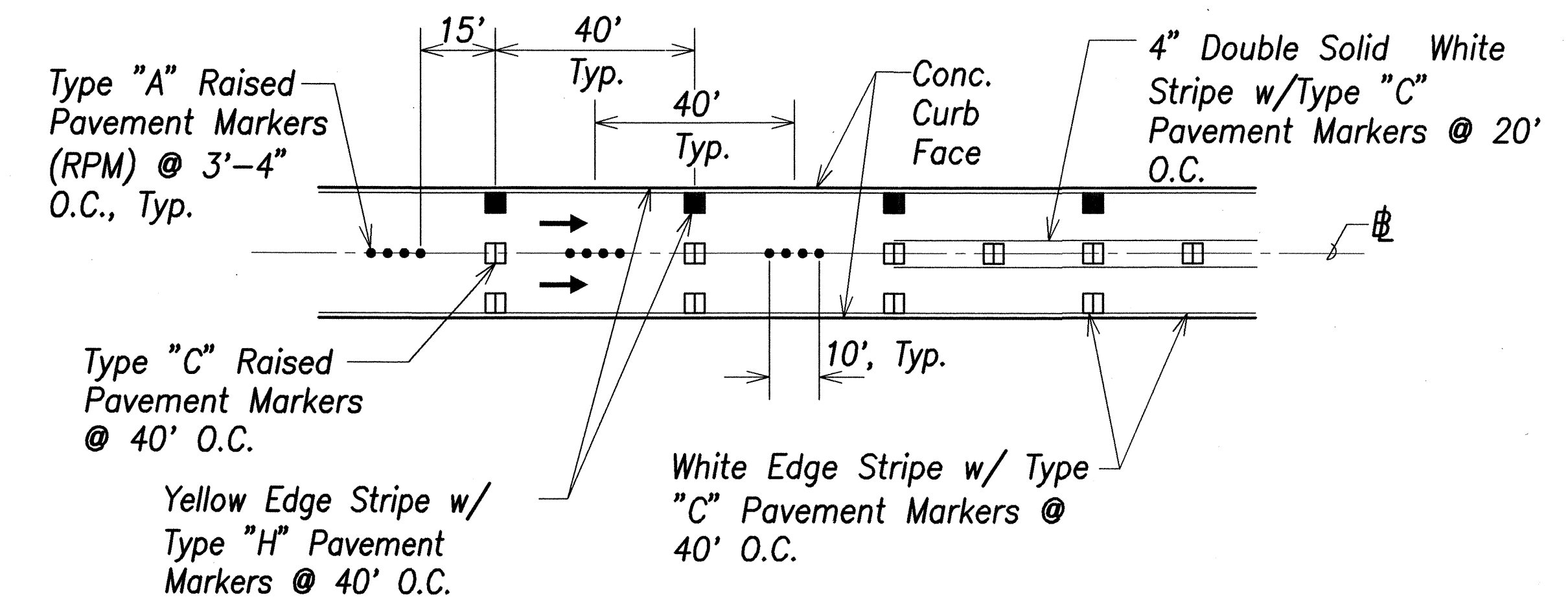
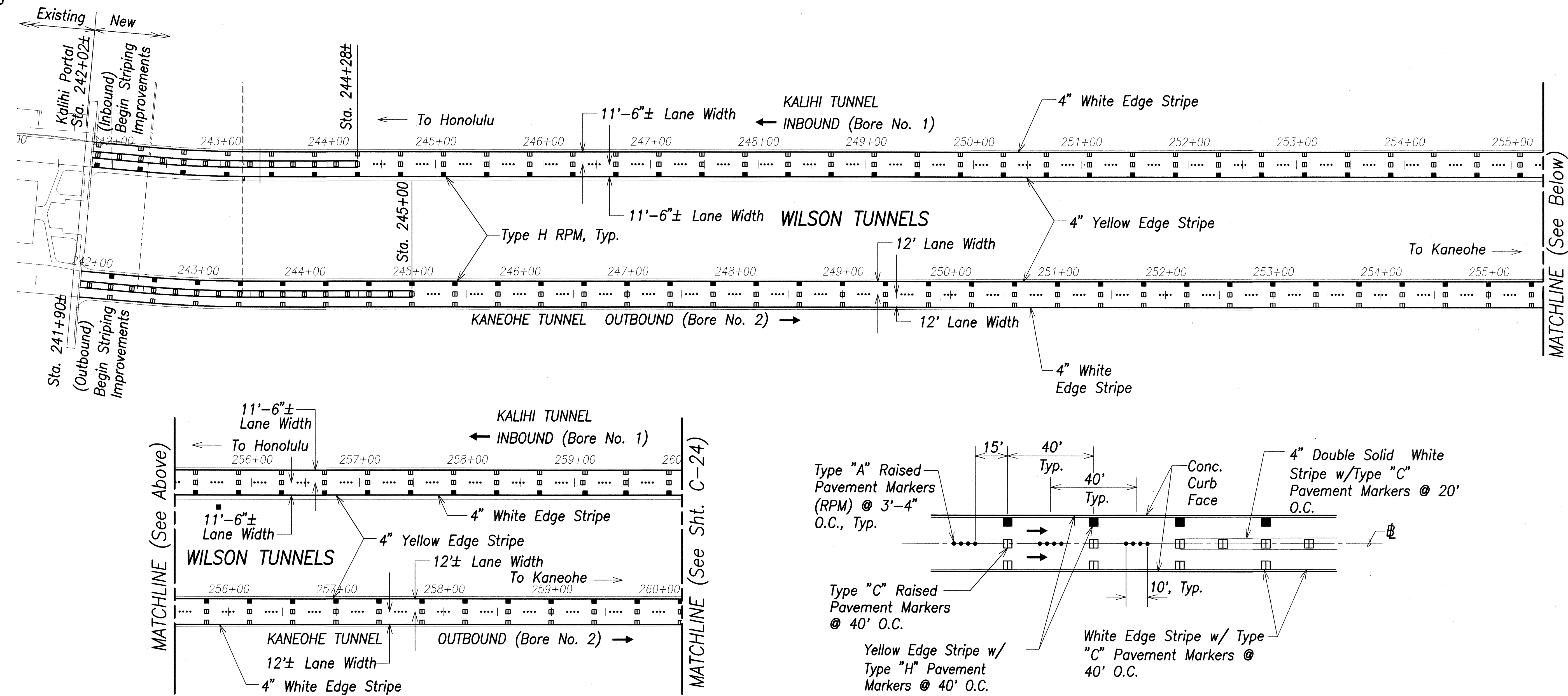


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	24	69

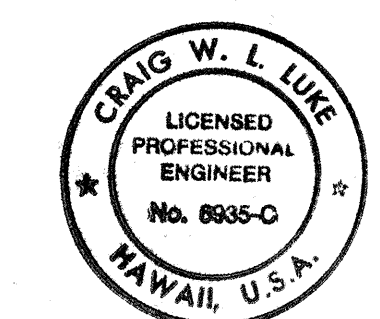


**STRIPE DETAIL**  
Not To Scale

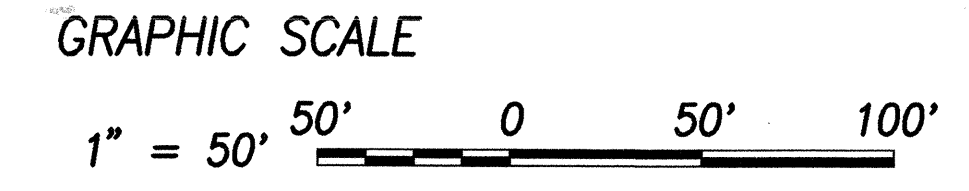
Signing And Striping Notes:

1. Layout of pavement markings and striping shall be done by the Contractor and approved by the Engineer prior to any installation work.
2. Existing pavement markings not incorporated in the final traffic pattern shall be removed as directed by the Engineer.
3. Final locations of all signs shall be approved by the Engineer prior to any installation work.
4. Existing signs not shown on these plans shall remain as posted unless otherwise directed by the Engineer.
5. All pavement striping shall be as noted on the legend or plans.
6. Contractor to verify exact location where double yellow median line ends and begin in the vicinity of Wilson Tunnels.

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



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.



April 30, 2004  
EXPIRATION DATE OF THE LICENSE

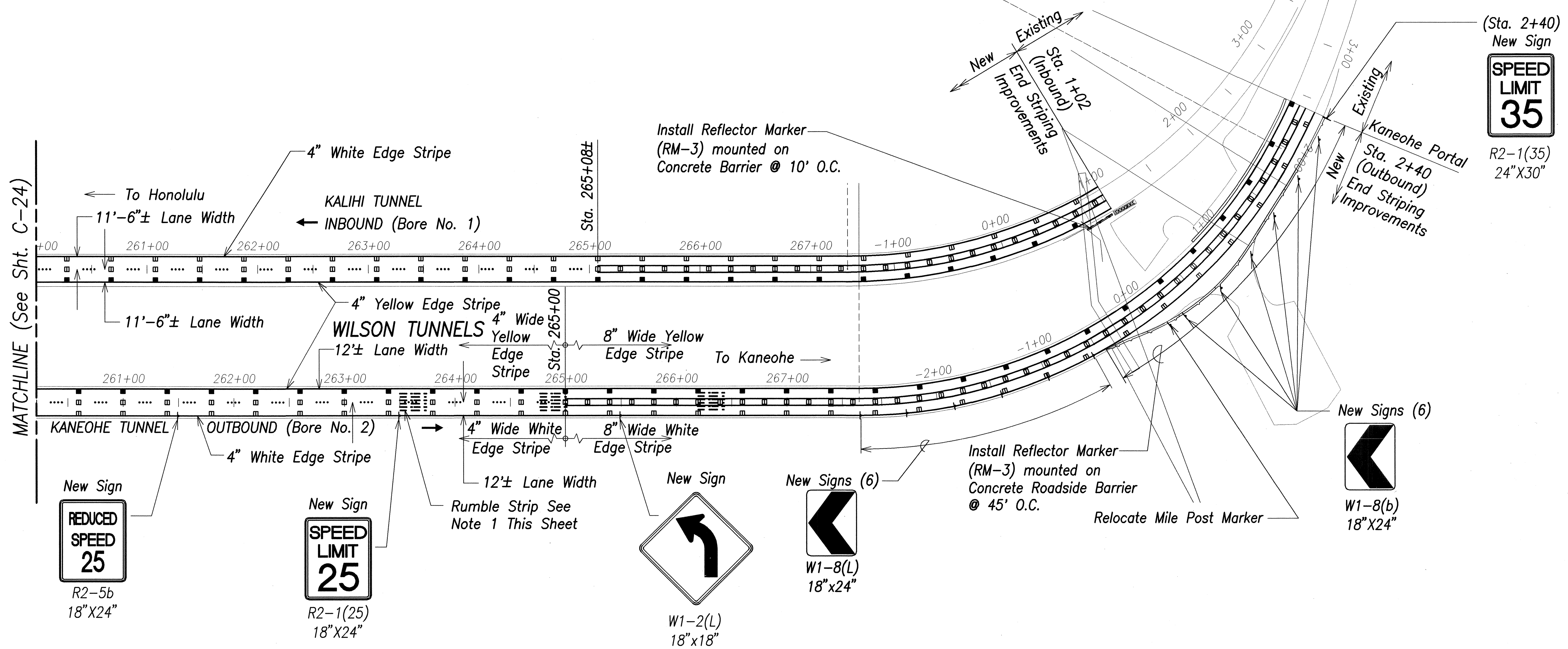
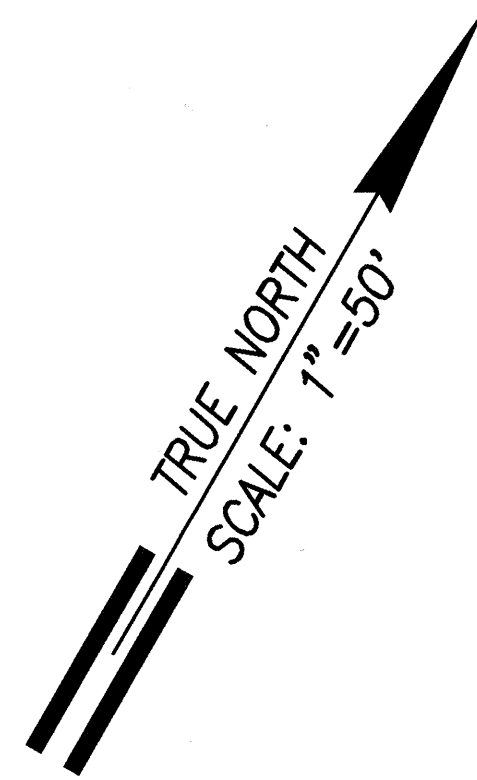
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGNING AND STRIPING PLAN**

*Likilike Highway*  
Wilson Tunnel Improvements  
Leak and Crack Remediation  
F. A. Project No. STP-063-1(22)  
Scale: 1"=50' Date: April 24, 2003

SHEET No. C-23 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	25	69



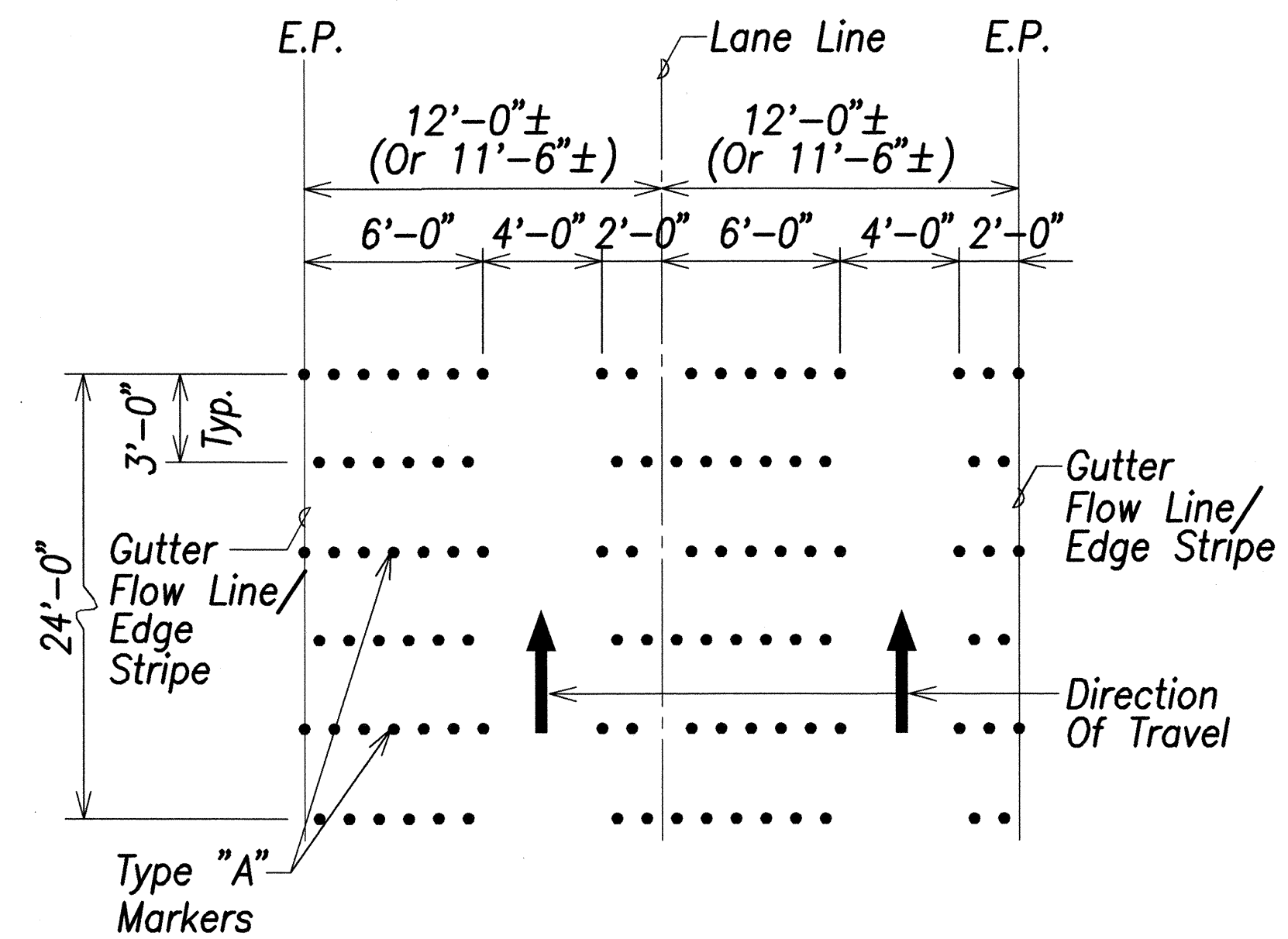
New Sign  
**REDUCED SPEED 25**  
 R2-5b  
 18"X24"

New Sign  
**SPEED LIMIT 25**  
 R2-1(25)  
 18"X24"

New Sign  
  
 W1-2(L)  
 18"X18"

New Signs (6)  
  
 W1-8(L)  
 18"X24"

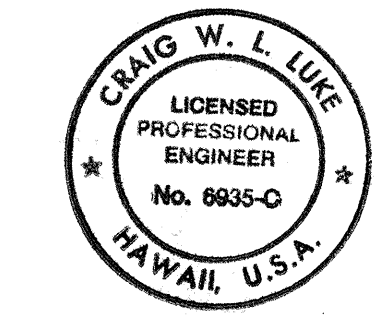
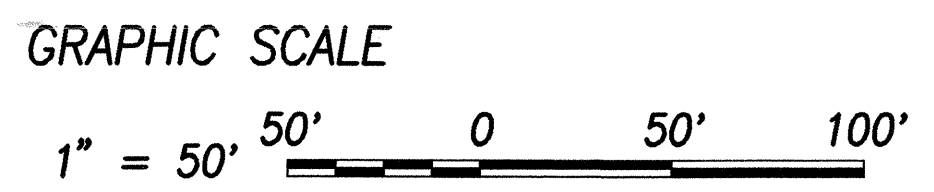
New Signs (6)  
  
 W1-8(b)  
 18"X24"



**RUMBLE STRIP (RAISED) DETAIL**  
 Not To Scale

**Notes:**

1. Install 3 (24' Wide) sets of Rumble strips @ 120' O.C. Sta. 263+50 (Outbound), Sta. 264+70 (Outbound), Sta. 265+90 (Outbound).
2. Install Reflector Markers (RM-3(R)) on Tunnel Wall, Sta. (-)2+70 to (-)0+50 Right, 20' O.C. RM-3 mounted on tunnel wall shall be set 4 feet from bottom of curb to bottom of sign.
3. Signs mounted on tunnel wall (excluding RM-3) shall have a 7' min. clearance between bottom of sign to top of sidewalk.
4. See Structural dwgs. for sign mounting details.



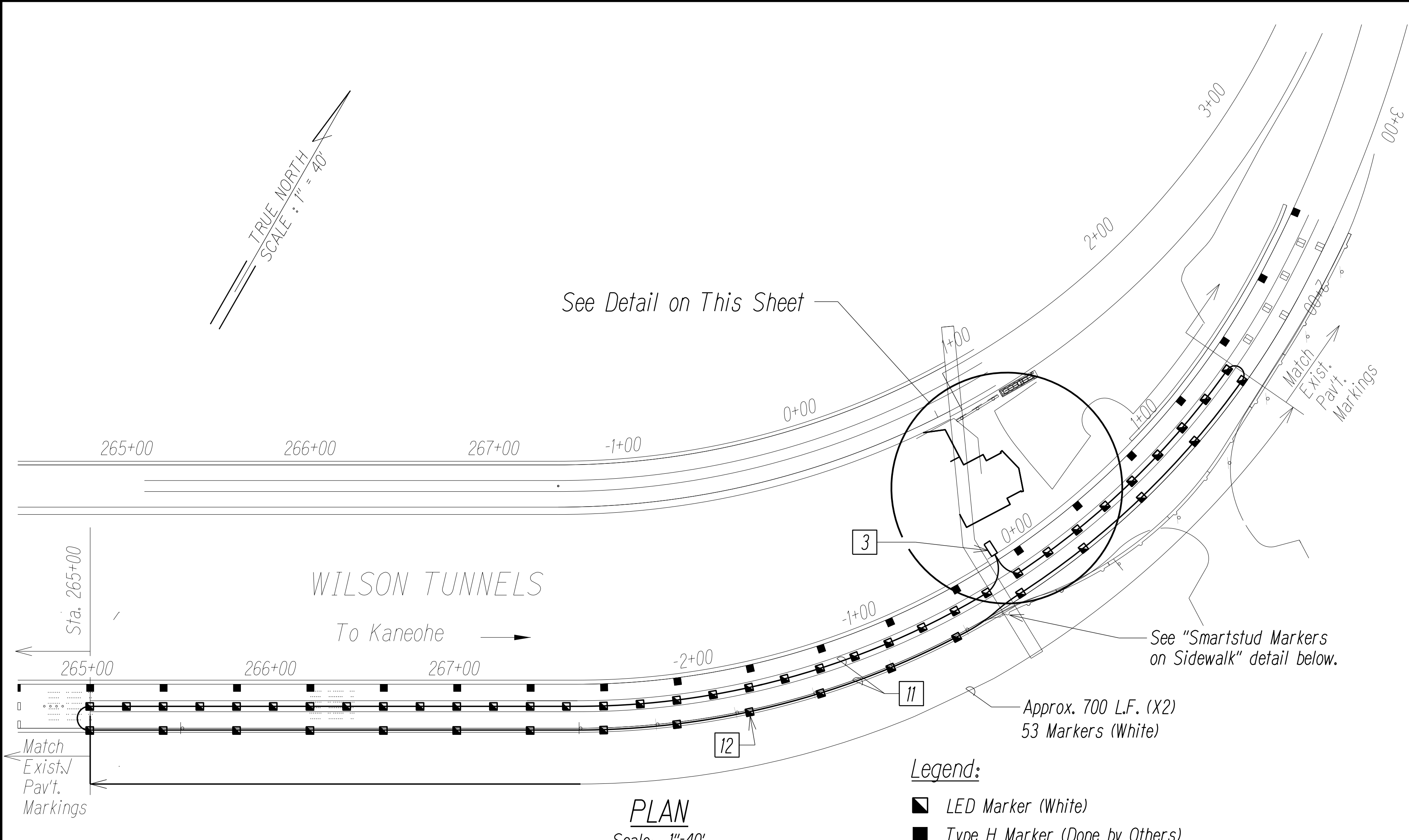
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

April 30, 2004  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**SIGNING AND STRIPING PLAN**  
 LIKELIKE HIGHWAY  
 Wilson Tunnel Improvements  
 Leak and Crack Remediation  
 F. A. Project No. STP-063-1(22)  
 Scale: 1"=50' Date: April 24, 2003

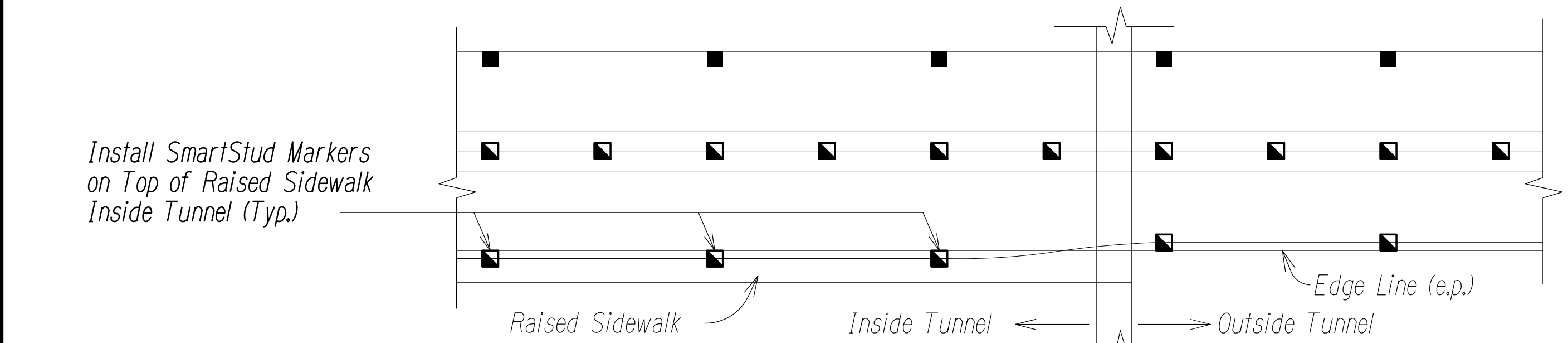
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	C.O. 25S-1	69



**PLAN**  
Scale: 1"=40'

- Legend:**
- LED Marker (White)
  - Type H Marker (Done by Others)

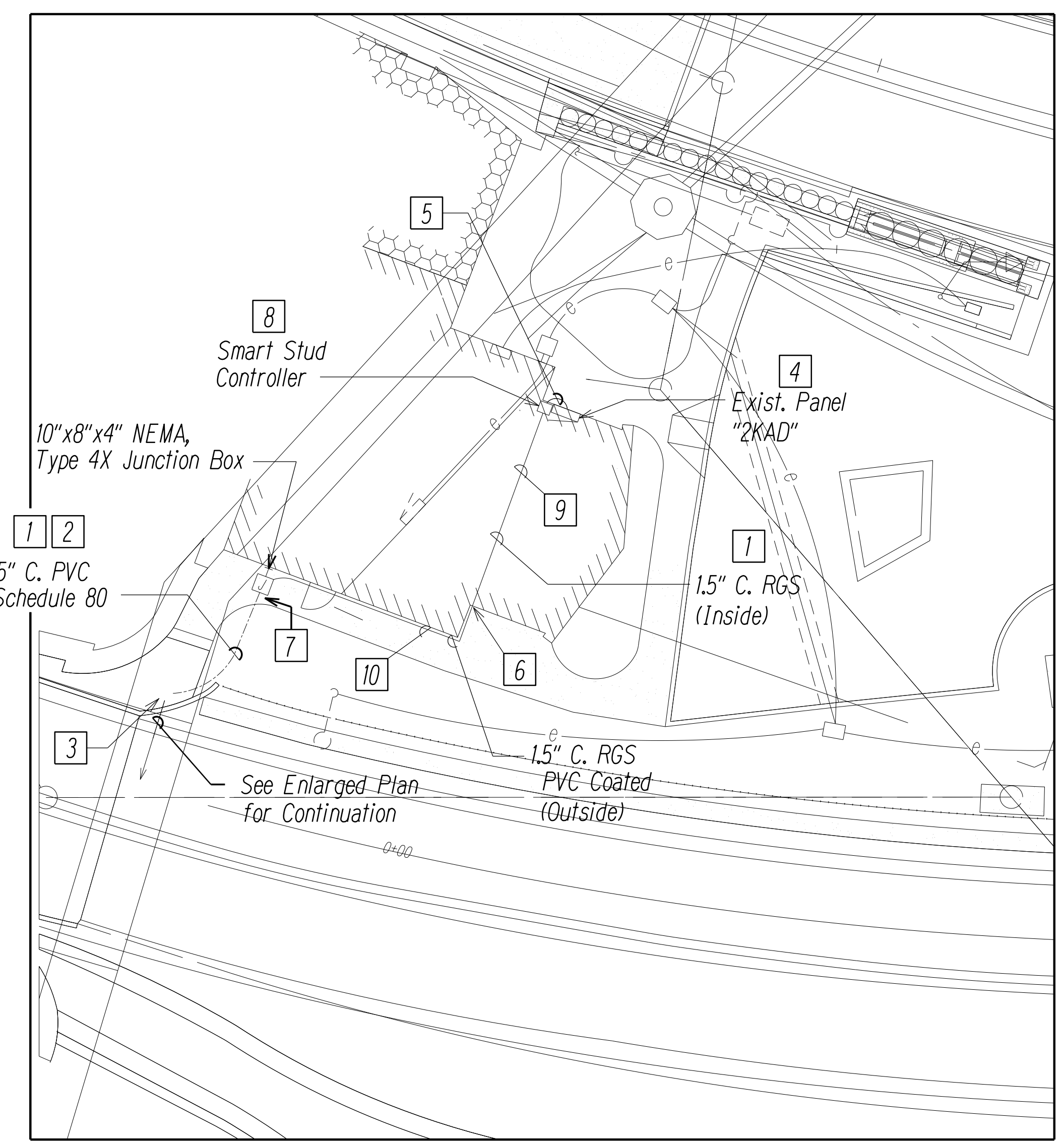


**SMARTSTUD MARKERS ON SIDEWALK**  
Not to Scale

**Notes:**

Furnish two copies of the SmartStud Systems Installation Manual to Engineer 7 days prior to start of work.

- 1 Furnish and install SmartStud Cable; Verify exact requirements with Manufacturer's representative.
- 2 36" minimum burial depth for conduit concealed below grade.
- 3 Type "A" Electrical Pullbox; See A/E-17 for details.
- 4 Furnish and install 1P20A Circuit Breaker in Space 22; Circuit Breaker to match existing AIC Rating and existing breaker type.
- 5 Furnish and install 2 #12 AWG, 1 #12 AWG GND from new circuit breaker in existing panel "2KAD" to Wall Mounted Junction Box via 0.75" EMT conduit. Provide updated, typewritten, panel directory. For equipment elevation details, see Plan Sheet No. C.O. 25S-2.



**DETAIL**  
Not to Scale

- 6 Penetrate concrete wall; Patch and Paint to match existing surface.
- 7 Sawcut existing concrete sidewalk; Patch to match existing condition.
- 8 Mount SmartStud controller adjacent to existing panel "2KAD". For equipment elevation details, see Plan Sheet No. C.O. 25S-2.
- 9 Support conduit from ceiling in interior of building as per NEC.
- 10 Support conduit from wall on exterior of building as per NEC.
- 11 Sawcut and install cable per SmartStud installation manual; typical for entire run.
- 12 Install and aim markers per SmartStud installation manual; typical for all. Layout of SmartStud markers shall be done by the Contractor and approved by the Engineer.

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTE BOOK	_____

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

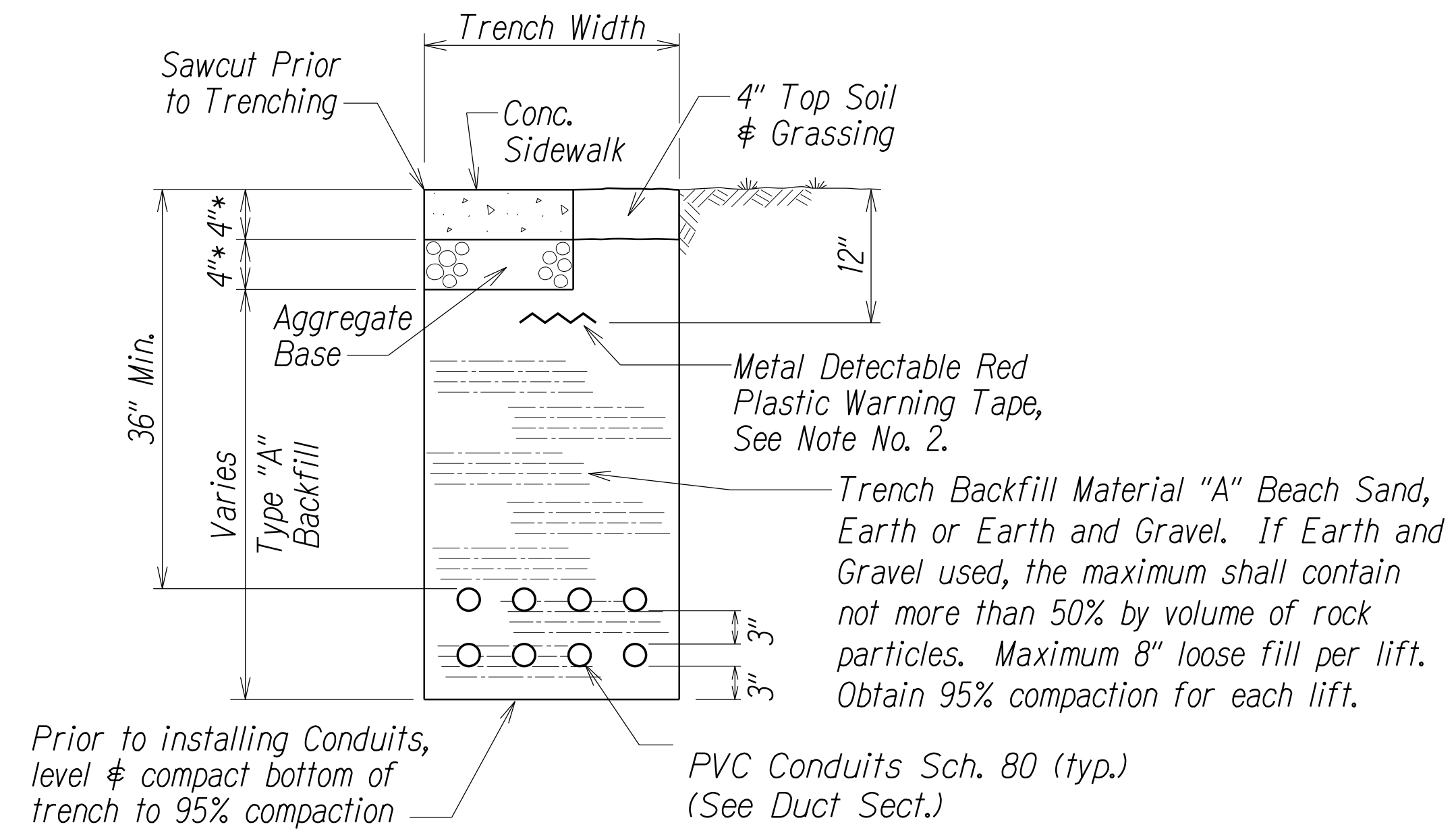
**LED PAVEMENT MARKING PLAN**

**LIKELIKE HIGHWAY**  
*Wilson Tunnel Improvements*  
*Leak and Crack Remediation*  
F. A. Project No. STP-063-1(22)

Scale: As Shown      Date: June 2005

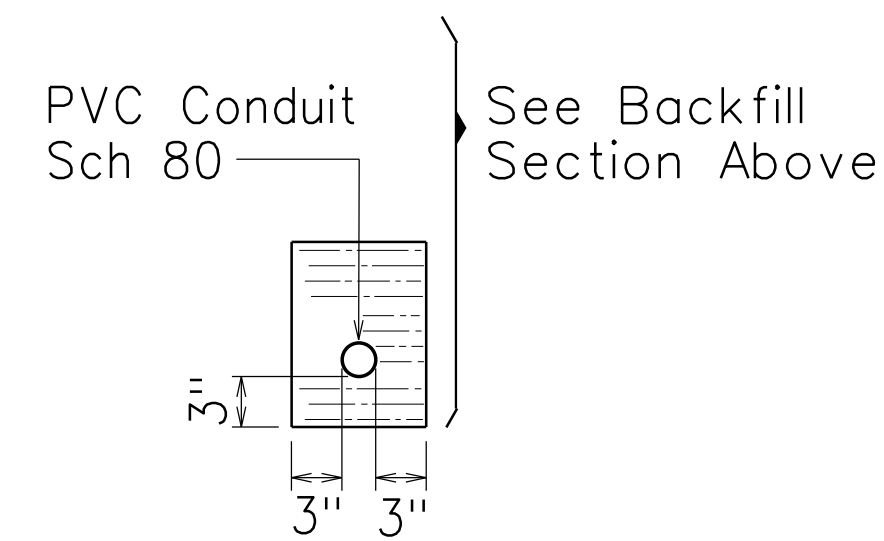
SHEET No. C-24b OF SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	C.O.25 S-2	69



**TYPICAL BACKFILL SECTION  
DIRECT BURIED DUCTS**

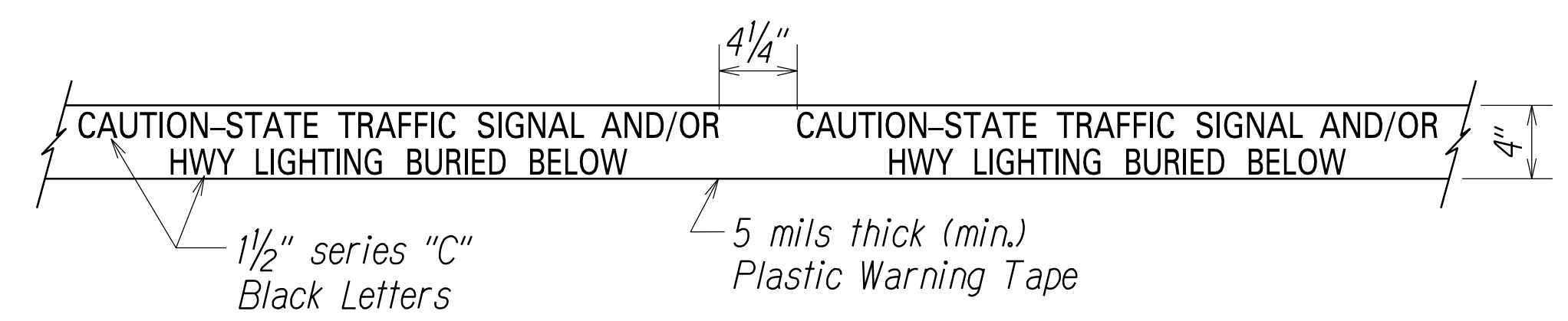
\* Minimum thickness or match existing whichever is greater



**SINGLE CONDUIT  
DUCT SECTIONS - DIRECT BURIED**

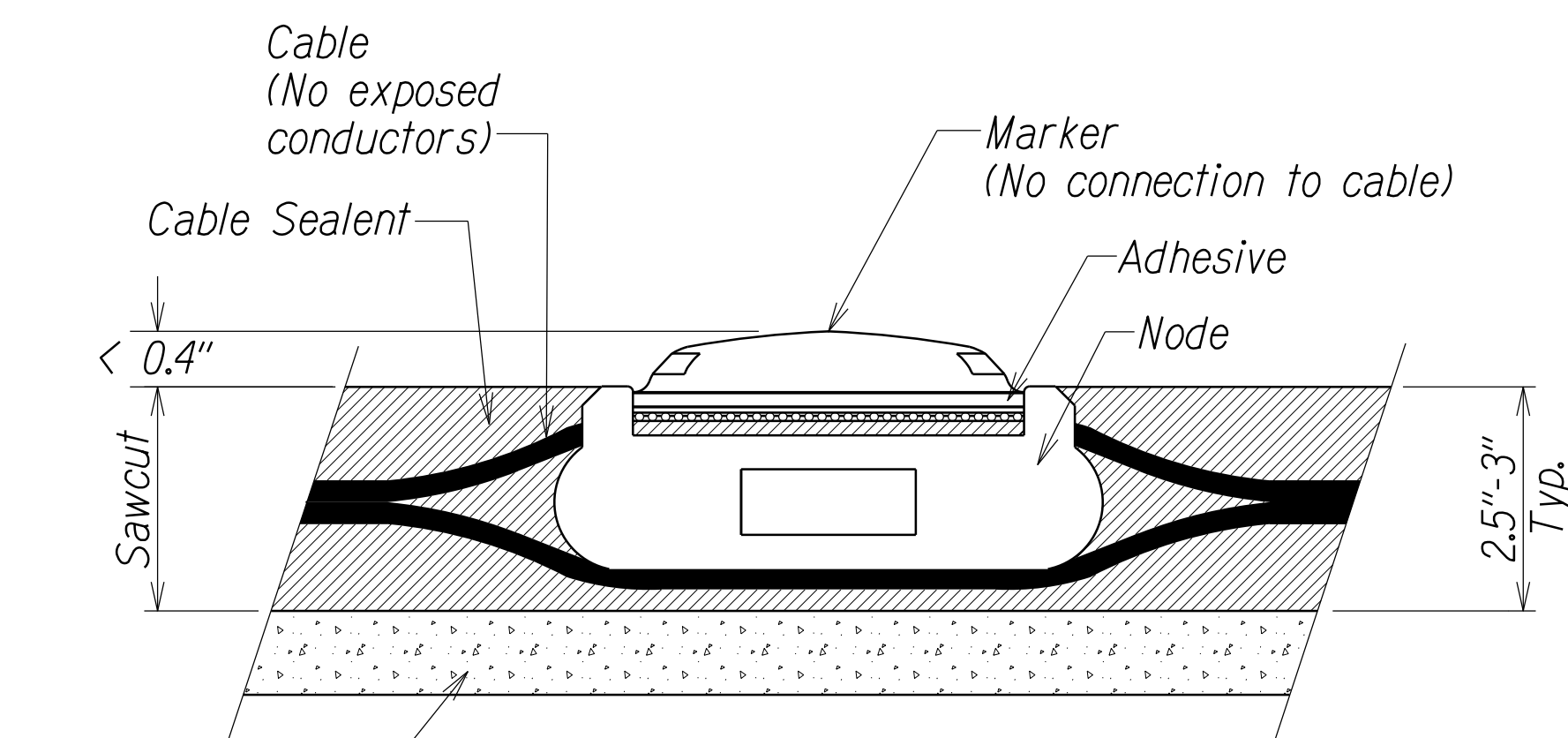
**DUCT NOTES**

1. If trench is located on unpaved area, the Contractor shall replace 10" A.C. Base Course and 4" A.C. Pavement with Type "A" backfill material.
2. The Metal Detectable Red Plastic Warning Tape shall be a minimum 5 mils thick and 4" wide with a continuous metallic backing and corrosion resistant 1± mil thick foil core. The message on the tape shall read, "CAUTION - STATE TRAFFIC SIGNAL AND/OR HWY LIGHTING BURIED BELOW", utilizing 1½ inches series "C" black lettering. The message will be repeated with a 4½" spacing between top line of message and start of next repeat.
3. For direct buried duct sections, the concrete jacket required at the conduit by-pass for various utilities, shall not be paid for separately but considered incidental to the direct buried conduits.
4. After installing all the Smartstud cables, the Contractor shall duct seal all conduits in the pullboxes. The duct seal material shall be approved by the Engineer and shall not be paid for separately but considered incidental to the direct buried and/or concrete encased conduits.
5. Base Course & Sub-Base Course per 1994 State Standard Specifications for Highway Construction.

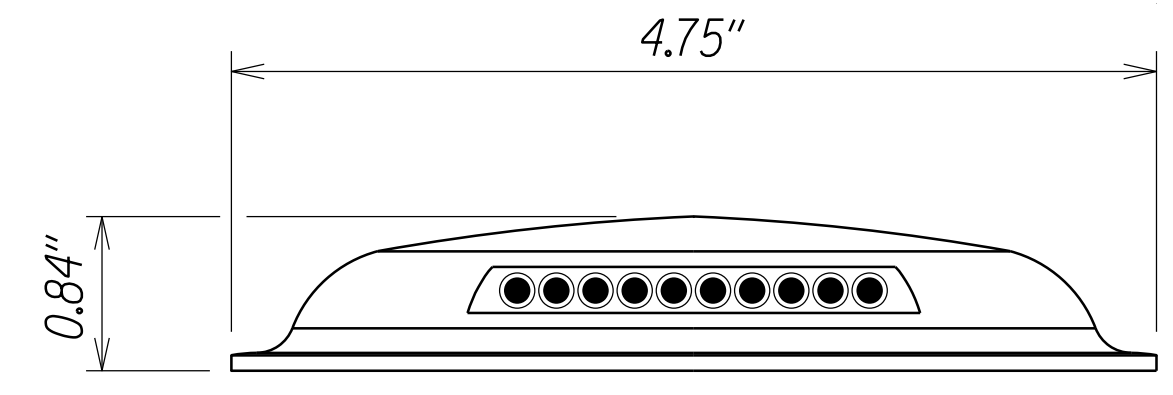


For additional information see note no. 2.

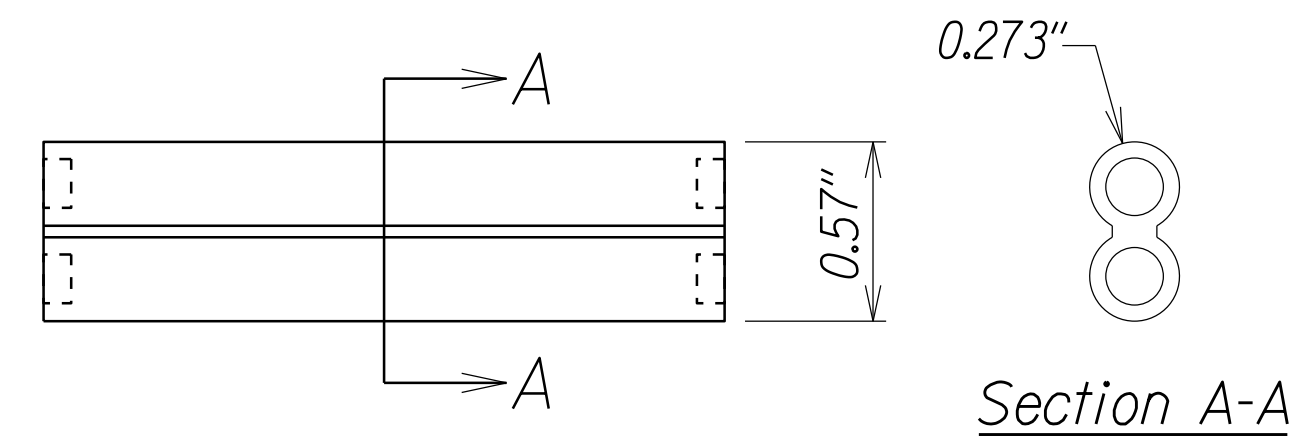
**METAL DETECTABLE RED PLASTIC WARNING TAPE**



**NODE AREA CROSS SECTION**



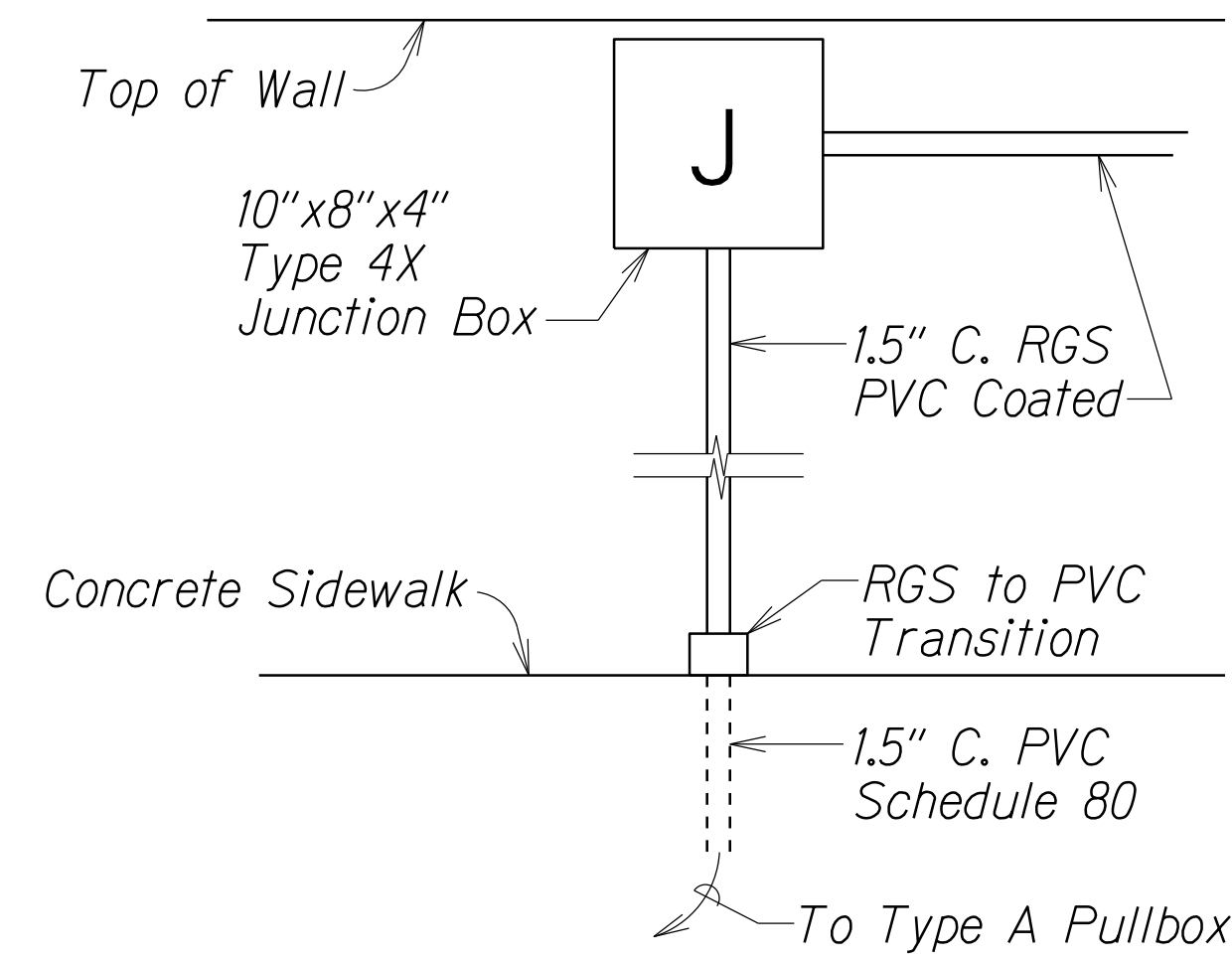
**SMARTSTUD MARKER**



**SMARTSTUD CABLE**

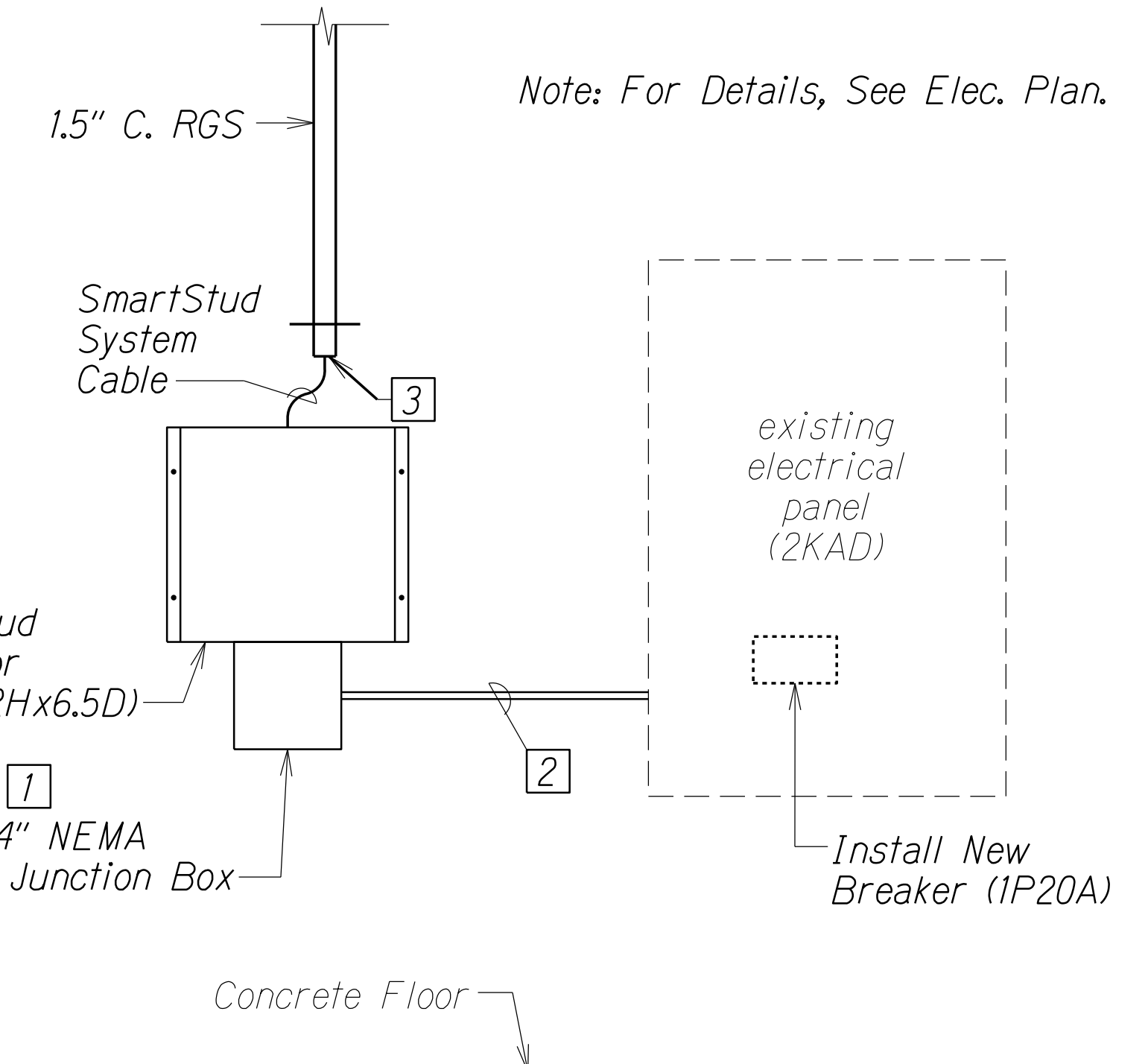
**SMARTSTUD DETAILS**

Not to Scale



**EXTERIOR WALL MOUNTED JUNCTION BOX DETAIL**

Not to Scale



**NOTES:**

- 1 Splice SmartStud power cable with branch circuit wiring in junction box. Verify connection with Manufacturer's representative.
- 2 2 #12 AWG, 1 #12 AWG GND in 0.75" C. EMT
- 3 Provide plastic conduit bushing to prevent damaging SmartStud cable.

**ELECTRICAL EQUIPMENT ELEVATION**

Not to Scale

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**LED PAVEMENT MARKING  
DETAILS**  
LIKELIKE HIGHWAY  
Wilson Tunnel Improvements  
Leak and Crack Remediation  
F.A. Project No. STP-063-1(22)  
Scale: Not to Scale Date: June 2005  
SHEET No. C-24 OF 30 SHEETS

ORIGINAL PLAN  
DATE 4/22/05  
DESIGNED BY E. Izawa  
CHECKED BY M. K. K. K.