FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H1E-01-11MR	2013	16	49

Soil Nail Location Table for Row Ⓐ - Columns #1 to #6

Column #	Sta.	TW Offset Lt. (ft.)	TW Elev.	BW Offset Lt. (ft.)	BW Elev.	Elev. Row Ⓐ	Soil Nail Embed Length, L (ft.)	Soil Nail Drilling Azimuth
1	304+90	22.21	59.00	7.28	39.00	57.00	25.00	83° 14′ 48.48″
2	304+93.96	22.46	59.40	7.52	39.79	57.40	25.00	82° 23′ 38.40″
* 3	304+98.13	22.83	59.81	7.87	40.63	57.81	25.00	80° 59′ 53.88″
* 4	305+1.92	23.25	60.00	8.26	42.09	58.00	25.00	82° 07′ 32.52″
5	305+5.27	23.69	60.00	8.68	42.09	58.00	25.00	82° 07′ 32.52″
6	305+9.69	24.37	60.00	9.32	42.05	58.00	25.00	82° 07′ 32.52″

Soil Nail Location Table for Row Ⓑ - Columns #1 to #6

Column #	Sta.	TW Offset Lt. (ft.)	TW Elev.	BW Offset Lt. (ft.)	BW Elev.	Elev. Row Ⓑ	Soil Nail Embed Length, L (ft.)	Soil Nail Drilling Azimuth
1	304+90.82	22.21	59.00	7.28	39.00	52.00	25.00	83° 14′ 48.48″
2	304+94.17	22.84	59.40	7.54	39.79	52.40	25.00	82° 23′ 38.40″
* 3	304+98.24	22.84	59.81	7.88	40.63	52.81	25.00	80° 59′ 53.88″
* 4	304+2.37	23.31	60.00	8.31	42.09	53.00	25.00	82° 07′ 32.52″
5	304+5.71	23.75	60.00	8.74	42.09	53.00	25.00	82° 07′ 32.52″
6	304+9.92	24.41	60.00	9.35	42.05	53.00	25.00	82° 07′ 32.52″

Soil Nail Location Table for Row Ⓒ - Columns #1 to #6

Column #	Sta.	TW Offset Lt. (ft.)	TW Elev.	BW Offset Lt. (ft.)	BW Elev.	Elev. Row Ⓒ	Soil Nail Embed Length, L (ft.)	Soil Nail Drilling Azimuth
1	304+90.17	22.21	59.00	7.28	39.00	47.00	25.00	83° 14′ 48.48″
2	304+94.39	22.87	59.40	7.55	39.79	47.40	25.00	82° 23′ 38.40″
* 3	304+98.54	22.87	59.81	7.91	40.63	47.81	25.00	80° 59′ 53.88″
* 4	304+2.69	23.34	60.00	8.35	42.09	48.00	25.00	82° 07′ 32.52″
5	304+6.18	23.82	60.00	8.80	42.09	48.00	25.00	82° 07′ 32.52″
6	304+10.14	24.45	60.00	9.39	42.05	48.00	25.00	82° 07′ 32.52″

Soil Nail Location Table for Rows Ⓐ,Ⓑ,Ⓒ - Columns #7 to #39

Column #	Sta.	TW Offset Lt. (ft.)	TW Elev.	BW Offset Lt. (ft.)	BW Elev.	Elev. Row Ⓐ	Elev. Row Ⓑ	Elev. Row Ⓒ	Soil Nail Embed Length, L (ft.)	Soil Nail Drilling Azimuth
7	305+14.09	25.16	60.00	10.06	42.00	58.00	53.00	48.00	~~25.00~~	81° 58′ 52.32″
8	305+18.45	26.07	60.00	10.91	42.00	58.00	53.00	48.00	~~25.00~~	84° 46′ 09.84″
9	305+22.84	26.94	60.00	11.72	42.25	58.00	53.00	48.00	~~25.00~~	88° 48′ 41.76″
* 10	305+27.24	27.41	60.00	12.19	42.38	58.00	53.00	48.00	~~25.00~~	92° 27′ 22.32″
* 11	305+31.64	27.46	60.16	12.30	43.00	58.16	53.16	48.16	~~25.00~~ 22	98° 16′ 08.76″
12	305+36.03	27.10	60.60	12.06	43.00	58.60	53.60	48.60	~~25.00~~ 22	102° 15′ 50.40″
13	305+40.44	26.33	61.00	11.47	43.04	59.00	54.00	49.00	~~25.00~~ 22	105° 52′ 28.56″
14	305+44.78	25.41	61.00	10.73	43.48	59.00	54.00	49.00	~~15.00~~ 15	109° 15′ 20.52″
15	305+49.16	24.59	61.00	10.09	43.92	59.00	54.00	49.00	~~15.00~~ 15	110° 38′ 51.36″
16	305+53.57	23.88	61.00	9.55	44.00	59.00	54.00	49.00	~~15.00~~ 15	110° 17′ 15.72″
17	305+58.02	23.29	61.00	9.11	44.00	59.00	54.00	49.00	~~15.00~~ 15	110° 17′ 15.72″
18	305+62.48	22.80	61.00	8.78	44.25	59.00	54.00	49.00	~~15.00~~ 15	110° 57′ 09.72″
19	305+66.96	22.44	61.00	8.56	44.70	59.00	54.00	49.00	~~15.00~~ 15	110° 58′ 40.08″
20	305+71.45	22.18	61.00	8.44	45.00	59.00	54.00	49.00	~~15.00~~ 15	110° 20′ 16.80″
21	305+75.96	22.04	61.00	8.43	45.00	59.00	54.00	49.00	~~15.00~~ 15	110° 36′ 20.88″
22	305+80.46	22.01	61.04	8.53	45.05	59.04	54.04	49.04	~~15.00~~ 15	111° 03′ 11.88″
23	305+84.97	22.10	61.40	8.73	45.50	59.40	54.40	49.40	~~15.00~~ 15	111° 13′ 58.80″
24	305+89.47	22.30	61.77	9.04	45.95	59.77	54.77	49.77	~~30.00~~ 26	110° 31′ 03.72″
25	305+93.95	22.62	61.73	9.46	46.00	59.73	54.73	49.73	~~30.00~~ 26	110° 35′ 45.60″
26	305+98.42	23.05	61.63	9.99	46.00	59.63	54.63	49.63	~~30.00~~ 26	110° 57′ 42.12″
27	306+2.89	23.59	61.92	10.62	46.00	59.92	54.92	49.92	~~30.00~~ 26	112° 52′ 54.12″
* 28	306+7.35	24.04	61.91	11.37	46.00	59.91	54.91	49.91	~~30.00~~ 26	115° 50′ 06.00″
* 29	306+11.81	24.09	61.92	12.22	45.64	59.92	54.92	49.92	~~35.00~~ 30	119° 49′ 53.40″
30	306+16.28	23.73	61.96	12.89	44.74	59.96	54.96	49.96	~~35.00~~ 30	123° 23′ 58.92″
* 31	306+20.73	23.18	62.00	13.21	43.93	60.00	55.00	50.00	~~35.00~~ 30	127° 10′ 07.68″
32	306+25.19	22.74	62.00	12.53	43.48	60.00	55.00	50.00	~~35.00~~ 30	128° 33′ 36.72″
* 33	306+29.67	22.42	62.00	11.84	43.03	60.00	55.00	50.00	~~35.00~~ 30	129° 09′ 50.40″
* 34	306+34.15	22.20	62.00	11.12	43.42	60.00	55.00	50.00	~~35.00~~ 30	128° 50′ 42.00″
35	306+38.65	22.11	62.00	10.77	43.87	60.00	55.00	50.00	~~35.00~~ 30	128° 57′ 06.84″
* 36	306+43.13	22.13	62.00	10.41	44.40	60.00	55.00	50.00	~~35.00~~ 30	129° 46′ 11.64″
* 37	306+47.86	22.23	62.00	10.16	45.28	60.00	55.00	50.00	~~35.00~~ 30	130° 39′ 21.96″
38	306+52.31	26.74	62.00	16.31	46.21	60.00	55.00	——	15.00	129° 21′ 0.57″
39	306+56.99	25.97	62.00	16.86	48.23	60.00	55.00	——	15.00	129° 21′ 0.57″

LEGEND FOR AS-BUILT POSTINGS

~~∿∿∿~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

NOTES:

1. For Soil Nail Embedment Length, See detail on Sht. No. SW-2.

*2. Construction of Soil Nails under exist building column footings, See Note 7 on Sht. No. SN-1.

LEGEND:

Ⓒ	Soil Nail Row Number
#	Soil Nail Column Number
TW	Top of Wall
BW	Bottom Wall
Offset	offset distance from Baseline
Lt.	Left

ORIGINAL PLAN
NOTE BOOK
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

T:/SSWMP-Aiea Stream Erosion Control/Cadd/Sheets/SN-3.dgn

HUI PANG CHEN
LICENSED PROFESSIONAL ENGINEER
No. 3865-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — EXPIRATION DATE OF THE LICENSE: 04/30/12

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SOIL NAIL LOCATIONS & ELEVATIONS

INTERSTATE ROUTE H-1
AIEA STREAM EROSION CONTROL
Project No. H1E-01-11MR

Scale: NTS Date: October 2012

SHEET No. SN-3 OF 3 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H1E-01-11MR	2013	C.O. 16	49

Soil Nail Location Table for Row Ⓐ - Columns #1 to #6

Column △#	Sta.	TW Offset Lt. (ft.)	TW Elev.	BW Offset Lt. (ft.)	BW Elev.	Elev. Row Ⓐ	Soil Nail Embed Length, L (ft.)	Soil Nail Drilling Azimuth
~~1~~	~~304+90~~	~~22.21~~	~~59.00~~	~~7.28~~	~~39.00~~	~~57.00~~	~~25.00~~	~~83° 14′ 48.48″~~
~~2~~	~~304+93.96~~	~~22.46~~	~~59.40~~	~~7.52~~	~~39.79~~	~~57.40~~	~~25.00~~	~~82° 23′ 38.40″~~
* 3	304+98.13	22.83	59.81	7.87	40.63	57.81	25.00	80° 59′ 53.88″
* 4	305+1.92	23.25	60.00	8.26	42.09	58.00	25.00	82° 07′ 32.52″
5	305+5.27	23.69	60.00	8.68	42.09	58.00	25.00	82° 07′ 32.52″
6	305+9.69	24.37	60.00	9.32	42.05	58.00	25.00	82° 07′ 32.52″

Soil Nail Location Table for Row Ⓑ - Columns #1 to #6

Column △#	Sta.	TW Offset Lt. (ft.)	TW Elev.	BW Offset Lt. (ft.)	BW Elev.	Elev. Row Ⓑ	Soil Nail Embed Length, L (ft.)	Soil Nail Drilling Azimuth
~~1~~	~~304+90~~.82	~~22.21~~	~~59.00~~	~~7.28~~	~~39.00~~	~~52.00~~	~~25.00~~	~~83° 14′ 48.48″~~
~~2~~	~~304+94~~.17	~~22.84~~	~~59.40~~	~~7.54~~	~~39.79~~	~~52.40~~	~~25.00~~	~~82° 23′ 38.40″~~
* ~~3~~	~~304+98~~.24	~~22.84~~	~~59.81~~	~~7.88~~	~~40.63~~	~~52.81~~	~~25.00~~	~~80° 59′ 53.88″~~
* ~~4~~	~~304+2~~.37	~~23.31~~	~~60.00~~	~~8.31~~	~~42.09~~	~~53.00~~	~~25.00~~	~~82° 07′ 32.52″~~
~~5~~	~~304+5~~.71	~~23.75~~	~~60.00~~	~~8.74~~	~~42.09~~	~~53.00~~	~~25.00~~	~~82° 07′ 32.52″~~
~~6~~	~~304+9~~.92	~~24.41~~	~~60.00~~	~~9.35~~	~~42.05~~	~~53.00~~	~~25.00~~	~~82° 07′ 32.52″~~

Soil Nail Location Table for Row Ⓒ - Columns #1 to #6

Column △#	Sta.	TW Offset Lt. (ft.)	TW Elev.	BW Offset Lt. (ft.)	BW Elev.	Elev. Row Ⓒ	Soil Nail Embed Length, L (ft.)	Soil Nail Drilling Azimuth
~~1~~	~~304+90~~.17	~~22.21~~	~~59.00~~	~~7.28~~	~~39.00~~	~~47.00~~	~~25.00~~	~~83° 14′ 48.48″~~
~~2~~	~~304+94~~.39	~~22.87~~	~~59.40~~	~~7.55~~	~~39.79~~	~~47.40~~	~~25.00~~	~~82° 23′ 38.40″~~
* ~~3~~	~~304+98~~.54	~~22.87~~	~~59.81~~	~~7.91~~	~~40.63~~	~~47.81~~	~~25.00~~	~~80° 59′ 53.88″~~
* ~~4~~	~~304+2~~.69	~~23.34~~	~~60.00~~	~~8.35~~	~~42.09~~	~~48.00~~	~~25.00~~	~~82° 07′ 32.52″~~
~~5~~	~~304+6~~.18	~~23.82~~	~~60.00~~	~~8.80~~	~~42.09~~	~~48.00~~	~~25.00~~	~~82° 07′ 32.52″~~
~~6~~	~~304+10~~.14	~~24.45~~	~~60.00~~	~~9.39~~	~~42.05~~	~~48.00~~	~~25.00~~	~~82° 07′ 32.52″~~

Soil Nail Location Table for Rows Ⓐ,Ⓑ,Ⓒ - Columns #7 to #39

Column △#	Sta.	TW Offset Lt. (ft.)	TW Elev.	BW Offset Lt. (ft.)	BW Elev.	Elev. Row Ⓐ	Elev. Row Ⓑ	Elev. Row Ⓒ	Soil Nail Embed Length, L (ft.)	Soil Nail Drilling Azimuth
7	305+14.09	25.16	60.00	10.06	42.00	58.00	53.00	48.00	25.00	81° 58′ 52.32″
8	305+18.45	26.07	60.00	10.91	42.00	58.00	53.00	48.00	25.00	84° 46′ 09.84″
9	305+22.84	26.94	60.00	11.72	42.25	58.00	53.00	48.00	25.00	88° 48′ 41.76″
△* 10	305+27.24	27.41	60.00	12.19	42.38	58.00	53.00	48.00	25.00	92° 27′ 22.32″
* 11	305+31.64	27.46	60.16	12.30	43.00	58.16	53.16	48.16	25.00	98° 16′ 08.76″
12	305+36.03	27.10	60.60	12.06	43.00	58.60	53.60	48.60	25.00	102° 15′ 50.40″
13	305+40.44	26.33	61.00	11.47	43.04	59.00	54.00	49.00	25.00	105° 52′ 28.56″
14	305+44.78	25.41	61.00	10.73	43.48	59.00	54.00	49.00	15.00	109° 15′ 20.52″
15	305+49.16	24.59	61.00	10.09	43.92	59.00	54.00	49.00	15.00	110° 38′ 51.36″
16	305+53.57	23.88	61.00	9.55	44.00	59.00	54.00	49.00	15.00	110° 17′ 15.72″
17	305+58.02	23.29	61.00	9.11	44.00	59.00	54.00	49.00	15.00	110° 17′ 15.72″
18	305+62.48	22.80	61.00	8.78	44.25	59.00	54.00	49.00	15.00	110° 57′ 09.72″
19	305+66.96	22.44	61.00	8.56	44.70	59.00	54.00	49.00	15.00	110° 58′ 40.08″
20	305+71.45	22.18	61.00	8.44	45.00	59.00	54.00	49.00	15.00	110° 20′ 16.80″
21	305+75.96	22.04	61.00	8.43	45.00	59.00	54.00	49.00	15.00	110° 36′ 20.88″
22	305+80.46	22.01	61.04	8.53	45.05	59.04	54.04	49.04	15.00	111° 03′ 11.88″
23	305+84.97	22.10	61.40	8.73	45.50	59.40	54.40	49.40	15.00	111° 13′ 58.80″
24	305+89.47	22.30	61.77	9.04	45.95	59.77	54.77	49.77	30.00	110° 31′ 03.72″
25	305+93.95	22.62	61.73	9.46	46.00	59.73	54.73	49.73	30.00	110° 35′ 45.60″
26	305+98.42	23.05	61.63	9.99	46.00	59.63	54.63	49.63	30.00	110° 57′ 42.12″
27	306+2.89	23.59	61.92	10.62	46.00	59.92	54.92	49.92	30.00	112° 52′ 54.12″
* 28	306+7.35	24.04	61.91	11.31	46.00	59.91	54.91	49.91	30.00	115° 50′ 06.00″
* 29	306+11.81	24.09	61.92	12.22	45.64	59.92	54.92	49.92	35.00	119° 49′ 53.40″
30	306+16.28	23.73	61.96	12.89	44.74	59.96	54.96	49.96	35.00	123° 23′ 58.92″
* 31	306+20.73	23.18	62.00	13.21	43.93	60.00	55.00	50.00	35.00	127° 10′ 07.68″
32	306+25.19	22.74	62.00	12.53	43.48	60.00	55.00	50.00	35.00	128° 33′ 36.72″
* 33	306+29.67	22.42	62.00	11.84	43.03	60.00	55.00	50.00	35.00	129° 09′ 50.40″
* 34	306+34.15	22.20	62.00	11.12	43.42	60.00	55.00	50.00	35.00	128° 50′ 42.00″
35	306+38.65	22.11	62.00	10.77	43.87	60.00	55.00	50.00	35.00	128° 57′ 06.84″
* 36	306+43.13	22.13	62.00	10.41	44.40	60.00	55.00	50.00	35.00	129° 46′ 11.64″
* 37	306+47.86	22.23	62.00	10.16	45.28	60.00	55.00	50.00	35.00	130° 39′ 21.96″
38	306+52.31	26.74	62.00	16.31	46.21	60.00	55.00	——	15.00	129° 21′ 0.57″
39	306+56.99	25.97	62.00	16.86	48.23	60.00	55.00	——	15.00	129° 21′ 0.57″

NOTES:

1. For Soil Nail Embedment Length, See detail on Sht. No. SW-2.

*2. Construction of Soil Nails under exist building column footings, See Note 7 on Sht. No. SN-1.

LEGEND:

Ⓒ	Soil Nail Row Number
△#	Soil Nail Column Number
TW	Top of Wall
BW	Bottom Wall
Offset	offset distance from Baseline
Lt.	Left

10/15/15	△1 Revised Soil Nai Tables
Date	Revision

HUI PANG CHEN LICENSED PROFESSIONAL ENGINEER No. 3865-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

04/30/12
SIGNATURE — EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SOIL NAIL LOCATIONS & ELEVATIONS

INTERSTATE ROUTE H-1
AIEA STREAM EROSION CONTROL
Project No. H1E-01-11MR

Scale: NTS — Date: October 2012

SHEET No. SN-3 OF 3 SHEETS

C.O. 16

ORIGINAL PLAN
SURVEY PLOTTED BY — DATE
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
NOTE BOOK — No.

T:/SSWMP-Aiea Stream Erosion Control/Cadd/Sheets/SN-3.dgn

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H1E-01-11MR	2013	C.O. 16S-1	49

Soil Nail Location Table for Row Ⓐ - Columns #1 to #6

Column #	Sta.	TW Offset Lt. (ft.)	TW Elev.	BW Offset Lt. (ft.)	BW Elev.	Elev. Row Ⓐ	Soil Nail Embed Length, L (ft.)	Soil Nail Drilling Azimuth	Revised Soil Nail Drilling Azimuth	Soil Nail Inclination
* 1	304+90	22.21	59.00	7.28	39.00	57.00	~~25.00~~ 27	~~83° 14′ 48.48″~~	62° 27′ 56.59″	20°
* 2	304+93.96	22.46	59.40	7.52	39.79	57.40	~~25.00~~ 26	~~82° 23′ 38.40″~~	88° 42′ 35.00″	20°
3	304+98.13	22.83	59.81	7.87	40.63	57.81	~~25.00~~ 25.5	80° 59′ 53.88″		
4	305+1.92	23.25	60.00	8.26	42.09	58.00	~~25.00~~ 27	82° 07′ 32.52″		
5	305+5.27	23.69	60.00	8.68	42.09	58.00	~~25.00~~ 27	82° 07′ 32.52″		
6	305+9.69	24.37	60.00	9.32	42.05	58.00	~~25.00~~ 27	82° 07′ 32.52″		

Soil Nail Location Table for Row Ⓑ - Columns #1 to #6

Column #	Sta.	TW Offset Lt. (ft.)	TW Elev.	BW Offset Lt. (ft.)	BW Elev.	Elev. Row Ⓑ	Soil Nail Embed Length, L (ft.)	Soil Nail Drilling Azimuth	Revised Soil Nail Drilling Azimuth	Soil Nail Inclination
* 1	304+90.82	22.21	59.00	7.28	39.00	52.00	~~25.00~~ 26	~~83° 14′ 48.48″~~	76° 24′ 58.48″	15°
* 2	304+94.17	22.84	59.40	7.54	39.79	52.40	~~25.00~~ 26.5	~~82° 23′ 38.40″~~	85° 50′ 58.76″	20°
* 3	304+98.24	22.84	59.81	7.88	40.63	52.81	~~25.00~~ 26.5	80° 59′ 53.88″		20°
* 4	304+2.37	23.31	60.00	8.31	42.09	53.00	~~25.00~~ 26.5	~~82° 07′ 32.52″~~	87° 39′ 86.00″	20°
* 5	304+5.71	23.75	60.00	8.74	42.09	53.00	~~25.00~~ 25.5	82° 07′ 32.52″		20°
* 6	304+9.92	24.41	60.00	9.35	42.05	53.00	~~25.00~~ 26.5	82° 07′ 32.52″		20°

Soil Nail Location Table for Row Ⓒ - Columns #1 to #6

Column #	Sta.	TW Offset Lt. (ft.)	TW Elev.	BW Offset Lt. (ft.)	BW Elev.	Elev. Row Ⓒ	Soil Nail Embed Length, L (ft.)	Soil Nail Drilling Azimuth	Revised Soil Nail Drilling Azimuth	Soil Nail Inclination
* 1	304+90.17	22.21	59.00	7.28	39.00	47.00	~~25.00~~ 26.5	~~83° 14′ 48.48″~~	78° 51′ 10″	15°
* 2	304+94.39	22.87	59.40	7.55	39.79	47.40	~~25.00~~ 26.5	~~82° 23′ 38.40″~~	88° 47′ 35.91″	15°
* 3	304+98.54	22.87	59.81	7.91	40.63	47.81	~~25.00~~ 26.5	80° 59′ 53.88″		20°
* 4	304+2.69	23.34	60.00	8.35	42.09	48.00	~~25.00~~ 25.5	82° 07′ 32.52″		20°
* 5	304+6.18	23.82	60.00	8.80	42.09	48.00	~~25.00~~ 26.5	82° 07′ 32.52″		20°
* 6	304+10.14	24.45	60.00	9.39	42.05	48.00	~~25.00~~ 26.5	82° 07′ 32.52″		20°

Soil Nail Location Table for Rows Ⓐ - Columns #7 to #10

Column #	Sta.	TW Offset Lt. (ft.)	TW Elev.	BW Offset Lt. (ft.)	BW Elev.	Elev. Row Ⓐ	Soil Nail Embed Length, L (ft.)	Soil Nail Drilling Azimuth
7	305+14.09	25.16	60.00	10.06	42.00	58.00	~~25.00~~ 26.5	81° 58′ 52.32″
8	305+18.45	26.07	60.00	10.91	42.00	58.00	~~25.00~~ 26	84° 46′ 09.84″
9	305+22.84	26.94	60.00	11.72	42.25	58.00	~~25.00~~ 25.5	88° 48′ 41.76″
10	305+27.24	27.41	60.00	12.19	42.38	58.00	~~25.00~~ 27.5	92° 27′ 22.32″

Soil Nail Location Table for Rows Ⓑ - Columns #7 to #10

Column #	Sta.	TW Offset Lt. (ft.)	TW Elev.	BW Offset Lt. (ft.)	BW Elev.	Elev. Row Ⓑ	Soil Nail Embed Length, L (ft.)	Soil Nail Drilling Azimuth
7	305+14.09	25.16	60.00	10.06	42.00	53.00	~~25.00~~ 26	81° 58′ 52.32″
8	305+18.45	26.07	60.00	10.91	42.00	53.00	~~25.00~~ 26.5	84° 46′ 09.84″
9	305+22.84	26.94	60.00	11.72	42.25	53.00	~~25.00~~ 25	88° 48′ 41.76″
10	305+27.24	27.41	60.00	12.19	42.38	53.00	~~25.00~~ 26.5	92° 27′ 22.32″

Soil Nail Location Table for Rows Ⓒ - Columns #7 to #10

Column #	Sta.	TW Offset Lt. (ft.)	TW Elev.	BW Offset Lt. (ft.)	BW Elev.	Elev. Row Ⓒ	Soil Nail Embed Length, L (ft.)	Soil Nail Drilling Azimuth
7	305+14.09	25.16	60.00	10.06	42.00	48.00	~~25.00~~ 26.5	81° 58′ 52.32″
8	305+18.45	26.07	60.00	10.91	42.00	48.00	~~25.00~~ 26.5	84° 46′ 09.84″
9	305+22.84	26.94	60.00	11.72	42.25	48.00	~~25.00~~ 26.5	88° 48′ 41.76″
10	305+27.24	27.41	60.00	12.19	42.38	48.00	~~25.00~~ 26	92° 27′ 22.32″

LEGEND FOR AS-BUILT POSTINGS

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Roadway	Text for as-built posting

NOTES:

1. For Soil Nail Embedment Length, See detail on Sht. No. SW-2.
2. * Construction of Soil Nails under exist building column footings, See Note 7 on Sht. No. SN-1.
3. For Soil Nail Table for Row A - Column #3-#6 and Rows A, B, C - Columns #7 to #9

LEGEND:

Ⓒ	Soil Nail Row Number
#	Soil Nail Column Number
TW	Top of Wall
BW	Bottom Wall
Offset	offset distance from Baseline
Lt.	Left

Date	Revision
10/14/15	⚠1 Revised Soil Nail Tables

DEXTER S. FUJI LICENSED PROFESSIONAL ENGINEER No. 4739-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/16 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SOIL NAIL LOCATIONS & ELEVATIONS

INTERSTATE ROUTE H-1
AIEA STREAM EROSION CONTROL
Project No. H1E-01-11MR

Scale: NTS Date: September 2012

SHEET No. SN-3A OF 3 SHEETS

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE
NOTE BOOK | No.

T:/SSMP-Aiea Stream Erosion Control/Cadd/Sheets/SN-3.dgn

"AS-BUILT"

C.O. 16S-1

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIE-01-11MR	2013	C.O. 16S-2	49

STRUCTURAL GENERAL NOTES

I. GENERAL

A. General Notes and Typical Details shown apply to all phases of construction unless noted otherwise.

B. Contractor shall verify all dimensions and conditions and shall report any discrepancies in writing to the Engineer before commencing work or ordering materials.

C. Details shown on drawings shall be typical for all similar conditions. Modify details for special conditions as directed by the Engineer.

D. Coordinate all penetrations through structural members with Engineer and subcontractors.

E. See Civil drawings for details not shown.

II. CONSTRUCTION

A. The Contractor shall be fully responsible for methods of construction, workmanship, and job safety including all dewatering, falsework, bracings, and other temporary items used for the construction of the project.

B. The Contractor is responsible for all conditions and stages of construction. The design, adequacy and safety of erection bracing, shoring, safety measures, temporary supports, etc., is the sole responsibility of the Contractor, and has not been considered by the Structural Engineer.

C. The Contractor shall notify the Engineer at least 48 hours in advance for review and observation of reinforcing steel placement and concrete pours.

III. FOUNDATION MICROPILE WORK:

A. A Geotechnical Engineering Exploration Report dated July 31, 2015 and a Geotechnical Engineering Exploration Non-Destructive Testing of Existing Column Footings dated October 8, 2015 have been prepared by Geolabs, Inc. These reports are available for review.

B. Contractor shall make a pre-construction survey to thoroughly document the condition of the existing building.

C. Micropile foundation shall be small diameter piles drilled, cased, reinforced, and grouted with a 6" minimum grout bulb diameter at the tip by a specialty contractor with a minimum of 5 years experience. Grout shall have a 28 day compressive strength of 4,000 psi.

D. A sacrificial pre-production micropile shall be constructed and load tested near, but not under column 298.

E. Micropiles shall be installed and constructed using a complete system of components from a single source by a specialty contractor that has successfully completed a minimum of 5 projects in the last 10 years.

IV. CONCRETE

A. Concrete for Column 298 footing shall develop a 28-day compressive strength of 4000 psi, have a maximum water to cement ratio of 0.45, and a maximum cement content of 650 lbs/cyd. The concrete mix shall contain a Shrinkage Reducing Admixture and corrosion inhibitor as described in Notes IV.B. and C..

B. A Shrinkage Reducing Admixture (SRA), Master Life AS20 by BASF or Eclipse by W.R. Grace & Co. shall be added to the concrete mix at a minimum dosage requirement of 128 ounces per cubic yard of concrete.

C. A migrating corrosion inhibitor amine carboxylate water-based admixture (Cortec MCI-2005 NS) shall be added to the concrete mix at a minimum dosage of 1.5 pints per cubic yard of concrete.

D. See specifications for material, mixing, placement, testing and curing of concrete.

E. The latest edition of "Manual of Standard Practice for Detailing Concrete Structures" ACI (315) shall be followed, unless otherwise shown.

F. All concrete shall be cured for a minimum of seven consecutive days immediately after pouring by the use of wet burlap, fog spraying, curing compounds, or other approved methods. See specifications for curing of vertical surfaces.

G. All phases of work pertaining to the concrete construction shall conform to the Building Code requirements for reinforced concrete (ACI 318 latest approved edition) with modifications as noted in the drawings or specifications.

V. REINFORCING STEEL

A. Strengths - unless otherwise noted on plan. All reinforcing bars shall be ASTM A615 Grade 60, deformed. Epoxy-coated bars shall be ASTM A775 Grade 60, deformed, unless otherwise noted.

B. Splices:

1. Unless otherwise noted minimum splice shall be 48 bar diameter or 2'-0" whichever is greater. . . . . 3"

C. Concrete clear cover shall be as follows:

1. Footings, etc., poured against earth . . . . . 2"
2. Footings, etc., poured against forms and later exposed to earth

D. Bar bend, hooks, and offsets shall be in accordance with the ACI recommendations and as detailed in drawings.

E. All reinforcing bar bends shall be made cold.

F. Reinforcing steel, bolts, and other inserts shall be positively secured in place before pouring concrete. Bar placement and supports shall be in accordance with the specifications.

VI. DESIGN DATA

A. Aiea Shopping Center drawings by Ernest A. Hara and Associates are available for review at the Property Manager's office.

B. Basis of Design.

1. International Building Code 2006.
2. ACI 318-11 Building Code requirements for reinforced concrete.

VII. SPECIAL INSPECTION

A. All inspections shall be done per IBC Section 109, and Special Inspection provisions of Sections 1704 and 1707 of the 2006 International Building Code governing portions of the structural work shown in the structural drawings.

B. Special inspection does not relieve the General Contractor of his responsibilities to complete the project in accordance with the plans and specifications and to provide for safety on the jobsite.

C. The owner shall provide Special Inspectors to provide inspection during the construction of the following structural work:

1. Micropile
2. Reinforcing steel
3. Concrete

Construction of all items above that require special inspection shall be performed only in the presence of the Special Inspector.

D. Observation visits to the site by the Structural Engineer shall not include Special Inspection of the above items, nor inspection of any shoring required for construction.

SURVEY PLOTTED BY ____ DATE ____
DRAWN BY ____
TRACED BY ____
DESIGNED BY ____
QUANTITIES BY ____
CHECKED BY ____
ORIGINAL PLAN
NOTE BOOK ____ No. ____

DATE	REVISION
10/14/15	1 Added New Sheet

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES

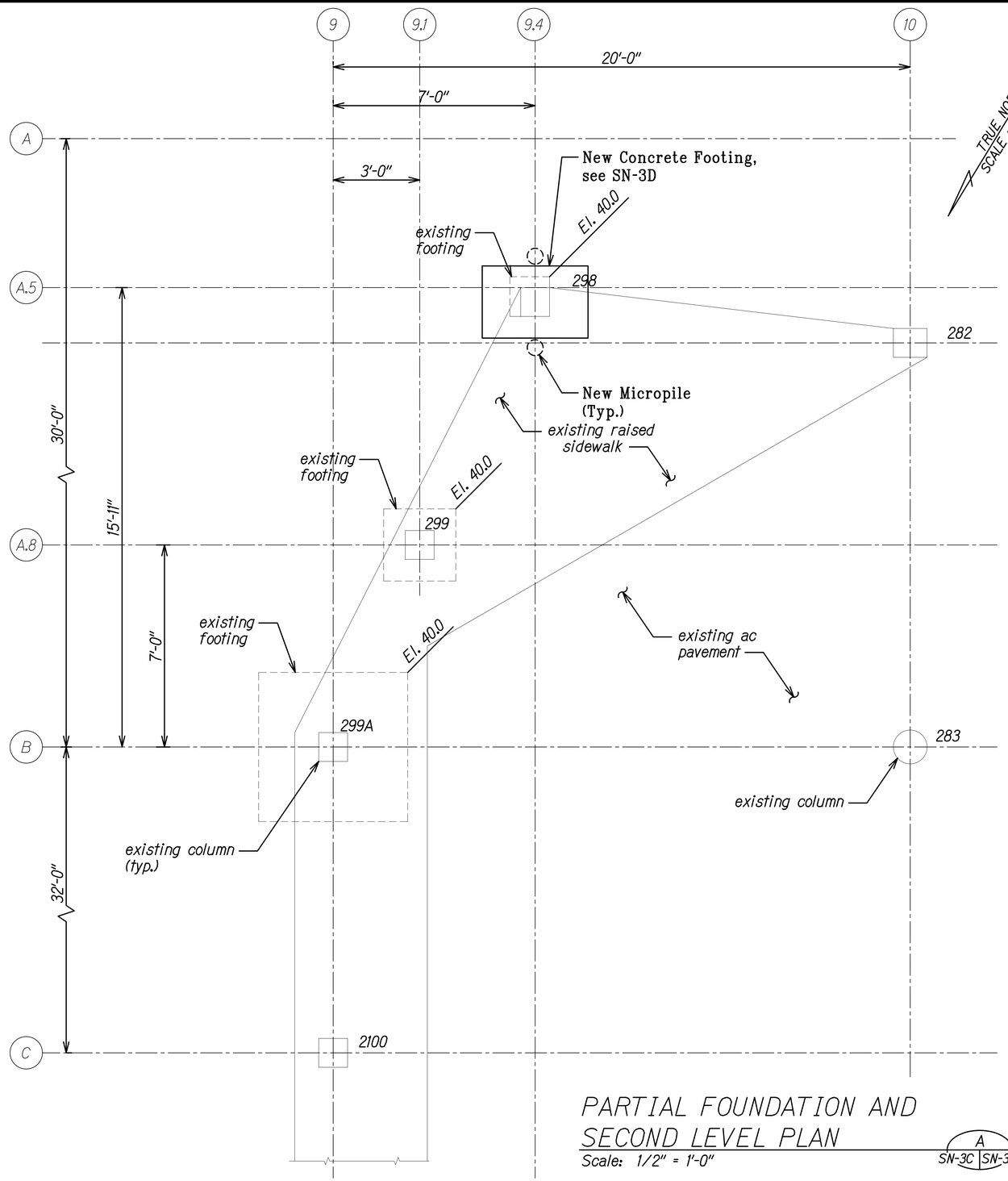
INTERSTATE ROUTE H-1
AIEA STREAM EROSION CONTROL
Project No. H1E-01-11MR

Scale: None Date: October 2012

SHEET No. SN-3B OF 3 SHEETS

C.O. 16S-2

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIE-01-11MR	2013	C.O. 16S-3	49



PARTIAL FOUNDATION AND SECOND LEVEL PLAN

Scale: 1/2" = 1'-0"

A
SN-3C | SN-3C

NOTES:

1. 298 is the column number designated by Ernest A. Hara & Associates.
2. Existing second level elevation = 62.0' as noted on Ernest A. Hara & Associates drawings.
3. Prior to commencing foundation work on Column 298, shore under beam along Line A.5 between Lines 9.4 to 10. Estimated shoring dead and live load is .5 K/ft (plus 2 K/ft for exterior wall) and .5 K/ft respectively.

LEGEND FOR AS-BUILT POSTINGS

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Roadway	Text for as-built posting

DATE	REVISION
10/14/15	1 Added New Sheet

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PARTIAL FOUNDATION AND SECOND LEVEL PLAN

INTERSTATE ROUTE H-1
AIEA STREAM EROSION CONTROL
Project No. HIE-01-11MR

Scale: As Noted Date: October 2012

SHEET No. SN-3C OF 3 SHEETS

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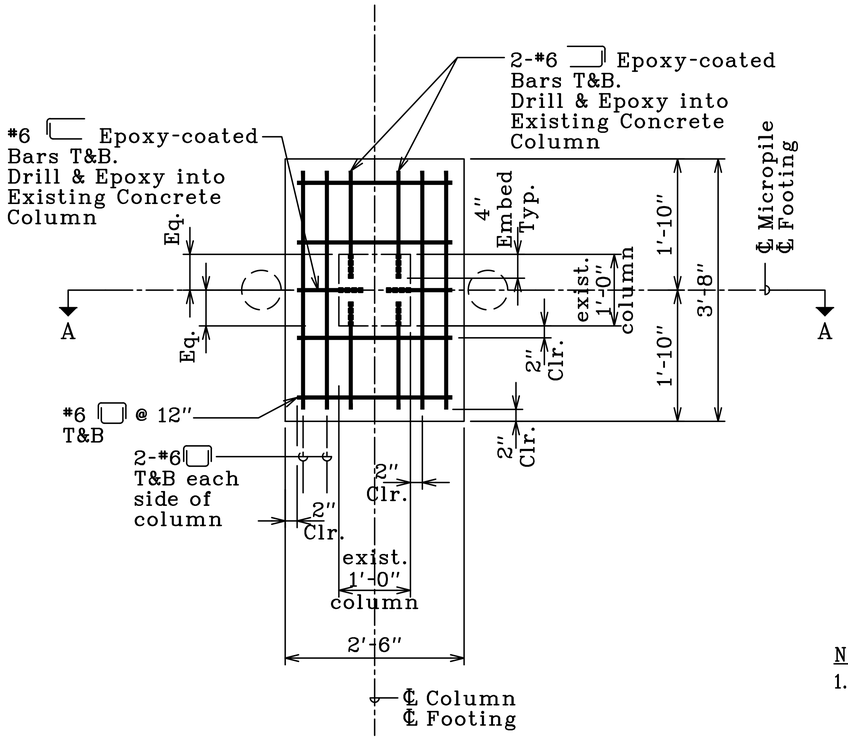
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

ORIGINAL PLAN
NOTE BOOK
No.

"AS-BUILT"

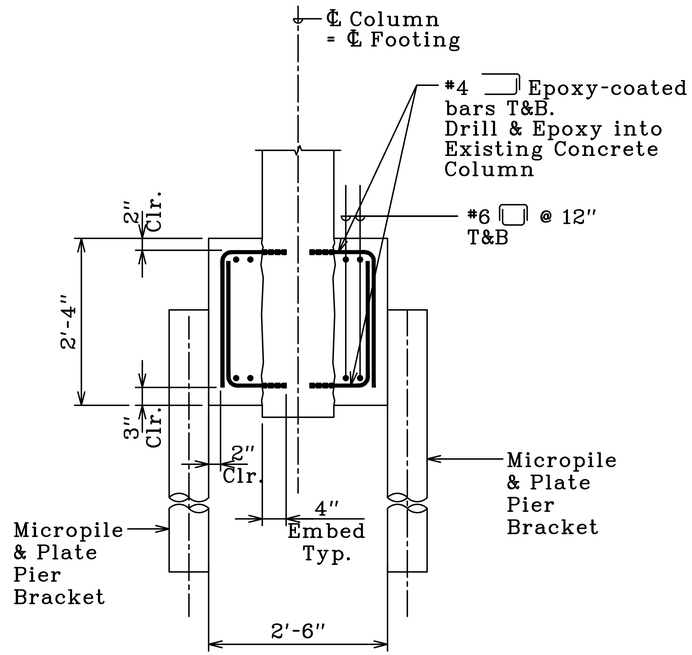
C.O. 16S-3

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIE-01-11MR	2013	C.O. 16S-4	49



FOOTING PLAN

Scale: 1"=1'



SECTION A

Scale: 1"=1'

NOTES:

1. Existing temporary infill concrete to be removed. Removal shall be incidental to Cast-in-Place Footing Concrete.
2. Plate pier bracket bolts minimum embedment of 4 inch, typical.

LEGEND FOR AS-BUILT POSTINGS	
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Roadway	Text for as-built posting

DATE	REVISION
10/14/15	1 Added New Sheet

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MICROPILE SYSTEM PLAN AND SECTION

INTERSTATE ROUTE H-1
AIEA STREAM EROSION CONTROL
Project No. HIE-01-11MR

Scale: As Noted Date: October 2012

SHEET No. SN-3D OF 3 SHEETS

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CHECKED BY
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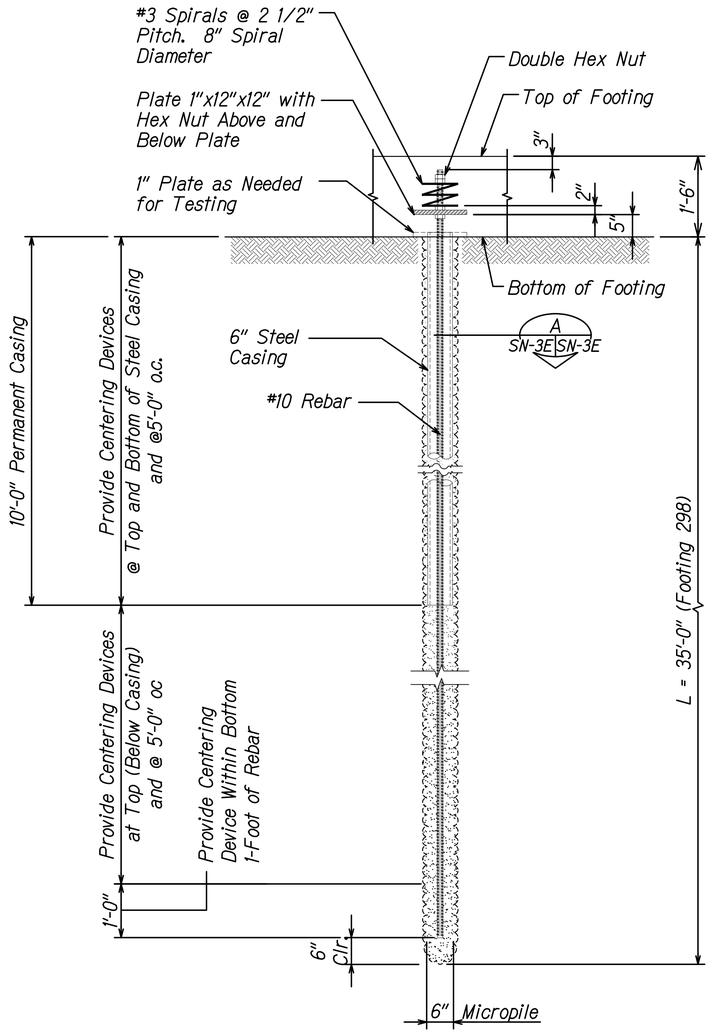
ORIGINAL PLAN
NOTE BOOK
No.

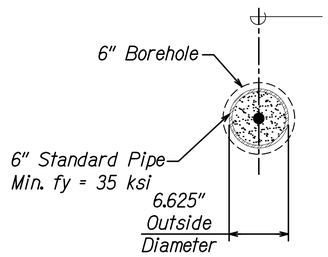
"AS-BUILT"

C.O. 16S-4

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIE-01-11MR	2013	C.O. 16S-5	49



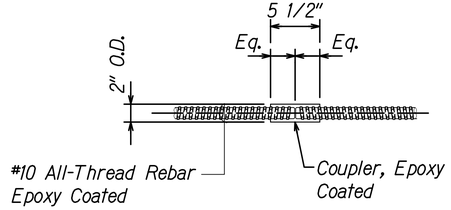
TYPICAL PRODUCTION MICROPILE DETAIL
SCALE: 3/4" = 1'-0"
1 SN-3E SN-3E



NOTES:

1. Centering devices (Centralizers) shall be fabricated from plastic or material non-detrimental to the reinforcing steel.
2. The Centralizer shall support the reinforcing such that a minimum of 2" of grout cover is provided and shall permit grout to flow freely up the drill hole.
3. All hardware, including but not limited to nuts, washers, and plates shall be hot-dip galvanized after fabrication.
4. Separate dissimilar metals at point of contact and 6" on each side.
5. Material Properties:
   a. Steel Plates - ASTM A36
   b. Hex Nuts - ASTM A108
   c. Couplings - ASTM A108
   d. Washers - ASTM F436

TYPICAL MICROPILE SECTION
SCALE: 1 1/2" = 1'-0"
A SN-3E SN-3E



NOTE:
Coupler to develop full ultimate tensile strength of All-Thread Rebar.

COUPLER DETAIL OF ALL-THREAD REBAR
SCALE: 1 1/2" = 1'-0"
2 SN-3E SN-3E

COUPLER INSTALLATION PROCEDURE

1. Apply corrosion inhibiting grease to the bare ends of the bars and the inside of the coupler.
2. Connect the two bar ends with the coupler. Each end shall be screwed into the coupler half the length of the coupler.
3. Add another coat of grease to bare bar and coupler and wrap with two layers of denso tape.

PREPARATION FOR FIELD CUT BARS

1. Cut corrosion protection and all-thread rebar with an abrasive saw (DO NOT USE A TORCH).

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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NOTE BOOK	TRACED BY	
	DESIGNED BY	
No.	QUANTITIES BY	
	CHECKED BY	

DAVID K. FUJIWARA
LICENSED PROFESSIONAL ENGINEER
NO. 8104-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-16
SIGNATURE EXPIRATION DATE OF THE LICENSE

DATE	REVISION
10/14/15	1 Added New Sheet

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MICROPILE SECTION AND DETAIL

INTERSTATE ROUTE H-1
AIEA STREAM EROSION CONTROL
Project No. H1E-01-11MR

Scale: As Noted Date: October 2012

SHEET No. SN-3E OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HIE-01-11MR	2013	C.O. 16S-6	49

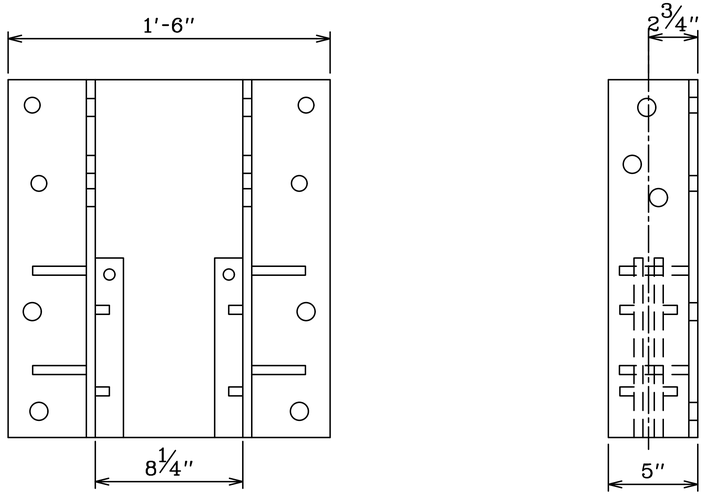
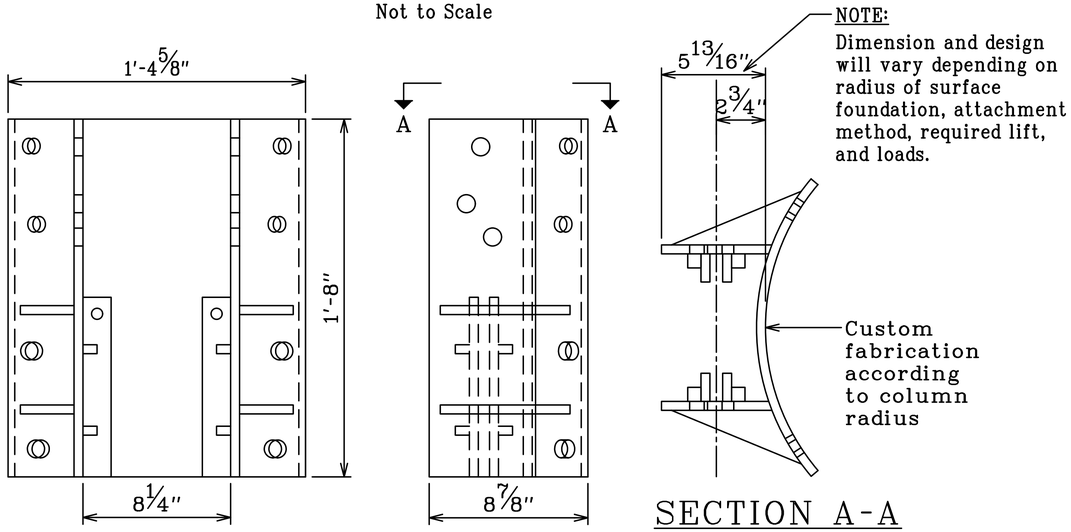


PLATE PIER BRACKET
AP-PP-B(P) 3500/4000 ITEM#4036
AP-PP-B(G) 3500/4000 ITEM#4477

Not to Scale



NOTE:
Dimension and design will vary depending on radius of surface foundation, attachment method, required lift, and loads.

SECTION A-A

RADIUS PLATE PIER BRACKET
AP-PP-RC-B(P) 3500/4000
AP-PP-RC-B(G) 3500/4000

Not to Scale

LEGEND FOR AS-BUILT POSTINGS	
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Roadway	Text for as-built posting

DATE	REVISION
10/14/15	1 Added New Sheet

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MICROPILE SYSTEM
PLAN AND SECTION
INTERSTATE ROUTE H-1
AIEA STREAM EROSION CONTROL
Project No. HIE-01-11MR

Scale: As Noted Date: October 2012

SHEET No. SN-3F OF 3 SHEETS

DATE
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DESIGNED BY
QUANTITIES BY
CHECKED BY
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NOTE BOOK
No.

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C.O. 16S-6