“G”

Onsite Wastewater Disposal Feasibility Study

Nights in White Satin Winery Use Permit P22-00236-UP
Planning Commission Hearing - August 20, 2025

ONSITE WASTEWATER DISPOSAL FEASIBILITY STUDY

FOR THE

NIGHTS IN WHITE SATIN LLC WINERY

LOCATED AT:
Neuenschwander Road
Napa, CA 94559
Napa County APN 047-380-009

PREPARED FOR:
Nights in White Satin LLC
Care Of: Tony Baldini
1473 Yountville Cross Road
Yountville, CA 94599

PREPARED BY:

APPLIED
CIVIL ENGINEERING
INCORPORATED

2074 West Lincoln Avenue
Napa, California 94558
Telephone: (707) 320-4968
www.appliedcivil.com

Job Number: 18-145

Michael R. Muelrath — 9/22/2021

Michael R. Muelrath R.C.E. 67435 — Date

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INTRODUCTION

Nights in White Satin LLC is applying for a Use Permit to construct and operate a new winery at their property located at the end of Neuenschwander Road in Napa County, California. The subject property, known as Napa County Assessor's Parcel Number 047-380-009, is located between Neuenschwander Road and State Route 12 / 121.

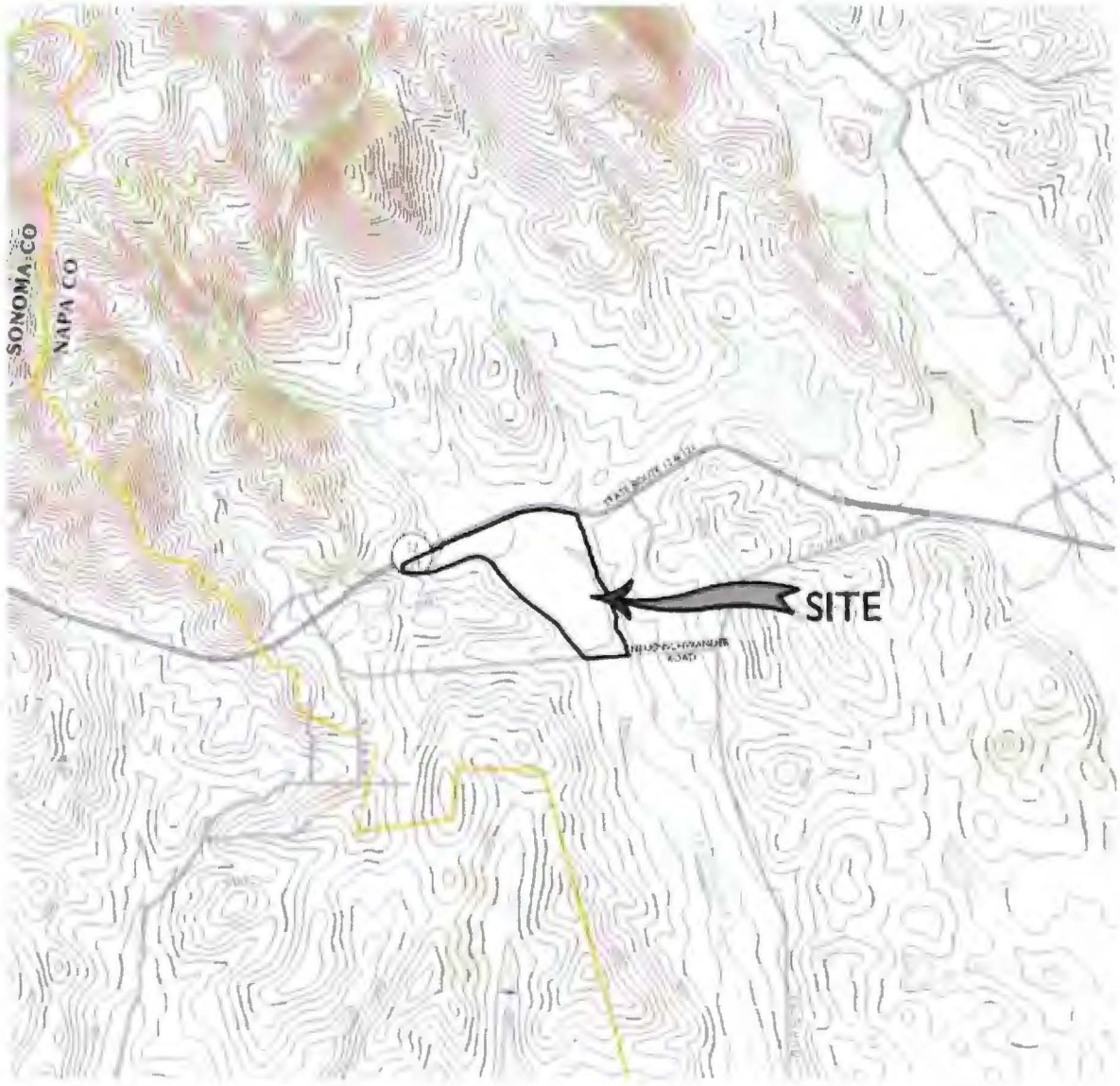


Figure 1: Location Map

The Use Permit application under consideration proposes the construction and operation of a new winery with the following characteristics:

- Wine Production:
  - 120,000 gallons of wine per year
  - Crushing, fermenting, aging and bottling

- Employees:
  - 25 employees

- Marketing Plan:
  - Daily Tours and Tastings by Appointment
    - 150 visitors per day maximum
  - Marketing Events Type #1
    - 5 per month
    - 30 guests maximum
    - Food prepared in onsite kitchen
  - Marketing Events Type #2
    - 10 per year
    - 50 guests maximum
    - Food prepared offsite by catering company
    - Portable toilets used for restrooms
  - Marketing Events Type #3
    - 4 per year
    - 150 guests maximum
    - Food prepared offsite by catering company
    - Portable toilets used for restrooms

Existing development on the property includes vineyards and the related access and utility infrastructure typical of this type of agricultural development. Water for the winery will be provide by a well located on an adjacent property. Please see the Nights In White Satin LLC Winery Use Permit Conceptual Site Improvement Plans for approximate locations of existing and proposed features.

Nights in White Satin LLC has requested that Applied Civil Engineering Incorporated (ACE) evaluate the feasibility of disposing of the winery process wastewater as well as the domestic sanitary wastewater that will be generated by the proposed winery via a new onsite wastewater disposal system. The remainder of this report describes the onsite soil conditions, the predicted winery process and sanitary wastewater flows and outlines conceptual designs for options to onsite wastewater treatment and disposal.

SOILS INFORMATION

The United States Department of Agriculture Soil Conservation Service Soils Map for Napa County shows the majority of the parcel mapped as Bale clay loam. Small portions of the property area also mapped as Haire clay loam.

A site-specific soils analysis was conducted during a site evaluation performed by Applied Civil Engineering on June 1, 2020 (E20-00221). The site evaluation consisted of the excavation and observation of eleven test pits in the central portion of the property. The test pits generally revealed variable depths of acceptable soil with clay loam texture. The limiting condition that was observed below the acceptable topsoil was the subsoils with high clay content and weak structure.

Please refer to the Site Evaluation Report in Appendix 4 for additional details.

PREDICTED WASTEWATER FLOW

The onsite wastewater disposal system(s) must be designed for the peak winery process wastewater flow and the peak sanitary wastewater flow from the proposed winery.

Winery Process Wastewater

We have used the generally accepted standard that six gallons of winery process wastewater are generated for each gallon of wine that is produced each year and that 1.5 gallons of wastewater are generated during the crush period for each gallon of wine that is produced. Based on the size of the winery and our understanding that both red and white wines will be produced we have assumed a 60-day crush period. Using these assumptions, the average and peak winery process wastewater flows are calculated as follows:

$$\text{Annual Winery Process Wastewater Flow} = \frac{120{,}000 \text{ gallons wine}}{\text{year}} \times \frac{6 \text{ gallons wastewater}}{1 \text{ gallon wine}}$$

Annual Winery Process Wastewater Flow = 720,000 gallons per year

$$\text{Average Daily Winery Process Wastewater Flow} = \frac{720{,}000 \text{ gallons}}{\text{year}} \times \frac{1 \text{ year}}{365 \text{ days}}$$

Average Daily Winery Process Wastewater Flow = 1,973 gallons per day (gpd)

$$\text{Peak Winery Process Wastewater Flow} = \frac{120{,}000 \text{ gallons wine}}{\text{year}} \times \frac{1.5 \text{ gallons wastewater}}{1 \text{ gallon wine}} \times \frac{1 \text{ year}}{60 \text{ crush days}}$$

Peak Winery Process Wastewater Flow = 3,000 gpd

Winery Sanitary Wastewater

The peak sanitary wastewater flow from the winery is calculated based on the number of winery employees, the number of daily visitors for tours and tastings and the number of guests attending private marketing events. In accordance with Table 4 of Napa County's "Regulations for Design, Construction, and Installation of Alternative Sewage Treatment Systems" we have used a design flow rate of 15 gallons per day per employee and 3 gallons per day per visitor for tours and tastings. Table 4 does not specifically address design wastewater flows for guests at marketing events. For marketing events that will have catered meals that are prepared offsite we have conservatively estimated 5 gallons of wastewater per guest and for events with meals prepared

onsite we have assumed 15 gallons of wastewater per guest, similar to a restaurant. Based on these assumptions, the peak winery sanitary wastewater flows are calculated as follows:

Employees

Peak Sanitary Wastewater Flow = 25 employees X 15 gpd per employee

Peak Sanitary Wastewater Flow = 375 gpd

Daily Tours and Tastings

Peak Sanitary Wastewater Flow = 150 visitors per day X 3 gallons per visitor

Peak Sanitary Wastewater Flow = 450 gpd

Marketing Events Type #1 with Meals Prepared Onsite:

Peak Sanitary Wastewater Flow = 30 guests X 15 gallons per guest

Peak Sanitary Wastewater Flow = 450 gpd

Marketing Events Type #2 with Catered Meals Prepared Offsite:

Peak Sanitary Wastewater Flow = 50 guests X 5 gallons per guest

Peak Sanitary Wastewater Flow = 250 gpd

Marketing Events Type #3 with Catered Meals Prepared Offsite:

Peak Sanitary Wastewater Flow = 150 guests X 5 gallons per guest

Peak Sanitary Wastewater Flow = 750 gpd

Total Peak Winery Sanitary Wastewater Flow

As previously noted, all events with more than 30 guests in attendance will have meals prepared by an offsite catering service and events with more than 30 guests in attendance will also utilize portable sanitary facilities to minimize the load on the septic system. Therefore, assuming that daily tours and tastings and a maximum of one marketing event may occur on the same day the worst case total peak winery sanitary wastewater flow is based on employees, daily tours and tastings and a marketing event for 30 people with a meal prepared onsite and is calculated as follows:

Total Peak Winery Sanitary Wastewater Flow = 375 gpd + 450 gpd + 450 gpd

Total Peak Winery Sanitary Wastewater Flow = 2,100 gpd

Combined Peak Winery Wastewater Flow

The combined peak winery wastewater flow is equal to the sum of the winery process wastewater peak flow plus the total peak winery sanitary wastewater flow and is calculated as follows:

Combined Peak Winery Wastewater Flow=3,000 gpd + 2,100 gpd

Combined Peak Winery Wastewater Flow= 5,100 gpd

RECOMMENDATIONS

Based on the anticipated wastewater flows, the proposed site layout and the onsite soil conditions it is our opinion that there are at least two feasible options for handling the proposed winery's wastewater onsite.

Option #1 – Combined Sanitary and Process Wastewater Subsurface Drip Disposal Field

In this scenario both the sanitary and process wastewater from the winery would be collected separately, pretreated and disposed of in separate side by side subsurface drip type septic systems.

Required Disposal Field Area

The disposal field area is calculated based upon the design hydraulic loading rate for the soil conditions and the proposed design flow. Since the slope of the natural ground surface in the area of the proposed disposal field is less than 20% no adjustment is required for slope. Based on these design parameters, the required disposal field area is calculated as follows:

$$\text{Required Disposal Field Area} = \frac{\text{Peak Flow}}{\text{Soil Application Rate}}$$

$$\text{Require Disposal Field Area} = \frac{5{,}100 \text{ gpd}}{0.6 \text{ gpd per square foot}}$$

Required Disposal Field Area = 8,500 square feet

Available Disposal Field Area

Based on the proposed site layout and topographic data, we have determined that there is enough area to install approximately 8,500 square feet of subsurface drip disposal field in the vicinity of Test Pits #5 - #11. The conceptual layout of the disposal field is shown on the Nights in White Satin LLC Winery Use Permit Conceptual Site Improvement Plans in Appendix 2.

Reserve Area

Napa County code requires that an area be set aside to accommodate a future onsite wastewater disposal system in the event that the primary system fails or the soil in the primary area is otherwise rendered unsuitable for wastewater disposal. For subsurface drip type septic systems,

the reserve area must be 200% of the size of the disposal field area. The required reserve area is calculated as follows:

$$\text{Required Reserve Area} = 200\% \times \frac{\text{Peak Flow}}{\text{Soil Application Rate}}$$

$$\text{Require Reserve Field Area} = 200\% \times \frac{5{,}100 \text{ gpd}}{0.6 \text{ gpd per square foot}}$$

Required Reserve Area = 17,000 square feet

Based on the proposed site plan and topographic data, we have determined that there is enough area to set aside for an additional 17,000 square feet of subsurface drip disposal field in the vicinity of Test Pits #1-#8 as shown on the Nights In White Satin LLC Winery Use Permit Conceptual Site Improvement Plans in Appendix 2.

Pretreatment and Septic Tank Capacity

Pretreatment must be provided to treat the winery sanitary wastewater to meet Napa County pretreated effluent standards (BOD<30 mg/l, TSS < 30 mg/l). Pretreatment will also be required for the process wastewater to meet State Water Resources Control Board effluent requirements. There are several options for pretreatment systems that are available to meet these requirements. The Applicant and the Engineer will review options and select a suitable pretreatment system designed to meet this requirement prior to application for sewage permits for the winery. Septic tanks will be sized in accordance with the requirements of the selected pretreatment systems.

Option #2 – Sanitary Wastewater Subsurface Drip Disposal Field and Process Wastewater Treatment for Irrigation

In this scenario the sanitary wastewater would be disposed of in a subsurface drip type septic system, similar to Option #1, and the winery process wastewater would be collected separately, pretreated, stored and dispersed of via a surface irrigation system.

Sanitary Wastewater Treatment and Disposal

Sanitary wastewater disposal is similar to the system described in Option #1 above, however the size of the subsurface drip disposal field is much smaller since only the sanitary wastewater is being disposed of.

Required Disposal Field Area

The required disposal field area is calculated as follows:

$$\text{Required Disposal Field Area} = \frac{\text{Peak Flow}}{\text{Soil Application Rate}}$$

$$\text{Require Disposal Field Area} = \frac{2{,}100 \text{ gpd}}{0.6 \text{ gpd per square foot}}$$

Required Disposal Field Area = 3,500 square feet

Available Disposal Field Area

There is enough area to install the required 3,500 square feet of subsurface drip disposal field in the vicinity of Test Pits #5-#11.

Reserve Area

The required reserve area is calculated as follows:

$$\text{Required Reserve Area} = 200\% \times \frac{\text{Peak Flow}}{\text{Soil Application Rate}}$$

$$\text{Require Reserve Field Area} = 200\% \times \frac{2{,}100 \text{ gpd}}{0.6 \text{ gpd per square foot}}$$

Required Reserve Area = 7,000 square feet

There is enough area to accommodate the required 7,000 square feet of reserve area in the vicinity of Test Pits #1-#8.

Pretreatment and Septic Tank Capacity

Sanitary wastewater pretreatment and septic tank requirements in this scenario are the same as previously described in Option #1 above.

Process Wastewater Treatment

Based on the winery's planned production level we recommend that treatment be achieved through the use of a package plant type system or other treatment system designed to accept winery process wastewater that is capable of meeting the following treatment requirements:

Parameter	Pre-treatment*	Post Treatment
pH	3 to 10	6 to 9
BOD_5	500 to 12,000 mg/l	<160 mg/l
TSS	40 to 800 mg/l	<80 mg/l
SS	25 to 100 mg/l	<1 mg/l

* Reference California Regional Water Quality Control Board Central Coast Region General Waste Discharge Requirements Order No. R3-2008-0018 for winery process wastewater characteristics

Process Wastewater Disposal

We have identified approximately 4 acres of land area located south of the proposed winery building site that can be used to dispose of the treated winery process wastewater via irrigation. This area could be expanded if desired by the Applicant as long as the land dispersal area is outside of all well, stream and other setbacks. We have conservatively assumed that the irrigation area will be limited to the four-acre dispersal area. All application of treated winery process wastewater must comply with the requirements of the State Water Resources Control Board General Order for Winery Process Wastewater.

In order to accommodate differences in the timing of wastewater generation, irrigation demand and prohibitions on applying water to the land during rainy periods a storage tank will be required. We have prepared a water balance calculation to size a tank that will temporarily store wastewater generated at the winery before it is applied to the land application area. The water balance calculation assumes a monthly wastewater generation rate and a monthly land application schedule based on our past experience with projects of this type. The water balance calculations show that the water generated by winery production operations in most months can be effectively managed after treatment by applying it to the identified area without the needs for extensive storage. However, we recommend a minimum storage tank capacity of 30,000 gallons to provide operational flexibility in timing of land applications (see Appendix 3).

CONCLUSION

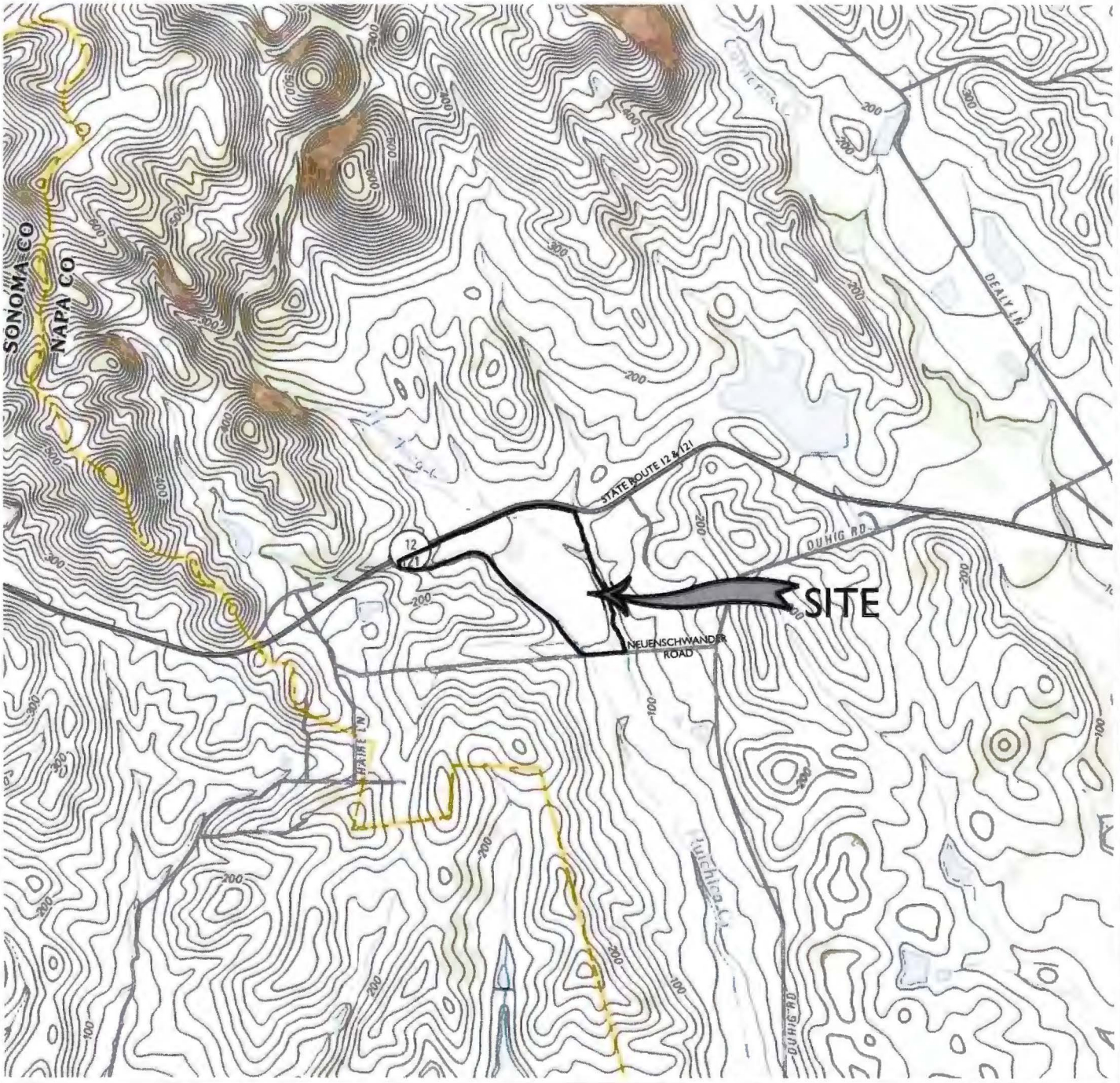
It is our opinion that the wastewater from the proposed winery can be accommodated in any of the two options previously described. Full design calculations and construction plans for the wastewater systems must be prepared in accordance with Napa County and State Water Resources Control Board requirements.

APPENDIX 1: Site Topography Map

SITE TOPOGRAPHY MAP

REPRESENTS A PORTION OF THE
UNITED STATES GEOLOGICAL SURVEY 7.5 MINUTE QUADRANGLES
"CUTTINGS WHARF, CA", "SONOMA, CA", SEARS POINT, CA" AND "NAPA, CA"

SCALE: 1" = 2,000'



APPLIED
CIVIL ENGINEERING
INCORPORATED
2074 West Lincoln Avenue
Napa, CA 94558
(707) 320-4968 (707) 320-2395 Fax
www.appliedcivil.com

NIGHTS IN WHITE SATIN LLC

NEUENSCHWANDER ROAD
NAPA, CA 94559
APN 047-380-009

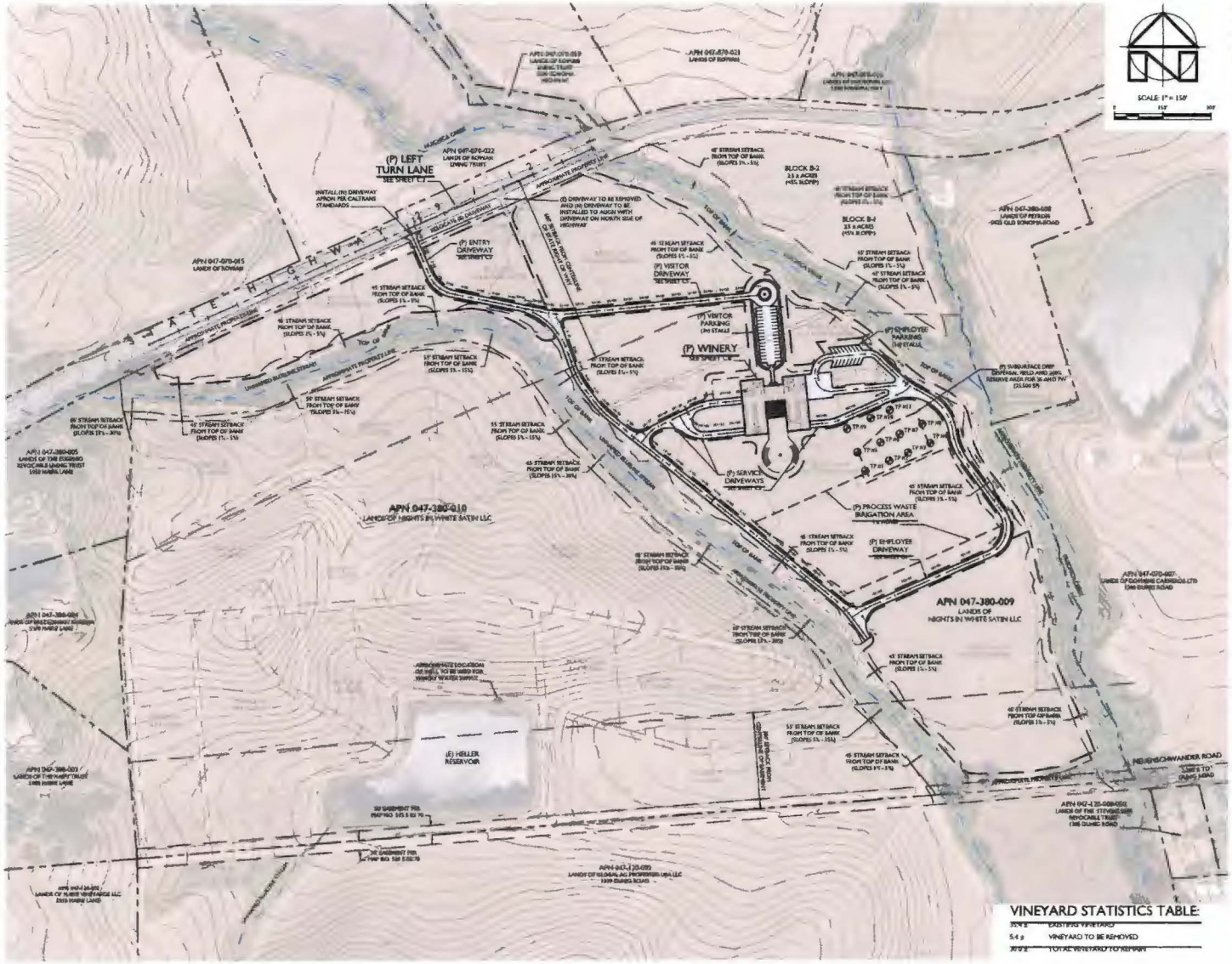
JOB NO. 18-145

SEPTEMBER 2021

APPENDIX 2: Nights In White Satin LLC Winery Use Permit
Conceptual Site Improvement Plans Reduced to 8.5" x 11"

NIGHTS IN WHITE SATIN LLC

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS



OVERALL SITE PLAN

SCALE 1" = 150'

VINEYARD STATISTICS TABLE:

30.9 ±	EXISTING VINEYARD
5.4 ±	VINEYARD TO BE REMOVED
30.9 ±	TOTAL VINEYARD TO REMAIN

LOCATION MAP

SCALE 1" = 3,000'

PROJECT INFORMATION:

PROPERTY OWNER & APPLICANT:
NIGHTS IN WHITE SATIN LLC
CARE OF: TONY BALDINI, COO
1473 YOUNTVILLE CROSS ROAD
YOUNTVILLE, CA 94599
(707) 337-8540

SITE ADDRESS:
NEUENSCHWANDER ROAD
NAPA, CA 94559

ASSESSOR'S PARCEL NUMBER:
047-380-009

PARCEL SIZE:
59 ± ACRES

PROJECT SIZE:
11 ± ACRES

ZONING:
AGRICULTURAL WATERSHED (AW)

SHEET INDEX:

PROJECT DESCRIPTION:

THIS PURPOSE OF THIS PROJECT IS TO SHOW THE CONCEPTUAL DESIGN AND SITE IMPROVEMENTS PROPOSED AS PART OF THE WINERY USE PERMIT APPLICATION.

FLOOD HAZARD NOTE:

ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP NUMBER 06055C0515E, EFFECTIVE SEPTEMBER 26, 2008, THE PROJECT SITE IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA.

NOTES:

1. FADED BACKGROUND REPRESENTS EXISTING TOPOGRAPHIC FEATURES. TOPOGRAPHIC INFORMATION ON SHEET C1 WAS TAKEN FROM THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM DATABASE. TOPOGRAPHIC INFORMATION ON OTHER SHEETS WAS OBTAINED FROM THE "MAP OF TOPOGRAPHY OF A PORTION OF THE LANDS OF NIGHTS IN WHITE SATIN LLC" PREPARED BY ALBION SURVEYS, INC., DATED MARCH 10, 2020. APPLIED CIVIL ENGINEERING INCORPORATED ASSUMES NO LIABILITY REGARDING THE ACCURACY OR COMPLETENESS OF THE TOPOGRAPHIC INFORMATION.
2. AERIAL PHOTOGRAPHS WAS OBTAINED FROM THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM (GIS) DATABASE, TAKEN APRIL TO JUNE 2018 AND MAY NOT REPRESENT CURRENT CONDITIONS.
3. CONTOUR INTERVAL:
   SHEET C1: FIVE (5) FEET, HIGHLIGHTED EVERY TWENTY FIVE (25) FEET.
   OTHER SHEETS: ONE (1) FOOT, HIGHLIGHTED EVERY FIVE (5) FEET.
4. BENCHMARK: NAVD 88
5. THE PROPERTY LINES SHOWN ON THESE PLANS DO NOT REPRESENT A BOUNDARY SURVEY. THEY ARE APPROXIMATE AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

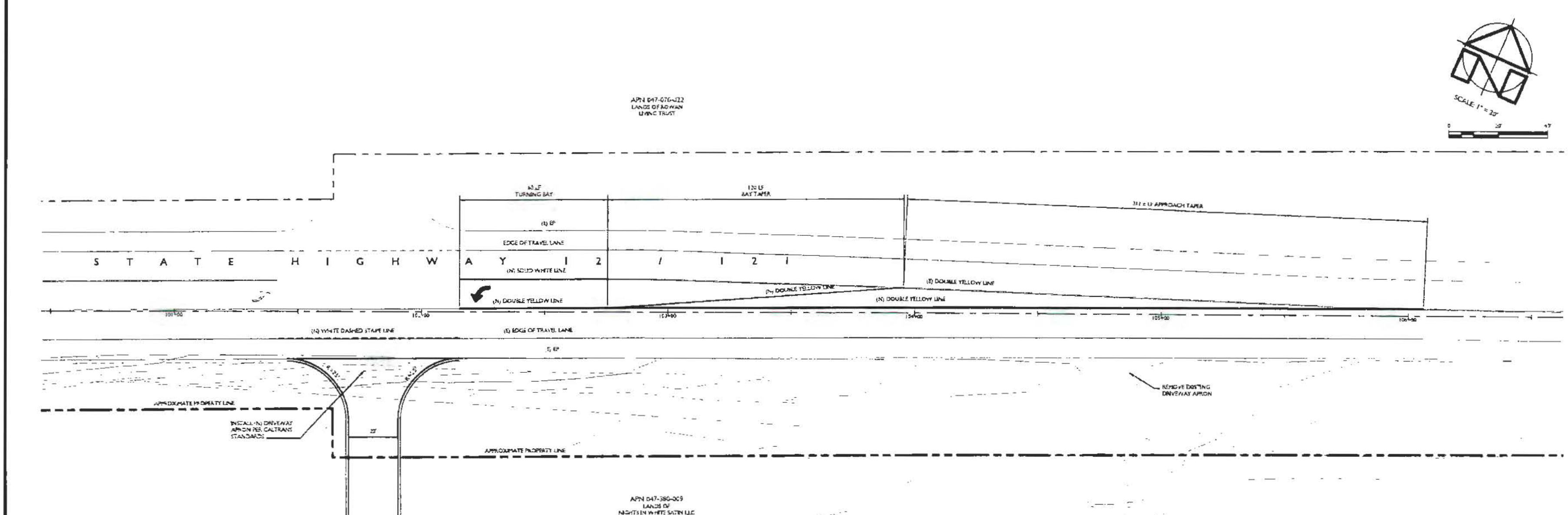
APPLIED
INCORPORATED
2094 West Lincoln Avenue
Napa, CA 94558
(707) 256-1868 (707) 256-0395 Fax
www.appliedcivil.com

NIGHTS IN WHITE SATIN LLC
WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS
OVERALL SITE PLAN

PREPARED UNDER THE DIRECTION OF:

NOT FOR CONSTRUCTION

DRAWN BY:	PowerCAD LLC
CHECKED BY:	MM1
DATE:	SEPTEMBER 22, 2021
REVISIONS:	BY:
9/22/2021	MM1 PERMIT SUBMITTAL
JOB NUMBER:	18-145
FILE:	18-145CONC-OSP.DWG
ORIGINAL SIZE:	24" X 36"
SHEET NUMBER:	C1
OF	9



SEE SHEET C3
FOR CONTINUATION

LEFT TURN LANE PLAN
SCALE: 1" = 20'

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2074 West Lincoln Avenue
Napa, CA 94558
(707) 320-4968 (707) 320-2395 Fax
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NIGHTS IN WHITE SATIN LLC

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS

LEFT TURN LANE PLAN

PREPARED UNDER THE DIRECTION OF

FOR USE PERMIT REVIEW NOT FOR CONSTRUCTION

DRAWN BY: PowerCAD LLC

CHECKED BY: MRM

DATE: SEPTEMBER 22, 2021

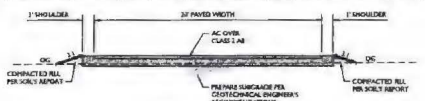
REVISIONS	BY
9/22/2021 PERMIT SUBMITTAL	YMS

JOB NUMBER: 18-145

FILE: 18-145CONC-DWY.DWG

ORIGINAL SIZE: 24" X 36"

SHEET NUMBER: C2 OF 9



SECTION A - A
SCALE: 1" = 5'

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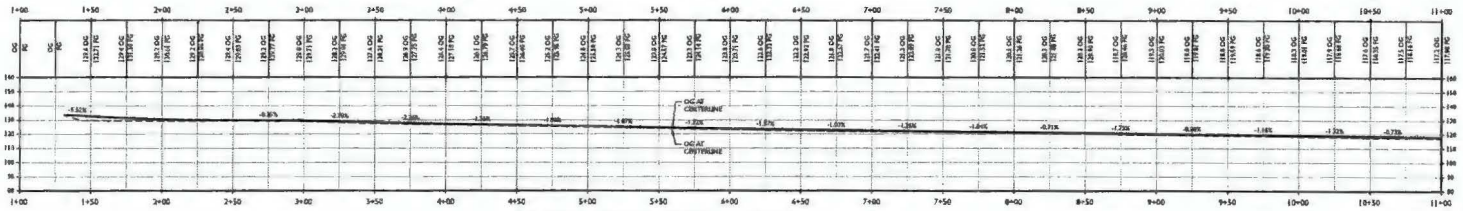
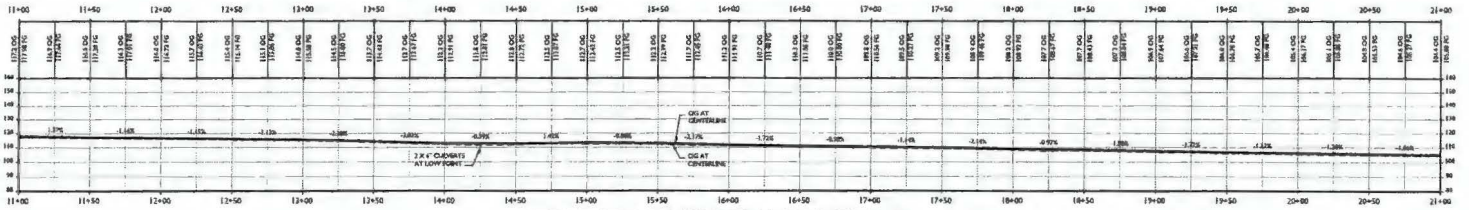
SCALE: 1" = 40'



ENTRY DRIVEWAY PROFILE STA 1+00 TO STA 11+00
SCALE: 1" = 40'

ENTRY DRIVEWAY PLAN STA 11+00 TO STA 21+00
SCALE: 1" = 40'



ENTRY DRIVEWAY PROFILE STA 11+00 TO STA 21+00
SCALE: 1" = 40'

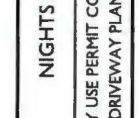
APPLIED
CIVIL ENGINEERING INCORPORATED
2224 West Lincoln Avenue
Napa, CA 94558
(707) 224-4668 (707) 320-2395 Fax
www.appliedcivil.com

NIGHTS IN WHITE SATIN LLC

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS

ENTRY DRIVEWAY PLAN AND PROFILE STA 1+00 TO STA 21+00

PREPARED UNDER THE DIRECTION OF:



DRAWN BY:	PowerCAD LLC
CHECKED BY:	TRM
DATE:	SEPTEMBER 22, 2021

REVISIONS	BY
9/22/2021 PERMIT SUBMITTAL	TRM

JOB NUMBER: 18-145

FILE: 18-145CONC-DWY.DWG

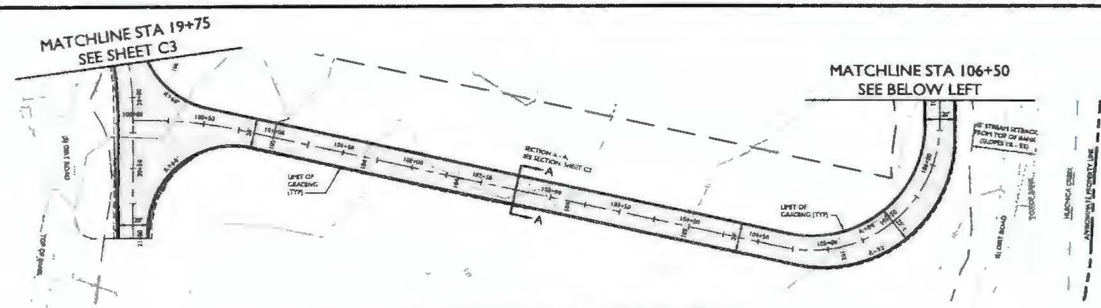
ORIGINAL SIZE: 24" X 36"

SHEET NUMBER:

C3

OF

9



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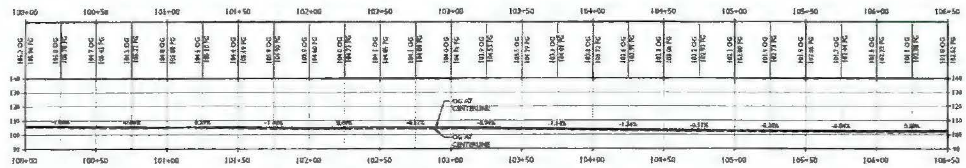

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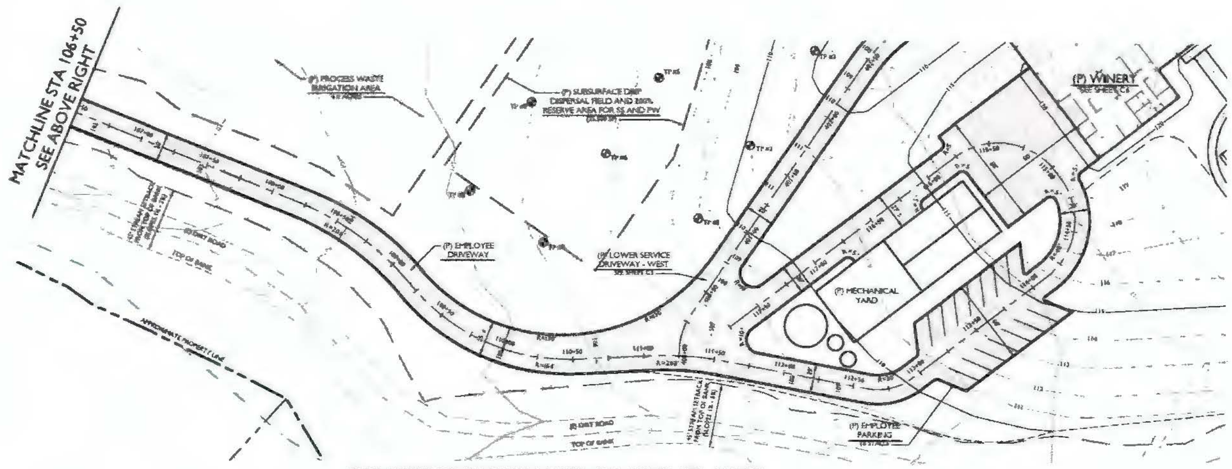

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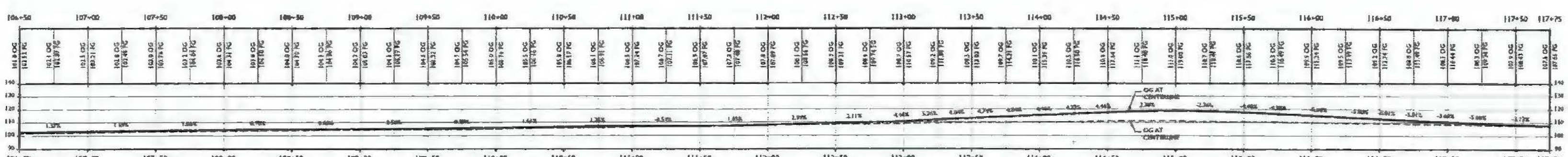

EMPLOYEE DRIVEWAY PROFILE STA 106+50 TO STA 117+75

SCALE 1" = 40'

NIGHTS IN WHITE SATIN LLC

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS
EMPLOYEE DRIVEWAY PLAN AND PROFILE STA 100+00 TO STA 117+75

APPLIED
INCORPORATED
2074 West Lincoln Avenue
Napa, CA 94558
(707) 320-4968 (707) 320-2395 fax
www.appliedcivil.com

PREPARED UNDER THE DIRECTION OF:

DRAWN BY: PowerCAD LLC
CHECKED BY: MRM
DATE: SEPTEMBER 22, 2021
REVISIONS: BY:
9/22/2021 PERMIT SUBMITTAL YMS

JOB NUMBER: 18-145
FILE: 18-145CONC-DWY.DWG
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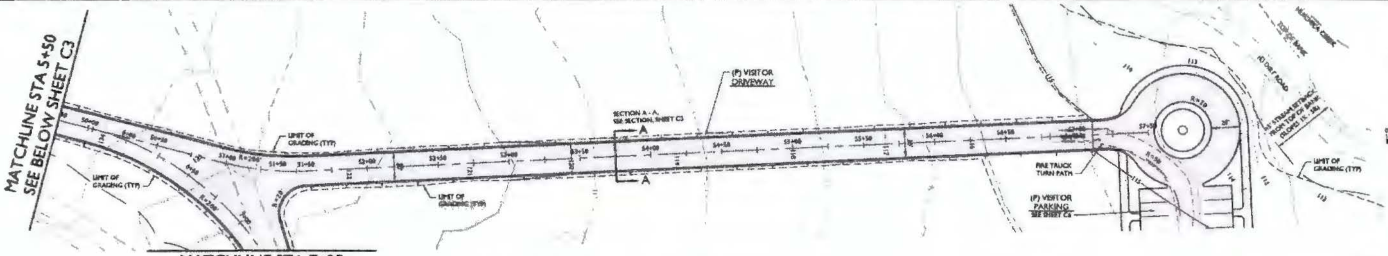

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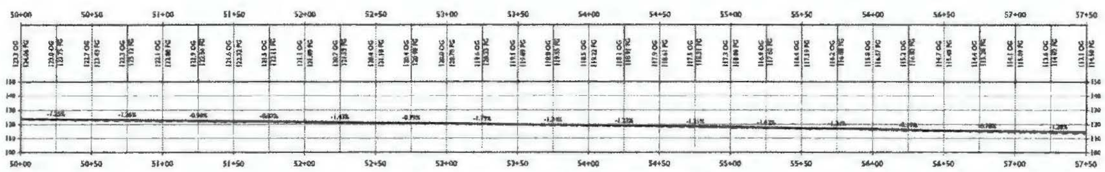

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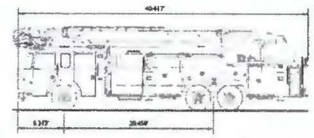
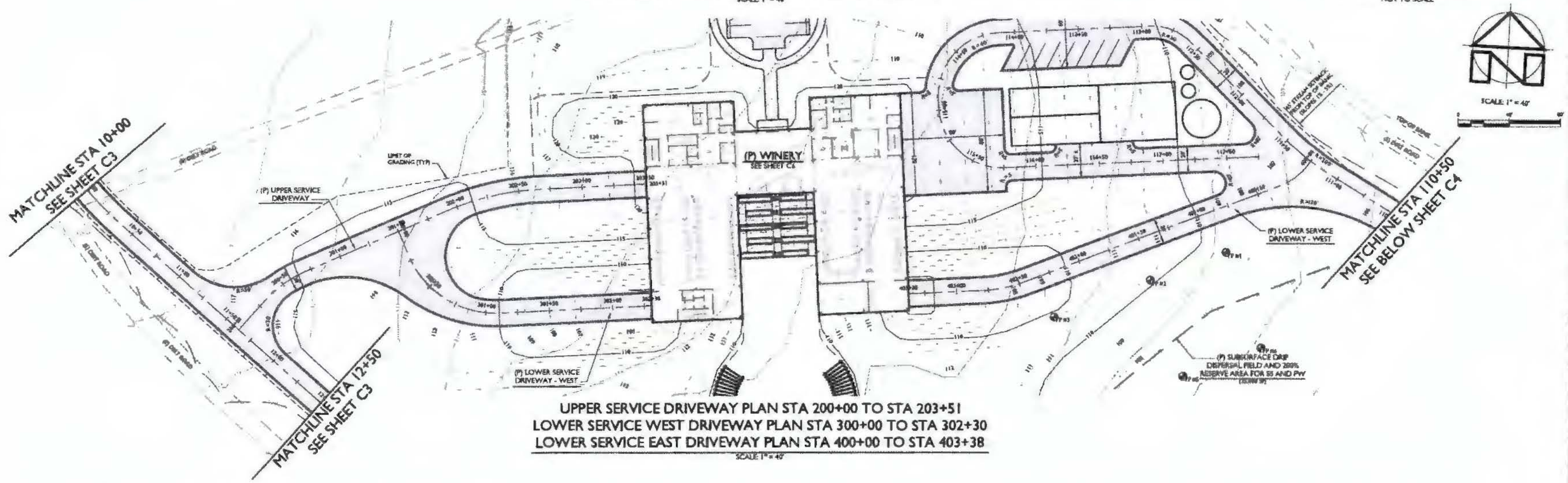


NAPA COUNTY FIRE TRUCK T12

OVERALL LENGTH	40.417 FT
OVERALL WIDTH	8.000 FT
OVERALL BODY HEIGHT	11.483 FT
MIN BODY GROUND CLEARANCE	1.108 FT
TRACK WIDTH	9.015 FT
LOCK-TO-LOCK TIME	4.00 S
CURB TO CURB TURNING RADIUS	39.833 FT

FIRE TRUCK PROFILE

NOT TO SCALE



UPPER SERVICE DRIVEWAY PLAN STA 200+00 TO STA 203+51
LOWER SERVICE WEST DRIVEWAY PLAN STA 300+00 TO STA 302+30
LOWER SERVICE EAST DRIVEWAY PLAN STA 400+00 TO STA 403+38

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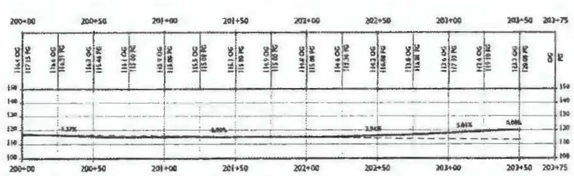
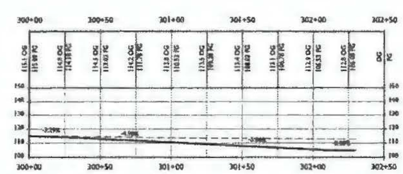


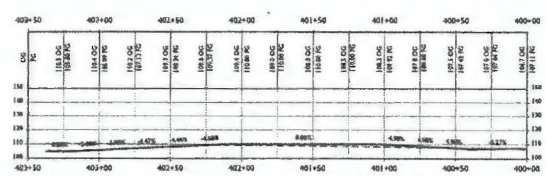
UPPER SERVICE DRIVEWAY PROFILE
STA 200+00 TO STA 203+75

SCALE: 1" = 40'



LOWER SERVICE WEST DRIVEWAY PROFILE
STA 300+00 TO STA 302+30

SCALE: 1" = 40'



LOWER SERVICE EAST DRIVEWAY PROFILE
STA 400+00 TO STA 403+50

SCALE: 1" = 40'

APPLIED
INCORPORATED
2074 West Lincoln Avenue
Napa, CA 94558
(707) 320-4968 (707) 320-2395 Fax
www.appliedcivil.com

NIGHTS IN WHITE SATIN LLC

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS

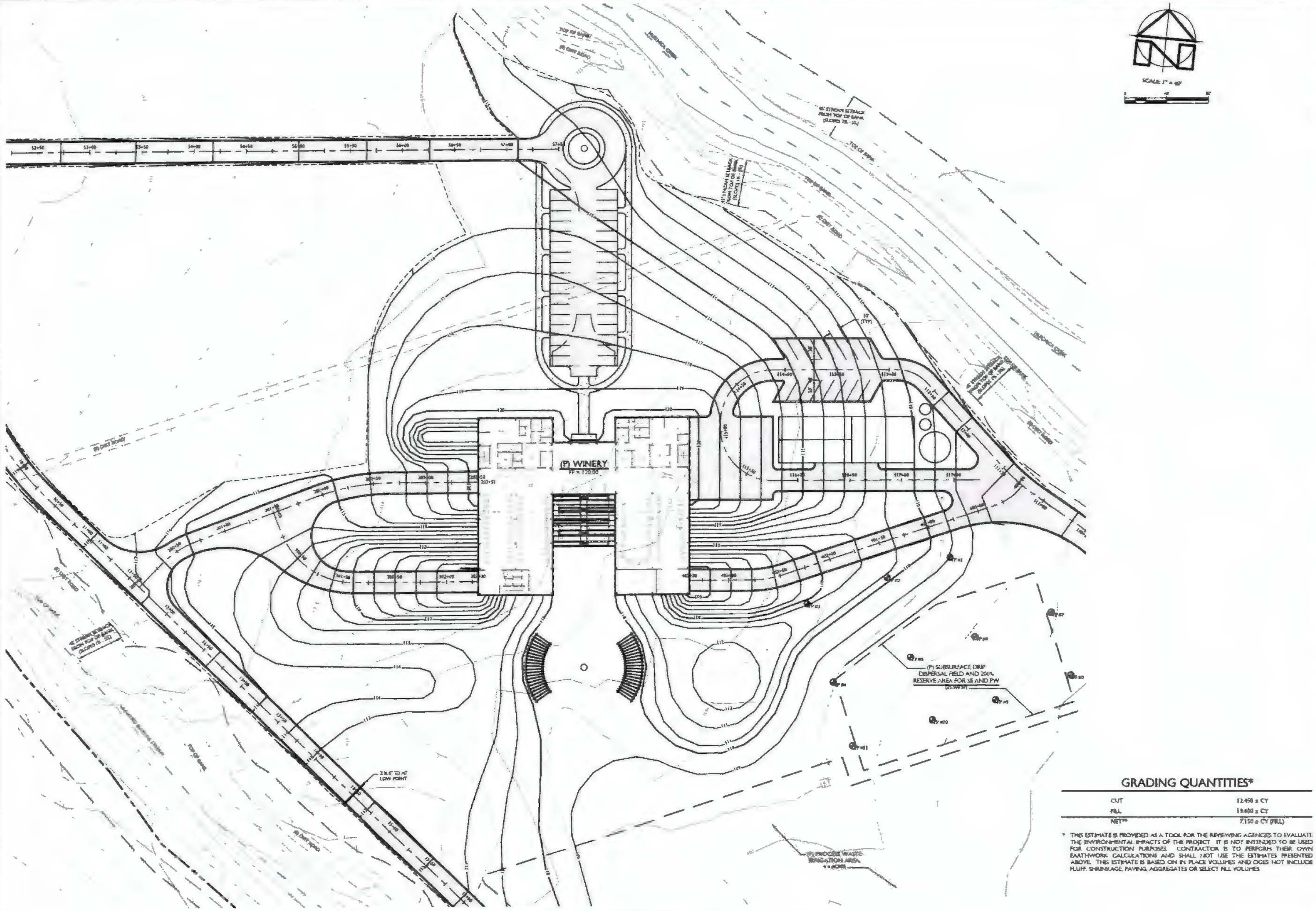
VISITOR, UPPER SERVICE, LOWER SERVICE DRIVEWAY WEST & EAST PLAN AND PROFILES

PREPARED UNDER THE DIRECTION OF:

FOR USE PERMIT REVIEW NOT FOR CONSTRUCTION

DRAWN BY: PowerCAD LLC
CHECKED BY: MRM
DATE: SEPTEMBER 22, 2021
REVISIONS: BY:
9/22/2021 YMS PERMIT SUBMITTAL

JOB NUMBER: 18-145
FILE: 18-145CONC-DWY.DWG
ORIGINAL SIZE: 24" X 36"
SHEET NUMBER:
C5 OF 9



SITE GRADING PLAN

SCALE: 1" = 40'

GRADING QUANTITIES*

CUT	12,450 ± CY
FILL	19,600 ± CY
NET**	7,150 ± CY (FILL)

* THIS ESTIMATE IS PROVIDED AS A TOOL FOR THE REVIEWING AGENCIES TO EVALUATE THE ENVIRONMENTAL IMPACTS OF THE PROJECT. IT IS NOT INTENDED TO BE USED FOR CONSTRUCTION PURPOSES. CONTRACTOR IS TO PERFORM THEIR OWN EARTHWORK CALCULATIONS AND SHALL NOT USE THE ESTIMATES PRESENTED ABOVE. THIS ESTIMATE IS BASED ON IN PLACE VOLUMES AND DOES NOT INCLUDE FLUFF, SHRINKAGE, PAVING, AGGREGATES OR SELECT FILL VOLUMES.

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Napa, CA 94558
(707) 320-4968 (707) 320-2395 fax
www.appliedcivil.com

NIGHTS IN WHITE SATIN LLC

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS

SITE GRADING PLAN

PREPARED UNDER THE DIRECTION OF:

FOR USE PERMIT REVIEW NOT FOR CONSTRUCTION

DRAWN BY: PowerCAD LLC

CHECKED BY: MRM

DATE: SEPTEMBER 22, 2021

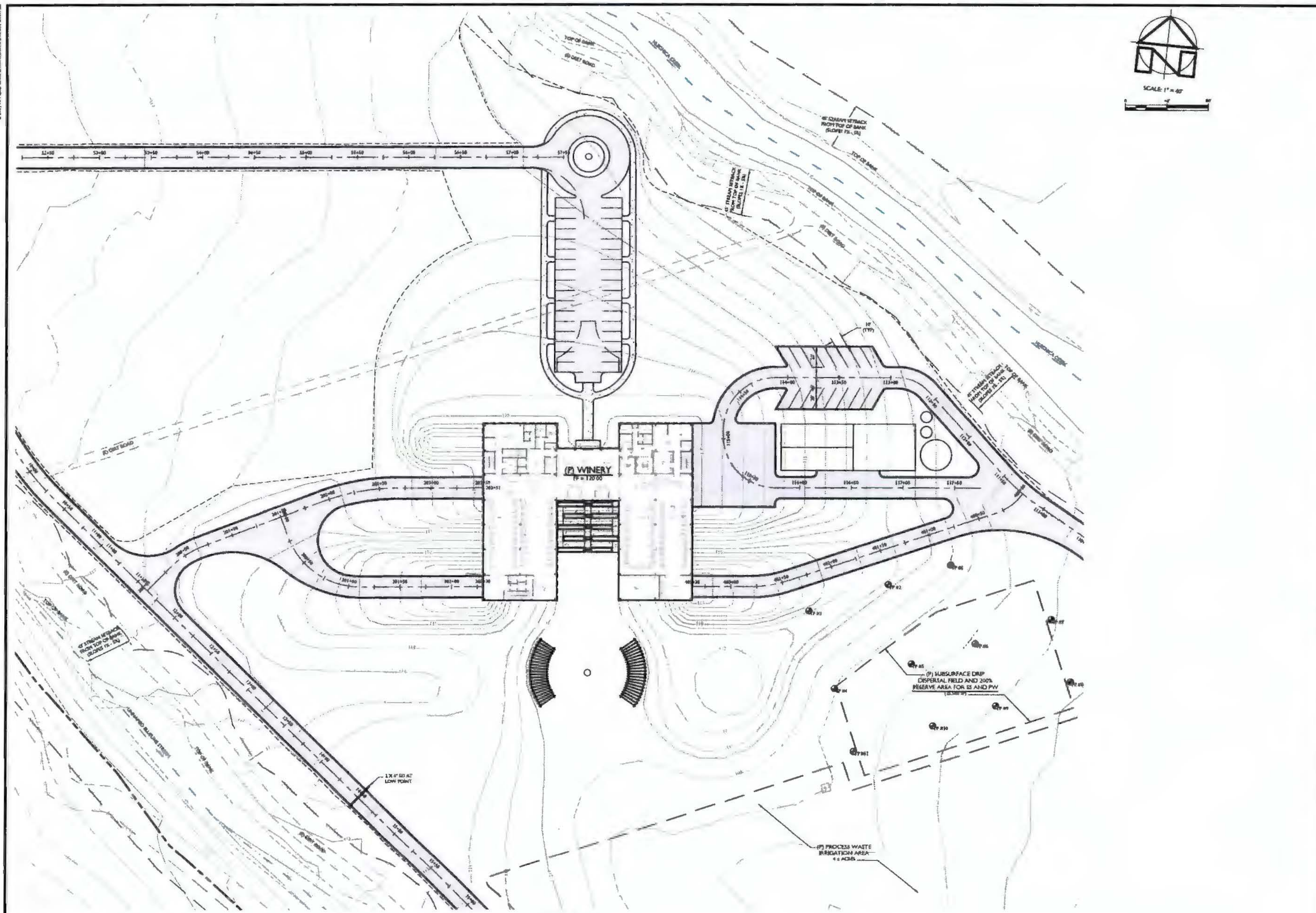
REVISIONS	BY
9/22/2021 PERMIT SUBMITTAL	YMS

JOB NUMBER: 18-145

FILE: 18-145CONC-GRAD.DWG

ORIGINAL SIZE: 24" X 36"

SHEET NUMBER: C6 OF 9



UTILITY PLAN

SCALE 1" = 40'

APPLIED
INCORPORATED
2074 West Lincoln Avenue
Napa CA 94558
(707) 320-4968 (707) 320-2395 Fax
www.appliedcivil.com

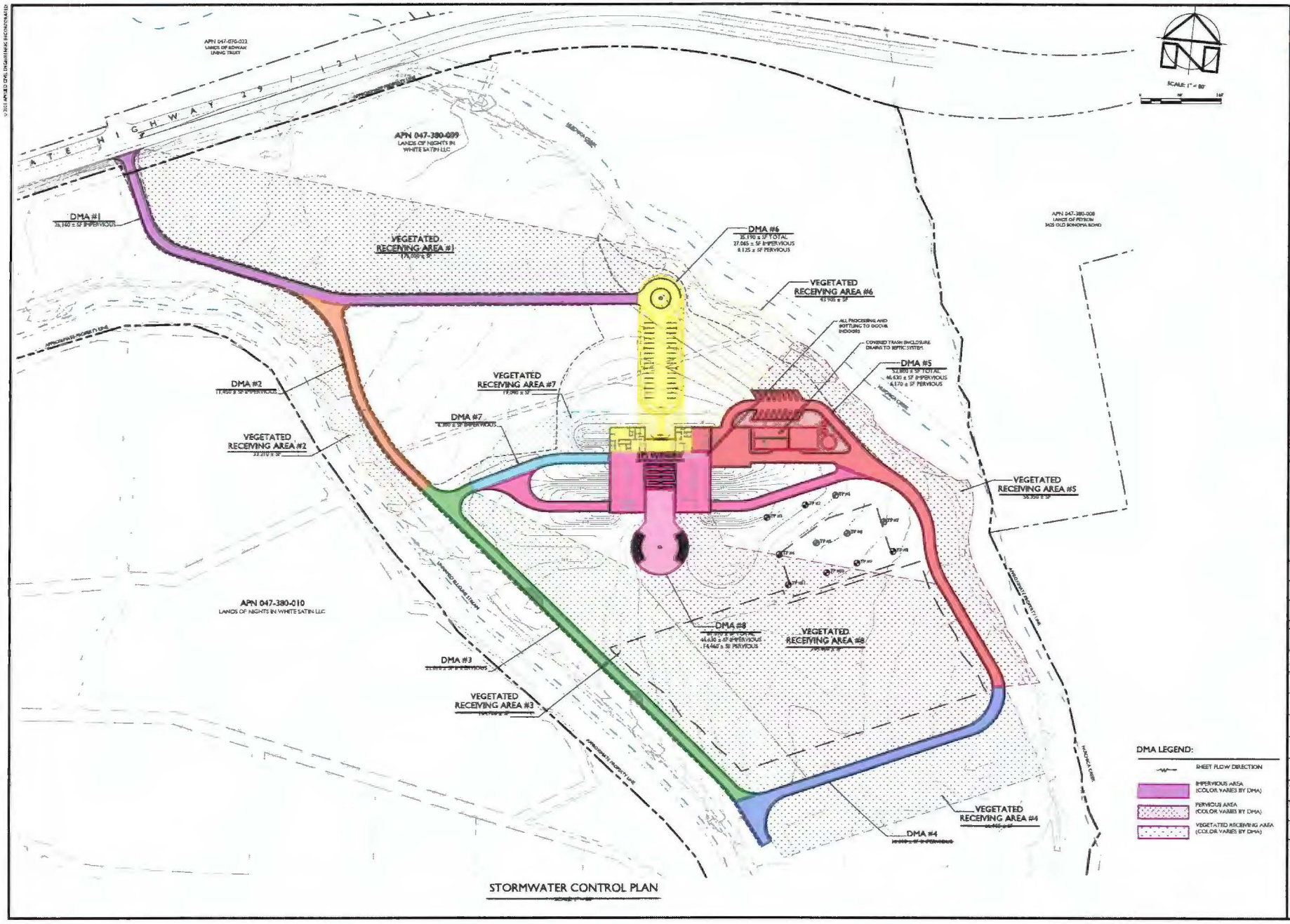
NIGHTS IN WHITE SATIN LLC

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS

UTILITY PLAN

PREPARED UNDER THE DIRECTION OF:

DRAWN BY:	PowerCAD LLC
CHECKED BY:	MRM
DATE:	SEPTEMBER 22, 2021
REVISIONS:	BY:
9/22/2021 PERMIT SUBMITTAL	YMS
JOB NUMBER:	18-145
FILE:	18-145CONC-UTIL.DWG
ORIGINAL SIZE:	24" X 36"
SHEET NUMBER:	C7 of 9



STORMWATER CONTROL PLAN

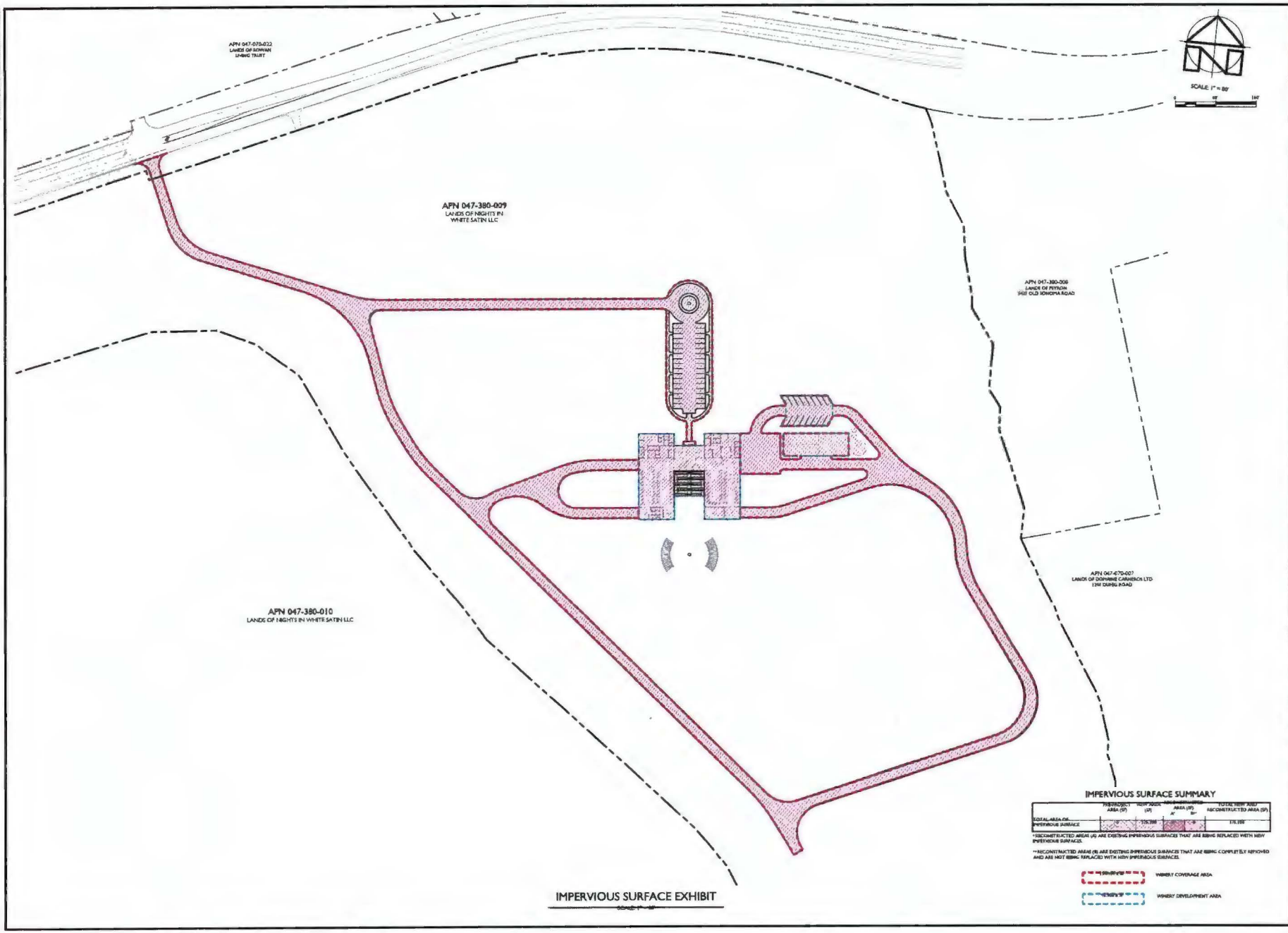
APPLIED
CIVIL ENGINEERING INCORPORATED
1324 West Lincoln Avenue
Napa, CA 94558
(707) 320-4448 (707) 320-2398 Fax
www.appliedcivil.com

NIGHTS IN WHITE SATIN LLC

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS
STORMWATER CONTROL PLAN

PREPARED UNDER THE DIRECTION OF

DRAWN BY:	PowerCAD LLC
CHECKED BY:	MRM
DATE:	SEPTEMBER 22, 2021
REVISIONS	BY
9/22/2021	TPS
PERMIT SUBMITTAL	
JOB NUMBER:	18-145
FILE:	18-145CONC-SCP.DWG
ORIGINAL SIZE:	24" X 36"
SHEET NUMBER:	C8
OF	9



IMPERVIOUS SURFACE EXHIBIT

APPLIED CIVIL ENGINEERING INCORPORATED
2376 West Lincoln Avenue
Napa, CA 94558
(707) 320-2396 Fax
www.appliedcivil.com

NIGHTS IN WHITE SATIN LLC

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS
IMPERVIOUS SURFACE EXHIBIT

PREPARED UNDER THE DIRECTION OF

DRAWN BY:	PowerCAD LLC
CHECKED BY:	MM
DATE:	SEPTEMBER 22, 2021

REVISIONS:	BY:
9/22/2021	MM
PERMIT SUBMITTAL	

JOB NUMBER: 18-145
FILE: 18145CONC-USE.DWG
ORIGINAL SIZE: 24" X 36"
SHEET NUMBER: C9
OF 9

APPENDIX 3: Water Storage Tank Water Balance Calculations

Irrigation Storage Tank Water Balance

Month	Beginning Balance	Process Wastewater	Land Application Capacity	Ending Balance
January	0	36,000	86,888	0
February	0	36,000	86,888	0
March	0	36,000	86,888	0
April	0	36,000	86,888	0
May	0	36,000	86,888	0
June	0	57,600	86,888	0
July	0	72,000	86,888	0
August	0	93,600	86,888	6,712
September	6,712	93,600	86,888	13,425
October	13,425	93,600	86,888	20,137
November	20,137	72,000	86,888	5,249
December	5,249	57,600	86,888	0
		720,000	1,042,652	

Notes:

1. All values shown above for beginning balance, inflow, outflow and ending balance are in units of gallons.
2. See attached tables for detailed explanation of process wastewater and irrigation data presented in this table.
3. This water balance is based on the assumption that the tank is empy in August, just prior to crush.
4. Where irrigation demand exceeds availble treated wastewater availability additional irrigation water will be provided by another source.

Winery Process Wastewater Generation Analysis

Annual Wine Production	120,000 gallons
Wastewater Generation Rate	6 gallons per gallon of wine
Annual Wasewater Generation	720,000 gallons
Crush Season Length	60 days
Wastewater Generated During Crush	1.5 gallons per gallon of wine
Peak Wastewater Generation Rate	3,000 gallons per day

Winery Process Wastewater Generation Table			
Month	Percentage of Annual Total	Monthy Flow (gallons)	Average Flow (gpd)
January	5.0%	36,000	1,161
February	5.0%	36,000	1,286
March	5.0%	36,000	1,161
April	5.0%	36,000	1,200
May	5.0%	36,000	1,161
June	8.0%	57,600	1,920
July	10.0%	72,000	2,323
August	13.0%	93,600	3,019
September	13.0%	93,600	3,120
October	13.0%	93,600	3,019
November	10.0%	72,000	2,400
December	8.0%	57,600	1,858
Total	100.0%	720,000	

Notes:

1. Wastewater generation rates and monthly proportioning are based on our past experience with similar projects.

Land Application Schedule Analsysis

Total acres of land application area 4 acres

Application Rate 0.8 inches / month January through December

Land Application Schedule					
Month				Non-Seasonal Irrigation Application (gallons)	Total (gallons)
January				86,888	86,888
February				86,888	86,888
March				86,888	86,888
April				86,888	86,888
May				86,888	86,888
June				86,888	86,888
July				86,888	86,888
August				86,888	86,888
September				86,888	86,888
October				86,888	86,888
November				86,888	86,888
December				86,888	86,888
Total				1,042,652	1,042,652

Notes:

1. Analysis conservatively based on infiltration only.

2. Non-Irrigation Application is for managing tank levels and assumes a maximum of 5 operational days per month based on historic weather data (Summit Engineering NBRID Capacity Study, 1996) and a saturated soil infiltration rate of 0.1 gallons per square foot per day uniformly over the entire area.

APPENDIX 4: Site Evaluation Report and Test Pit Map

Napa County
Environmental Health Division

SITE EVALUATION REPORT

Please attach an 8.5" x 11" plot map showing the locations of all test pits triangulated from permanent landmarks or known property corners. The map must be drawn to scale and include a North arrow, surrounding geographic and topographic features, direction and % slope, distance to drainages, water bodies, potential areas for flooding, unstable landforms, existing or proposed roads, structures, utilities, domestic water supplies, wells, ponds, existing wastewater treatment systems and facilities.

Permit #: E20-00211
APN: 047-380-009
(County Use Only) Reviewed by: Date:

PLEASE PRINT OR TYPE ALL INFORMATION

Property Owner Nights In White Satin LLC	X New Construction ☐ Addition ☐ Remodel ☐ Relocation ☐ Other:
Property Owner Mailing Address 1473 Yountville Cross Road	☐ Residential - # of Bedrooms: Design Flow : gpd
City State Zip Yountville CA 94599	X Commercial – Type: Winery Sanitary Waste: 1,500-2,500 gpd Process Waste: 3,000-4,000 gpd
Site Address/Location Neuenschwander Road Napa, CA 94599	☐ Other: Sanitary Waste: gpd Process Waste: gpd

Evaluation Conducted By:

Company Name Applied Civil Engineering Incorporated	Evaluator's Name Michael R. Muelrath, R.C.E. 67435	Signature (Civil Engineer, R.E.H.S., Geologist, Soil Scientist) Michael R. Muelrath
Mailing Address: 2074 West Lincoln Avenue		Telephone Number (707) 320-4968
City State Zip Napa CA 94558		Date Evaluation Conducted June 1, 2020

REGISTERED PROFESSIONAL ENGINEER MICHAEL R. MUELRATH NO. 67435 Exp. 12/31/2022 CIVIL STATE OF CALIFORNIA

Primary Area

Acceptable Soil Depth:30 inches Test pit #'s: 1-11

Soil Application Rate (gal. /sq. ft. /day):0.6 (Subsurface Drip)

System Type(s) Recommended: Pretreatment & Subsurface Drip

Slope: <5% Distance to nearest water source: 100' +

Hydrometer test performed? No X Yes ☐ (attach results)

Bulk Density test performed? No X Yes ☐ (attach results)

Percolation test performed? No X Yes ☐ (attach results)

Groundwater Monitoring Performed? No X Yes ☐ (attach results)

Expansion Area

Acceptable Soil Depth:30 inches Test pit #'s: 1-11

Soil Application Rate (gal. /sq. ft. /day): 0.6 (Subsurface Drip)

System Type(s) Recommended: Pretreatment & Subsurface Drip

Slope: <5% Distance to nearest water source: 100' +

Hydrometer test performed? No X Yes ☐ (attach results)

Bulk Density test performed? No X Yes ☐ (attach results)

Percolation test performed? No X Yes ☐ (attach results)

Groundwater Monitoring Performed? No X Yes ☐ (attach results)

Site constraints/Recommendations:

This site evaluation was performed to determine the feasibility of installing a new septic system to serve a new winery on the parcel. The winery process waste will be handled by a treatment and land application system in accordance with SWRCB requirements.

The primary constraints are the stream setback.

We recommend a subsurface drip type dispersal system with pre-treatment.

Note that soil pit depth was limited by the ability of the small excavator and not by soil conditions.

Test Pit #1

PLEASE PRINT OR TYPE ALL INFORMATION

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-36		0-15	CL	MSB	SH	FRB	SS	CF/FM	FF	NONE
36-72		0-15	CL	WSB	H	F	SS	FF	NONE	CMFt

Acceptable soil depth =36"

Test Pit #2

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-36		0-15	CL	MSB	SH	FRB	SS	CF/FM	FF	NONE
36-72		0-15	CL	WSB	H	F	SS	FF	NONE	CMFt

Acceptable soil depth =36"

Test Pit #3

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-36		0-15	CL	MSB	SH	FRB	SS	CF/FM	FF	NONE
36-72		0-15	CL	WSB	H	F	SS	FF	NONE	CMFt

Acceptable soil depth =36"

Test Pit #4

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-36		0-15	CL	MSB	SH	FRB	SS	CF/FM	FF	NONE
36-72		0-15	CL	WSB	H	F	SS	FF	NONE	CMFt

Acceptable soil depth =36"

Test Pit #5

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-36		0-15	CL	MSB	SH	FRB	SS	CF/FM	FF	NONE
36-72		0-15	CL	WSB	H	F	SS	FF	NONE	CMFt

Acceptable soil depth =36"

Test Pit #6

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-33		0-15	CL	MSB	SH	FRB	SS	CF/FM	FF	NONE
33-72		0-15	CL	WSB	H	F	SS	FF	NONE	CMFt

Acceptable soil depth =33"

Test Pit #7

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-30		0-15	CL	MSB	SH	FRB	SS	CF/FM	FF	NONE
30-72		0-15	CL	WSB	H	F	SS	FF	NONE	CMFt

Acceptable soil depth =30"

Test Pit #8

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-34		0-15	CL	MSB	SH	FRB	SS	CF/FM	FF	NONE
34-72		0-15	CL	WSB	H	F	SS	FF	NONE	CMFt

Acceptable soil depth =34"

Test Pit #9

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-34		0-15	CL	MSB	SH	FRB	SS	CF/FM	FF	NONE
34-72		0-15	CL	WSB	H	F	SS	FF	NONE	CMFt

Acceptable soil depth =34"

Test Pit #10

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-34		0-15	CL	MSB	SH	FRB	SS	CF/FM	FF	NONE
34-72		0-15	CL	WSB	H	F	SS	FF	NONE	CMFt

Acceptable soil depth =34"

Test Pit #11

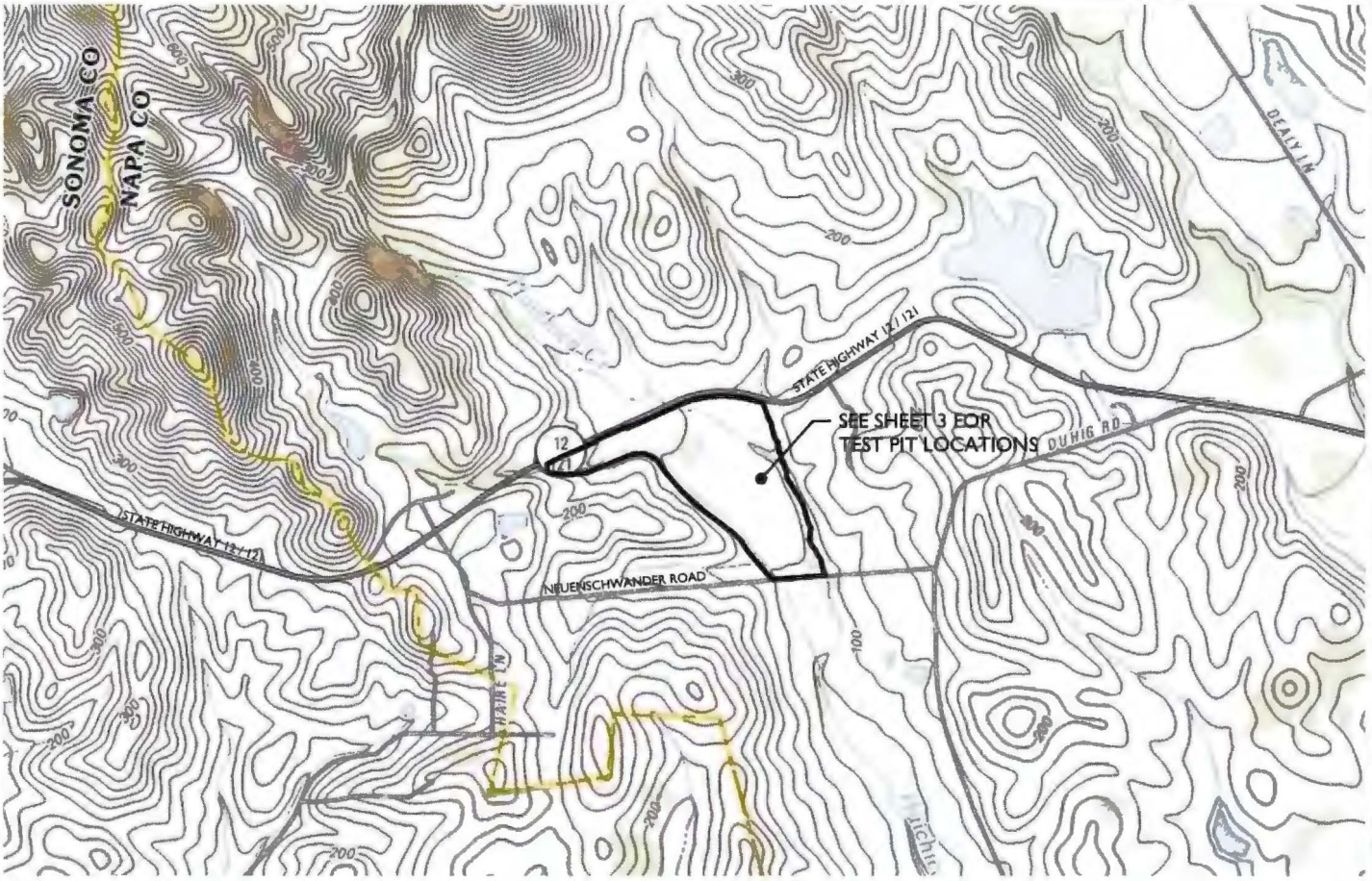
Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-34		0-15	CL	MSB	SH	FRB	SS	CF/FM	FF	NONE
34-72		0-15	CL	WSB	H	F	SS	FF	NONE	CMFt

Acceptable soil depth =34"

LEGEND

Boundary	Texture	Structure	Consistence			Pores	Roots	Mottling
			Side Wall	Ped	Wet			
A=Abrupt <1" **C**=Clear 1"-2.5" **G**=Gradual 2.5"-5" **D**=Difuse >5"	**S**=Sand **LS**=Loamy Sand **SL**=Sandy Loam **SCL**=Sandy Clay Loam **SC**=Sandy Clay **CL**=Clay Loam **L**=Loam **C**=Clay **SiC**=Silty Clay **SiCL**=Silty Clay Loam **SiL**=Silt Loam **Si**=Silt	**W**=Weak **M**=Moderate **S**=Strong **G**=Granular **Pl**=Platy **Pr**=Prismatic **C**=Columnar **B**=Blocky **AB**=Angular Blocky **SB**=Subangular Blocky **M**=Massive **SG**=Single Grain **CEM**=Cemented	**L**=Loose **S**=Soft **SH**=Slightly Hard **H**=Hard **VH**=Very Hard **ExH**=Extremely Hard	**L**=Loose **VFRB**=Very Friable **FRB**=Friable **F**=Firm **VF**=Very Firm **ExF**=Extremely Firm	**NS**=NonSticky **SS**=Slightly Sticky **S**=Sticky **VS**=Very Sticky **NP**=NonPlastic **SP**=Slightly Plastic **P**=Plastic **VP**=Very Plastic	**Quantity:** **F**=Few **C**=Common **M**=Many **Size:** **VF**=Very Fine **F**=Fine **M**=Medium **C**=Coarse **VC**=Very Coarse	**Quantity:** **F**=Few **C**=Common **M**=Many **Size:** **F**=Fine **M**=Medium **C**=Coarse **VC**=Very Coarse **ExC**=Extremely Coarse	**Quantity:** **F**=Few **C**=Common **M**=Many **Size:** **F**=Fine **M**=Medium **C**=Coarse **Contrast:** **Ft**=Faint **D**=Distinct **P**=Prominent

Notes:
Structure is recorded as Modifier then Structure - for example, Moderate (M) Subangular Blocky (SB) is recorded as MSB
Pores and Roots are recorded as Quantity then Size – for example Few (F) Coarse (C) is recorded as FC
Mottling is recorded as Quantity then Size then Contrast – for example Few (F) Coarse (C) Distinct (D) is recorded as FCD



LOCATION MAP

SCALE: 1" = 2,000'

NOTES:

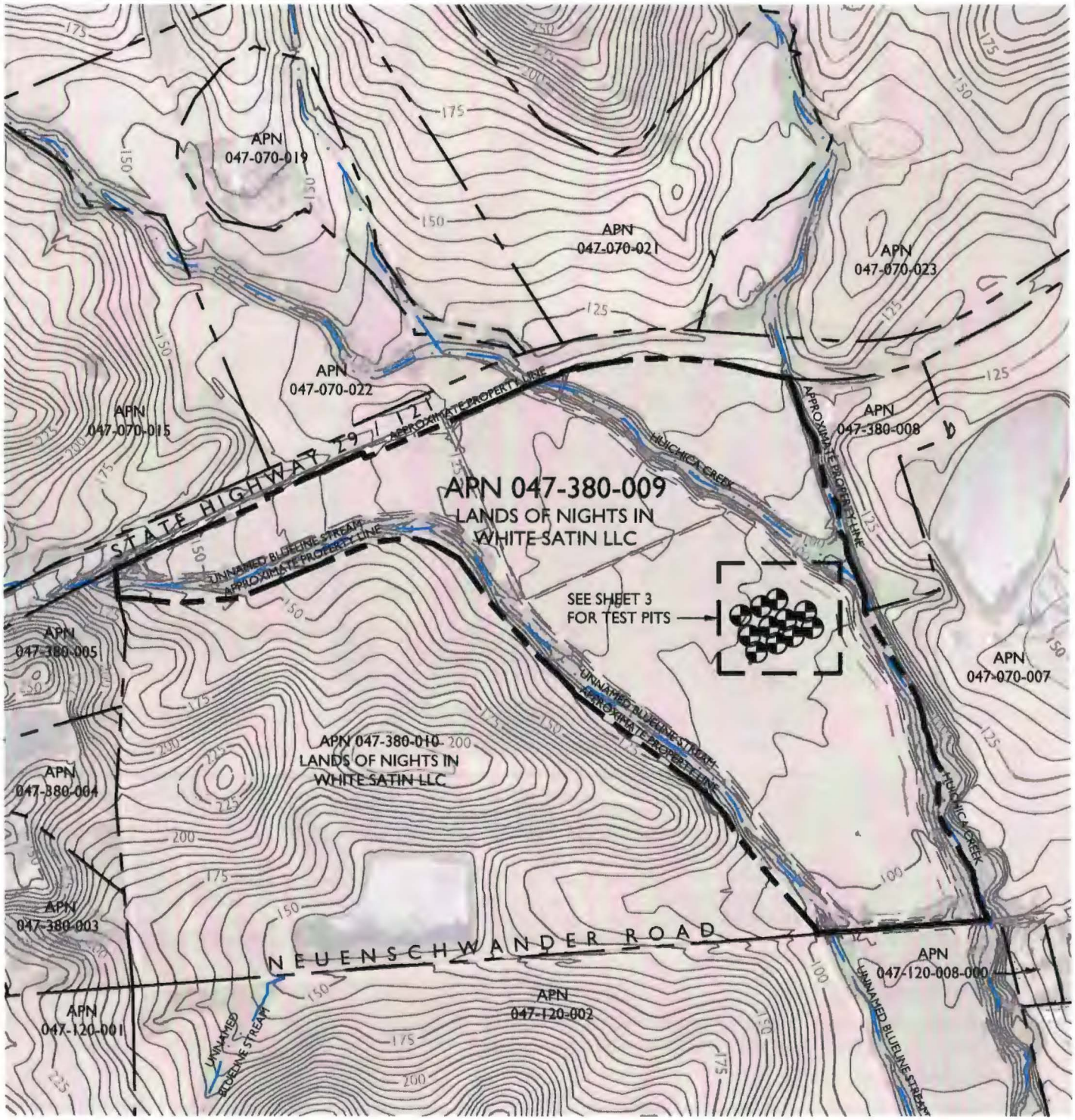
1. TEST PITS ONE THROUGH ELEVEN (TP #1 - TP #11) WERE EXCAVATED BY RENTERIA VINEYARD MANAGEMENT AND WERE WITNESSED BY MIKE MUELRATH OF APPLIED CIVIL ENGINEERING INCORPORATED AND ARMEDA SIMPSON VANDAM OF THE NAPA COUNTY PLANNING, BUILDING AND ENVIRONMENTAL SERVICES DEPARTMENT - ENVIRONMENTAL HEALTH DIVISION ON JUNE 1, 2020.
2. FADED BACKGROUND REPRESENTS EXISTING TOPOGRAPHIC FEATURES. TOPOGRAPHIC INFORMATION ON SHEET 2 WAS OBTAINED FROM THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM DATABASE. TOPOGRAPHIC INFORMATION ON SHEET 3 WAS OBTAINED FROM THE "MAP OF TOPOGRAPHY OF A PORTION OF THE LANDS OF NIGHTS IN WHITE SATIN LLC" PREPARED BY ALBION SURVEYS, INC., DATED MARCH 10, 2020. APPLIED CIVIL ENGINEERING INCORPORATED ASSUMES NO LIABILITY REGARDING THE ACCURACY OR COMPLETENESS OF THE TOPOGRAPHIC INFORMATION.
3. CONTOUR INTERVAL:

   SHEET 2: FIVE (5) FEET, HIGHLIGHTED EVERY TWENTY FIVE (25) FEET.
   SHEET 3: ONE (1) FOOT, HIGHLIGHTED EVERY FIVE (5) FEET
4. BENCHMARK: NAVD 88
5. AERIAL PHOTOGRAPHS WERE OBTAINED FROM THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM (GIS) DATABASE, TAKEN APRIL TO JUNE 2018 AND MAY NOT REPRESENT CURRENT CONDITIONS.
6. ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP NUMBER 06055C0515E, EFFECTIVE SEPTEMBER 26, 2008, THE PROJECT SITE IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA.

APPLIED CIVIL ENGINEERING INCORPORATED
2074 West Lincoln Avenue
Napa, CA 94558
(707) 320-4968 (707) 320-2395 Fax
www.appliedcivil.com

NIGHTS IN WHITE SATIN LLC
NEUENSCHWANDER ROAD
NAPA, CA 94559
APN 047-380-009

SCALE: 1" = 2,000'



OVERALL SITE PLAN

SCALE: 1" = 500'

APPLIED
CIVIL ENGINEERING
INCORPORATED
2074 West Lincoln Avenue
Napa, CA 94558
(707) 320-4968 (707) 320-2395 Fax
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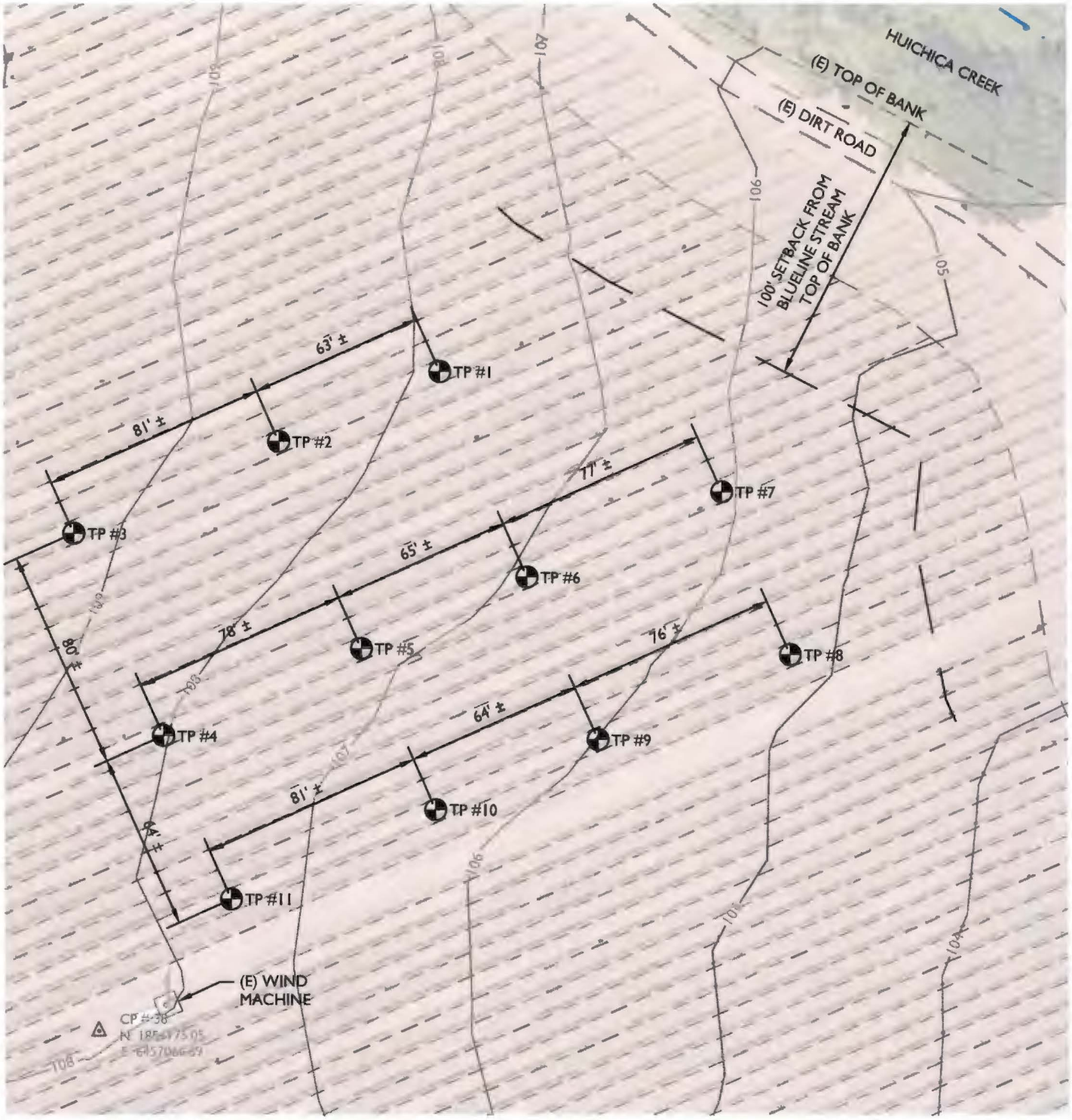
NAPA, CA 94559
APN 047-380-009

SCALE: 1" = 500'



TEST PIT MAP

SCALE: 1" = 50'

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NEUENSCHWANDER ROAD
NAPA, CA 94559
APN 047-380-009

SCALE: 1" = 50'