FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	155	187

HIGHWAY LIGHTING NOTES

1. The Contractor Shall Notify Electrical Maintenance Section, Department Of Transportation, State Highway Division, 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 Occur On Construction Of Highway Lighting System.

4. The 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 And Submit Recorded Ground Resistance To Traffic Section, And Oahu District Maintenance Section, Department Of Transportation, State Highway. The Contractor's Electrical Engineer 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 Street Light Standards, At No Additional Cost To The State.

8. Construction Work Shall Be Scheduled In Such A Manner That Street Lighting Is Provided During All Hours Of Darkness Either With New Or Existing Luminaires Or A Combination Thereof. Temporary Connections Shall Be Made To Accomplish This End. The Continuity Of Street Lighting Circuits Shall Be Maintained Until The Existing Street Lighting System Are Ready For Removal. Partially Completed Work in Highway Shall Be Paved (Steel Plates Not Allowed). All Removal And Replacement of Temporary Paving Shall Be Incidental To Ductline Work. Special Condition-Only in Low Speed Traffic Areas May Steel Plates Be Used To Protect Partially Completed Work., With Approval of Engineer. Maintaining existing street lighting system or provide temporary lighting to support night construction activities and coordinate all requirements with General Contractor, including additional floodlights on portable generators.

9. Where Existing Highway Lighting Luminaires On Metal Standards Are Indicated To Be Removed The Luminaire, Pole and Pull Box Shall Be Removed And Disposed Of By The Contractor. The Foundation Shall Be Demolished To 36" Below Grade And The Surfaces Affected Shall Be Restored To Match The Surroundings.

10. New Pole Locations Shall Be Staked And Approval Of Locations Shall Be Obtained From The Engineer Before Pole Locations In The Field Will Be Required To Clear Underground And Aerial Utility Lines, And Guard Rails.

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 Affected Utility Company And U.S. Army Signal Corps.

13. The Contractor Shall Reconnect Electrical Power To All Existing Sign Lighting System And Underpass Lighting 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 For Final Location 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. Provide Conduit Expansion Fitting To Accommodate Expansion And Deflection Where Conduits Cross Seismic Control And Expansion Joints Of Bridge Structures. Expansion Fittings Shall Be:
    a. Weathertight Construction
    b. Insulator Bushing On End Of Movable Conduit.
    c. Factory-Formed Copper Braid Ring Allowing Conduit Expansion And Contraction.
    d. End Fitting Of Feraloy
    e. Steel Conduit Body
    f. Zinc Electroplate And Aluminum Cellulose Lacquer Finish
    g. 8" Maximum Conduit Movement
    h. Crouse-Hinds XJ Series Or Approved Equal

16. 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.

17. To Install Ductline In Existing Conditions, Saw Cut Existing Pavement, Curbs, Sidewalks And Repair To The Satisfaction Of The Engineer.

    For Ductlines Affecting Traffic, Excavation, Ductline Including Concrete Jacket, Backfill, Compaction, And Final Traffic Bearing Pavement Shall Be Completed And Ready For Traffic Each Day. During The Course Of The Work, Maintain A Minimum Of One (10-Foot Wide) Traffic Lane At All Times.

    Ductline Shall Be Constructed With Low Strength Fast Curing Concrete And A Minimum Cover Of 36-Inches Or 2500 Psi Precast Concrete Ducts With 4500 Psi Epoxy Joint Collar And A Minimum Cover Of 24-Inches. Backfill Shall Include Appropriate Road Base And Sub-Base Courses To Match Existing Condition And Compaction To Standard Specifications Requirements.

18. For Non-Pavement Areas, Appropriate Finish Surface Shall Be Restored (Grass, Sidewalk, Or Shoulder Pavement). At Sidewalks, Replace The Entire Modular Section Of Sidewalk (From Construction Joint To Construction Joint). Trench Width Patches In Sidewalks Shall Not Be Accepted.

19. Ductline Crossing Highway Shall Be Constructed In Sections To Allow One Lane Traffic Flow During Work Periods, With A Minimum Of Two Sections For Each Direction Of Traffic Flow. Joints Shall Be Made With High Strength Concrete. Steel Plates Covering Temporary Work Shall Not Be Allowed.

20. Installation of the New Ductline Adjacent to Existing Ductlines Is Allowed. When Necessary, Dive Under Existing Ductline Or Utilities For Crossover.

    Existing Ductline Shall Remain Active Until New Street Light System Completed.

21. Relocate All Direct Buried Signal Corps Cable Markers, Off Set To Behind Guard Rail And Provide Instructions For Locating Cable. Obtain Army Corps of Engineers Requirements And Approval. Install Adjacent To Guard Rails. Handholes Shall Be A Minimum Of 2x4.

HIGHWAY LIGHTING SYMBOLS

- New Double-Arm Aluminum Pole, 250W HPS w/ Transformer Base
- New Single-Arm Aluminum Pole, 250W HPS w/ Transformer Base
- New Single-Arm Aluminum Pole, 150W HPS w/ Transformer Base
- Existing Double-Arm Steel Pole
- Existing Single-Arm Steel Pole
- New Pullbox, Highway Lighting
- Existing Pullbox, Highway Lighting
- New Underground Raceway, Street Lighting
- Existing Underground Raceway, Street Lighting
- Saw Cut Existing Pavement, Excavate, Install New Underground Raceway with 36-Inches Cover, and Patch Pavement
- (A) Duct Section Indicator, See Sheet 175 for Duct Sections

	Contract No. →	Pole No. →	
	1	6	
Luminaire →	1-N250 (55V)	II	← Type Distribution
Circuit No. →	2	A,B	← Phase
℄ Station →	Sta. 101+40	15'	← Arm Length
	480V		← Voltage

CLARENCE C. K. KAM LICENSED PROFESSIONAL ENGINEER No. 1765-E HAWAII, U.S.A.

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C. Kam

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING NOTES

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: None Date: December, 2001

SHEET No. 1 OF 28 SHEETS

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	156	187

HIGHWAY LIGHTING NOTES (CONT.):

22. Adjust Pole Shaft Length For Down Hill Condition. Street Light Foundations Installed On Slope Vary According To The Grade. Street Light Pole Shaft (Long) To Provide 30-Foot Between Pavement And Bottom Of Luminaire.

23. New Ductline Installed In The Close Vicinity Of Existing Signal Corps Cable: Locate Signal Corps Cable Before Initiating Work. Obtain Army Corps of Engineers Requirements And Approval.

24. At Movable Barriers, Stub 2"C From Street Light Junction Box To Movable Barrier Service Section. Provide Feeders And Connect To Movable Barrier Power Terminals And Grounding Lug. Stub Second 2"C To Movable Barrier Sub-Service Section.

    Stub 2"C from Movable Barrier Service Section to Sub-Service Section and Provide Feeders and Connect to Equipment. Connect Grounding Wire to Equipment Grounding Lug.

    Provide Grounded Weatherproof Duplex 20A, 125 Volts Receptacle for General Power. Provide 1.0 KVA, 240/480V – 120V Dry Type Transformer, Marine Grade Type Transformer Mounted On Concrete Blocks To Elevate From Grade. Blocks Shall Be Anchored To Ground With No. 4 Reinforcing Rods.

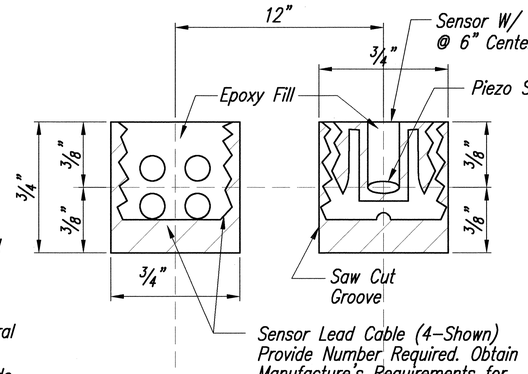
25. New Telephone Handhole, 3x5: Install As Close To Guard Rail As Possible. Obtain Requirements And Approval From Verizon Hawaii (GTE-HTCO) And Oceanic Cable. Arrange For Verizon Hawaii (GTE-HTCO) And Oceanic Cable To Relocate Existing Fiber Optics And Telephone Cables To New Ductline Before Initiation Of The Median Barrier Demolition and Construction.

26. Excavation And Ductline Including Concrete Jacket, Backfill, Compaction, And Final Backfill Shall Be Completed And Ready For Acceptance On Same Day As Initiation. Partially Completed Work In Highway Shall Be Paved (Steel Plates Not Allowed). All Removal And Replacement Of Temporary Paving Shall Be Incidental To Ductline Work.

27. For Work In Non-Travel Ways (Shoulders) Adjacent To Travel Ways, Close Trench Same Day As Opening. For Grassed Area, Re-sod, Maintain (Water And Fertilizer Minimum 30-Days), And Establish Growth. Trees And Shrubs Encounters Shall Be Avoided By Shifting Ductline Route. Adjust Ductline Route To Avoid Obstructions Both Above And Below Grade.

28. Existing Ductline Where New Barrier Is To Be Constructed: Adjust Location of Barrier To Clear Existing Active Verizon Hawaii (GTE-HTCO) Ductline Unless New By-Pass Facilities Have Been Completed And Existing Verizon Hawaii (GTE-HTCO) and Oceanic Cable Facilities Have Been Relocated. When Existing Verizon Hawaii (GTE-HTCO) Ductline Is Abandoned, Remove Ductlines And Handholes (Manholes) To Accommodate The Barrier Installation Work.

29. Complete All Ductlines For Hawaiian Telephone Company, Oceanic Cablevision Company And Army Corps Of Engineers A Minimum Of 90 Days Before Scheduled Demolition Of Medians Or Roadway Reconstruction Work.



PIEZO SENSOR AND LEAD INSTALLATION DETAIL
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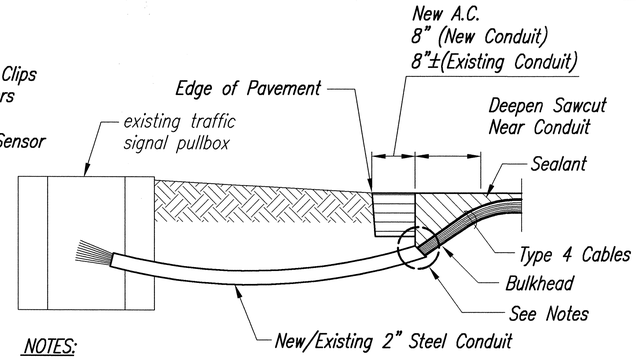
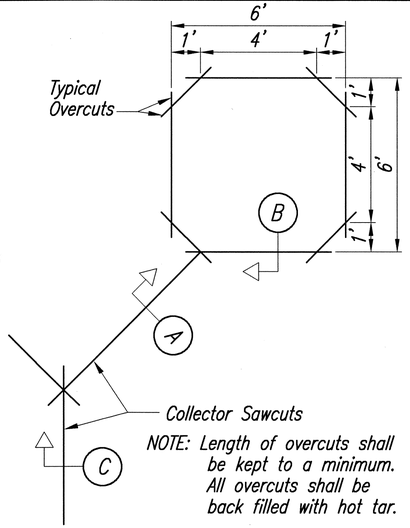


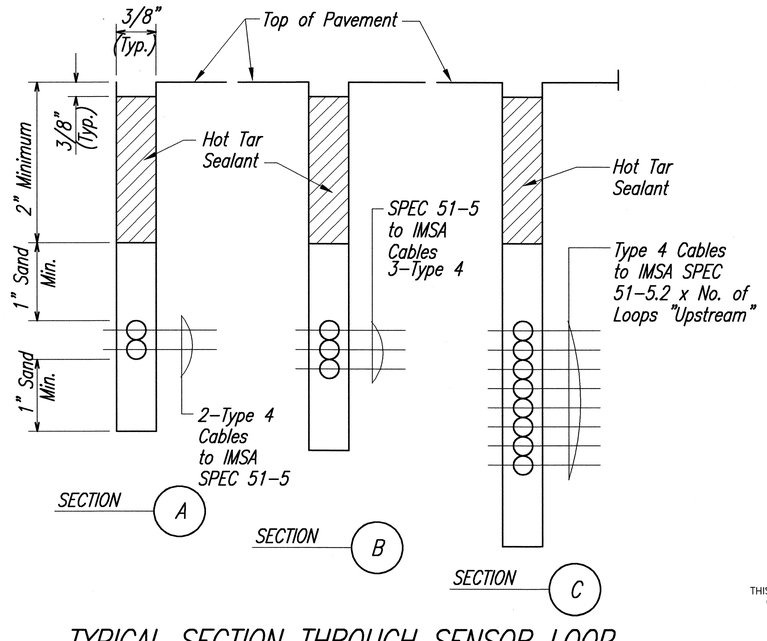
NOTES:
1. Seal Roadway End Of Conduit After Installation Of Conductors.
2. Install Bulkhead Across Conduit Trench.
3. Place Approved Sealant In Sawcut.
4. Backfill Over Conduit With New A.C.
5. Reconstruct Curb & Gutter As Required.

SENSOR LOOP INSTALLATION AT EDGE OF ROADWAY
Not to Scale

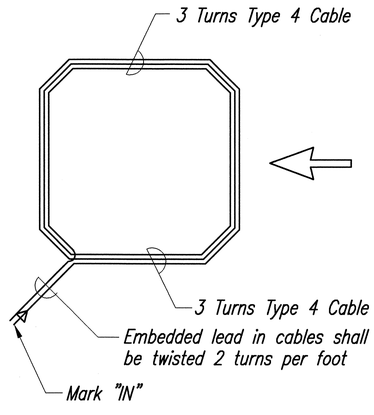


NOTE: Length of overcuts shall be kept to a minimum. All overcuts shall be back filled with hot tar.

TYPICAL SENSOR LOOP SAWCUT DETAIL
Not to Scale



TYPICAL SECTION THROUGH SENSOR LOOP
Not to Scale



TYPICAL SENSOR LOOP WIRING DIAGRAM
Not to Scale

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	DESIGNED BY	
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CLARENCE C.K. KAM
LICENSED PROFESSIONAL ENGINEER
No. 1765-E
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING NOTES AND TRAFFIC SIGNAL DETAILS

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: None Date: December, 2001

SHEET No. 2 OF 28 SHEETS

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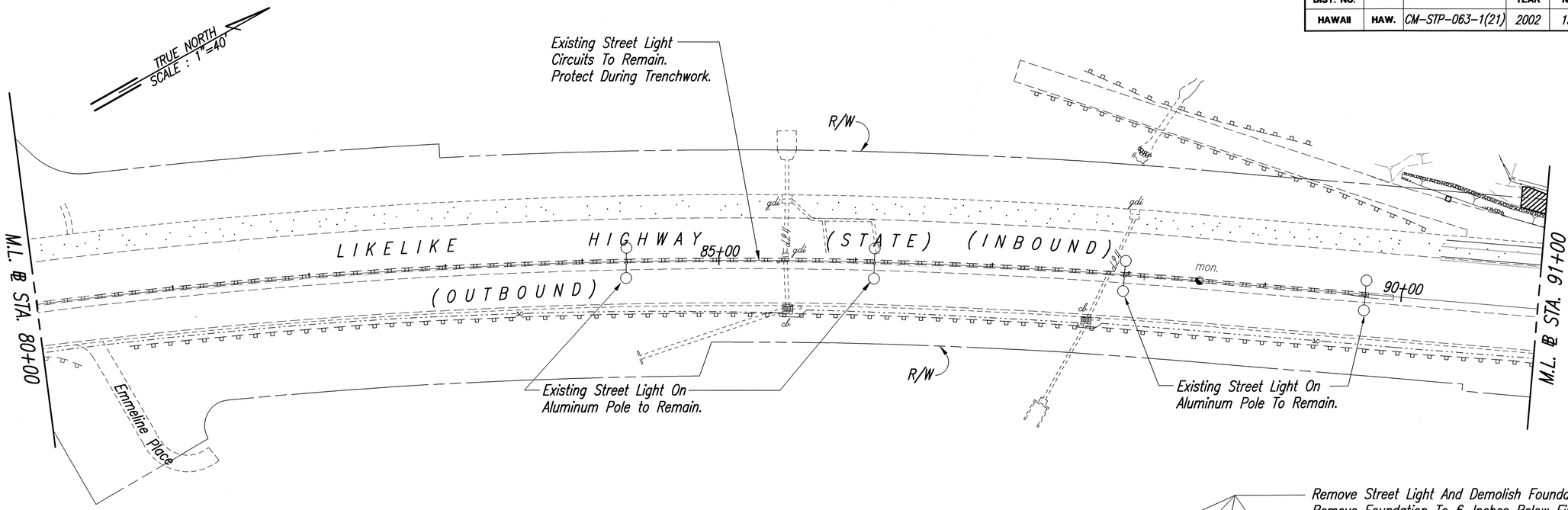
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	157	187



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	QUANTITIES BY	"
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1"=40' 40' 20' 0 40' 80'

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LICENSED PROFESSIONAL ENGINEER
No. 1765-E
HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING
DEMOLITION PLAN

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

SHEET No. 3 OF 28 SHEETS

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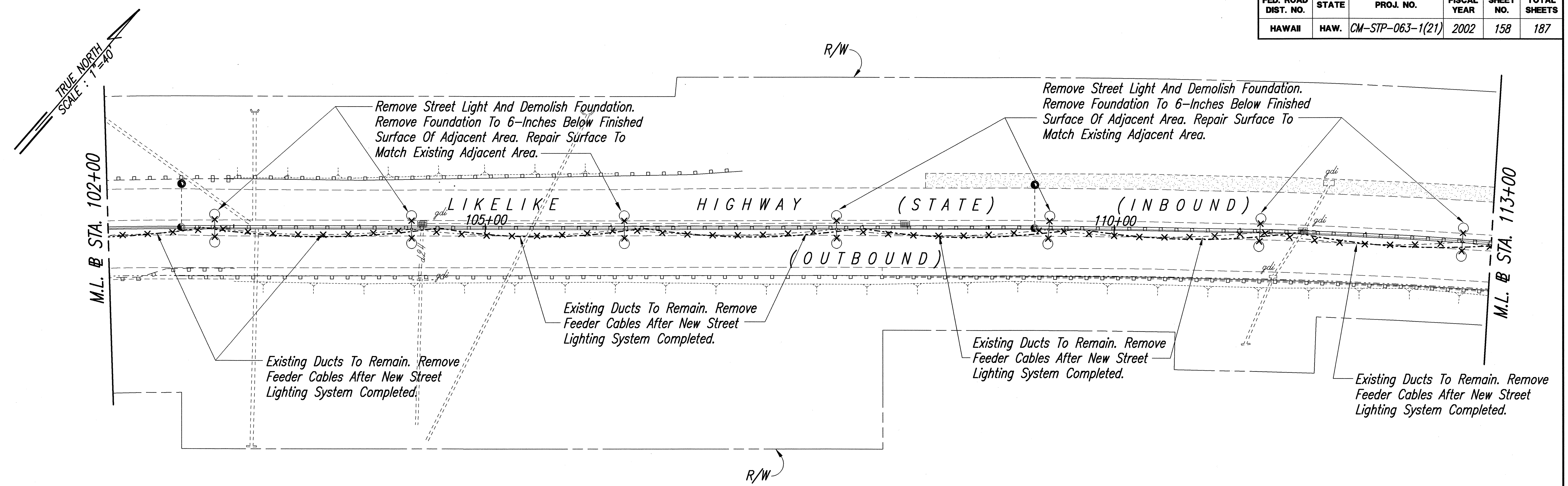
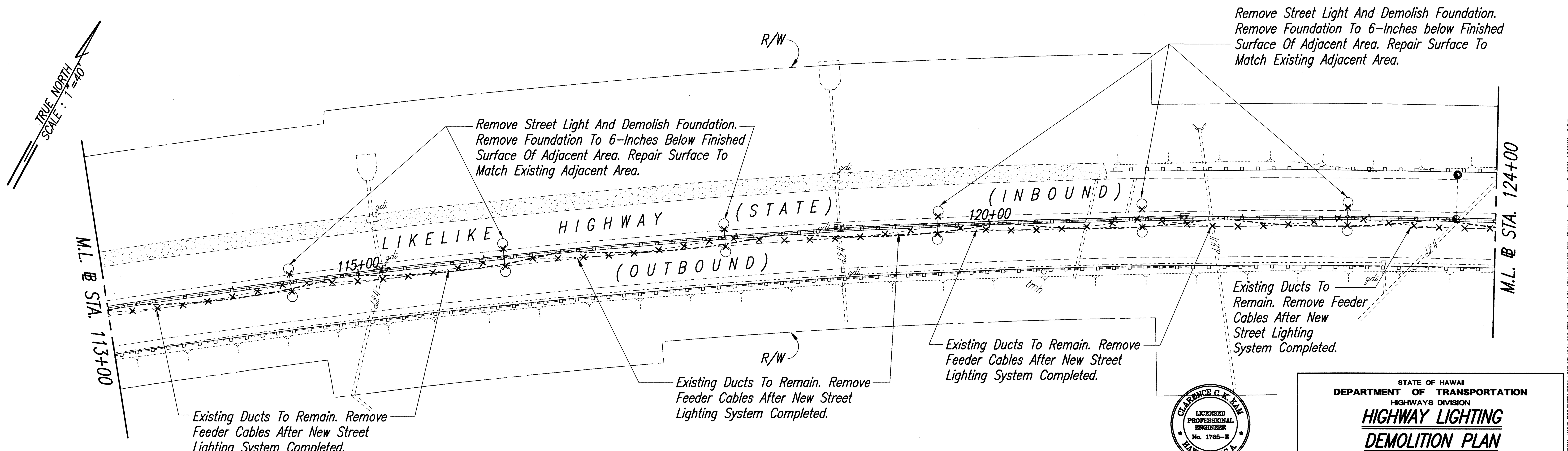
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	158	187





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LICENSED PROFESSIONAL ENGINEER
No. 1765-E
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

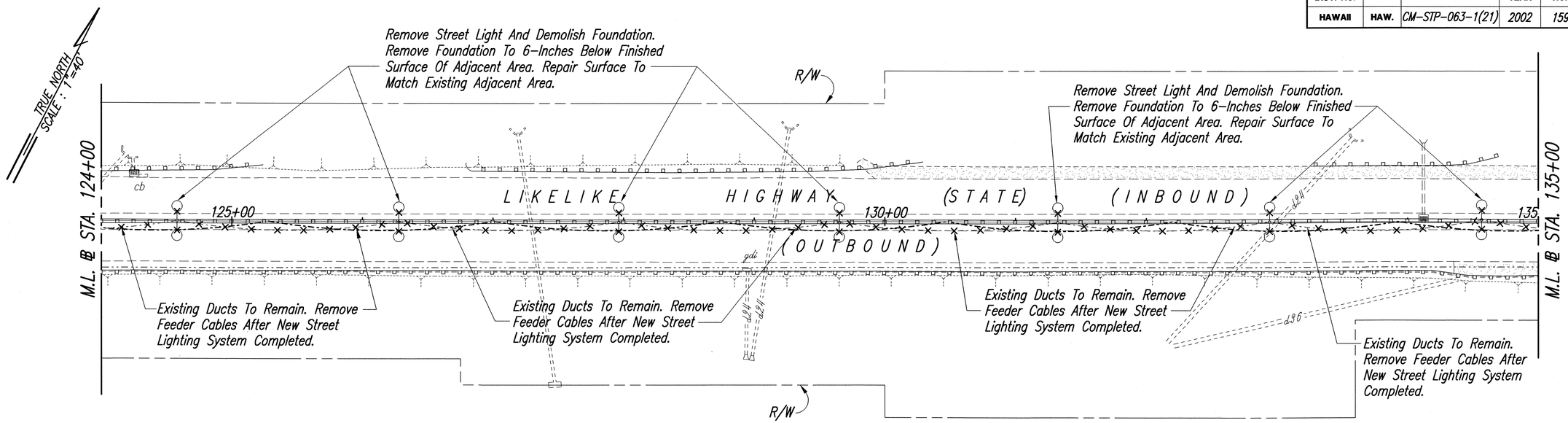
HIGHWAY LIGHTING DEMOLITION PLAN

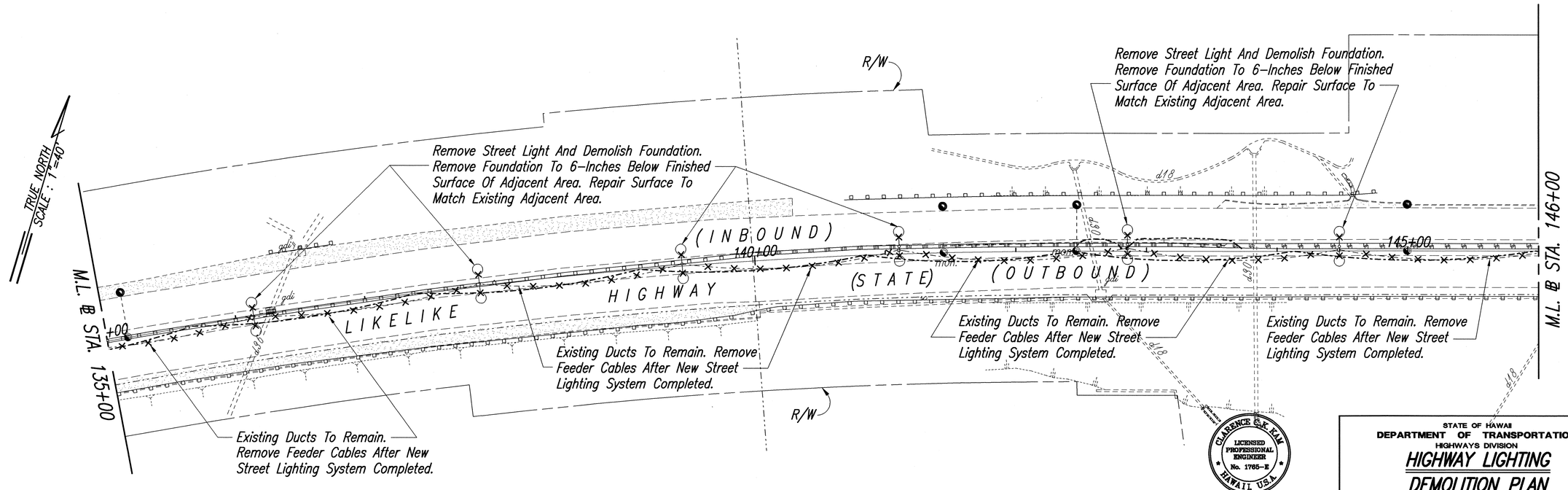
LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

SHEET No. 4 OF 28 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	159	187





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LICENSED PROFESSIONAL ENGINEER
No. 17765-E
HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING
DEMOLITION PLAN

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

SHEET No. 5 OF 28 SHEETS

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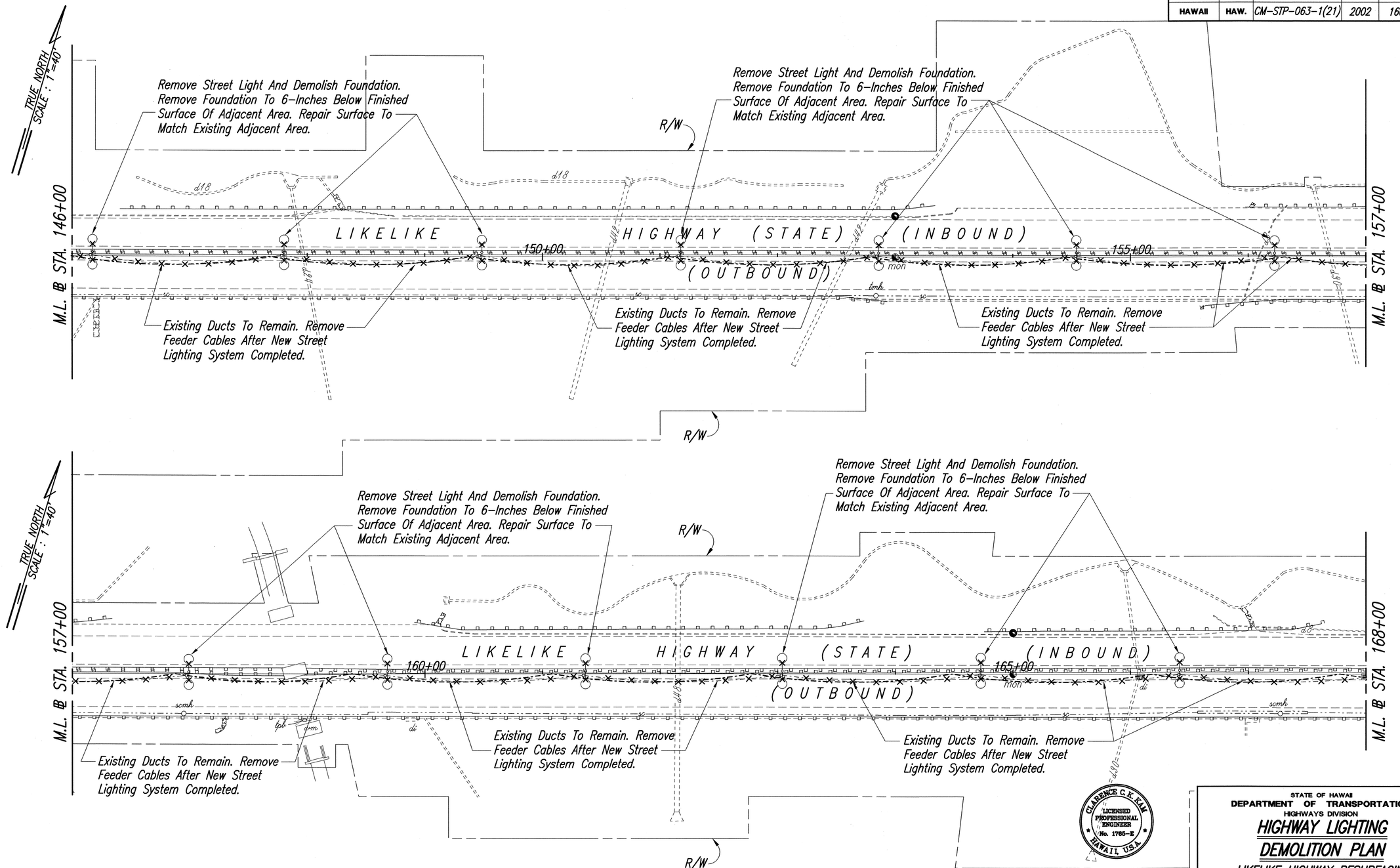

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HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING
DEMOLITION PLAN

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

SHEET No. 6 OF 28 SHEETS

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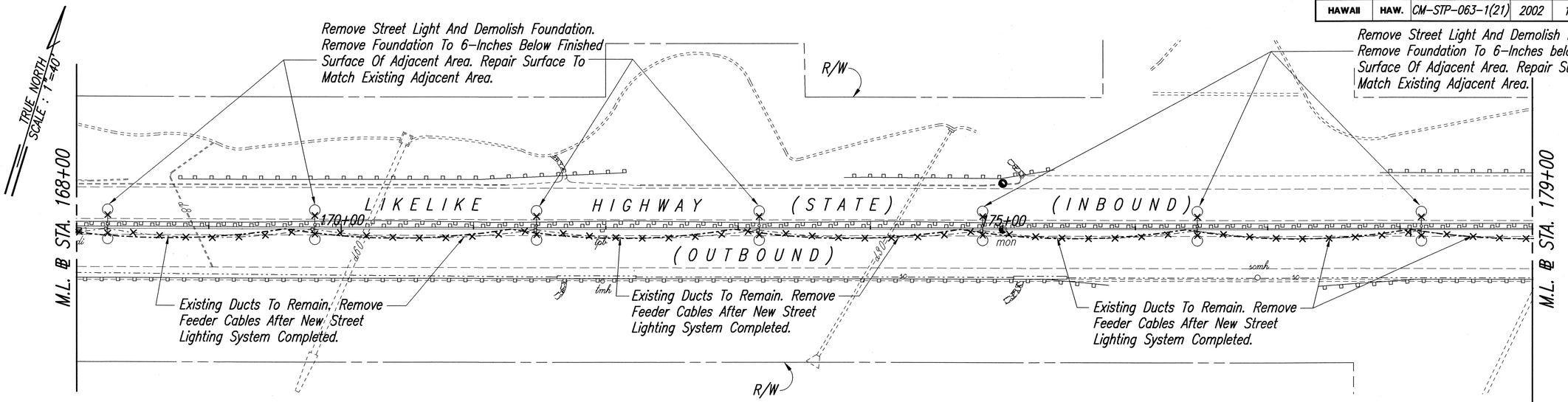

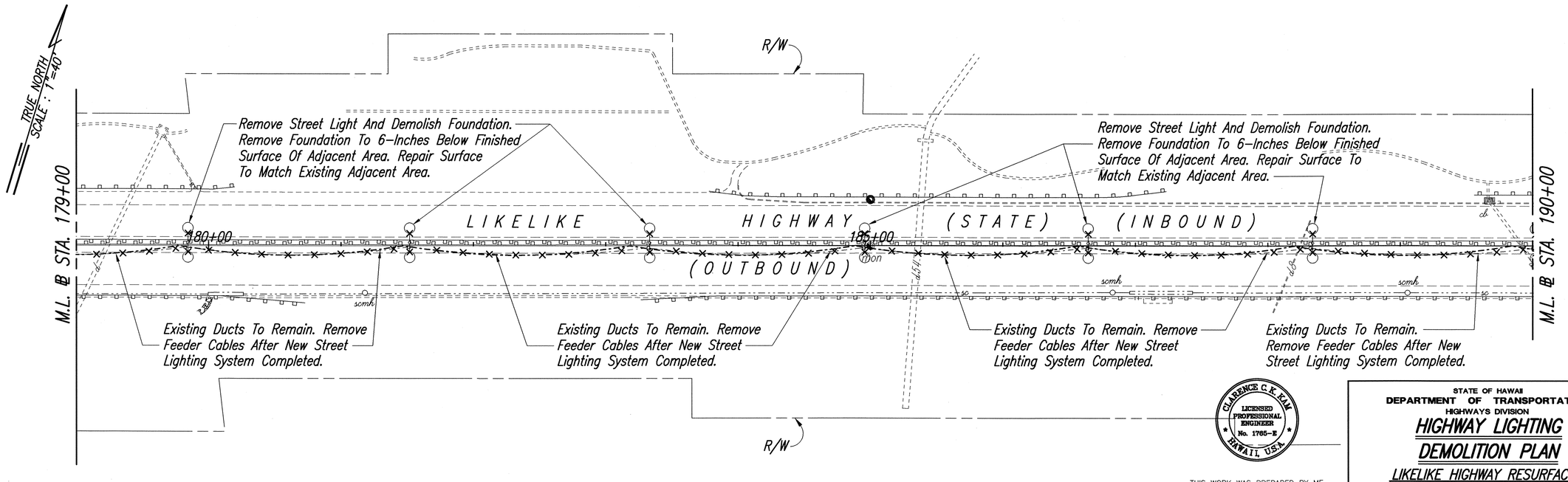

ORIGINAL PLAN

NOTE BOOK No.

SURVEY PLOTTED BY DATE
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING DEMOLITION PLAN

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

SHEET No. 7 OF 28 SHEETS

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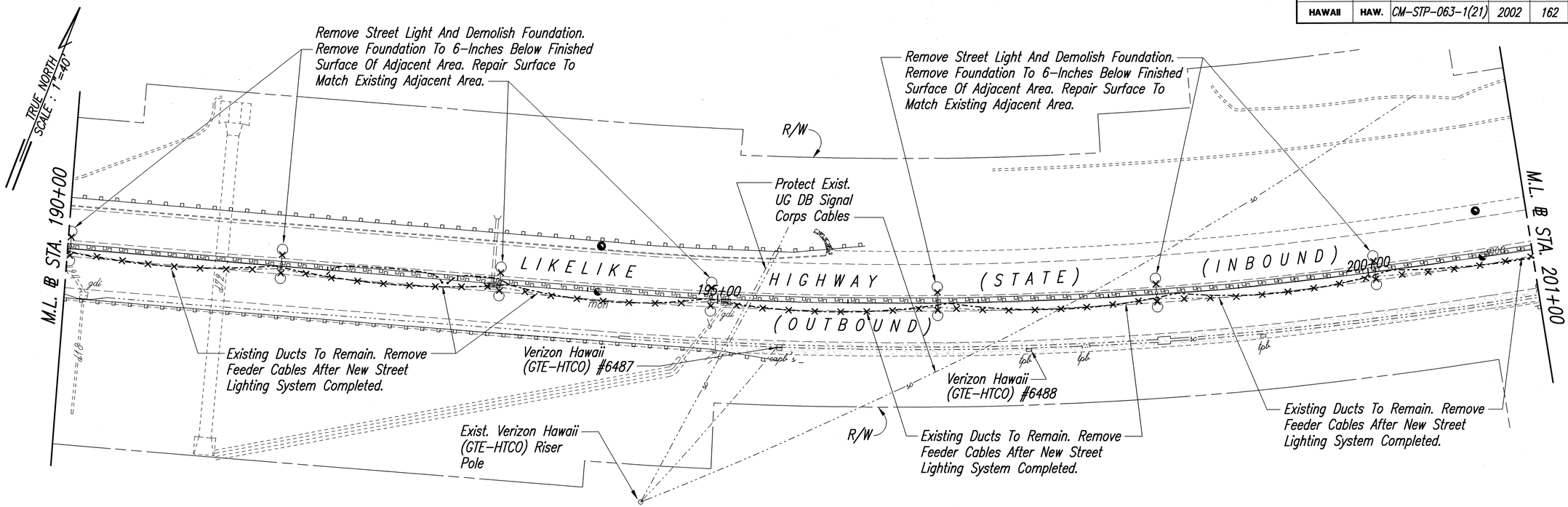

ORIGINAL PLAN
NOTE BOOK

SURVEY PLOTTED BY _____ DATE _____
DRAWN BY _____
TRACED BY _____
DESIGNED BY _____
QUANTITIES BY _____
CHECKED BY _____
No. _____

Graphic Scale:
1"=40' 40' 20' 0 40' 80'

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No. 1765-E
HAWAII, U.S.A.

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C. Kam

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

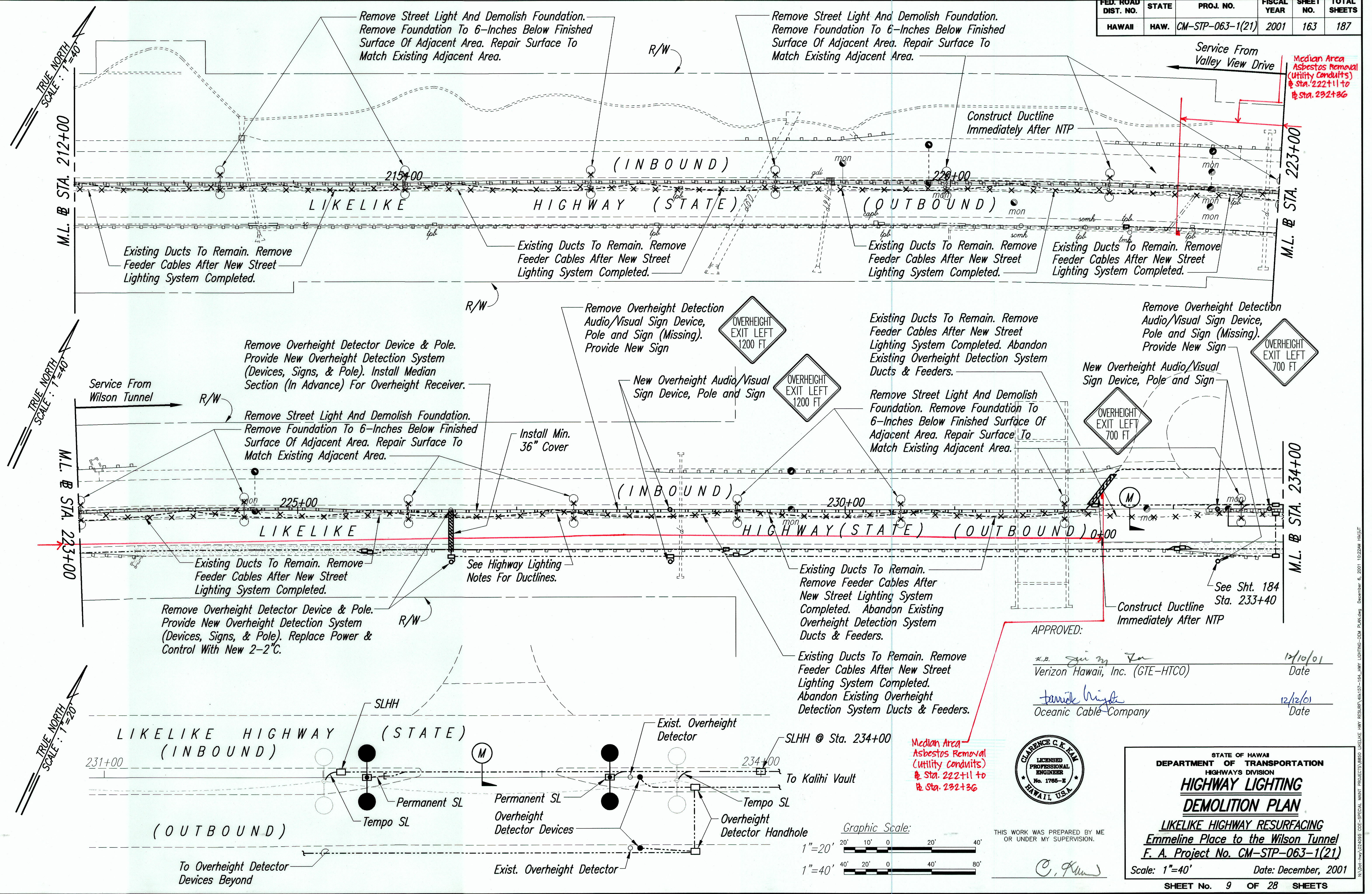
HIGHWAY LIGHTING
DEMOLITION PLAN

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

SHEET No. 8 OF 28 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2001	163	187



APPROVED:

K.B. [signature] 12/10/01
Verizon Hawaii, Inc. (GTE-HTCO) Date

[signature] 12/12/01
Oceanic Cable Company Date

CLARENCE C.K. KAM LICENSED PROFESSIONAL ENGINEER No. 1765-E HAWAII, U.S.A.

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C. Kam

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING DEMOLITION PLAN

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

SHEET No. 9 OF 28 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY
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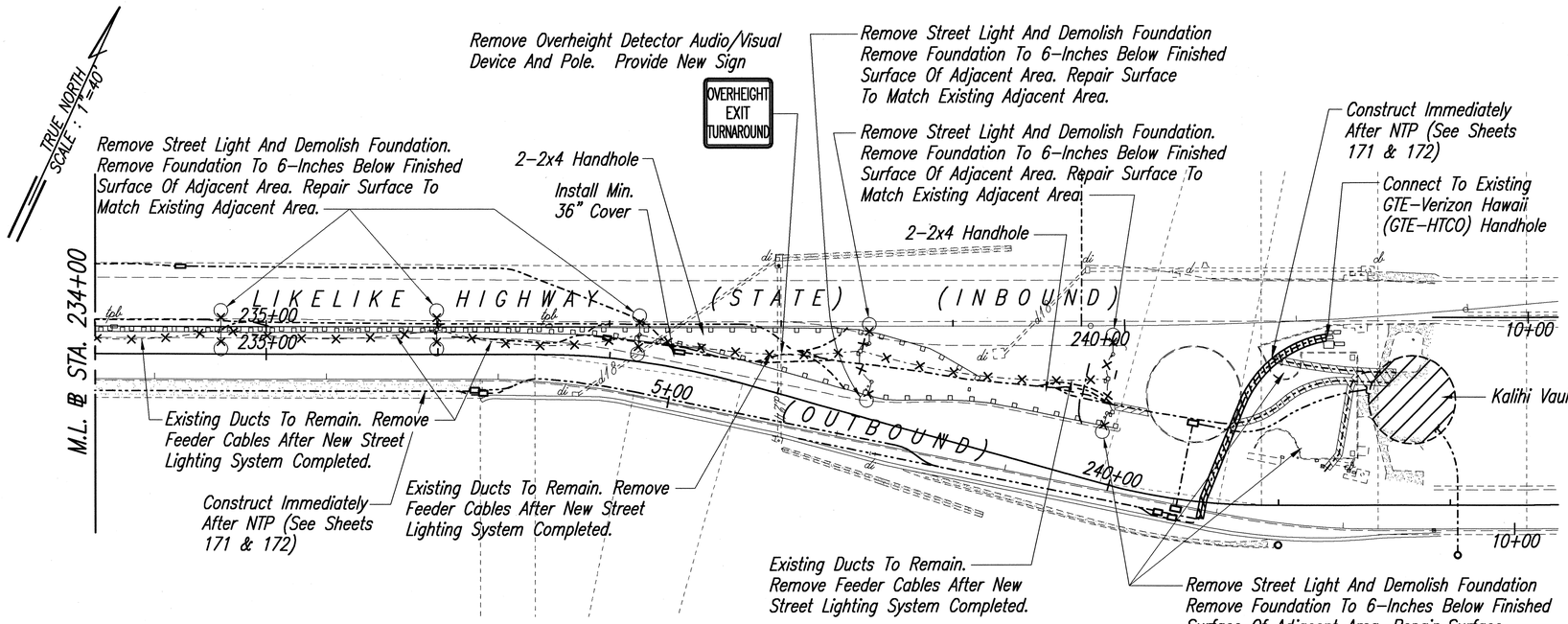
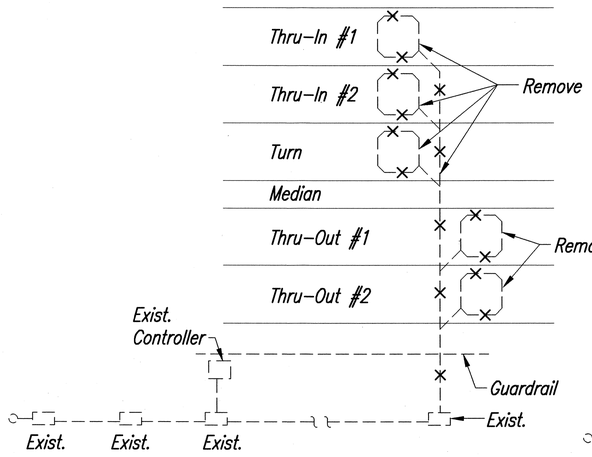
	DESIGNED BY
	QUANTITIES BY
	CHECKED BY

"AS-BUILT"

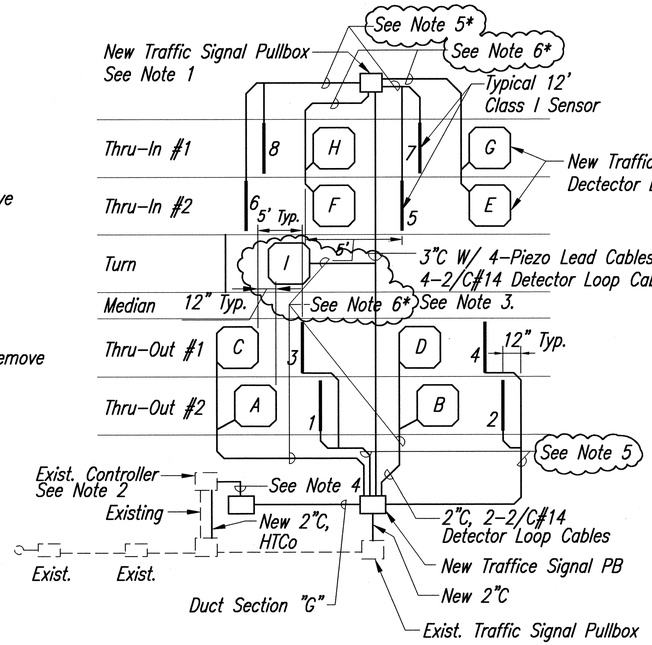
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	ADD164	187





EXISTING

TRAFFIC LOOPS
NOT TO SCALE



NEW PULLBOX, TYPE "C" W/ 2"C CONNECTED TO EXISTING TS PULLBOX

* Notes 5 & 6:
Refer to specifications for details.

Notes:

1. New Type C Traffic Signal Pullbox.
   a. If In-Bound Lanes are Constructed Before Out-Bound Lanes, Pull in Detector Loops and Piezo Sensor Lead Cables From In-Bound Lanes and Coil/Protect Cables Outside of the New Pullbox. Test Cables Prior to Completion of Road Work. Replace all Defective or Cables with Unacceptable Test Results Immediately. Upon Completion of Testing, Place Cables in Water-Tight Protective Wrapping.
   b. Upon Completion of Out-Bound Lanes, Pull Cables Into Highway Crossing Sleeve, Including Pulling Through New 3"C to Existing Controller.
   c. If Out-Bound Lanes are Constructed Before In-Bound Lanes, Upon Completion of Highway Crossing Sleeve, Pull In-Bound Lanes Cables Through Highway Crossing Sleeve and Install the In-Bound Lanes Detector Loops and Piezo Sensor Lead, Including Completion of Detector Loops and Piezo Sensors After Completion of Out-Bound Lanes.
2. Existing Traffic Signal Pullbox.
   a. If In-Bound Lanes are Constructed Before Out-Bound Lanes, Upon Completion of Out-Bound Lanes, Pull Through Detector Loops and Piezo Sensor Leads for In-Bound Lanes (Through Highway Crossing Sleeve). Complete the Out-Bound Lanes Detector Loops and Piezo Sensors.
   b. If the Out-Bound Lanes are Constructed Before In-Bound Lanes, Pull In-Bound Lanes Detector Loops and Piezo Sensor Lead Cables into Handhole from Controller, Coil and Protect Outside of the Handhole Until Completion of the Highway Crossing Sleeve. Test all Cables and Sensors, Replace all Defective or Cables with Unacceptable Test Results Immediately. Pull Out-Bound Lanes Detector Loops and Piezo Sensor Cables and Install Detector Loops and Sensors in Roadway.
3. Highway Crossing Sleeve (3"C) will Not be Ready for Service Until Completion of Both In-Bound and Out-Bound Lanes. Connect New Sleeve to Existing and New Traffic Signal Pullboxes.
   a. Highway Crossing Sleeve Shall be Provided with 36" Cover.
   b. Upon Completion of Sleeve, Pull in In-Bound Lanes Detector Loops Cable and Piezo Sensor Cables. Cables Shall be Tested for Acceptance Before and After Installation into Sleeve.
4. New 1-3"C With TS Cables. Duct "C".

APPROVED:

Verizon Hawaii, Inc. (GTE-HTCO) — Date 3-26-02

Oceanic Cable Company — Date 4/9/02

Graphic Scale: 1"=40' (40' 20' 0 40' 80')

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

CLARENCE C.K. KAM — LICENSED PROFESSIONAL ENGINEER No. 7765-E — HAWAII, U.S.A.

DATE	REVISION
1/11/02	Add Loop I in Turning Lane

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING
DEMOLITION PLAN

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

SHEET No. 10 OF 28 SHEETS

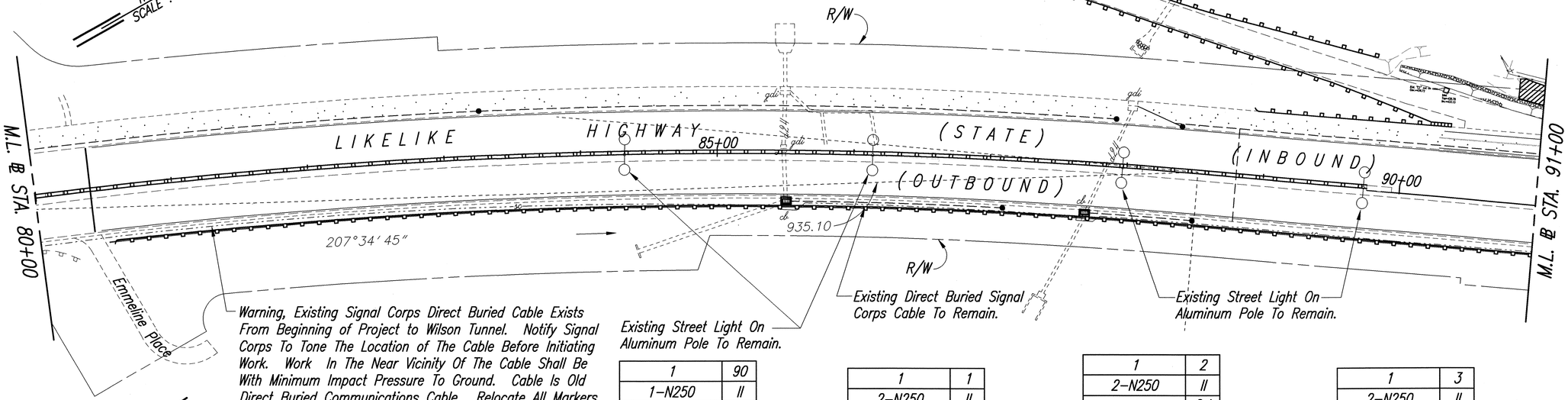
ADD 164

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

N:\CP_HWY\PROJECTS\CM-STP-063-1(21)_LIKELIKE_HWY_RESURFACING\ADD\ADD164_HWY_LIGHTING-DEM PLAN.dwg January 11, 2002 4:08PM rkuzat

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	165	187

TRUE NORTH
SCALE : 1"=40'



Warning, Existing Signal Corps Direct Buried Cable Exists From Beginning of Project to Wilson Tunnel. Notify Signal Corps To Tone The Location of The Cable Before Initiating Work. Work In The Near Vicinity Of The Cable Shall Be With Minimum Impact Pressure To Ground. Cable Is Old Direct Buried Communications Cable. Relocate All Markers Clear Of The Shoulder With Identification Of Off-set Distance. Where No Markers Exist, Provide Markers Every 200-Ft On Center

Existing Street Light On Aluminum Pole To Remain.

Existing Direct Buried Signal Corps Cable To Remain.

Existing Street Light On Aluminum Pole To Remain.

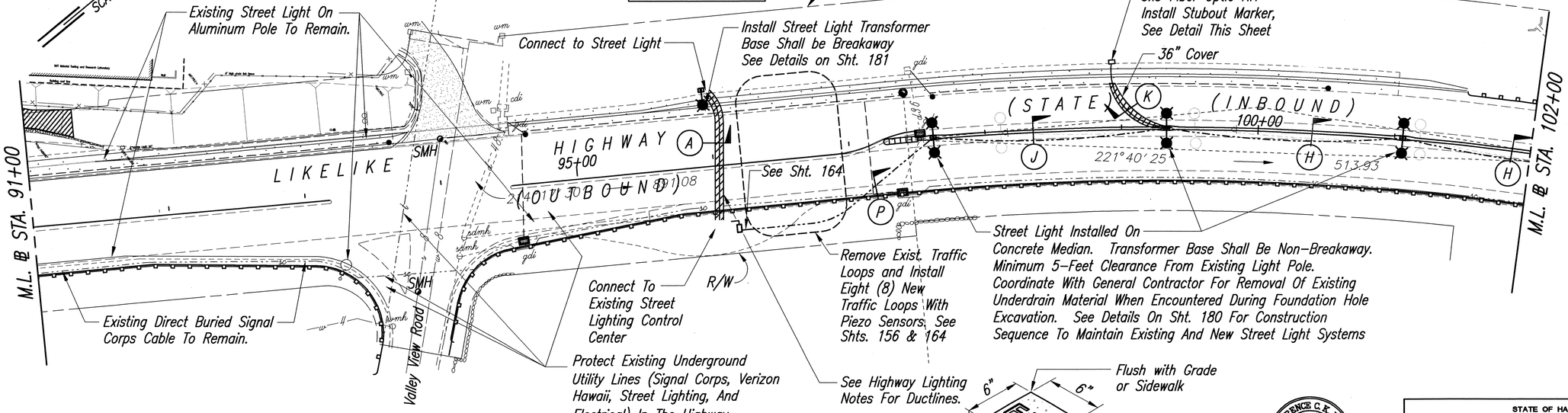
1	90
1-N250	II
1	C,A
Sta. 95+97 0/S 50' LEFT	15'
480V	

1	1
2-N250	II
2	B,C
Sta. 97+62	8'
480V	

1	2
2-N250	II
1	C,A
Sta. 99+33	8'
480V	

1	3
2-N250	II
2	C,A
Sta. 101+06	8'
480V	

TRUE NORTH
SCALE : 1"=40'



Existing Street Light On Aluminum Pole To Remain.

Existing Direct Buried Signal Corps Cable To Remain.

Connect to Street Light

Install Street Light Transformer Base Shall be Breakaway See Details on Sht. 181

3x5 Fiber Optic HH Install Stubout Marker, See Detail This Sheet

36" Cover

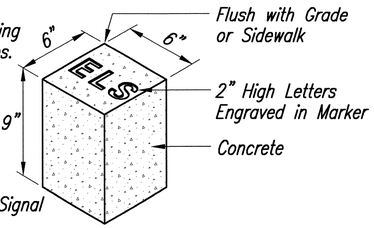
Connect To Existing Street Lighting Control Center

Protect Existing Underground Utility Lines (Signal Corps, Verizon Hawaii, Street Lighting, And Electrical) In The Highway Resurfacing Area. These Facilities Are Active And To Remain In Service

Remove Exist. Traffic Loops and Install Eight (8) New Traffic Loops With Piezo Sensors. See Shts. 156 & 164

Street Light Installed On Concrete Median. Transformer Base Shall Be Non-Breakaway. Minimum 5-Feet Clearance From Existing Light Pole. Coordinate With General Contractor For Removal Of Existing Underdrain Material When Encountered During Foundation Hole Excavation. See Details On Sht. 180 For Construction Sequence To Maintain Existing And New Street Light Systems

See Highway Lighting Notes For Ductlines.



CONDUIT STUB-OUT MARKER
Not to Scale

Graphic Scale:
1"=40' 40' 20' 0 40' 80'

CLARENCE C.K. EAM
LICENSED PROFESSIONAL ENGINEER
No. 1765-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

SHEET No. 11 OF 28 SHEETS

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

N:\Dot-Hwy\134095 OSC-SPECIAL MAINT PROJECTS\0850 LIKELIKE HWY RESURF\4a165-172_HWY LIGHTING-PLAN.dwg December 6, 2001 5:20PM HAUT

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	166	187

TRUE NORTH
SCALE : 1"=40'

Street Light Installed On Concrete Median. Transformer Base Shall Be Non-Breakaway. Minimum 5-Feet Clearance From Existing Light Pole. Coordinate With General Contractor For Removal Of Existing Underdrain Material When Encountered During Foundation Hole Excavation. See Details On Sht. 180 For Construction Sequence To Maintain Existing And New Street Light Systems

Street Light Installed On Concrete Median. Transformer Base Shall Be Non-Breakaway. Minimum 5-Feet Clearance From Existing Light Pole. Coordinate With General Contractor For Removal Of Existing Underdrain Material When Encountered During Foundation Hole Excavation. See Details On Sht. 180 For Construction Sequence To Maintain Existing And New Street Light Systems

R/W

M.L. ℄ STA. 102+00

LIKELIKE HIGHWAY (STATE) (INBOUND)

105+00

229°03'30"

678.38

110+00

235°53'40"

1428.93

(OUTBOUND)

M.L. ℄ STA. 113+00

gdi

1	4
2-N250	II
1	A,B
Sta. 102+76	8'
480V	

1	5
2-N250	II
2	A,B
Sta. 104+63	8'
480V	

1	6
2-N250	II
1	B,C
Sta. 106+25	8'
480V	

1	7
2-N250	II
2	B,C
Sta. 107+98	8'
480V	

1	8
2-N250	II
1	C,A
Sta. 109+71	8'
480V	

1	9
2-N250	II
2	C,A
Sta. 111+43	8'
480V	

Street Light Installed On Concrete Median. Transformer Base Shall Be Non-Breakaway. Minimum 5-Feet Clearance From Existing Light Pole. Coordinate With General Contractor For Removal Of Existing Underdrain Material When Encountered During Foundation Hole Excavation. See Details On Sht. 180 For Construction Sequence To Maintain Existing And New Street Light Systems

R/W

TRUE NORTH
SCALE : 1"=40'

Adjust Manhole Cover, Frame, And Neck To Accomodate New Finished Grade By Resurfacing Work, Fill Condition, Coordinate With Verizon Hawaii Or Signal Corps, As Applicable

M.L. ℄ STA. 113+00

LIKELIKE HIGHWAY (STATE) (INBOUND)

115+00

120+00

235°53'40"

1428.93

(OUTBOUND)

M.L. ℄ STA. 124+00

gdi

umh

Street Light Installed On Concrete Median. Transformer Base Shall Be Non-Breakaway. Minimum 5-Feet Clearance From Existing Light Pole. Coordinate With General Contractor For Removal Of Existing Underdrain Material When Encountered During Foundation Hole Excavation. See Details On Sht. 180 For Construction Sequence To Maintain Existing And New Street Light Systems

R/W

1	10
2-N250	II
1	A,B
Sta. 113+17	8'
480V	

1	11
2-N250	II
2	A,B
Sta. 114+90	8'
480V	

1	12
2-N250	II
1	B,C
Sta. 116+63	8'
480V	

1	13
2-N250	II
2	B,C
Sta. 118+36	8'
480V	

1	14
2-N250	II
1	C,A
Sta. 120+09	8'
480V	

1	15
2-N250	II
2	C,A
Sta. 121+82	8'
480V	

1	16
2-N250	II
1	A,B
Sta. 123+55	8'
480V	

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

CLARENCE C.K. KAM
LICENSED PROFESSIONAL ENGINEER
No. 7765-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Graphic Scale:
1"=40' 40' 20' 0 40' 80'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN

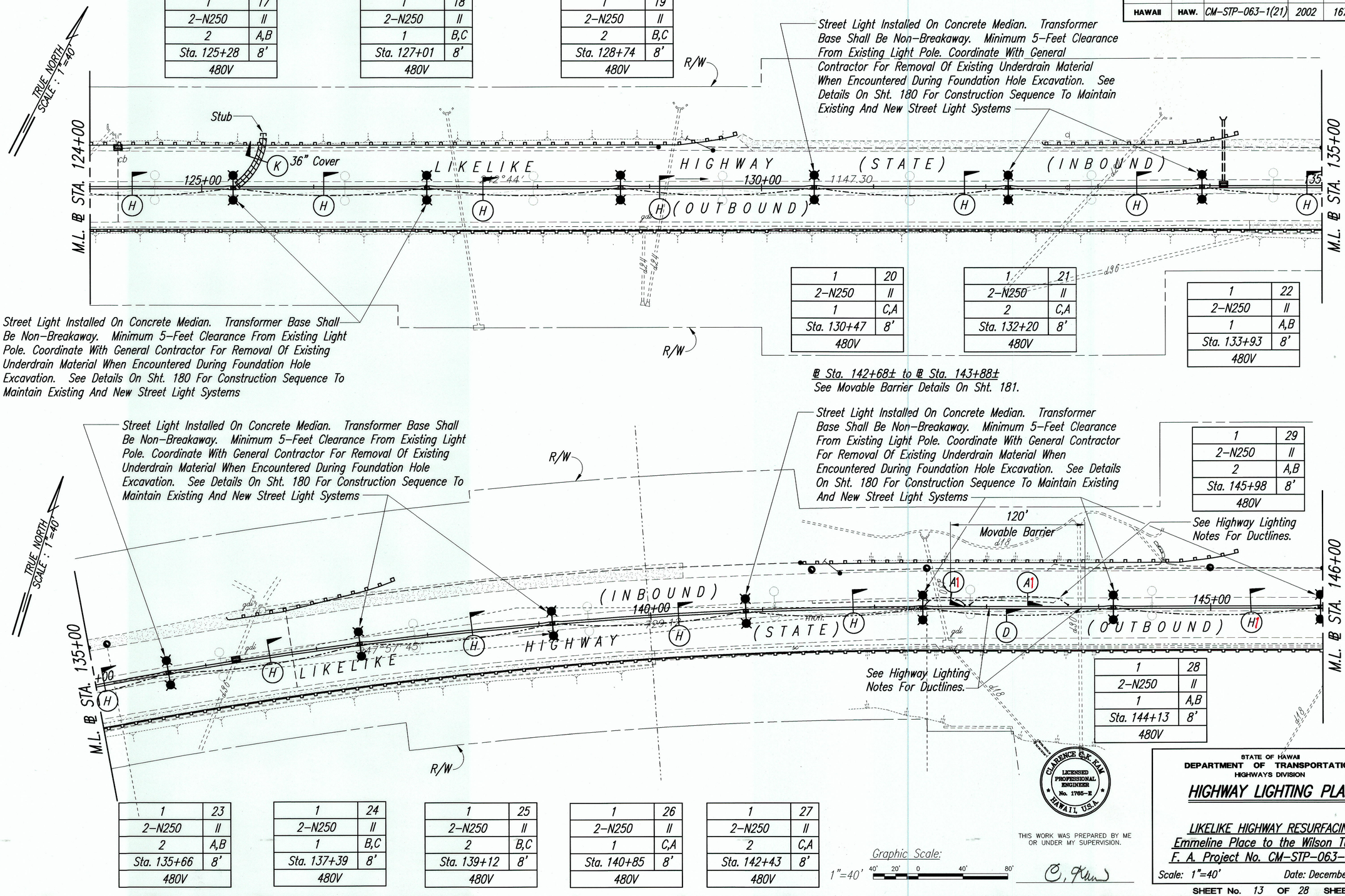
LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

SHEET No. 12 OF 28 SHEETS

N:\Dot-hwy\D2409S OSE-SPECIAL MAINT PROJECTS\SB50 LIKELIKE HWY RESURF\ 48x185-172_HWY LIGHTING-PLAN.dwg December 6, 2001 9:20PM HMUT

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	167	187



1	17
2-N250	II
2	A,B
Sta. 125+28	8'
480V	

1	18
2-N250	II
1	B,C
Sta. 127+01	8'
480V	

1	19
2-N250	II
2	B,C
Sta. 128+74	8'
480V	

1	20
2-N250	II
1	C,A
Sta. 130+47	8'
480V	

1	21
2-N250	II
2	C,A
Sta. 132+20	8'
480V	

1	22
2-N250	II
1	A,B
Sta. 133+93	8'
480V	

1	29
2-N250	II
2	A,B
Sta. 145+98	8'
480V	

1	28
2-N250	II
1	A,B
Sta. 144+13	8'
480V	

1	23
2-N250	II
2	A,B
Sta. 135+66	8'
480V	

1	24
2-N250	II
1	B,C
Sta. 137+39	8'
480V	

1	25
2-N250	II
2	B,C
Sta. 139+12	8'
480V	

1	26
2-N250	II
1	C,A
Sta. 140+85	8'
480V	

1	27
2-N250	II
2	C,A
Sta. 142+43	8'
480V	

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

Graphic Scale:
1"=40' 40' 20' 0 40' 80'

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

CLARENCE C.K. KAM
LICENSED PROFESSIONAL ENGINEER
No. 7765-E
HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

SHEET No. 13 OF 28 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	168	187

TRUE NORTH
SCALE : 1"=40'

M.L. @ STA. 146+00

M.L. @ STA. 157+00

Street Light Installed On Concrete Median. Transformer Base Shall Be Non-Breakaway. Minimum 5-Feet Clearance From Existing Light Pole. Coordinate With General Contractor For Removal Of Existing Underdrain Material When Encountered During Foundation Hole Excavation. See Details On Sht. 180 For Construction Sequence To Maintain Existing And New Street Light Systems

Street Light Installed On Concrete Median. Transformer Base Shall Be Non-Breakaway. Minimum 5-Feet Clearance From Existing Light Pole. Coordinate With General Contractor For Removal Of Existing Underdrain Material When Encountered During Foundation Hole Excavation. See Details On Sht. 180 For Construction Sequence To Maintain Existing And New Street Light Systems

LIKELIKE HIGHWAY (STATE) (INBOUND)

150+00

155+00

(OUTBOUND)

253° 11' 30"

516.43'

R/W

1	33
2-N250	II
2	C,A
Sta. 152+78	8'
480V	

1	30
2-N250	II
1	B,C
Sta. 147+68	8'
480V	

1	31
2-N250	II
2	B,C
Sta. 149+38	8'
480V	

1	32
2-N250	II
1	C,A
Sta. 151+08	8'
480V	

Adjust Manhole Cover, Frame, And Neck To Accomodate New Finished Grade By Resurfacing Work, Fill Condition, Coordinate With Verizon Hawaii Or Signal Corps, As Applicable

1	34
2-N250	II
1	A,B
Sta. 154+46	8'
480V	

1	35
2-N250	II
2	A,B
Sta. 156+31	8'
480V	

TRUE NORTH
SCALE : 1"=40'

M.L. @ STA. 157+00

M.L. @ STA. 168+00

Street Light Installed On Concrete Median. Transformer Base Shall Be Non-Breakaway. Minimum 5-Feet Clearance From Existing Light Pole. Coordinate With General Contractor For Removal Of Existing Underdrain Material When Encountered During Foundation Hole Excavation. See Details On Sht. 180 For Construction Sequence To Maintain Existing And New Street Light Systems

Street Light Installed On Concrete Median. Transformer Base Shall Be Non-Breakaway. Minimum 5-Feet Clearance From Existing Light Pole. Coordinate With General Contractor For Removal Of Existing Underdrain Material When Encountered During Foundation Hole Excavation. See Details On Sht. 180 For Construction Sequence To Maintain Existing And New Street Light Systems

LIKELIKE HIGHWAY (STATE) (INBOUND)

160+00

165+00

(OUTBOUND)

253° 11' 30"

516.43'

R/W

1	41
2-N250	II
4	C,A
Sta. 166+18	8'
480V	

1	42
2-N250	II
3	A,B
Sta. 167+78	8'
480V	

Adjust Manhole Cover, Frame, And Neck To Accomodate New Finished Grade By Resurfacing Work, Fill Condition, Coordinate With Verizon Hawaii Or Signal Corps, As Applicable

1	36
2-N250	II
3	A,B
Sta. 157+88	8'
480V	

1	37
2-N250	II
4	A,B
Sta. 159+38	8'
480V	

1	38
2-N250	II
3	B,C
Sta. 161+08	8'
480V	

1	39
2-N250	II
4	B,C
Sta. 162+78	8'
480V	

1	40
2-N250	II
3	C,A
Sta. 164+48	8'
480V	

Graphic Scale:
1"=40' 40' 20' 0 40' 80'

CLARENCE C. K. KAM
LICENSED PROFESSIONAL ENGINEER
No. 1765-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

C. Kam

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

SHEET No. 14 OF 28 SHEETS

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

"AS-BUILT"

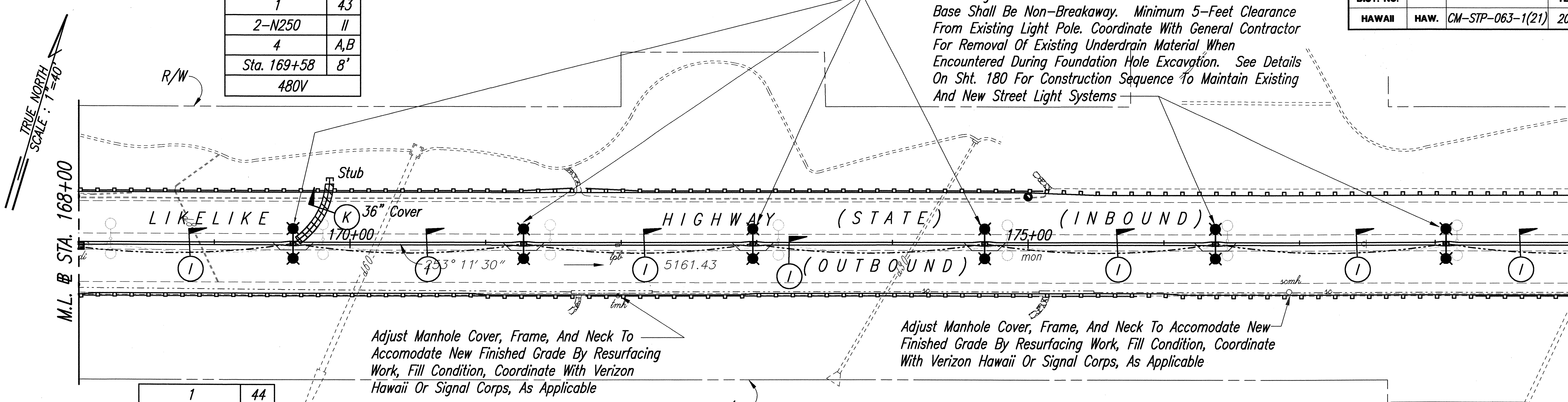
168

N:\Civil-hwy\024085 ODE-SPECIAL MAINT PROJECTS\8850 LIKELIKE HWY RESURF\ 40x185-172_HWY LIGHTING-PLAN.dwg December 6, 2001 3:20PM hkojut

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	169	187

Street Light Installed On Concrete Median. Transformer Base Shall Be Non-Breakaway. Minimum 5-Feet Clearance From Existing Light Pole. Coordinate With General Contractor For Removal Of Existing Underdrain Material When Encountered During Foundation Hole Excavation. See Details On Sht. 180 For Construction Sequence To Maintain Existing And New Street Light Systems

1	43
2-N250	II
4	A,B
Sta. 169+58	8'
480V	



Adjust Manhole Cover, Frame, And Neck To Accomodate New Finished Grade By Resurfacing Work, Fill Condition, Coordinate With Verizon Hawaii Or Signal Corps, As Applicable

Adjust Manhole Cover, Frame, And Neck To Accomodate New Finished Grade By Resurfacing Work, Fill Condition, Coordinate With Verizon Hawaii Or Signal Corps, As Applicable

1	44
2-N250	II
3	B,C
Sta. 171+28	8'
480V	

1	45
2-N250	II
4	B,C
Sta. 172+97	8'
480V	

1	46
2-N250	II
3	C,A
Sta. 174+68	8'
480V	

1	47
2-N250	II
4	C,A
Sta. 176+38	8'
480V	

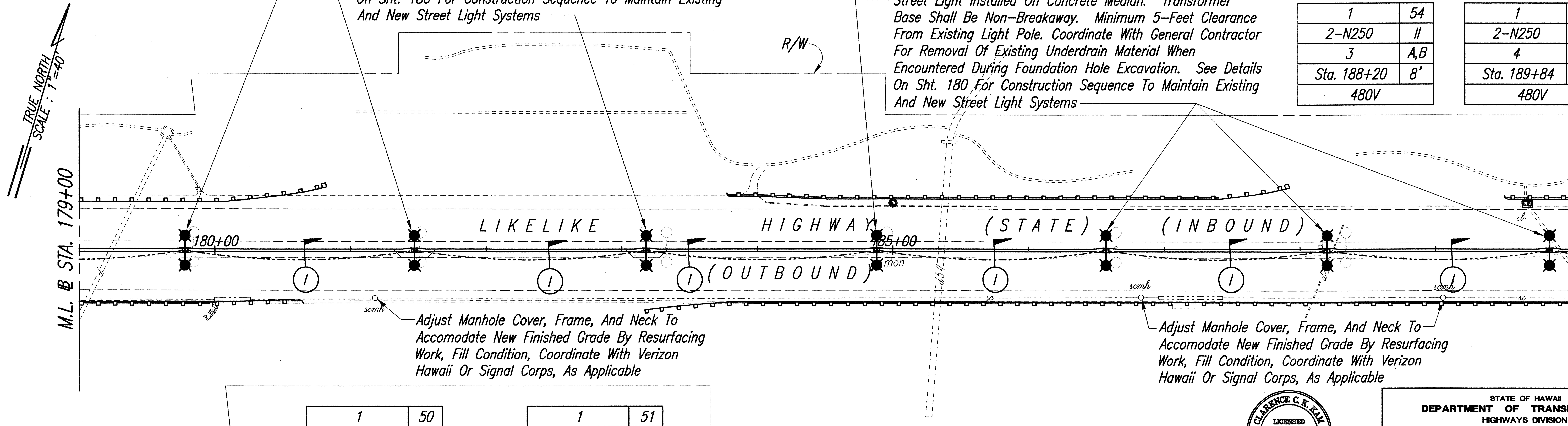
1	48
2-N250	II
3	A,B
Sta. 178+08	8'
480V	

Street Light Installed On Concrete Median. Transformer Base Shall Be Non-Breakaway. Minimum 5-Feet Clearance From Existing Light Pole. Coordinate With General Contractor For Removal Of Existing Underdrain Material When Encountered During Foundation Hole Excavation. See Details On Sht. 180 For Construction Sequence To Maintain Existing And New Street Light Systems

Street Light Installed On Concrete Median. Transformer Base Shall Be Non-Breakaway. Minimum 5-Feet Clearance From Existing Light Pole. Coordinate With General Contractor For Removal Of Existing Underdrain Material When Encountered During Foundation Hole Excavation. See Details On Sht. 180 For Construction Sequence To Maintain Existing And New Street Light Systems

1	54
2-N250	II
3	A,B
Sta. 188+20	8'
480V	

1	55
2-N250	II
4	A,B
Sta. 189+84	8'
480V	



Adjust Manhole Cover, Frame, And Neck To Accomodate New Finished Grade By Resurfacing Work, Fill Condition, Coordinate With Verizon Hawaii Or Signal Corps, As Applicable

Adjust Manhole Cover, Frame, And Neck To Accomodate New Finished Grade By Resurfacing Work, Fill Condition, Coordinate With Verizon Hawaii Or Signal Corps, As Applicable

R/W

1	49
2-N250	II
4	A,B
Sta. 179+78	8'
480V	

1	50
2-N250	II
3	B,C
Sta. 181+47	8'
480V	

1	51
2-N250	II
4	B,C
Sta. 183+18	8'
480V	

1	52
2-N250	II
3	C,A
Sta. 184+88	8'
480V	

1	53
2-N250	II
4	C,A
Sta. 186+57	8'
480V	

Graphic Scale:
1"=40' 40' 20' 0 40' 80'

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

CLARENCE C. K. KAM LICENSED PROFESSIONAL ENGINEER No. 1765-E HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	170	187

1	56
2-N250	II
3	B,C
Sta. 191+60	8'
480V	

1	57
2-N250	II
4	B,C
Sta. 193+40	8'
480V	

1	58
2-N250	II
3	C,A
Sta. 194+92	8'
480V	

1	59
2-N250	II
4	C,A
Sta. 196+78	8'
480V	

1	60
2-N250	II
5	A,B
Sta. 198+53	8'
480V	

Street Light Installed On Concrete Median. Transformer Base Shall Be Non-Breakaway. Minimum 5-Feet Clearance From Existing Light Pole. Coordinate With General Contractor For Removal Of Existing Underdrain Material When Encountered During Foundation Hole Excavation. See Details On Sht. 180 For Construction Sequence To Maintain Existing And New Street Light Systems

℄ Sta. 191+85± to ℄ Sta. 193+05±
See Movable Barrier Details On Sht. 181.

See Highway Lighting Notes For Ductlines.

120' Movable Barrier

Existing Handholes On The Shoulder, Protect During Resurfacing Work, Adjust Cover, Frame, And Walls To Accomodate New Finished Grade By Resurfacing Work, Fill Condition, Coordinate With Verizon Hawaii or Signal Corps, As Applicable

TRUE NORTH
SCALE : 1"=40'

M.L. ℄ STA. 190+00

M.L. ℄ STA. 201+00

LIKELIKE HIGHWAY (STATE) (INBOUND)

195+00

200+00

245°23'15" 678.82

R/W

Existing Telephone Handhole On The Shoulder, Protect During Resurfacing Work, Adjust Cover, Frame, And Walls To Accomodate New Finished Grade By Resurfacing Work, Fill Condition, Coordinate With Verizon Hawaii

1	61
2-N250	II
6	A,B
Sta. 200+18	8'
480V	

Street Light Installed On Concrete Median. Transformer Base Shall Be Non-Breakaway. Minimum 5-Feet Clearance From Existing Light Pole. Coordinate With General Contractor For Removal Of Existing Underdrain Material When Encountered During Foundation Hole Excavation. See Details On Sht. 180 For Construction Sequence To Maintain Existing And New Street Light Systems

Existing Signal Corps Cable In Highway, Protect During Resurfacing Work. Tone The Cable To Verify The Location Prior To Installation Of Street Light Poles Or Other Utilities Which Affect The Existing Underground Cables. When Encountered, Sleeve The Existing Cables Through The Median Barrier Footing Or Adjust The Location Of Any Conflicting Pole Foundations

Street Light Installed On Concrete Median. Transformer Base Shall Be Non-Breakaway. Minimum 5-Feet Clearance From Existing Light Pole. Coordinate With General Contractor For Removal Of Existing Underdrain Material When Encountered During Foundation Hole Excavation. See Details On Sht. 180 For Construction Sequence To Maintain Existing And New Street Light Systems

1	67
2-N250	II
6	A,B
Sta. 210+38	8'
480V	

Adjust Manhole Cover, Frame, And Neck To Accomodate New Finished Grade By Resurfacing Work, Fill Condition, Coordinate With Verizon Hawaii Or Signal Corps, As Applicable

M.L. ℄ STA. 201+00

M.L. ℄ STA. 212+00

WMH 205+00 (INBOUND) WMH 1918.63 210+00 (OUTBOUND)

239°35'

LIKELIKE HIGHWAY (STATE)

Existing Telephone Handhole On The Shoulder, Protect During Resurfacing Work, Adjust Cover, Frame, And Walls To Accomodate New Finished Grade By Resurfacing Work, Fill Condition, Coordinate With Verizon Hawaii

Existing Telephone Handhole On The Shoulder, Protect During Resurfacing Work, Adjust Cover, Frame, And Walls To Accomodate New Finished Grade By Resurfacing Work, Fill Condition, Coordinate With Verizon Hawaii

TRUE NORTH
SCALE : 1"=40'

1	62
2-N250	II
5	B,C
Sta. 201+88	8'
480V	

1	63
2-N250	II
6	B,C
Sta. 203+58	8'
480V	

1	64
2-N250	II
5	C,A
Sta. 205+28	8'
480V	

Graphic Scale:
1"=40' 40' 20' 0 40' 80'

1	65
2-N250	II
6	C,A
Sta. 207+29	8'
480V	

1	66
2-N250	II
5	A,B
Sta. 208+68	8'
480V	

CLARENCE C.K. FAM
LICENSED PROFESSIONAL ENGINEER
No. 1765-E
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

SHEET No. 16 OF 28 SHEETS

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

"AS-BUILT"

170

N:\Civil-Hwy\024065 CCK-SPECIAL MAINT PROJECTS\6850 LIKELIKE HWY RESURF\Art\65-172_HWY LIGHTING-PLAN.dwg December 6, 2001 5:29PM kingUT

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2001	171	187

1	68
2-N250	II
5	B,C
Sta. 212+08	8'
480V	

1	69
2-N250	II
6	B,C
Sta. 213+78	8'
480V	

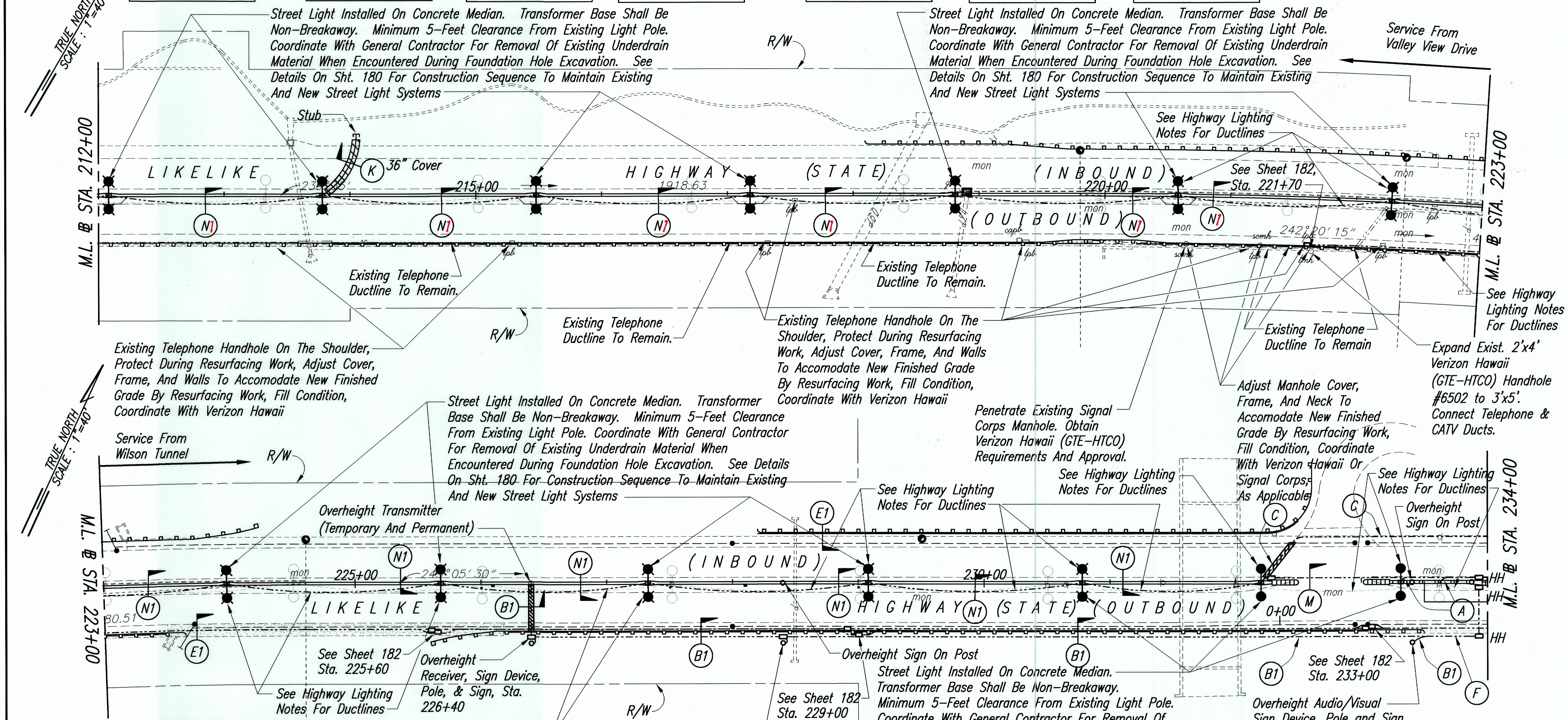
1	70
2-N250	II
5	C,A
Sta. 215+48	8'
480V	

1	71
2-N250	II
6	C,A
Sta. 217+18	8'
480V	

1	72
2-N250	II
5	A,B
Sta. 218+81	8'
480V	

1	73
2-N250	II
6	A,B
Sta. 220+58	8'
480V	

1	74
2-N250	II
5	B,C
Sta. 222+28	8'
480V	



1	75
2-N250	II
1	A,B
Sta. 223+98	8'
240V	

1	76
2-N250	II
1	B,C
Sta. 225+68	8'
240V	

1	77
2-N250	II
1	C,A
Sta. 227+33	8'
240V	

1	78
2-N250	II
1	A,B
Sta. 229+08	8'
240V	

1	79
2-N250	II
1	B,C
Sta. 230+78	8'
240V	

1	80
2-N250	II
1	C,A
Sta. 232+20	8'
240V	

1	81
2-N250	II
1	A,B
Sta. 233+31	8'
240V	

APPROVED:

Verizon Hawaii, Inc. (GTE-HTCO) — 12/10/01 Date

Oceanic Cablevision Co. — 12/12/01 Date

Note:
See Sheet 187 for Verizon/CATV ductline profile.

Graphic Scale: 1"=40' (40' 20' 0 40' 80')

CLARENCE C. K. KAM LICENSED PROFESSIONAL ENGINEER No. 1765-E HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

SHEET No. 17 OF 28 SHEETS

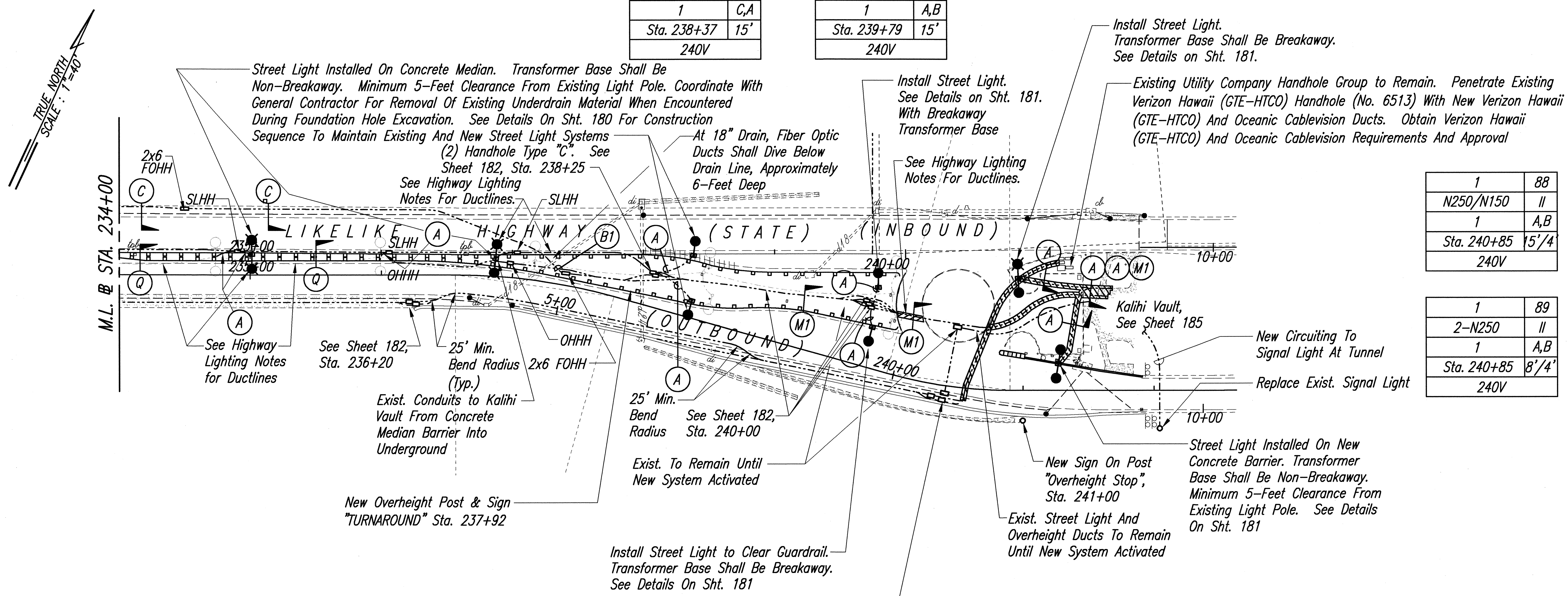
"AS-BUILT"

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2001	172	187

1	84
2-N250	II
1	C,A
Sta. 238+37	15'
240V	

1	86
2-N250	II
1	A,B
Sta. 239+79	15'
240V	



1	88
N250/N150	II
1	A,B
Sta. 240+85	15'/4'
240V	

1	89
2-N250	II
1	A,B
Sta. 240+85	8'/4'
240V	

1	82
2-N250	II
1	B,C
Sta. 235+01	8'
240V	

1	83
2-N250	II
1	C,A
Sta. 236+87	8'
240V	

1	85
2-N250	II
1	A,B
Sta. 238+37	8'
240V	

1	87
2-N250	II
1	B,C
Sta. 239+75	8'
240V	

APPROVED:

K.B. [signature] 12/10/01
Verizon Hawaii, Inc. (GTE-HTCO) Date

[signature] 12/12/01
Oceanic Cablevision Co. Date

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

CLARENCE C. K. KAM LICENSED PROFESSIONAL ENGINEER No. 1765-E HAWAII, U.S.A.

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[signature]

Graphic Scale: 1"=40' 40' 20' 0 40' 80'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: 1"=40' Date: December, 2001

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	173	187

NOTES:

1. Edge of travelway. Highway resurfacing will replace top layer of pavement in travel way. Coordinate the installation of electrical ductlines, highway crossings, and handholes with the pavement work to account for the paving work in the travelway as well as in the shoulders.

2. Typical vehicular loading rated 2x4 handhole in the shoulder but may be at the edge of the travel way. Contractor shall install the handhole as far from the travel way edge as possible. Set handhole to be flush with the new finished pavement grade.

3. Typical street lighting duct (2–2"C and 2"C spare) and street light circuiting, two sets (3–1/C #2, 1#4 GRD). Install permanent street lighting circuit to provide temporary service to existing street lighting so that the existing circuiting between poles (Sta. 233+00 to Kalihi Vault) can be deactivated during new work).

4. Connect new street light circuiting to existing circuits in existing street light to serve street lights makai of this point and to allow for the deactivation of the homerun circuiting to Kalihi Vault..

5. Connect new street light circuit (2–1/C #10, 1#10 GRD) to existing street light and disconnect existing street light circuit. Remove when new street lighting system accepted.

6. New 1.25"C, 2–1/C #10, 1#10 GRD with fused kit connection in handhole. Disconnect and abandon conduit when new street lighting system is accepted.

7. Remove existing underground ducts and circuiting during guard rail replacement work. De–energize circuiting while new street lighting system is being constructed.

8. Typical street light beyond, work is similar to details shown in this diagram but shown without callouts.

9. Existing Verizon Hawaii and Oceanic Cablevision ductline and handholes are located in the shoulder of the road. Coordinate to have the new by–pass ductline completed so that the existing ducts can be demolished to accommodate the new street light ducts and handholes.

10. Street lighting duct (2–2"C, 1– 2"C spare, 2–2"C empty for connection to concrete median) and street light circuiting, two sets (3–1/C #2, 1#4 GRD). Extend two (2"C, 3–1/C #2, 1#4 GRD) to handhole at existing street light for activation of existing street lights and stub 3–2"C for connection to concrete median. When concrete median is constructed, connect 3–2"C. to stubs and street lighting junction box in concrete median. Pull in street light circuiting into concrete median system.

11. Concrete median.

12. Verizon 3x5 handhole.

13. Oceanic Cablevision 2x6 handhole.

14. Install telecommunications ducts in accordance with Verizon Hawaii and Oceanic Cablevision requirements for radius bends. Offset handholes to allow for maximum smooth radius bends. Ductline shall have 36–inches of cover. Install top of handhole with 2% slope.

15. Toe of hillside slope.

16. Concrete swale. Install handholes and ductline, cut existing concrete swale, replace concrete swale to match existing after ductline accepted by Verizon Hawaii and Oceanic Cablevision.

17. Increase the height of standard handhold depth to account for 2% slope. Obtain utility company approval for handhole construction.

18. Fill around handhole edge to provide smooth surface for drainage.

19. Fiber optics duct (1–4"C) stub for connection by median barrier work. When median barrier is constructed, extend 1–4"C from fiber optics junction box to this stub.

20. Construct 2x6 fiber optics handhole in similar manner as the Verizon/Oceanic handholes, in concrete swale. Handholes spaces approximately 250–feet on center.

21. Concrete swale. Install ductline, cut existing concrete swale, replace concrete swale to match existing after ductline accepted by Engineer.

22. Overheight Detector ducts (2–2"C – power and circuiting) to Kalihi Vault for power and other signal devices. Provide signaling circuits and activate new system before existing system is demolished.

23. Overheight Detector handhole (2x4 vehicular type). Install similar to street light handhole.

24. Overheight Detector duct (2–2"C – power and circuiting).

25. Overheight Detector duct (2–2"C – power and circuiting) to transmitter/receiver and other signaling devices beyond.

26. Existing overheight detector pole and devices to remain active while new system is being installed. Remove after new system accepted.

27. Phase II – remove existing street light standard after activation and acceptance of new street lights.

28. Phase II – install new street light on grade with transformer base.

29. Phase II – install 2"C. Connect new street light circuit (2–1/C #10, 1#10 GRD) to street light feeder installed in Phase I and disconnect connection to existing street light.

ORIGINAL PLAN
NOTE BOOK
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CLARENCE C.K. KAM
LICENSED PROFESSIONAL ENGINEER
No. 7765–E
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MEDIAN BARRIER TRANSITION TO UNDERGROUND I

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM–STP–063–1(21)

Scale: NTS Date: December, 2001

SHEET No. 19 OF 28 SHEETS

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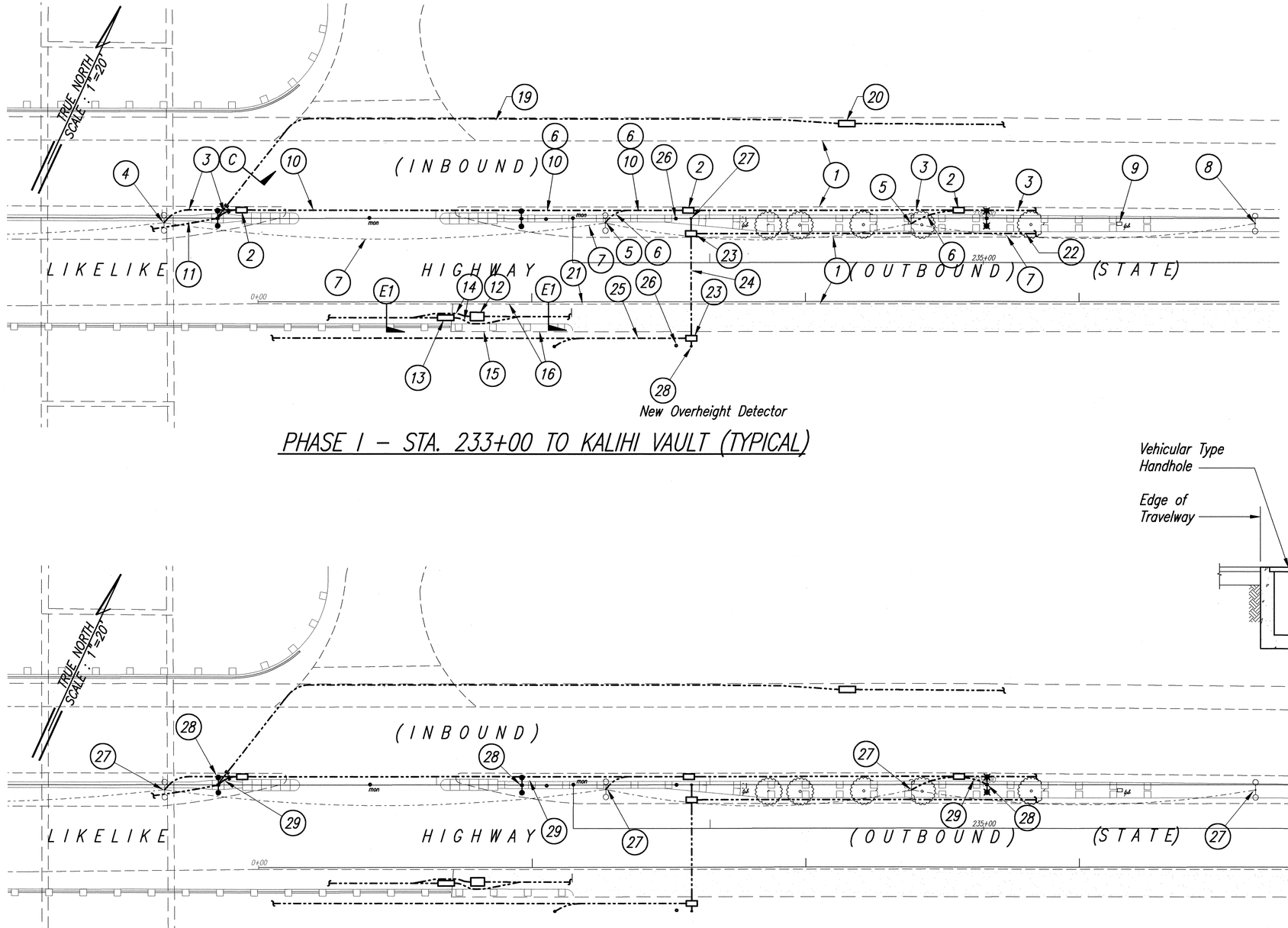
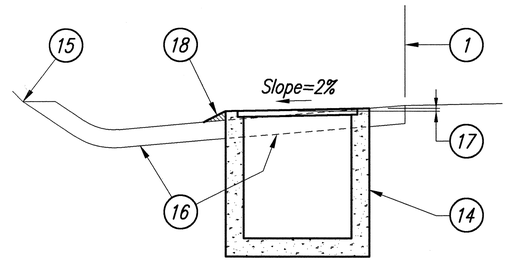
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	174	187



PHASE I – STA. 233+00 TO KALIHI VAULT (TYPICAL)



DETAIL
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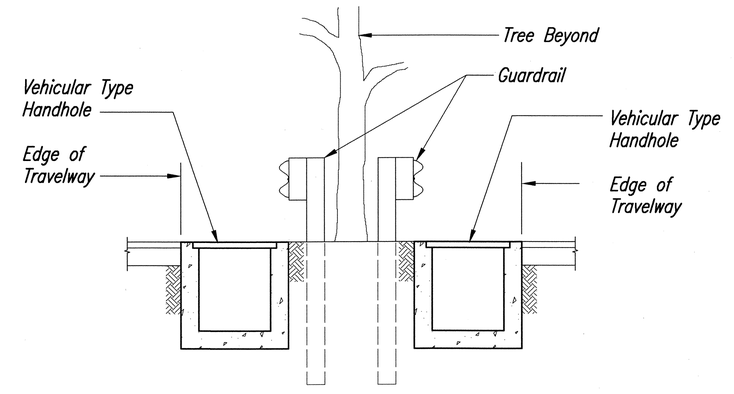

DETAIL
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PHASE II – STA. 233+00 TO KALIHI VAULT (TYPICAL)

NOTES:
1. See sheet 173 for reference

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LICENSED PROFESSIONAL ENGINEER
No. 1765-E
HAWAII, U.S.A.

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C. Kam

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MEDIAN BARRIER TRANSITION TO UNDERGROUND II

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: NTS Date: December, 2001

SHEET No. 20 OF 28 SHEETS

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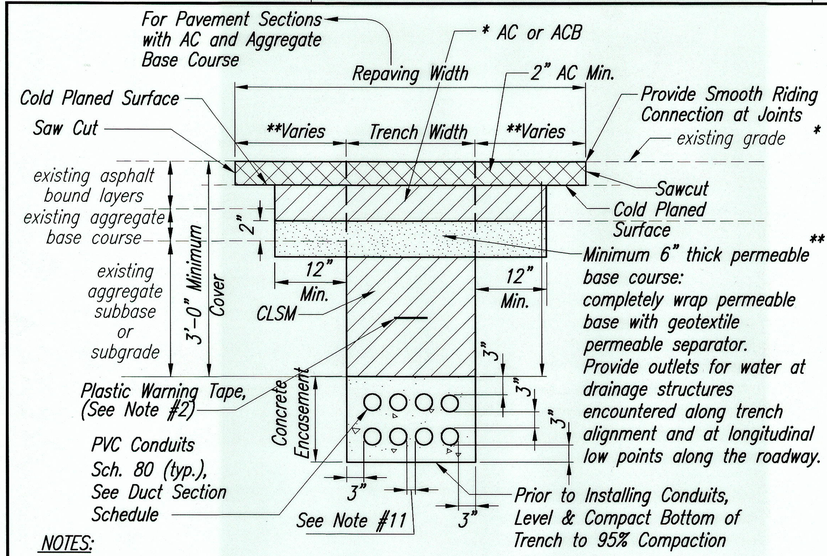
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	175	187

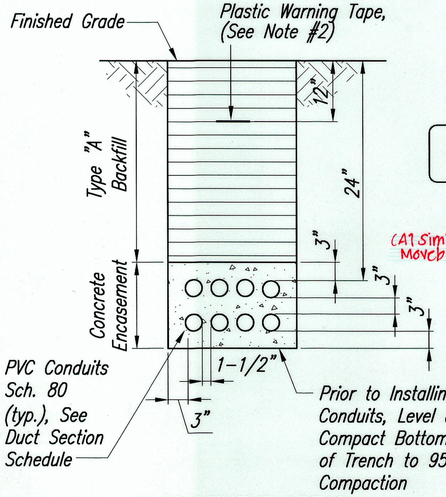


* NOTES:
1. When thickness less than 6" use AC.
2. When thickness 6" or greater, use ACBor AC.

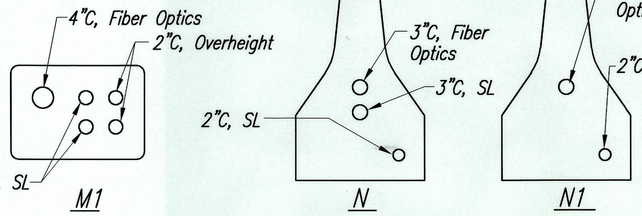
** NOTES:
1. If trench aligned traverse to direction of travel, 1 foot on each side of trench.
2. If trench aligned along direction of travel, to edge of lane in which edge of trench is located.
3. Smoothness of paved surfaces: The distance from the paved surface to the testing edge of a ten-foot straight edge between two points of contact shall not exceed 3/16".

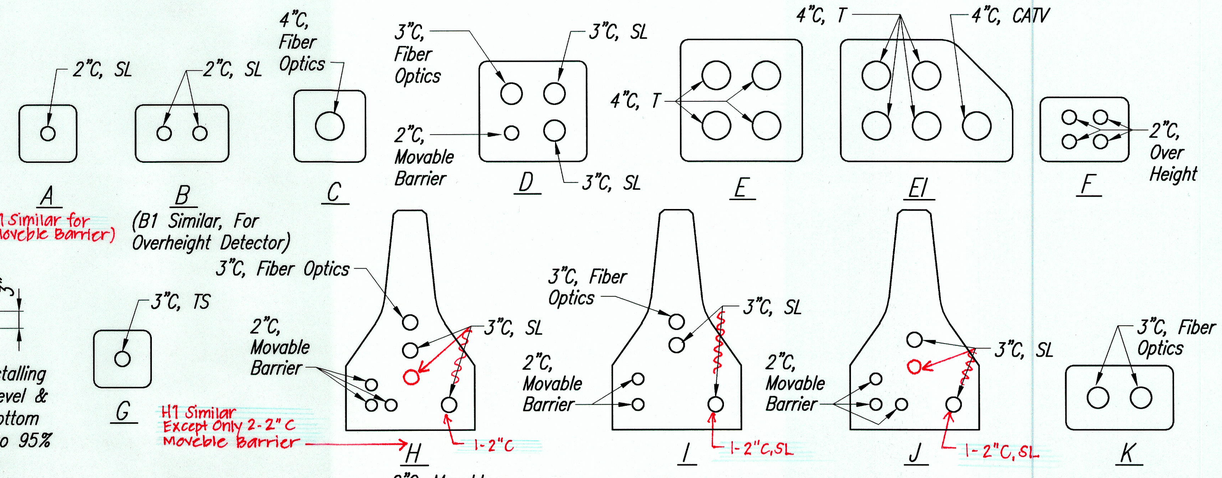
NOTES:
1. This trench restoration is to be used wherever the pavement is an asphalt surface, including medians and paved areas between guardrails.
2. Tack coat existing asphalt bound material faces prior to filling excavation with asphalt bound material.

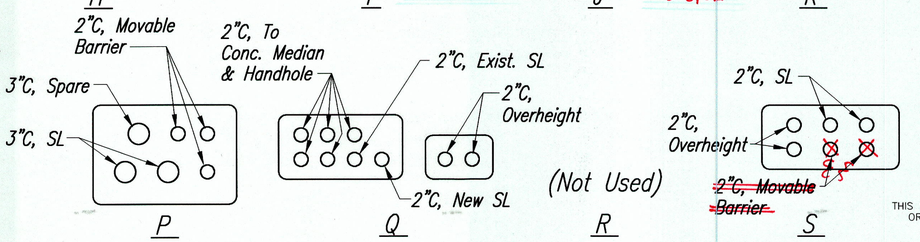
A.C. PAVEMENT AREAS



NON-PAVEMENT AREAS







DUCT SECTION WITH CONCRETE ENCASED DUCTS DETAIL

NOT TO SCALE

TRENCH NOTES:
1. If trench is located in unpaved area, the Contractor shall replace 10" A.C. Base Course and 4" A.C. Pavement with Type "A" Backfill Material.
2. 5 mil thick red colored plastic warning tape 3" wide, entire length of duct. Tape to have continuous metallic backing and corrosion resistant foil core. Warning and identification to be imprinted on tape and shall read, "CAUTION BURIED ELECTRIC CABLE, TELEPHONE CABLE AND/OR HWY LIGHTING BELOW". Message shall be repeated approximately every ten feet. Tape shall be considered incidental to ductline work.
3. The Contractor may begin backfilling the conduit trench when the concrete reaches 3000 psi compressive strength after 3 days, except in travel ways.
4. Maximum four (4) Conduits per Row for multiple conduit duct section.
5. For direct buried duct sections, the concrete jacket required at the conduit by-pass for various utilities, shall not be paid for separately but considered incidental to the direct buried conduits.
6. 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.
7. If trench is located in pavement area, saw cut existing pavement, curbs, sidewalks and repair to the satisfaction of the Engineer.
8. For trench located in travel way, excavation, ductline including concrete jacket, backfill, compaction, and final traffic bearing pavement shall be completed and ready for traffic each day. During the course of the work, maintain a minimum of (10-foot wide) traffic lane at all times.

   Ductline shall be constructed with low strength fast curing concrete and a minimum cover of 36-inches or 2500 psi precast concrete ducts with 4500 psi epoxy joint collar and a minimum cover of 24-inches. Backfill shall include appropriate road base and subbase courses to match existing condition and compaction to standard specifications requirements.

   Ductline crossing highway shall be constructed in sections to allow one lane traffic flow during work periods, with a minimum of two sections for each direction of traffic flow. Joints between sections shall be made with high strength concrete. Steel plates covering temporary work shall not be allowed.
9. For non-pavement areas, appropriate finish surface shall be restored (grass, sidewalk, or shoulder pavement).
10. At sidewalks, replace the entire modular section of sidewalks (from construction joint to construction joint). Trench width patches in sidewalks shall not be accepted. Replace curbs, gutters, and sidewalks in similar manner.
11. Provide 2" separation between ducts of same system.
12. Existing ductlines and other utilities exist where the new ductline is to be constructed, install adjacent to existing ductlines is allowed. When necessary, dive under existing ductline or utilities for crossover. Existing ductline shall remain active until new street light system completed.
13. Type "A" backfill: Beach Sand, earth, or earth and gravel used, the maximum rock size shall be 1" and the mixture shall contain not more than 50% by volume of rock particles.

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CLARENCE C.K. KAM
LICENSED PROFESSIONAL ENGINEER
No. 1765-E
HAWAII, USA

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING DETAILS

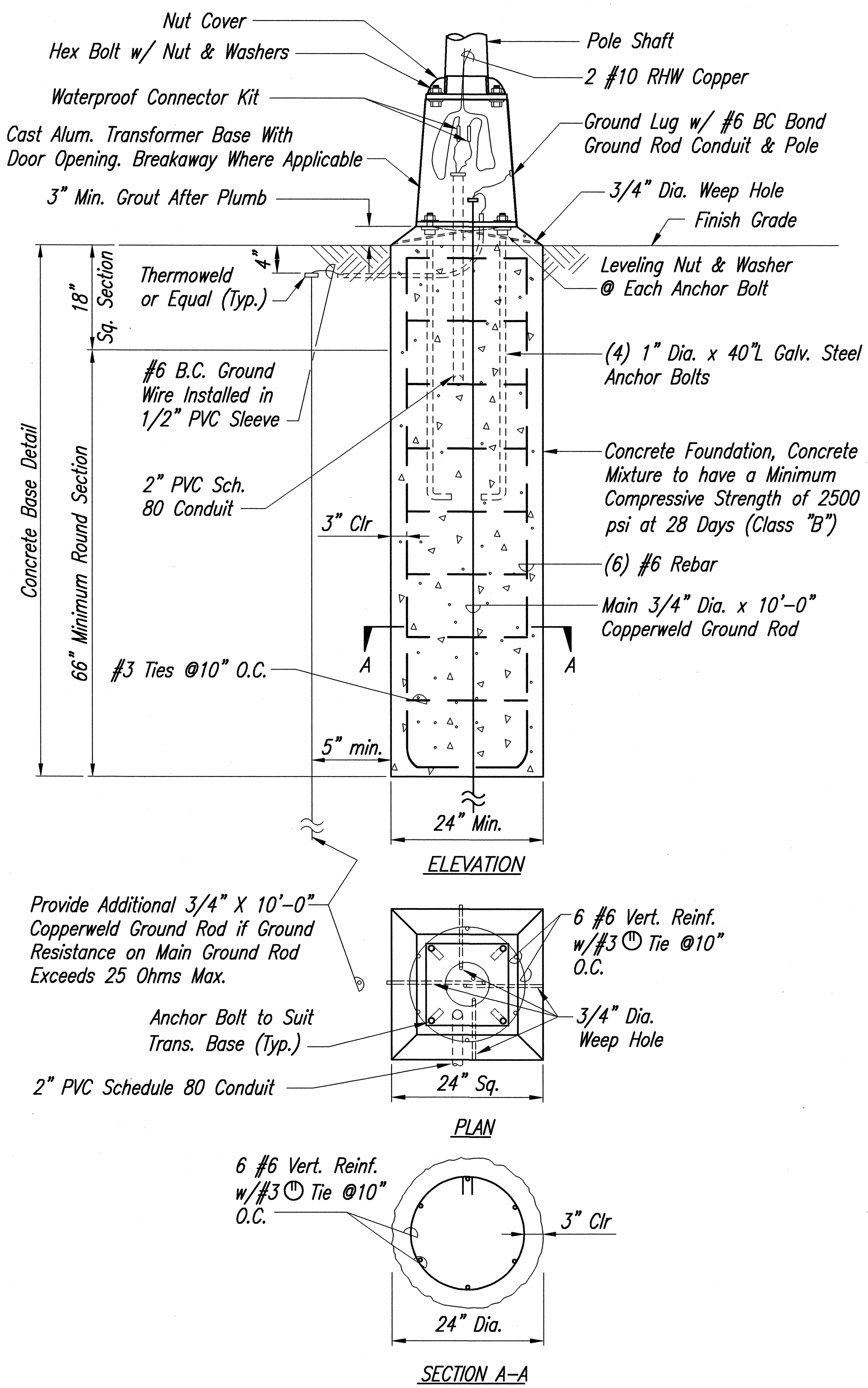
LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: As Shown Date: December, 2001

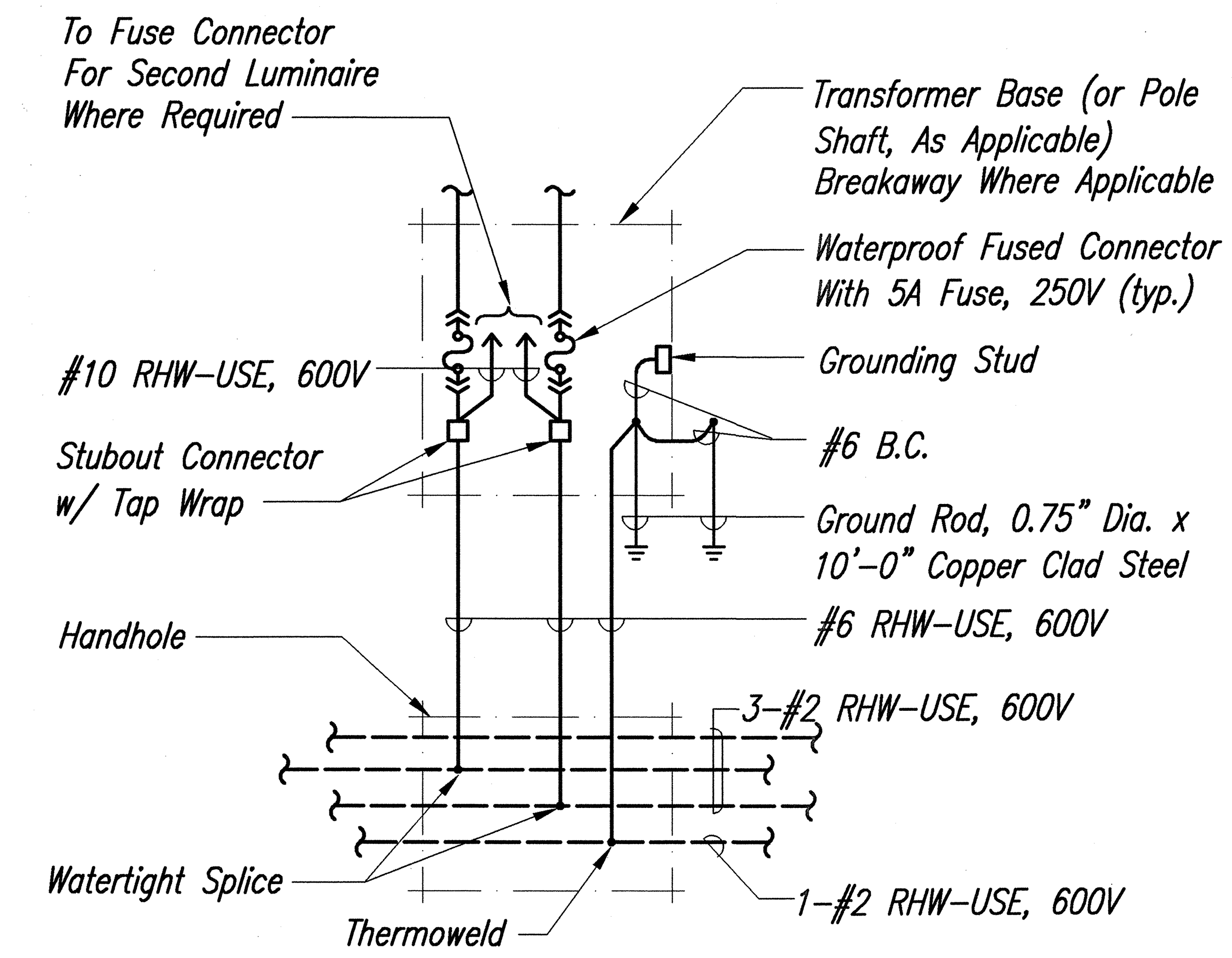
SHEET No. 21 OF 28 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	176	187



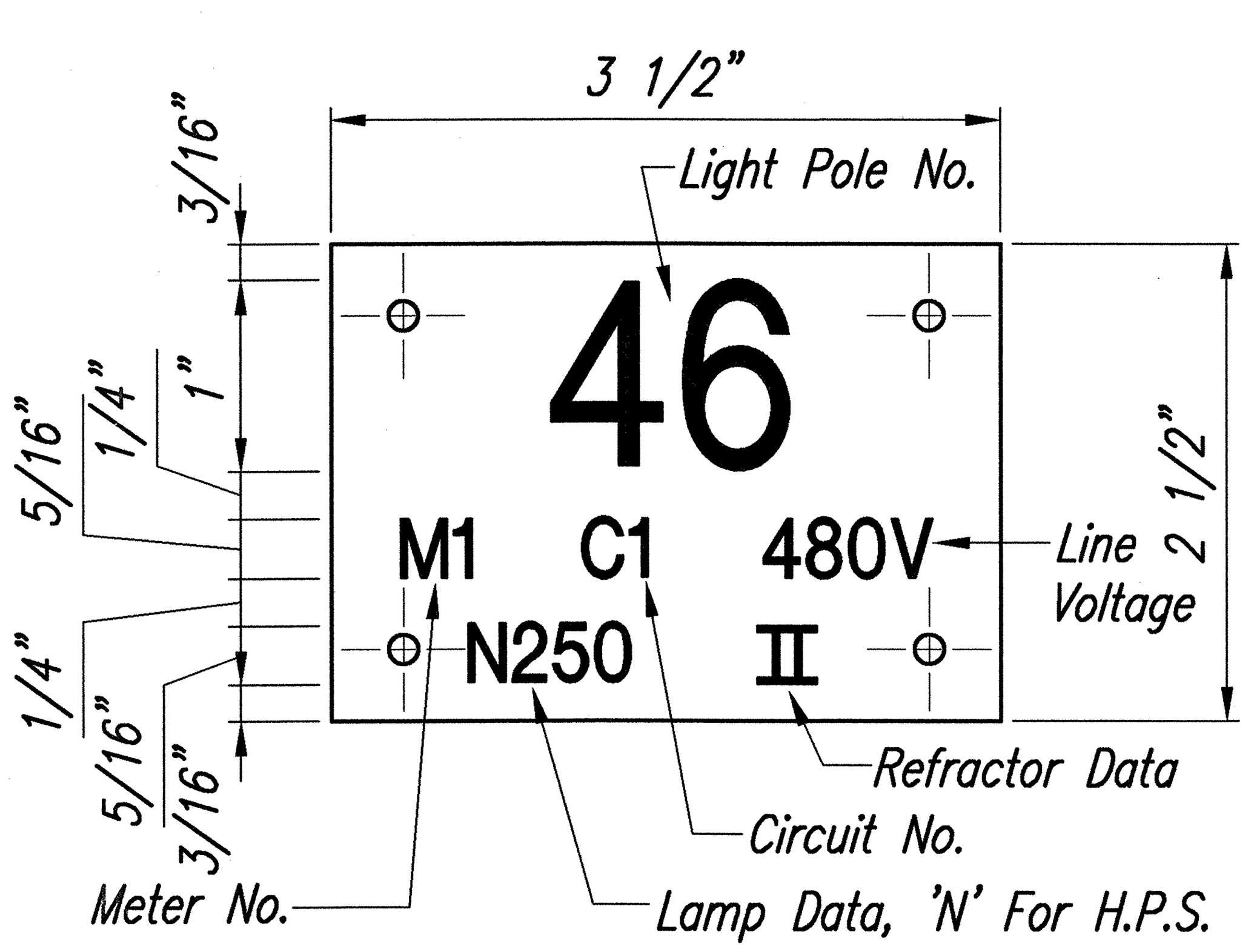
TYPICAL CONCRETE FOUNDATION AND TRANSFORMER BASE DETAIL
NOT TO SCALE



TYPICAL POLE WIRING CONNECTION DIAGRAM

NOTES:

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 (Meter Number, Circuit Number, Line Voltage, Lamp Data and Refractor Data As Required).
4. For Street Lights Served From Valley View Drive, Service Voltage Will Be 480V. For Street Lights Served From Wilson Tunnel, Service Voltage Will Be 240V.



HIGHWAY LIGHT I.D. TAG DETAIL – METERED SYSTEM
NOT TO SCALE

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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

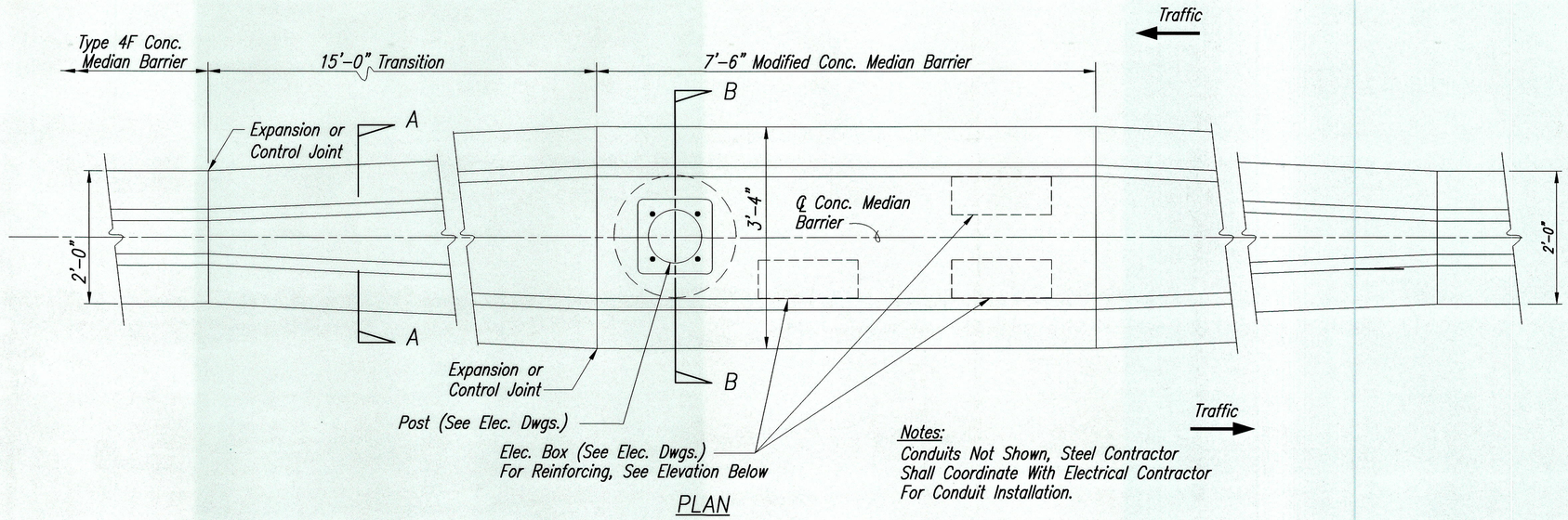
HIGHWAY LIGHTING DETAILS

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: As Shown Date: December, 2001

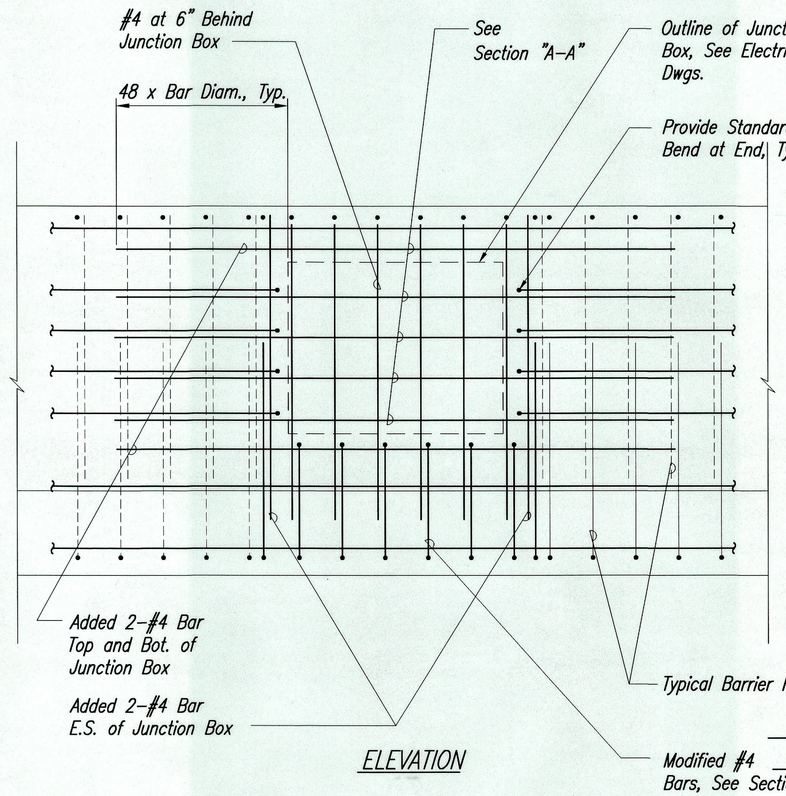
ORIGINAL PLAN / NOTE BOOK / No. / SURVEY PLOTTED BY / DRAWN BY / TRACED BY / DESIGNED BY / QUANTITIES BY / CHECKED BY / DATE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	177	187

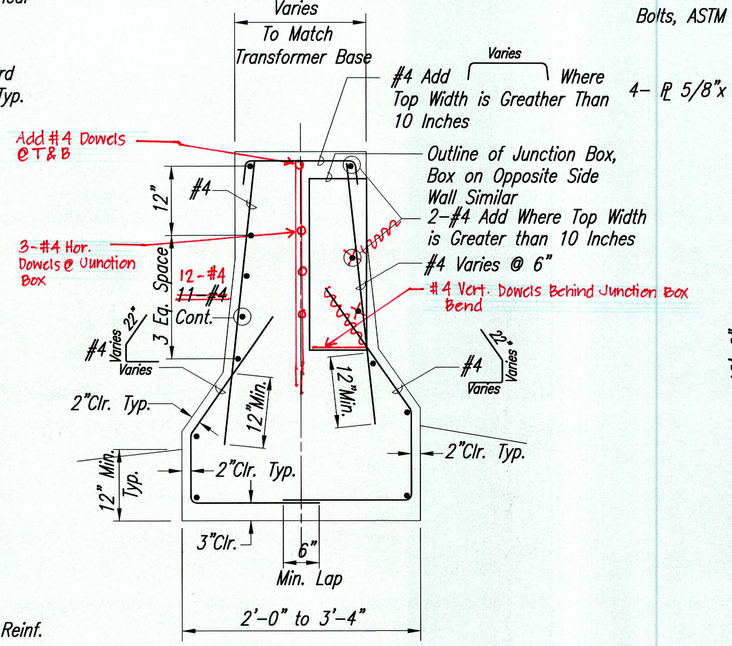


PLAN

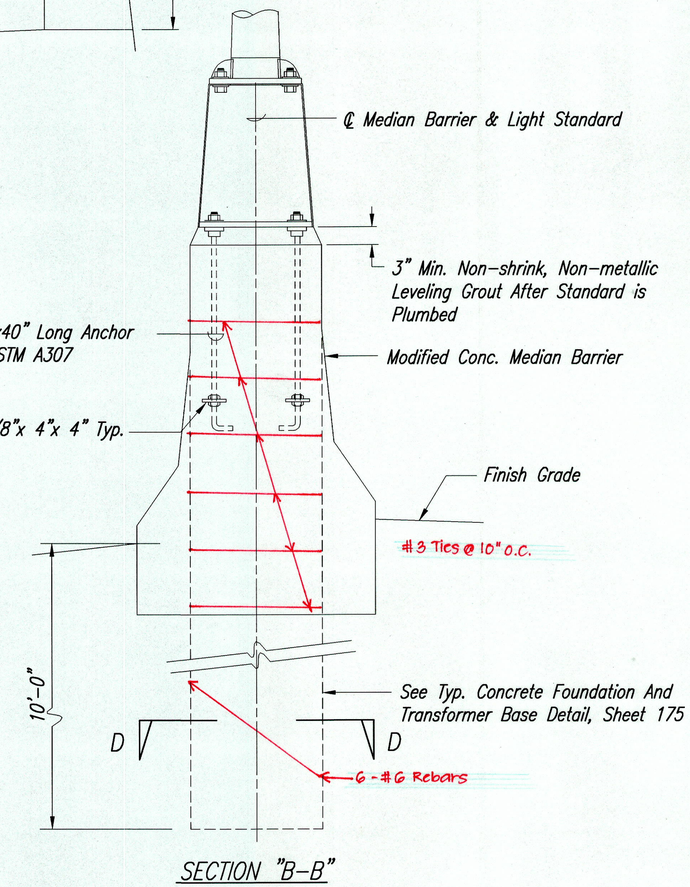
Notes:
Conduits Not Shown, Steel Contractor Shall Coordinate With Electrical Contractor For Conduit Installation.



ELEVATION



SECTION "A-A"



SECTION "B-B"

LIGHT STANDARD CONCRETE MEDIAN BARRIER MODIFICATION

Scale: 1"=1'-0"

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

CLARENCE C.K. KIM
LICENSED PROFESSIONAL ENGINEER
No. 7765-E
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MEDIAN BARRIER MODIFICATION AT LIGHT POLE

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: As Noted | Date: December, 2001

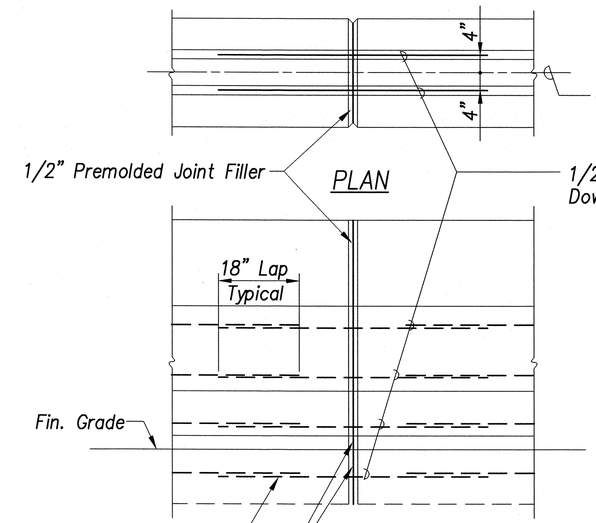
SHEET No. 23 OF 28 SHEETS

"AS-BUILT"

177

N:\Dot-Hwy\02405 CDE-SPECIAL HWY PROJECTS\0800 Likelike HWY RESURF\dgn\177.dwg December 6, 2001 11:43AM HIGHT

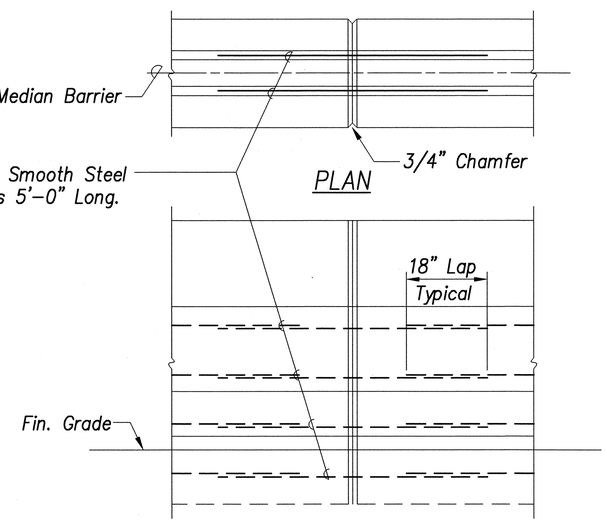
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	178	187



ELEVATION

EXPANSION JOINT DETAIL

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



ELEVATION

CONTROL JOINT DETAIL

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

Note: See Notes On Sheet 177.

CONCRETE MEDIAN BARRIER MODIFICATION DETAILS AND NOTES

Scale: As Shown

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

CLARENCE C.K. KAM
LICENSED PROFESSIONAL ENGINEER
No. 1765-E
HAWAII, U.S.A.

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C. Kam

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MEDIAN BARRIER MODIFICATION AT LIGHT POLE

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: As Noted Date: December, 2001

SHEET No. 24 OF 28 SHEETS

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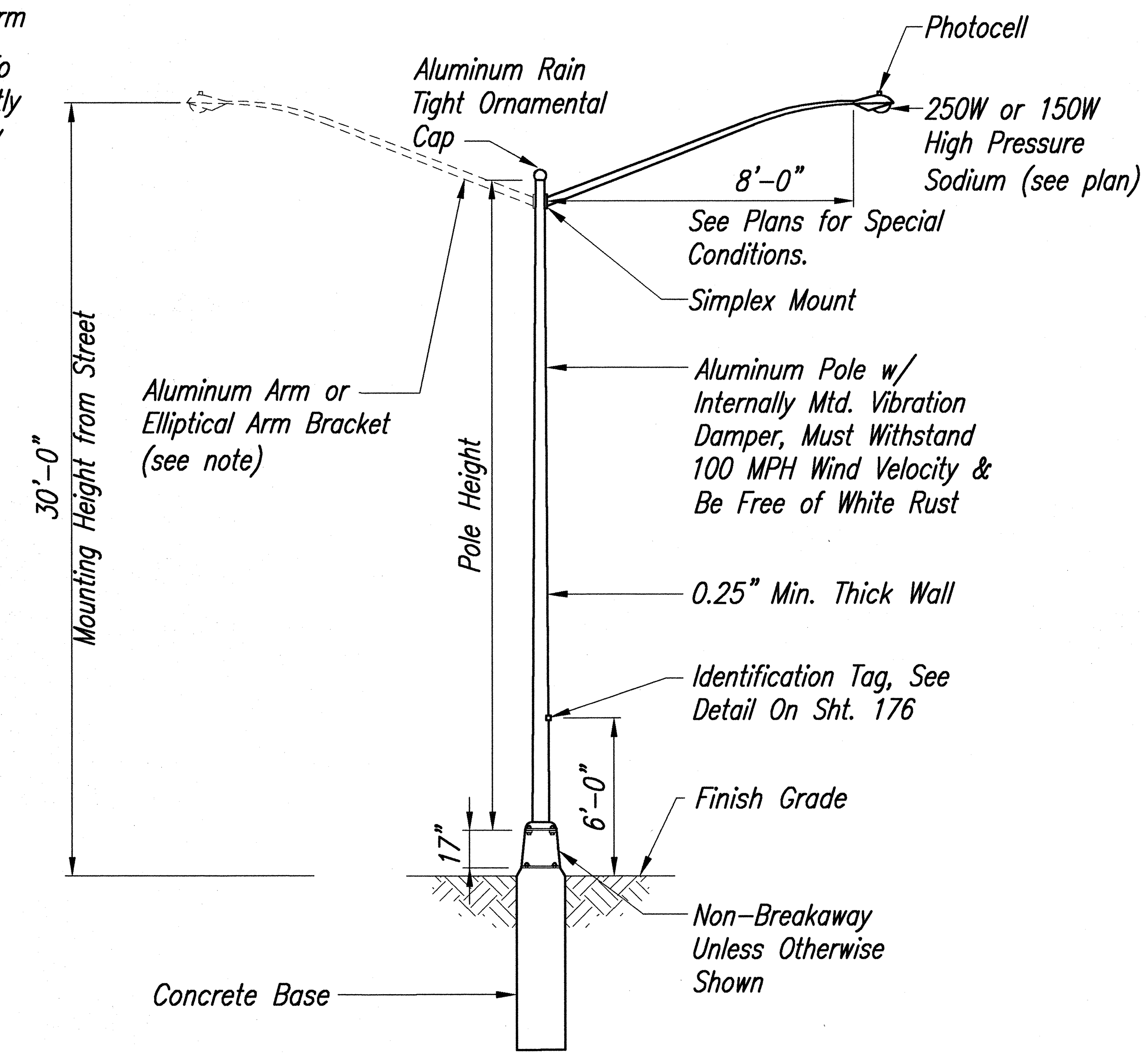
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	179	187

NOTES:

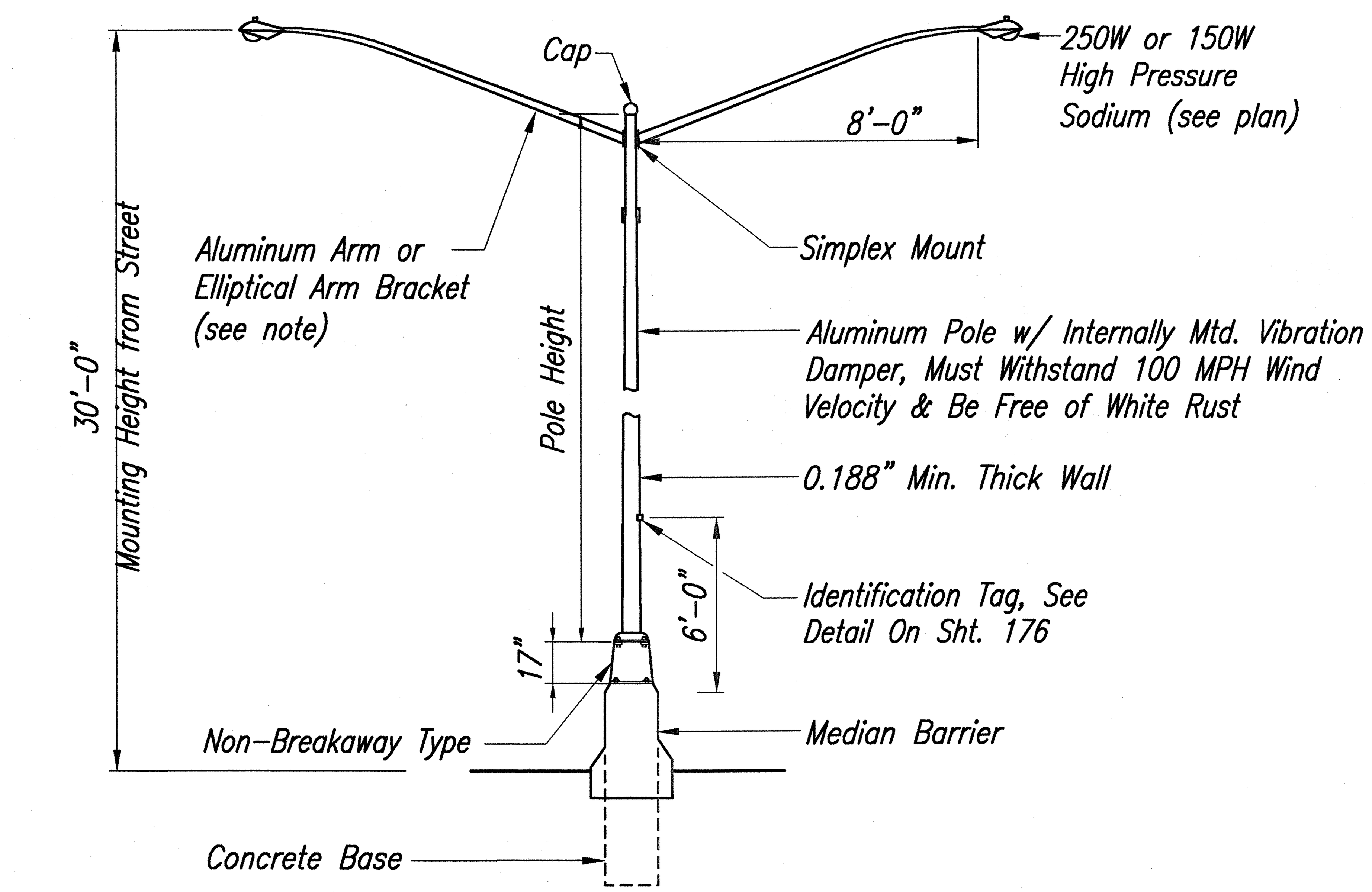
1. Use Elliptical Bracket Arm
2. Provide Arms Similar To Exist. Street Lights Recently Constructed At Rear Valley View Drive.
3. Breakaway Type Transformer Base Where Shown On Drawings.



TYPICAL LIGHT STANDARD INSTALLATION WITH TRANSFORMER BASE
NOT TO SCALE

NOTES:

1. Use Elliptical Bracket Arm
2. Provide Arms Similar To Exist. Street Lights Recently Constructed At Rear Valley View Drive.



TYPICAL LIGHT STANDARD INSTALLATION WITH TRANSFORMER BASE ON MEDIAN BARRIER
NOT TO SCALE

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

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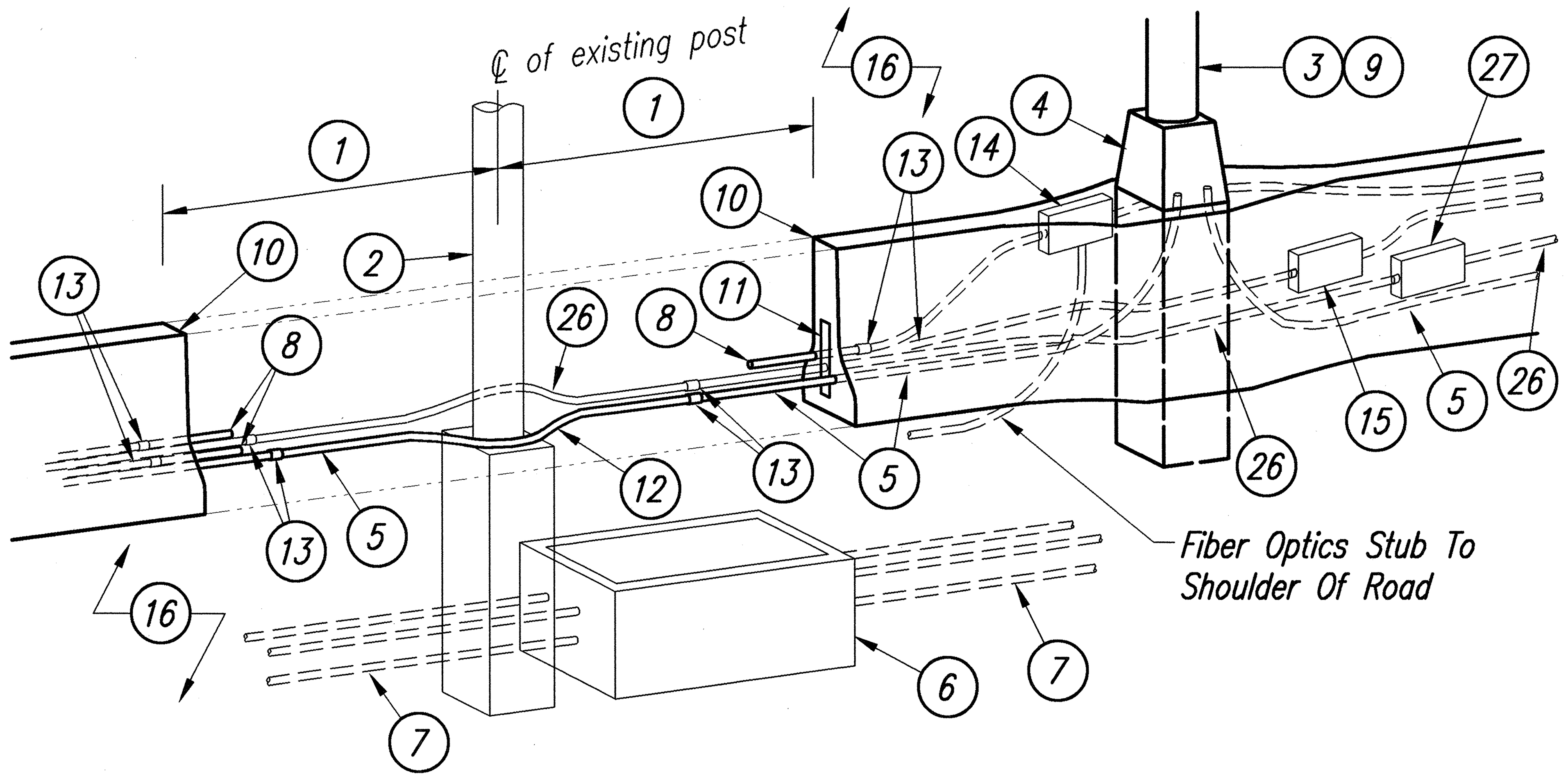
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING DETAILS

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

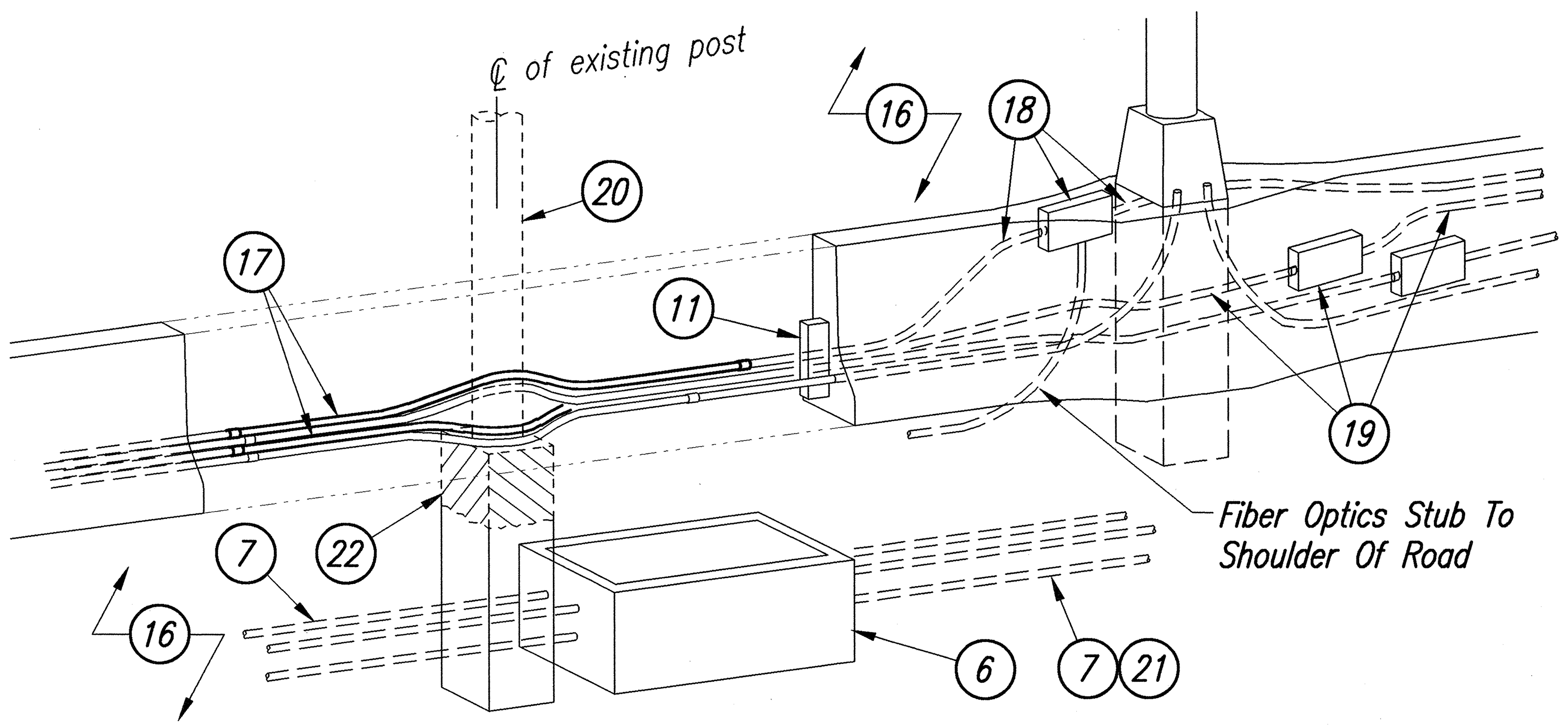
Scale: As Shown Date: December, 2001

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	180	187



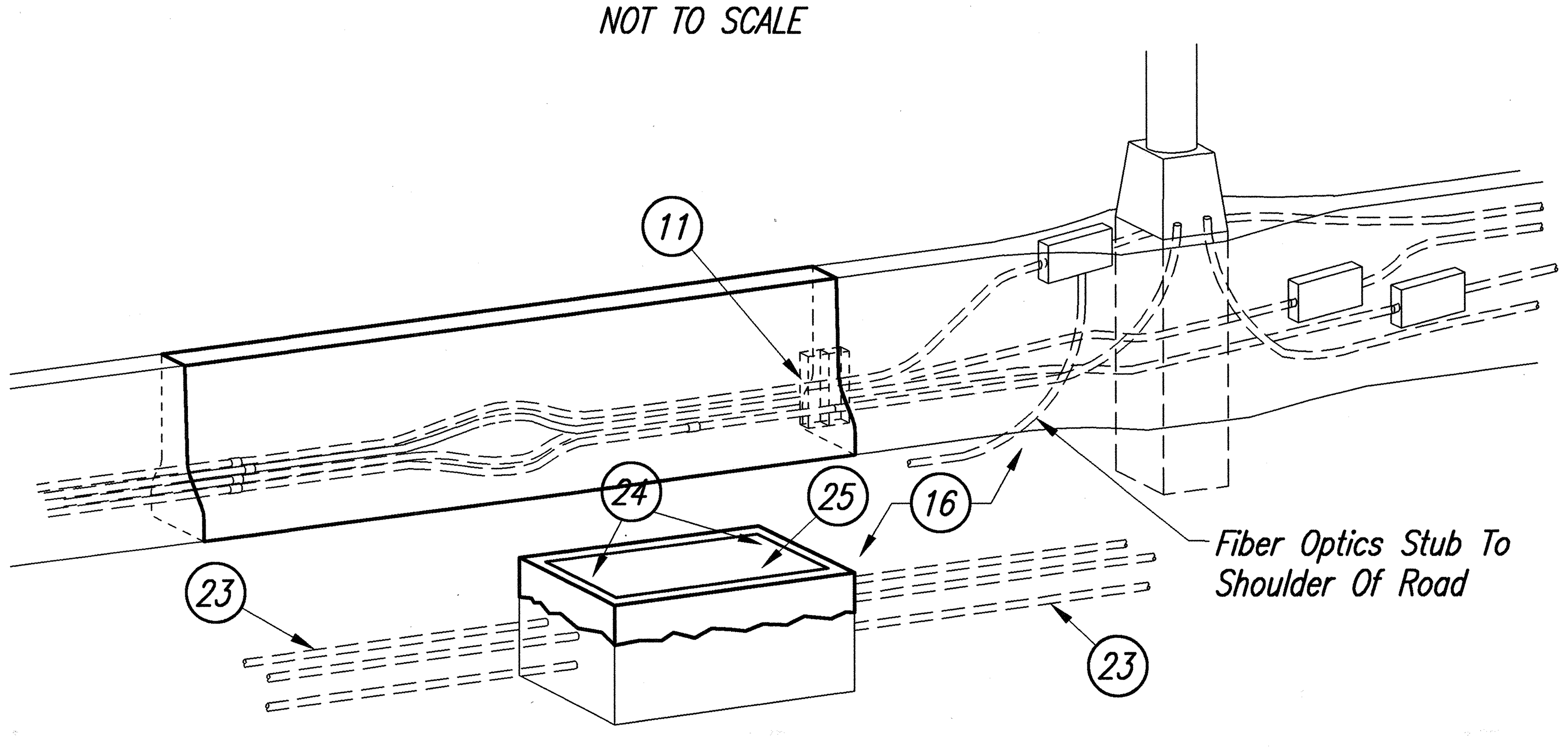
MEDIAN CONSTRUCTION AT STREET LIGHT DETAIL – STEP 1

NOT TO SCALE



MEDIAN CONSTRUCTION AT STREET LIGHT DETAIL – STEP 2

NOT TO SCALE



MEDIAN CONSTRUCTION AT STREET LIGHT DETAIL – STEP 3

NOT TO SCALE

NOTES:

(1) Minimum 5-Foot, Adjust To Suit Nominal Form Length, Taking Into Account The Minimum Working Clearances Required For The Work.

(2) Existing Street Light Pole. Protect And Maintain In Active Operation Until A Minimum Of Two (2) New Street Lights On Both Sides Of Existing Street Light Has Been Accepted For Beneficial Use.

(3) New Street Light. Install Within 30 Days Of Completion Of Section Of Median Barrier And Activate Within 15 Days Of Acceptance Of The Median Barrier System For Beneficial Use. Provide Extended Warranty On All Systems Accepted For Beneficial Use So That All Electrical Systems Start The Final One (1) Year Warranty At The Same Time, On The Date Of Final Acceptance By The State. All Materials Required To Incrementally Complete The Street Lighting System For Beneficial Use Shall Be Available Within 30 Days Of The Start Of The Barrier Construction.

(4) Non-Breakaway Transformer Base. Connect Ground Wire To Transformer Base Grounding Lug And To Median Barrier Reinforcing Rods. Access Cover Parallel To The Traffic Flow. Label Transformer Base With Large Letters Stencil Painted On Inside Cover. Install Cable Tags On All Wires.

(5) Install Street Light 2"C PVC (Schedule 80) With Feeder Wires And Activate Street Lighting System For Beneficial Use. Test And Certify Before Initiating Beneficial Use Processing. Install Cable Tags On All Wires.

(6) Existing Handhole To Remain.

(7) Existing Ductline And Feeders To Remain.

(8) Stub 3"C PVC (Schedule 80), Minimum Of 24-Inches From Face Of Median Barrier. Final Coupling Shall Not Be Within 24-Inches Of Construction Joints.

(9) Adjust Location Of New Street Light To Clear Existing Street Light To Allow For Working Clearances For Installation Of New Junction Boxes, Conduits, And Street Light A Minimum Of 8-Foot Clear.

(10) Stop Barrier To Allow For Work At Existing Street Light. Provide Key At Construction Joint.

(11) Barrier Key Slot.

(12) Install At Thickened Section Of Barrier And Provide Minimum Of 2.5 Inches Of Concrete Over Conduit.

(13) Coupling Shall Be Minimum Of 24-Inches Away From The Construction Joints.

(14) Junction Box For Fiber Optics, 24"x30"x8" Stainless Steel.

(15) Junction Box For Street Lighting, 24"x30"x8" Stainless Steel.

(16) Temporary Protective Barriers Not Required While Lanes Are Closed For The Work. If The Sections Of The Final Barrier Construction Are Deferred (As In Step 2) And The Traffic Lanes Are Reopened For Normal Traffic, Temporary Protective Barriers Are To Be Installed. Temporary Barriers Are Not Shown But Shall Be Provided In Accordance With Recommendations Of "Safety Systems".

(17) Connect Stubs With Split Couplings, 3"C PVC (Schedule 80).

(18) Clear Fiber Optics Conduit And Junction Box. Install Pull Cord. Install No. 1/0 Grounding Wire And Bond To Junction Box. Label Junction Box With Large Letters Stencil Painted On Inside Cover.

(19) Clear Street Light Conduit And Juction Box. Install Feeder Wires And Bond Grounding Wire To Junction Box. Label Junction Box With Large Letters Stencil Painted On Inside Cover. Install Cable Tags On All Wires.

(20) Disconnect Feeders And Remove Street Light Pole And Luminaires. Remove Tap From Service Handhole.

(21) Existing Street Light Feeders To Remain In Operation.

(22) Demolish Street Light Foundation To Approximately 24-Inches Below Existing Finished Grade.

(23) Existing Ducts to Remain. Remove Feeder Cables After New Street Lighting System Completed.

(24) Pack Duct Openings With Concrete.

(25) Demolish Handhole And Fill After New Street Lighting System Completed. Fill Material Shall Match Exist Material Adjacent To Handhole. Seal Duct Opening.

(26) Stub 2-2"C PVC (Schedule 80), Minimum Of 24-Inches From Face Of Median Barrier. Final Coupling Shall Not Be Within 24-Inches Of Construction Joints.

(27) Junction Box For Overheight Detector, 24"x30"x8" Stainless Steel.

GENERAL NOTES:

1. Arrange For Activation Of New Street Lighting Sytem On Basis Of Beneficial Use During Construction Of Remainder Of Project.
2. Demolition Work Shall Be Authorized After 2 Weeks Of Activation For Beneficial Use.
3. Contractor Shall Provide Extended Warranty and Guarantee Period To Account For Beneficial Use Period.
4. At Movable Barriers, Adjust to Accommodate Work Required. Coordinate with Specialty Contractor.
5. Wall Mounted Junction Boxes Shall be Coordinated with Barrier Reinforcing, Shifting Location of Junction Boxes and Conduits to Fit Reinforcing Configuration and Placement. Junction Boxes Shall be Heavy Duty Rated, Minimum 3/8" Wall thickness, Internal Flanged Recessed Gasketed Cover for Flush Mounting to Concrete Surface, and Installed as Near to the top of the Wall as Possible.

CLARENCE C. K. KAM — LICENSED PROFESSIONAL ENGINEER — No. 1765-E — HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING DETAILS

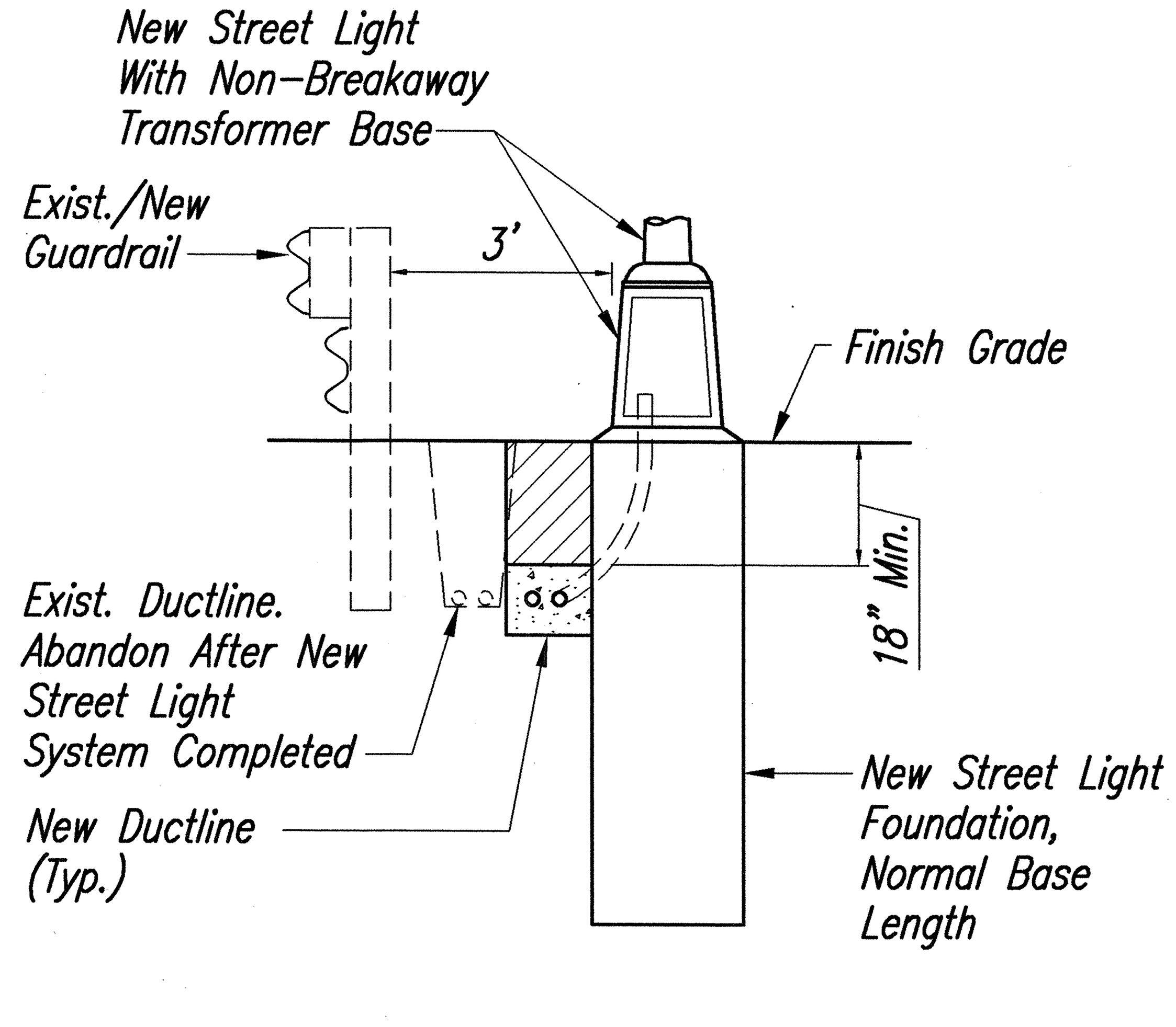
LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: As Shown — Date: December, 2001

SHEET No. 26 OF 28 SHEETS

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

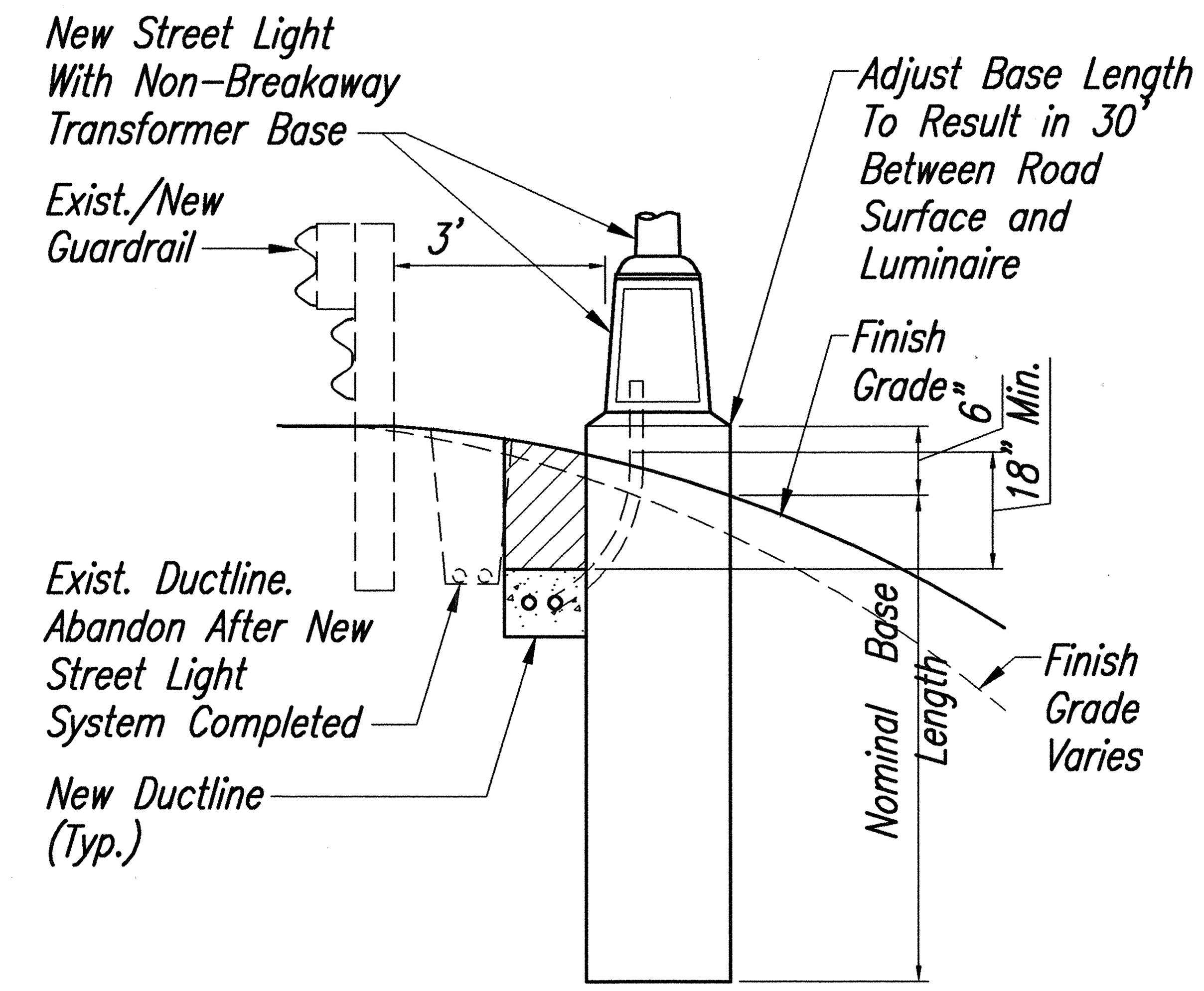
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2002	181	187



@ GUARD RAIL (TYPE I)

TYPICAL STREET LIGHT INSTALLATION

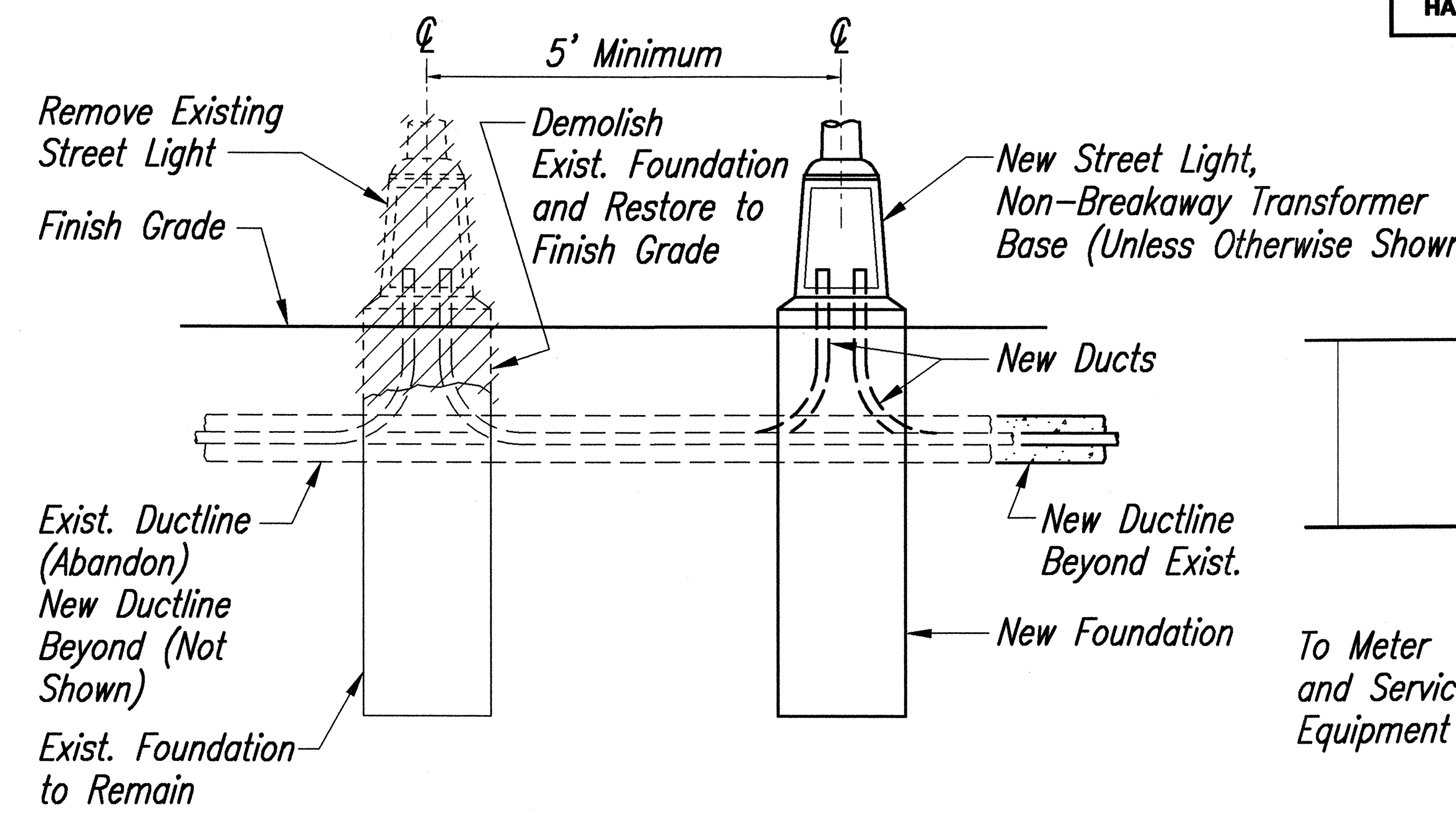
Not to Scale



@ GUARD RAIL AND SLOPE (TYPE II)

TYPICAL STREET LIGHT INSTALLATION

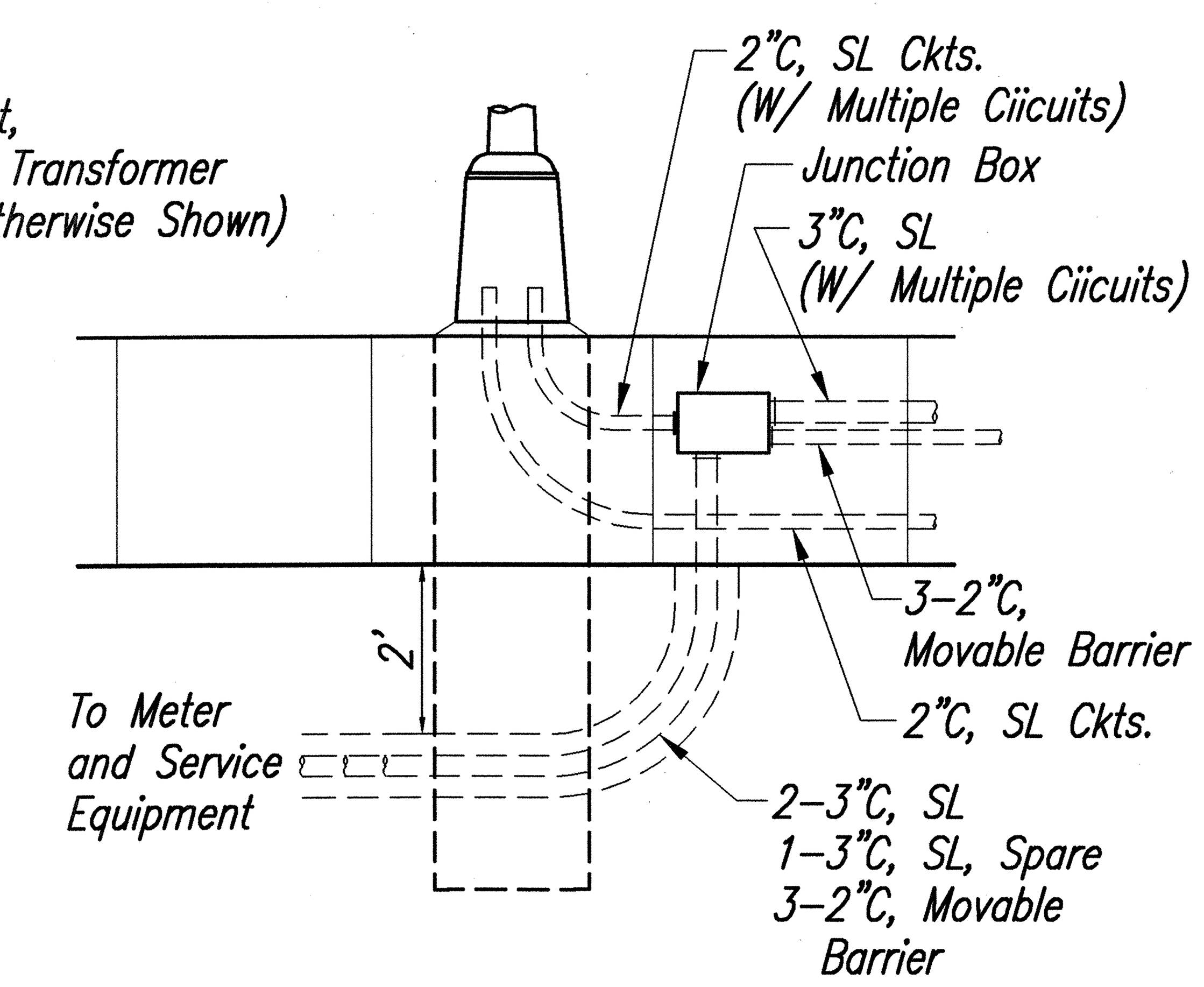
Not to Scale



ADJACENT TO EXISTING STREET LIGHT

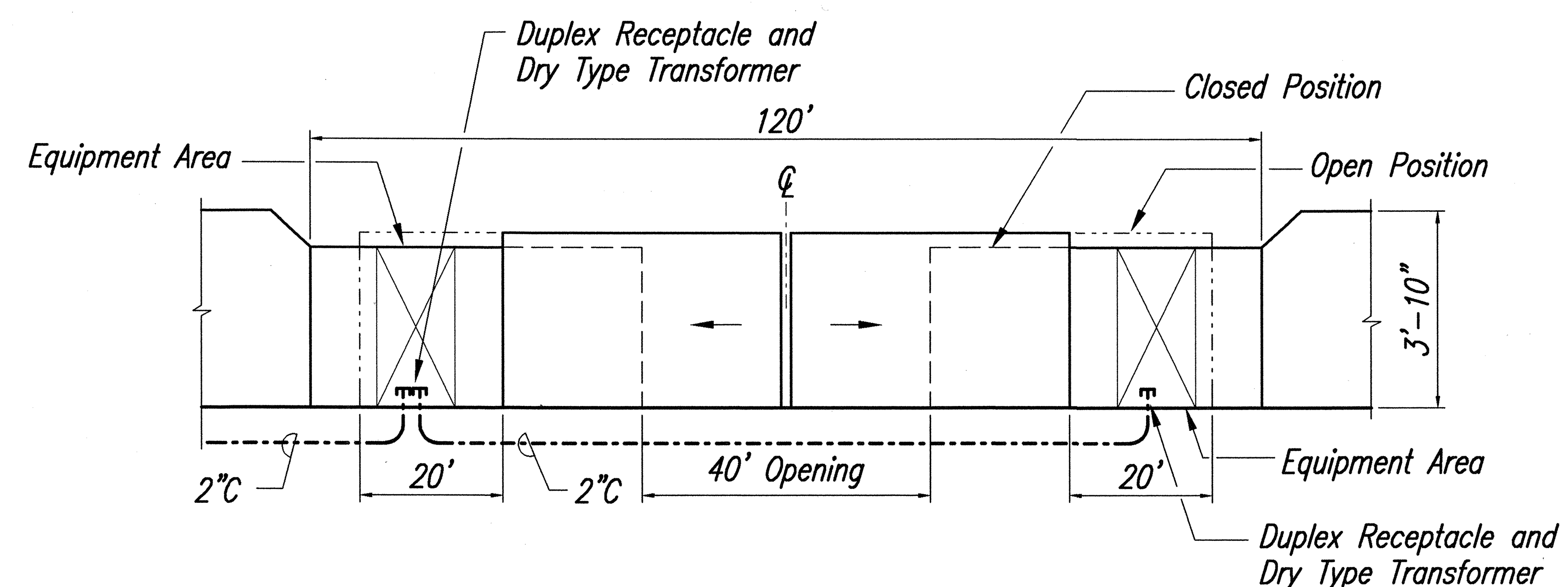
TYPICAL STREET LIGHT INSTALLATION

Not to Scale



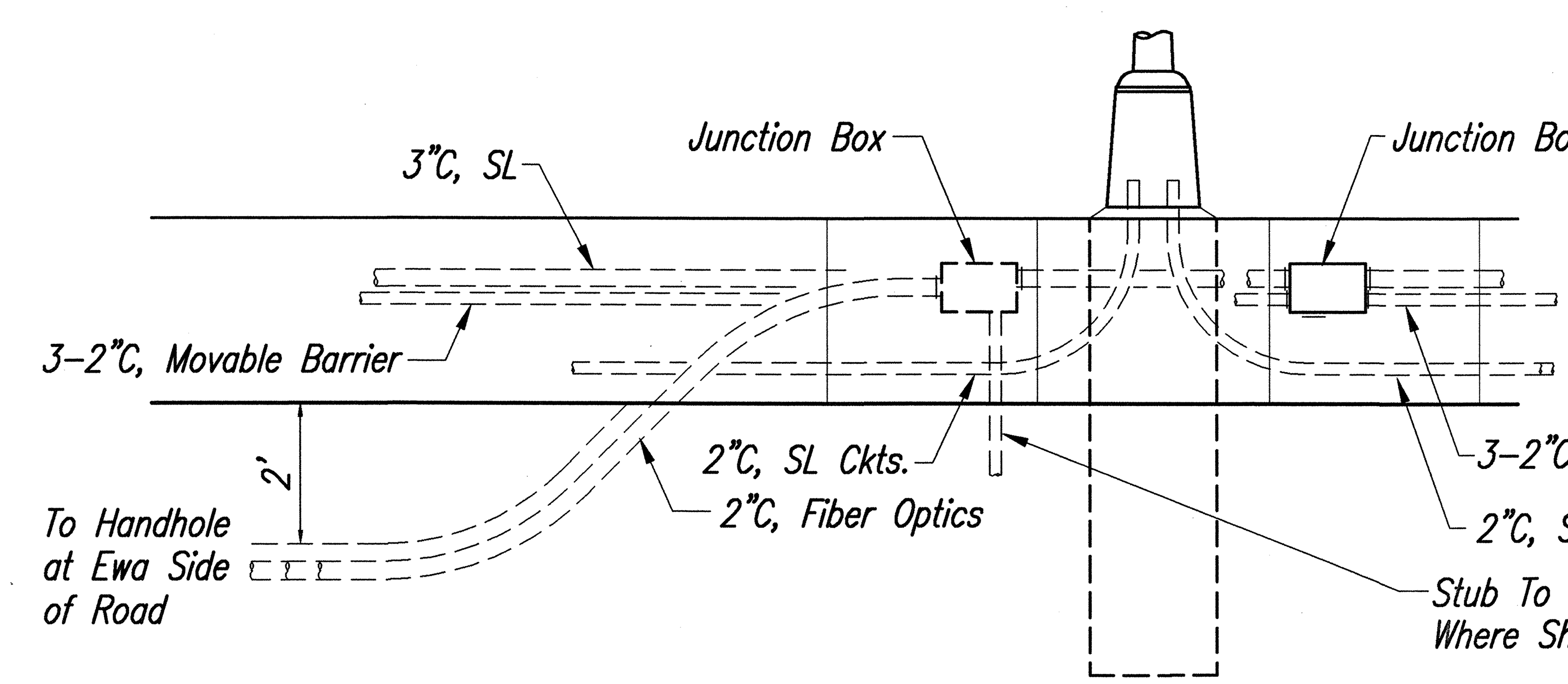
HWY. LIGHTING @ STA. 97+62

NOT TO SCALE



MOVABLE BARRIERS

NOT TO SCALE



HWY. LIGHTING @ STA. 99+33

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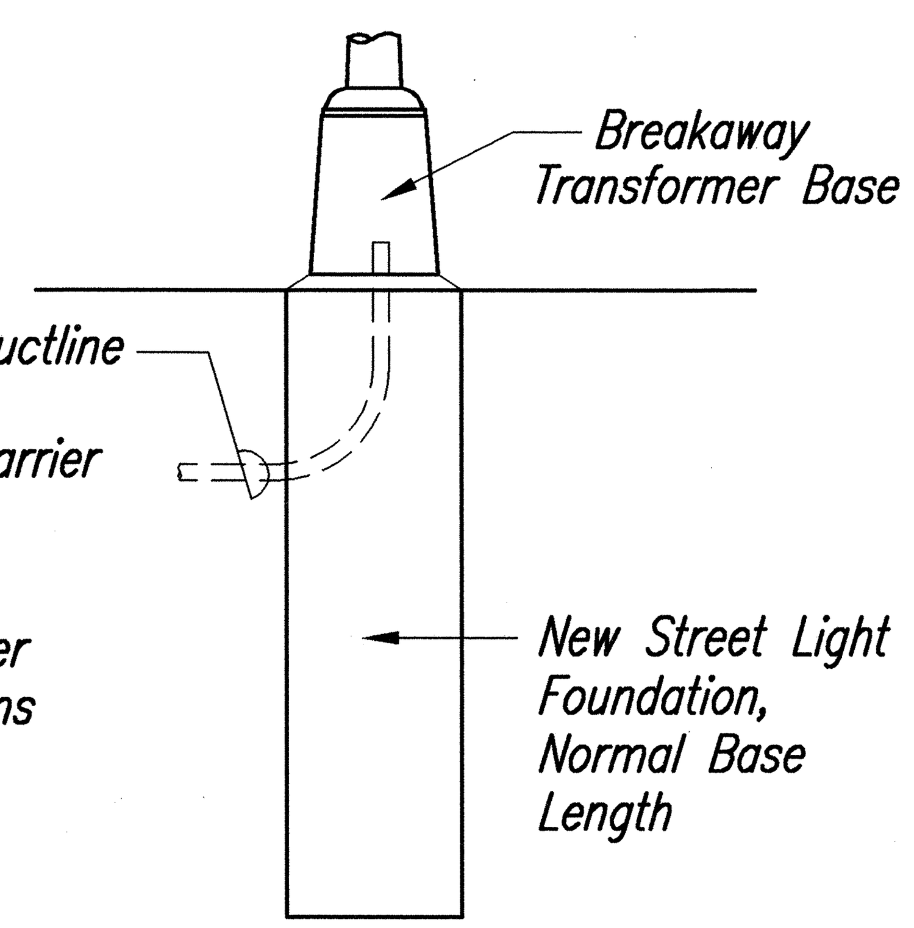
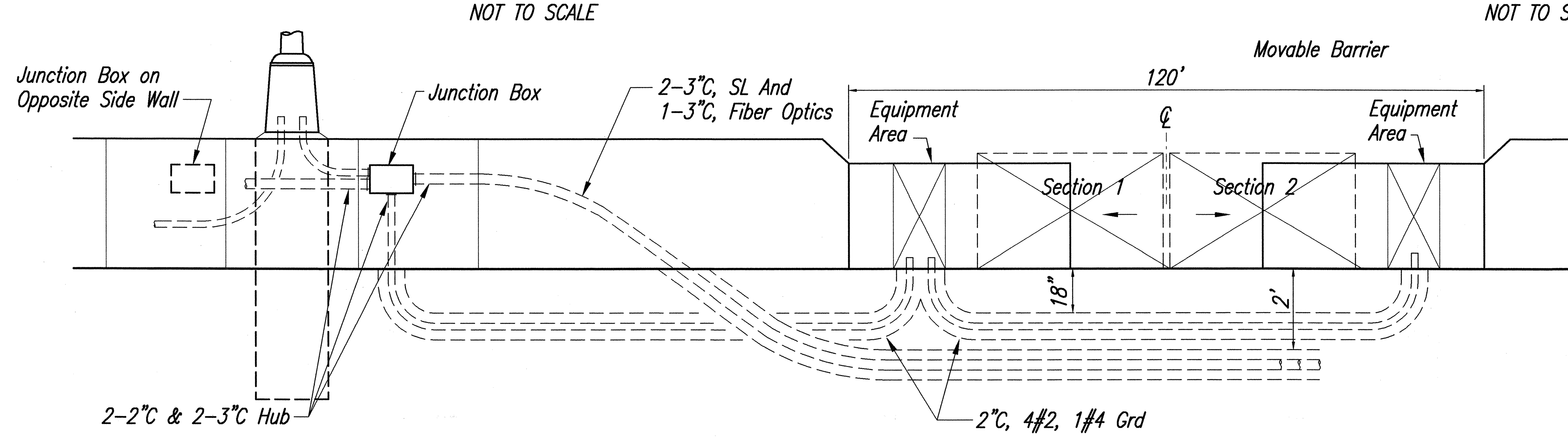


DETAIL FOR BREAKAWAY TRANSFORMER BASE

NOT TO SCALE



HWY. LIGHTING @ MOVABLE BARRIERS

NOT TO SCALE

CLARENCE C. KAM
LICENSED PROFESSIONAL ENGINEER
No. 1765-E
HAWAII, U.S.A.

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C. Kam

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING DETAILS

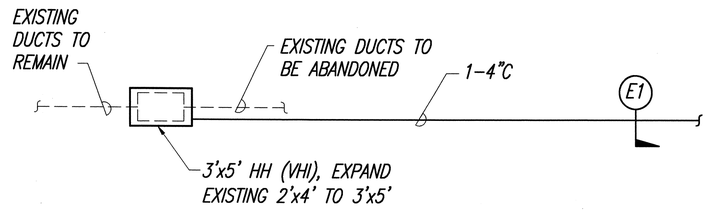
LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

Scale: As Shown Date: December, 2001

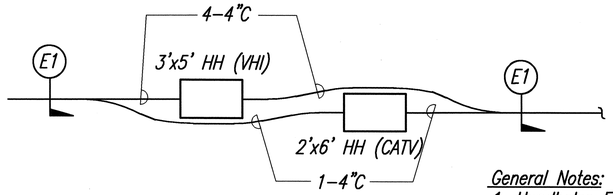
SHEET No. 27 OF 28 SHEETS

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CM-STP-063-1(21)	2001	182	187



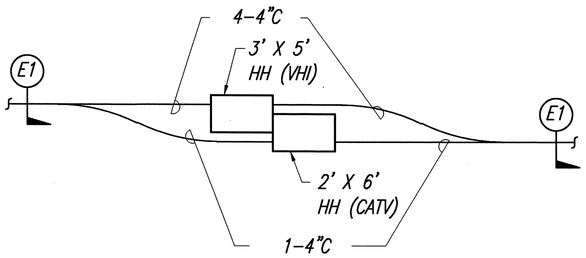
STA. 221+70



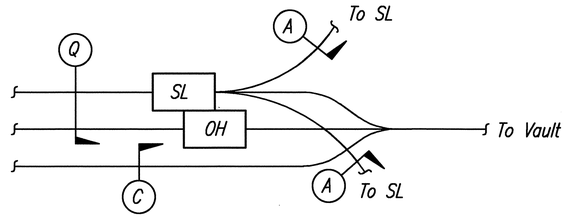
Note:
See Sta. 195+60.

STA. 229+00

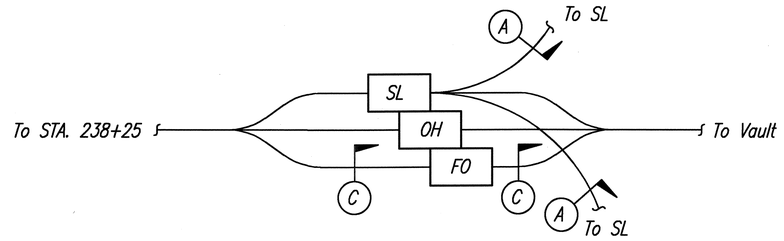
General Notes:
1. Handholes For Verizon Hawaii And Oceanic Cable Shall Be 3'x5' and For Oceanic Cable Shall be 2'x6', With Traffic Bearing Cover And Spaced Approximately 500-Ft. On Center.



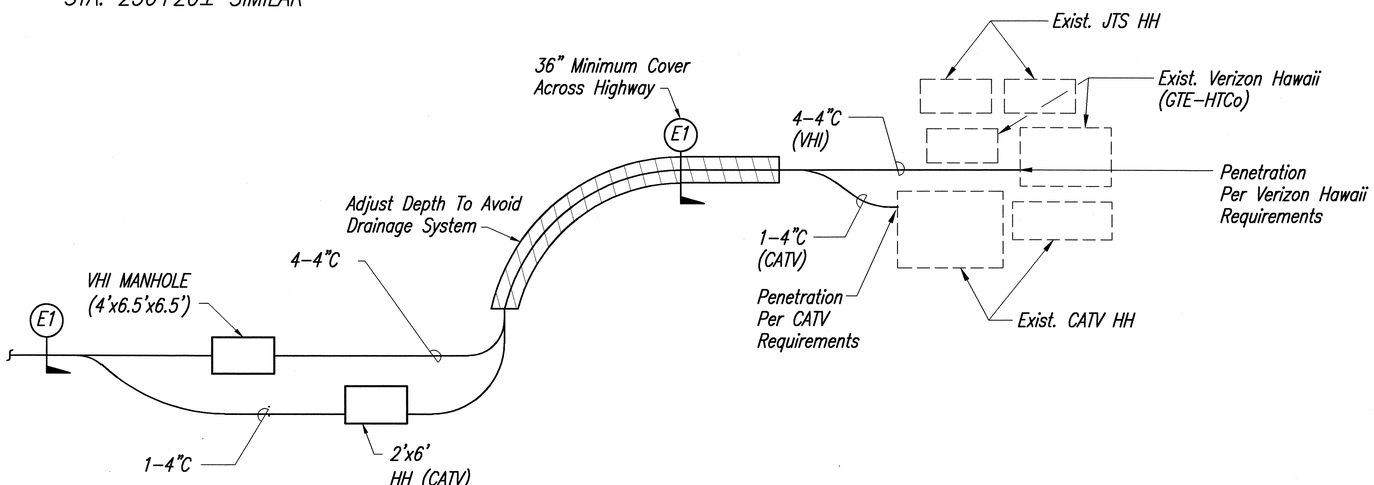
STA. 225+60
STA. 233+00± SIMILAR
STA. 236+20± SIMILAR



STA. 238+25



STA. 240+00



STA. 240+50±

HANDHOLE GROUP PLANS
Not to Scale

APPROVED:

K.S. Verizon Hawaii, Inc. (GTE-HTCO) — 12/10/01 Date

Oceanic Cable — 12/12/01 Date

CLARENCE C.K. KAM LICENSED PROFESSIONAL ENGINEER No. 1765-E HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
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HIGHWAY LIGHTING DETAILS

LIKELIKE HIGHWAY RESURFACING
Emmeline Place to the Wilson Tunnel
F. A. Project No. CM-STP-063-1(21)

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SHEET No. 28 OF 28 SHEETS

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

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