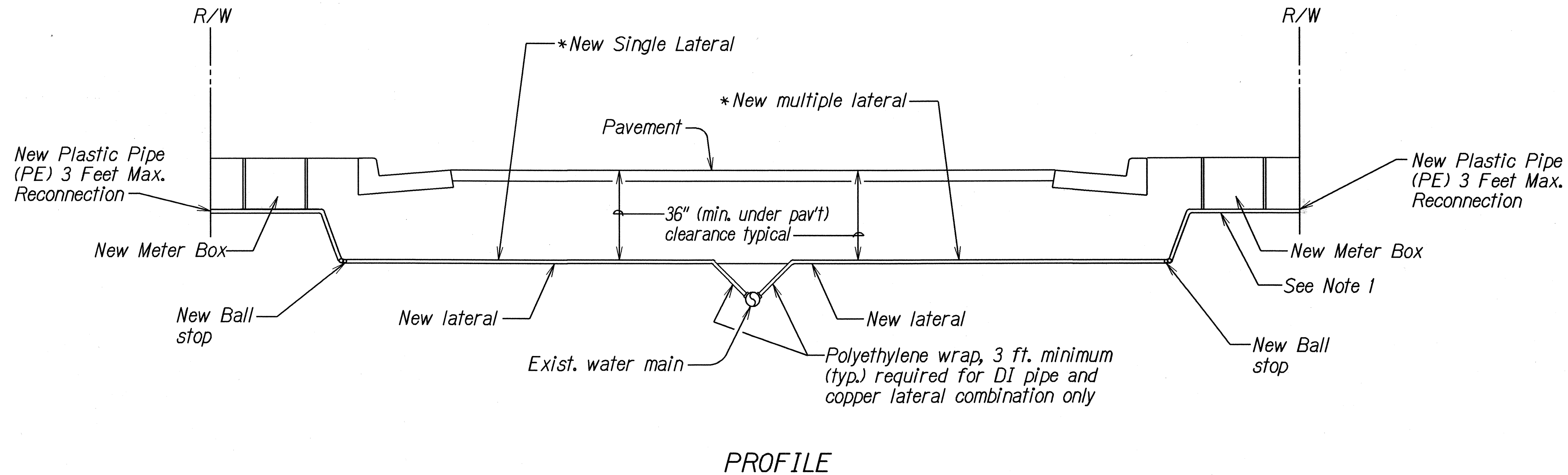
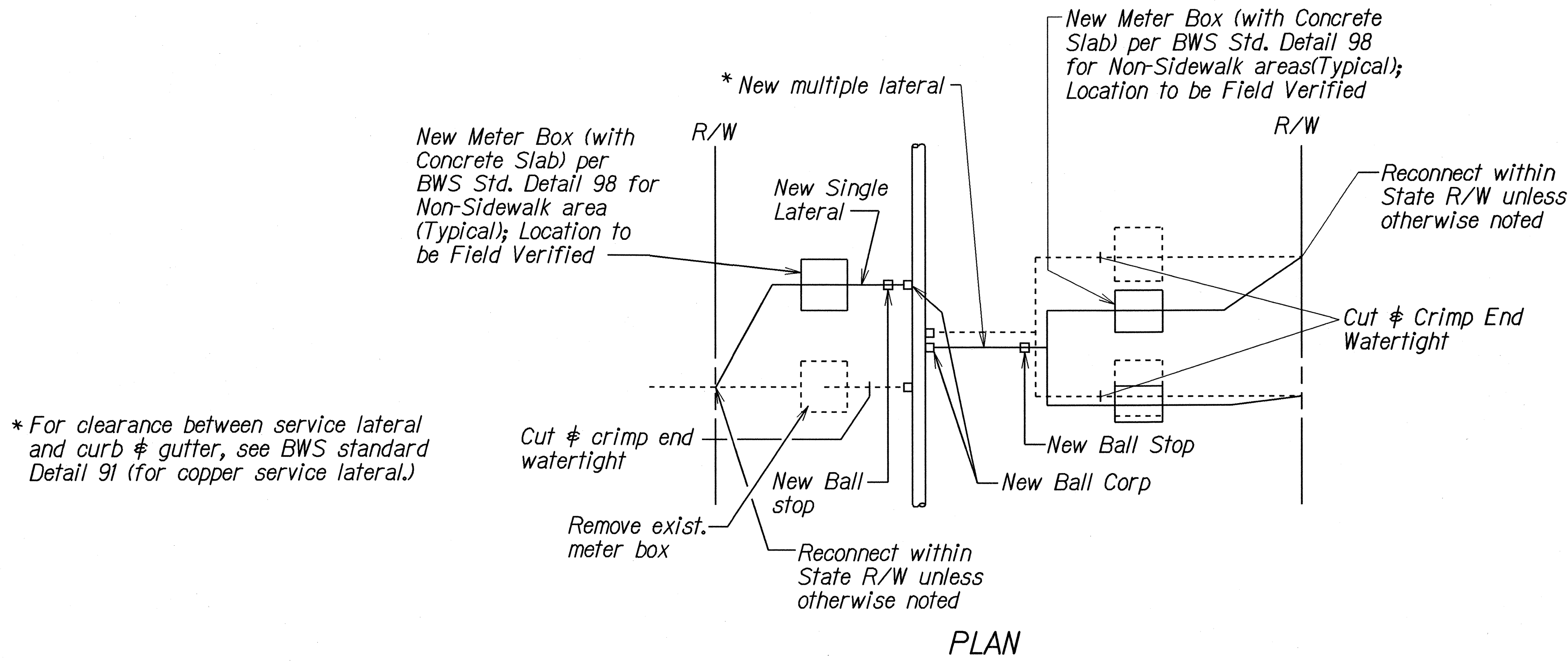


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-065-1(9)       | 2003        | 49        | 114          |



NOTES:

- Contractor shall install a 3/4" PVC schedule 80 conduit whenever the distance between meter boxes (2 to 12 multiple meter boxes) is 4'-0" or less (edge to edge). Conduit shall extend 2" within meter box, keep both ends exposed, plug to prevent soil intrusion, as required. Saw cut trench as required and repair to match existing conditions. For concrete slab, repair trench with epoxy mortar, level and finish to match existing.
- Type C-1 service laterals shall be one 1 1/2" diameter lateral branching to two 1" diameter connections.
- Install elbows and pipe extensions before meters to provide 36" minimum cover for service laterals, as required.
- For 2 1/2" lateral connections, install 2" ball corp with 2" x 2 1/2" adapters.

|               |         |
|---------------|---------|
| DESIGNED BY   | DATE    |
| TRACED BY     | 6/13/03 |
| DESIGNED BY   |         |
| QUANTITIES BY |         |
| CHECKED BY    |         |
| ORIGINAL      |         |
| PLAN          |         |
| NOTE BOOK     |         |
| 4/20/00       |         |

APPROVED BY:  
  
 PRINCIPAL EXECUTIVE, MAINTENANCE UNIT, DATE 1/21/03  
 BOARD OF WATER SUPPLY  
 CITY AND COUNTY OF HONOLULU

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**WATERLINE DETAILS**  
**KANEIOHE BAY DRIVE IMPROVEMENTS**  
**Vicinity of Puohala Street to Kawa Bridge**  
**Federal Aid Project No. STP-065-1(9)**  
Not to Scale  
Date: June 2002  
SHEET No. 1 OF 6 SHEETS

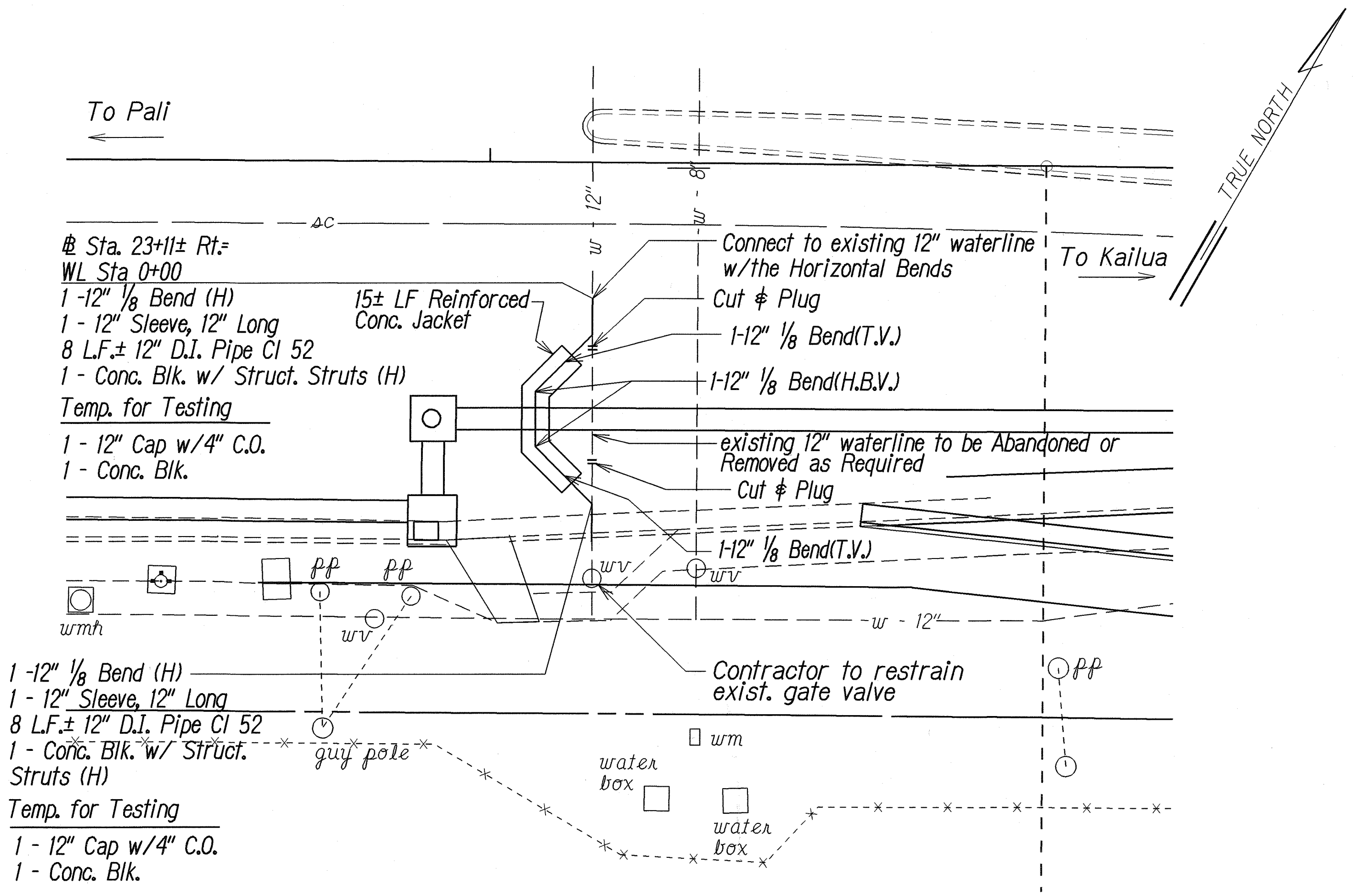
49



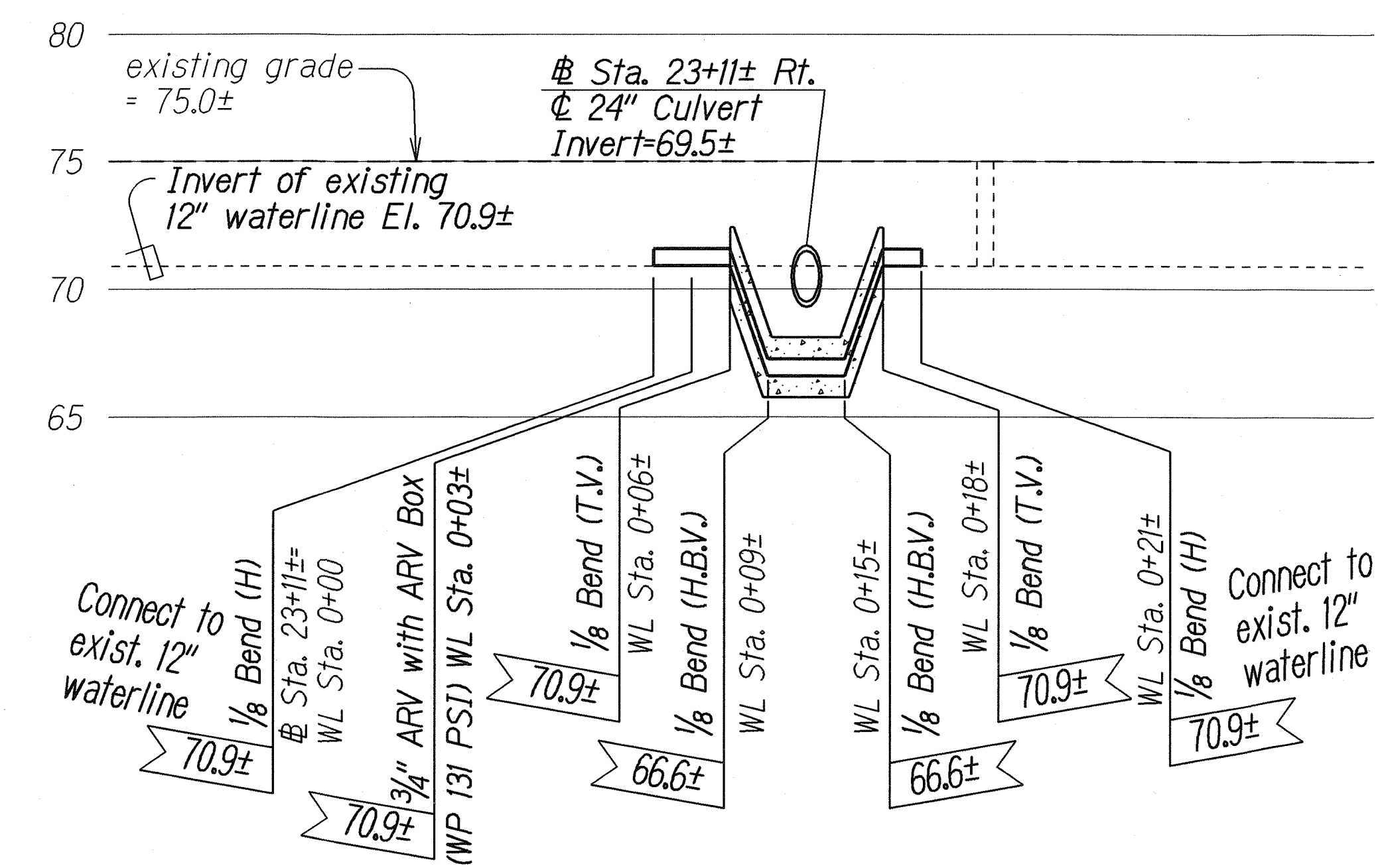




| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-065-11(9)      | 2003        | 51        | 114          |



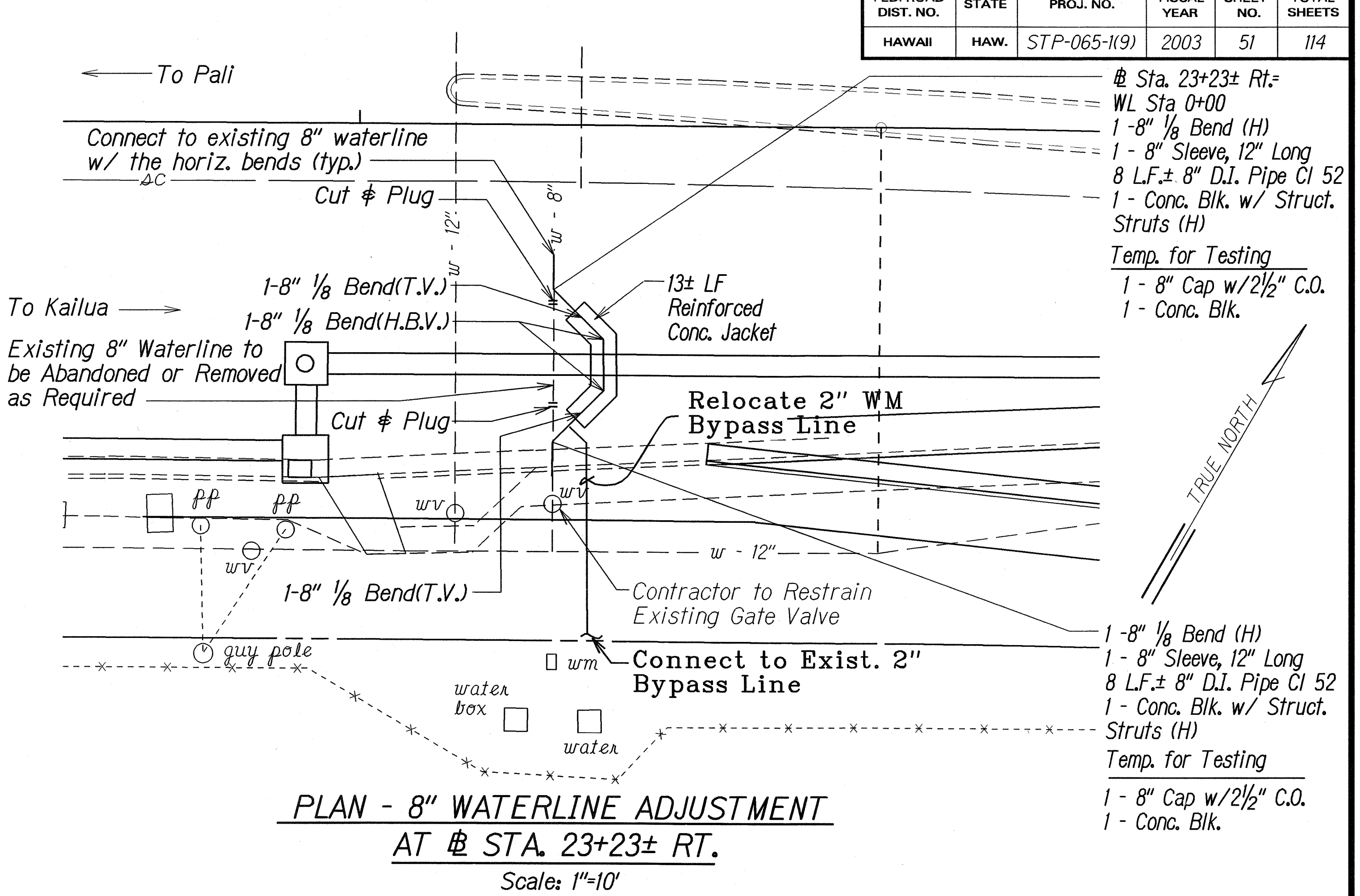
PLAN - 12" WATERLINE ADJUSTMENT  
AT STA. 23+11± RT.  
Scale: 1"=10'



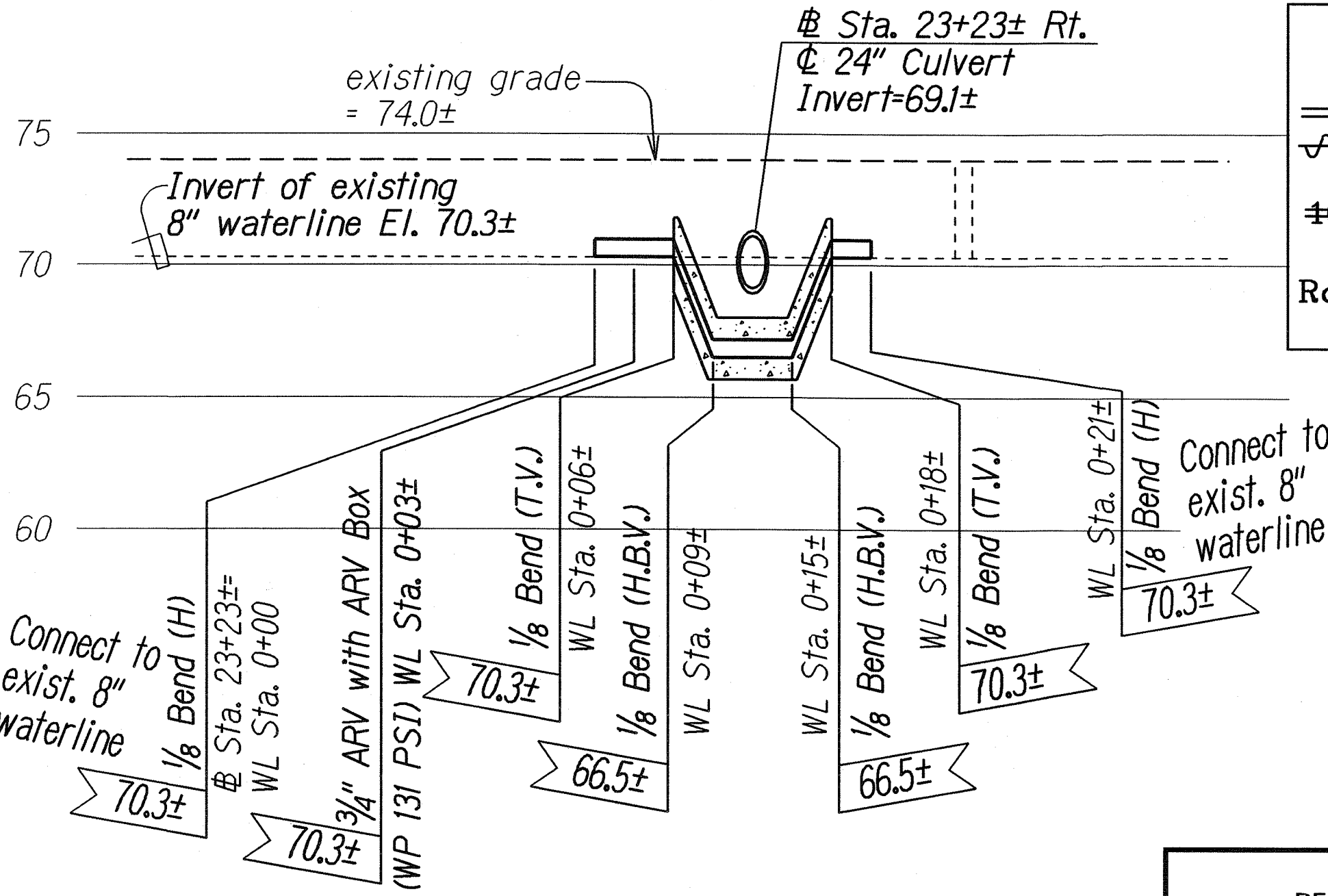
PROFILE - 12" WATERLINE ADJUSTMENT  
AT STA. 23+11± RT.  
Scale: Horiz.: 1"=10'  
Vert.: 1"=5'

- NOTES:
1. Maintain 5'-0" between (H) and (T.V.) bends to allow for use of test blocks.
  2. Minimum length of new pipe to connect to existing waterline using sleeve is 4'-0".
  3. Waterline stationing is measured along the length of the pipe.
  4. For Typical Details of Concrete Jacket for waterlines, See Reference Details 104 of BWS Standard Details.

APPROVED BY:  
*[Signature]*  
PRINCIPAL EXECUTIVE, MAINTENANCE UNIT  
BOARD OF WATER SUPPLY  
CITY AND COUNTY OF HONOLULU  
DATE: 1/21/03



PLAN - 8" WATERLINE ADJUSTMENT  
AT STA. 23+23± RT.  
Scale: 1"=10'



PROFILE - 8" WATERLINE ADJUSTMENT  
AT STA. 23+23± RT.  
Scale: Horiz.: 1"=10'  
Vert.: 1"=5'

LEGEND FOR AS-BUILT POSTINGS

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

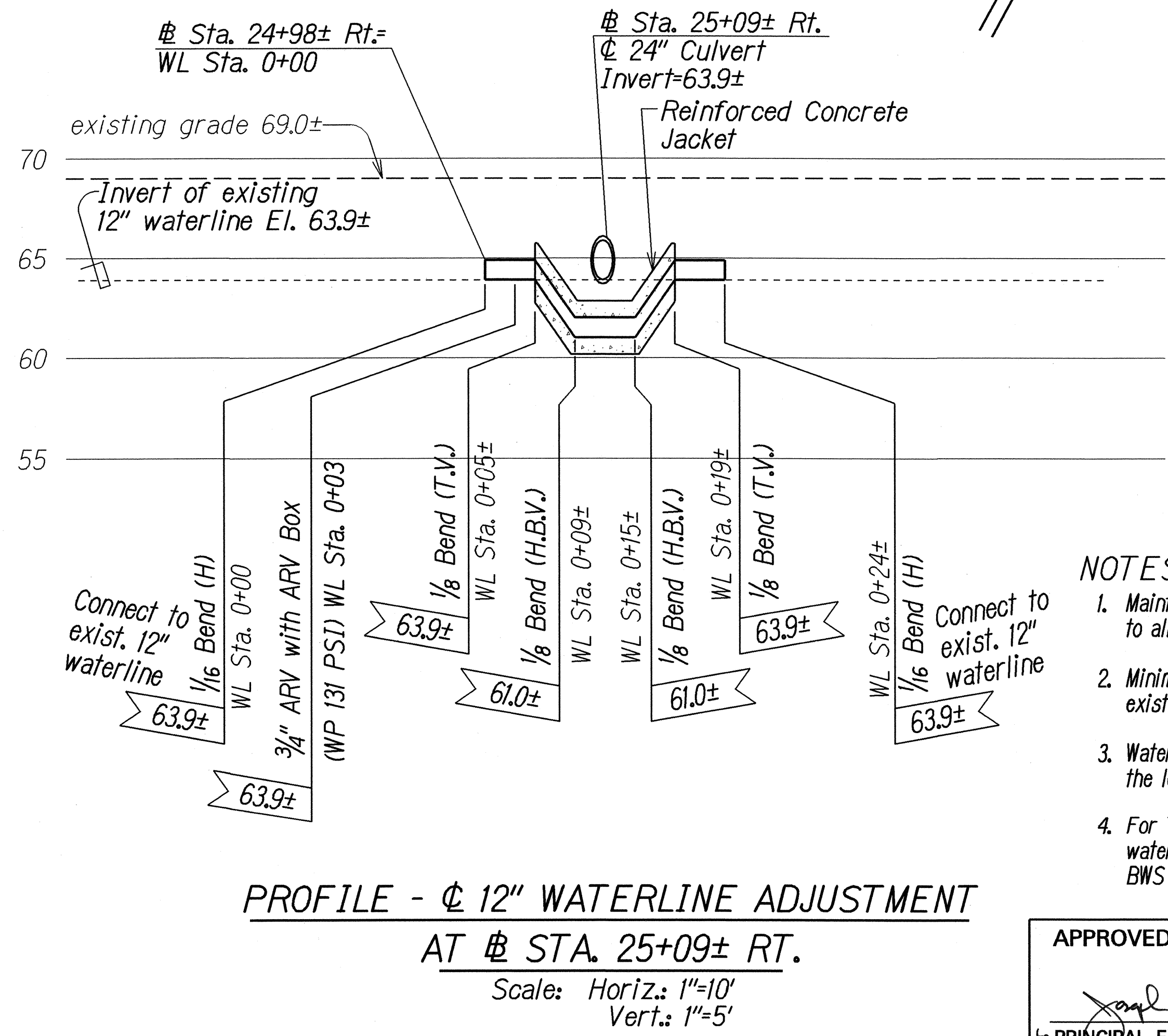
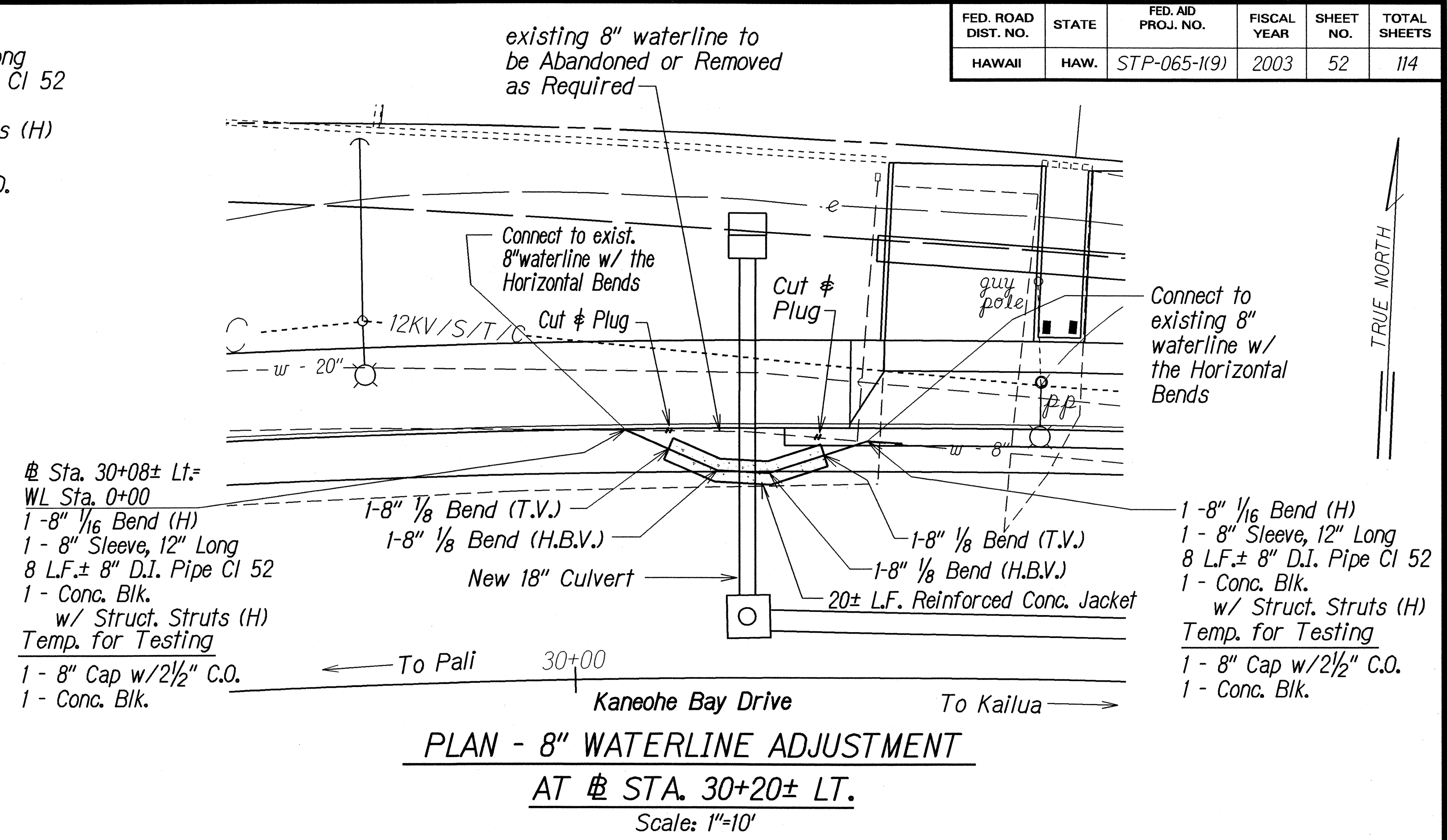
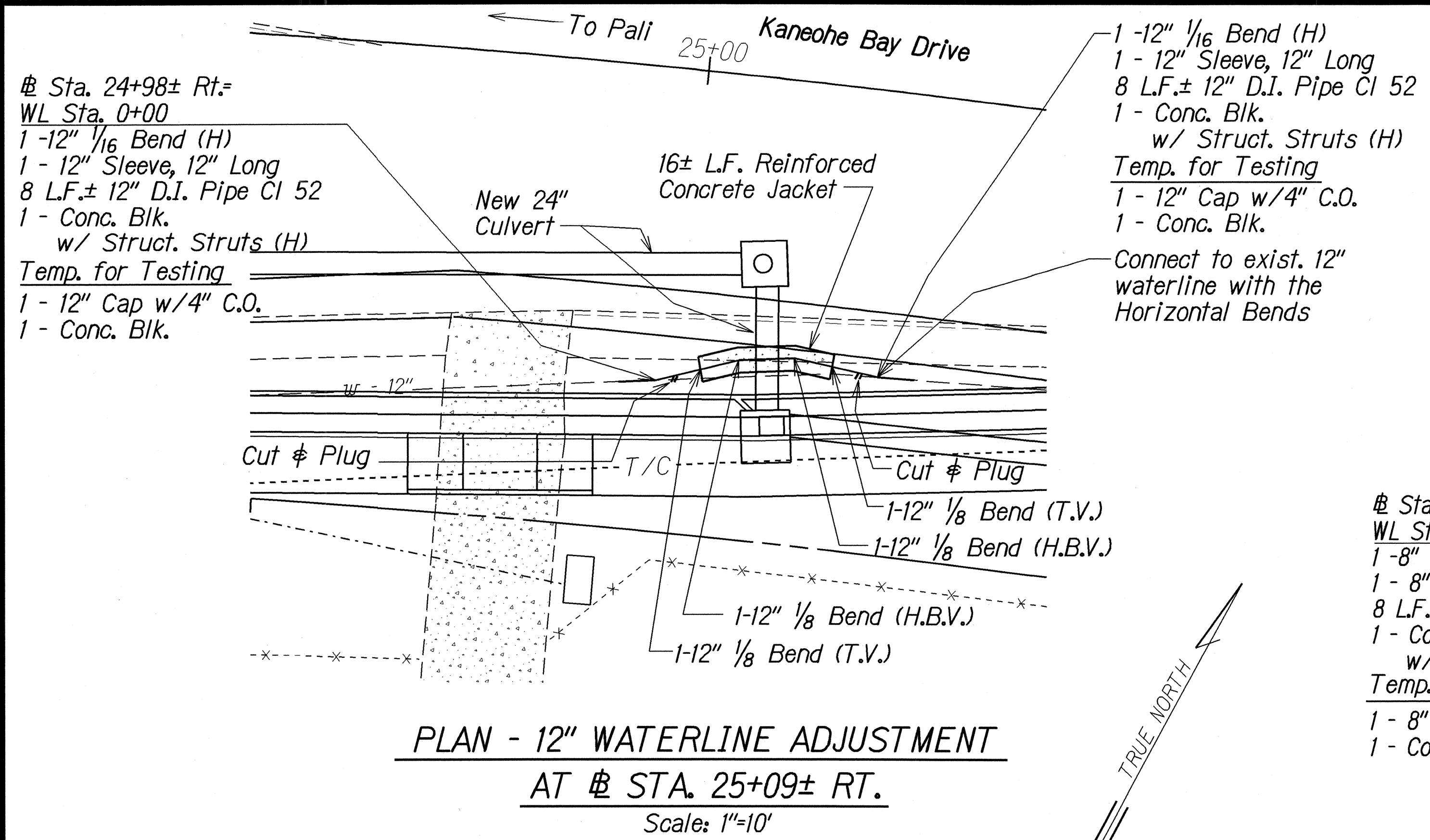
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**UTILITY DETAIL**  
KANEHOE BAY DRIVE IMPROVEMENTS  
Vicinity of Puohala St. to Kawa Bridge  
Federal Aid Proj. No. STP-065-11(9)  
Scale: As shown Date: June, 2002  
SHEET No. 3 OF 6 SHEETS

ORIGINAL PLAN  
DATE: 4/15/00  
DESIGNED BY: J. J. J. J.  
CHECKED BY: J. J. J. J.  
NOTED BY: J. J. J. J.  
QUANTITIES BY: J. J. J. J.  
CHECKED BY: J. J. J. J.  
add6.asbuilt.4kandut03

"AS-BUILT"

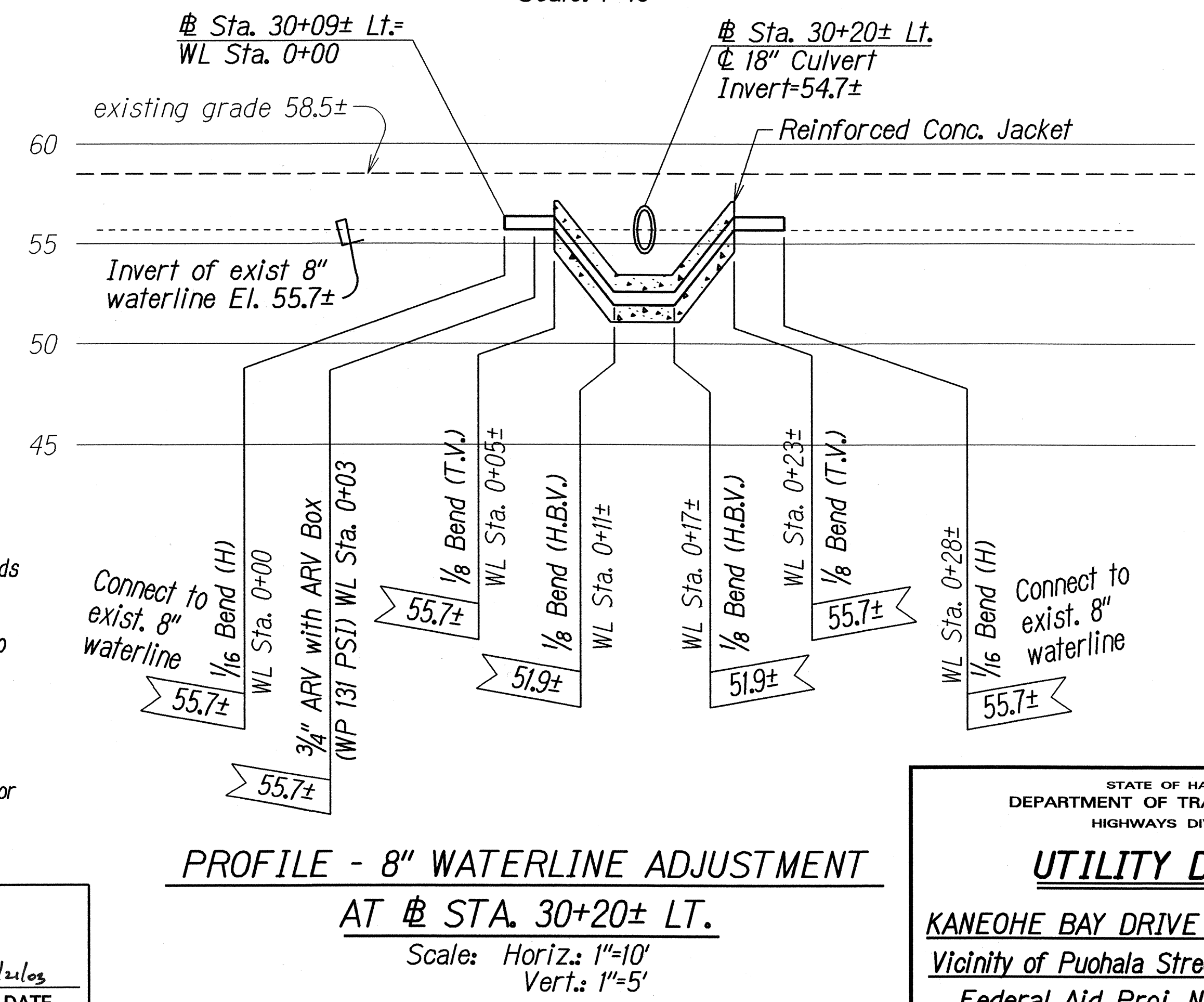


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-065-1(9)       | 2003        | 52        | 114          |



- NOTES:
1. Maintain 5'-0" between (H) and (T.V.) bends to allow for use of test blocks.
  2. Minimum length of new pipe to connect to existing waterline using sleeve is 4'-0".
  3. Waterline stationing is measured along the length of the pipe.
  4. For Typical Details of Concrete Jacket for waterlines, See Reference Details 104 of BWS Standard Details.

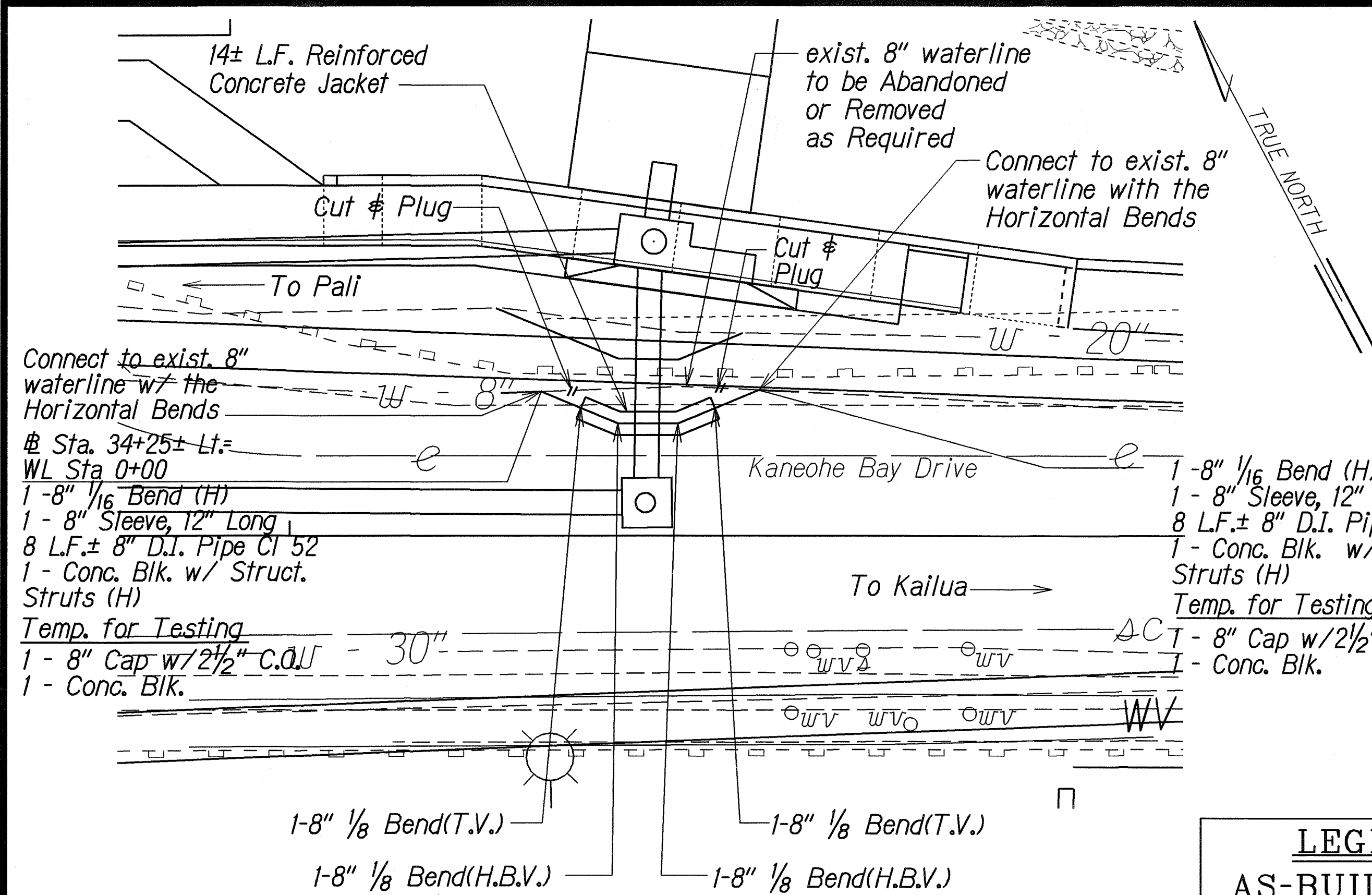
APPROVED BY:  
  
 PRINCIPAL EXECUTIVE, MAINTENANCE UNIT  
 BOARD OF WATER SUPPLY  
 CITY AND COUNTY OF HONOLULU



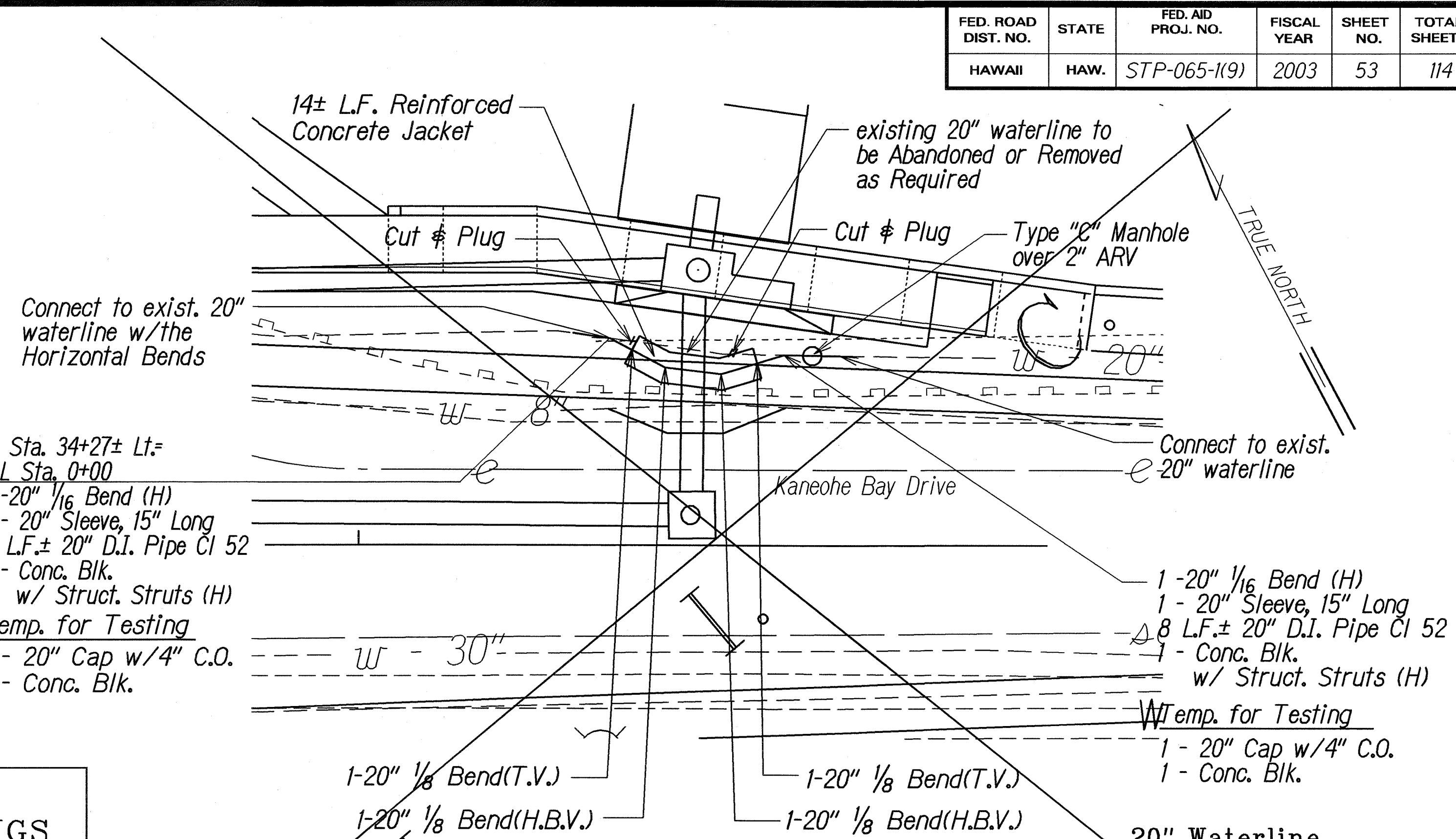
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**UTILITY DETAIL**  
**KANEOHE BAY DRIVE IMPROVEMENTS**  
**Vicinity of Puohala Street to Kawa Bridge**  
**Federal Aid Proj. No. STP-065-1(9)**  
 Scale: As shown  
 Date: June, 2002  
 SHEET No. 4 OF 6 SHEETS



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-065-1(9)       | 2003        | 53        | 114          |



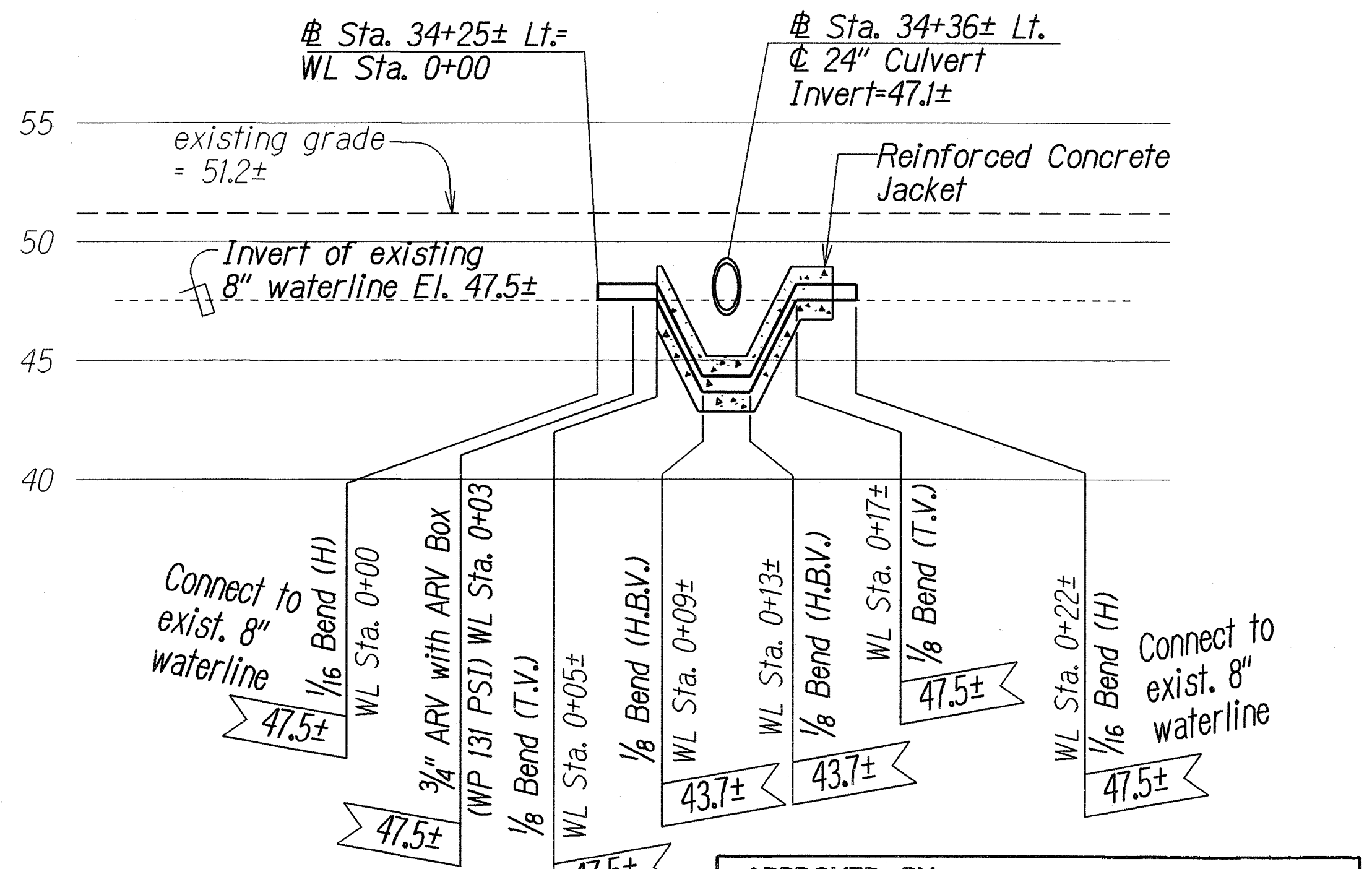
**PLAN - 8" WATERLINE ADJUSTMENT**  
**AT # STA. 34+36± LT.**  
 Scale: 1"=10'



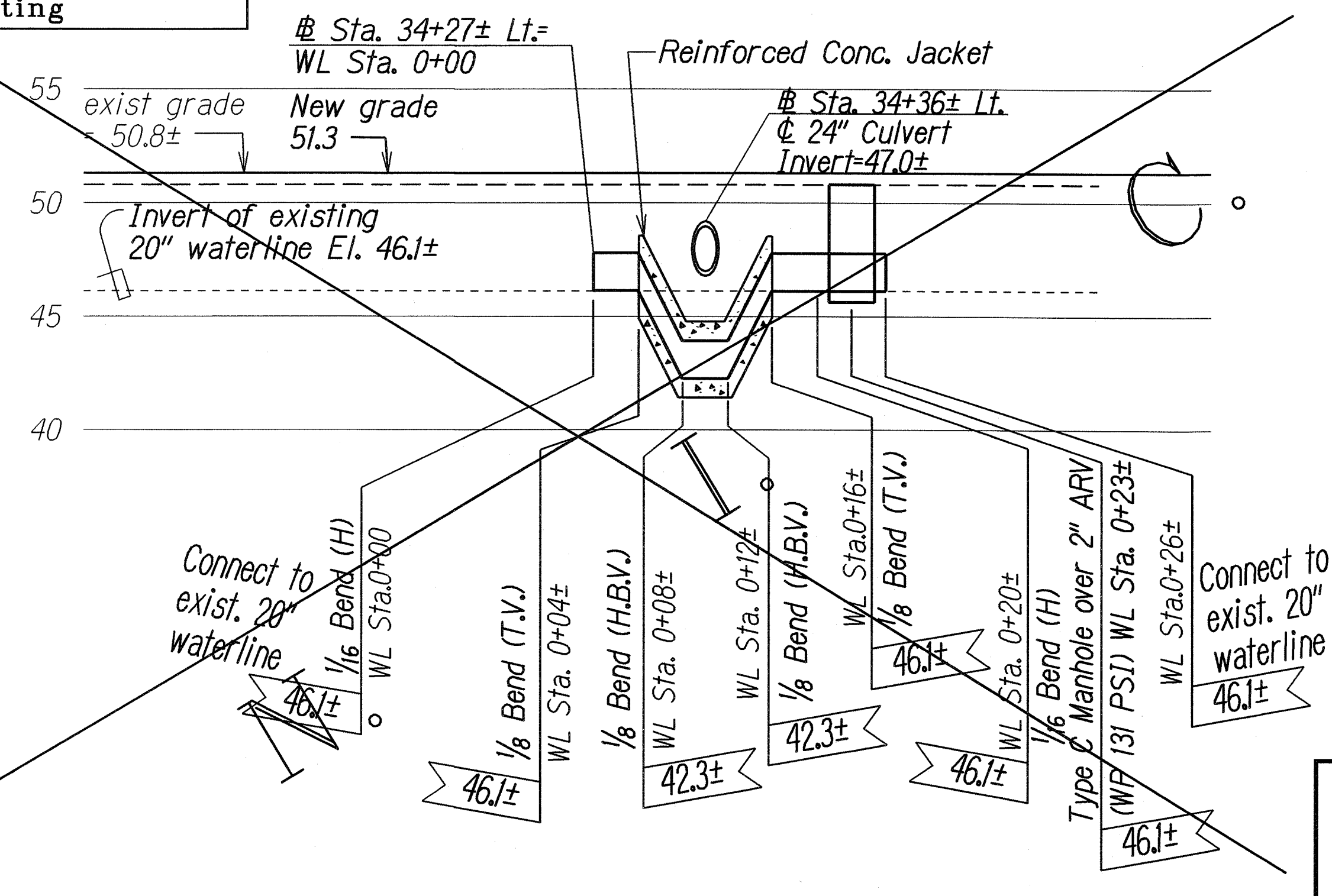
**PLAN - 20" WATERLINE ADJUSTMENT**  
**AT # STA. 34+36± LT.**  
 Scale: 1"=10'

**LEGEND FOR AS-BUILT POSTINGS**

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



**PROFILE - 8" WATERLINE ADJUSTMENT**  
**AT # STA. 34+36± LT.**  
 Scale: Horiz: 1"=10' Vert: 1"=5'



**PROFILE - 20" WATERLINE ADJUSTMENT**  
**AT # STA. 34+36± LT.**  
 Scale: Horiz: 1"=10' Vert: 1"=5'

- NOTES:**
- Maintain 5'-0" between (H) and (T.V.) bends to allow for use of test blocks.
  - Minimum length of new pipe to connect to existing waterline using sleeve is 4'-0".
  - Waterline stationing is measured along the length of the pipe.
  - For Typical Details of Concrete Jacket for waterlines, See Reference Details 104 of BWS Standard Details.
  - For Typical Details of BWS Type C Manhole, See Reference Detail 9 of BWS Standard Details.

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**UTILITY DETAIL**

**Kaneohe Bay Drive Improvements**  
 Vicinity of Puohala St. to Kawa Bridge  
 Federal Aid Proj. No. STP-065-1(9)

Scale: As shown Date: June, 2002

SHEET No. 5 OF 6 SHEETS

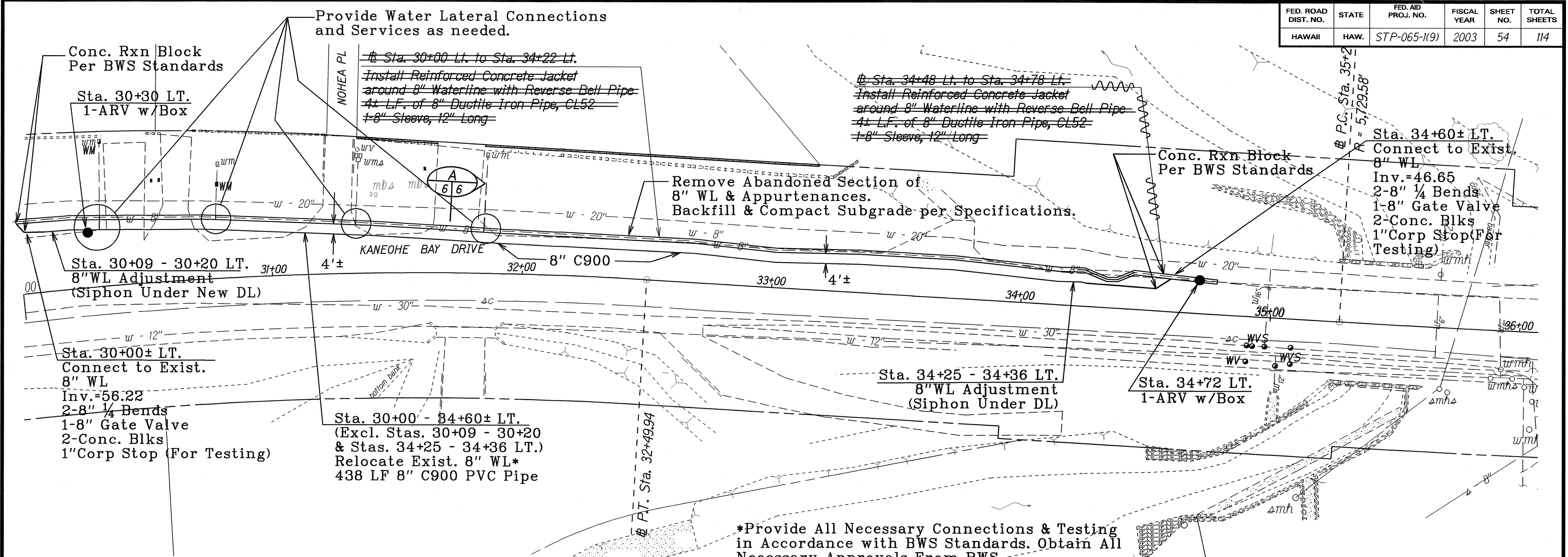
|             |         |
|-------------|---------|
| DESIGNED BY | DATE    |
| DRAWN BY    | 4/15/00 |
| CHECKED BY  |         |
| IN CHARGE   |         |
| APPROVED BY |         |

add:asbuilt:4.kandut05.dgn

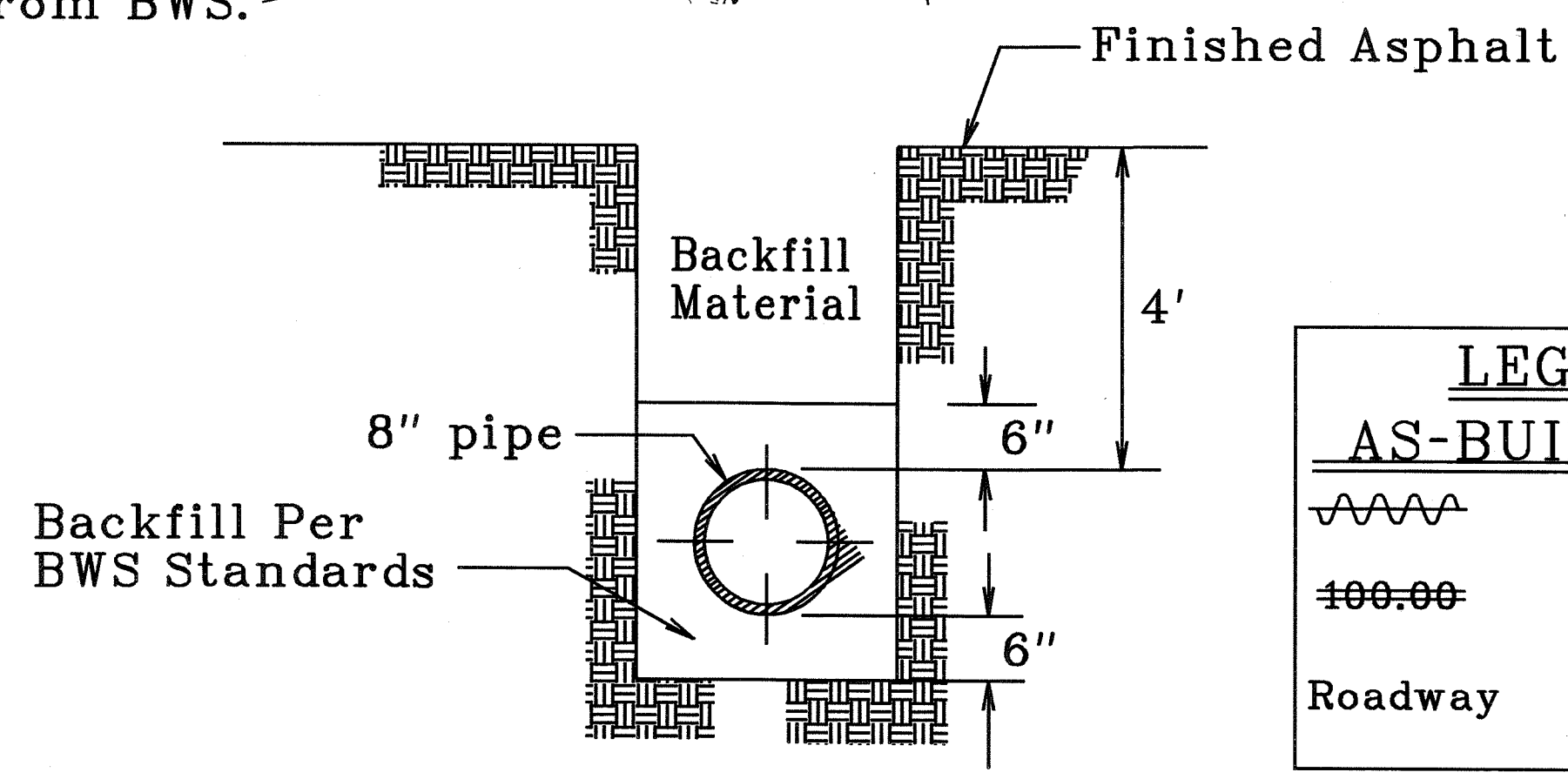
"AS-BUILT"



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | STP-065-1(9)       | 2003        | 54        | 114          |

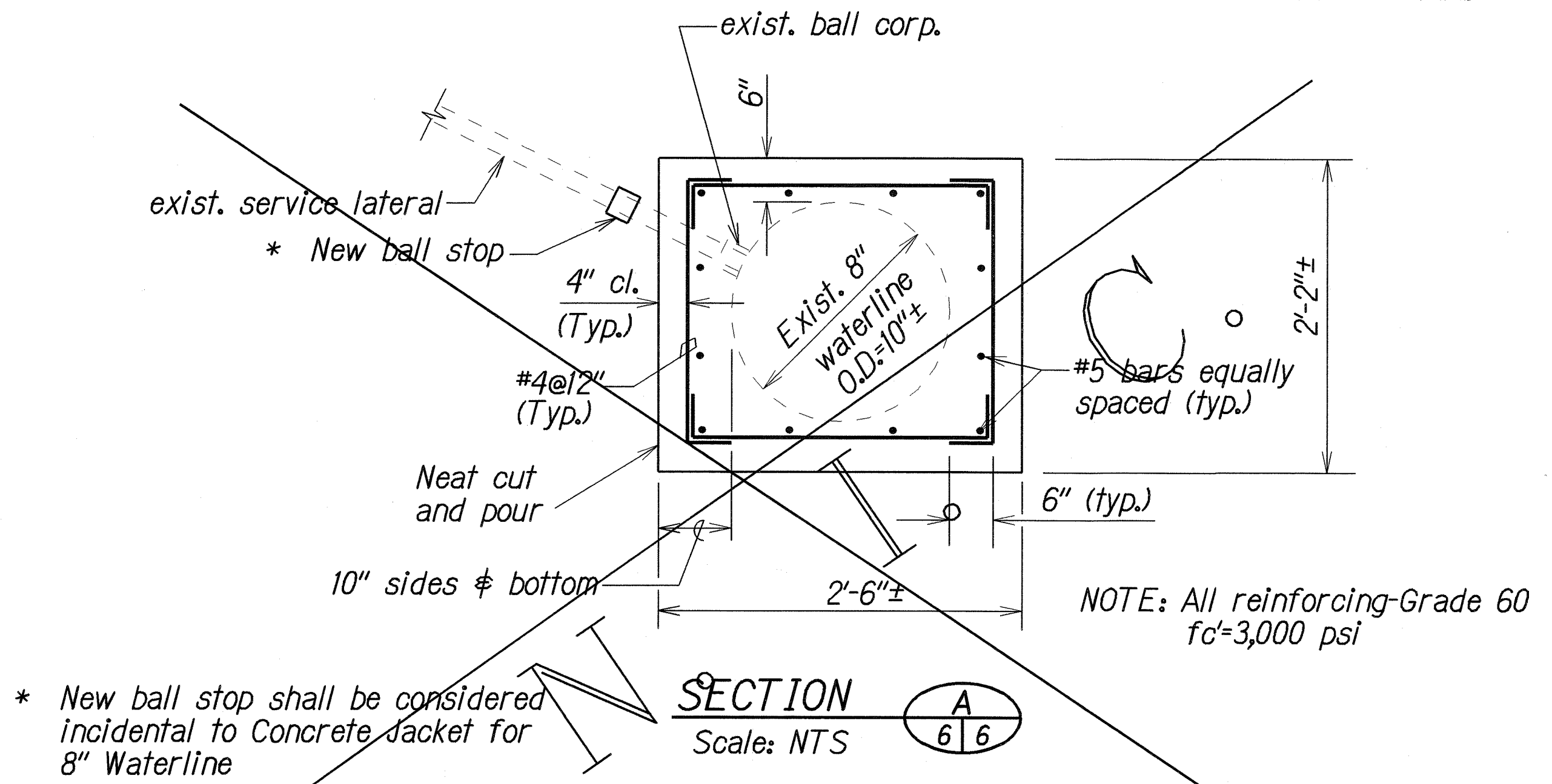


PLAN  
Scale: 1"=20'-0"



TRENCH CROSS-SECTION/DETAIL  
Not to Scale

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



TYPICAL DETAIL OF CONCRETE JACKET FOR 8" WATER LINE

DETAILS OF 8" WATERLINE JACKET

APPROVED BY:

PRINCIPAL EXECUTIVE, MAINTENANCE UNIT, BOARD OF WATER SUPPLY CITY AND COUNTY OF HONOLULU

DATE 1/21/03

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**UTILITY PLAN AND DETAIL**

**KANEHOE BAY DRIVE IMPROVEMENTS**

Vicinity of Puohala Street to Kawa Bridge

Federal Aid Proj. No. STP-065-1(9)

Scale: As shown Date: June, 2002

SHEET No. 6 OF 6 SHEETS

"AS-BUILT"