



## MARINE SAFETY AND ANCHORING PLAN

### Introduction

This Marine Safety and Anchoring Plan (MSAP) has been developed specifically to support the marine operations that will take place during the removal and recovery of the concrete lattice box structures at the offshore ends of the intake pipelines. The purpose of this MSAP is to provide a set of procedures and protocols that will be used by L123 when executing the offshore work. The primary concerns addressed by this MSAP are personal safety, environmental safety, and vessel safety. L123 will be required to comply with U.S. Coast Guard (USCG) requirements for operations at this location.

The vessels to be used for the project and some of their key attributes are listed below:

1. The Danny C is a 77' long utility vessel. Its 3-point mooring system utilizes Bruce anchors weighing 155 lbs each.
2. The R/V JAB is a 43' long aluminum jet-drive catamaran with a 13.5 ft beam. It will not be anchored.

### Operational Protocols

The following operational protocols are intended for use by L123 during the work. Notices will be issued by L123, as appropriate. At a minimum, notices shall include:

1. L123 shall file a Local Notice to Mariners with the USCG 15 days prior to the start of marine operations at the site.
2. L123 shall notify the City of Ventura Harbor Master in writing of the pending offshore operations approximately 15 days prior to the start of activities.
3. L123 shall give verbal notification to the California State Lands Commission (CSLC), California Coastal Commission (CCC) and other agencies as required by permit and certification conditions, mitigation measures and the like.

### Anchor Plan

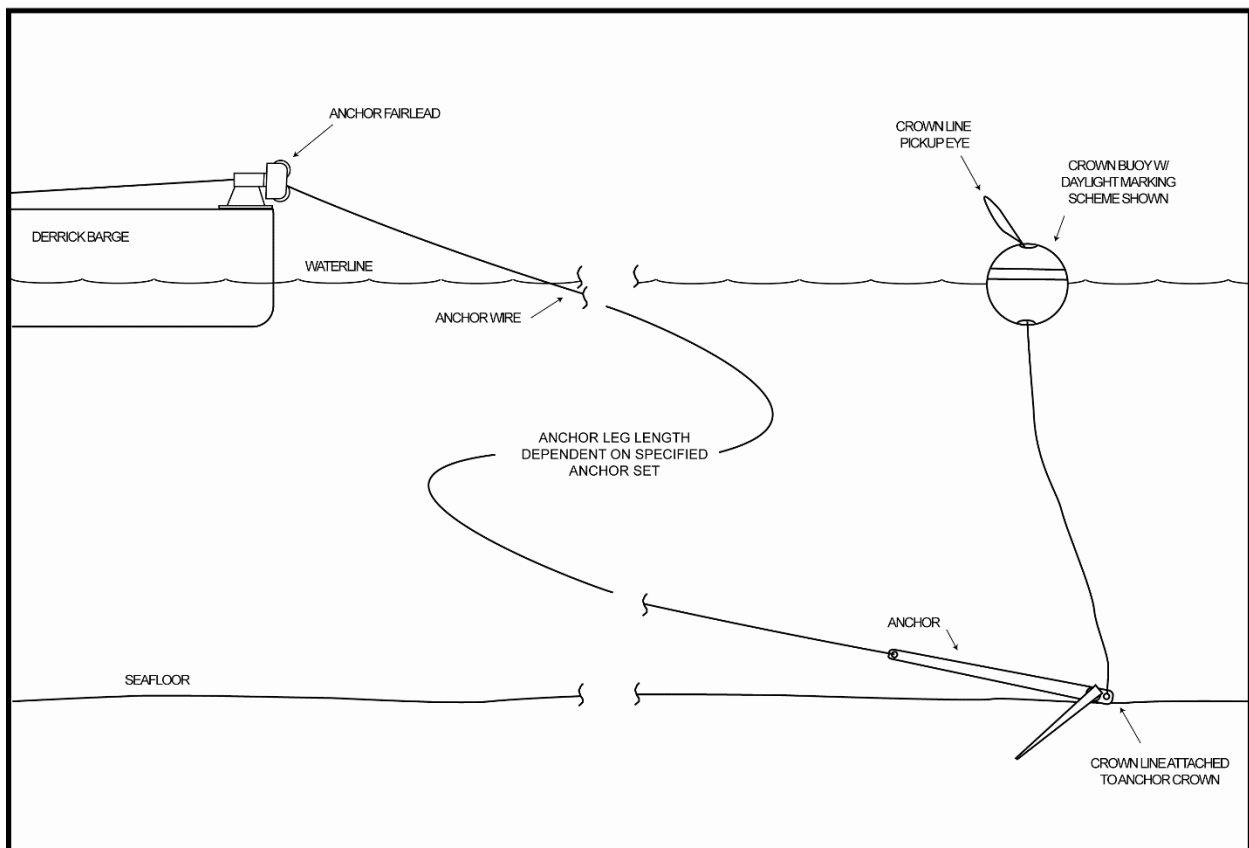
The removal of the concrete box structures at the end of each intake pipeline will be performed by a dive support vessel (DSV) with a three-point mooring system. The mooring system is explained below.

**Dive Support Vessel Three-Point Mooring System.** The diving support vessel will be anchored at the work areas to provide a stationary work platform. The diving support vessel will utilize a three-point mooring spread that will be deployed in pre-planned and pre-plotted anchor sets. The anchors will be deployed with assistance from the supporting anchor handling vessel. The diving support vessel may move within each anchorage to the limits of that anchorage as needed to perform work within that anchorage.



For purposes of this MSAP, an “anchorage” is defined as any combination of anchors set at predetermined locations to provide anchorage within a defined work area. For example, a three-point anchor set involves the deployment of one anchor from the bow and one anchor each from the starboard stern and port stern corners of the diving support vessel.

The anchors will anchor the diving support vessel through wire ropes (anchor wires) that are connected to anchor winches fastened to the deck of the vessel. A wire rope pennant (crown line) will be attached to the crown (bottom end) of each anchor and connected to floating buoys (crown buoys) to facilitate environmentally friendly transportation and recovery of the anchors. A combination of one anchor, the attaching anchor wire, a crown line, and a crown buoy represent one “anchor leg” (see Figure 1 – Typical Anchor Leg).



**Figure 1 - Typical Anchor Leg**

All anchorages have been predefined for the planned work and plotted on the anchor pre-plot drawings (See attached Proposed Anchor Positioning Plot). However, final locations and sizes of the anchorages may be adjusted as needed to suit the site conditions in existence when the work is performed. Additionally, each anchorage provides for a specific amount of lateral movement by the diving support vessel within the confines of the anchorage.



**Navigation Safety Zone - Dive Support Vessel Application.** L123's Project Manager will direct the placement of the anchors at pre-determined locations on the seafloor to ensure that the anchors are not endangering any hard bottom or underwater infrastructure near the offshore worksite. A navigational safety zone around the offshore worksite will be defined as an imaginary boundary drawn between each anchor crown buoy of the anchor set. The purpose of this safety zone is to provide a visual boundary that helps commercial and recreational vessels from entering the immediate work areas. The safety zone will be physically discernable at the work areas by visually sighting between the crown buoys of the anchor set. The crown buoys will be marked with appropriate colors, striping and lettering, and will be also be marked with strobe lights.

## Identification of Vessels and Buoys

Marine work activities will be subject to the USCG 46 CFR Part 197 Subpart B - Commercial Diving Operations and 33 CFR 34 (Subchapter 1, Part C) – Navigational Rules, Lights and Shapes:

**Dividing Support Vessel.** The diving support vessel will transit to the worksite under its own power. Once on site, the diving support vessel will be moored in a series of three-point anchorages. The deck of the diving support vessel will carry an integrated marine crane and other support equipment and will be equipped with deck lighting.

- 1. Daylight Marking Scheme – Anchored** - When anchored in daytime, two 3-dimensional “ball shapes” each not less than two-feet in diameter will be suspended in a vertical line at the highest point possible above the deck of the diving support vessel at the side of the vessel at which the diving operations are being conducted. In addition, two 3-dimensional “diamond shapes” each not less than two-feet in length and width will be suspended in a vertical line at the highest point possible above the deck of the diving support vessel at the side of the vessel on which another vessel may pass.
- 2. Night-Time Marking Scheme – Anchored** - When anchored at night, two “all-round” red lights in a vertical line will be displayed at the side of the vessel at which the diving operations are being conducted. Two “all-round” green lights in a vertical line will be displayed at the side of the diving support vessel on which another vessel may pass. In addition, the deck shall be lighted with deck illumination lights as needed.

**Crown Buoys.** The diving support vessel will be equipped with a three-point mooring system that will be deployed during the work. Each anchor of the mooring systems will be equipped with a crown wire (wire rope) and crown buoy for use in placing the anchor and recovering the anchor. The crown wire is attached to the bottom (crown) of the anchor and is used to pull an anchor backwards when recovering an anchor and to lift an anchor off the seafloor. The anchor wire attached to the anchor stock (top of the anchor) is used to set the anchor and moor the vessel. The crown buoy holds the top end of the crown line at the water surface where it can be accessed by the anchor support vessel to facilitate recovery of the anchor.

The crown buoys that will be used with the dive support vessel will consist of orange plastic buoys (Norfloats or equivalent) and will have no markings except for the orange color of the buoys. These soft plastic crown buoys will not be marked with strobe lights at night.



**Other Support Vessels.** Any other support vessels if needed will be lighted with navigational lighting as required by regulations for night-time operations (sidelights and a stern light) if required. No other markings will be needed as these vessels will not be used to tow vessels.

The support vessel and buoys will be marked in accordance with the United States Code of Federal Regulations, Title 33, Chapter 34, Subchapter I, Part C and the publication titled Private Aids to Navigation. If soft buoys are used as crown buoys or mooring buoys, the buoys shall be constructed of orange or red plastic buoys without markings.

## General Anchoring Procedures

The following general anchoring procedures will be used in deploying and recovering all anchors used to support the offshore segment work.

**Surface Navigation and Pre-Plots.** The Differential Global Positioning System (DGPS) system will be deployed on the diving support vessel and will be operated by a full-time professional hydrographic surveyor. DGPS is an enhancement to standard global positioning systems that provides improved location accuracy, from the 15-meter nominal GPS accuracy to about 10 cm in case of the best implementations. DGPS equipment will be equipped with sub-meter accuracy to locate the required positions. All previous pipeline, bathymetric and geophysical survey data obtained in support of this decommissioning project will be pre-programmed into this DGPS system before the onsite work begins. The planned anchorages for the moorings will also be pre-programmed into the DGPS system. A backup system and uninterruptible power source will be provided.

The full-time professional hydrographic surveyors will be utilized throughout the project to position anchors and record every location of same when placed, to monitor for anchor slippage, and to position the marine work spread at the planned anchorages.

**Real Time Display.** The existing site data will be viewed by the hydrographic surveyor on a computer display located in the wheelhouse of the vessel and real-time positioning of the vessel will be superimposed over the existing site data. The display will update approximately every 0.5 second and the vessel operator will be able to view the display along with the hydrographic surveyor, piloting the vessel to the exact locations required.

**Anchor Deployment.** Except for the first anchor, all diving support vessel anchors will be deployed and recovered by an anchor handling vessel utilizing the basic procedures described in this section. The first anchor may be lowered from the diving support vessel to the seafloor at a pre-designated anchor location, but all other anchors must be taken from the diving support vessel by the anchor handling vessel and transported (flown) to their pre-designated locations and lowered to the seafloor by the anchor handling vessel.

**Transporting Anchors to and from Each Anchorage.** The anchor handling vessel will "fly" the anchors from the diving support vessel to the pre-designated anchor locations specified. Flying anchors is an anchoring procedure in which the anchor is carried or suspended by the anchor handling vessel using the anchor's crown line and buoy and carried to the pre-designated anchor location for placement. During deployment, each anchor is lowered by the crown line into place at the pre-designated site and raised vertically by the crown line with the anchor handling



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vessel winch for transport back to the diving support vessel when the anchors are "weighed" (recovered). Flying anchors to and from their locations eliminates unnecessary anchor wire contact with the seafloor. It should be noted that at no time will the anchors be dragged across the seafloor.

**Crown Lines and Moving Anchors.** In this application, the "crown line" shall consist of a wire rope pennant with one end attached to the crown or base of the anchor stock and the other end attached to a floating crown buoy. Use of a crown line enables the anchor handling vessel to slip (trip) an anchor backwards out of its set rather than having the diving support vessel righting the anchor with the anchor wire during the anchor weighing process. Recovering anchors by utilizing crown lines generally disturbs the seafloor less than weighing the anchor vertically with the anchor wire or chain.

**Crown Buoys and Marine Safety Zone.** Each anchorage will consist of anchors deployed at three points around the diving support vessel. The crown buoys floating above these anchors will serve as visually indicators of a safety zone consisting of an approximately 500-foot imaginary line offset from the crown buoy around the marine construction work. The safety zones will be described in the Notice to Mariners and a thorough description of the crown buoys provided.

## Marine Communications Plan

This marine communications plan will be used by the marine work vessels to communicate with each other, to communicate with vessel traffic in and around the offshore worksite and to communicate with the Channel Islands USCG Station. Radio communications will be conducted using VHF-FM marine band radios between ship and shore. The barge and all vessels will monitor channel 16. Inter-project ship-to-shore communications may also be conducted via cell phone.

## USCG Local Notice to Mariners

Approximately 15 days prior to the start of marine operations, L123 will submit the Local Notice to Mariners (LNM) to the U.S. Coast Guard for publication. Except for the dates which are subject to change, the notice will read as follows:

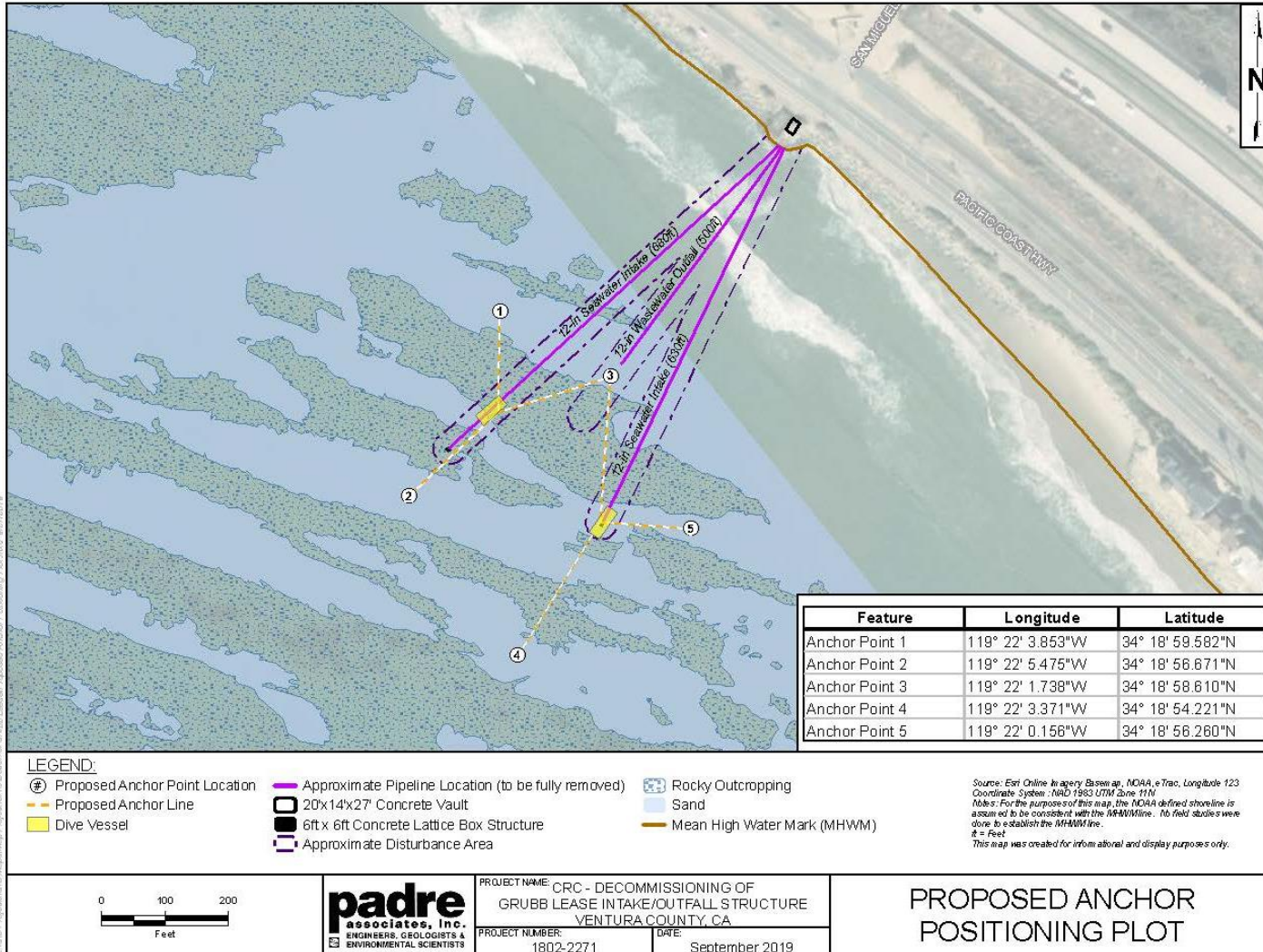
*"Longitude 123, Inc. is conducting underwater operations in Ventura, California from February 1 to February 28, 2020 near position 34-18-54N 119-22-30W. The dive support vessel M/V Danny C will be moored using a three-point mooring configuration. The M/V Danny C anchors will be marked by orange plastic crown buoys. All vessels are requested to maintain a minimum safe distance of 500 feet outside of the boundaries of the floating crown buoys. All project vessels will monitor VHF-FM Chan. 16. All Mariners are requested to transit the surrounding area with caution and all vessels approaching the moored work vessels must receive radio permission from the diving supervisor on the derrick barge before entering the 500-foot safety zone. For more details or comments contact Scot Anderson at 805-796-1235."*





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