CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
1385 EIGHTH STREET, SUITE 130
ARCATA, CA 95521
VOICE (707) 826-8950
FAX (707) 826-8960

F8b

1-20-0455 (Vero Fiber Networks, LLC)

March 12, 2021

EXHIBITS


DEL NORTE
Redwood NP
Stone Lagoon
Big Lagoon
Big Lagoon Rancheria
Patrick's Pt.
City of Trinidad
Trinidad Rancheria
PACIFIC OCEAN
Approximate Project Location
Blue Lake Rancheria
Arcata Bay
City of Arcata
Humboldt Bay
City of Eureka
HUMBOLDT
Table Bluff Reservation
Eel R
Bear River Band - Rohnerville Rancheria
City of Fortuna
City of Ferndale
Cape Mendocino
King Range NCA
MENDOCINO
LOCAL COASTAL PROGRAM AREAS
City of Arcata
City of Eureka
City of Fortuna
City of Trinidad
Humboldt County
Coastal Zone Boundary
(extends 3 nautical miles offshore)
Locations approximate.
For illustrative purposes only.
N
0 6 12 Miles
0 6 12 Kilometers


Approximate Location of Old Mill Site
Approximate Location of Samoa Ash Landfill
Mad River Slough
Foster Ave
Bay School Rd
Jacobson Ranch Rd
Liscom Slu
Alliance Rd
H St
Old Samoa Rd
Arcata Marsh and Wildlife Sanctuary
Humboldt Bay
SAMOA PENINSULA
Samoa
Vance Ave
Indian Island
Humboldt Bay Nat'l Wildlife Refuge
Eureka Slough
Eureka
4th St
101
Burns
Murray Field
Cooper Gulch Park
14th St
Park St
Freshwater Slough
Myrtletown
Palco Marsh
Legend
Project Area
Project Overview Map
Arcata Samoa Beach Fiber Project
0
0.5
1
Miles
Figure 1
TRANSCON

INTRODUCTION

Vero Fiber Networks, LLC (California Public Utilities Commission [CPUC] Certificate of Public Convenience and Necessity #U7344C) proposes to install conduit in approximately 18 miles of public right-of-way (ROW) along the Pacific Coast in the Arcata area in Humboldt County. The Arcata-Samoa Beach Fiber Project (Project) follows the Samoa Peninsula north to Arcata (**Figure 1**). The entire Project will be constructed underground using trenchless methods such as the horizontal direction drilling (HDD) construction method.

The Project consists of two parallel bore paths, referenced as FH1 and FH2, following either side of State Route 255 (SR-255) and curving east around Humboldt Bay and into Arcata, where it follows approximately 1.1 miles of city streets to connect to an existing facility. The Project would be entirely bored, including under bridges and under water bodies.

1.1 Areas of Disturbance

The Project would include installation of approximately 9 linear miles of underground parallel conduit (i.e., about 18 total miles of conduit) and up to 188 manholes and 31 handholes. Permanent disturbance includes the underground conduit as well as the manholes and handholes. Temporary disturbance resulting from construction (equipment staging/laydown) is expected to be limited to a 25-foot-wide corridor along the Project at select locations. Temporary and permanent disturbances per land jurisdiction are calculated in **Table 1**. Note that since the conduit is installed by trenchless methods, the actual disturbance area is only at bore and receive pits.

TABLE 1
TEMPORARY AND PERMANENT DISTURBANCE ACREAGES

Jurisdiction	Distance *(miles of conduit)*	Temporary Disturbance *(25-foot-wide Construction Corridor)*	Permanent Disturbance *(manhole and handholes)**
Public ROW	18	54.5 acres	1,249 square feet

*Combined area of surface disturbance for the manholes and handholes (i.e., 3 foot diameter lid per manhole and 3 feet by 4 feet per handhole)

DESCRIPTION OF THE UNDERTAKING

The Project comprises buried conduit and associated manholes and handholes. A description of these facilities and how they would be constructed is below.

2.1 Facilities and Construction

2.1.1 Buried Conduit

From the Samoa Peninsula north to Arcata, two high-density polyethylene conduits are proposed; the conduit for the FH1 bore would be 6 inches in diameter, and the conduit for the FH2 bore would be 8 inches in diameter. Both conduits would be bored separately to a depth of at least 10 feet parallel to each side of SR-255. Once in Arcata, the bores follow approximately 1.1 miles of city streets to connect to an existing facility.

Both conduits would be constructed using the HDD construction method. HDD is a steerable, trenchless method of installing underground conduits along a prescribed bore path by using a surface drilling rig (**Figure 2**). HDD causes minimal impacts; ground disturbance occurs only at each entry/exit point, or "bore pit." HDD can avoid surface disruption by going beneath roadways, waterways, or environmentally sensitive areas.

The HDD process involves drilling a hole with guidance equipment and continuous drill bit position monitoring. Once drilling is complete, the conduit is pulled through the bore hole and spliced together through manhole/handhole locations. HDD uses a clay/water mixture that is pumped down the drill stem to lubricate the drill head and drill pipe, maintain the bore hole opening, and remove bore cuttings.

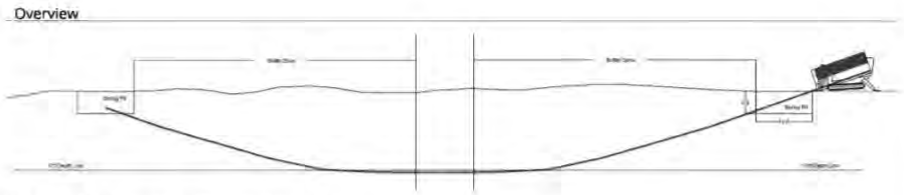


Figure 2. HDD construction method diagram

2.1.2 Manholes and Handholes

A total of 188 manholes would be required (placed approximately every 800 feet per conduit/bore operation) to facilitate the bore operation and provide access to the conduit. The relatively short distance between manholes is due to conduit configuration, weight, and discrete lengths of pre-manufactured conduit. Manholes are made from concrete and rebar with an outside diameter of 5 by 5 by 7 feet and require an excavation of about 1 foot greater than the manhole. In addition to the manholes, a total of 32 handholes would be required along the FH2 path (placed approximately every 1,600 feet). Handholes are made from a hybrid polymer concrete composite sized 3 by 4 feet and require an excavation of about 1 foot greater than the handhole; handholes would be placed alongside manholes.

2.1.3 Cable Placement

After installation, the first conduit is tested, and the cable is placed by either pulling cable using Kevlar tape or using compressed air to "blow" the cable through the conduit. In the future, additional cables may be installed within empty conduits installed as part of this Project. Each conduit would be accessed via manholes and handholes; the installation of additional cables would not require future new disturbance.

2.1.4 Construction Operations

Equipment required to construct the Project includes two directional bore rigs Vermeer 24/40 Tier 3 to Tier 4, two Kubota mini excavators Tier 3, an Ingersoll Rand 185 Air Compressor Tier 3 and Walk Behind Saw, two Ford 5-yard dump trucks, three F550 utility trucks equipped with tools, arrow boards, equipment trailers, reel trailers, a fusion welder, wackers, a vacuum trailer, and a vac truck. The directional bore would require two drill rigs, one vac trailer, one mini excavator, one air compressor, one 5-yard dump truck, and three F550 1-ton trucks, all operating in unison. Conduit and manhole placement would require one mini excavator, one concrete saw, one air compressor, two 5-yard dump trucks, and two F550 1-ton trucks. Work zones would be delineated by cones and/or barricades.

2.1.4.1 Dewatering

If necessary, dewatering would occur at manhole and at some handhole locations. Where the ground is fine sand, the excavation pits would be dug through a steel shoring box; the water would only be contained and pumped from this small area. Once pumped out, water would be stored in two 7,000-gallon poly tanks at a construction vendor yard; the water would then be tested, a discharge permit would be obtained if necessary, and the water would be discharged into either a sanitary sewer or designated discharge area. There would also be a washout for the vacs and a recycler to separate out the mud, silt, and water. Dewatering would take 4–6 hours per manhole and 2–3 hours per handhole.

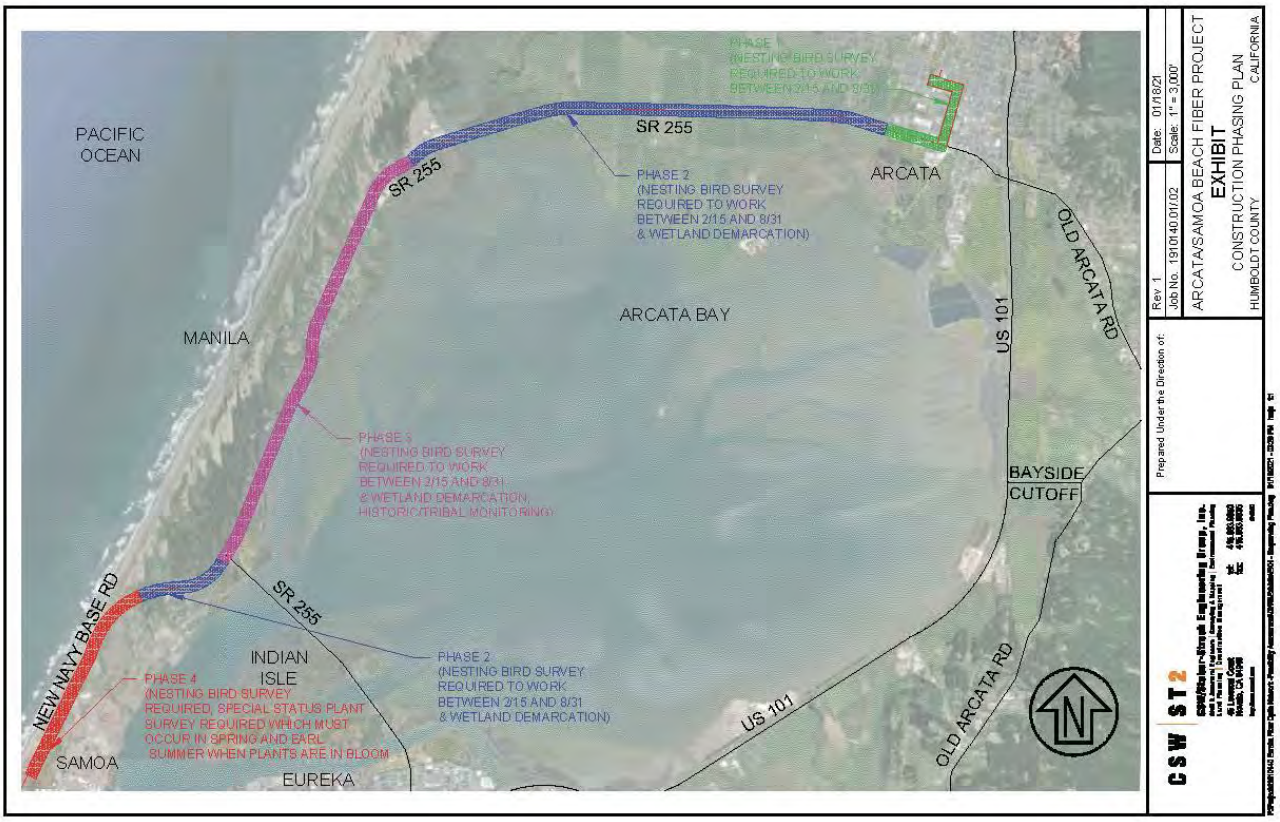
2.1.4.2 Equipment Storage and Staging

Staging and laydown for the Project construction would be along the ROW in the dirt and paved areas within the 25-foot-wide Construction Corridor. Equipment would be stored at a to be determined location within Humboldt County. Equipment would not be left within the ROW overnight.

Dry spoils would be placed directly into a dump truck and hauled to a construction vendor yard. When the stockpile reaches 100 yards, end dumps would transport the material to the nearest landfill. Wet spoils and vac mud would be run through a reclaimer to separate, the water which would be reused in the bore machines, and the wet tailing would be dried in a pond lined with plastic sheeting before being hauled off.

2.1.5 Construction Schedule

The duration of construction for the Project would be approximately 10 months (400–600 feet per day); construction is planned to begin March 2021 and extend to October 2021. Construction operations would last 8 to 10 hours per day and would be performed 5 days per week. Some work may begin before sunrise or end after sunset.


PACIFIC OCEAN
MANILA
ARCATA BAY
ARCATA
SR 255
SR 255
SR 255
US 101
US 101
OLD ARCATA RD
OLD ARCATA RD
BAYSIDE CUTOFF
NEW NAVY BASE RD
INDIAN ISLE
SAMOA
EUREKA
PHASE 1 (NESTING BIRD SURVEY REQUIRED TO WORK BETWEEN 2/15 AND 8/31)
PHASE 2 (NESTING BIRD SURVEY REQUIRED TO WORK BETWEEN 2/15 AND 8/31 & WETLAND DEMARCATION)
PHASE 3 (NESTING BIRD SURVEY REQUIRED TO WORK BETWEEN 2/15 AND 8/31 & WETLAND DEMARCATION, HISTORIC/TRIBAL MONITORING)
PHASE 2 (NESTING BIRD SURVEY REQUIRED TO WORK BETWEEN 2/15 AND 8/31 & WETLAND DEMARCATION)
PHASE 4 (NESTING BIRD SURVEY REQUIRED, SPECIAL STATUS PLANT SURVEY REQUIRED WHICH MUST OCCUR IN SPRING AND EARL SUMMER WHEN PLANTS ARE IN BLOOM
N
Date: 01/18/21
Scale: 1" = 3,000'
Rev. 1
Job No. 191014.00/01/02
ARCATA/SAMOA BEACH FIBER PROJECT
EXHIBIT
CONSTRUCTION PHASING PLAN
HUMBOLDT COUNTY CALIFORNIA
Prepared Under the Direction of:
CSW ST 2

VERO
Fiber Networks

ARCATA/SAMOA BEACH FIBER PROJECT - PHASE III
STA: 1+00 TO STA: 36+27.97
CITY OF ARCATA
AUGUST 2020

CONTACT LIST:

VERO FIBER NETWORKS (OWNER):
JONATHAN MCGINN — OFFICE: (303) 530-4580 — CELL: (303)473-8139 — P.O. BOX 1119, BOULDER, COLORADO 80306 — EMAIL: jmcginn@vero-networks.com

LIGHTWAVE CONSTRUCTION (CONSTRUCTION CONTRACTOR):
STEPHEN BECHER — OFFICE: — CELL: (916) 213-1366 — OWNER — 3469 DAISY DR. — FAX: — POLLOCK PINES, CA 95726 — EMAIL: stevenb@lightwaveconstruction.com

COAST-VALLEY STITCH ENGINEERING GROUP, INC. (ENGINEERING CONSULTANT):
JULIA HARRISON — OFFICE: (916) 863-0550 — ENGINEERING CONSULTANT — CELL: (415) 269-0554 — 45 LEVERON CT. — FAX: (916) 863-0823 — NOVATO, CA 94945 — EMAIL: julia@jhsmail.com

OVERALL LOCATION MAP

OVERALL LOCATION MAP

LOCATION MAP

LOCATION MAP

SHEET INDEX

GENERAL	
G-001	COVERSHEET
G-002	SHEET KEY MAP
G-003	NOTES, LEGENDS AND QUANTITIES
CIVIL IMPROVEMENTS	
C-101	CONDUIT LAYOUT PLAN & PROFILE - STA: 1+00 TO STA: 12+00
C-102	CONDUIT LAYOUT PLAN & PROFILE - STA: 12+00 TO STA: 23+00
C-103	CONDUIT LAYOUT PLAN & PROFILE - STA: 23+00 TO STA: 28+00
C-104	CONDUIT LAYOUT PLAN & PROFILE - STA: 28+00 TO STA: 28+68
C-105	CONDUIT LAYOUT PLAN & PROFILE - STA: 1+00 TO STA: 11+90.15
C-106	CONDUIT LAYOUT PLAN & PROFILE - STA: 12+90.15 TO STA: 22+82.18
C-107	CONDUIT LAYOUT PLAN & PROFILE - STA: 22+82.18 TO STA: 36+27.97
C-201	CONSTRUCTION DETAILS
C-202	CONSTRUCTION DETAILS
C-301	TRAFFIC CONTROL PLAN
C-302	TRAFFIC CONTROL PLAN FH1
C-303	TRAFFIC CONTROL PLAN FH1
C-304	TRAFFIC CONTROL PLAN FH1
C-305	TRAFFIC CONTROL PLAN FH1
C-306	TRAFFIC CONTROL PLAN FH1
C-307	TRAFFIC CONTROL PLAN FH1
C-308	TRAFFIC CONTROL PLAN FH2
C-309	TRAFFIC CONTROL PLAN FH2
C-310	TRAFFIC CONTROL PLAN FH2
C-311	TRAFFIC CONTROL PLAN FH2
C-312	TRAFFIC CONTROL PLAN FH2

Rev	Date	Description	Designed	Drawn	Checked
	08/03/20	SUBMITTAL	JAH	FAU	BRB

VERO Fiber Networks COVERSHEET

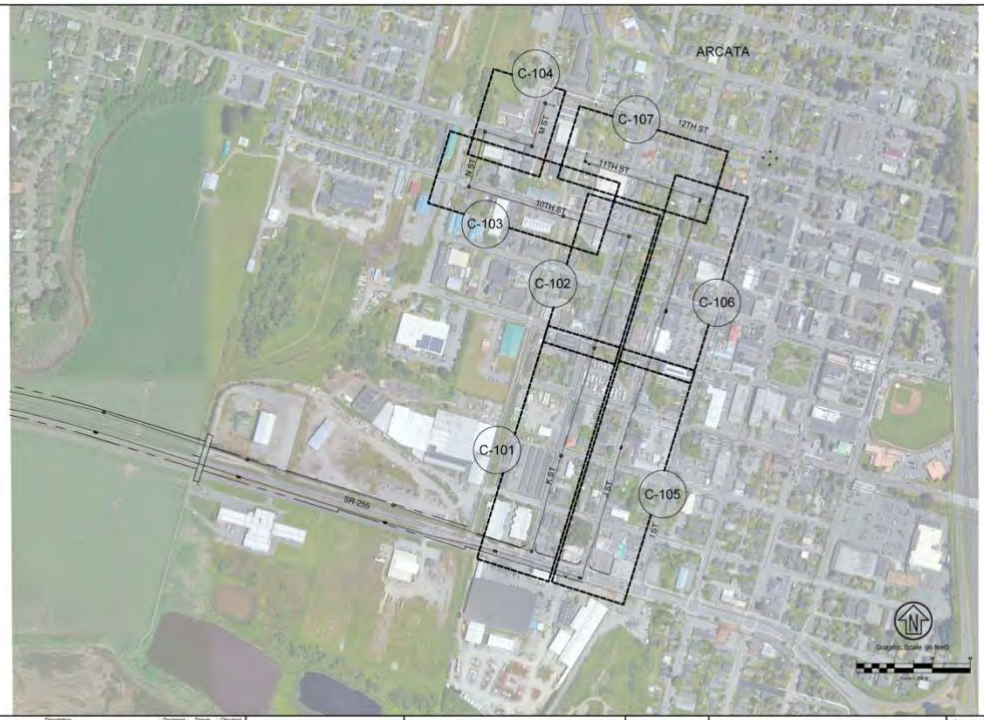
CSW ST2 — CSW/Stuber-Stroeh Engineering Group, Inc. — Civil & Structural Engineers · Surveying & Mapping · Environmental Planning · Land Planning · Construction Management — 45 Leveroni Court, Novato, CA 94949 — tel: 415.883.9850 — fax: 415.883.9835

City: Arcata — County: Humboldt — State: California

ARCATA-SAMOA BEACH FIBER
COVERSHEET
VERO FIBER NETWORKS

Prepared Under the Direction of: JULIE A. HARRISON, No. 19029, CIVIL, STATE OF CALIFORNIA

Sheet: G-001
Scale:
Date: 08/03/20
Project Number: 19101142
Plan File: D-XXXX-



Rev	Date	Description	Designed	Drawn	Checked
	08/03/20	SUBMITTAL	JAH	FAU	BRB

VERO Fiber Networks

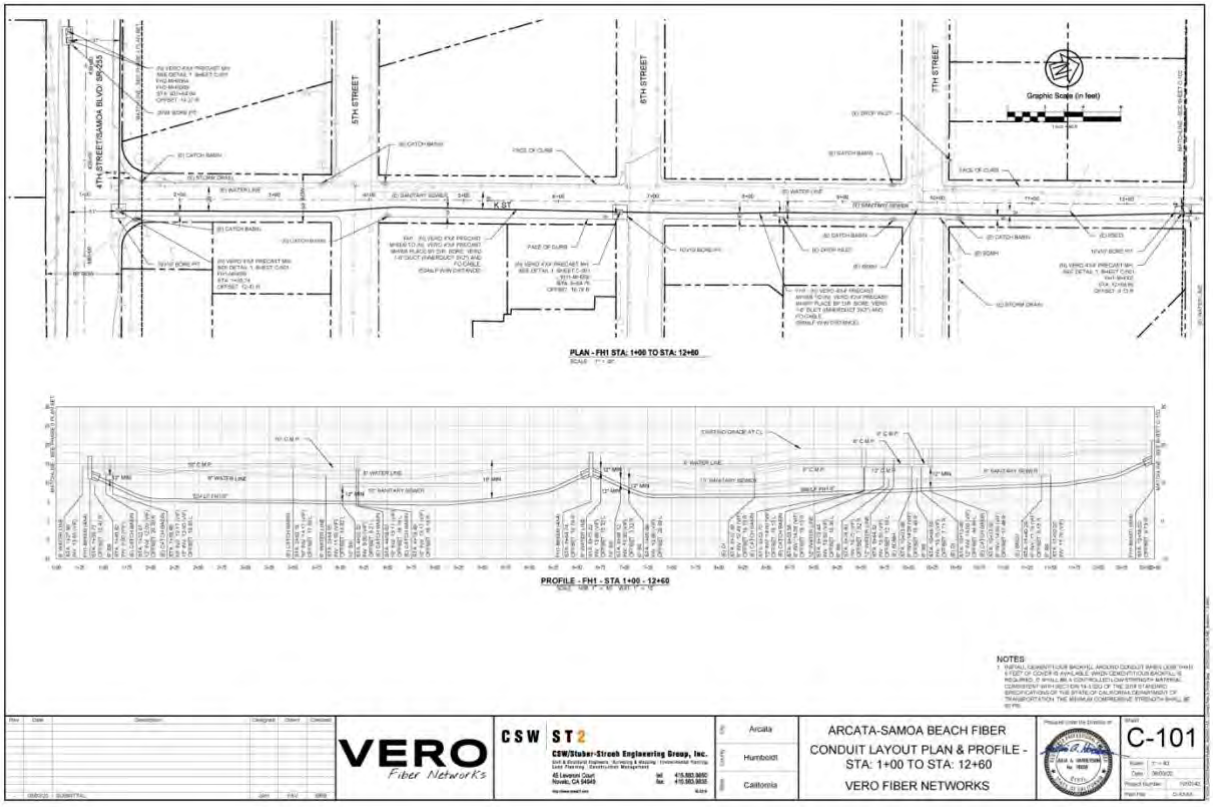
CSW ST2 — CSW/Stuber-Stroeh Engineering Group, Inc. — Civil & Structural Engineers · Surveying & Mapping · Environmental Planning · Land Planning · Construction Management — 45 Leveroni Court, Novato, CA 94949 — tel: 415.883.9850 — fax: 415.883.9835

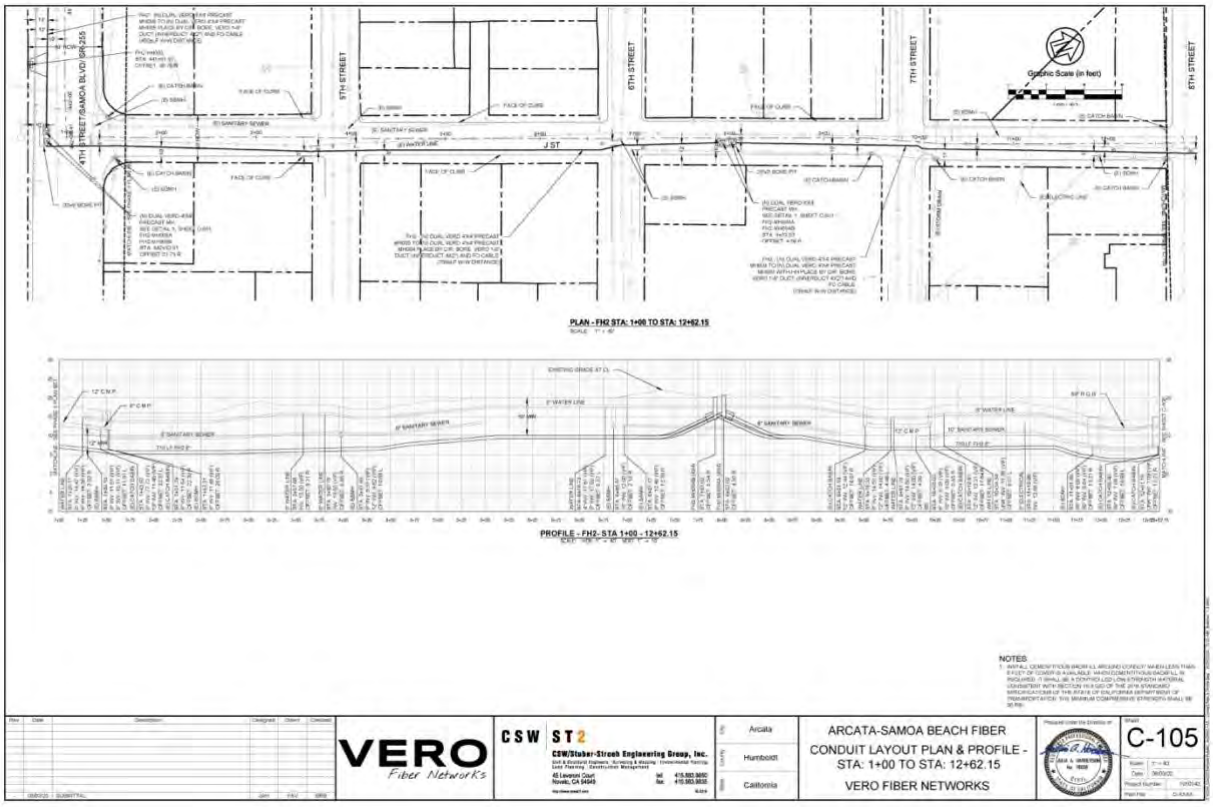
City: Arcata — County: Humboldt — State: California

ARCATA-SAMOA BEACH FIBER
SHEET KEY MAP
VERO FIBER NETWORKS

Prepared Under the Direction of: JULIE A. HARRISON, No. 19029, CIVIL, STATE OF CALIFORNIA

Sheet: G-002
Scale: 1" = 200'
Date: 08/03/20
Project Number: 19101142
Plan File: D-XXXX-


4TH STREET/SAMOA BLVD (SR255)
5TH STREET
6TH STREET
7TH STREET
K ST
Graphic Scale (in feet)
PLAN - FH1 STA: 1+00 TO STA: 12+60
PROFILE - FH1 - STA 1+00 - 12+60
NOTES
VERO Fiber Networks
CSW ST2
CSW/Stuber-Streeb Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Arcata
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE - STA: 1+00 TO STA: 12+60
VERO FIBER NETWORKS
C-101


4TH STREET/SAMOA BLVD (SR255)
5TH STREET
6TH STREET
7TH STREET
8TH STREET
J ST
Graphic Scale (in feet)
PLAN - FH2 STA: 1+00 TO STA: 12+62.15
PROFILE - FH2- STA 1+00 - 12+62.15
NOTES
VERO Fiber Networks
CSW ST2
CSW/Stuber-Streeb Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Arcata
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE - STA: 1+00 TO STA: 12+62.15
VERO FIBER NETWORKS
C-105

VERO
Fiber Networks

ARCATA/SAMOA BEACH FIBER PROJECT - PHASE II

STA: 108+03.24 TO STA: 443+00

CALTRANS

AUGUST 2020

CONTACT LIST:

OVERALL LOCATION MAP

OVERALL LOCATION MAP

LOCATION MAP

LOCATION MAP

SHEET INDEX

GENERAL	
G-001	COVERSHEET
G-002	KEY MAP
G-003	NOTES, LEGENDS AND QUANTITIES
CIVIL IMPROVEMENTS	
C-100, C101-C129	CONCEPT LAYOUT PLAN & PROFILE (STA: 108+03.24 TO STA: 443+00)
C-150	CONSTRUCTION DETAILS
C-151	CONSTRUCTION DETAILS
C-152	TRAFFIC CONTROL PLAN
C-153	TRAFFIC CONTROL PLAN - PH1
C-154	TRAFFIC CONTROL PLAN - PH1
C-155	TRAFFIC CONTROL PLAN - PH1
C-156	TRAFFIC CONTROL PLAN - PH1
C-157	TRAFFIC CONTROL PLAN - PH1
C-158	TRAFFIC CONTROL PLAN - PH2
C-159	TRAFFIC CONTROL PLAN - PH2
C-160	TRAFFIC CONTROL PLAN - PH2
C-161	TRAFFIC CONTROL PLAN - PH2
C-162	TRAFFIC CONTROL PLAN - PH2
C-163	TRAFFIC CONTROL PLAN - PH2
C-164	TRAFFIC CONTROL PLAN - PH2

Mark	Date	Description	Designed	Drawn	Checked
		SUBMITTAL			

VERO Fiber Networks — COVERSHEET

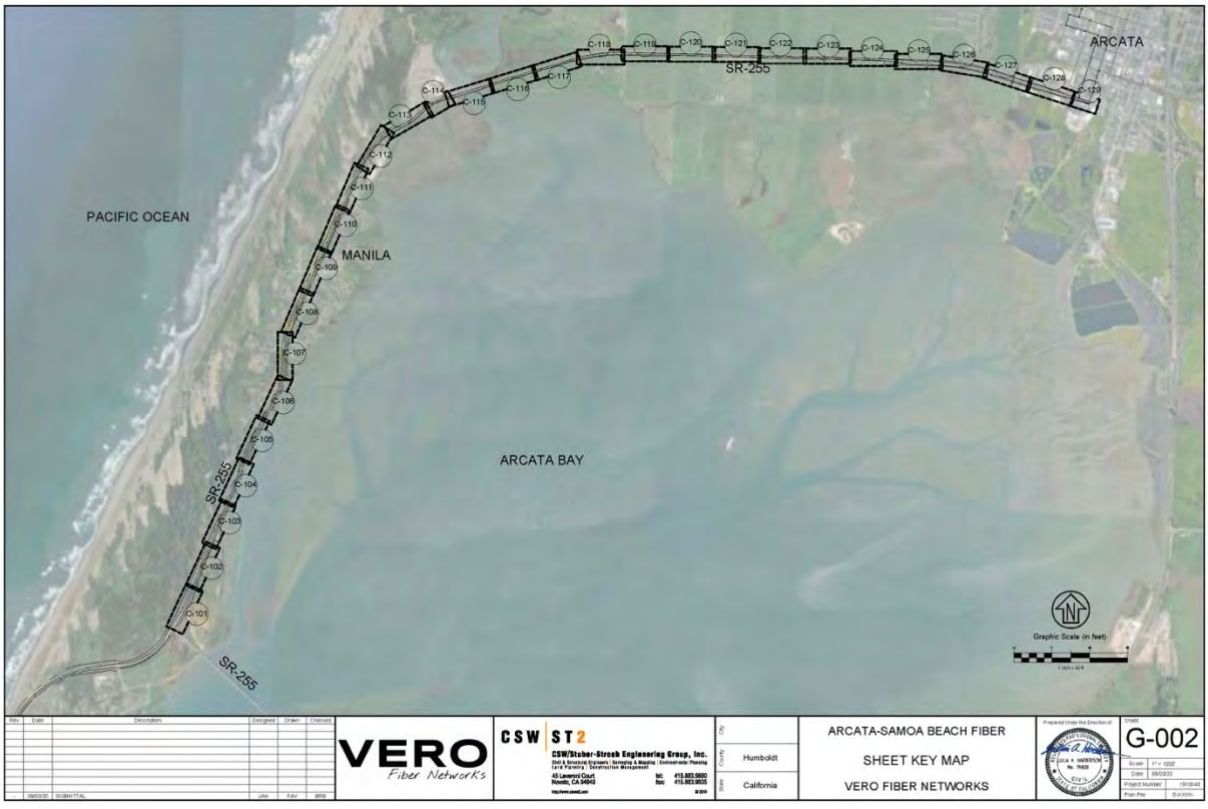
CSW ST2 — CSW/Stober-Strosh Engineering Group, Inc.
Civil & Structural Engineers · Surveying & Mapping · Environmental Planning
Land Planning · Construction Management
45 Lawrence Court, Novato, CA 94942
tel: 415.883.9600 fax: 415.883.9626

Humboldt County, California

ARCATA-SAMOA BEACH FIBER
COVERSHEET
VERO FIBER NETWORKS

Prepared Under the Direction of: Joshua A. Hooper, No. 7628, CIVIL, STATE OF CALIFORNIA

Sheet: G-001
Scale:
Date: 08/03/2020
Project Number: 19-024-43
Plot File: D:\XXXX\...



Mark	Date	Description	Designed	Drawn	Checked
		SUBMITTAL			

VERO Fiber Networks

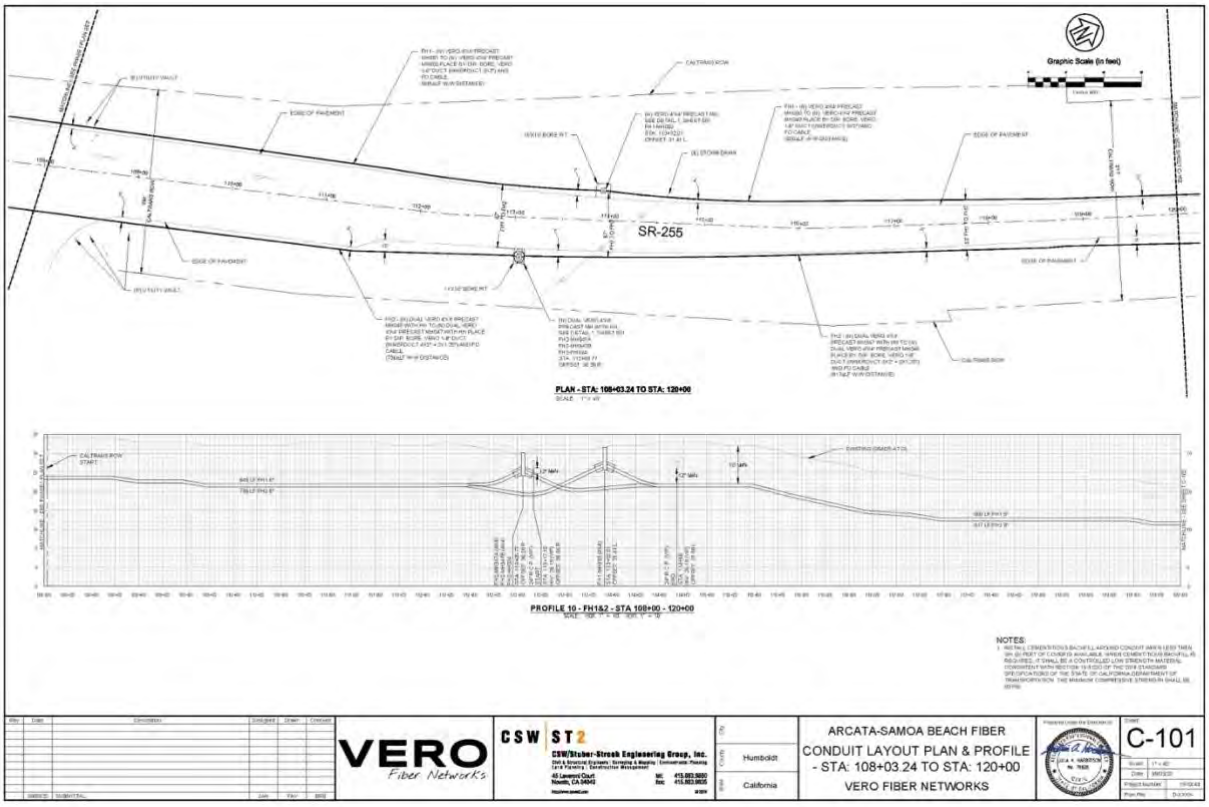
CSW ST2 — CSW/Stober-Strosh Engineering Group, Inc.
Civil & Structural Engineers · Surveying & Mapping · Environmental Planning
Land Planning · Construction Management
45 Lawrence Court, Novato, CA 94942
tel: 415.883.9600 fax: 415.883.9626

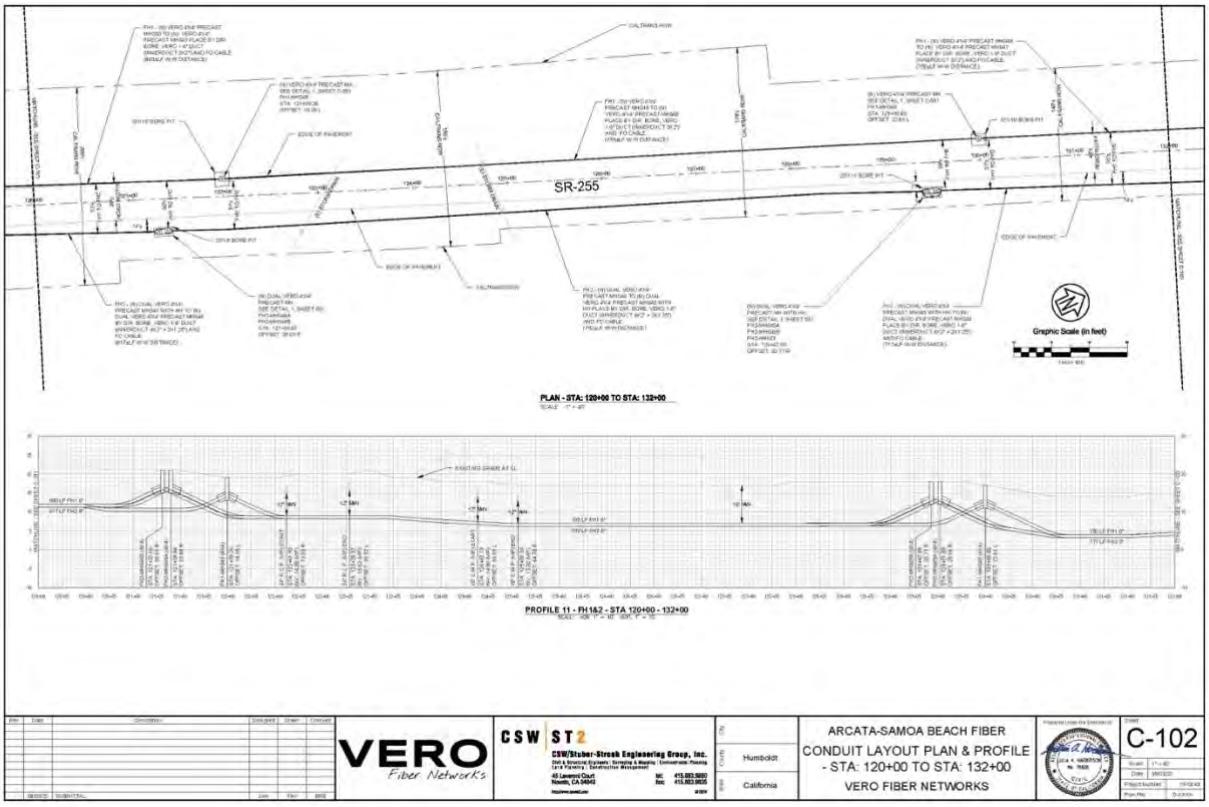
Humboldt County, California

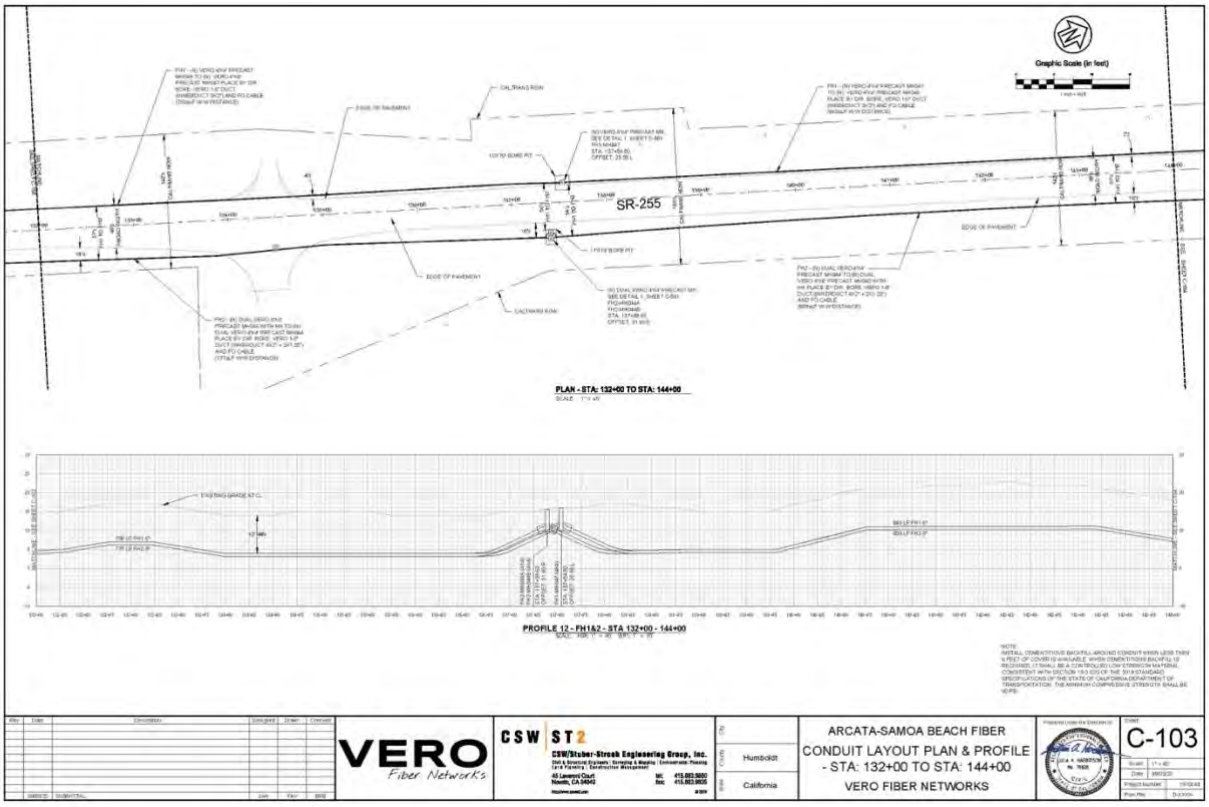
ARCATA-SAMOA BEACH FIBER
SHEET KEY MAP
VERO FIBER NETWORKS

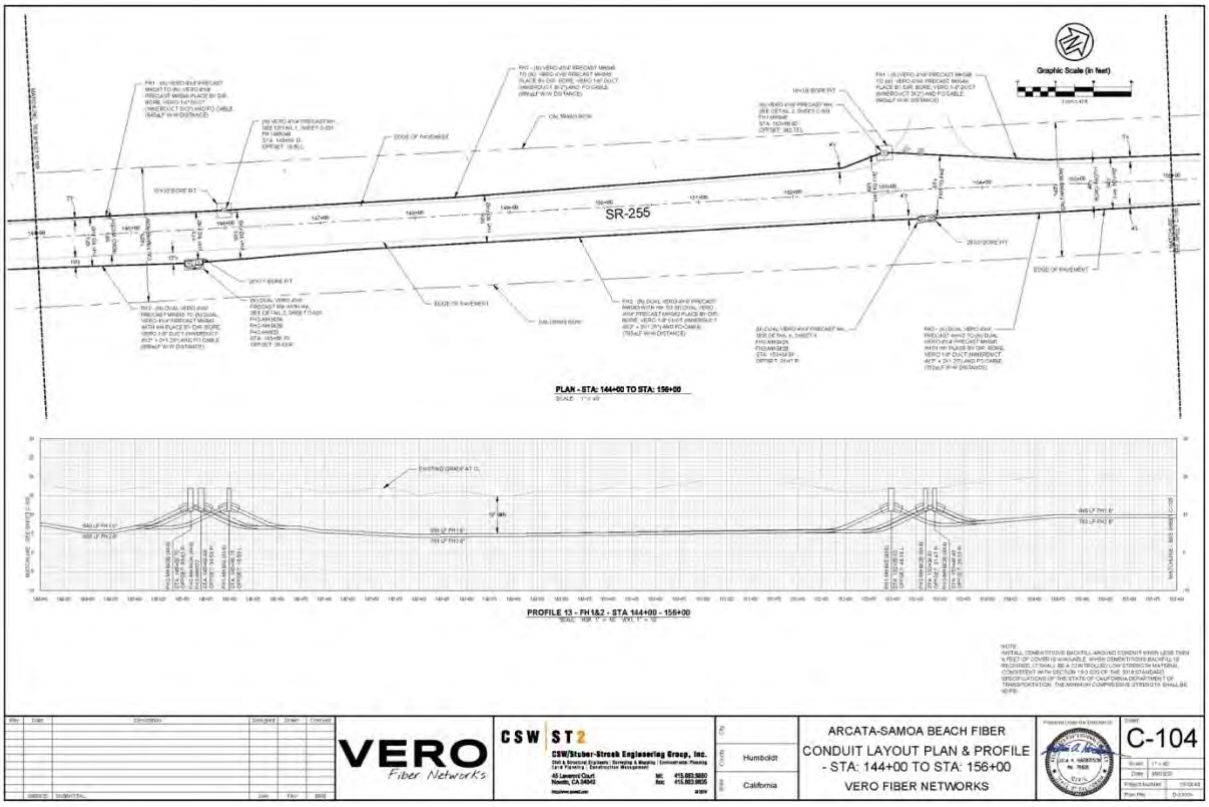
Prepared Under the Direction of: Joshua A. Hooper, No. 7628, CIVIL, STATE OF CALIFORNIA

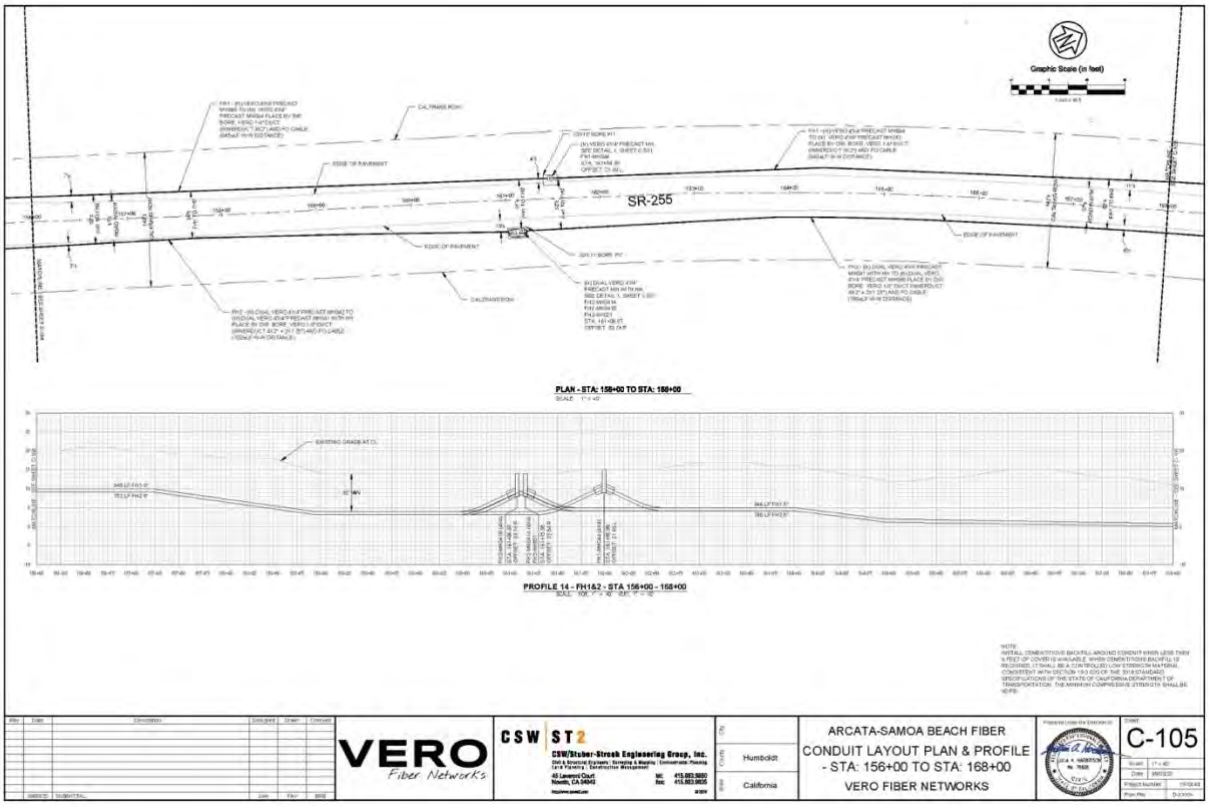
Sheet: G-002
Scale: 1" = 1000'
Date: 08/03/2020
Project Number: 19-024-43
Plot File: D:\XXXX\...

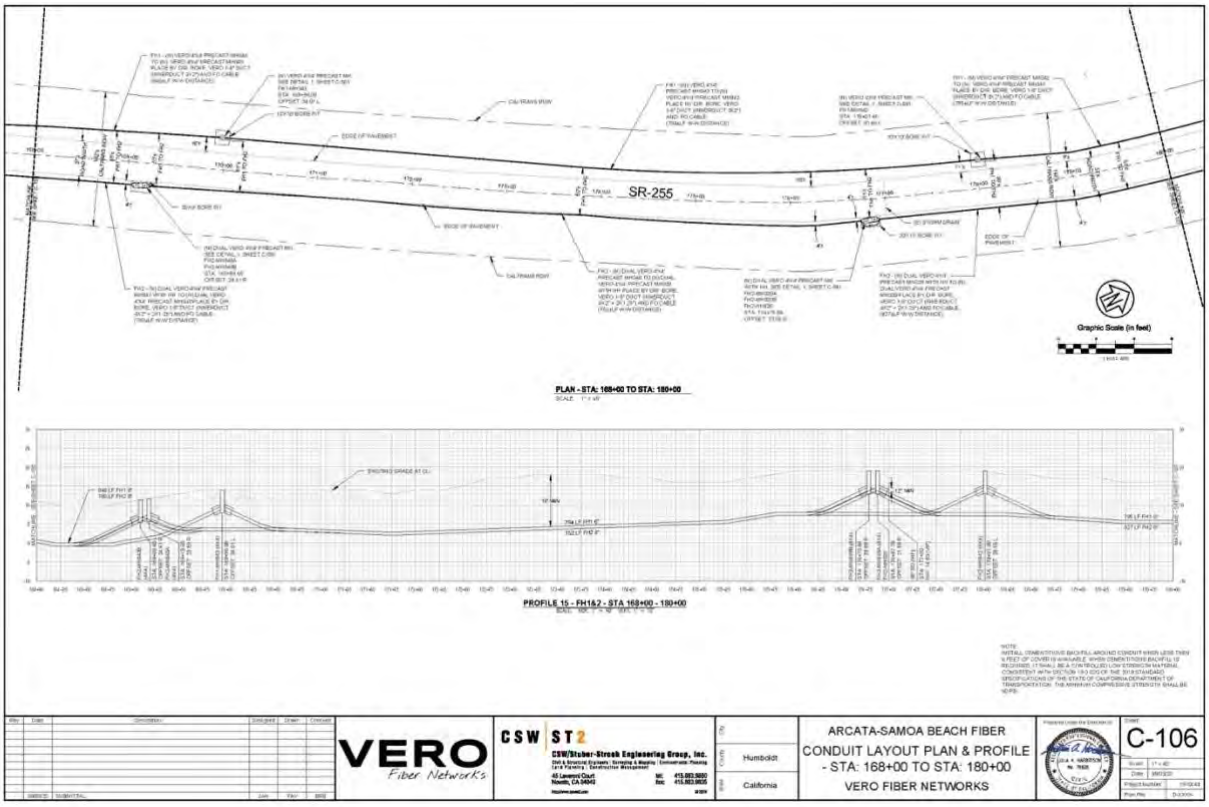

SR-255
Graphic Scale (in feet)
PLAN - STA: 108+03.24 TO STA: 120+00
PROFILE 10 - FH1&2 - STA 108+00 - 120+00
NOTES:
VERO Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 108+03.24 TO STA: 120+00
VERO FIBER NETWORKS
C-101

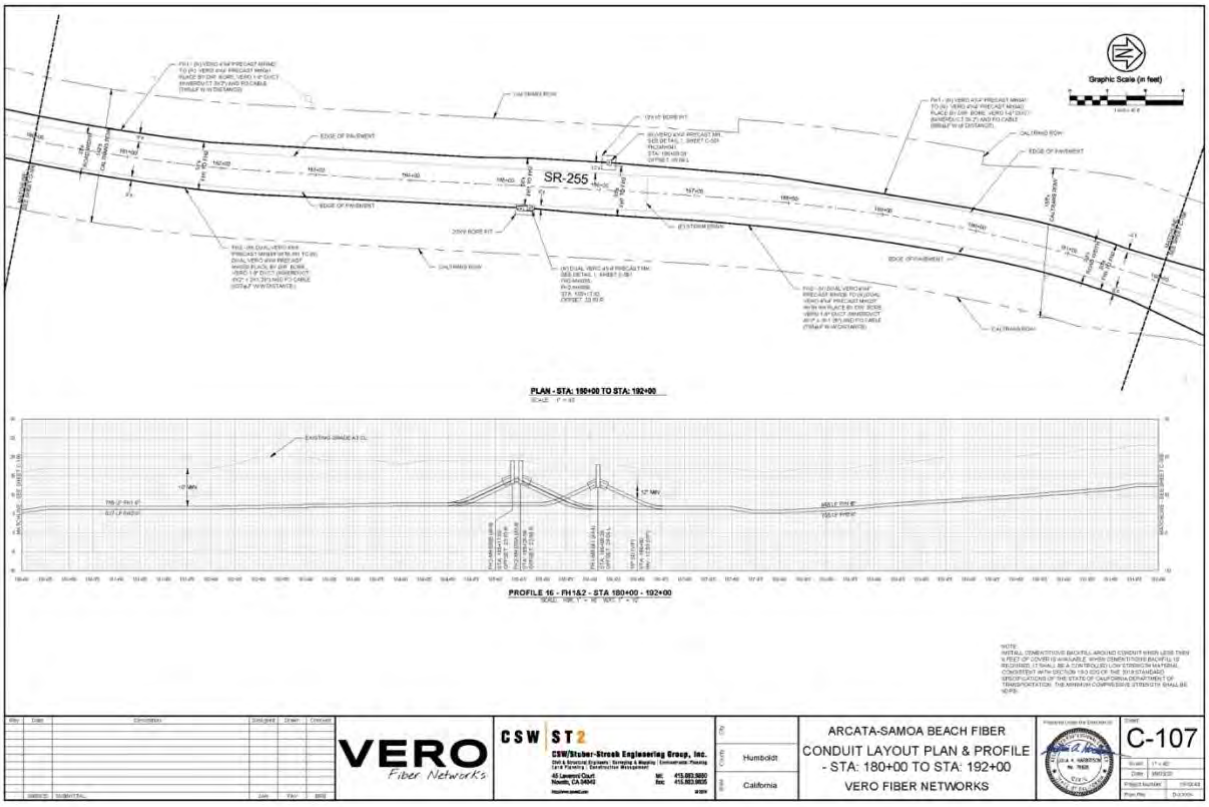

SR-255
Graphic Scale (in feet)
PLAN - STA: 120+00 TO STA: 132+00
PROFILE 11 - FH1&2 - STA 120+00 - 132+00
VERO Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 120+00 TO STA: 132+00
VERO FIBER NETWORKS
C-102

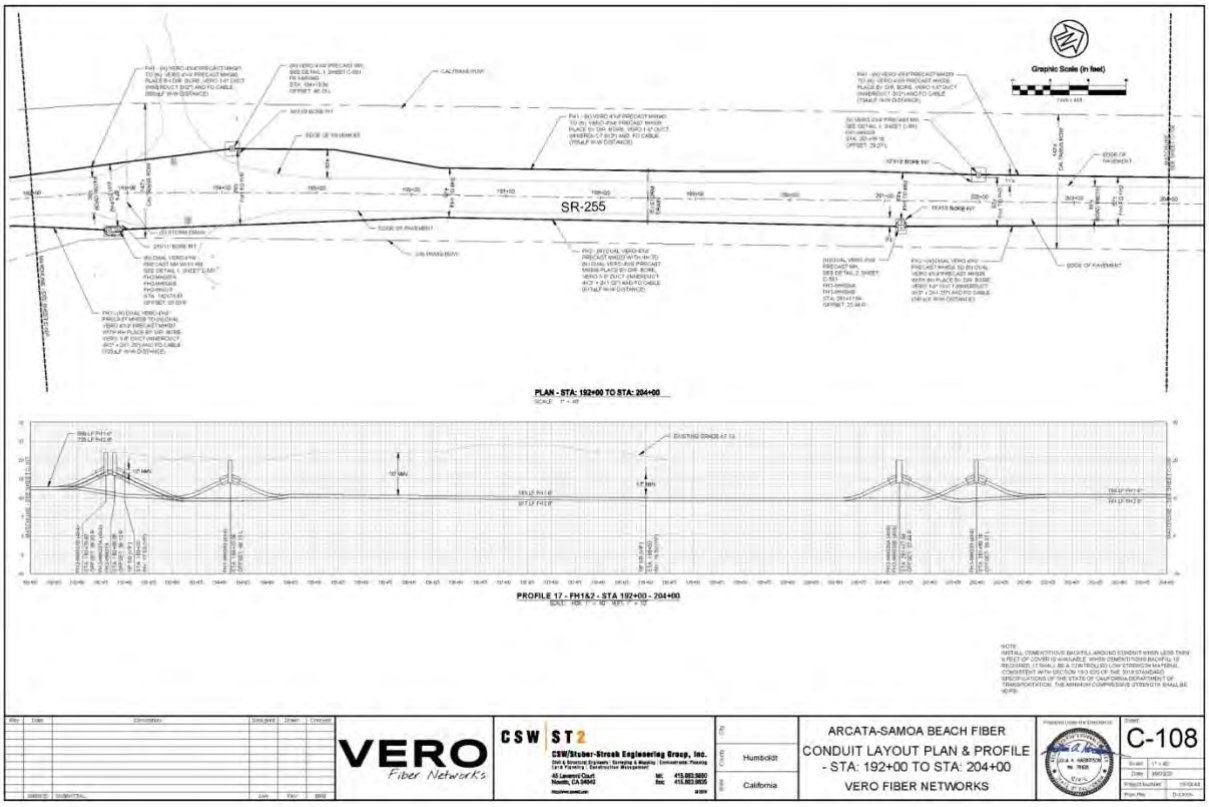

Graphic Scale (in feet)
SR-255
EDGE OF PAVEMENT
PLAN - STA: 132+00 TO STA: 144+00
PROFILE 12 - FH1&2 - STA 132+00 - 144+00
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Streeb Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 132+00 TO STA: 144+00
VERO FIBER NETWORKS
C-103

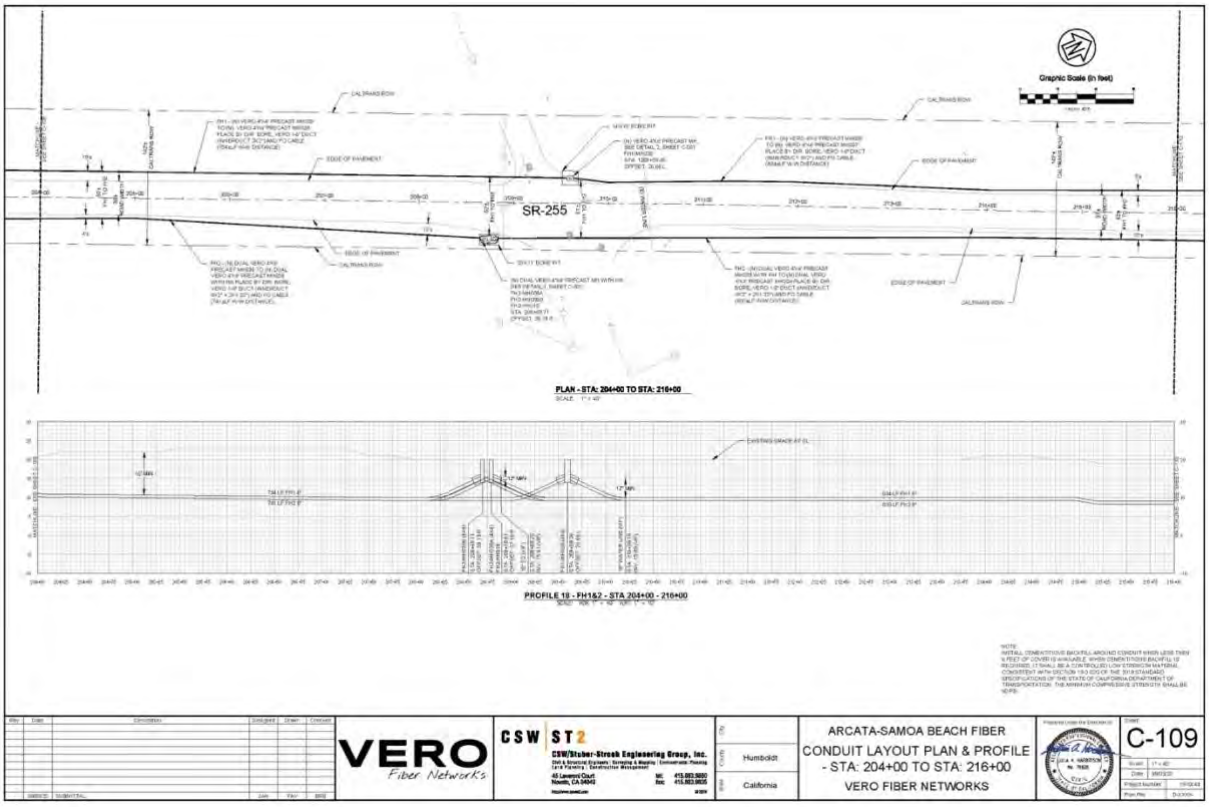

Graphic Scale (in feet)
SR-255
EDGE OF PAVEMENT
PLAN - STA: 144+00 TO STA: 156+00
PROFILE 13 - FH1&2 - STA 144+00 - 156+00
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Streeb Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 144+00 TO STA: 156+00
VERO FIBER NETWORKS
C-104

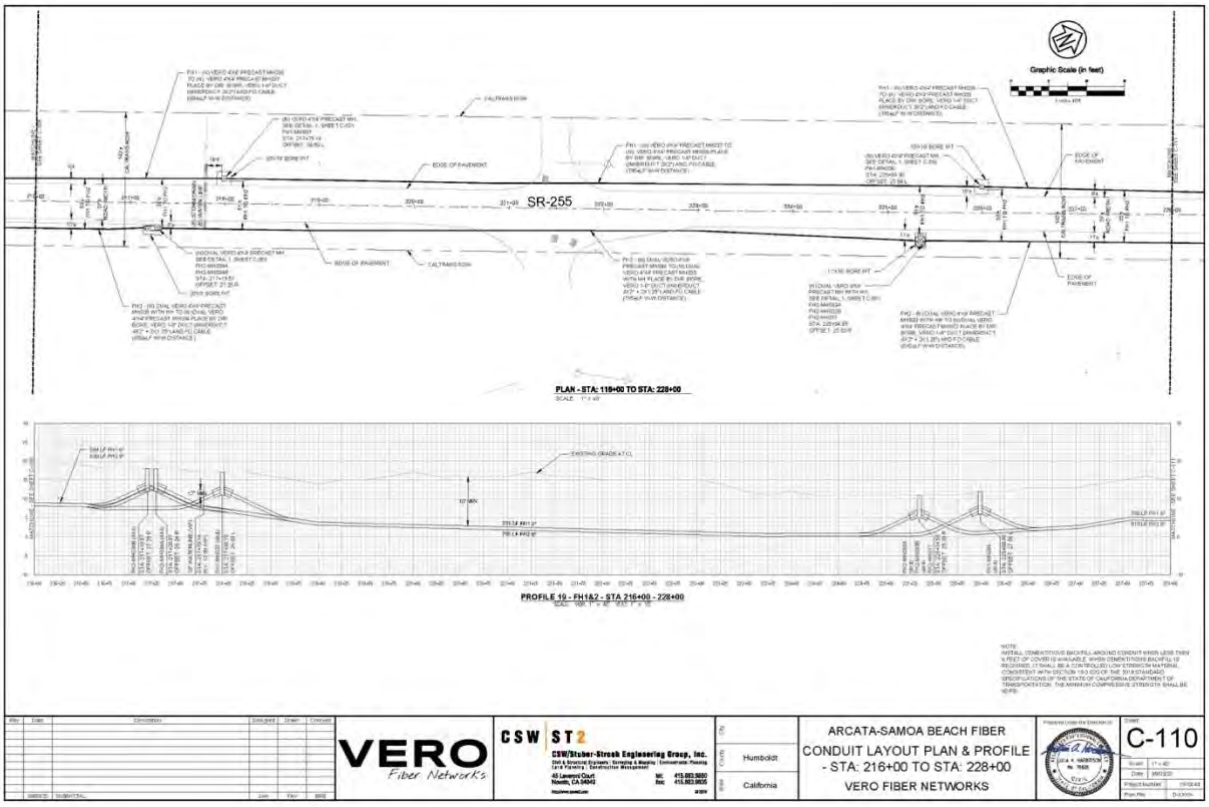

Graphic Scale (in feet)
SR-255
PLAN - STA: 156+00 TO STA: 168+00
PROFILE 14 - FH1&2 - STA 156+00 - 168+00
VERO Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 156+00 TO STA: 168+00
VERO FIBER NETWORKS
C-105

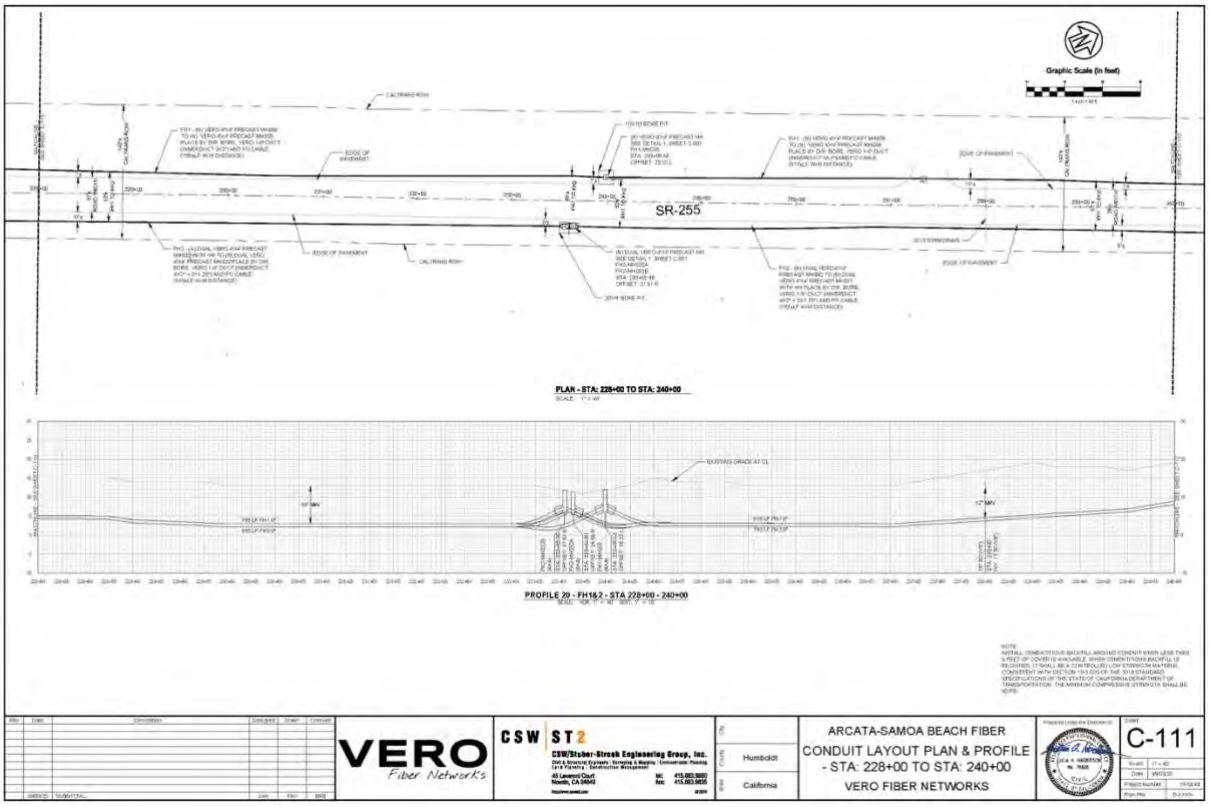

Graphic Scale (in feet)
SR-255
PLAN - STA: 168+00 TO STA: 180+00
PROFILE 15 - FH1&2 - STA 168+00 - 180+00
VERO Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 168+00 TO STA: 180+00
VERO FIBER NETWORKS
C-106

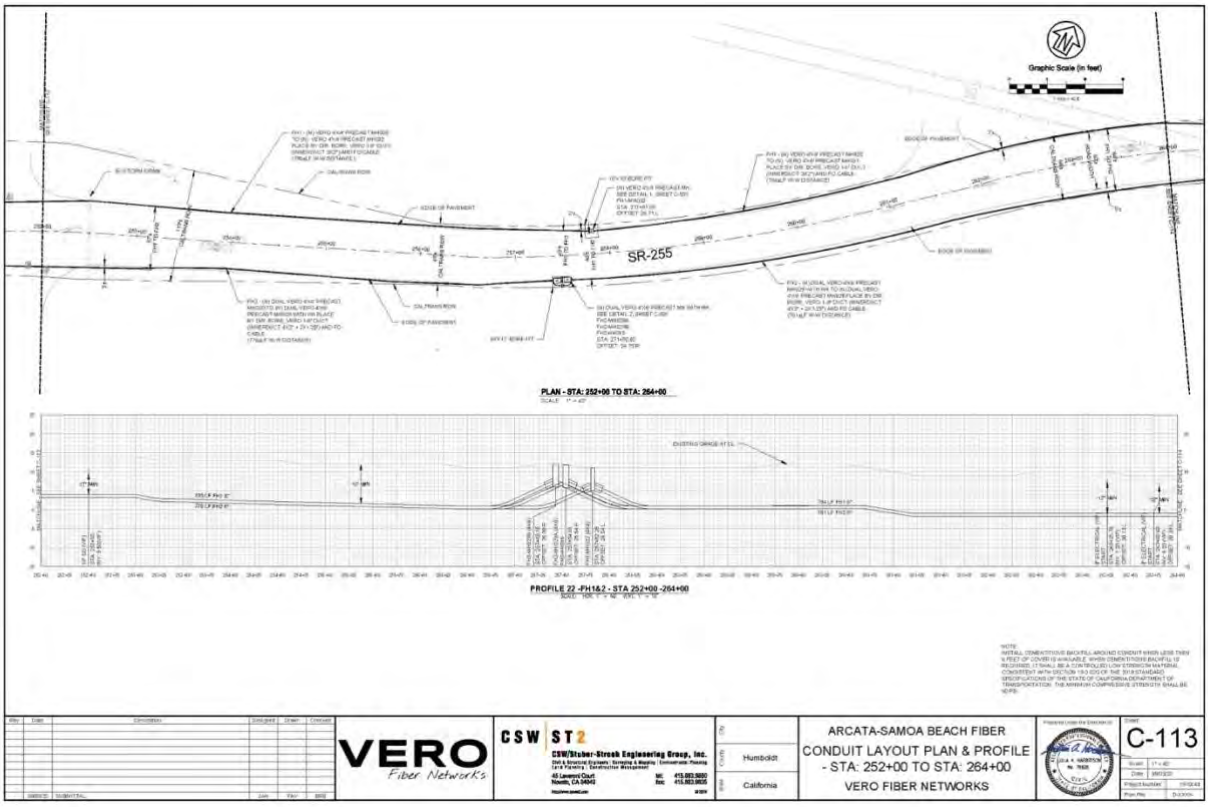

Graphic Scale (in feet)
SR-255
PLAN - STA: 180+00 TO STA: 192+00
PROFILE 16 - FH1&2 - STA 180+00 - 192+00
VERO Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Lawrence Court
Newlin, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 180+00 TO STA: 192+00
VERO FIBER NETWORKS
C-107

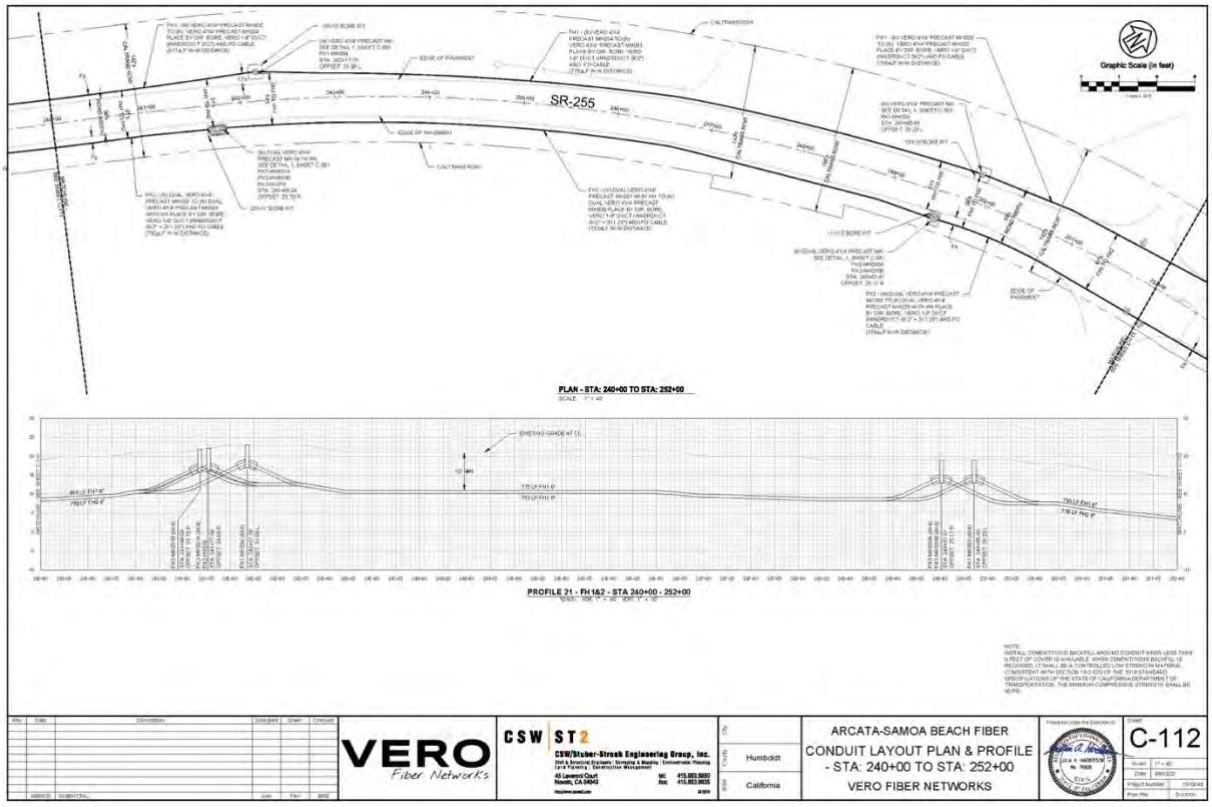

Graphic Scale (in feet)
SR-255
PLAN - STA: 192+00 TO STA: 204+00
PROFILE 17 - FH1&2 - STA 192+00 - 204+00
VERO Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Lawrence Court
Newlin, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 192+00 TO STA: 204+00
VERO FIBER NETWORKS
C-108

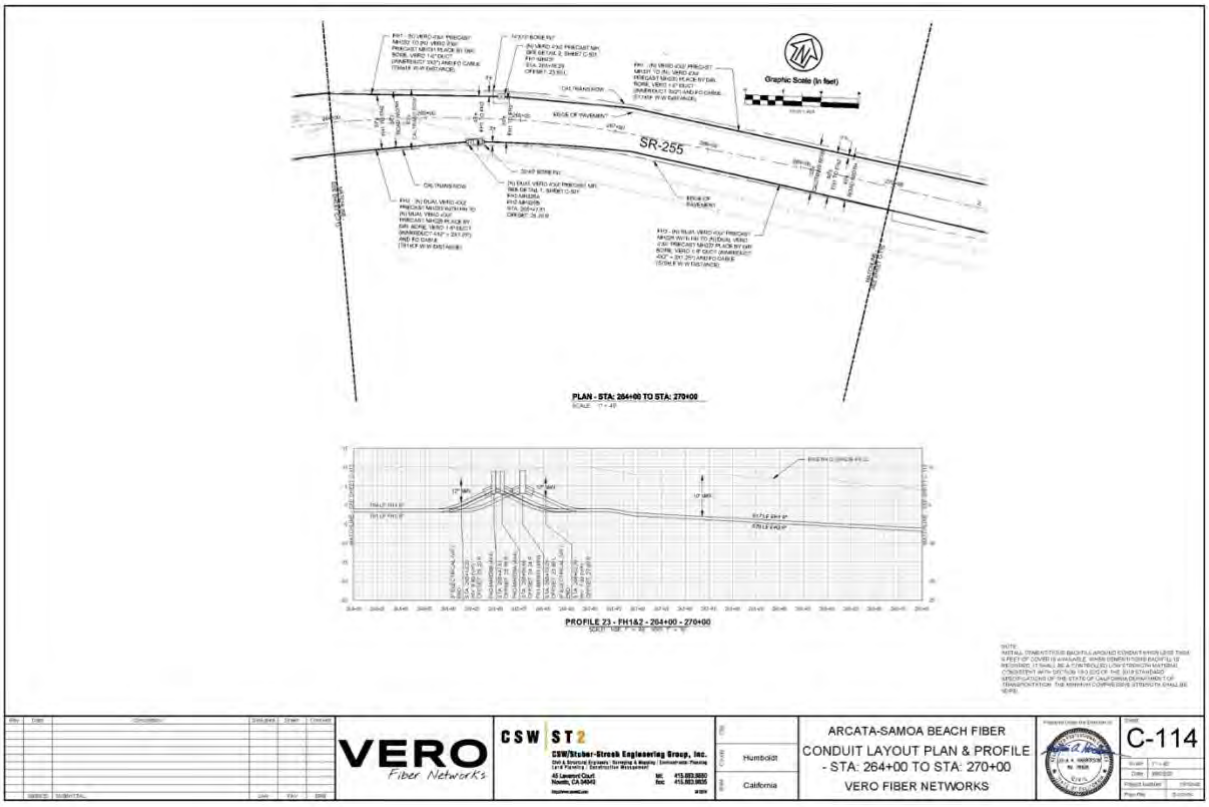

Graphic Scale (in feet)
SR-255
PLAN - STA: 204+00 TO STA: 216+00
PROFILE 19 - FH1&2 - STA 204+00 - 216+00
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Streeb Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 204+00 TO STA: 216+00
VERO FIBER NETWORKS
C-109

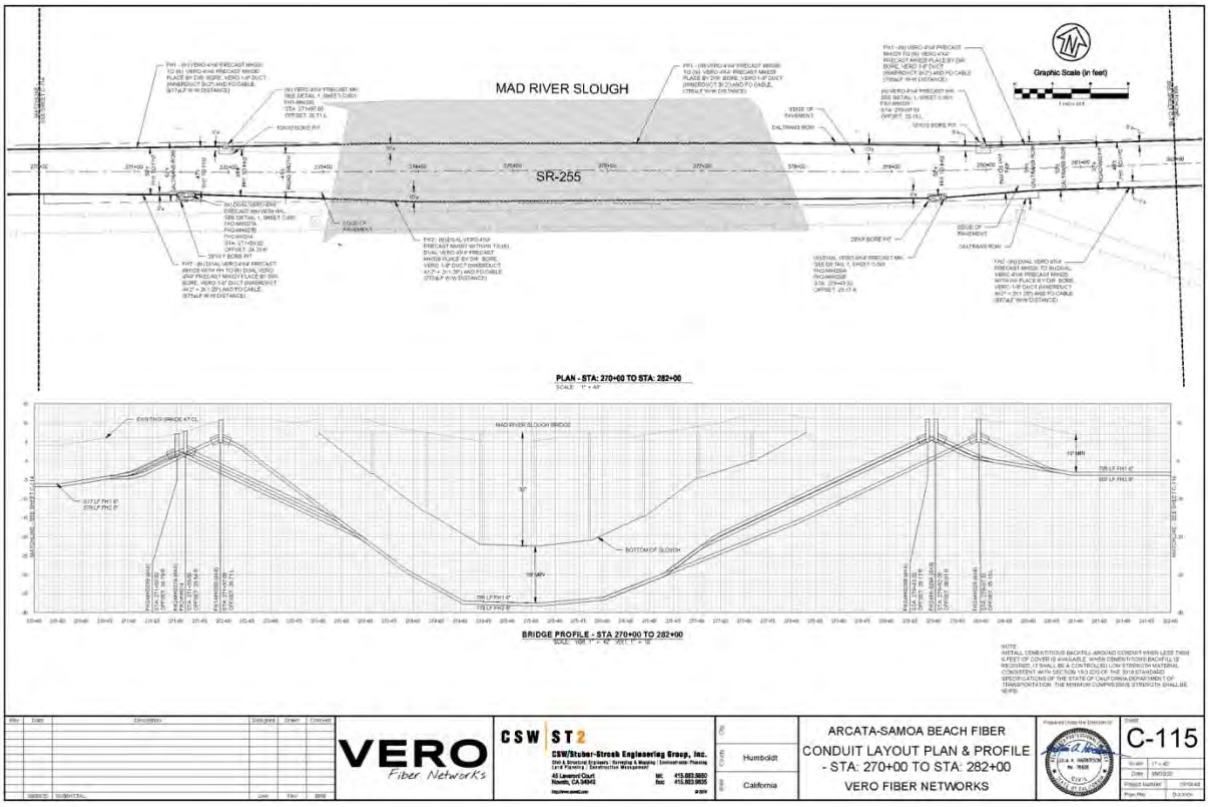

Graphic Scale (in feet)
SR-255
PLAN - STA: 119+00 TO STA: 228+00
PROFILE 19 - FH1&2 - STA 216+00 - 228+00
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Streeb Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 216+00 TO STA: 228+00
VERO FIBER NETWORKS
C-110

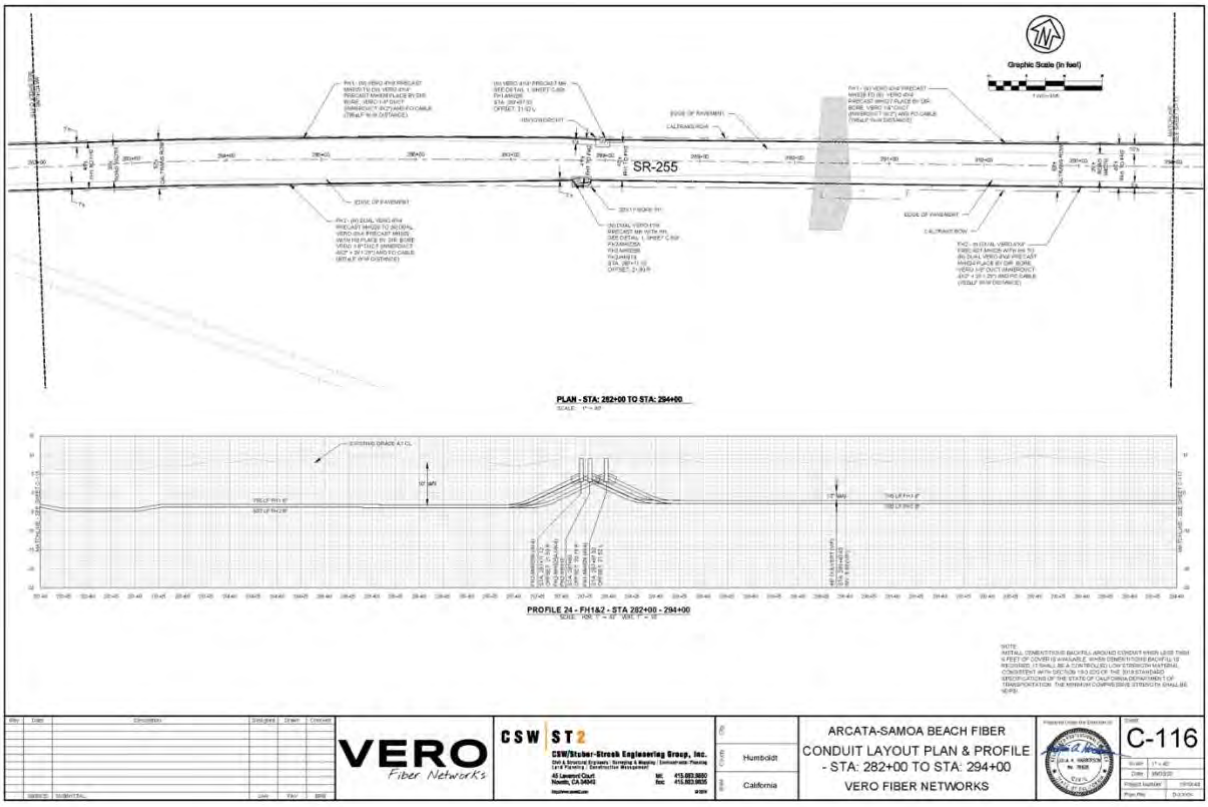

Graphic Scale (in feet)
SR-255
PLAN - STA: 228+00 TO STA: 240+00
PROFILE 20 - FH1&2 - STA 228+00 - 240+00
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 228+00 TO STA: 240+00
VERO FIBER NETWORKS
C-111

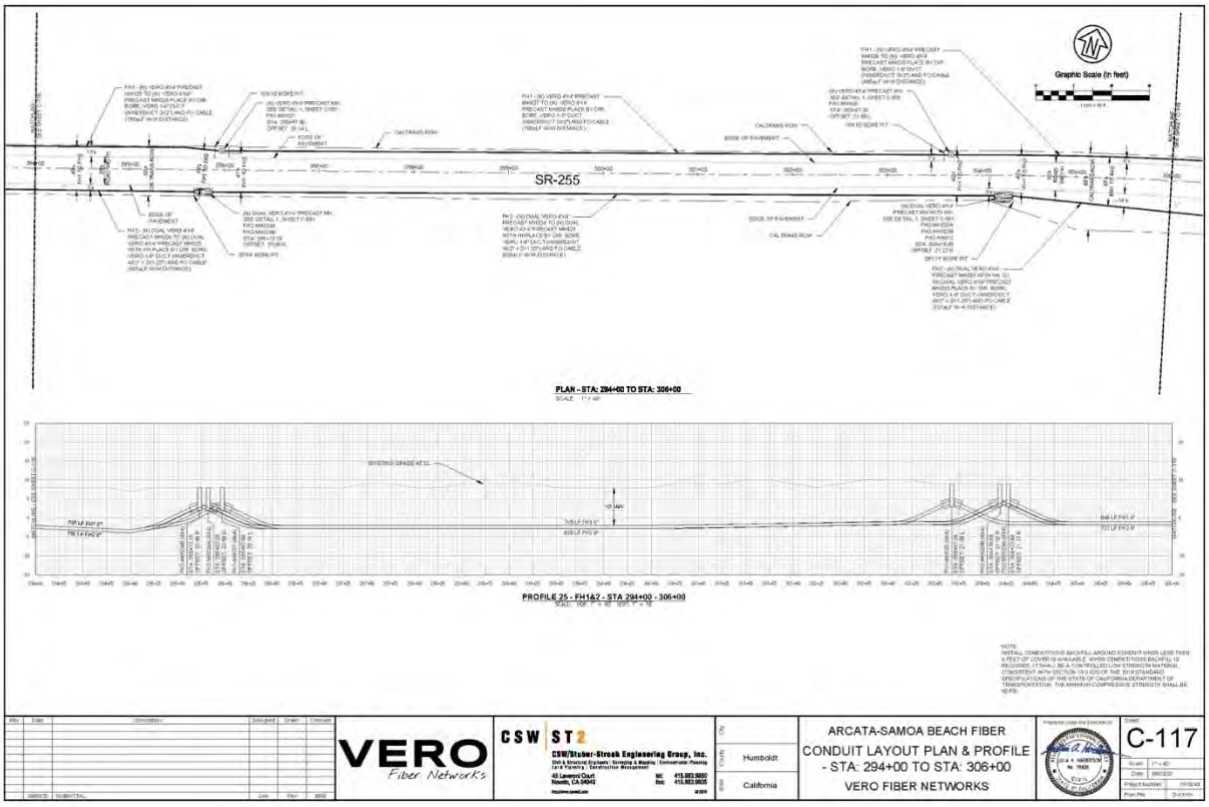

Graphic Scale (in feet)
SR-255
PLAN - STA: 252+00 TO STA: 264+00
PROFILE 22 -FH1&2 - STA 252+00 -264+00
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 252+00 TO STA: 264+00
VERO FIBER NETWORKS
C-113

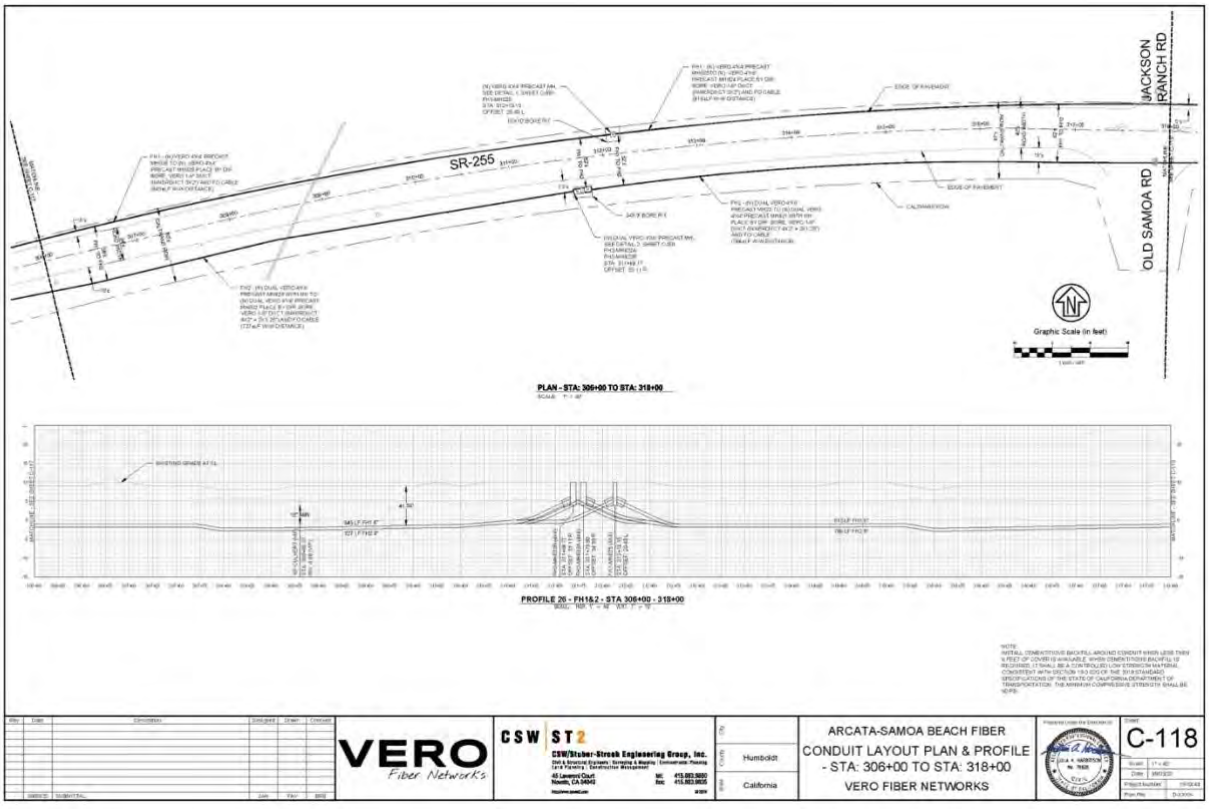

SR-255
Graphic Scale (in feet)
PLAN - STA: 240+00 TO STA: 252+00
PROFILE 21 - FH1&2 - STA 240+00 - 252+00
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Lawrence Court
Newells, CA 94042
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 240+00 TO STA: 252+00
VERO FIBER NETWORKS
C-112

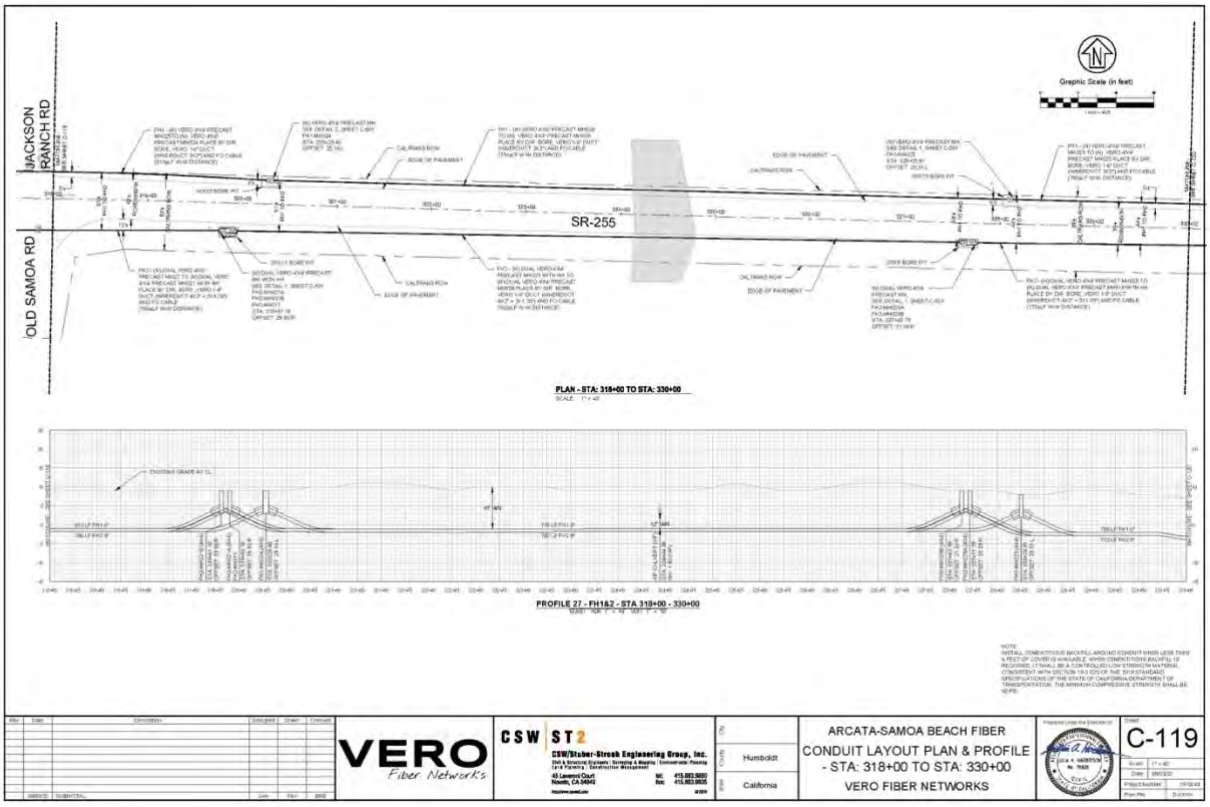

SR-255
Graphic Scale (in feet)
PLAN - STA: 264+00 TO STA: 270+00
PROFILE 23 - FH1&2 - 264+00 - 270+00
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Lawrence Court
Newells, CA 94042
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 264+00 TO STA: 270+00
VERO FIBER NETWORKS
C-114

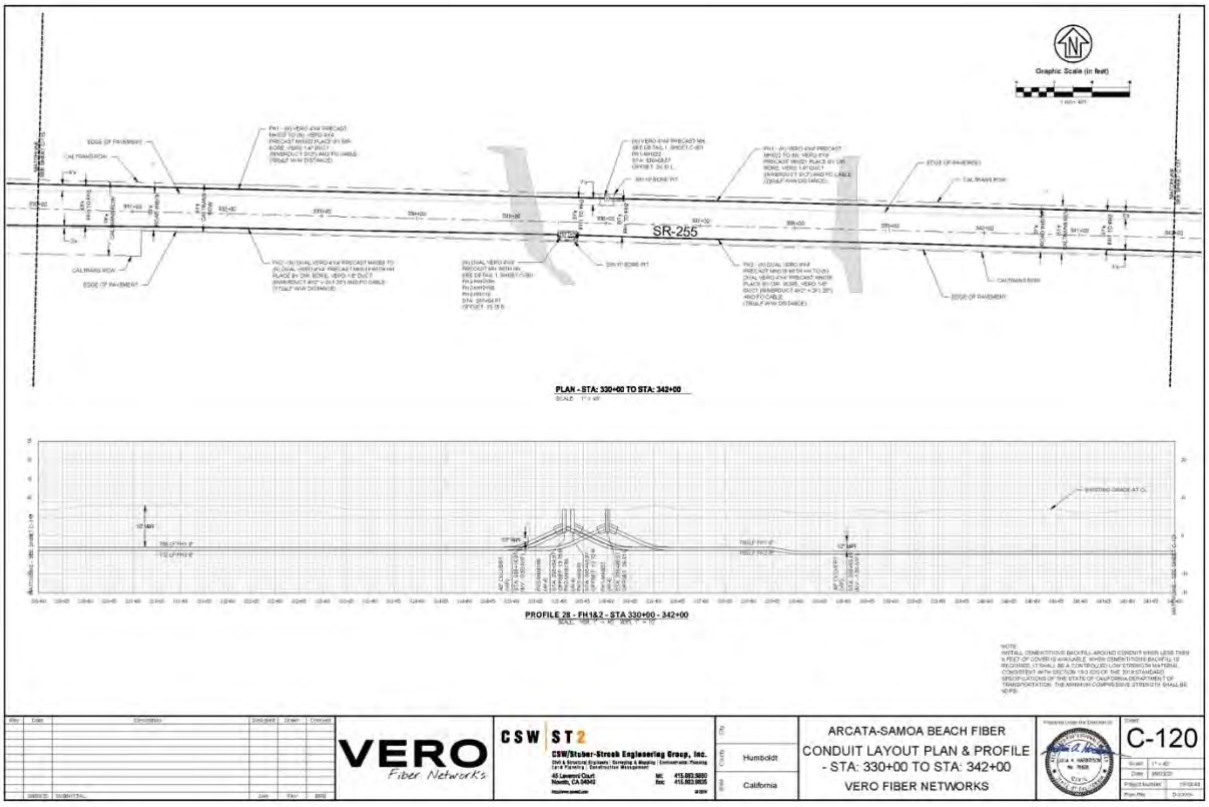

MAD RIVER SLOUGH
SR-255
Graphic Scale (in feet)
PLAN - STA: 270+00 TO STA: 282+00
BRIDGE PROFILE - STA 270+00 TO 282+00
VERO Fiber Networks
CSW ST2
CSW/Stober-Streeb Engineering Group, Inc.
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 270+00 TO STA: 282+00
VERO FIBER NETWORKS
C-115

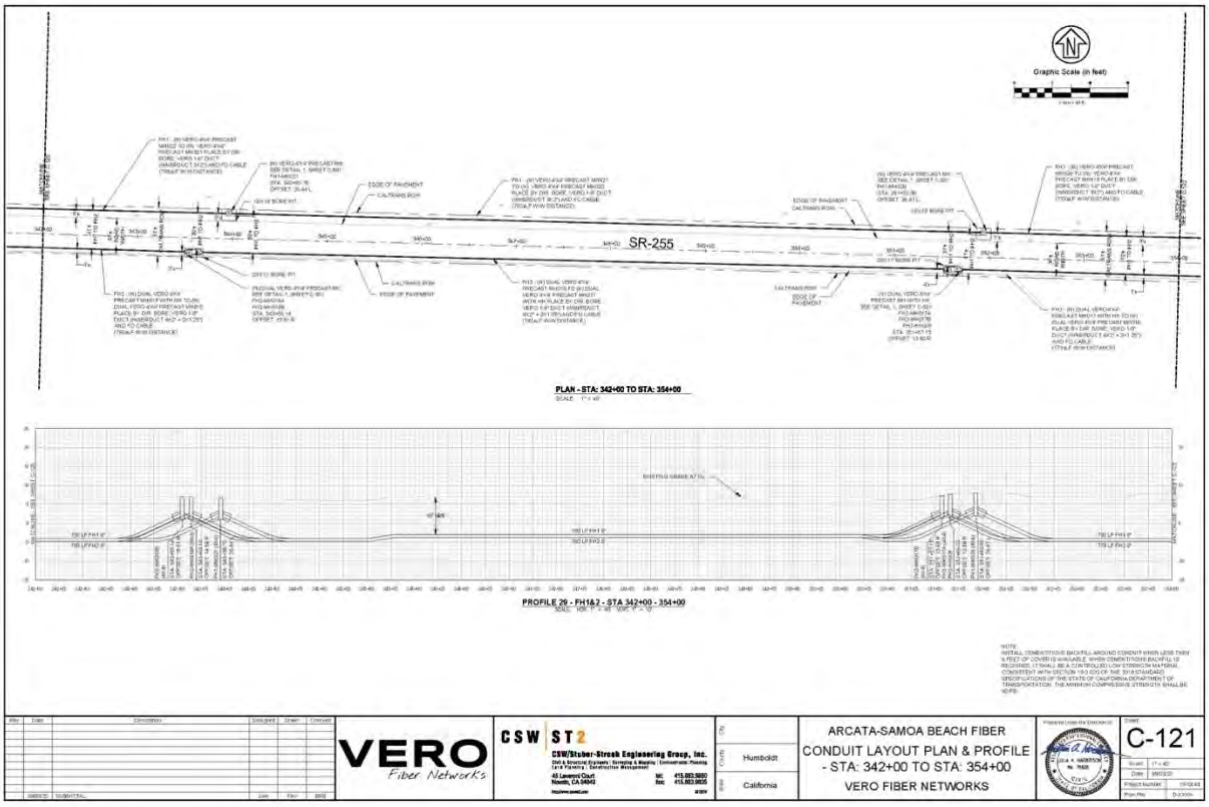

SR-255
Graphic Scale (in feet)
PLAN - STA: 282+00 TO STA: 294+00
PROFILE 24 - FH1&2 - STA 282+00 - 294+00
VERO Fiber Networks
CSW ST2
CSW/Stober-Streeb Engineering Group, Inc.
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 282+00 TO STA: 294+00
VERO FIBER NETWORKS
C-116

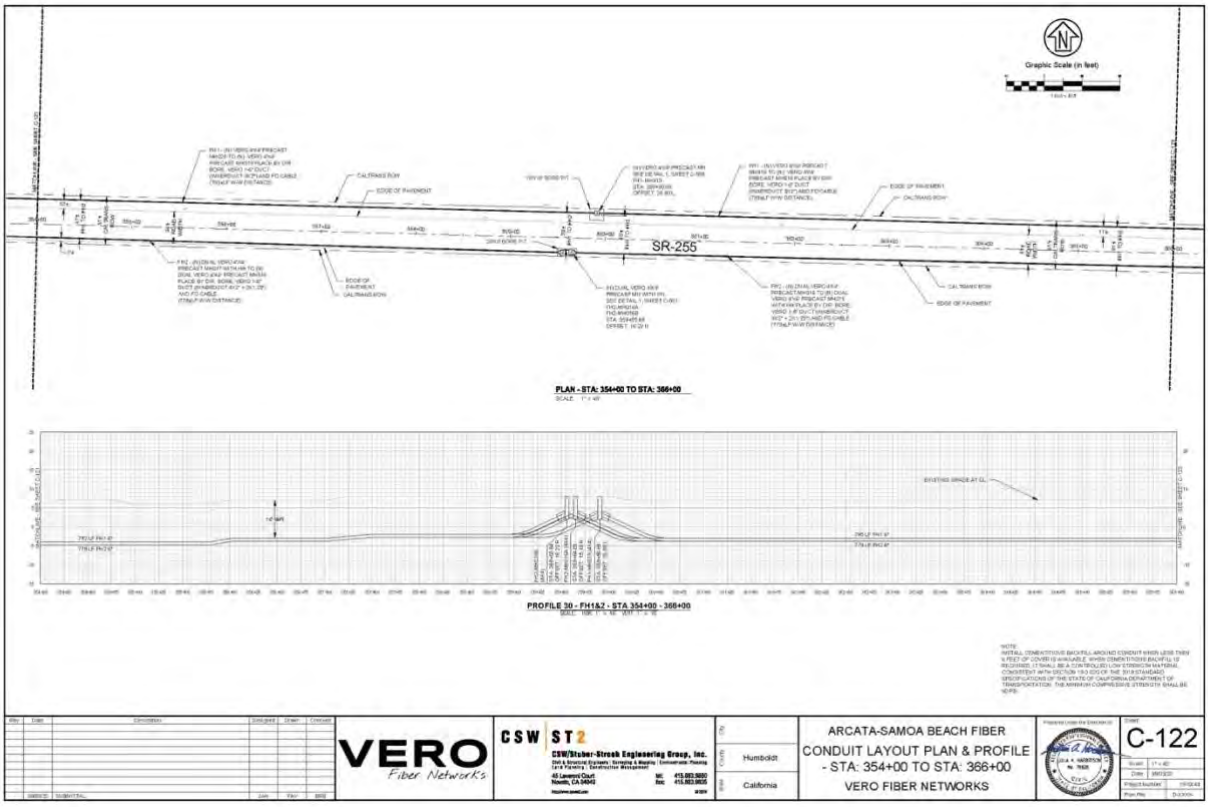

SR-255
Graphic Scale (in feet)
PLAN - STA: 294+00 TO STA: 306+00
PROFILE 25 - FH1&2 - STA 294+00 - 306+00
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 294+00 TO STA: 306+00
VERO FIBER NETWORKS
C-117

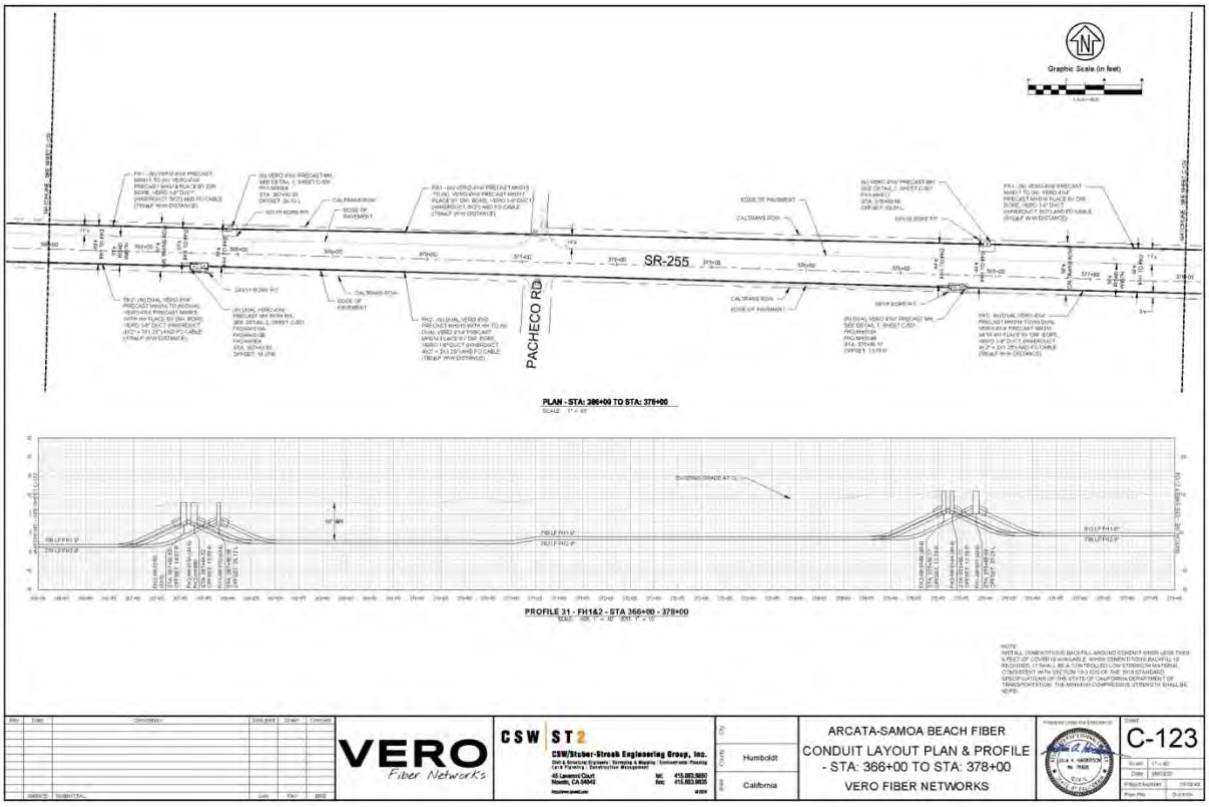

SR-255
JACKSON RANCH RD
OLD SAMOA RD
Graphic Scale (in feet)
PLAN - STA: 306+00 TO STA: 318+00
PROFILE 26 - FH1&2 - STA 306+00 - 318+00
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 306+00 TO STA: 318+00
VERO FIBER NETWORKS
C-118

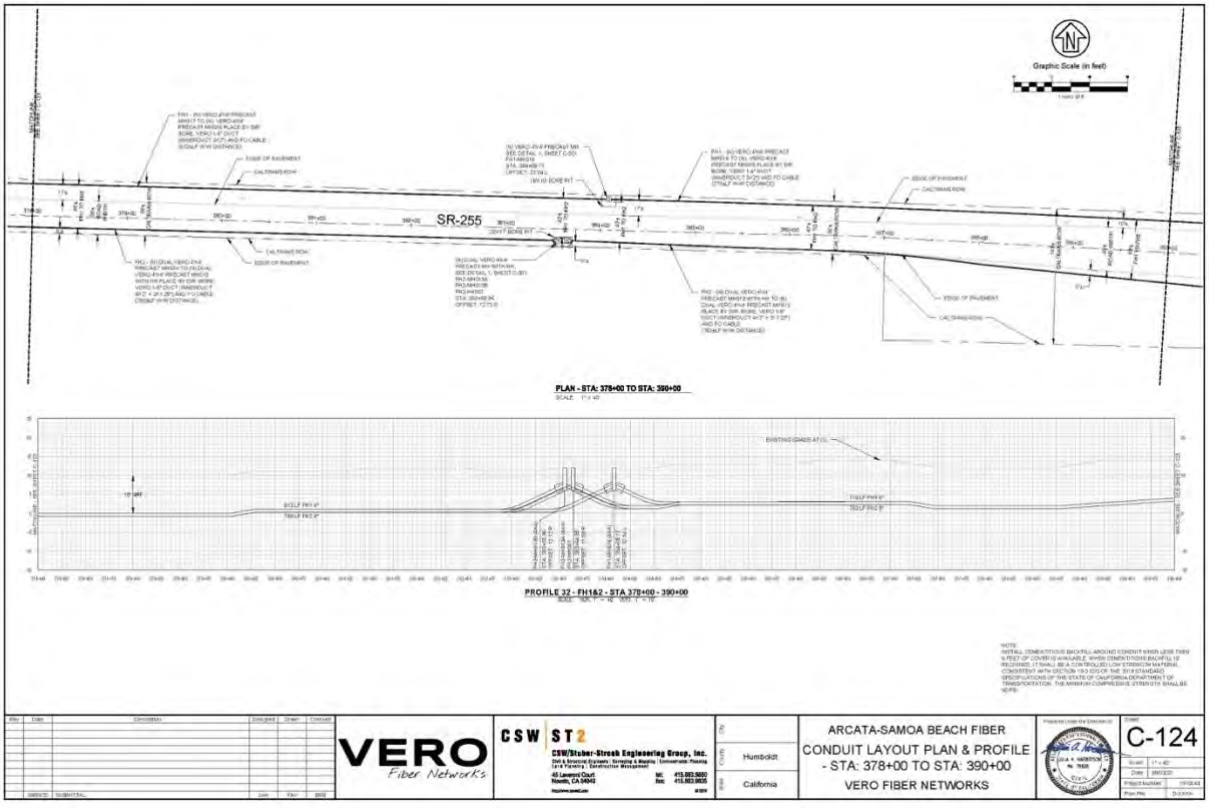

JACKSON RANCH RD
OLD SAMOA RD
SR-255
Graphic Scale (in feet)
PLAN - STA: 318+00 TO STA: 330+00
PROFILE 27 - FH1&2 - STA 318+00 - 330+00
VERO Fiber Networks
CSW ST2
CSW/Stuber-Streeb Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 318+00 TO STA: 330+00
VERO FIBER NETWORKS
C-119

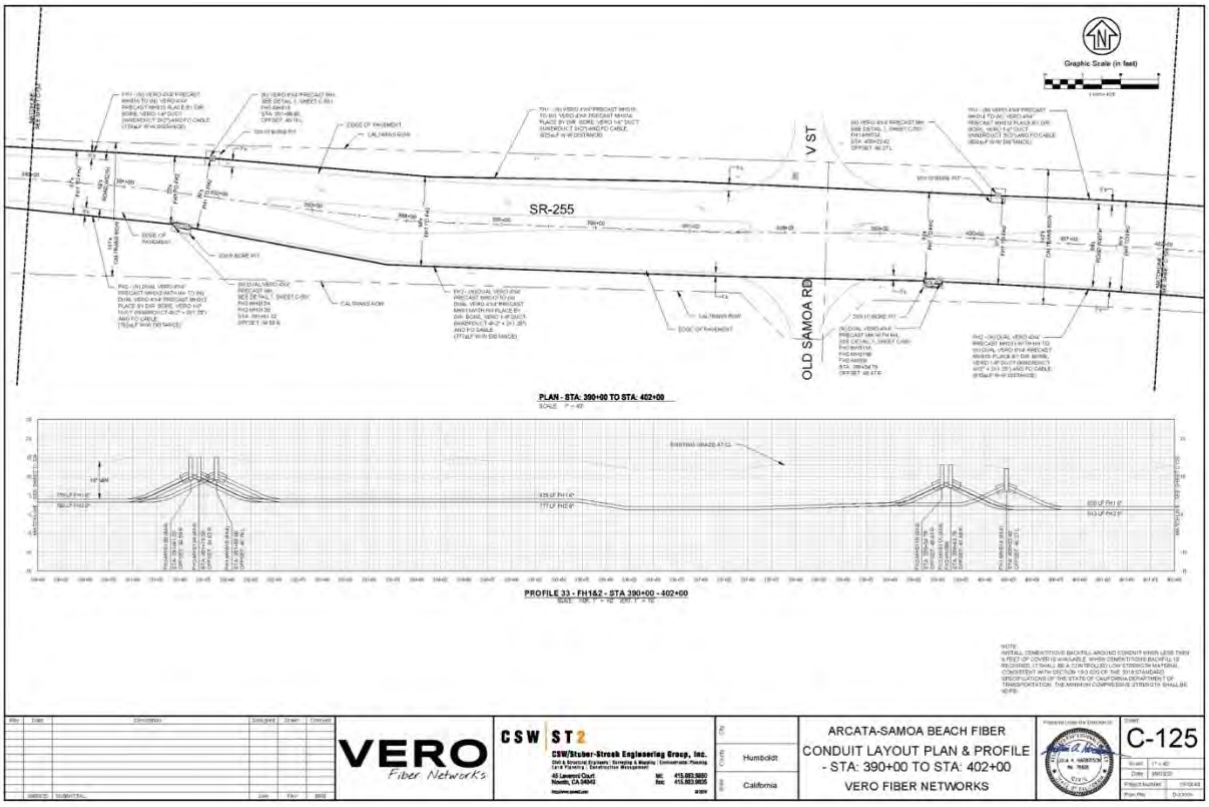

SR-255
Graphic Scale (in feet)
PLAN - STA: 330+00 TO STA: 342+00
PROFILE 28 - FH1&2 - STA 330+00 - 342+00
VERO Fiber Networks
CSW ST2
CSW/Stuber-Streeb Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 330+00 TO STA: 342+00
VERO FIBER NETWORKS
C-120

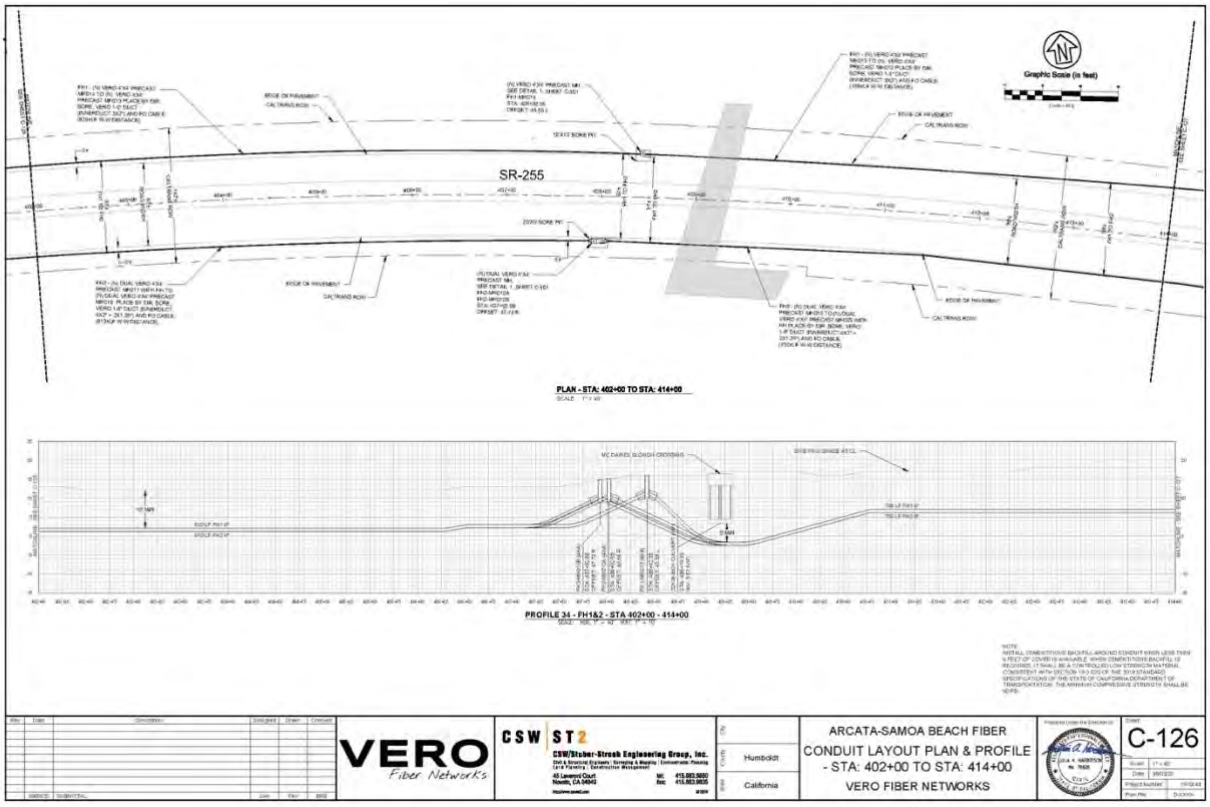

Graphic Scale (in feet)
SR-255
PLAN - STA: 342+00 TO STA: 354+00
PROFILE 29 - FH1&2 - STA 342+00 - 354+00
VERO Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 342+00 TO STA: 354+00
VERO FIBER NETWORKS
C-121

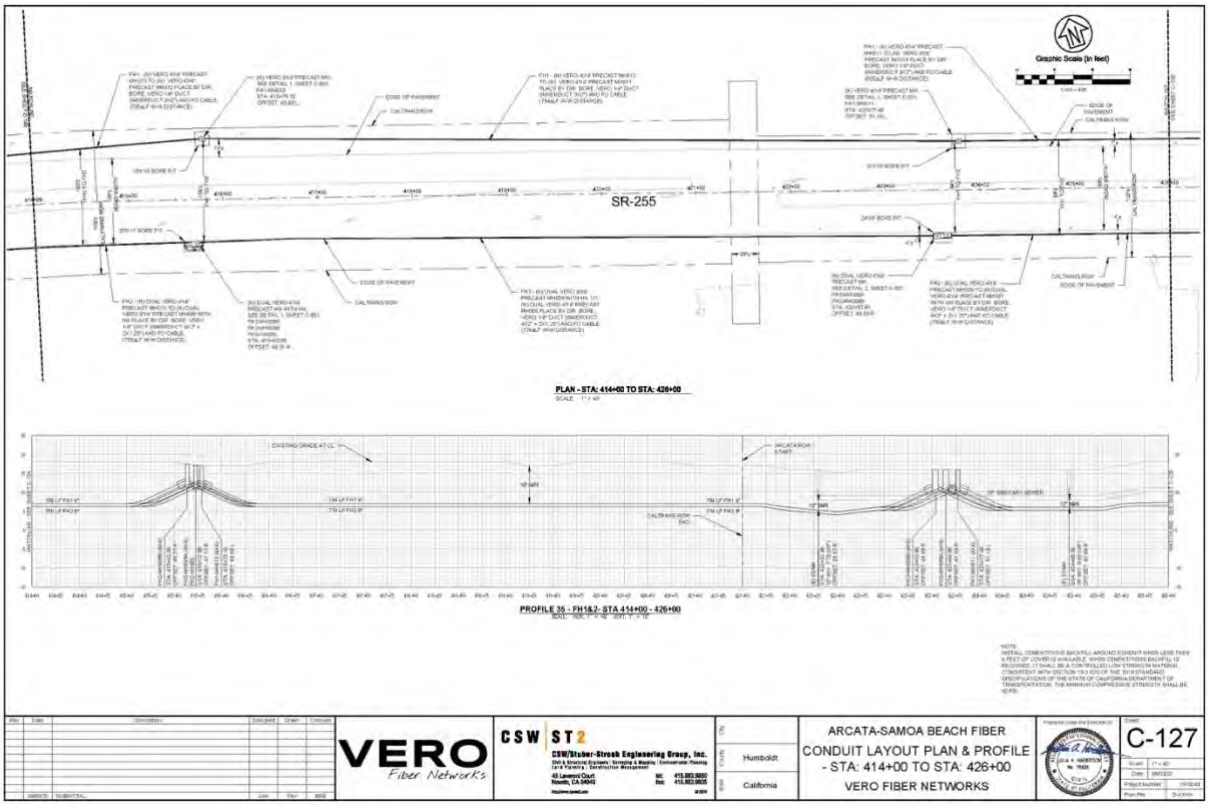

Graphic Scale (in feet)
SR-255
PLAN - STA: 354+00 TO STA: 366+00
PROFILE 30 - FH1&2 - STA 354+00 - 366+00
VERO Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 354+00 TO STA: 366+00
VERO FIBER NETWORKS
C-122

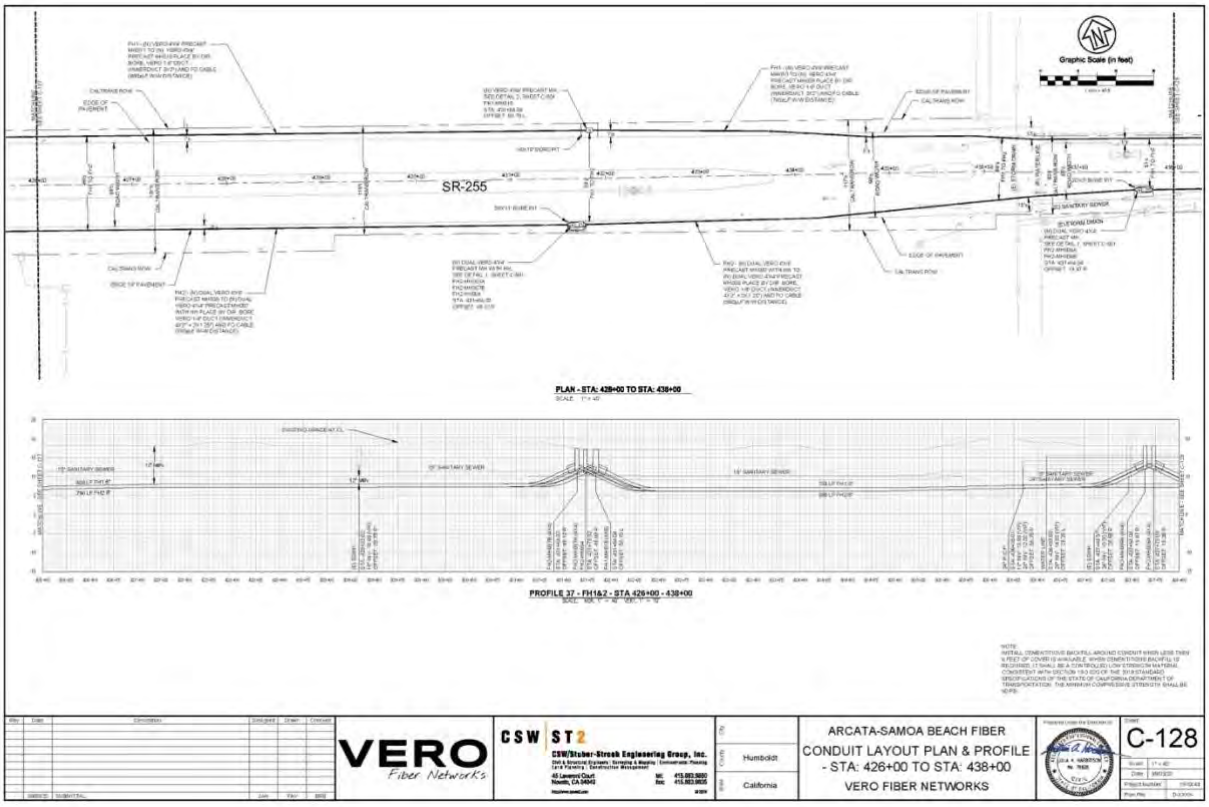

Graphic Scale (in feet)
SR-255
PACHECO RD
PLAN - STA: 366+00 TO STA: 378+00
PROFILE 31 - FH1&2 - STA 366+00 - 378+00
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 366+00 TO STA: 378+00
VERO FIBER NETWORKS
C-123

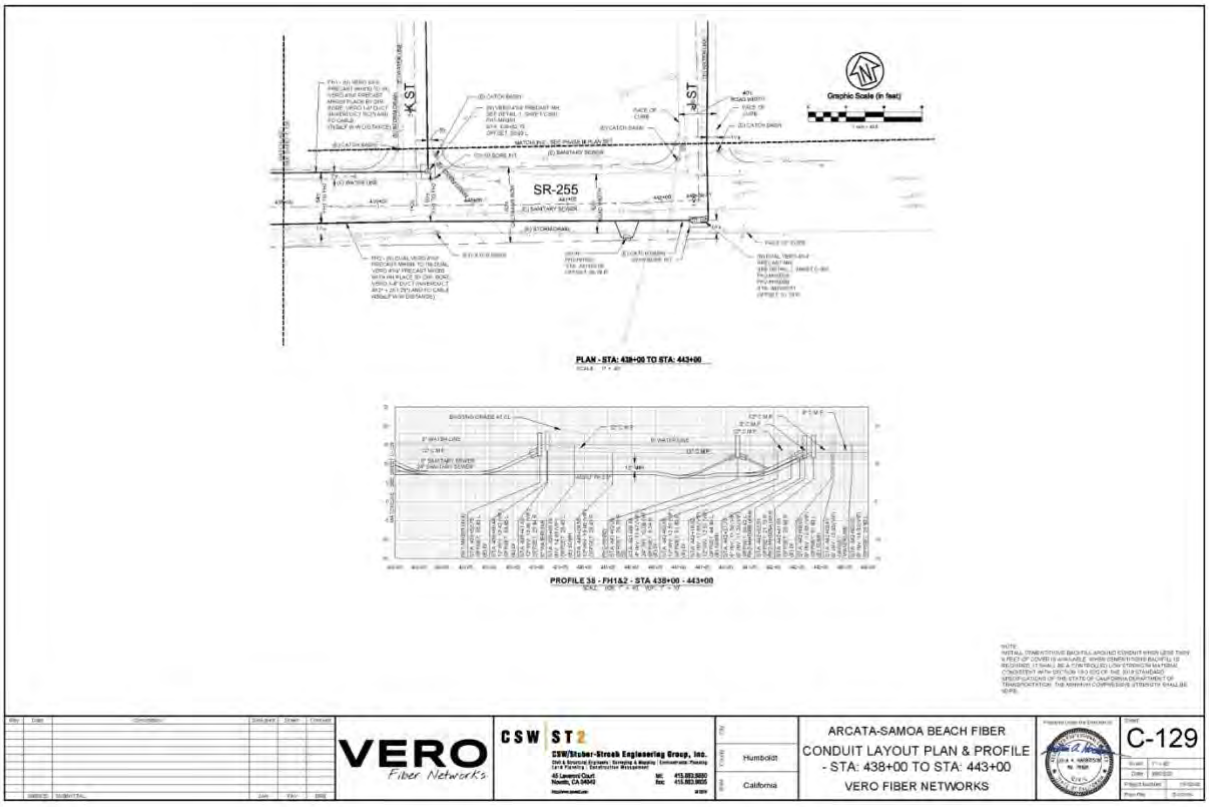

Graphic Scale (in feet)
SR-255
PLAN - STA: 378+00 TO STA: 390+00
PROFILE 32 - FH1&2 - STA 378+00 - 390+00
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 378+00 TO STA: 390+00
VERO FIBER NETWORKS
C-124


Graphic Scale (in feet)
SR-255
V ST
OLD SAMOA RD
PLAN - STA: 390+00 TO STA: 402+00
PROFILE 33 - FH1&2 - STA 390+00 - 402+00
VERO Fiber Networks
CSW ST2
CSW/Stuber-Streeb Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 390+00 TO STA: 402+00
VERO FIBER NETWORKS
C-125


Graphic Scale (in feet)
SR-255
PLAN - STA: 402+00 TO STA: 414+00
PROFILE 34 - FH1&2 - STA 402+00 - 414+00
VERO Fiber Networks
CSW ST2
CSW/Stuber-Streeb Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94942
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 402+00 TO STA: 414+00
VERO FIBER NETWORKS
C-126


Graphic Scale (in feet)
SR-255
PLAN - STA: 414+00 TO STA: 426+00
PROFILE 35 - FH1&2 - STA 414+00 - 426+00
VERO Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94945
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 414+00 TO STA: 426+00
VERO FIBER NETWORKS
C-127


Graphic Scale (in feet)
SR-255
PLAN - STA: 426+00 TO STA: 438+00
PROFILE 37 - FH1&2 - STA 426+00 - 438+00
VERO Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Lawrence Court
Novato, CA 94945
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 426+00 TO STA: 438+00
VERO FIBER NETWORKS
C-128


SR-255
Graphic Scale (in feet)
PLAN - STA: 438+00 TO STA: 443+00
PROFILE 38 - FH1&2 - STA 438+00 - 443+00
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 438+00 TO STA: 443+00
VERO FIBER NETWORKS
C-129

VERO
Fiber Networks

ARCATA/SAMOA BEACH FIBER PROJECT - PHASE I

STA: 1+00 TO STA: 108+03.24

COUNTY OF HUMBOLDT

AUGUST 2020

CONTACT LIST:

OVERALL LOCATION MAP

OVERALL LOCATION MAP

LOCATION MAP

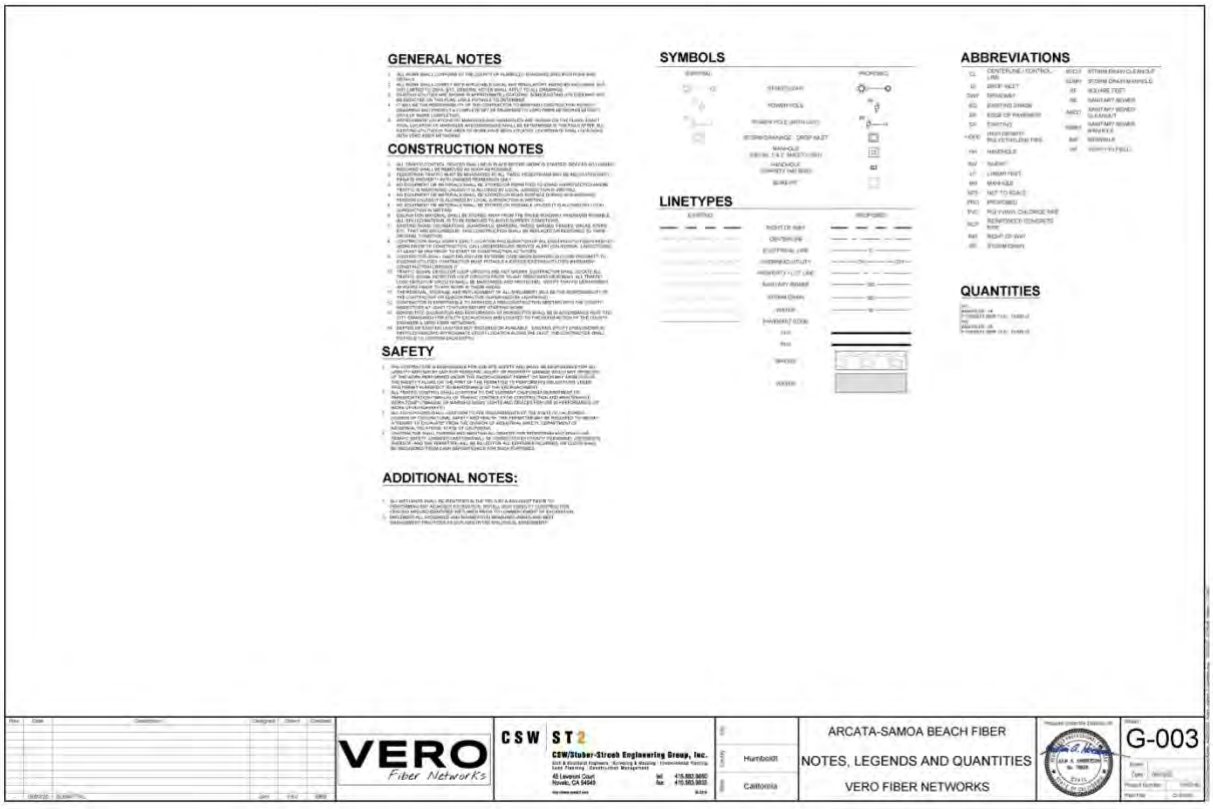
LOCATION MAP

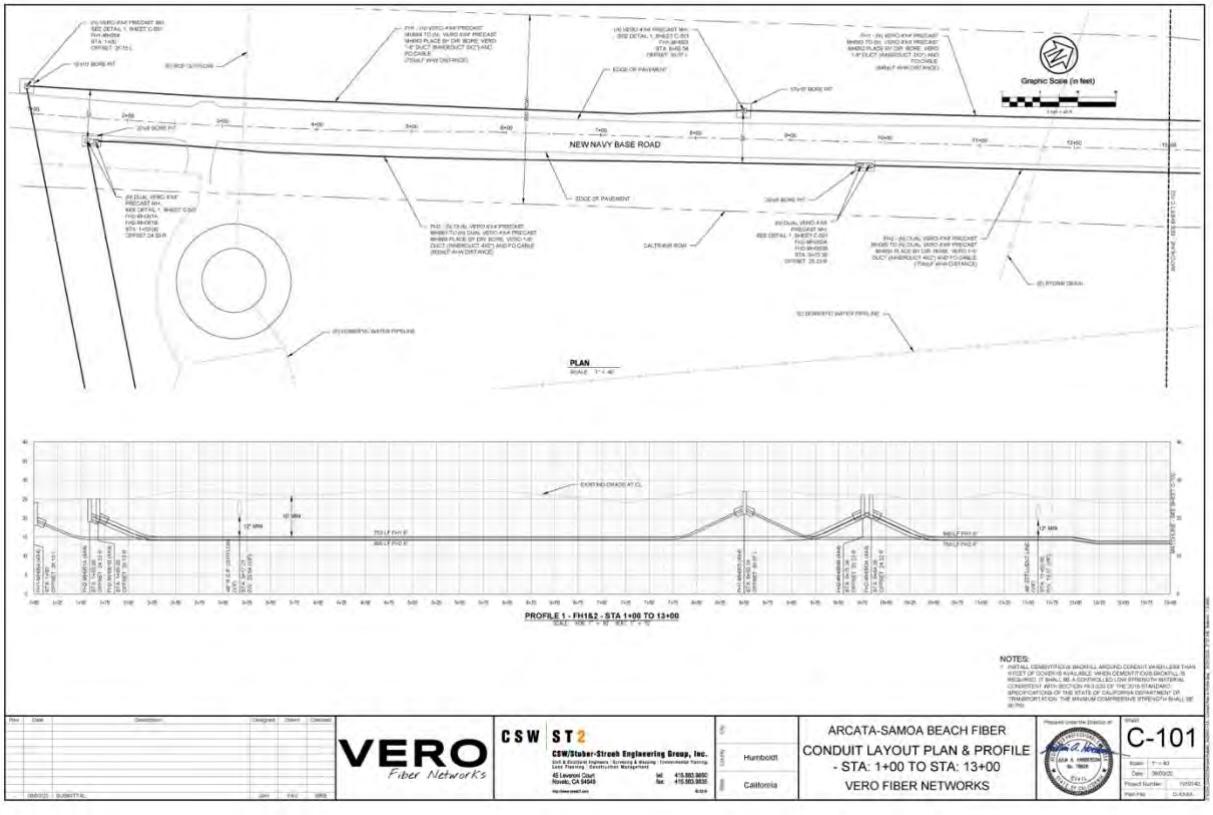
SHEET INDEX

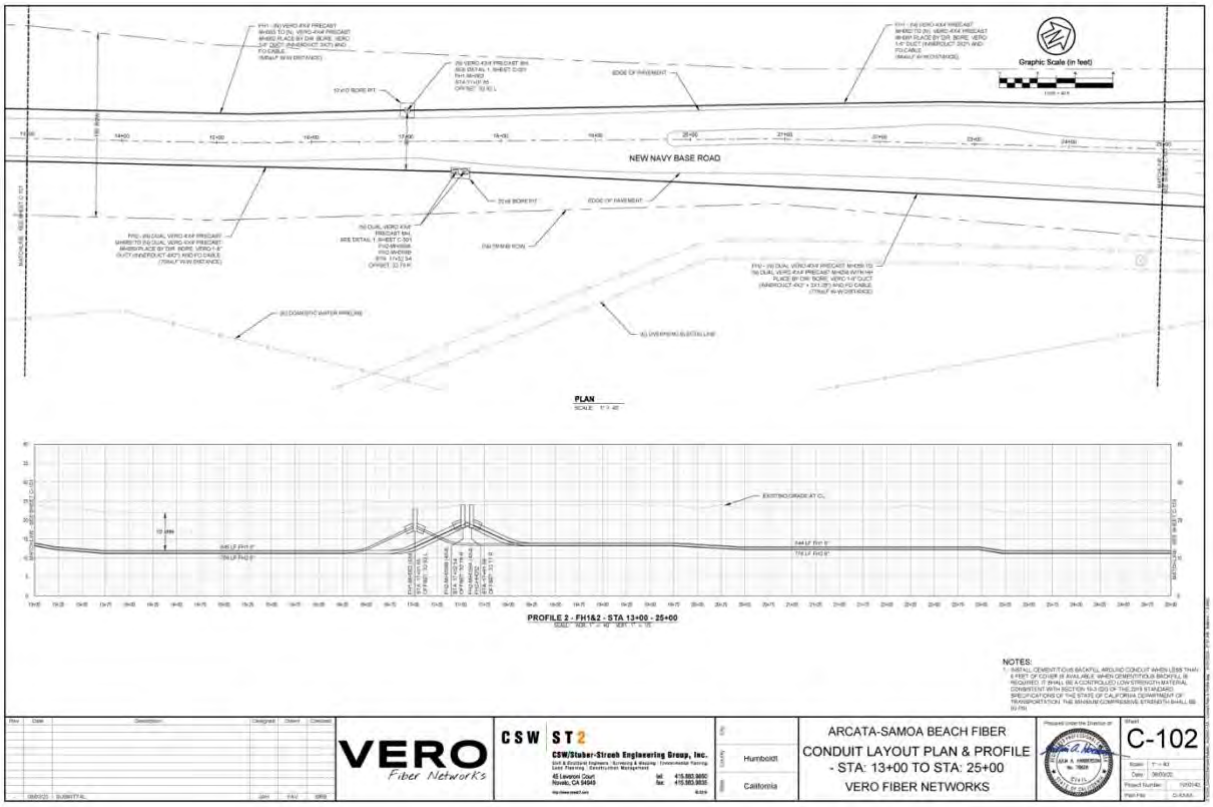
G-001	COVERSHEET
G-002	SHEET KEY MAP
G-003	NOTES, LEGEND AND QUANTITIES
C-101	CONDUIT LAYOUT PLAN & PROFILE - STA. 1+00 TO STA. 13+00
C-102	CONDUIT LAYOUT PLAN & PROFILE - STA. 13+00 TO STA. 25+00
C-103	CONDUIT LAYOUT PLAN & PROFILE - STA. 25+00 TO STA. 37+00
C-104	CONDUIT LAYOUT PLAN & PROFILE - STA. 37+00 TO STA. 49+00
C-105	CONDUIT LAYOUT PLAN & PROFILE - STA. 49+00 TO STA. 61+00
C-106	CONDUIT LAYOUT PLAN & PROFILE - STA. 61+00 TO STA. 73+00
C-107	CONDUIT LAYOUT PLAN & PROFILE - STA. 73+00 TO STA. 85+00
C-108	CONDUIT LAYOUT PLAN & PROFILE - STA. 85+00 TO STA. 97+00
C-109	CONDUIT LAYOUT PLAN & PROFILE - STA. 97+00 TO STA. 108+03.24
C-501	CONSTRUCTION DETAILS
C-502	CONSTRUCTION DETAILS
C-701	TRAFFIC CONTROL PLANS
C-702	TRAFFIC CONTROL PLAN FYI
C-703	TRAFFIC CONTROL PLAN FYI
C-704	TRAFFIC CONTROL PLAN FYI
C-705	TRAFFIC CONTROL PLAN FYI
C-706	TRAFFIC CONTROL PLAN FYI
C-707	TRAFFIC CONTROL PLAN FYI
C-708	TRAFFIC CONTROL PLAN FYI
C-709	TRAFFIC CONTROL PLAN FYI
C-710	TRAFFIC CONTROL PLAN FYI
C-711	TRAFFIC CONTROL PLAN FYI

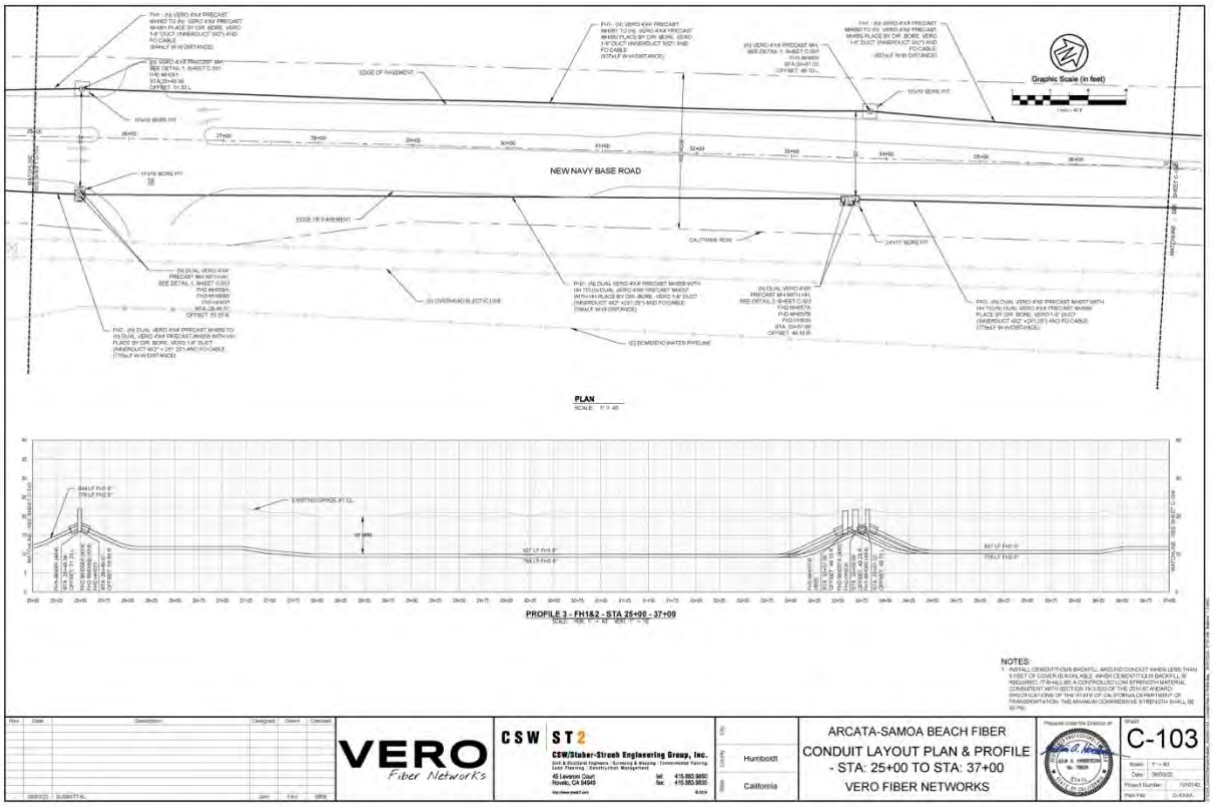
VERO Fiber Networks	CSW ST2 CSW/Stuber-Stroeh Engineering Group, Inc. 45 Leveroni Court, Novato, CA 94949, tel. 415.883.9850, fax. 415.883.9835	Humboldt / California	ARCATA-SAMOA BEACH FIBER COVERSHEET VERO FIBER NETWORKS	Prepared Under the Direction of: Kyle A. Anderson No. 19529	Sheet G-001

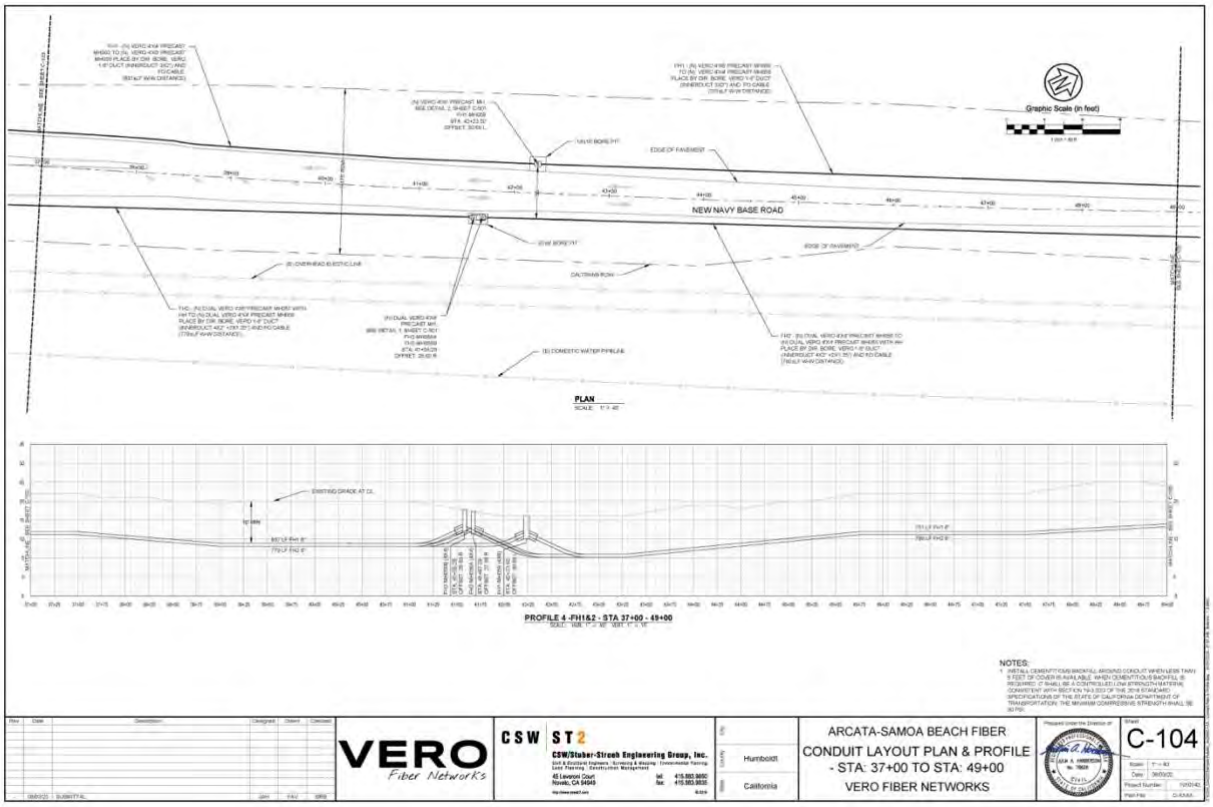
VERO Fiber Networks	CSW ST2 CSW/Stuber-Stroeh Engineering Group, Inc. 45 Leveroni Court, Novato, CA 94949, tel. 415.883.9850, fax. 415.883.9835	Humboldt / California	ARCATA-SAMOA BEACH FIBER SHEET KEY MAP VERO FIBER NETWORKS	Prepared Under the Direction of: Kyle A. Anderson No. 19529	Sheet G-002

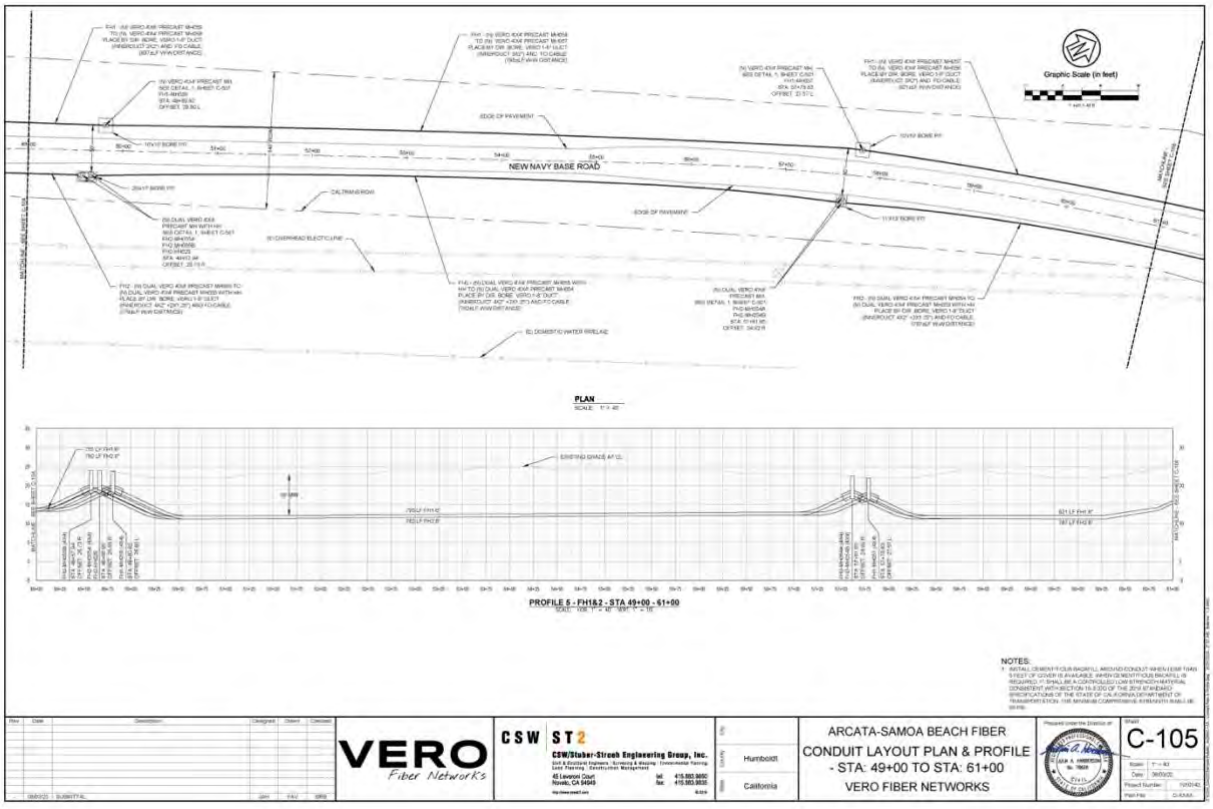

GENERAL NOTES
CONSTRUCTION NOTES
SAFETY
ADDITIONAL NOTES:
SYMBOLS
LINETYPES
ABBREVIATIONS
QUANTITIES
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Humboldt
California
ARCATA-SAMOA BEACH FIBER
NOTES, LEGENDS AND QUANTITIES
VERO FIBER NETWORKS
G-003

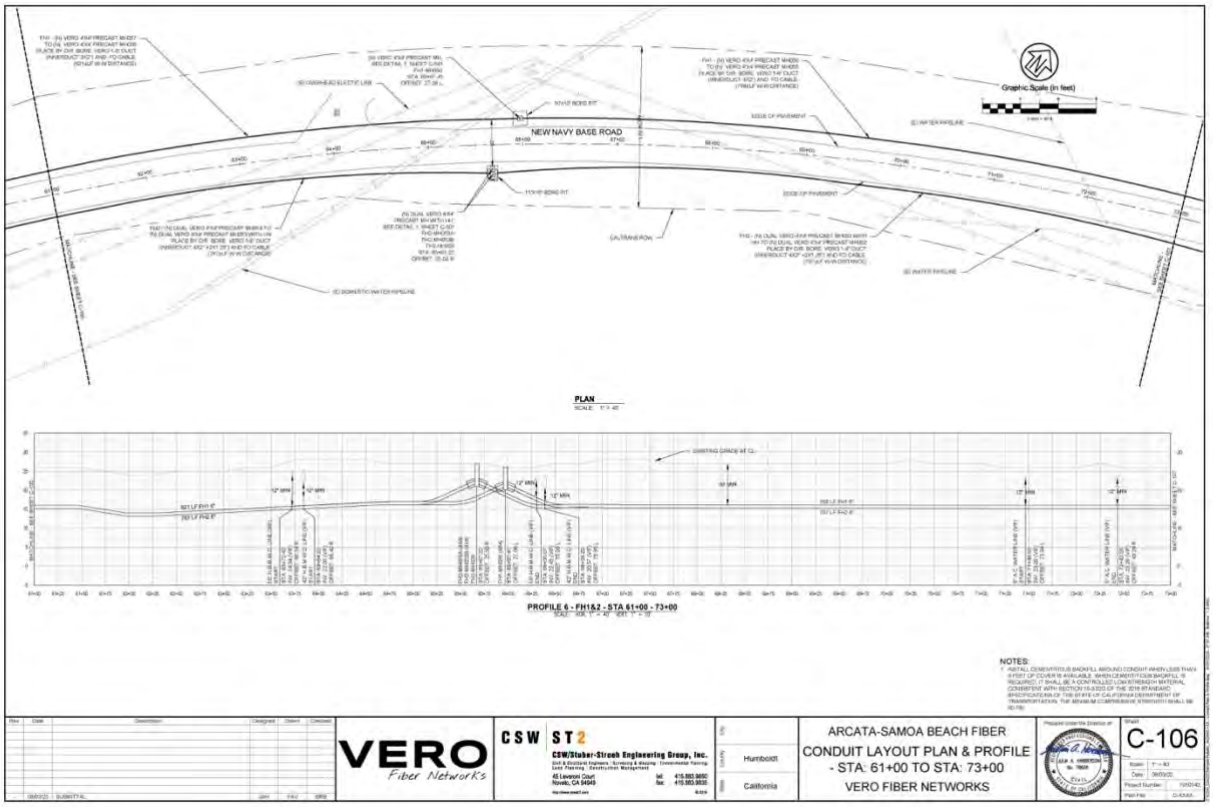

NEW NAVY BASE ROAD
EDGE OF PAVEMENT
CALTRANS ROW
PLAN
PROFILE 1 - FH1&2 - STA 1+00 TO 13+00
NOTES:
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 1+00 TO STA: 13+00
VERO FIBER NETWORKS
C-101

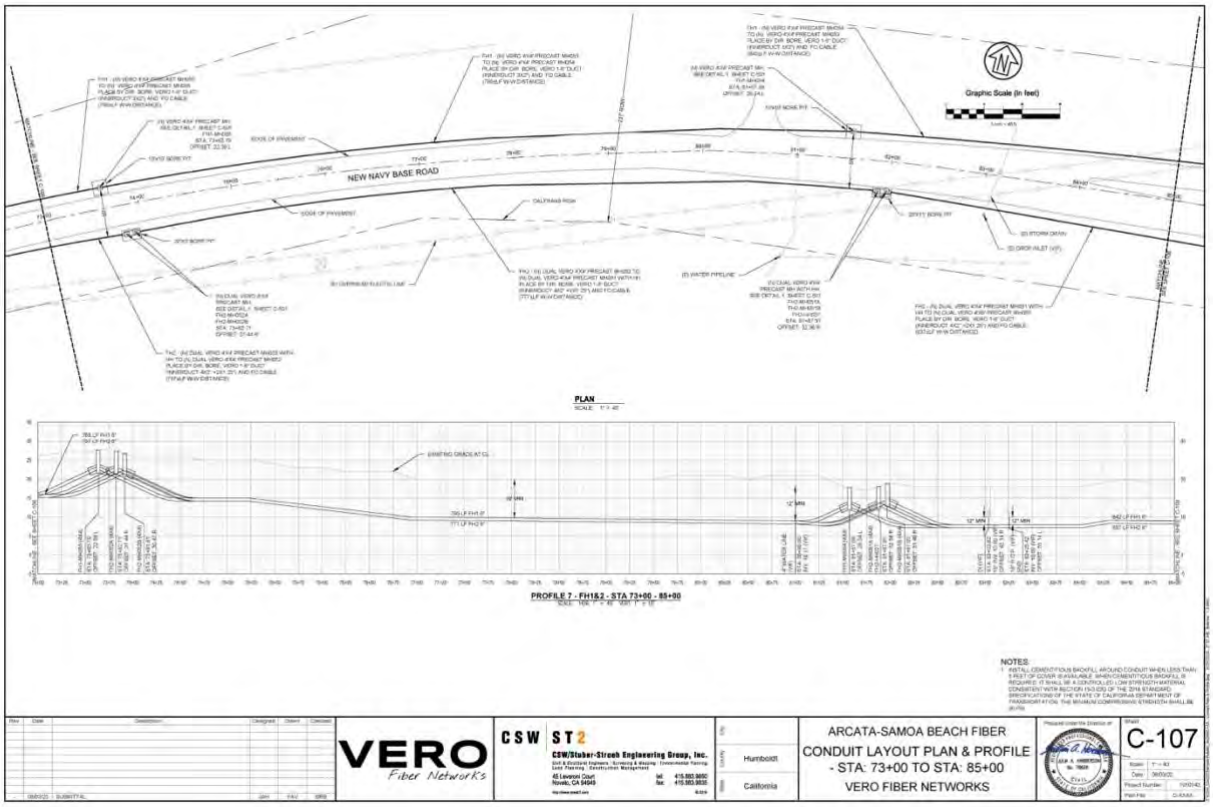

NEW NAVY BASE ROAD
EDGE OF PAVEMENT
Graphic Scale (in feet)
PLAN
PROFILE 2 - FH1&2 - STA 13+00 - 25+00
NOTES:
VERO Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 13+00 TO STA: 25+00
VERO FIBER NETWORKS
C-102

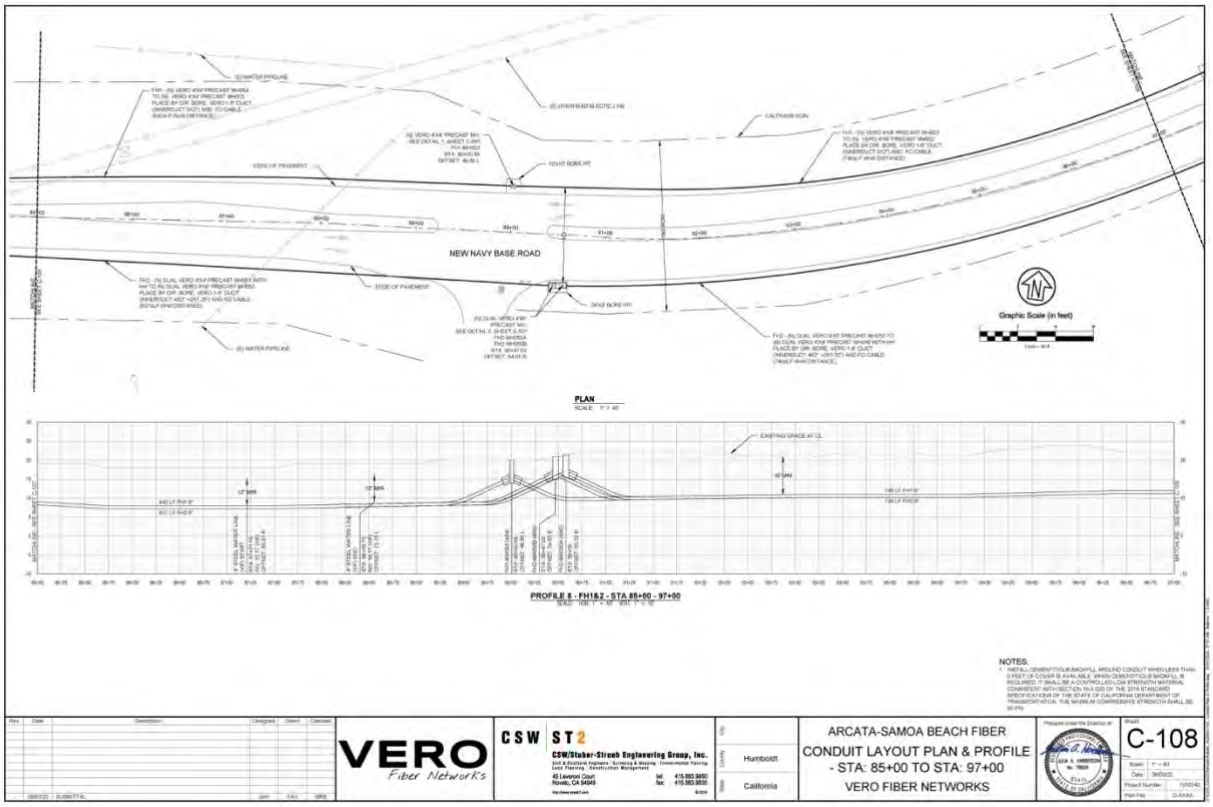

NEW NAVY BASE ROAD
EDGE OF PAVEMENT
Graphic Scale (in feet)
PLAN
PROFILE 3 - FH1&2 - STA 25+00 - 37+00
NOTES:
VERO Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 25+00 TO STA: 37+00
VERO FIBER NETWORKS
C-103

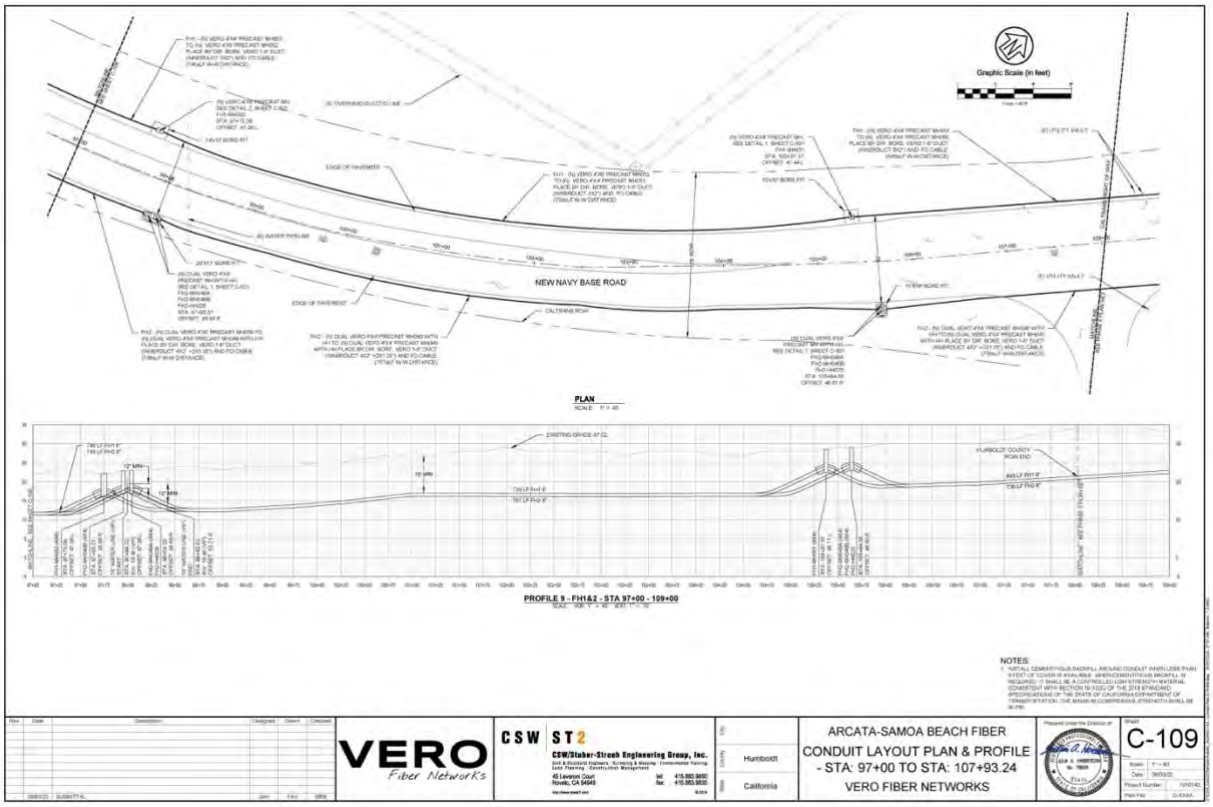

Graphic Scale (in feet)
NEW NAVY BASE ROAD
EDGE OF PAVEMENT
CALTRANS ROW
(E) DOMESTIC WATER PIPELINE
PLAN
PROFILE 4 -FH1&2 - STA 37+00 - 49+00
NOTES:
VERO Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 37+00 TO STA: 49+00
VERO FIBER NETWORKS
C-104

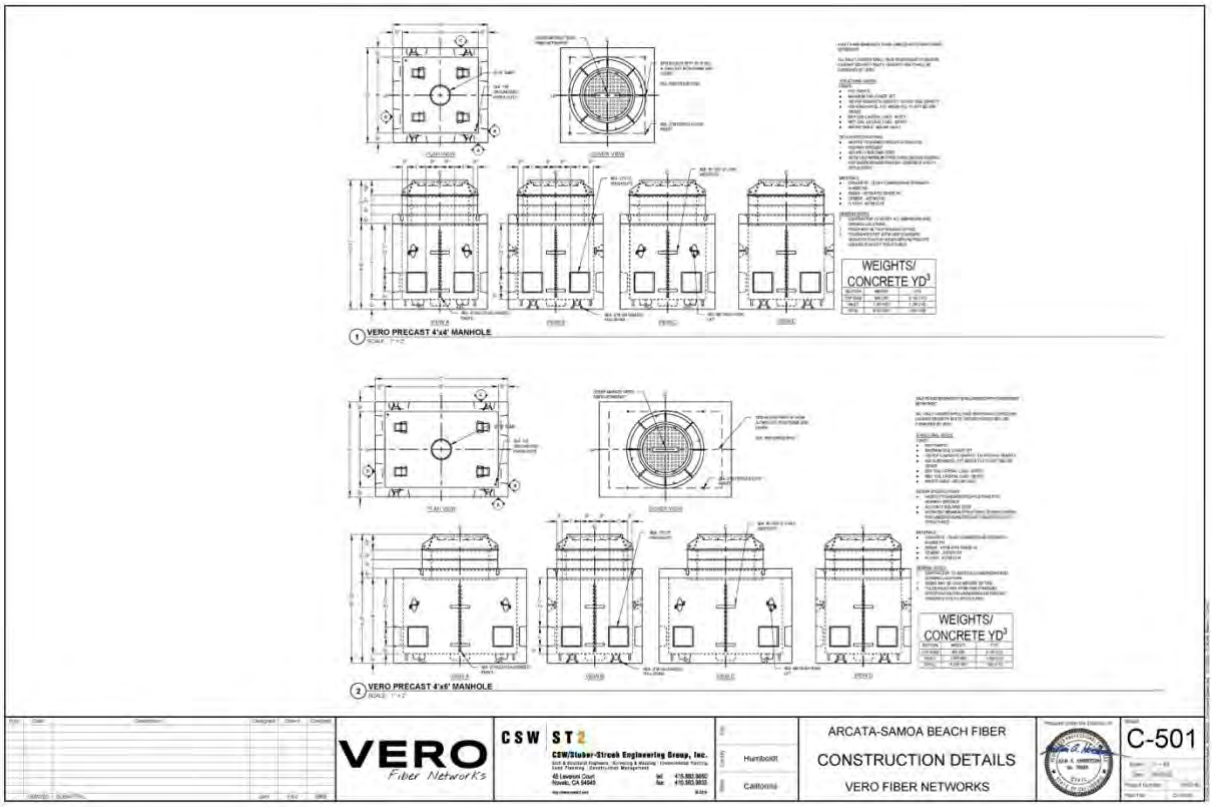

Graphic Scale (in feet)
NEW NAVY BASE ROAD
EDGE OF PAVEMENT
CALTRANS ROW
(E) DOMESTIC WATER PIPELINE
PLAN
PROFILE 5 - FH1&2 - STA 49+00 - 61+00
NOTES:
VERO Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 49+00 TO STA: 61+00
VERO FIBER NETWORKS
C-105

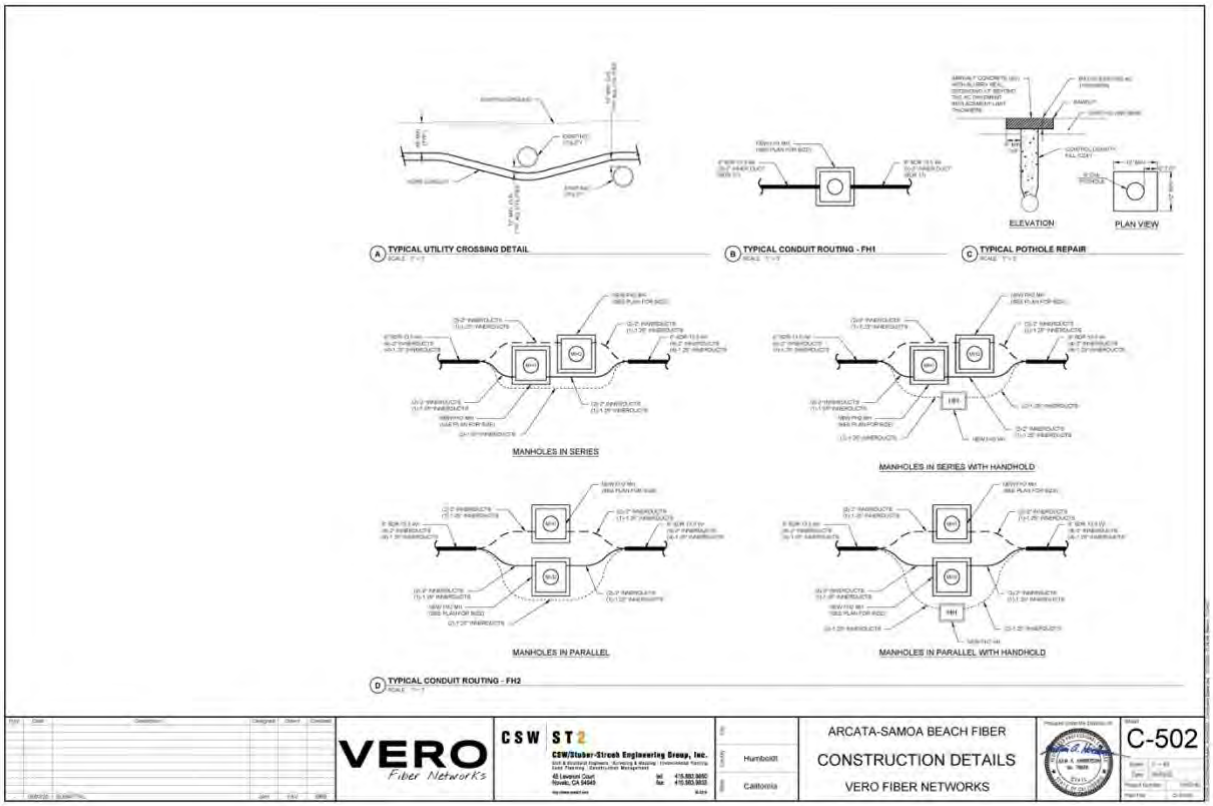

NEW NAVY BASE ROAD
Graphic Scale (in feet)
PLAN
PROFILE 6 - FH1&2 - STA 61+00 - 73+00
NOTES:
VERO Fiber Networks
CSW ST2
CSW/Stuber-Streeb Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 61+00 TO STA: 73+00
VERO FIBER NETWORKS
C-106


NEW NAVY BASE ROAD
Graphic Scale (in feet)
PLAN
PROFILE 7 - FH1&2 - STA 73+00 - 85+00
NOTES:
VERO Fiber Networks
CSW ST2
CSW/Stuber-Streeb Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 73+00 TO STA: 85+00
VERO FIBER NETWORKS
C-107


NEW NAVY BASE ROAD
Graphic Scale (in feet)
PLAN
PROFILE 8 - FH1&2 - STA 85+00 - 97+00
NOTES.
VERO Fiber Networks
CSW ST2
CSW/Stuber-Streeb Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 85+00 TO STA: 97+00
VERO FIBER NETWORKS
C-108


NEW NAVY BASE ROAD
Graphic Scale (in feet)
PLAN
PROFILE 9 - FH1&2 - STA 97+00 - 109+00
NOTES
VERO Fiber Networks
CSW ST2
CSW/Stuber-Streeb Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONDUIT LAYOUT PLAN & PROFILE
- STA: 97+00 TO STA: 107+93.24
VERO FIBER NETWORKS
C-109


WEIGHTS/
CONCRETE YD3
1 VERO PRECAST 4'x4' MANHOLE
WEIGHTS/
CONCRETE YD3
2 VERO PRECAST 4'x6' MANHOLE
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONSTRUCTION DETAILS
VERO FIBER NETWORKS
C-501


A TYPICAL UTILITY CROSSING DETAIL
B TYPICAL CONDUIT ROUTING - FH1
ELEVATION
PLAN VIEW
C TYPICAL POTHOLE REPAIR
MANHOLES IN SERIES
MANHOLES IN SERIES WITH HANDHOLD
MANHOLES IN PARALLEL
MANHOLES IN PARALLEL WITH HANDHOLD
D TYPICAL CONDUIT ROUTING - FH2
VERO
Fiber Networks
CSW ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
45 Leveroni Court
Novato, CA 94949
Humboldt
California
ARCATA-SAMOA BEACH FIBER
CONSTRUCTION DETAILS
VERO FIBER NETWORKS
C-502

ARCATA/SAMOA BEACH FIBER PROJECT FH1 AND FH2

HORIZONATAL DIRECTIONAL DRILL CONTINGENCY PLAN

Humboldt County, California

December 2020

Prepared By

CSW | ST2

Robert Stevens
415.533.1864
rstevens@cswst2.com

Prepared For

VERO FIBER NETWORKS

Josh Nelson
850.490.0409
jnelson@veronetworks.com

Contractor

Lightwave Construction Inc

Steppen Beecher
916.515.7698
steppen@lightwaveconstruction.com

TABLE OF CONTENTS

APPENDICES

1-INTRODUCTION

This Horizontal Directional Drill Contingency Plan (Plan) discusses how Vero Fiber Networks and its contractors will implement procedures to minimize impacts from an inadvertent release during horizontal directional drilling (HDD) during construction of the Arcata/Samoa Beach Fiber Project FH1/ FH2 (Project). The Project involves the installation of one 6 inch conduit in FH1 and one 8 inch conduit in FH2 along approximately 9 miles State Route 255 in Humboldt County, California. These conduits will house fiber optic cables.

The project must cross the Mad River Slough on the north end of Arcata Bay. To avoid impacting environmental resources, the project will install the conduits below the slough using the HDD method.

This project requires approval from the California Department of Fish and Wildlife (CDFW) Section 1602 Streambed Alteration Agreement (SAA) as well as a State of California Department of Transportation encroachment permit.

2-OBJECTIVES

This Plan has been prepared to provide methods and procedures that will minimize the impacts associated with the HDD activities. The HDD practices and construction methods presented in this Plan are intended to accomplish the following objectives:

- To avoid direct impacts to creek crossings during the rainy season using HDD techniques and in a manner that does not result in sediment-laden discharge or hazardous materials release into waters.
- To address procedures for containing an inadvertent release of drilling fluid (frac-out) during HDD activities.
- To coordinate HDD activities with the CDFW in accordance with the Section 1602 SAA.
- Avoid release of contamination when working near sites of known concern.

3-BEST MANAGAMENT PRACTICES

The contractor will implement several Best Management Practices (BMP) to protect the slough including:

1. Site preparation shall begin no more than 10 days prior to initiating horizontal bores to reduce the time soils are exposed adjacent to creeks and drainages.
2. Trench and/or bore pit spoil shall be stored a minimum of 25 feet from the top of the bank or wetland/riparian boundary. Spoils shall be stored behind a sediment barrier and covered with plastic or otherwise stabilized (i.e., tackifiers, mulch, or detention).
3. Portable pumps and stationary equipment located within 100 feet of a water resource (i.e., wetland/riparian boundary, creeks, and drainages) shall be placed within secondary containment with adequate capacity to contain a spill (i.e., a pump with 10-gallon fuel or oil capacity should be placed in secondary containment capable of holding 15 gallons). A spill kit shall be maintained on site at all times.
4. Immediately following backfill of the bore pits, disturbed soils shall be seeded and stabilized to

prevent erosion, and temporary sediment barriers shall be left in place until restoration is deemed successful.

5. The applicant shall obtain the required permits prior to conducting creek crossing work. Required permits may include ACOE CWA Section 404, Regional Water Quality Control Board Clean Water Act 401, and CDFG Streambed Alteration Agreement 1602. The applicant shall implement all pre- and post-construction conditions identified in the permits issued.

4-PLAN IMPLEMENTATION

The HDD methodology will be utilized on this Project to bore at different locations along the fiber optic line. Bore pits will be located on each side of the proposed bore segment. Boring depths will vary depending on the location and should not exceed 50 feet below grade.

This document includes descriptions of construction methods and drilling procedures, spill prevention measures, notification, documentation, and corrective action procedures. While avoiding impacts to sensitive resources, HDD has the potential to inadvertently release drilling fluids, but properly managed released material can be contained, removed and disposed of safely.

4.1 Drilling Procedures

HDD are technically advanced procedures that involve trenchless drilling to minimize impacts to sensitive habitats and waterways. The HDD process uses a combination of water and bentonite slurry (naturally occurring clay) for drilling fluids. The non-hazardous mixture consists of a combination of active clay, inert solids and water. The fluid is prepared in a mixing tank and is pumped through the center of the drill pipe to the cutters. The fluid used during this process acts as a coolant and a lubricant during the drilling process and removes the cuttings and stabilizes the borehole. The cuttings are returned to the entry pit where it is pumped to processing equipment. The fluid is cleaned and recycled while the cuttings are disposed of at an approved disposal facility.

The contractor shall review the soil conditions and recommended drill fluid mix as detailed in Appendix A.

4.1.1 Inadvertent Release

The process of HDD can cause drilling fluid to be released during installation, which can occur when pressure in the drill hole is not maintained and a loss of circulation of drilling fluids occurs. Drilling fluid loss is typical in small amounts when layers of soil, gravel, and rocks are encountered and the drilling fluid fills voids in the materials; however, there is a potential for the inadvertent release of drilling fluid. Drilling fluid release is usually caused by the drill hole pressure going beyond the containment capacity due to fractures in bedrock or other significant voids in geologic strata that allows fluids to surface. A good indicator that a significant amount of loss has occurred is when the returning drilling fluid volume is significantly lower than the pumping fluid volume. The following provides the steps that will be taken in an effort to avoid an inadvertent release of HDD fluid.

4.1.2 Prior to Construction

All sediment and erosion control measures will be installed by the contractor. The measures include the following:

- Storm drain inlets will be protected.

- Large diameter fiber rolls (straw wattles) will be placed around proposed work areas.
- Silt fencing will be placed as needed.
- A site entrance and exit will be established to avoid track out.
- The site will be evaluated for areas that have potential for inadvertent release of fluids (dry and cracked soils) and an inventory of proper drilling fluids and equipment will be on site to deal with the potential problem areas.
- Containment areas will be set up for equipment, drilling fluids, and cuttings storage. Containment areas consist of some type of plastic sheathing formed with straw waddles to form a pit like area.
- Spill kits and cleanup materials, as described in Section 4.1.5 Spill Kit Equipment, will be available on site prior to any construction activities.
- The BMPs, emergency spill kit, and the Frac-Out kit will be staged nearby for immediate spill response.

4.1.3 During Construction

- All equipment within 100 feet from any drainage or other water resource will be placed in a double containment area.
- Drilling fluid and any waste will be contained in containment areas and stored in storage tanks.
- Spoil stockpiles will be stored behind a sediment barrier and covered with a plastic sheathing. Spoils will be stored at least 25 feet from any water bodies.
- Monitoring of fluid pressure, bore paths, and water bodies will continue during the duration of the construction activities by the Qualified Drilling Monitor (see Section 4.2 Notifications, Monitoring, and Documentation Procedures for monitoring and documentation procedures).
- A vacuum truck with sufficient hoses to reach all areas along the bore alignment will be staged on site prior to and during all drilling operations for emergency response. If workspace does not permit a vacuum truck to be staged on site, the truck will be readily available at a nearby work location or staging area via on-call procedures.
- An interim pump will be on site to reach low areas and assist the vacuum truck.
- Good housekeeping procedures will be maintained during construction at all times. Tailboard meetings will be held before work each day to discuss housekeeping and safety along with other topics.

4.1.4 Post Construction

- Following completion of trenchless excavation activities for the Project, all cuttings and other spoils will be hauled off site to an approved facility.
- All drilling fluids will be removed and hauled off site to an approved facility throughout construction; however, all drilling fluids, cuttings, and spoil piles associated with trenchless excavation activities for the Project will be removed upon completion of those activities.
- All pre-construction sediment and erosion control measures described previously will continue to remain in place and will be monitored until the site has been stabilized and the spoils have been removed.

4.1.5 Spill Kit Equipment

The materials provided in the Emergency Spill Kit may include the following items:

- Three (3) absorbent socks
- Six (6) disposal bags and ties
- Two (2) pair of safety glasses
- Two (2) pair of rubber gloves
- One (1) sorbent drip pillow
- Twelve (12) sorbent pads
- One (1) Emergency Response Guidebook
- Two (2) sorbent spill pillows
- Four (4) hazardous labels
- One (1) bag Lite-Dri Absorbent
- One (1) shovel & 1 broom
- Absorbent skipper booms
- One (1) 55-gallon storage barrel

The materials provided in the Frac-Out Kit may include the following items:

- One hundred (100) sand bags
- Vacuum truck with sufficient length of vacuum hose
- Intermediate pump
- Hundred (100) feet of fiber rolls
- Twenty (20) straw bales
- Two (2) shovels
- Lumber
- One (1) 3,000-gallon tank for storage of released material

4.2 NOTIFICATIONS, MONITORING, AND DOCUMENTATION PROCEDURES

As identified in the Project plans, and the Project's federal, state and local permits, HDD locations will be monitored, in Section 4.2.1 Monitoring Procedures of this Plan, until the sites are stabilized and the spoils have been removed. The personnel operating the drilling machine as well as at the bore and receiving pits shall be in constant communication. They shall be trained in the equipment's hydrostatic pressure monitoring system and have at least 10 years of experience in directional drilling.

4.2.1 Monitoring Procedures

During drilling operations, the drilling contractor will have a Qualified Drilling Monitor present on site, who will perform the following activities:

- Visually inspect the bore path at the completion of each joint and inspect 100 feet upstream and downstream along bore alignment.
- Examine drilling mud pressures and return flows. Shut down drilling operations immediately if more than 2% of the total fluid volume in circulation is lost during the drilling of one (1) joint (30 feet max).
- Visually inspect the bore alignment and a 100-foot radius around the HDD operation.
- If drilling fluids begin to decline, two (2) crew members will continue to monitor until drilling fluid returns are stabilized.

- Communicate regularly regarding the drilling conditions during the course of the drilling activities.
- Inspect all stream crossings with flowing water.
- Monitoring for frac-outs shall continue 48 hours after all the drilling and reaming is completed.
- Contain all drilling fluids and cuttings for proper disposal at an approved facility.

A daily inspection form with hourly inspection intervals is included in Attachment B: Inspection Forms.

Prior to the commencement of drilling operations, the environmental monitor will identify any sensitive environmental resources located in the area of potential frac-out. The location of these resources will be communicated to the drilling contractor verbally.

An environmental monitor will be present at all times when HDD activities are being performed. As discussed in Section 4.2.4 Corrective Actions, in the event of an inadvertent release outside of the approved work area, the construction contractor will conduct cleanup and inspections of the area via foot when feasible and, if it is safe to do so, will be accompanied by the appropriate environmental, archeological, and biological monitor(s).

4.2.2 Notification

In the event that an inadvertent release is discovered, the required notifications will be made according to the Project's permits and plans. Specifically, as required by the Project's Section 404, 401, and 1602 permits, the United States Army Corps of Engineers, Regional Water Quality Control Board, CDFW, and CPUC will be notified of any inadvertent release impacting jurisdictional waters. The notification(s) will be made as soon as an impact to a resource has been identified and sufficient data has been gathered to release the report. Vero Fiber Networks will endeavor to make the required notifications by phone or in writing within 24 hours following discovery of the release, if feasible.

4.2.3 Documentation

In the event that an inadvertent release is discovered, the following information will be documented:

- Name and telephone number of the person reporting release
- Date and time of release
- Location of release
- Nature of the release (type, quantity, size, etc.)
- How the release occurred
- Type of activity occurring around area
- Description of sensitive areas and their location in relation to the release
- Any identified impacts to biological, cultural, or paleontological resources
- Corrective actions taken
- Information regarding the potential threat to public health and safety (if any)

After the information detailed previously has been gathered, Vero Fiber Networks will provide the appropriate information in writing within 48 hours to the requisite agencies, as discussed in Section 4.2.2 Notification. However, in the event that the information cannot be gathered and/or cleanup activities are not completed

within 48 hours, a final report documenting the information discussed in Section 4.2.2 Notification will be submitted to the requisite agencies as soon as practicable.

4.2.4 Corrective Actions

In the event that an inadvertent release/frac-out is discovered, the following corrective actions will take place:

- Drilling operations will stop immediately.
- Notification procedures will be implemented.
- The material will be removed and/or contained to minimize the affected area. Environmental monitors will be on site at all times while HDD activities are performed to ensure environmental requirements are met for removals in sensitive areas.
- The spill kit equipment will be kept on a trailer to facilitate rapid response to the site of the inadvertent release.
- The least damaging equipment and techniques will be used to clean up the spill. In the event that cleanup of an unanticipated release is necessary outside of the approved Project area and procedures beyond the use of foot traffic are required, the equipment and access route to be utilized for cleanup activities will be approved by CPUC prior to the completion of these activities, if feasible. However, the primary objective of the contractor in the event of a release will be to secure the site to prevent harm to human health and the environment.
- Impacted soils and any other materials associated with spill containment will be removed as soon as practical to an approved disposal facility.

4.3 CONTACT INFORMATION

The following table lists the individuals responsible for implementation of this Plan during construction.

Company/Organization	Name/Title	Telephone Number
Vero Fiber Networks	Josh Nelson, Project Manager	850.490.0409
Lightwave Construction	Steppen Beecher, Superintendent	916.515.7698
CSW|ST2	Robert Stevens, Project Manger	415.533.1864
CSW|ST2	Julia Harberson, Project Engineer	415.599.9564

4.4 KNOWN SITES OF CONTAMINATION

As shown in Appendix B, there are two sites within the project area that have known contamination including a closed landfill and the former Sierra Pacific Industries facility. Each site will require an approach to manage worker and the public's safety noted as follows:

- Landfill. While working near the landfill, the Contractor shall have a methane detector available at all points of excavation. At no time shall the contractor have ignition source in operation. At concentrations between 5 and 17%, all work shall stop until the level reduces. All drilling mud spoils shall be separated from other drilling operations and tested for contamination.
- Sierra Pacific Site. This site is known to have soils containing dioxin. The contractor's crews shall

wear personnel protective equipment consistent with the guidelines of Cal/ OSHA. All drilling mud spoils shall be separated from other drilling operations and tested as noted in Appendix A. It is imperative that the drilling mud positively encases the conduits crossing the slough to create an impermeable barrier. During pull back operations, the contractor shall monitor fluid flow to ensure it does not increase. If pull back tension increases, the contractor shall apply additional fluid.

APPENDIX A

SOIL CONDITIONS

CSW | ST2

MEMORANDUM

To:	Melissa Kraemer and Amber Leavitt – California Coastal Commission
From:	Robert Stevens, PE
CC:	Dave Jones, Nathan McGinn and Josh Nelson – Vero Networks
Date:	December 22, 2020
Subject:	Arcata/Samoa Beach Fiber Project – Site Soils

The proposed project will use the horizontal directional drilling (HDD) technique to install the 6 and 8 inch in diameter conduits using a trenchless process. As most of the alignment is within the State of Caltrans Department of Transportation's right of way, we are following their guidance related to soils investigations as detailed in the Encroachment Permits Manual. Per Section 603.6A-2E of the manual:

> *If the contractor can go to the project site and do an excavation with a backhoe to one foot below the proposed depth of the bore, that excavation can be considered a soil investigation.*
>
> *The purpose and intent of the soil analysis is to assist the contractor in developing the proper drilling fluid mixture, and to ensure Caltrans that the contractor is aware of the conditions that do existing in the area of the proposed project.*

There are two failures that can occur in the HDD process including bore hole collapse and hydraulic fracture. As site soils often vary widely, we have found the following is imperative to guide the contractor and mitigate these failures:

1. Provide basic soil conditions at the site;
2. Require the contractor to complete site specific investigation during bore pit excavation as noted in the Caltrans guidelines;
3. Develop an initial drilling fluid mix; and
4. Implement site specific monitoring of drilling fluid pressure and flow to avoid an issue before a failure occurs.

Site Soils

There are many prior investigations of the Samoa Peninsula that detail the geologic conditions. The location and morphology of Humboldt Bay is largely a result of tectonic processes. Humboldt Bay consists of two principal basins, Arcata Bay and South Bay. These shallow estuarine basins are connected across the bay mouth by the narrow "Eureka Channel" which connects to the Pacific Ocean. Each of the principal basins is associated with a crustal down-warp and appears to represent a filled paleoriver valley. This is especially true in Arcata Bay, which appears to be an erosional feature associated with the former course of the Mad River. In that regard, much of the Samoa Peninsula is the remnant of the western divide of the Mad River drainage and is underlain by the same earth materials that underlie the Eureka side of the bay.

December 22, 2020

According to T Leroy in *"Holocene Sand Dune Stratigraphy and Paleoseismicity of the North and South Spits of Humboldt Bay, Northern California"* the Samoa Peninsulas is covered with sand dunes that north of the SR255 bridge can be nearly 60 feet above sea level. Groundwater typically is found from 5 to 10 feet below the surface.

In discussions with various contractors that have excavated within the area, they have noted that sand is commonly found below the ground's surface. Soils investigations to install ground water monitoring wells with the Sierra Pacific Industries facility along State Route (SR) 255 just west of the Mad River Slough generally found sand beneath the site. While fill was likely placed to construct the sawmill, at the truck stop area, which is near SR 255, the investigation encountered fine to medium grain sand of sand due origin.

To support construction of the bridge crossing the Mad River Slough, Caltrans completed a series of test borings to a depth of about 90 feet; we have attached a log for reference. Within the bore profile that is to be no less than 15 feet below the creek, we find clayey silt and silty sands.

Bore Recommendations

As the contractor will encounter sandy soils within a majority of the installation along the Samoa Peninsula, the primary concern will be ensuring the bore hole does not collapse. Thus, the initial recommendation for the drilling fluid to be mixed with 100 gallons of water is:

- 45 lbs of Baroid Bore-Gel – Bentonite clay used to suspend the bore hole in sand and reduce friction
- 2 lbs of Baroid Quick-Bore – Bentonite clay used to suspend the bore hole and create a filter cake with low permeability
- 25 lbs of Baroid Zeogel – A clay that improves stability of drilling fluid within high salt concentrations

At the Mad River Slough crossing, the contractor may find that drilling at a depth of more than 30 feet below the ground may be preferable due to the presence of a stiff silt. As there is less sand at this crossing, the initial recommendation for the drilling fluid to be mixed with 100 gallons of water is:

- 25 lbs of Baroid Bore-Gel – Bentonite clay used to suspend the bore hole in sand and reduce friction
- 2 lbs of Baroid Quick-Bore – Bentonite clay used to suspend the bore hole and creates a filter cake with low permeability
- 0.25 lbs of Baroid No-Sag – Helps to suspend drill cuttings
- 25 lbs of Baroid Zeogel – A clay that improves stability of drilling fluid within high salt concentrations

The initial recommendation for application of the drilling fluid rate is 12 GPM while maintaining a hydrostatic pressure of no more than 15 PSI. During the initial boring operation forming the pilot hole, the contractor shall monitor the pressure within the bore hole. If there is a change in either fluid pressure or drilling fluid flow at the bore or exit hole, he or she shall stop the operation. Depending upon the condition, either pull back the drill string or increase the density of the drilling fluid.

To expand the pilot hole to receive the 6 and 8 inch conduit, the contractor shall use reamers of successively larger diameters. During pull back, the contractor shall continue to apply drilling fluid at the pressure and flow as previously stated. As the pull back operation can significantly increase pressure, the contractor shall diligently monitor the bore hole pressure as well as fluid flow at the entry and exit pits.

December 22, 2020

Mad River Slough Contamination

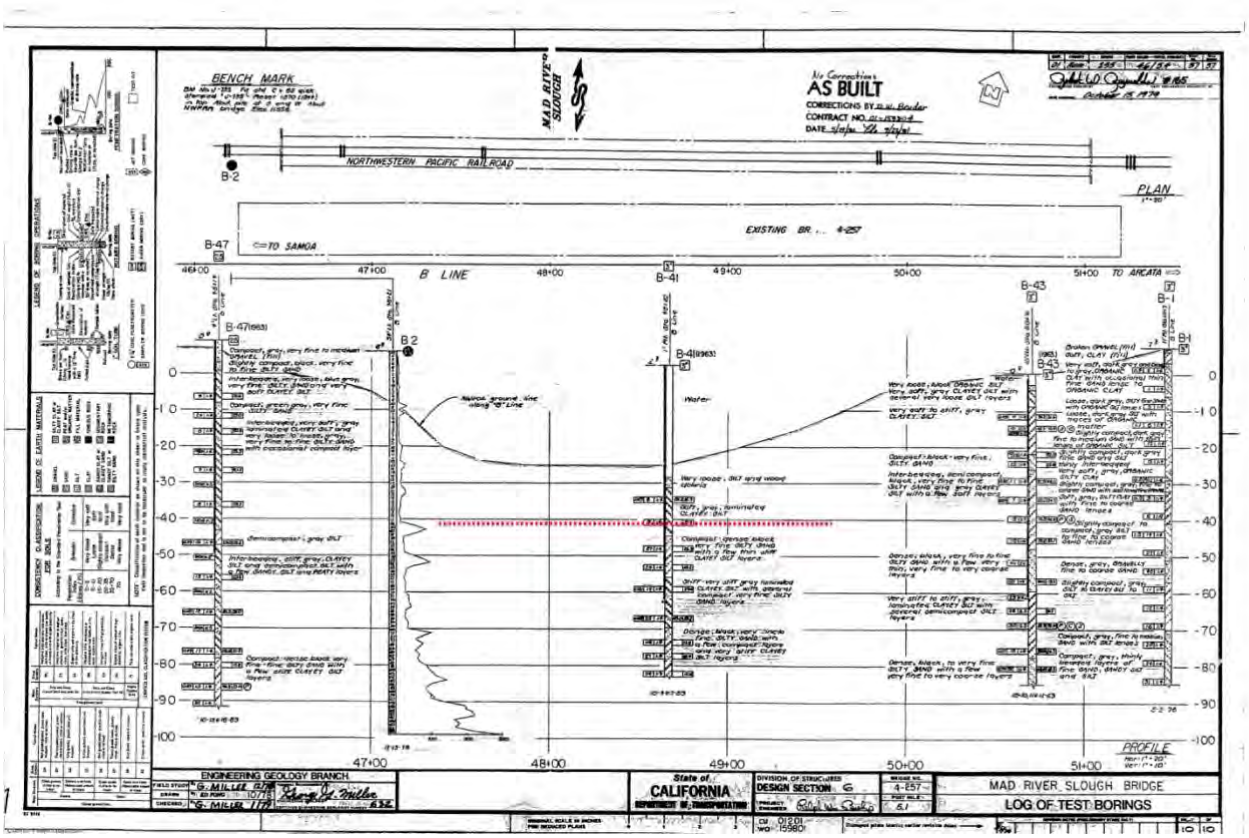
Along the west bank of the Mad River Slough and north of State Route 255, the former Sierra Pacific Industries facility contains soils contamination including dioxin. There are two potential concerns related to the conduit installation near the site including worker safety and mobilization of contaminated ground water.

Based upon sediment surveys within the Mad River Slough over the last decade, the sediment is at an elevation of -22 feed based upon the North American Vertical Datum of 1988 (NAVD88) The contamination is likely within a depth of 1.5 feet. The proposed conduit installation will be more than 15 feet below this elevation at no less than -38 feet NAVD88.

As previously discussed, the directional bore operation uses a drilling fluid that include a high concentration of bentonite clay to suspend the bore-hole. It creates a "cake" between the circumference of the bore hole and the installed conduit. Bentonite is a highly impermeable material. A study entitled "Effect of Bentonite on Permeability of Dune Sand" completed by N. K meta found that 10% bentonite to 90% sand produced a permeability of $6.9x10^{-8}$ versus about $1x10^{-4}$ cm/s for sand alone using a falling head test. Thus, the drilling fluid creates barrier for the transmission of ground water.

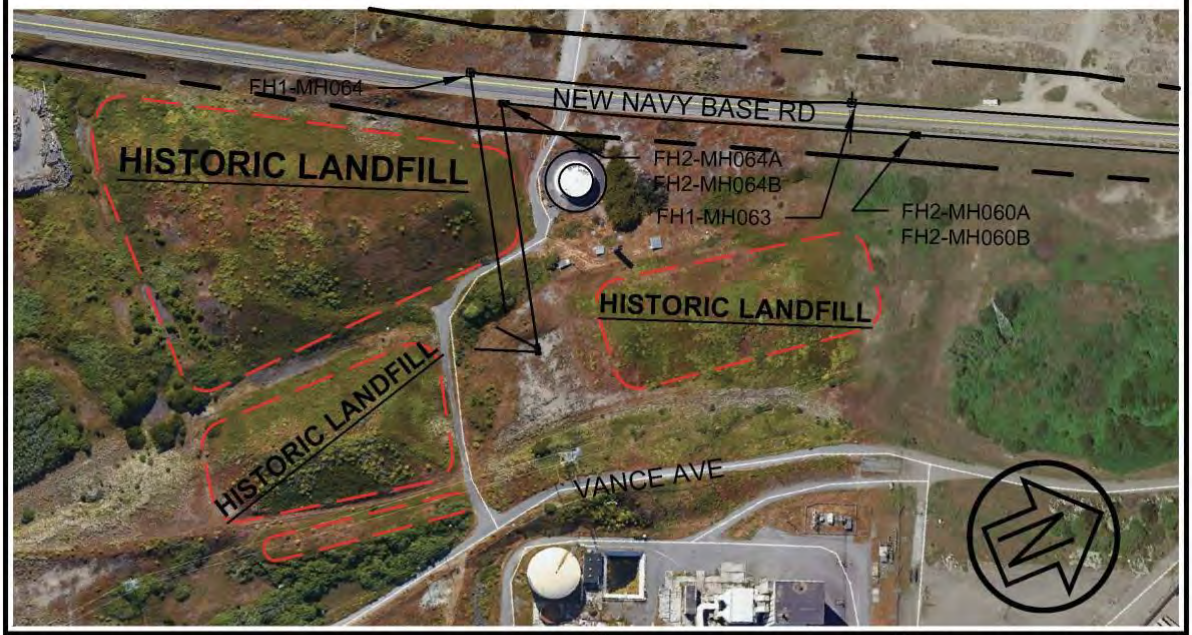
As the soil and water removed during the boring operation could be contaminated, the contractor will need to separate and store this material to avoid contaminating other areas within the project. Upon separating the water and soil, the contractor will need to retain a certified laboratory to test the materials in accordance with the receiver of the waste. This shall include the standard tests (ie hydrocarbon and metals) as well as chlorinated phenols, phenols, dioxins, and furans, which are known to be present near the site.

Finally, the contractor's personnel shall implement standard protocols for working near contaminated sites in accordance with Cal/ OSHA guidelines. This shall include having personnel trained in Hazardous Waste Operations and Emergency Response (HAZWOPER) as well as wearing personnel protective equipment.


BENCH MARK
AS BUILT
NORTHWESTERN PACIFIC RAILROAD
EXISTING BR. ... 4-257
PLAN
B LINE
PROFILE
ENGINEERING GEOLOGY BRANCH
State of CALIFORNIA
DEPARTMENT OF TRANSPORTATION
MAD RIVER SLOUGH BRIDGE
LOG OF TEST BORINGS

APPENDIX B

KNOWN SITES OF CONTAMINATION



CSW | ST2
CSW/Stuber-Stroeh Engineering Group, Inc.
Civil & Structural Engineers | Surveying & Mapping | Environmental Planning
Land Planning | Construction Management
45 Leveroni Court
Novato, CA 94949
tel: 415.883.9850
fax: 415.883.9835
http://www.cswst2.com

Rev. X	Date: 01/12/21
Job No. 1910140	Scale: 1" = 300'

ARCATA-SAMOA BEACH FIBER
ENVIROMENT CONSIDERATIONS

ARCATA HUMBOLDT CALIFORNIA

P:\Projects\1910140 Eureka Fiber Optic Network -Feasibility Assessment\DWG\Exhibits\EXH-Enviromental Impact.dwg 01/12/2021 - 03:16 PM michaelm 1:1

APPENDIX C

INSPECTION FORMS

PROJECT NAME: _____ DIALY INSPECTION LOG

DATE	TIME	INSPECTION LOCATION	NOTES	INSPECTOR NME
	7 AM			
	8			
	9			
	10			
	11			
	12 PM			
	1			
	2			
	3			
	4			
	5			
	6			
	7 pm			
	7 AM			
	8			
	9			
	10			
	11			
	12 PM			
	1			
	2			
	3			
	4			
	5			
	6			
	7 pm			

RELEASE INSPECTION AND DOCUMENTATION FORM

Name and Title: _____

Date: _____

Location of Release: _____

Approximate amount of boring actives completed (feet): _____

Nature of Release:

How release occurred:

Description of sensitive area:

Corrective Action taken:

Attach photograph here

Signature _____

TABLE E
AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)

ID	Subject	Measure to be Implemented	Areas Where Measures would be Implemented
AMM BIO-1	Biological Monitoring Requirements	The Applicant shall designate one or more Project biologists. Project biologist refers to the qualified person assigned to ensure Project-wide biological measures identified in this document are followed and to document compliance with these measures. The Project biologist would also oversee other biologists and/or biological monitors. Biological monitor refers to a qualified person assigned to ensure biological measures are being implemented during construction activities. Project biologist(s) or biological monitor(s) shall be on-site as needed according to AMMs. Project biologists and biological monitors shall be familiar with sensitive species and resources and the minimization measures for this proposed Project. The Project biologist(s) shall be responsible for overseeing and training biological monitors; advising the applicant and contractor on compliance with biological mitigation measures; notifying the applicant of noncompliance with biological resources conditions; responding directly to inquiries of the lead agencies or resource agencies regarding biological resource issues; maintaining records of tasks related to compliance and reporting for biological resource measures; preparing monthly, annual, and final compliance reports; establishing and enforcing speed limits at Project work areas; and maintaining the ability for regular, direct communication with representatives of the CDFW and USFWS, including notifying these agencies of dead or injured special-status species and reporting special-status species observations. Daily logs—When on-site, the Project biologist(s) and/or biological monitor(s) shall maintain electronic records of daily activities, observations, and communications with the applicant or construction personnel. These records shall be made available for review to the lead agencies at any time during or following Project implementation. Stop Work Authority—The Project biologist(s) and biological monitor(s) shall have written authority to require a halt to activities in any area when determined that there would be an unauthorized adverse impact to biological resources if the activities continued.	Project-wide, where and when a monitor is needed.
AMM BIO-2	Environmental Awareness Training	Key personnel (e.g., crew leads, foremen) would complete an environmental awareness training on the protected species in and around the Project route and on required environmental protection measures. Training shall explain the need for and implementation of minimization measures. The training shall include supporting written material and electronic media, including photographs of protected species; providing information regarding the locations and types of sensitive biological resources within the Project alignment and adjacent areas as well as explaining the reasons for protecting these resources; informing participants that no snakes, other reptiles, bats, or any other wildlife shall be harmed or harassed, with special emphasis on special-status species and including information on physical	Project-wide

TABLE E
AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)

ID	Subject	Measure to be Implemented	Areas Where Measures would be Implemented
		characteristics, distribution, behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures; identifying the Project biologist(s) and biological monitor(s) for contact or further comments and questions about the material discussed in the program; directing trainees to report all observations of listed species and their sign to the Project biologist for inclusion in the compliance reports; a discussion of the Project biologists' and biological monitors' stop work authority; and a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines.	
AMM BIO-3	**Habitat Mitigation and Monitoring Plan**	During final Project design, a Habitat Mitigation and Monitoring Plan would be developed that provides detailed plans for the restoration of temporarily disturbed waterways, wetlands, and riparian habitat. For these areas, temporary ground disturbance from construction activities (including staging/laydown areas) would be restored to the original conditions and contours and revegetated with native plant species. This plan shall also be submitted to and approved by USACE, the USFWS, and the CDFW prior to initiating any mitigation activities. The plan would outline restoration and conservation activities, locations, monitoring requirements, and criteria to measure mitigation success. Restoration may include planting and/or seeding with locally sourced native species, erosion control measures, non-native plant control, and site monitoring.	**Project-wide**
AMM BIO-4	**Wetlands, Riparian Habitat, and Aquatic Resources**	Prior to construction, a qualified biologist would flag the boundaries of wetland, riparian habitat, and waterways delineated in the Preliminary Jurisdictional Delineation Report (Transcon 2020). Project infrastructure would be designed to avoid these resources to the greatest extent practicable. During construction, crews would limit all construction activities and staging to outside of the flagged areas. Manholes, handholes, and boring pits would not be located in any wetland, riparian, or aquatic resources. If construction activities require placement of fill, crews, or equipment in wetlands or require disturbance to jurisdictional wetland or riparian areas, then Vero would obtain and comply with all necessary USACE, CDFW, and California Coastal Commission permits.	**Project-wide**
AMM BIO-5	**Special-Status Plants**	The Project biologist shall conduct a clearance survey for special-status plant species immediately prior to construction in appropriate habitat. If planned construction activities may result in an impact to special-status plant species, the following measures would be taken: (1) a minor reroute of the alignment would be made to avoid the plant(s) and a suitable buffer area to prevent root damage or other incidental damage; or (2) in areas that cannot be avoided by a minor reroute, the Project biologist would contact the appropriate agency to discuss the potential for salvaging the affected plants. A biological monitor shall be responsible for designating an appropriate buffer area or bore depth to minimize potential adverse impacts to the plants and their roots.	**Suitable habitat (would be mapped for construction crews)**

TABLE E
AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)

ID	Subject	Measure to be Implemented	Areas Where Measures would be Implemented
AMM BIO-6	Invasive Species Prevention	Contractor vehicles and equipment would be cleaned inside and out prior to mobilization to limit the introduction of non-native species on the Project corridor, specifically: • Exterior cleaning would consist of washing vehicles and equipment, with attention paid to the tracks, feet, and/or tires; on the undercarriage, with special emphasis on axles, frame, cross members, motor mounts; and on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs would be swept out, and refuse would be disposed of in waste receptacles to be disposed of at an approved off-site location. The contractor would inspect vehicles and equipment to ensure they are free of soil and debris capable of transporting non-native vegetation seeds, roots, or rhizomes. Seeds and plant parts that result from the cleaning would be collected and bagged for disposal at an approved off-site location. If noxious or invasive weeds are within the Construction Corridor, vehicles would be cleaned before moving on to areas that are weed free • Contractors would avoid or minimize all types of off-road travel that may result in the collection and dispersion of non-native vegetation by construction vehicles and equipment • Activity boundaries, including equipment staging and parking areas, shall avoid known noxious plant infestations. If unavoidable, prior to implementation of operations where invasive plants are present, invasive plant infestations shall be bladed away from equipment and access routes before operations start. Removed invasive plants or shrubs should be located on the edge of the clearing out of the way of operations to avoid retrieval on equipment. Equipment/machinery shall be cleaned prior to leaving the infested area to operate in another non-contiguous area • Rock, sand, or any material used for soil erosion control shall originate from a certified weed-free source if available. Rock source shall be inspected by staff trained in invasive plant identification. Permittee shall provide documentation that material is weed-free. (see https://www.cal-ipc org/solutions/prevention/weedfreeforage/ and https://www.cal-ipc.org/solutions/prevention/weedfreegravel/ for more information about weed-free erosion control and aggregate sources)	Project-wide
AMM BIO-7	Nesting Birds	To avoid and minimize adverse effects to nesting birds, the following measures shall be implemented: • If work will occur during the nesting bird season (February 15 until August 31 or January 1 until August 31 where there is potential for nesting eagles), nesting bird surveys would be conducted within 7 days prior to the onset of construction by a Project biologist or biological monitor familiar with the species that may nest in the Action Area. Surveys would occur to a distance of 100 feet (for passerines) or 300 feet (for raptors) from the proposed work, access routes, and staging areas. In areas within 0.5 mile of suitable bald or golden eagle nesting	Project-wide

TABLE E
AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)

ID	Subject	Measure to be Implemented	Areas Where Measures would be Implemented
		habitat, nesting season is from January 1 to August 31, and surveys would be performed within 2,640 feet of work. If an active nest is encountered in or adjacent to a work area, a no equipment/no activity buffer would be implemented around the nest (the size of which would be determined by the Project biologist) or the nest would be monitored by a Project biologist or biological monitor for disturbance.	
AMM BIO-8	**Special Status Amphibians**	When ground-disturbing work is occurring within 25–50 feet of waterways that have water present and that are suitable habitat for special-status amphibians, a qualified biologist would conduct a pre-disturbance survey for special-status amphibians (adults, subadults, tadpoles, or egg masses). The survey area would include suitable habitat within 50 feet of perennial and intermittent waterways, within 25 feet of ephemeral drainages, and at least 50 feet upstream and downstream of the work area. The biologist would conduct surveys for special-status amphibians prior to the start of ground-disturbing activities. If no special-status amphibians are detected, work may resume for 3 to 5 days before new surveys need to be conducted. • If a special-status amphibian is confirmed to be present, then a qualified biologist would move the individual to a suitable off-site location within the same waterway	**Suitable habitat (would be mapped for construction crews)**
BMP BIO-1	**General Bio (Construction Sites & Facilities)**	The contractor shall implement the following measures to manage construction sites and related facilities to avoid or minimize impacts to biological resources: • Limit Disturbance Areas—The boundaries of areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) shall be clearly delineated with stakes and flagging prior to construction activities in consultation with the Project biologist. Spoils and topsoil shall be stockpiled in areas already disturbed so that stockpile sites do not add to total disturbance footprint. Disturbances, Project vehicles, and equipment shall be confined to the designated work areas. Parking areas, staging, and disposal site locations shall similarly be located in areas without native vegetation or special-status species habitat • Minimize Access Impacts—Where existing routes may need improvements, the improvements shall not extend beyond the flagged impact area as described above. Vehicles passing or turning around shall do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads or the construction zone, the route shall be clearly marked (i.e., flagged and/or staked) prior to the onset of construction • Minimize Traffic Impacts—Vehicular traffic during Project construction and operation shall be confined to existing designated routes of travel to and from work sites, and cross-country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit within any part of the Project area shall be designated and enforced by the Project biologist	**Project-wide**

TABLE E
AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)

ID	Subject	Measure to be Implemented	Areas Where Measures would be Implemented
		• Minimize Impacts of Alignments, Roads, Staging Areas—Staging areas for construction equipment, supplies, personnel parking, and other ancillary functions shall be designed and maintained with the goal of minimizing impacts to native plant communities and sensitive biological resources • Cover Open Trenches—Open trenches or other holes (e.g., HDD boring holes) created during construction that may entrap wildlife would be covered at the end of the workday • Trash/Debris—Trash and food items including wrappers, cans, bottles, and all food scraps would be contained in closed containers in a manner that wildlife cannot access and removed daily to reduce attractiveness to opportunistic predators. Feeding of wildlife is strictly prohibited • Special-Status Species Sightings—If any potential special-status species is observed near a work area, work would halt, and the animal would be allowed to leave on its own volition before work commences. Under no circumstances should crew members encourage the departure of the animal • Pets/Firearms—Pets and firearms shall be prohibited from the construction site. If guard dogs are to be used, the contractor shall ensure that such animals do not affect any special-status species	
BMP BIO-2	**SWPPP**	To minimize the potential for stormwater runoff to waters and wetlands within the Project area, an SWPPP would be prepared and implemented. The SWPPP would include, at a minimum: • Identification of potential sources of pollutants and toxic materials; • Identification of BMPs for storm water contact minimization, construction material distribution and access, equipment storage, vehicle maintenance, and cleaning areas; • Erosion and sediment control measures for wet- and dry-season activities; • Temporary and permanent erosion control techniques, sediment control on public roads, wind erosion, and non-stormwater management techniques; and • Waste management/disposal methods.	**Project-wide, where and when applicable**
BMP BIO-3	**SPPP**	To minimize the potential for accidental spill or pollutant discharge (i.e., fuels and lubricants used in Project equipment) into waters or wetlands within the Project area, Vero would prepare an SPPP and would implement the BMPs specified in the plan. The SPPP would include, at a minimum: • Measures to ensure that petroleum products are not discharged into drainages or bodies of water;	**Project-wide, where and when applicable**

TABLE E
AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)

ID	Subject	Measure to be Implemented	Areas Where Measures would be Implemented
		• A description of potentially hazardous and nonhazardous materials that could accidentally be spilled during construction (e.g., fuels, equipment lubricant, human waste and chemical toilets, bentonite, etc.), potential spill sources, potential spill causes, proper storage and transport methods, spill containment, spill recovery, agency notification, and responsible parties; • Proper hazardous material storage procedures in staging areas (i.e., hazardous materials shall be stored in staging areas that are located at least 100 feet from ephemeral and intermittent streams and 300 feet from perennial streams, lakes, and wetlands); • Proper refueling and vehicle maintenance procedures near waters or wetlands (i.e., these types of activities shall be performed at least 100 feet from ephemeral and intermittent streams and 300 feet from perennial streams, lakes, and wetlands); and • Other BMPs that would protect waters and wetlands from accidental spills (i.e., sedimentation fences, certified weed-free hay bales, sand bags, water bars, and baffles).	
BMP BIO-4	**HDD FRAC-OUT Plan**	To protect waterways in the event of a frac-out during HDD activities, Vero would prepare and implement an HDD FRAC-OUT Plan. The HDD FRAC-OUT Plan would include, at a minimum: • Monitoring procedures during drilling operations, (i.e., the bore path and waterways would be visually inspected at all times during drilling operations in the event of frac-outs); • Clean-up and containment procedures in the event of accidental drilling fluid spills; • Detailed reporting procedures in the event of a drilling fluid release; and/or • Specific response procedures in the event of a drilling fluid release	**Project-wide, where and when applicable**
BMP BIO-5	**Hazardous Materials**	Any soil bonding and weighting agents used on unpaved surfaces shall be non-toxic to wildlife and plants. If a leak or spill from fuels and lubricants enters or threatens to enter a stream crossed or immediately adjacent to the proposed Project ROW, response procedures specified in the SPPP would be implemented.	**Project-wide, where and when applicable**

BMP BIO-6	**Air Quality/Dust Prevention**	For land preparation and excavation, the following dust control measures should be implemented:
		• All soil excavated or graded should be sufficiently watered to prevent excessive dust. Watering should occur as needed with complete coverage of disturbed soil areas.
		• All clearing, grading, earth moving, and excavation activities should cease:
		  • During periods of winds greater than 20 miles per hour (mph) (averaged over one hour), if disturbed material is easily windblown, or
		  • When dust plumes of 40 percent or greater opacity impact public roads, occupied structures, or neighboring property
			Project-wide, where and when applicable

TABLE E
AVOIDANCE AND MINIMIZATION MEASURES (AMMS) AND BEST MANAGEMENT PRACTICES (BMPS)

ID	Subject	Measure to be Implemented	Areas Where Measures would be Implemented

		• All fine material transported off-site should be either sufficiently watered or securely covered to prevent excessive dust
		• Areas disturbed by clearing, earth-moving, or excavation activities should be minimized at all times
		• Stockpiles of soil or other fine loose material shall be stabilized by watering or another appropriate method to prevent wind-blown, fugitive dust
		• Where acceptable to the fire department, weed control should be accomplished by mowing instead of disking, thereby leaving the ground undisturbed and with a mulch covering
		• Water applied to dirt roads and construction areas (trenches or spoil piles) for dust abatement shall use the minimal amount needed to meet safety and air quality standards in an effort to prevent the formation of puddles, which could attract special-status species to construction sites
		• For building construction, the following dust control measures should be implemented:
		  • Once initial leveling has ceased, all inactive soil areas within the construction site should either be seeded and watered until plant growth is evident, treated with a dust palliative, or watered sufficiently as to prevent excessive dust
		  • All active disturbed soil areas should be sufficiently watered to prevent excessive dust, but no less than twice per day	

BMP BIO-7	**Dewatering Activities**	For any dewatering activities, water would either: • Be discharged to a portable tank or other approved container and disposed of off-site in compliance with all applicable state and federal regulations and permit requirements; or • Be discharged in upland areas away from aquatic resources in compliance with all applicable state and federal regulations and permit requirements. Dewatering activities would adhere to all applicable BMPs outlined in the Project SWPPP to prevent any erosion and stormwater run-off from leaving the Construction Corridor. Dewatered sites would also be covered if left for an extended period of time to prevent wildlife entrapment.	**Project-wide, where and when applicable**

Cultural Resources Testing Plan for the Arcata-Samoa Beach Fiber Optic Project - FH1/FH2

Submitted by Vero Fiber Networks, LLC to the California Coastal Commission in support of the Coastal Development Plan

In support of their Arcata-Samoa Beach Fiber Optic Project - FH1/FH2, Vero Fiber Networks, LLC (Vero) submitted a Project Description to the California Coastal Commission for the Commission's review of a Coastal Development Plan (CDP) permit. The Project Description included a project cultural resources inventory report with archaeological and tribal monitoring and unanticipated discovery protocols (Loftus et al., 2020). Subsequently, the Tribal Historic Preservation Offices of the Blue Lake Rancheria Tribe, the Bear River Band of Rohnerville Rancheria, and the Wiyot Tribe – Table Bluff Reservation requested that some pre-construction testing be conducted. The purpose of this document is to describe these testing activities to assist the Coastal Commission in their review of Vero's CDP permit.

Project FH1/FH2 was designed so that no vaults or other surface disturbance would be placed within previously identified archaeological site areas, designated as Environmentally Sensitive Areas (ESAs). However, due to the presence of historically shifting dune formations, the exact extent or depth of these sites or the presence of additional unknown, buried sites cannot be known for sure.

Native American village sites in Humboldt County, including known Wiyot villages, are characterized by unique soil profiles. These typically consist of lenses of grayish-colored sands formed from the long-term accumulation of charcoal, decomposed vegetation, and animal fats, interspersed with broken shell, charcoal fragments, animal bones, lithics, and other artifacts (Loud 1918; Erlandson 1994; Tushingham 2016). These lenses are visibly different from the lighter-colored natural sand deposits and can be identified during excavation, testing, boring, or augering activities. There is also evidence that past catastrophic tsunami events (including one in 1700) greatly impacted Native American occupation of the coastal regions of Humboldt County. Evidence of these tsunami events may be identified during the testing effort (Patton 2005).

Monitoring during construction, while useful, raises safety issues and can adversely affect a project's schedule if discoveries are made. Traditional pre-construction excavation and testing are not only labor-intensive and time-consuming, but they can also result in substantial environmental damage to the site. Archaeologists must balance the need to collect enough data to reduce uncertainty with the need to limit data collection costs. Soil augering allows subsurface deposits to be examined with a moderate amount of effort and far less destruction to the site. Conducting the augering prior to construction at a specific location allows areas to be cleared in advance; if cultural resources are identified, sufficient time is allowed to alter the project design or apply other mitigation actions. For Project FH1/FH2, testing will be carried out under the CALTRANS Construction Encroachment permit, but prior to vault excavation. Auguring will occur subsequent to the proposed biological surveys and flagging of sensitive biological resource areas and a biological monitor will be present where the auguring occurs adjacent to Environmentally Sensitive Habitat Areas (ESHA). Testing equipment, equipment operator, protective fencing, and traffic control will be provided by Vero.

Augering will be conducted using a six-inch screw auger attached to a mini excavator (Figure 1) or to a rubber-tired backhoe. This would allow testing the entire vertical area of potential effect (APE), to a depth of ten feet. Each testing location will be placed at the upper elevation extant of a proposed vault (i.e., farthest away from the road hardtop). This is where buried archaeological deposits are more likely

to be intact and would also allow augering farther from the road prism. Testing adjacent to wetlands or other areas of biological concern would only occur if and where Vero receives a temporary easement.

Figure 1 A mini-excavator with 6-inch screw auger.

Test augering would occur in 50-cm (20-inch) increments, after which the auger would be retracted and the soil "spun off" onto a tarp. This soil would be carefully examined by the archaeological and tribal monitors for evidence of archaeological deposits before the next level was augered. Soils and any artifacts and other cultural constituents identified would be photographed, and recorded for soil color, constitution, lens thickness and depth, and moisture level. Evidence of past tsunami events, such as buried peat deposits, will be recorded and it is hoped Jason Patton, a local geomorphologist, will be available to help interpret the testing results. Any artifacts identified would be collected for examination by the THPOs; these would later be reburied in the vicinity of the line by them. Afterwards, the loose soil would be shoveled back into the auger hole and tamped down. If the results are inconclusive, additional test augering may be placed within the same vault footprint. If there is positive evidence of buried cultural deposits, CALTRANS, Tribal representatives, and Vero will be notified per the Discovery Plan. The California Coastal Commission will be notified if the archeological test results are positive and a vault location is moved to avoid impacts to archeological resources. This will allow for confirmation that the new vault location will not adversely impact other coastal resources. Additional auger testing would then be implemented at increments (i.e., of 20 feet) in one or both directions along the alignment until all interested parties agree a new, usable vault location has been identified.

In December 2019 and again in February 2021, after driving the FH1/FH2 project alignment with the THPOs and observing each proposed vault location, the Tribes determined eight of the proposed vaults nearest to four previously recorded sites along the Samoa Peninsula (Loud 1918) should be tested prior to construction. In addition, two separate points of concern at locations away from proposed vaults but near to suspected site locations, should be auger tested. One of these is located near to site Loud 27 on the peninsula and the other is near site Loud 39 within the City of Arcata (Loud 1918). All of these testing locations will be monitored by a Tribal monitor and by an archaeologist who meets the Secretary

of the Interior's standards for professional archaeologists and has experience in identifying human remains.

The remaining 63 vault locations proposed for the Samoa Peninsula were carefully examined by Transcon Environmental archaeologists. Thirty-eight of these were determined to have an extremely low potential for buried deposits because they are within road fill, at the base of extremely deep road cuts, or on the Pacific Ocean side of the peninsula. The remaining 25 vault locations are within natural soil deposits on the Bay side of the peninsula, but where no archaeological sites have been previously identified. A subset of these vault locations may also be subjected to auger testing based on the results of the testing at the initial ten locations and following consultation with CALTRANS and the Tribes.

Each of these known and possible testing locations is described in Table 1 and shown on Figure 2.

TABLE 1 Vault and Testing Locations

Vault Number	Condition	Action
FH1- (west side)		
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]