

PETITION TO ESTABLISH

'Alisos Canyon American Viticultural Area'

Research/Writing: September 2015-February, 2017

Drafted by Wesley D. Hagen, Viticulturist, Winemaker, AVA Petitioner, WSET 2

Voice: (805) 450-2324 Email: whagen@jwilkes.com

Petition:

Overview/Abstract:

This document constitutes a petition from viticulturists, winegrowers, AVA consultants, academics and winemakers working in the Alisos Canyon subarea of the Los Alamos Valley, Santa Barbara County, California. The proposed boundaries would define a wholly new AVA in Santa Barbara County, nestled in a small, defined climate and geology between the larger existing AVA's: Santa Ynez Valley and Santa Maria Valley. Under the direction of Noah and Tamara Rowles (owners/proprietors, Thompson Vineyard), Larry Finkle (winegrower at Martian Ranch & Vineyard, co-founder of Coastal Vineyard Care & Associates), Michelle Ball (project manager and co-owner of Bottle Branding), as well as the combined effort and support of the local vineyard and agricultural community living in the Alisos Canyon area, this petition proposes to establish a new American Viticultural Area (AVA) located entirely within an area currently describable on a wine label only as 'California', 'Central Coast' or 'Santa Barbara County'. It is the strong belief of the petitioners that this small, defined viticultural area is distinct from existing AVA's and deserves definitive boundaries to guide wine consumers and experts to wines made distinct by their specific viticultural propinquity.

In the past 36 years (1981-2017) the County of Santa Barbara has been carefully and methodically partitioned into AVAs to guide wine consumers in their understanding of the distinct and diverse wine styles produced in Santa Barbara County Wine. Instead of simultaneously carving up the entire Santa Barbara County into multiple AVAs, the winegrowing community has spaced the AVA petitions several years apart to allow new weather, soil and viticultural data to drive the development of the AVA's that have been petitioned. Santa Maria Valley in 1981, Santa Ynez Valley in 1983, Santa (Sta.) Rita Hills in 2001, Happy Canyon of Santa Barbara in 2009, Ballard Canyon in 2013, and Los Olivos District in 2016 now make up the primary and sub-AVAs that are contained within Santa Barbara County.¹

After nearly 50 years of modern winegrowing business in Santa Barbara County¹, stretching back to 1968 when the first post-prohibition grapes were harvested by Uriel Nielson and Bill DeMattei²,

¹ Santa Barbara County Vintners, 2016

² Aged in Oak, the Story of Santa Barbara County Wine Industry, University of CA, Santa Barbara, 1998: p.21

the county has been well-defined by the sub-regions approved by the ATF and TTB. Looking at the master AVA maps of Santa Barbara County it is clear that Santa Maria, Santa Ynez Valley, Sta. Rita Hills, Happy Canyon of Santa Barbara, Ballard Canyon and the Los Olivos District AVAs direct and inform winemakers and wine drinkers stylistically and have proven themselves individually by showing vintage and place in specific varietal wines.

For example the Sta. Rita Hills has become famous for Pinot Noir and Chardonnay, Ballard Canyon AVA for Syrah, Happy Canyon of Santa Barbara is developing a national reputation for Sauvignon Blanc. But as we continue our careful study of Santa Barbara County wine maps, it is clear **there is a wide gap in the map of AVAs between the Santa Maria Valley in the north and the Santa Ynez Valley to the south and east.** This area that has been producing high quality wine grapes for decades is known as the Los Alamos Valley. Attempts to define the entire Los Alamos valley as an AVA have stalled out and it is clear that while the Santa Ynez Valley AVA was first used to describe a wide and sprawling, diverse area and then subsequently defined with sub-AVA's, the Los Alamos Valley will be better served by describing specific climates and soils of the specific areas where viticultural, climatic and geologic specificity can be distinguished, defined and proven.

Matt Kramer, Senior Contributor at the Wine Spectator made this statement in his book, 'New California Wine': "[The] Los Alamos Valley has as much right to wine legitimacy as Santa Maria Valley and Santa Rita Hills, which it resembles in its comparable coolness."³ 'Comparable coolness' and 'resembles' are vague and undefined descriptors, and the petitioners of the proposed Alisos Canyon AVA seek to help define one of the more remarkable areas of the Los Alamos Valley by showing uniqueness of climate, geology, soils and physical features.

.....

³ Kramer, Matt: "New California Wine", 2004

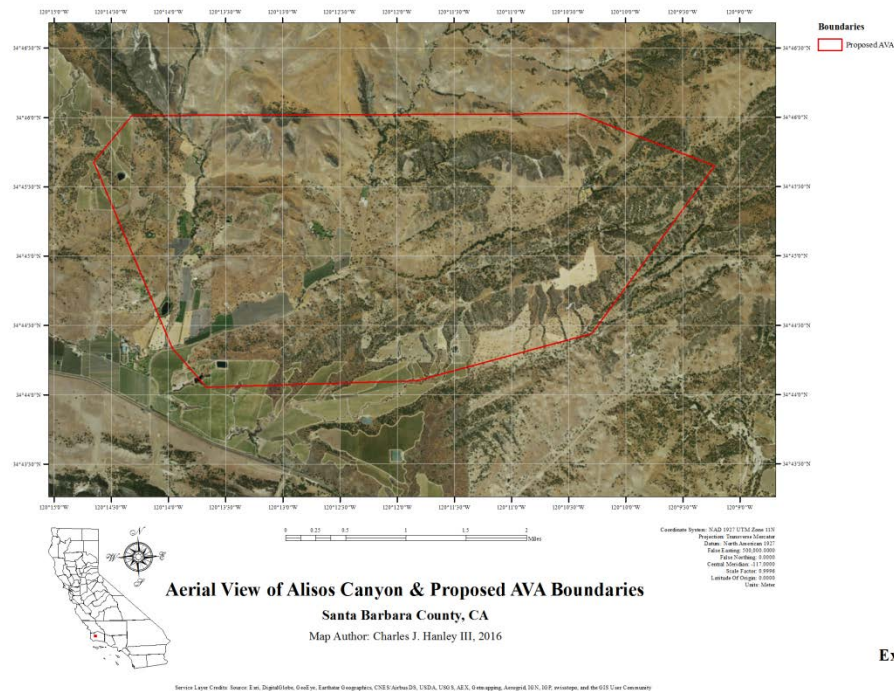


Exhibit:
A

The total acreage contained within the boundaries of the proposed Alisos Canyon American Viticultural Area is 5774.293 acres as detailed on a map in the exhibits section.⁴ Within these 5774 acres are 9 producing vineyards (eligible for Alisos Canyon AVA designation) that contain 238 acres of varietal winegrapes and a single bonded winery, Martian Vineyard and Winery.⁵

The following resources, data and verified narratives will establish and define Alisos Canyon as a distinct American Viticultural Area, and will be demonstrated to be accurate scientifically, and with professional commentary in the Exhibits and Evidence sections to follow:

- Alisos Canyon is a recognized and defined geographical area, appearing on official Federal, State and Local documents, minutes, maps and notes.⁶
- The history of Alisos Canyon will be demonstrative that the area is a defined, locally and nationally known geographical appellation.
- The boundaries as set within the petition and the attached maps represent the area locally and nationally known as ‘Alisos Canyon’, California.⁷
- The proposed Alisos Canyon AVA exhibits a unique geology, soil structure and climate pattern influenced by the San Antonio Creek Valley which runs directly from the mouth of Alisos and Comasa Canyons to the Pacific Ocean 20 miles to the west. The ingress of cooling marine winds and fog along the San Antonio Creek Valley helps define the Alisos Canyon AVA.

⁴ Exhibit 1: Map of acreage, vineyards and wineries within Proposed Alisos Canyon AVA.

⁵ Exhibit 1: Map of acreage, vineyards and wineries within Proposed Alisos Canyon AVA.

⁶ Exhibit 3: USGS/USDA Quadrangle (Boundary) Map, 7.5 Minute Series, ‘Zaca Creek Quadrangle’ 2012

⁷ Exhibit 1: Map of acreage, vineyards and wineries within Proposed Alisos Canyon AVA.

- A unique climate, geology/topography exists within Alisos Canyon by virtue of wind intensity and unique marine influence ingress, maximum and minimum temperatures during the growing season, and degree day accumulation. Drainage patterns, consistent soil typing and geologic parent materials as well as a consistent watershed proximity combine to make Alisos Canyon a distinct appellation for the production of ultra-premium winegrapes.

Evidence That the Name of the Proposed Area is Locally or Nationally Known:

Alisos Canyon is a distinct and recognized geographical appellation that is clearly designated on local, County, State and Federal documents and maps including the County of Santa Barbara⁸, the State of California⁹, the United States Department of the Interior, the United States Geological Survey, the United States Department of Agriculture (Forest Service Division).

- Alisos Canyon is designated as a distinct geographical area or road name (Alisos Canyon Road) on three separate USGS/USDA Quadrangle Maps, Department of the Interior Quadrangle Map,: Foxen Canyon Quadrangle, 1995; 'Zaca Creek Quadrangle' 2012¹⁰
- Alisos Canyon are designated in multiple County of Santa Barbara documents, local road names and services:
- Alisos Canyon and Alisos Canyon Road are mentioned specifically in documents published by the State of California: Department of Food and Agriculture, Department of Pesticide Regulation and many others.
- Alisos Canyon has already established itself as a noted subregion for wine production within the larger context of America, California, Central Coast, and Santa Barbara County. The designation 'Alisos Canyon' is applied to the wines grown in this distinct geography in nationally and internationally published wine periodicals, including the Wine Spectator, Wine Enthusiast, Vinous, K&L Wine Merchants, and Robert Parker's Wine Advocate.¹¹

Historic or Current Evidence that the Boundaries of the Proposed Viticultural Area Are as Specified in the Petition:

The proposed boundaries of the Alisos Canyon American Viticultural Area were prepared by a professional team of veteran winegrowers and local viticultural and geological experts to comply with the following required criteria for forming a new American Viticultural Area:

⁸ Exhibit 2: Santa Barbara County and local media documents mentioning or describing Alisos Canyon as a distinct geographic appellation and quality winegrowing appellation.

⁹ Exhibit 2: State of CA and US Federal documents mentioning or describing Alisos Canyon as a distinct geographic appellation.

¹⁰ Exhibit 3: USGS/USDA Quadrangle Maps, 7.5 Minute Series, 'Zaca Creek Quadrangle' 2012, USGS/USDA Quadrangle Map, 7.5 Minute Series, 'Foxen Canyon Quadrangle' 2012, AVA Boundary Maps.

¹¹ Exhibit 4: Excerpt documentation from wine periodicals with mentions of Alisos Canyon as an established subregion for the production of wines within the larger Santa Barbara County area.

- The geographic appellation ‘Alisos Canyon’ appears no fewer than three times on the 7.5 minute series USGS Quadrangle maps used to define the AVA boundaries. (Exhibits 3-5)
- The entire designated geography within the proposed Alisos Canyon AVA is defined by locals as being within the area known historically and locally as ‘Alisos Canyon’.¹²
- Care was taken to define the Alisos Canyon AVA using geologic soil typing shown on Thomas Dibblee, Jr’s Geologic Quadrangle Maps of Santa Barbara County.

History and Tradition:

The proposed boundaries of the Alisos Canyon American Viticultural Area are wholly contained within the historic region known as ‘Rancho La Laguna’.

“In August 1824 Mexico passed a law stating citizens of Mexico, and foreigners who became Mexican citizens and who were Catholic, could obtain a maximum grant of eleven leagues of land. Eleven leagues were approximately 48,000 acres, or seventy one and one half square miles. (Definition of a "league" varies in time and place, but at this time and place one league equals 2.63 miles.)

This marked the serious beginnings of the big land grant Ranchos. About 800 were granted--sometimes huge tracts of land. These became the primary wealth of California, replacing the Missions. Agriculture of various types provided a little revenue, but the truly big item was cattle hides.”¹³

In May, 1845 the following missive was sent to Mexican California Governor Pio Pico:

"To His Excellency the Governor (Pio Pico)

*"Octaviano Gutierrez retired Sergeant of the National Corps of Artillery, a Mexican by birth, before the justification of Your Excellency, representation makes in due form, that having served thirty one years in the military service, he last year obtained his provisional discharge & finding himself with a numerous family to maintain, he has no other recourse than to solicit a land in which to place a small number of cattle, which he has acquired, and he petitions that there may be given him the place of **La Laguna**, distant five leagues from Santa Ynez, to the North, praying Your Excellency to give him three square leagues, to settle in said place, for he thinks that only in this manner can he maintain ten children, almost all minors, for he has only one son grown up, all the rest of the family being daughters, and the person representing is in bad health, but my distinguished Chief and Señor, nevertheless if my services can be of any use to Your Excellency, I will furnish them with pleasure, whenever your Excellency may direct.*

"Wherefore he earnestly prays and beseeches Your Excellency, that in view of the foregoing he may obtain, from Your Excellency's kind heart, the grant of the favor he request, for which he

¹² Exhibit 5: Local references, Los Olivos Café Blog

¹³ History of Rancho La Laguna, author/historian Paul Nefstead

<http://www.sedgwick.org/na/families/robert1613/B/4/7/4/2/3/RanchoLaLagunaHistory.html>

will live grateful. Excusing at the same time, that this does not go on stamped paper, there being none in this place.

San Francisco de la Laguna, May 24, 1845¹⁴

On November 13, 1845, Gutierrez was granted his land, and the La Laguna Land Grant was issued and defined by a poorly drawn map that showed limited knowledge of the area.¹⁵ After subsequent letters, maps and definition, the La Laguna Land Grant was finally formalized.

“It developed that the [La Laguna Land Grant], as described in words and hand drawn map, were 11 Square Leagues (48,703.99 acres) as surveyed and approved by the US Lands Commission after the Mexican-American War.’¹⁶

Within 20 years of the establishment of the la Laguna Land Grant, California became a State in the US (September 9, 1850), and the area suffered alternating torrential rains and then droughts. Cattle prices were in flux and ranching became difficult enough that many of the Ranchos in the area were being broken up and sold as the original Californios (elite individuals, many of whom were the recipients of these land grants) began dying off.¹⁷ In 1865 Rancho La Laguna followed suit and was broken up after a horrific year of drought, which decimated cattle herds and warranted the sale of land within the Grant to ‘Yankee’ Californians for as little as \$.07 an acre.¹⁸

After great failures in cattle ranching in Northern Santa Barbara County in the mid-19th Century, great success was achieved in the Los Alamos area in sheep husbandry, wool and lamb/mutton in the 1880’s. The terminus of the Pacific Coast Railroad was located in Los Alamos, which made it a hub of commerce connecting all of California (and the United States) to three equidistant shipping ports: Chute Landing, Point Sal, and Lompoc Wharf.¹⁹

The area specifically known as ‘Alisos Canyon’ became a farming and ranching area adjacent to the town of Los Alamos, which was founded in 1880, and by the first half of the 20th Century Alisos Canyon became an important area for petroleum exploration and extraction by the Standard Oil Company²⁰, oil leases and rights granted by the Wickenden Company²¹, and at the

¹⁴ History of Rancho La Laguna, author/historian Paul Nefstead
<http://www.sedgwick.org/na/families/robert1613/B/4/7/4/2/3/RanchoLaLagunaHistory.html>

¹⁵ History of Rancho La Laguna, author/historian Paul Nefstead
<http://www.sedgwick.org/na/families/robert1613/B/4/7/4/2/3/RanchoLaLagunaHistory.html>

¹⁶ History of Rancho La Laguna, author/historian Paul Nefstead
<http://www.sedgwick.org/na/families/robert1613/B/4/7/4/2/3/RanchoLaLagunaHistory.html>

¹⁷ History of Rancho La Laguna, author/historian Paul Nefstead
<http://www.sedgwick.org/na/families/robert1613/B/4/7/4/2/3/RanchoLaLagunaHistory.html>

¹⁸ History of Rancho La Laguna, author/historian Paul Nefstead
<http://www.sedgwick.org/na/families/robert1613/B/4/7/4/2/3/RanchoLaLagunaHistory.html>

¹⁹ O’Neill, Owen: History of Santa Barbara County, 1939: Pg. 396.

²⁰ <http://www.raremaps.com/gallery/enlarge/26546> Map: Santa Maria Oil Fields, CA State Mining Bureau, Dept. of Petroleum and Gas, July 1919

²¹ <http://www.raremaps.com/gallery/enlarge/26546> Map: Santa Maria Oil Fields, CA State Mining Bureau, Dept. of Petroleum and Gas, July 1919

entrance into Alisos Canyon (from Hwy 101) were the partitioned petroleum leases of the Pacific Oil Fields Limited (Underhill Ranch)²²

The area defined by the boundaries set forth in this Petition to Establish Alisos Canyon AVA is defined on 7.5 minute series USGS topo maps as “Canada de los Alisos”, strong linguistic evidence that the ‘Alisos Canyon’ subarea of Los Alamos, CA, Santa Barbara County, California has been a distinct geographical appellation since the days of the Spanish/Mexican Land Grants.²³ Translated literally from Spanish, Canada de los Alisos’ means ‘Canyon of the White Alder Trees’ (latin: *Alnus rhombifolia*), and more simply (and used by current residents and locals) Alisos Canyon.

Basis for Boundary definition:

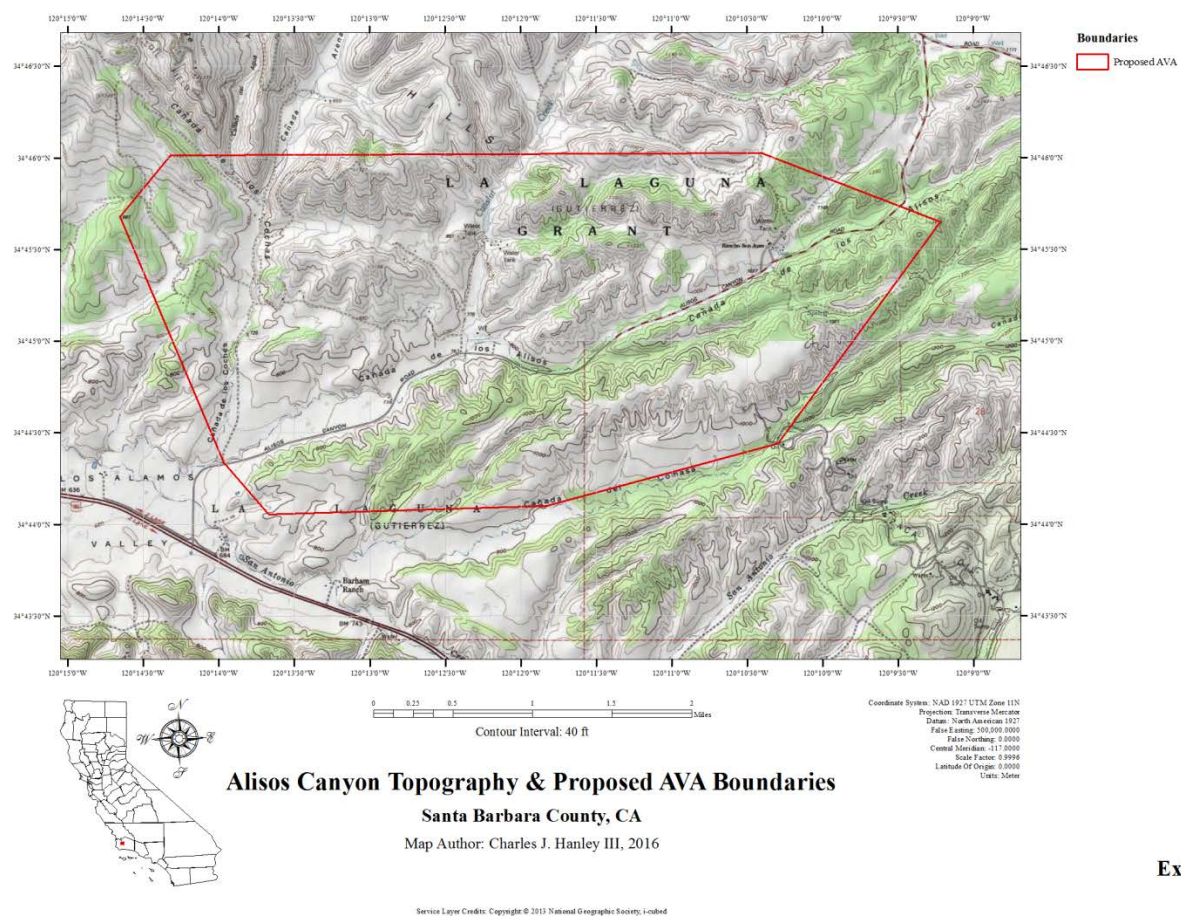


Exhibit:
B

²² <http://www.raremaps.com/gallery/enlarge/26546> Map: Santa Maria Oil Fields, CA State Mining Bureau, Dept. of Petroleum and Gas, July 1919

²³ Exhibit 3: 7.5 minute Topographical Maps, USGS, Foxen Canyon Quadrangle and Zaca Creek Quadrangle, CA: 1995.

The following criteria and characteristics were used in determining the Proposed Boundaries for the Alisos Canyon AVA, as evidenced in Exhibit 3, 7.5 minute USGS Topo Maps²⁴, as well as the detailed narrative describing the boundaries based on USGS map markings within this petition.

- Geographically, the areas to be included in the Alisos Canyon AVA can be broadly described by being: (1) accessible from Alisos Canyon road, (2) are north of Highway 101, (3) south of Foxen Canyon Road, (4) are completely contained within the historic 'La Laguna Land Grant' boundary as well as being (5) completely defined on two 7.5 minute series USGS topo maps: Zaca Creek Quadrangle and Foxen Canyon Quadrangle.²⁵
- The eastern boundary is defined by proximity to (and associated with the terminus of) Alisos Canyon Road and excludes the geographic/viticultural area associated with Foxen Canyon and Foxen Canyon Road (which connects with Alisos Canyon Road outside the proposed northeastern boundary.)²⁶
- The western boundary is defined by appropriating the areas north of Alisos Canyon Road to include the same elevation, soil types (minimizing inclusion of the Sisquoc Formation, Tsqd), geology and climatic influence of the San Antonio Creek Valley²⁷ while excluding the area known locally and nationally as Cat Canyon.²⁸
- Geologically, the areas to be included in the proposed Alisos Canyon AVA are broadly defined as being south of the Zaca Syncline and Foxen Canyon Fault, and north of the Zaca Anticline.²⁹
- Viticulturally viable land that has proven through history and proximity to produce world-class varietal wines that represent an 'Alisos Canyon' typicity has been included within the proposed boundaries.
- Inclusive of areas defined by USGS and local nomenclature as Comasa and Alisos Canyons. Both Comasa and Alisos Canyons are influenced by the proximity to the San Antonio Creek Valley³⁰ and share soil structures, weather patterns, fog and marine air ingress and both areas have historically produced wines known locally and nationally as 'Alisos Canyon'. Vineyards in Comasa Canyon, such as Martian Vineyards and Winery, have an Alisos Canyon Road address, are locally and nationally known to be associated with the Alisos Canyon Viticultural firmament, and have thus been included within the proposed boundary.
- Alisos Canyon AVA is defined by soils of two geologic parent materials: sandstone or shale. In the southern areas of the proposed AVA, nearer Highway 101, Paso Robles

²⁴ Exhibit 3: 7.5 minute Topographical Maps, USGS, Foxen Canyon Quadrangle and Zaca Creek Quadrangle, CA: 1995, AVA Boundary Maps

²⁵ Exhibit 6, Map 'C': Dibblee, Thomas Jr. Geologic Map(s) of the Zaca Creek and Foxen Canyon Quadrangles (#DF-44, #DF-45). Santa Barbara: 1993, Dibblee Geological Foundation, Proposed AVA Boundaries added.

²⁶ 7.5 minute Topographical Maps, USGS, Foxen Canyon Quadrangle and Zaca Creek Quadrangle, CA: 1995

²⁷ Exhibit 7: Map: North SB County Major Ocean watersheds and cooling climatic influence.

²⁸ Exhibit 6, Map 'C': Dibblee, Thomas Jr. Geologic Map(s) of the Zaca Creek and Foxen Canyon Quadrangles (#DF-44, #DF-45). Santa Barbara: 1993, Dibblee Geological Foundation

²⁹ Exhibit 6: Dibblee, Thomas Jr. Geologic Map(s) of the Zaca Creek and Foxen Canyon Quadrangles (#DF-44, #DF-45). Santa Barbara: 1993, Dibblee Geological Foundation

³⁰ Muir, K.S. Geology and Ground Water of San Antonio Creek Valley, Santa Barbara County, California. USGS: 1964.

Formation (QTp) soils dominate (900-1300 feet in elevation) with surficial and older dissected surficial sediments (Qa/Qoa) following creek basins and the lowest elevations (700-900 feet in elevation). Within the central and northern portions of the proposed AVA, Careaga Sandstone (Tcag and Tcac) and specific diatomaceous-based silty claystone (Sisquoc Formation Tsqd) dominate the soil/geologic landscape between 1000-1400 feet in elevation.³¹

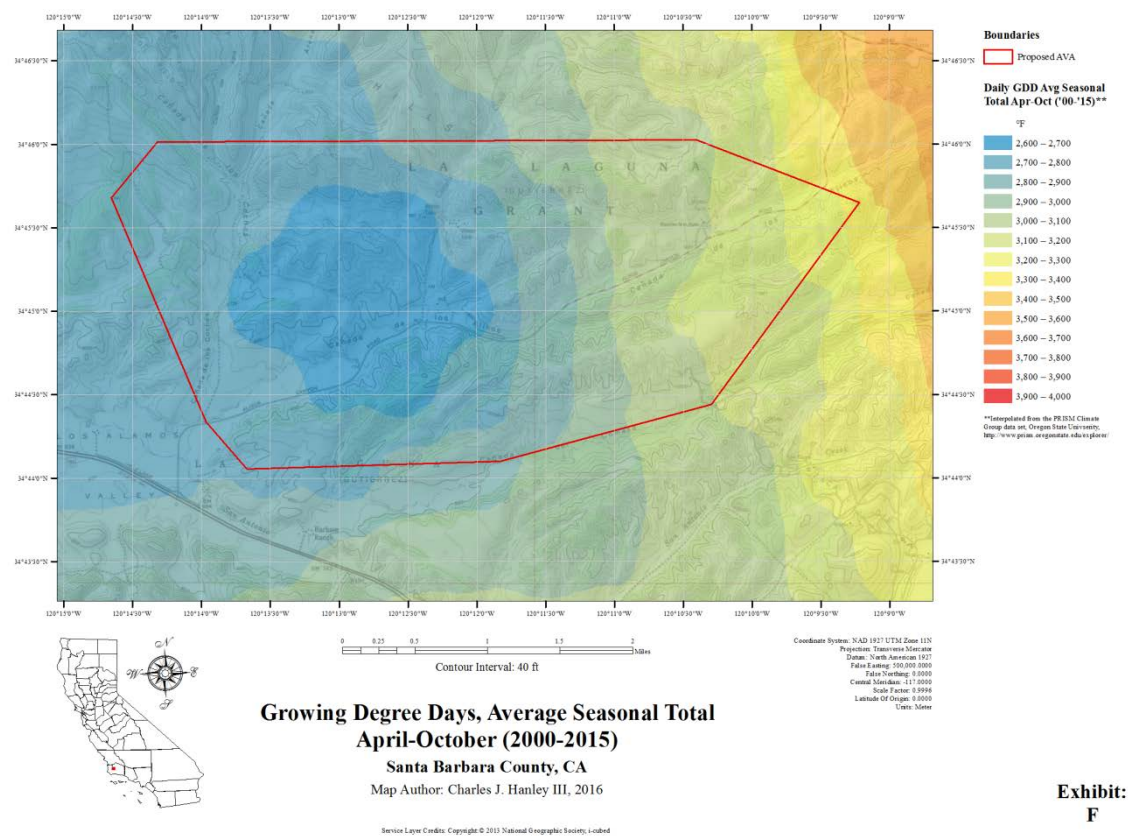
- Climate data will confirm a distinct climate within the boundaries of the proposed Alisos Canyon AVA.³² Data from the Santa Maria Valley AVA to the north, the Sta Rita Hills AVA to the south, Santa Ynez Valley AVA to the east, and to the west the cooler, coastal areas following the San Antonio Creek Valley toward the Pacific Ocean will show clearly and distinctly that the proposed AVA has a consistent climate pattern and history.³³

Narrative defining Climate as it Relates to Viticulture in the Proposed Alisos Canyon AVA:

³¹ Exhibit 6: Dibblee, Thomas Jr. Geologic Map(s) of the Zaca Creek and Foxen Canyon Quadrangles (#DF-44, #DF-45). Santa Barbara: 1993, Dibblee Geological Foundation

³² Exhibit 8, PRISM Climate Data of the Alisos Canyon AVA and surrounding locales.

³³ Exhibit 8, PRISM Climate Data of the Alisos Canyon AVA and surrounding locales.



**Exhibit:
F**

As evidenced in the PRISM climate data included in the exhibits and Introductory sections of this Petition³⁴, the proposed boundaries of the Alisos Canyon American Viticultural Area show a distinct climate zone both by temperature records from 2000-2015, cool air ingress from the San Antonio Creek valley via the Pacific Ocean³⁵, and an important buffer zone that changes rainfall patterns.³⁶

PRISM climate data³⁷ (covering 34 years of records) shows clearly a cooling meso-climate strongly focused in the western and central portions of the proposed Alisos Canyon AVA. As we would expect, the areas to the east, nearing the eastern border of the proposed AVA, warms noticeably as the canyon nears its eastern terminus and heat builds due to a lack of warm air drainage or further marine influence.

The AVA Petition section to follow, entitled ‘Narrative defining Geology as it Relates to Viticulture in the Proposed Alisos Canyon AVA’ will go into great detail concerning the influence of the San Antonio Creek Valley. From a climatic perspective it is important to note the cooling influence of this Creek Valley as it pulls cool, marine air east through its length, west

³⁴ Exhibit 9: Alisos Canyon AVA Petition, Climate Data, Visual Map of PRISM data Average GDD

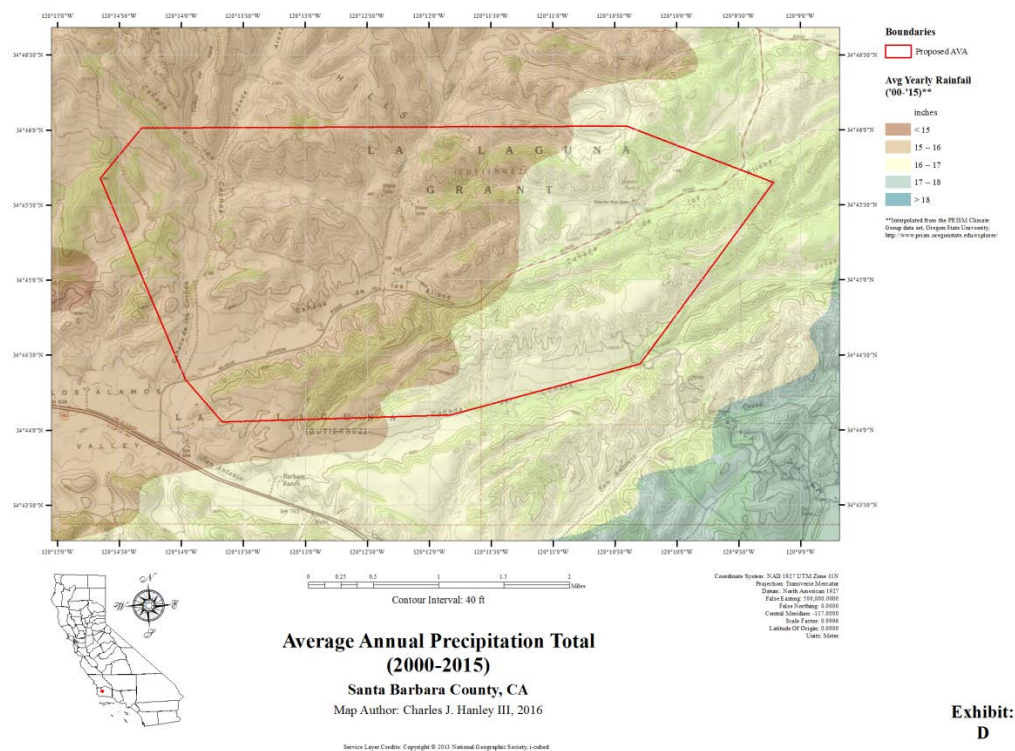
³⁵ Exhibit 7: Map: North SB County Major Ocean watersheds

³⁶ Exhibit 10: Map: Rainfall patterns, Alisos Canyon Subarea and Surrounding Areas

³⁷ Exhibit 9: Alisos Canyon AVA Petition, Climate Data, Visual Map of PRISM data Average GDD

into the boundary of the proposed Alisos Canyon AVA as is represented on the ‘Pacific Ocean Watershed’ map we have included in the exhibits.³⁸

Rainfall patterns within and without the proposed boundaries of the Alisos Canyon AVA also show climatic uniqueness, as can be seen in Exhibit 10, Rainfall Patterns of Alisos Canyon and Surrounding Areas.³⁹ As can be noted in the map below, average yearly rainfall within the proposed boundary of the Alisos Canyon AVA is consistently in the range of 15”-17” and shows a similar increase as high temperatures, influenced by the rise in elevation along the eastern boundary, which captures both heat and slightly higher rainfall totals.



Distinguishing (viticultural) climatic features of areas adjacent to AVA: North of proposed boundary: The winegrowing area known as the Santa Maria Valley American Viticultural Area lies to the northwest of the proposed Alisos Canyon AVA boundary. The Santa Maria Valley AVA enjoys unfettered marine influence, higher incidences of fog and marine winds, and an average degree day accumulation firmly within the Winkler Climate Scale as a Region 1 winegrowing areaⁱⁱ. Within the proposed boundaries of the Alisos Canyon AVA, climate is warmer and commonly is measured as being in the Winkler Climate Scale as a Region 2 winegrowing locale⁴⁰. The oceanic influence from the Pacific Ocean is far more profound to the

³⁸ Exhibit 7: Map: North SB County Major Ocean watersheds,

³⁹ Exhibit 10: Map: Rainfall patterns, Alisos Canyon Subarea and Surrounding Areas

⁴⁰ Exhibit 9: Alisos Canyon AVA Petition, Climate Data, Visual Map of PRISM data Average GDD

north, and keeps growing-season temperatures cooler and foggier (about 10% cooler by Growing Degree Days)⁴¹ than in the proposed Alisos Canyon AVA.

[Addendum, 11.27.2017] Directly north of the proposed boundary of the Alisos Canyon AVA lies Sisquoc and the ‘census-designated place’ of Garey, CA. Attached PRISM data map (growing degree days showed on a map grid labeled SBC Degree Day Data 1981-2015) shows that even though the AVA petition is accurate describing the area to the northwest (Santa Maria Valley AVA) being clearly cooler (Winkler Zone 1 in SMV AVA as opposed to Winkler Zone 2 in the proposed Alisos Canyon AVA), the climate just to the north of the proposed north Alisos Canyon AVA boundary does warm immediately, shown on the attached PRISM map. The two PRISM stations within the ACA AVA boundary show 2617 and 2691 GDD respectively, giving us 2654 GDD on average to qualify the area clearly as Winkler Zone 2, and the PRISM map nodes just north of the proposed northern boundary of Alisos Canyon AVA are 2750 and 2831 Growing Degree Days respectively, west to east, over the Alisos Canyon figures of 2617 and 2691, and increase in average temperatures as expressed by a rise in GDD by 5%. So even though it is clear that as we approach Santa Maria AVA proper, temperatures do cool historically and consistently, it is clear that the loss of the Pacific marine influence making ingress through the San Antonio Creek Basin into Alisos Canyon, but not to the north of the boundaries, as well as ridges and hills trapping heat and excluding cooling Pacific winds, cause the climate to the direct north of the proposed boundary to warm measurably.

Distinguishing (viticultural) climatic features of areas adjacent to AVA: South of proposed boundary: Moving south from the proposed boundary of the Alisos Canyon AVA are the Purisima Hills, the Buellton Flats and the Ballard Canyon AVA. Ballard Canyon is firmly within the Winkler Climate Zone 2. The cessation of the east-west valleys in Buellton and the warmer temperatures measured in Ballard Canyon clearly indicate that the areas to the south of the proposed boundary of Alisos Canyon AVA are warmer, and often dedicated to grapes such as Cabernet Sauvignon, Merlot, Nebbiolo, etc. (Jonata Vineyards and Stolpman Vineyards of Ballard Canyon and Mosby Vineyards in Buellton (Dolcetto, Sangiovese), while varietals in Alisos Canyon AVA and Los Alamos are primarily dedicated to Rhone (Alisos) and Burgundian varietals (Los Alamos) more suited for cooler temperatures.

Distinguishing (viticultural) climatic features of areas adjacent to AVA: East of proposed boundary: Northeastern Santa Ynez Valley AVA, Los Olivos District AVA and the Happy Canyon of Santa Barbara AVA lie to the east of the proposed boundary of Alisos Canyon AVA. As we travel east, out of the Alisos Canyon proposed boundaries, growing season temperatures increase significantly from Winkler Region 1/2 within the proposed boundaries of Alisos Canyon, to Region 2-3 within Santa Ynez Valley, and then firmly within Winkler Scale Region 4⁴² within Happy Canyon of Santa Barbara AVA, the warmest exposures/climate of all Santa Barbara County AVAs. Simply put, moving east during the growing season from the proposed boundary of the Alisos Canyon AVA, temperatures commonly increase from a warm Region 1 (Los Alamos, closer to Santa Maria), Region 2 (within most of the proposed Alisos Canyon AVA), Region 3 (most of Los Olivos District and Santa Ynez Valley AVA) to Region 4 (Happy Canyon

⁴¹ Exhibit 8, PRISM Climate Data of the Alisos Canyon AVA and surrounding locales.

⁴² http://www.everyvine.com/wine-regions/region/Happy_Canyon/

of Santa Barbara AVA).⁴³ Precipitation totals also increase historically moving east through the proposed AVA as well as an increase to the east outside the boundary (towards Los Olivos/Santa Ynez proper).⁴⁴

Distinguishing (viticultural) climatic features of areas adjacent to AVA: West of proposed boundary: To the west of the Los Alamos Valley, where the proposed boundaries of the Alisos Canyon AVA exist, is Vandenberg Air Force Base and also the path of the San Antonio Creek Basin. Climatically, this area extends into close proximity with the Pacific Ocean and shows cooling into a Winkler Region 1 area as we move further west of the boundary. Fog, wind and cooler temperatures are common as we leave the proposed boundary of the Alisos Canyon AVA and move west toward the Pacific Ocean.⁴⁵

Narrative defining Geology as it Relates to Viticulture in the Proposed Alisos Canyon AVA:

Much of the forthcoming discussion of geology, soils and climate will focus on the influence of the San Antonio Creek Valley, of which the Alisos Canyon area is strongly associated with in the ‘upstream part of the creek’⁴⁶ some 23-25 miles inland from the Pacific Ocean.

The following narratives from K.S Muir define the geology of the proposed Alisos Canyon AVA, broadly defining the local geology and speaking specifically to soil-series development.

“The San Antonio Creek valley lies in the west-central part of Santa Barbara County, about 55 miles northwest of Santa Barbara and 15 miles south of Santa Maria. It lies between the Santa Maria Valley (Worts, 1951) and the Santa Ynez Valley (Upson and Thomasson, 1951 and Wilson, 1959).

“**The area, which coincides with the drainage basin of San Antonio Creek, includes the Los Alamos Valley in the upstream part of the creek** and the San Antonio Valley in the downstream part.”⁴⁷ (Emphasis: Petitioner, to highlight specific area defined in petition.)

An excellent narrative defining the early development of the meso-geology of the San Antonio Creek Valley can be found in the 1964 publication ‘Geology and Ground Water of the San Antonio Creek Valley’ by K.S. Muir. **The San Antonio Creek Valley and its associated land formation, geologic history, influence on climate and fog/wind patterns will be fundamental**

⁴³ <http://www.sbcountywines.com/winegrowing-areas.html>

⁴⁴ Exhibit 10: Map: Rainfall patterns, Alisos Canyon Subarea and Surrounding Areas

⁴⁵ Exhibit 9: Alisos Canyon AVA Petition, Climate Data, Visual Map of PRISM data Average GDD

⁴⁶ Muir, K.S. Geology and Ground Water of San Antonio Creek Valley, Santa Barbara County, California. USGS: 1964., pg. 3

⁴⁷ Muir, K.S. Geology and Ground Water of San Antonio Creek Valley, Santa Barbara County, California. USGS: 1964., pg 3.

to the data/proofs of the proposed Alisos Canyon AVA's distinctiveness. The proposed Alisos Canyon AVA boundary is geologically associated with the San Antonio Creek Valley, 20 miles east (inland) from where San Antonio Creek enters the Pacific Ocean.

“In middle and late Miocene time, a deep sea covered the entire valley area. It was at this time that the Los Alamos trough began to warp downward. The area subsided slowly, so that the trough received at least 4,500 feet of sediments, which make up the Monterey shale. In late Miocene time, strata in the area now occupied by the San Rafael Mountains were gently folded and tilted to the northeast. Local uplift, folding, and erosion are shown by an un-formity [sic] between the Monterey shale and the Sisquoc formation. Subsidence resumed and continued through late Miocene time, and the area was covered by open seas during early Pliocene time. About 5,000 feet of diatomaceous mudstone of the Sisquoc formation was deposited along the Los Alamos trough. The Foxen mud-stone was deposited during middle Pliocene time, and subsidence continued along the Los Alamos trough.

“Late Pliocene was a time of widespread deformation, emergence, and erosion, although the Los Alamos trough was not affected. The Purisima Hills and the Burton Mesa-San Antonio Terrace were formed by anticlinal uplift, and the San Rafael and Santa Ynez Mountains were formed. After the orogeny, the land again subsided so that a shallow sea covered the area. **It was in this shallow sea that the Careaga sand was deposited.** Subsidence and deposition in the Los Alamos trough were rapid at this time. Toward the end of the Pliocene, the shallow sea became filled with sediments, and the land emerged. **The Paso Robles formation, laid down at this time, was the first nonmarine deposit in the area and was derived from sediments from the San Rafael and Santa Ynez Mountains.** This deposition was followed by a period of erosion and the deposition of the Orcutt sand, probably in late-early or middle Pleistocene time.

“Beginning probably in the middle Pleistocene, compressional forces uplifted the Purisima, Solomon, and Casmalia Hills to their present heights. The Burton Mesa-San Antonio Terrace was elevated and partly dissected by streams. In late Pleistocene time, the area was subjected to several eustatic changes in sea level, probably caused by the alternate recession and advance of continental ice sheets. The several levels of terrace deposits along the coast are evidence of these changes in sea level. The last major advance of an ice sheet was at the close of the Pleistocene, and it resulted in a lowering of sea level about 200 feet below present sea level. **A valley, at the present position of San Antonio Creek valley, was then eroded by streams. Sea level rose to its present position, and the valley was back-filled with alluvium in Recent time.**”⁴⁸ (Bold portions added by petitioner to highlight those sections critical to the development of Alisos Canyon geology)

⁴⁸ Muir, K.S. Geology and Ground Water of San Antonio Creek Valley, Santa Barbara County, California. USGS: 1964. Pg.20

Muir's passage and how it specifically relates to viticulture within the proposed Alisos Canyon AVA:

- Geologic/historical development of topography and the resulting San Antonio Creek Valley formed soil types suitable for winegrape production,
- A marine-influence moving from the Pacific Ocean eastward along the San Antonio Creek Valley moderates temperatures and influences varietal choice, ripening/hang time for grapes, and produces a distinct environment for winegrape growing.
- Muir's definition distinguishes the geology of the proposed Alisos Canyon AVA compared with adjacent areas by virtue of the unique influence of the San Antonio Creek valley.⁴⁹
- Descriptions of soils born from marine deposits and those that are alluvial will be helpful in subsequent discussions of soil and soil's influence on viticulture. Commentary on how the geology and soils change outside of the boundaries of the proposed Alisos Canyon AVA will be discussed in the next section: Soils.

“Goldilocks Rhone Zone” defined and measured as it related to Geology and Viticulture in Northern Santa Barbara County: The term ‘Goldilocks Zone’ was popularized by scientists and NASA⁵⁰ to describe a planet within the narrow window of an alien solar system that could support life as we know it. We have co-opted the phrase to describe an amazing geologic phenomenon that has shown itself to be true in the last three decades of Santa Barbara winegrowing history.

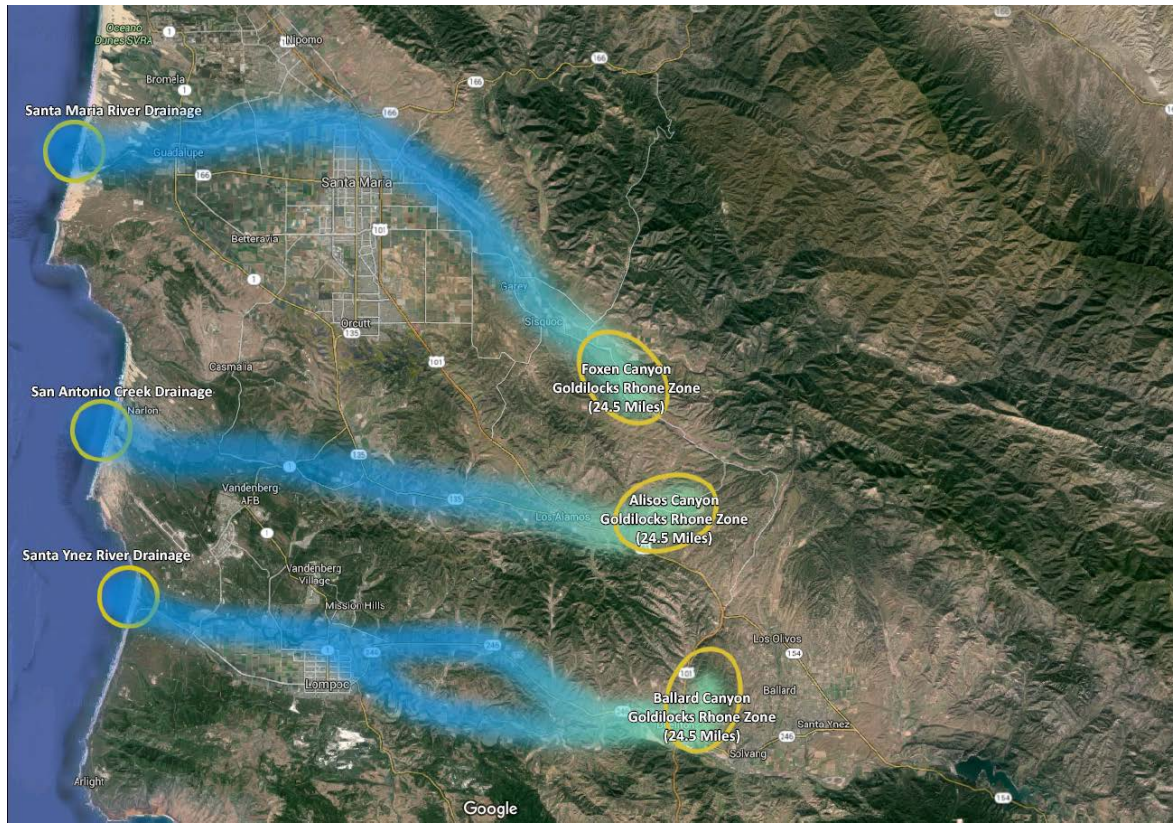
There are three major ocean watersheds in Northern Santa Barbara County which run from the cold Pacific Ocean to the interior coastal ranges to set up a ‘Goldilocks Zone’⁵¹ for Rhone varietal winegrape production. These highest-quality mesoclimates for Syrah, Grenache, Viognier, et al, are all exactly 24.5 miles down their respective River/Creek Valleys/drainage basins: The Santa Maria River Valley basin in the north, the San Antonio Creek Valley drainage basin in the center (extending to the coast on Vandenberg Air Force Base) and in the South by the Santa Ynez River basin. The Santa Maria River Valley basin runs into Foxen Canyon at 24.5 miles from the Pacific, the San Antonio Creek drainage finds itself in the heart of the proposed Alisos Canyon AVA at 24.5 miles, and the Santa Ynez River Valley drainage basin, at 24.5 miles, is squarely within the heart of the Ballard Canyon AVA. These three areas are arguably not only Santa Barbara's highest quality sources for Rhone varietal winegrapes, but arguably California's and the entire West Coast's. Proof comes in an article in the New York Times recommending 10 California Rhone Reds, of which 6 out of 10 are sourced wholly or partially

⁴⁹ Muir, K.S. Geology and Ground Water of San Antonio Creek Valley, Santa Barbara County, California. USGS: 1964. Pg.20

⁵⁰ https://en.wikipedia.org/wiki/Circumstellar_habitable_zone

⁵¹ Exhibit 7: Map: North SB County Major Ocean watersheds

from these three ‘Goldilock Zones’⁵²



Narrative defining Soils as it Relates to Viticulture in the Proposed Alisos Canyon AVA:

⁵² http://www.nytimes.com/2005/11/02/dining/where-the-rhone-bends-to-the-west.html?_r=0

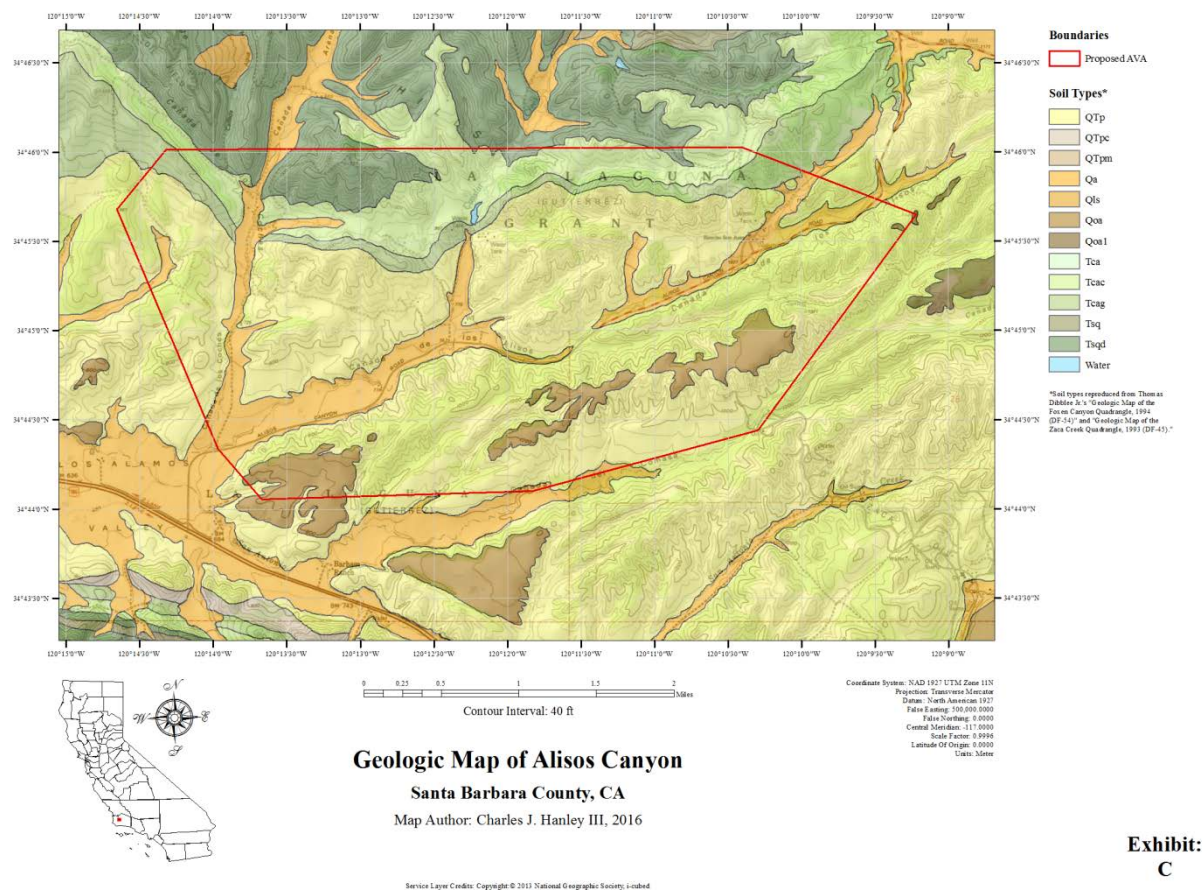


Exhibit:
C

Sum of Acreage by Soil Type, Total	Acreage,	Percentage of
Qa (Surficial Sediments)	702.3414	12.16324
Qoa (Older, dissected Surf. Sed.)	316.6039	5.48299
QTP (Paso Robles Formation)	3679.583	63.72352
Tcac (Carreaga Sandstone, grac.)	571.5201	9.897663
Tcag (Carreaga Sandstone, ceb.)	245.9836	4.259977
Tsqd (Sisquoc formation)	255.465	4.424178
Water acreage	2.796397	0.048428
Grand Total	5774.293	100

Continuing the previous narrative from the ‘Geology’ section of the petition, K.S. Muir’s research continues to merit our focus:

“The dune sand, alluvium, terrace deposits, Orcutt sand, **Paso Robles formation, and Careaga sand** are composed of beds of unconsolidated clay, silt, sand and gravel 3,000 to 4,000 feet thick, which range in age from Pliocene to Recent. **The Paso Robles formation [...] yield most of the water pumped in wells from the area.** [...] Formations older than the terrace deposits have been deformed by folding and faulting. The San Antonio Creek valley is a downwarp formed by two en echelon synclines, and the bordering highlands are areas of uplift, folding and faulting.”⁵³ (Emphasis: Petitioner to highlight soil types associated with Alisos Canyon and also the hydrological advantage of an AVA with a predominant soil that allows for efficient well/pump yield for agricultural/viticultural use.)

Before focusing specifically on the soil types that define the proposed Alisos Canyon AVA, a short narrative describing the ‘South-to-North Structural Cross-Section’ described on Thomas Dibblee Jr’s Geologic Maps⁵⁴ will prove instructive and illustrative.

The structural cross-section of these geologic maps that define the deep soil profiles between Cat Canyon and Foxen Canyon (the specific geology/soils contained within the Proposed Alisos Canyon AVA) shows:

- Alluvium-based topsoils (Careaga Sandstone, Tcac, Tcag and Surficial Sediments) at various levels—prevalent in the Alisos Canyon subarea as lower-elevation Creek/creek basins, canyon basins, etc.
- Sisquoc Formation appearing in higher elevations in the northern part of the Proposed Alisos Canyon AVA, and extending deep into the earth, between 200-1000 feet in depth along the south-north cross-section. The Sisquoc Formation is not currently considered a preferable soil type for viticulture within the Proposed Alisos Canyon AVA, and the prevalence of these soils moving north from the proposed northern boundary was one criteria that prompted the petitioners from excluding this area.
- Monterey Shale (Tm) appears in the cross-section under sea level (below the Sisquoc Formation) to an unspecified depth, at least 3000’ under sea level. As seen in the cross-section at Foxen Canyon Road the Monterey Shale pushes to the surface and becomes a predominant surficial soil type. These areas are excluded purposefully from the Proposed Boundaries of the Alisos Canyon AVA.⁵⁵
- Most importantly to the uniqueness of the Alisos Canyon AVA is the small amount of surficial Paso Robles Formation (QTp) that appears on the South-to-North Structural Cross-Section⁵⁶ of the Foxen Canyon Quadrangle. This soil type is integral to the Proposed AVA, and along with Careaga Sandstone (Tcac, Tcag) define the dominant viticultural soils of Alisos Canyon.

⁵³ Muir, K.S. Geology and Ground Water of San Antonio Creek Valley, Santa Barbara County, California. USGS: 1964., Pg.1

⁵⁴ Exhibit 6: Dibblee, Thomas Jr. Geologic Map(s) of the Zaca Creek and Foxen Canyon Quadrangles (#DF-44, #DF-45). Santa Barbara: 1993, Dibblee Geological Foundation

⁵⁵ Exhibit 6: Dibblee, Thomas Jr. Geologic Map(s) of the Zaca Creek and Foxen Canyon Quadrangles (#DF-44, #DF-45). Santa Barbara: 1993, Dibblee Geological Foundation

⁵⁶ Exhibit 6: Dibblee, Thomas Jr. Geologic Map(s) of the Zaca Creek and Foxen Canyon Quadrangles (#DF-44, #DF-45). Santa Barbara: 1993, Dibblee Geological Foundation

In plotting the boundaries for the Alisos Canyon AVA Petition, the **primary researchers and petitioners attempted to circumscribe an area that was defined by the following two soils that represent >75% of the soils in the Proposed AVA⁵⁷ and the predominant soils used currently for winegrape production:**

Paso Robles Formation (Qtp): > 63% of Proposed Alisos Canyon AVA⁵⁸

Definition: Weakly consolidated valley alluvial sediments deposited by streams that drained from rising San Rafael Mountains; Pleistocene and latest Pliocene age.⁵⁹

Specific to Qtp (specific soil in Alisos Canyon): Light grey conglomerate or gravel composed mostly of white siliceous shale pebbles of Monterey shale in sandy to somewhat clayey matrix, crudely bedded to cross-bedded, marly limestone, hard, light gray, impure, of lacustrine origin; **occurs as two thin lenses north of Canada de los Alisos⁶⁰[Proposed Alisos Canyon AVA].** [Emphasis: Petitioner, to show the specificity of these Paso Robles Formation lenses and how they define the Alisos Canyon subregion.]

Viticultural relationship of Paso Robles Formation:

1. High calcium content from ‘siliceous shale pebbles’, ‘marly limsetone’ that will have the impact of grape-skin thickening: increasing extraction, color and tannins in red varietal winegrapes. *Vitis vinifera* (Eurasian winegrapes) determine skin thickness by exchangeable calcium levels at root depth.
2. The ‘clayey matrix’ provides higher cation exchange capacity (CEC) as positively charged clay soil particles are necessary for the uptake of macro and micronutrients by *vitis vinifera*.
3. Paso Robles Formation “is the best aquifer in the [San Antonio Creek] valley.”⁶¹ Thus, these soils increase viticultural viability *vis a vis* increased water/well availability.

Careaga Sandstone (Tcac, Tcag included in Petition, Tca and Tcat excluded): Tcac, Tcag >13% of proposed Alisos Canyon AVA, and much of the planted vineyard creage

Definition: Shallow marine clastic, transgressive and regressive, weakly indurated, late Pliocene age.⁶²

⁵⁷ Exhibit 6: Dibblee, Thomas Jr. Geologic Map(s) of the Zaca Creek and Foxen Canyon Quadrangles (#DF-44, #DF-45). Santa Barbara: 1993, Dibblee Geological Foundation

⁵⁸ Exhibit 6: Dibblee, Thomas Jr. Geologic Map(s) of the Zaca Creek and Foxen Canyon Quadrangles (#DF-44, #DF-45). Santa Barbara: 1993, Dibblee Geological Foundation

⁵⁹ Exhibit 6: Dibblee, Thomas Jr. Geologic Map(s) of the Zaca Creek and Foxen Canyon Quadrangles (#DF-44, #DF-45). Santa Barbara: 1993, Dibblee Geological Foundation

⁶⁰ Exhibit 6: Dibblee, Thomas Jr. Geologic Map(s) of the Zaca Creek and Foxen Canyon Quadrangles (#DF-44, #DF-45). Santa Barbara: 1993, Dibblee Geological Foundation

⁶¹ Muir, K.S. *Geology and Ground Water of San Antonio Creek Valley, Santa Barbara County, California*. USGS: 1964., Pg.15.

⁶² Exhibit 6: Dibblee, Thomas Jr. Geologic Map(s) of the Zaca Creek and Foxen Canyon Quadrangles (#DF-44, #DF-45). Santa Barbara: 1993, Dibblee Geological Foundation

Specific to Tcac (specific soil in Alisos Canyon): Cebada member, massive tan to yellow, soft, fine grained sandstone or sand, locally contains small marine shell fragments.⁶³

Specific to Tcag (specific soil in Alisos Canyon): Graciosa member, massive gray-white to tan sandstone or sand, in part nonmarine and wind-deposited, locally pebbly at base.⁶⁴

Viticultural relationship of Careaga Sandstone:

1. Tcac/Tcag both exist as a defined band near the northern boundary of the Proposed Alisos Canyon AVA, 'Tcac' band runs to the north, 'Tcag' immediately to the south of the 'Tcac' band. Historic success of the Thompson Vineyard speaks strongly to the potential success of Careaga Sandstone for world-class varietal winegrape production
2. Sandy/sandstone based soils have excellent drainage which benefits a vineyard by limiting vigor, increasing quality and lowering pressure for specific pests such as some types of nematodes and phylloxera.
3. Lower/minimal levels of clay in sandy soils reduces cation exchange capacity (CeC), leading to lower vigor, smaller vines, smaller clusters, smaller berries and increased skin to juice ratio during fermentation.

Surficial Sediments (Qa) and Older Surficial Sediments (QoA): >17% of Proposed Alisos Canyon AVA

Specific to Qa (specific soil in Alisos Canyon): Alluvial gravel, sand and clay of valleys and flood plains, in places dissected by active streams/

Specific to QoA (specific soil in Alisos Canyon): Younger, lower terraces of alluvial gravel and sand.

Viticultural relationship of Surficial Sediments vis a vis Proposed Alisos Canyon AVA:

1. Much of the Surficial Sediment soils (Qa) in the Proposed Boundary of the Alisos Canyon AVA are covered in roads, both paved and unpaved, and lie too low in frost-prone areas to be considered for vineyard planting.
2. Vineyard acreage on or around these soil types exist and will continue to be planted, and these sites will be strongly influenced by sandy soil viticulture: minimal CEC (low vigor, small berries), increased water use for irrigation due to exceptional drainage.
3. Petitioners expect the Paso Robles Formation and Careaga Sandstone soil types to define the viticultural quality of the Proposed Alisos Canyon AVA.

⁶³ Exhibit 6: Dibblee, Thomas Jr. Geologic Map(s) of the Zaca Creek and Foxen Canyon Quadrangles (#DF-44, #DF-45). Santa Barbara: 1993, Dibblee Geological Foundation

⁶⁴ Exhibit 6: Dibblee, Thomas Jr. Geologic Map(s) of the Zaca Creek and Foxen Canyon Quadrangles (#DF-44, #DF-45). Santa Barbara: 1993, Dibblee Geological Foundation

Distinguishing (viticultural) soil/geological features of areas adjacent to Proposed Boundaries of Alisos Canyon AVA, North of boundary: Soils to the north of the proposed boundary of Alisos Canyon AVA are defined by the soils of the Santa Maria Valley AVA—highly influenced by the Guadalupe Dunes and on-shore winds blowing Guadalupe Dune Sand into the open, coastal plain of Santa Maria and Orcutt. Sandier topsoils and the persistence of Guadalupe Dune Sand ingress from the coast increases sand constituents of the soils to the north of the proposed boundary, and viticulturally will decrease clay and loam contents, minimizing grapevine vigor, reducing yields and minimizing cation exchange capacity (which means vines will be lower vigor and struggle to uptake nutrients) in the Santa Maria Valley AVA compared to the proposed boundaries.⁶⁵

Distinguishing soil/geological features of areas adjacent to Proposed Boundaries of Alisos Canyon AVA, South of boundary: The Buellton Flats (aka Buellflats) and the Ballard Canyon AVA areas are found south of the proposed boundaries of the Alisos Canyon AVA. Soils in the Buellflat/Buellton Flat area are defined by the Bureau of Chemistry and Soils as “a very uniform area...between Buellton and Solvang” as a “Very fine sandy loam” defined as “Metz”. Although both areas (Alisos Canyon and Buellton/Ballard Canyon AVA) are influenced by marine sediments and sand, the Metz fine sandy loam is defined as “important agricultural” soil by the 1927 Soil Survey, suggesting the productive and consistent soils of this area may produce too much vigor for high quality, low-yield winegrape production as we have seen for decades in the proposed boundaries of the Alisos Canyon AVA.⁶⁶

Distinguishing soil/geological features of areas adjacent to Proposed Boundaries of Alisos Canyon AVA, East of boundary: Los Olivos District/Happy Canyon of Santa Barbara AVA lie to the east of the proposed boundary of the Alisos Canyon AVA. As we near the Happy Canyon boundary, geologic parent materials of serpentine and chert change the calcium/magnesium ratio to hedge vigor and produce smaller clusters and limited yields. These parent materials do not exist within the proposed boundaries, and Dibblee Soil Maps clearly indicate a distinct change in the soils between the proposed boundary, the Los Olivos District AVA and the Happy Canyon of Santa Barbara AVA to the East. We would expect to see a much higher cation exchange capacity (CEC) for magnesium in the Happy Canyon of Santa Barbara AVA than in our proposed boundary because of this combination of broken down chert and serpentine.⁶⁷ Magnesium is an important micronutrient in winegrape production, assisting in chlorophyll production and cluster integrity.⁶⁸

Distinguishing soil/geological features of areas adjacent to Proposed Boundaries of Alisos Canyon AVA, West of boundary: West of the proposed boundary lies the Vandenberg Air Force Base as well as the Pacific Ocean. Soils, because of the strong marine influence on their evolution, maintain a deep, sandy nature. While the proposed boundary’s soils are mostly Paso

⁶⁵ Bureau of Chemistry and Soils: Soil Survey of the Santa Ynez Area: 1927, pp.1-3

⁶⁶ Bureau of Chemistry and Soils: Soil Survey of the Santa Ynez Area: 1927, pp.15-17.

⁶⁷ Hagen, Wes. Petition to Establish Happy Canyon of Santa Barbara, AVA: 2007, pages 12-15: (c) Soils.

⁶⁸ Zlamalova, et al: Plant Soil Environ. Vol. 61, 2015, No. 10: 451–457 “Using foliar applications of magnesium and potassium to improve yields and some qualitative parameters of vine grapes (*Vitis vinifera*)” Pp.1-5

Robles Formation soils, the soils to the west, in growing proximity to the Pacific Ocean, are Shedd, Chamise and Point Sal Formation-based.⁶⁹

Narrative defining Physical Features as it Relates to Viticulture in the Proposed Alisos Canyon AVA

Canyons and heat trapping: The Alisos Canyon and Comasa Canyon are contained on the north and east boundary by 1000'-1200' ridges formed by the foothills of the San Rafael Mountains⁷⁰. As evidenced by the 'growing degree day' heat map of the region⁷¹, the eastern portion of the proposed Alisos Canyon AVA warms significantly as the elevated slopes bake in the spring and summer sun and the daytime heat is trapped. The viticultural impact of this heat trapping will be higher heat summation in the eastern sections of the proposed Alisos Canyon AVA, favoring grape varieties (such as Mourvedre or Cabernet Franc) that require more heat to grow than Syrah or Grenache, the most commonly planted varieties in Alisos Canyon. Comasa Canyon, the southernmost watershed in the proposed Alisos Canyon AVA, shares much of the same, cooler degree day accumulation that defines the west and south of the proposed AVA, showing similar climatic/viticultural conditions, and thus encouraging inclusion in the proposed Alisos Canyon AVA.

Physical Features and their impact on Rainfall and Viticulture: All canyons preserve rainfall and water resources within their boundaries due to the fact that the canyon forms a catch basin that can be defined as forcing the water into its interior by geology and gravity.

Grapevines require around 25"-35" of rainfall annually to thrive and produce without irrigation. Rainfall in this region is historically between 12"-18", and we can see from the rainfall totals and GIS maps of the precipitation that the viticultural impacts of increased rainfall/water capture within the defined canyons will be more available water for the vineyards which will improve vineyard health, decrease amount of water needed to be pulled from the ground for irrigation, and a higher quality of water source, as rainfall washes salts away in the soil profile while applying ground water increases salt accumulation at grapevine root level.⁷²

San Antonio Creek Drainage basin: the physical features of the San Antonio Creek Basin have been defined and discussed completely in the Geology Section of this petition. The viticultural impact of that drainage basin is a cooling of degree day accumulation via a cool maritime air moving up the basin into Alisos and Comasa Canyons. The cooling impact improves acid integrity in ripening grapes, extends the hang time/ripening curve of grapes grown

⁶⁹ NASA Technical Memorandum 100981:1958: Soil Erosion And Causative Factors at Vandenberg Air Force Base, California, pp.21-39

⁷⁰ Exhibit 3: USGS/USDA Quadrangle Maps, 7.5 Minute Series, 'Zaca Creek Quadrangle' 2012, USGS/USDA Quadrangle Map, 7.5 Minute Series, 'Foxen Canyon Quadrangle' 2012, AVA Boundary Maps.

⁷¹ Exhibit 9: Alisos Canyon AVA Petition, Climate Data, Visual Map of PRISM data Average GDD

⁷² Teichgraber, Tim, "The Dangers of Soil Salinity", Wines and Vines Magazine.
<http://www.winesandvines.com/template.cfm?section=features&content=49785>

within the proposed Alisos Canyon AVA compared to adjacent regions to the east with much higher degree day summation.

Narrative defining Elevation as it Relates to Viticulture in the Proposed Alisos Canyon AVA

- The elevation within the proposed boundaries of the Alisos Canyon AVA is measured from 673.36 ft to 1412.46 ft, for a vertical relief of 739.1 ft.

As elevation rises in a vineyard, ultraviolet light increases along with light intensity and carbon dioxide, and oxygen content of the atmosphere goes down. Elevation has been studied in wine style and the results of those studies show that elevation causes vine stress and skin thickening, which results in darker, richer red wines and a general increase in quality for all grapes.⁷³ As elevation increases, so does diurnal shift; the difference between daytime high temperatures and night time low temperatures. Elevation over 2000 feet often exacerbates the previous elevation influences, and elevations over 3000 feet have a profound impact on wine production, style and quality.⁷⁴

The 800-1200 foot elevation of Alisos Canyon will not produce intense high altitude impacts on viticulture, but will impact UV light quality and climate patterns/diurnal shift in ample quantity to add to/posit a sense of precise place on these Alisos Canyon AVA grapes and wine.

Also, as mentioned previously, the predominance of hillside plantings within the proposed boundary of the Alisos Canyon AVA benefits grape growers by minimizing Spring frost damage, as cold air is prone to move down the slopes, away from the budding vines, and drain toward the Pacific Ocean down the San Antonio Creek Drainage Basin which drops below the 800 foot (in the proposed Alisos Canyon AVA boundary) elevation contour lines on the attached USGS topo maps.⁷⁵

Boundary Description for the proposed Alisos Canyon American Viticultural Area:

Note to TTB: Due to the unusually large size of 'section 33' on the two 7.5 minute series USGS maps used to delineate this boundary (Foxen Canyon and Zaca Creek), and the unusual lack of describable points on said maps, I have added slightly more direction in these Boundary Descriptions to precisely describe the features on the maps. I rejected "survey lines and coordinates" even though on page 16 of Manual for Petitioners it mentions they can be used in circumstances such as this. I hope this is an excellent compromise to keep the boundaries perfected by TTB standards, describable and accurate.

- (1) The beginning point is found near the southwest corner of the Foxen Canyon Quadrangle USGS Map (enclosed) at an unnamed hilltop, elevation 1137 feet, section 33 T8N/R32W; then

⁷³ Exploring High Altitude Viticulture. <http://www.tricyclewine.com/assets/client/File/Management.pdf>, Pg.86

⁷⁴ Exploring High Altitude Viticulture. <http://www.tricyclewine.com/assets/client/File/Management.pdf>, Pg 86

⁷⁵ Exhibit 3: USGS/USDA Quadrangle Maps, 7.5 Minute Series, 'Zaca Creek Quadrangle' 2012, USGS/USDA Quadrangle Map, 7.5 Minute Series, 'Foxen Canyon Quadrangle' 2012, AVA Boundary Maps.

- (2) From the beginning point, proceed straight, due east 3.71 miles to the intersection of two unnamed unimproved roads, just past the westernmost road's junction with the 1200' contour line, section 33 T8N/R32W (Foxen Canyon Quadrangle USGS Map); then
- (3) Proceed straight east-southeast 1.2 miles to an unnamed hilltop, elevation 1424 feet, section 33 T8N/R32W (Foxen Canyon Quadrangle USGS Map); then
- (4) Proceed straight southwest 1.7 miles (onto the Zaca Creek Quadrangle USGS map) to a marking designated 'Oil', adjacent to two light duty road loops and the bifurcation of the north fork of the San Antonio Creek as it follows Comasa Canyon, section 33 T8N/R31W; then
- (5) Proceed straight west-southwest 1.56 miles to the intersection of the north fork of San Antonio Creek (as it follows Comasa Canyon) and the 800 foot elevation contour line, section 33 T8N/R32W (Zaca Creek Quadrangle USGS Map); then
- (6) Proceed straight west (with the slightest southern derivation) 1.95 miles to an unnamed structure northeast of the terminus of an unimproved road marked as BM684 (at its origination just north of Hwy 101), section 33 T8N/R32W (Zaca Creek Quadrangle USGS Map); then
- (7) Proceed straight north (with the slightest western derivation) .32 miles to the junction of Alisos Canyon Road and an unimproved dirt road, section 33 T8N/R32W (Zaca Creek Quadrangle USGS Map); then
- (8) Proceed straight north-northwest 1.68 miles onto the Foxen canyon Quadrangle USGS Map, to an unnamed hilltop, elevation 997 feet, section 33 T8N/R32W (Foxen Canyon Quadrangle USGS Map); then
- (9) Proceed straight .50 miles northeast to the beginning point.

ⁱⁱ Definition of Santa Maria Valley AVA as Winkler Region 1 (1500-2500 GDD):
https://en.wikipedia.org/wiki/Santa_Maria_Valley_AVA