FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7413A-01-04M	2014	43	62

TRAFFIC SIGNAL NOTES

1. The locations of the Traffic Signal Standards, Traffic Signal Standards w/Mast Arms, Pedestrian Push Buttons, 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. All Traffic signal controller equipment shall be completely wired in the cabinet and shall control the traffic signals as called for in the plans.
6. The loop amplifier units furnished for this project shall be capable of operating the loop detector configurations shown on the plans. Cost for the loop amplifier shall be incidental to the installation of the loop detector.
7. 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.
8. All traffic signal work shall conform to the requirements of the "Manual On Uniform Traffic Control Devices For Streets And Highways", Federal Highway Administration (1988) and Amendments.
9. 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.
10. All Conduits between pullboxes and Traffic Signal/Highway Lighting Standards shall not be paid for separately but shall be considered incidental to the various contract items.
11. 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.
12. 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.
13. 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.
14. Connecting into existing traffic signal system and making all necessary adjustments shall not be paid for separately, but considered incidental to the various traffic signal contract items.
15. The Contractor shall notify the Traffic Control Branch, Department of Transportation Services, City & County of Honolulu, (Phone No. 768-8388) two weeks prior to commencing any work on the traffic signal system.

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

TRAFFIC SIGNAL LEGEND

NEW	EXISTING	
		Traffic Signal Conduit
1 2 3	1 2 3	Conduit Run Numbers
A B C	A B C	Equipment description, installation or item no.
M	M	Traffic Signal Master Controller Door Indicates Front of Cabinet
C	C	Traffic Signal Controller Door Indicates Front of Cabinet
		Meter Pedestal
		12" RYG Traffic Signal Head
		12" ↑ R↑Y↑G Traffic Signal Head
		12" ←R←Y←G Traffic Signal Head
		12" ←R←Y←G Traffic Signal Head (Programmed Visibility)
		12" RYG ←G/Y Fiber Optic Traffic Signal Head
		Type I Standard and Attached Signals
24' 12'		Type II Standard with Signal Mast Arm and Attached Signals (Nos. indicates mast arm length & distance between signal heads as specified on plans)
8' 24' 12'		Type III Standard with Luminaire and Signal Mast Arm and Attached Signals (Nos. indicates mast arm lengths & distance between signal heads as specified on plans)
Y	Y	Flashing Beacon, One Signal Section, "Y" indicates 12" Yellow Lens
		Opticom Receiver (Arrow indicates direction detector faces)
		Pipe Guard
		Pedestrain Signal Head
	tspb	Type A Pullbox
	tspb	Type B Pullbox
	tspb	Type C Pullbox
		Loop Detectors

HIGHWAY LIGHTING LEGEND

NEW	EXISTING	
HL	hl	Highway Lighting Conduit
	hl	Type A Pullbox (Hwy. Ltg.)
		Highway Lighting Standard

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

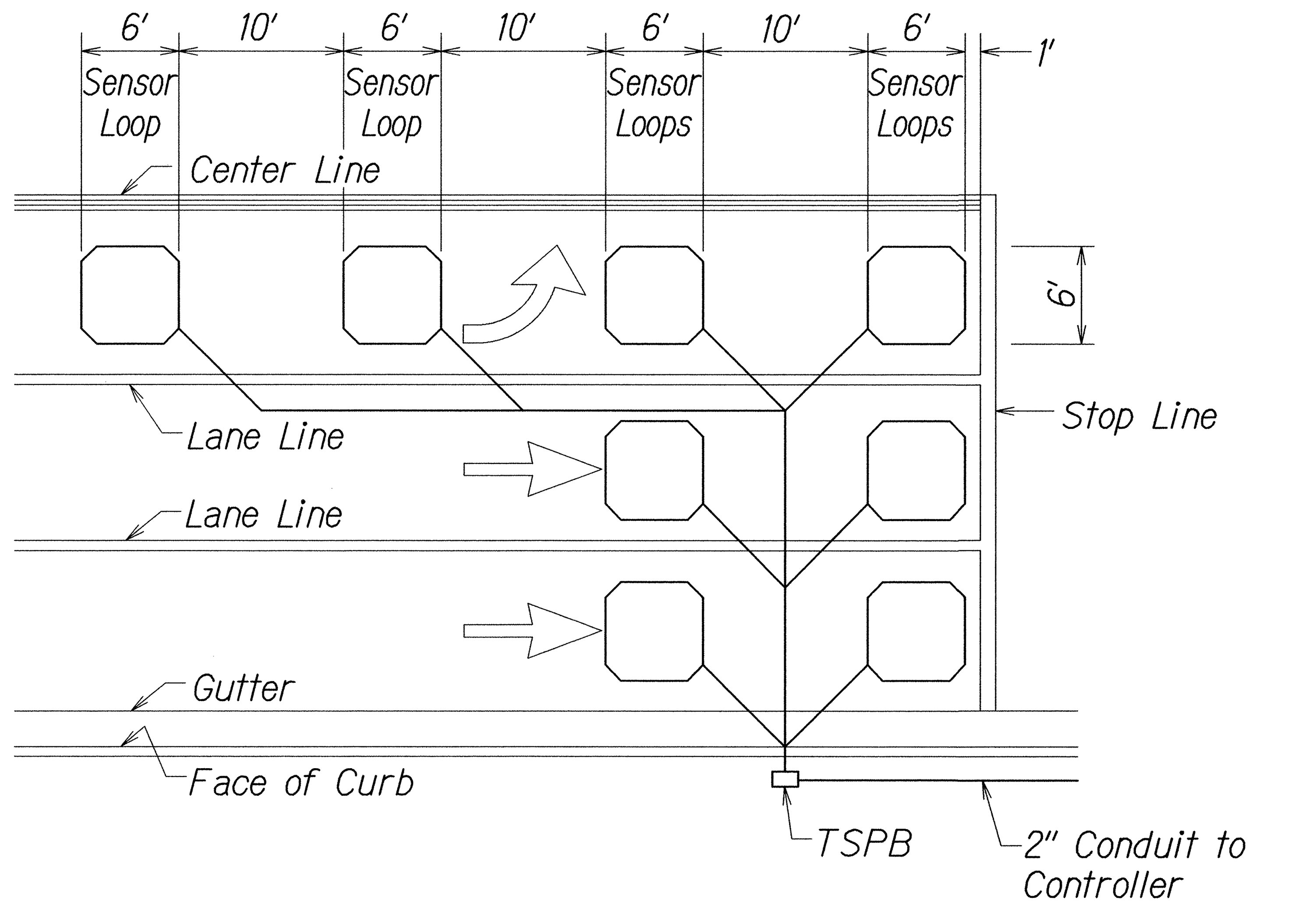
TRAFFIC SIGNAL NOTES AND LEGEND

LILIHA STREET REHABILITATION
North King Street to School Street
Project No. 7413A-01-04M

Scale: As Noted Date: May 2014

SHEET No. 77 OF 12 SHEETS

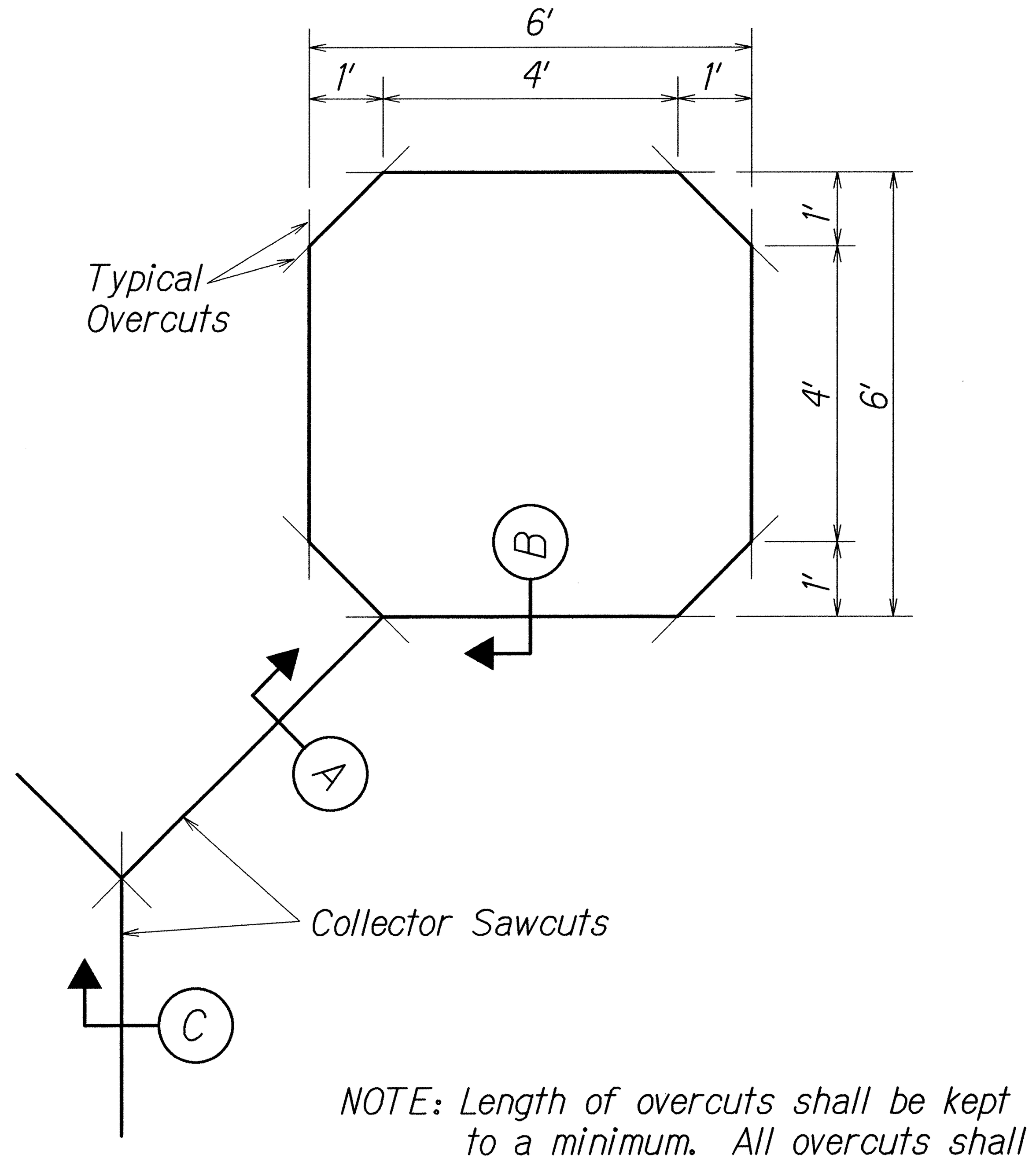
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7413A-01-04M	2014	44	62



NOTES:

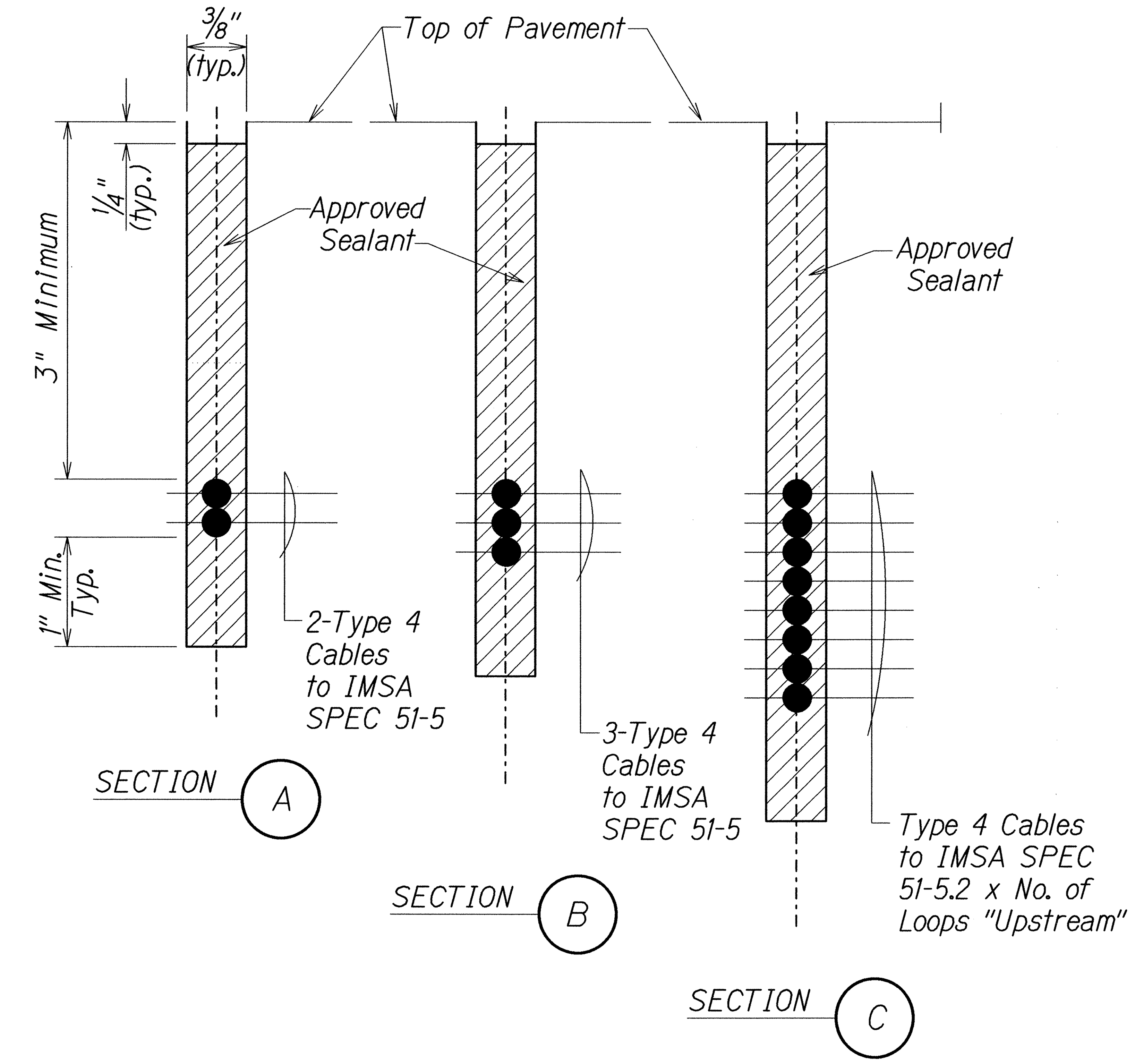
1. Center sensor loops in lanes.
2. Collector cables shall be twisted 2 turns per foot.
3. Number of loops and locations vary. See project plans.
4. Number and locations of collector sawcuts may be varied in the field to suit.

TYPICAL SENSOR LOOP LAYOUT



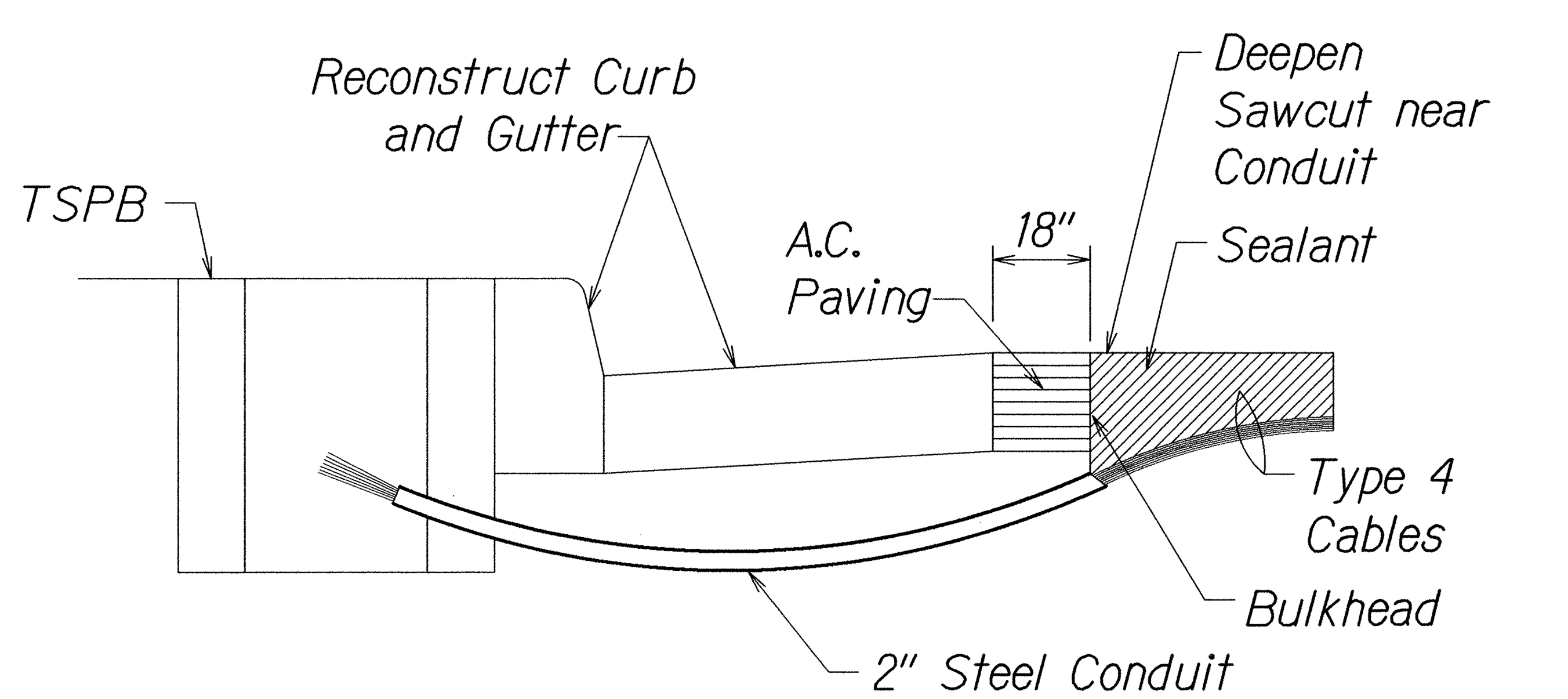
NOTE: Length of overcuts shall be kept to a minimum. All overcuts shall be back filled with hot tar.

TYPICAL SENSOR LOOP SAWCUT DETAIL



TYPICAL SECTION THROUGH SENSOR LOOP

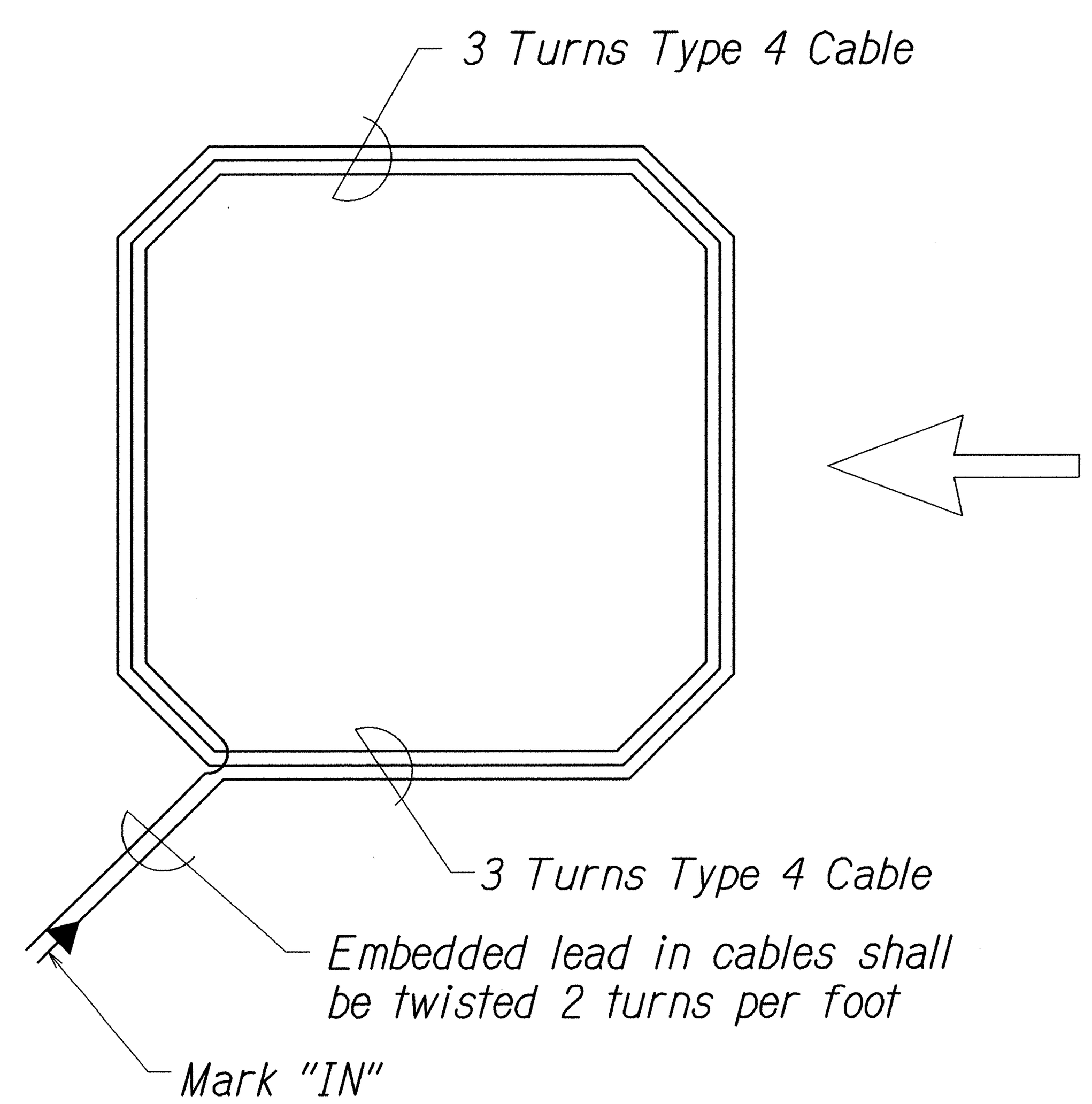
Not to Scale



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 A.C.
5. Reconstruct curb and gutter as required.

DETAIL OF SENSOR LOOP INSTALLATION AT EDGE OF ROADWAY



TYPICAL SENSOR LOOP WIRING DIAGRAM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

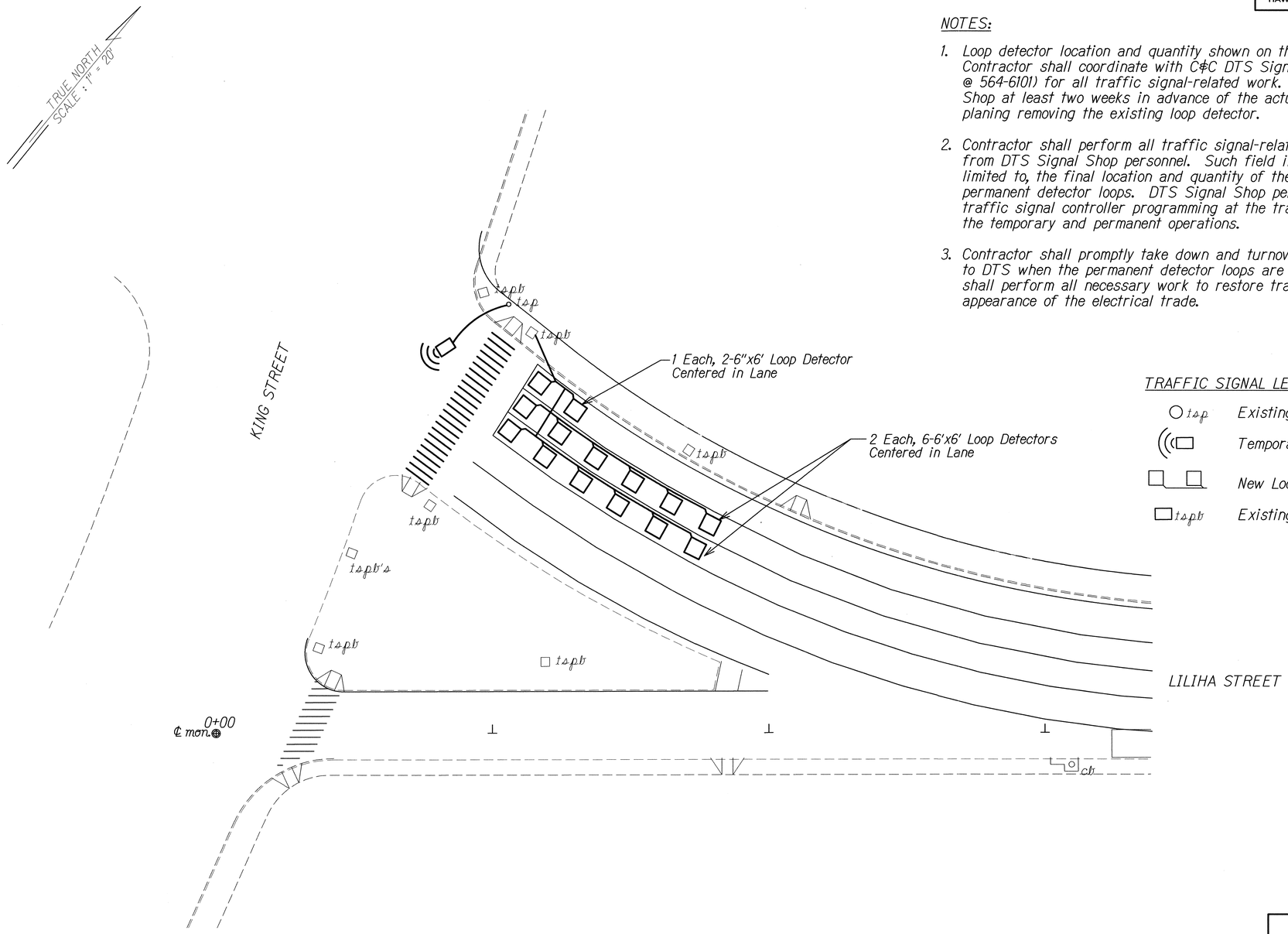
LOOP DETECTOR DETAILS

LILIHA STREET REHABILITATION
North King Street to School Street
Project No. 7413A-01-04M

Scale: As Shown Date: May 2014

SHEET No. T8 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7413A-01-04M	2014	45	62



NOTES:

1. Loop detector location and quantity shown on this plan are only approximate. Contractor shall coordinate with C℄C DTS Signal Shop (Supervisor Wally Nakihira @ 564-6101) for all traffic signal-related work. Schedule with C℄C DTS Signal Shop at least two weeks in advance of the actual work, including pavement cold planing removing the existing loop detector.
2. Contractor shall perform all traffic signal-related work following field instructions from DTS Signal Shop personnel. Such field instructions shall include, but not limited to, the final location and quantity of the temporary microwave sensors and permanent detector loops. DTS Signal Shop personnel will be responsible for traffic signal controller programming at the traffic signal cabinet to accommodate the temporary and permanent operations.
3. Contractor shall promptly take down and turnover the temporary microwave sensors to DTS when the permanent detector loops are in place and operational. Contractor shall perform all necessary work to restore traffic signal system back to a neat appearance of the electrical trade.

TRAFFIC SIGNAL LEGEND:

- tsp — Existing Traffic Signal Pole
- Temporary Microwave Detector
- New Loop Detectors
- tspb — Existing Traffic Signal Pullbox

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LOOP DETECTOR PLAN

LILIHA STREET REHABILITATION
North King Street to School Street
Project No. 7413A-01-04M

Scale: 1"=20' Date: May 2014

SHEET No. T9 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7413A-01-04M	2014	46	62

NOTES:

1. Loop detector location and quantity shown on this plan are only approximate. Contractor shall coordinate with C&C DTS Signal Shop (Supervisor Wally Nakihira @ 564-6101) for all traffic signal-related work. Schedule with C&C DTS Signal Shop at least two weeks in advance of the actual work, including pavement cold planing removing the existing loop detector.

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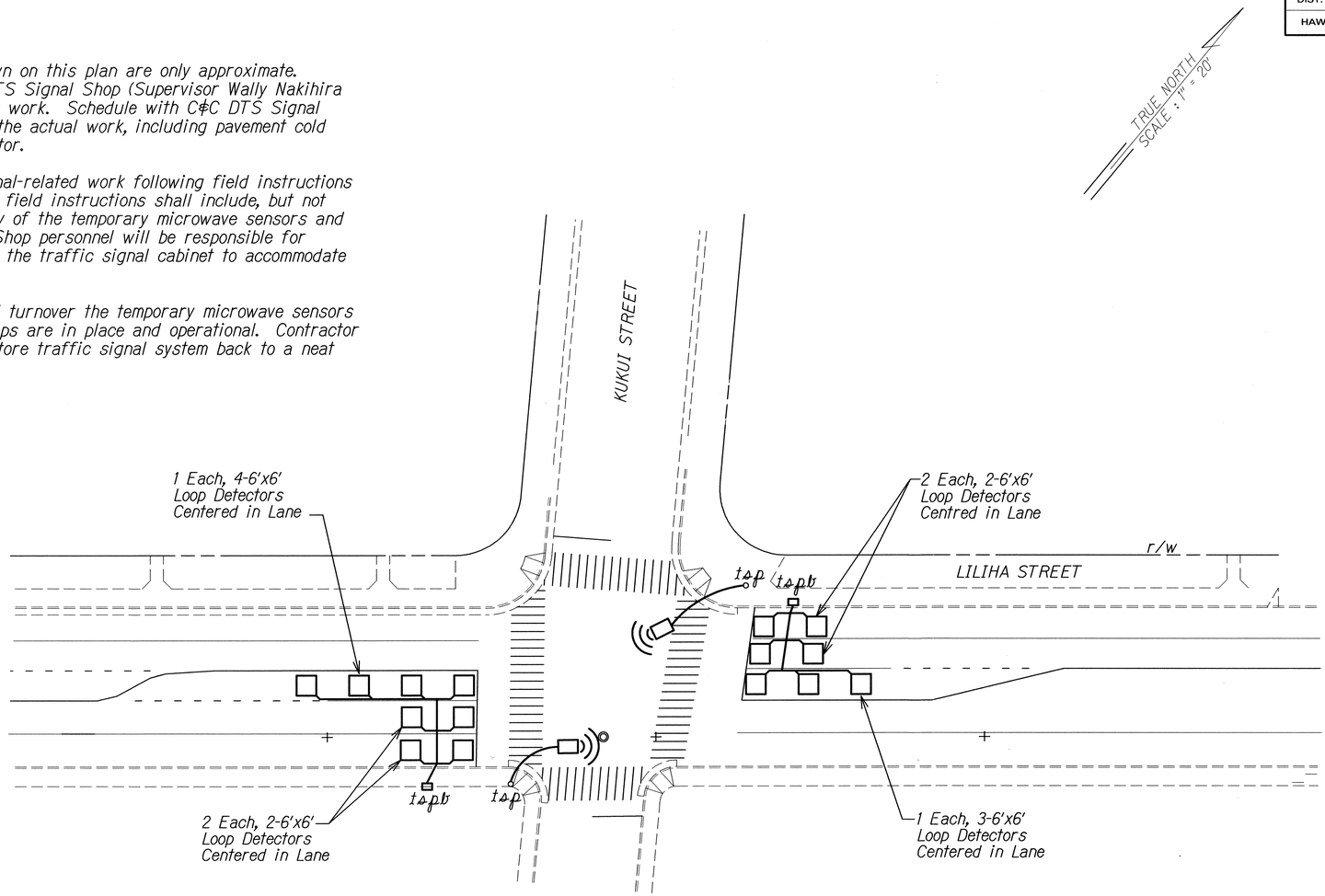
3. Contractor shall promptly take down and turnover the temporary microwave sensors to DTS when the permanent detector loops are in place and operational. Contractor shall perform all necessary work to restore traffic signal system back to a neat appearance of the electrical trade.



TRAFFIC SIGNAL LEGEND:

- tsp — Existing Traffic Signal Pole
- Temporary Microwave Detector
- New Loop Detectors
- tspb — Existing Traffic Signal Pullbox

ORIGINAL PLAN

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

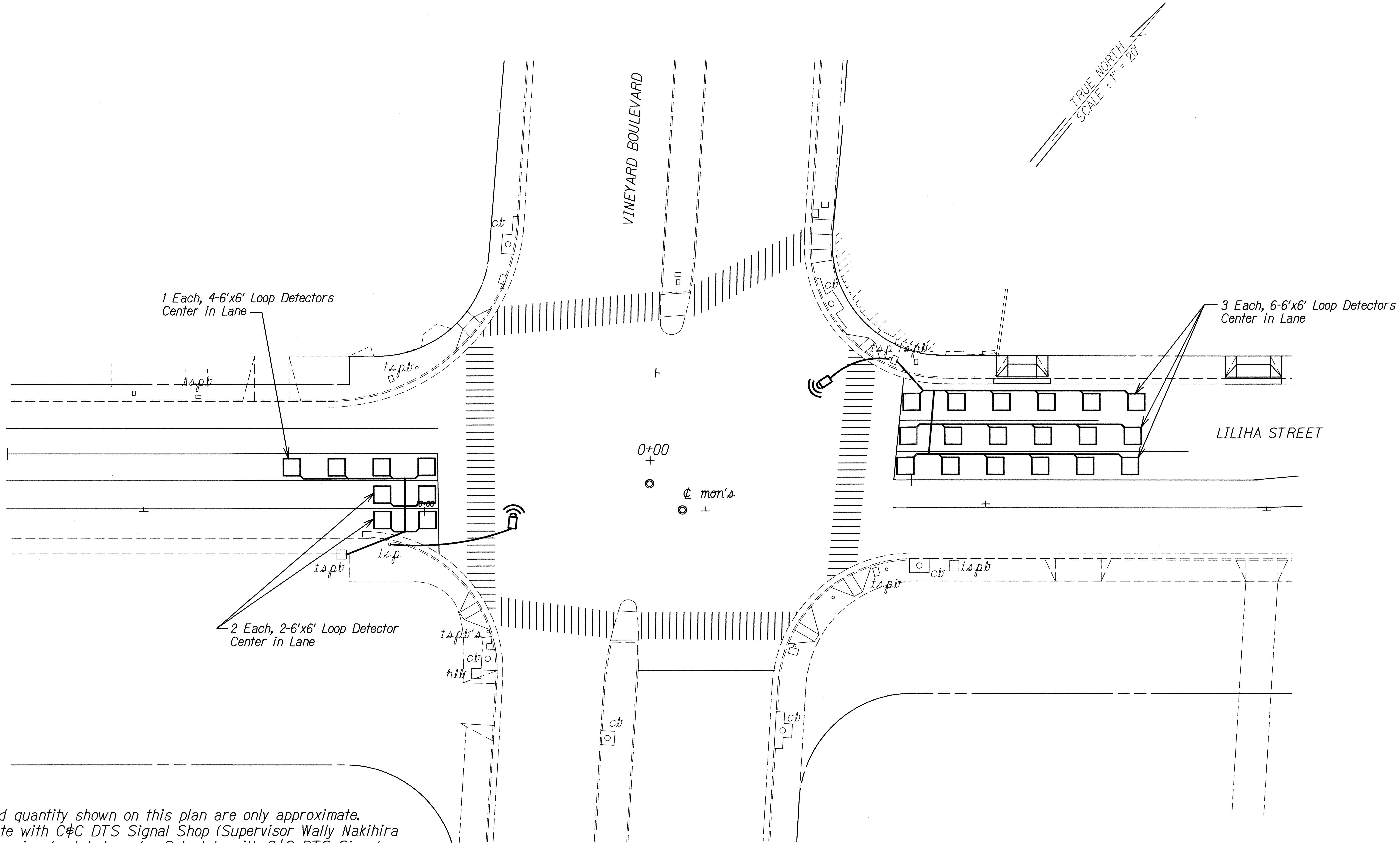
LOOP DETECTOR PLAN

LILIHA STREET REHABILITATION
North King Street to School Street
Project No. 7413A-01-04M

Scale: 1"=20' Date: May 2014

SHEET No. T10 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7413A-01-04M	2014	47	62



NOTES:

1. Loop detector location and quantity shown on this plan are only approximate. Contractor shall coordinate with C&C DTS Signal Shop (Supervisor Wally Nakihira @ 564-6101) for all traffic signal-related work. Schedule with C&C DTS Signal Shop at least two weeks in advance of the actual work, including pavement cold planing removing the existing loop detector.

2. Contractor shall perform all traffic signal-related work following field instructions from DTS Signal Shop personnel. Such field instructions shall include, but not limited to, the final location and quantity of the temporary microwave sensors and permanent detector loops. DTS Signal Shop personnel will be responsible for traffic signal controller programming at the traffic signal cabinet to accommodate the temporary and permanent operations.

3. Contractor shall promptly take down and turnover the temporary microwave sensors to DTS when the permanent detector loops are in place and operational. Contractor shall perform all necessary work to restore traffic signal system back to a neat appearance of the electrical trade.

TRAFFIC SIGNAL LEGEND:

- ○ tsp — Existing Traffic Signal Pole
- Temporary Microwave Detector
- New Loop Detectors
- □ tspb — Existing Traffic Signal Pullbox

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LOOP DETECTOR PLAN

LILIHA STREET REHABILITATION
North King Street to School Street
Project No. 7413A-01-04M

Scale: 1"=20' Date: May 2014

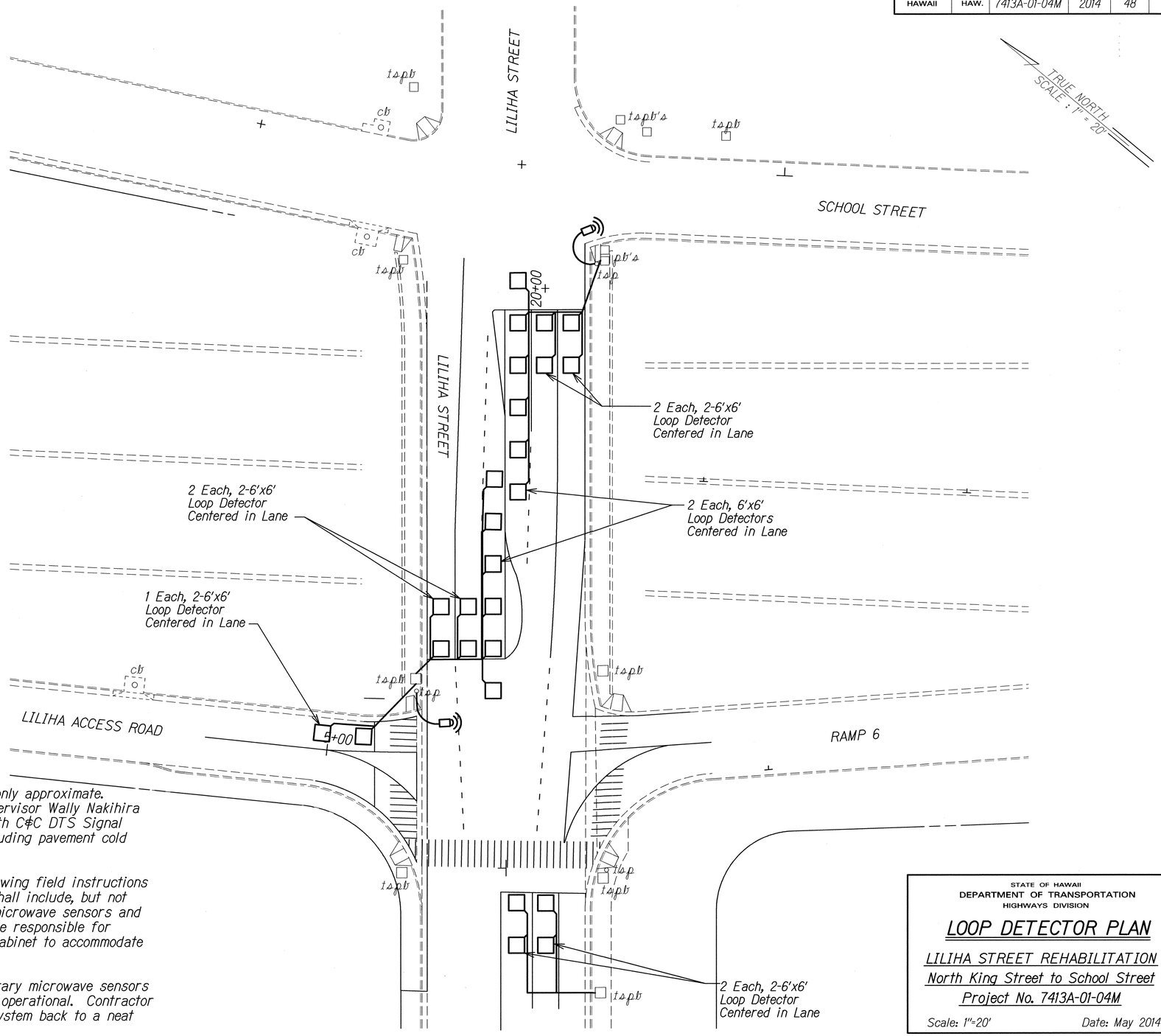
SHEET No. T11 OF 12 SHEETS

ORIGINAL PLAN — SURVEY PLOTTED BY — DRAWN BY — TRACED BY — DESIGNED BY — QUANTITIES BY — CHECKED BY — DATE
NOTE BOOK
No. 2tlidp3

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7413A-01-04M	2014	48	62

TRAFFIC SIGNAL LEGEND:

- tsp — Existing Traffic Signal Pole
- Temporary Microwave Detector
- New Loop Detectors
- tspb — Existing Traffic Signal Pullbox



NOTES:

1. Loop detector location and quantity shown on this plan are only approximate. Contractor shall coordinate with C&C DTS Signal Shop (Supervisor Wally Nakihira @ 564-6101) for all traffic signal-related work. Schedule with C&C DTS Signal Shop at least two weeks in advance of the actual work, including pavement cold planing removing the existing loop detector.

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ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY JL	
NOTE BOOK	TRACED BY	
No. 2lihldp4	DESIGNED BY JL	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LOOP DETECTOR PLAN

LILIHA STREET REHABILITATION
North King Street to School Street
Project No. 7413A-01-04M

Scale: 1"=20' Date: May 2014

SHEET No. T12 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7413A-01-04M	2016	C.O. 48 S-1	62

HIGHWAY LIGHTING NOTES

1. Contractor to energize highway lights a minimum of six (6) hours for Final Inspection and Acceptance. Contractor to assume costs.
2. Contractor shall have one set of approved plans at the job site at all times during the construction work.
3. All neutral conductors shall have solid white insulation. Any other method of identification is unacceptable.
4. Contractor shall not backfill trenches until work is approved by the Engineer.
5. The Contractor shall inform the inspector of all concrete pours at least two (2) working days in advance. Concrete shall not be poured until approval is granted by the inspector.
6. All work shall be done by a duly licensed electrician.
7. Trench dirt and material will not be allowed to be stored on roadway or shoulder.
8. Temporary trench patches shall match grade.
9. Engineer to determine salvageable material. Deliver all salvageable material to the baseyard as directed by the Engineer. Remaining material shall be Contractor's property.
10. Submit shop drawings for all highway lighting components including luminaires, lamps, photocell and mast arms, for approval.
11. The Contractor shall be responsible for any damages to existing highway lighting facilitites and damages shall be repaired by the Contractor at his cost with no additional cost to the State.

NEW DESIGN REQUIREMENTS FOR LUMINAIRES, POLE STANDARDS AND TRAFFIC SIGNAL STANDARDS

A. Highway lighting luminaires, pole standards, bracket arms and traffic signal standards and mast arms being furnished for this project shall conform with the new design requirements noted below.

B. Equipment manufacturers providing structural supports for luminaires and traffic signals shall include the following design parameters in the design of the project material.

C. Modifications to "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals", 4th Edition with 2002 Interim Revisions, published by the American Association of State Highway and Transportation officials (AASHTO):

1. Basic Wind Speed (Article 3.8.2) to determine the design wind pressure shall be 105 mph. For unusual or differing exposure conditions, the basic wind speed should be increased using rational procedures and sound engineering judgement. Alternatively, the design wind pressure may be increased by using a higher Wind Importance Factor (Table 3-2) corresponding to a recurrence interval of at least one level greater than recommended.
2. Wind Importance Factor (Article 3.8.3) noted in Table 3-2 used to determine the design wind pressure for overhead cantilevered support structures over:
   a. Freeways shall be based on a recurrence interval of 100 years.
   b. Ramps and other highways with "high" ADT shall be based on a recurrence interval of 100 years unless otherwise directed.
3. Height and Exposure Factor (Article 3.8.4). For sign and luminaire support structures on bridges, the height and exposure factor shall be determined based on the maximum height they are above the surround ground. For severe exposure conditions such as along the coastline, the factor shall be increased based on the latest ANSI/ASCE Standard No. 7, Minimum Design Loads for Buildings and Other Structures.
4. Fatigue Importance Factors (Article 11.6) noted in Table 11-1 for overhead cantilevered sign, traffic signal and luminaire support structures shall be based on the following:
   a. Fatigue Category I - For all structures where failure would result in the structure falling onto the travel way.
   b. Fatigue Category II - For all others.
5. Galloping (Article 11.7.1). Overhead cantilevered sign and traffic signal support structures shall be designed for galloping-induced cyclic loads unless approved vibration mitigation devices are installed.

NEW DESIGN REQUIREMENTS FOR LUMINAIRES, POLE STANDARDS AND TRAFFIC SIGNAL STANDARDS (Cont.)

6. Vortex Shedding (Article 11.7.2). Nontapered lighting structures shall be designed to resist vortex shedding-induced loads including cantilevered mast arms and lighting structures that have tapers less than 0.14 in/ft.
7. Natural Wind Gust (Article 11.7.3). Overhead cantilevered sign, traffic signal and high-level lighting support structures shall be designed to resist an equivalent static natural wind gust pressure. For unusual or differing exposure conditions, the equivalent static natural wind gust pressure should be increased using references noted in the specifications.
8. Truck-Induced Gust (Article 11.7.4, Interim 2002). Overhead cantilevered sign and traffic signal support structures shall be designed to resist an equivalent static truck gust pressure range based on a truck speed of 65 mph. At the option of the State of Hawaii, Department of Transportation, a lower truck speed may be used in areas with design speeds not exceeding 45 mph.
9. Equipment manufacturers providing structural supports for luminaires and traffic signals, is responsible to provide the Engineer with any information that will impact the current foundation design.

AS-BUILT DRAWINGS

This certifies that the dimensions and details shown on this sheet reflect the dimensions and details, and specifications as constructed in the field.

KAIKOR CONSTRUCTION CO., INC.

DATE: 10/9/20

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE 11/16/06

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING NOTES

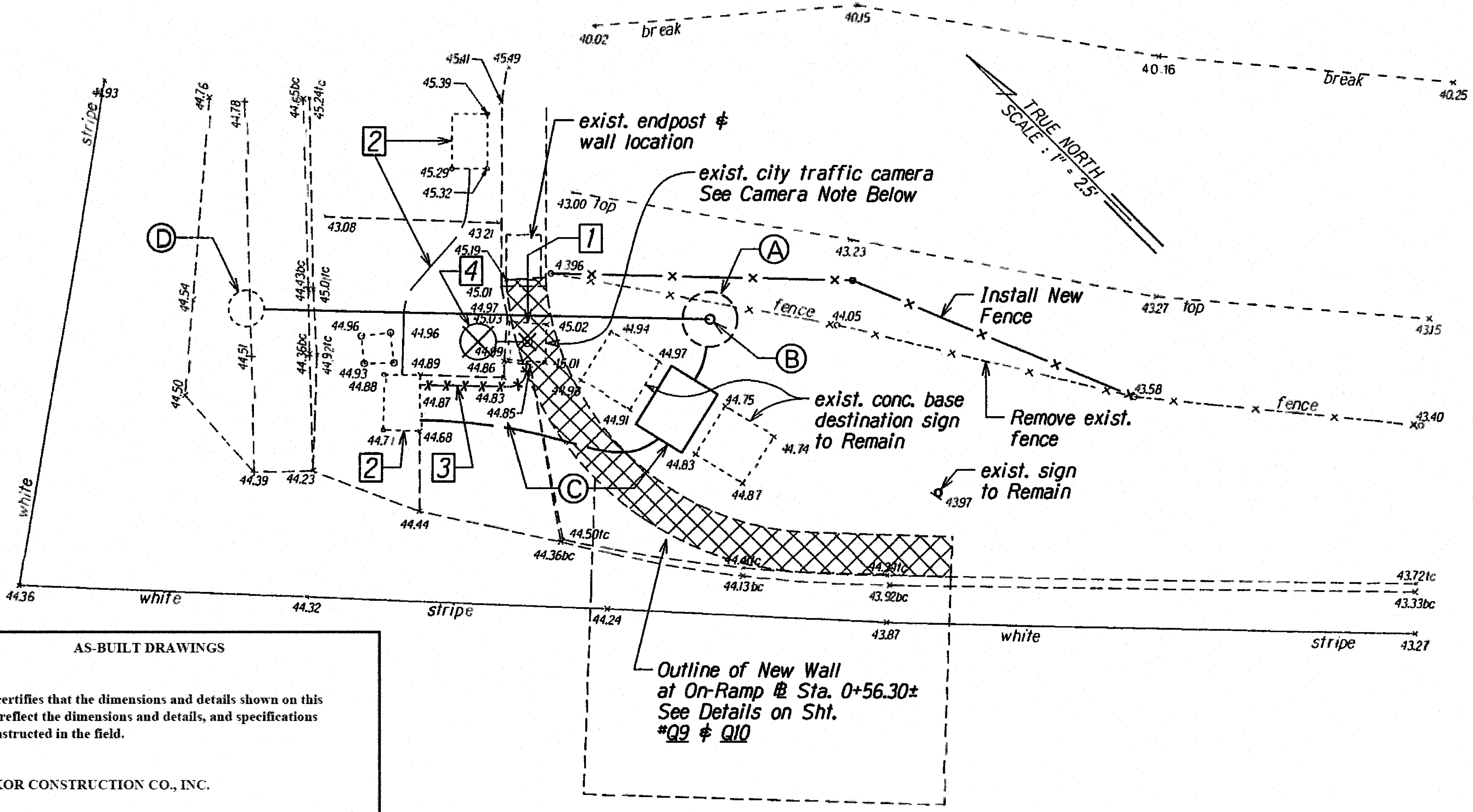
LILIHA STREET REHABILITATION
North King Street to School Street
Project No. 7413A-01-04M

Scale: As Shown Date: Jun. 2016

SHEET No. TE1 OF 5 SHEETS

C.O. 48 S-1

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7413A-01-04M	2016	C.O. 48 S 2	62



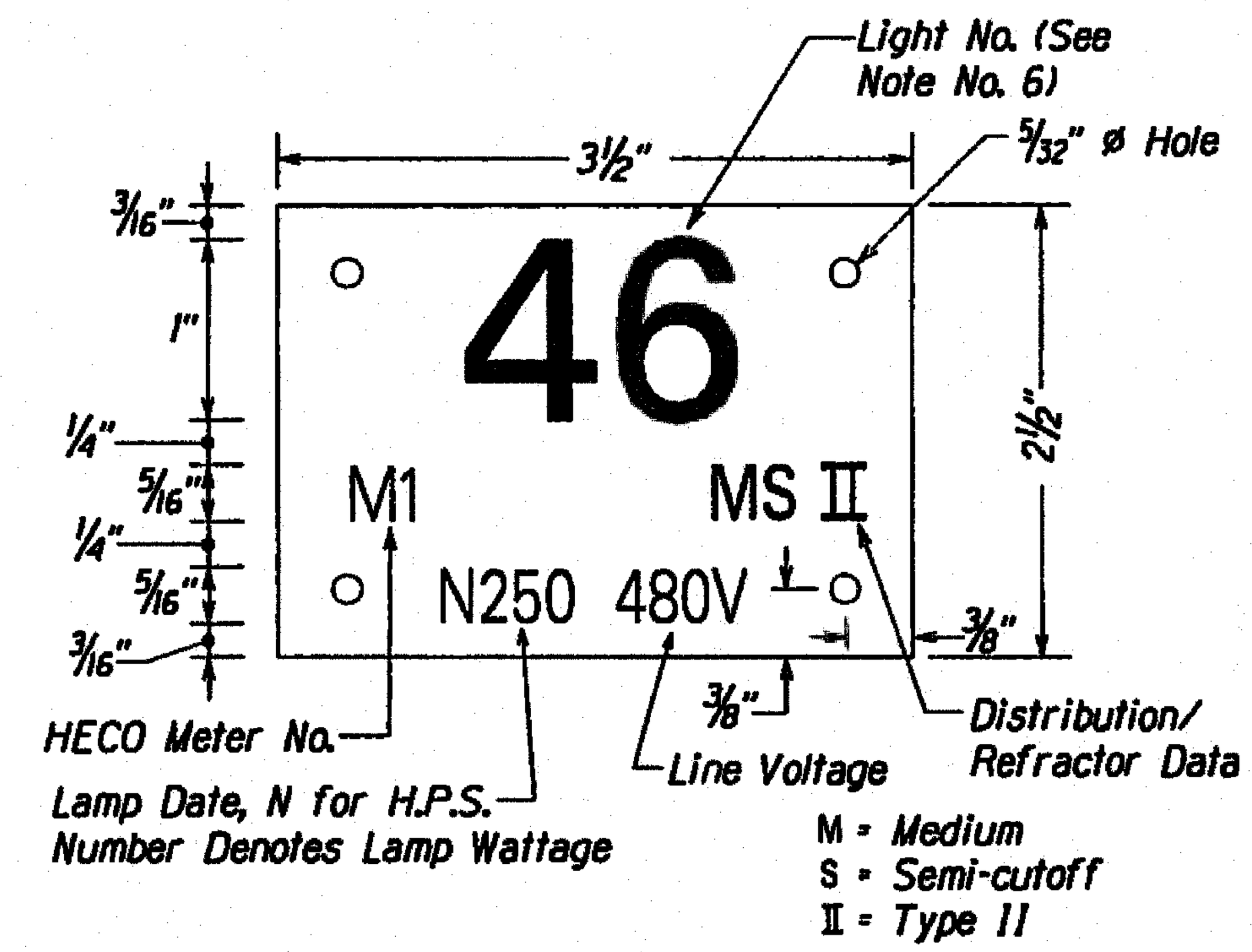
AS-BUILT DRAWINGS

This certifies that the dimensions and details shown on this sheet reflect the dimensions and details, and specifications as constructed in the field.

KAIKOR CONSTRUCTION CO., INC.

DATE: 10/9/20

SITE PLAN



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 (HECO Contract Number, Lamp Data and Refractor Data as Required).
4. Attach to Aluminum and Steel Poles with No. 8 Satinless Steel, 1/2" long drive screw in 1/8" Drill Hole. Attach to Wood Pole With 4d Aluminum Nails.
5. Numbers are Inscribed by Cutting Through "Black Cap Street" to Expose "White Letters".
6. Light Numbers Shall be Obtained From the State.

LIGHT POLE TAG DETAIL

Not to Scale

CAMERA NOTE

Coordinate with City and County of Honolulu to remove traffic camera from existing light pole and reinstall on new lighting standard. Cost shall be considered incidental to the new highway lighting work and will not be paid for separately.

DEMOLITION ¢ CONSTRUCTION NOTES

1. The Contractor shall verify all existing circuit wiring prior to any demolition work.
2. Existing highway lighting system shall remain operational during non daylight hours until New highway lighting system is operational. Contractor shall provide temporary lighting if the existing highway lights are de-energized before the new highway lights are operational. Temporary work shall be coordinated with and shall be acceptable to the Engineer. Temporary highway lighting system Items.
3. All conduits shall not be paid for separately but shall be considered incidental will not be paid for separately, but considered incidental to the Various Contract to the various contract items.

ELECTRICAL SYMBOLS

- Existing utility pole with street light to be removed
- New utility pole with existing street light
- -x--x- Existing underground highway lighting ductline and wires to be removed

LEGEND

New Wall

LIGHTING REMOVAL NOTES

[1] Remove existing highway lighting standard. Demolish exist. lighting foundation to 18" below grade.

[2] Existing lighting conduits and pullboxes embedded in the Liliha Interchange overpass structure No. 6 shall remain in place.

[3] Demolish and dispose existing underground lighting conduits.

[4] Remove and protect existing cobra lighting luminaire for later reinstallation.

LIGHTING INSTALLATION NOTES

(A) Install new concrete foundation.

(B) Install aluminum light pole with 15' aluminum truss arm and breakaway transformer base.

(C) Install Type "A" lighting pullbox and new lighting conduit. Connect new lighting circuit to existing.

(D) Reinstall cobra lighting luminaire removed from existing light pole.

ORIGINAL PLAN | NOTE BOOK tdlerest lihdld02 | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE 11/14/06

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

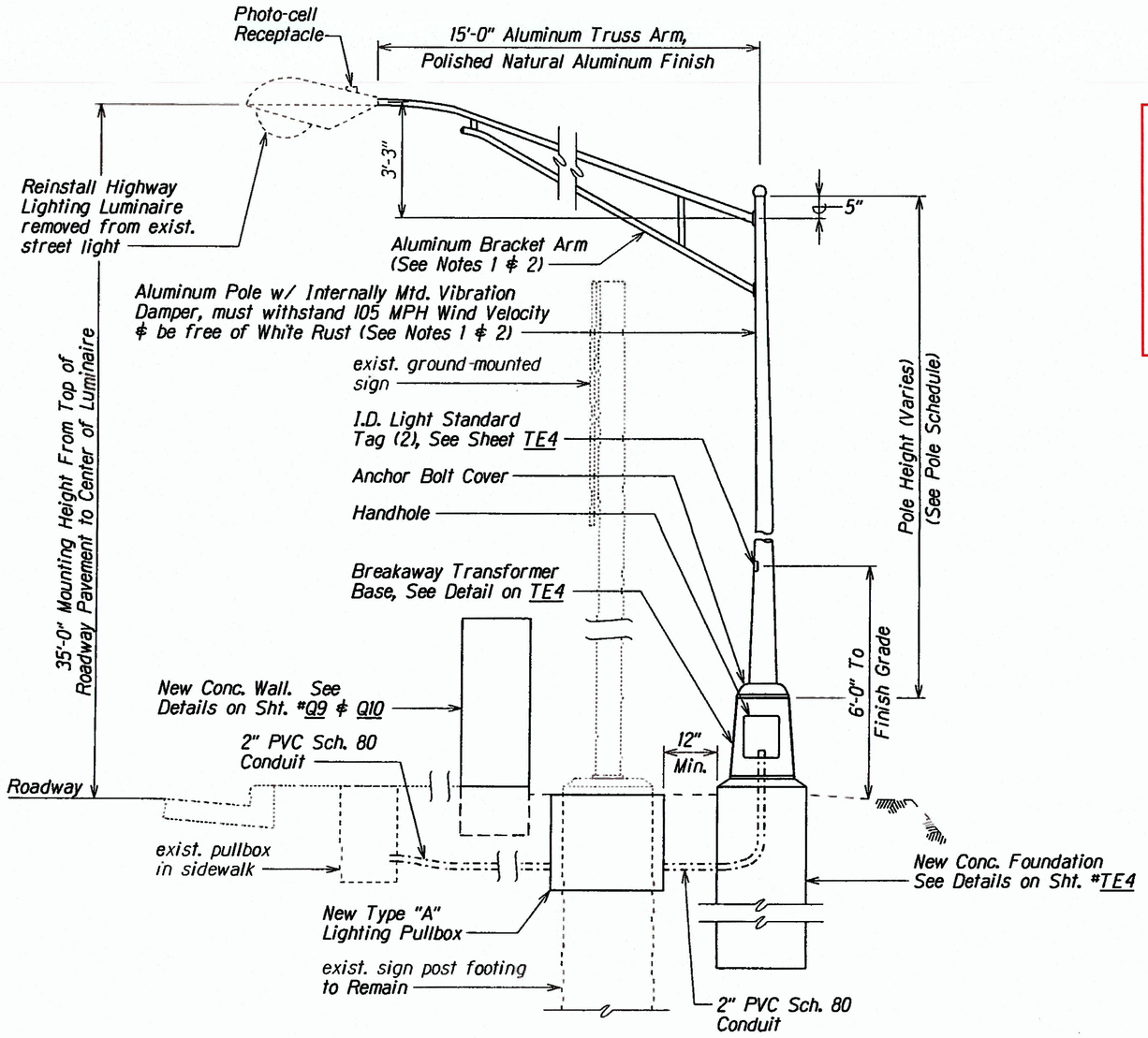
HIGHWAY LIGHTING REMOVAL ¢ INSTALLATION

LILIHA STREET REHABILITATION
North King Street to School Street
Project No. 7413A-01-04M

Scale: As Shown | Date: Jun. 2016

SHEET No. TE2 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7413A-01-04M	2016	CO. 48 S-3	62



HIGHWAY LIGHTING STANDARD INSTALLATION WITH TRANSFORMER BASE

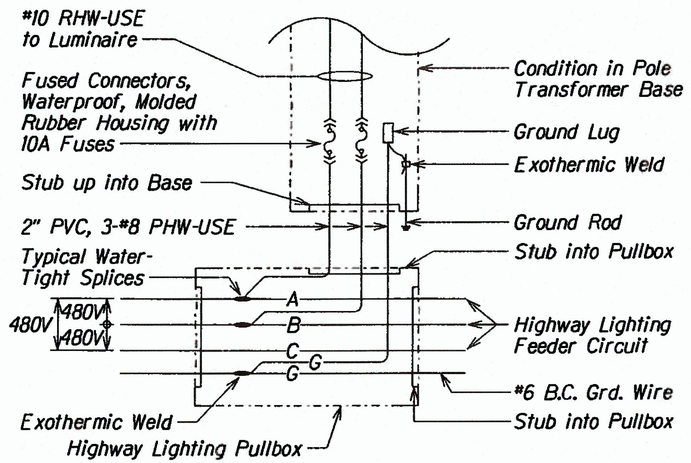
Not to Scale

AS-BUILT DRAWINGS

This certifies that the dimensions and details shown on this sheet reflect the dimensions and details, and specifications as constructed in the field.

KAIKOR CONSTRUCTION CO., INC.

DATE: 10/9/20



CONNECTION DIAGRAM - PULLBOX & TRANSFORMER BASE CONDITION

Not to Scale

NOTES:

1. Standard and bracket arms shall be designed in accordance with the latest edition of "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals", with design revisions noted on sheet TE1.
2. Submit shop drawings for approval.

POLE NOTE

All Components of the Light Standard shall be Designed in Accordance with AASHTO "Standard Specifications for Structural Suppports for Highway Signs, Luminaires and Traffic Signals", dated 2001, 4th Edition, including interims.

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY Tasfoil | TRACED BY Peter Chan | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE | NOTE BOOK Warren Warren | N-

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

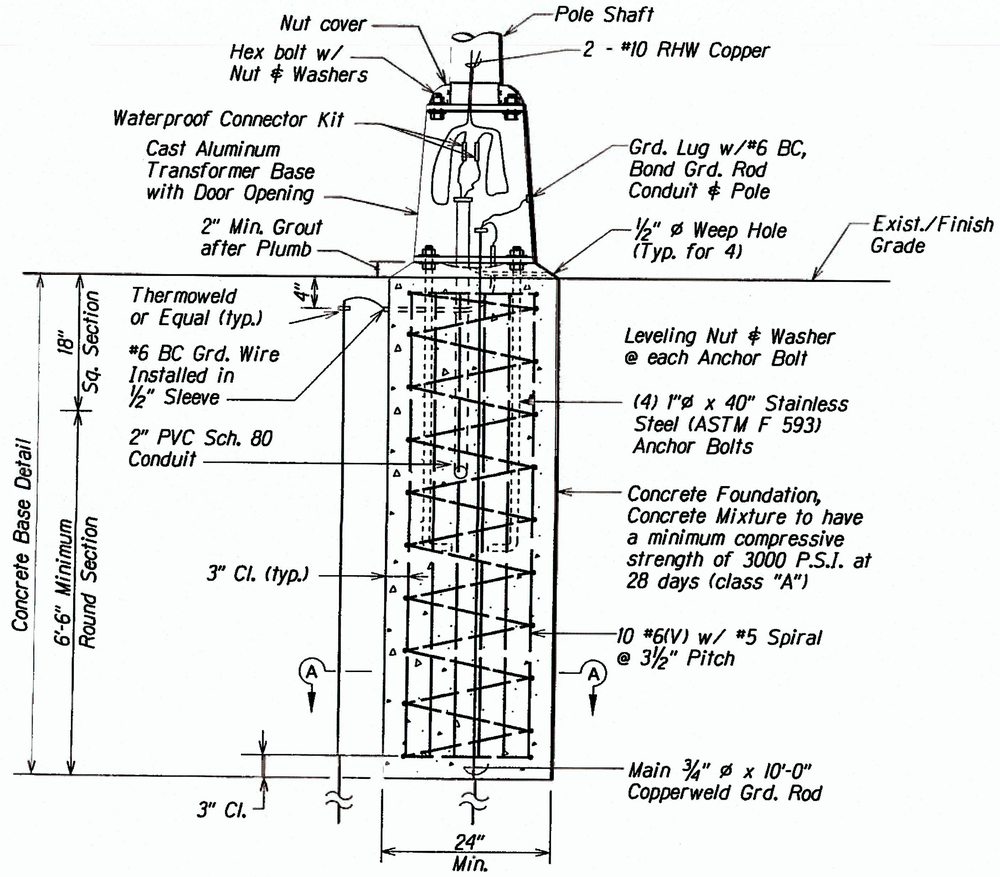
HIGHWAY LIGHTING STANDARD INSTALLATION

LILIHA STREET REHABILITATION
North King Street to School Street
Project No. 7413A-01-04M

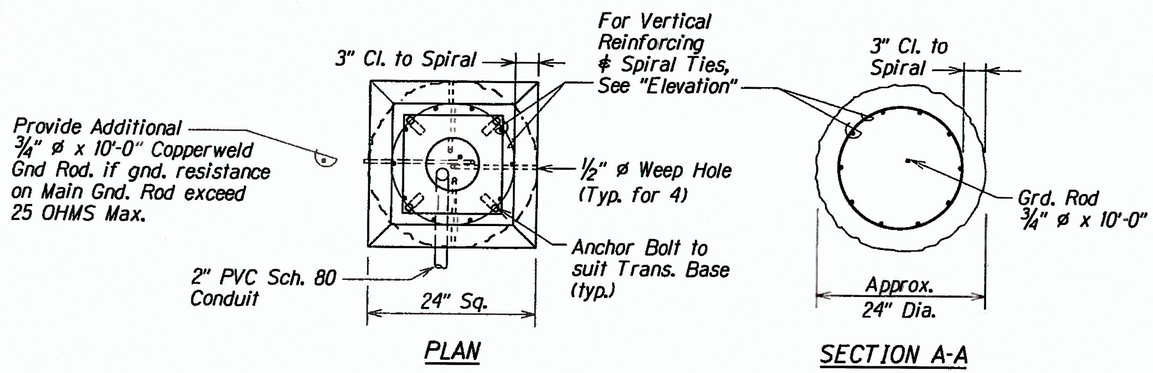
Not To Scale | Date: Jun. 2016

SHEET No. TE3 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7413A-01-04M	2016	C.O. 48 S-4	62



ELEVATION

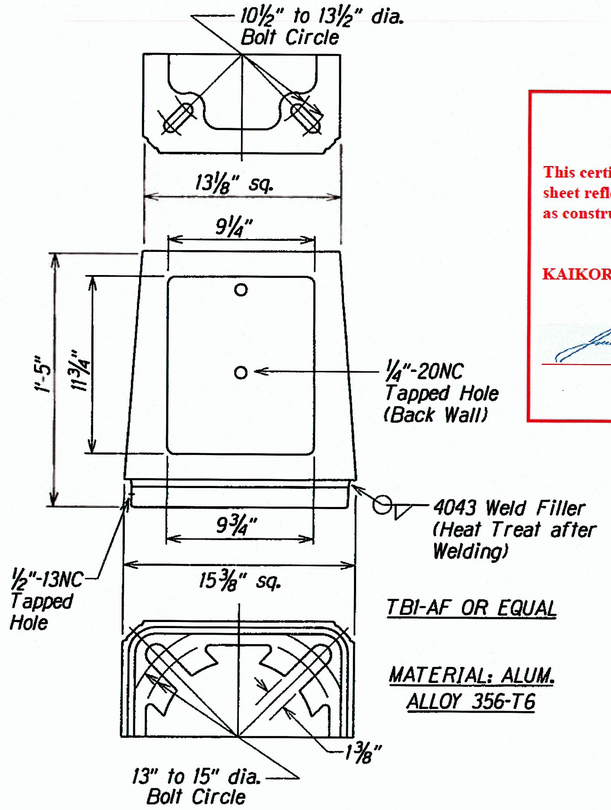


PLAN

SECTION A-A

TYPICAL CONCRETE FOUNDATION AND TRANSFORMER BASE DETAIL

Not to Scale



TBI-AF OR EQUAL

MATERIAL: ALUM. ALLOY 356-T6

BASE SUPPLIED WITH:

1. Door and ¼"-20NC S.S. Screw
2. Eight 1" Washers ½" Thick x 2¾" O.D. (Washers Mechanical Galvanized per ASTM B454)
3. Four 1"-8NC x 3¾" Long Galvanized Steel Hex. Hd. Bolts
4. Four 1"-8NC Galvanized Steel Hex. Nuts
5. Four 1" Galvanized Steel Lock Washers
6. Four 1" x 2" O.D. Galvanized Steel Flatwashers
7. Transformer Base shall be Breakaway Type.

BREAKAWAY TRANSFORMER BASE DETAIL

Not to Scale

AS-BUILT DRAWINGS

This certifies that the dimensions and details shown on this sheet reflect the dimensions and details, and specifications as constructed in the field.

KAIKOR CONSTRUCTION CO., INC.

DATE: 10/9/20

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY M. Takafuji | TRACED BY Peter Chan | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE | NOTE BOOK Harvest Waikoloa No. Waikoloa

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING DETAILS

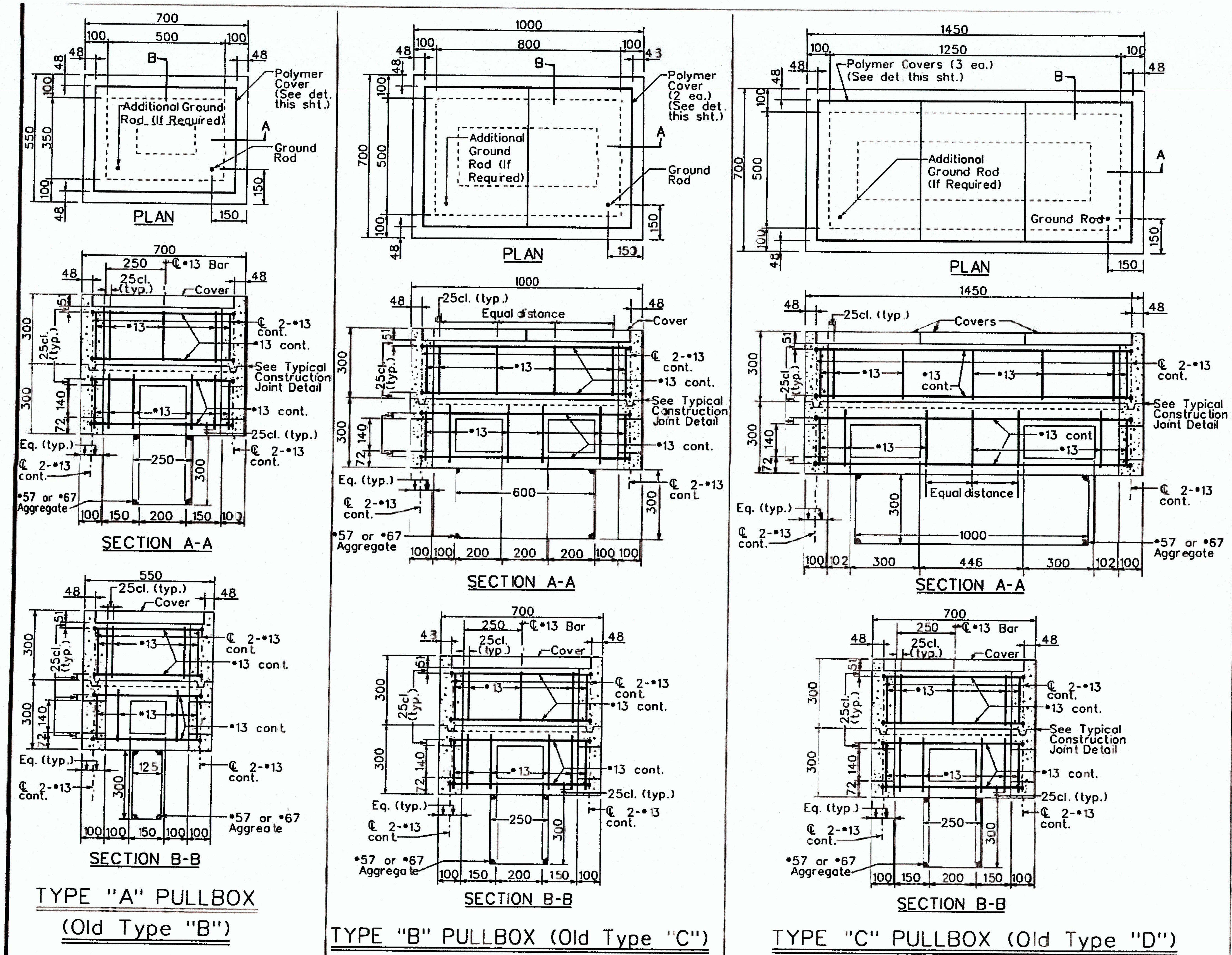
LILIHA STREET REHABILITATION
North King Street to School Street
Project No. 7413A-01-04M

Not To Scale | Date: Jun. 2016

SHEET No. TE4 OF 5 SHEETS

C.O. 48 S-4

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7413A-01-04M	2016	C.O. 48 S5	6?



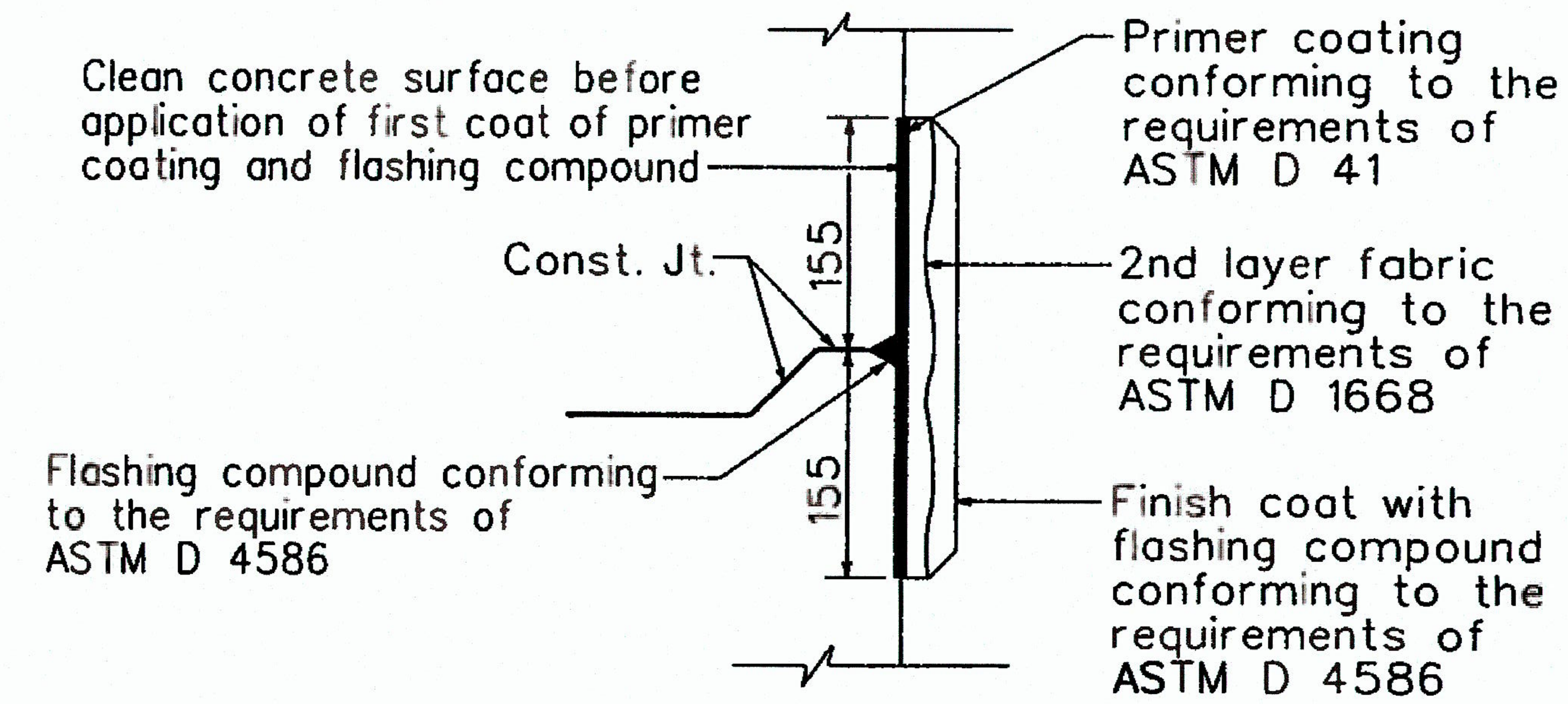
TYPE "A" PULLBOX
(Old Type "B")

TYPE "B" PULLBOX (Old Type "C")

TYPE "C" PULLBOX (Old Type "D")

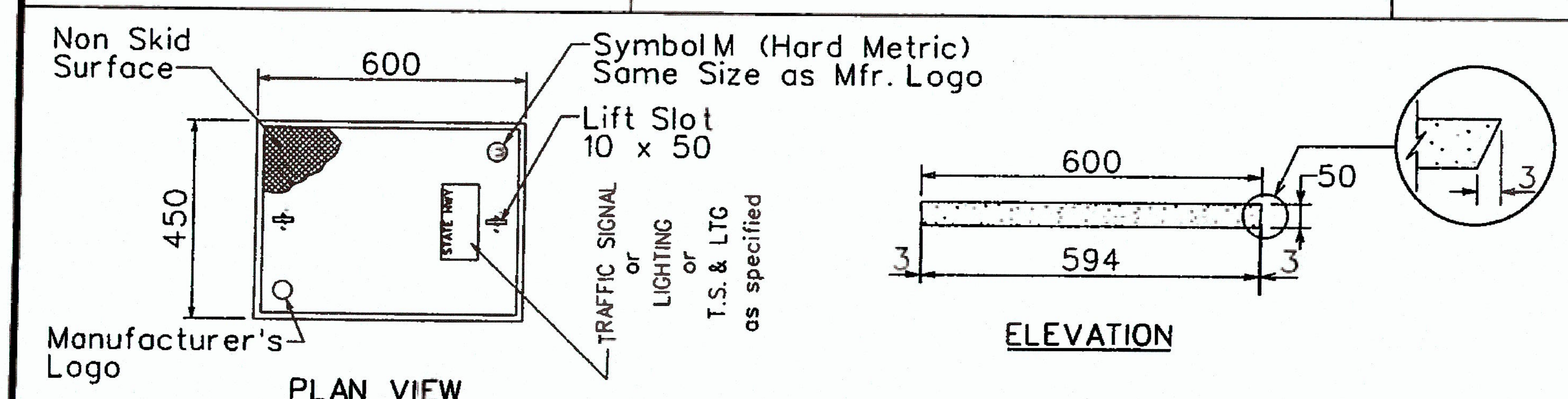
GENERAL NOTES

1. Provide a minimum of one 16mm 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 (3,000 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 or pipe guards).

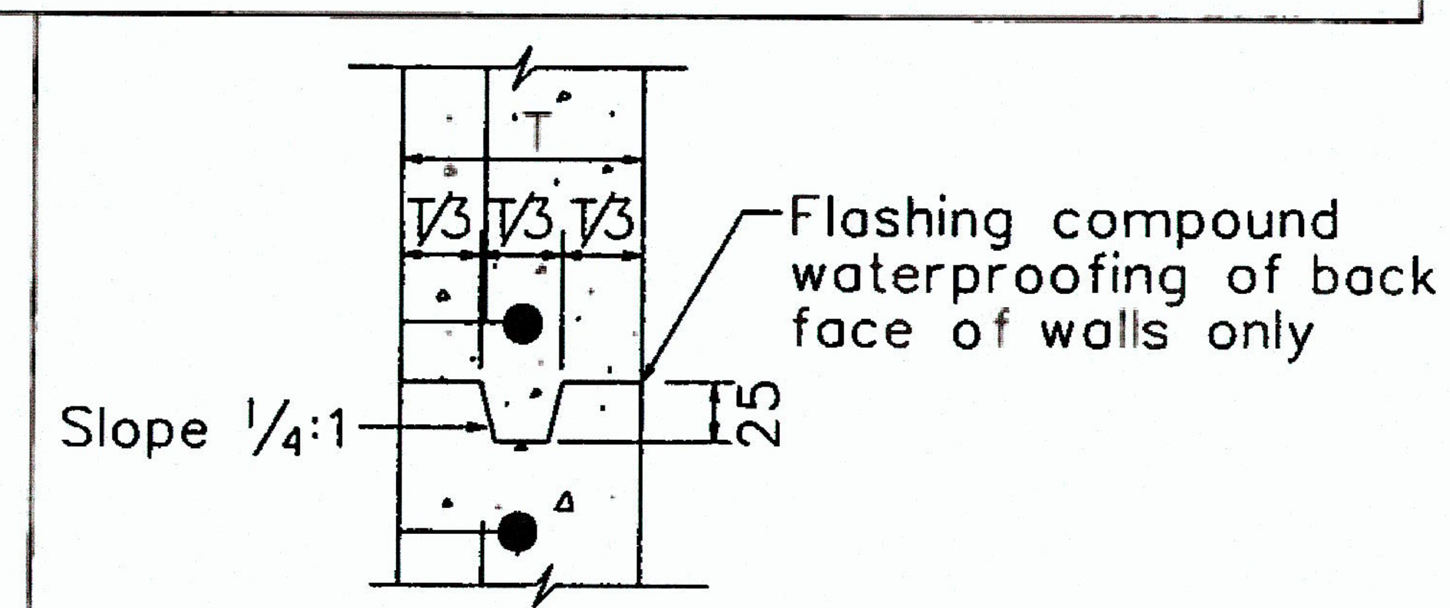


TYPICAL FLASHING COMPOUND
WATERPROOFING DETAILS

ALL DIMENSIONS ARE IN MILLIMETERS
UNLESS OTHERWISE SHOWN



POLYMER CONCRETE COVER



TYPICAL CONSTRUCTION
JOINT DETAIL

AS-BUILT DRAWINGS

This certifies that the dimensions and details shown on this sheet reflect the dimensions and details, and specifications as constructed in the field.

KAIKOR CONSTRUCTION CO., INC.

DATE: 10/9/20

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PULLBOX & COVER DETAILS

LILIHA STREET REHABILITATION
North King Street to School Street
Project No. 7413-01-04M

Not to Scale Date: Jun. 2016

SHEET No. TE5 OF 5 SHEETS

C.O. 48 S-5