FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM–0300(127)	2011	45	60

GENERAL NOTES

1. All materials and workmanship shall conform to the Drawings and Standard Specifications and Special Provisions of the Hawaii State Department of Transportation Standard Specifications for Road and Bridge Construction - 2005.

2. For any conflict between the Standard Specifications, Special Provisions and drawings, the stricter requirement shall govern.

3. The Structural Drawings and Specifications represent the finished structure. They do not indicate the method of construction. The Contractor shall provide all measures necessary to protect the structure during construction. Such measures shall include, but not be limited to, bracing, shoring for loads due to construction equipment, wind, seismic, etc. Observation visits to the site by the Engineer shall not include inspection of the above items.

4. Civil plans are considered a part of the Structural Design Drawings and are to be used to define detail configuration including, but not limited to, relative location of elevations, locations of all slopes, dimensions, etc.

5. The Contractor shall verify the location of all existing utility lines and notify the respective owners before commencing the work of excavation or the drilling of the pole foundation.

6. The Contractor shall be solely responsible for protection of adjacent property structures, streets and utilities.

7. The Contractor shall be solely responsible for coordinating the work of all trades and shall check all dimensions. All discrepancies shall be called to the attention of the Engineer and be resolved before proceeding with the work. Existing framing dimensions shall be verified in field by Contractor.

8. Shop drawings required by the Standard Specifications and Special Provisions shall be submitted to the Engineer for review prior to fabrication or ordering of materials.

9. Notes and details on drawings shall take precedence over General Notes unless stricter requirement noted in General Notes.

10. Design Criteria

    A. Codes:
    Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 2009, 5th Edition and 2010 Interim Revisions

    AASHTO LRFD Bridge Design Specifications, 5th Edition, 2010

    Additional Design Parameters:
    Maximum Pole Deflection 1" at 30 mph, non-gust
    Maximum Pole Deflection 2" at 70 mph, non-gust

    B. Dead load as applicable

    C. Wind:
    105 mph, exposure C, Iw=1.0

    Sign Structures shall be designed for a truck induced gust based on a truck speed of 20 mph over posted speed.

    Seismic: Seismic use group - I
    Seismic Design Category - D
    I = 1.0

    Fatigue Importance Factor, IF, shall be based on Fatigue Category I.

FOUNDATION NOTES

1. Foundation design is based on a geotechnical investigation by Geolabs Inc., "Geotechnical Engineering Exploration Freeway Management System CCTV Installation Interstate Route H-1 Freeway Pearl Harbor, Oahu, Hawaii." dated May 18, 2011.

2. Unless otherwise indicated, refer to special provisions and Standard Specifications for foundation preparation, compaction requirements, and other requirements.

3. Footing axial capacity
(Dead + Live Loads) = 25 kips

4. Coring into potentially dense boulders and hard rock formation shall be anticipated during the drilled shaft construction.

5. Drilling by methods utilizing drilling fluids is not recommended. A low-shrink concrete mix with high slump (6 to 9-inch range) shall be used for concreting operation.

6. The depth of the foundation shall be measured on the low side of the slope. Foundation concrete shall be cast directly against undisturbed soil.

CONCRETE

1. Schedule of structural concrete 28-day strength and types:

Pole Footing	5,500 PSI w/ 0.40 max w/c ratio

2. Concrete mix designs shall be submitted to the Engineer for review.

3. Clear coverage of concrete over outer reinforcing bars shall be as follows, unless otherwise noted.

Top of Footing	2"
Cast directly against earth	3"

4. Concrete admixtures containing chloride salts shall not be used.

5. All intentionally roughened surfaces in concrete shall be made with a minimum amplitude of 1/4" and shall be clean before pouring adjacent concrete.

6. Nonshrinking grout shall have a minimum compressive strength of 5,000 PSI at 28 days, and shall be nonmetallic and nonstaining.

7. Unless otherwise noted on drawings, all exterior corners shall be chamfered 3/4"x3/4".

REINFORCING STEEL

1. Reinforcing steel bars shall be ASTM A615 Grade 60.

2. Reinforcing steel splices shall be located only where indicated on the drawings.

3. All reinforcing steel bars, anchor bolts, dowels and other embedded items shall be securely tied in place before concrete pour.

4. All reinforcing steel bar bends shall be made cold.

5. Reinforcing steel shall be detailed in accordance with the AASHTO Load and Resistance Factor Design (LRFD) Bridge Design Specifications, Fifth Edition, 2010, including Interim revisions, unless otherwise noted.

STRUCTURAL STEEL

1. All structural steel shall conform to AASHTO M270 (ASTM A709), Grade 50, unless otherwise noted.

2. Unless otherwise noted, all structural steel pole and fittings shall be hot dip zinc coated after fabrication.

3. All anchor bolts shall be hot dipped galvanized high-strength bolts conforming to ASTM F-1554, GR. 55.

4. All welds shall be in conformity with the structural welding code AWS D1.1-08 of the American Welding Society. Electrodes shall be E70.

LEGEND

BOT	Bottom	OPEN'G	Opening
CC	Center to Center	STD	Standard
CL, CLR	Clear	T&B	Top and Bottom
CONC	Concrete	THK	Thick
DIA	Diameter	TYP	Typical
EL	Elevation	UON	Unless Otherwise Noted
GA	Gauge		
H	Height	VERT	Vertical
HORIZ	Horizontal	W	Width
JT	Joint	W/	With
MANU	Manufacturer		
MAX	Maximum		
MIN	Minimum		

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

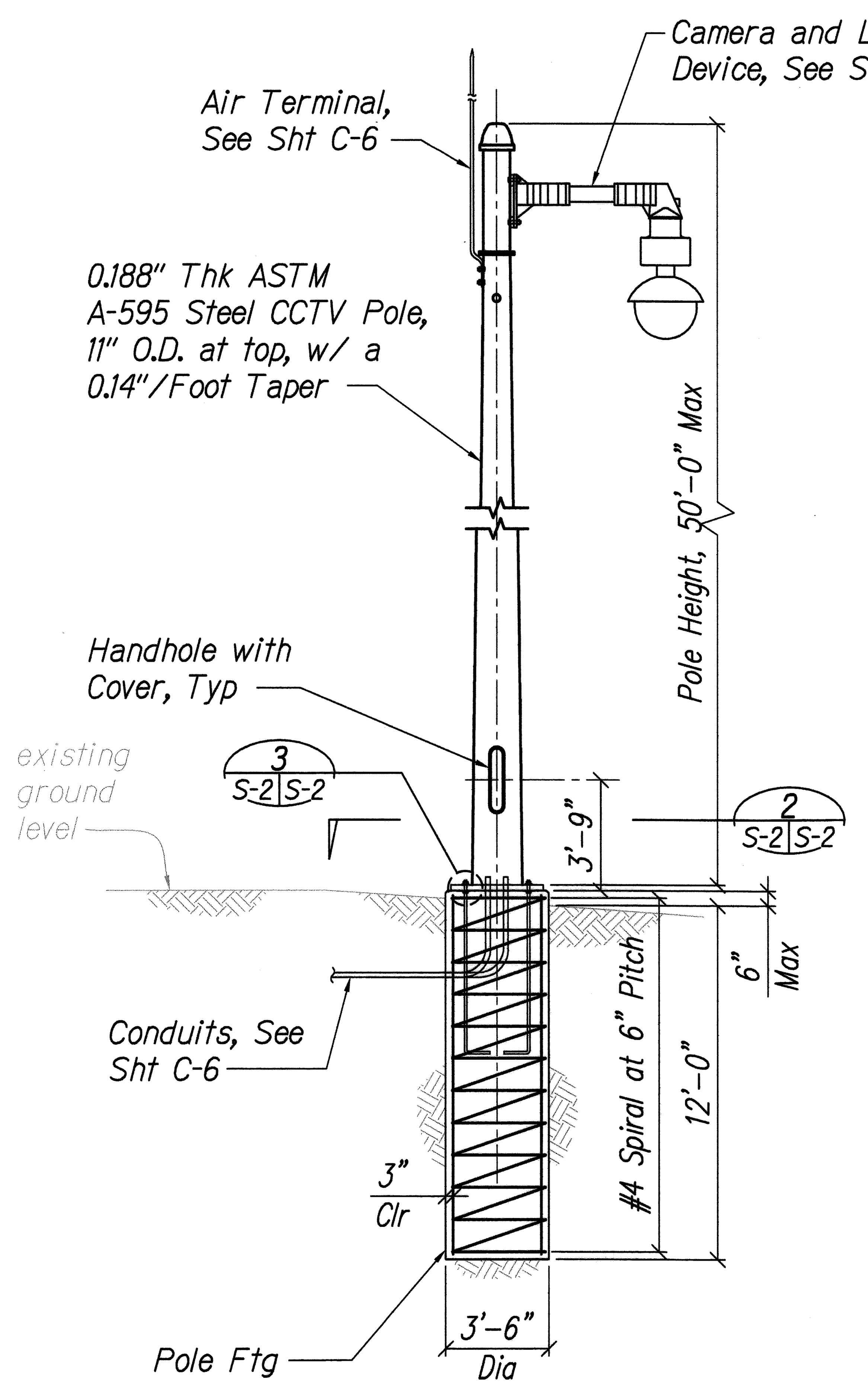
STRUCTURAL GENERAL NOTES

Freeway Management System Phase 1C, Part 1B: Installation of CCTV and Communication Infrastructure
Federal Aid Project No. IM–0300(127)
Scale: NO SCALE Date: 8/2/11

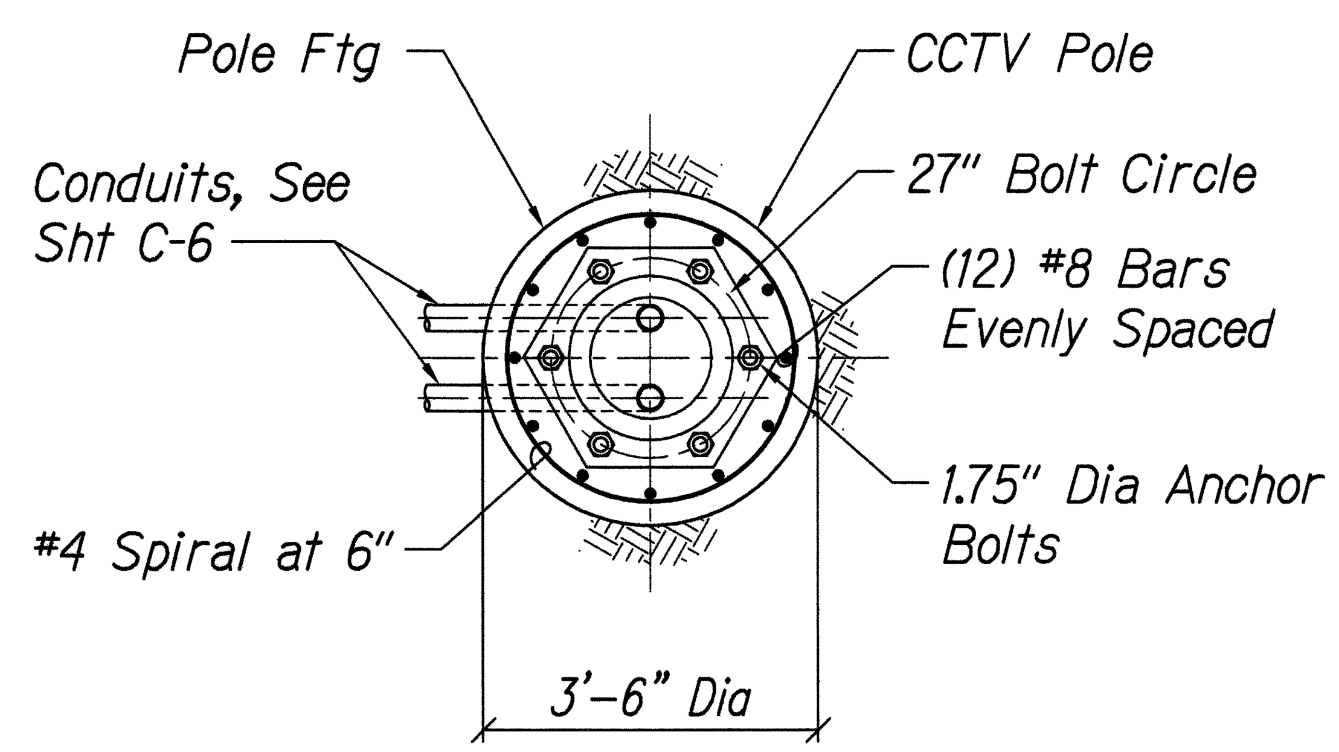
SHEET No. S–1 OF 4 SHEETS

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

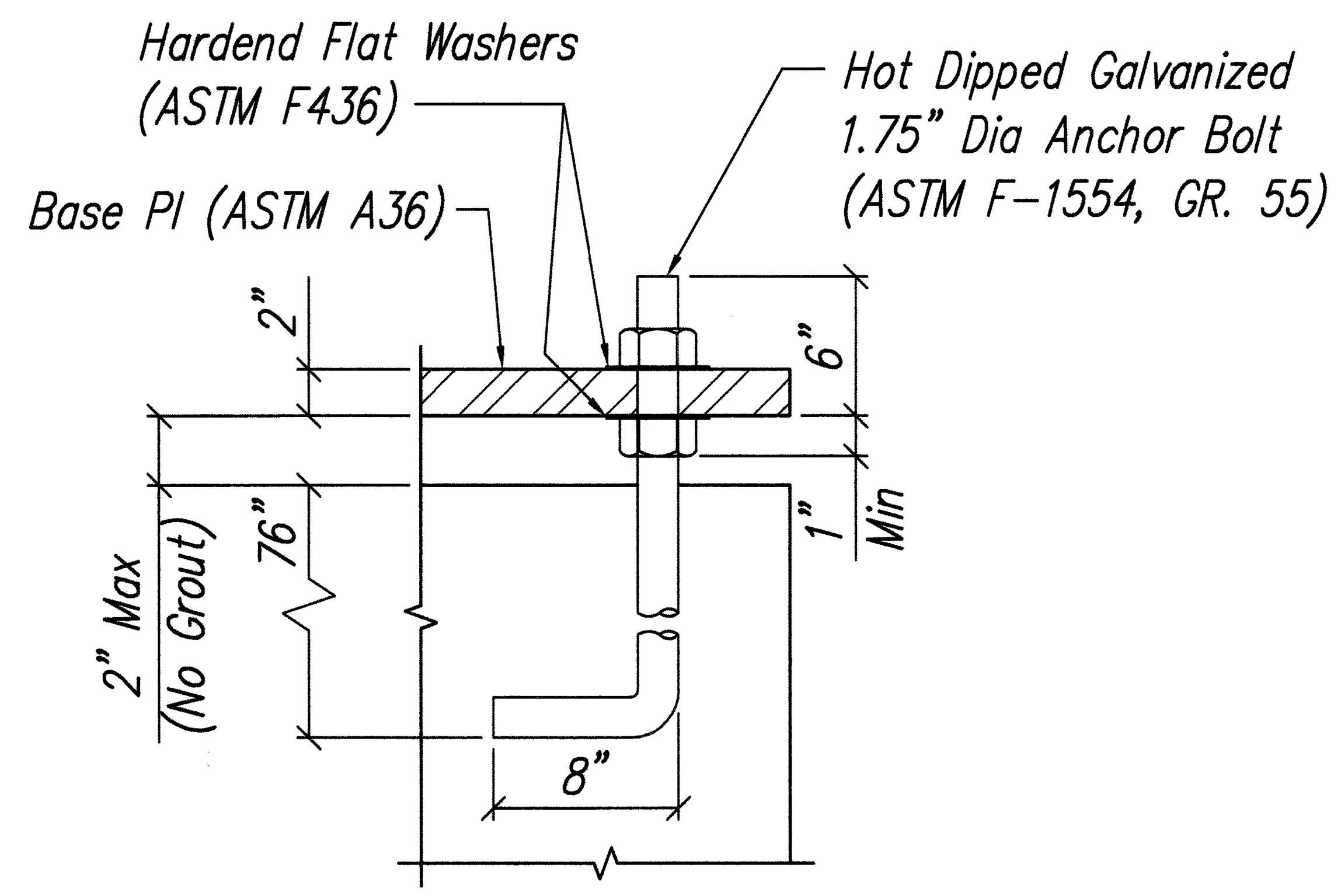
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-0300(127)	2011	46	60



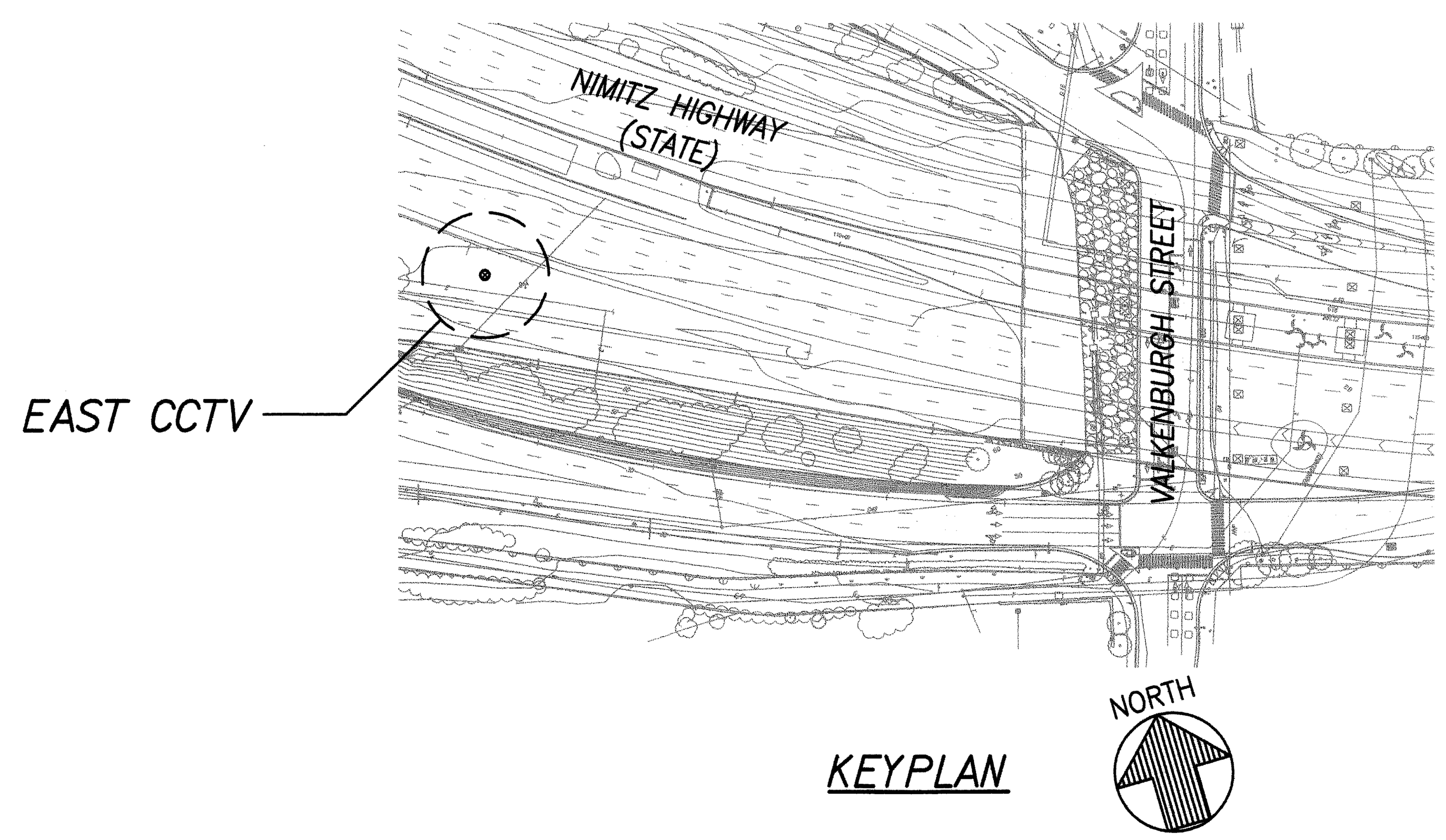
1 S-2 | S-2 **CCTV POLE DETAIL**
SCALE: 1/4" = 1'-0"



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



3 S-2 | S-2 **ANCHOR BOLT DETAIL**
SCALE : 1-1/2" = 1'-0"



KEYPLAN

GRAPHIC SCALES:

0 6" 1' 2' 3' 5' 7' 9' 11'
1/4"=1'-0"

0 6" 1' 2' 3' 4' 5' 6'
1/2"=1'-0"

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

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EAST CCTV DETAILS

Freeway Management System Phase 1C, Part 1B: Installation of CCTV and Communication Infrastructure
Federal Aid Project No. IM-0300(127)

Scale: AS NOTED   Date: 8/2/11

SHEET No. S-2 OF 4 SHEETS

ORIGINAL PLAN | NOTEBOOK | No.
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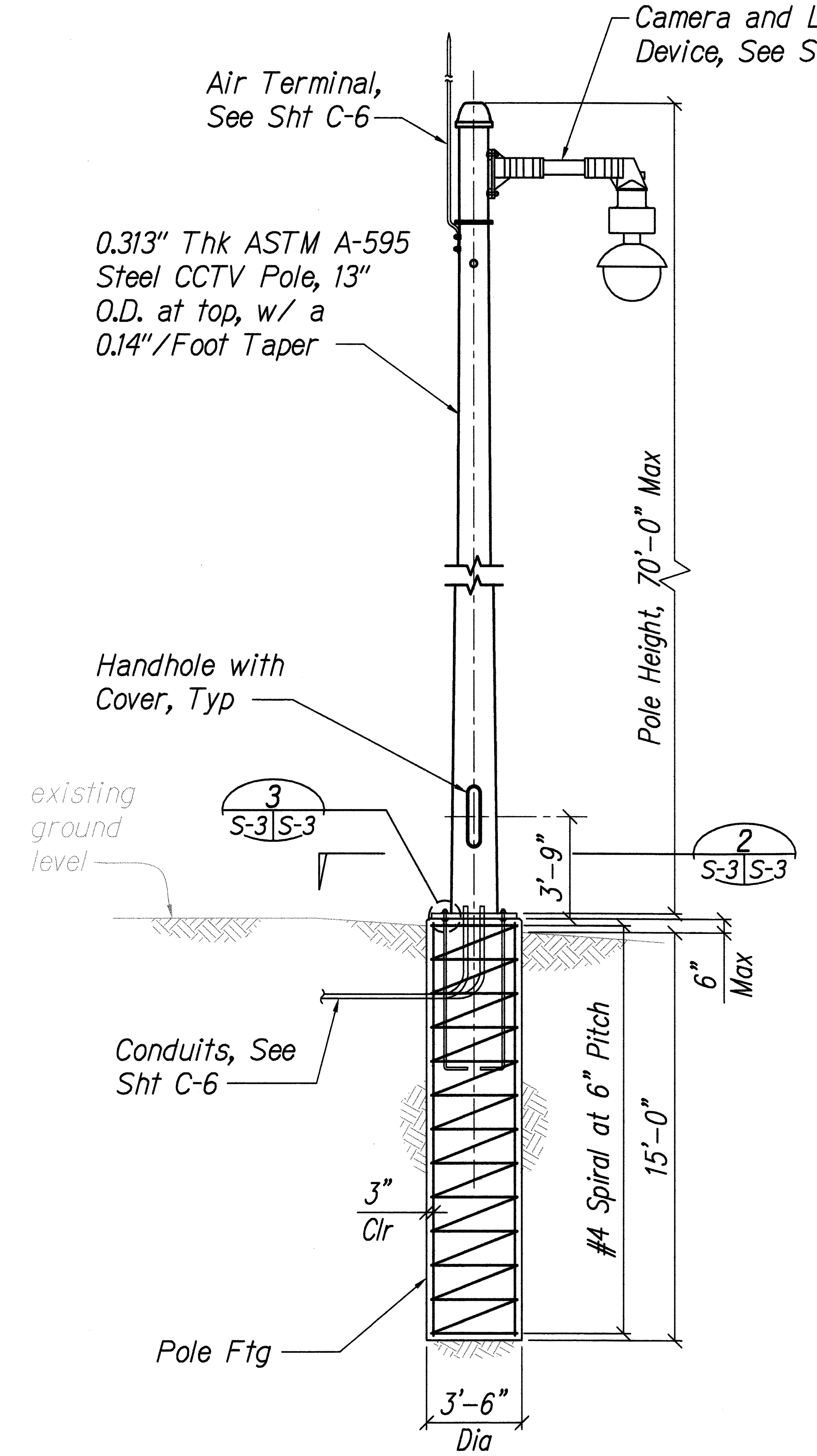
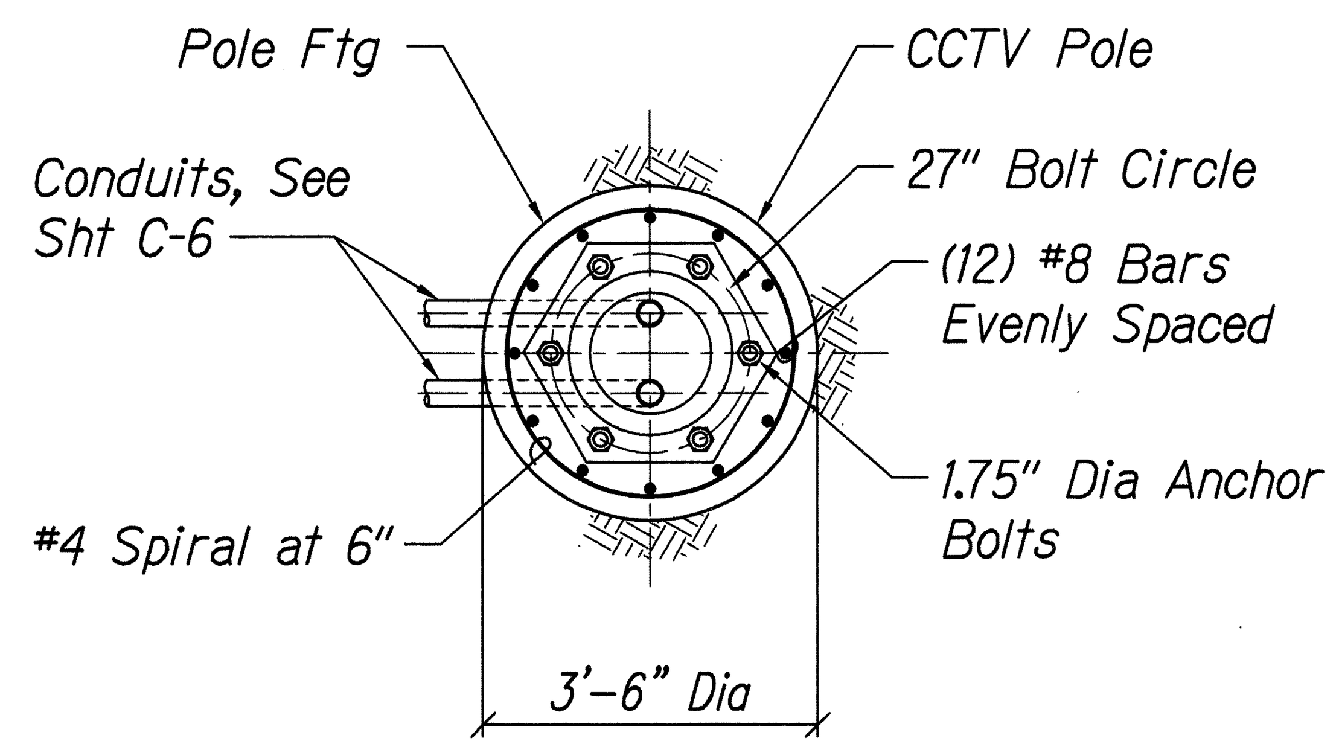
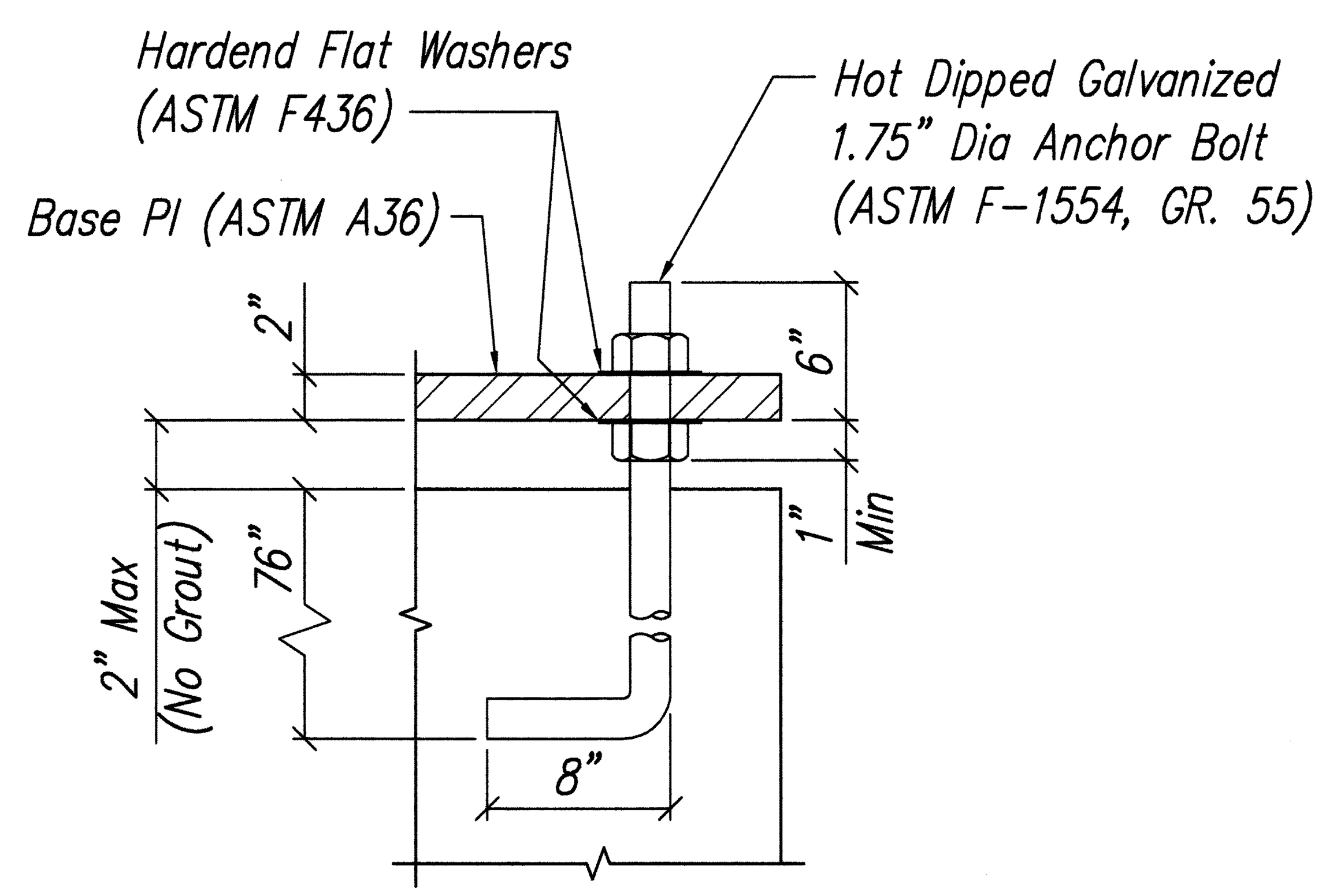
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-0300(127)	2011	47	60



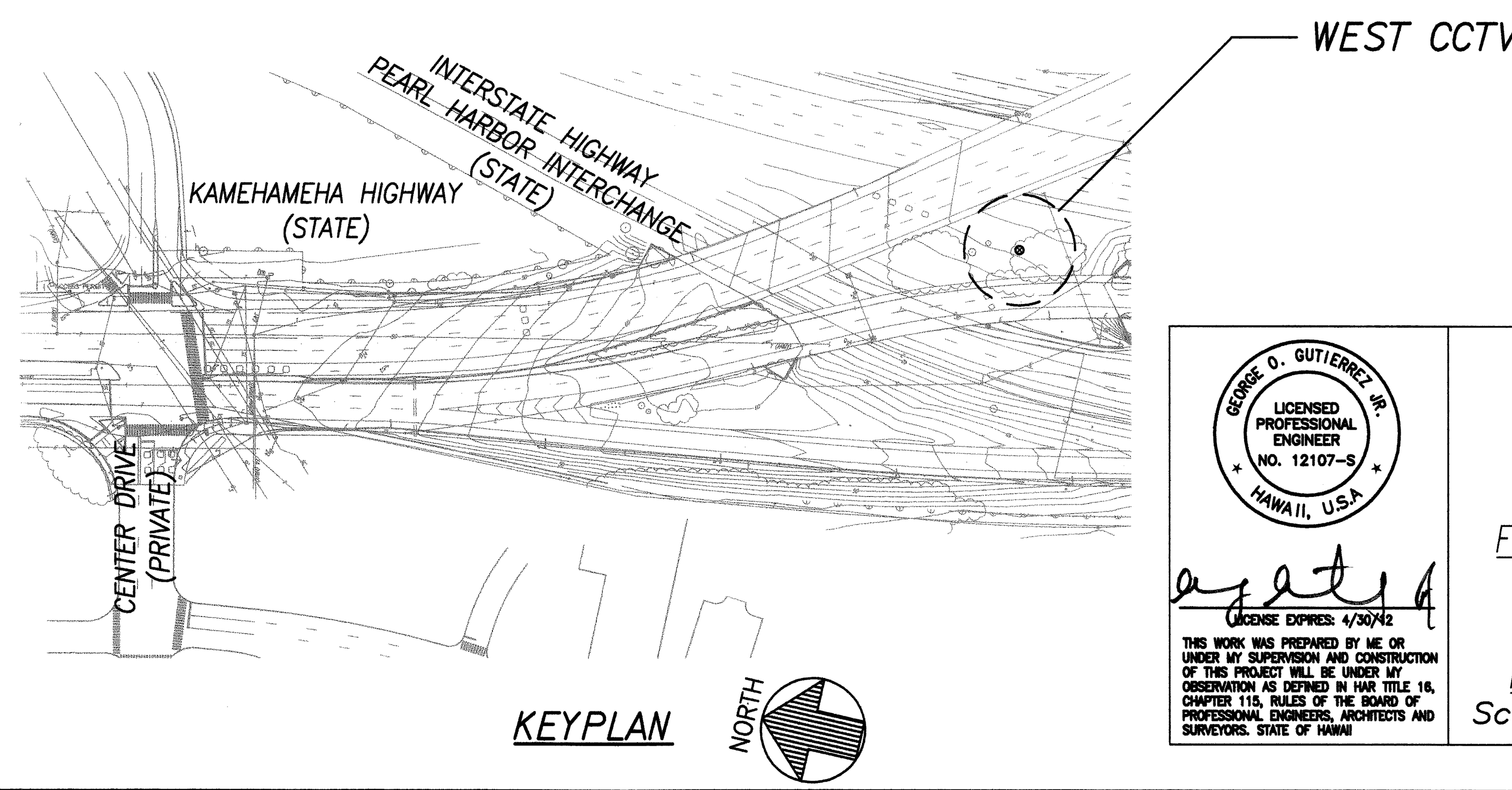
1 S-3 S-3 **CCTV POLE DETAIL**
SCALE: 1/4" = 1'-0"



2 S-3 S-3 **SECTION**
SCALE: 1/2" = 1'-0"

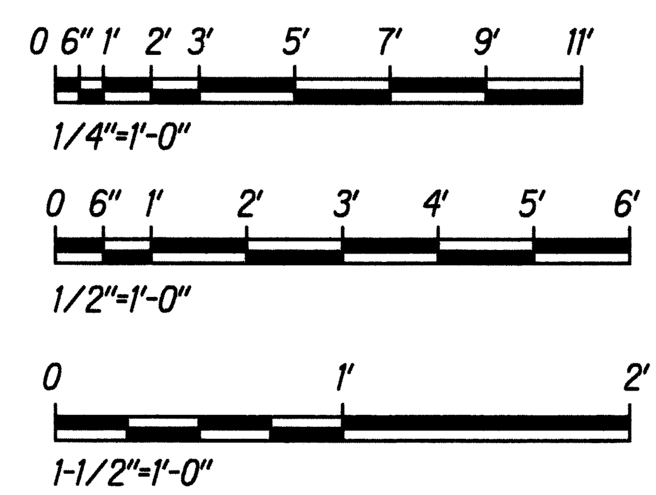


3 S-3 S-3 **ANCHOR BOLT DETAIL**
SCALE : 1-1/2" = 1'-0"



KEYPLAN

GRAPHIC SCALES:



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WEST CCTV DETAILS

Freeway Management System Phase 1C, Part 1B: Installation of CCTV and Communication Infrastructure
Federal Aid Project No. IM-0300(127)

Scale: AS NOTED Date: 8/2/11

SHEET No. S-3 OF 4 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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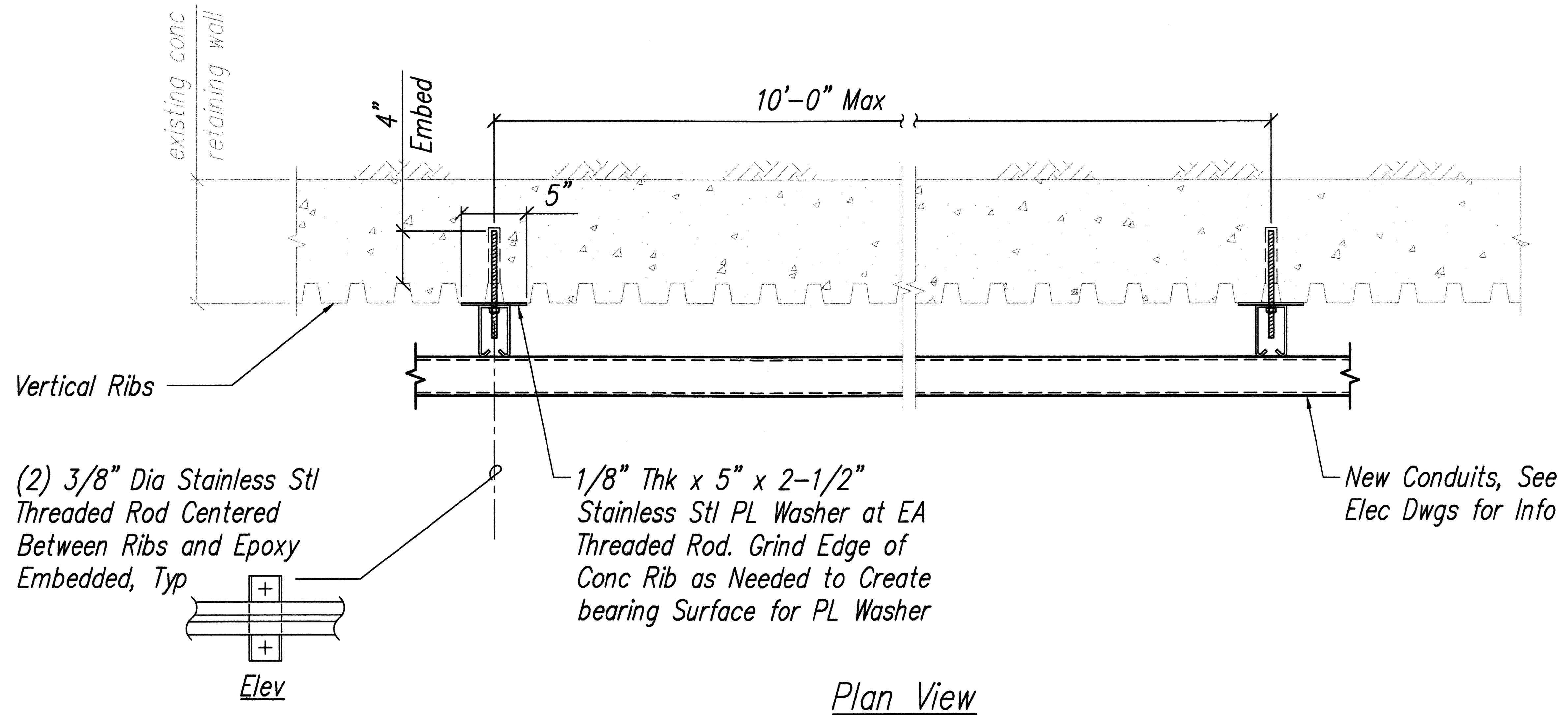
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-0300(127)	2011	48	60



Note:

Junction box support connection shall be similar to detail 1 S-4|S-4.

1 S-4|S-4 DETAIL - CONDUIT SUPPORT AT VERTICAL RIB CONC WALL

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

GRAPHIC SCALES:

0 1' 2'

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

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTEBOOK	DRAWN BY	
	TRACED BY	
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STATE OF HAWAII
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JUNCTION BOX AND CONDUIT MOUNTING

Freeway Management System Phase 1C, Part 1B: Installation of CCTV and Communication Infrastructure

Federal Aid Project No. IM-0300(127)

Scale: AS NOTED Date: 6/28/11

SHEET No. S-4 OF 4 SHEETS