



Technical Memorandum

Reference: 022054.300
Date: April 22, 2024
To: Rob Holmlund (HBHRCD), Shane Phillips (M&N)
From: Jared O'Barr (SHN)
Subject: Redwood Marine Multipurpose Terminal Access Roads Assessment

Disclaimer: This draft technical memorandum is a work-in-progress and is intended to be an internal document for use by the Humboldt Bay Offshore Wind Heavy Lift Marine Terminal Project team as a part of the conceptual design process and the ongoing permitting process. This memorandum is meant to be read as a part of a comprehensive packet of technical analyses. It is not written to be a standalone document, and it is assumed that the reader has substantial project knowledge and context to understand the memorandum's content. All aspects of this memorandum are subject to change and may become less accurate over time. To better understand the project, please review the more comprehensive and up-to-date documents posted to the Humboldt Bay Harbor District's website at <https://humboldt-bay.org/humboldt-bay-offshore-wind-heavy-lift-marine-terminal-project-3>.

Introduction

This technical memorandum summarizes the layout and design considerations for access roads serving the planned Redwood Marine Multipurpose Terminal (RMMT) site.

There will be four access points into the RMMT site (two primary access points and two secondary access points). The two primary access points for vehicular traffic will be the North and West Access Roads. The North Access Road will accommodate a combination of worker vehicles and standard highway trucks for deliveries. Large overlength lowboy-type trucks are not anticipated to utilize the North Access Road. The West Access Road will accommodate a combination of worker vehicles, standard highway trucks, and heavy haul overlength lowboy type trucks for delivery of equipment. The two secondary access points will be for limited special and emergency type access. The secondary access points are located across from LP Drive on the west property boundary and along the southeast side of the RMMT site.

An overview figure showing the access roads considered for this project is provided in Appendix 1. As shown in the overview figure, there are two primary access roads that will serve the project site (the North Access Road and the West Access Road). There are also locations on the project site where driveways will be needed for site access. However, the location and configuration of these driveways is not the focus of this assessment. Driveway locations and layouts will be considered in more detail as the site plan for the project is refined in future phases of the project.

An evaluation of the offsite intersections (New Navy Base Road/Cookhouse Road, Vance Avenue/Cookhouse Road, and New Navy Base Road/LP Drive) was evaluated by W-Trans (subconsultant to Moffatt & Nichol) and is referenced in Sections 2.4 and 3.6 of this memo.



1.0 Access Road Configurations

A figure showing typical sections to be considered for the access roads is provided in Appendix 2.

1.1 Public Access Road Typical Section

The typical public access road section consists of two 12-foot-wide paved lanes, 8-foot-wide paved shoulders, and 2-foot-wide gravel shoulders. This configuration meets Humboldt County's (County's) requirements for a rural collector street. For the preliminary access road layout, the cut slopes were kept at 2:1 (horizontal to vertical), and the fill slopes were kept at 4:1. Exact cut/fill slopes will need to be refined in future phases of the project.

1.2 Private Access Road Typical Section

The typical private access road section consists of two 12-foot-wide gravel lanes, and 4-foot-wide gravel shoulders. For the preliminary access road layout, the cut slopes were kept at 2:1, and the fill slopes were kept at 4:1. Exact cut/fill slopes will have to be refined in future phases of the project.

1.3 Great Redwood Trail Agency (GRTA) Trail Typical Section

The District is planning to improve the GRTA right-of-way with a new trail that extends the approximate length of the proposed marine terminal (approximately 1 mile in length). Future connectivity and extension of the trail is beyond the scope of this phase of the terminal development project. A typical Class 1 Bike Path configuration was assumed for the segment of the GRTA trail that will be located adjacent to the West Access Road. Please reference the "Redwood Marine Multipurpose Terminal Project Utilities Assessment" memo for additional information regarding the GRTA trail.

1.4 Stormwater Mitigation

Different stormwater mitigation features offer varying levels of treatment and have different space requirements. In some areas it may be preferred to collect runoff from the roadways and convey it to localized stormwater treatment features, such as bioretention basins. In other areas, there may be adequate space to provide stormwater mitigation along the sides of the access roads.

1.4.1 North Access Road Stormwater Mitigation

The preliminary stormwater mitigation design for the North Access Road includes the impervious area disconnect design measure along the fill slopes of the road and adjacent existing ground along the edge of the fill prism. The impervious area disconnect generally consists of creating a soil quality improvement area by placing at least 12-inches of topsoil over disturbed areas or preserving existing topsoil adjacent to the disturbed areas that the access road will drain to. The width of the impervious area disconnect must be at least half the width of the area draining to it, a minimum of 150 square feet of impervious surface area is needed to qualify for the runoff reduction credit, and the credits are applied equal to the total impervious area draining to the impervious area disconnection.



1.4.2 West Access Road Stormwater Mitigation

Stormwater mitigation strategies for the West Access Road will require further consideration and refinement as the project progresses, because at this stage, there are too many unknowns and variables that could impact the configuration of this road and the stormwater mitigation strategy. Two of the primary variables include the following:

1. Project Phase 1 vs. Complete Project Build Out—The stormwater mitigation strategy for the West Access Road will vary depending on which condition the road will be designed for. If the road is designed as an isolated feature for Phase 1 of the project, the stormwater mitigation for the West Access Road will include the impervious area disconnect mitigation strategy along the roadway that will specifically treat runoff from the roadway. The access road will also include a swale to convey the treated stormwater south along the historical drainage path toward LP Drive, see Attachment 1 of the “Off-Site Drainage” Memorandum prepared by Moffatt & Nichol. However, if the road is designed as part of the complete project buildout, then it will be more appropriate to combine stormwater mitigation features needed for the RMMT site and the West Access Road. Refer to the “Stormwater Treatment” memorandum prepared by Moffatt & Nichol for further discussion on stormwater mitigation strategies for the project site.
2. Utility Corridor Impacts—The layout and configuration for stormwater mitigation for the West Access Road will be impacted by the layout of the utility corridor that will run along/below the West Access Road. The constraints imposed by the utility corridor will need to be considered more closely in future phases of the project. See the “Redwood Marine Multipurpose Terminal Project Utilities Assessment” memorandum prepared by SHN for more information regarding corridor layout options.

2.0 North Access Road

Figures for the North Access Road are provided in Appendix 3.

2.1 North Access Road Existing Conditions

The proposed access road will follow a similar alignment to that of an existing access road on the site. The existing dirt road provides access from Vance Avenue to the project site. The existing road starts at an approximate elevation of 16.5 feet where it ties-in to Vance Avenue and slopes down to average elevations between 11 feet and 12 feet where the road enters the RMMT site.

2.2 North Access Road Layout

As stated above, the new access road will follow a similar alignment to that of the existing access road. However, the new access road will be higher in elevation than the existing access road. The new road will tie-in to Vance Avenue at an approximate elevation of 16.5 feet, and it will maintain a minimum road surface elevation of 16.1 feet until it ends at the project site. The elevation of the new road can be reduced between the two tie-in points to more closely match the existing roadway and reduce the required fill prism, but direction from HBHRCD and Crowley is needed to determine if this is desired. Lowering the roadway elevation is not anticipated to impact the use of the road for project traffic or deliveries, but SLR projections should be considered when setting the minimum elevation. Refer to the “Redwood Marine Multipurpose Terminal Timber Heritage Site Considerations” memo for additional



information regarding the Timber Heritage site and SLR considerations. The North Access Road will be a private road, so it will be constructed with two 12-foot gravel lanes and 4-foot gravel shoulders.

2.3 North Access Road Vehicle Tracking

Based on guidance provided by Moffatt & Nichol, the North Access Road needs to accommodate standard semi-trucks. In order to confirm that the proposed road layout can provide access to a standard semi-truck, SHN conducted a vehicle tracking analysis using the California Legal Design vehicle, which has an overall length of 65 feet. The vehicle tracking confirmed that the North Access Road, as currently designed, can accommodate the standard semi-truck. However, the intersection of Cookhouse Road and Vance Avenue was also analyzed, and it was determined that the California Legal Design vehicle would need to enter the south bound lane of Vance Avenue in order to complete the turn within the paved roadway. Reference Section 2.4 for recommendations regarding modifications to offsite county-maintained roads.

2.4 North Access Road W-Trans Roadway Analysis

Based on the recommendations in the W-Trans memorandum (see "Trip Generation and Operational Analysis for the Redwood Marine Terminal Replacement Project Memo"), the intersection of New Navy Base Road and Cookhouse Road will not require modification to support the traffic resulting from the construction of RMMT or the continued development of the Town of Samoa. In addition, this memorandum reviewed the intersection of Cookhouse Road and Vance Avenue and concluded that all-way stop controls may be warranted as the development of the Town of Samoa continues. This modification would require an additional stop sign on Cookhouse Road eastbound, and on Vance Avenue northbound. W-Trans further recommends a minimum roadway width of 40 feet for all roads providing truck access to the site in order to allow projected related vehicles to make all required turns within their designated lanes. Cookhouse Road and Vance Avenue north of Cookhouse Road are approximately 30 feet and 22 feet wide, respectively, at the paving extents. SHN recommends that Cookhouse Road and Vance Avenue be widened to 40 feet minimum per the W-Trans recommendation. See Appendix 1 for the estimated roadway widening extents. Detailed survey information is needed to confirm the current estimated roadway widths and begin designing modifications to existing county roadways referenced herein.

2.5 North Access Road Habitat Mitigation Areas

The North Access Road is currently aligned to maximize operational efficiency of the RMMT facility and is not impacted by the habitat mitigation strategy. In order to maximize site operation, the habitat mitigation strategy will be modified as necessary to accommodate the North Access Road improvements.

3.0 West Access Road

Figures for the West Access Road are provided in Appendix 4.



3.1 West Access Road Existing Conditions

The proposed access road will follow an existing (paved) segment of Vance Avenue between LP Drive and the recently constructed Phyllis Rex Townhomes in the Town of Samoa, until Vance Avenue turns to the north as it approaches the townhomes. After Vance Avenue turns to the north, the West Access Road will continue running parallel to the GRTA corridor until it reaches the project site. This segment of land between Vance Avenue and the project site does not contain an existing access road, is vegetated, and the existing ground surface is sloped.

3.2 West Access Road ROW Limitations

Refer to the "Preliminary Title Constraints Analysis Report, Redwood Marine Multipurpose Terminal, Samoa California" letter for specific details regarding the right-of-way and easements associated with this project.

The segment of Vance Avenue that coincides with the proposed West Access Road (described in the section above) is located within a 50-foot-wide access easement. This access easement deviates to the north, as does Vance Avenue, which leaves a segment of the proposed access road without an existing easement. Therefore, in order to construct the new access road, an additional easement will be needed between the existing access easement and the project site.

For the purpose of laying out the new access road, the new road's cut/fill prisms were not allowed to extend into the GRTA right-of-way. As much as possible, the new road's cut/fill prisms were kept within the 50-foot-wide access easement, but there are some areas where they extend beyond the easement and into the adjacent parcel. A new or revised easement will be needed along some portions of the access road. The exact locations along the West Access Road where an additional easement will be needed, and the necessary widths of the easements have not been determined. The site layout (including security fencing, sound walls, guard shacks, and so on), the design of the utility corridor, the stormwater mitigation strategy, and more accurate topographic survey are some of the key factors that need to be resolved before final easement locations and widths can be determined.

3.3 West Access Road Public and Private Segments

The segment of the West Access Road (Vance Avenue) between LP Drive and the driveway to the Recology site is a public road and will have to be constructed to meet County standards. The segment of the West Access Road to the east of the driveway to the Recology site will be a private road and can be constructed using the private road cross-section described earlier in this memorandum.

3.4 West Access Road Layout

The new access road will closely match the elevations of the existing Vance Avenue in order to minimize cut/fill prism extents. However, as the new access road continues toward the site, and deviates from Vance Avenue, it will require larger cut/fill prisms to facilitate the difference in elevation between the existing ground and the design ground surface of the project site.

The West Access Road will be designed to meet County standards between LP Drive and the driveway to the Recology site. East of the Recology driveway, the West Access Road will be designed as a private road.



3.5 West Access Road Vehicle Tracking

Based on guidance provided by Moffatt & Nichol, the West Access Road needs to accommodate standard semi-trucks, as well as extra-long lowboy trailers. In order to confirm that the proposed road layout can provide access to these vehicles, SHN conducted a preliminary vehicle tracking analysis using a semi-truck with an overall length of 65 feet, and a semi-truck with a lowboy with an overall length of 101 feet. The 65-foot semi was required to make the turning movements while staying in the prescribed lanes; the 101-foot-long semi-lowboy was permitted to cross lanes but was required to stay within the paved limits of the roadway. The preliminary vehicle tracking confirmed that the West Access Road, as currently designed, can accommodate both vehicles based on the criteria set.

3.6 West Access Road W-Trans Roadway Analysis

Based on the recommendations in the W-Trans "Trip Generation and Operational Analysis for the Redwood Marine Terminal Replacement Project" memo, W-Trans recommends a minimum roadway width of 40 feet for all roads providing truck access to the site in order to allow project related vehicles to make all required turns within their designated lanes. LP Drive between New Navy Base Road and Vance Avenue is approximately 25 feet wide at the paving extents. SHN recommends that LP Drive is widened to 40 feet minimum per the W-Trans recommendation; see Appendix 1 for the estimated roadway widening extents. Detailed survey information is needed to confirm the current estimated roadway widths and to begin designing modifications to existing county roadways referenced herein.

4.0 Further Coordination and Considerations

4.1 Necessary Entity Coordination

Further coordination is needed with the following entities to revise and refine the access road layouts:

- Humboldt County
- GRTA
- Town of Samoa
- Adjacent parcel owners
- PG&E and other utility providers with existing utilities within the access easement, or with rights to install utilities within this easement.

4.2 Next Phase Considerations

As the project progresses, there are some primary considerations that should be addressed to inform and refine the approach to developing the access roads for the site. Primary considerations are summarized below:

1. General Access Road Considerations

- a. A more detailed topographic survey of the site is needed, especially in areas where there is existing vegetation because the photogrammetric and LIDAR methods that were used to



map the existing ground surface are not typically accurate enough for design in areas of heavy vegetation.

- b. Continued refinement of the stormwater mitigation strategy for the access roads will be needed as the overall site design progresses to ensure continued alignment with the overall site stormwater mitigation strategy.
- c. Additional consideration is needed to determine “buffer” widths that should be assumed on either side of the access roads to account for unknowns at this stage of the project. These buffers should account for unknowns in the road configurations, potential changes to road surface elevations, inaccuracies with the existing topographic survey within vegetated areas, and stormwater mitigation.
- d. The design vehicle types and sizes used for the truck turning analysis on the North and West Access Roads should be verified to confirm that all project-related traffic is accounted for.

2. North Access Road Considerations

- a. The width and configuration of the North Access Road should be confirmed. Considerations include confirming the largest vehicles that will use the North Access Road, confirming that this road does not need to provide pedestrian or bicycle access, and confirming that this road should have a gravel surface. Vehicle tracking should be re-done if the design vehicle or road section changes.
- b. The current design for the North Access Road sets the minimum road surface elevation at 16.1 feet, which aligns well with the tie-in elevation at the intersection with Vance Avenue (approximately 16.5 feet), and the tie-in elevation at the project site (approximately 16.1 feet). However, the middle segment of the North Access Road could be set at a lower elevation in order to reduce the size of the roadway will prism. Please advise if the middle segment of the roadway should be set at a lower elevation.

3. West Access Road Considerations

- a. Further coordination to confirm the utility corridor requirements along the Western Access Road is needed, as the utility corridor requirements may necessitate modifications to the Western Access Road layout. This effort should include coordination with PG&E and other utility providers with existing utilities within the 50-foot access easement or with rights to install utilities within this easement.
- b. The access road alignment will need to be refined as a more detailed site plan is developed for the project (showing security fencing, gates, a guard shack, sound walls, vegetated buffers, and so on).
- c. Continued refinement of the stormwater mitigation strategy for the West Access Road will be needed as the overall site design progresses to ensure continued alignment with the overall site stormwater mitigation strategy.
- d. The phasing of the project will dictate the stormwater mitigation strategy along the West Access Road. The preferred mitigation strategy differs between Phase 1 and the Complete Project Buildout.



- e. A detailed ground survey will be necessary to confirm the historical drainage patterns of the offsite area west of the West Access Road, see the "Off-Site Drainage" memo prepared by Moffatt & Nichol.
- f. Further coordination with project partners is needed to determine the necessary widths of the easements for the West Access Road. The site layout (including security fencing, sound walls, guard sheds, and so on), the design of the utility corridor, the stormwater mitigation strategy, and more accurate topographic survey are some of the key factors that need to be resolved before final easement locations and widths can be determined.

4. GRTA

- a. Further coordination with GRTA is needed to determine what trail alignment and configuration (cross section) should be used for the new trail segment. This will also include utility coordination for new and existing utilities within the railroad right-of-way; reference the "Redwood Marine Multipurpose Terminal Project Utilities Assessment" memo for additional information regarding the GRTA trail.

- Appendices:
- 1. Access Road Overview
 - 2. Road/Trail Typical Sections
 - 3. North Access Road Figures
 - 4. West Access Road Figures

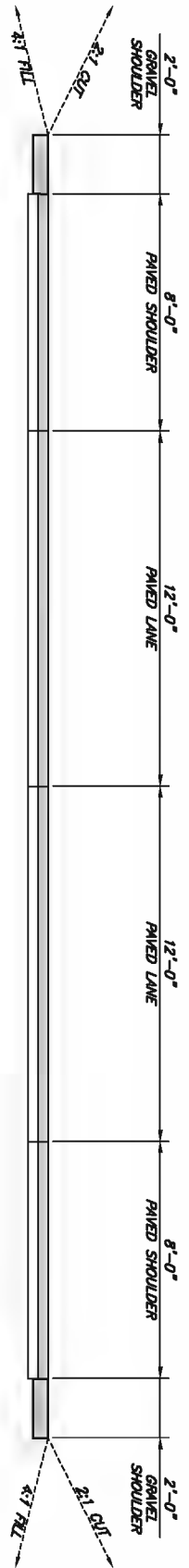


Access Road Overview

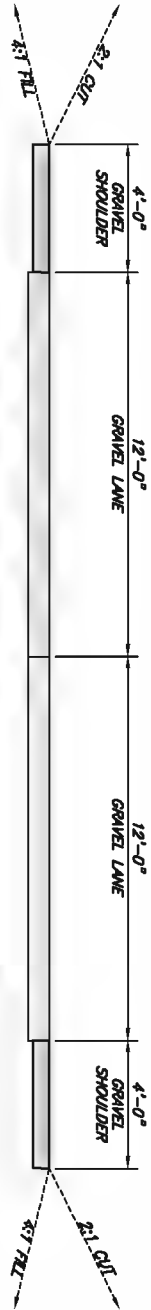
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Road/Trail Typical Sections

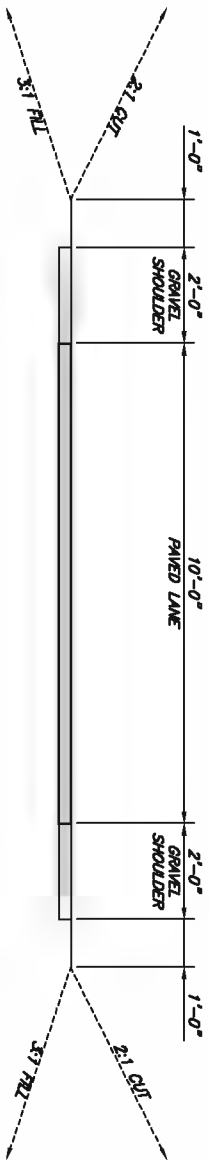
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TYPICAL PUBLIC ROAD SECTION



TYPICAL PRIVATE ROAD SECTION



TYPICAL CLASS 1 BIKE PATH SECTION

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REDWOOD MARINE MULTIPURPOSE TERMINAL
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 SAMOA, CALIFORNIA

TYPICAL SECTIONS

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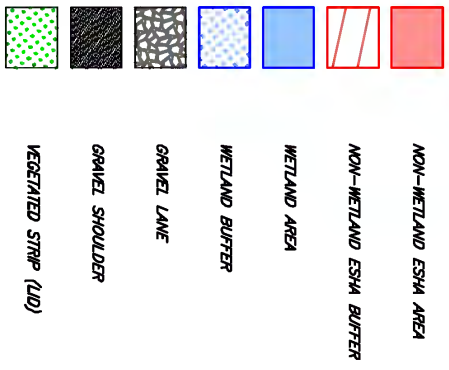
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FIG 2

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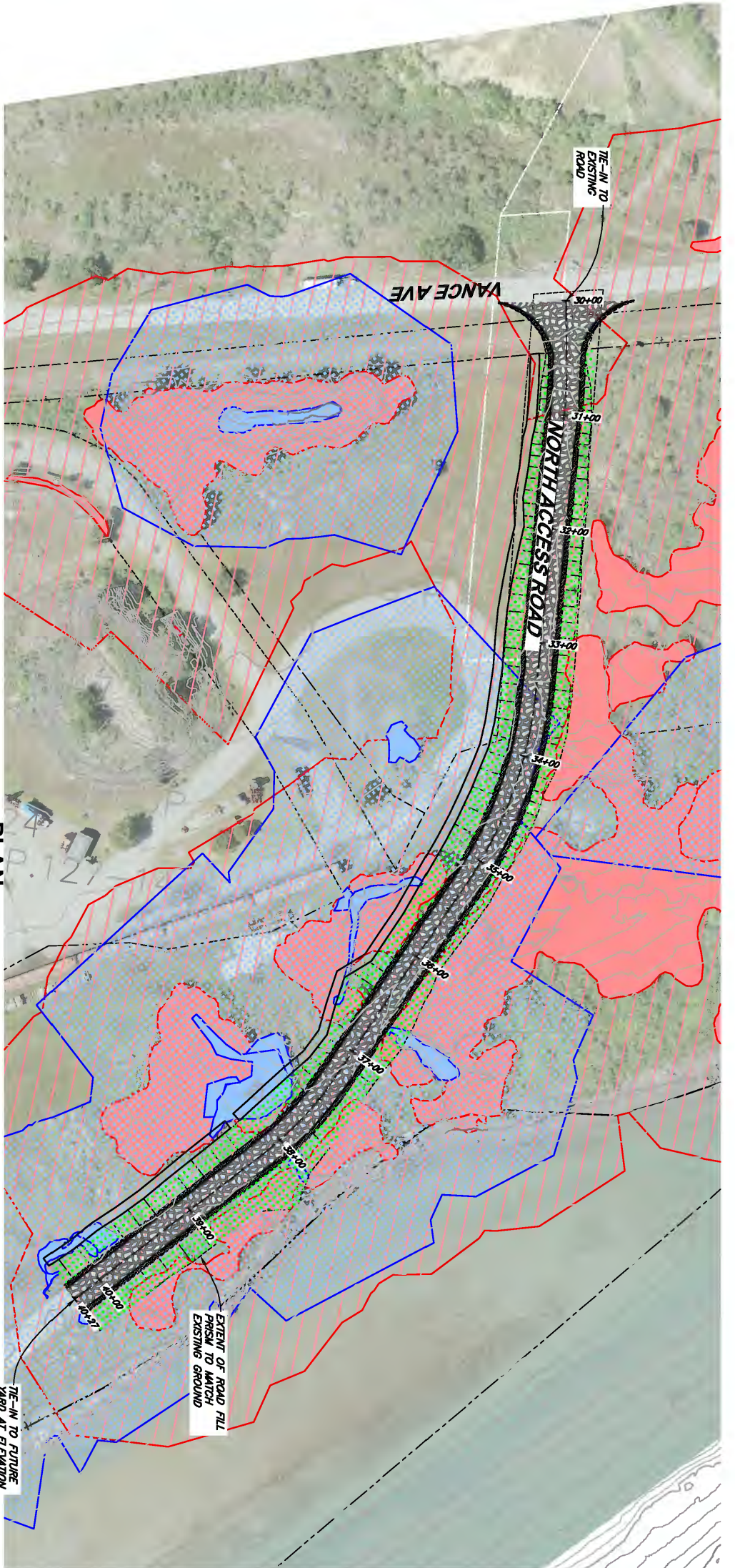
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**North Access Road
Figures**

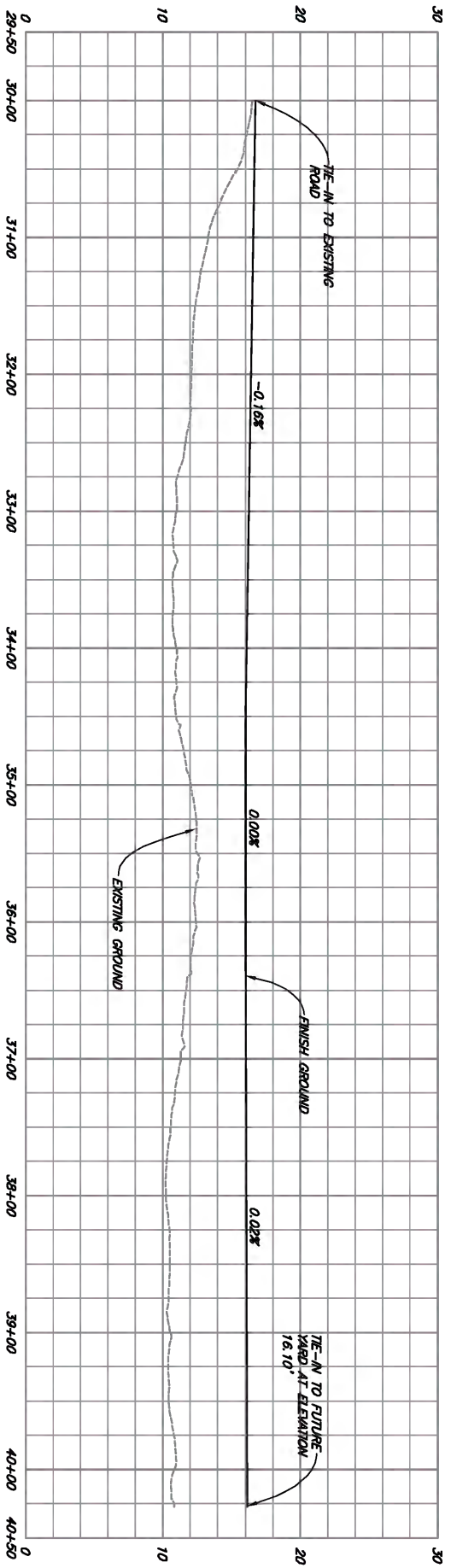
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PLAN
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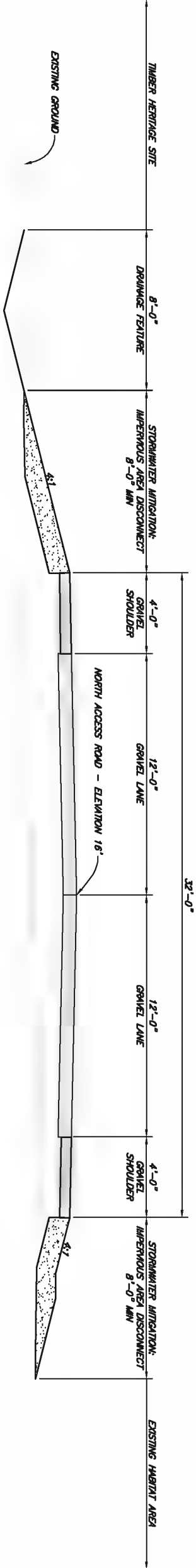


NORTH ACCESS ROAD PROFILE
SCALE: 1"=20' V
1"=80' H

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TYPICAL PRIVATE ROAD SECTION
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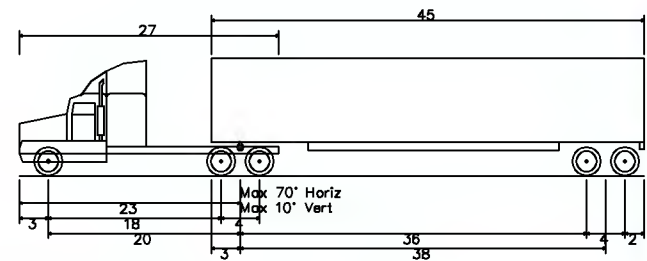
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SAMOA, CALIFORNIA
**NORTH ACCESS ROAD
TYPICAL SECTION**

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California Legal Design Vehicle
 Overall Length 65.00ft
 Overall Width 8.500ft
 Overall Body Height 12.227ft
 Min Body Ground Clearance 1.422ft
 Track Width 8.500ft
 Lock-to-lock time 6.00s
 Max Steering Angle (Virtual) 26.30°



65' TRUCK/TRAILER

1"=30'

(TURNING LEFT FROM COOKHOUSE ROAD TO VANCE AVENUE)

LEGEND

 IMPROVED COUNTY ROADWAYS

FREELIMINARY

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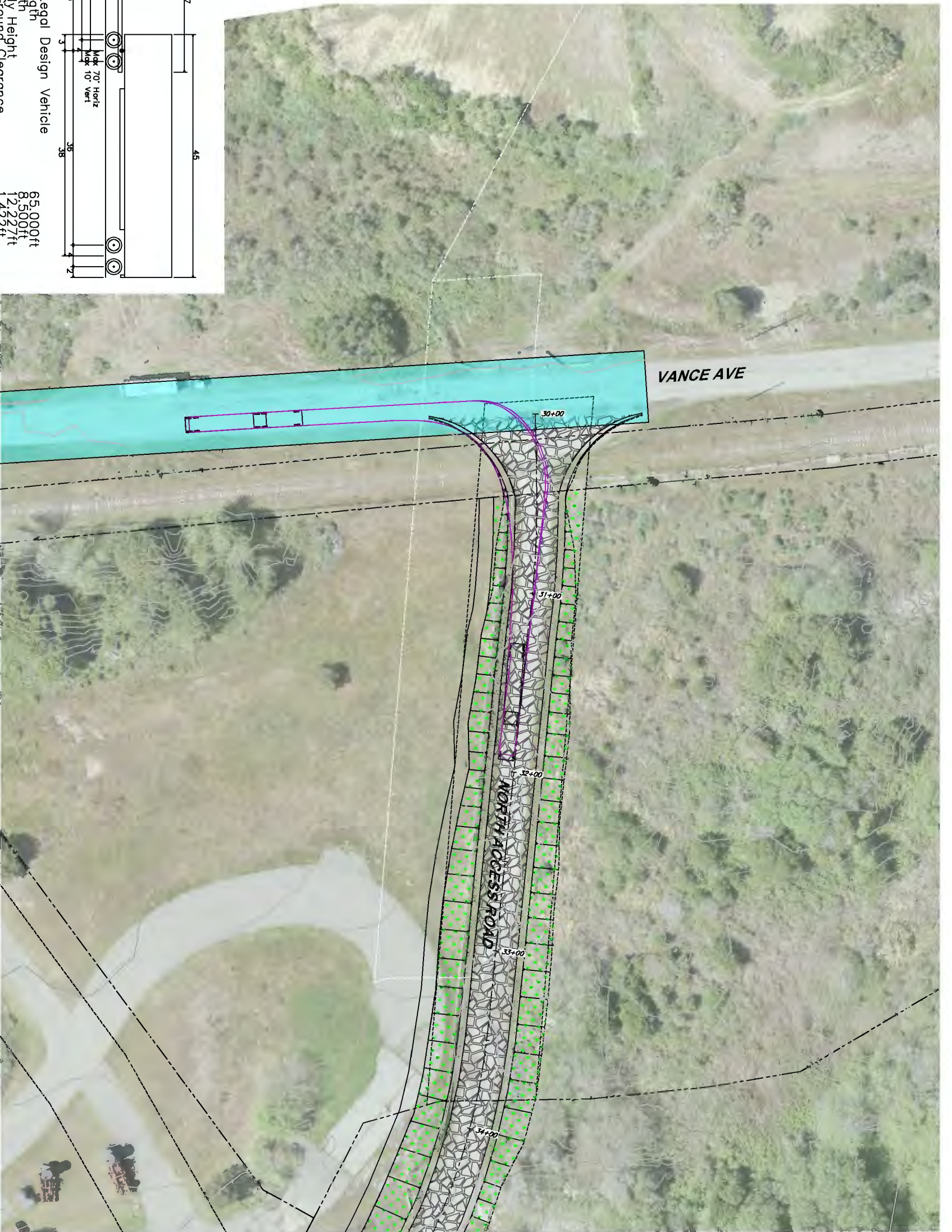


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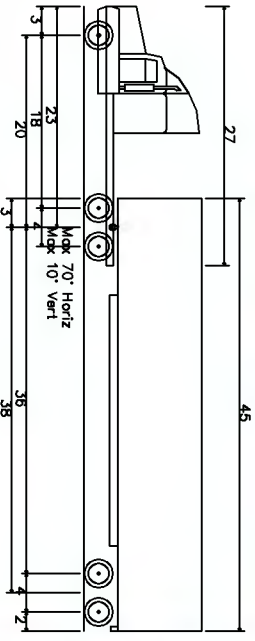
REDWOOD MARINE MULTIPURPOSE TERMINAL
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 SAMOA, CALIFORNIA
**TURNING ANALYSIS - COOKHOUSE
 ROAD/VANCE AVENUE**

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California Legal Design Vehicle
 Overall Length
 Overall Width
 Overall Body Height
 Min Body Ground Clearance
 Track Width
 Lock-to-lock time
 Max Steering Angle (Virtual)

65.000ft
 8.300ft
 12.227ft
 8.500ft
 6.00s
 26.30°



(TURNING RIGHT FROM VANCE AVENUE TO NORTH ACCESS ROAD)

65' TRUCK/TRAILER
 1"=50'



LEGEND

- GRAVEL LANE
- GRAVEL SHOULDER
- VEGETATED STRIP (V/S)
- IMPROVED COUNTY ROADWAYS

PRELIMINARY

REDWOOD MARINE MULTIPURPOSE TERMINAL
 REPLACEMENT PROJECT
 SAMOA, CALIFORNIA
**TURNING ANALYSIS- VANCE
 AVENUE/NORTH ACCESS ROAD**

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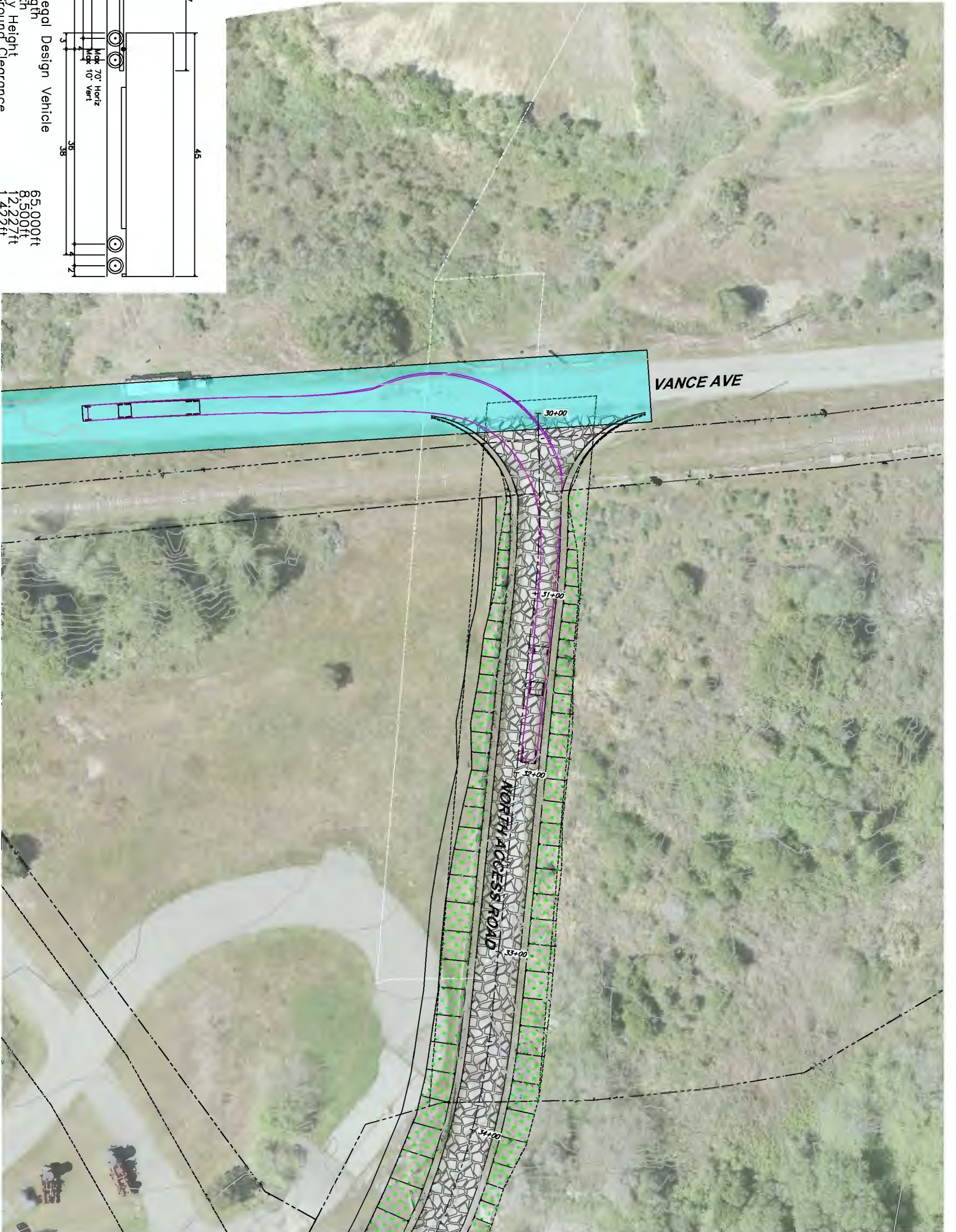
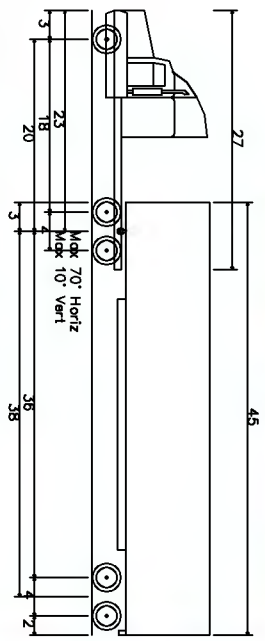


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FIG 7
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California Legal Design Vehicle
 Overall Length 65.000ft
 Overall Width 8.300ft
 Overall Body Height 12.227ft
 Min Body Ground Clearance 1.422ft
 Track Width 8.500ft
 Lock-to-lock time 6.00s
 Max Steering Angle (Virtual) 26.30°



(TURNING LEFT FROM NORTH ACCESS ROAD TO VANCE AVENUE)

65' TRUCK/TRAILER
 7'-50"

LEGEND

- GRAVEL LANE
- GRAVEL SHOULDER
- VEGETATED STRIP (VLS)
- IMPROVED COUNTY ROADWAYS

PRELIMINARY

REDWOOD MARINE MULTIPURPOSE TERMINAL
 REPLACEMENT PROJECT
 SAMOA, CALIFORNIA
**TURNING ANALYSIS- VANCE
 AVENUE/NORTH ACCESS ROAD**

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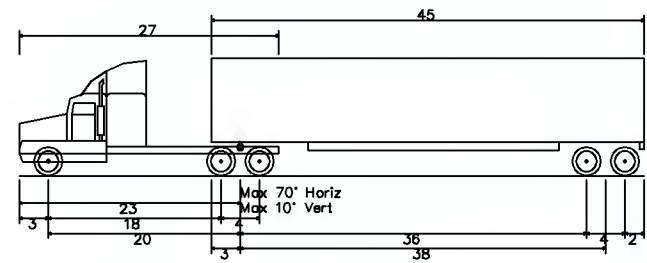


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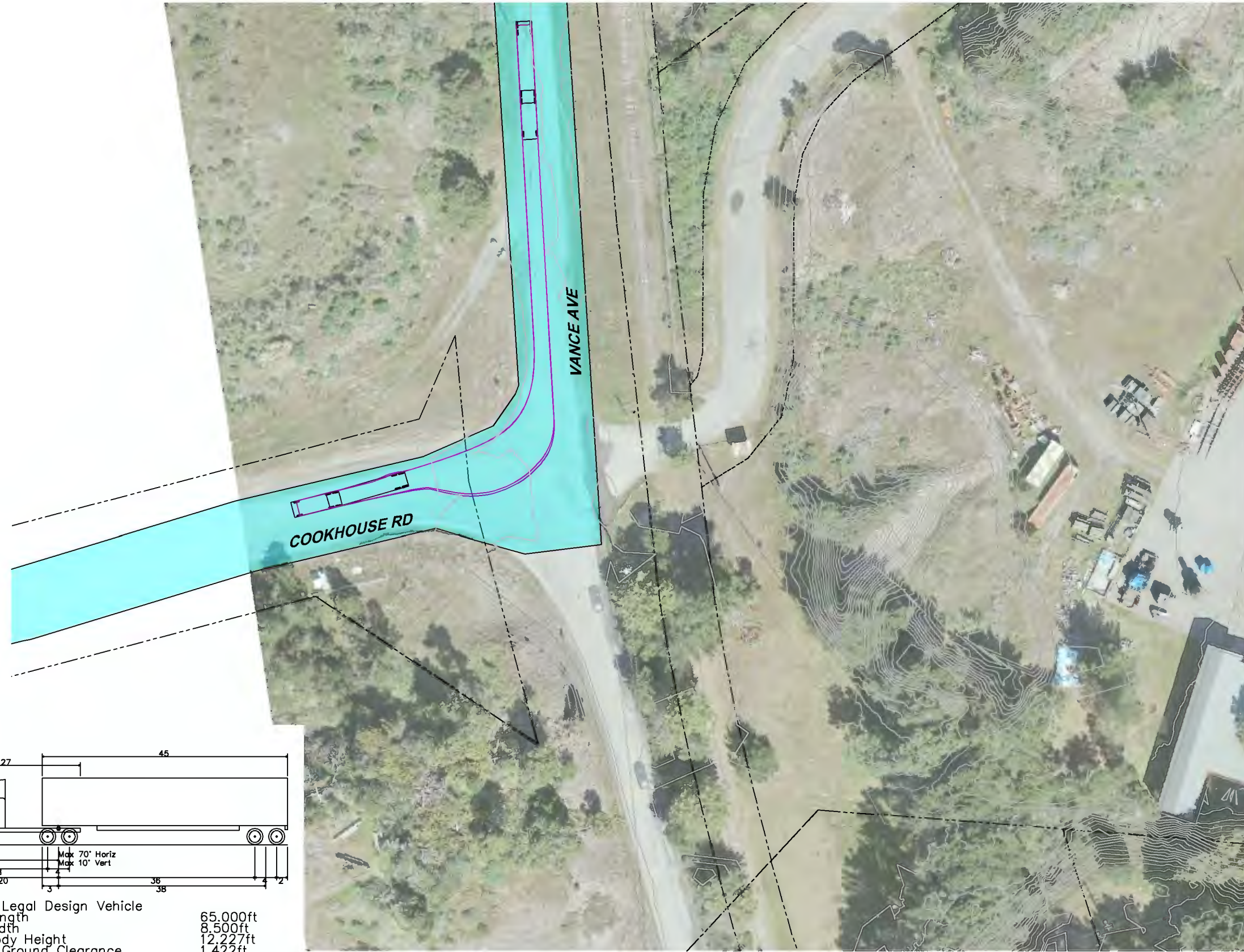
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California Legal Design Vehicle
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 Overall Width 8.50ft
 Overall Body Height 12.22ft
 Min Body Ground Clearance 1.42ft
 Track Width 8.50ft
 Lock-to-lock time 6.00s
 Max Steering Angle (Virtual) 26.30°



65' TRUCK/TRAILER

1"=30'

(TURNING RIGHT FROM VANCE AVENUE TO COOKHOUSE ROAD)

LEGEND



IMPROVED COUNTY ROADWAYS

FREELIMINARY

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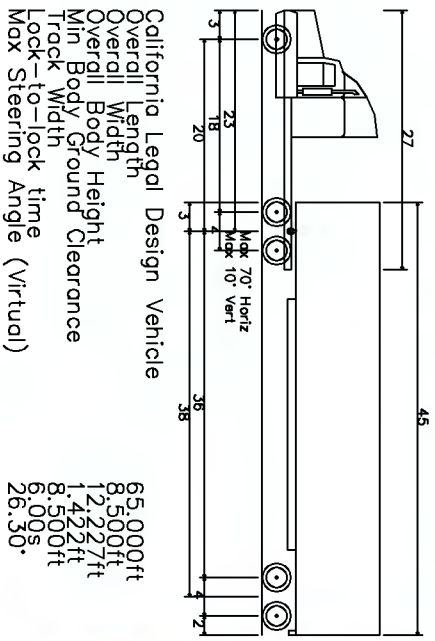


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REDWOOD MARINE MULTIPURPOSE TERMINAL
 REPLACEMENT PROJECT
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**TURNING ANALYSIS - COOKHOUSE
 ROAD/VANCE AVENUE**


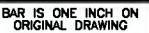
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SEQ	
DATE	02/2024
PROJ. NO.	022054

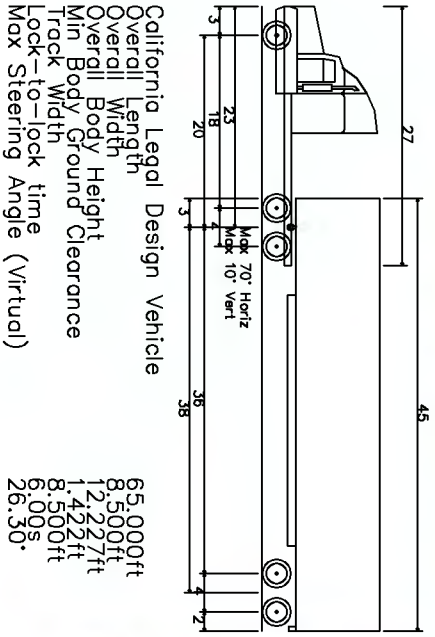


65' TRUCK/TRAILER
 $\theta = 30^\circ$
 (TURNING LEFT FROM NEW NAVY BASE ROAD TO COOKHOUSE ROAD)

LEGEND
 IMPROVED COUNTY ROADWAYS

PRELIMINARY

SHEET FIG 11	DATE 02/2024	PRJL NO. 022054	REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT SAMOA, CALIFORNIA				 812 W. WABASH AVE. EUREKA, CA. 95501 WWW.SHN-ENGR.COM 707-441-8855	VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0  1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY
			TURNING ANALYSIS- NEW NAVY BASE ROAD/COOKHOUSE ROAD		DSGN DSGN DR CDN/JWF CHK JSO APVD	NO. DATE REVISION BY		



California Legal Design Vehicle
 Overall Length
 Overall Width
 Overall Body Height
 Min Body Ground Clearance
 Track Width
 Lock-to-lock time
 Max Steering Angle (Virtual)

65.000ft
 8.300ft
 12.227ft
 8.500ft
 6.00s
 26.30°

(TURNING RIGHT FROM COOKHOUSE ROAD TO NEW NAVY BASE ROAD)

65' TRUCK/TRAILER
 $T=30^\circ$

LEGEND
 IMPROVED COUNTY ROADWAYS

PRELIMINARY

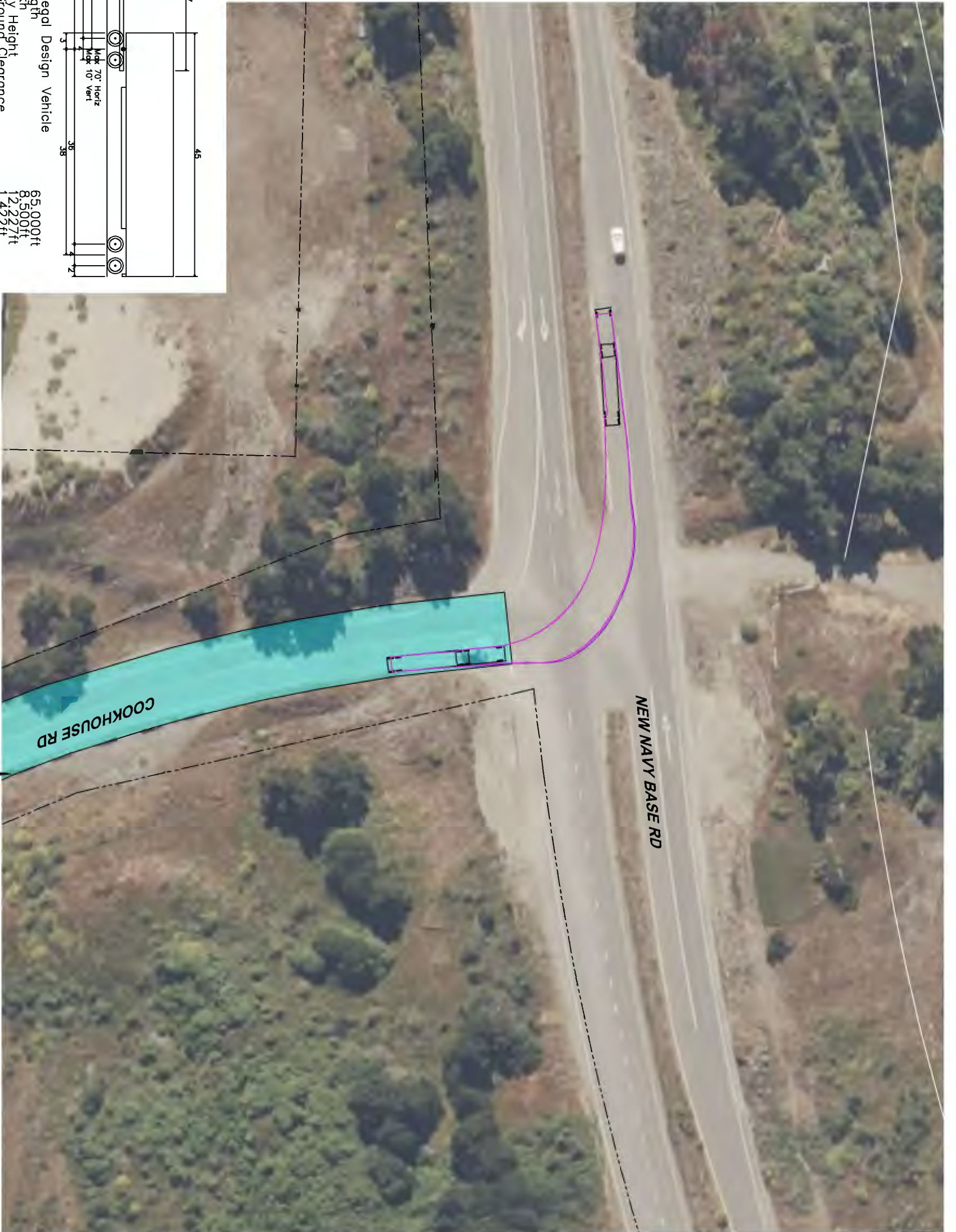
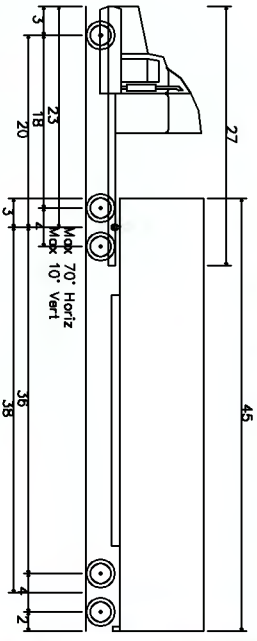
SHEET FIG 13	REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT SAMOA, CALIFORNIA		DSGN DSGN				
	TURNING ANALYSIS- NEW NAVY BASE ROAD/COOKHOUSE ROAD		DR CDN/JWF				
			CHK JSO				
			APVD	NO.	DATE	REVISION	BY



VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 1"
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

California Legal Design Vehicle
 Overall Length
 Overall Width
 Overall Body Height
 Min Body Ground Clearance
 Track Width
 Lock-to-lock time
 Max Steering Angle (Virtual)

65.000ft
 8.300ft
 12.227ft
 1.422ft
 8.500ft
 6.00s
 26.30°




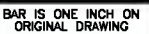
(TURNING LEFT FROM COOKHOUSE ROAD TO NEW NAVY BASE ROAD)

65' TRUCK/TRAILER
 $T=30^\circ$

LEGEND

IMPROVED COUNTY ROADWAYS

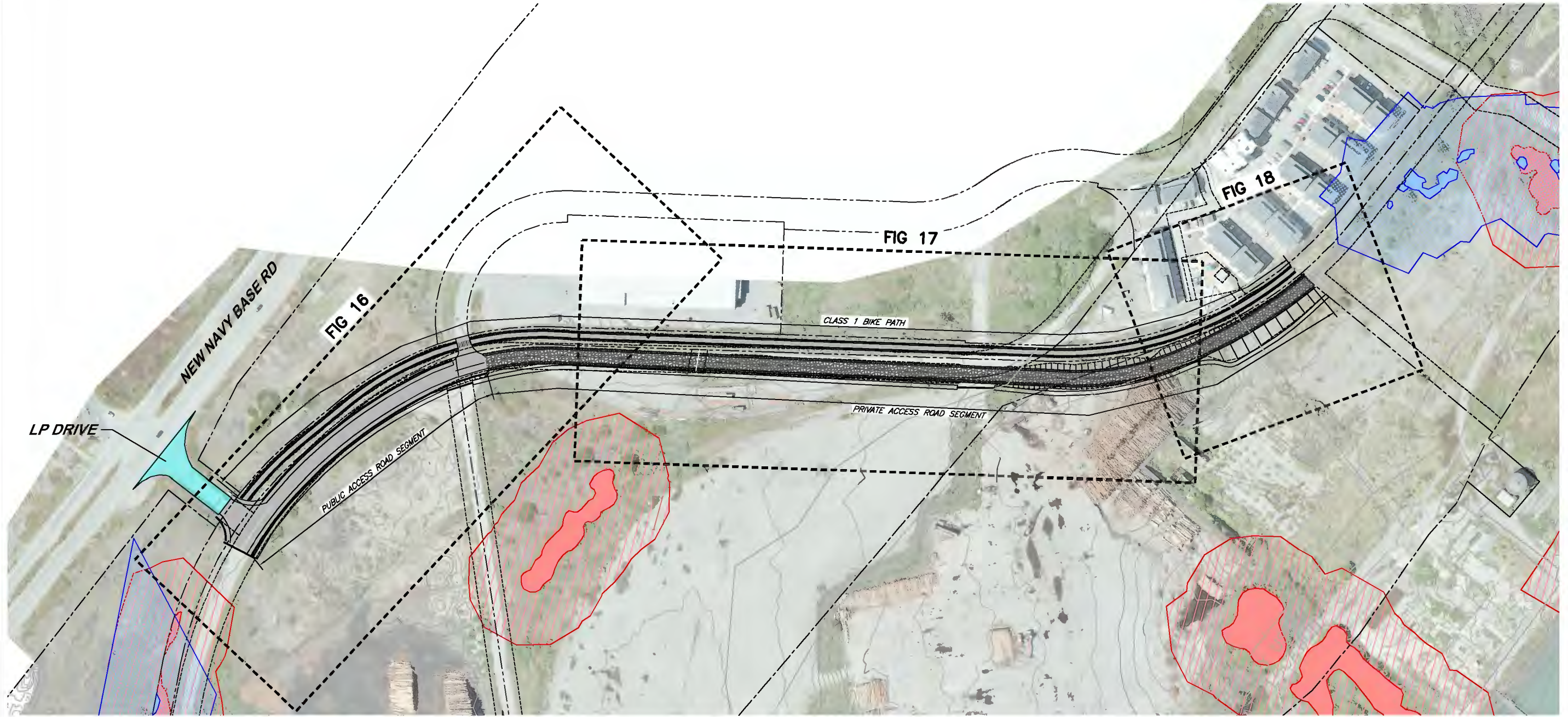
PRELIMINARY

SHEET FIG 14	REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT SAMOA, CALIFORNIA TURNING ANALYSIS- NEW NAVY BASE ROAD/COOKHOUSE ROAD		DSGN DSGN DR CDN/JWF CHK JSO APVD	NO.	DATE	REVISION	BY	 812 W. WABASH AVE. EUREKA, CA. 95501 WWW.SHN-ENGR.COM 707-441-8855	VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0  1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY
	SEQ DATE 02/2024 PROJ. NO. 022054								

**West Access Road
Figures**

4

SAVED: 2/15/2024 3:52 PM JFOSTER, PLOTTED: 2/15/2024 4:21 PM JOHN FOSTER
 P:\Lureke\2022\022054-Humboldt-RMNT\Drawings\022054-MIN-VIABLE.dwg



NOTE:









EXISTING GROUND TOPOGRAPHIC SURFACE MAY NOT ACCURATELY REPRESENT ACTUAL GROUND SURFACE IN VEGETATED AREAS. A MORE ACCURATE TOPOGRAPHIC SURFACE IS NEEDED FOR FURTHER DESIGN EFFORTS.

PLAN

1"=100'




LEGEND

-  AC PAVING
-  GRAVEL SHOULDER
-  GRAVEL LANE
-  NON-WETLAND ESHA AREA
-  NON-WETLAND ESHA BUFFER
-  WETLAND AREA
-  WETLAND BUFFER
-  IMPROVED COUNTY ROADWAYS

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 IF NOT ONE INCH ON SCALES ACCORDINGLY

512 W. WABASH AVE. SUITE 101
 LUREKE CONSULTANTS
 WYOMING - 307-441-8855



DESIGN	DIR	CDN/JWF	CHK	JSO	APPV	NO.	DATE	REVISION	BY

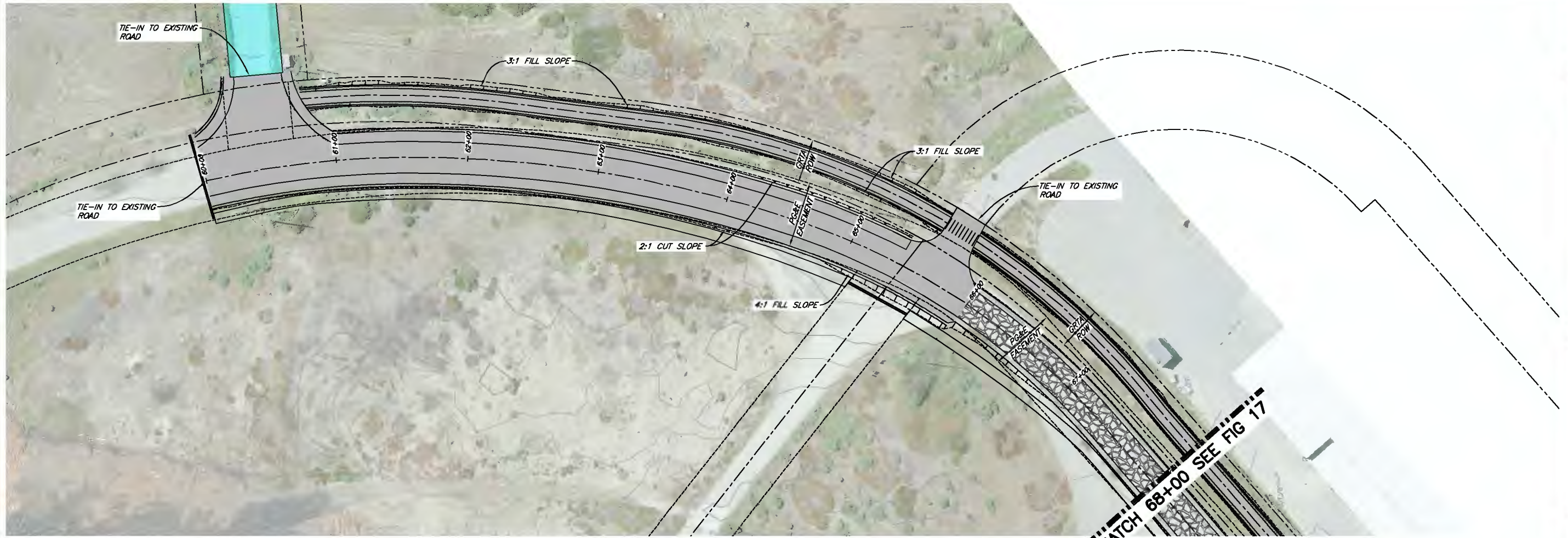
REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT
 SAMOIA, CALIFORNIA

**WEST ACCESS ROAD & GRTA TRAIL
 MINIMUM VIABLE PROJECT**

SHEET
FIG 15

SEQ
 DATE 02/2024
 PROJ. NO.
 022054

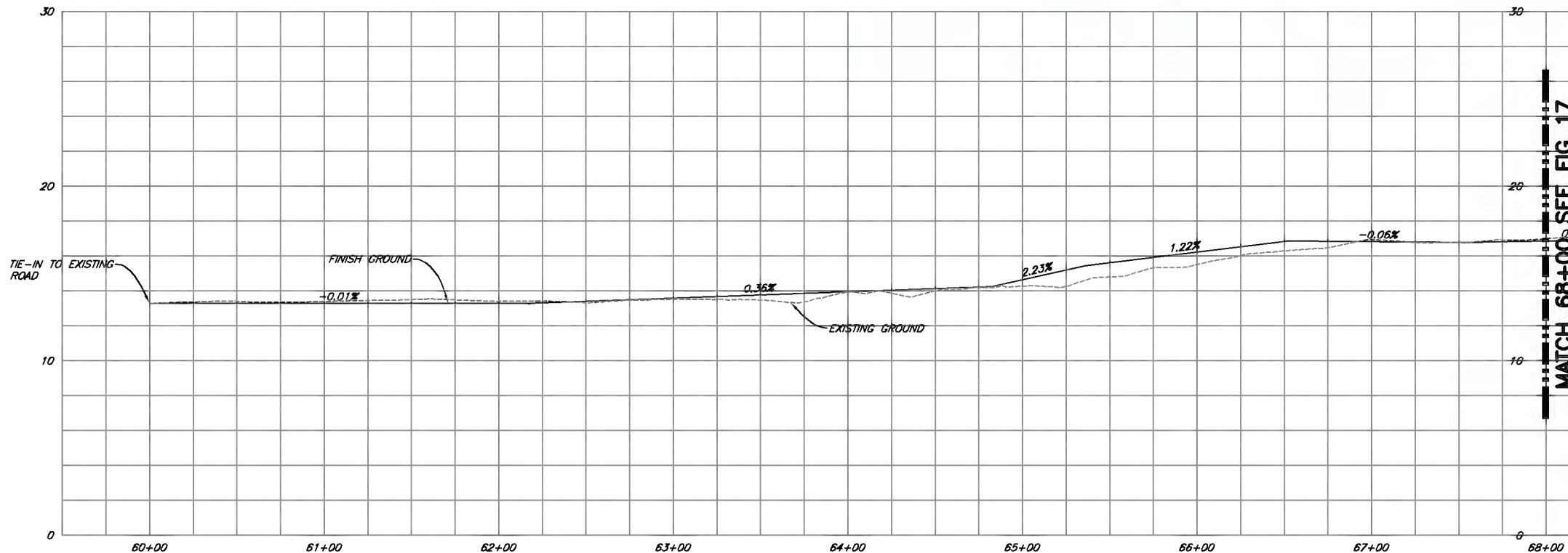
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 P:\Lureke\2022\022054-Humboldt-RMNT\Drawings\022054-MIN-VARIABLE.dwg



PLAN
 1"=40'

LEGEND

- AC PAVING
- GRAVEL SHOULDER
- GRAVEL LANE
- IMPROVED COUNTY ROADWAYS



WEST ACCESS ROAD PROFILE
 SCALE: 1"=40' H
 1"=2' V

NOTE:
 EXISTING GROUND TOPOGRAPHIC SURFACE MAY NOT ACCURATELY REPRESENT ACTUAL GROUND SURFACE IN VEGETATED AREAS. A MORE ACCURATE TOPOGRAPHIC SURFACE IS NEEDED FOR FURTHER DESIGN EFFORTS.

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 IF NOT ONE INCH ON SCALE, SEE ADJUSTED SCALES ACCORDINGLY

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 LUREKE CONSULTING
 WILSON, CA 95759
 707-441-8855



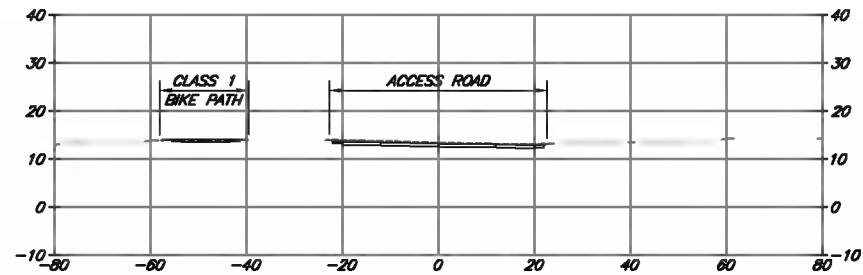
NO.	DATE	REVISION	BY

DISG	DSGN	CHK	APVD

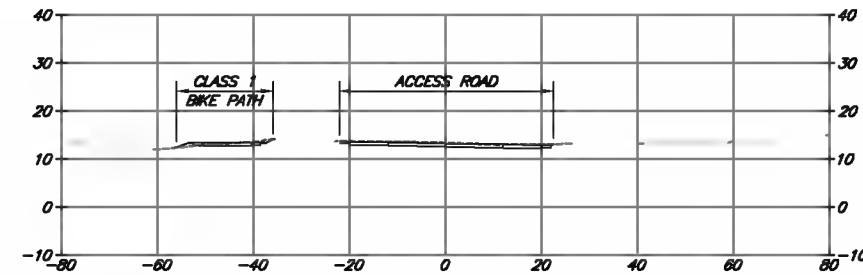
REDWOOD MARINE MULTIPURPOSE TERMINAL
 REPLACEMENT PROJECT
 SAMOIA, CALIFORNIA
**WEST ACCESS ROAD & GRTA TRAIL
 PLAN & PROFILE**

SHEET	FIG 16
SEQ	
DATE	02/2024
PROJ. NO.	022054

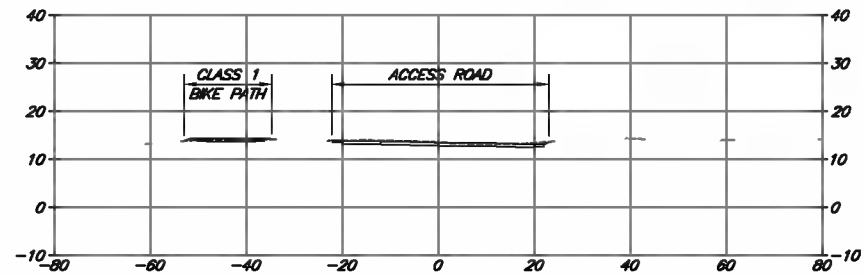
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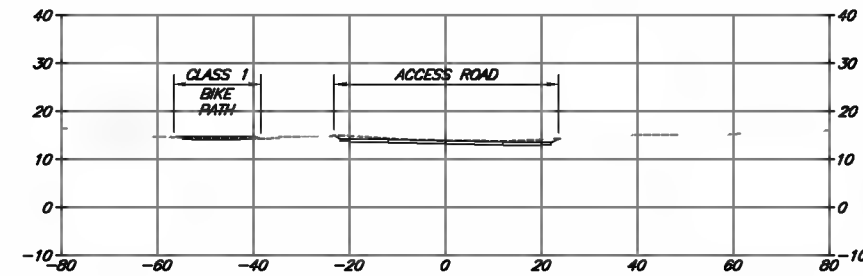
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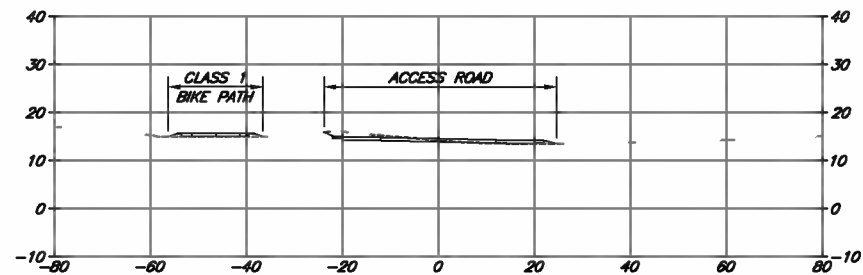
62+00.00



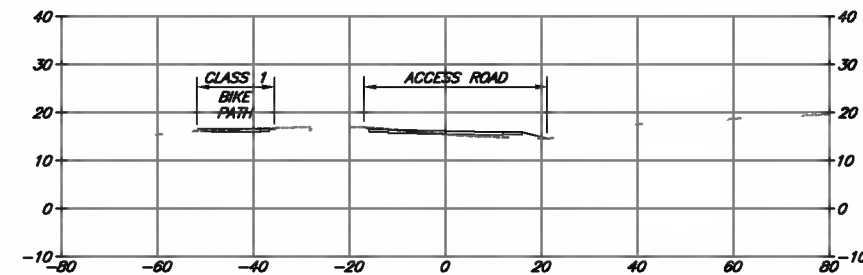
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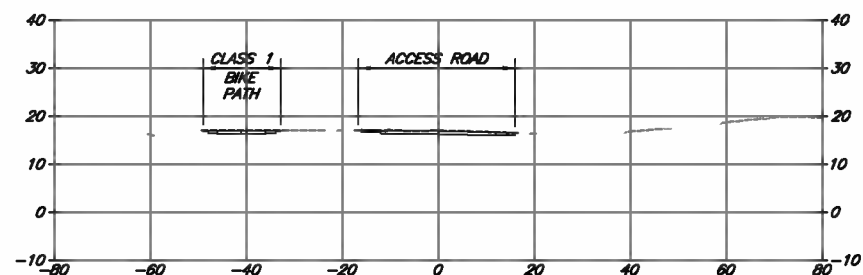
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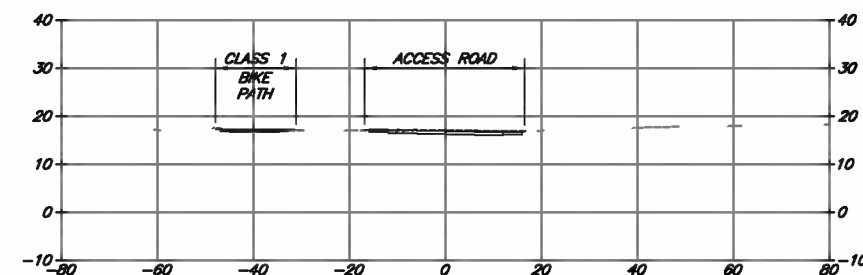
65+00.00



66+00.00



67+00.00



68+00.00

SECTIONS
SCALE: 1"=20' H&V

NOTES:

- EXISTING GROUND TOPOGRAPHIC SURFACE MAY NOT ACCURATELY REPRESENT ACTUAL GROUND SURFACE IN VEGETATED AREAS. A MORE ACCURATE TOPOGRAPHIC SURFACE IS NEEDED FOR FURTHER DESIGN EFFORTS.
- SECTIONS ARE BASED ON ACCESS ROAD STATIONING.

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 IF NOT ONE INCH ON SCALES ACCORDINGLY

812 W. WABASH AVE.
SUNBURST, CA 95071
WWW.S&W-CA.COM
707-441-8885

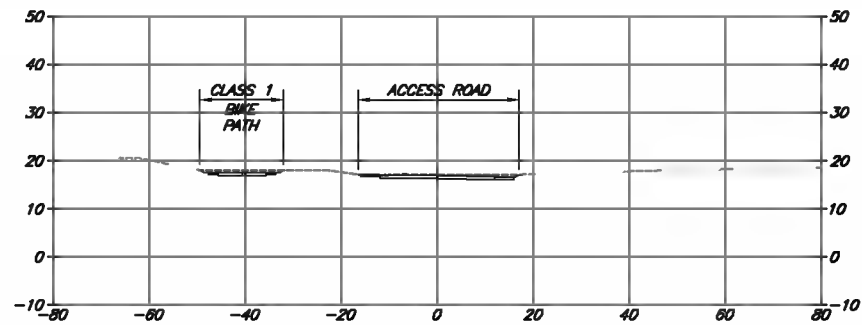


DSGN
JFO
JSD

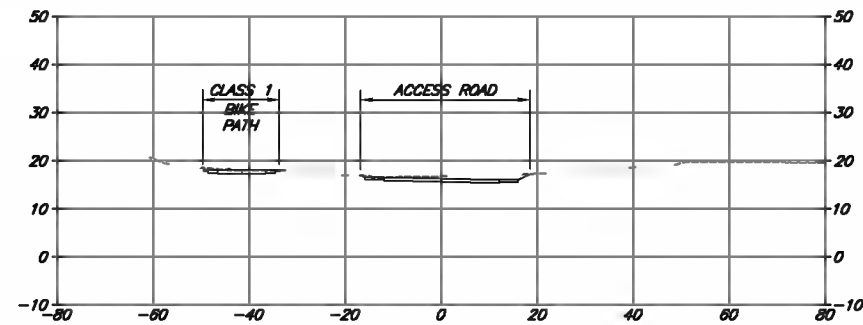
REDWOOD MARINE MULTIPURPOSE TERMINAL
REPLACEMENT PROJECT
SAMOA, CALIFORNIA
**WEST ACCESS ROAD & GRTA TRAIL
CROSS SECTIONS**

SHEET
FIG 19
SEQ
DATE 02/2024
022054

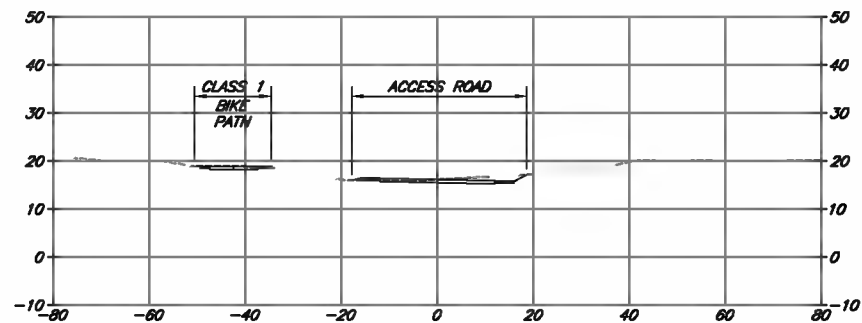
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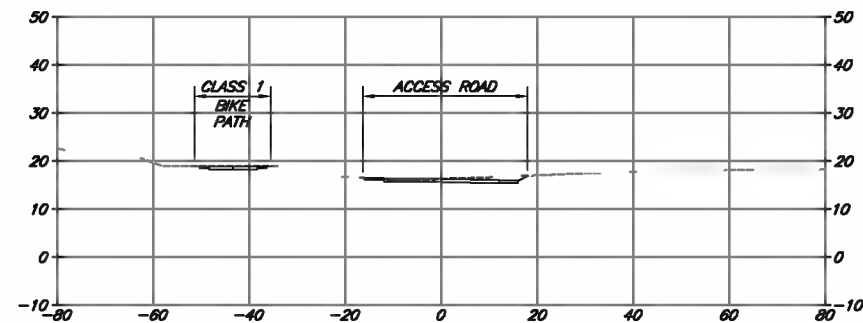
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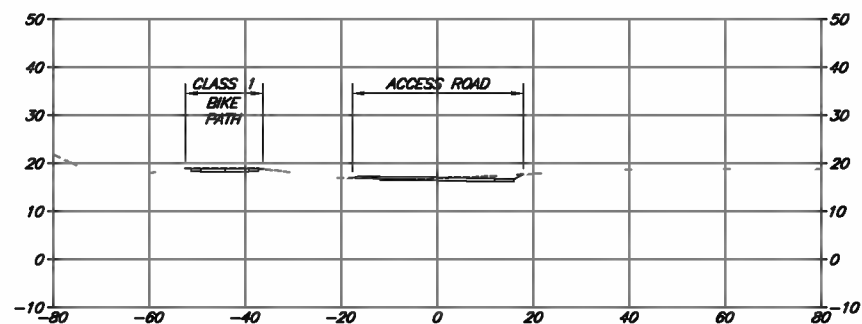
70+00.00



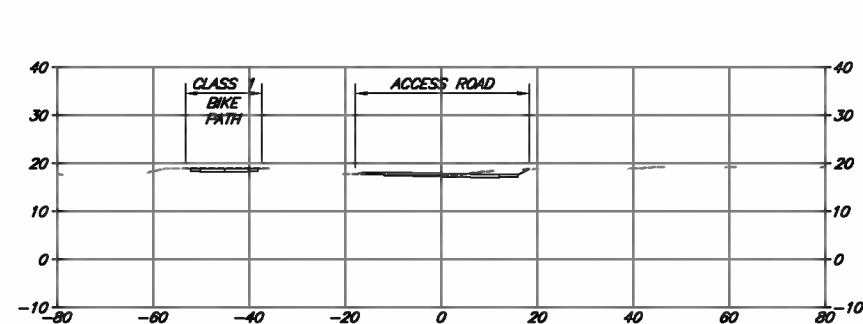
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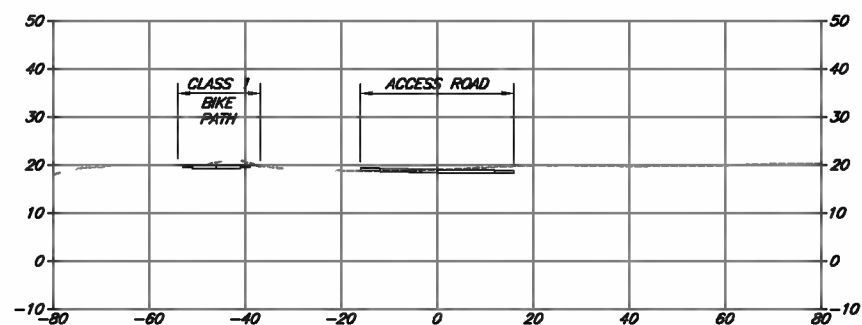
72+00.00



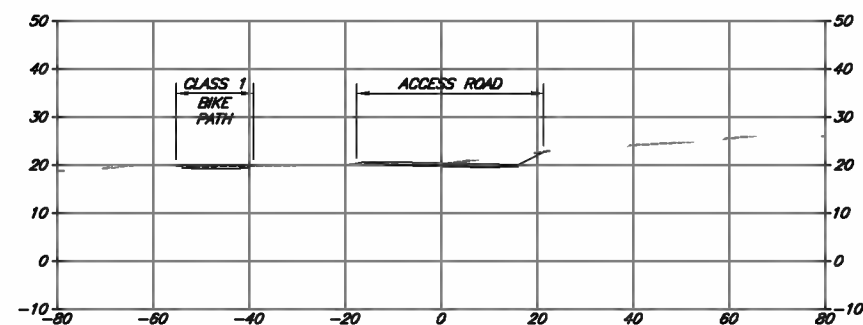
73+00.00



74+00.00



75+00.00



76+00.00

SECTIONS
SCALE: 1"=20' H&V

NOTES:

1. EXISTING GROUND TOPOGRAPHIC SURFACE MAY NOT ACCURATELY REPRESENT ACTUAL GROUND SURFACE IN VEGETATED AREAS. A MORE ACCURATE TOPOGRAPHIC SURFACE IS NEEDED FOR FURTHER DESIGN EFFORTS.
2. SECTIONS ARE BASED ON ACCESS ROAD STATIONING.

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 IF NOT ONE INCH ON SCALES ACCORDINGLY

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DUREN, CA 95001
WWW.S&W-ENR.COM
707-441-8885

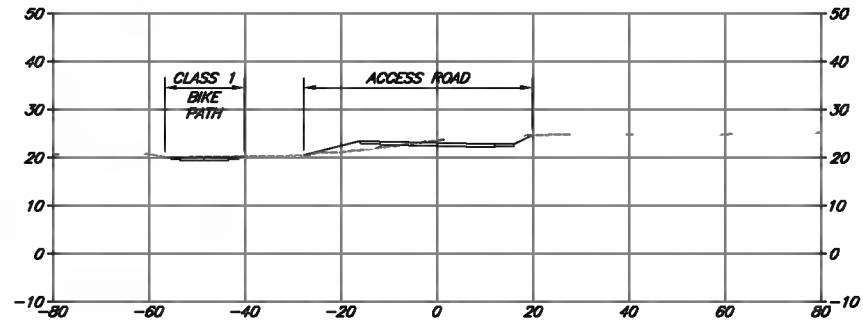


DSGN
JSD

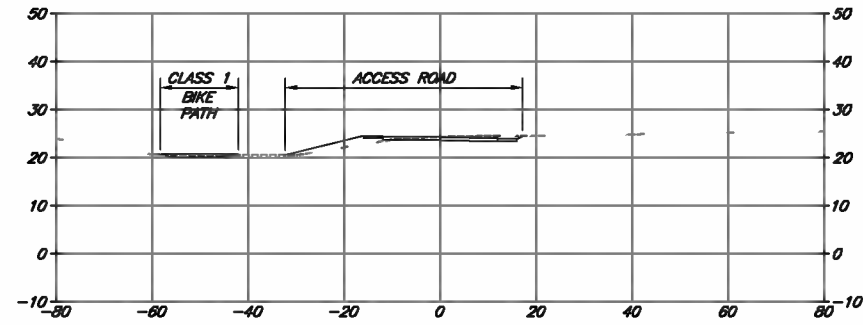
REDWOOD MARINE MULTIPURPOSE TERMINAL
REPLACEMENT PROJECT
SAMOA, CALIFORNIA
**WEST ACCESS ROAD & GRTA TRAIL
CROSS SECTIONS**

SHEET
FIG 20
SEQ
DATE 02/2024
022054

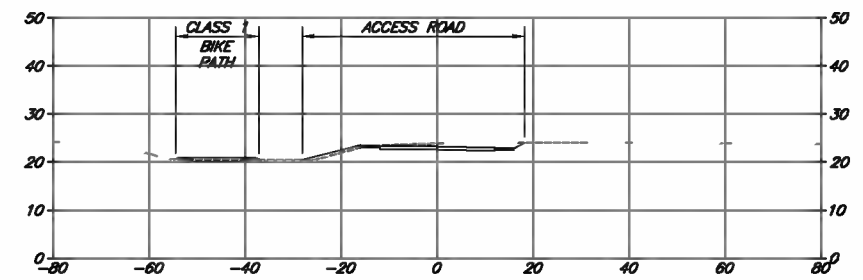
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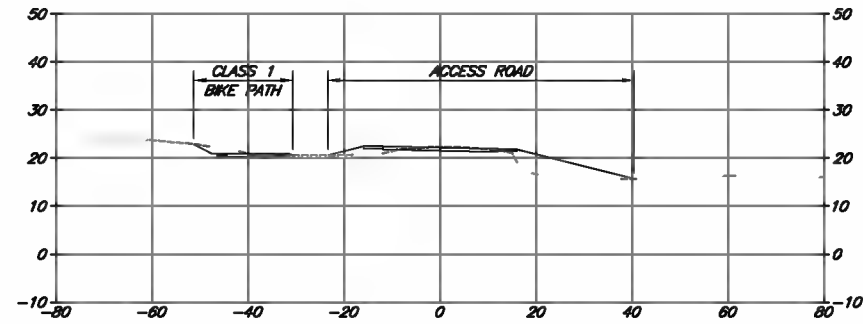
77+00.00



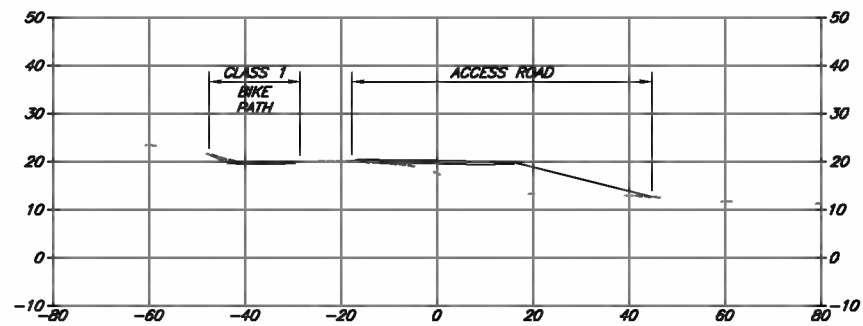
78+00.00



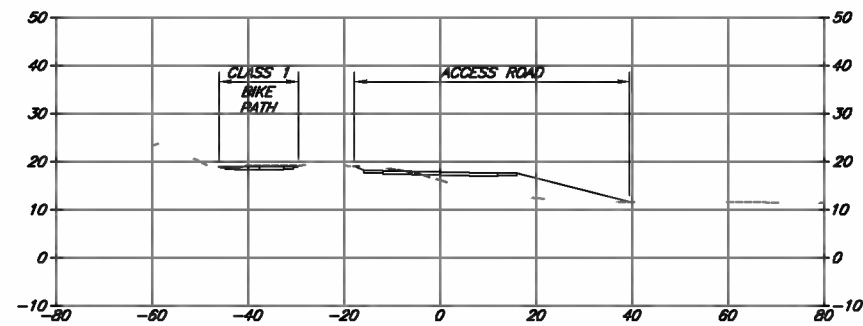
79+00.00



80+00.00



81+00.00



82+00.00

SECTIONS
SCALE: 1"=20' H&V

NOTES:

1. EXISTING GROUND TOPOGRAPHIC SURFACE MAY NOT ACCURATELY REPRESENT ACTUAL GROUND SURFACE IN VEGETATED AREAS. A MORE ACCURATE TOPOGRAPHIC SURFACE IS NEEDED FOR FURTHER DESIGN EFFORTS.
2. SECTIONS ARE BASED ON ACCESS ROAD STATIONING.

VERIFY SCALES
DBP IS ONE INCH ON ORIGINAL DRAWING
0
IF NOT ONE INCH ON SCALES ACCORDINGLY

812 W. WABASH AVE.
DUREN, CA 95901
WWW.S&W-ENR.COM
707-441-8885

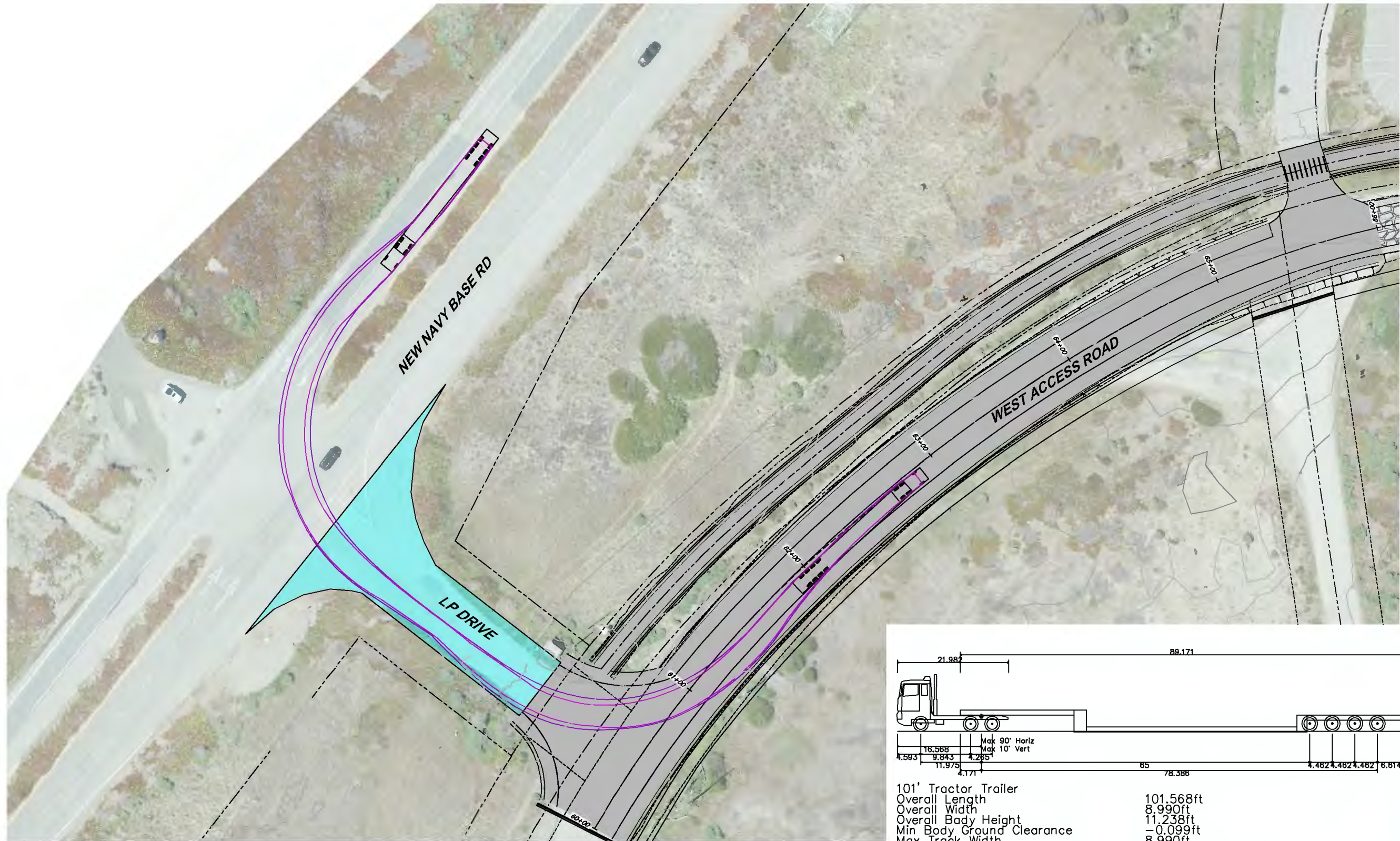


DSGN
JFO
JSD

REDWOOD MARINE MULTIPURPOSE TERMINAL
REPLACEMENT PROJECT
SAMOA, CALIFORNIA
**WEST ACCESS ROAD & GRTA TRAIL
CROSS SECTIONS**

SHEET
FIG 21
SEQ
DATE 02/2024
022054

SAVED: 2/15/2024 3:59 PM JFOSTER, PLOTTED: 2/15/2024 4:29 PM JOHN FOSTER
 P:\Leurenke\2022\022054 - Humboldt - RMA\1\Drawings\022054 - TRUCK - TURN.dwg

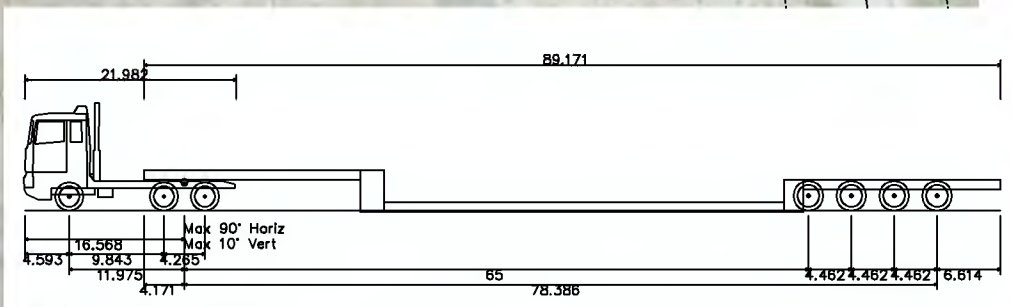


LEGEND

	AC PAVING		IMPROVED COUNTY ROADWAYS
	GRAVEL SHOULDER		
	GRAVEL LANE		

101' TRACTOR TRAILER
 1"=30'

(TURNING LEFT FROM NEW NAVY BASE ROAD TO LP DRIVE AND LEFT TO WEST ACCESS ROAD)



101' Tractor Trailer	
Overall Length	101.568ft
Overall Width	8.990ft
Overall Body Height	11.238ft
Min Body Ground Clearance	-0.099ft
Max Track Width	8.990ft
Lack-to-lack time	6.00s
Wall to Wall Turning Radius	29.528ft

FRELMINARY

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 IF NOT ONE INCH ON SCALE SPEED ADJUST SCALES ACCORDINGLY

512 W. WABASH AVE.
 SUITE 101
 DURHAM, NC 27601
 WWW.S&W.COM
 707-441-8855

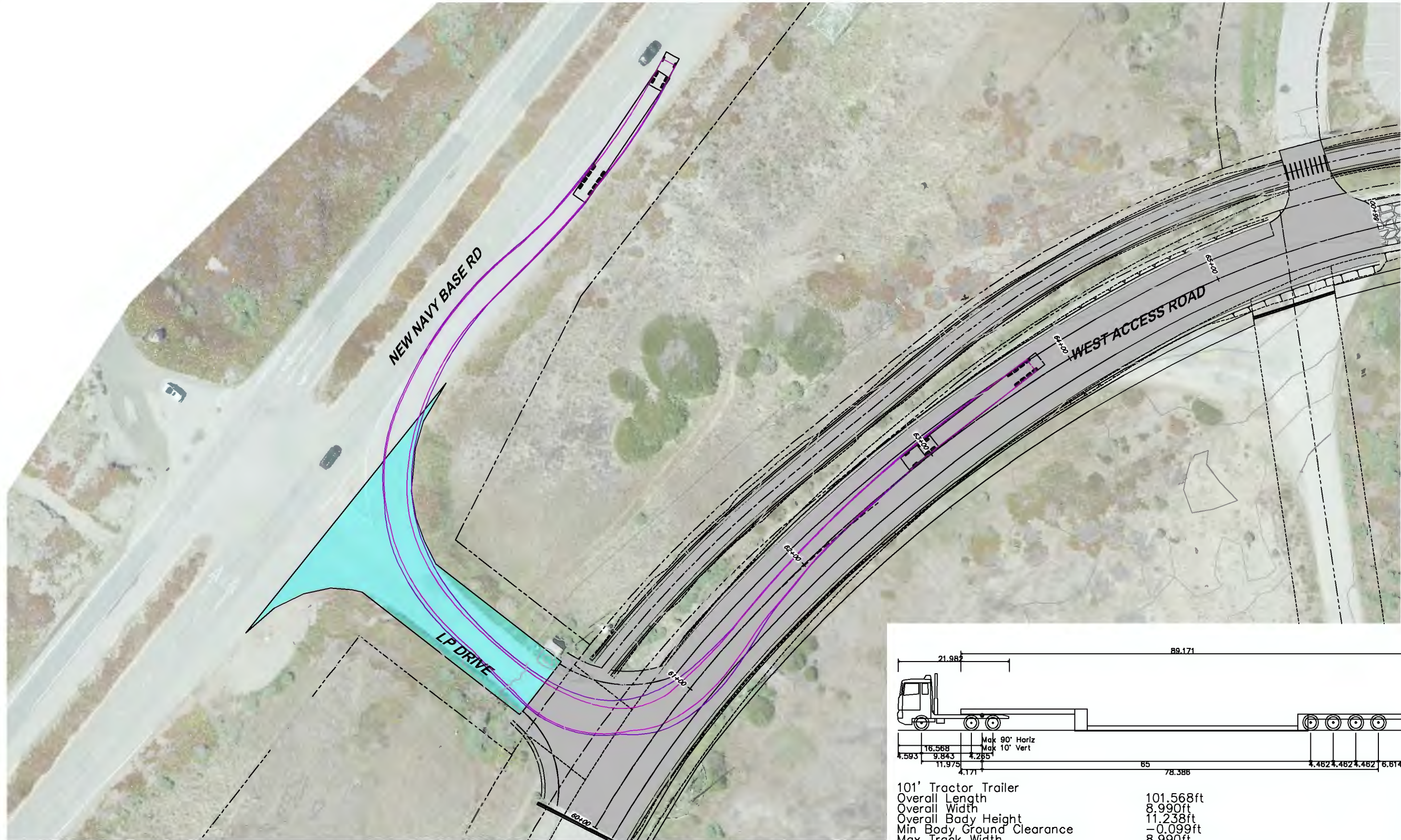


DESIGN	DR	CDN/JWF	CHK	JSO	APVD	NO.	DATE	REVISION	BY
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REDWOOD MARINE MULTIPURPOSE TERMINAL
 REPLACEMENT PROJECT
 SAMOA, CALIFORNIA
**TURNING ANALYSIS - NEW NAVY BASE
 ROAD/LP DRIVE/VANCE AVE**

SHEET	FIG 22
SEQ	
DATE	02/2024
PROJ. NO.	022054

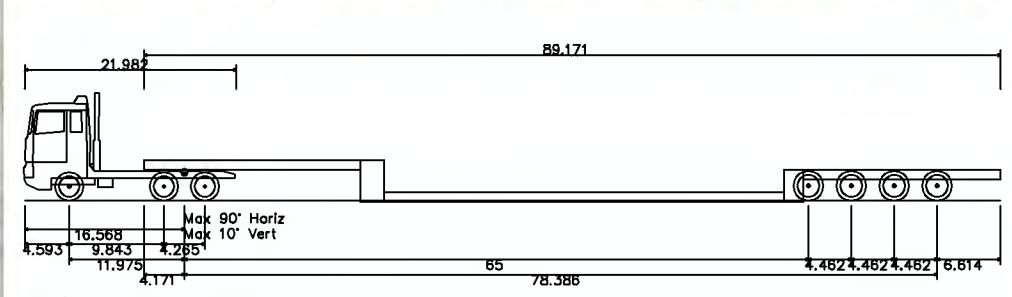
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LEGEND

	AC PAVING		IMPROVED COUNTY ROADWAYS
	GRAVEL SHOULDER		
	GRAVEL LANE		

101' TRACTOR TRAILER
 1"=30'
 (TURNING RIGHT FROM WEST ACCESS ROAD TO LP DRIVE AND RIGHT ONTO NEW NAVY BASE ROAD)



101' Tractor Trailer	
Overall Length	101.568ft
Overall Width	8.990ft
Overall Body Height	11.238ft
Min Body Ground Clearance	-0.099ft
Max Track Width	8.990ft
Lack-to-lack time	6.00s
Wall to Wall Turning Radius	29.528ft

FRELMINARY

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 IF NOT ONE INCH ON SCALE SPEED ADJUST SCALES ACCORDINGLY

512 W. WABASH AVE.
 EUREKA, CA 95501
 WWW.S&W-ENR.COM
 707-441-8855

DESIGN	DR	CDN/JWF	CHK	JSO	APVD	NO.	DATE	REVISION	BY

REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT
 SAMOA, CALIFORNIA

TURNING ANALYSIS- NEW NAVY BASE ROAD/LP DRIVE/VANCE AVE

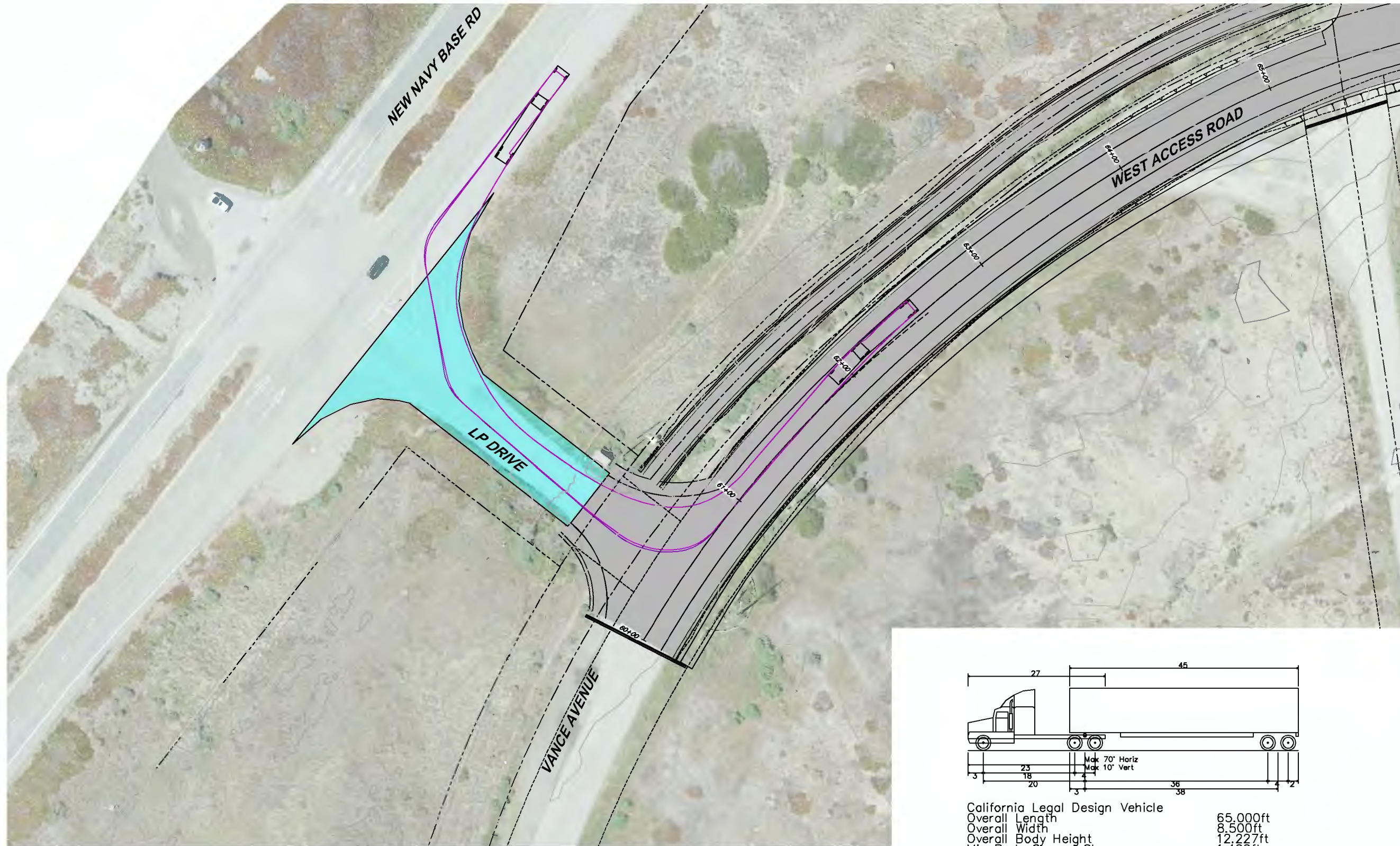
SHEET **FIG 23**

SEQ

DATE 02/2024

PROJ. NO. 022054

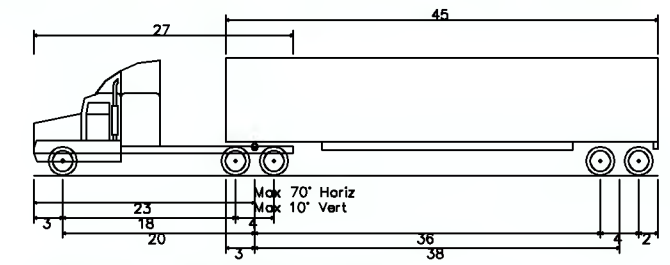
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LEGEND

	AC PAVING		IMPROVED COUNTY ROADWAYS
	GRAVEL SHOULDER		
	GRAVEL LANE		

65' TRACTOR TRAILER
 1"=30'
 (TURNING RIGHT FROM WEST ACCESS ROAD TO LP DRIVE AND RIGHT TO NEW NAVY BASE ROAD)



California Legal Design Vehicle

Overall Length	65.000ft
Overall Width	8.500ft
Overall Body Height	12.227ft
Min Body Ground Clearance	1.422ft
Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	26.30°

FREELIMINARY

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 IF NOT ONE INCH ON SCALES ACCORDINGLY

512 W. WABASH AVE. SUITE 101
 LUREKE CONSULTANTS
 WYOMING - 8855
 707-441-8855

DESIGN	DR	CDN/JWF	CHK	JSO	APPV
NO.	DATE	REVISION	BY		

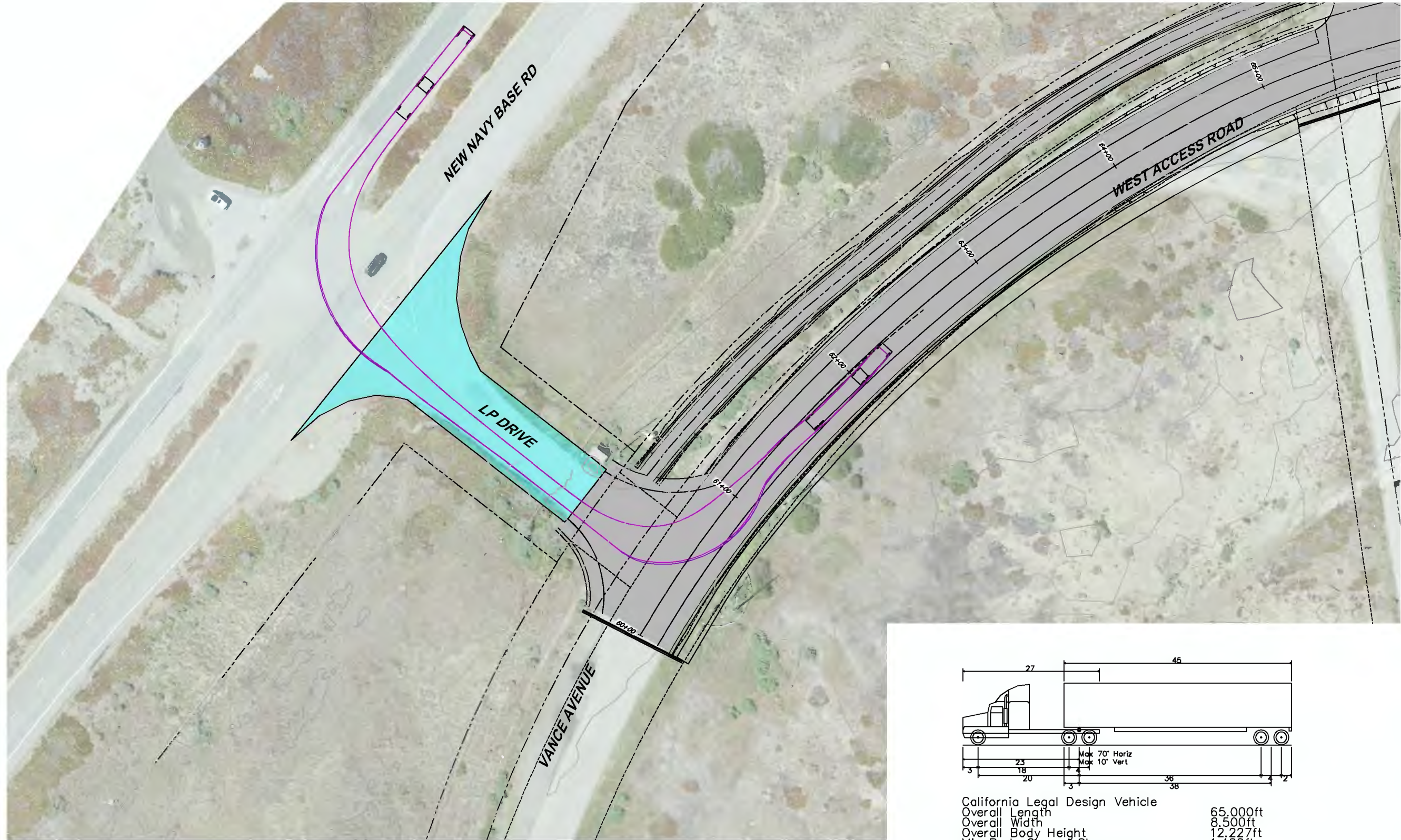
REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT
 SAMOA, CALIFORNIA

TURNING ANALYSIS - NEW NAVY BASE ROAD/LP DRIVE/VANCE AVE





SHEET **FIG 24**

DATE 02/2024
 PROJ. NO. 022054

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LEGEND

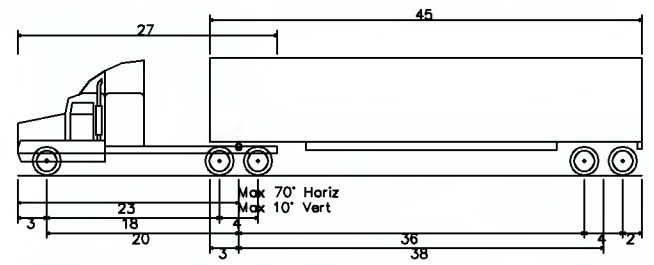
	AC PAVING		IMPROVED COUNTY ROADWAYS
	GRAVEL SHOULDER		
	GRAVEL LANE		

65' TRACTOR TRAILER

1"=30'



(TURNING LEFT FROM NEW NAVY BASE ROAD TO LP DRIVE AND LEFT TO WEST ACCESS ROAD)



California Legal Design Vehicle	
Overall Length	65.000ft
Overall Width	8.500ft
Overall Body Height	12.227ft
Min Body Ground Clearance	1.422ft
Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	26.30°

FREELIMINARY

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 IF NOT ONE INCH ON SCALES ACCORDINGLY

512 W. WABASH AVE.
 SUITE 101
 LUREKE CONSULTING
 WYOMING CITY, MO 64499
 781-341-8855

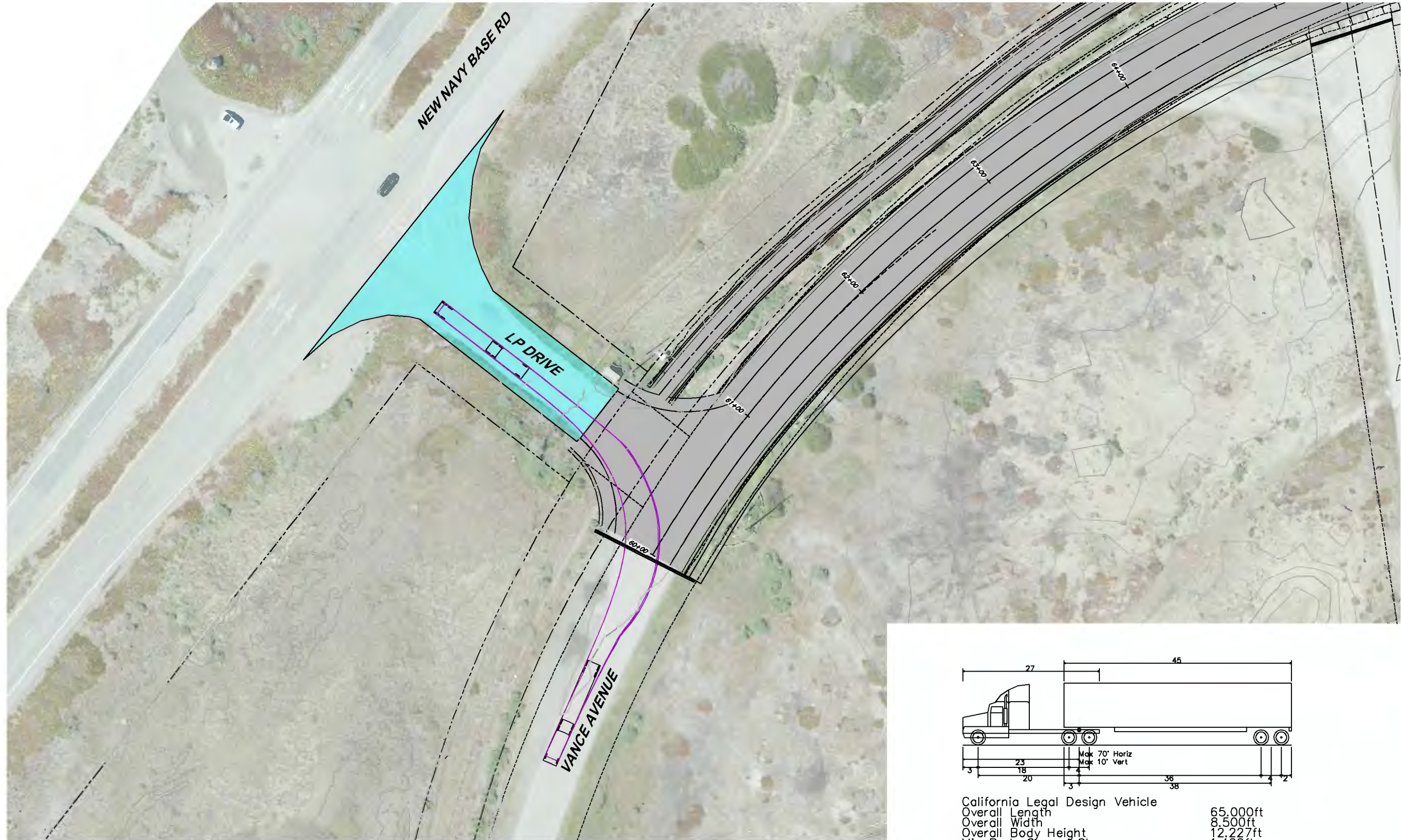


DESIGN	DR	CDN/JWF	CHK	JSO	APP'D	NO.	DATE	REVISION	BY

REDWOOD MARINE MULTIPURPOSE TERMINAL
 REPLACEMENT PROJECT
 SAMOA, CALIFORNIA
**TURNING ANALYSIS- NEW NAVY BASE
 ROAD/LP DRIVE/VANCE AVE**

SHEET	FIG 25
SEQ	
DATE	02/2024
PROJ. NO.	022054

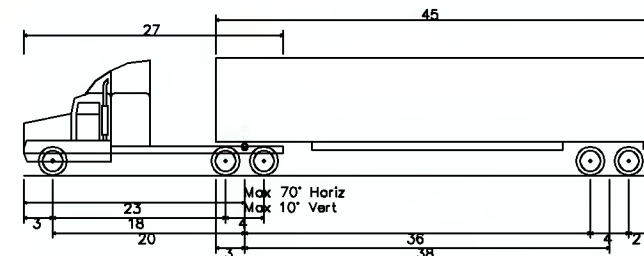
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 P:\Lureke\2022\022054-Aurora\01-ROADS\022054-TRUCK-TURN.dwg



LEGEND

	AC PAVING
	GRAVEL SHOULDER
	IMPROVED COUNTY ROADWAYS

65' TRACTOR TRAILER
 1"=30'
 (TURNING RIGHT FROM LP DRIVE TO VANCE AVENUE)



California Legal Design Vehicle

Overall Length	65.00ft
Overall Width	8.50ft
Overall Body Height	12.227ft
Min Body Ground Clearance	1.422ft
Track Width	8.50ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	26.30°

FREELIMINARY

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 IF NOT ONE INCH ON SCALE SPECIFIED, ADJUST SCALES ACCORDINGLY

512 W. WABASH AVE.
 SUITE 101
 LUREKE CONSULTANTS
 WILSON, CA 95750
 707-441-8855

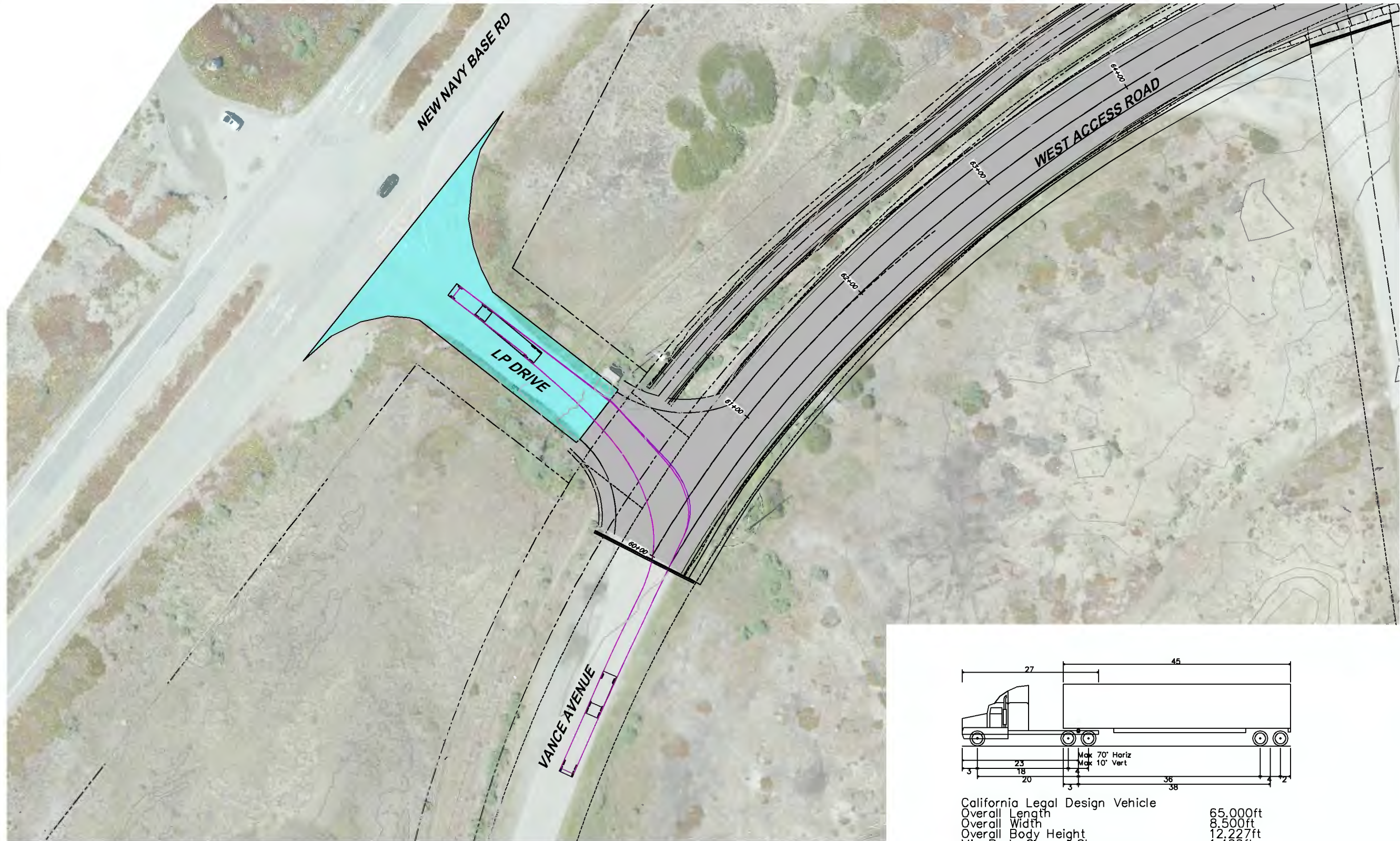


DESIGN	DESIGN	NO.	DATE	REVISION	BY
DR	CDN/JWF				
CHK	JSO				
APPV					

REDWOOD MARINE MULTIPURPOSE TERMINAL
 REPLACEMENT PROJECT
 SAMOIA, CALIFORNIA
**TURNING ANALYSIS- NEW NAVY BASE
 ROAD/LP DRIVE/VANCE AVE**

SHEET	FIG 26
DATE	02/2024
PROJ. NO.	022054

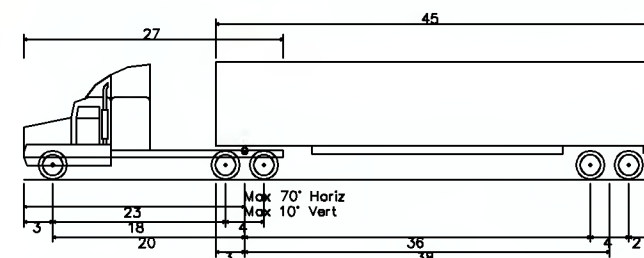
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LEGEND

	AC PAVING
	GRAVEL SHOULDER
	IMPROVED COUNTY ROADWAYS

65' TRACTOR TRAILER
 1"=30'
 (TURNING LEFT FROM VANCE AVENUE TO LP DRIVE)



California Legal Design Vehicle
 Overall Length 65.000ft
 Overall Width 8.500ft
 Overall Body Height 12.227ft
 Min Body Ground Clearance 1.422ft
 Track Width 8.500ft
 Lock-to-lock time 6.00s
 Max Steering Angle (Virtual) 26.30°

FREELIMINARY

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 IF NOT ONE INCH ON SCALE SPECIFIED, SCALES ACCORDINGLY

512 W. WABASH AVE.
 SUITE 101
 LUREKE CONSULTING
 WILSON, CA 95759
 707-441-8855



DESIGN	DISGN	NO.	DATE	REVISION	BY
DR	CDN/JWF				
CHK	JSO				
APPV					

REDWOOD MARINE MULTIPURPOSE TERMINAL
 REPLACEMENT PROJECT
 SAMOA, CALIFORNIA
**TURNING ANALYSIS- NEW NAVY BASE
 ROAD/LP DRIVE/VANCE AVE**

SHEET
FIG 27
 SEQ
 DATE 02/2024
 PROJ. NO.
 022054