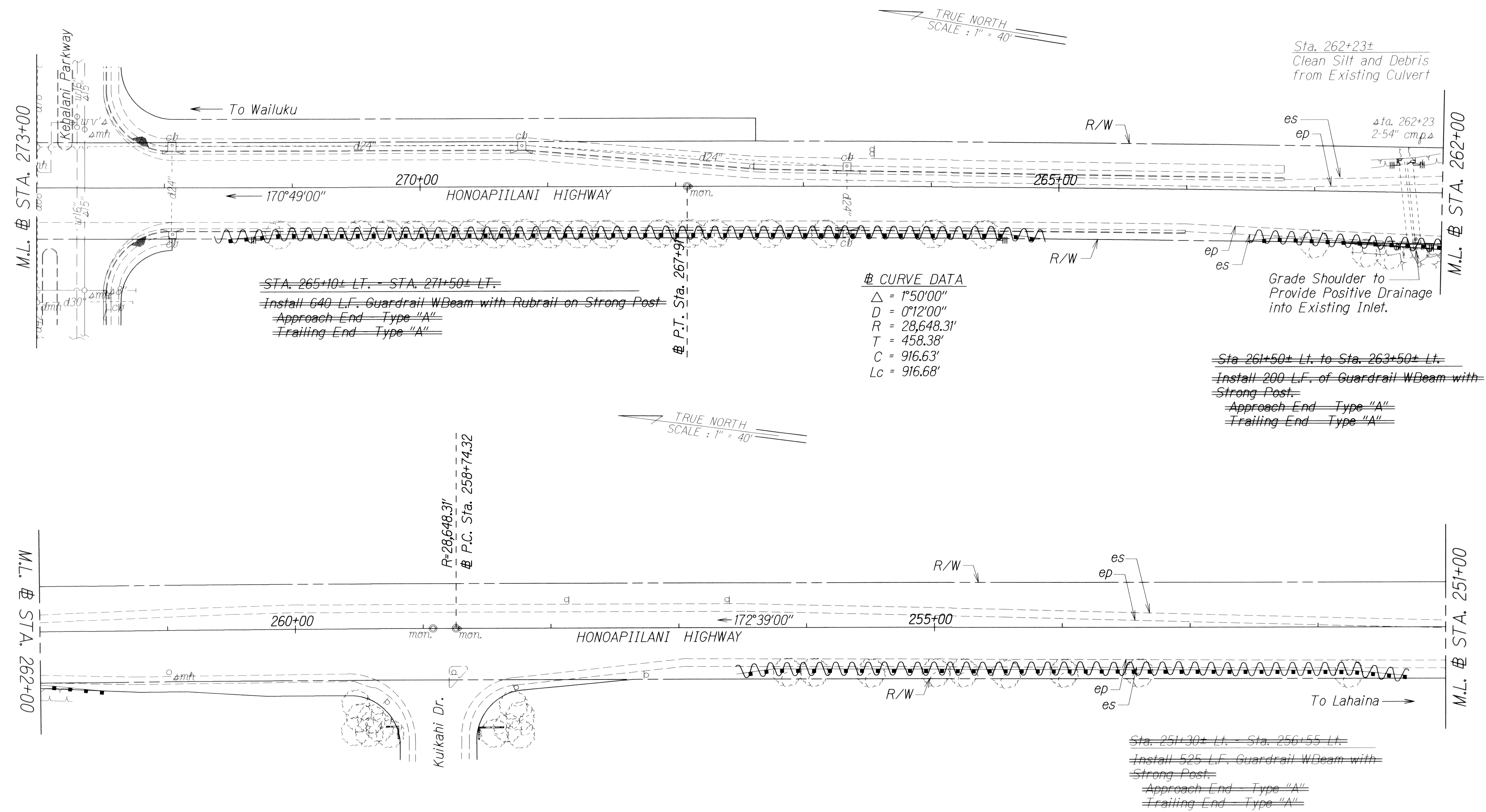






| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 7         | 73           |



|               |                   |          |
|---------------|-------------------|----------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE     |
| NOTE BOOK     | DRAWN BY          | JUL 1999 |
| DESIGNED BY   | CHECKED BY        |          |
| NOTED BY      |                   |          |
| CHECKED BY    |                   |          |

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

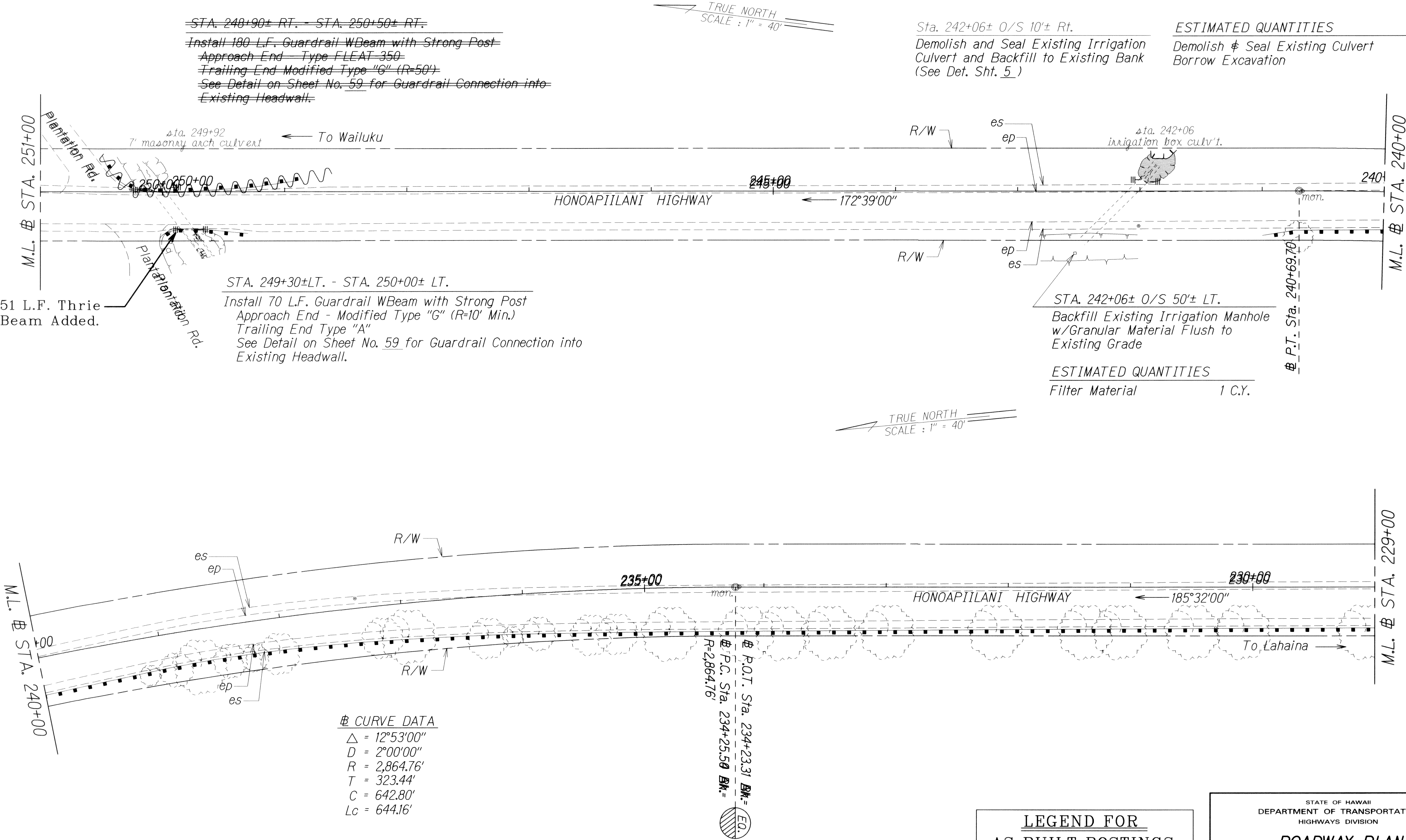
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

ROADWAY PLAN  
HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS  
High Street to Puamana  
Fed. Aid Project No. STP-0900(53)  
Scale: 1" = 40'      Date: Aug., 1999

SHEET No. 2 OF 33 SHEETS



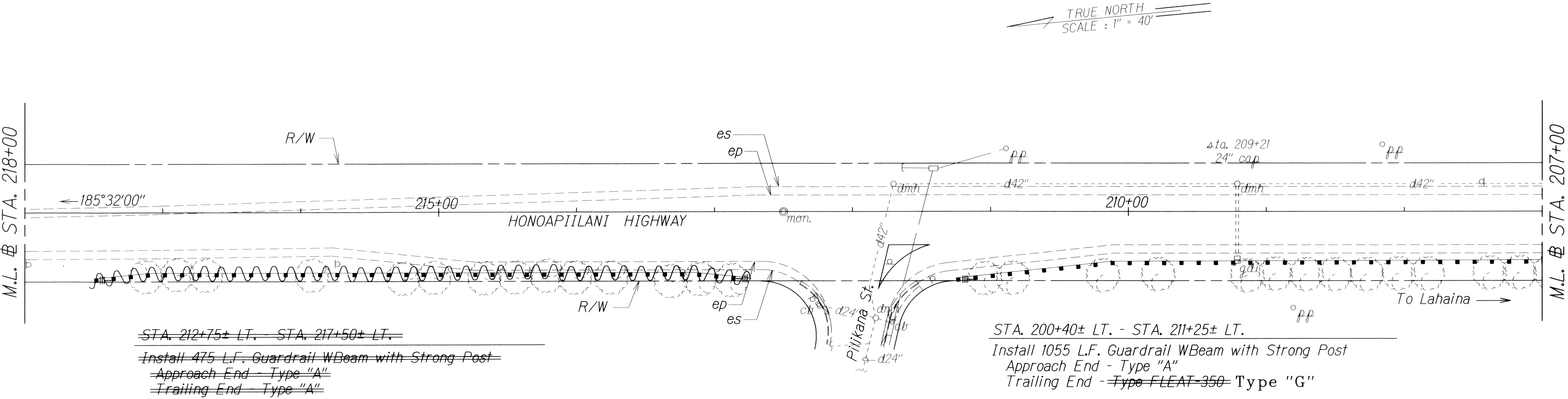
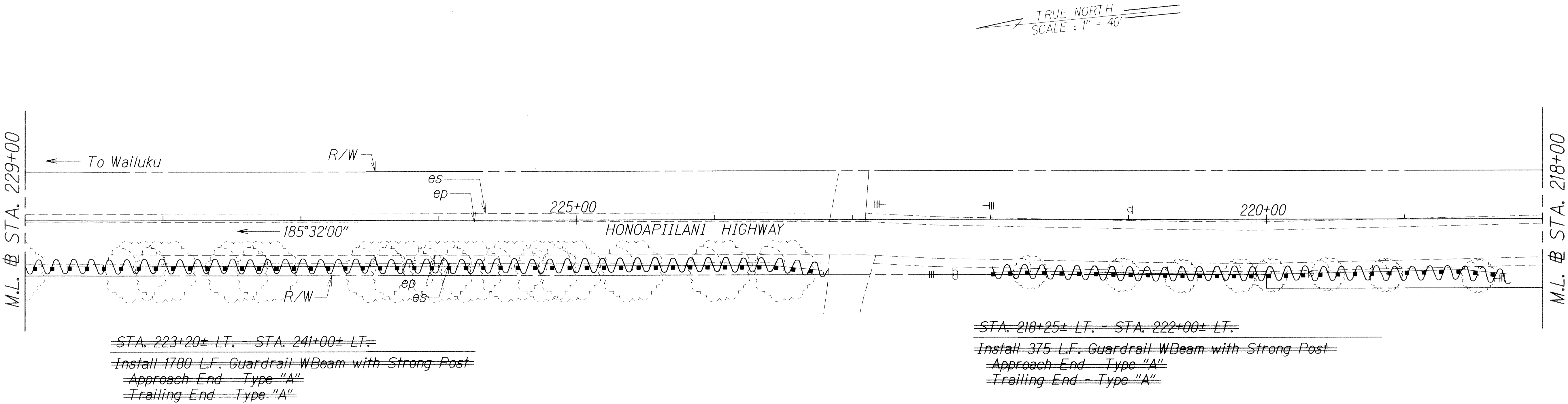
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 8         | 73           |



|                   |      |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DRAWN BY          |      |
| NOTE BOOK         |      |
| DESIGNED BY       |      |
| QUANTITIES BY     |      |
| CHECKED BY        |      |



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 9         | 73           |



|               |                   |           |
|---------------|-------------------|-----------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE      |
| NOTE BOOK     | DRAWN BY          | JULY 1992 |
| DESIGNED BY   | DESIGNED BY       |           |
| QUANTITIES BY | QUANTITIES BY     |           |
| CHECKED BY    | CHECKED BY        |           |

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

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

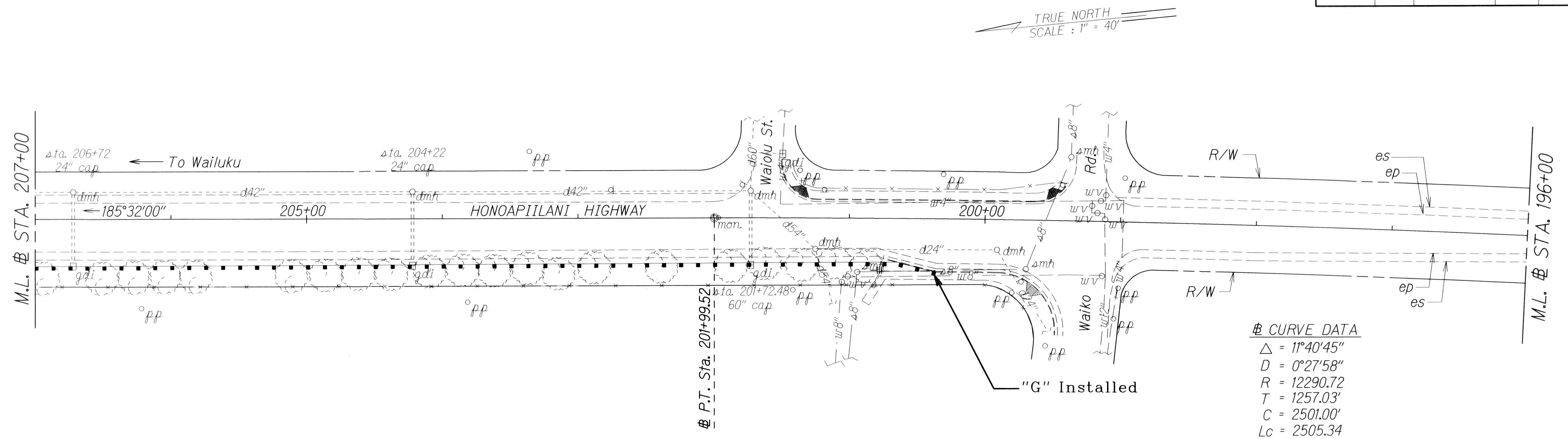
ROADWAY PLAN  
HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS  
High Street to Puamana  
Fed. Aid Project No. STP-0900(53)  
Scale: 1" = 40'      Date: Aug., 1999

SHEET No. 4 OF 33 SHEETS

"AS-BUILT"

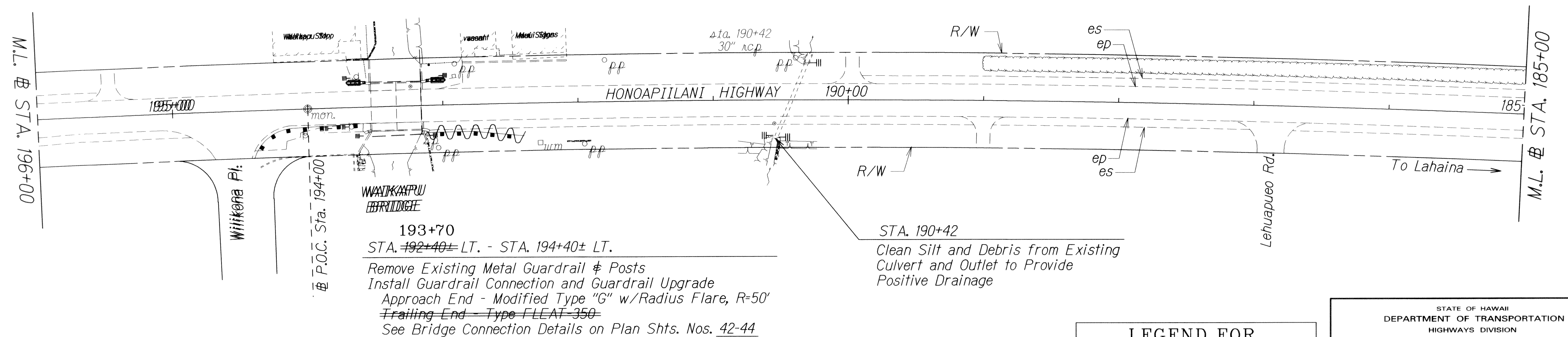


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 10        | 73           |



STA. 193+60± RT. - STA. 193+10± RT.

Remove Existing Metal Guardrail & Posts  
Install Quadguard and Bridge Connection  
See Bridge Connection Details on Plan Shts. Nos. 42-43



LEGEND FOR  
AS-BUILT POSTINGS

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

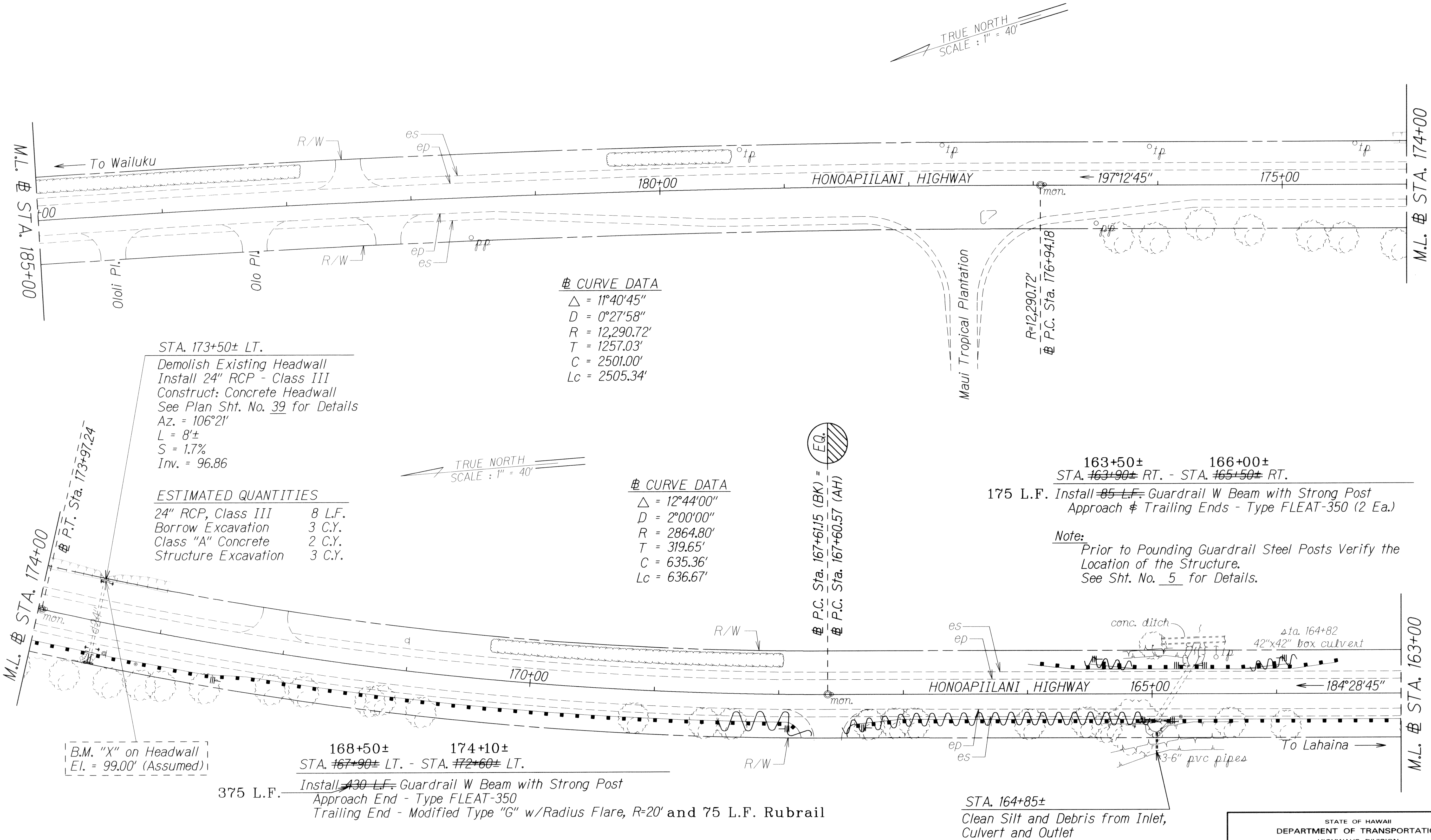
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**  
HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS  
High Street to Puamana  
Fed. Aid Project No. STP-0900(53)  
Scale: 1" = 40' Date: Aug., 1999  
SHEET No. 5 OF 33 SHEETS

"AS-BUILT"



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | ADD.11    | 73           |



|               |      |
|---------------|------|
| ORIGINAL PLAN | DATE |
| DRAWN BY      | DATE |
| NOTED BY      | DATE |
| CHECKED BY    | DATE |

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

| 8/25/99 | Added Notes to Estimated Quantities |
|---------|-------------------------------------|
| DATE    | REVISION                            |

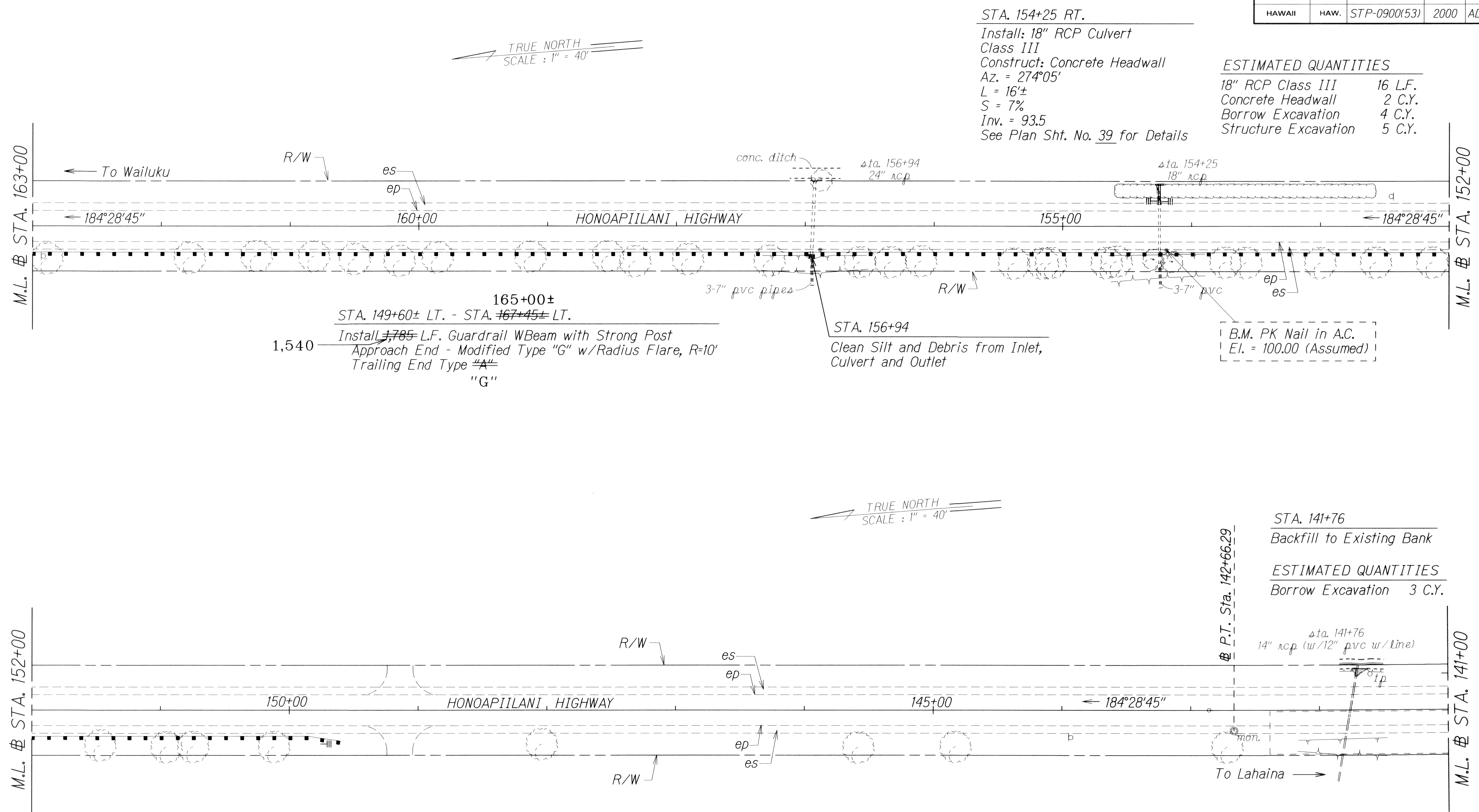
|                                                                      |                  |
|----------------------------------------------------------------------|------------------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION |                  |
| <b>ROADWAY PLAN</b>                                                  |                  |
| HONOAPIILANI HIGHWAY GUARDRAIL<br>AND SHOULDER IMPROVEMENTS          |                  |
| High Street to Puamana                                               |                  |
| Fed. Aid Project No. STP-0900(53)                                    |                  |
| Scale: 1" = 40'                                                      | Date: Aug., 1999 |
| SHEET No. 6 OF 33 SHEETS                                             |                  |

"AS-BUILT"

ADD.11



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | ADD.12    | 73           |



|               |                   |          |
|---------------|-------------------|----------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE     |
| NOTE BOOK     | DRAWN BY          | JUL 1999 |
| QUANTITIES BY | DESIGNED BY       |          |
| CHECKED BY    | NOTED BY          |          |

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

| 8/25/99 | Added Notes to Estimated Quantities. |
|---------|--------------------------------------|
| DATE    | REVISION                             |

|                                                                      |                  |
|----------------------------------------------------------------------|------------------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION |                  |
| <b>ROADWAY PLAN</b>                                                  |                  |
| HONOAPIILANI HIGHWAY GUARDRAIL<br>AND SHOULDER IMPROVEMENTS          |                  |
| High Street to Puamana                                               |                  |
| Fed. Aid Project No. STP-0900(53)                                    |                  |
| Scale: 1" = 40'                                                      | Date: Aug., 1999 |
| SHEET No. 7 OF 33 SHEETS                                             |                  |

"AS-BUILT"

ADD.12



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | ADD.13    | 73           |

STA. 139+04 RT.

Demolish: Existing Concrete Outlet  
Install: 24" RCP Culvert - Class III  
Construct: Concrete Headwall  
Az. = 273°01'  
L = 16±  
S = 1.0%  
See Plan Sht. No. 39 for Details  
Inv. = 16.4

ESTIMATED QUANTITIES

24" RCP 16 L.F.  
Borrow Excavation 2 C.Y.  
Class "A" Concrete 2 C.Y.  
Structure Excavation 8 C.Y.

B.M. Top CRM Headwall  
El. = 20.0 (Assumed)

¢ CURVE DATA

Δ = 2°44'00"  
D = 0°19'56"  
R = 17,241.14'  
T = 411.33'  
C = 822.42'  
Lc = 822.50'

STA. 135+52± LT.

Demolish: Existing Headwall and Clean Silt and Debris from Culvert  
Construct: Type 61614B GDI  
See Plan Sht. No. 39 for Details  
Top El. = 19.6±  
Inv. = 16.8

ESTIMATED QUANTITIES:

Type 61614B GDI (3.00 Ft. to 3.99 Ft.) 1 EA.  
Borrow Excavation 4.0 C.Y.

TRUE NORTH  
SCALE : 1" = 40'

M.L. ¢ STA. 141+00

To Wailuku

140+00

135+00

HONOAPIILANI HIGHWAY

181°44'45"

M.L. ¢ STA. 130+00

STA. 139+04± LT.

Demolish: Existing Headwall  
Construct: Type 61614B GDI  
See Plan Sht. No. 39 for Details  
Top El. = 21.1±  
Inv. = 16.9±

ESTIMATED QUANTITIES:

Type 61614B GDI (4.00 Ft. to 4.99 Ft.) 1 EA.  
Borrow Excavation 4.0 C.Y.

STA. 137+15± LT. - STA. 138+40± LT.

Install 125 L.F. Guardrail W-Beam with Strong Posts  
Approach End - Type "A"  
Trailing End - Type "A"

STA. 128+55± RT.

Demolish: Existing Headwall and Clean Silt from Culvert (Provide Positive Drainage as Required)  
Install: 24" RCP, Class III  
Construct: Concrete Headwall  
Az. = 252°36'  
L = 8±  
S = 1%  
See Plan Sht. No. 39 for Details  
Inv. = 16.3

ESTIMATED QUANTITIES:

24" RCP 8 L.F.  
Borrow Excavation 2.0 C.Y.  
Class "A" Concrete 2.0 C.Y.  
Structure Excavation 4.0 C.Y.

STA. 124+78

Grade Outlet as required to provide positive Slope

STA. 121+54

Clean Silt and Debris from Outlet to provide positive Drainage

TRUE NORTH  
SCALE : 1" = 40'

M.L. ¢ STA. 130+00

B.M. Top CRM Headwall  
El. = 20.0 (Assumed)

R/W

STA. 125+00± LT.  
Install 61614B GDI

125+00

HONOAPIILANI HIGHWAY

120+00

To Lahaina

M.L. ¢ STA. 119+00

STA. 127+30± LT. - STA. 129+40± LT.

Install 210 L.F. Guardrail W-Beam with Strong Post  
Approach End - Type "A"  
Trailing End - Type "A"

LEGEND FOR  
AS-BUILT POSTINGS

~~~~~ Squiggly line for as-built deletion  
=00.00 Double line for as-built deletion  
Roadway Text for as-built posting

8/25/99 Added Notes to Estimated Quantities.  
DATE REVISION

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**ROADWAY PLAN**  
HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS  
High Street to Puamana  
Fed. Aid Project No. STP-0900(53)  
Scale: 1" = 40' Date: August, 1999  
SHEET No. 8 OF 33 SHEETS

|                   |      |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DRAWN BY          |      |
| DESIGNED BY       |      |
| QUANTITIES BY     |      |
| CHECKED BY        |      |

"AS-BUILT"

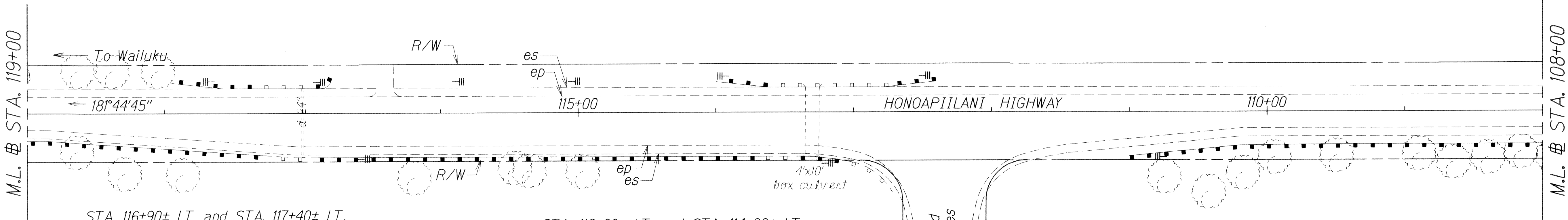
ADD.13



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 14        | 73           |

STA. 116+80± RT. and STA. 117+95± RT.  
Remove Existing Approach & Trailing Flare Ends  
Install 80 L.F. Guardrail W-Beam with Strong Post  
Approach End -Modified Type "G" (R=10' Min.)  
Trailing End - Type FLEAT-350

STA. 112+40± RT. and STA. 114+00± RT.  
Remove Existing Approach & Trailing Flare Ends and Replace  
Approach & Trailing End - Install Type FLEAT-350



STA. 116+90± LT. and STA. 117+40± LT.  
Remove Existing Approach & Trailing Flare Ends

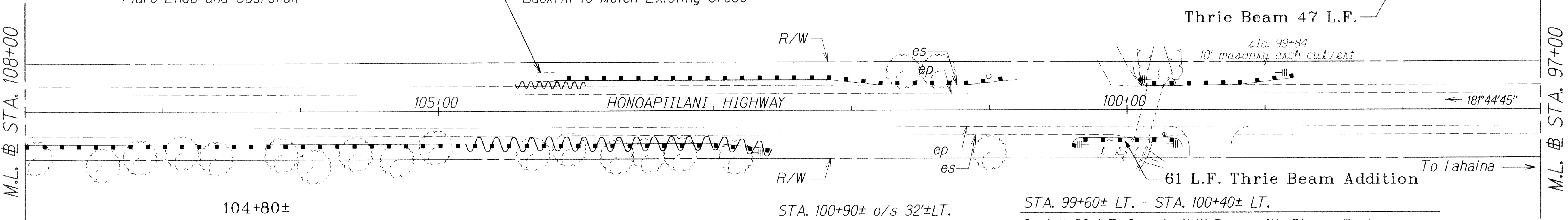
STA. 113+00± LT. and STA. 114+00± LT.  
Remove Existing Approach & Trailing Flare Ends  
124+60±  
STA. 113+00± LT. - STA. 125+20± LT.  
Install 1,150 L.F. Guardrail W-Beam with Strong Post (Connect to Existing Sections)  
Approach End - Type "A"  
Trailing End - ~~Type "A"~~ Modified Type "G"

STA. 103+09± RT. - STA. 104+45± RT.  
Remove Existing Approach & Trailing Flare Ends and Guardrail

STA. 104+20± o/s 25±RT.  
Demolish Existing Concrete Slab and Headwall.  
Backfill to Match Existing Grade

104+50±  
STA. 100+80± RT. - STA. 102+15± RT.  
Install 60 L.F. Guardrail W-Beam with Strong Post  
Approach & Trailing End - Type FLEAT-350

STA. 98+80 RT. - STA. 99+85± RT.  
Install 80 L.F. Guardrail W-Beam with Strong Post  
Approach End - Type FLEAT-350  
Trailing End - Modified Type "G" (R=10' Min.)  
See Detail on Sht. No. 59 for Guardrail Connection into Existing Headwall



104+80±  
STA. 102+60± LT. - STA. 111+00± LT.  
Install 840 L.F. Guardrail W-Beam with Strong Post  
Approach End - ~~Type "A"~~ Type "G"  
Trailing End - Type "A"

STA. 100+90± o/s 32±LT.  
Remove Dead Monkeypod Tree

Approach End - Type "G"  
Trailing End - Type FLEAT 350

STA. 99+60± LT. - STA. 100+40± LT.  
Install 80 L.F. Guardrail W-Beam with Strong Post  
Approach & Trailing Ends - ~~Modified Type "G" w/Radius Flare, R=6' Min.~~  
See Detail on Sht. No. 59 for Guardrail Connection into Existing Headwall

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

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

ROADWAY PLAN  
HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS  
High Street to Puamana  
Fed. Aid Project No. STP-0900(53)  
Scale: 1" = 40' Date: Aug., 1999

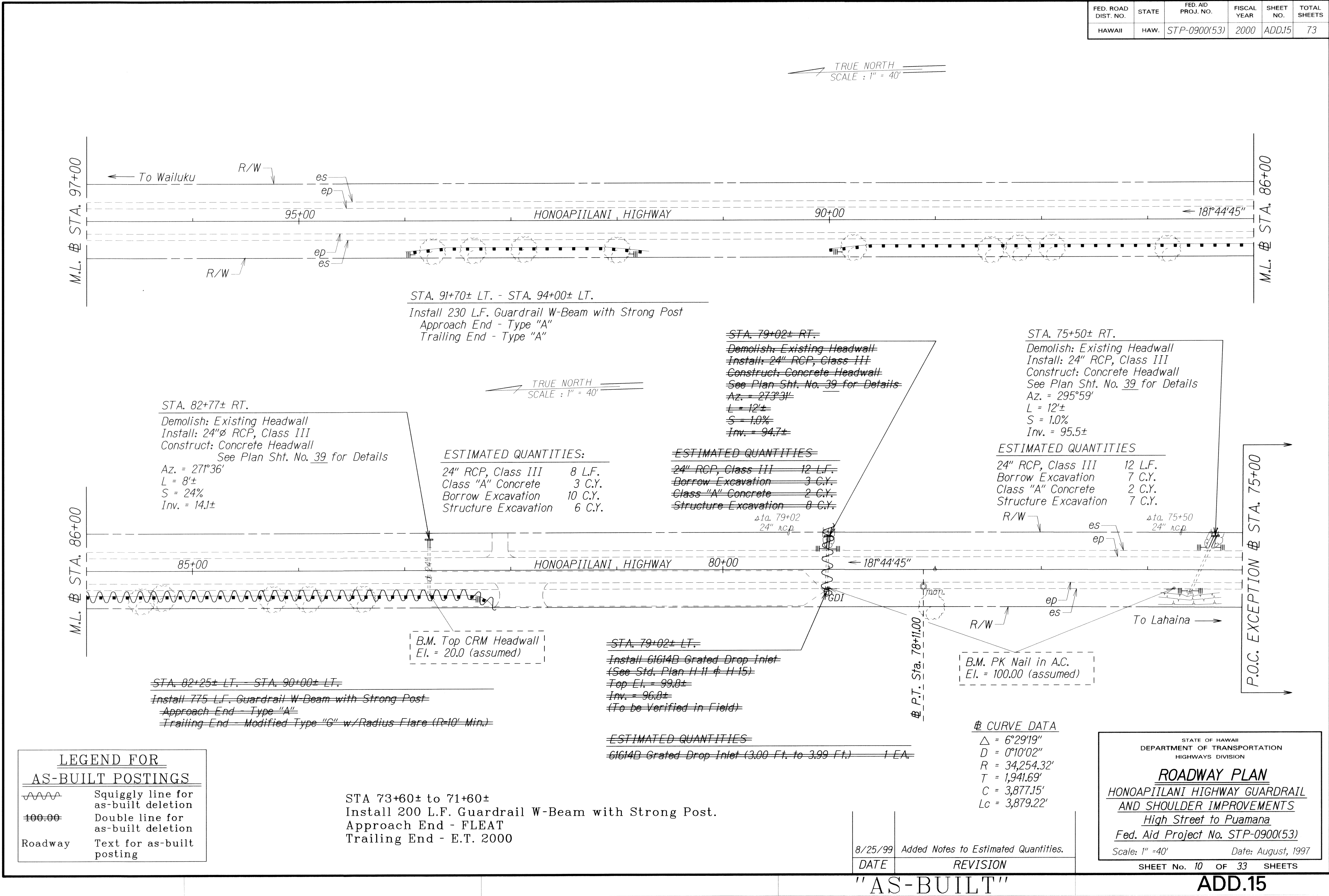
SHEET No. 9 OF 33 SHEETS

|               |          |
|---------------|----------|
| ORIGINAL PLAN | DATE     |
| DESIGNED BY   | 10/14/99 |
| DRAWN BY      |          |
| CHECKED BY    |          |
| NOTED BY      |          |
| APPROVED BY   |          |

"AS-BUILT"

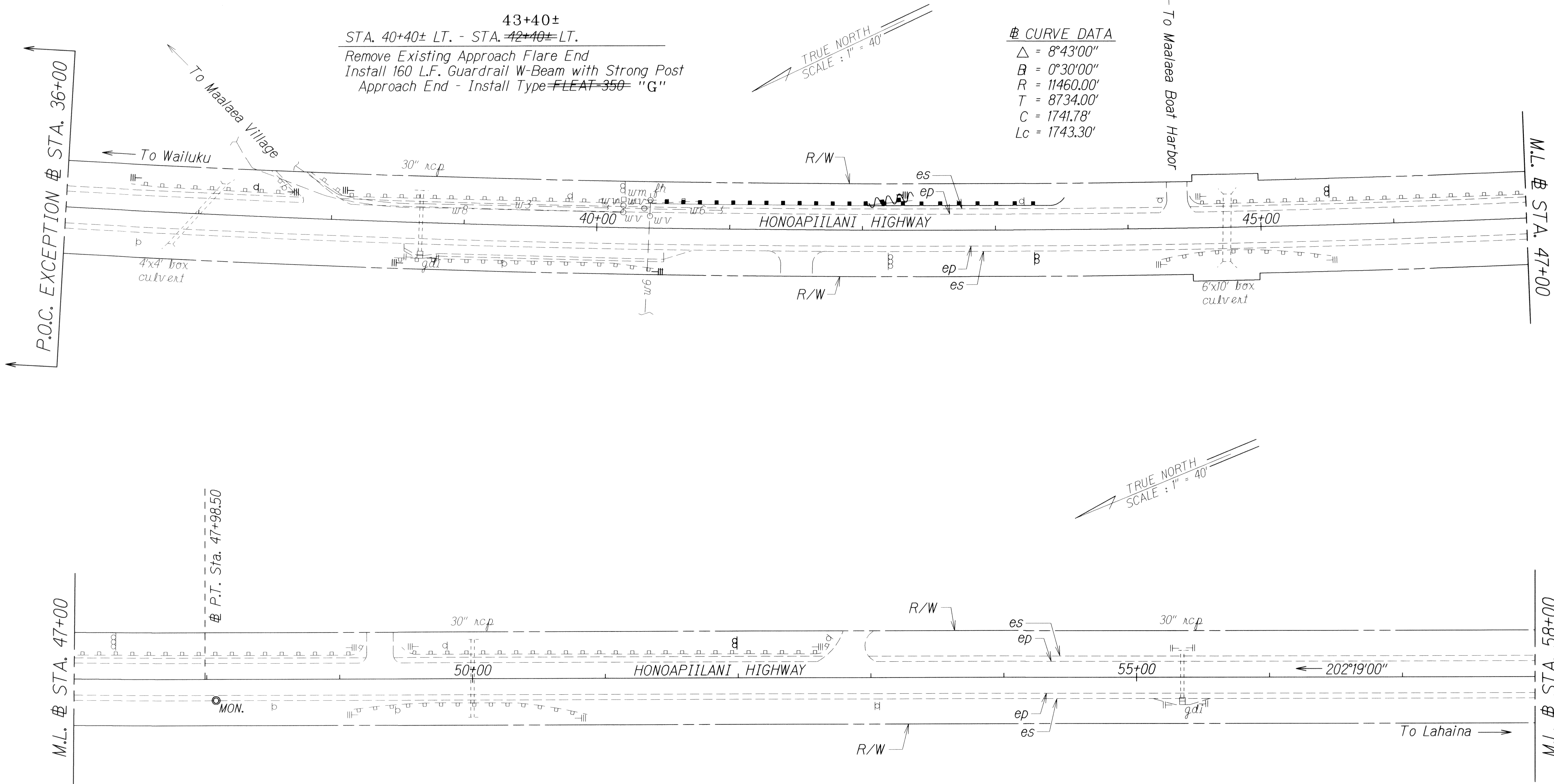


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | ADD.15    | 73           |





| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 16        | 62           |



|               |                   |           |
|---------------|-------------------|-----------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE      |
| NOTE BOOK     | DRAWN BY          | July 1997 |
| QUANTITIES BY | TRACED BY         |           |
| CHECKED BY    | NOTED BY          |           |

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

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

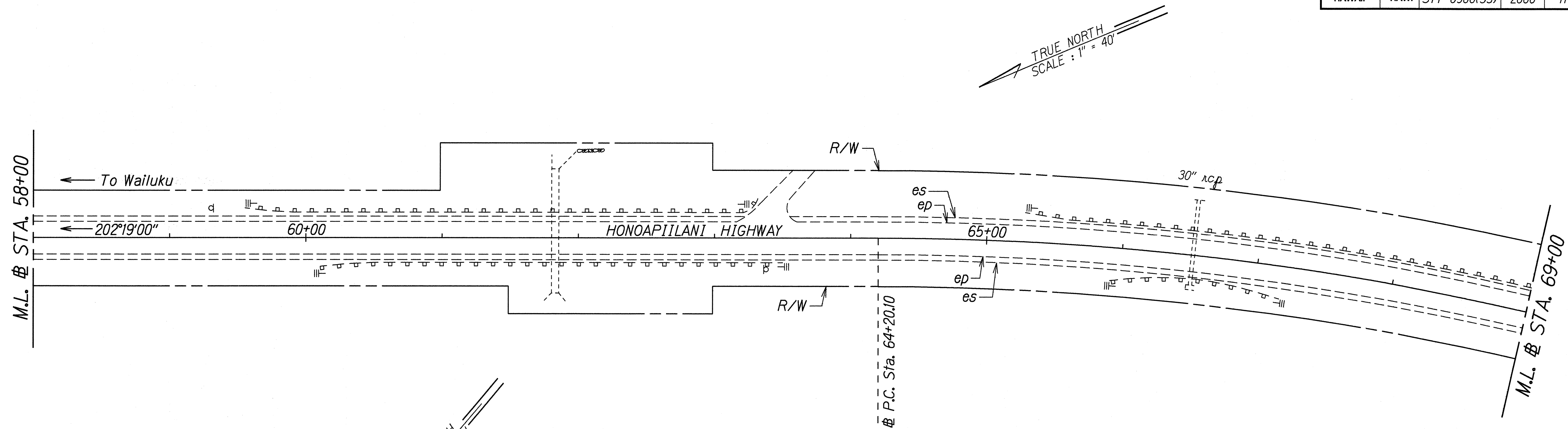
ROADWAY PLAN  
HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS  
High Street to Puamana  
Fed. Aid Project No. STP-0900(53)  
Scale: 1" = 40'      Date: August, 1997

SHEET No. 11 OF 33 SHEETS

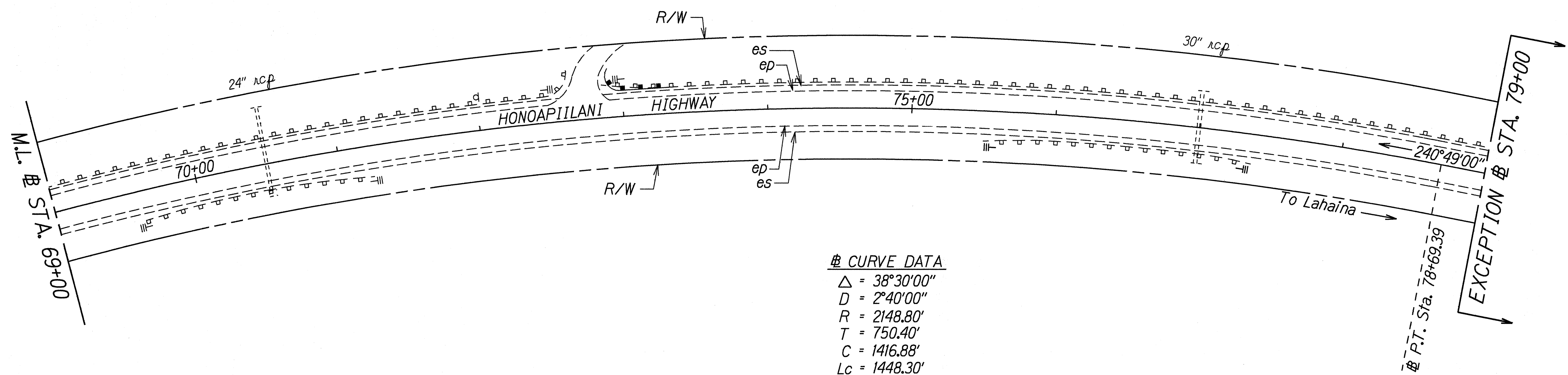
"AS-BUILT"



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 17        | 73           |



STA. 73+00± LT. - STA. 79+65± LT.  
 Remove Existing Trailing Flare End  
 Approach End - To Remain  
 Trailing End - Install Modified Type "G" (R=10' Min.)



**⊕ CURVE DATA**  
 $\Delta = 38^{\circ}30'00''$   
 $D = 2^{\circ}40'00''$   
 $R = 2148.80'$   
 $T = 750.40'$   
 $C = 1416.88'$   
 $L_c = 1448.30'$

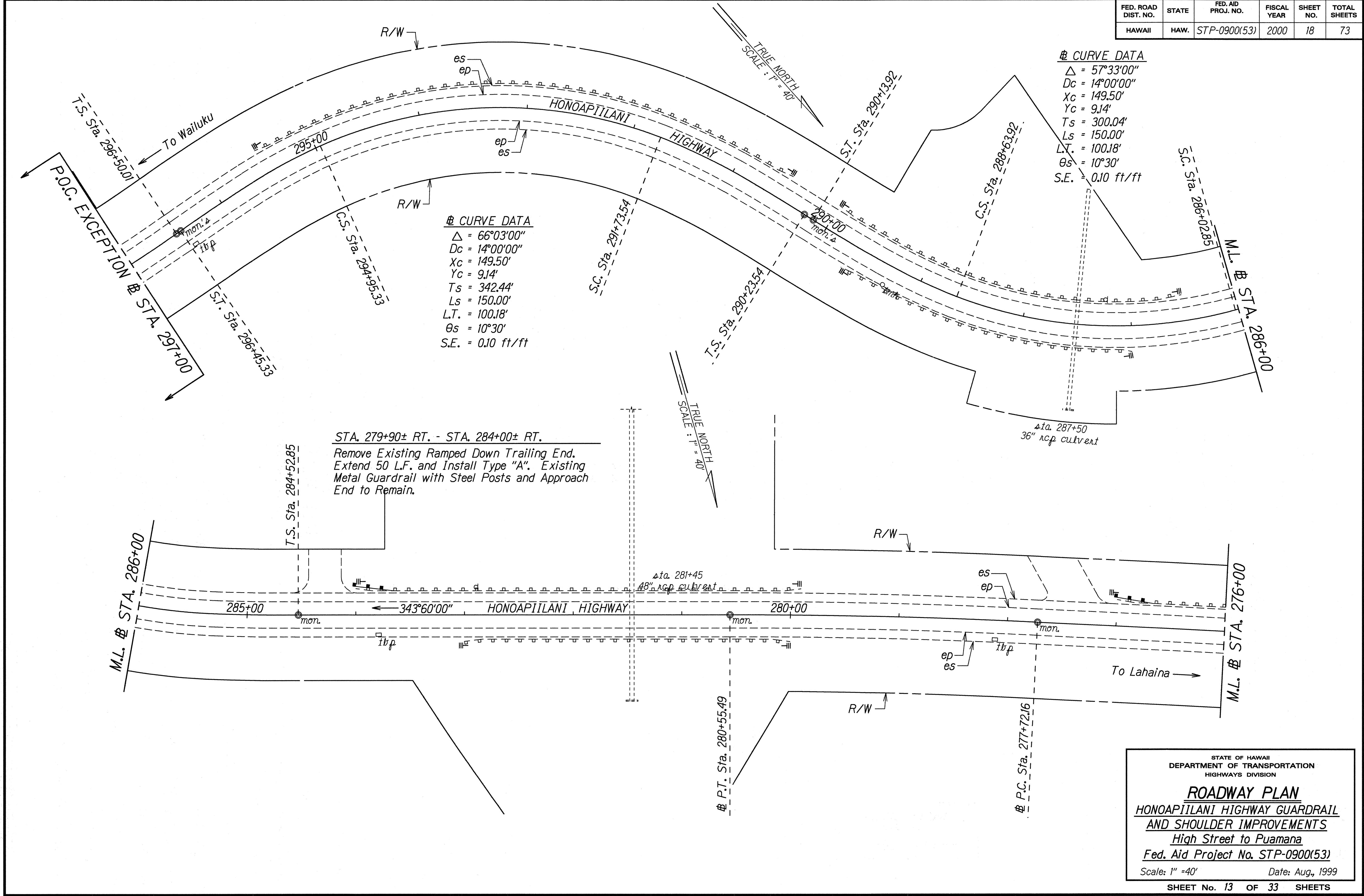
|                 |               |           |
|-----------------|---------------|-----------|
| ORIGINAL PLAN   | DATE          | 7/14/1999 |
| DRAWN BY        | DESIGNED BY   | CH        |
| NOTE BOOK       | QUANTITIES BY | CH        |
| log/in. 1/4"    | CHECKED BY    | CH        |
| 4/20/99/3/20/99 |               |           |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

ROADWAY PLAN  
HONOAPIʻILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS  
High Street to Puamana  
Fed. Aid Project No. STP-0900(53)  
Scale: 1" = 40'      Date: Aug., 1999



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 18        | 73           |



|                   |      |           |
|-------------------|------|-----------|
| ORIGINAL PLAN     | DATE | July 1999 |
| SURVEY PLOTTED BY |      |           |
| DRAWN BY          |      |           |
| DESIGNED BY       |      |           |
| QUANTITIES BY     |      |           |
| CHECKED BY        |      |           |

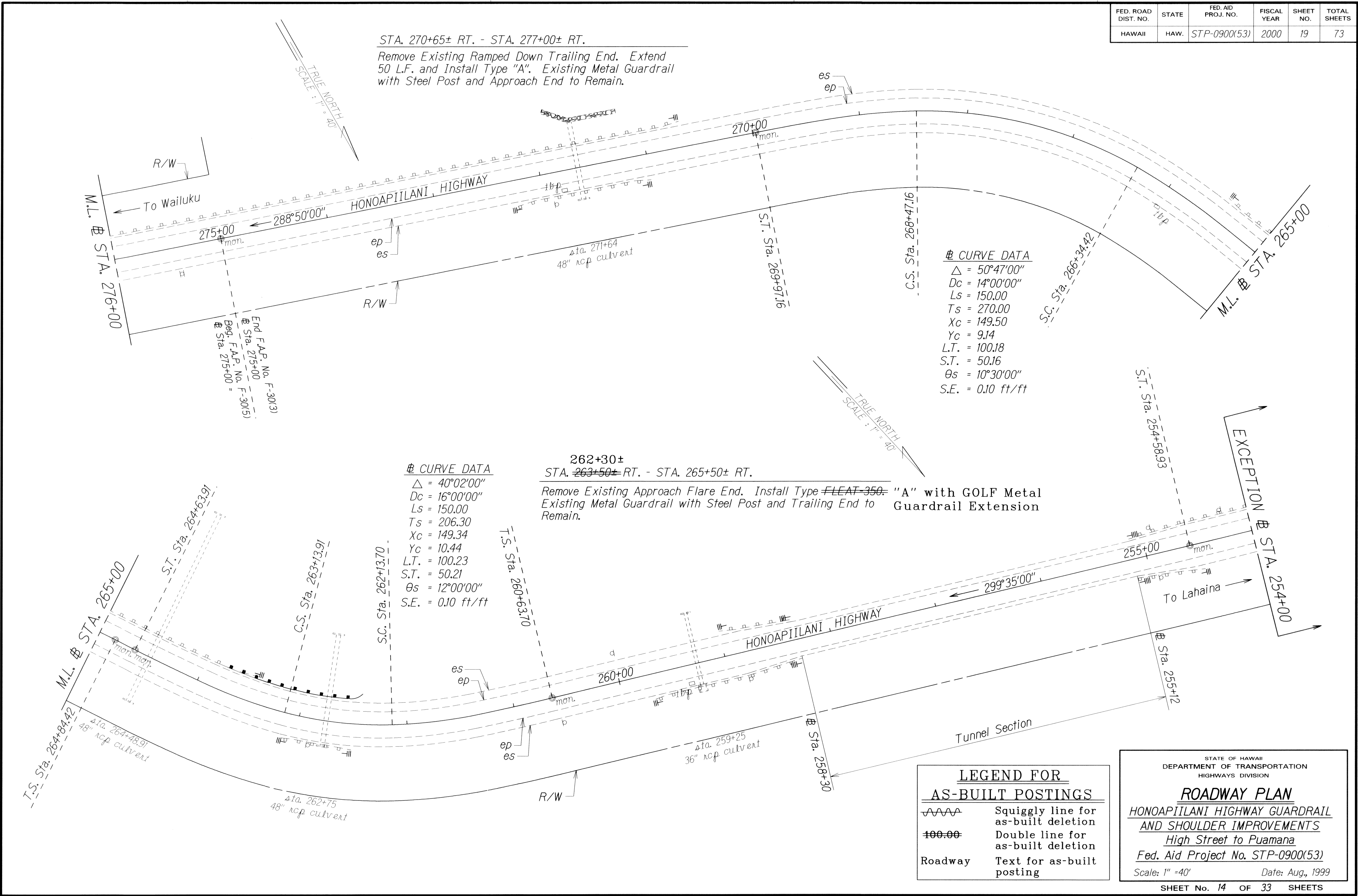
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**  
**HONOAPIʻILANI HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS**  
**High Street to Puamana**  
**Fed. Aid Project No. STP-0900(53)**  
Scale: 1" = 40'

Date: Aug., 1999  
SHEET No. 13 OF 33 SHEETS



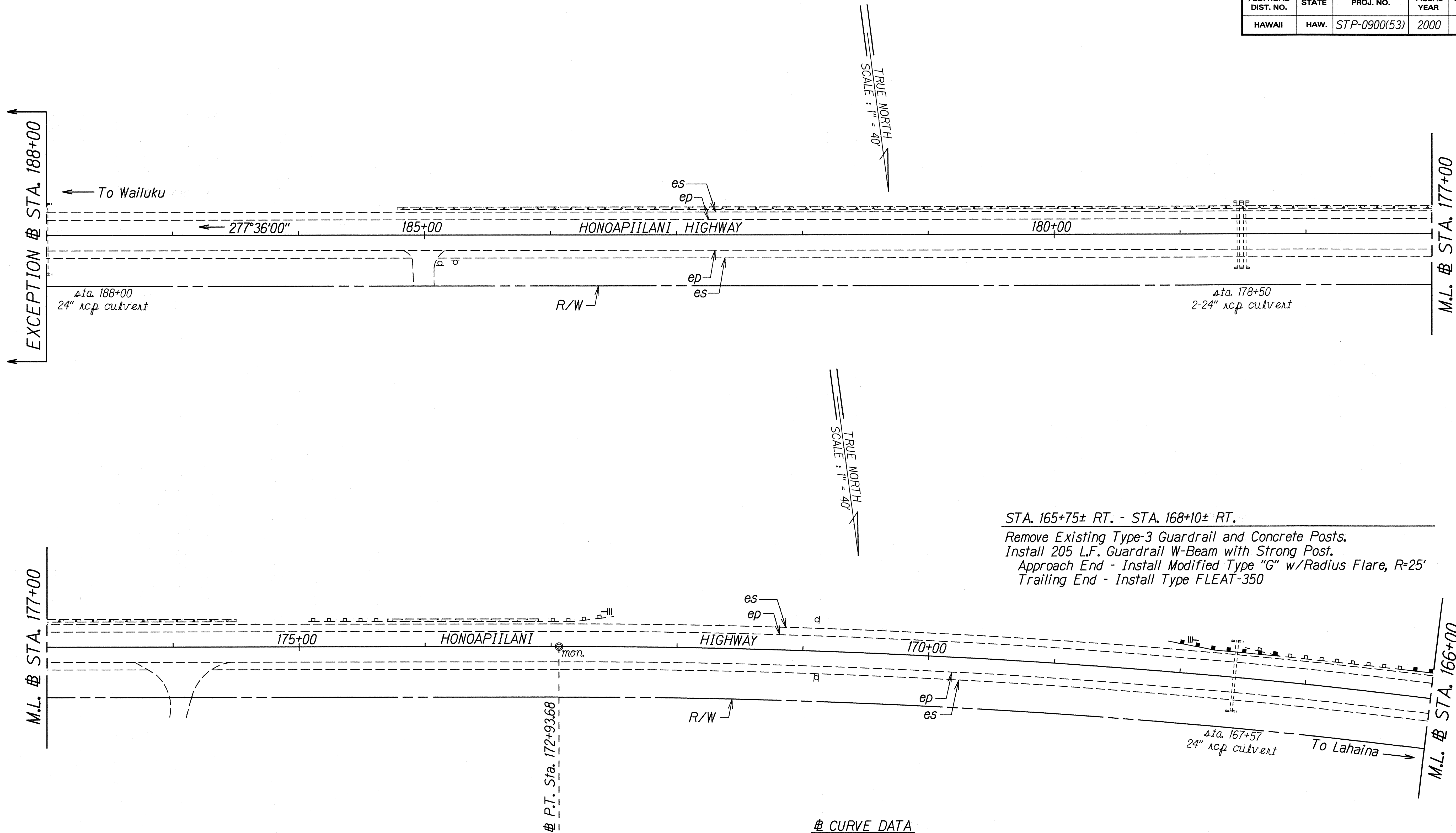
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 19        | 73           |



"AS-BUILT"



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 20        | 73           |



STA. 165+75± RT. - STA. 168+10± RT.  
 Remove Existing Type-3 Guardrail and Concrete Posts.  
 Install 205 L.F. Guardrail W-Beam with Strong Post.  
 Approach End - Install Modified Type "G" w/Radius Flare, R=25'  
 Trailing End - Install Type FLEAT-350

# CURVE DATA  
 $\Delta = 19^{\circ}14'30''$   
 $D = 1^{\circ}00'00''$   
 $R = 5729.58$   
 $T = 971.23$   
 $C = 1915.14$   
 $L = 1924.17$   
 $S. E. = 0.00 \text{ ft/ft}$

|               |                   |            |
|---------------|-------------------|------------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE       |
| NOTE BOOK     | DRAWN BY          | 10/14/1999 |
| log/lin. lay  | DESIGNED BY       |            |
| 240mm/240mm   | QUANTITIES BY     |            |
|               | CHECKED BY        |            |

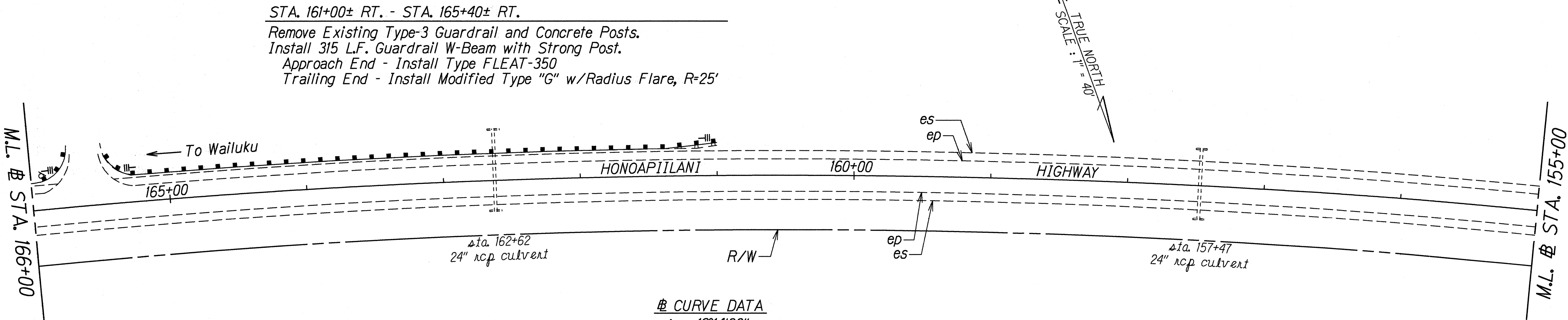
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

ROADWAY PLAN  
HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS  
High Street to Puamana  
Fed. Aid Project No. STP-0900(53)  
Scale: 1" = 40'      Date: Aug., 1999

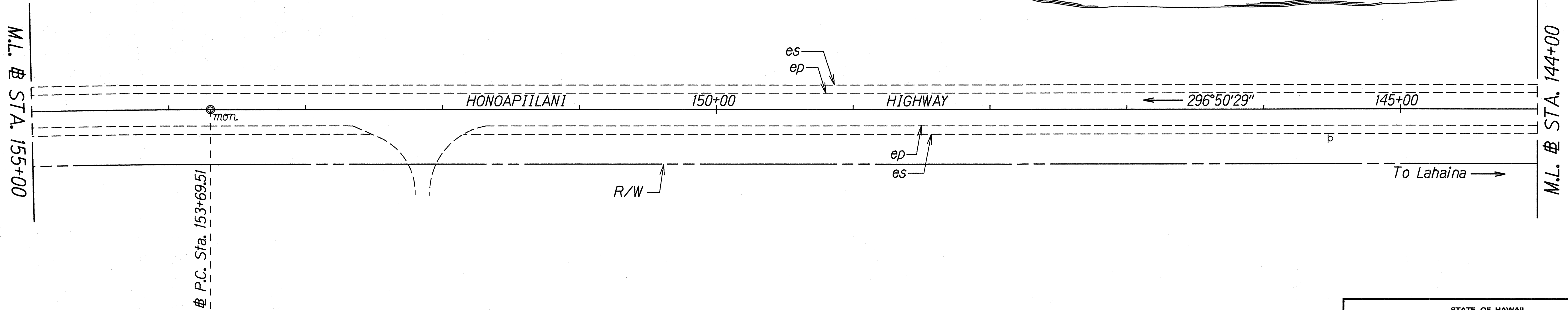
SHEET No. 15 OF 33 SHEETS



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 21        | 73           |



± CURVE DATA  
Δ = 19°14'30"  
D = 1°00'00"  
R = 5729.58'  
T = 971.23'  
C = 1915.14'  
Lc = 1924.17'



|               |                   |           |
|---------------|-------------------|-----------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE      |
| NOTE BOOK     | DRAWN BY          | JULY 1999 |
| DESIGNED BY   | CHECKED BY        |           |
| 10/10/99      |                   |           |
| 10/10/99      |                   |           |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

ROADWAY PLAN

HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS

High Street to Puamana

Fed. Aid Project No. STP-0900(53)

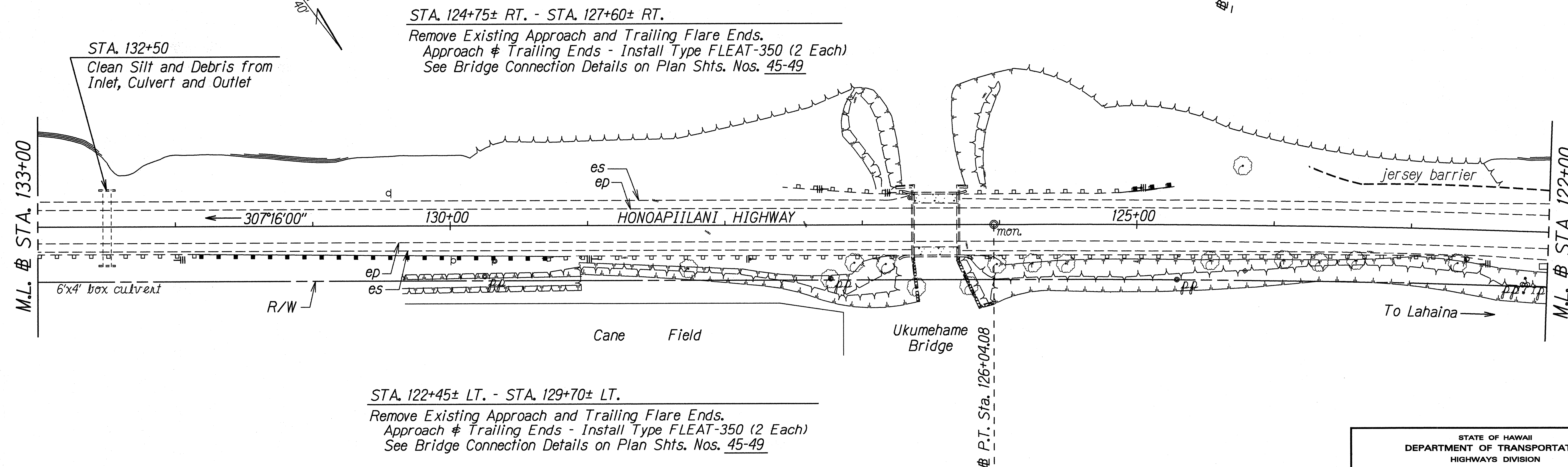
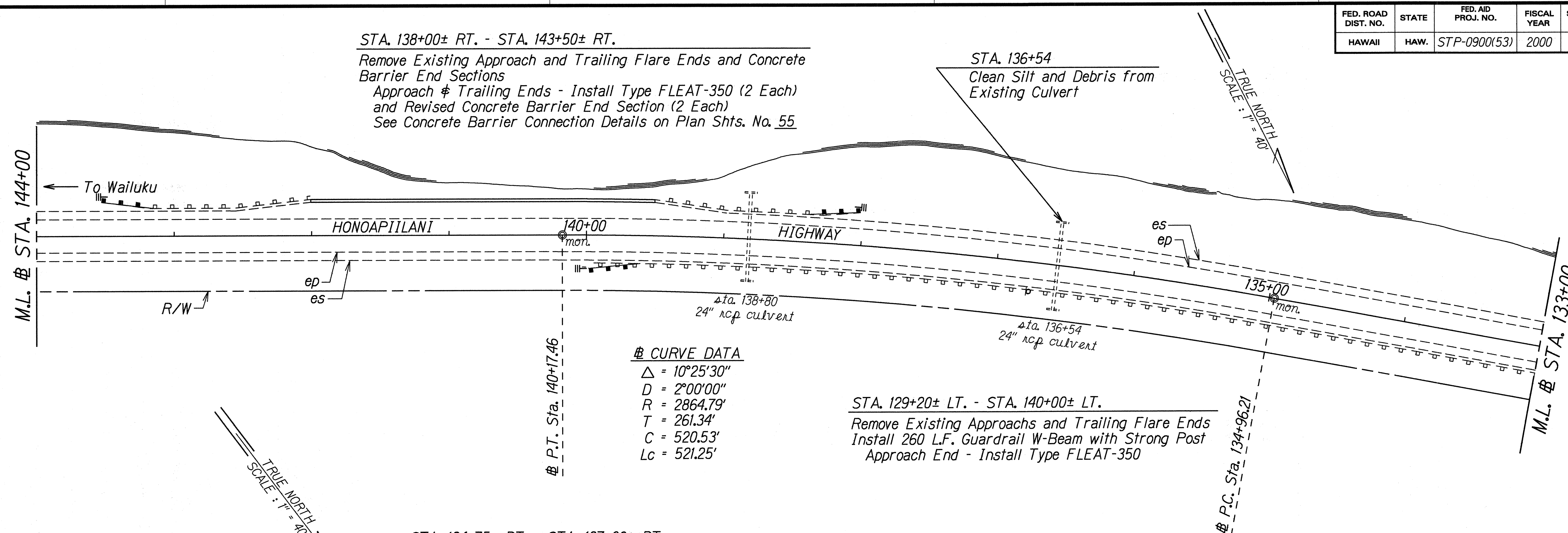
Scale: 1" = 40'

Date: Aug., 1999

SHEET No. 16 OF 33 SHEETS



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 22        | 73           |



|               |                   |           |
|---------------|-------------------|-----------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE      |
| PLAN          | DRAWN BY JG       | JULY 1999 |
| NOTE BOOK     | TRACED BY JG      |           |
| logins lay    | CHECKED BY JG     |           |
| 4/20/00/02/03 | CHECKED BY        |           |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

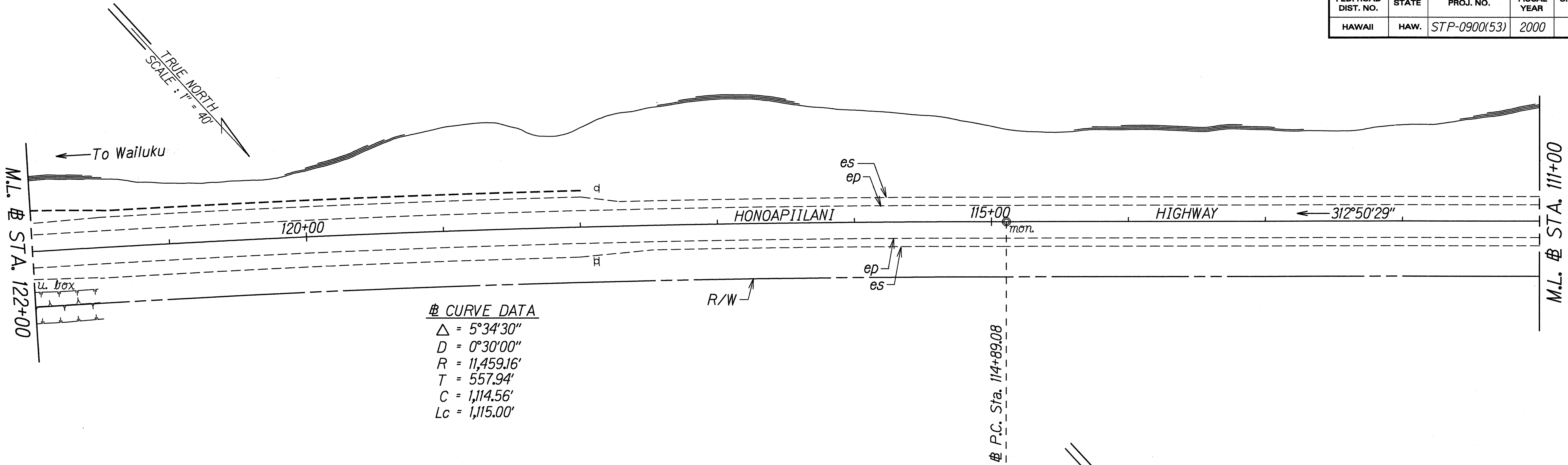
**ROADWAY PLAN**  
**HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS**  
**High Street to Puamana**  
**Fed. Aid Project No. STP-0900(53)**

Scale: 1" = 40' Date: Aug., 1999

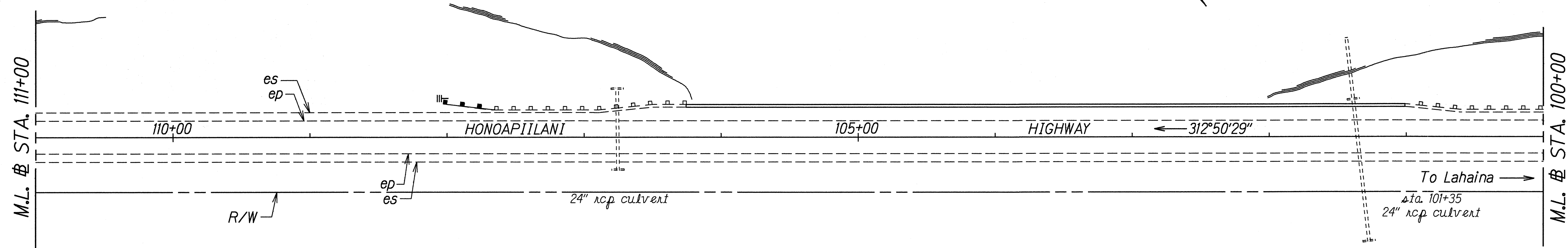
SHEET No. 17 OF 33 SHEETS



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 23        | 73           |



STA. 99+20± RT. - STA. 107+85± RT.  
 Remove Existing Approach and Trailing Flare Ends and Concrete Barrier End Sections  
 Approach & Trailing Ends - Install Type FLEAT-350 (2 Each) and Revised Concrete Barrier End Section (2 Each)  
 See Concrete Barrier Connection Details on Plan Shts. No. 55



|               |                   |            |
|---------------|-------------------|------------|
| ORIGINAL PLAN | SURVEY PLATTED BY | DATE       |
| NOTE BOOK     | DRAWN BY          | 10/16/1997 |
| DESIGNED BY   | CR                |            |
| QUANTITIES BY |                   |            |
| CHECKED BY    |                   |            |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

### ROADWAY PLAN

HONOAPIʻILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS  
High Street to Puamana  
Fed. Aid Project No. STP-0900(53)

Scale: 1" = 40'  
Date: Aug, 1999

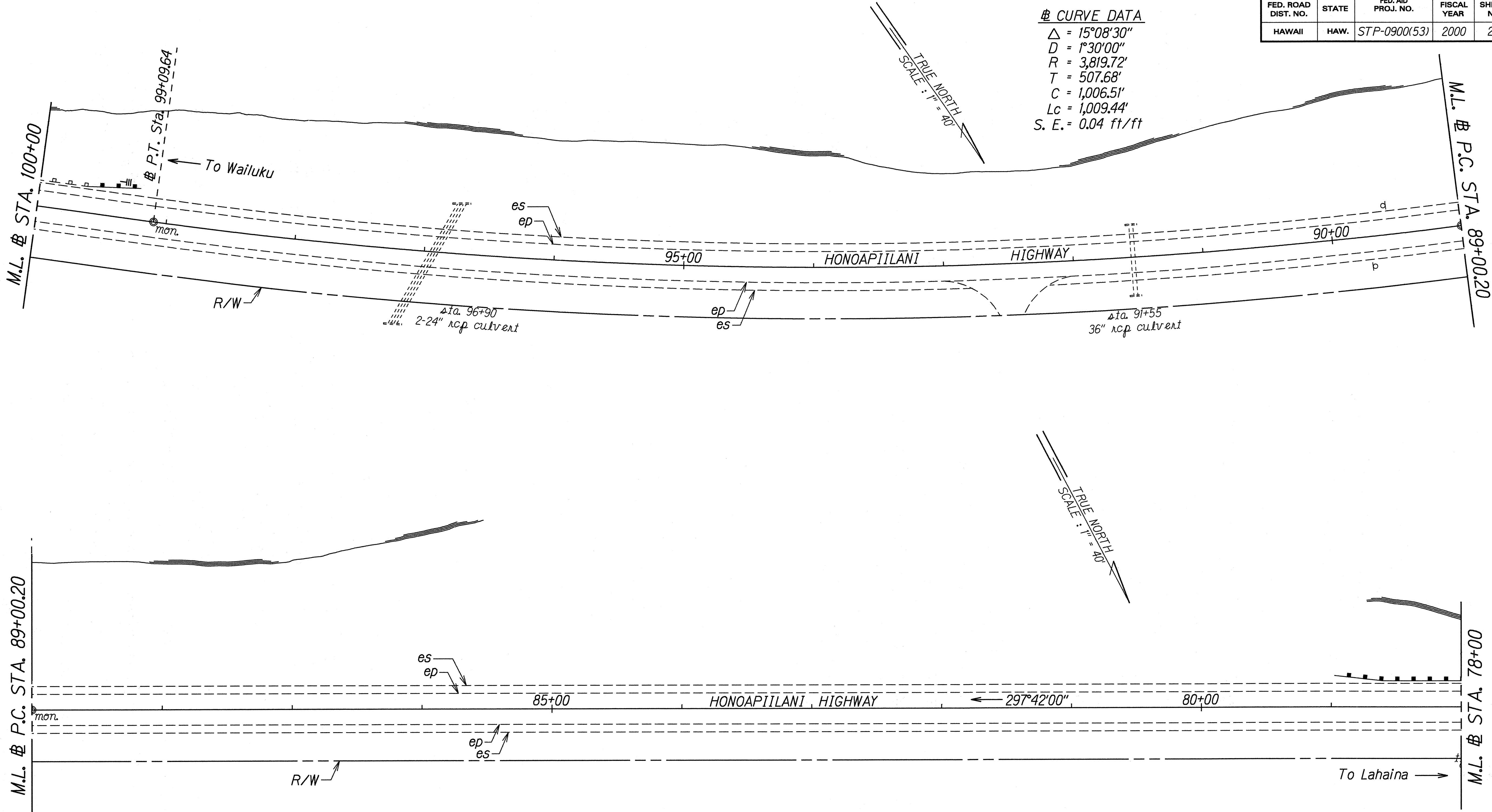
SHEET No. 18 OF 33 SHEETS



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 24        | 73           |

# # CURVE DATA

$\Delta = 15^{\circ}08'30''$   
 $D = 1^{\circ}30'00''$   
 $R = 3,819.72'$   
 $T = 507.68'$   
 $C = 1,006.51'$   
 $Lc = 1,009.44'$   
 $S. E. = 0.04 \text{ ft/ft}$



|               |                   |         |
|---------------|-------------------|---------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE    |
| NOTES         | DRAWN BY          | 10/1/99 |
| QUANTITIES BY | CHECKED BY        |         |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

## ROADWAY PLAN

### HONOAPIILANI HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS

#### High Street to Puamana

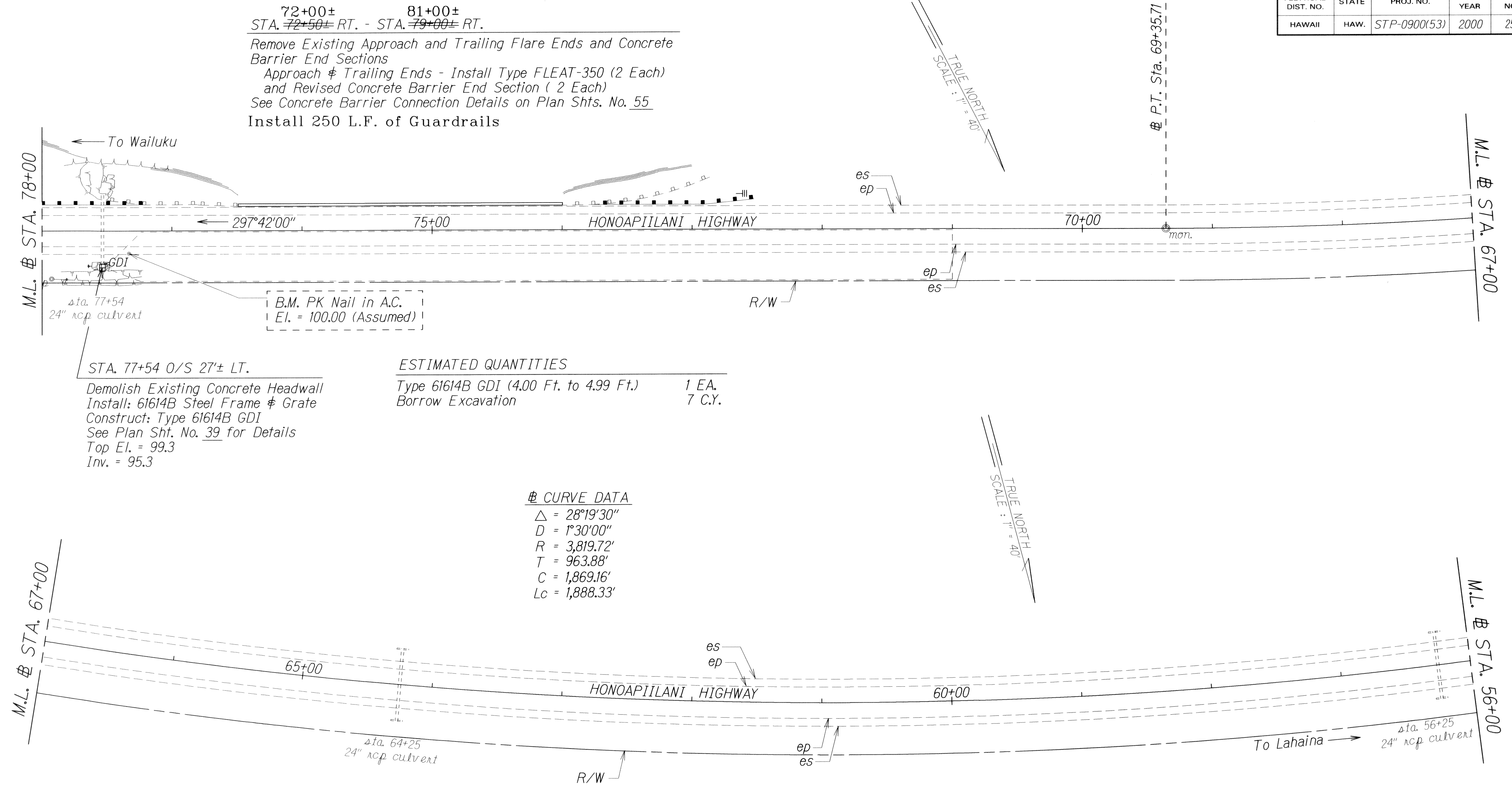
Fed. Aid Project No. STP-0900(53)

Scale: 1" = 40'      Date: Aug., 1999

SHEET No. 19 OF 33 SHEETS



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 25        | 73           |



72+00± 81+00±  
STA. ~~72+50±~~ RT. - STA. ~~79+00±~~ RT.  
Remove Existing Approach and Trailing Flare Ends and Concrete Barrier End Sections  
Approach & Trailing Ends - Install Type FLEAT-350 (2 Each) and Revised Concrete Barrier End Section ( 2 Each)  
See Concrete Barrier Connection Details on Plan Shts. No. 55  
Install 250 L.F. of Guardrails

STA. 77+54 O/S 27± LT.  
Demolish Existing Concrete Headwall  
Install: 61614B Steel Frame & Grate  
Construct: Type 61614B GDI  
See Plan Sht. No. 39 for Details  
Top El. = 99.3  
Inv. = 95.3

ESTIMATED QUANTITIES  
Type 61614B GDI (4.00 Ft. to 4.99 Ft.) 1 EA.  
Borrow Excavation 7 C.Y.

CURVE DATA  
Δ = 28°19'30"  
D = 1°30'00"  
R = 3,819.72'  
T = 963.88'  
C = 1,869.16'  
Lc = 1,888.33'

|               |          |
|---------------|----------|
| DESIGNED BY   | DATE     |
| DRAWN BY      | JUL 1999 |
| CHECKED BY    |          |
| NOTED BY      |          |
| ORIGINAL PLAN |          |

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

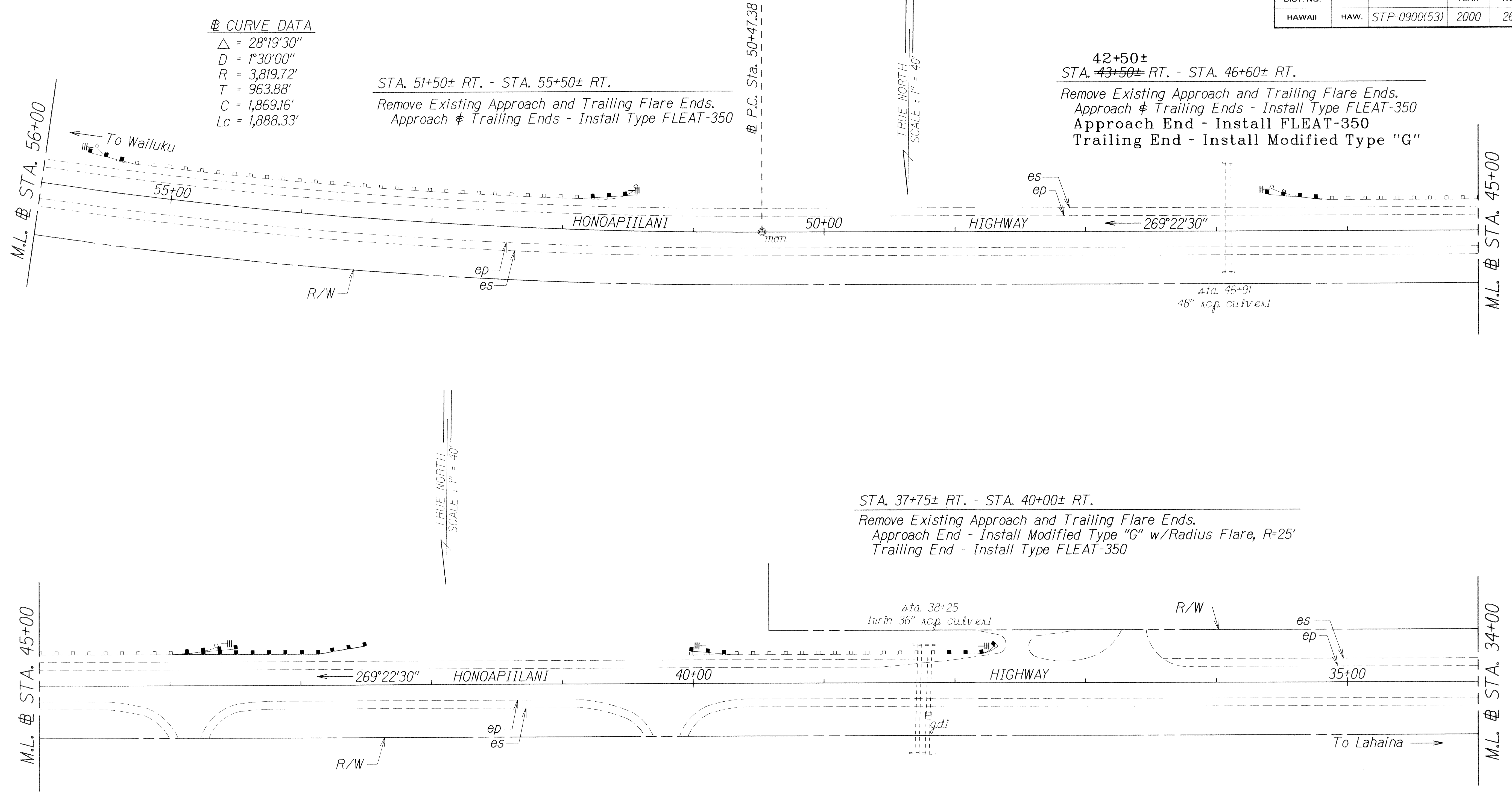
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**  
HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS  
High Street to Puamana  
Fed. Aid Project No. STP-0900(53)  
Scale: 1" = 40' Date: Aug., 1999

SHEET No. 20 OF 33 SHEETS



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 26        | 73           |



# CURVE DATA  
 $\Delta = 28^{\circ}19'30''$   
 $D = 1^{\circ}30'00''$   
 $R = 3,819.72'$   
 $T = 963.88'$   
 $C = 1,869.16'$   
 $L_c = 1,888.33'$

STA. 51+50± RT. - STA. 55+50± RT.  
Remove Existing Approach and Trailing Flare Ends.  
Approach & Trailing Ends - Install Type FLEAT-350

42+50±  
STA. ~~43+50±~~ RT. - STA. 46+60± RT.  
Remove Existing Approach and Trailing Flare Ends.  
Approach & Trailing Ends - Install Type FLEAT-350  
Approach End - Install FLEAT-350  
Trailing End - Install Modified Type "G"

STA. 37+75± RT. - STA. 40+00± RT.  
Remove Existing Approach and Trailing Flare Ends.  
Approach End - Install Modified Type "G" w/Radius Flare, R=25'  
Trailing End - Install Type FLEAT-350

|               |                   |          |
|---------------|-------------------|----------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE     |
| NOTE BOOK     | DRAWN BY          | JUN 1999 |
| DESIGNED BY   | TRACED BY         |          |
| CHECKED BY    | DESIGNED BY       |          |
|               | CHECKED BY        |          |

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

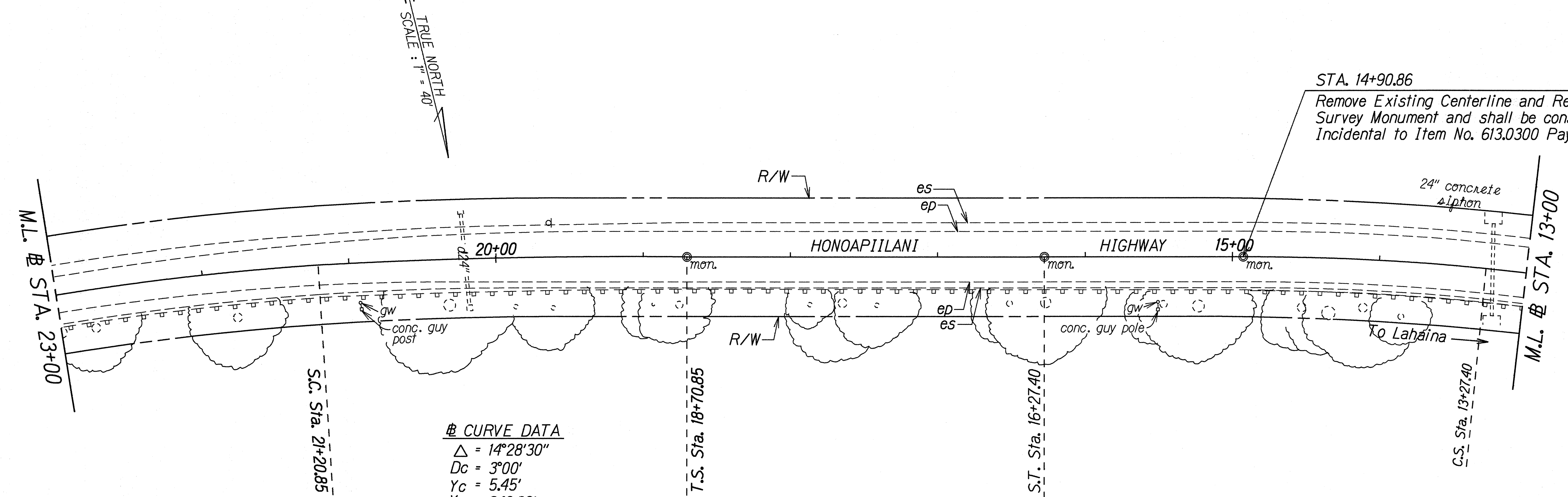
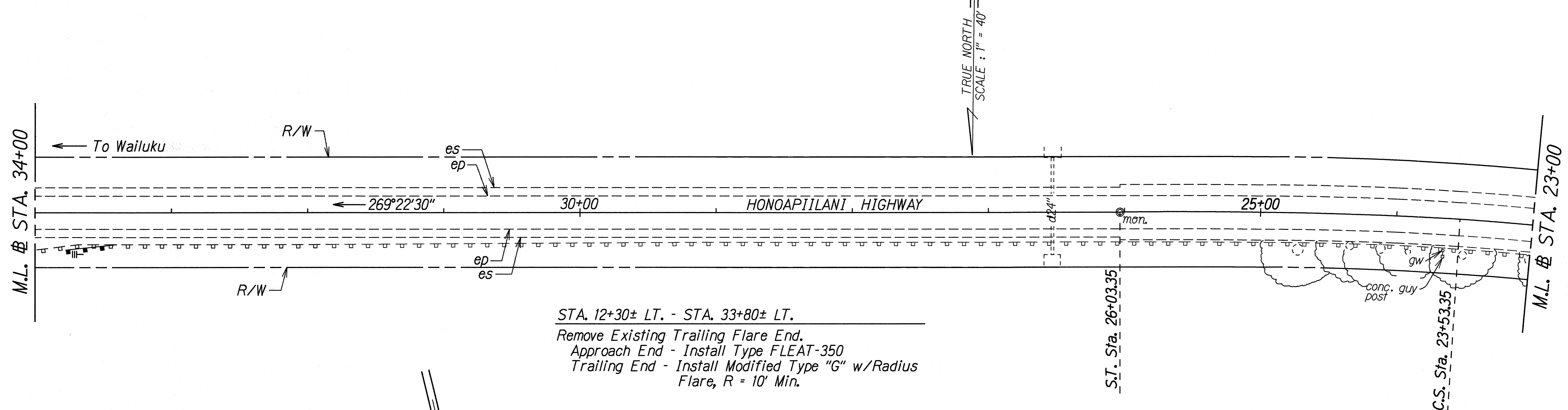
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**  
HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS  
High Street to Puamana  
Fed. Aid Project No. STP-0900(53)  
Scale: 1" = 40'      Date: Aug., 1999

SHEET No. 21 OF 33 SHEETS



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 27        | 73           |



**△ CURVE DATA**  
 $\Delta = 14^{\circ}28'30''$   
 $D_c = 3^{\circ}00'$   
 $Y_c = 5.45'$   
 $X_c = 249.89'$   
 $T_s = 367.70'$   
 $L_s = 250.00'$   
 $L.T. = 166.70'$   
 $\theta_s = 3^{\circ}45'00''$   
 $S.E. = 0.07 \text{ ft/ft}$

|               |                   |          |
|---------------|-------------------|----------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE     |
| NOTED BY      | DRAWN BY          | JUL 1999 |
| DESIGNED BY   | CHECKED BY        |          |
| APPROVED BY   |                   |          |

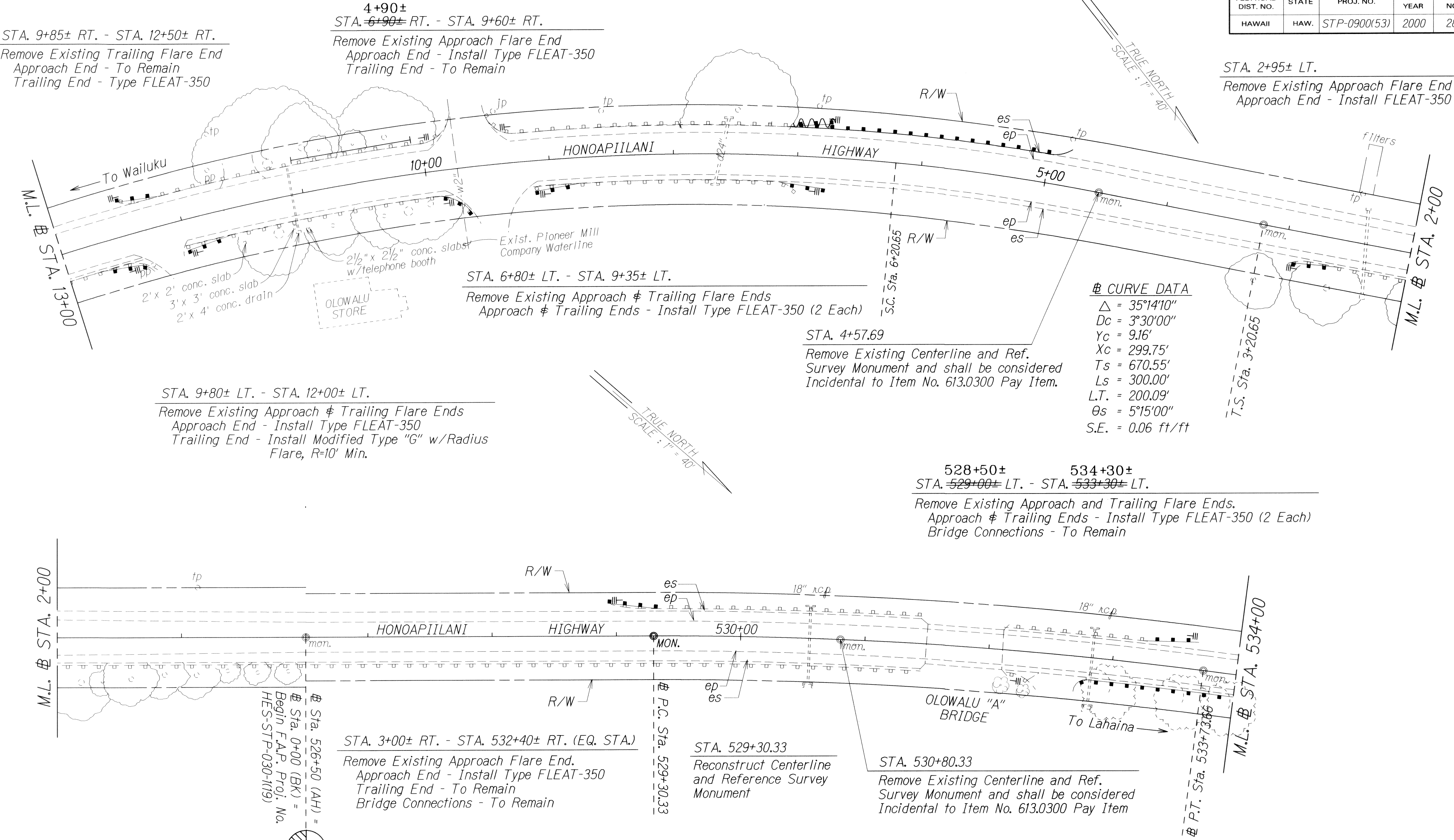
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**  
**HONOAPIILANI HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS**  
**High Street to Puamana**  
**Fed. Aid Project No. STP-0900(53)**  
Scale: 1" = 40'      Date: Aug., 1999

SHEET No. 22 OF 33 SHEETS



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 28        | 73           |

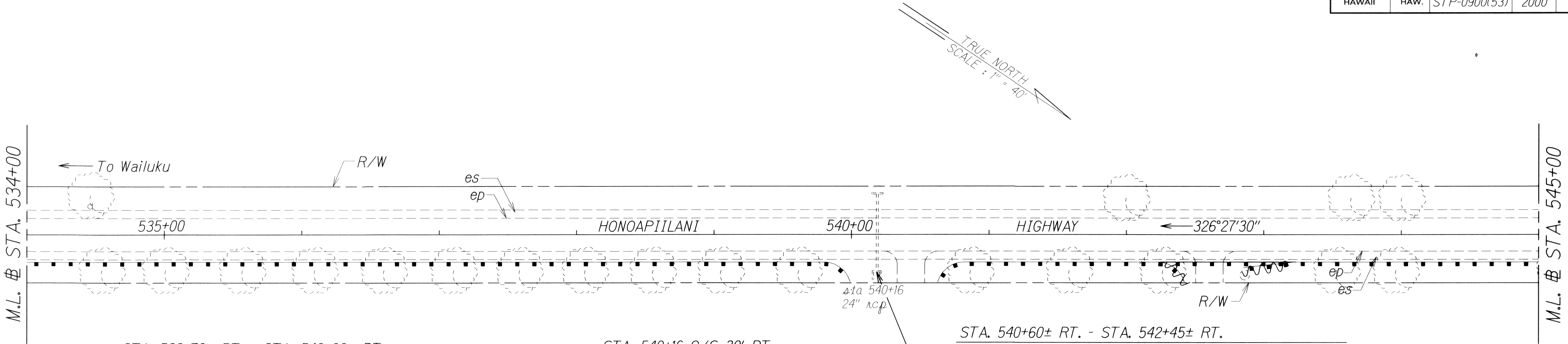


|               |                   |           |
|---------------|-------------------|-----------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE      |
| NOTE BOOK     | DRAWN BY          | JULY 1991 |
| QUANTITIES BY | CHECKED BY        |           |
|               |                   |           |

"AS-BUILT"



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 29        | 73           |



STA. 532+70± RT. - STA. 540+00± RT.  
Install 730 L.F. Guardrail W-Beam with Strong Post  
Approach & Trailing Ends - Install Modified Type "G"  
w/Radius Flare, R=25'

STA. 540+16 O/S 30' RT.  
Demolish Existing Irrigation Inlet to Grade  
& Backfill w/Granular Material

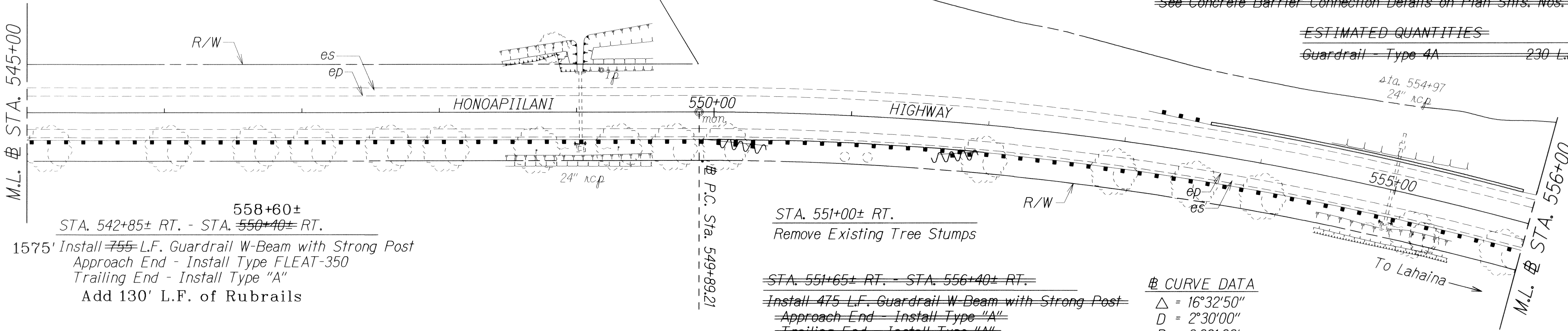
STA. 540+60± RT. - STA. 542+45± RT.  
Install 185 L.F. Guardrail W-Beam with Strong Post  
Approach & Trailing Ends - Install Modified Type "G"  
w/Radius Flare, R=25'

STA. 542+90± RT.  
Remove Existing Tree Stump

STA. 553+00± LT. to 556+50± LT.  
Install 350 L.F. of Rails  
Approach and Trailing Ends - FLEAT 350 (2)

~~STA. 553+00± LT. - STA. 556+50± LT.~~  
~~Install Concrete Guardrails & 50 L.F. Type-3 Guardrail~~  
~~Thrie Beam~~  
~~Approach & Trailing Ends - Install Type FLEAT 350 (2 Each)~~  
~~and Revised Concrete Barrier~~  
~~End Section (2 Each)~~  
~~See Concrete Barrier Connection Details on Plan Shrs. Nos. 55-56~~

~~ESTIMATED QUANTITIES~~  
~~Guardrail - Type 4A 230 L.F.~~



558+60±  
STA. 542+85± RT. - STA. 550+40± RT.  
1575' Install 755 L.F. Guardrail W-Beam with Strong Post  
Approach End - Install Type FLEAT-350  
Trailing End - Install Type "A"  
Add 130' L.F. of Rubrails

STA. 551+00± RT.  
Remove Existing Tree Stumps

~~STA. 551+65± RT. - STA. 556+40± RT.~~  
~~Install 475 L.F. Guardrail W-Beam with Strong Post~~  
~~Approach End - Install Type "A"~~  
~~Trailing End - Install Type "A"~~

~~CURVE DATA~~  
~~Δ = 16°32'50"~~  
~~D = 2°30'00"~~  
~~R = 2,291.83'~~  
~~T = 333.26'~~  
~~C = 659.59'~~  
~~Lc = 661.89'~~

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

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

ROADWAY PLAN

HONOAPIILANI HIGHWAY GUARDRAIL

AND SHOULDER IMPROVEMENTS

High Street to Puamana

Fed. Aid Project No. STP-0900(53)

Scale: 1" = 40'

Date: Aug., 1999

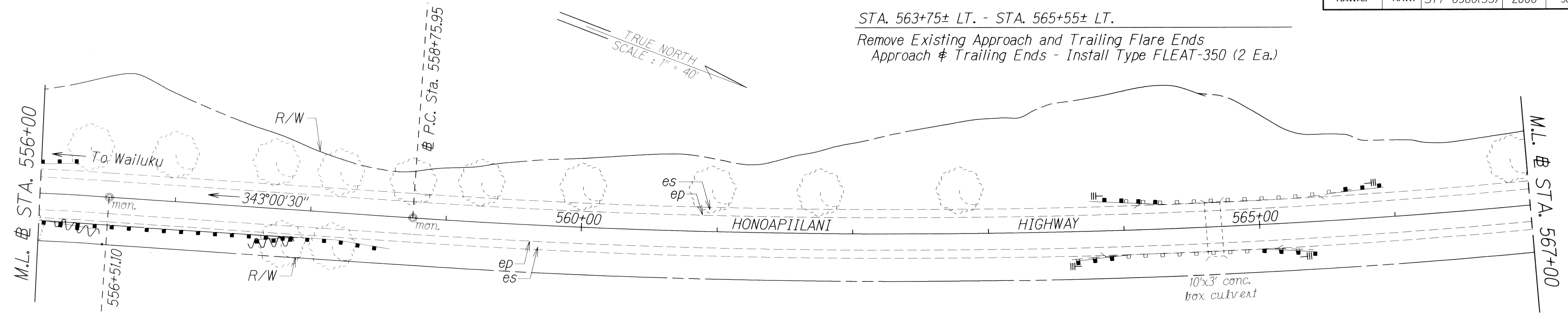
SHEET No. 24 OF 33 SHEETS

|                   |         |
|-------------------|---------|
| SURVEY PLOTTED BY | DATE    |
| DRAWN BY          | 10/1/99 |
| TRACED BY         |         |
| DESIGNED BY       |         |
| CHECKED BY        |         |
| ORIGINAL PLAN     |         |
| NOTE BOOK         |         |
| DESIGNED BY       |         |
| CHECKED BY        |         |

"AS-BUILT"



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 30        | 73           |

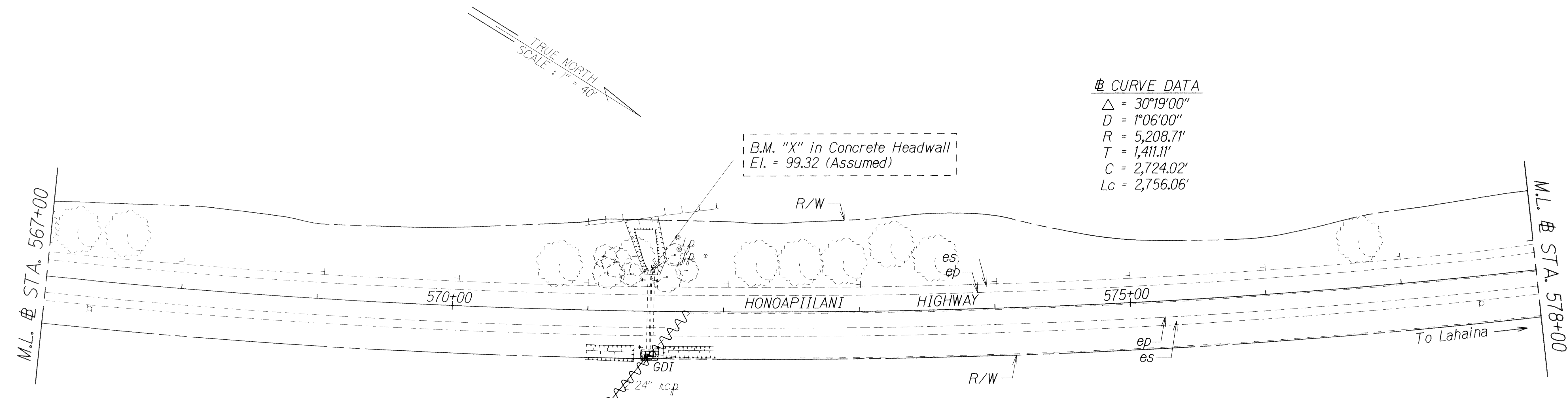


~~STA. 557+60± RT. - STA. 558+60± RT.~~  
~~Install 100 L.F. of Guardrail W Beam with Strong Post~~  
~~Approach End - Install Type "A"~~  
~~Trailing End - Install Type "A"~~

~~STA. 563+75± RT. - STA. 565+55± RT.~~  
~~Remove Existing Approach and Trailing Flare Ends~~  
~~Approach & Trailing Ends - Install Type FLEAT-350 (2 Ea.)~~

Δ CURVE DATA  
Δ = 30°19'00"  
D = 1°06'00"  
R = 5,208.71'  
T = 1,411.11'  
C = 2,724.02'  
Lc = 2,756.06'

B.M. "X" in Concrete Headwall  
El. = 99.32 (Assumed)



~~STA. 571+46± O/S 31' RT.~~  
~~Demolish Existing Concrete Headwall~~  
~~Install 61614B Steel Frame & Grate~~  
~~Construct Type 61614B GDI~~  
~~See Plan Sht. No. 39 for Details~~  
~~Top El. = 101.27~~  
~~Inw. = 97.91~~

ESTIMATED QUANTITIES  
~~Type 61614B GDI (3.00 Ft. to 3.99 Ft.) 1 EA.~~  
~~Borrow Excavation 5 C.Y.~~

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

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**  
HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS  
High Street to Puamana  
Fed. Aid Project No. STP-0900(53)  
Scale: 1" = 40' Date: Aug., 1999

SHEET No. 25 OF 33 SHEETS

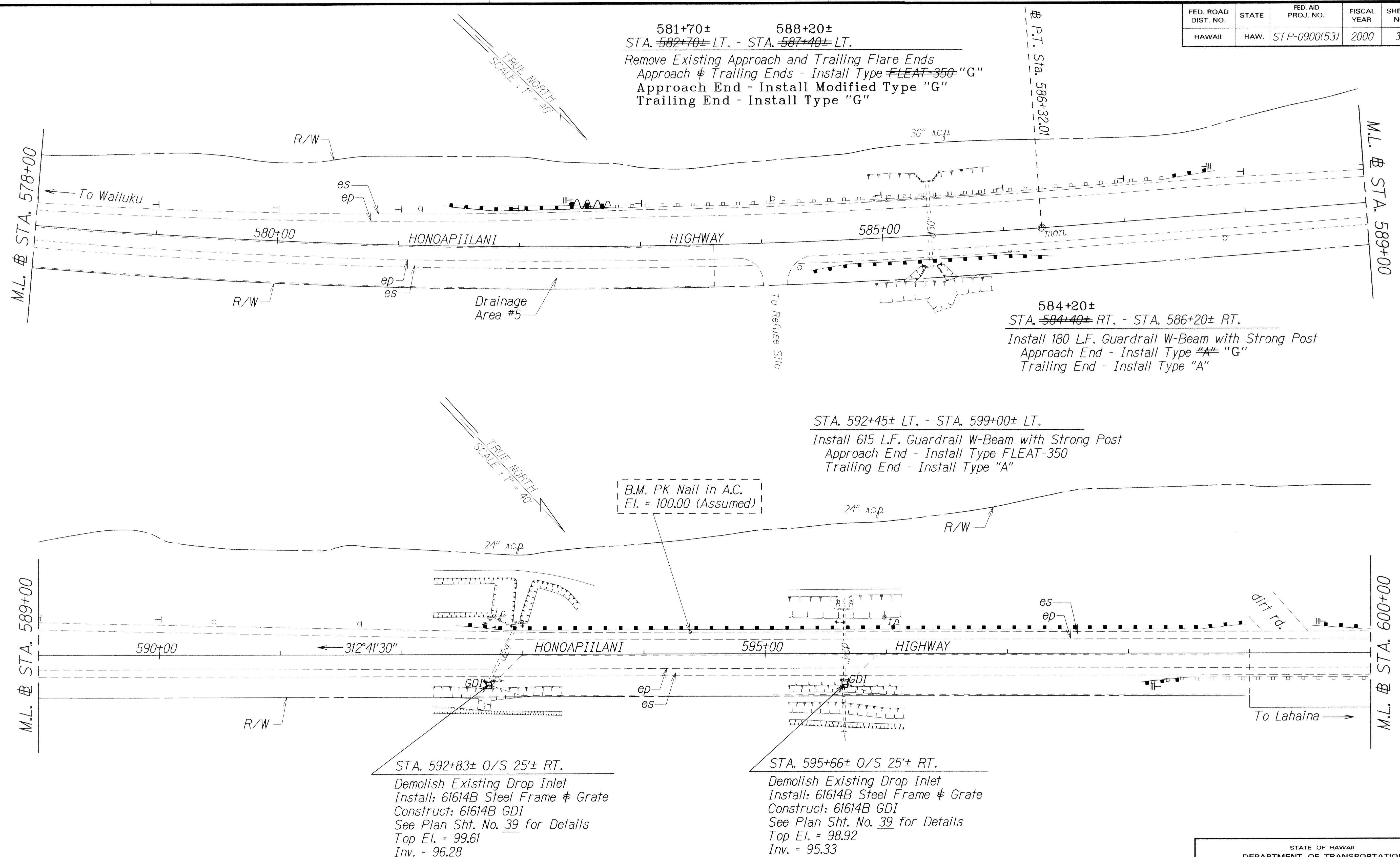
|                   |           |
|-------------------|-----------|
| SURVEY LOCATED BY | DATE      |
| DRAWN BY          | July 1999 |
| DESIGNED BY       |           |
| CHECKED BY        |           |

ORIGINAL PLAN  
NOTE BOOK  
SHEET 25 OF 33

"AS-BUILT"



| FED. ROAD<br>DIST. NO. | STATE | FED. AID<br>PROJ. NO. | FISCAL<br>YEAR | SHEET<br>NO. | TOTAL<br>SHEETS |
|------------------------|-------|-----------------------|----------------|--------------|-----------------|
| HAWAII                 | HAW.  | STP-0900(53)          | 2000           | 31           | 73              |



| LEGEND FOR<br>AS-BUILT POSTINGS                                                     |                                        |
|-------------------------------------------------------------------------------------|----------------------------------------|
|  | 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           |

| <u>ESTIMATED QUANTITIES</u>            |        |
|----------------------------------------|--------|
| Type 61614B GDI (3.00 Ft. to 3.99 Ft.) | 1 EA.  |
| Borrow Excavation                      | 2 C.Y. |

| <u>ESTIMATED QUANTITIES</u>            |        |
|----------------------------------------|--------|
| Type 61614B GDI (3.00 Ft. to 3.99 Ft.) | 1 EA.  |
| Borrow Excavation                      | 2 C.Y. |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

*ROADWAY PLAN*

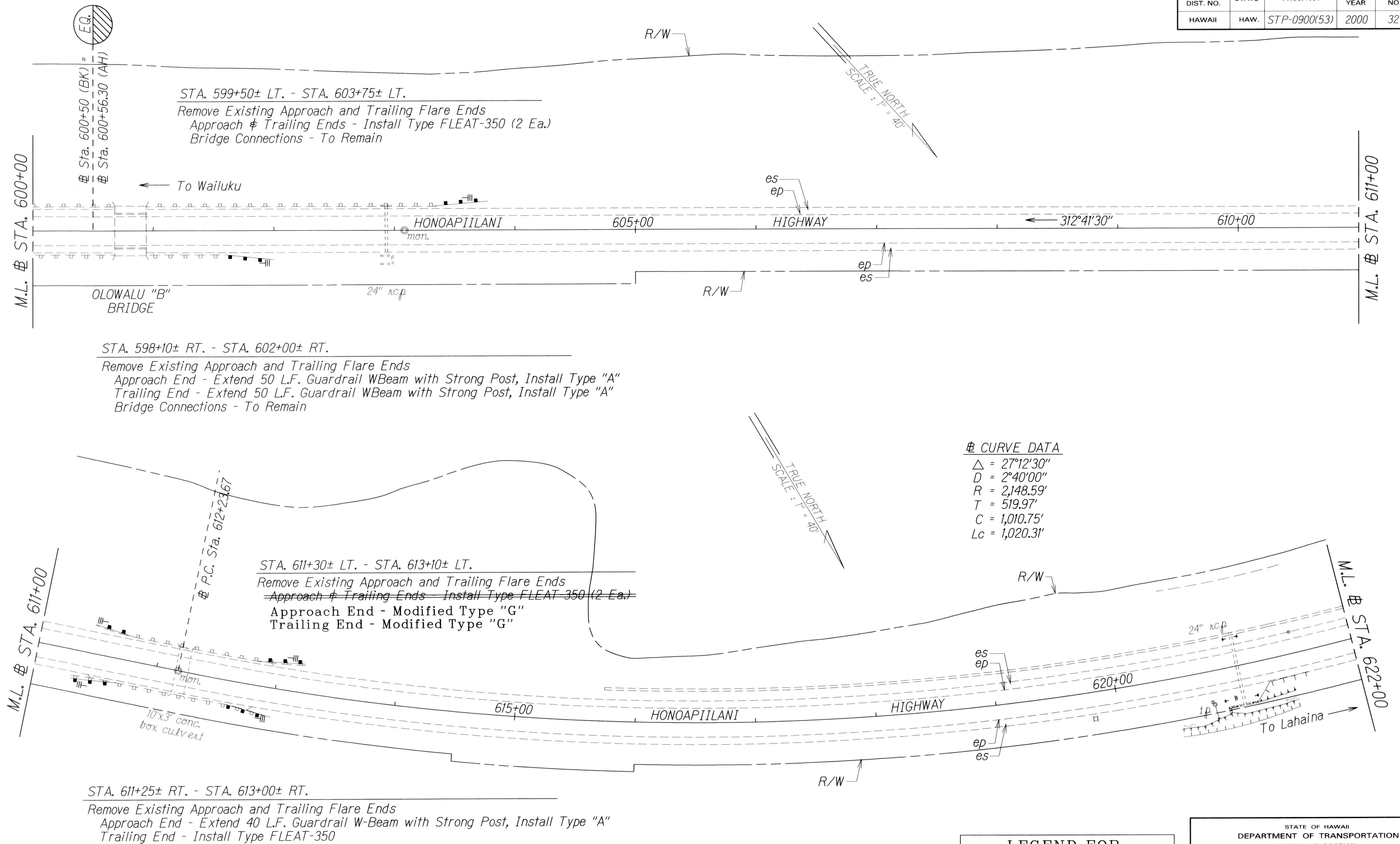
*HONOAPIILANI HIGHWAY GUARDRAIL*  
*AND SHOULDER IMPROVEMENTS*  
*High Street to Puamana*  
*Fed. Aid Project No. STP-0900(53)*

*Scale: 1" = 40'* *Date: Aug., 1999*

SHEET No. 26 OF 33 SHEETS



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 32        | 73           |



|                   |        |
|-------------------|--------|
| DATE              | 7/1/99 |
| SURVEY PLOTTED BY | AL     |
| DRAWN BY          | AL     |
| TRACED BY         | CP     |
| DESIGNED BY       | CP     |
| CHECKED BY        | SC     |

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

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

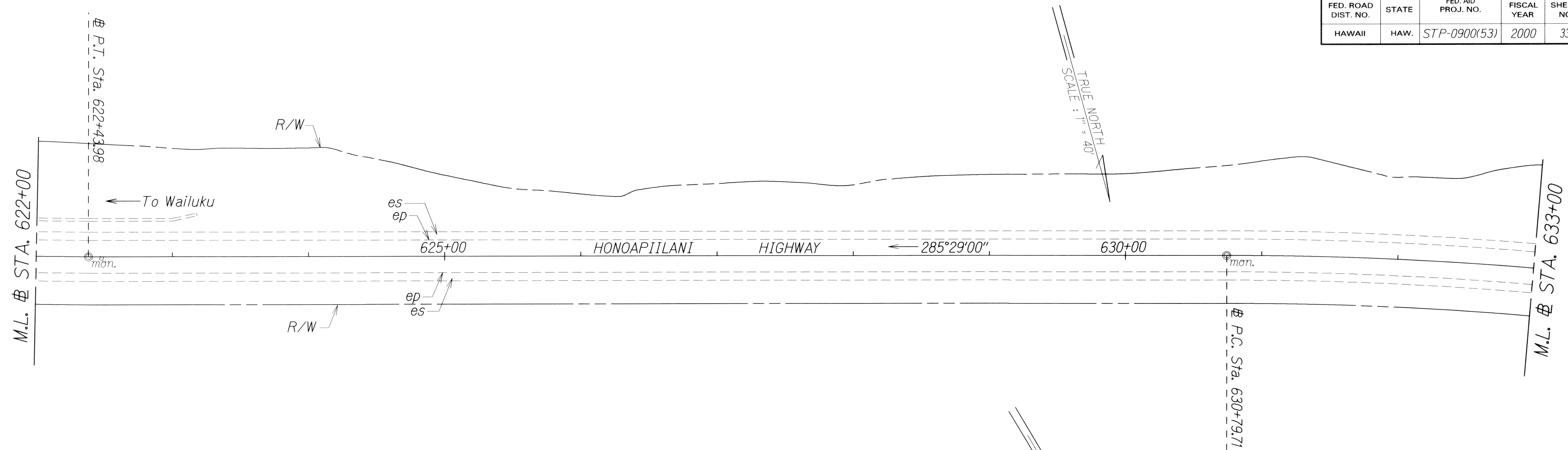
ROADWAY PLAN  
HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS  
High Street to Puamana  
Fed. Aid Project No. STP-0900(53)  
Scale: 1" = 40'      Date: Aug., 1999

SHEET No. 27 OF 33 SHEETS

"AS-BUILT"

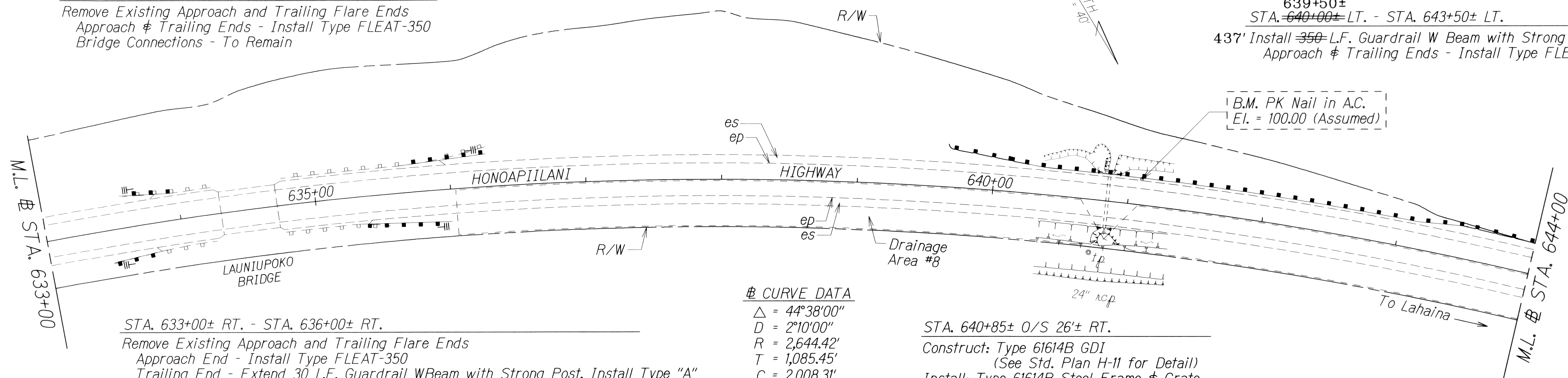


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 33        | 73           |



STA. 633+10± LT. - STA. 636+30± LT.  
 Remove Existing Approach and Trailing Flare Ends  
 Approach & Trailing Ends - Install Type FLEAT-350  
 Bridge Connections - To Remain

639+50±  
 STA. 640+00± LT. - STA. 643+50± LT.  
 437' Install 350 L.F. Guardrail W Beam with Strong Post  
 Approach & Trailing Ends - Install Type FLEAT-350



STA. 633+00± RT. - STA. 636+00± RT.  
 Remove Existing Approach and Trailing Flare Ends  
 Approach End - Install Type FLEAT-350  
 Trailing End - Extend 30 L.F. Guardrail WBeam with Strong Post, Install Type "A"  
 Bridge Connections - To Remain

# CURVE DATA  
 $\Delta = 44^\circ 38' 00''$   
 $D = 2^\circ 10' 00''$   
 $R = 2,644.42'$   
 $T = 1,085.45'$   
 $C = 2,008.31'$   
 $L_c = 2,060.00'$

STA. 640+85± O/S 26± RT.  
 Construct: Type 61614B GDI  
 (See Std. Plan H-11 for Detail)  
 Install: Type 61614B Steel Frame & Grate  
 (See Std. Plan H-15 for Detail)  
 Top El. = 97.48  
 Inv. = 94.41

ESTIMATED QUANTITIES  
 Type 61614B GDI (3.00 Ft. to 3.99 Ft.) 1 EA.  
 Borrow Excavation 14 C.Y.

### LEGEND FOR AS-BUILT POSTINGS

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

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

### ROADWAY PLAN

HONOAPIILANI HIGHWAY GUARDRAIL  
 AND SHOULDER IMPROVEMENTS  
 High Street to Puamana  
 Fed. Aid Project No. STP-0900(53)  
 Scale: 1" = 40' Date: Aug., 1999

SHEET No. 28 OF 33 SHEETS

"AS-BUILT"



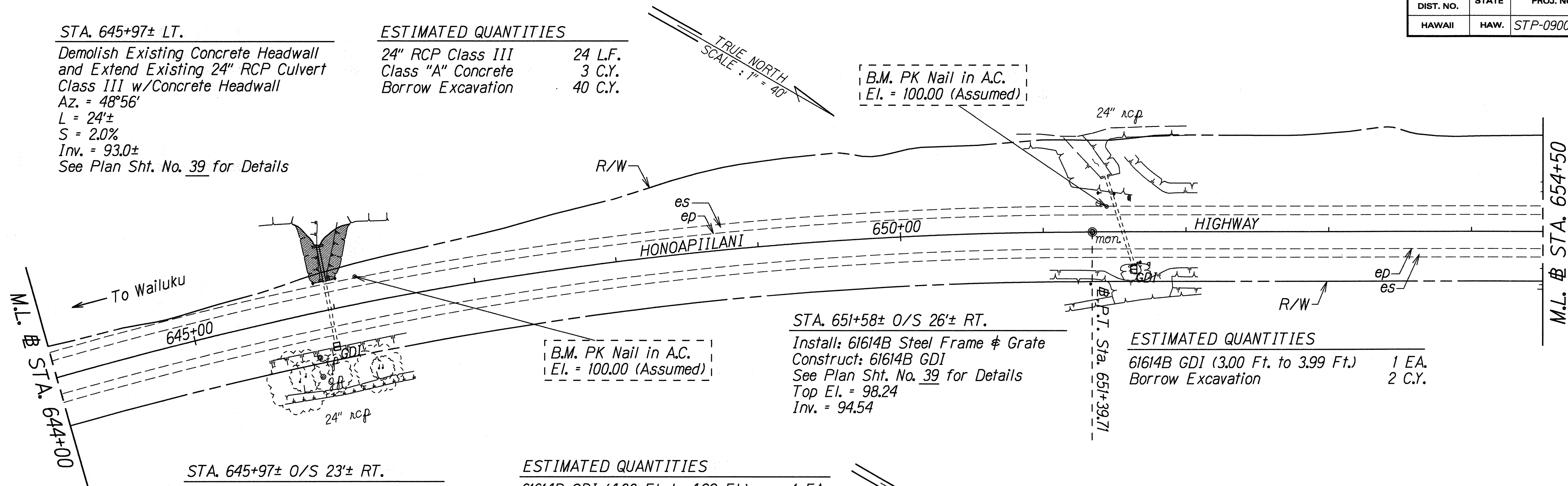
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 34        | 73           |

STA. 645+97± LT.

Demolish Existing Concrete Headwall and Extend Existing 24" RCP Culvert Class III w/Concrete Headwall  
 Az. = 48°56'  
 L = 24'±  
 S = 2.0%  
 Inv. = 93.0±  
 See Plan Sht. No. 39 for Details

ESTIMATED QUANTITIES

24" RCP Class III 24 L.F.  
 Class "A" Concrete 3 C.Y.  
 Borrow Excavation 40 C.Y.



STA. 651+58± O/S 26'± RT.

Install: 61614B Steel Frame & Grate  
 Construct: 61614B GDI  
 See Plan Sht. No. 39 for Details  
 Top El. = 98.24  
 Inv. = 94.54

ESTIMATED QUANTITIES

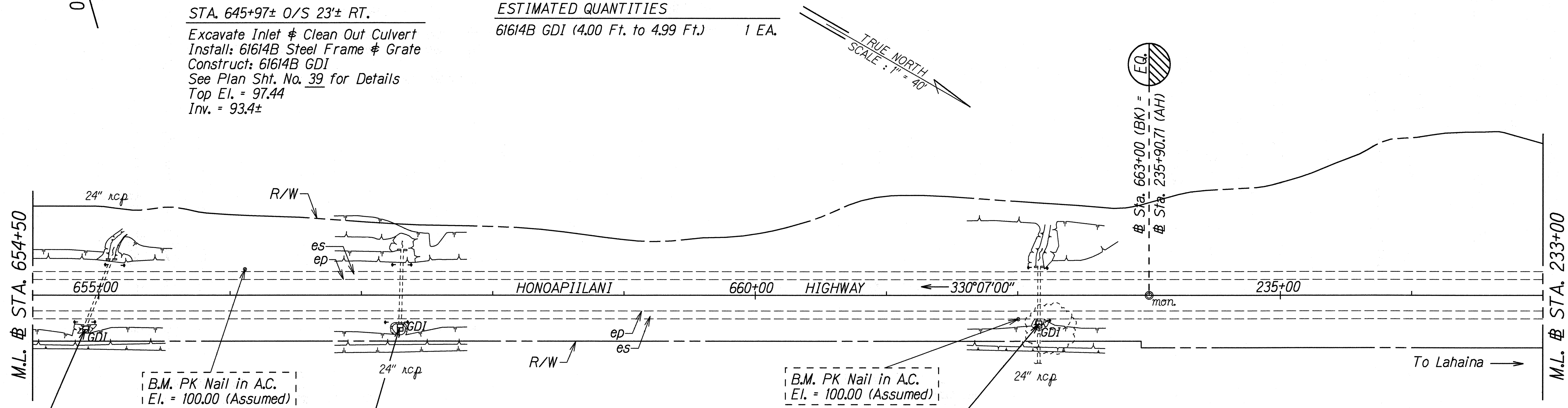
61614B GDI (3.00 Ft. to 3.99 Ft.) 1 EA.  
 Borrow Excavation 2 C.Y.

STA. 645+97± O/S 23'± RT.

Excavate Inlet & Clean Out Culvert  
 Install: 61614B Steel Frame & Grate  
 Construct: 61614B GDI  
 See Plan Sht. No. 39 for Details  
 Top El. = 97.44  
 Inv. = 93.4±

ESTIMATED QUANTITIES

61614B GDI (4.00 Ft. to 4.99 Ft.) 1 EA.



STA. 654+97± O/S 26'± RT.

Demolish Existing Headwall  
 Install: 61614B Steel Frame & Grate  
 Construct: 61614B GDI  
 See Plan Sht. No. 39 for Details  
 Top El. = 98.14  
 Inv. = 95.55

ESTIMATED QUANTITIES

61614B GDI (2.00 Ft. to 2.99 Ft.) 1 EA.  
 Borrow Excavation 2 C.Y.

STA. 657+30± O/S 29'± RT.

Demolish Existing Headwall  
 Install: 61614B Steel Frame & Grate  
 Construct: 61614B GDI  
 See Plan Sht. No. 39 for Details  
 Top El. = 96.38  
 Inv. = 93.77

ESTIMATED QUANTITIES

61614B GDI (2.00 Ft. to 2.99 Ft.) 1 EA.  
 Borrow Excavation 2 C.Y.

STA. 662+16± O/S 21'± RT.

Demolish Existing Headwall  
 Install: 61614B Steel Frame & Grate  
 Construct: 61614B GDI  
 See Plan Sht. No. 39 for Details  
 Top El. = 99.48  
 Inv. = 95.94

ESTIMATED QUANTITIES

61614B GDI (3.00 Ft. to 3.99 Ft.) 1 EA.  
 Borrow Excavation 1 C.Y.

|               |          |
|---------------|----------|
| ORIGINAL PLAN | DATE     |
| NOTES         | May 1999 |
| DESIGNED BY   |          |
| CHECKED BY    |          |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

ROADWAY PLAN

HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS

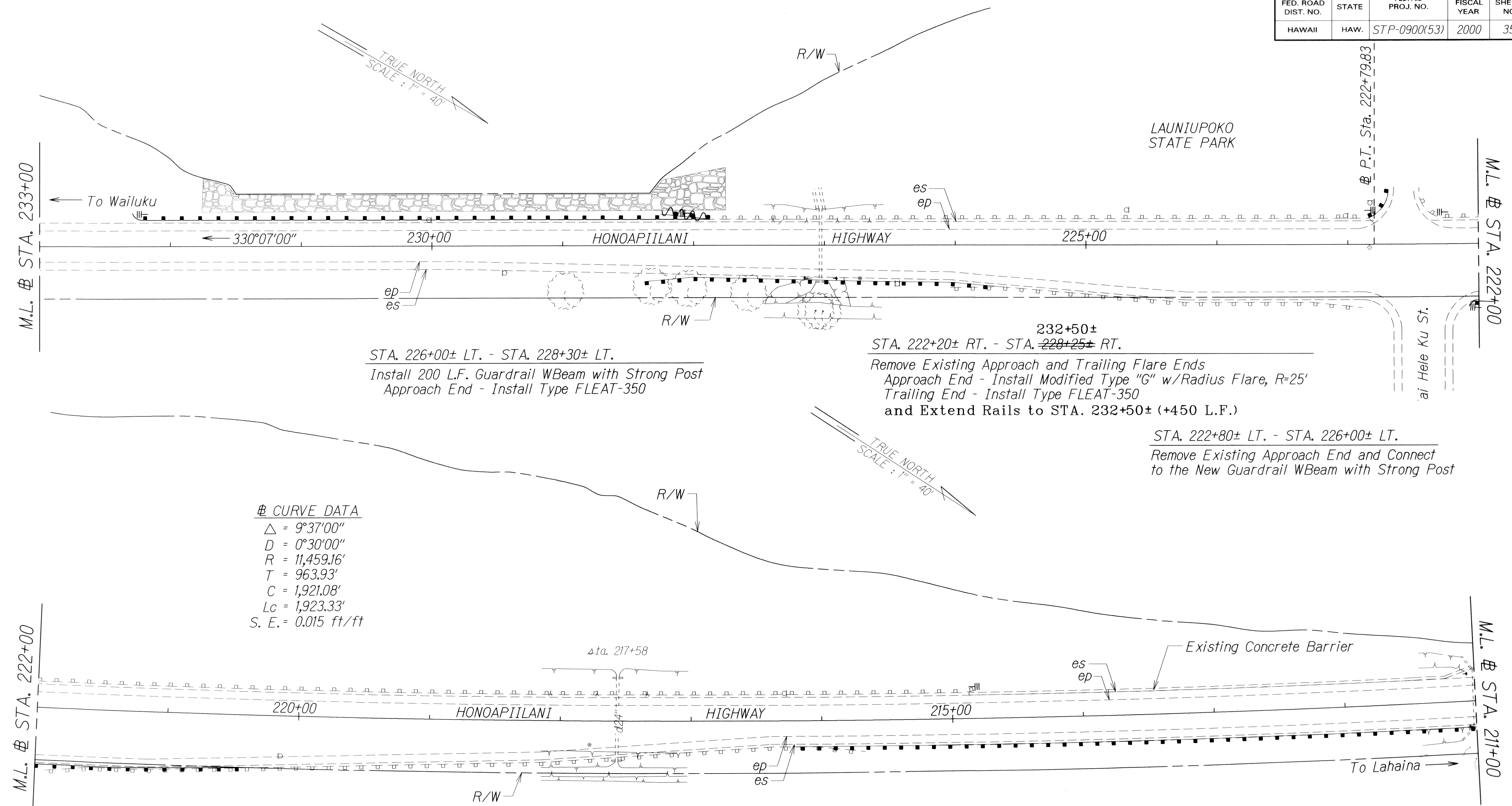
High Street to Puamana

Fed. Aid Project No. STP-0900(53)

Scale: 1" = 40'      Date: Aug., 1999



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 35        | 73           |



## CURVE DATA  
 $\Delta = 9^{\circ}37'00''$   
 $D = 0^{\circ}30'00''$   
 $R = 11,459.16'$   
 $T = 963.93'$   
 $C = 1,921.08'$   
 $L_c = 1,923.33'$   
 $S. E. = 0.015 \text{ ft/ft}$

STA. 226+00± LT. - STA. 228+30± LT.  
 Install 200 L.F. Guardrail WBeam with Strong Post  
 Approach End - Install Type FLEAT-350

232+50±  
 STA. 222+20± RT. - STA. 228+25± RT.  
 Remove Existing Approach and Trailing Flare Ends  
 Approach End - Install Modified Type "G" w/Radius Flare, R=25'  
 Trailing End - Install Type FLEAT-350  
 and Extend Rails to STA. 232+50± (+450 L.F.)

STA. 222+80± LT. - STA. 226+00± LT.  
 Remove Existing Approach End and Connect  
 to the New Guardrail WBeam with Strong Post

Remove Existing Wood Guardrail Posts.  
 Realign 48' of Existing Guardrails and  
 Install 75' of New Guardrails with Steel Posts  
 and Install New "G" Anchor at STA 22+00± RT

STA. 214+00 LT. - STA. 222+50 LT.  
 Remove Existing Trailing End and Connect to the  
 New Guardrail WBeam with Strong Post

STA. 207+40± LT. - STA. 214+00± LT.  
 Install 660 L.F. Guardrail WBeam with Strong Post  
 Approach Ends - Install Type FLEAT-350

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

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**  
**HONOAPIILANI HIGHWAY GUARDRAIL**  
**AND SHOULDER IMPROVEMENTS**  
*High Street to Puamana*  
*Fed. Aid Project No. STP-0900(53)*  
Scale: 1" = 40'      Date: Aug., 1999

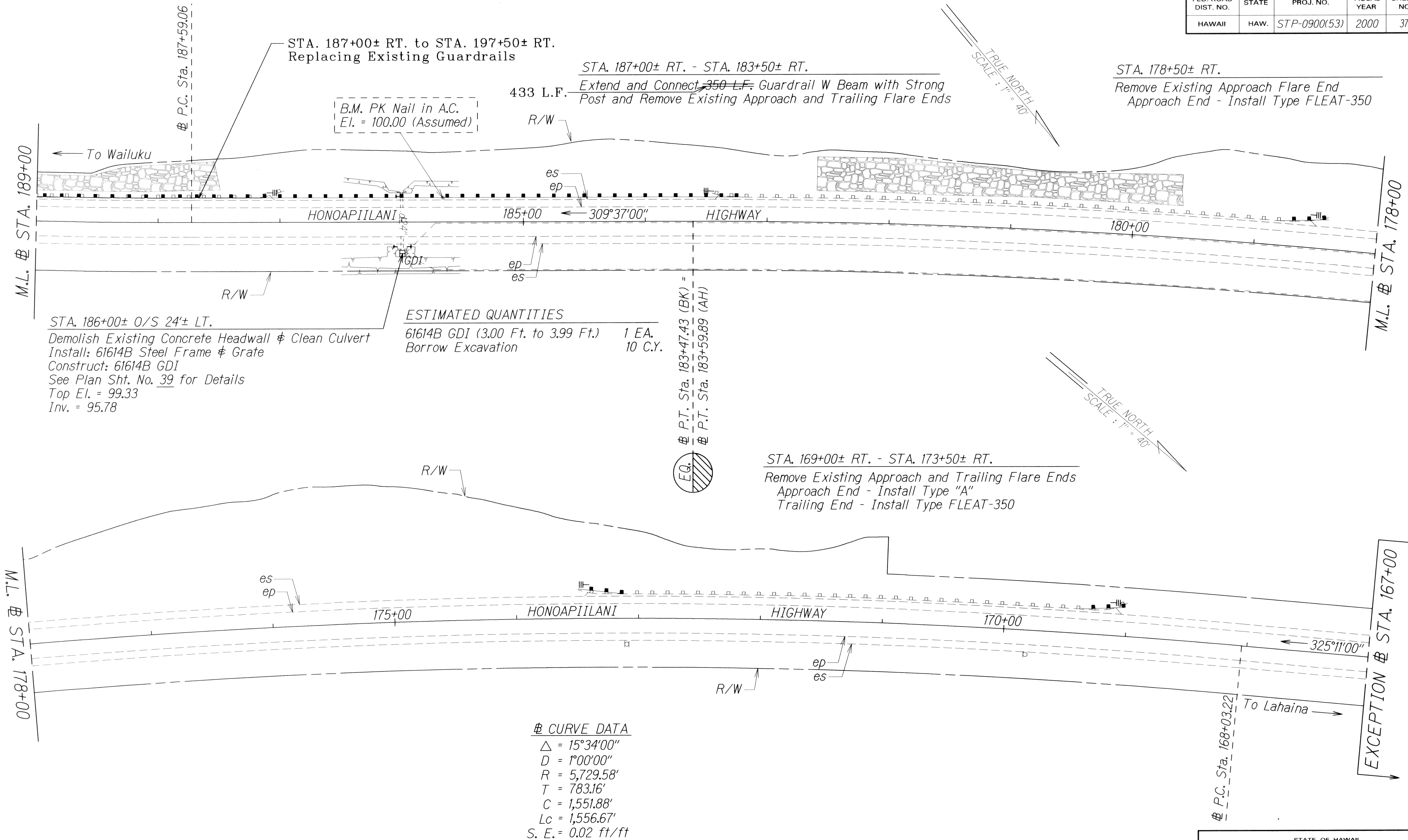
|                   |      |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DRAWN BY          |      |
| DESIGNED BY       |      |
| CHECKED BY        |      |
| ORIGINAL PLAN     |      |
| NOTE BOOK         |      |
| DATE              |      |
| CHECKED BY        |      |







| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 37        | 73           |



|               |                   |      |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| DRAWN BY      | DATE              |      |
| NOTE BOOK     | DATE              |      |
| QUANTITIES BY | DATE              |      |
| CHECKED BY    | DATE              |      |

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

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

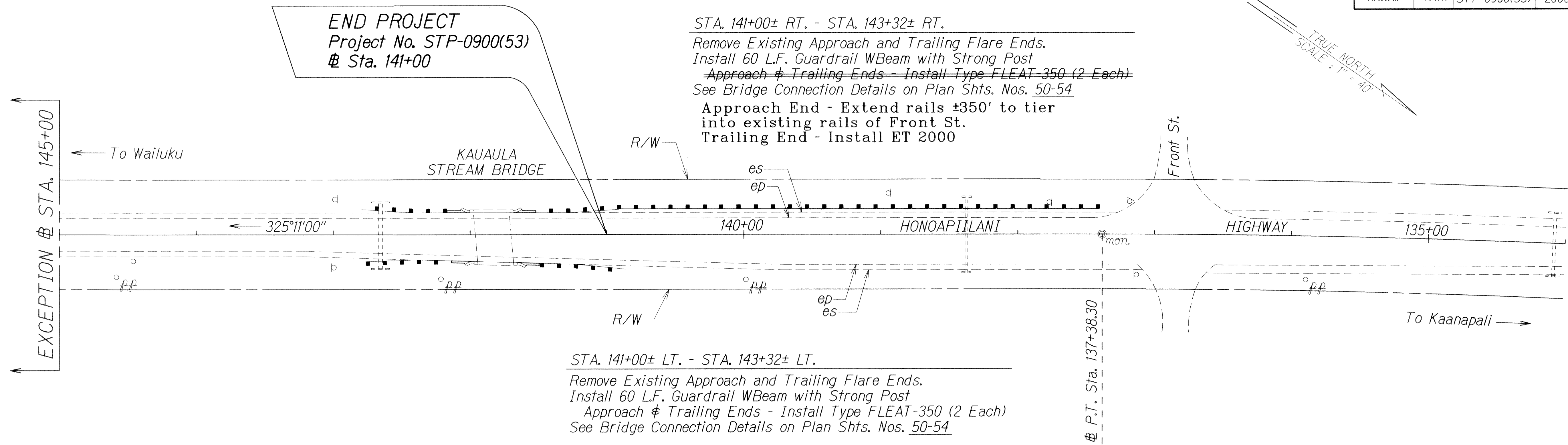
ROADWAY PLAN  
HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS  
High Street to Puamana  
Fed. Aid Project No. STP-0900(53)  
Scale: 1" = 40' Date: Aug., 1999

SHEET No. 32 OF 33 SHEETS

"AS-BUILT"



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-0900(53)       | 2000        | 38        | 73           |



|               |                   |           |
|---------------|-------------------|-----------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE      |
| NOTE BOOK     | DRAWN BY          | Aug. 1999 |
| DESIGNED BY   | CHECKED BY        |           |
| NOTED BY      | CHECKED BY        |           |
| STAMPED BY    | CHECKED BY        |           |

| LEGEND FOR<br>AS-BUILT POSTINGS |                                     |
|---------------------------------|-------------------------------------|
|                                 | Squiggly line for as-built deletion |
| <del>±00.00</del>               | Double line for as-built deletion   |
| Roadway                         | Text for as-built posting           |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**  
HONOAPIILANI HIGHWAY GUARDRAIL  
AND SHOULDER IMPROVEMENTS  
High Street to Puamana  
Fed. Aid Project No. STP-0900(53)  
Scale: 1" = 40'      Date: Aug., 1999

SHEET No. 33 OF 33 SHEETS