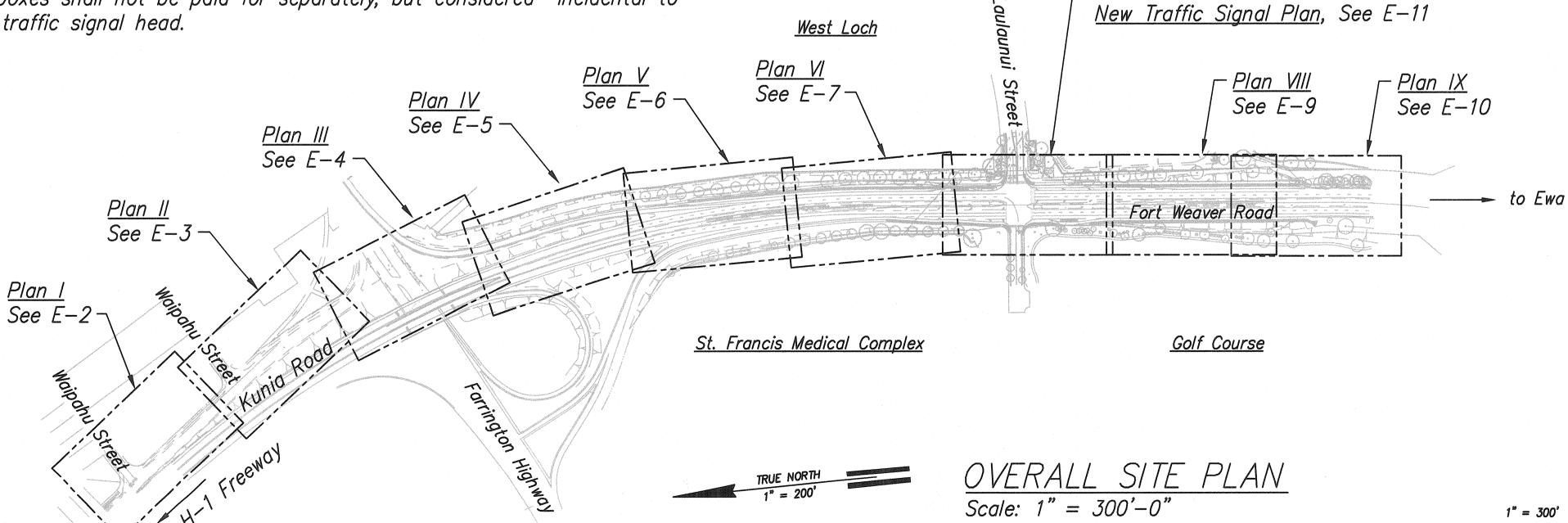
## TRAFFIC SIGNAL NOTES

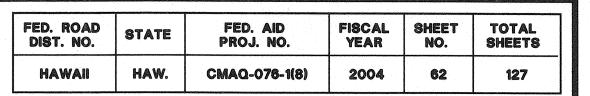
- 1. The locations of the traffic signal standards, traffic signal standards with mast arms, pedestrian pushbuttons, traffic controller, pullboxes, conduits, and loop detectors shall be staked out in the field by the Contractor and approval of the locations shall be obtained from the Engineer prior to construction and installation.
- 2. All splicing shall be done in the pullboxes.
- 3. Furnishing and installing the conduit stubouts (pullboxes to edge of pavement) will not be paid for separately but, shall be considered incidental to the various contract items.
- 4. A solid #8 bare copper wire shall be pulled with the traffic signal control cable for equipment ground. Cost shall be incidental to the installation of the control cable.
- 5. Should any defect be encountered during the warranty period, the manufacturer will be notified and he shall promptly correct such defect. Service call (by factory qualified representative) during the warranty period for repairs or other maintenance shall be answered within 24 hours and shall be done at no expense to the State. All repairs shall be done as soon as possible.
- 6. All traffic signal work shall conform to the requirements of the "Manual on Uniform Traffic Control Devices for Streets and Highway", Federal Highway Administration (2000) and Amendments.
- 7. Locations of traffic markings and markers (lane lines, stop lines, crosswalk, etc.) shown on the plans shall be verified with the Engineer prior to the installation of the traffic signal system.
- 8. All conduits between pullboxes and traffic signal/highway lighting standards shall not be paid for separately, but shall be considered incidental to various contract items.
- 9. All signal—drop cables (Type 5 cables) from the various types of traffic signal head on the traffic signal standards and mast arms to the pullboxes shall not be paid for separately, but considered incidental to the traffic signal head.

- 10. After installing all the traffic signal cables, the Contractor shall duct seal all conduits in the pullboxes, traffic signal standards and traffic signal controller cabinet concrete base. The duct seal material shall be approved by the Traffic Signal Inspector/Engineer and shall not be paid for separately, but considered incidental to the direct buried and/or concrete encased conduits.
- 11. After installing the traffic signal system, the Contractor shall apply grease to all parts of the traffic signal system (i.e., fittings, brackets, nipples, elbows, screws, signal head assemblies, bolts, hinges, etc.) as directed by the Traffic Signal Inspector, to prevent rust and corrosion. The grease material shall be approved by the Signal Inspector.
- 12. Connecting into existing traffic signal system and marking all necessary adjustments shall not be paid for separately, but considered incidental to the various traffic signal contract items.
- 13. The Contractor shall notify the Engineer three (3) working days prior to commencing any work on the traffic signal system.
- 14. The traffic signal system shall be kept operational during construction.

  Any relocation required shall be approved by the Engineer, and paid for by the Contractor.
- 15. The Contractor shall be responsible for any damages to the existing traffic signal facilities, including the traffic signal interconnect system. Any and all damages to these facilities shall be repaired by the Contractor at his cost in accordance with the requirements of the Engineer.
- 16. Abandon existing traffic signal pullboxes in sidewalks by demolishing top 6" of box, filling with #3 rock, and patching with 4" of concrete to match existing.

– <u>Plan VII</u>, See E-8 And





	ELECTRICAL SYMBOL LIST	
SYMBOL	DESCRIPTION	
	Existing Traffic Signal Pullbox (Type As Noted)	
	New Type A (550 x 700) TSPB Or SLPB As Noted	
	New Type B (700 x 1000) SLPB	
$\boxtimes$	New Type C (700 x 1450) TSPB Or SLPB As Noted	
417 − − 7°	Existing Traffic Signal Type I Standard With Attached Signals	
	Existing Type II Traffic Signal Mast And Attached Signals	
√××,×° «L	Existing Type II Traffic Signal Mast With Attached Signals To Be Removed	
<b>*</b>	New Type II Traffic Signal Mast And Attached Signals	
##	New Type III Traffic Signal Mast And Attached Signals	
Û~	Existing Street Light Standard	
•	New 250W HPS Street Light Standard	
	New Double Arm 250W HPS Street Light Standard	
<del>                                      </del>	New 150W HPS Street Light Standard	
	Existing 6' x 6' Detector Loop To Remain	
	New 6' x 6' Detector Loop	
** **	Existing Detector Loop To Be Removed	
•	New Pedestrian Pushbutton	
[글-	Existing Pedestrian Signal Head	
	New Pedestrian Signal Head	
/ <u>C</u> J	Existing Traffic Signal Controller. Door Indicates Front Of Cabinet.	
C	New CCTV Controller Cabinet	
N_	New CCTV Camera	
	New Traffic Signal Ductline, Concrete Encased, See E-13	
	Existing Traffic Signal Ducts To Remain	
* & *	Existing Traffic Signal Duct To Be Abandoned/Removed	
esl	Existing Street Light Ducts To Remain	
SL	New Street Light Ductline, Concrete Encased	
TSPB	Denotes Traffic Signal Pullbox	
SLPB	Denotes Street Light Pullbox	
TL.	Denotes Traffic Light (Standard)	



Jun Laranda

GRAPHIC SCALE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

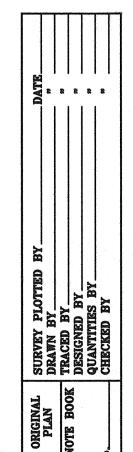
SYMBOL LIST AND OVERALL SITE PLAN

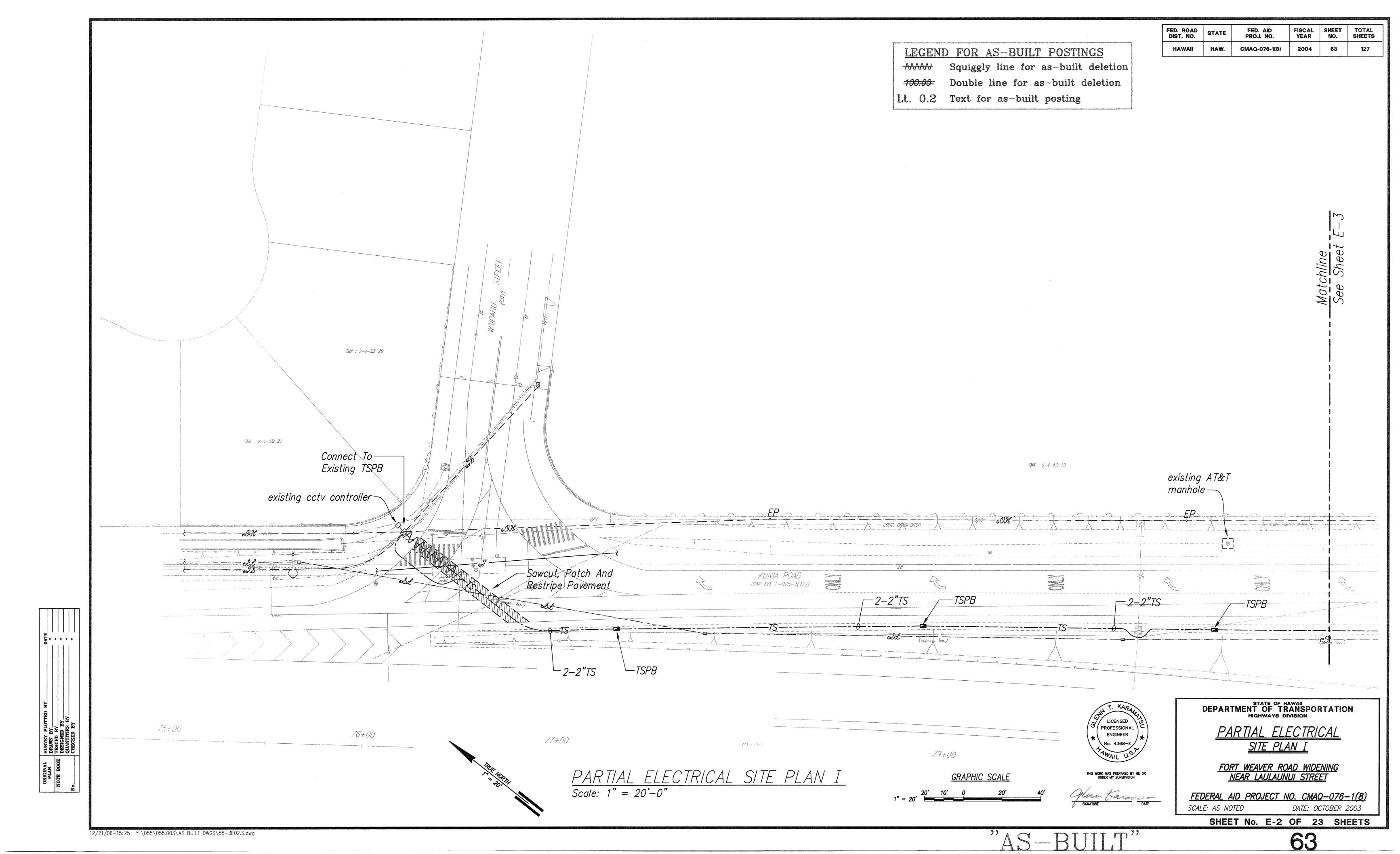
FORT WEAVER ROAD WIDENING NEAR LAULAUNUI STREET

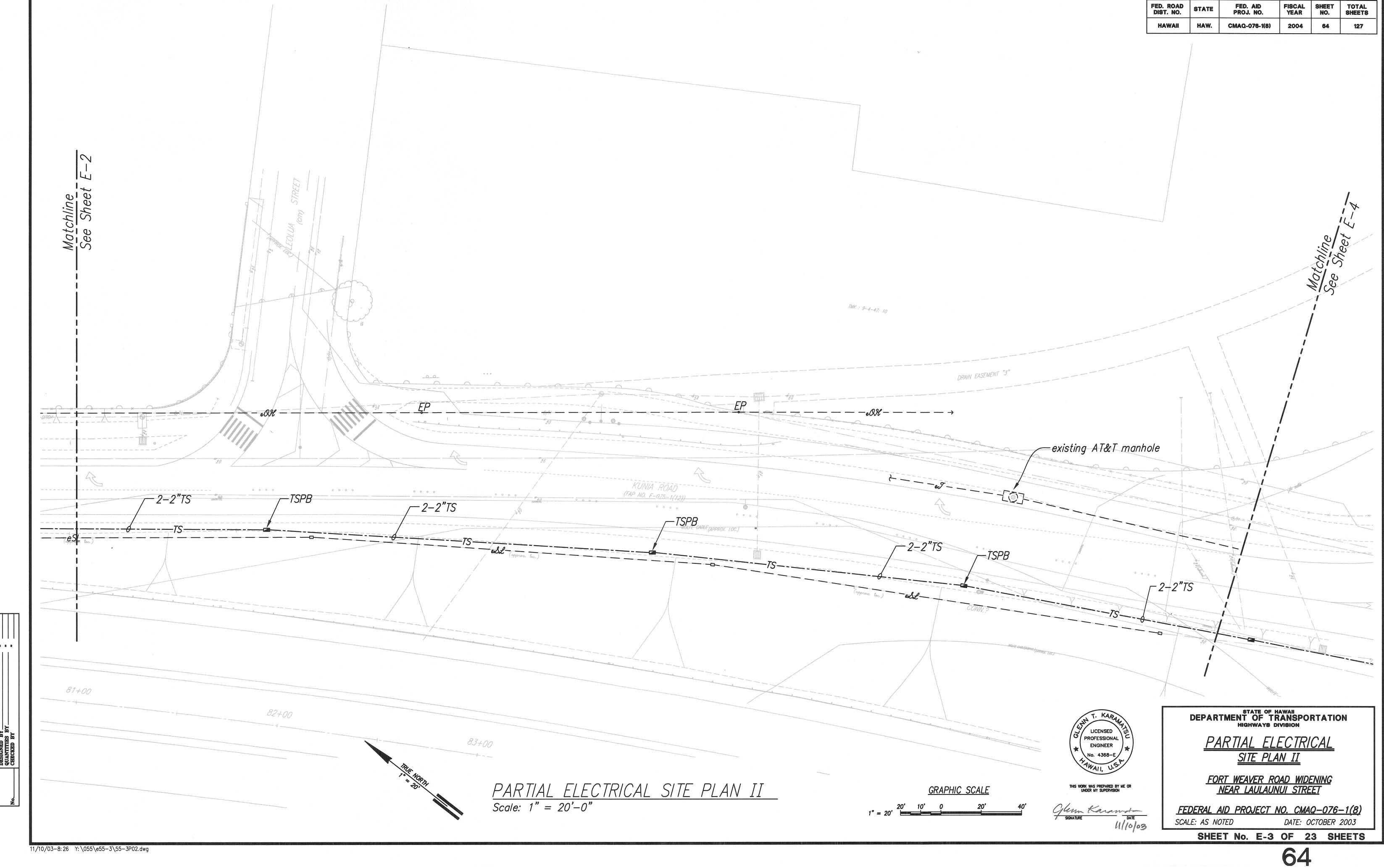
FEDERAL AID PROJECT NO. CMAQ-076-1(8)

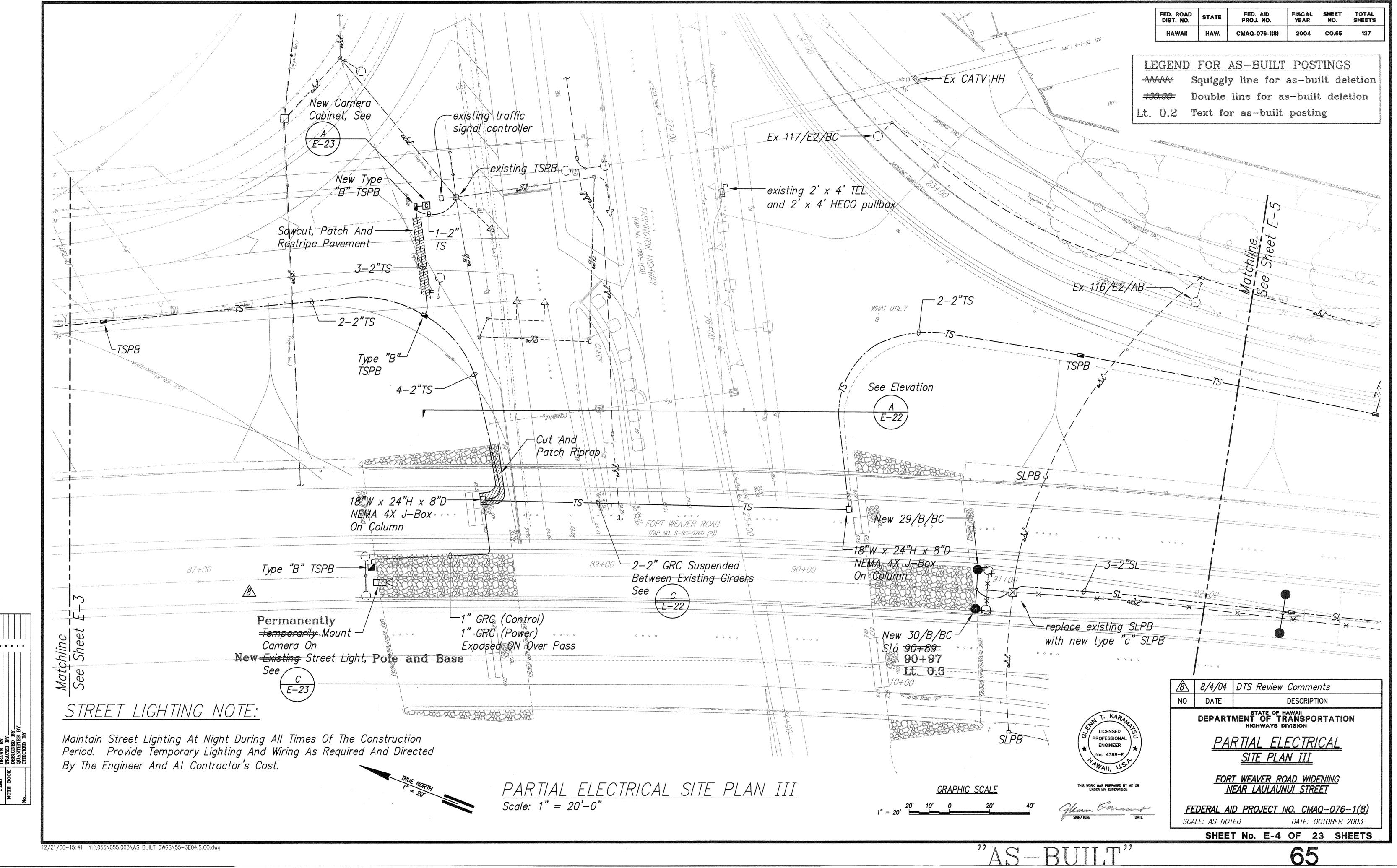
SCALE: AS NOTED DATE: OCTOBER 2003

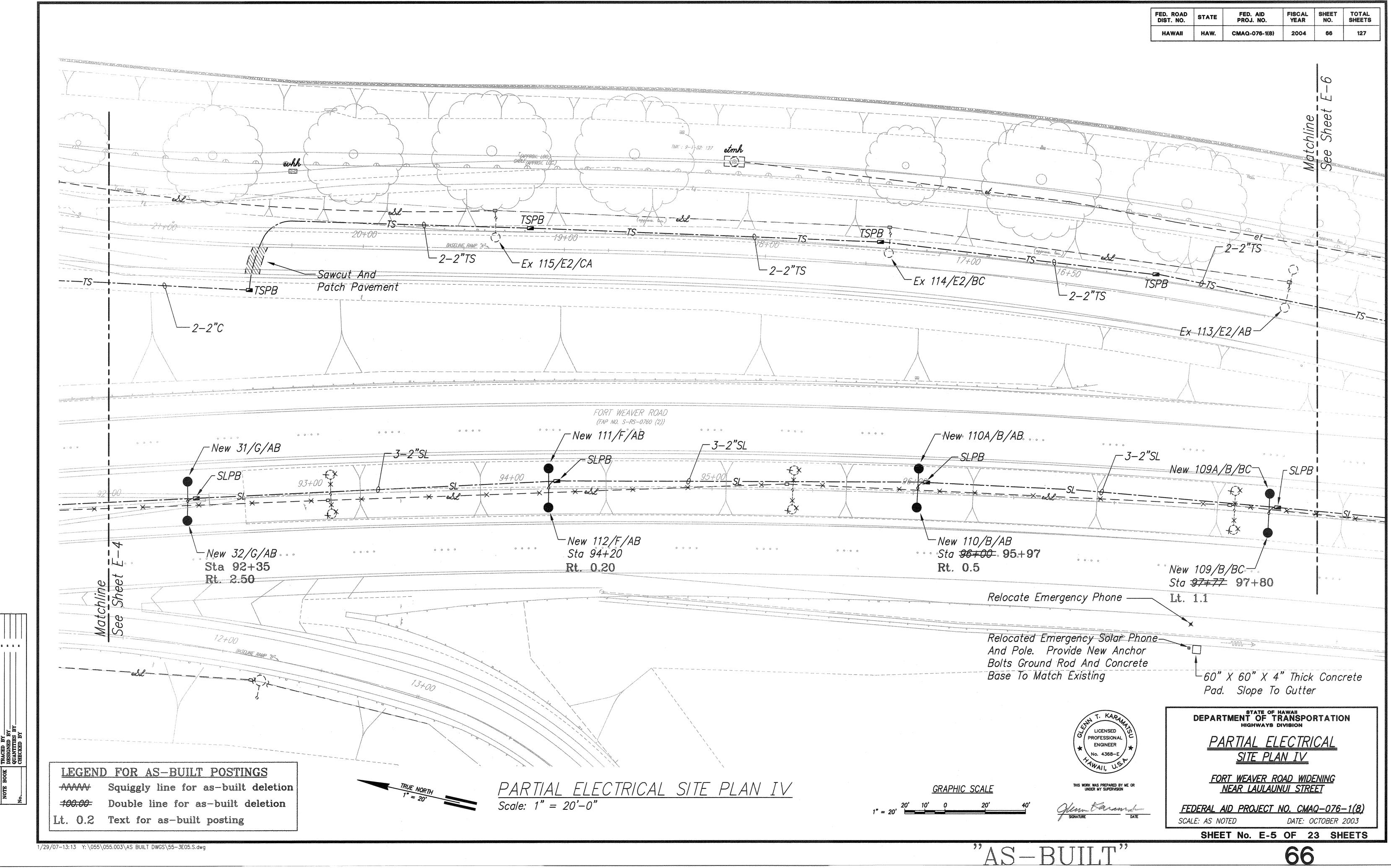
SHEET No. E-1 OF 23 SHEETS



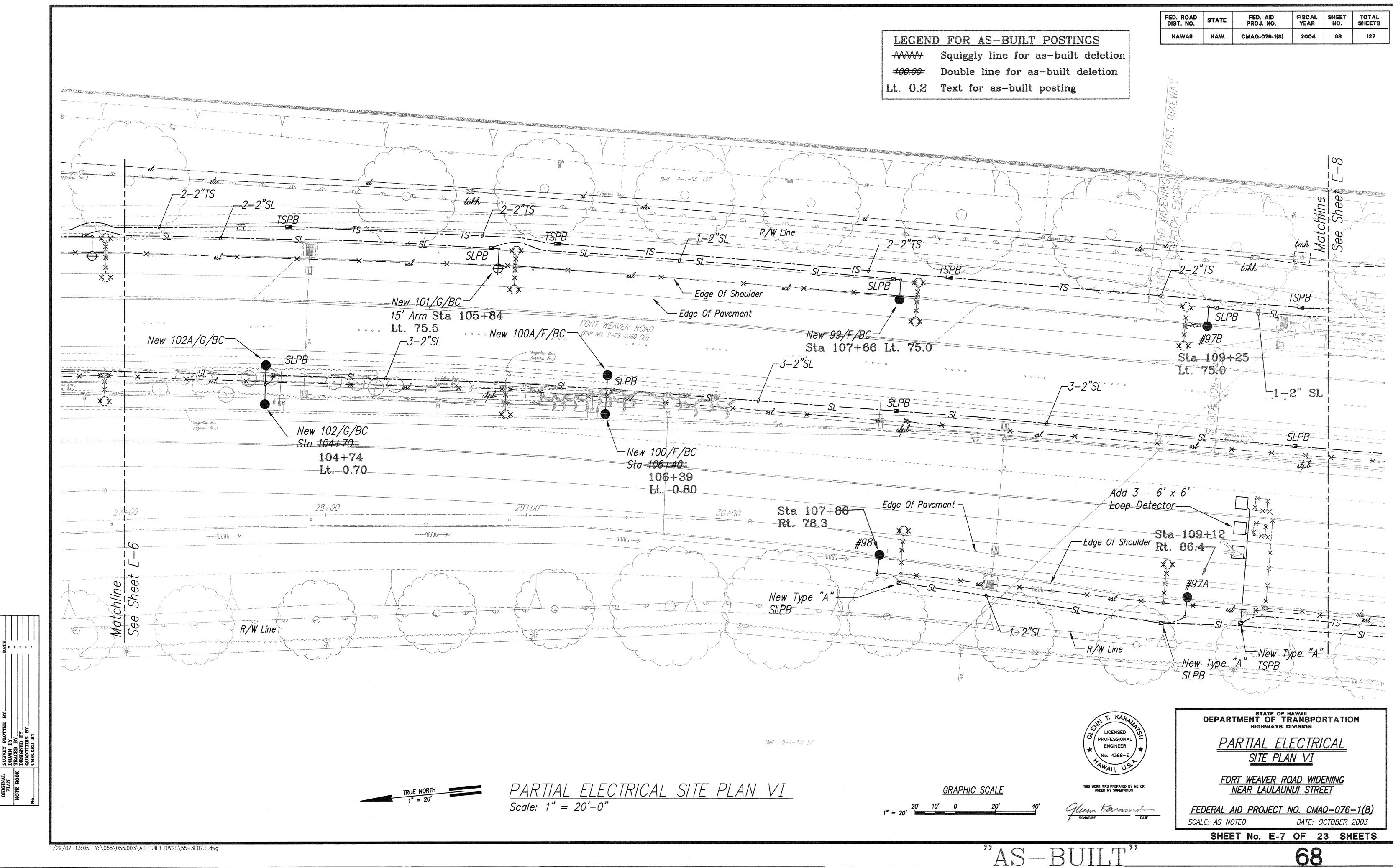


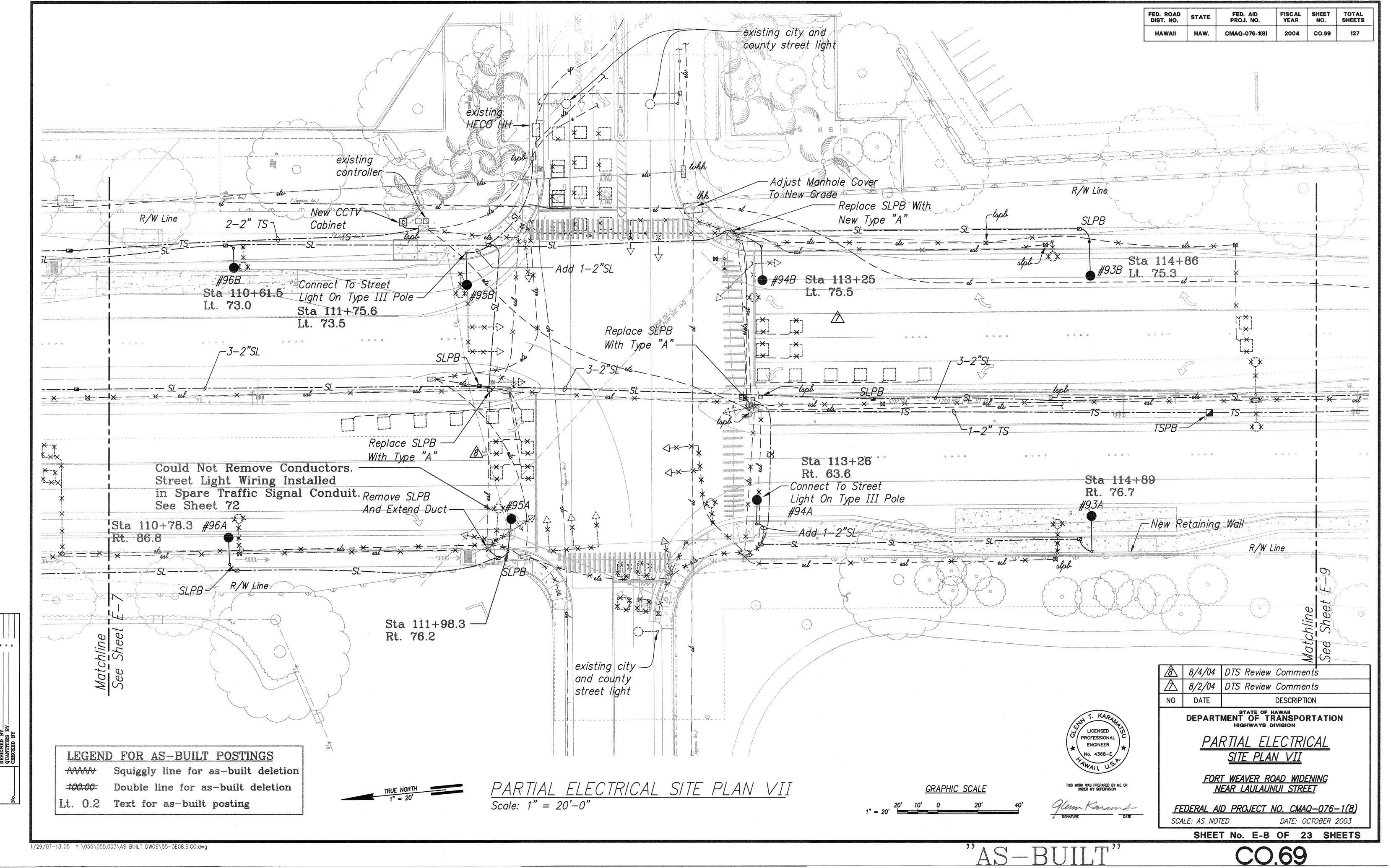


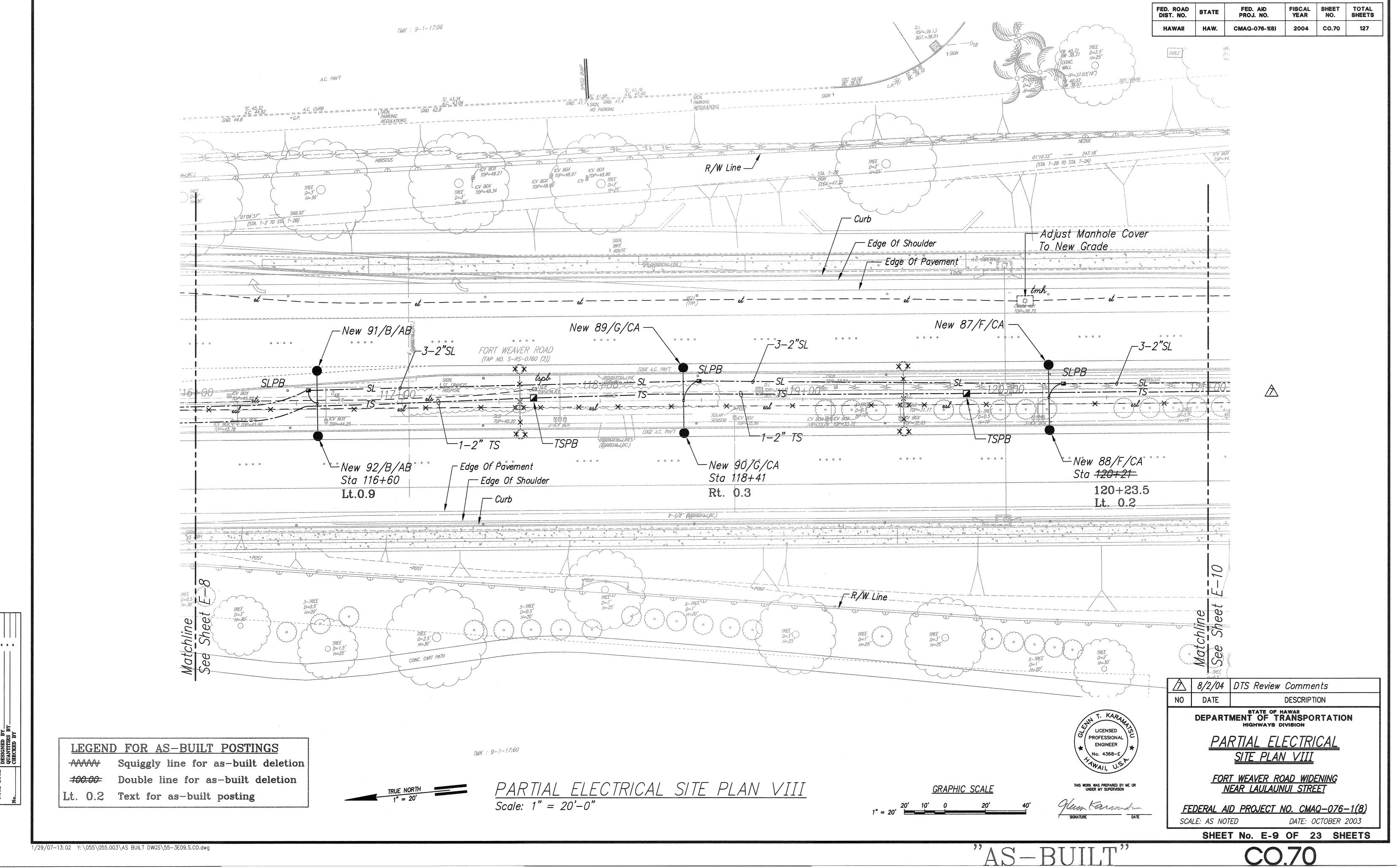


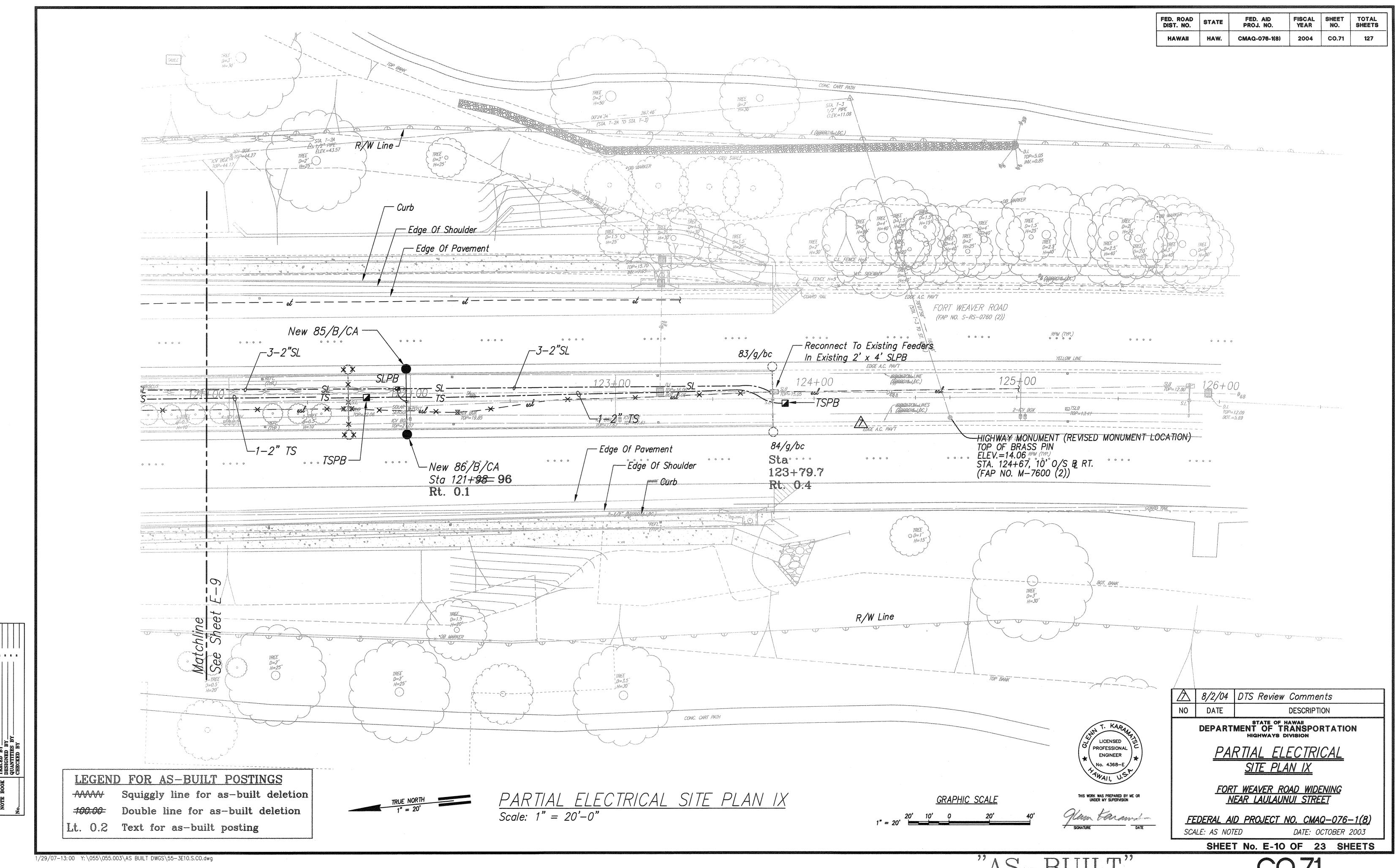


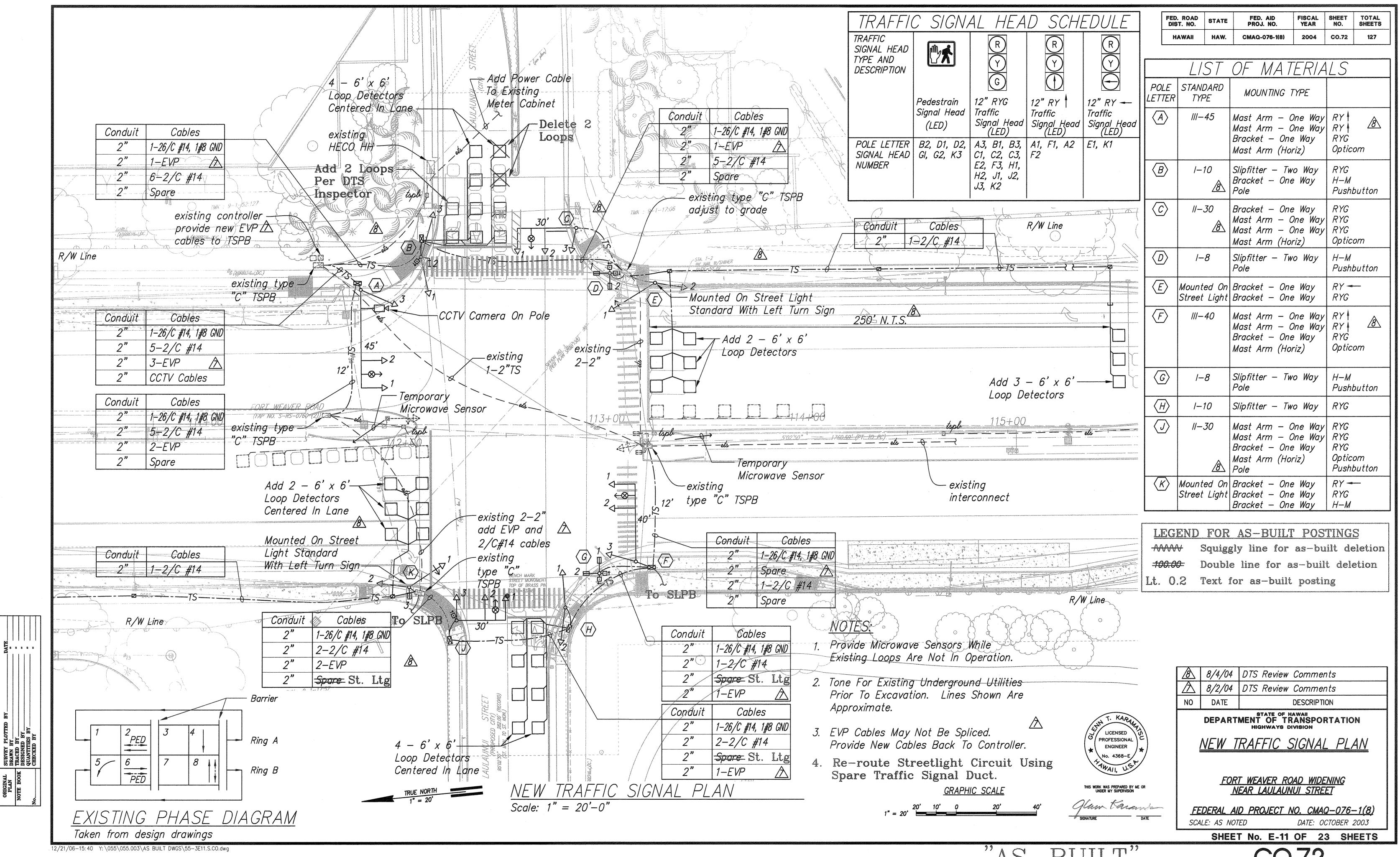
FISCAL YEAR FED. ROAD DIST. NO. CMAQ-076-1(8) 2004 LEGEND FOR AS-BUILT POSTINGS Squiggly line for as-built deletion Double line for as-built deletion Lt. 0.2 Text for as-built posting tel mh O R/W Line -2-2"TS -*2-2"TS* 12+00 10+00 New 107/G/CA-New 105/F/CA New 103/B/CA-8' Arm Sta 99+65 Sta 101+80.5 Sta 103+81 Lt. 74.8 Lt. 90.0 Lt. 79.0 3-2"SL New 106A/F/CA -3-2"SL ~ New 104/B/CA New 106/F/CA Sta 103+00 ". "Sta 101+30 -Rt. 0.4 -Replace SLPB With Lt. 0.7 New 108/G/CA New Type C Sta <del>99+56</del> 99°+60° Lt. 1.9 STREET LIGHTING NOTE Ramp C= Sta 21+57.4 Rt. 20.3 Street Lighting Shall Be Provided During
Nightime Hours By Installing New Before
Removing Existing Or By Providing
Temporary Lighting STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION Relocated -R/W Line Street Light Standard To Back of New Gutter LICENSED PROFESSIONAL PARTIAL ELECTRICAL ENGINEER SITE PLAN V Replaced 220 LF of
Street Light Duct and
Wire to Next Street Light FORT WEAVER ROAD WIDENING
NEAR LAULAUNUI STREET PARTIAL ELECTRICAL SITE PLAN V GRAPHIC SCALE Scale: 1" = 20'-0"JURIL CARROLL DATE FEDERAL AID PROJECT NO. CMAQ-076-1(8) SCALE: AS NOTED DATE: OCTOBER 2003 SHEET No. E-6 OF 23 SHEETS 1/29/07-13:12 Y:\055\055.003\AS BUILT DWGS\55-3E06.S.dwg "AS-BUILT"

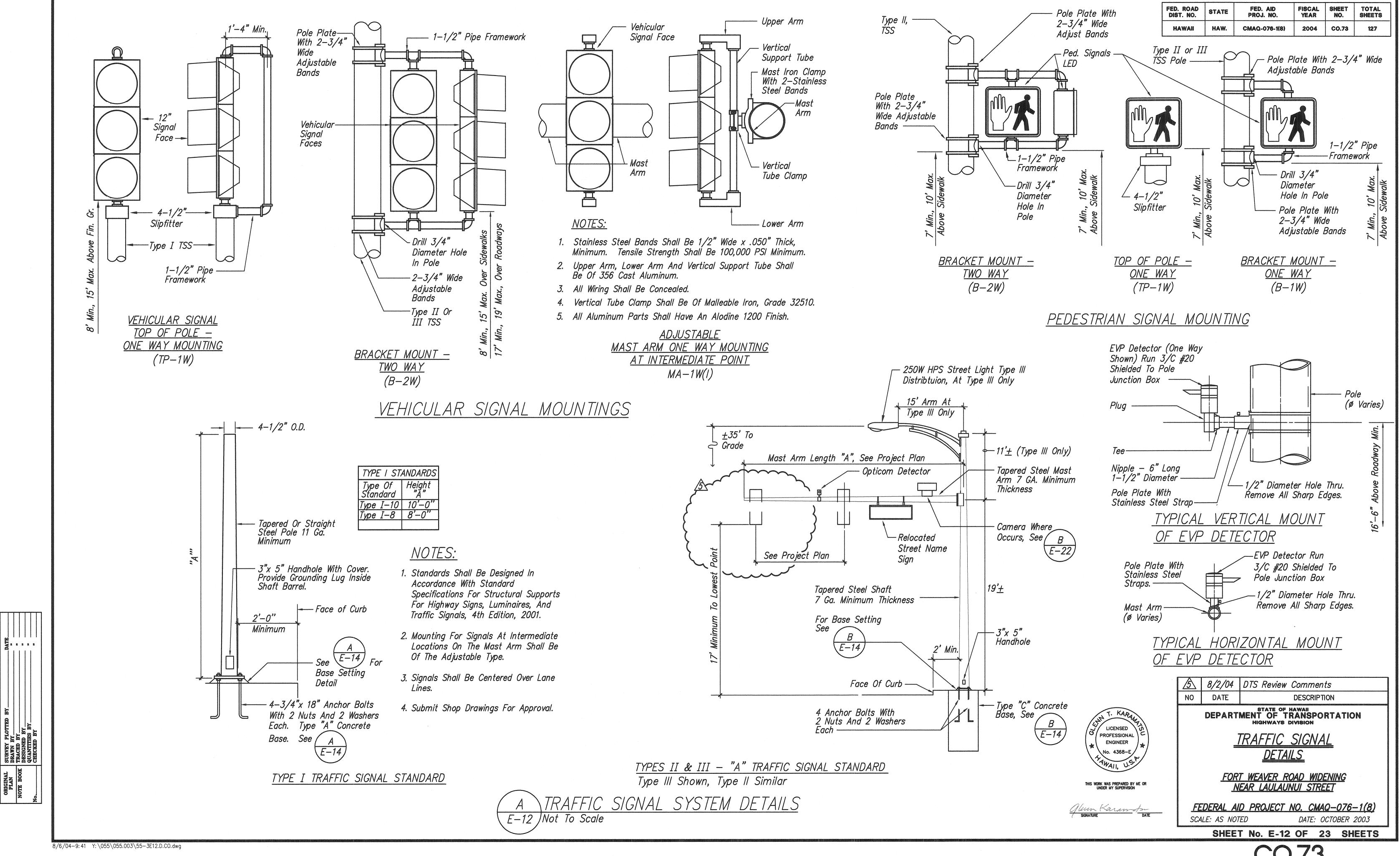


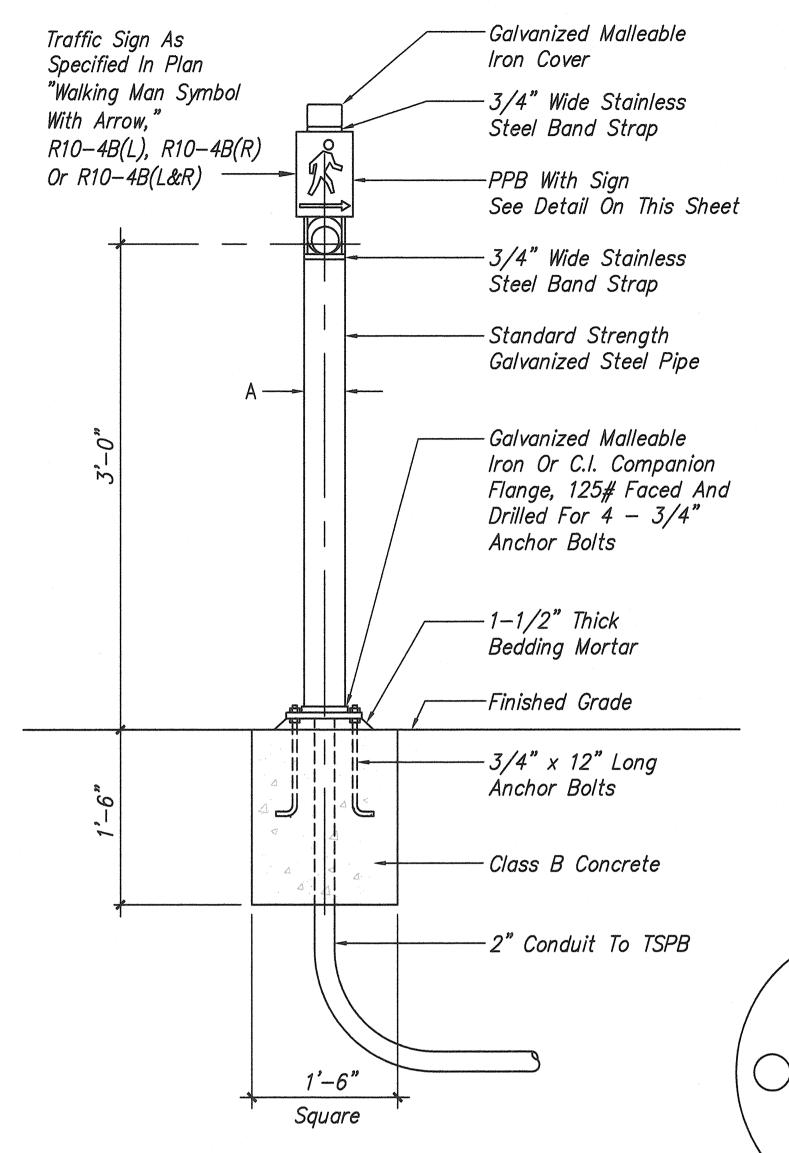












−New 1−1/2" Pipe Frame Work 2nd Head -New Pedestrian Led Where Shown H-M Signal Head 7' Min, 10' Max Above Sidewalk -Slipfitter Tapered Galvanized Steel Pole 11 Ga. Minimum New Pedestrian Push Button — Face Of Curb Minimum 3"x 5" Handhole With-Cover. Provide Grounding 3'-0" Lug Inside Shaft Barrel. -Grout Under Base ₩<del>₩</del> - 4-3/4"x 18" Anchor Bolts With 2 Nuts And 2 Washers Each. Type "A" Concrete Base.  $\frac{A}{E-14}$ YPEDESTRIAN PUSH BUTTON POST

E-13 | Not To Scale

# NOTES:

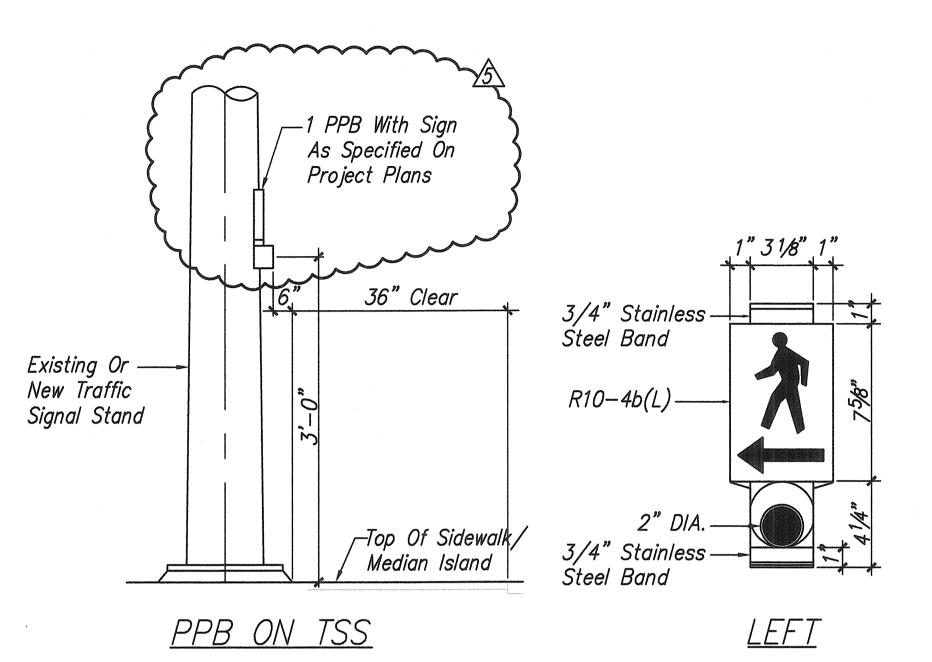
- 1. Conduits Shall Protrude 2" Max. Above Finished Surface Of Foundation.
- 2. Conduits Shall Slope Away From Post Foundation.

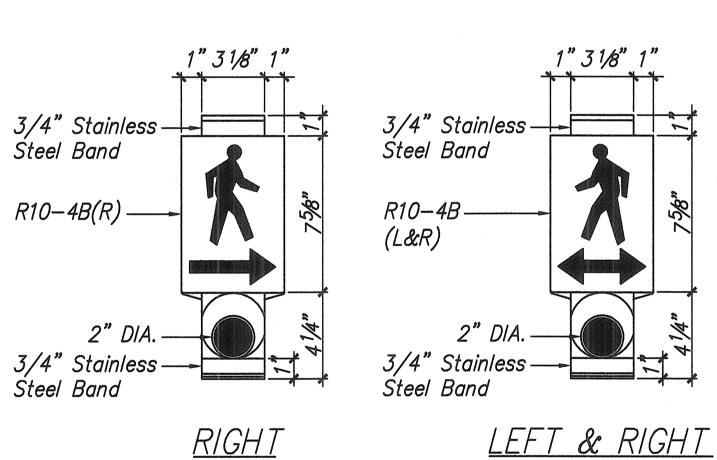
# TOP VIEW

FLANGE DETAIL Not To Scale

# NOTES:

- Standards Shall Be Designed In Accordance With Standard Specifications For Structural Supports For Highway Signs, Luminaires, And Traffic Signals, 4th Edition, 2001.
- 2. Submit Shop Drawings For Approval. Push Buttons Must Be ADA Complaint.

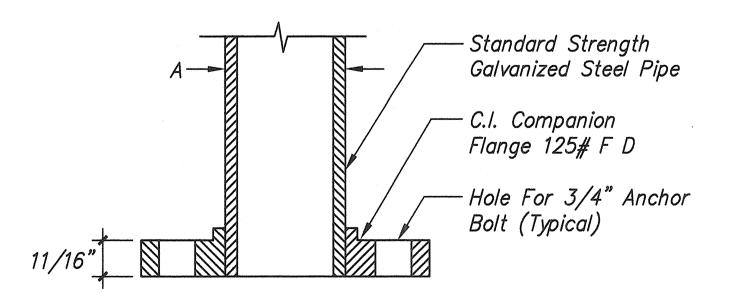




PEDESTRIAN PUSH BUTTON DETAILS Not To Scale

# YPPB POST AND FOOTING DETAIL E-13 | Not To Scale

DATA TABLE P	FOR PPE	B POST	
Amazon to a CDDD	Dimensions		
Amount of PPB	Α	В	
1	3 1/2"	8"	
$2 \rightarrow 3$	4 1/2"	9"	



SECTION



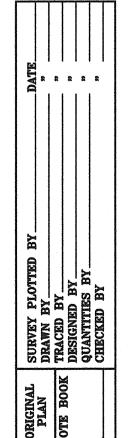
Glew Karamfs
SIGNATURE DATE

<u>\$</u>	8/2/04	DTS Review Comments		
NO	DATE	DESCRIPTION		
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION				
TRAFFIC SIGNAL				

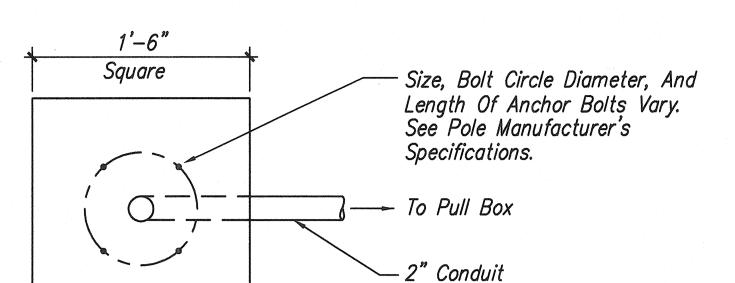
<u>DETAILS</u> FORT WEAVER ROAD WIDENING NEAR LAULAUNUI STREET

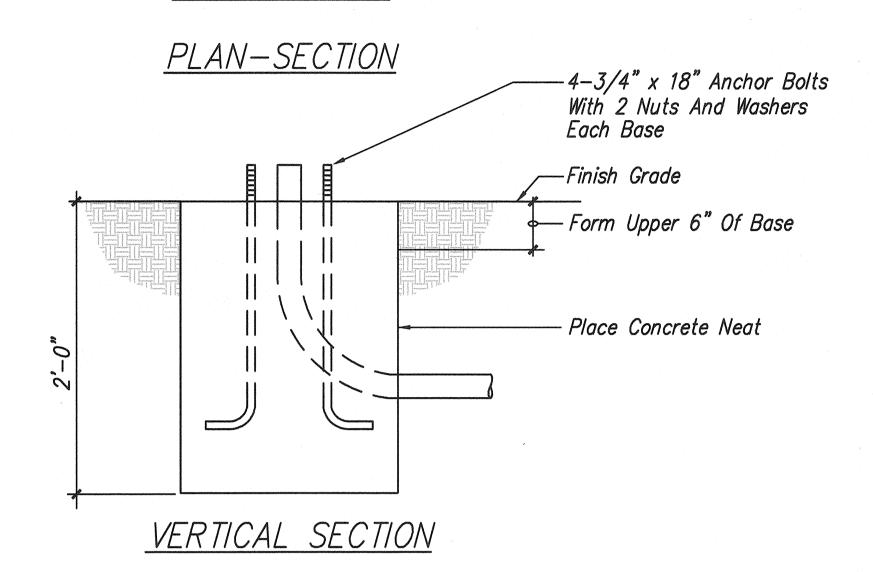
FEDERAL AID PROJECT NO. CMAQ-076-1(8) SCALE: AS NOTED DATE: OCTOBER 2003

SHEET No. E-13 OF 23 SHEETS



8/6/04-9: 41 Y: \055\055.003\55-3E13.D.CO.dwg

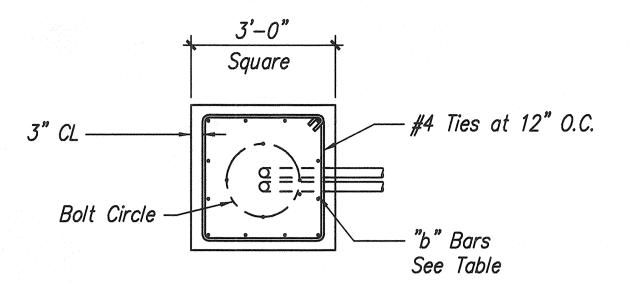




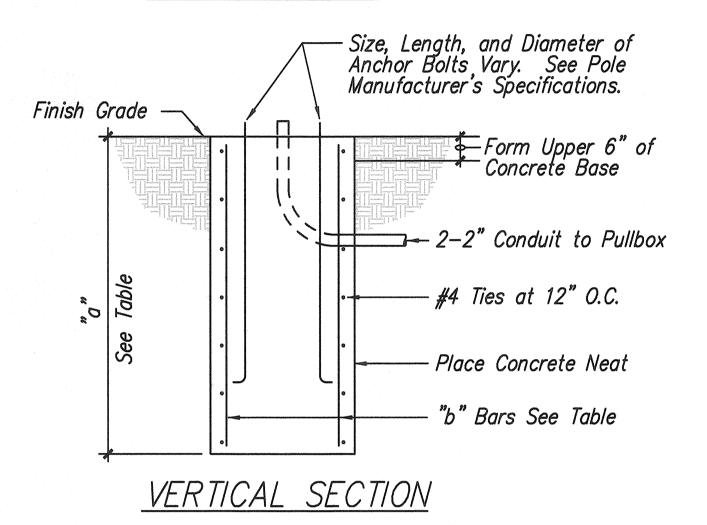


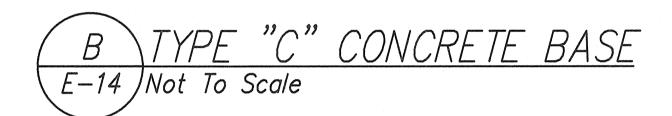
## NOTES:

- 1. Concrete Shall Be Class "B".
- 2. Type "A" Concrete Base Shall Be Used For Type I-8 & I-I0, Traffic Signal Standards.
- 3. Conduit Bend Is Incidental To Concrete Base.
- 4. See Structural Notes On This Sheet



## PLAN-SECTION





# NOTES:

- 1. Concrete Shall Be Class "B".
- 2. Type "C" Concrete Base Shall Be Used For Types II And III Traffic Signal Standards.
- 3. Design Lateral Pressure: 1,500 PSF.
- 4. Conduit Bend Is Incidental To Concrete Base.

TYPE "C" CO.	NCRETE	BASE
TYPE OF STANDARD	"a"	"b" BARS
II - 25	6'-0"	12-#6
II - 30	6'-6"	12-#8
II - 35	6'-6"	12-#8
III - 40	7'-0"	12-#8
III - 45	See Sh	neet S-3

See Structural Notes On This Sheet. Adjust Rebar To Match

Type —

Typical Standard Designation: II - 25

Mast Arm Length ——

### STRUCTURAL NOTES

Traffic Signal And Light standard assemblies shall be designed in accordance with AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 4th Edition, 2001 with subsequent interim revisions. Design parameters shall be in accordance with the following requirements.

FED. ROAD DIST. NO.

STATE

HAW.

FED. AID PROJ. NO.

CMAQ-076-1(8)

FISCAL SHEET NO.

2004

TOTAL SHEETS

127

- a. Basic Wind Speed: 105 mph.
- b. Recurrence Interval: 100 years.
- c. Height and Exposure Factor: For luminaire support structures on bridges, the height and exposure factor shall be determined based on the maximum height above the surrounding ground.
- d. Fatigue Importance Factors: Traffic Signal And Luminaire support structures shall be based on Fatigue Category II
- e. Galloping: Traffic Signal Luminaire support structures shall be designed for galloping—induced cyclic loads.
- f. Vortex Shedding: Nontapered lighting structures shall be designed to resist vortex shedding loads including lighting structures that have tapers less than 0.14 in./ft.
- g. Natural Wind Gust: Traffic Signal And Lighting support structures shall be designed to resist an equivalent static natural wind gust pressure.
- h. Truck-Induced Gust: Traffic Signal support structures shall be designed to resist an equivalent static truck gust pressure range based on a truck speed of 45 mph.

LICENSED CO PROFESSIONAL ENGINEER
No. 4368-E

IIS WORK WAS PREPARED BY ME OR

Glum tarms

SIGNATURE

UI 10/03

DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL DETAILS

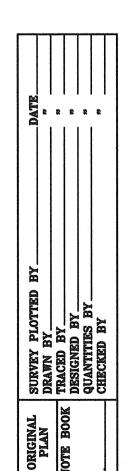
FORT WEAVER ROAD WIDENING
NEAR LAULAUNUI STREET

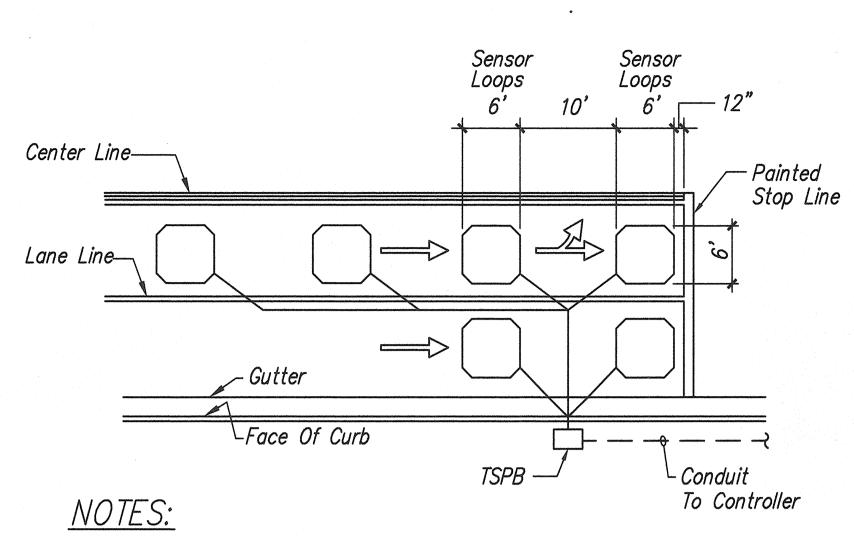
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SCALE: AS NOTED

DATE: OCTOBER 2003

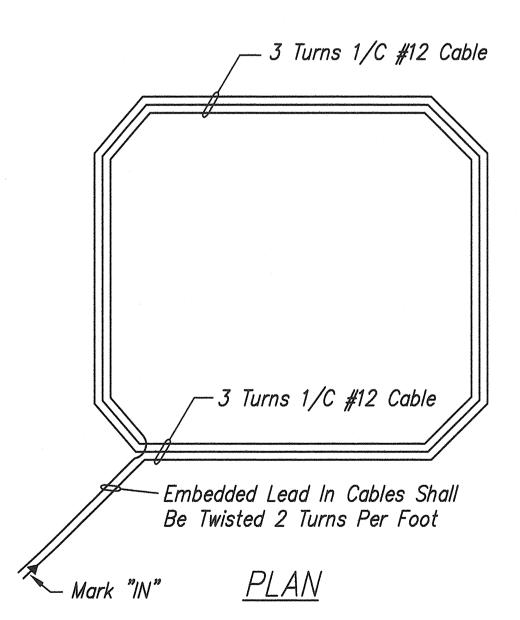
SHEET No. E-14 OF 23 SHEETS



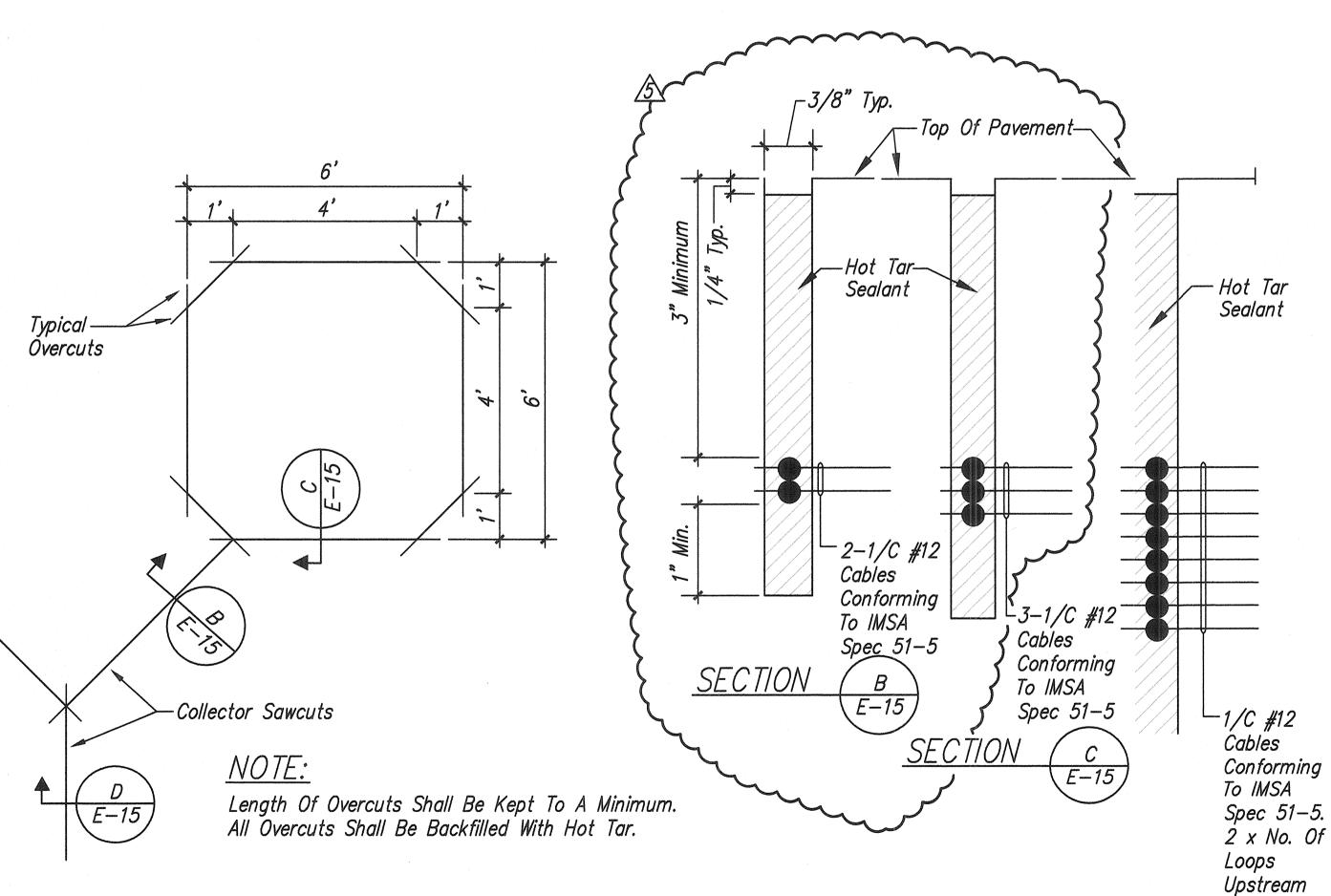


- 1. Center Sensor Loops In Lanes.
- 2. Collector Cables Shall Be Twisted 2 Turns Per Foot.
- 3. Number Of Loops And Locations Vary. See Project Plans.
- 4. Number And Locations Of Collector Sawcuts May Be Varied In The Field To Suit.
- 5. Coordinate Final Location Of Sensors With Civil Striping Plan.





TYPICAL SENSOR LOOP WIRING DIAGRAM Not To Scale



TYPICAL SENSOR LOOP SAWCUT DETAIL

Grounding Lug-

Type Of Conc. Base Varies —

FISCAL YEAR FED. ROAD DIST. NO. FED. AID PROJ. NO. SHEET NO. TOTAL SHEETS - Type "A" Or "C" STATE Concrete Base HAWAII HAW. CMAQ-076-1(8) 2004 CO.76 — Bolt Size, Length, And Diameter Of Bolt Circle Vary. See Manufacturer's Specifications – Ground Ground Rod With Ground Clamp **Varies** -TSPB With Cover Removed. See Project Plans For Type.

PLAN

TYPICAL STANDARD AND PEDESTAL E-14 INSTALLATION Not To Scale

SECTION

Ground

Clamp

Ground Rod

-Size And Thickness Of Base Plate Vary. See Pole Manufacturer's

Specifications.

\_\_Finished Grade —

Leveling Nut At

-Anchor Bolt

As Shown

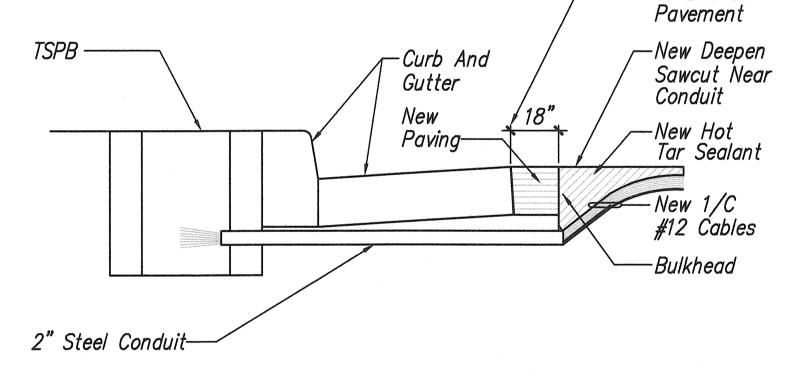
Each Anchor Bolt

-2" Conduit, Number

Ground Wire -

<u>SECTION</u>

Bedding Mortar



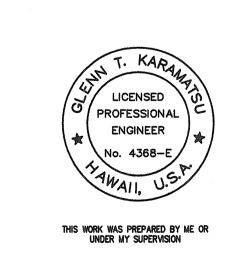
-Edge Of Gutter

Or End Of

## NOTES ON CONSTRUCTION AT END OF SAWCUT

- 1. Seal Roadway End Of Conduit After Installation Of Conductors
- 2. Install Bulkhead Across Conduit Trench.
- 3. Place Hot Tar In Sawcut.
- 4. Backfill Over Conduit With New Paving.
- 5. Reconstruct Curb And Gutter As Required.

# DETAIL OF SENSOR LOOP INSTALLATION AT EDGE OF ROADWAY



Glum Karansk SIGNATURE DATE

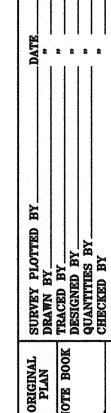
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION TRAFFIC SIGNAL LOOP DETECTOR DETAILS

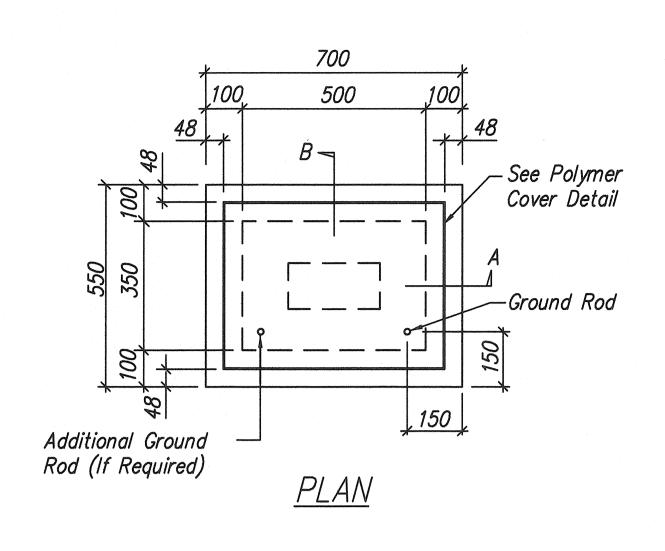
8/2/04 DTS Review Comments

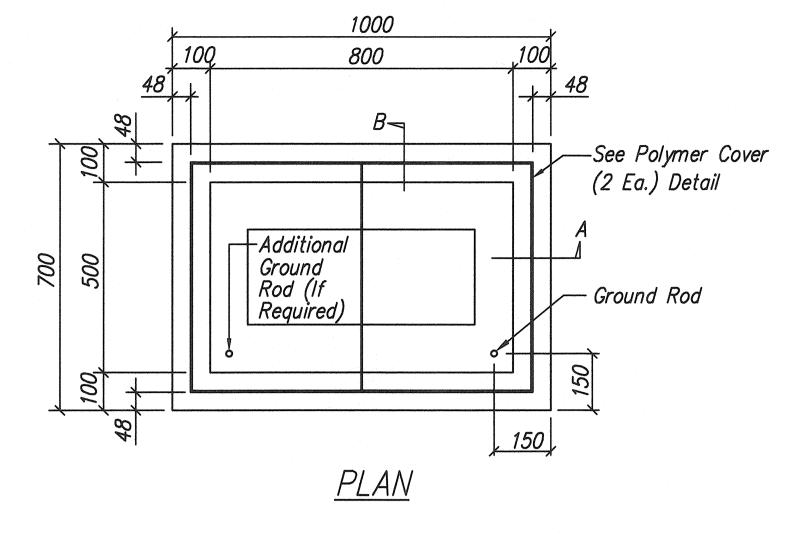
FORT WEAVER ROAD WIDENING NEAR LAULAUNUI STREET

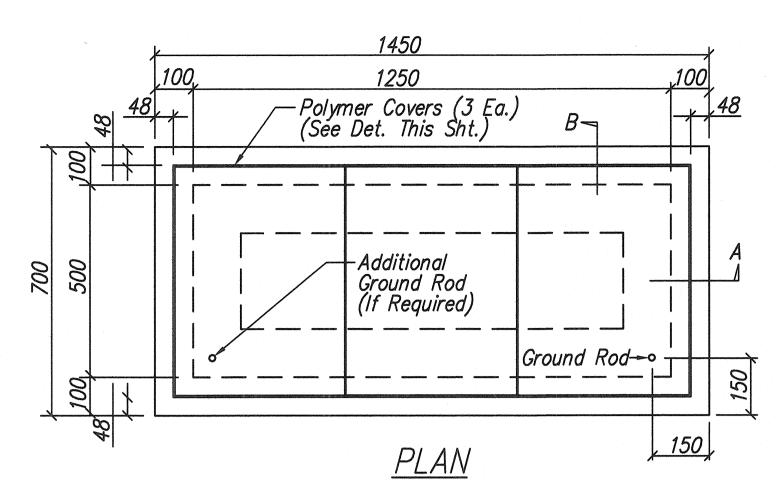
FEDERAL AID PROJECT NO. CMAQ-076-1(8) DATE: OCTOBER 2003 SCALE: AS NOTED

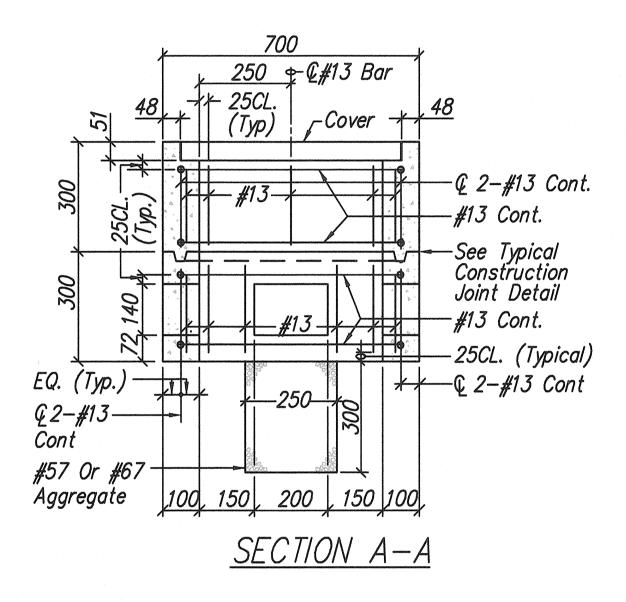
SHEET No. E-15 OF 23 SHEETS

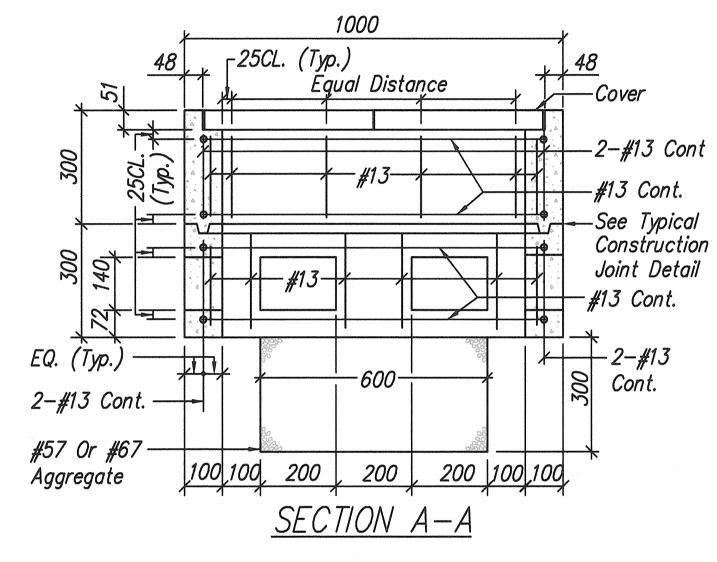


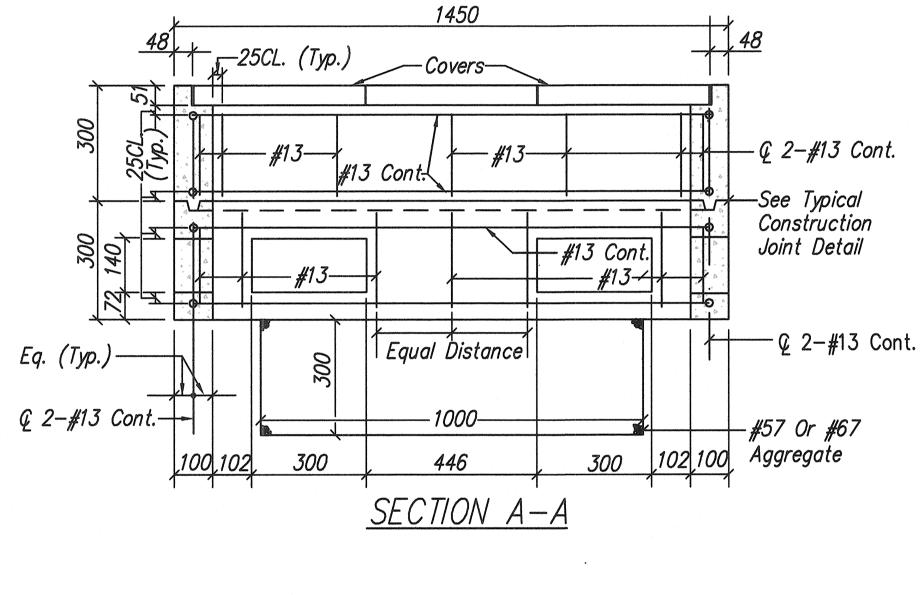


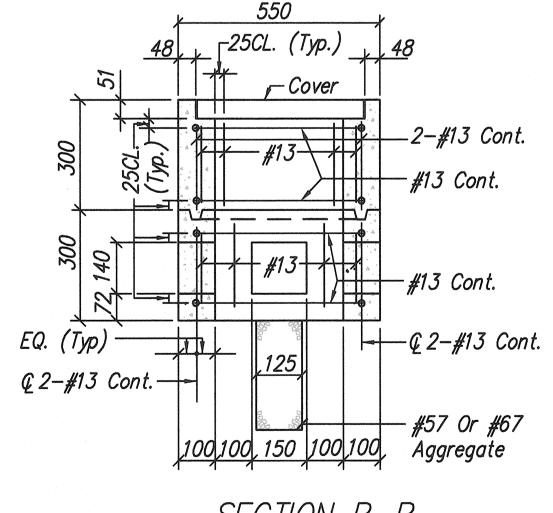


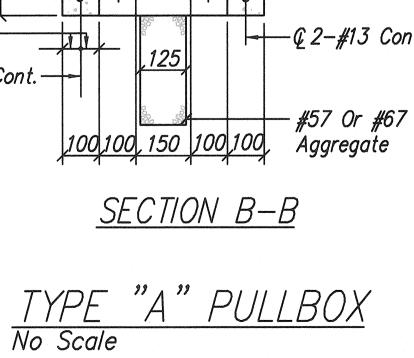


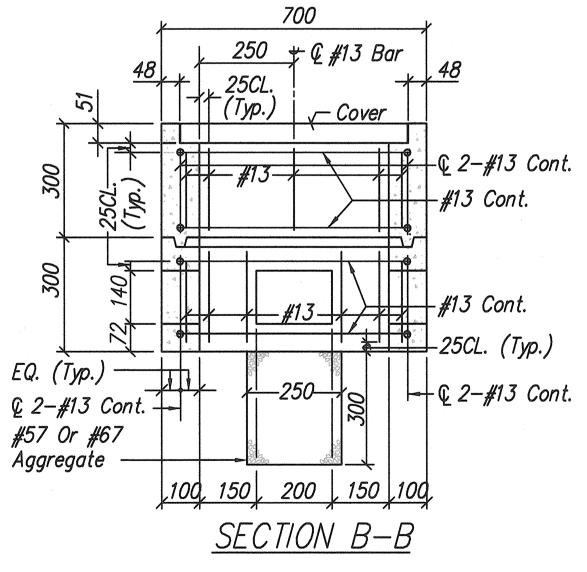


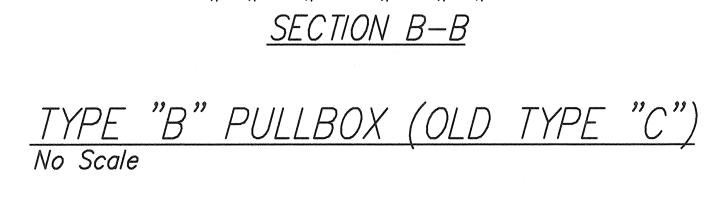


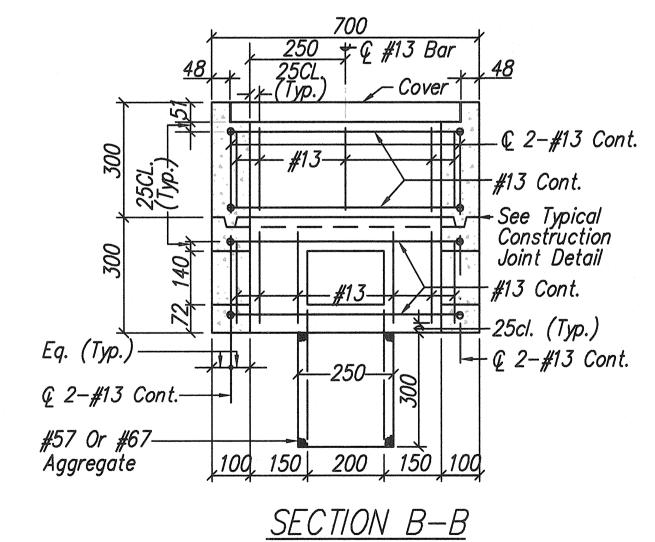












TYPE "C" PULLBOX (OLD TYPE "D")
No Scale

## GENERAL NOTES:

- 1. Provide A Minimum Of One 16ø ~ X 2.5m Copperweld Ground Rod In Each Pullbox. When Directed By The Traffic Signal Inspector/Engineer, Install Additional Ground Rods. Cost Of Ground Rods Shall Be Incidental To The Pullboxes.
- 2. All Pre-Cast Concrete Pullboxes Shall Be Manufactured In Two Pieces.
- 3. The Pullbox With Cover Shall Be Capable Of Supporting An MS 18 Loading.
- 4. The Maximum Weight Of The Pullbox Cover Shall Not Exceed 27 Kilograms.
- 5. The Openings For The Conduits On All Pullboxes Shall Be Pre-Cast Concrete Knockouts.
- 6. After Installing The Conduits In The Openings Of The Pullboxes, The Contractor Shall Fill The Excess Opening In The Pre-Cast Knockouts With Concrete Mortar.
- 7. Prior To Installing The Pullboxes, The Contractor Shall Level The Bottom Of The Trench And Achieve A Minimum Of 95% Relative Compaction Of The Bottom Of The Trench.
- 8. All Concrete Shall Be Class A (21 MPA/3000 PSI Min)
- 9. Rebars Shall Be Grade 300 And All Lapped Splices Shall Be 360mm Minimum.
- 10. The #57 Or #67 Size Aggregate Shall Conform To Latest Version Of AASHTO M43 (ASTM D 448).
- 11. Type "C" Pullbox Shall Be Installed In A Location Protected From Vehicular Traffic (i.e. Raised Sidewalk, Behind A.C. Curbs, Traffic Signal Standard Of Pipe Guards).
- 12. Dimension Are In Metric.



Glum Karanad SIGNATURE DATE U110/03

DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

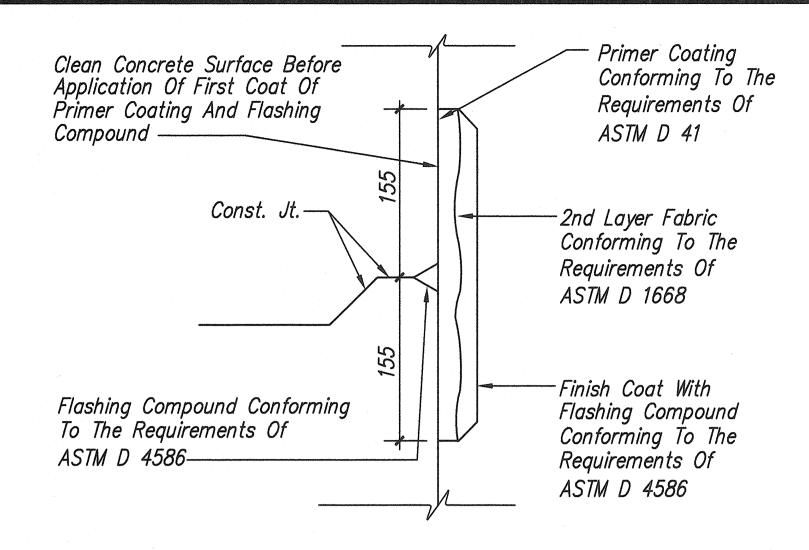
TRAFFIC SIGNAL PULL BOX DETAILS

FORT WEAVER ROAD WIDENING NEAR LAULAUNUI STREET

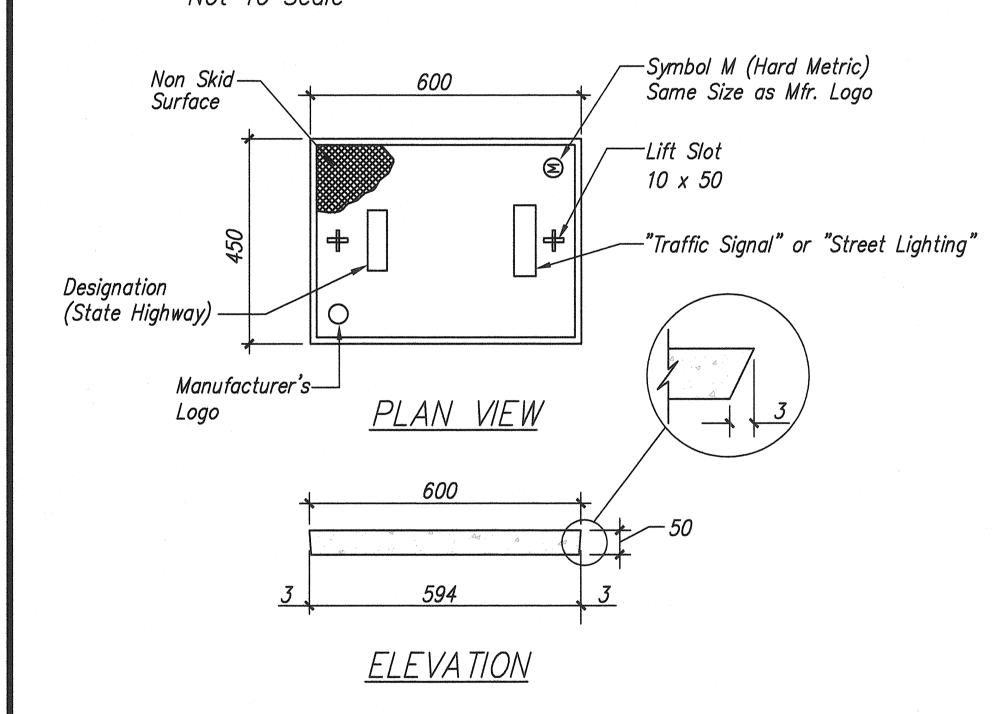
FEDERAL AID PROJECT NO. CMAQ-076-1(8) SCALE: AS NOTED DATE: OCTOBER 2003

SHEET No. E-16 OF 23 SHEETS

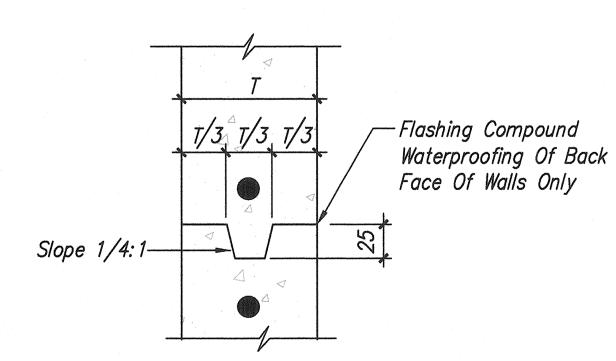
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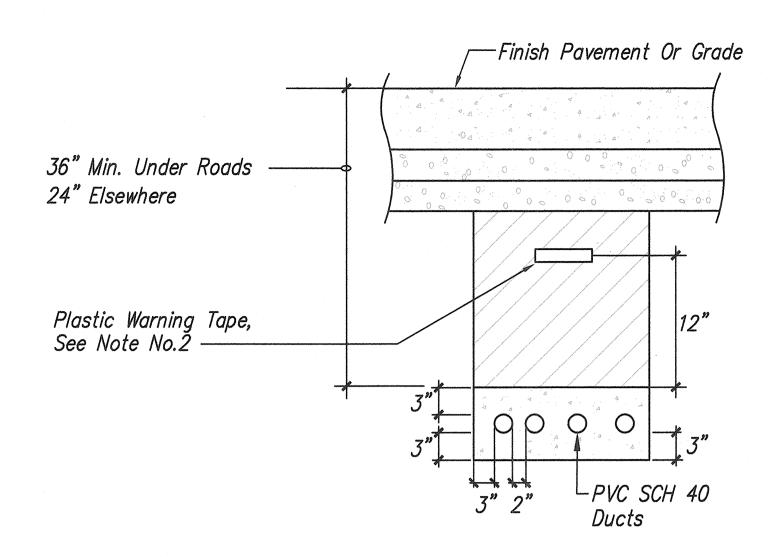
# TYPICAL FLASHING COMPOUND WATERPROOFING DETAILS Not To Scale



## POLYMER CONCRETE COVER Not To Scale



TYPICAL CONSTRUCTION JOINT DETAIL Not To Scale

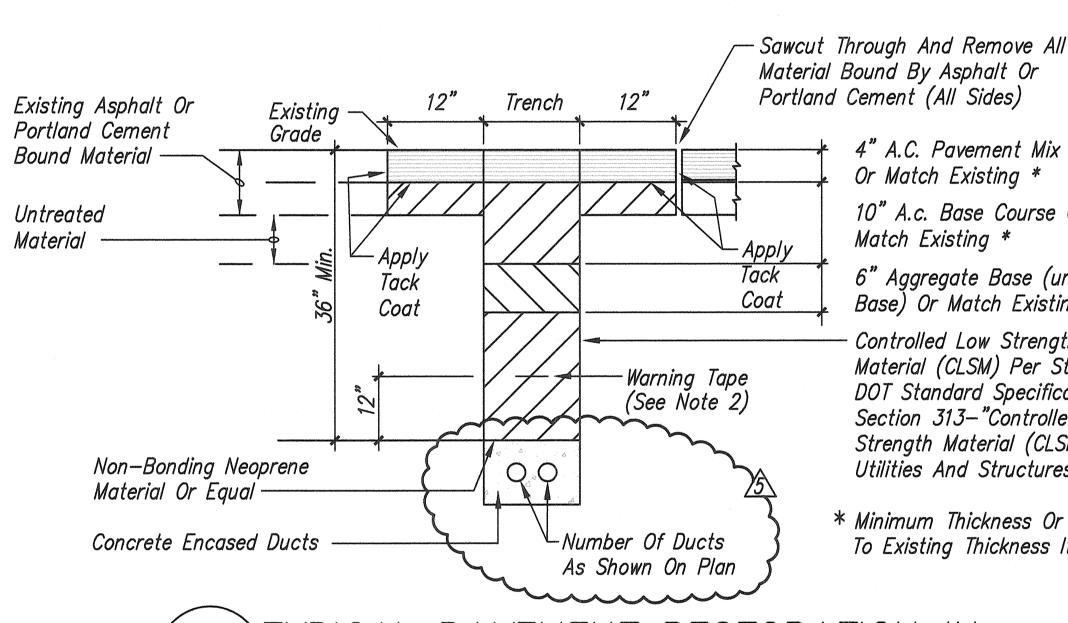


TYPICAL TRAFFIC SIGNAL DUCT LINE E-17 Not To Scale

#### FISCAL YEAR TOTAL SHEETS FED. ROAD DIST. NO. FED. AID PROJ. NO. SHEET NO. HAW. CMAQ-076-1(8) 2004 CO.78 HAWAII

## GENERAL NOTES:

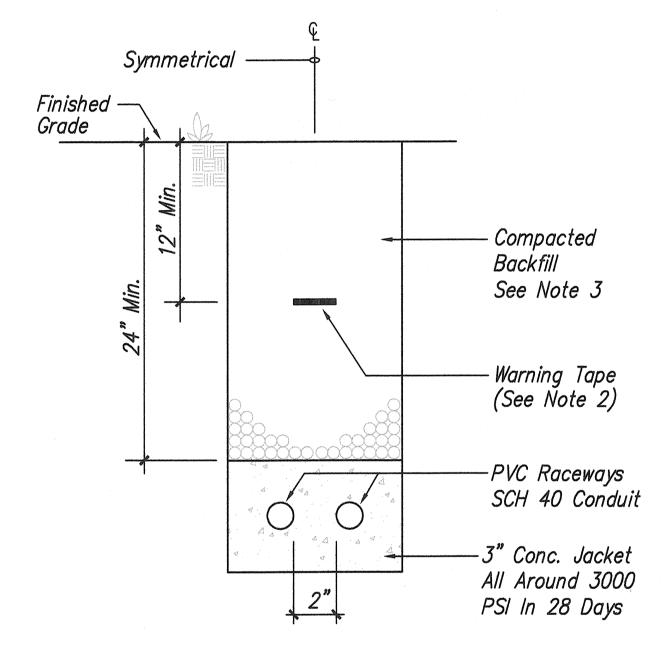
- 1. If Trench Is Located On Unpaved Area, The Contractor Shall Replace Base Course And A.C. Pavement With Type "A" Backfill Material.
- 2. The Metal Detectable High Fluorescence Yellow Plastic Warning Tape Shall Be A Minimum 5 Mils Thick And 4" Wide With A Continuous Metallic Backing And Corrosion Resistant 1 Mil Thick Foil Core. The Tape Shall Read, "Caution — State Traffic Signal And/Or Hwy Lighting Buried Below," Utilizing 3 Inch Series "C" Lettering. The Message Will Be Repeated Wth A 36-Inch Spacing Between The End And Beginning Of Repeated Message.
- 3. The Contractor May Begin Backfilling The Conduit Trench When The Concrete Reaches 3000 PSI Compressive Strength After 3 Days. Contractor May Use Quick Set Concrete.
- 4. Maximum Four (4) Conduits Per Row For Multiple Conduit Duct Section.



Portland Cement (All Sides) 4" A.C. Pavement Mix No.4 Or Match Existing \* 10" A.c. Base Course Or Match Existing \* 6" Aggregate Base (untreated Base) Or Match Existing \* Controlled Low Strength Material (CLSM) Per State DOT Standard Specification Section 313—"Controlled Low Strength Material (CLSM) For Utilities And Structures"

> \* Minimum Thickness Or Replace To Existing Thickness If Greater

TYPICAL PAVEMENT RESTORATION IN STATE HIGHWAY — CONCRETE ENCASED (ROADWAY AREAS) Not To Scale





NO



TRAFFIC SIGNAL PULL BOX AND DUCT DETAILS

DATE

FORT WEAVER ROAD WIDENING
NEAR LAULAUNUI STREET

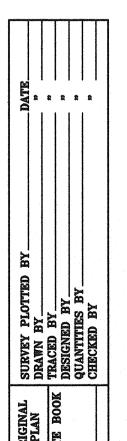
8/2/04 DTS Review Comments

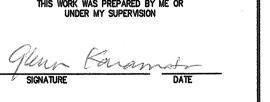
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

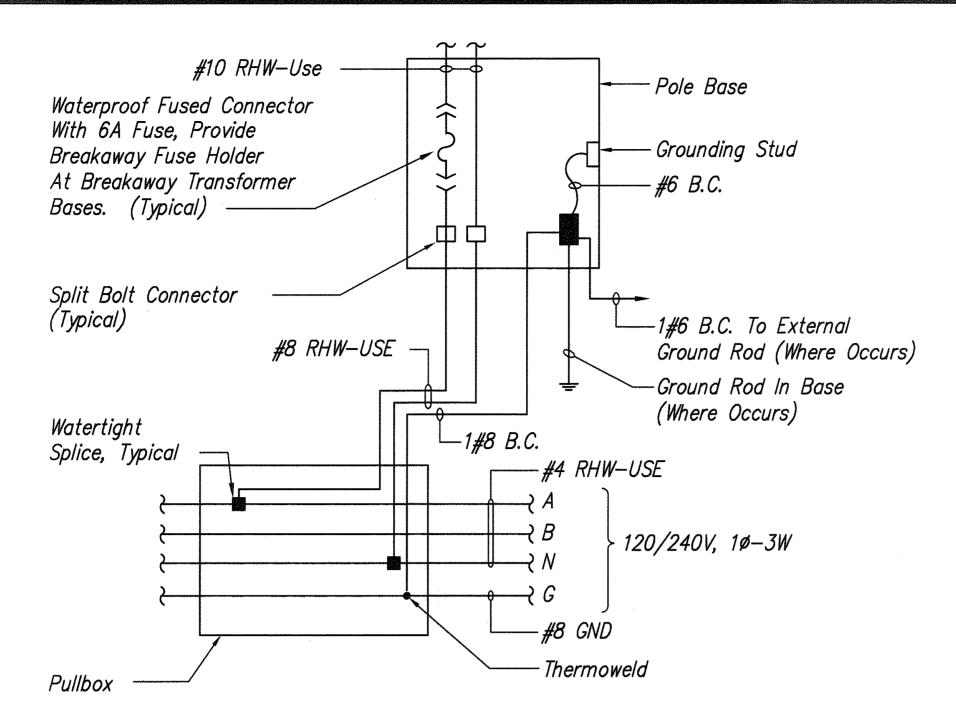
DESCRIPTION

FEDERAL AID PROJECT NO. CMAQ-076-1(8) SCALE: AS NOTED DATE: OCTOBER 2003

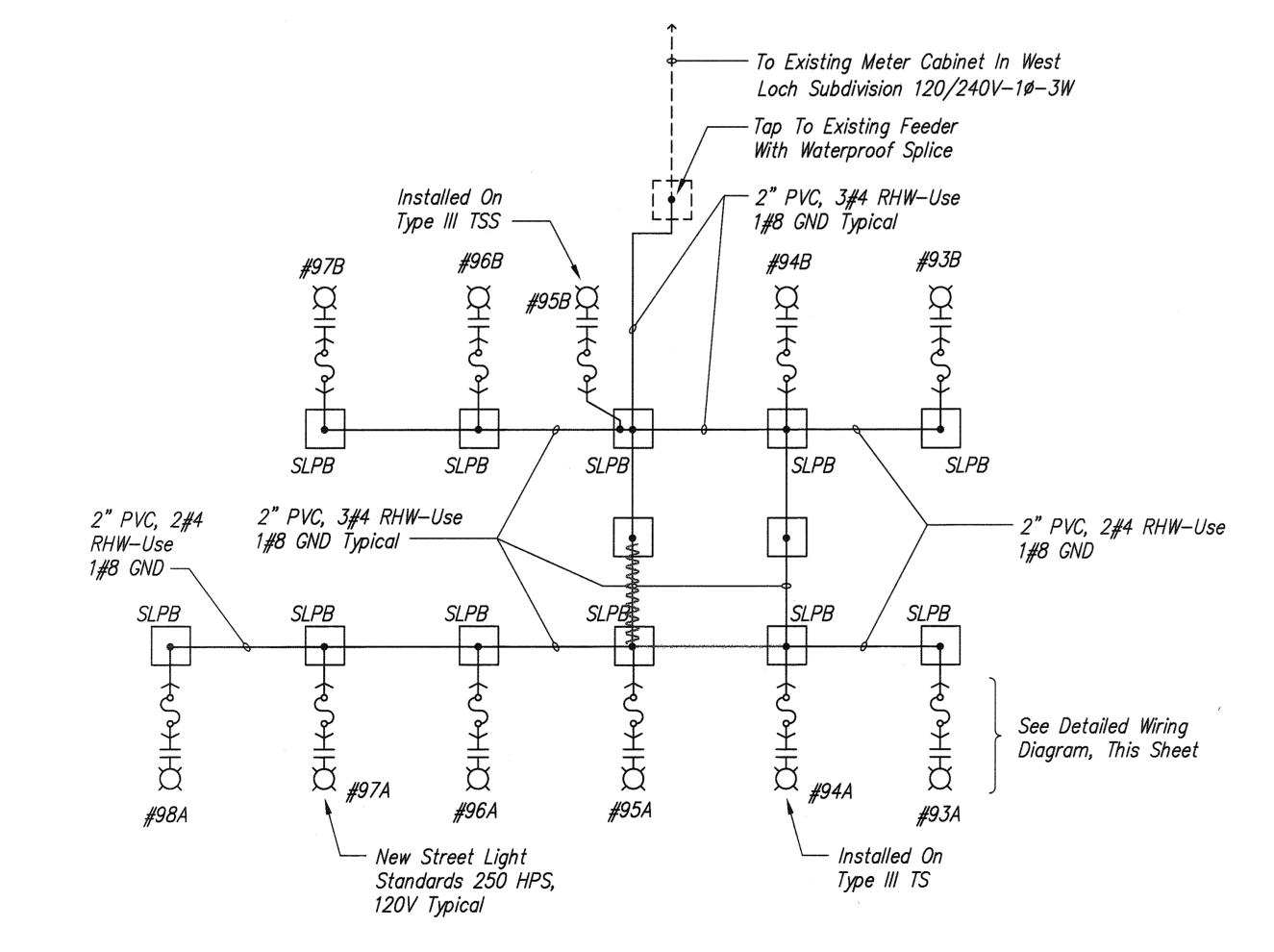
SHEET No. E-17 OF 23 SHEETS







WIRING CONNECTION DIAGRAM -LIGHTING STANDARD AT INTERSECTION Not To Scale



STREET LIGHT ONE-LINE DIAGRAM

Laulaunui Street Intersection

#### HIGHWAY LIGHTING NOTES:

- The Contractor Shall Notify The State Highways, Highway Lighting And Traffic Supervisor 72 Hours In Advance Before Commencing Installation Of Highway Lighting System. Phone: 837-8056.
- 2. All Luminaires Shall Be High Pressure Sodium Type With Wattage And I.E.S. Type Light Distribution As Shown On The Approved Plans.
- 3. The Contractor Shall Have One Set Of Approved Plans At Job Site At All Times During The Construction Work And Record All Changes Which Occur During Construction Of Highway Lighting System.
- 4. Contractor To Stencil Date Of Installation At The Bottom Of Photocell.
- 5. Final Acceptance And Inspection Will Be Undertaken Only After All Work Has Been Completed.
- 6. The Contractor Shall Measure And Record Ground Resistance At Each Standard With Foundations In Grade, And Submit Recorded Ground Resistance To Traffic Section, And Oahu District Maintenance Section, Department Of Transportation, State Highway. The Contractor Shall Certify All Electrical Tests, Including But Not Limited To: Continuity Test And The Ground Rod Resistant Test Prior To Submission To The Engineer.
- 7. Trim Tree Branches To Clear Removal Or Installation Of Highway Light Standards, At No Additional Cost The State.

#### 8. <u>Temporary Lighting</u>

The Contractor Shall Schedule The Construction Work In Such A Manner That Highway Lighting Is Provided During All Hours Of Darkness Either With New, Temporary Or Existing Luminaires Or A Combination Thereof. Temporary Wiring And Connections May Need To Be Utilized. Temporary Wiring May Be Installed In Exposed Conduit, Where Not Subject To Vehicular Damage, Or With Overhead Wiring. Overhead Wiring Shall Be A Minimum Of 20 Feet Above Roadways At Its Lowest Measured Point, Unless Approved By The Engineer.

- 9. Where Existing Highway Lighting Luminaires On Metal Standards Are Indicated To Be Removed, The Luminaire And Pole Shall Be Removed And Disposed Of By The Contractor. Existing Foundations In Grade Shall Be Demolished To 24" Below Grade And The Surfaces Affected Shall Be Restored To Match The Surroundings. Unless Indicated Otherwise, Existing Foundations On Structures Shall Be Abandoned In Place, Existing Anchor Bolts And Conduit Shall Be Cut Flush With The Top Of The Existing Foundation And The Concrete Structure Shall Be Finished To Match The Existing Surrounding
- 10. All Temporary And Permanent New Pole Locations Shall Be Staked And Approval Of Locations Shall Be Obtained From The Engineer Before Installation. Pole Locations In The Field Will Be Required To Clear Underground And Aerial Utility Lines. New Pole Locations Shall Not Conflict With Any Existing Or Proposed Utility And Shall Not Obstruct Any Roadway Sign. The Contractor Shall Be Responsible For Costs Incurred By Conflicting Utilities.

- 11. The Contractor Shall At His Expense, Keep The Project And Surrounding Area Free From Dust Nuisance And Shall Be Responsible For Cleaning And Removal Of All Silt And Debris Generated By The Excavation Work And Deposited And Accumulated Within Downstream Waterways, Ditches, Drain Pipes And On Public Roadways. Any Citations (Fines) Received By The State For The Contractor's Noncompliance Of Any Department Of Health Regulations Shall Be Deducted From The Progress Payment.
- 12. The Contractor Shall Locate Existing Buried Utility Lines In The Vicinity Of The Excavation Work Prior To Commencing Excavation. As A Minimum An Electronic Magnetic Device For Detection Of Buried Lines Shall Be Utilized Prior To Excavation. Trenches Shall Be Excavated With Care. The Contractor Shall Be Responsible For Damages To Existing Utilities Resulting From His Negligence And Shall Bear Cost Of Repairs To The Utilities. Method Of Repair Shall Be Determined By The State.
- 13. The Contractor Shall Reconnect Electrical Power To All Existing Lighting System Fixtures. The Contractor Shall Provide Additional Wiring And Conduit As Required For An Operational System, At No Additional Cost To The State.
- 14. After The Exact Location Of The Lighting Pole Base Is Determined, Place 2" x 2" x 18" Hubs At These Locations To Inform The Contracting Officer Of Final Location. Obtain Approval Prior To Construction Of Light Bases. Actual Field Conditions May Differ From That Shown On These Drawings. Use Extreme Caution When Excavating For New Ductlines.
- 15. The Electrical Contractor Shall Have Personnel On The Project That Comply With The Following Qualifications: A. One (1) Registered Master Electrician In The Company.
  - B. Certified Journeyman Electrician At Each Construction Location To Perform Splicing Of Cables And All Required Wiring Work.
- 16. Provide Conduit Expansion Fittings To Accommodate Expansions And Deflections Where Conduits Cross Seismic Control And Expansion Joints. Expansion Fittings Shall Be Of Weathertight Construction With Insulated Bushing On End Of Moveable Conduit. Factory-formed Copper Braid Ring Allowing Conduit Expansion And Contraction. Feraloy End Fitting, Steel Conduit Body, Zinc Electroplate And Aluminum Cellulose Lacquer Finish, 8" Maximum Conduit Movement. Crouse-hinds "XJ" Series Or Approved Equal.
- 17. All Ductlines To Be Installed In Concrete Shall Be Inspected And Approved By The State Inspector And The State Electrical Maintenance Supervisor Before Placing Concrete. Notify The Inspector And Supervisor 48 Hours Before Placing Concrete.



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

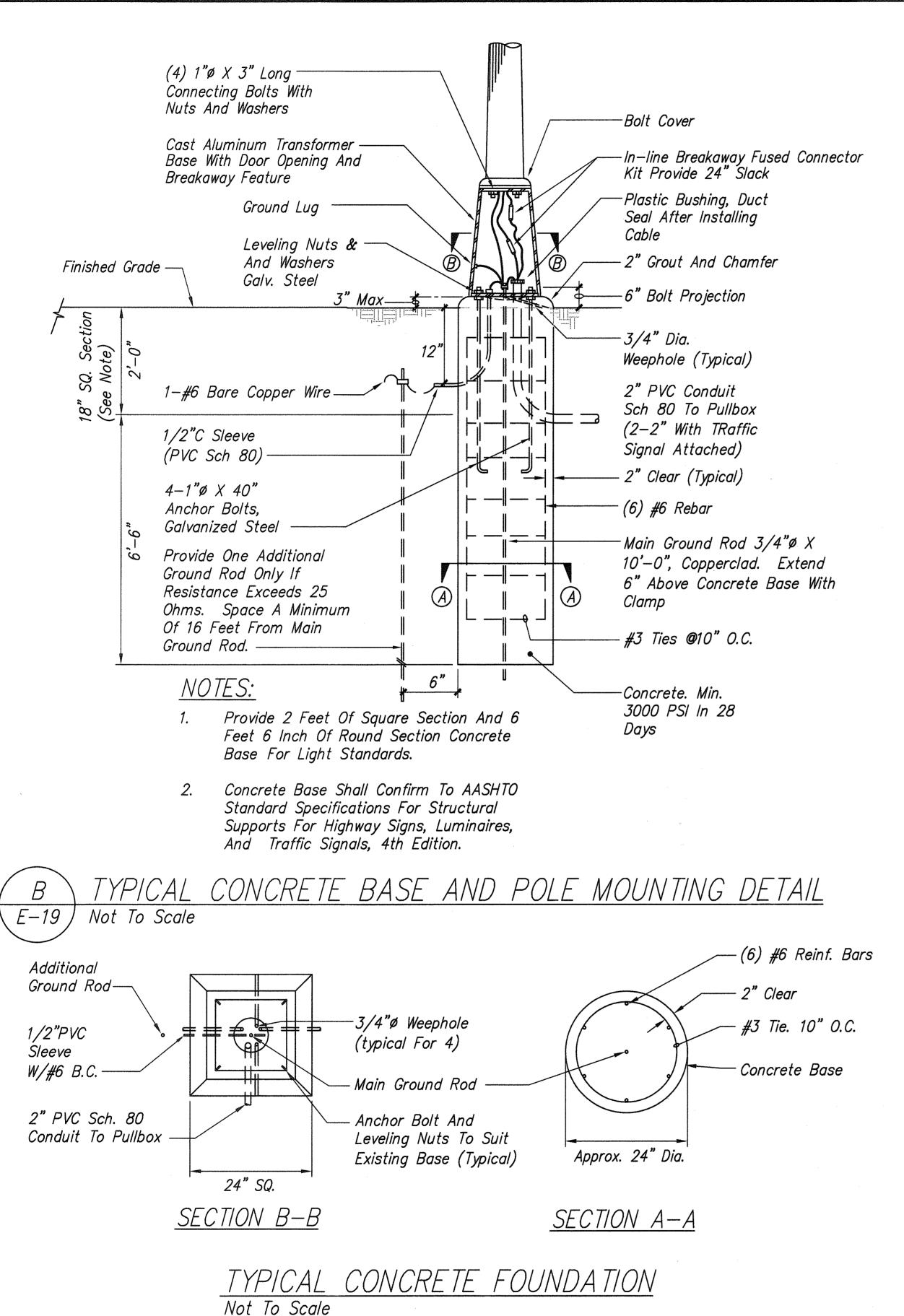
STREET LIGHT ONE-LINE DIAGRAM

FORT WEAVER ROAD WIDENING NEAR LAULAUNUI STREET

FEDERAL AID PROJECT NO. CMAQ-076-1(8) SCALE: AS NOTED DATE: OCTOBER 2003

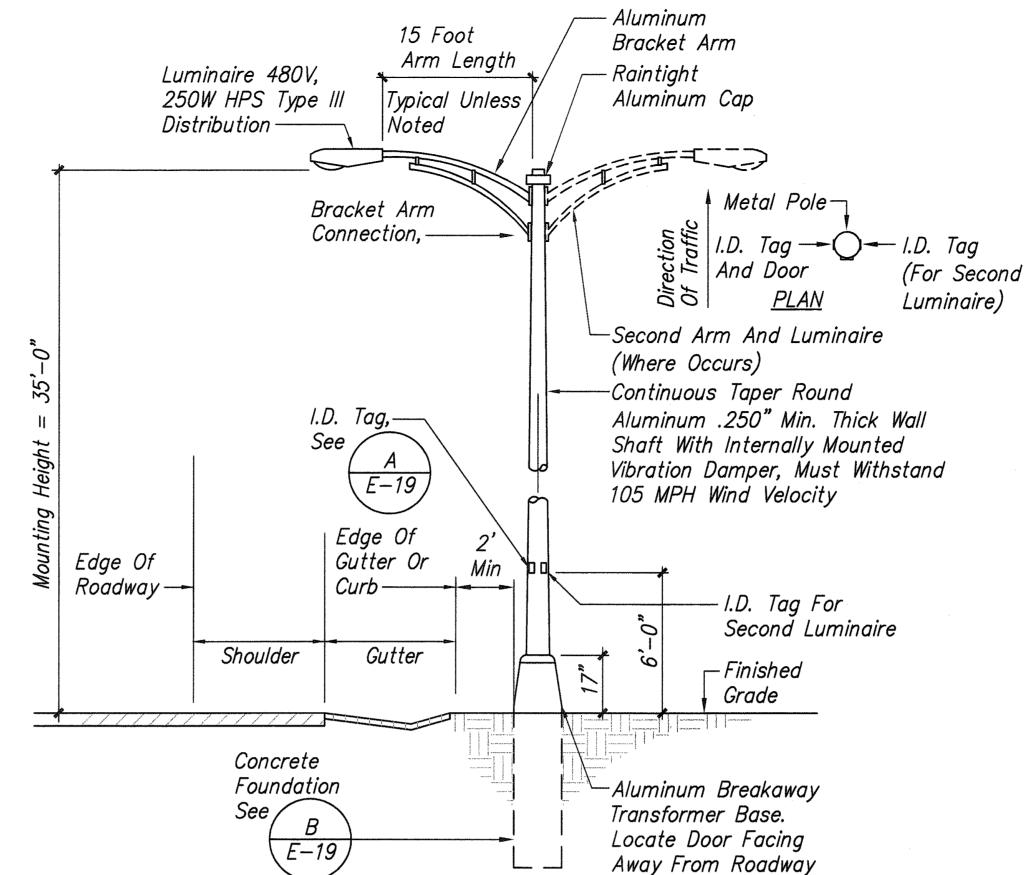
SHEET No. E-18 OF 23 SHEETS

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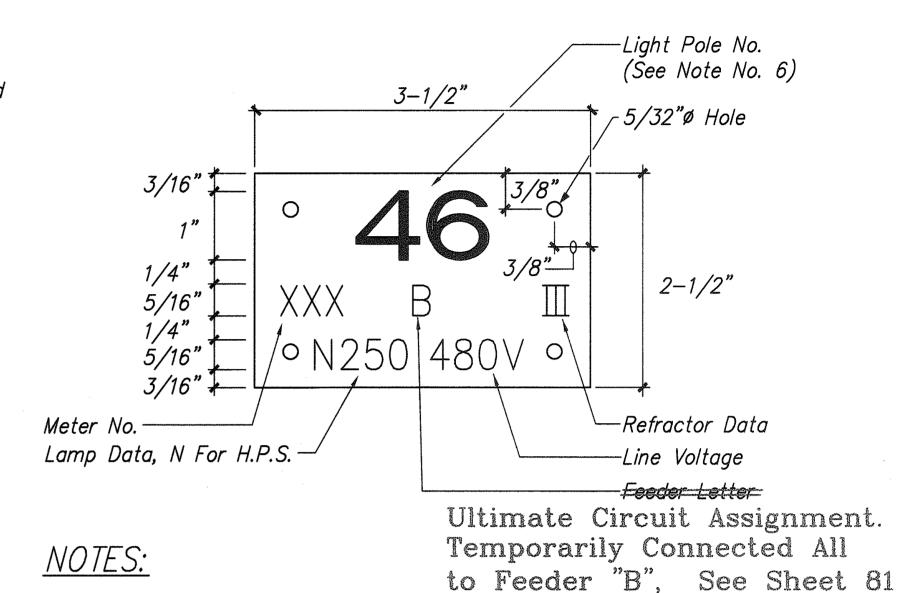
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TYPICAL LIGHT STANDARD INSTALLATION ON GRADE WITH BREAKWAY BASE Not To Scale

FISCAL YEAR FED. ROAD DIST. NO. FED. AID PROJ. NO. STATE HAW. CMAQ-076-1(8) 2004



1. Use 3 Ply Laminated Flexible Plastic Black-White-Black Thickness Black Cap Sheet-0.010", White Base Sheet-0.052", Black Base Sheet-0.010".

- 2. Light Pole Number Size Shall Be 1" High And Engraved 1/8" Wide, White In Color (Number As Required).
- 3. Nomenclature Size Shall Be 5/16" High And Engraved 1/32" Wide, White In Color (HECO Vault Number Panel Board And Circuit Number, Line Voltage, Lamp Data And Refractor Data As Required).
- 4. Attach To Aluminum And Steel Post With No. 8 Stainless Steel, 1/2" Long Drive Screws In 1/8" Drill Hole. Attach To Wood Poles With 4D Aluminum
- 5. Numbers Are Inscribed By Cutting Through "Black Cap Sheet" To Expose "White Letters".
- 6. Light Numbers Shall Be Obtained From The State. Use An Alphabet Suffix To Designate Lights Mounted On The Same Pole (e.g. 123A & 123B).



### NOTE:

Does Not Reflect Actual Circuit Assignment.



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT <u>DETAILS</u>

FORT WEAVER ROAD WIDENING NEAR LAULAUNUI STREET

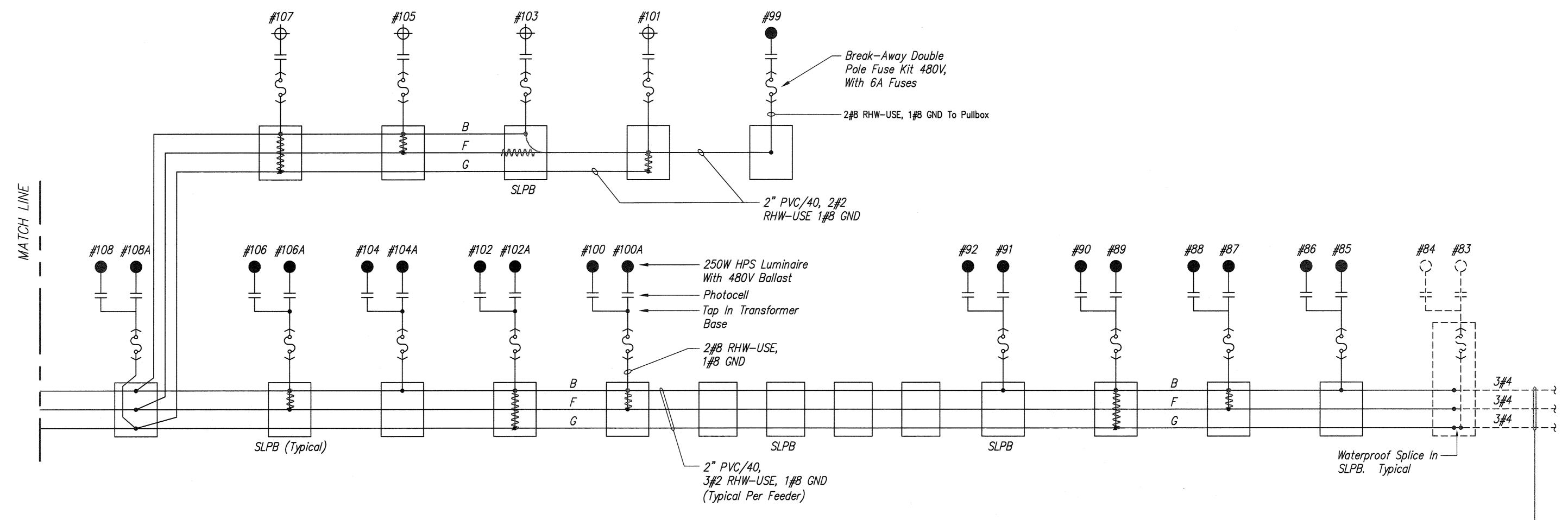
FEDERAL AID PROJECT NO. CMAQ-076-1(8) SCALE: AS NOTED DATE: OCTOBER 2003

SHEET No. E-19 OF 23 SHEETS

AS-BUILT"

FED. ROAD DIST. NO. STATE FED. AID PROJ. NO. FISCAL SHEET TOTAL SHEETS

HAWAII HAW. CMAQ-076-1(8) 2004 81 127



FT. WEAVER ROAD STREET LIGHT WIRING DIAGRAM
Not To Scale

Existing 480V, 36–3W
Feeder "B", 344

Existing 480V, 36–3W
Feeder "F", 344

Existing 480V, 36–3W

Feeder "G", 344

Existing 480V, 36–3W

Intercharge Panel

Existing 480V, 36–3W

Feeder "G", 344

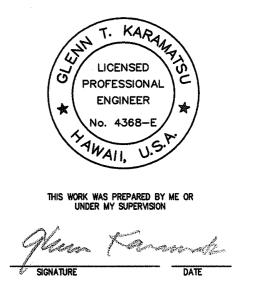
Existing 480V, 36–3W

Typical Per Feeder)

FT. WEAVER ROAD STREET LIGHT WIRING DIAGRAM
Not To Scale

Existing Wiring All Installed In One 2" Direct
Buried Conduit. Numerous Shorts Between
Phases and Circuits Per Meggar Test.
Shorts Caused Feeder Breakers to Trip. Due
to Shorted Downstream Feeders, Street
Lights Reconnected to Circuits B,F and G as
Follows.

- Ckt B South End Of Farrington Overpass To North End of Honouliuli Stream Bridge
- Ckt F South End of Honouliuli Bridge to North End of Cane Haul Road Near Child and Family Services
- Ckt G South of Cane Haul Road to 3 Street Lights South of Renton Road.



DEPARTMENT OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT

STREET LIGHT WIRING DIAGRAM

FORT WEAVER ROAD WIDENING NEAR LAULAUNUI STREET

FEDERAL AID PROJECT NO. CMAQ-076-1(8)

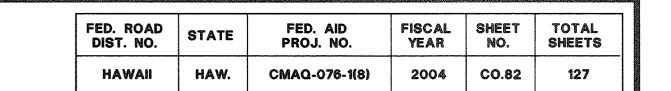
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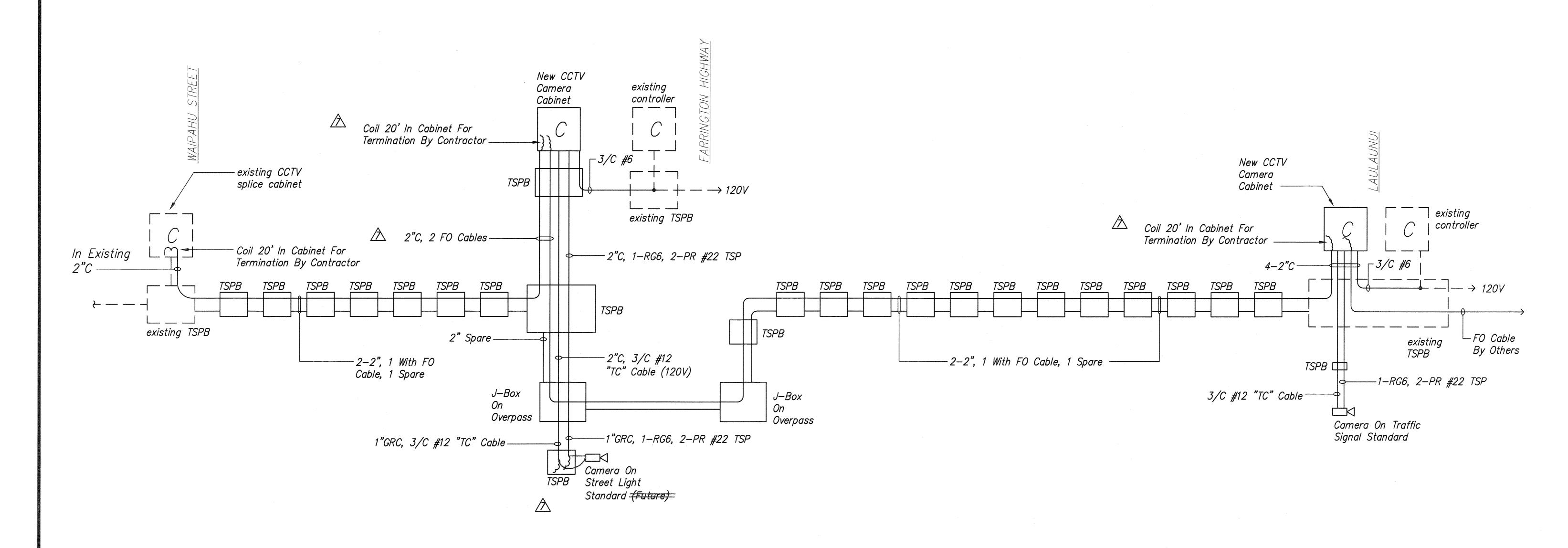
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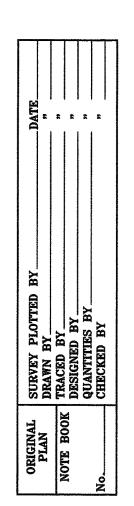
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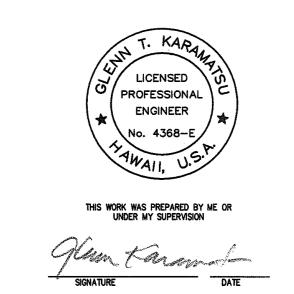






CCTV DIAGRAM

Not To Scale



8	8/4/04	DTS Review Comments		
$\triangle$	8/2/04	DTS Review Comments		
NO	DATE	DESCRIPTION		
	STATE OF HAWAII			

DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CCTV DIAGRAM

FORT WEAVER ROAD WIDENING
NEAR LAULAUNUI STREET

FEDERAL AID PROJECT NO. CMAQ-076-1(8)

SCALE: AS NOTED

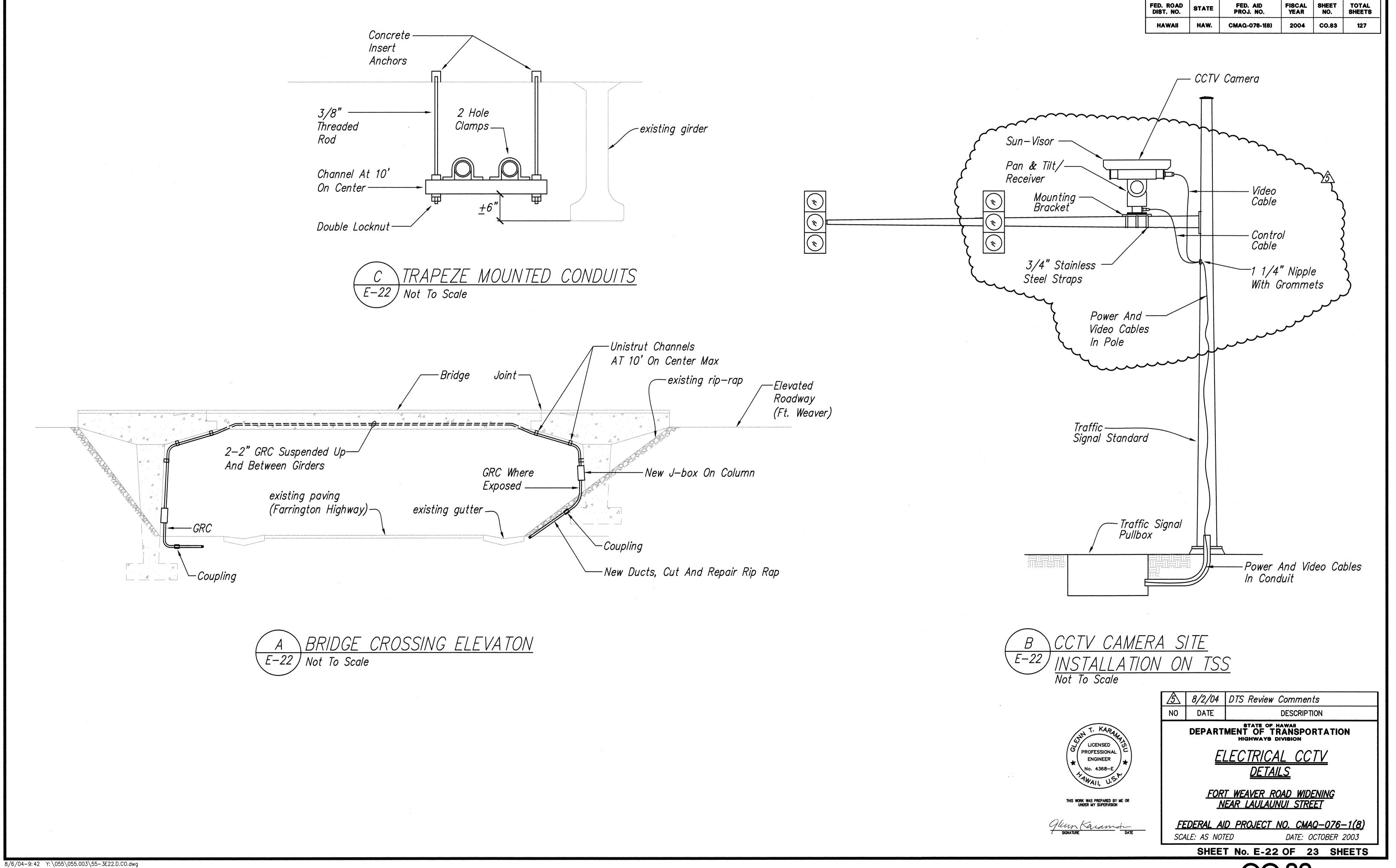
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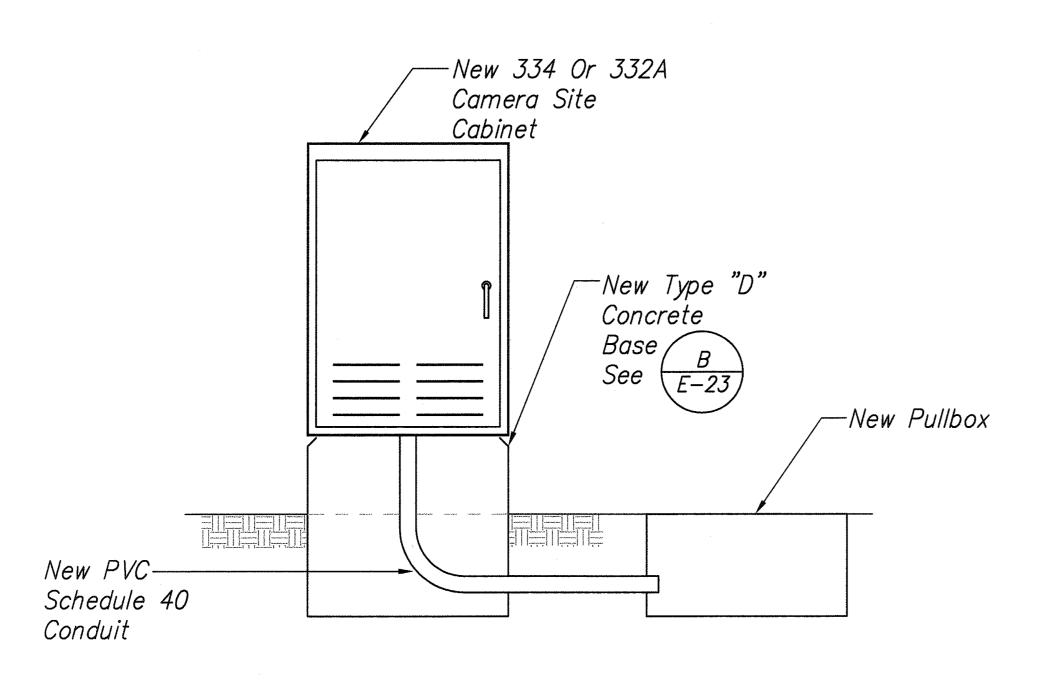
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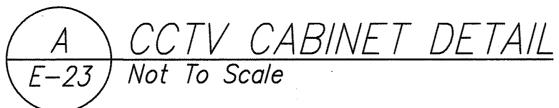
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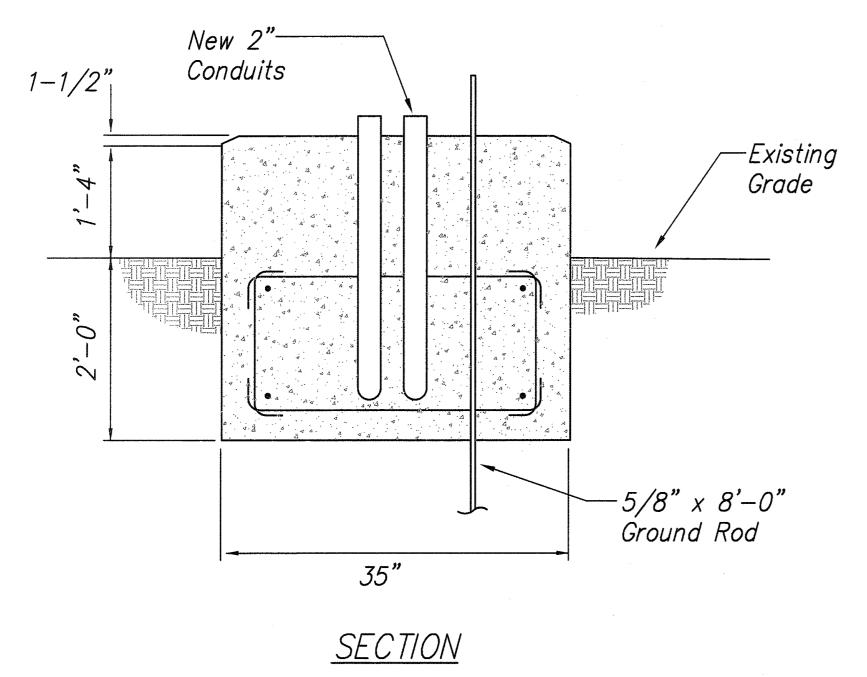
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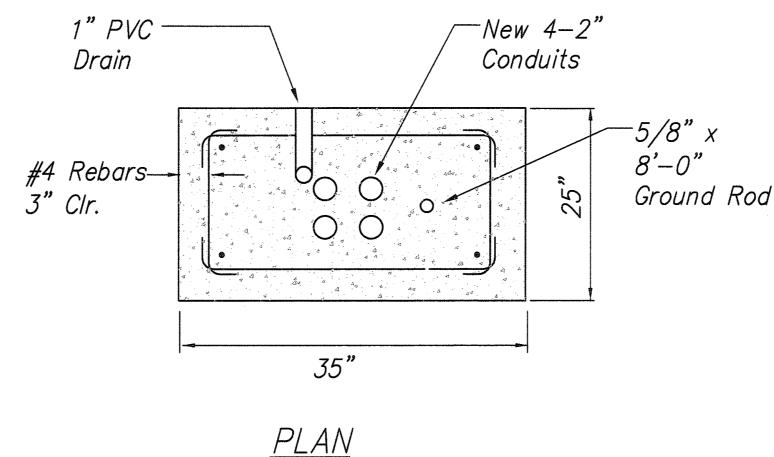






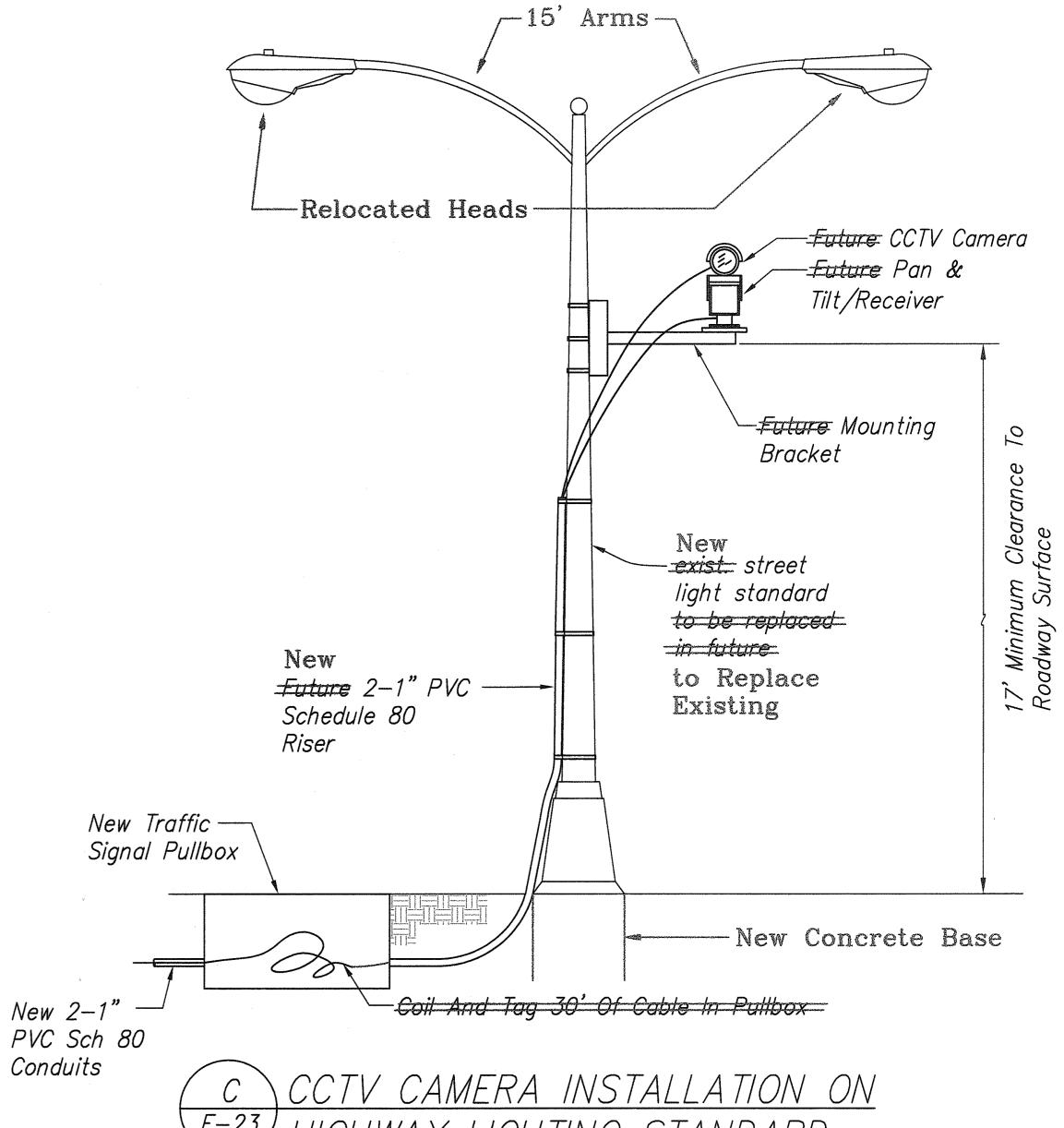


TYPE "D" CONCRETE BASE E-23 | Not To Scale



## NOTES:

- 1. Concrete Shall Be Class "B".
- 2. Dimensions Shall Be Altered To Suit Camera Cabinet Actually Furnished.
- 3. Conduit Bend And Drain Are Incidental To Concrete Base.
- 4. Refer To Cabinet Manufacturer's Specifications For Details Of Anchor Bolts And Base Settings.
- 5. All Exposed Surfaces Of Concrete Base Shall Be Given A Class 2, Rubbed Finish.



FED. ROAD DIST. NO.

HAW.

FISCAL SHEET TOTAL YEAR NO. SHEETS

2004 CO.84

FED. AID PROJ. NO.

CMAQ-076-1(8)

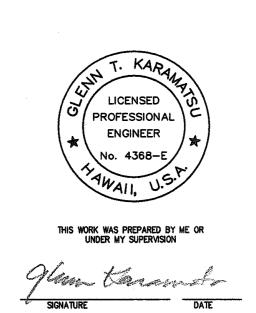
PVC Sch 80 Conduits

8

HIGHWAY LIGHTING STANDARD Not To Scale

NOTES:

-CCTV Equipment To Be Permanently Installed At A Future Date When Street Light Standard is Replaced. Contractor To Temporarily Install Camera To Demonstrate To Engineer That System is Functional. After Acceptance Testing, Turn Over Camera And Mounting Bracket To State Engineer.



8 8/2/04 DTS Review Comments DESCRIPTION STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL CCTV <u>DETAILS</u>

FORT WEAVER ROAD WIDENING
NEAR LAULAUNUI STREET

FEDERAL AID PROJECT NO. CMAQ-076-1(8) SCALE: AS NOTED DATE: OCTOBER 2003

SHEET No. E-23 OF 23 SHEETS

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