The final "JA-17B Offset" will be used in the future to identify other features identified in the 1855 GLO survey notes (i.e., Grave Creek House).

**Interpretive Grave: Martha Leland Crowley, 1830 - 1846** The center of the symbolic interpretive Martha Leland Crowley grave (Photo 11) is located 191.7' south of the section line between Sections 2 & 11, T.34S., R.6W.

**GPS Work Quality Controlled** The latitude and longitude had been previously identified for JA-17B by the GLO SubCommittee in 2010. The GLO SubCommittee had used a reliability factor of the coordinates developed of approximately 20' - 40'. Now it uses the "Trail West" assumption that the coordinates error with the GPS method could be up to 10 meters or 33' (One meter = 3.28083'; 10 meters = 32.8083' = 33').

This 2010 latitude and longitude coordinates were ground marked with a Berntsen Survey Marker by Joe Neiderheiser on June 28, 2012 (see Applegate Trail Grave Creek Project paper).

**March 2010 Calculated Latitude & Longitude of JA-17B**

[http://www.hugoneighborhood.org/BROCHURE%2021B%20JA%20GLO%20Grave%20Creek%20Road\\_JA17%20031610.pdf](http://www.hugoneighborhood.org/BROCHURE%2021B%20JA%20GLO%20Grave%20Creek%20Road_JA17%20031610.pdf)

42° 38' 15.8" North Latitude  
123° 22' 38.9" West Longitude

The June 28, 2012 GPS location and the August 2, 2012 bearing and distance location were 23' 4" apart on a bearing of (66 " ) true. This is a high tribute for the latitude and longitude coordinates work (Photos 12 & 13).

The GLO SubCommittee also quality controlled the August 2, 2012 distances from the SVR to JA-17B. On August 22, 2012 the GLO SubCommittee recorded 370.75' from the SVR to JA-17B. The was a 1.05' difference from the August 2, 2012 measurement (Appendix AB; (Photos 14 -17).

**August 2, 2012 GPS Marks** Three GPS marks were taken at the *Trail* site on top of the previously located Berntsen Survey Marker for JA-17B. The August 2, 2012 mark latitude and longitude coordinates were compared with the 2010 latitude and longitude coordinates.

2012 GPS Marks	UTM	Lat/Long	Difference
<b>Jim</b>	10 T 0469049 E 4720439 N	N 42 38' 15.7" W 123 22' 39.0"	.1" .1"
<b>Joe</b>	10 T 0469049 E 4720440 N	N 42 38' 15.8" W123 22' 39.0"	.0" .1"
<b>Bob</b>	10 T 0469047 E 4720436 N	N 42° 38' 15.7" W123° 22' 39.1"	.1" .2"
<b>Average</b>	<b>10 T 0469048 E 4720438 N</b>	<b>N 42° 38' 15.7" W123° 22' 39.0"</b>	

**Additional Pipe** The GLO SubCommittee found a straight pipe with a white plastic bag on the top. Its members felt this marker means something.

**Trail North** Using the 1855 GLO survey information on the course of the Applegate Trail/Road and the course to the Grave Creek House found this course slightly to the west of the blue house when looking north from JA 17 B (Appendix BA; Appendix BB).

47.40 Jacksonville Road c N&S

48.15 Leave Road, Enter field, Grave Cr House bear North

**Cardinal Rules of Trail Verification** Consensus determinations by the GLO SubCommittee on OCTA's *Cardinal Rules of Trail Verification* as applicable to JA-17B follow (Appendix C).

Coherence Rule. Linear Uniformity. Yes

Corroborative Rule. Confirming Evidence. Yes

Collateral Rule. Physical/Topo Evidence. Yes

Correlation Rule. Overall Agreement. Yes

**Trail Classification** A consensus determination by GLO SubCommittee is that the *Trail* within 5' of JA-17B has a OCTA trail classification of Class ③ Verified Trail.

Class 1 - Unaltered Trail. It retains its original character.

Class 2 - Used Trail. It retains elements of its original character, but shows use by motor vehicles.

Class 3 - Verified Trail. It is accurately located and verified, but trail traces are nonexistent or insignificant.

Class 4 - Altered Trail. It is verified, but elements of its original condition are permanently altered.

Class 5 - Approximate Trail. It is obliterated or unverifiable that its location is known only approximately.

### **Minutes Recorded by Mike Walker**

August 30, 2012

Mike Walker, Member

GLO SubCommittee, HETC

3388B Merlin Rd #195

Grants Pass, Oregon 97526

541-471-8271

Email: hugo@jeffnet.org

Web Page: <http://www.hugoneighborhood.org/>

Minutes were reviewed, edited, and approved by Bob Black, Jim Ford, Rene Ford, Larry McStrvog, Joe Neiderheiser, Kelly Rarey, Karen Rose, Mike, and Chris Wytcherley (see Appendix AA & Appendix AB).

**Email Copies of Final Minutes:** Members of GLO Field Sub-Committee; Karen Rose, Co-Project Leader, Hugo Emigrant Trails Committee, and Bob Black, Trails West.

The final minutes are public and can be shared (When finalized, they will be web published).

## Appendices

Appendix AA.	August 2, 2012 Participants: GLO Field Review SubCommittee Members
Appendix AB.	August 22, 2012 Participants: GLO Field Review SubCommittee Members
Appendix BA.	Selected 1855 GLO Grave Creek Road Survey Notes
Appendix BB.	Copy Of Original 1855 GLO Survey Notes
Appendix C.	OCTA's Cardinal Rules of Applegate Trail Verification: JA-17B Grave Creek Road
Appendix D.	Latitude & Longitude "Seconds" Into "Feet"

## Photographs: August 2, 2012

Photos 1 - 8 in text of minutes.

Photos 9 - 17 at end of minutes.

- Photo 1. Group In Cover Bridge Interpretive Center Parking Lot: Christine, Chris, Irene, Joe, Jim, & Bob (Mike taking picture).
- Photo 2. JA-17B In Russell Field: Jim, Joe, Bob, & Mike On Sunny Valley Road Looking West (Irene taking picture).
- Photo 3. Looking West Along Section Line Between Section 2 & 11 Toward JA-17B In Pasture From Sunny Valley Road Where Joe Is Standing.
- Photo 4. Chris At  $\frac{1}{4}$  Corner Monument 134.87' East of the Center Line of the Sunny Valley Road.
- Photo 5. Chris at  $\frac{1}{4}$  Corner Monument.
- Photo 6. JA-17B location 504.57' West of  $\frac{1}{4}$  Corner & 369.7' West of the Center Line of Sunny Valley Road.
- Photo 7. JA-17B 369.7' West of the Center Line of Sunny Valley Road.
- Photo 8. JA-17B Mark 369.7' west of the center line of the SVR Marked With Berntsen Aluminum Survey Marker ID JA-17.
  
- Photo 9. JA-17B Mark 369.7' west of the center line of the SVR Marked With Berntsen Aluminum Survey Marker ID JA-17.
- Photo 10. JA-17B Marked With Berntsen Aluminum Survey Marker ID JA-17.
- Photo 11. Symbolic Interpretive Martha Leland Crowley Grave.
- Photo 12. 6/28/12 GPS Mark & 8/2/12 Bearing & Distance Mark were 23' 4" apart/bearing of (43 - 66 "): Looking NNE Toward Preece (sp?) Home.
- Photo 13. 6/28/12 GPS Mark & 8/2/12 Bearing & Distance Mark were 23' 4" apart/bearing of (43 - 66 "): Looking SSW.
- Photo 14. August 21, 2012 Field Trip Participants: JA-17B Looking West.

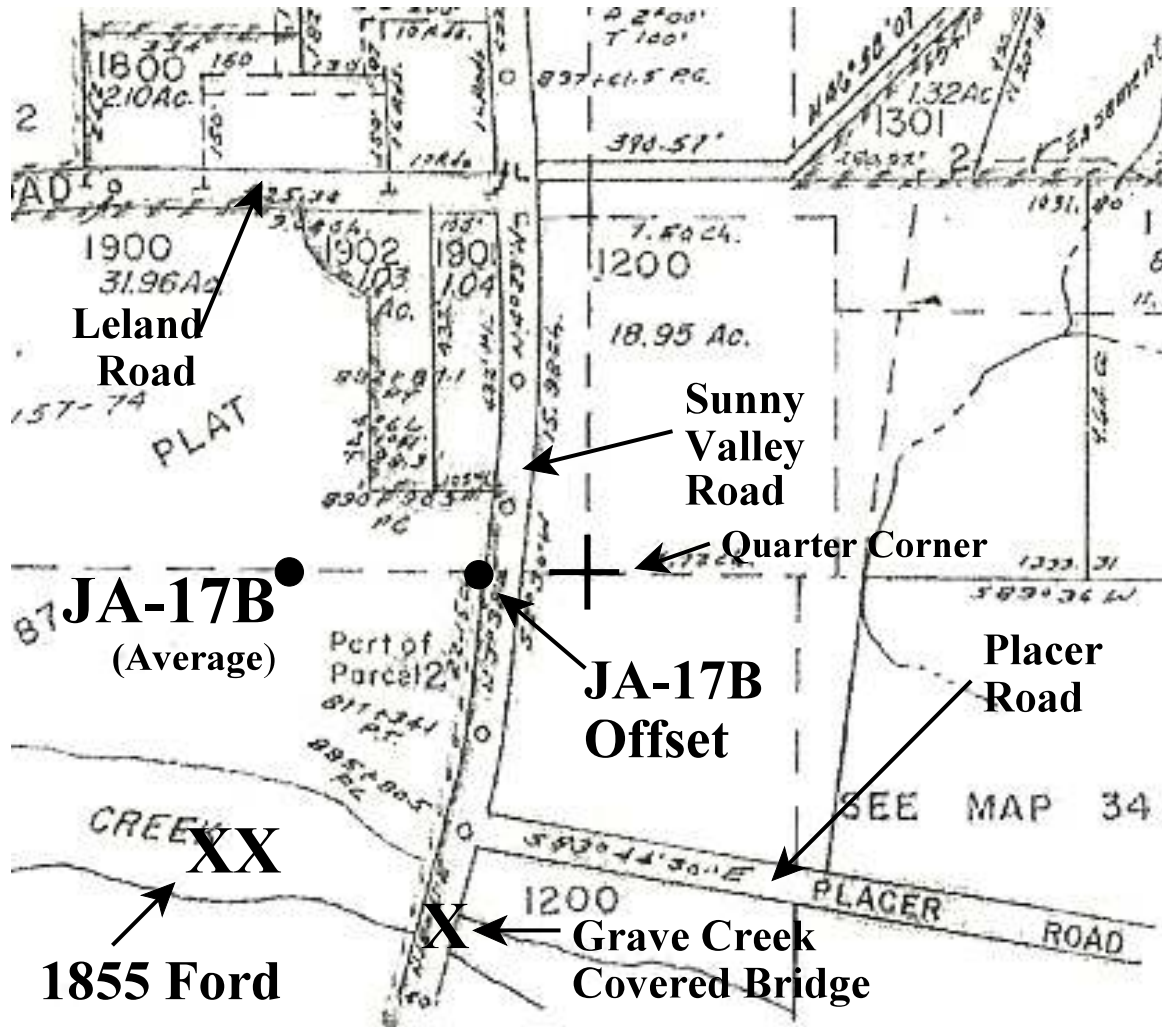
- Photo 15. August 21, 2012 Field Trip Participants: JA-17B Looking South Toward Grave Creek.
- Photo 16. August 21, 2012 Field Trip Participants: Tape Measuring From JA-17B East Toward Sunny Valley Road
- Photo 17. August 21, 2012 Field Trip Participants: Looking From JA-17B North Toward Leland Road

### **Maps**

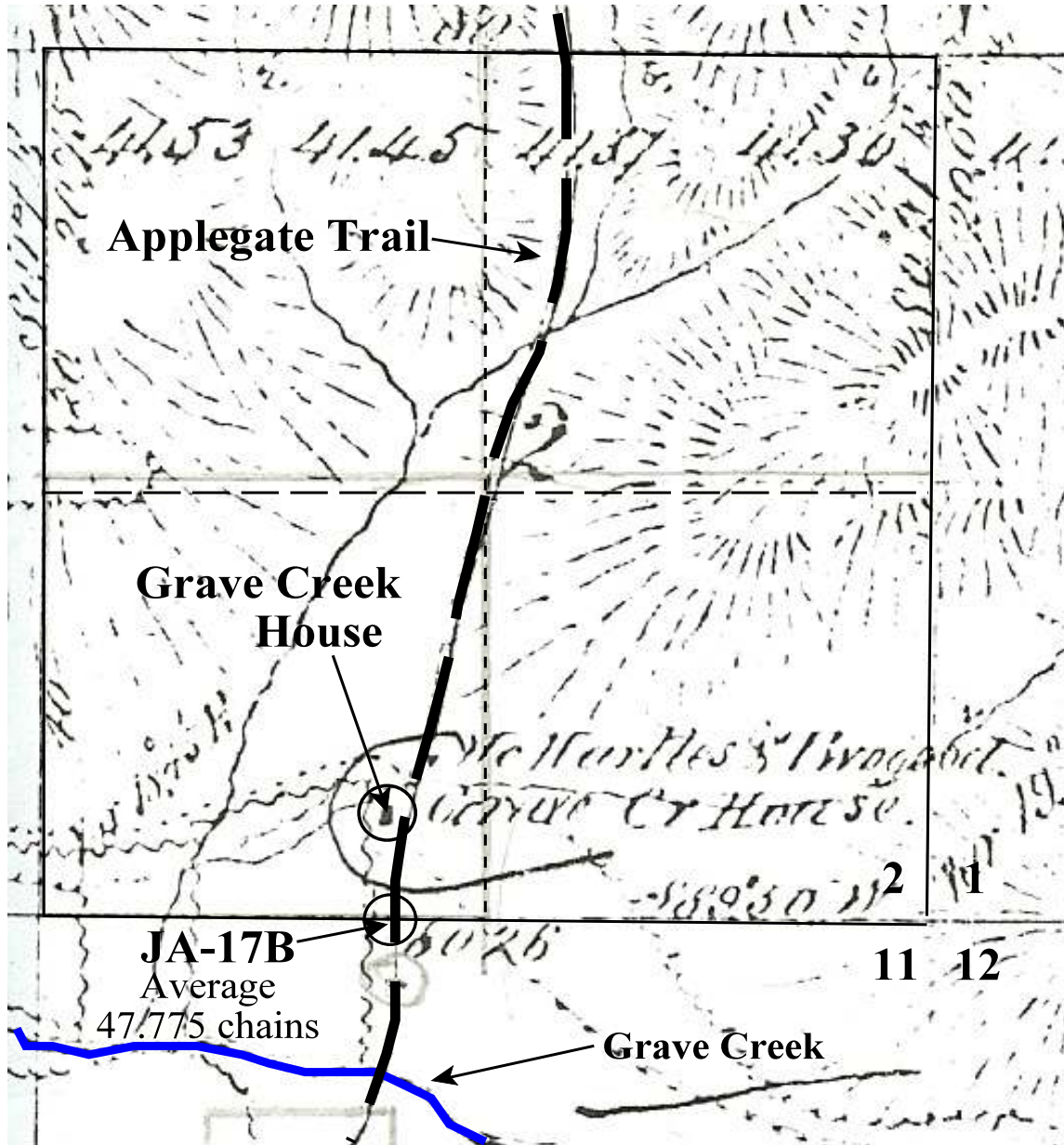
- Map 1. Applegate Trail Site JA-17B Grave Creek Road (Base Map is Josephine County Assessor Map)
- Map 2. Applegate Trail Site JA-17B Grave Creek Road (Base Map is 1856 GLO Map)



**Map 1. Applegate Trail Site JA-17B Grave Creek Road**  
Base Map is Josephine County Assessor Map



**Map 2. Applegate Trail Site JA-17B Grave Creek Road**  
Base Map is 1856 GLO Map



**Appendix AA. August 2, 2012 Participants: GLO Field Review SubCommittee Members**

Jim Ford, Member GLO Field SubCommittee Hugo Emigrant Trails Committee P.O. Box 81 Merlin, OR 97532 541-471-1235	Chris Wytcherley, Member GLO SubCommittee Hugo Emigrants Trails Committee P. O. 108 Glendale, Oregon 97442 Home 541-832-2319 Work: 541-474-5311 Cell 541-660-6273
Rene Ford, Member GLO Field SubCommittee Hugo Emigrant Trails Committee P.O. Box 81 Merlin, OR 97532 541-471-1235	<b>Other Participant</b>  Bob Black, Trails Activities Trails West 1251 Devonshire Way Grants Pass, OR 97527 541-956-9041
Joe Neiderheiser, Member GLO Field Review SubCommittee Hugo Emigrants Trails Committee 279 Ridgefield Road Grants Pass, OR 97527 541-862-9077 Cell 541- 450-2020	<b>1/4 Corner Location By Josephine County Surveyor's Office</b>  Chris Wytcherley, Survey Technician; Christine Gibson, Department Assistant
Mike Walker, Member GLO Field SubCommittee Hugo Emigrant Trails Committee 3388B Merlin Rd #195 Grants Pass, Oregon 97526 541-471-8271	

**Appendix AB. August 22, 2012 Participants: GLO Field Review SubCommittee Members**

August 22, 2012, 9:00 - 10:40a.m., Jim Ford, Rene Ford, Larry McStrovag, Joe Neiderheiser, Kelly Rarey, & Mike Walker.

A tape measure was used to measure from the JA-17B Berntsen Survey Marker in field east to the center line of the Sunny Valley Road (SVR). The measurement was 370.75'.

This quality control measurement was 1.05' difference from the August 2, 2012 measurement of JA-17B being 369.7' west of the center line of the SVR. The electronic 369.7' measurement was quality controlled as excellent and will stand.

**Appendix BA. SELECTED 1855 GLO GRAVE CREEK ROAD SURVEY NOTES**

**POI Name** Grave Creek Road ■ JA-17B.

**POI ID Code** OR-AT-00-34-06-02/11-W-JA-17B.

**1855 GLO Survey Notes for POI** Page 600. Subdivisions of T. 34 S., R. 6 W. S89°50, W [West] on True Line between sections 2 & 11.

Chains

40.13 Set on Sec Post from which a W. [West] Oak 26 in dia bears S 6°E 225 Lks, DO 26 dia bears N 72°W 44 Lks, **Grave Creek House bears N35°W** (Kept by McHartlels ?? [McDonough Harkness?] & Twogood) **Leave Pine and Oak Openings** [40.13 chains = 2,648.58'] [this location is the quarter corner]

**47.40 Jacksonville Road** c N&S [3,128.4'; & ]

**48.15 Leave Road** [3,177.9'], **Enter field, Grave Cr House bear North** [3,177.9' - 3,128.4' = JR 49.5' wide; **Average JA-17 at 47.775** chs is 3,153.15' west from Sec. Corner 1,2,11 & 12; 3,128.4' + 3,177.9' = 6,306.3' / 2 = 3,153.15']

65.13 **A Fence N & S , Enter about the middle of a square cultivated field**

76.73 **Leave field N&S**

80.26 To Sec Corner [5,297.16'] and **enter Oak & ?? Pine Openings**  
The mile runs through the improvements of McHartlels ?? [McDonough Harkness?] & Twogood at the Grave Cre House, and is gently Sloping to the S. E1/2 2<sup>nd</sup> rate & W1/2 1<sup>st</sup> rate Soil. Tim [?] Pine & Oak Openings.

The surveyors were Lake and Hyde (1856 GLO Map: T. 34S., R. 6W., WM)

<u>Surveys</u>	<u>Survey No.</u>	<u>Awarded</u>	<u>Surveyors</u>	<u>When Surveyed</u> <sup>1</sup>	<u>Map In Conformance</u> <sup>1</sup>
Township Lines	No. 54	February 19, 1855	Lake & Hyde	March 31, 1856	March 31, 1856
Subdivisions	No. 54	February 19, 1855	Lake & Hyde	March 31, 1856 August 1855 <sup>3</sup>	

**Footnotes**

1. Per published GLO Survey Maps. For date of “When Surveyed”, this means when the survey was completed on the ground. Per published GLO Survey Maps. For date of “Map In Conformance”, this must mean after everything has been completed and approved, including a published map which was not the responsibility of the surveyor to whom the contract was awarded. And, most importantly the township map was approved as published on a certain date as being in conformance with the GLO field survey notes. For example, the following information is on the GLO Map: T. 36S., R. 5W., WM (Pearce Riffle Ford of Rogue River)

*“The above map of Fractional Township No. 36 South, Range No. 5 West, of the Willamette Meridian of Territory of Oregon, is strictly conformable to the field notes of the survey thereof on file in this office, which have been examined and approved. Surveyor General’s Office, Salem, July 30, 1855, Gardner, Surveyor General of Oregon”*

2. B. Ives & Hyde = Butler Ives and George Hyde  
Lake & Hyde = Wells Lake and George Hyde
3. Atwood, Kay. 2008. *Chaining Oregon: Surveying the Public Lands of the Pacific Northwest; 1851 - 1855*. The McDonald & Woodward Publishing Company. Pages 196 - 202. Blacksburg, Virginia.

There is a discrepancy between the GLO maps and *Chaining Oregon* in terms of when the GLO surveys were completed and the GLO maps were published in the area of interest from the Rogue River in the south to Grave Creek in the north (GLO Contract No. 39; GLO Contract No. 47; GLO Contract No. 54).

All the GLO maps for contracts No. 39, No. 47, and No. 54 clearly indicated the surveys were completed on March 31, 1856. This is the same date that the GLO maps were published as in conformance with the GLO field survey notes. Later information from *Chaining Oregon* it is very clear that Contract No. 54 survey was completed at the end of the first week in August 1855.

Ten GLO contracts were awarded in 1855, all between January and July, including GLO contract No. 54 to Wells Lake and George Hyde on February 19, 1855 (*Chaining Oregon*, page 196).

4. The following two GLO survey points are unique in identifying one road (i.e., usually the survey will identify the road at a certain number of chains which means when the side of the road was encountered and the survey will not record when the road was left).

47.40 **Jacksonville Road** [side of road was encountered] c N&S

48.15 **Leave Road** [side of road was left], Enter field, Grave Cr House bear North

This fits with the idea that Martha Leland Crowley was buried in the road which would later pass by her grave site on both sides which made the road more than twice as wide at that point.

**Lucy (Henderson) Deady Reminiscences, 1846**<sup>5</sup> “*One of the emigrants in our party was named Crowley. He had lost several members of his family by death while crossing the plains, and at one of our camps another member of the family, a daughter, Martha Leland Crowley, died. Theodore Prater and Mrs. Rachel Challiner and some others from our wagon train helped bury her. They buried her beneath a **big pine tree on the banks of a small stream** which they christened Grave Creek, and which still bears that name.*” (emphasis added) (Lucy (Henderson) Deady 1846 Reminiscences, pages 141 - 142 of Beckham (Beckham, Stephen Dow. 1995. *Applegate Trail: Impressions and Experiences of Emigrants and Other Travelers*. Vol. I & II. Lake Oswego, OR).

Later, in a 1916 photograph the pine is an oak tree (McLane, Larry L.; Sexton Enterprises is a co-author. 1995. *First There Was Twogood*. page 41, Sexton Enterprises. Sunny Valley, OR).

Appendix BB. Copy Of Original 1855 GLO Survey Notes

60 600

Subdivisions of Twp 34 S. R. 6 W

S 89.50' W on true line bet Sec 2 @ 11.

6.70	Bottom of steep descent	75
40.13	Set Or Sec Post	
	from which	
	a. N. Oak 26 in dia bears S 6° E 225 Yds	
	w do 26" " " N 73° W 44 "	
	Grave Or House bears N 35° W. (kept by Mc Hartlep & Swogood) Leave Pine and Oak Openings.	
47.40	Jacksonville road c N & S.	
48.15	Leave <sup>into field</sup> road, Grave Or House bear North	
65.13	c Fence N & S. Enter about the middle of a square cultivated field.	
76.73	Leave field N & S.	
80.26	To See Corner, and enter Oak & Pine Openings.	

This mile runs through the improvements of Mc Hartlep & Swogood at the Grave Or House, and is gently sloping to the S. E 1/2 2° rate & W 1/2 1° rate Soil. Pine Pine & Oak Openings

## **Appendix C. OCTA's Cardinal Rules of Applegate Trail Verification: JA-17B Grave Creek Road**

Yes - Coherence Rule Linear Uniformity/Systematic Connection. There must be a linear uniformity so that trail segments form a continuous sequence; i.e., the trail segment under investigation has to link coherently with the trail segments that precede and follow it. The 1856 General Land Office (GLO) surveyed point JA-17B has reliable linear uniformity.

- 1846 & 1847 diaries and reminiscences locating Applegate Trail on north and south sides of Grave Creek.
- Linear orientation of surveyed GLO point of interests (POIs).
- Linear 1856 GLO road orientation for previous and following GLO POIs (i.e., JA-17D & JA-17C).
- 1895 Office Map of Josephine County

Yes - Corroborative Rule Confirming Evidence. To support with evidence or authority. There must be confirming documentary evidence of the trail; i.e., the trail segment under investigation has to have valid written or cartographic evidence to support its authenticity. JA-1B has reliable GLO survey notes.

- 1846 & 1847 diaries and reminiscences locating Applegate Trail on north and south sides of Grave Creek.
- 1855 GLO survey notes and 1856 GLO map locating JA-17B (Surveyors Wells Lake and George Hyde, Appendix BA).
- 1857 Donation Land Claim (DLC) survey notes for Twogood DLC locating Applegate Trail north of Grave Creek (JA-17C).

Yes - Collateral Rule Physical/Topo Evidence. There must be accompanying physical and/or topographical evidence of a trail; i.e., the trail segment under investigation has to have some geomorphic or artifact evidence to support it as an authentic emigrant trail. JA-16 does not have reliable traces or artifact evidence. Does it have reliable physical and/or topographical evidence?

*Topographical Evidence:* "A description or an analysis of a structured entity, showing the relations among its components." "The surface features of a place or region." *Geomorphic Evidence:* "Of or resembling the earth or its shape or surface configuration."

- There are no traces at, or north/south of the Trail course at JA-17B (i.e., it is in a developed pasture).
- The Applegate Trail site JA-17B is located on a easily discernable north/south low ridge (i.e., topographical evidence) along the same alignment as the 1855 GLO survey Trail course (i.e., the topography along both sides of the north-south ridge is lower than at JA-17B and the location of the wagon road on the 1856 GLO map).

Yes - Correlation Rule Overall Agreement/Correlate. There must be overall agreement between all types of evidence; i.e., the evidence resulting from the first three cardinal rules have to be mutually supporting (not contradicting one another) in order to verify the location of a trail segment. The lack of a reliable trace or physical artifacts for the collateral rule does not contradict the Coherence Rule or Corroborative Rule.

**Conclusion** OCTA Trail Classification is Class ③ Verified Trail

## Appendix D. Latitude & Longitude “Seconds” Into “Feet”

**Previous Reading From Merlin Quad For Seconds to Feet** Previously calculations for the distance in feet of one second of latitude and longitude at 123° 30' West Longitude and 42° 37' 30" North Latitude were calculated (U.S. Geological Survey, U.S. Department of the Interior, 1998. *Merlin Quadrangle, Oregon-Josephine Co., 7.5-Minute Series (Topographic)*. Scale 1:24,000, and contour interval 40 feet. Denver, CO).

2.5' (minutes) of latitude at 123° 30' West Longitude = 15,150' (feet)

2.5' (minutes) of latitude = 150" (seconds). 15,150' (feet) ÷ 150" (seconds) = 101

2.5' (minutes) of longitude at 42° 37' 30" North Latitude = 11, 200' (feet)

2.5' (minutes) of longitude = 150" (seconds). 11,200' (feet) ÷ 150" (seconds) = 75

One Second of Latitude = 101' (feet)

One Second of Longitude = 75' (feet)

### Table of Lat/Long Equivalents for 30" , 40" , & 50"

([http://www.zodiacal.com/tools/lat\\_table.php](http://www.zodiacal.com/tools/lat_table.php))

#### At Latitude 30 Degrees (North or South)

One second of latitude = 30.79 m or 101.02 ft

One second of longitude = 26.80 m or 87.93 ft

#### At Latitude 40 Degrees (North or South)

One second of latitude = 30.84 m or 101.19 ft

One second of longitude = 23.72 m or 77.82 ft

#### At Latitude 50 Degrees (North or South)

One second of latitude = 30.90 m or 101.37 ft

One second of longitude = 19.92 m or 65.34 ft