



On September 8, 2004, MBARI submitted (via email) revised material to update information in Section E2 of the application packet. Based on recent suggestions, MBARI has investigated one additional option for landing the MARS cable, which was not included in the September 8<sup>th</sup> submittal. This new option, using HDD to drill directly from MBARI property out into the bay, seems to offer the best solution for landing the cable and minimizing environmental impacts to the coastal zone habitat and communities.

Therefore, MBARI is submitting this new request to update Section E2 of the application packet. This update includes three possible shore landings for the MARS cable, as detailed below. MBARI considers Option 1 to be the preferred option. Options 2 & 3 are alternative options.

## **E2. Onshore Facilities**

### *Shore Landings*

There are three possible shore landing options for the MARS cable—two options utilizing Horizontal Directional Drilling (HDD) in or near the north harbor entrance, and one option using the planned Moss Landing Marine Laboratories pier south of the canyon head. Figure 1 is an aerial view of the Moss Landing region showing the relative location of these sites.

#### *Option 1 (Preferred option) – MBARI property to offshore*

Option 1 involves using HDD to install a pipe, which will serve as the conduit to land the MARS cable. The drilling process will be initiated on MBARI property (labeled on Figure 1 and outlined in Figure 2). The pipe will exit at approximately 36° 48.75' N, 121° 48.05' W in the bay. Environmental Crossings, Inc. (ECI) has provided a report detailing the HDD process for this option, which has been included in this submission.

Once the cable is brought onshore on MBARI property, the power will be supplied from an existing power utility source. The Shore Facility will consist of equipment housed in a 6-meter-long ISO van. (An ISO van is a temporary structure typically used by scientists as portable laboratory space [see Photographs E-6 and E-7 in the original application packet]). The van will be placed on a concrete slab installed to meet all State and local building regulations and codes. The fiber will run along existing overhead lines to Building D on MBARI's main facility (see Figure 1).

#### *Option 2 – Duke Energy Pipeline to ISO Van on MBARI Property*

Option 2 involves pulling the cable through the existing Duke Energy pipeline. The pipeline extends in a west-northwest direction from the shore to a water depth of roughly 18 meters (see Figure E-1 in the original application). The position of the end of the



pipeline is 36°48.719' N, -121°48.037' W and is located approximately 153 meters from shore. The pipe is 18"-24" carbon steel and has been well maintained by Duke Energy. MBARI will modify the cap at the ocean end of the pipeline to include a seal allowing the MARS cable to enter the pipeline and remain sealed for corrosion protection. Duke Energy has reviewed their records and do not believe the pipeline is currently under lease with the State Lands Commission. Please see Figures E-2, E-3, and E-4 in the original application binder for further details of the pipe.

The cable will be run through the pipeline to a point where the pipeline becomes exposed on the eastern side of the jetty located on Jetty Road at Moss Landing State Beach (see Figure 1). At this point, we will install an access hatch in the pipeline to enable the cable to be pulled ashore from the installation vessel.

From the State Parks beach to the north of the Moss Landing Harbor, the cable will be run south under the channel in conduit installed using HDD. The drilling operation will be performed with the rig and equipment sited on the MBARI property to the south of the channel to minimize the impact on the Moss Landing State Parks beach. The cable will be brought onshore on MBARI's property located on the southern side of the channel (see Figure 1). ECI has also provided a report detailing the HDD process for this option, which is included in this submission. (As a side note, we have had preliminary meetings with California State Parks, who have indicated that they will readily provide permits for this HDD operation.)

This option will be the same as Option 1 once the cable is brought onshore on MBARI's property. The power will be supplied from an existing power source to an ISO van. The fiber will be run along overhead lines back to MBARI Building D.

### *Option 3 – Moss Landing Marine Laboratories Pier*

This option was formerly identified as the "Southern Shore Landing Alternative" and has not changed from the original application description, as listed here.

For Option 3, the cable will run from a water depth of approximately 16 meters at the estimated position for the end of a planned pier to be constructed by Moss Landing Marine Laboratories (MLML) on the seaward side of the MBARI facilities. The estimated position of the end of the pier is 36°40.266' N, -121°49.111' W. Figure E-6 is a drawing of MBARI buildings and the planned MLML pier. Figure E-7 shows additional details. MLML has obtained permits to construct this pier and has given MBARI permission to land the MARS cable through conduit running alongside the pier (see Document E-2 in the original application binder).

From the pier, the cable will run in the conduit and follow the same path as an existing seawater intake pipe before terminating inside MBARI Building C (see Figures E-6 and E-8 in the application binder).



For this alternative, Building C will serve as the Shore Facility, so no additional structures will be needed. As in Options 1 and 2, the Shore Facility (Building C) will house all items necessary for cable and node operations including uninterrupted power supply and all command and control equipment. The existing power supply is sufficient to meet cable and node requirements (3 phase, 480-volt, 10kW).

With this option there is serious concern over the survivability of the cable as it crosses the canyon head at the Moss Landing Harbor entrance, although we are investigating mitigation and cable protection measures.

Photographs E-9 and E-10 in the original application binder show views west and north, respectively across the proposed landing site (pier to be built) for the southern alternative shore landing.



**Figure 1.** Aerial view of the Moss Landing region with the relative locations for the three shore landing options.



**Figure 2.** Location of the HDD drill site (APN # 133-252-001). This property is owned by MBARI.