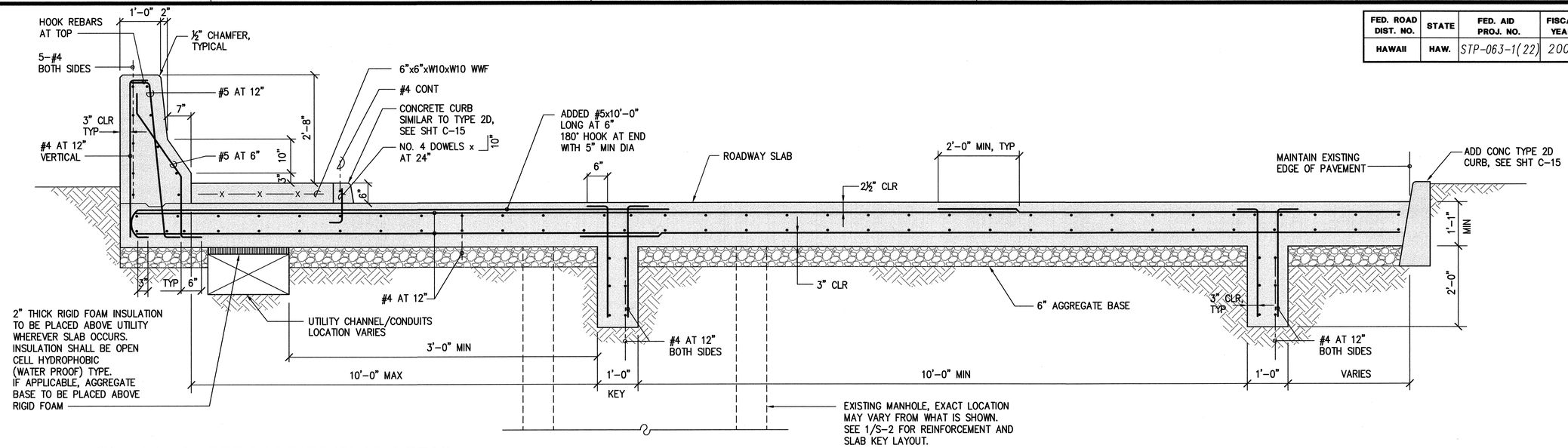
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	65	69



1 C-15 S-1 **CONCRETE BARRIER/SLAB DETAIL**
SCALE: 3/4" = 1'-0"

GENERAL:

A. THE CONTRACTOR SHALL COMPARE ALL THE CONTRACT DOCUMENTS WITH EACH OTHER AND REPORT IN WRITING TO THE ENGINEER, ALL INCONSISTENCIES AND OMISSIONS.

B. THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS AND VERIFY FIELD CONDITIONS AND SHALL COMPARE SUCH FIELD MEASUREMENTS AND CONDITIONS WITH THE DRAWINGS BEFORE COMMENCING WORK. REPORT IN WRITING TO THE ENGINEER, ALL INCONSISTENCIES AND OMISSIONS.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR METHODS OF CONSTRUCTION, WORKMANSHIP AND JOB SAFETY. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AND BRACING AS REQUIRED FOR STABILITY OF STRUCTURAL MEMBERS AND SYSTEMS.

E. THE CONTRACTOR SHALL PROVIDE TEMPORARY BARRIER WALL PROTECTION DURING CONSTRUCTION.

F. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF THE ADJACENT PROPERTIES, STRUCTURES, STREETS AND UTILITIES DURING THE CONSTRUCTION PERIOD.

G. DETAILS NOTED AS TYPICAL ON THE STRUCTURAL DRAWINGS SHALL APPLY IN ALL CONDITIONS, UNLESS SPECIFICALLY SHOWN OR NOTED.

FOUNDATION:

A. FOUNDATION DESIGN IS BASED ON GEOTECHNICAL REPORT (ONE PAGE FACSIMILE TRANSMITTAL) DATED NOVEMBER 14, 2002.

B. CONTRACTOR SHALL PROVIDE FOR DE-WATERING OF EXCAVATION FROM SURFACE WATER, GROUND WATER OR SEEPAGE.

C. CONTRACTOR SHALL PROVIDE FOR DESIGN AND INSTALLATION OF ALL CRIBBING, SHEETING AND SHORING NECESSARY TO PRESERVE EXCAVATIONS AND EARTH BANKS.

D. FOOTINGS AND BARRIER WALLS SHALL BEAR ON UNDISTURBED, IN-SITU FIRM SOILS. IF SOFT AND/OR LOOSE MATERIALS ARE ENCOUNTERED AT THE BOTTOM OF EXCAVATIONS, THEY SHALL BE OVER-EXCAVATED TO EXPOSE THE UNDER-LYING FIRM MATERIALS. ALL STRUCTURAL BACKFILL SHALL BE COMPACTED TO A MINIMUM OF 95% RELATIVE COMPACTION.

CONCRETE:

A. CONCRETE CONSTRUCTION SHALL CONFORM TO AMERICAN CONCRETE INSTITUTE ACI 318R-95.

B. CONCRETE SHALL BE REGULAR WEIGHT HARD ROCK CONCRETE AND SHALL HAVE THE FOLLOWING MINIMUM 28 DAY COMPRESSIVE STRENGTHS:
a. BARRIER WALLS ——— 4,000 PSI
b. DRILLED SHAFTS ——— 4,000 PSI
c. LIGHT POLE FOUNDATION ——— 4,000 PSI

C. CONCRETE DELIVERY TICKETS SHALL RECORD ALL FREE WATER IN THE MIX: AT BATCHING BY PLANT, FOR CONSISTENCY BY DRIVER AND ANY ADDITIONAL REQUEST BY CONTRACTOR IF PERMITTED BY THE MIX DESIGN.

D. REINFORCING BARS, ANCHOR RODS, INSERTS AND OTHER ITEMS TO BE CAST IN THE CONCRETE SHALL BE SECURED IN POSITION PRIOR TO PLACEMENT OF CONCRETE.

E. NON-SHRINK GROUTS SHALL BE PREMIXED COMPOUND CONSISTING OF NON-METALLIC AGGREGATE AND NON-STANDING TYPES, CEMENT, WATER REDUCING AND PLASTICIZING AGENTS CAPABLE OF DEVELOPING MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI IN 3 DAYS AND 7,000 PSI IN 28 DAYS.

F. CHAMFER ALL BARRIER WALL EDGES 1".

REINFORCING STEEL:

A. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60.

B. CLEAR CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:
a. FOOTINGS, SLABS, ETC. CAST AGAINST EARTH ——— 3"
b. WALLS
1. FACES EXPOSED TO WEATHER ——— 2"

C. REINFORCING STEEL SHALL BE SPLICED WHERE INDICATED ON PLANS. PROVIDE LAP SPLICE LENGTH PER TYPICAL DETAILS AND SCHEDULE, UNLESS OTHERWISE NOTED.

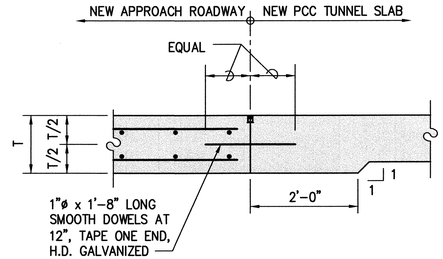
D. BAR BENDS AND HOOKS SHALL BE "STANDARD HOOKS" IN ACCORDANCE WITH ACI 318-95.

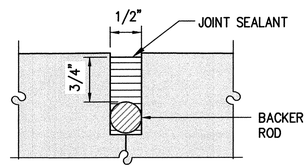
SOIL PROPERTIES:

a. ALLOWABLE BEARING CAPACITY ——— 3000 psf
b. COEFFICIENT OF FRICTION ——— 0.40
c. PASSIVE PRESSURE ——— 300 pcf

DESIGN CRITERIA:

a. CONCRETE BARRIERS ——— AASHTO TL-4





2 S-1 S-1 **SLAB JOINT DETAIL AT TUNNEL ENTRANCE**
NOT TO SCALE

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

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

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

SIGNATURE — April 30, 2004 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

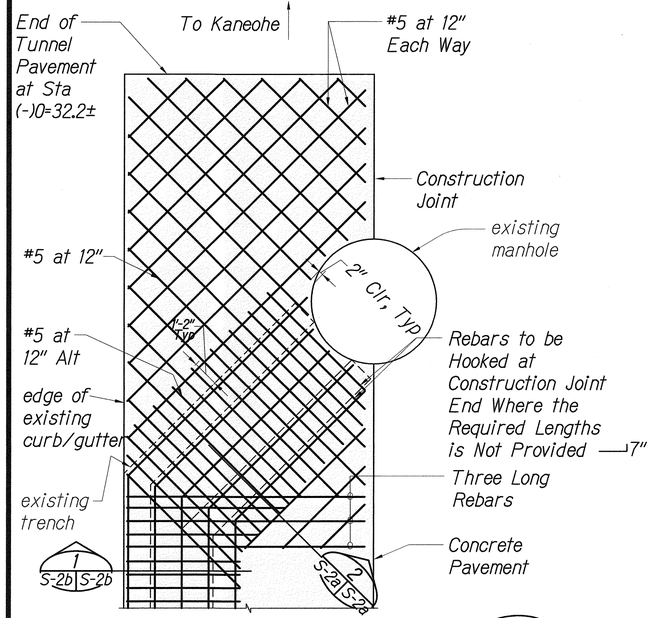
CONC BARRIER DETAILS

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

Scale: As Shown Date: April 24, 2003

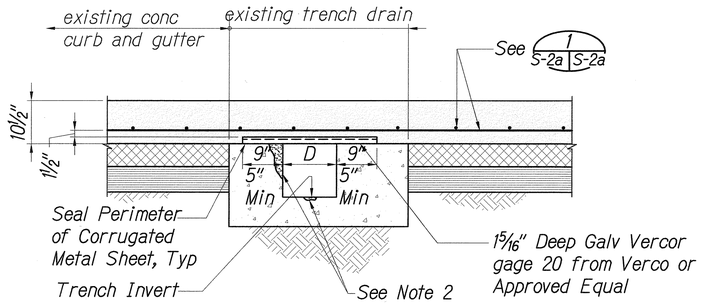
SHEET No. S-1 OF 5 SHEETS

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



SLAB REINF AT DRAIN MANHOLE 1 S-2a | S-2a

Not To Scale

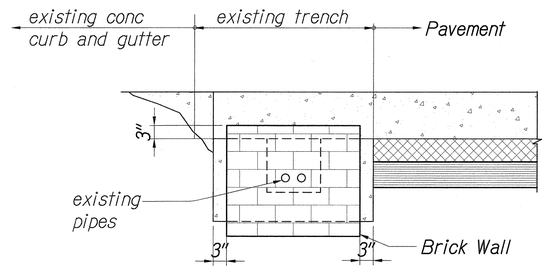


Notes:

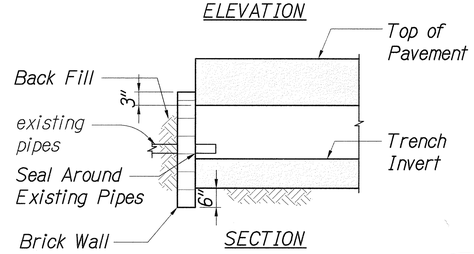
1. Contractor shall secure the corrugated metal sheet prior to pouring concrete.
2. Contractor shall patch the trench wall or invert if they are damaged during the demolition of existing slab for detail see 3 S-2b | S-2b and 4 S-2b | S-2b
3. Existing raodway rebars embedded into the trench wall shall be cut as shown 2 S-2b | S-2b
4. Contractor shall remove concrete on top of trench wall to provide the slab min thickness as shown in detail.

TRENCH COVER SLAB DETAIL AT KANEOHE SIDE 2 S-2a | S-2a

Not To Scale



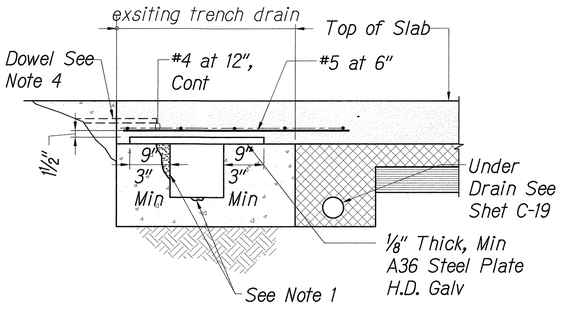
ELEVATION



SECTION

TRENCH INLET CAP DETAIL 3 S-2a | S-2a

Not To Scale

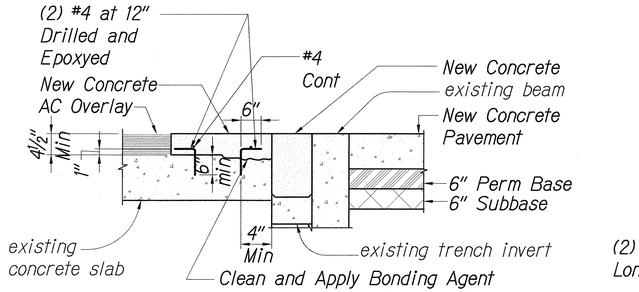


Notes:

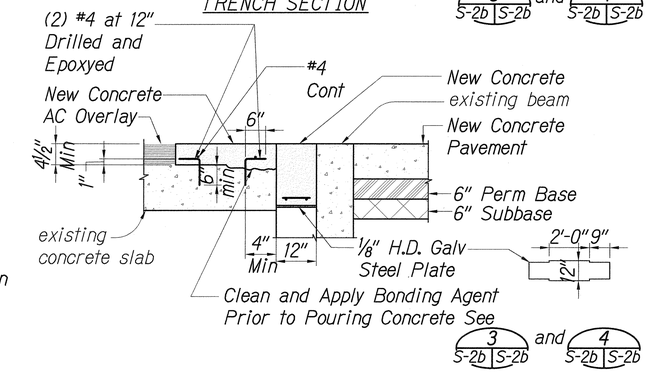
1. Contractor shall patch the trench wall or invert if they are damaged during the demolition of existing slab for detail see 3 S-2b | S-2b and 4 S-2b | S-2b
2. Existing roadway rebars embedded into the trench wall shall be cut as shown in detail 2 S-2b | S-2b
3. For steel plate support width less than 3" see 5 S-2b | S-2b
4. For dowels detail and spacing see sht C-21.
5. Contractor shall remove concrete on top of trench wall to provide the slab min thickness as shown in detail.

TRENCH COVER SLAB DETAIL 4 S-2a | S-2a

Not To Scale



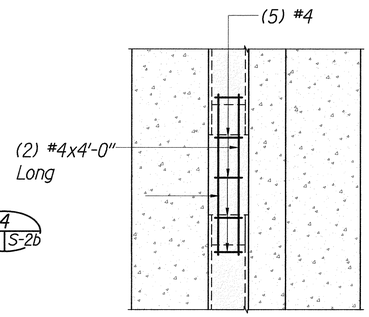
TRENCH SECTION



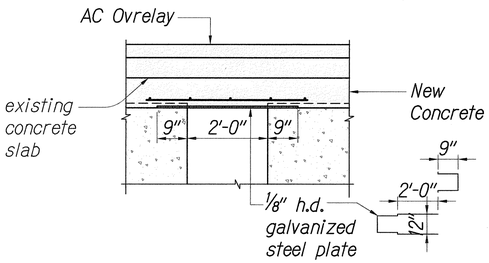
TRENCH SECTION AT OPENING

TRENCH FILLING DETAIL AT STA. 242+00 5 S-2a | S-2a

Not To Scale



PLAN VIEW



LONGITUDINAL SECTION

TRENCH FILLING DETAIL AT STA. 242+00 6 S-2a | S-2a

Not To Scale

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

KEN KAZUO HAYASHIDA LICENSED PROFESSIONAL ENGINEER No. 6818-S HAWAII, U.S.A.

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April 30, 2004

SIGNATURE — EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CONC BARRIER DETAILS

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

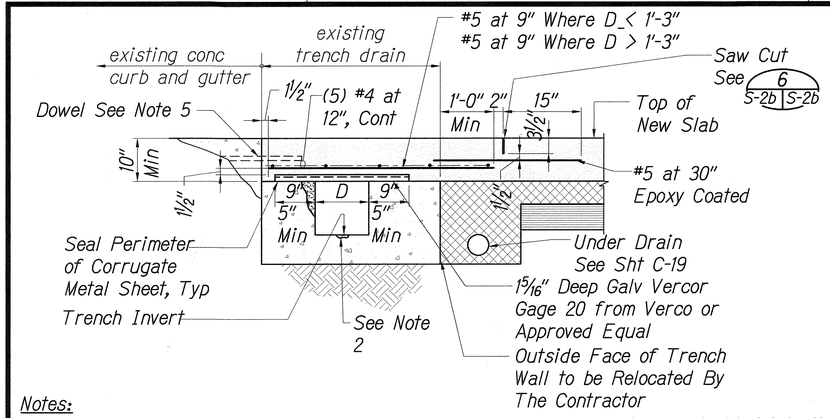
Scale: As Shown Date: April 24, 2003

SHEET No. S-2a OF 9 SHEETS

"AS-BUILT"

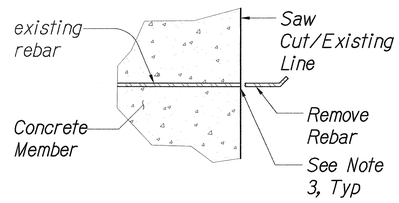
C.O. 65 S-1

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



Notes:
1. Contractor shall secure the corrugated metal sheet prior to pouring concrete.
2. Contractor shall patch the trench wall or invert if they are damaged during the demolition of existing slab for detail see 3 S-2b | S-2b and 4 S-2b | S-2b
3. Existing raodway rebars embedded into the trench wall shall be cut as shown 2 S-2b | S-2b
4. For corrugated metal support width less than see 5 S-2b | S-2b
5. For dowels detail and spacing see sht C-21.
6. Contractor shall remove concrete on top of trench wall to provide the slab min thickness as shown in detail.

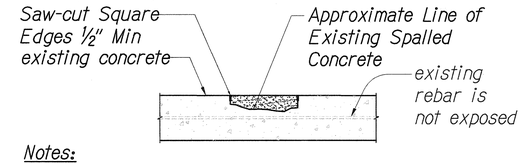
TRENCH COVER SLAB DETAIL 1 S-2b | S-2b
Not To Scale



Notes:
1. Cut off existing rebar flush with wall surface.
2. Clean cavity of all loose concrete, dust, and all other bond inhibiting material.
3. Apply rust inhibitor coating over the exposed rebars before placing corrugated metall sheet concrete slab.
4. Rust inhibitor coating shall be a coat of rust-cleum 9369 epoxy primer and a coat of rust-cleum 9400 system rust-o-thane coating. Contractor may use equal rust inhibitor coating upon the the approval of the engineer.

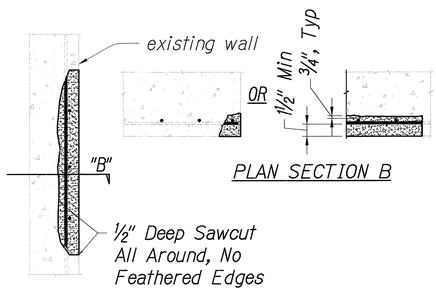
EXISTING REBAR CUTTING DETAIL 2 S-2b | S-2b
Not To Scale

Surface Preparation Notes for Spall Repairs:
1. Deteriorated concrete shall be removed down to sound substrate, or to the specified depth as noted in the spall repair details. Sawcut all edges ½" min, no feathering of patching material is allowed. Avoid cutting any reinforcing steel when sawcutting. the exposed concrete shall be roughened to a ⅛" min amplitude and shall be cleaned and free of laitance, dust, and other bond inhibiting materials.
2. A means of collecting spoils from the chipping of concrete shall be instituted to avoid any debris or construction materials from falling into the drainage system. If the contractor elects to use hydro-scarification equipment, he/she shall be responsible for collecting and properly disposing of the runoff water generated. Run off water will not be allowed to enter into the drainage system, or to constitute a hazard to adjacent drainage areas nor be allowed to erode existing slopes.
3. All reinforcing steel damaged due to the contractor's operations shall be repaired by the contractor at his/her expense.



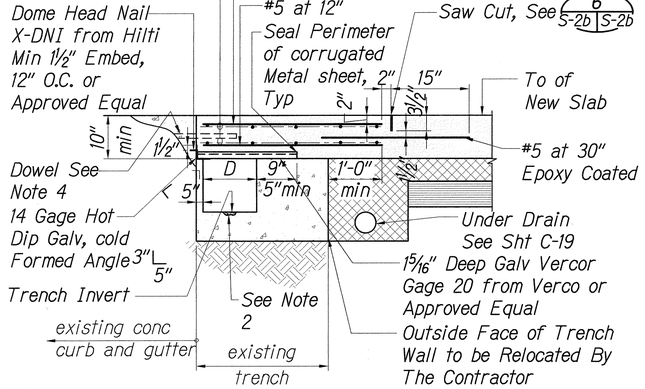
Notes:
1. Clean and prepare concrete according to the surface perparation notes.
2. Substrate shall be saturated dry (SSD) with no standing water.
3. Apply corrosion inhibiting bonding agent to all surfaces to be patched.
4. Apply polymer modified patching mortar as recommended by manufacturer to repair areas to original finish lines, or until a minimum of 1½" of cover over reinforcing steel is obtained.

PATCHING DETAIL TYPE I 3 S-2b | S-2b
Not To Scale



Type II Spall Repair Notes:
1. clean and prepare concrete according to the surface preparation notes.
2. Clean any exposed reinforcement by sand-blasting or with a wire brush, removing all corosion, oil, dirt corosion, dirt and all other bond-inhibiting agents.
3. Substrate shall be saturated surface dry (SSD) with no standing water.
4. Apply corrosion inhibiting bonding agent to all surface to be patched, including reinforcing steel.
5. Apply polymer modified patching mortar as recommended by manufacturer to repair areas to original finish lines, or until a minimum of 1½" of cover over reinforcing steel is obtained.

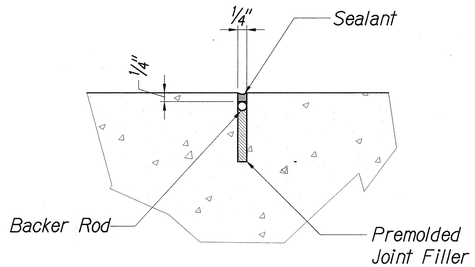
PATCHING DETAIL TYPE II 4 S-2b | S-2b
Not To Scale



Notes:
1. Contractor shall secure the corrugated metal sheet prior to pouring concrete.
2. Contractor shall patch the trench wall or invert if they are damaged during the demolition of existing slab for detail see 3 S-2b | S-2b and 4 S-2b | S-2b
3. Existing raodway rebars embedded into the trench wall shall be cut as shown 2 S-2b | S-2b
4. For dowels detail and spacing see sht C-21.
5. Contractor shall remove concrete on top of trench wall to provide the slab min thickness as shown in detail.

TRENCH COVER SLAB DETAIL 5 S-2b | S-2b
Not To Scale

LEGEND FOR AS-BUILT POSTINGS	
~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting



SAW CUTTING DETAIL 6 S-2b | S-2b
Not To Scale

KEN KAZUO HAYASHIDA LICENSED PROFESSIONAL ENGINEER No. 6818-S HAWAII, U.S.A.

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April 30, 2004
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CONC BARRIER DETAILS

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

Scale: As Shown — Date: April 24, 2003

SHEET No. S-2b OF 9 SHEETS

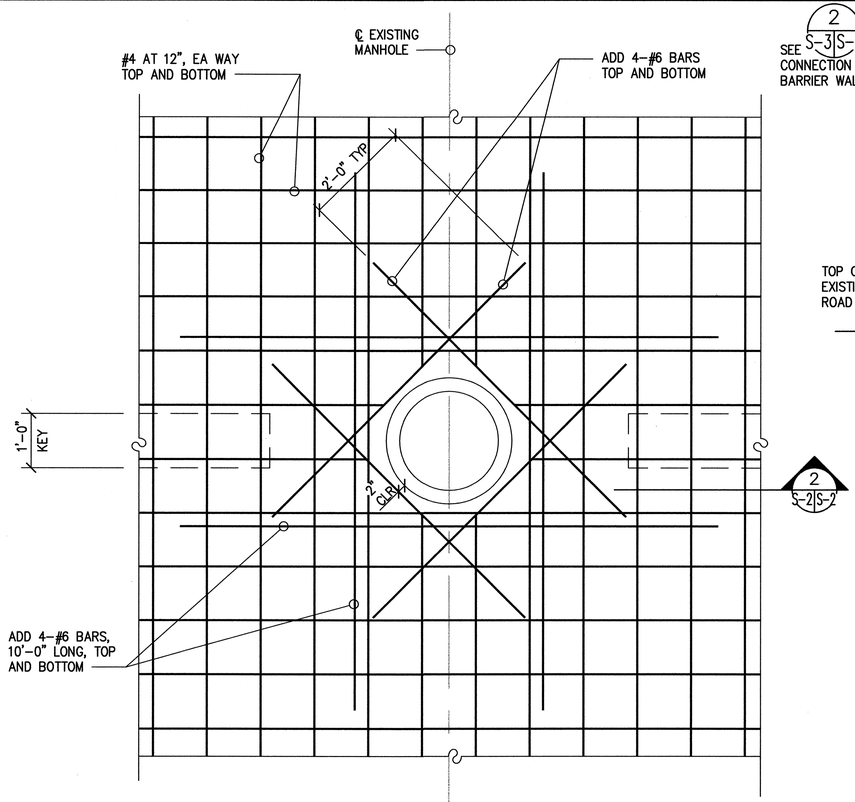
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE
NOTE BOOK | No.

"AS-BUILT"

C.O. 65 S-2

P:\Drafting\2011-02-24_1\08-01 Wilson Tunnel As Builts DOT standards\1 08-01_Median Barrier_S-02b.dwg, 2/25/2011 8:43:37 AM, HP Designjet 4000 HPGL2

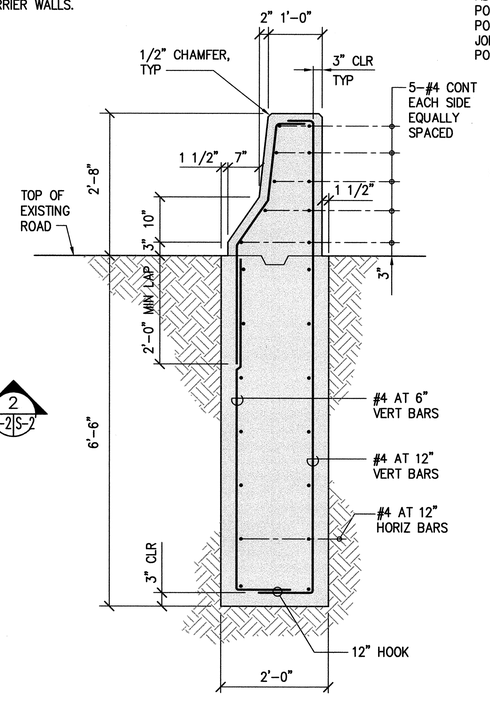
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	66	69



1 S-2|S-2 REINFORCEMENT LAYOUT AROUND MANHOLE

SCALE: 3/4" = 1'-0"

2 S-3|S-3 SEE S-3|S-3 FOR DETAIL OF TRANSITION CONNECTION BETWEEN EXISTING AND NEW BARRIER WALLS.

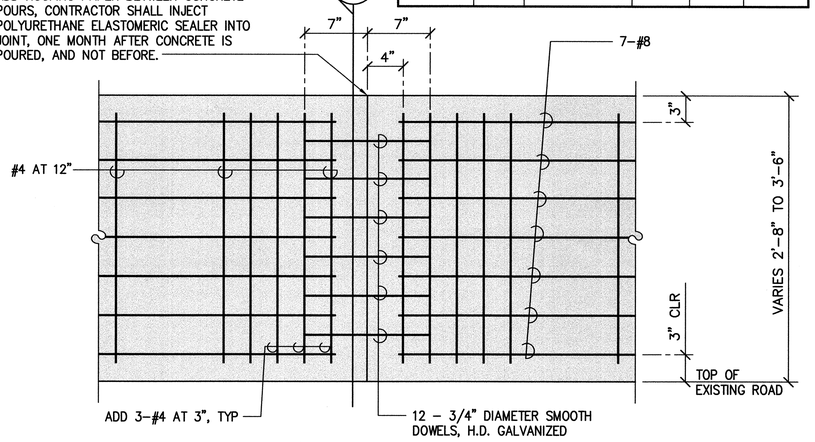


3 C-15|S-2 CONCRETE MEDIAN BARRIER

SCALE: 3/4" = 1'-0"

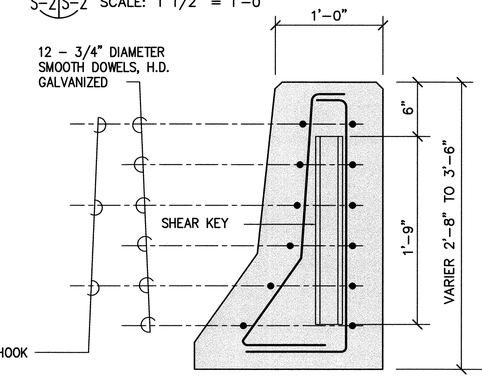
ADD ROOFING PAPER BETWEEN CONCRETE POURS, CONTRACTOR SHALL INJECT POLYURETHANE ELASTOMERIC SEALER INTO JOINT, ONE MONTH AFTER CONCRETE IS POURED, AND NOT BEFORE.

5 S-2/S-2



TYPICAL CONCRETE BARRIER CONSTRUCTION JOINT DETAIL

4 S-2|S-2 SCALE: 1 1/2" = 1'-0"

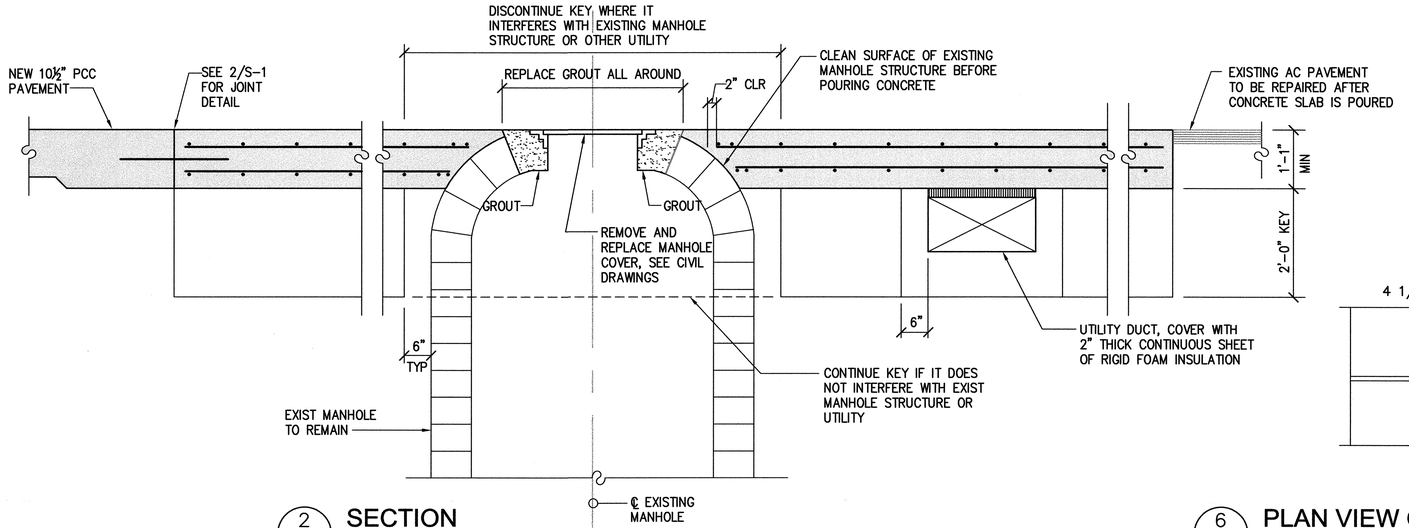


NOTE:

LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY.

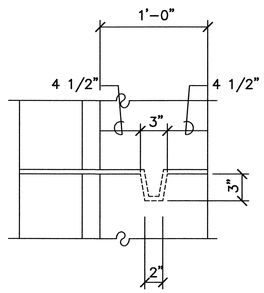
5 S-2|S-2 SECTION-LOCATION OF DOWELS

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



2 S-2|S-2 SECTION

SCALE: 3/4" = 1'-0"



6 S-2|S-2 PLAN VIEW OF SHEAR KEY

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

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LICENSED PROFESSIONAL ENGINEER
No. 6818-S
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HIGHWAYS DIVISION

CONCRETE BARRIER DETAILS

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

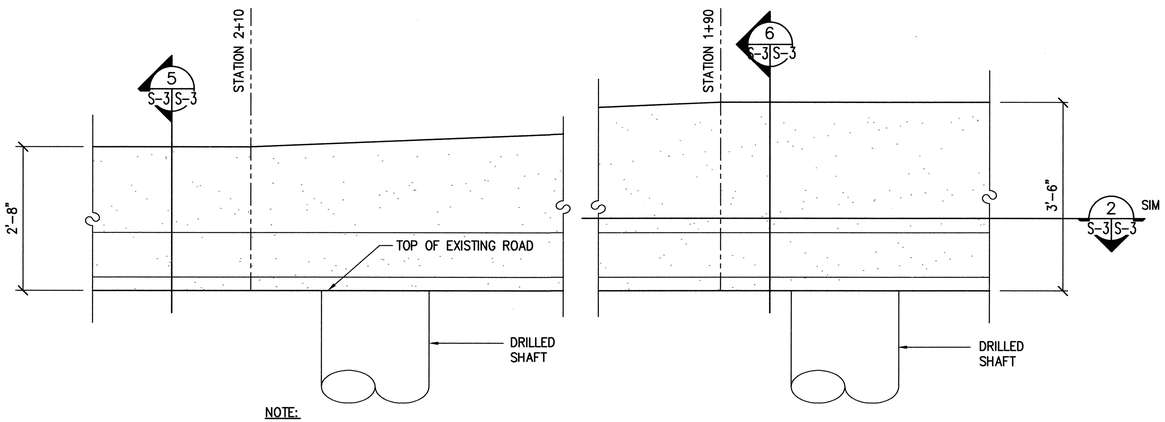
Scale: As Shown Date: April 24, 2003

SHEET No. S-2 OF 5 SHEETS

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

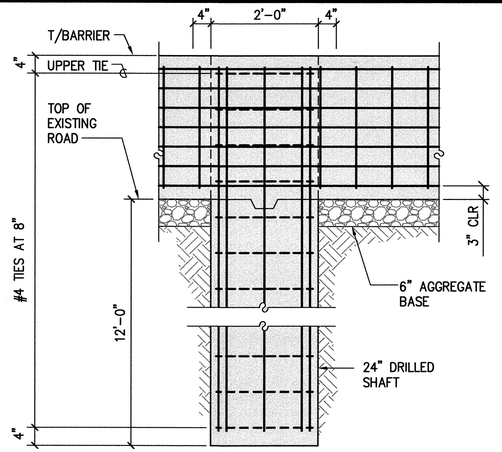
4/22/2003 3:18:15 PM

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	67	69

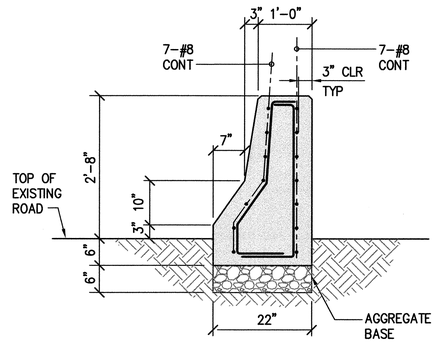


NOTE:
REBARS TO FOLLOW THE SAME TRANSITION PATTERN AS THE BARRIER WALL.

1 C-15 S-3 CONCRETE ROADSIDE BARRIER DETAIL AT HEIGHT TRANSITION
SCALE: 3/4" = 1'-0"

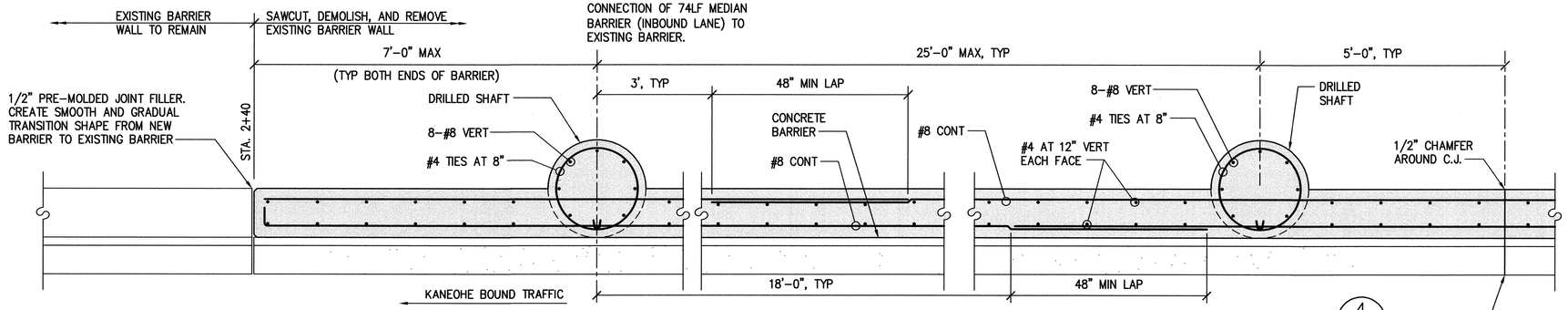


4 C-15 S-3 BARRIER AND SHAFT ELEVATION
NOT TO SCALE

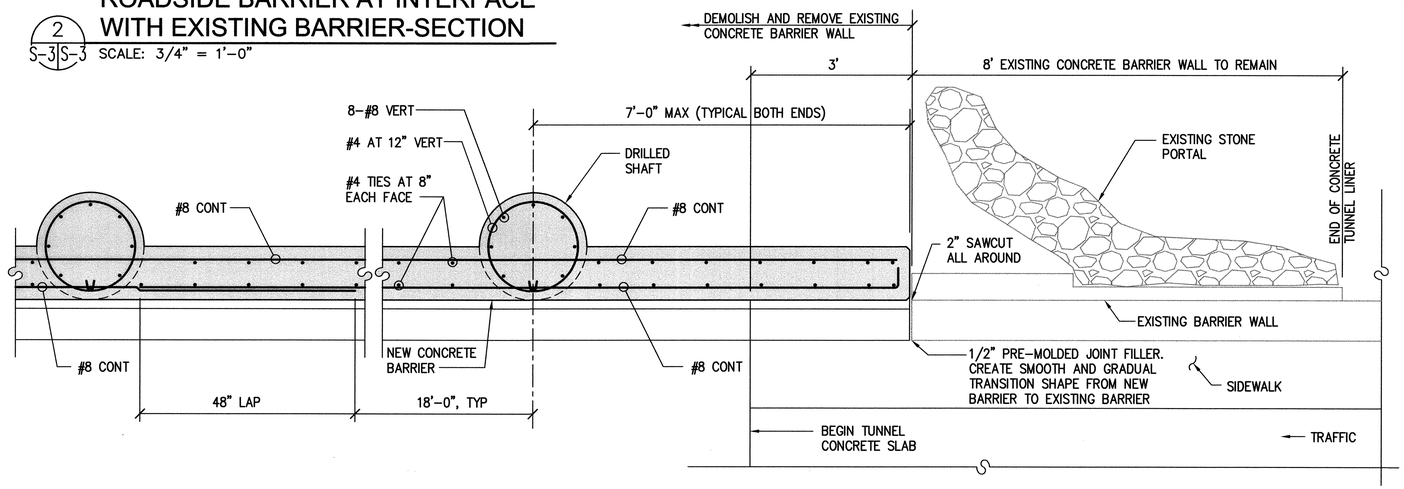


5 S-3 S-3 SECTION
SCALE: 3/4" = 1'-0"

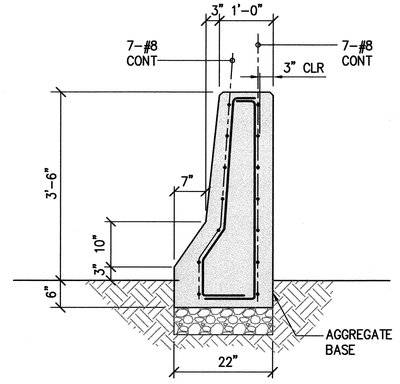
NOTE:
THIS DETAIL ALSO APPLIES TO CONNECTION OF 74LF MEDIAN BARRIER (INBOUND LANE) TO EXISTING BARRIER.



2 S-3 S-3 ROADSIDE BARRIER AT INTERFACE WITH EXISTING BARRIER-SECTION
SCALE: 3/4" = 1'-0"



3 S-3 S-3 ROADSIDE BARRIER AT TUNNEL ENTRANCE-SECTION
SCALE: 3/4" = 1'-0"



6 S-3 S-3 SECTION
SCALE: 3/4" = 1'-0"

NOTE:
SEE TYPICAL BARRIER CONSTRUCTION JOINT DETAIL, SHEET S-2.

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

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

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SIGNATURE

April 30, 2004
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

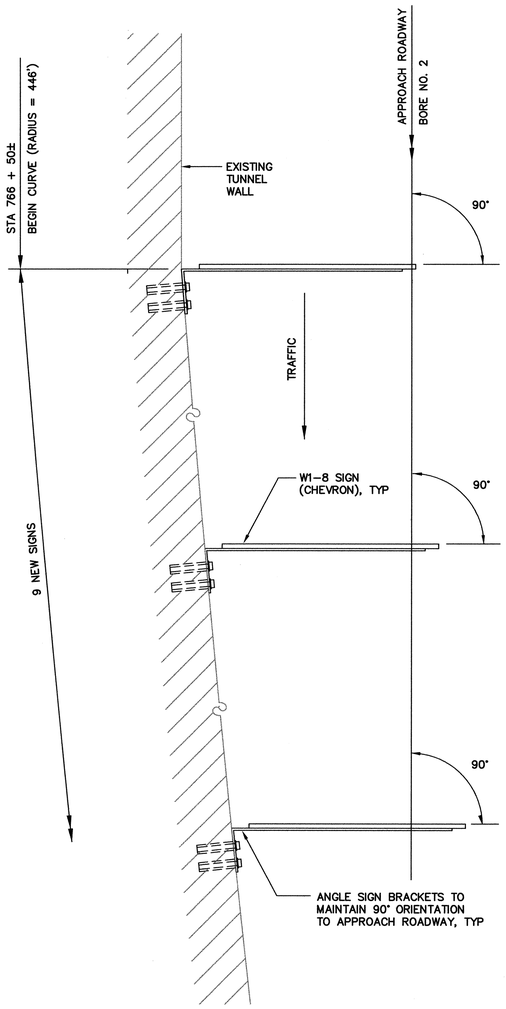
CONC BARRIER DETAILS

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

Scale: As Shown Date: April 24, 2003

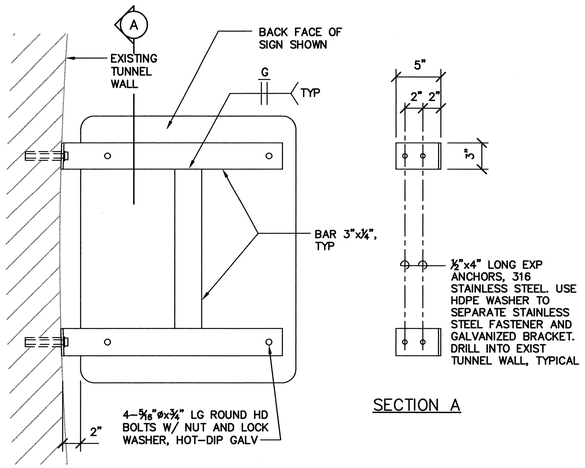
SHEET No. S-3 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	ADD. 68	69



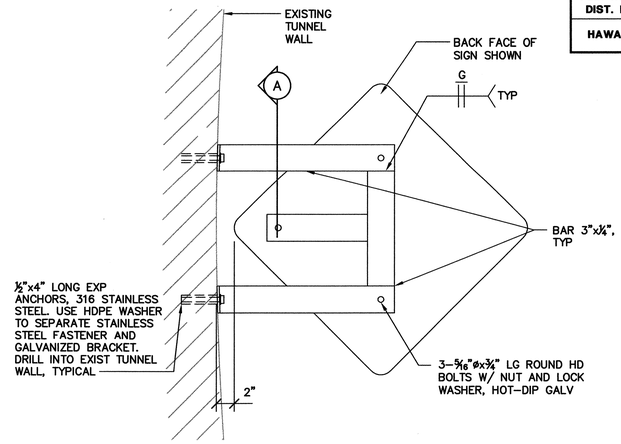
PLAN SECTION B

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



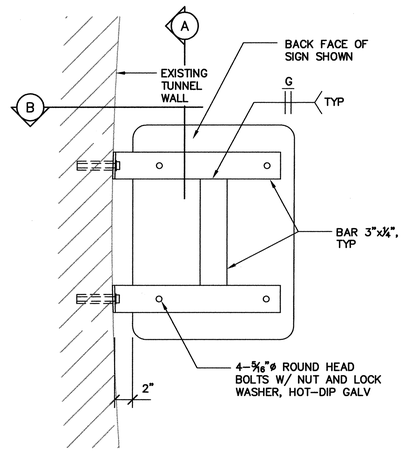
(R2-5A AND R2-1 SIGNS) REGULATORY/WARNING SIGN MOUNTING DETAIL

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



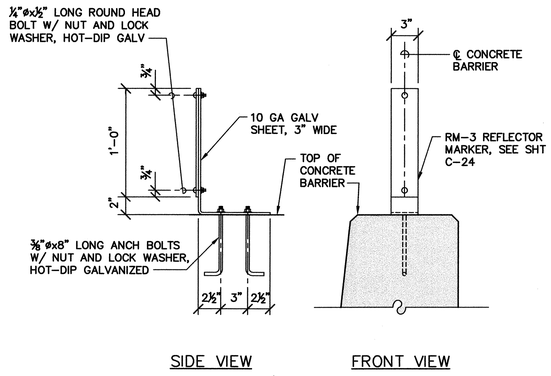
(W1-2 SIGN) WARNING SIGN MOUNTING DETAIL

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



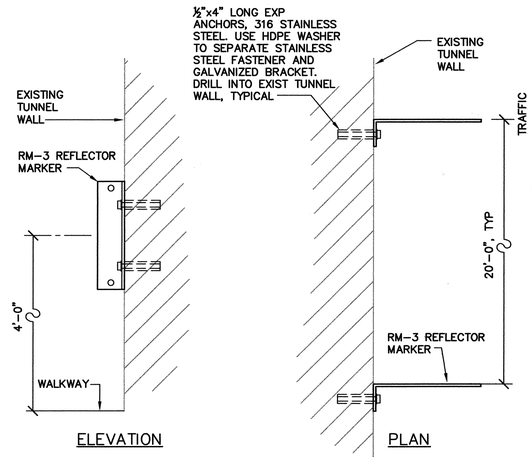
(W1-8 SIGNS) WARNING SIGN DETAIL

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



RM-3 REFLECTOR MARKER BARRIER WALL MOUNTING DETAIL

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



RM-3 REFLECTOR MARKER TUNNEL WALL MOUNTING DETAIL

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

NOTES:

1. SIGN MOUNTING BRACKETS TO BE H.D. GALV AFTER FABRICATION.
2. SIGNS TO BE MOUNTED PERPENDICULAR WITH LANE OF TRAFFIC, EXCEPT AS SHOWN IN PLAN SECTION B.
3. SIGN PLACEMENT SHALL CONFORM TO THE LATEST EDITIONS OF FHWA PUBLICATION "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS."

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

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April 30, 2004
SIGNATURE — EXPIRATION DATE OF THE LICENSE

Date	Revision
6/20/03	Added RM-3 Detail Changed Anchor Material

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN MOUNTING DETAILS

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

Scale: As Shown Date: April 24, 2003

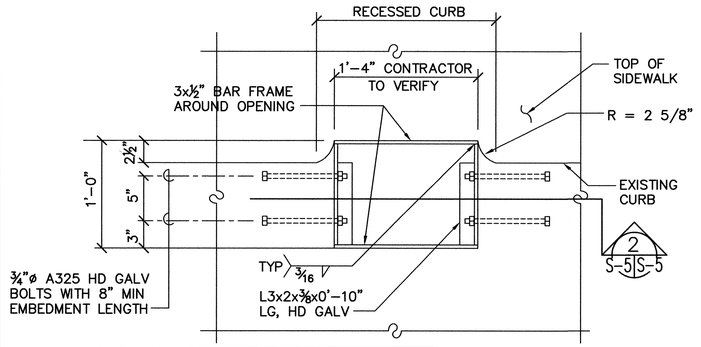
SHEET No. S-4 OF 5 SHEETS

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

6/20/2003 10:56:50 AM

ADD. 68

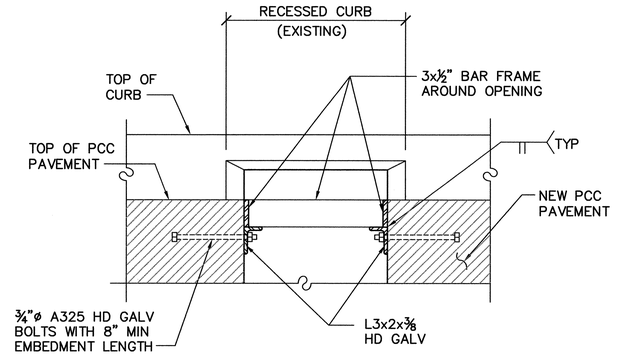
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	ADD. 69	69



NOTE:
REMOVE EXISTING CATCH BASIN GRATE AND FRAME. PATCH DAMAGED AREA OF EXPOSED CONCRETE SURFACE AFTER REMOVING EXISTING CATCH BASIN AS REQUIRED.

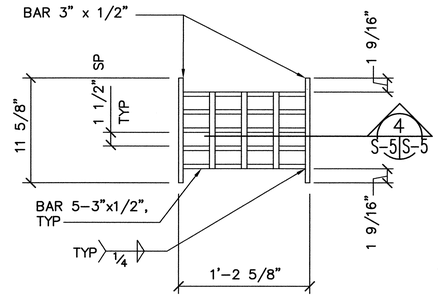
1 S-5|S-5 PLAN VIEW OF TYPICAL DRAIN INLET AND GRATE

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



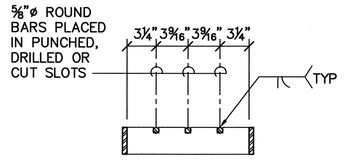
2 S-5|S-5 CROSS SECTION THRU FRAME AND GRATE

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



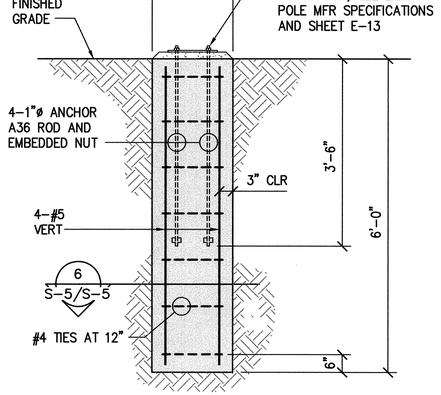
3 S-5|S-5 STEEL GRATE DETAIL

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



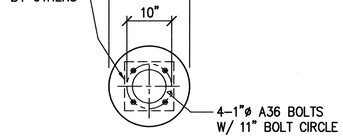
4 S-5|S-5 SECTION

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



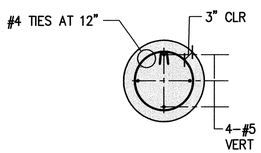
5 S-5|S-5 ELEVATION LIGHT POLE FOUNDATION

SCALE: 3/4" = 1'-0"



PLAN VIEW OF POLE FOUNDATION

SCALE: 3/4" = 1'-0"



6 S-5|S-5 SECTION

SCALE: 3/4" = 1'-0"

NOTE:

1. ALL STEEL MEMBERS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.

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

6/20/2003 10:56:04 AM

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

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SIGNATURE

April 30, 2004
EXPIRATION DATE OF THE LICENSE

6/20/03	Modified Details 1 and 2
Date	Revision

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DETAILS

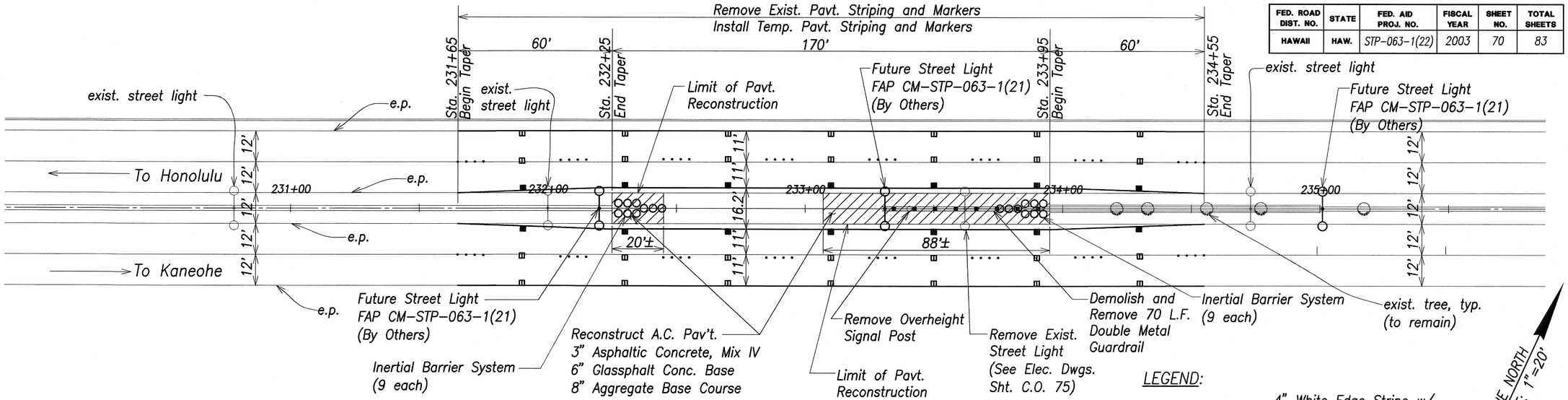
LIKELIKE HIGHWAY
Wilson Tunnel Improvements
Leak and Crack Remediation
F. A. Project No. STP-063-1(22)

Scale: As Shown Date: June 20, 2003

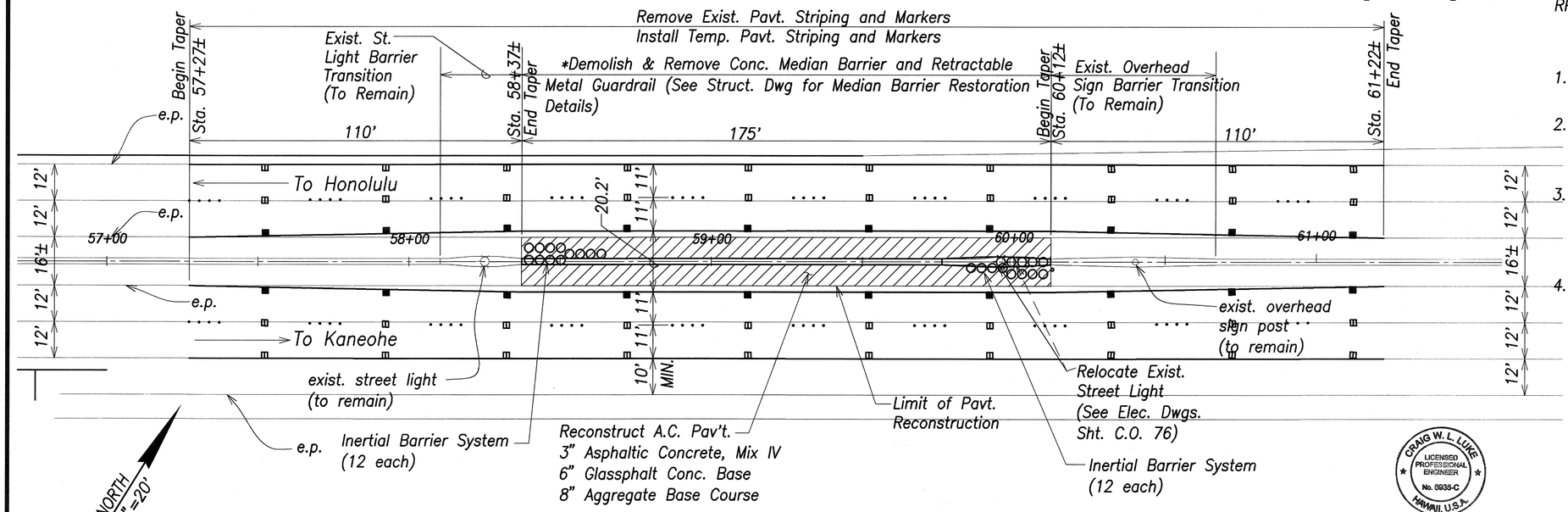
SHEET No. S-5 OF 5 SHEETS

ADD. 69

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	70	83



HONOLULU SIDE
Scale: 1"=20'



KANEOHE SIDE (AT H-3 OVERPASS)
Scale: 1"=20'

ROADWAY PLAN

NOTE:
For Street Light Relocation See Elec. Dwgs.

TRUE NORTH
SCALE: 1"=20'

LEGEND:

4" White Edge Stripe w/ Type C RPM @ 40' O.C.

4" Yellow Edge Stripe w/ Type H RPM @ 40' O.C.

Type A RPM and Type C RPM @ 40' O.C.

TRUE NORTH
SCALE: 1"=20'

NOTES:

1. For Street Light and Overheight Post Removal See Elec. Dwgs.
2. Contractor Shall Protect Exist. Pullboxes and Handholes with Steel Plates.
3. Contractor Shall Restore Pavt. Striping and Markers to Full, 12' Travelway Widths Upon Completion of Crossover Traffic Control.
4. *Contractor Shall Verify Location of Removable Metal Guardrail, Barrier Transitions, Street Lights, and Signs at Kaneohe Side Prior to Construction.

GRAPHIC SCALE
1" = 20' 20' 10' 0 20' 40'

CRAIG W. L. LUKE
LICENSED PROFESSIONAL ENGINEER
No. 6935-C
HAWAII, U.S.A.

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SIGNATURE April 30, 2004
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

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

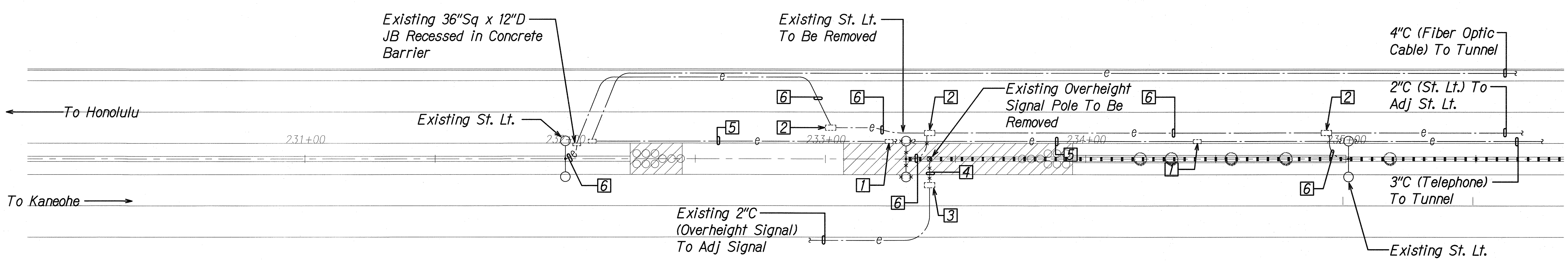
Scale: 1"=20' Date: December 23, 2004

SHEET No. C-1 OF 14 SHEETS

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

"AS-BUILT" C.O. 70

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	75	83



NOTES:

1. Dashed Line Symbol Denotes "Existing Item". Solid Line Symbol Denotes "New Item".
2. "X" Thru Item Denotes "Existing Item To Be Removed".
3. Contractor Shall Provide Temporary Street Lighting Until Installation of the New Street Light Poles Is Complete. New Street Light Poles to be Installed By Others.
4. [1] Existing 18" x 36" Telephone Pullbox.
   [2] Existing 2' x 4' St. Lt. Pullbox.
   [3] Existing 2' x 4' Overheight Signal Pullbox.
   [4] Existing 2"C (Overheight Signal).
   [5] Existing 3"C (Telephone).
   [6] Existing 2"C (St. Lt.).

NORTH

ROADWAY ELECTRICAL PLAN - HONOLULU SIDE

SCALE: 1"=20'

LEGEND FOR AS-BUILT POSTINGS

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

SEAN K. SUGAI LICENSED PROFESSIONAL ENGINEER No. 9023-E HAWAII, U.S.A.

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SIGNATURE — April 30, 2006 — EXPIRATION DATE OF THE LICENSE

20' 10' 0 20' 40' 60'

SCALE: 1"=20'

GRAPHIC SCALE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL ROADWAY PLAN - HONOLULU SIDE

LIKELIKE HIGHWAY

Wilson Tunnel Improvements

Leak and Crack Remediation

F. A. Project No. STP-063-1(22)

Scale: 1"=20' Date: Dec 23, 2004

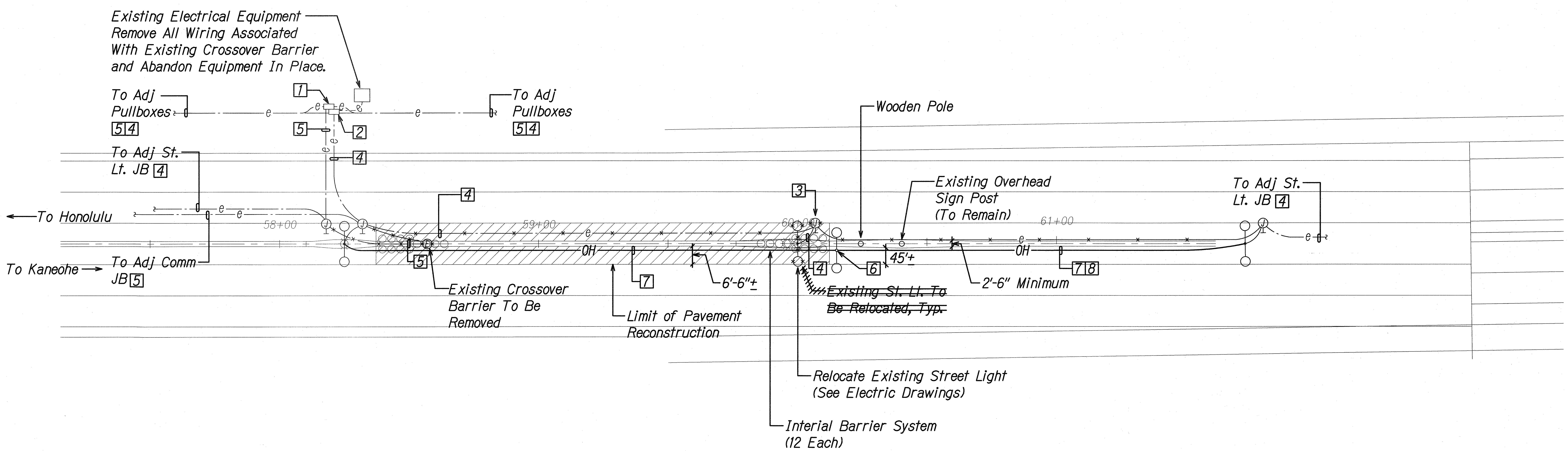
SHEET No. E-1 OF 14 SHEETS

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

"AS-BUILT"

C.O. 75

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	76	83



NOTES:

1. All Items Shown Are Existing Unless Otherwise Noted.
2. "X" Thru Item Denotes "Existing Item To Be Removed".
3. Contractor Shall Provide Temporary Street Lighting Until Installation of the New Street Light Poles Is Complete.
4. [1] Existing 18" x 36" Telephone Pullbox.
   [2] Existing 2' x 4' St. Lt. Pullbox.
   [3] Existing JB Recessed In Concrete Barrier.
   [4] Existing St. Lt. Conduit.
   [5] Existing Comm Conduit.
   [6] New Temporary Wood Light Pole. See Detail A/E-5.
   [7] New Temporary Overhead St. Lt Conductors.
   [8] Secure Temporary Conductors to Overhead Sign Post As Required to Maintain a Minimum Height of 18' Above Grade. Provide Messenger Wire to Minimize Conductor Sag.

LEGEND FOR AS-BUILT POSTINGS

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

NORTH

ROADWAY ELECTRICAL DEMOLITION PLAN - KANEOHE SIDE (AT H-3 OVERPASS)

SCALE: 1"=20'

20' 10' 0 20' 40' 60'
SCALE: 1"=20'
GRAPHIC SCALE

SEAN K. SUGAI LICENSED PROFESSIONAL ENGINEER No. 9023-E HAWAII, U.S.A.

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

SIGNATURE April 30, 2006 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY ELECTRICAL DEMOLITION PLAN - KANEOHE SIDE
LIKELIKE HIGHWAY
Wilson Tunnel Improvements
Leak and Crack Remediation
F. A. Project No. STP-063-1(22)

Scale: 1"=20' Date: Dec 23, 2004

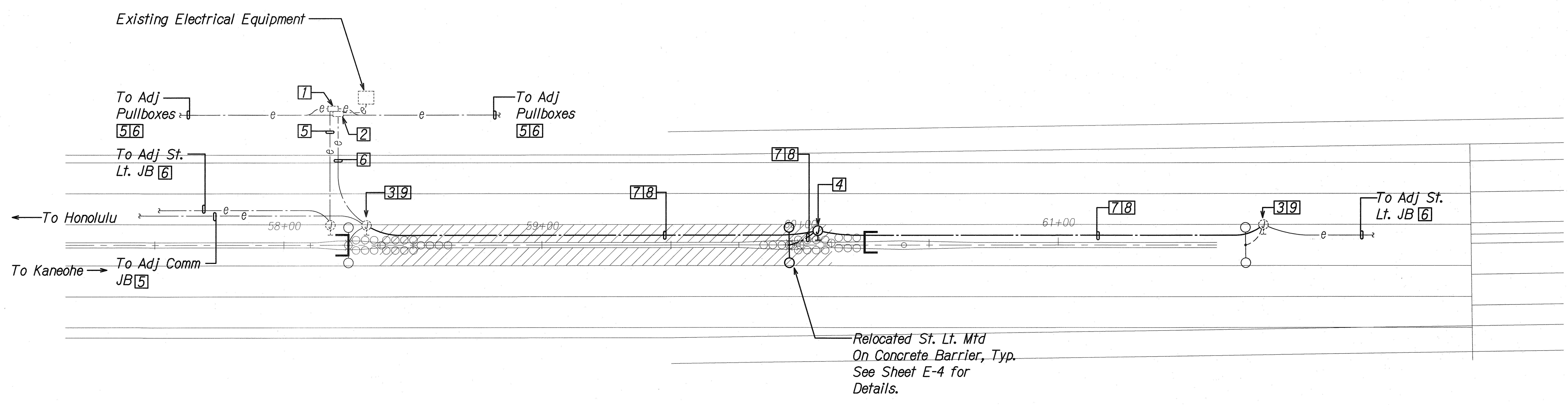
SHEET No. E-2 OF 14 SHEETS

"AS-BUILT"

C.O. 76

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	77	83



NOTES:

1. Dashed Line Symbol Denotes "Existing Item". Solid Line Symbol Denotes "New Item".
2. [1] Existing 18" x 36" Telephone Pullbox.

   [2] Existing 2' x 4' St. Lt. Pullbox.

   [3] Existing JB Recessed In Concrete Barrier.

   [4] New 12"Sq x 6"D JB, SS, Weatherproof & Gasketed, Recessed In Concrete Barrier.

   [5] Existing Comm Conduit.

   [6] Existing St. Lt. Conduit.

   [7] New 2"C W/ St. Lt. Conductors. Conductors Shall Be Sized to Match Existing Conductors.

   [8] Sawcut & Patch Existing A/C Pavement to Install Conduit. See Detail B/E-5 for Duct Section Detail.

   [9] Chip & Patch Existing Concrete Barrier to Install New Conduit Into Existing Recessed JB. Contractor Shall Take Necessary Precautions to Ensure That the Existing Structural Rebars Within Concrete Barrier Are Not Damaged During Construction.

LEGEND FOR AS-BUILT POSTINGS

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

NORTH

ROADWAY ELECTRICAL PLAN - KANEOHE SIDE (AT H-3 OVERPASS)

SCALE: 1"=20'

SEAN K. SUGAI LICENSED PROFESSIONAL ENGINEER No. 9023-E HAWAII, U.S.A.

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SIGNATURE — April 30, 2006 EXPIRATION DATE OF THE LICENSE

20' 10' 0 20' 40' 60'

SCALE: 1"=20'

GRAPHIC SCALE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY ELECTRICAL PLAN - KANEOHE SIDE

LIKELIKE HIGHWAY

Wilson Tunnel Improvements

Leak and Crack Remediation

F. A. Project No. STP-063-1(22)

Scale: 1"=20' Date: Dec 23, 2004

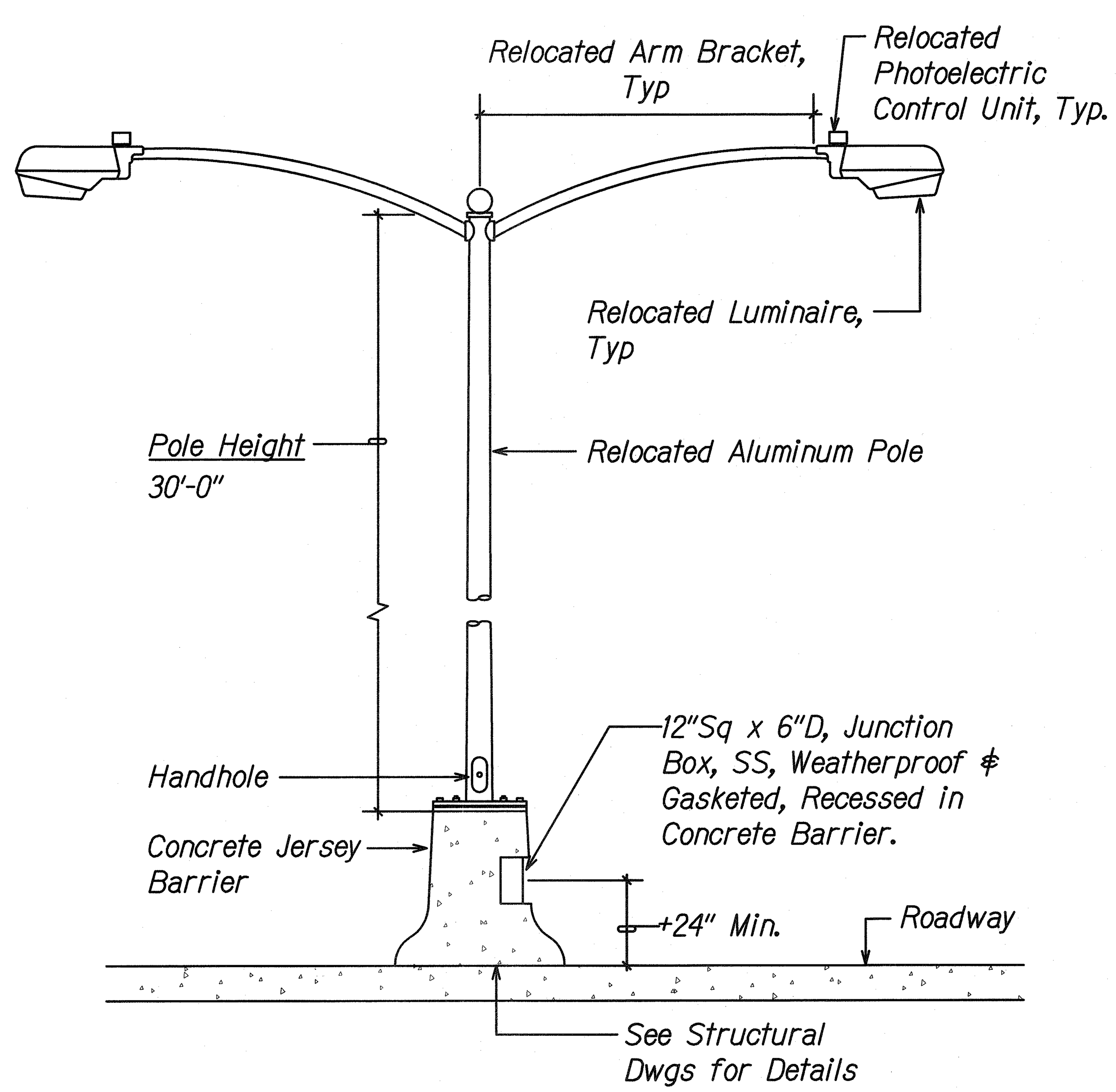
SHEET No. E-3 OF 14 SHEETS

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

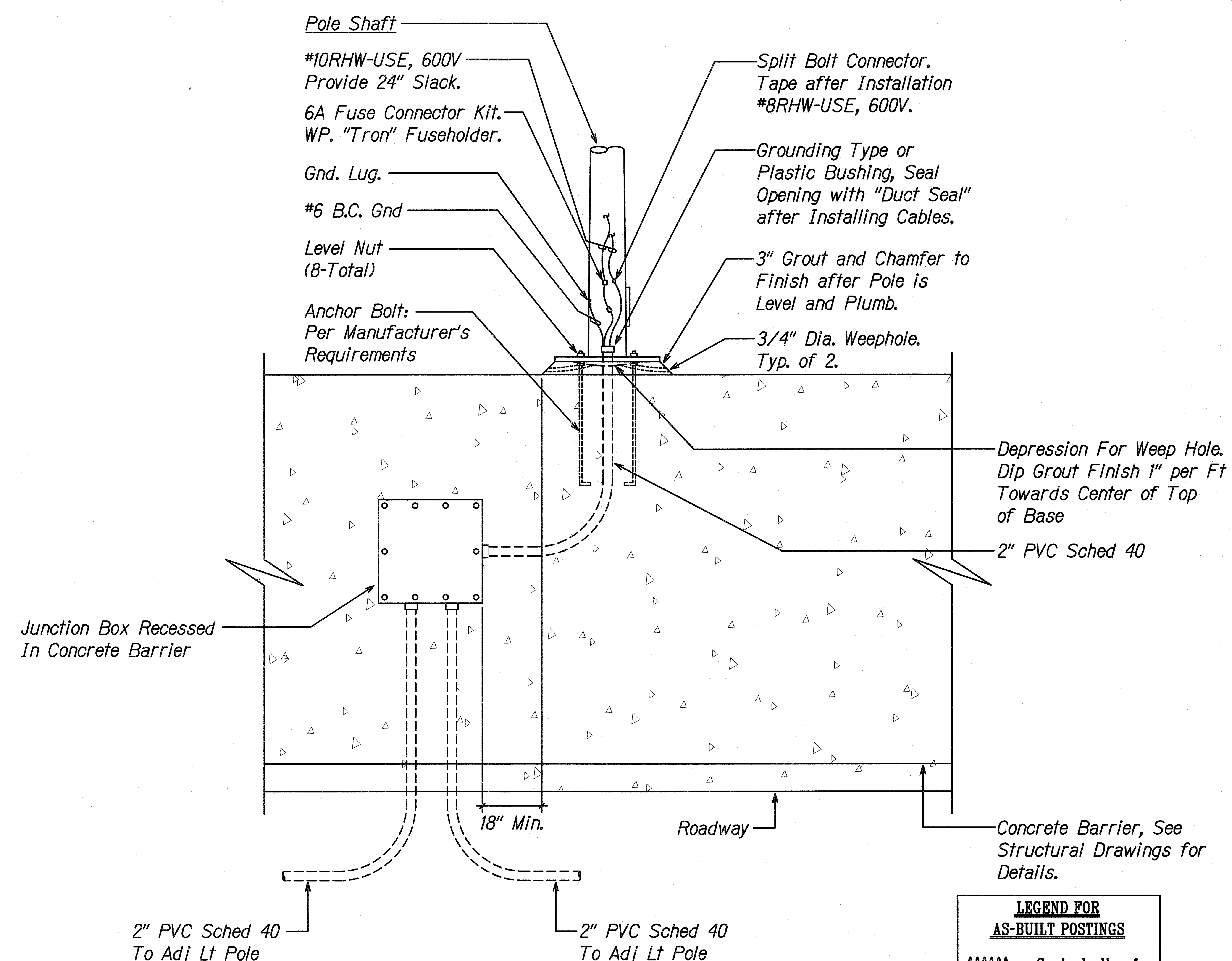
"AS-BUILT"

C.O. 77

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	78	83



A/E-4 STREET LIGHT POLE DETAIL
NOT TO SCALE



B/E-4 BASE DETAIL
NOT TO SCALE

LEGEND FOR AS-BUILT POSTINGS

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

SEAN K. SUGAI
LICENSED PROFESSIONAL ENGINEER
No. 9023-E
HAWAII, U.S.A.

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

SIGNATURE — April 30, 2006 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RELOCATED STREET LIGHT POLE DETAILS

LIKELIKE HIGHWAY

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

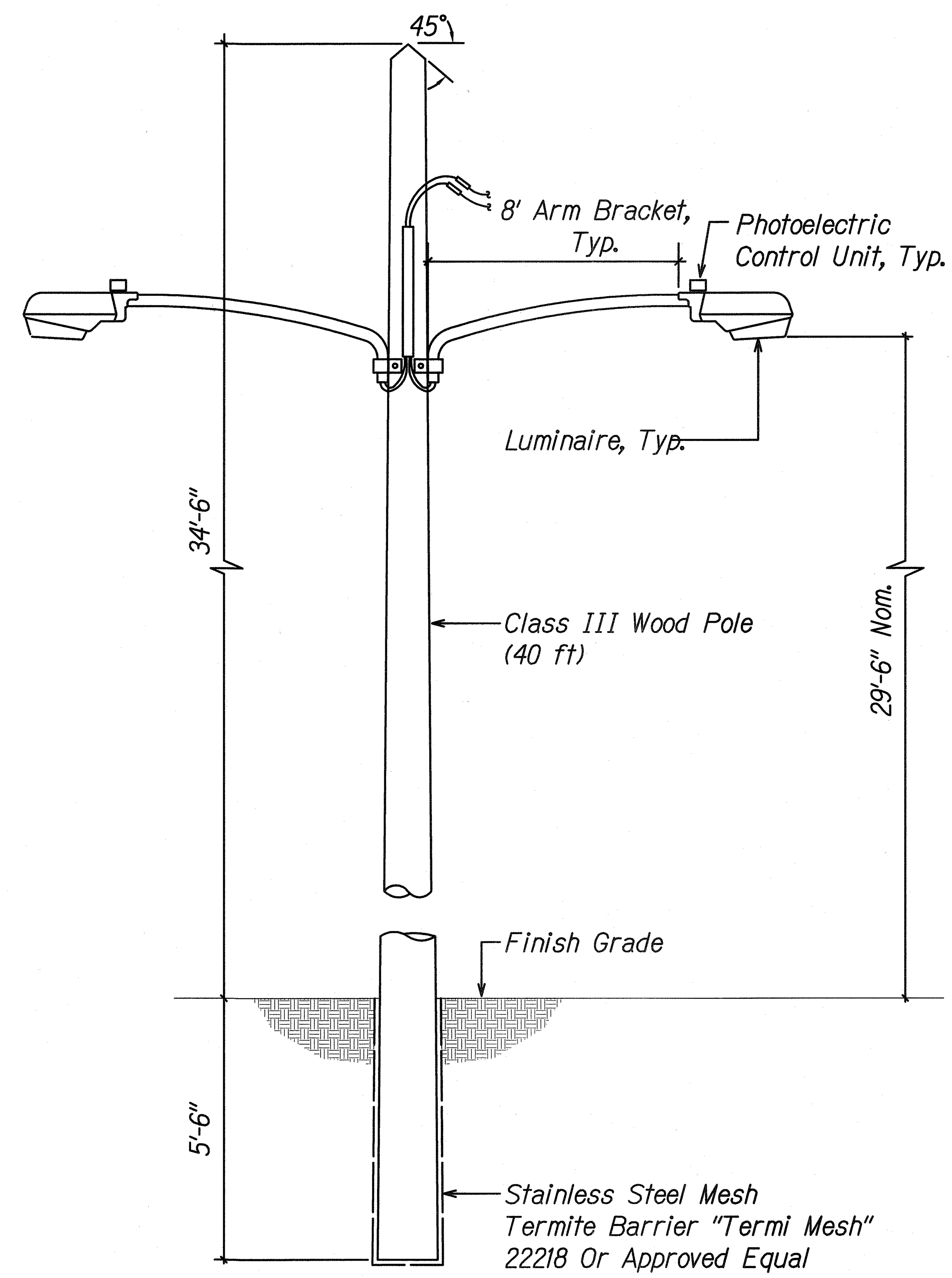
Scale: AS NOTED — Date: Dec 23, 2004

SHEET No. E-4 OF 14 SHEETS

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

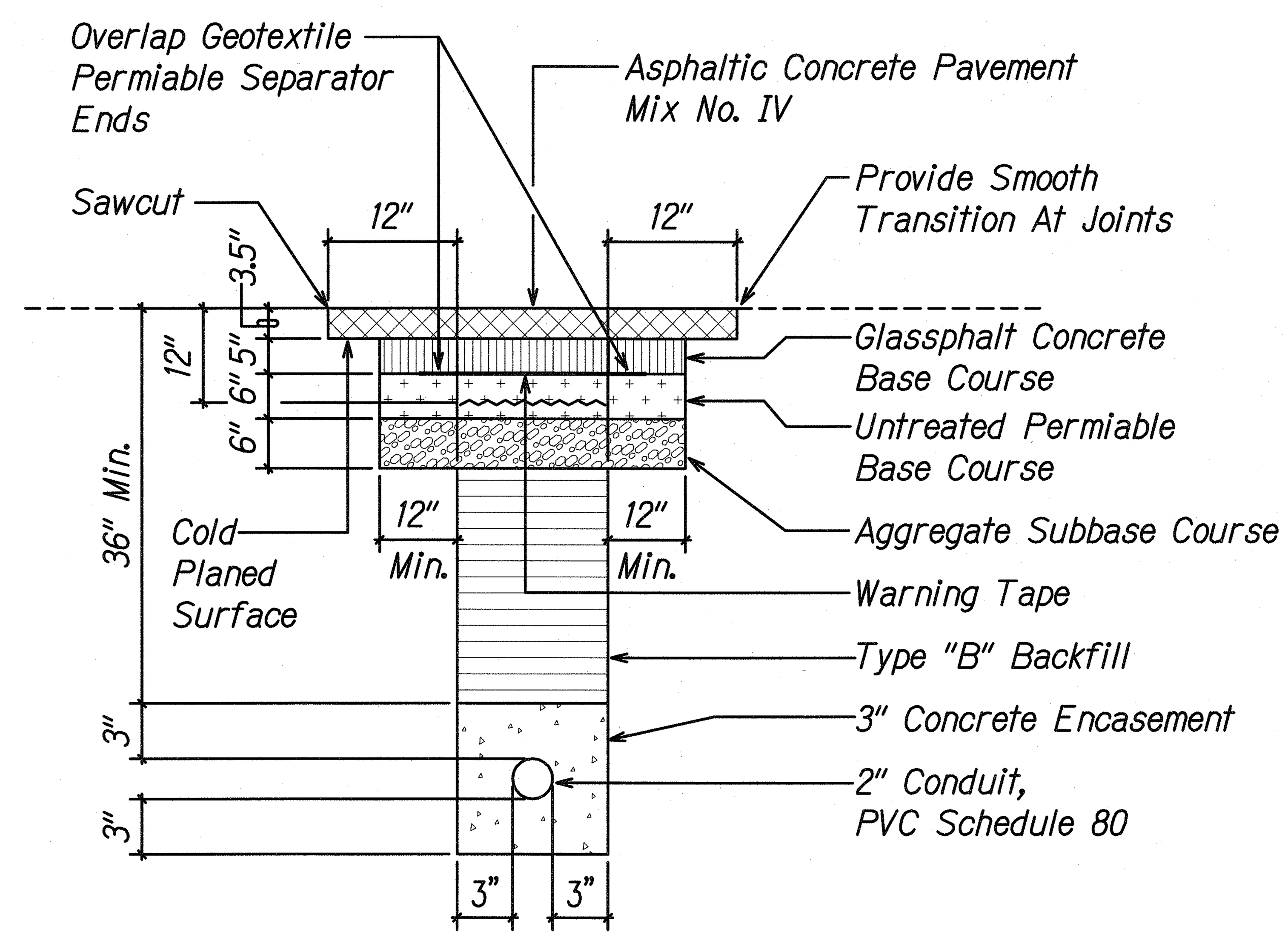
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	79	83



Trench Backfill Material "B"
1. Sand Equivalent ≥ 2
2. 8" Max. Lift Loose
3. 95% Compaction

Concrete - 3" Encasement, 2500 PSI Compressive Strength @ 28 Days.



NOTES:

1. Tack Coat Existing Asphalt Bound Material Faces Prior To Filling Excavation With Asphalt Bound Material.
2. When Ground Water Is Encountered In Trenches. Backfill With Gravel Conforming To ASTM C-33, Size 67 Material Until One Foot Above Waterlevel. Encapsulate The Size 67 And Sides Of The Trench And Overlaps At The Top Of The Material For The Width Of The Trench. Complete Backfilling The Trench Per Detail.
3. Smoothness of Paved Surfaces: The Distance From The Paved Surface To The Testing Edge Of A Ten-Foot Straight Edge Between Two Points Of Contact Shall Not Exceed 3/16".
4. Base Course & Sub-Base Course Per 1994 State Standard Specifications For Highway Construction.
5. Sawcutting & Repairing Of Exst A.C. Pavement Shall Not Be Paid For Separately, But considered Incidental to the Various Contract Items.
6. The Metal Detectable Reel Warning Tape Shall Be A Minimum Of 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 Highway Lighting Cables Buried Below", Utility 2" Series "C" Black Lettering. The Message Shall Be Repeated With A 36" Spacing. Message Shall Be Repeated With A 36" Spacing. Warning Tape For Signal Corps Conduits Shall Be Per Signal Corps Standards.

NOTES:

1. Minimum Top Circumference Is 23" Minimum Circumference At 6'-0" From Butt Is 37".
2. Pole Shall Be Treated With Pentachlorophenol Using The "Celon" Process, By A Licensed Termite Treatment Company.
3. Termite Treat The Bottom Of The Hole And Backfill Material With Aqueous Chemical Solution Consisting Of 0.5% Aldrin Or 0.5% Dursban. Minimum 5 Gallons Of The Solution Shall Be Used For Each Hole. Application Shall Be Performed By Contractor Licensed For This Type Of Work. Treatment Shall Be Done As The Hole Is Being Backfilled.

A/E-5 TEMPORARY STREET LIGHT POLE DETAIL
NOT TO SCALE

B/E-5 STREET LIGHT DUCT SECTION DETAIL
NOT TO SCALE

LEGEND FOR AS-BUILT POSTINGS

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

SEAN K. SUGAI
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No. 9023-E
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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE — April 30, 2006 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMPORARY STREET LIGHT POLE DETAIL
LIKELIKE HIGHWAY
Wilson Tunnel Improvements
Leak and Crack Remediation
F. A. Project No. STP-063-1(22)

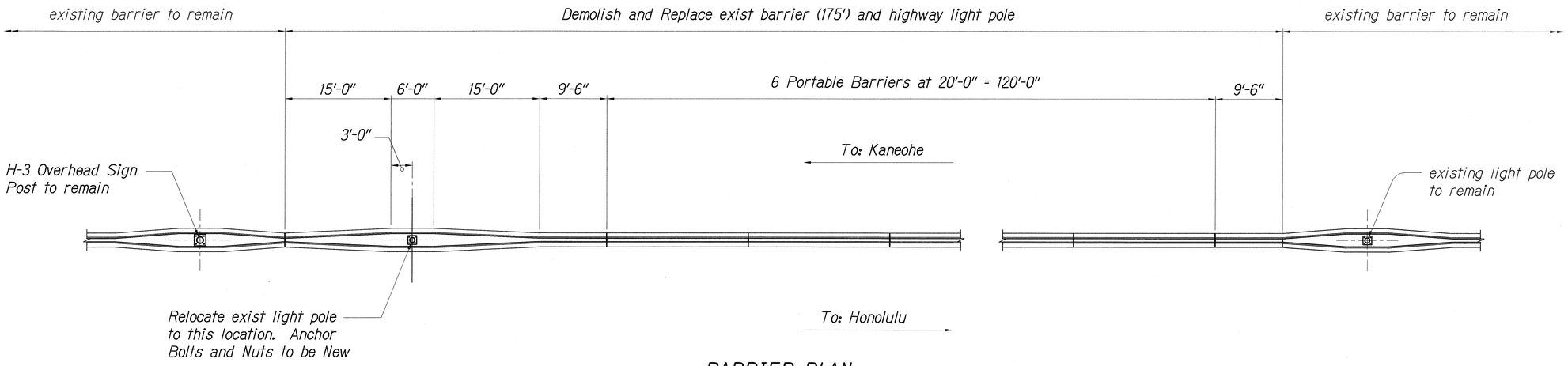
Scale: AS NOTED   Date: Dec 23, 2004

SHEET No. E-5 OF 14 SHEETS

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

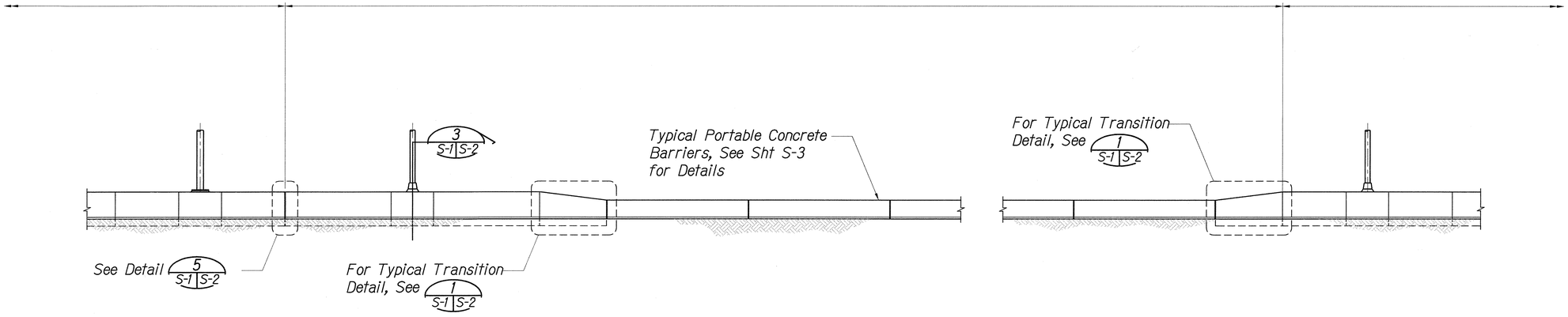
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	80	69



BARRIER PLAN

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



BARRIER ELEVATION

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

Notes:

1. See Electrical drawings for Site and location of conduit ducts and junction boxes to be embedded in concrete barrier.
2. Concrete to be 3,000 psi 28-day compressive strength minimum. Reinforcing steel to be Grade 60.
3. Refer to Civil drawings for layout of temporary impact attenuators. New concrete barrier to be constructed after temporary lane diversion is complete.

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

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April 30, 2004
SIGNATURE — EXPIRATION DATE OF THE LICENSE

6/15/04	Added Sheet
Date	Revision

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LIGHT POLE FOUNDATION PLAN AND ELEVATION

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

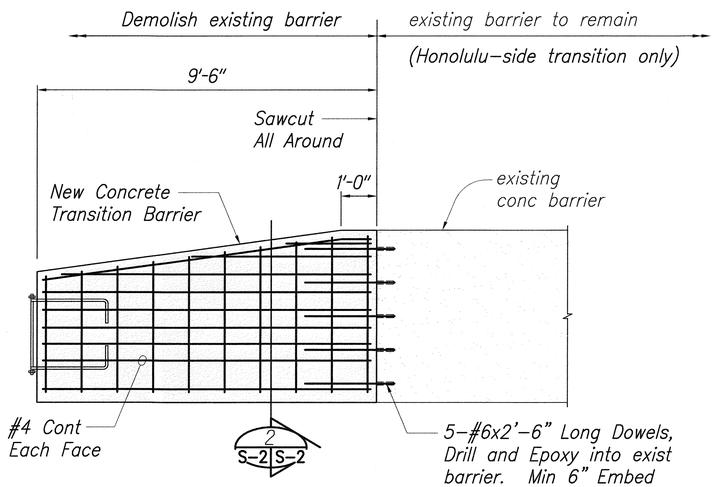
Scale: As Shown — Date: April 24, 2003

SHEET No. S-6 OF 9 SHEETS

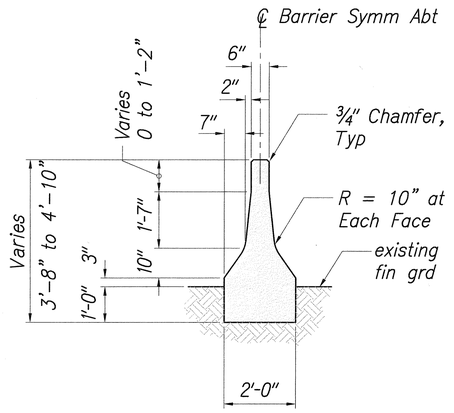
"AS-BUILT"

C.O. 80

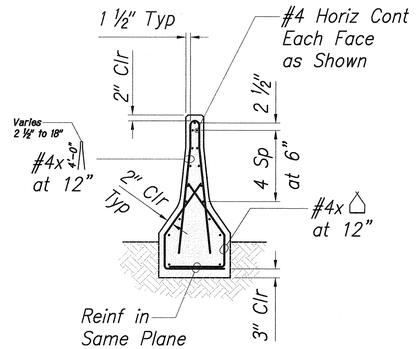
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	81	69



ELEVATION



DIMENSIONS



REINFORCEMENT

CONCRETE BARRIER HEIGHT TRANSITION REINFORCEMENT DETAIL

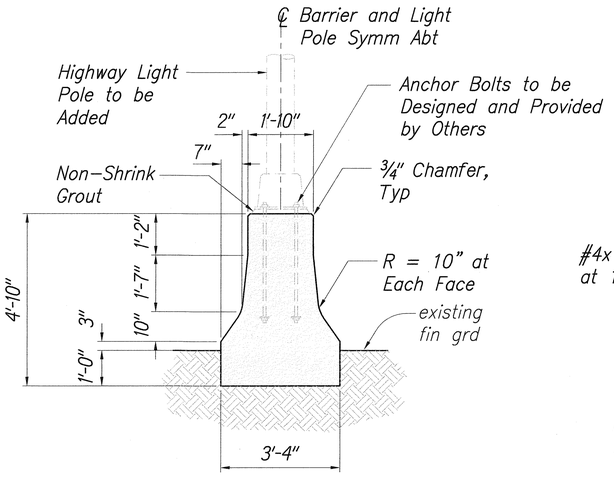
Scale : 1/2" = 1'-0"

1 / S-1 | S-2

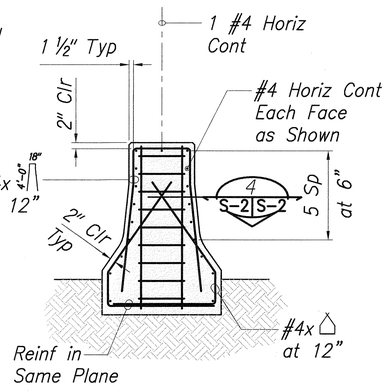
SECTION

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

1 / S-2 | S-2



DIMENSIONS

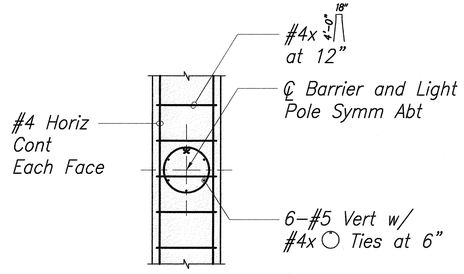


REINFORCEMENT

SECTION

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

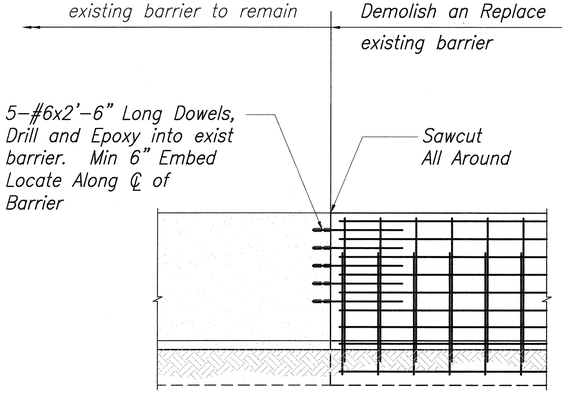
3 / S-1 | S-2



SECTION

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

4 / S-1 | S-2



SECTION

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

5 / S-1 | S-2

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TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

ORIGINAL PLAN
NOTE BOOK
No.

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

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

April 30, 2004
SIGNATURE — EXPIRATION DATE OF THE LICENSE

6/15/04	Added Sheet
Date	Revision

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LIGHT POLE FOUNDATION DETAILS AND SECTIONS

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

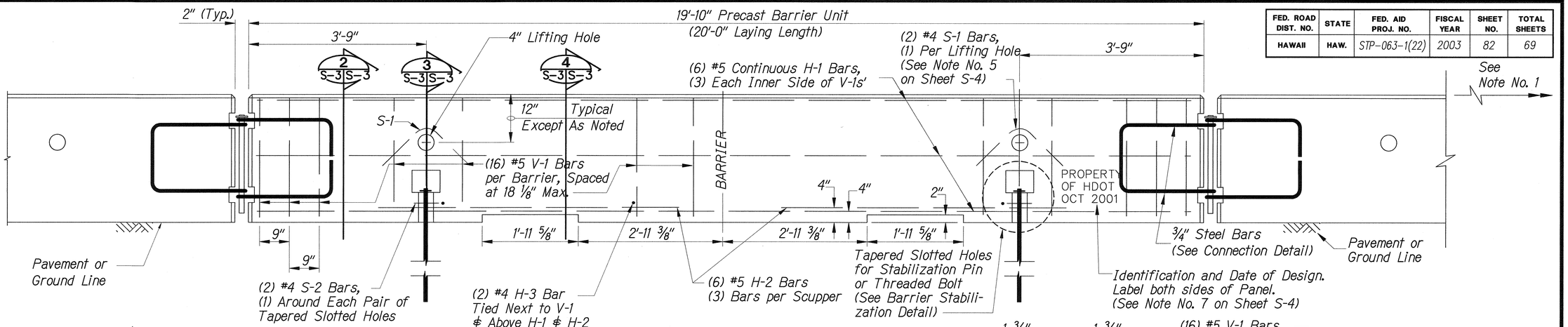
Scale: As Shown — Date: April 24, 2003

SHEET No. S-7 OF 9 SHEETS

"AS-BUILT"

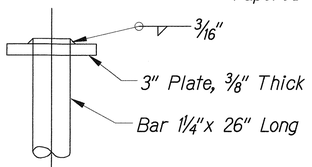
C.O. 81

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	82	69

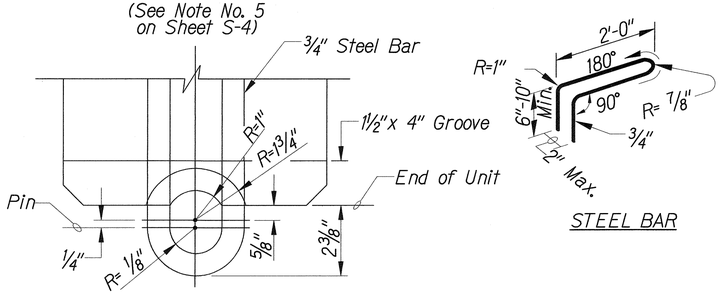


ELEVATION-TYPICAL BARRIER (1 / S-3 | S-3)

MASS: 3.9 tons PER PANEL



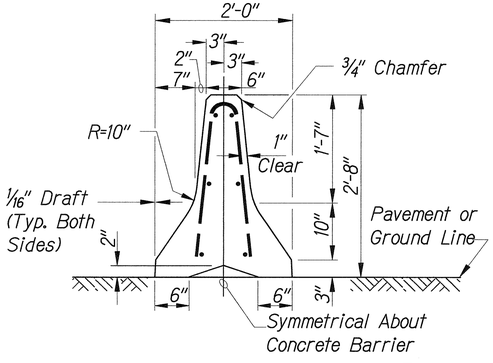
CONNECTING PIN
(See Note No. 5
on Sheet S-4)



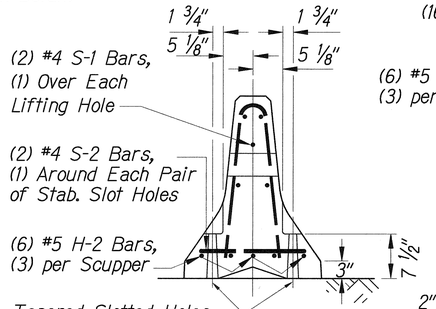
STEEL BAR

CONNECTION DETAILS (5 / S-3 | S-3)

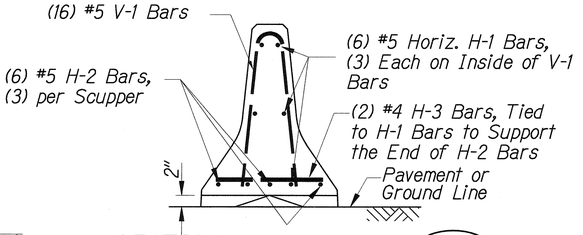
(See Note No. 5 on Sheet S-4)



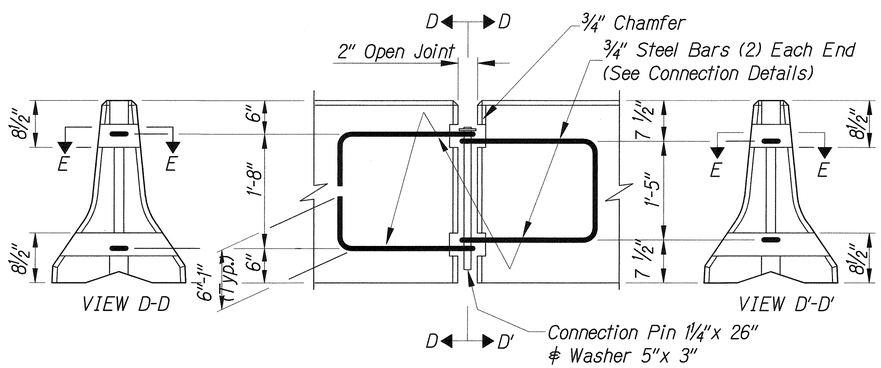
SECTION (2 / S-3 | S-3)

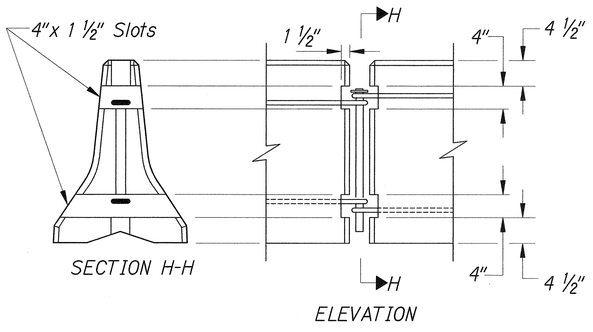


SECTION (3 / S-3 | S-3)

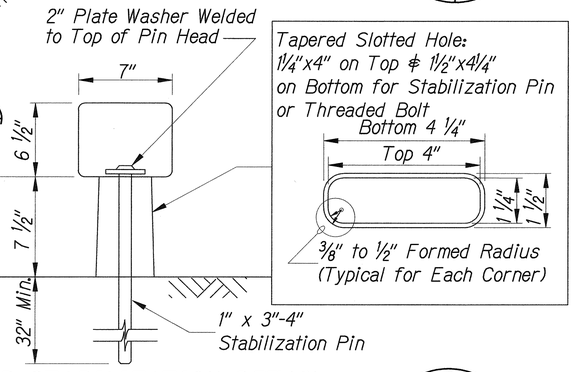


SECTION (4 / S-3 | S-3)





BARRIER REMOVAL SLOT DETAILS (7 / S-3 | S-3)



BARRIER STABILIZATION DETAIL (8 / S-3 | S-3)

(See Note Nos. 3 & 4 on Sheet S-4)

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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	QUANTITIES BY	
No.	CHECKED BY	

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

April 30, 2004
SIGNATURE — EXPIRATION DATE OF THE LICENSE

6/15/04	Added Sheet
Date	Revision

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PORTABLE CONCRETE BARRIER DETAILS

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

Scale: As Shown — Date: April 24, 2003

SHEET No. S-8 OF 9 SHEETS

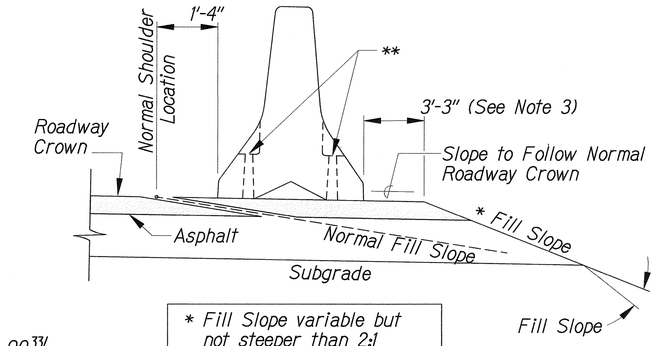
"AS-BUILT"

C.O. 82

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-063-1(22)	2003	83	69

METAL REINFORCEMENT TABLE

MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	Horizontal in Barrier Tied Inside V-1 Bars	#5	(6)	19'-3"
H-2	Centered Above Scuppers Long. & Transversely	#5	(6)	6'-6"
H-3	Tied Above H-1 Bars to Support H-2, Tied to V-1	#4	(2)	1'-6"
S-1	Horizontal in Top of Wing Wall & in Floor Back Wall	#4	(2)	2'-5", Lifting Hole, 90°, R=3 3/8"
S-2	Horizontal Around Slots Between V-1's at Scuppers	#4	(2)	5'-1" Bar w/(4) 1 1/2"R Bends & Min. 1'-0" Overlap; R=1 1/2"; Slots; 7"; 1'-6"; 1" Min. Clear to Bar
V-1	Vertical in Barrier (3) Each End & (2) at Each Scupper	#5	(16)	Total Length 4'-9"; R=2 3/16"; 12°; 9 1/2"; 4 3/8"; 2'-1 3/8"



90 33/64

* Fill Slope variable but not steeper than 2:1
** No Stabilization Pins (See Note Nos. 3 & 4)

STANDARD INSTALLATION
(See Note No. 1)

TABLE A
SHY LINE OFFSETS *

DESIGN SPEED (mph)	SHY LINE OFFSETS
70	10.0'
65	9.0'
60	8.5'
55	7.0'
50	6.5'
45	6.0'
40	5.0'
35	4.5'
30	3.5'
25	2.0'

TABLE B
MAXIMUM TAPERS FOR CONCRETE BARRIER

DESIGN SPEED (mph)	TAPER	
	INSIDE SHY LINE	BEYOND SHY LINE
70	30:1	20:1
65	28:1	19:1
60	26:1	18:1
55	24:1	16:1
50	21:1	14:1
45	18:1	12:1
40	17:1	11:1
35	15:1	9:1
30	13:1	8:1

* Note: Minimum shy line offset for tangent sections shall be 2'-0".

NOTES:

1. For end treatment, layout, crash cushions and where needed see Project Plans or Special Provisions.
2. Barriers must be pinned together and cannot exceed the Table of Maximum Tapers.
3. The concrete barrier "Standard Installation" design allows for 3'-3" of outward lateral movement if the barrier is struck. Barrier installations that require less than the 3'-3" of outward lateral movement should have stabilization pins.
4. ASTM A-36 steel shall be used for the connection pin, connection loops and stabilization pins. A one piece pin with a 3" rounded top may be used in place of the detailed connection pin if the one piece pin meets ASTM A-36 requirements.
5. A 4" white PVC sleeve may be used to form the lifting hole and if used the sleeve is to be left in place.
6. Concrete shall be Class A and reinforcing shall be Grade 60.
7. Identification and date of design will be as follows:

   PROPERTY
   OF HDOT
   OCT 2001

   Text letters and numbers shall be shown as on Standard Plan Sht. No. B-01. "PROPERTY OF HDOT" may be changed depending upon ownership. All Portable Concrete Barriers made for HDOT will be subject to rejection, if "PROPERTY OF HDOT" is not imprinted. The Contractor shall bear the cost of the rejected Portable Concrete Barriers.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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NOTE BOOK	TRACED BY	
No.	DESIGNED BY	
	QUANTITIES BY	
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No. 6818-S
HAWAII, U.S.A.

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April 30, 2004
SIGNATURE — EXPIRATION DATE OF THE LICENSE

6/15/04	Added Sheet
Date	Revision

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PORTABLE CONCRETE BARRIER

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

Scale: As Shown — Date: April 24, 2003

SHEET No. S-9 OF 9 SHEETS

"AS-BUILT"

C.O. 83