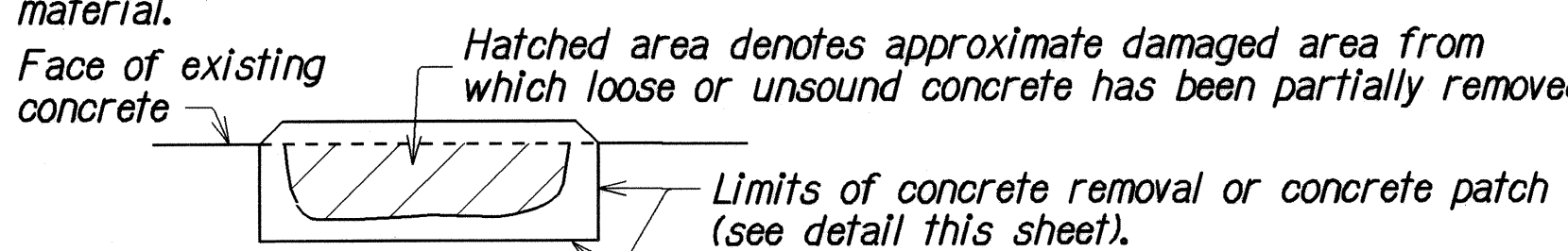


GENERAL NOTES

GENERAL:

- 1. New reinforcing steel to be ASTM A 615. All welded reinforcing steel to be ASTM A 706.
- 2. All welding shall be done in accordance with the current edition of the Reinforcing Steel Welding Code AWS D1.4.
- 3. Repair material to be compatible with Galvanic Anode System. See Special Provisions.
- 4. Larger spall repairs may be filled with concrete with the approval of the Engineer. Repair concrete shall be 5,000 p.s.i. strength with maximum water/cement ratio of (0.4). Use 3/8" maximum size aggregate. Concrete mix design to be submitted to the Engineer for approval.
- 5. Shotcrete shall not be used to make repairs.
- 6. Repair material shall not consist of any concrete bonding agents.
- 7. All work not listed in the Proposal Schedule shall be considered incidental and will not be paid for separately.
- 8. Contractor to complete repairs on Ala Wai Canal Bridge prior to commencing with work on Mailliii Stream Bridge.
- 9. Contractor to inspect all structures prior to bidding. Quantities for estimating purposes shall be based on "Estimated Quantities" below.

REPAIR NOTES:

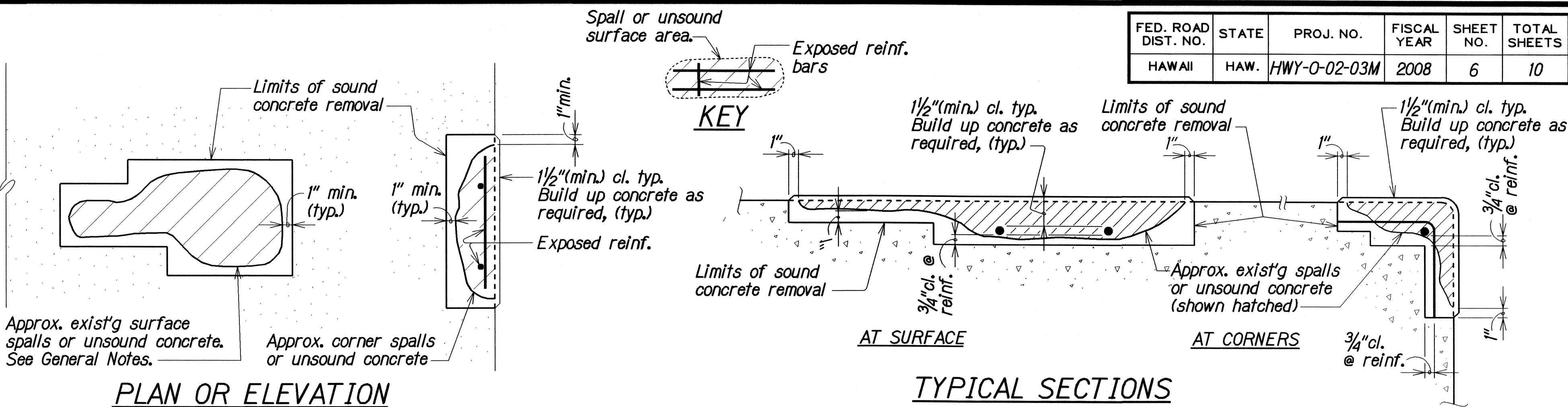
- 1. All deteriorated, damaged, cracked, spalled, honeycombed concrete or concrete over rusted reinforcing bars shall be removed as shown and repaired with an appropriate concrete patch material.

- 2. Clean reinforcing steel by oil-free abrasive blasting down to sound metal.
- 3. Provide minimum 1 1/2" concrete cover over reinforcement.
- 4. Reinforcing bars that have rusted more than 25% of their original cross sectional area shall be strengthened as shown on "Reinforcing Bar Repair Splice Detail", this sheet.
- 5. Install galvanic anodes at spacing noted on details. Follow all instructions in the Special Provisions and manufacturer's recommendations.
- 6. Wet repair surface with water. Use compressed air to remove all surface moisture in the repair location just prior to application of repair material.
- 7. Apply patch material per manufacturer's recommendations and instructions.
- 8. The Contractor shall sound and mark all locations to be repaired. The Contractor shall sound with a hammer or other suitable device and mark the location with paint the exact perimeter of the repairs. The Contractor will measure and the Engineer shall verify the locations prior to starting the work.
- 9. The Contractor shall prevent the contamination of the repair with salt water. Some repairs may require the work to be performed at low tide. If the repair area will be affected by tide or wave action during curing, the repair shall be covered with plywood until the patch material has cured.
- 10. If the repair is underwater the Contractor shall devise a method to maintain a dry work area to prevent contamination with salt water during the repair and curing processes.

INCIDENTAL ITEMS: The following items shall be considered incidental to the various pay items for repairs and will not be paid for separately:

- 1. Cleaning of all exposed, corroded reinforcing steel to sound metal.
- 2. Repair of reinforcing bars.
- 3. Furnishing and installation of galvanic anodes.
- 4. Any barge(s), work platform(s) or scaffolding required for access.
- 5. Any formwork required to place patch materials.
- 6. The Contractor is responsible for any shoring of members. The Contractor shall provide calculations performed by a Hawaii licensed structural engineer for all shoring requirements. See Special Provisions for additional requirements.

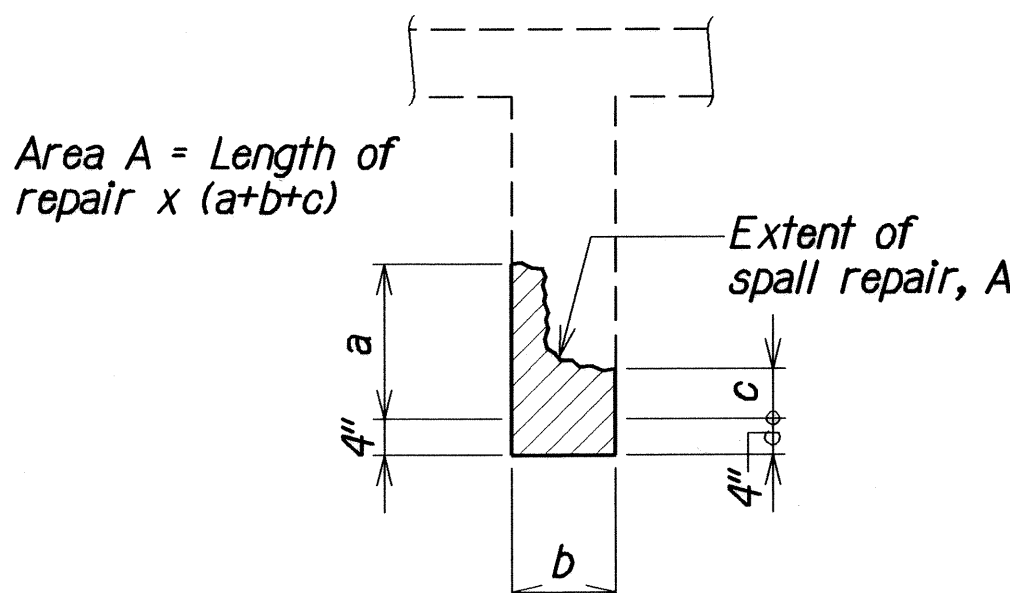
ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	QTY
676.1000	Spall Repair for Mailliii Bridge	Sq. Ft.	750
676.3000	Spall Repair for Ala Wai Canal Bridge	Sq. Ft.	600



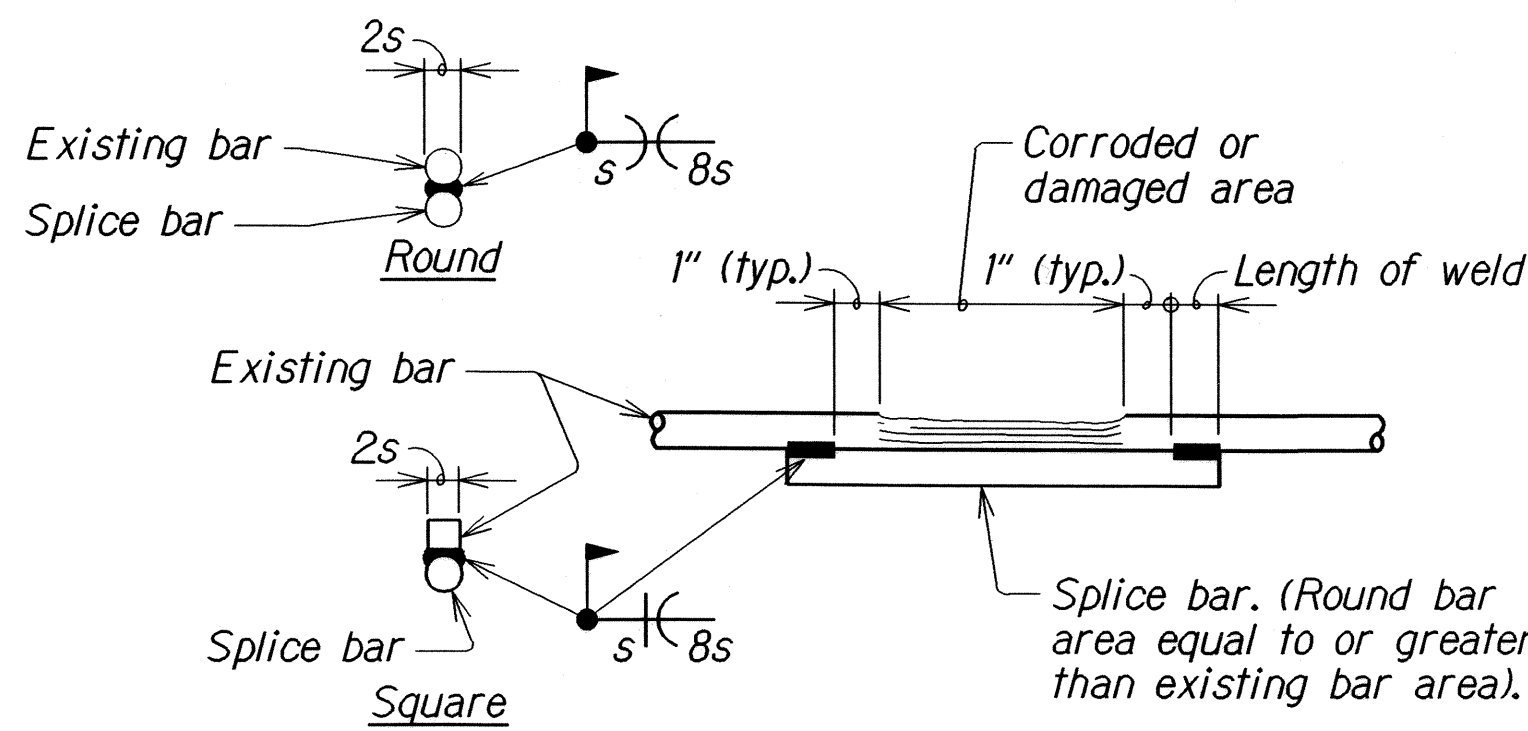
PLAN OR ELEVATION

TYPICAL SECTIONS



MEASUREMENT of SPALL REPAIR at CONCRETE BEAMS

Not to Scale

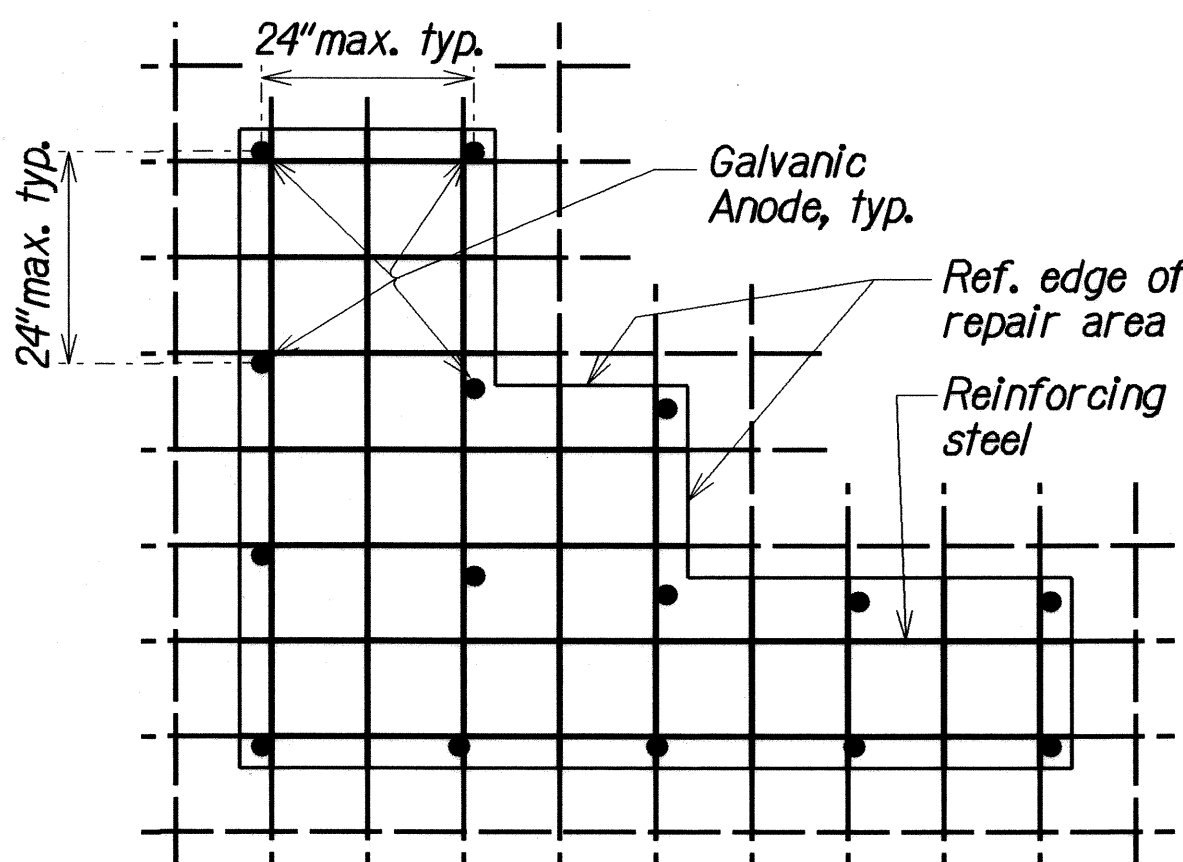


REINFORCING BAR REPAIR SPLICE DETAIL

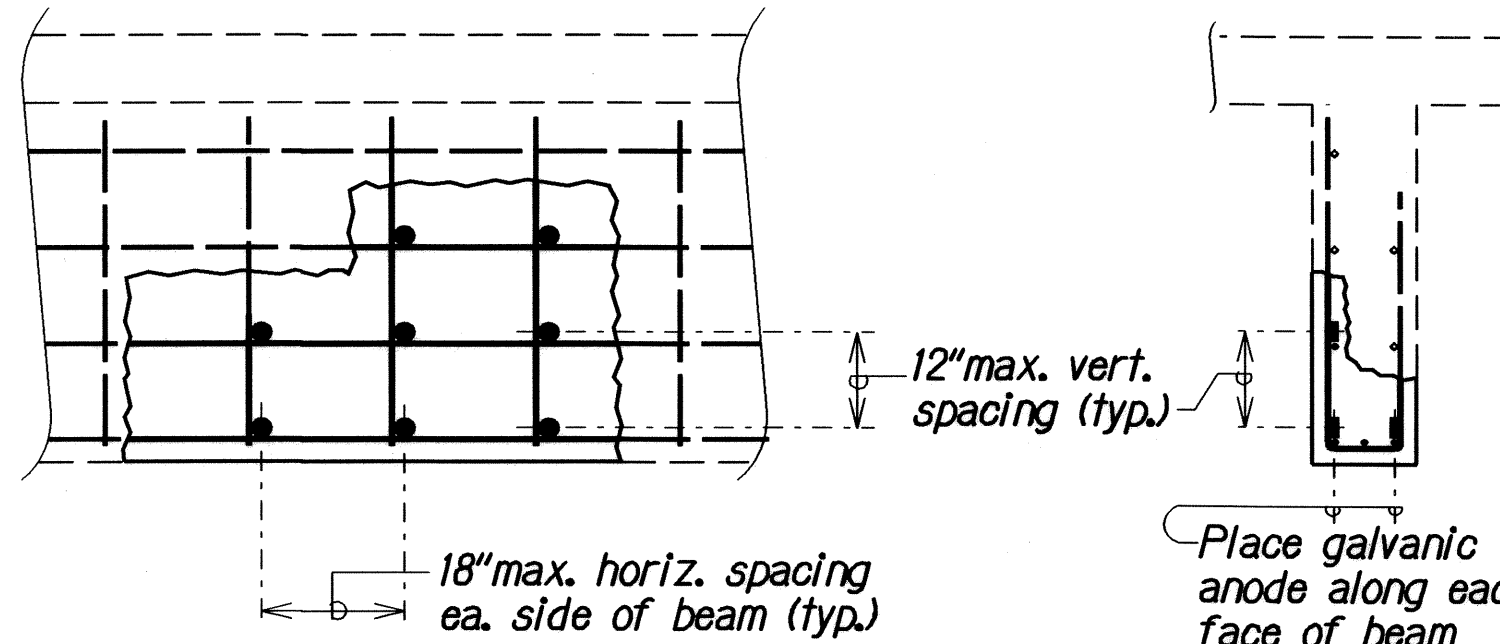
Not to Scale

SPALL and CRACK REPAIR DETAILS

Not to Scale



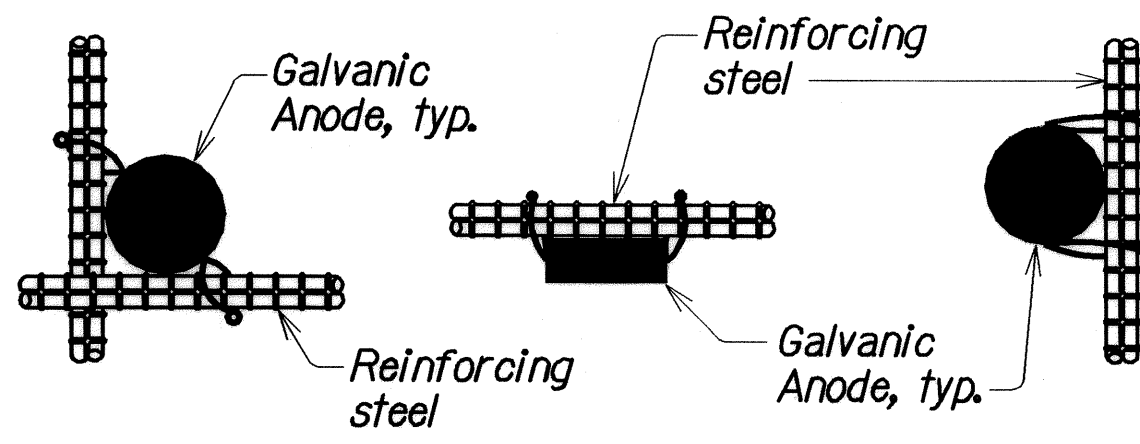
TYPICAL LAYOUT FOR DECK OR WALL



ELEVATION

TYPICAL BEAM

TYPICAL SECTION



AT INTERSECTION BELOW BAR BESIDE BAR

NOTE: Removal of additional concrete may be necessary to place galvanic anode

TYPICAL INSTALLATION DETAILS

GALVANIC ANODE INSTALLATION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**GENERAL NOTES, ESTIMATED QUANTITIES
and CONCRETE REPAIR DETAILS**

BRIDGE REPAIRS AT VARIOUS LOCATIONS
Ala Moana Boulevard/Farrington Highway
Project No. HWY-0-02-03M

Scale: As Noted Date: May, 2008

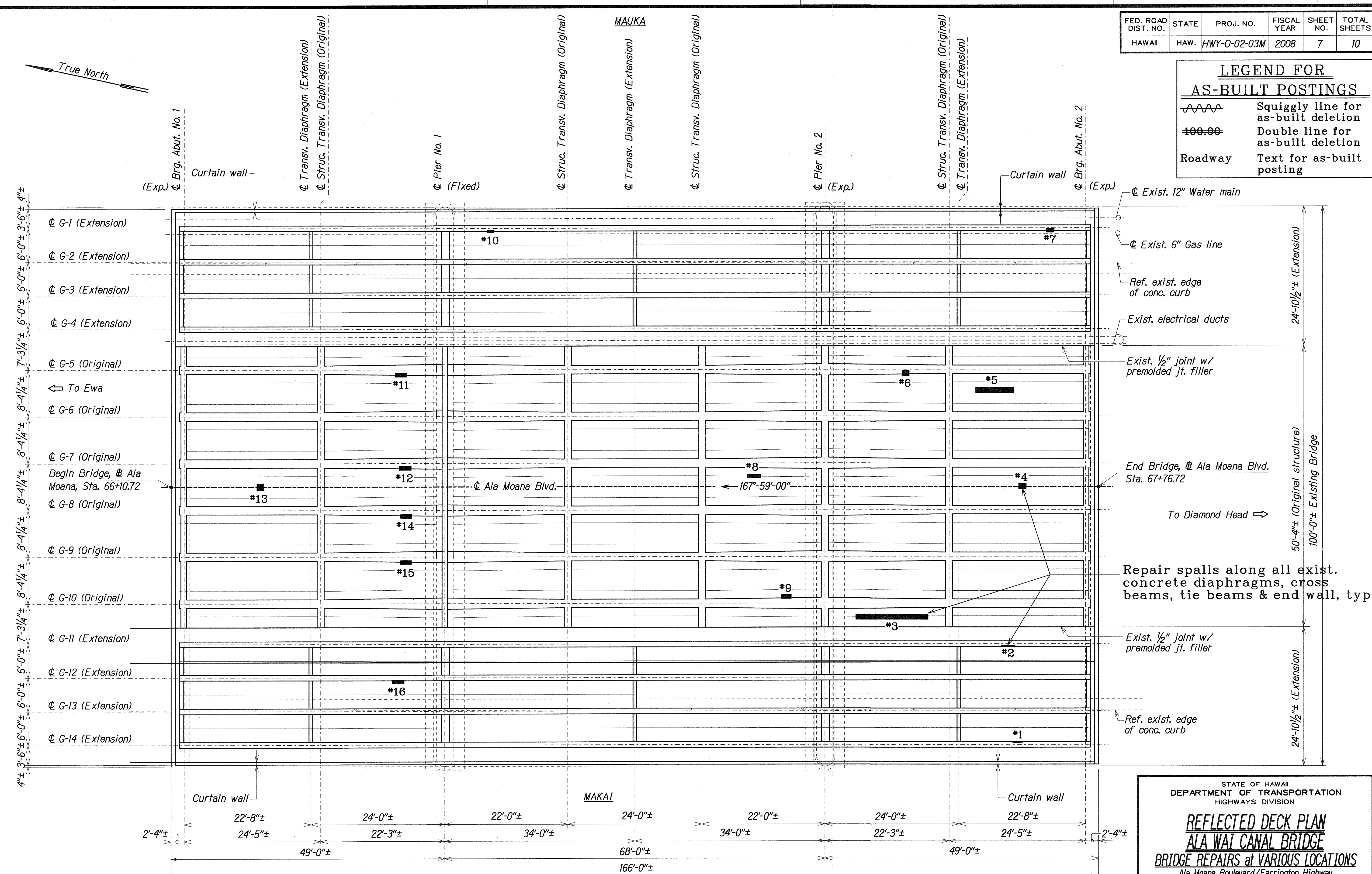
SHEET No. 01 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-03M	2008	7	10

LEGEND FOR AS-BUILT POSTINGS

~~~~~ Squiggly line for as-built deletion

== Roadway Text for as-built posting



|               |          |
|---------------|----------|
| ORIGINAL PLAN | DATE     |
| DESIGNED BY   | MAR 2008 |
| DRAWN BY      | MAR 2008 |
| CHECKED BY    | MAR 2008 |
| APPROVED BY   | MAR 2008 |

See Supplemental Sht.#Q2A for As-Built Girder and Soffit Spall Repair Calculations

**REFLECTED DECK PLAN--ALA WAI CANAL BRIDGE**  
Scale: 1/8" = 1'-0"

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**REFLECTED DECK PLAN  
ALA WAI CANAL BRIDGE**

BRIDGE REPAIRS at VARIOUS LOCATIONS  
Ala Moana Boulevard/Farrington Highway  
Project No. HWY-0-02-03M

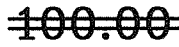
Scale: As Noted Date: May, 2008

SHEET No. Q2 OF 5 SHEETS

"AS-BUILT"

|                        |       |              |                |              |                 |
|------------------------|-------|--------------|----------------|--------------|-----------------|
| FED. ROAD<br>DIST. NO. | STATE | PROJ. NO.    | FISCAL<br>YEAR | SHEET<br>NO. | TOTAL<br>SHEETS |
| HAWAII                 | HAW.  | HWY-0-02-03M | 2008           | 7 S-1        | 10              |

| GIRDER and SOFFIT |        |       |         |       | GIRDER and SOFFIT |        |       |        |      | GIRDER and SOFFIT |        |       |        |      | GIRDER and SOFFIT |        |       |        |        |
|-------------------|--------|-------|---------|-------|-------------------|--------|-------|--------|------|-------------------|--------|-------|--------|------|-------------------|--------|-------|--------|--------|
| Spall*            | Length | Depth | S.I.    | S.F.  | Spall*            | Length | Depth | S.I.   | S.F. | Spall*            | Length | Depth | S.I.   | S.F. | Spall*            | Length | Depth | S.I.   | S.F.   |
| *1                | 21.00  | 4.00  | 84.00   | 0.58  | *5                | 83.00  | 12.00 | 996.00 | 6.92 | *8                | 13.00  | 21.00 | 273.00 | 1.90 | *13               | 16.00  | 16.00 | 256.00 | 1.78   |
|                   | 21.00  | 8.00  | 168.00  | 1.17  |                   | 83.00  | 6.00  | 498.00 | 3.46 |                   | 19.00  | 16.00 | 304.00 | 2.11 | *14               | 8.00   | 5.00  | 40.00  | 0.28   |
| *2                | 31.00  | 13.00 | 403.00  | 2.80  |                   | 83.00  | 6.00  | 498.00 | 3.46 | *9                | 16.00  | 20.00 | 320.00 | 2.22 |                   | 24.00  | 19.00 | 456.00 | 3.17   |
|                   | 11.00  | 4.00  | 44.00   | 0.31  | *6                | 16.00  | 24.00 | 384.00 | 2.67 |                   | 14.00  | 20.00 | 280.00 | 1.94 | *15               | 15.00  | 7.00  | 105.00 | 0.73   |
| *3                | 156.00 | 12.00 | 1872.00 | 13.00 |                   | 16.00  | 48.00 | 768.00 | 5.33 |                   | 22.00  | 20.00 | 440.00 | 3.06 | *16               | 12.00  | 36.00 | 432.00 | 3.00   |
|                   | 51.00  | 12.00 | 612.00  | 4.25  |                   | 16.00  | 21.00 | 336.00 | 2.33 |                   | 16.00  | 20.00 | 320.00 | 2.22 |                   | 12.00  | 36.00 | 432.00 | 3.00   |
|                   | 156.00 | 14.00 | 2184.00 | 15.17 |                   | 6.00   | 8.00  | 48.00  | 0.33 | *10               | 14.00  | 6.00  | 84.00  | 0.58 |                   | 24.00  | 31.00 | 744.00 | 5.17   |
| *4                | 17.00  | 12.00 | 204.00  | 1.42  |                   | 3.00   | 19.00 | 57.00  | 0.40 | *11               | 26.00  | 5.00  | 130.00 | 0.90 | Total:            |        |       |        | 109.67 |
|                   | 12.00  | 14.00 | 168.00  | 1.17  | *7                | 13.00  | 20.00 | 260.00 | 1.81 |                   | 26.00  | 11.00 | 286.00 | 1.99 |                   |        |       |        |        |
|                   | 18.00  | 32.00 | 576.00  | 4.00  |                   | 17.00  | 9.00  | 153.00 | 1.06 | *12               | 8.00   | 26.00 | 208.00 | 1.44 |                   |        |       |        |        |
| Cont. next column |        |       |         |       |                   | 30.00  | 8.00  | 240.00 | 1.67 |                   | 26.00  | 5.00  | 130.00 | 0.90 |                   |        |       |        |        |
|                   |        |       |         |       | Cont. next column |        |       |        |      | Cont. next column |        |       |        |      |                   |        |       |        |        |

| LEGEND FOR<br>AS-BUILT POSTINGS                                                     |                                     |
|-------------------------------------------------------------------------------------|-------------------------------------|
|  | Squiggly line for as-built deletion |
|  | Double line for as-built deletion   |
| Roadway                                                                             | Text for as-built posting           |

  
AS-BUILT GIRDER and SOFFIT SPALL REPAIR CALCULATIONS  
ALA WAI CANAL BRIDGE

|                  |                   |          |
|------------------|-------------------|----------|
| ORIGINAL<br>PLAN | SURVEY PLOTTED BY | DATE     |
| NOTE BOOK        | DRAWN BY          | MAR 2008 |
|                  | TRACED BY         | MAR 2008 |
|                  | DESIGNED BY       | MAR 2008 |
|                  | CHECKED BY        | MAR 2008 |
|                  | IN CHARGE         | MAR 2008 |

db4/ust2/ksq/ww/mallm\_alowai\_asbuilt/

7-1-10  


This sheet added to original plans to accommodate "As Built" conditions

DATE

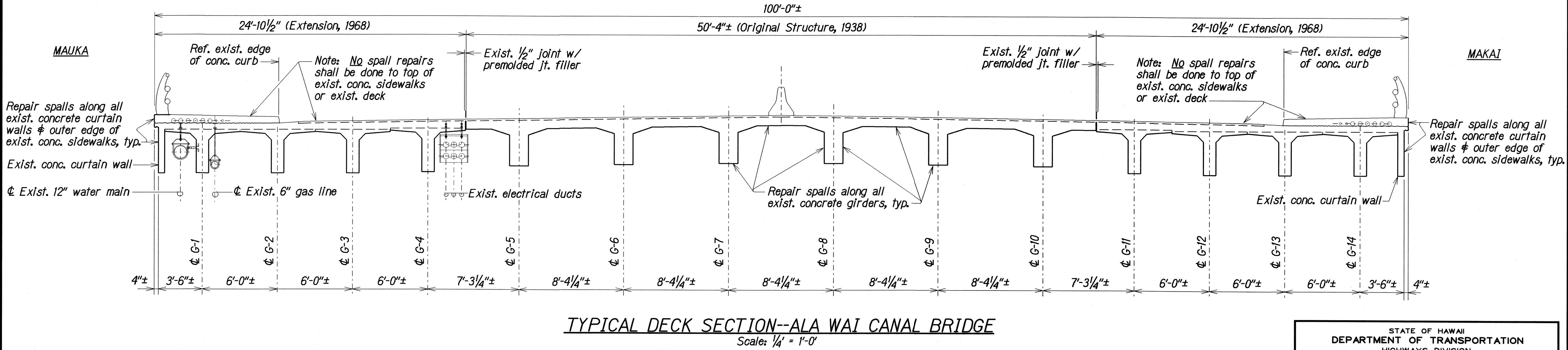
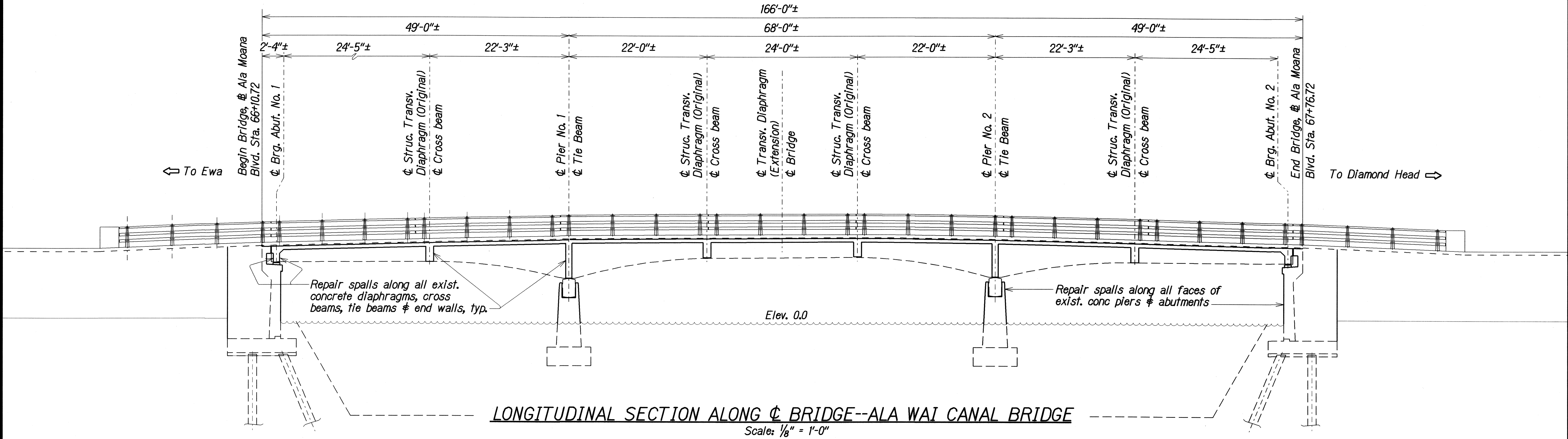
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

REFLECTED DECK PLAN  
ALA WAI CANAL BRIDGE  
BRIDGE REPAIRS at VARIOUS LOCATIONS  
Ala Moana Boulevard/Farrington Highway  
Project No. HWY-0-02-03M

Scale: As Noted  
Date: July, 2010

SHEET No. Q2A OF 5 SHEETS

| FED. ROAD DIST. NO. | STATE | PROJ. NO.    | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-02-03M | 2008        | 8         | 10           |



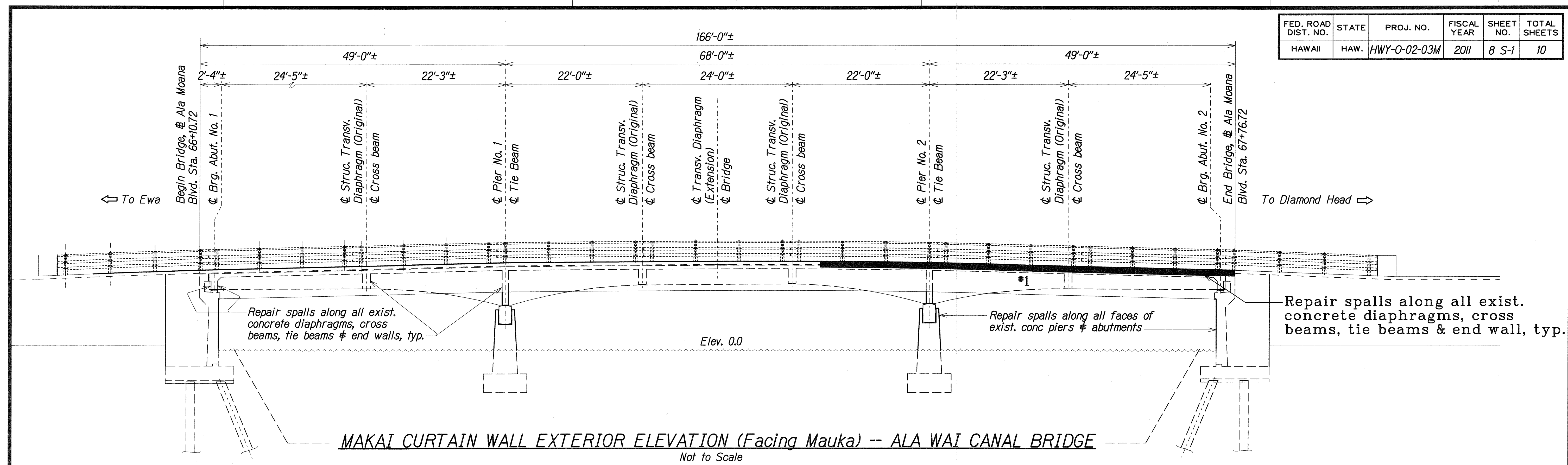
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|---------------|-------------------|----------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE     |
| NOTE BOOK     | DRAWN BY          | MAR 2008 |
|               | TRACED BY         | MAR 2008 |
|               | DESIGNED BY       | MAR 2008 |
|               | REVIEWED BY       | MAR 2008 |
|               | APPROVED BY       | MAR 2008 |

0041/002/KSG/JWW/moil\_cdnwgl

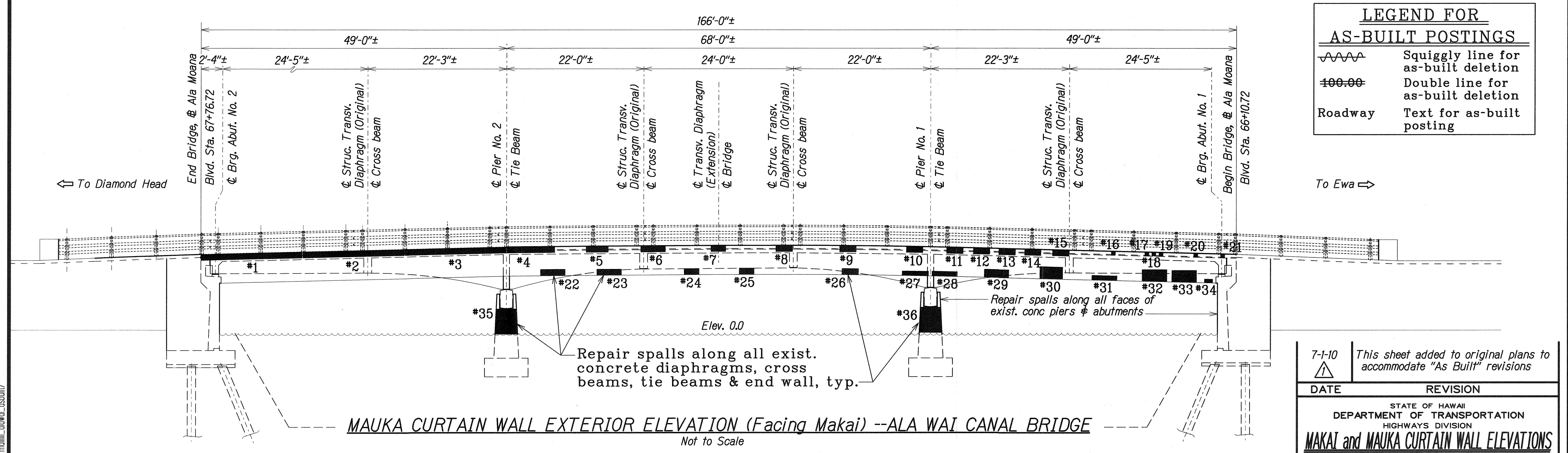
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

LONGITUDINAL SECTION and  
TYPICAL DECK SECTION  
ALA WAI CANAL BRIDGE  
BRIDGE REPAIRS at VARIOUS LOCATIONS  
Ala Moana Boulevard/Farrington Highway  
Project No. HWY-0-02-03M  
Scale: As Noted  
Date: May, 2008

| FED. ROAD DIST. NO. | STATE | PROJ. NO.    | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-02-03M | 2011        | 8 S-1     | 10           |



| LEGEND FOR AS-BUILT POSTINGS |                                     |
|------------------------------|-------------------------------------|
|                              | Squiggly line for as-built deletion |
|                              | Double line for as-built deletion   |
| Roadway                      | Text for as-built posting           |



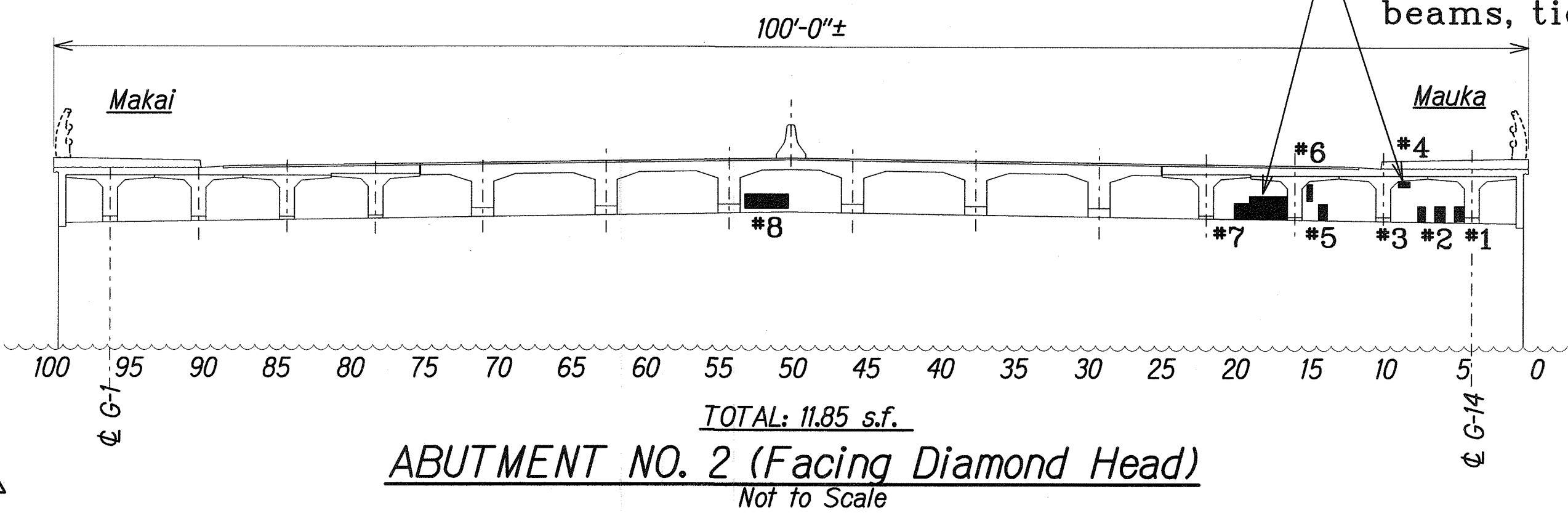
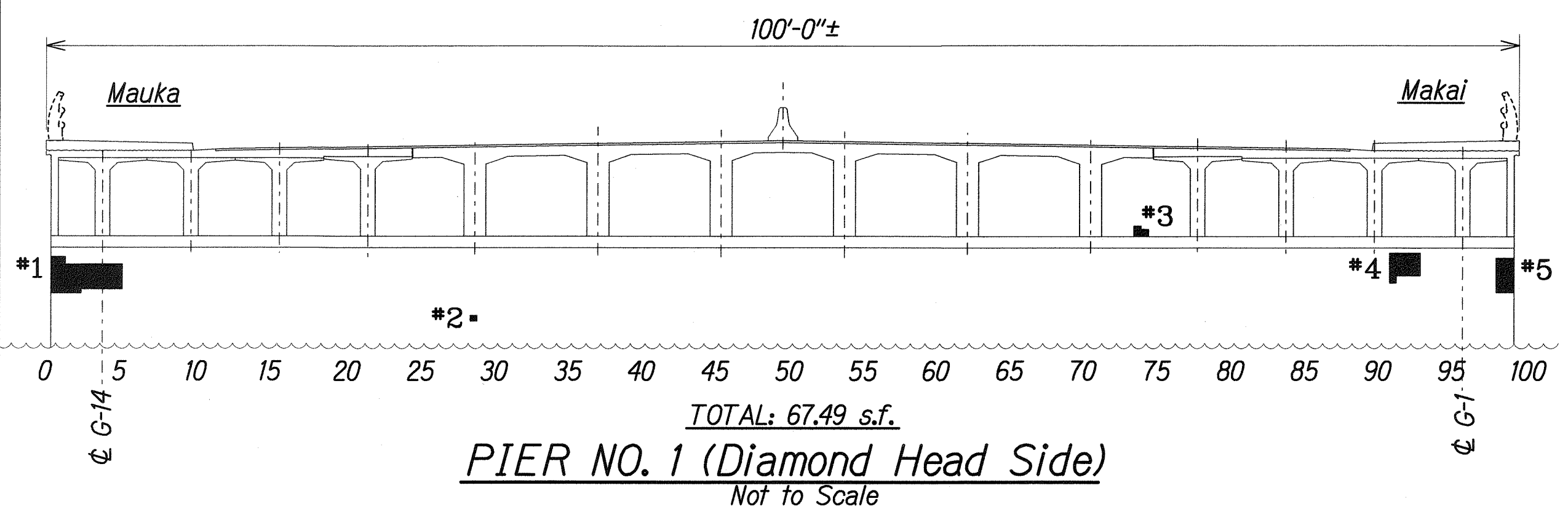
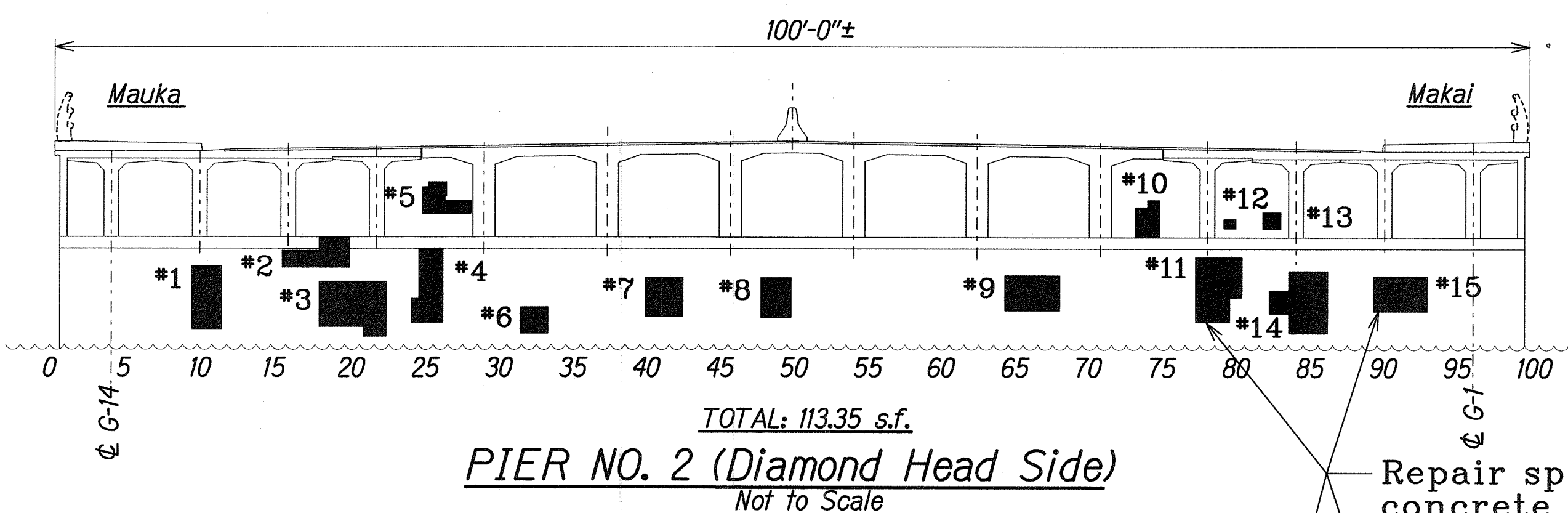
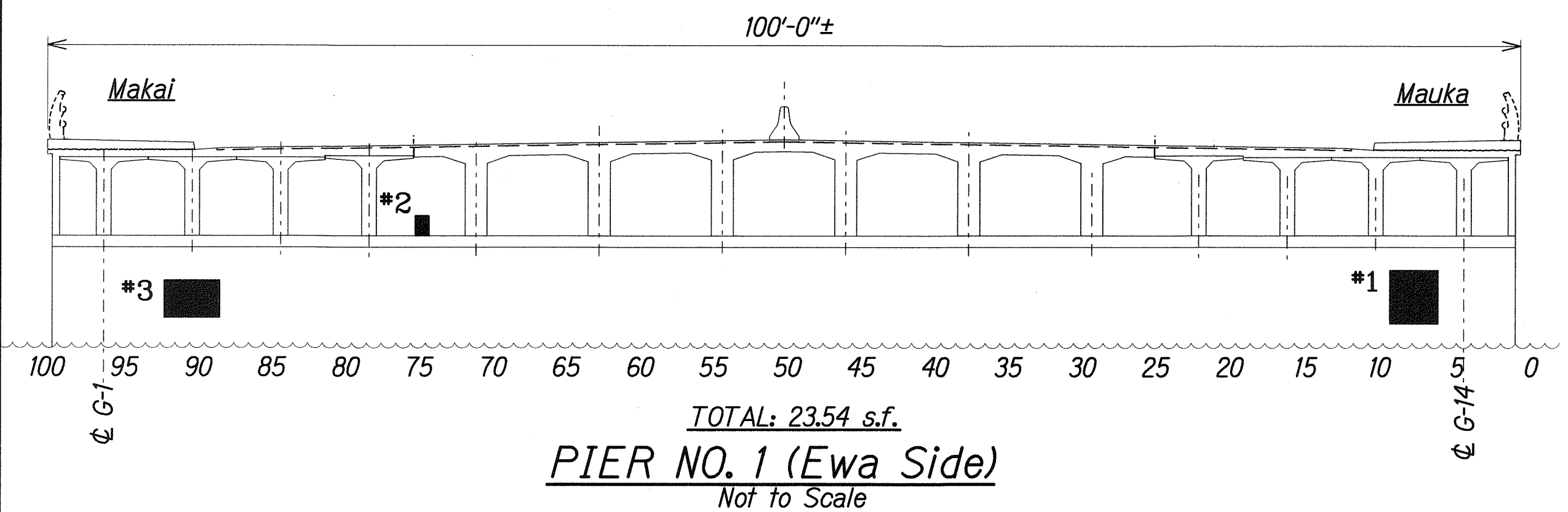
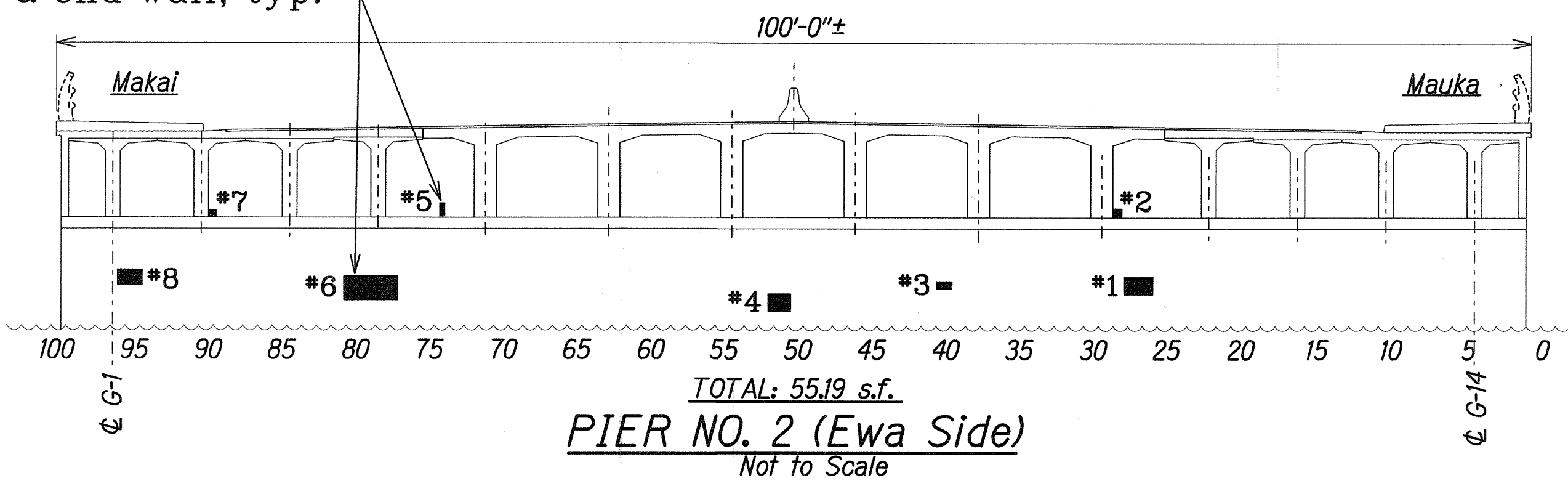
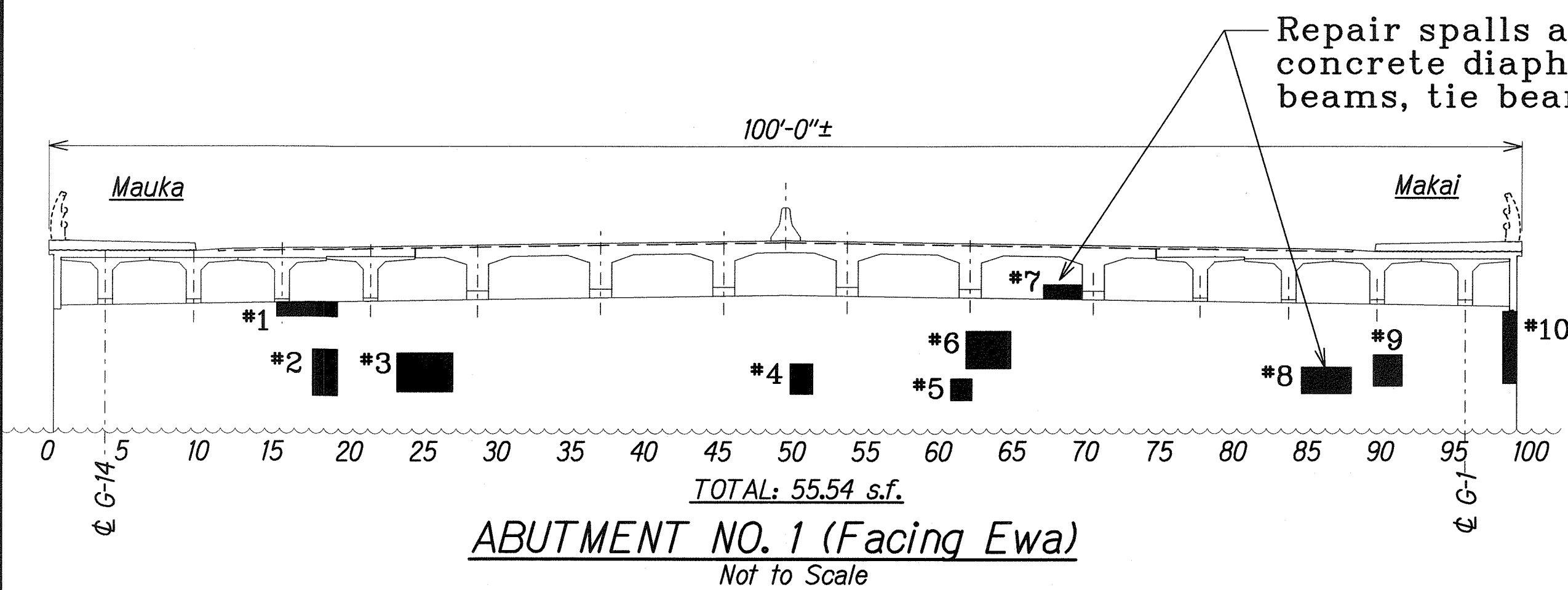
|                   |          |
|-------------------|----------|
| ORIGINAL PLAN     | DATE     |
| SURVEY PLOTTED BY | JUL 2010 |
| DRAWN BY          | XXX      |
| DESIGNED BY       | XXX      |
| CHECKED BY        | XXX      |
| APPROVED BY       | XXX      |

| 7-1-10                                                                                                                            | This sheet added to original plans to accommodate "As Built" revisions |
|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| DATE                                                                                                                              | REVISION                                                               |
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION                                                              |                                                                        |
| MAKAI and MAUKA CURTAIN WALL ELEVATIONS<br>SHOWING APPROXIMATE SPALL REPAIR LOCATIONS                                             |                                                                        |
| ALA WAI CANAL BRIDGE<br>BRIDGE REPAIRS at VARIOUS LOCATIONS<br>Ala Moana Boulevard/Farrington Highway<br>Project No. HWY-0-02-03M |                                                                        |
| Scale: As Noted                                                                                                                   | Date: Jul, 2010                                                        |
| SHEET No. Q3A OF 5 SHEETS                                                                                                         |                                                                        |

See Supplemental Sht.\*Q3C for As-Built Curtain Wall Spall Repair Calculations

"AS-BUILT"

| FED. ROAD DIST. NO. | STATE | PROJ. NO.    | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-02-03M | 2008        | 8 S-2     | 10           |



**ABUTMENT and PIER ELEVATIONS -- ALA WAI CANAL BRIDGE**

|               |                   |          |
|---------------|-------------------|----------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE     |
| NOTE BOOK     | DRAWN BY          | XXX 1991 |
| QUANTITIES BY | TRACED BY         | XXX 1991 |
| checked by    | checked by        | XXX 1991 |
| checked by    | checked by        | XXX 1991 |

See Supplemental Sht.\*Q3C for As-Built Abutment and Pier Spall Repair Calculations

| LEGEND FOR AS-BUILT POSTINGS |                                     |
|------------------------------|-------------------------------------|
|                              | Squiggly line for as-built deletion |
|                              | Double line for as-built deletion   |
| Roadway                      | Text for as-built posting           |

| 7-1-10                                                               | This sheet added to original plans to accommodate "As Built" revisions |
|----------------------------------------------------------------------|------------------------------------------------------------------------|
| DATE                                                                 | REVISION                                                               |
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION |                                                                        |
| <b>ABUTMENT and PIER ELEVATIONS</b>                                  |                                                                        |
| SHOWING APPROXIMATE SPALL REPAIR LOCATIONS                           |                                                                        |
| ALA WAI CANAL BRIDGE                                                 |                                                                        |
| BRIDGE REPAIRS at VARIOUS LOCATIONS                                  |                                                                        |
| Ala Moana Boulevard / Farrington Highway                             |                                                                        |
| Project No. HWY-0-02-03M                                             |                                                                        |
| Scale: As Noted                                                      | Date: July, 2010                                                       |
| SHEET No. Q3B OF 5 SHEETS                                            |                                                                        |

"AS-BUILT"

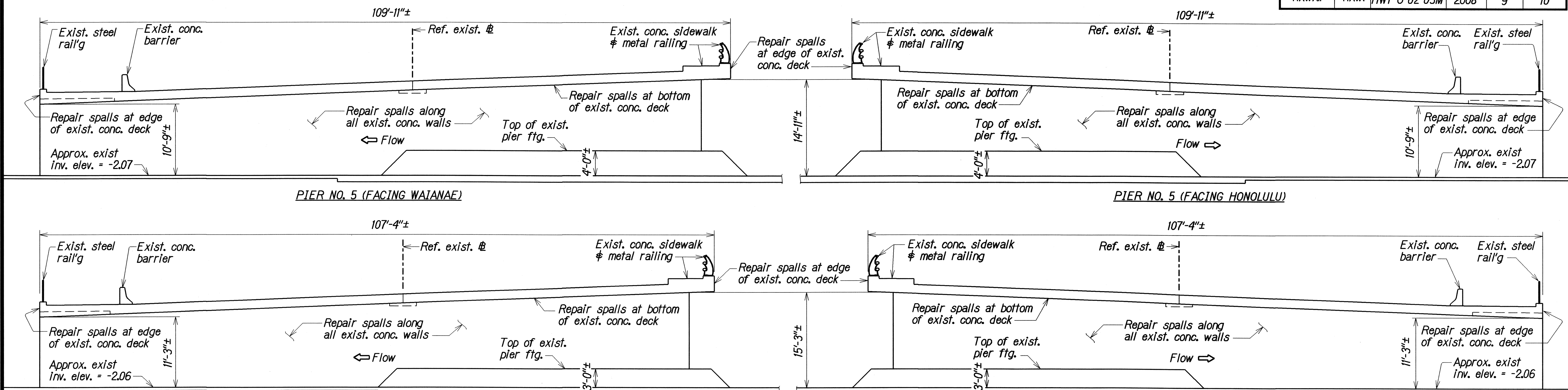
| MAKAI CURTAIN WALL |         |        |          |        | MAUKA CURTAIN WALL |        |         |         |        | MAUKA CURTAIN WALL |        |        |        |                   | MAUKA CURTAIN WALL |         |         |         |        | MAUKA CURTAIN WALL |        |         |         |        |       |
|--------------------|---------|--------|----------|--------|--------------------|--------|---------|---------|--------|--------------------|--------|--------|--------|-------------------|--------------------|---------|---------|---------|--------|--------------------|--------|---------|---------|--------|-------|
| Spall*             | Length  | Depth  | S.I.     | S.F.   | Spall*             | Length | Depth   | S.I.    | S.F.   | Spall*             | Length | Depth  | S.I.   | S.F.              | Spall*             | Length  | Depth   | S.I.    | S.F.   | Spall*             | Length | Depth   | S.I.    | S.F.   |       |
| #1                 | 1200.00 | 12.00  | 14400.00 | 100.00 | #1                 | 12.00  | 24.00   | 288.00  | 2.00   | #14                | 62.00  | 12.00  | 744.00 | 5.17              | #25                | 45.00   | 6.00    | 270.00  | 1.88   | #31                | 48.00  | 11.00   | 528.00  | 3.67   |       |
|                    | 72.00   | 6.00   | 432.00   | 3.00   |                    | 24.00  | 6.00    | 144.00  | 1.00   |                    | 21.00  | 5.00   | 105.00 | 0.73              |                    | 45.00   | 6.00    | 270.00  | 1.88   |                    | 13.00  | 48.00   | 624.00  | 4.33   |       |
|                    | 17.00   | 9.00   | 153.00   | 1.06   |                    | 96.00  | 12.00   | 1152.00 | 8.00   |                    | 16.00  | 53.00  | 848.00 | 5.89              |                    | 45.00   | 6.00    | 270.00  | 1.88   |                    | 48.00  | 7.00    | 336.00  | 2.33   |       |
|                    | 12.00   | 9.00   | 108.00   | 0.75   | #2                 | 80.00  | 12.00   | 960.00  | 6.67   | #16                | 44.00  | 8.00   | 352.00 | 2.44              | #26                | 12.00   | 3.00    | 36.00   | 0.25   | #32                | 147.00 | 7.00    | 1029.00 | 7.15   |       |
|                    | 24.00   | 6.00   | 144.00   | 1.00   |                    | 45.00  | 4.00    | 180.00  | 1.25   |                    | 44.00  | 8.00   | 352.00 | 2.44              |                    | 12.00   | 3.00    | 36.00   | 0.25   |                    | 147.00 | 7.00    | 1029.00 | 7.15   |       |
|                    | 21.00   | 10.00  | 210.00   | 1.46   |                    | 45.00  | 6.00    | 270.00  | 1.88   |                    | 15.00  | 8.00   | 120.00 | 0.83              |                    | 12.00   | 6.00    | 72.00   | 0.50   |                    | 84.00  | 43.00   | 3612.00 | 25.08  |       |
|                    | 45.00   | 9.00   | 405.00   | 2.81   | 45.00              | 34.00  | 1530.00 | 10.63   | #17    | 24.00              | 8.00   | 192.00 | 1.33   | #27               | 42.00              | 7.00    | 294.00  | 2.04    | #33    | 84.00              | 43.00  | 3612.00 | 25.08   |        |       |
|                    | 24.00   | 12.00  | 288.00   | 2.00   | 189.00             | 12.00  | 2268.00 | 15.75   |        | #18                | 134.00 | 5.00   | 670.00 |                   | 4.65               | 42.00   | 7.00    | 294.00  |        | 2.04               | #34    | 16.00   | 7.00    | 112.00 | 0.78  |
|                    | 72.00   | 10.00  | 720.00   | 5.00   | #5                 | 18.00  | 12.00   | 216.00  |        |                    | 1.50   | #19    | 17.00  |                   | 8.00               | 136.00  | 0.94    | 42.00   |        | 6.00               |        | 252.00  | 1.75    | #35    | 44.00 |
|                    | 24.00   | 7.00   | 168.00   | 1.17   | #6                 | 171.00 | 12.00   | 2052.00 | 14.25  | #20                | 14.00  | 8.00   | 112.00 | 0.78              | #28                | 36.00   | 9.00    | 324.00  | 2.25   | 50.00              | 32.00  | 1600.00 | 11.11   |        |       |
|                    | 72.00   | 6.00   | 432.00   | 3.00   | #7                 | 113.00 | 5.00    | 565.00  | 3.92   | #21                | 18.00  | 8.00   | 144.00 | 1.00              |                    | 36.00   | 9.00    | 324.00  | 2.25   | #36                | 42.00  | 70.00   | 2940.00 | 20.42  |       |
|                    | 42.00   | 8.00   | 336.00   | 2.33   | #8                 | 24.00  | 5.00    | 120.00  | 0.83   | #22                | 60.00  | 8.00   | 480.00 | 3.33              |                    | 36.00   | 7.00    | 252.00  | 1.75   |                    | 72.00  | 43.00   | 3096.00 | 21.50  |       |
|                    | 13.00   | 24.00  | 312.00   | 2.17   | #9                 | 90.00  | 12.00   | 1080.00 | 7.50   | 60.00              | 8.00   | 480.00 | 3.33   | #29               | 9.00               | 34.00   | 306.00  | 2.13    | 42.00  |                    | 24.00  | 1008.00 | 7.00    |        |       |
|                    | 6.00    | 72.00  | 432.00   | 3.00   | #10                | 84.00  | 12.00   | 1008.00 | 7.00   | 60.00              | 6.00   | 360.00 | 2.50   |                   | 34.00              | 7.00    | 238.00  | 1.65    | 19.00  | 12.00              | 228.00 | 1.58    |         |        |       |
|                    | 6.00    | 72.00  | 432.00   | 3.00   | #11                | 108.00 | 5.00    | 540.00  | 3.75   | #23                | 132.00 | 6.00   | 792.00 |                   | 5.50               | 84.00   | 13.00   | 1092.00 | 7.58   | 34.00              | 15.00  | 510.00  | 3.54    |        |       |
| 14.00              | 5.00    | 70.00  | 0.49     | #12    | 78.00              | 8.00   | 624.00  | 4.33    | 132.00 |                    | 4.00   | 528.00 | 3.67   | #30               | 177.00             | 11.00   | 1947.00 | 13.52   | 16.00  | 26.00              | 416.00 | 2.89    |         |        |       |
| 72.00              | 6.00    | 432.00 | 3.00     | 24.00  | 18.00              | 432.00 | 3.00    | 132.00  | 4.00   |                    | 528.00 | 3.67   | 177.00 |                   | 7.00               | 1239.00 | 8.60    | 17.00   | 41.00  | 697.00             | 4.84   |         |         |        |       |
| Total:             |         |        | 135.24   | #13    | 90.00              | 6.00   | 540.00  | 3.75    | #24    | 84.00              | 4.00   | 336.00 | 2.33   |                   | 84.00              | 43.00   | 3612.00 | 25.08   | Total: |                    |        |         | 399.09  |        |       |
|                    |         |        |          |        | 90.00              | 8.00   | 720.00  | 5.00    |        | 84.00              | 4.00   | 336.00 | 2.33   | Cont. next column |                    |         |         |         |        |                    |        |         |         |        |       |
|                    |         |        |          |        | Cont. next column  |        |         |         |        |                    | 84.00  | 6.00   | 504.00 | 3.50              | Cont. next column  |         |         |         |        |                    |        |         |         |        |       |

| ABUTMENT NO. 1 (Facing Ewa) |        |       |         |       | PIER NO. 1 (Ewa Side)          |        |       |         |       | PIER NO. 2 (Ewa Side) |        |       |         |       | PIER NO. 2 (Diamond Head Side) |        |       |         |        | PIER NO. 2 (Diamond Head Side), cont. |        |       |         |         | ABUTMENT NO. 2 (Facing Diamond Head) |        |       |        |        |      |       |
|-----------------------------|--------|-------|---------|-------|--------------------------------|--------|-------|---------|-------|-----------------------|--------|-------|---------|-------|--------------------------------|--------|-------|---------|--------|---------------------------------------|--------|-------|---------|---------|--------------------------------------|--------|-------|--------|--------|------|-------|
| Spall*                      | Length | Depth | S.I.    | S.F.  | Spall*                         | Length | Depth | S.I.    | S.F.  | Spall*                | Length | Depth | S.I.    | S.F.  | Spall*                         | Length | Depth | S.I.    | S.F.   | Spall*                                | Length | Depth | S.I.    | S.F.    | Spall*                               | Length | Depth | S.I.   | S.F.   |      |       |
| *1                          | 50.00  | 12.00 | 600.00  | 4.17  | *1                             | 40.00  | 44.00 | 1760.00 | 12.22 | *1                    | 48.00  | 29.00 | 1392.00 | 9.67  | *1                             | 25.00  | 52.00 | 1300.00 | 9.03   | *7                                    | 31.00  | 32.00 | 992.00  | 6.89    | *1                                   | 8.00   | 13.00 | 104.00 | 0.72   |      |       |
| *2                          | 21.00  | 38.00 | 798.00  | 5.54  | *2                             | 12.00  | 17.00 | 204.00  | 1.42  | *2                    | 15.00  | 15.00 | 225.00  | 1.56  | *2                             | 25.00  | 20.00 | 500.00  | 3.47   | *8                                    | 25.00  | 33.00 | 825.00  | 5.73    | *2                                   | 9.00   | 13.00 | 117.00 | 0.81   |      |       |
| *3                          | 46.00  | 32.00 | 1472.00 | 10.22 | *3                             | 46.00  | 31.00 | 1426.00 | 9.90  | *3                    | 26.00  | 12.00 | 312.00  | 2.17  |                                | 25.00  | 5.00  | 125.00  | 0.87   | *9                                    | 45.00  | 29.00 | 1305.00 | 9.06    | *3                                   | 6.50   | 13.00 | 84.50  | 0.59   |      |       |
| *4                          | 19.00  | 25.00 | 475.00  | 3.30  | Total:                         |        |       |         | 23.54 | *4                    | 38.00  | 29.00 | 1102.00 | 7.65  |                                | 30.00  | 14.00 | 420.00  | 2.92   | *10                                   | 20.00  | 24.00 | 480.00  | 3.33    | *4                                   | 5.00   | 10.00 | 50.00  | 0.35   |      |       |
| *5                          | 18.00  | 18.00 | 324.00  | 2.25  |                                |        |       |         |       | *5                    | 9.00   | 22.00 | 198.00  | 1.38  | *3                             | 55.00  | 37.00 | 2035.00 | 14.13  |                                       | 10.00  | 6.00  | 60.00   | 0.42    | *5                                   | 7.50   | 13.00 | 97.50  | 0.68   |      |       |
| *6                          | 37.00  | 31.00 | 1147.00 | 7.97  | PIER NO. 1 (Diamond Head Side) |        |       |         |       | *6                    | 88.00  | 40.00 | 3520.00 | 24.44 |                                | 19.00  | 8.00  | 152.00  | 1.06   | *11                                   | 38.00  | 33.00 | 1254.00 | 8.71    | *6                                   | 5.00   | 14.00 | 70.00  | 0.49   |      |       |
| *7                          | 31.00  | 12.00 | 372.00  | 2.58  | *1                             | 49.00  | 48.00 | 2352.00 | 16.33 | *7                    | 12.00  | 11.00 | 132.00  | 0.92  | *4                             | 20.00  | 60.00 | 1200.00 | 8.33   |                                       | 28.00  | 20.00 | 560.00  | 3.89    | *7                                   | 43.50  | 13.00 | 565.50 | 3.93   |      |       |
| *8                          | 41.00  | 22.00 | 902.00  | 6.26  |                                | 67.00  | 42.00 | 2814.00 | 19.54 | *8                    | 41.00  | 26.00 | 1066.00 | 7.40  |                                | 6.00   | 20.00 | 120.00  | 0.83   |                                       | 10.00  | 8.00  | 80.00   | 0.56    |                                      | 31.00  | 6.00  | 186.00 | 1.29   |      |       |
|                             | 8.00   | 22.00 | 176.00  | 1.22  |                                | 23.00  | 12.00 | 276.00  | 1.92  | Total:                |        |       |         |       | 55.19                          | *5     | 21.00 | 11.00   | 231.00 | 1.60                                  | *13    | 15.00 | 14.00   | 210.00  | 1.46                                 | *8     | 36.00 | 12.00  | 432.00 | 3.00 |       |
|                             | 8.00   | 22.00 | 176.00  | 1.22  |                                | 12.00  | 10.00 | 120.00  | 0.83  |                       |        |       |         |       |                                |        | 5.00  | 22.00   | 110.00 | 0.76                                  | *14    | 16.00 | 19.00   | 304.00  | 2.11                                 | Total: |       |        |        |      | 11.85 |
| *9                          | 24.00  | 26.00 | 624.00  | 4.33  | *2                             | 12.00  | 10.00 | 120.00  | 0.83  |                       |        |       |         |       |                                |        | 15.00 | 12.00   | 180.00 | 1.25                                  |        | 32.00 | 51.00   | 1632.00 | 11.33                                |        |       |        |        |      |       |
| *10                         | 12.00  | 59.00 | 708.00  | 4.92  | *3                             | 13.00  | 17.00 | 221.00  | 1.53  |                       |        |       |         |       |                                |        | 14.00 | 14.00   | 196.00 | 1.36                                  | *15    | 44.00 | 29.00   | 1276.00 | 8.86                                 |        |       |        |        |      |       |
|                             | 7.00   | 32.00 | 224.00  | 1.56  |                                | 12.00  | 12.00 | 144.00  | 1.00  |                       |        |       |         |       |                                | *6     | 23.00 | 22.00   | 506.00 | 3.51                                  |        | 30.00 | 9.00    | 270.00  | 1.88                                 |        |       |        |        |      |       |
| Total:                      |        |       |         |       | *4                             | 51.00  | 38.00 | 1938.00 | 13.46 | Cont. next column     |        |       |         |       |                                |        |       |         |        |                                       |        |       |         |         |                                      |        |       |        |        |      |       |

| <u>LEGEND FOR</u><br><u>AS-BUILT POSTINGS</u>                                         |                                        |
|---------------------------------------------------------------------------------------|----------------------------------------|
|  | Squiggly line for<br>as-built deletion |
| <del>100.00</del>                                                                     | Double line for<br>as-built deletion   |
| Roadway                                                                               | Text for as-built<br>posting           |

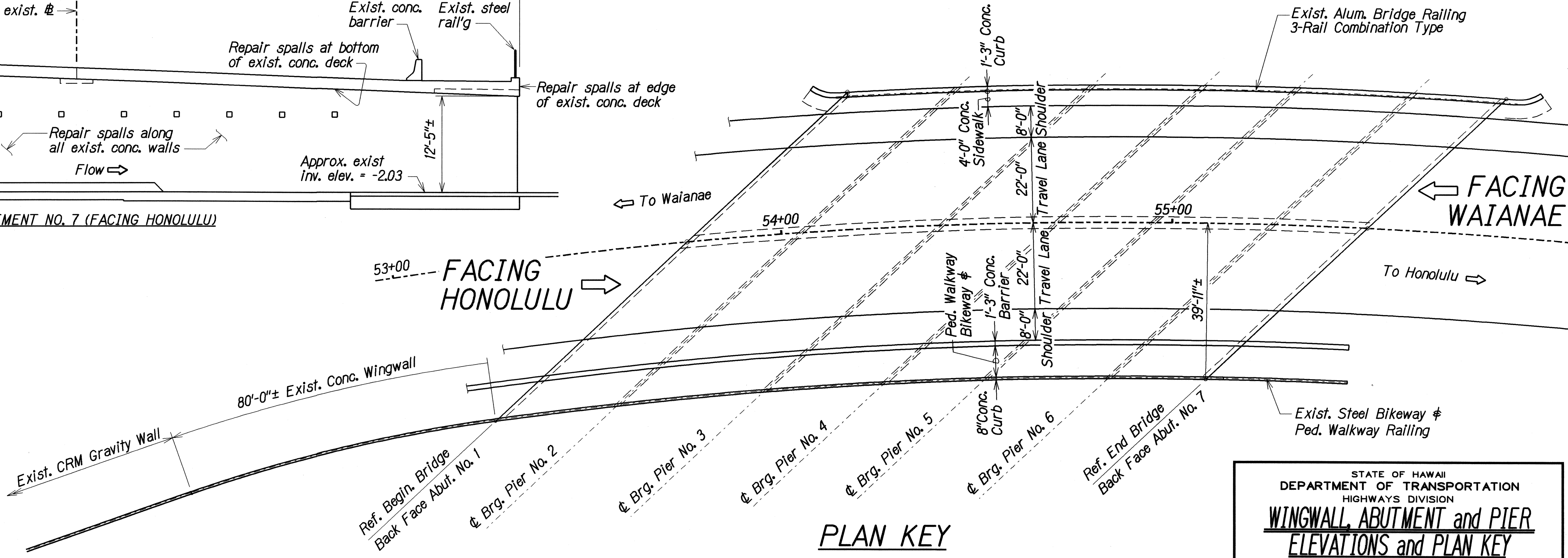
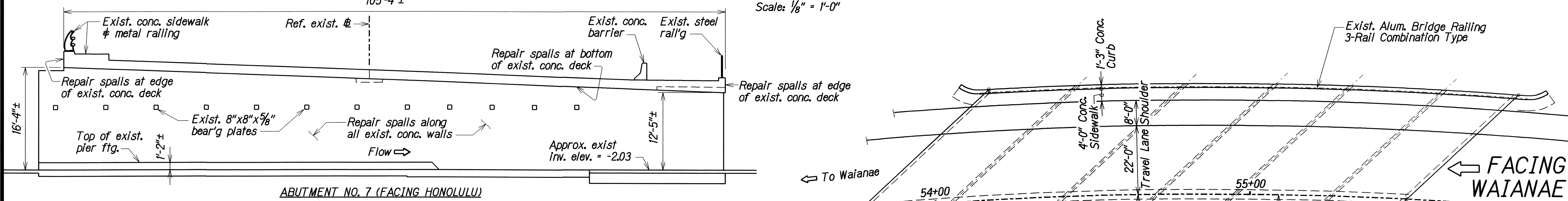
|            |      |
|------------|------|
| "AS-BUILT" | 8S-3 |
|------------|------|

| FED. ROAD DIST. NO. | STATE | PROJ. NO.    | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-02-03M | 2008        | 9         | 10           |



### WINGWALL, ABUTMENTS and PIER ELEVATIONS

Scale: 1/8" = 1'-0"



### PLAN KEY

### MAILIILII STREAM BRIDGE

|                        |          |
|------------------------|----------|
| ORIGINAL PLAN          | DATE     |
| SURVEY PLOTTED BY: KSC | MAR 2006 |
| DRAWN BY: JMW          | MAR 2006 |
| NOTED BY: JMW          | MAR 2006 |
| DESIGNED BY: PFS       | MAR 2006 |
| PROJECTED BY: PFS      | MAR 2006 |

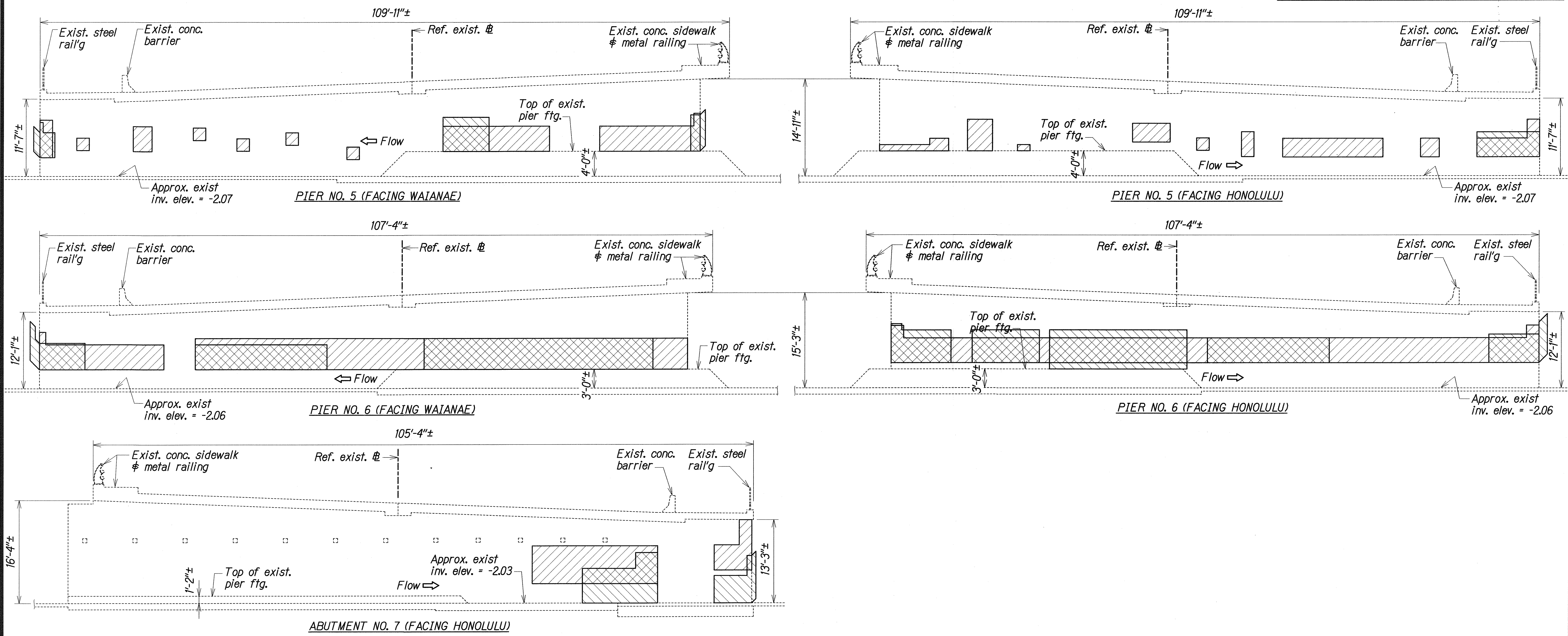
db-4/052/ksc/jmw/mml.dwg

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**WINGWALL, ABUTMENT and PIER  
ELEVATIONS and PLAN KEY**  
**MAILIILII STREAM BRIDGE**  
**BRIDGE REPAIRS at VARIOUS LOCATIONS**  
Ala Moana Boulevard/Farrington Highway  
Project No. HWY-0-02-03M

Scale: As Noted  
Date: May, 2008

| FED. ROAD DIST. NO. | STATE | PROJ. NO.    | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-04-03M | 2003        | 9 S-1     | 15           |

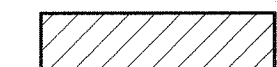
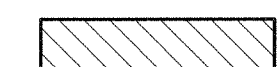


**NOTE:**  
Spall locations are for illustration purpose only.  
Actual locations to be determined by the Contractor  
and Engineer in the field.

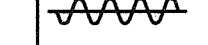
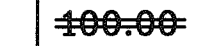
## ABUTMENT and PIER ELEVATIONS

Not to Scale

### SYMBOLS:

-  Approximate spall or crack location (not repaired)
-  Approximate location of repaired spall/crack

### LEGEND FOR AS-BUILT POSTINGS

-  Squiggly line for as-built deletion
-  Double line for as-built deletion
- Roadway Text for as-built posting

7-1-10  

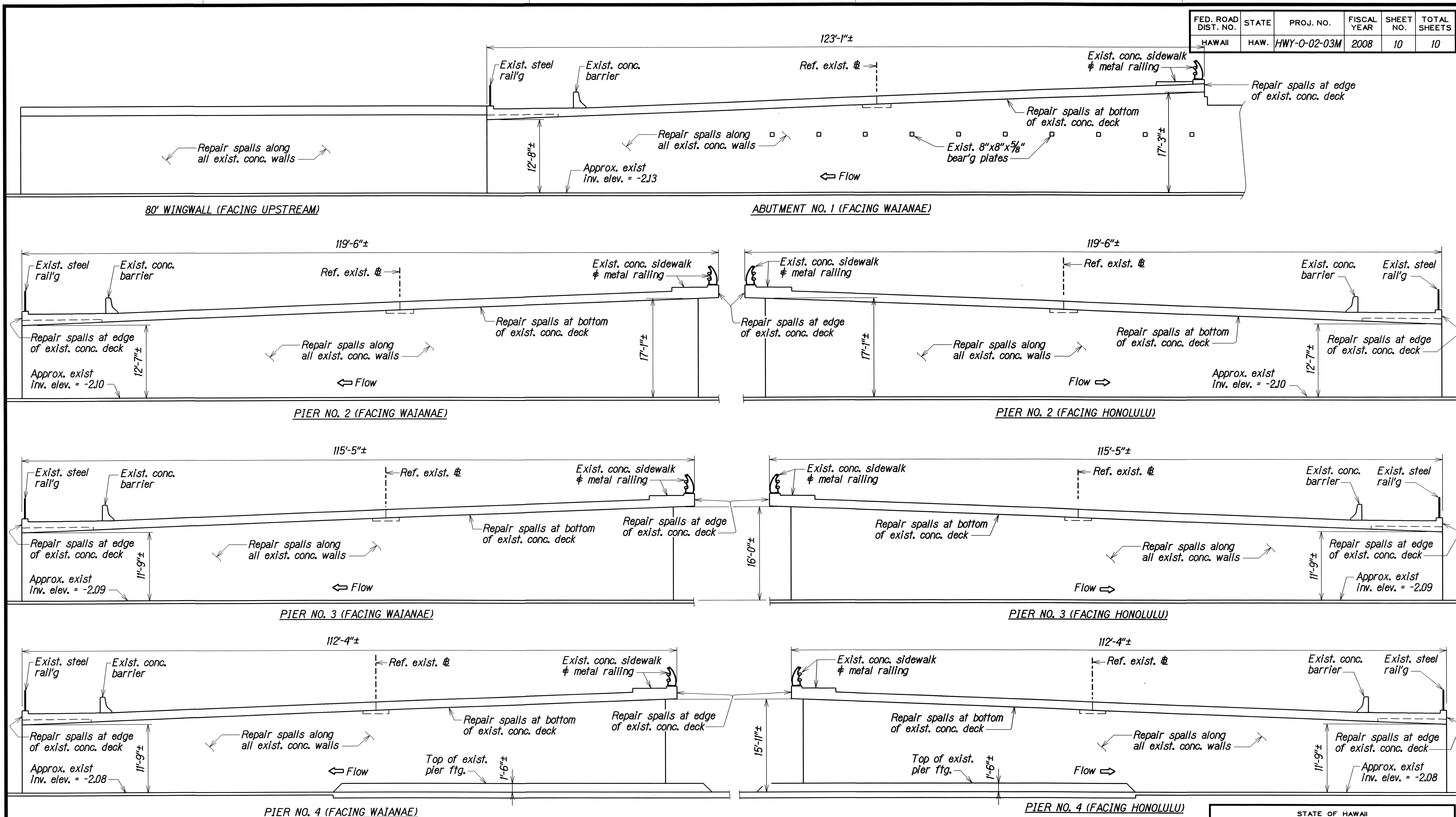

This sheet added to original plans to  
accommodate "As Built" revisions

| DATE                                                                                                                                                                                                                                                                                                        | REVISION |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION<br><br><b>ABUTMENT and PIER ELEVATIONS</b><br><b>MAILILILI STREAM BRIDGE</b><br><b>BRIDGE REPAIRS AT VARIOUS LOCATIONS</b><br>Kamehameha Highway/Farrington Highway<br>Project No. HWY-0-04-03M<br><br>Scale: As Noted Date: May, 2003 |          |

|               |      |
|---------------|------|
| ORIGINAL PLAN | DATE |
| DESIGNED BY   |      |
| DRAWN BY      |      |
| CHECKED BY    |      |
| APPROVED BY   |      |
| DATE          |      |

"AS-BUILT"

| FED. ROAD DIST. NO. | STATE | PROJ. NO.    | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-02-03M | 2008        | 10        | 10           |



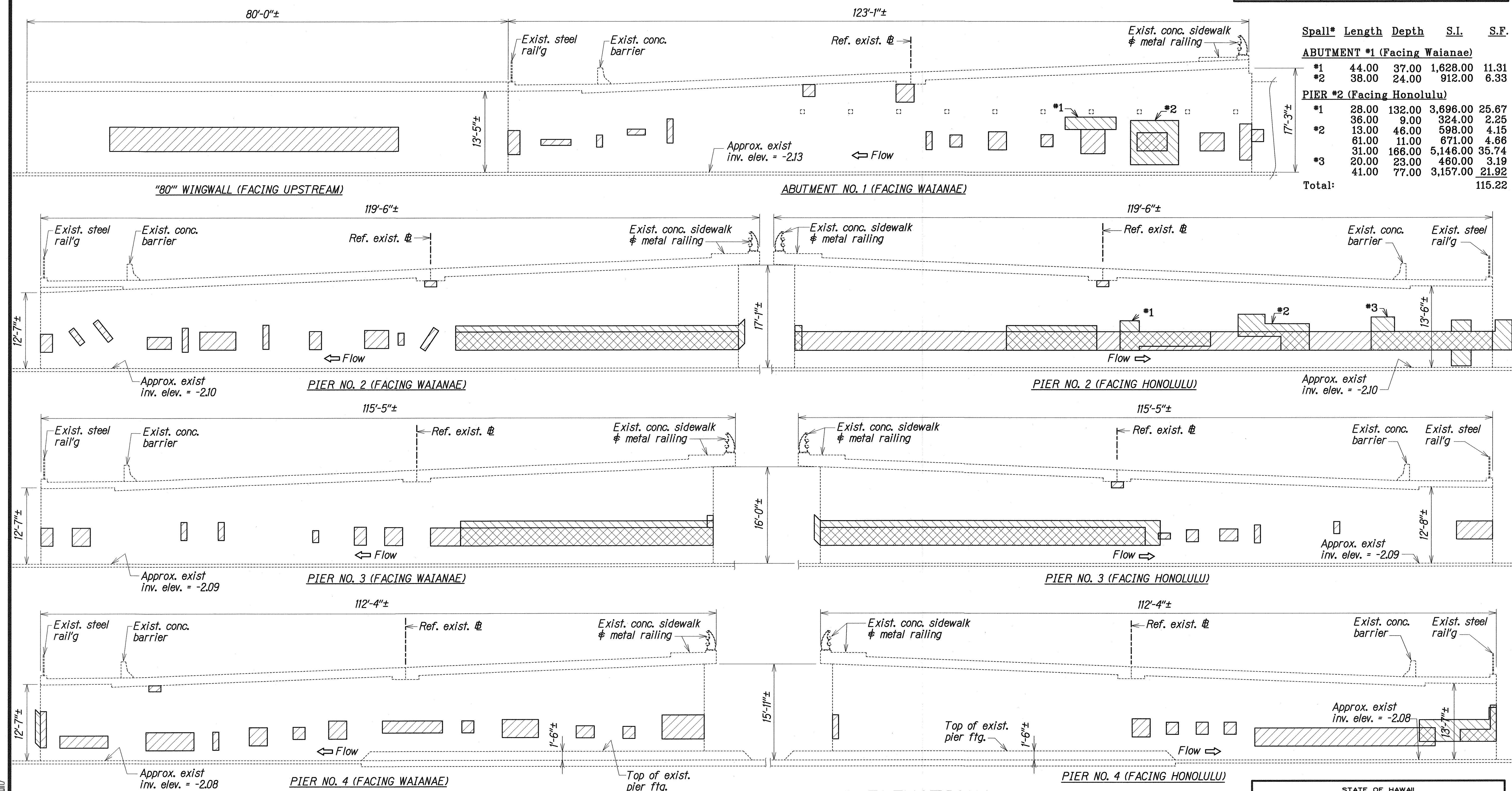
# WINGWALL, ABUTMENTS and PIER ELEVATIONS--MAILILILI STREAM BRIDGE

Scale: 1/8" = 1'-0"

|             |          |
|-------------|----------|
| DATE        | MAR 2008 |
| DESIGNED BY | KSQ      |
| DRAWN BY    | KSQ      |
| CHECKED BY  | KSQ      |
| APPROVED BY | KSQ      |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**WINGWALL, ABUTMENT and  
PIER ELEVATIONS**  
**MAILILILI STREAM BRIDGE**  
**BRIDGE REPAIRS at VARIOUS LOCATIONS**  
Ala Moana Boulevard/Farrington Highway  
Project No. HWY-0-02-03M  
Scale: As Noted Date: May, 2008  
SHEET No. Q5 OF 5 SHEETS

| FED. ROAD DIST. NO. | STATE | PROJ. NO.    | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-04-03M | 2008        | 10 S-1    | 10           |



| Spall*                              | Length | Depth  | S.I.     | S.F.          |
|-------------------------------------|--------|--------|----------|---------------|
| <b>ABUTMENT #1 (Facing Waianae)</b> |        |        |          |               |
| #1                                  | 44.00  | 37.00  | 1,628.00 | 11.31         |
| #2                                  | 38.00  | 24.00  | 912.00   | 6.33          |
| <b>PIER #2 (Facing Honolulu)</b>    |        |        |          |               |
| #1                                  | 28.00  | 132.00 | 3,696.00 | 25.67         |
| #2                                  | 36.00  | 9.00   | 324.00   | 2.25          |
| #3                                  | 13.00  | 46.00  | 598.00   | 4.15          |
| #4                                  | 61.00  | 11.00  | 671.00   | 4.66          |
| #5                                  | 31.00  | 166.00 | 5,146.00 | 35.74         |
| #6                                  | 20.00  | 23.00  | 460.00   | 3.19          |
| #7                                  | 41.00  | 77.00  | 3,157.00 | 21.92         |
| <b>Total:</b>                       |        |        |          | <b>115.22</b> |

### WINGWALL, ABUTMENT and PIER ELEVATIONS

### MAILILII STREAM BRIDGE

Not to Scale

REFER TO SHT. NO. Q5 FOR WINGWALL, ABUTMENT and PIER LOCATIONS

**NOTE:**  
Spall locations are for illustration purpose only. Actual locations to be determined by the Contractor and Engineer in the field.

#### SYMBOLS:

- Approximate spall or crack location (not repaired)
- Approximate location of repaired spall/crack

| LEGEND FOR AS-BUILT POSTINGS |                                     |
|------------------------------|-------------------------------------|
|                              | Squiggly line for as-built deletion |
|                              | Double line for as-built deletion   |
|                              | Text for as-built posting           |

| 7-1-10 | This sheet added to original plans to accommodate "As Built" revisions |
|--------|------------------------------------------------------------------------|
| DATE   | REVISION                                                               |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**WINGWALL, ABUTMENT and PIER ELEVATIONS**  
**MAILILII STREAM BRIDGE**  
**BRIDGE REPAIRS AT VARIOUS LOCATIONS**  
Kamehameha Highway/Farrington Highway  
Project No. HWY-0-04-03M

Scale: As Noted  
Date: July 2010