

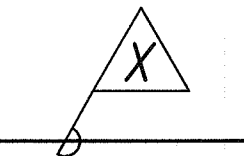
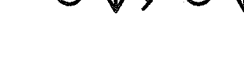
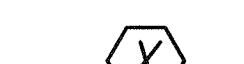
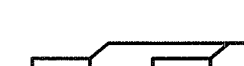
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	159	371

GENERAL TRAFFIC SIGNAL NOTES:

- All Traffic Signal work shall conform to the requirements of the Manual on Uniform Traffic Control Devices for Streets and Highways, U.S. Department of Transportation, Federal Highways Administration, Latest Edition, and Amendments.
- The locations of the traffic signal standards, traffic signal standards with mast arm, pedestrian push buttons, traffic controller, transformer, pullboxes, conduits, & loop detectors shall be staked out in the field by the Contractor and locations accepted by the Engineer prior to construction and installation. Locations shown on plans shall be adjusted as necessary to prevent conflict with existing or new facilities.
- All direct-buried conduits shall be PVC Schedule 80.
- Loop detectors shall be installed according to Loop Detector Details shown on the Plans.
- Lead-in wires in pullbox near loops shall be tagged with Loop Number(s).
- Existing pavement shall be restored according to Restoration of Existing Pavement due to Trench Excavation detail shown on the Plans.
- Steel plates for covering trenches shall have skid resistant surface.
- All structures, pavements, utilities, landscaping, and other topographical features shown on the Plans are existing and shall remain unless noted or indicated otherwise. All grassed areas damaged by construction activities shall be top soiled and grassed.
- A solid #8 bare copper wire shall be pulled in all conduits with the traffic control cable for equipment ground.
- All splicing shall be done in the pullboxes.
- All traffic signal controller equipment shall be completely wired in the cabinet and shall control the traffic signal as called for in the Plans.
- The loop amplifier units furnished for this project shall be capable of operating the loop detector configurations shown on the Plans.
- A 3'x5' level area shall be provided along side pedestrian push button assemblies at a distance not to exceed 10'-0".
- The Contractor shall verify with the respective utility companies and government agencies, the locations of all electric, telephone, traffic signal, street light, cable television, fire alarm, gas, water, sewer, drain and other lines crossing the excavation path or in excavation areas.
- All work and materials for the traffic signal system shall conform to Special Provisions Section 623 - Traffic Signal System, except as otherwise provided on the Plans.
- Provide ground rod in all pullboxes, pullboxes adjacent to signal standards, pedestals, controller cabinets, and other locations ordered by the Engineer. Ground rod connectors shall be copper welded and shall meet ground to earth resistance as specified by the National Electric Code or local inspecting agency.

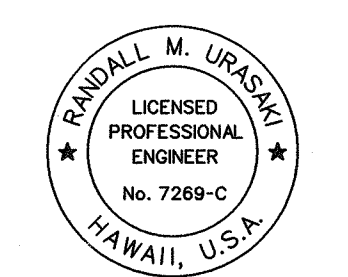
- Underground pipes, cables, or ductlines known to exist are indicated on the Plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the Plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.
- During non-working hours, the Contractor shall provide two lanes for through traffic. On streets too narrow to make this practicable, the Contractor may work in one half of the roadway keeping one lane open to traffic and alternating the flow of traffic. During non-working hours, all trenches shall be covered with a safe, non-skid, traffic-bearing bridging material and all lanes shall be open to traffic.
- Where pedestrian walkways exist, they shall be maintained in passable condition or other facilities for pedestrians shall be provided. Passage between walkways at intersections shall likewise be provided.
- Driveways shall be kept open unless the owners of the property using these rights-of-way are otherwise provided for satisfactorily.
- No material and/or equipment shall be stockpiled or otherwise stored within street rights-of-way except at locations designated in writing and accepted by the Engineer.
- Traffic Signal Supports and Foundations shall meet the requirements of "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 4th Edition 2001."
- See sheets R2-45 and R2-46 for Trench Restoration Details and Typical Section for Permeable Base Course.
- Existing traffic signal standards to be replaced shall be removed together with its respective footing. The Contractor may elect to remove only the top portion of the footing. In such cases, the Contractor shall ensure that the remaining footing shall be 12 inches below the existing or finished grade.
- The existing traffic signal system, including interconnect, shall remain in operation until the new traffic signal system is put into service. The Contractor shall arrange his work accordingly to provide temporary relocations and wirings, as necessary.

TRAFFIC SIGNAL LEGEND AND ABBREVIATIONS:

-  Conduits and Cables, Conduit Run X
-  Temporary Microwave Detector
-  Temporary Microwave Detector Cable
-  12" R-Y-G Traffic Signal Head
-  12" R-Y-↑ Traffic Signal Head
-  12" → Traffic Signal Head
-  12" ← Traffic Signal Head
-  12" R-Y-G← Traffic Signal Head
-  CCTV Camera
-  Pedestrian Signal Head
-  Pedestrian Push Button Assembly (Arrow denotes direction on Push Button Sign)
-  Emergency Vehicle Preempt Receiver (Opticom Receiver)
-  Signal Standard with Mast Arm Type II, or Type III L=Length of Mast arm, Pole X, Footing Type C
-  Signal Standard Type I, Pole X, H=3', 7' or 10', Footing Type A
-  Loop Detectors
-  Pullbox Type A (Old Type "B")
-  Pullbox Type B (Old Type "C")
-  Pullbox Type C (Old Type "D")
-  Traffic Controller Model 170E and 332A Cabinet with Type D Concrete Base for Controller Cabinet
-  Street Sign Mounted to Mast Arm
-  Flashing Beacon

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DESIGNED BY	
NO.	QUANTITIES BY	
	CHECKED BY	

64 FORT WEAVER ROAD/PACKAGE 2/TSP/ITS-NOTES.dgn



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.

Rumilla
SIGNATURE

04/30/10
EXPIRATION DATE
OF THE LICENSE

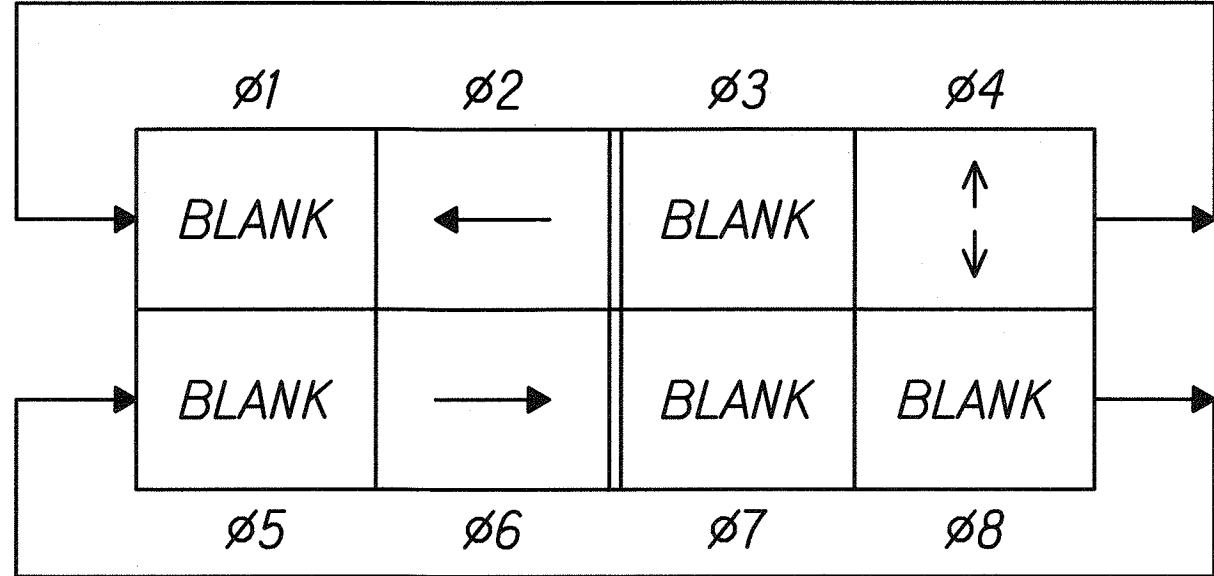
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
NOTES AND LEGEND

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

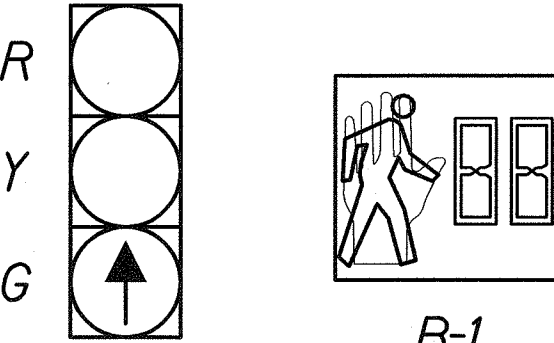
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FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	160	371



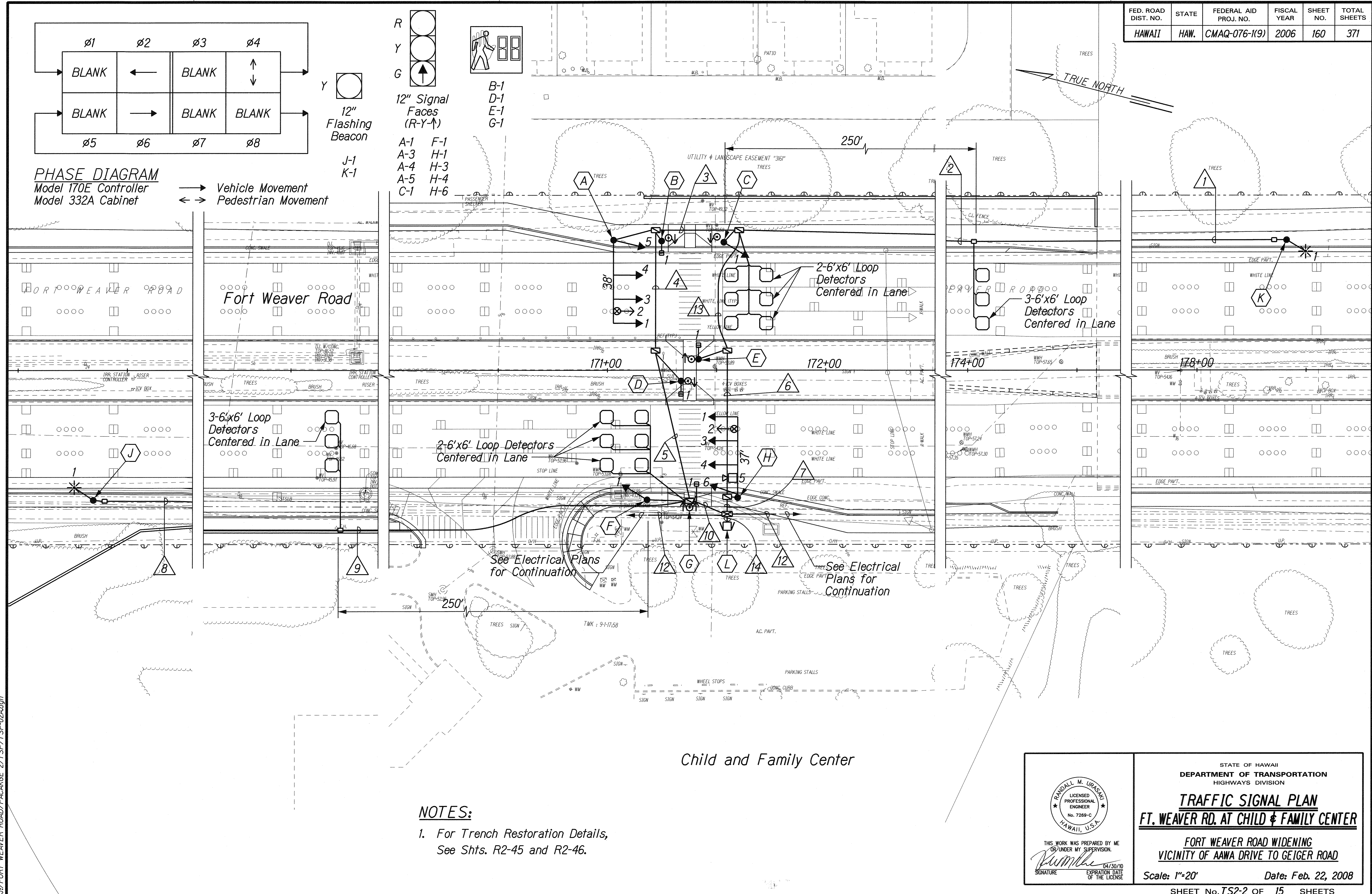
PHASE DIAGRAM
Model 170E Controller
Model 332A Cabinet

→ Vehicle Movement
← Pedestrian Movement



12" Signal Faces (R-Y-G)

- A-1 F-1
- A-3 H-1
- A-4 H-3
- A-5 H-4
- C-1 H-6



NOTES:

- For Trench Restoration Details, See Shts. R2-45 and R2-46.

SURVEY PLOTTED BY	DATE
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NOTED BY	
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1/2 FORT WEAVER ROAD/PACKAGE 2/TSP/TSP-024.dgn

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Signature: *R. Urasak* 04/30/10

EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
FT. WEAVER RD. AT CHILD & FAMILY CENTER

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: 1"=20' Date: Feb. 22, 2008

SHEET No. TS2-2 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	161	371

Cable and Conduit Schedule							
Run △	Conduit Size	Signal Control 26C#14	PPB/ Loops 2C#14	Opticom 3C#20	Power 3C#6	Inter- connect 12PR#19	Other
1	2"	1					
2	2"	1					
	2"		1				
3	2"	1					
	2"						Spare
4	2"	1					
	2"		1				
	2"			1			
	2"						Spare
5	2"	1					
	2"		1				
	2"			1			
	2"						Spare
6	2-2"	2					
	2"		4				
	2"						Spare
7	2-2"	2					
	2"		4				
	2"			1			
	2-2"						Spare
8	2"	1					
9	2"	1					
	2"		1				
10	2-2"	2					
	2"		4				
	2"			1			
	2-2"						Spare
12	2"				1		
	4"					1	
13	2-2"	2					
	2"		4				
	2"						Spare
14	2-2"	4					
	2"		8				
	2"			2			
	2"				1		
	2"					2	
	2-2"						Spare

Material List				
Pole ⬡	Base Type	Standard Type	Mounting Type	PPB Assembly
A	C	II-38	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) MA-1W (I)	
			(5) B-1W	
B	A	I-7	(1) TP-1W	1
C	A	I-10	(1) TP-1W	1
D	A	I-7	(1) TP-1W	1
E	A	I-7	(1) TP-1W	1
F	A	I-10	(1) TP-1W	
G	*	SLP	(1) B-1W	2
H	C	II-37	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) MA-1W (I)	
			(5) Camera (Horiz)	
			(6) B-1W	
J	A	I-10	(1) TP-1W	
K	A	I-10	(1) TP-1W	
L	D		170E Controller	
			332A Cabinet	

* Signal to be mounted on SL Pole.
See Footing Detail on Sht. E2-25.

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

4-1 FORT WEAVER ROAD/PACKAGE 2/TSP/TSP-02B.dgn

RANDALL M. URASAKI

LICENSED PROFESSIONAL ENGINEER

No. 7269-C

HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.

Signature

04/30/10

EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

FT. WEAVER RD. AT CHILD & FAMILY CENTER

FORT WEAVER ROAD WIDENING

VICINITY OF AAWA DRIVE TO GEIGER ROAD

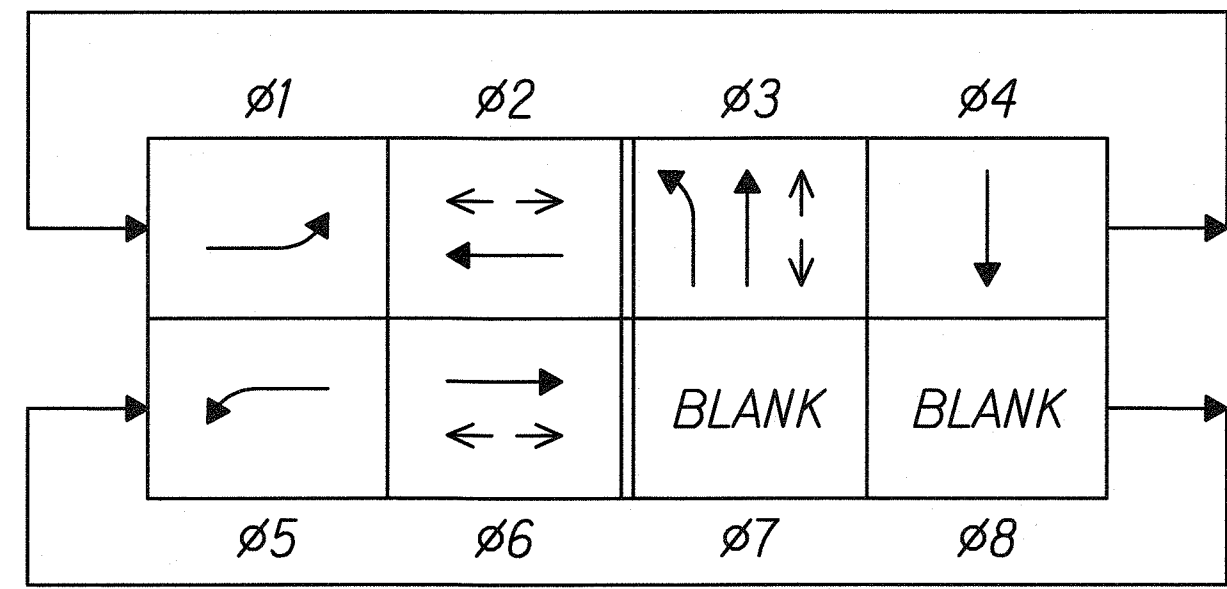
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Date: Feb. 22, 2008

SHEET No. TS2-3 OF 15 SHEETS

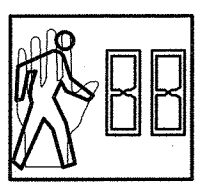
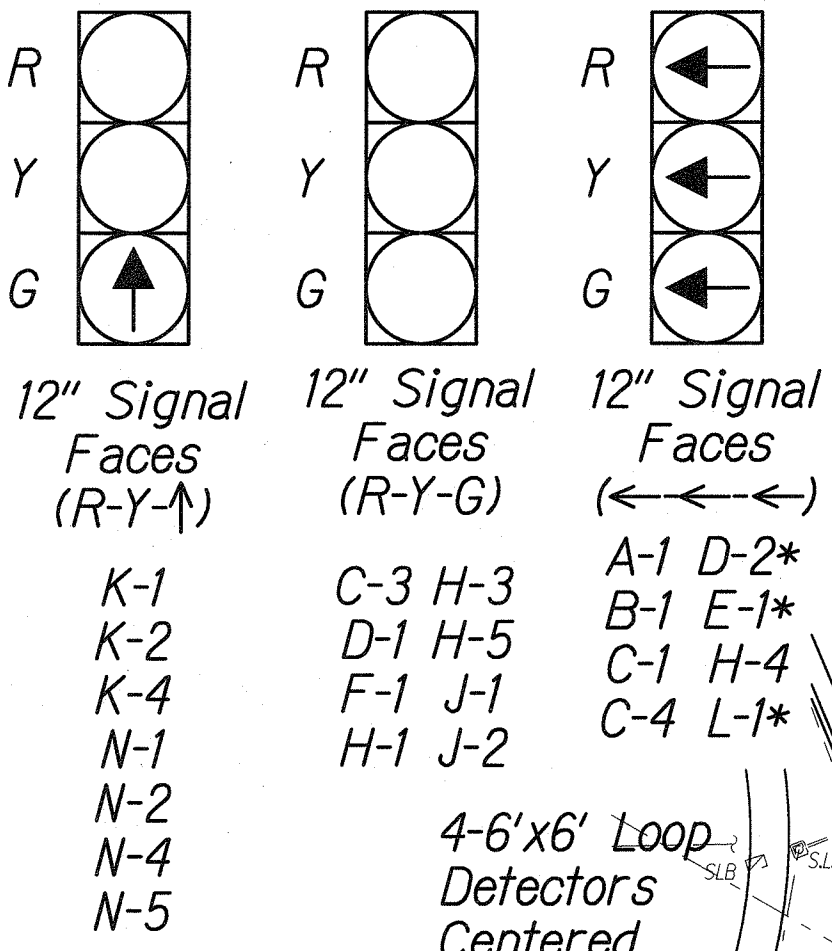
161

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	162	371



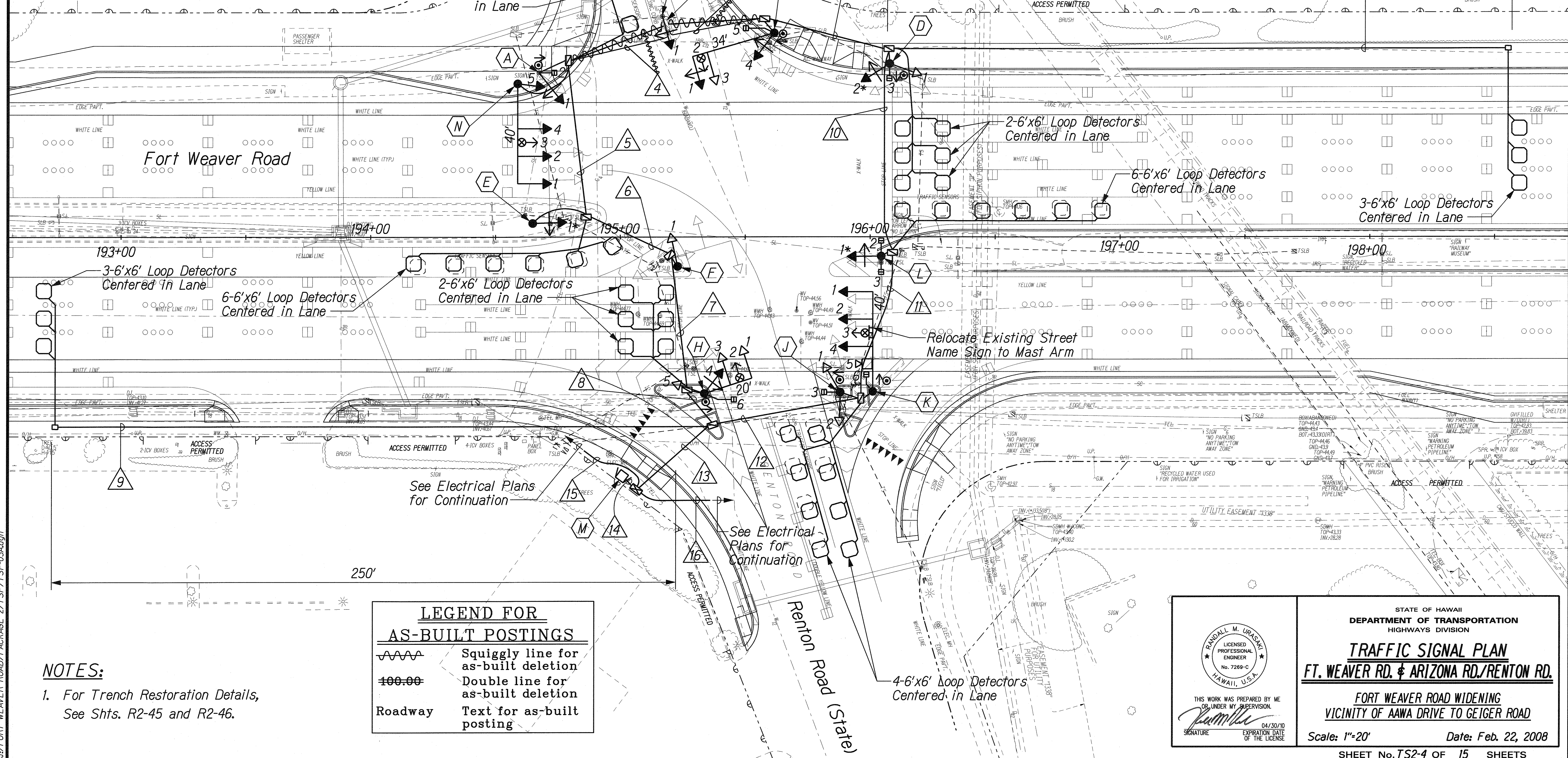
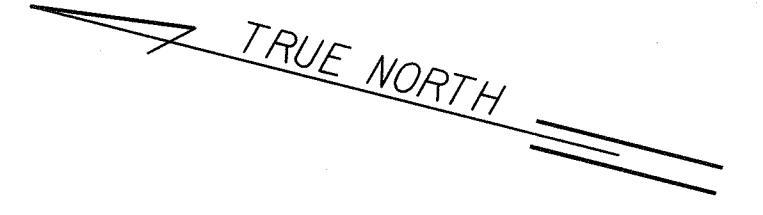
PHASE DIAGRAM
Model 170E Controller
Model 332A Cabinet

→ Vehicle Movement
↔ Pedestrian Movement



A-2 J-3
C-5 K-6
D-3 L-2
H-6 L-3

* Programmed Visibility Signals



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

NOTES:
1. For Trench Restoration Details, See Shts. R2-45 and R2-46.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
SIGNATURE: *R. Uraski* EXPIRATION DATE OF LICENSE: 04/30/10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
FT. WEAVER RD. & ARIZONA RD./RENTON RD.

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: 1"=20' Date: Feb. 22, 2008

SHEET No. TS2-4 OF 15 SHEETS

SURVEY PLOTTED BY	DATE
DESIGNED BY	
NOTED BY	
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\\FORT WEAVER ROAD\PACKAGE 2\TSP\TSP-03A.dgn

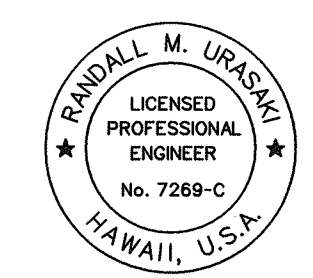
Cable and Conduit Schedule							
Run △	Conduit Size	Signal Control 26C#14	PPB/ Loops 2C#14	Opticom 3C#20	Power 3C#6	Inter- connect 12PR#19	Other
1	2"		1				
2	2-2"	2					
	2"		1				
	2"						Spare
3	2-2"	2					
	2"		1				
	2"			1			
	2-2"						Spare
4	2-2"	2					
	2"		1				
	2"			1			
	2-2"						Spare
5	2-2"	2					
	2"		2				
	2"			2			
	2-2"						Spare
6	2-2"	2					
	2"		4				
	2"			2			
	2-2"						Spare
7	2-2"	2					
	2"		4				
	2"			2			
	2-2"						Spare
8	2-2"	2					
	2"		6				
	2-2"			3			
	2"						Spare
9	2"		1				
10	2-2"	2					
	2"		4				
	2"						Spare
11	2-2"	2					
	2"		6				
	2"						Spare
12	2-2"	2					
	2"		9				
	2"			1			
	2-2"						Spare
13	2-3"	4					
	2-2"		16				
	2-2"			4			
	2-2"						Spare

Cable and Conduit Schedule							
Run △	Conduit Size	Signal Control 26C#14	PPB/ Loops 2C#14	Opticom 3C#20	Power 3C#6	Inter- connect 12PR#19	Other
14	2-3"	4					
	2-2"		16				
	2-2"			4			
	2"				1		
	2"					2	
	2-2"						Spare
15	2"				1		
16	4"					1	
	2"				1		

Material List				
Pole ⬡	Base Type	Standard Type	Mounting Type	PPB Assembly
A	Exist.	Exist. I-10	(1) TP-1W	
			(2) B-1W	1
B	Exist.	Exist. I-10	(1) TP-1W	
C	C	II-34	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) B-1W	
			(5) US-1W	1
D	A	I-10	(1)(2) TP-2W	
			(3) US-1W	1
E	A	I-10	(1) TP-1W	
F	A	I-10	(1) TP-1W	
H	C	II-20	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4)(5) B-2W	
			(6) US-1W	1
J	A	I-10	(1)(2) TP-2W	
			(3) US-1W	1
K	C	II-40	(1) MA-1W (I)	
			(2) MA-1W (I)	
			(3) Opticom (Horiz)	
			(4) MA-1W (I)	
			(5) Camera (Horiz)	
L	A	I-10	(1) TP-1W	
			(2)(3) B-2W	
M	D		170E Controller	
			332A Cabinet	
N	C	II-40	(1) MA-1W (I)	
			(2) MA-1W (I)	
			(3) Opticom (Horiz)	
			(4) MA-1W (I)	
			(5) B-1W	

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

\\FORT WEAVER ROAD\PACKAGE 2\TSP\TSP-03B.dgn



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OR UNDER MY SUPERVISION.
SIGNATURE: *[Signature]* EXPIRATION DATE OF THE LICENSE: 04/30/10

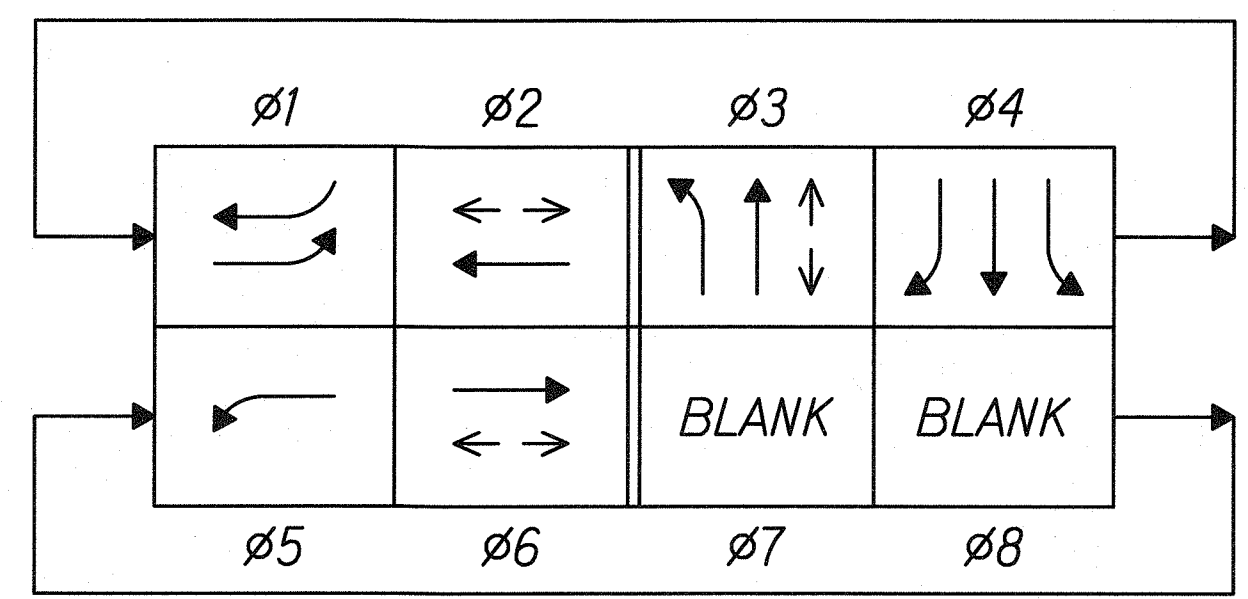
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
FT. WEAVER RD. & ARIZONA RD./RENTON RD.

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

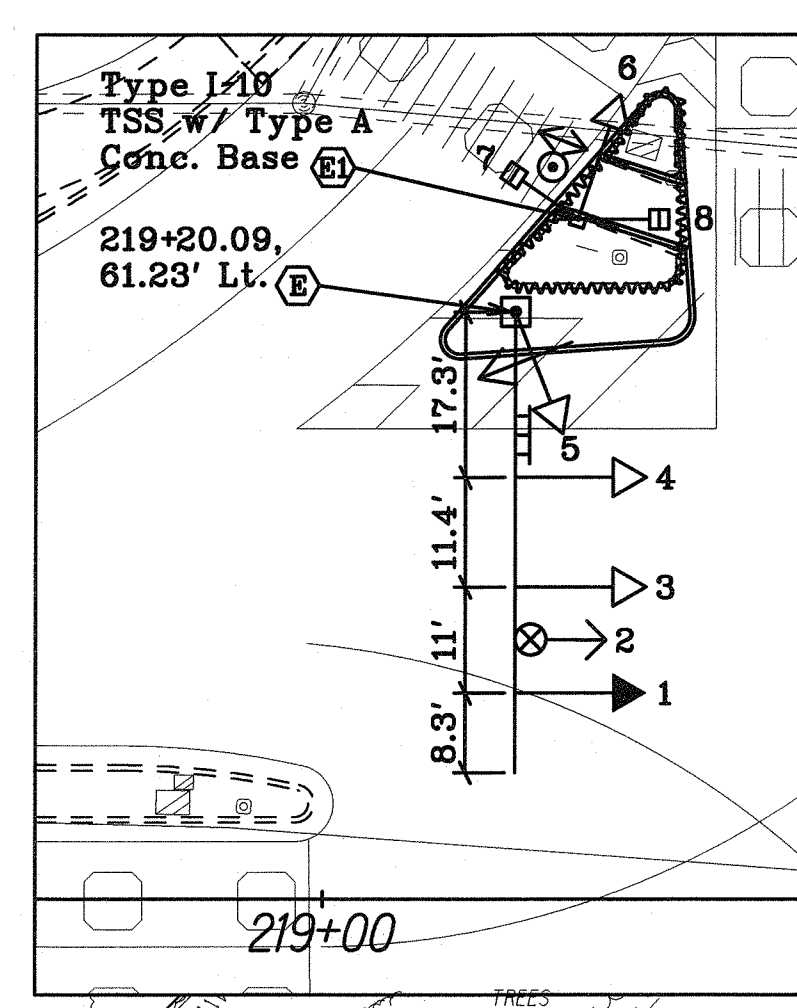
Scale: None Date: Feb. 22, 2008

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	164	371



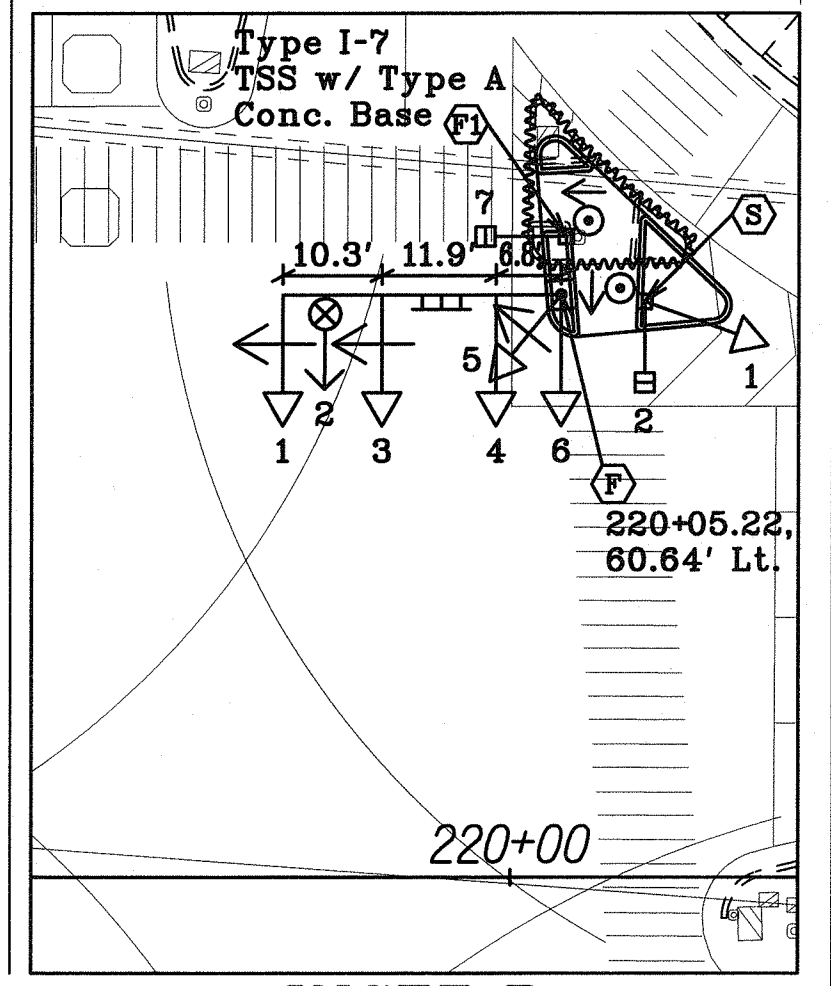
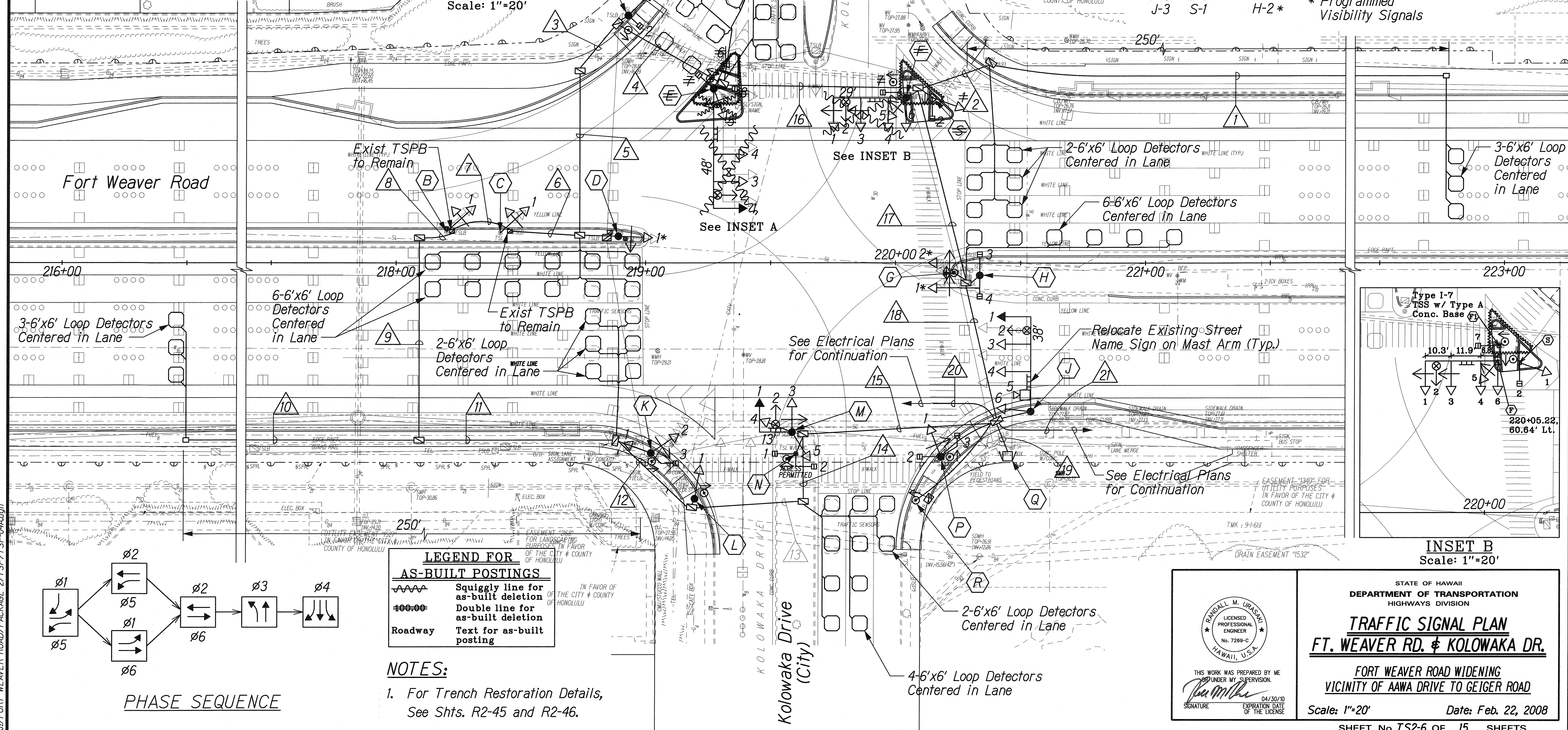
PHASE DIAGRAM
Model 170E Controller
Model 332A Cabinet

→ Vehicle Movement
↔ Pedestrian Movement

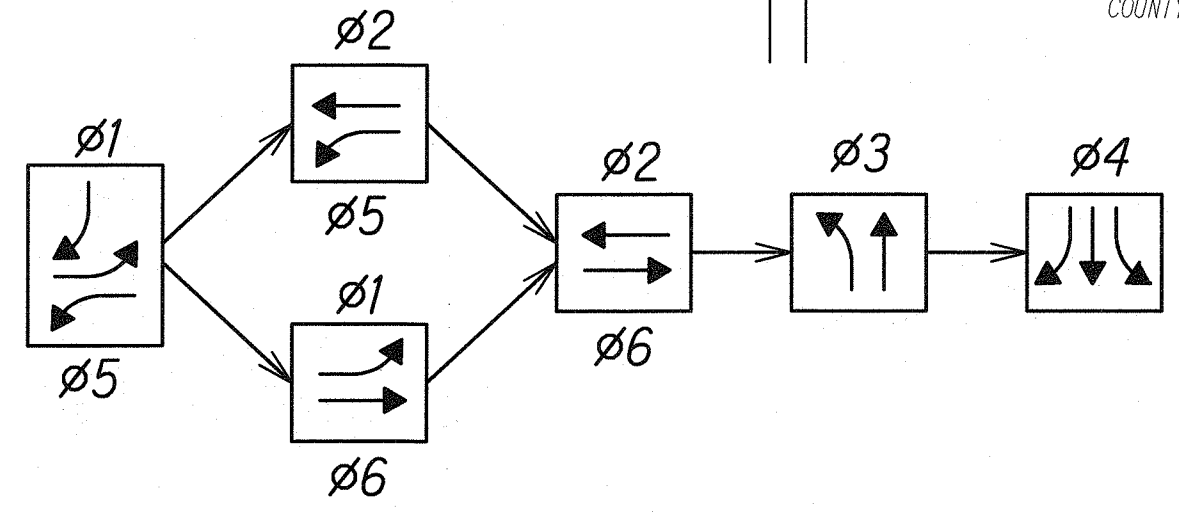


INSET A
Scale: 1"=20'

 12" Signal Faces (R-Y-↑)	 12" Signal Faces (R-Y-G)	 12" Signal Faces (R-←-→)	 12" Signal Faces (R-→-→)	 A-2 (Exist.) E-7 E-8 F-7 H-3 H-4 K-3 N-1 N-2 P-2 P-3 S-2
E-1 J-1 M-1	A-1 E-3 E-4 E-6 F-4 J-3 J-5 K-1 L-1 M-4 M-5 S-1	D-1 * E-5 F-1 F-3 F-5 H-1 * H-2 *	K-2 M-3 P-1 B-1 C-1	* Programmed Visibility Signals



INSET B
Scale: 1"=20'



PHASE SEQUENCE

LEGEND FOR AS-BUILT POSTINGS

	Squiggly line for as-built deletion
	Double line for as-built deletion
	Text for as-built deletion

NOTES:
1. For Trench Restoration Details, See Shts. R2-45 and R2-46.

RANDALL M. URASKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII, USA
THIS WORK WAS PREPARED BY ME UNDER MY SUPERVISION.
SIGNATURE: *R. M. Uraski* DATE: 04/30/10
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TRAFFIC SIGNAL PLAN
FT. WEAVER RD. & KOLOWAKA DR.
FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD
Scale: 1"=20' Date: Feb. 22, 2008
SHEET No. TS2-6 OF 15 SHEETS

DATE	...
SURVEY PLOTTED BY	...
DESIGNED BY	...
NOTED BY	...
CHECKED BY	...

1/4 FORT WEAVER ROAD/PACKAGE 2/TSP/TSP-04A.dgn

Cable and Conduit Schedule							
Run △	Conduit Size	Signal Control 26C#14	PPB/Loops 2C#14	Opticom 3C#20	Power 3C#6	Inter-connect 12PR#19	Other
1	2"		1				
2	2"		3				
3	2-2"	2					
4	2-2"	2					
	2"		1				
	2"						Spare
5	2-2"	2					
	2-2"						Spare
6	2-2"	2					
	2"		3				
	2"						Spare
7	2-2"	2					
	2"		3				
	2"						Spare
8	2-2"	2					
	2"		3				
	2"						Spare
9	2-2"	2					
	2"		3				
	2"						Spare
10	2"		1				
11	2-2"	2					
	2"		4				
	2"						Spare
12	2-2"	2					
	2"		7				
	2"						Spare
13	2-2"	2					
	2"		7				
	2"						Spare
14	2-2"	2					
	2"		10				
	2"						Spare
	2"			1			
15	2-2"	2					
	2-2"		10				
	2"						
	2"						Spare
16	2-2"	2					
	2"		7				
	2"			1			
	2-2"						Spare

Cable and Conduit Schedule							
Run △	Conduit Size	Signal Control 26C#14	PPB/Loops 2C#14	Opticom 3C#20	Power 3C#6	Inter-connect 12PR#19	Other
17	2-2"	2					
	2-2"		11				
	2"			2			
	2"						Spare
18	2-2"	2					
	2-2"		13				
	2"			2			Spare
19	2-3"	4					
	3-2"		23				
	2-2"			4			
	2"						1
	2-2"						Spare
20	2"				1		
	4"					1	
21	2"				1		
	4"					1	

Material List				
Pole △	Base Type	Standard Type	Mounting Type	PPB Assembly
A	A	I-10	(1) TP-1W (2) B-1W	1
B	Exist.	Exist. I-10	(1) TP-1W	
C	Exist.	Exist. I-10	(1) TP-1W	
D	A	I-10	(1) TP-1W	
E	C	II-48	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) MA-1W (I)	
			(5) B-1W	
			(6) B-1W	
			(7) US-1W	1
			(8) US-1W	
F	C	II-29	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) MA-1W (I)	
			(5)(6) B-2W	
G	Exist.	Exist. I-3	(7) US-1W	1
				1

Material List				
Pole △	Base Type	Standard Type	Mounting Type	PPB Assembly
H	A	I-10	(1)(2) TP-2W	
			(3) US-1W	
			(4) US-1W	
J	C	II-38	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) MA-1W (I)	
			(5) Camera (Horiz.)	
			(6) B-1W	
K	A	I-10	(1)(2) TP-2W	1
L	A	I-10	(3) US-1W	
			(1) TP-1W	1
M	C	II-13	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3)(4) B-2W	
			(5) B-1W	
N	Exist.	Exist. I-10	(1)(2) TP-2W	1
P	A	I-10	(1) TP-1W	
			(2)(3) B-2W	1
Q	D		170E Controller w/ Aux. Output File	
			332A Cabinet	
R	PPB	I-3		1
S	PPB	I-10	(1) TP-1W	
			(2) B-1W	1

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

ORIGINAL PLAN	
NOTE BOOK	
N.	

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STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

FT. WEAVER RD. & KOLOWAKA DR.

FORT WEAVER ROAD WIDENING

VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: None

Date: Feb. 22, 2008

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE

EXPIRATION DATE OF THE LICENSE

04/30/10

7269-C

HAWAII, U.S.A.

RANDALL M. URASAKI

LICENSED PROFESSIONAL ENGINEER

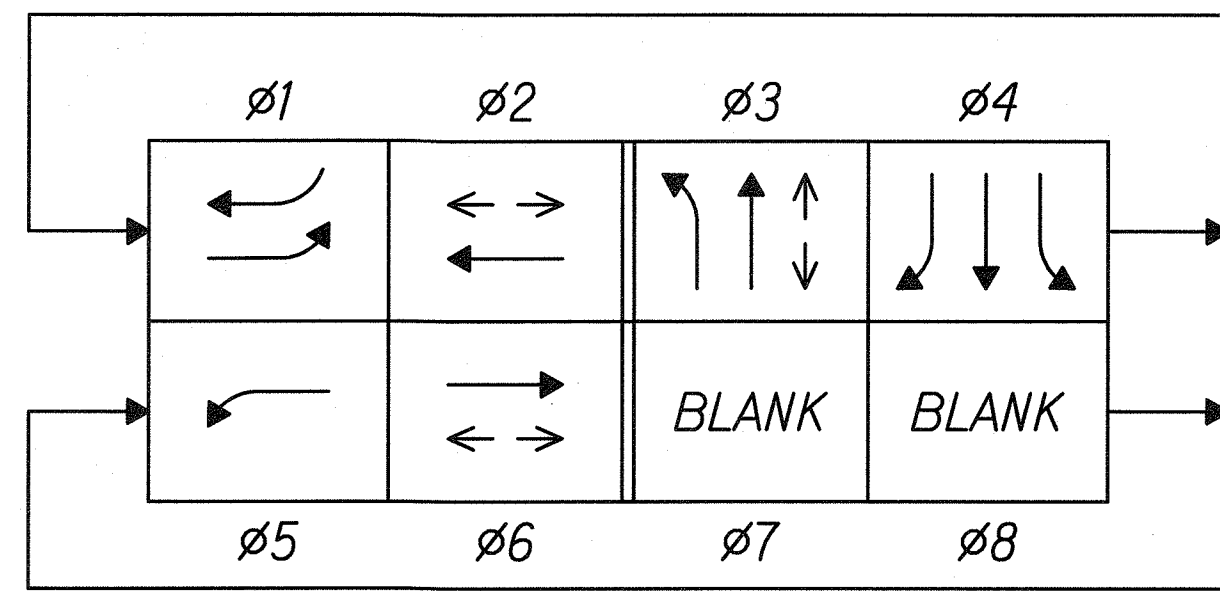
No. 7269-C

HAWAII, U.S.A.

SHEET No. TS2-7 OF 14 SHEETS

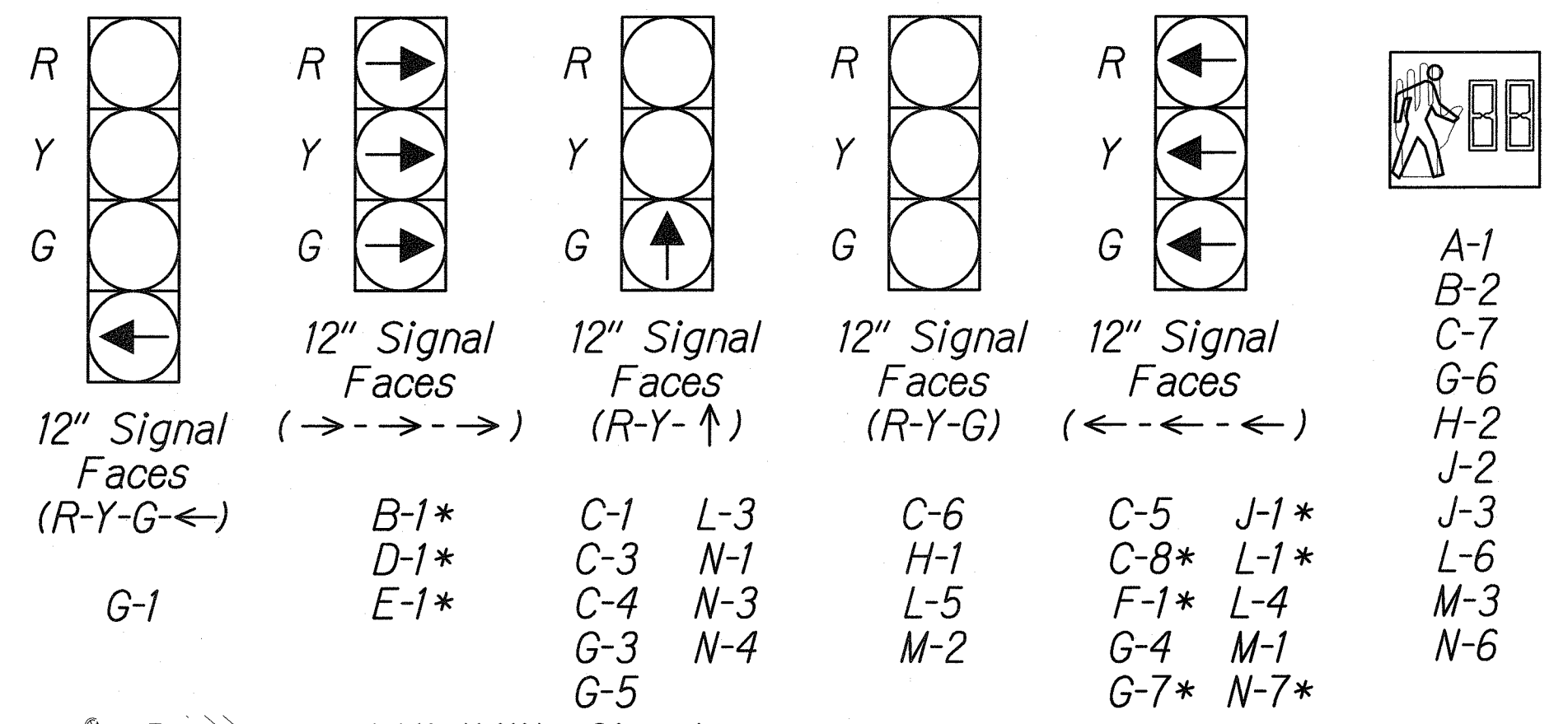
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FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	166	371

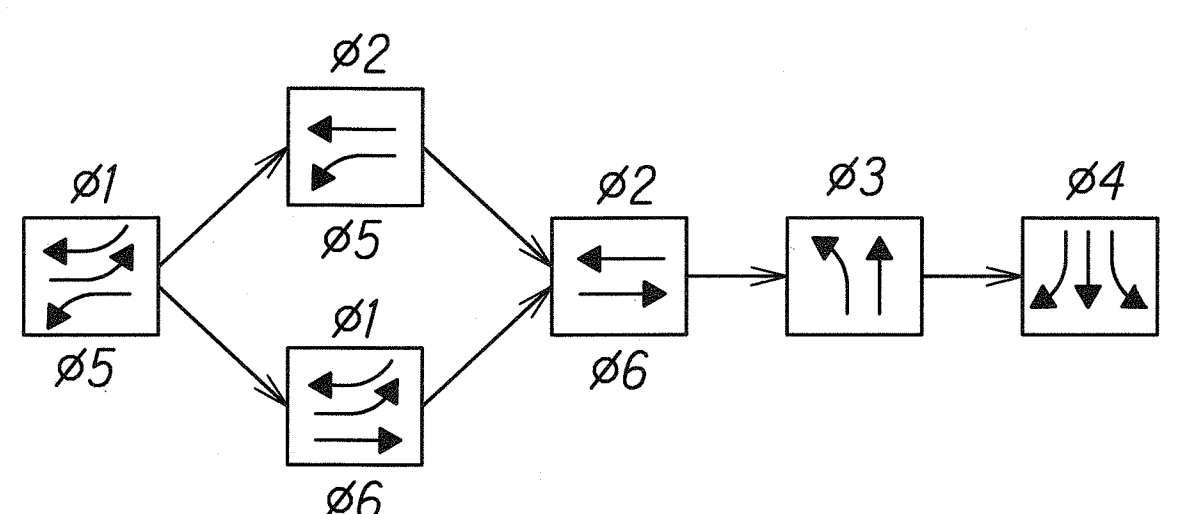
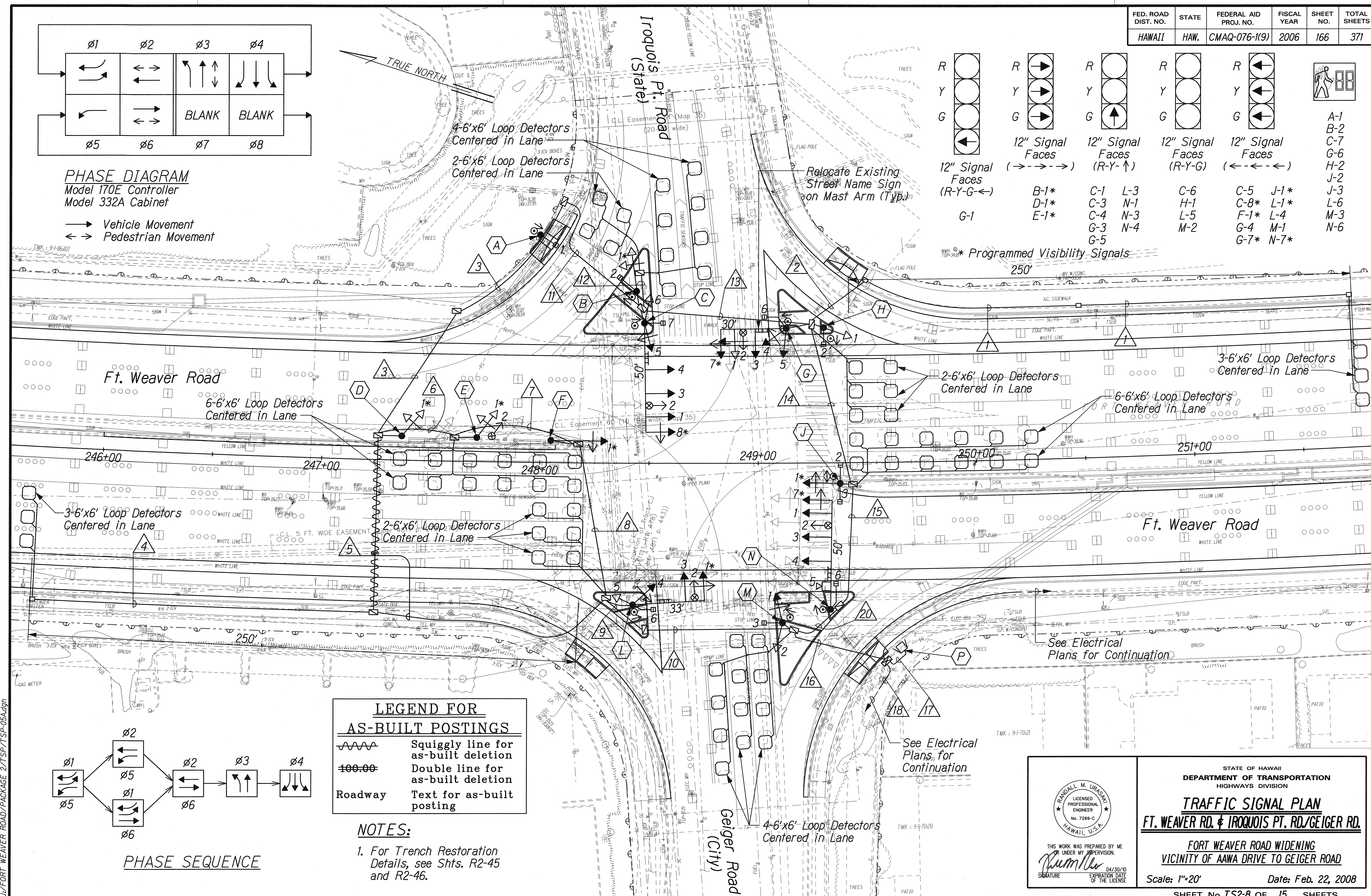


PHASE DIAGRAM
Model 170E Controller
Model 332A Cabinet

→ Vehicle Movement
↔ Pedestrian Movement



* Programmed Visibility Signals



PHASE SEQUENCE

LEGEND FOR AS-BUILT POSTINGS

~~~~~ Squiggly line for as-built deletion  
 =00.00= Double line for as-built deletion  
 Roadway Text for as-built posting

**NOTES:**  
1. For Trench Restoration Details, see Shts. R2-45 and R2-46.

|                   |      |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DRAWN BY          |      |
| DESIGNED BY       |      |
| CHECKED BY        |      |
| ORIGINAL PLAN     |      |
| NOTE BOOK         |      |
| QUANTITIES BY     |      |
| CHECKED BY        |      |

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*Rumiller*  
 SIGNATURE EXPIRATION DATE OF THE LICENSE 04/30/10

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**TRAFFIC SIGNAL PLAN**  
**FT. WEAVER RD. & IROQUOIS PT. RD./GEIGER RD.**

FORT WEAVER ROAD WIDENING  
 VICINITY OF AWA DRIVE TO GEIGER ROAD

Scale: 1"=20' Date: Feb. 22, 2008



|                        |       |                          |                |              |                 |
|------------------------|-------|--------------------------|----------------|--------------|-----------------|
| FED. ROAD<br>DIST. NO. | STATE | FEDERAL AID<br>PROJ. NO. | FISCAL<br>YEAR | SHEET<br>NO. | TOTAL<br>SHEETS |
| HAWAII                 | HAW.  | CMAQ-076-1(9)            | 2006           | 167          | 371             |

Cable and Conduit Schedule

| Run<br>△ | Conduit<br>Size | Signal<br>Control<br>26C#14 | PPB/<br>Loops<br>2C#14 | Opticom<br>3C#20 | Power<br>3C#6 | Inter-<br>connect<br>12PR#19 | Other |
|----------|-----------------|-----------------------------|------------------------|------------------|---------------|------------------------------|-------|
| 1        | 2"              |                             | 1                      |                  |               |                              |       |
| 2        | 2"              |                             | 1                      |                  |               |                              |       |
| 3        | 2-2"            | 2                           |                        |                  |               |                              |       |
|          | 2-2"            |                             |                        |                  |               |                              | Spare |
| 4        | 2"              |                             | 1                      |                  |               |                              |       |
| 5        | 2"              |                             | 1                      |                  |               |                              |       |
|          | 2"              |                             |                        |                  |               |                              | Spare |
| 6        | 2-2"            | 2                           |                        |                  |               |                              |       |
|          | 2"              |                             | 1                      |                  |               |                              |       |
|          | 2"              |                             |                        |                  |               |                              | Spare |
| 7        | 2-2"            | 2                           |                        |                  |               |                              |       |
|          | 2"              |                             | 4                      |                  |               |                              |       |
|          | 2"              |                             |                        | 1                |               |                              |       |
|          | 2-2"            |                             |                        |                  |               |                              | Spare |
| 8        | 2-2"            | 2                           |                        |                  |               |                              |       |
|          | 2"              |                             | 4                      |                  |               |                              |       |
|          | 2"              |                             |                        | 1                |               |                              |       |
|          | 2-2"            |                             |                        |                  |               |                              | Spare |
| 9        | 2-2"            | 2                           |                        |                  |               |                              |       |
|          | 2"              |                             | 7                      |                  |               |                              |       |
|          | 2"              |                             |                        | 2                |               |                              |       |
| 10       | 2-2"            | 2                           |                        |                  |               |                              |       |
|          | 2"              |                             | 7                      |                  |               |                              |       |
|          | 2"              |                             |                        | 2                |               |                              |       |
|          | 2-2"            |                             |                        |                  |               |                              | Spare |
| 11       | 2-2"            | 2                           |                        |                  |               |                              |       |
|          | 2"              |                             | 1                      |                  |               |                              |       |
|          | 2"              |                             |                        |                  |               |                              | Spare |
| 12       | 2"              |                             | 3                      |                  |               |                              |       |
| 13       | 2-2"            | 2                           |                        |                  |               |                              |       |
|          | 2"              |                             | 5                      |                  |               |                              |       |
|          | 2"              |                             |                        | 1                |               |                              |       |
|          | 2-2"            |                             |                        |                  |               |                              | Spare |
| 14       | 2-2"            | 2                           |                        |                  |               |                              |       |
|          | 2"              |                             | 9                      |                  |               |                              |       |
|          | 2"              |                             |                        | 2                |               |                              |       |
|          | 2-2"            |                             |                        |                  |               |                              | Spare |
| 15       | 2-2"            | 2                           |                        |                  |               |                              |       |
|          | 2-2"            |                             | 12                     |                  |               |                              |       |
|          | 2"              |                             |                        | 2                |               |                              |       |
|          | 2"              |                             |                        |                  |               |                              | Spare |
| 16       | 4-2"            | 4                           |                        |                  |               |                              |       |
|          | 2-2"            |                             | 22                     |                  |               |                              |       |
|          | 3-2"            |                             |                        | 5                |               |                              |       |
|          | 2"              |                             |                        |                  |               |                              | Spare |

Cable and Conduit Schedule

| Run<br>△ | Conduit<br>Size | Signal<br>Control<br>26C#14 | PPB/<br>Loops<br>2C#14 | Opticom<br>3C#20 | Power<br>3C#6 | Inter-<br>connect<br>12PR#19 | Other |
|----------|-----------------|-----------------------------|------------------------|------------------|---------------|------------------------------|-------|
| 17       | 4-2"            | 4                           |                        |                  |               |                              |       |
|          | 2-2"            |                             | 22                     |                  |               |                              |       |
|          | 3-2"            |                             |                        | 5                |               |                              |       |
|          | 2"              |                             |                        |                  | 1             |                              |       |
|          | 2"              |                             |                        |                  |               | 2                            |       |
|          | 2"              |                             |                        |                  |               |                              | Spare |
| 18       | 2"              |                             |                        |                  | 1             |                              |       |
|          | 4"              |                             |                        |                  |               | 1                            |       |
| 20       | 2-2"            | 2                           |                        |                  |               |                              |       |
|          | 2-2"            |                             | 12                     |                  |               |                              |       |
|          | 2-2"            |                             |                        | 3                |               |                              |       |

Material List

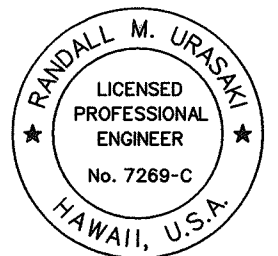
| Pole<br>△ | Base<br>Type | Standard<br>Type | Mounting Type       | PPB<br>Assembly |
|-----------|--------------|------------------|---------------------|-----------------|
| A         | A            | I-7              | (1) TP-1W           | 1               |
| B         | A            | I-10             | (1) TP-1W           |                 |
|           |              |                  | (2) B-1W            | 1               |
| C         | C            | II-50            | (1) MA-1W (I)       |                 |
|           |              |                  | (2) Opticom (Horiz) |                 |
|           |              |                  | (3) MA-1W (I)       |                 |
|           |              |                  | (4) MA-1W (I)       |                 |
|           |              |                  | (5)(6) B-2W         |                 |
|           |              |                  | (7) US-1W           | 1               |
|           |              |                  | (8) MA-1W (I)       |                 |
| D         | A            | I-10             | (1) TP-1W           |                 |
| E         | A            | I-10             | (1) TP-1W           |                 |
|           |              |                  | (2) Opticom (Vert)  |                 |
| F         | A            | I-10             | (1) TP-1W           |                 |
| G         | C            | II-30            | (1) MA-1W (I)       |                 |
|           |              |                  | (2) Opticom (Horiz) |                 |
|           |              |                  | (3) MA-1W (I)       |                 |
|           |              |                  | (4)(5) B-2W         |                 |
|           |              |                  | (6) US-1W           | 1               |
|           |              |                  | (7) MA-1W (I)       |                 |
| H         | A            | I-10             | (1) TP-1W           |                 |
|           |              |                  | (2) B-1W            | 1               |
| J         | A            | I-10             | (1) TP-1W           |                 |
|           |              |                  | (2)(3) B-2W         | 1               |
| L         | C            | II-33            | (1) MA-1W (I)       |                 |
|           |              |                  | (2) Opticom (Horiz) |                 |
|           |              |                  | (3) MA-1W (I)       |                 |
|           |              |                  | (4)(5) B-2W         |                 |
|           |              |                  | (6) US-1W           | 1               |

Material List

| Pole<br>△ | Base<br>Type | Standard<br>Type | Mounting Type                          | PPB<br>Assembly |
|-----------|--------------|------------------|----------------------------------------|-----------------|
| M         | A            | I-10             | (1)(2) TP-2W                           |                 |
|           |              |                  | (3) US-1W                              | 1               |
| N         | C            | II-50            | (1) MA-1W (I)                          |                 |
|           |              |                  | (2) Opticom (Horiz)                    |                 |
|           |              |                  | (3) MA-1W (I)                          |                 |
|           |              |                  | (4) MA-1W (I)                          |                 |
|           |              |                  | (5) Camera (Horiz)                     |                 |
|           |              |                  | (6) B-1W                               | 1               |
|           |              |                  | (7) MA-1W (I)                          |                 |
| P         | D            |                  | 170E Controller w/<br>Aux. output file |                 |
|           |              |                  | 332A Cabinet                           |                 |

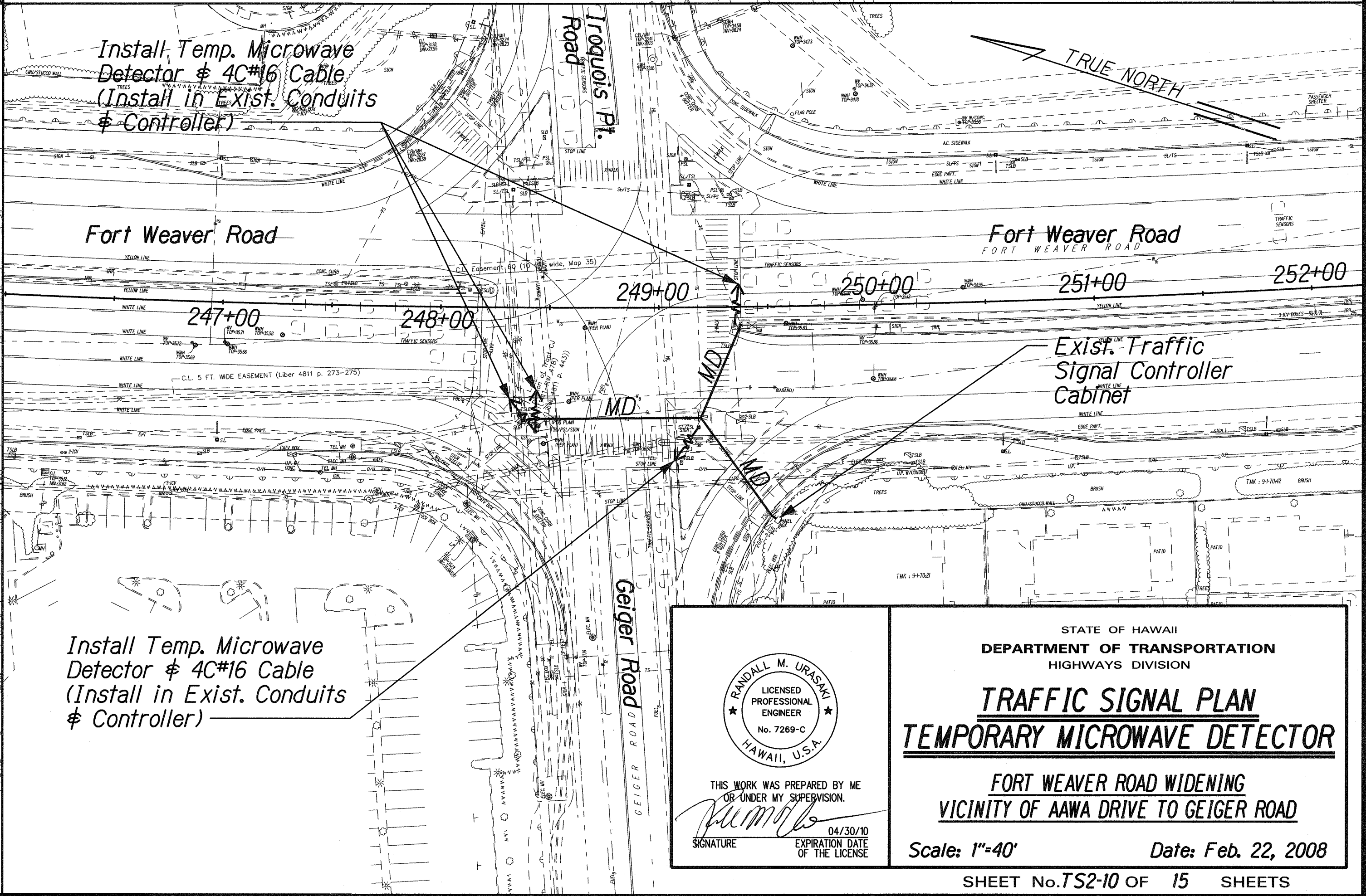
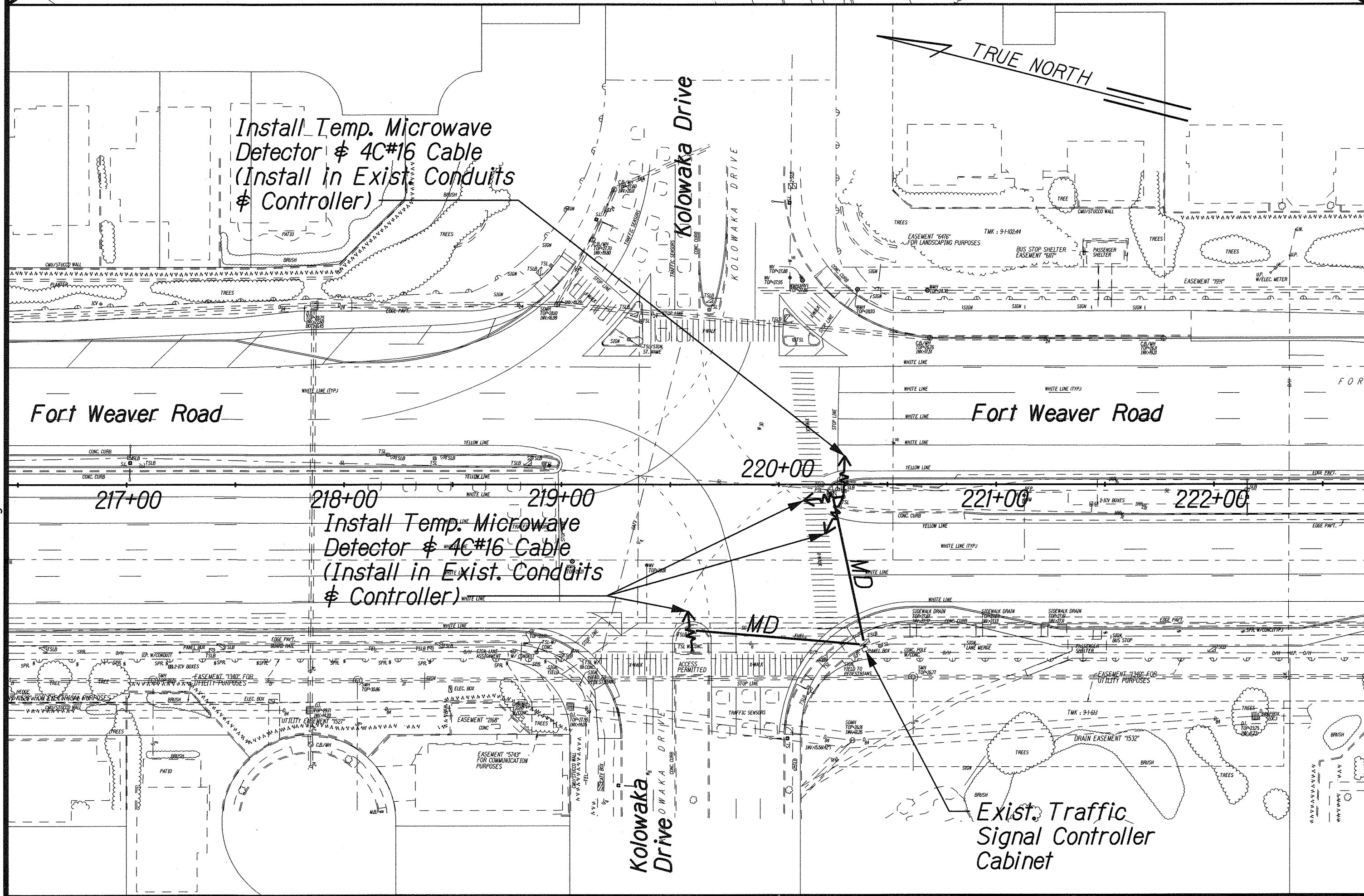
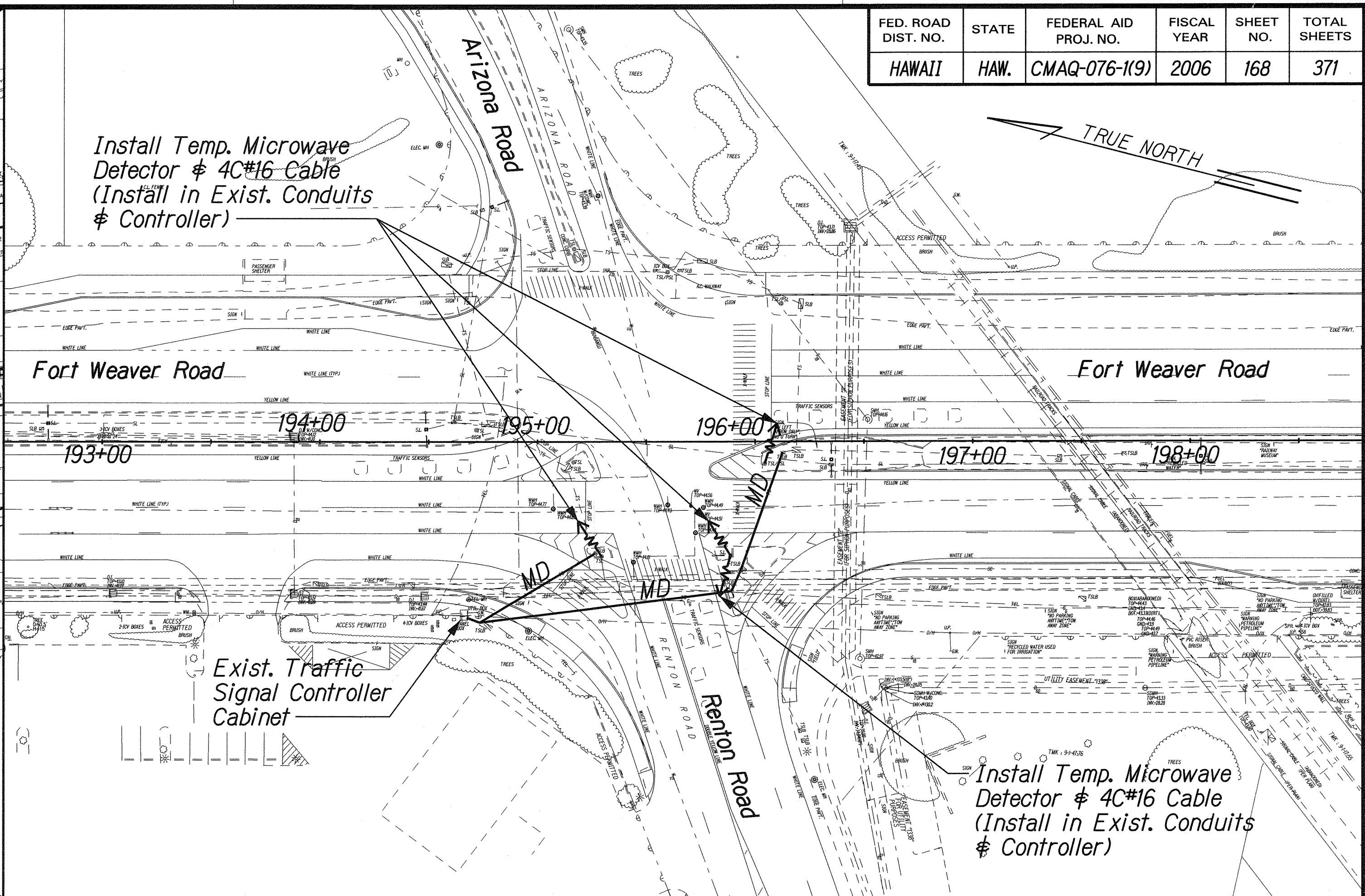
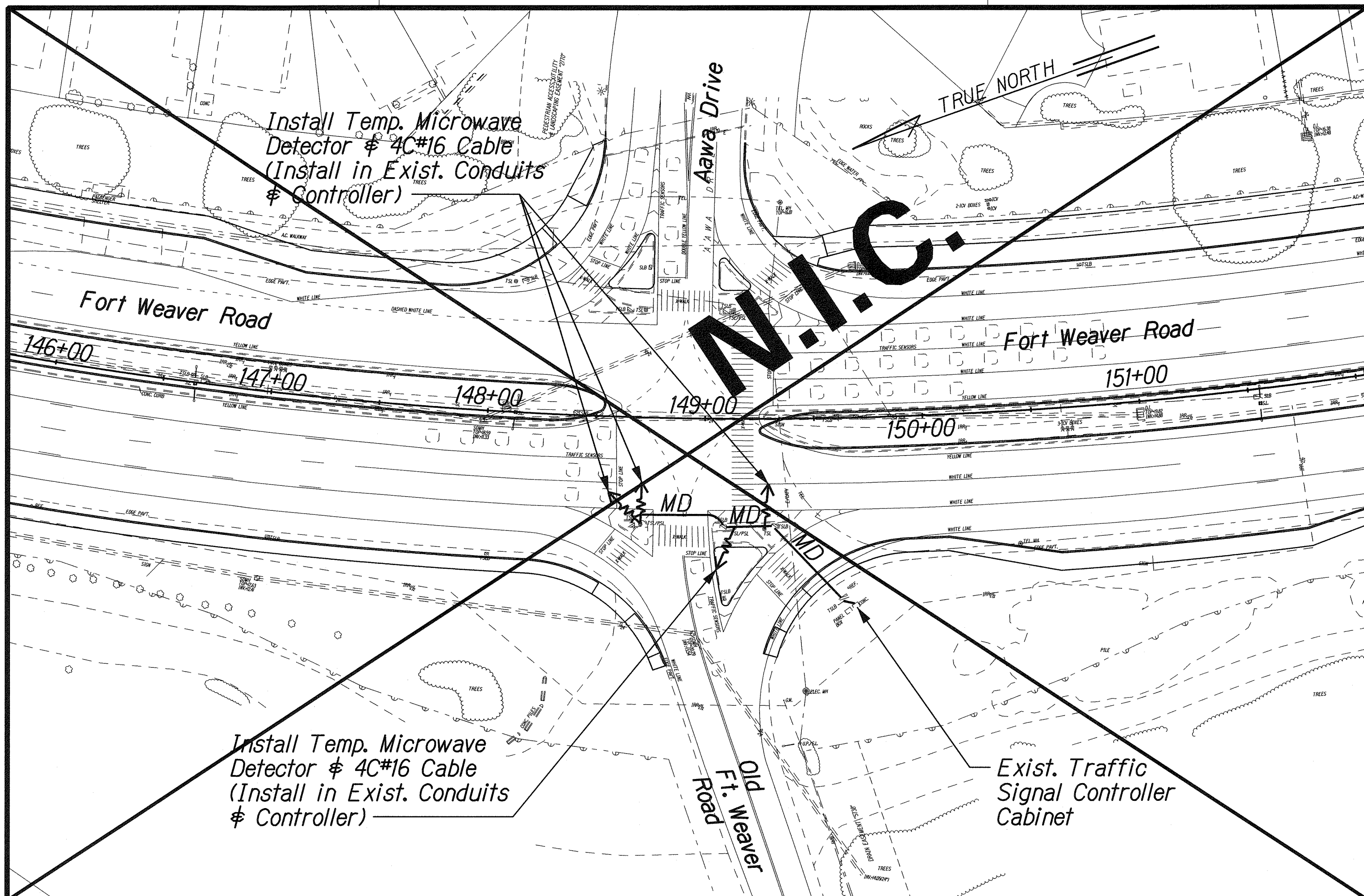
|                  |      |
|------------------|------|
| ORIGINAL<br>PLAN | DATE |
| NOTED BY         |      |
| DESIGNED BY      |      |
| CHECKED BY       |      |
| IN CHARGE        |      |

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|                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>THIS WORK WAS PREPARED BY ME<br>OR UNDER MY SUPERVISION.<br>SIGNATURE: <i>R. Urasak</i> 04/30/10<br>EXPIRATION DATE OF THE LICENSE | STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION<br><b>TRAFFIC SIGNAL PLAN</b><br><b>FT. WEAVER RD. &amp; IROQUOIS PT. RD./GEIGER RD.</b><br>FORT WEAVER ROAD WIDENING<br>VICINITY OF AAWA DRIVE TO GEIGER ROAD<br>Scale: None Date: Feb. 22, 2008 |
|                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                        |



| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-----------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | CMAQ-076-1(9)         | 2006        | 168       | 371          |



|                   |      |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DRAWN BY          |      |
| TRACED BY         |      |
| NOTE BOOK         |      |
| CHECKED BY        |      |

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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAFFIC SIGNAL PLAN**  
**TEMPORARY MICROWAVE DETECTOR**

FORT WEAVER ROAD WIDENING  
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: 1"=40'      Date: Feb. 22, 2008

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE: *Randall M. Urashki*      04/30/10  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

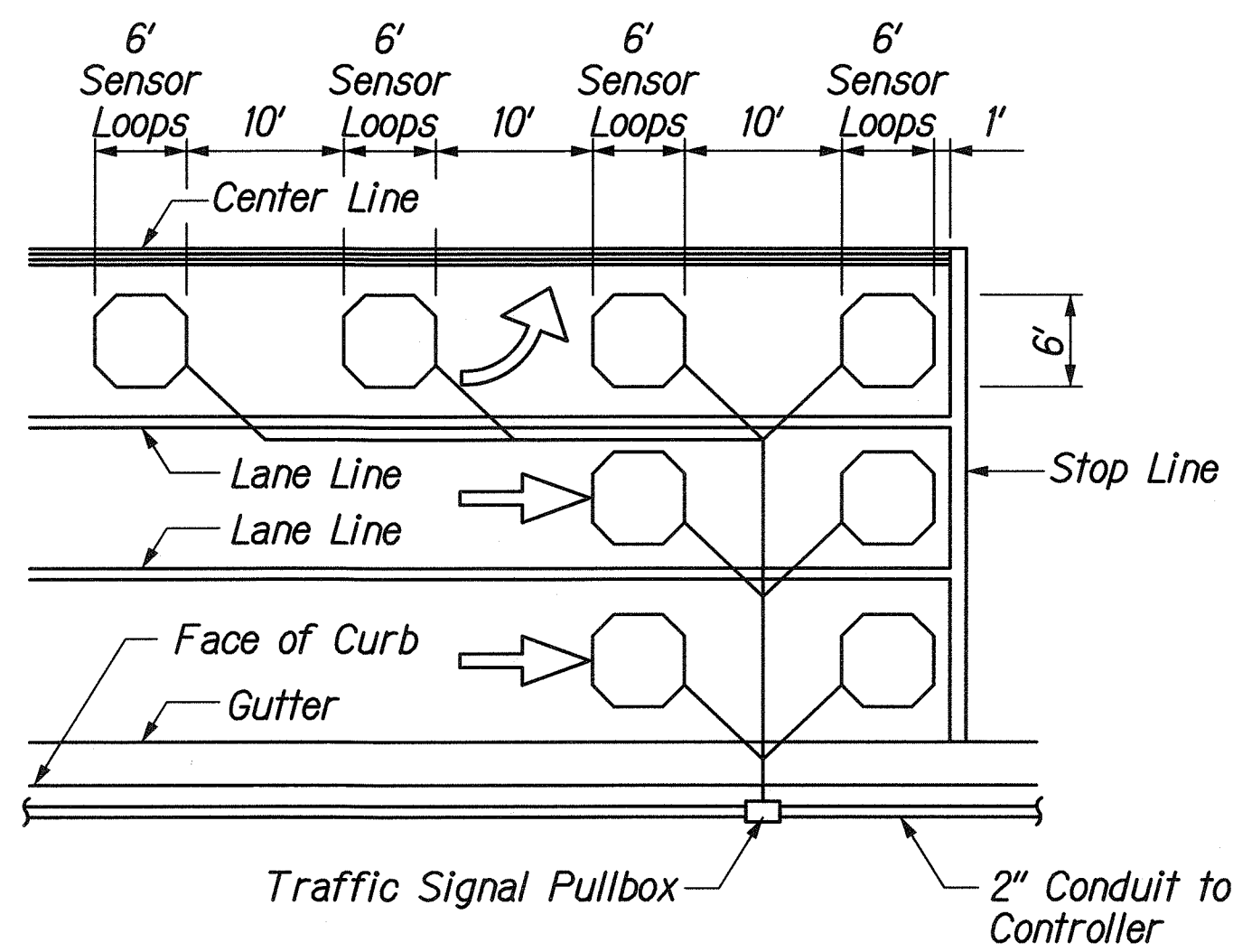
**TRAFFIC SIGNAL PLAN**  
**TEMPORARY MICROWAVE DETECTOR**

FORT WEAVER ROAD WIDENING  
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: 1"=40'      Date: Feb. 22, 2008

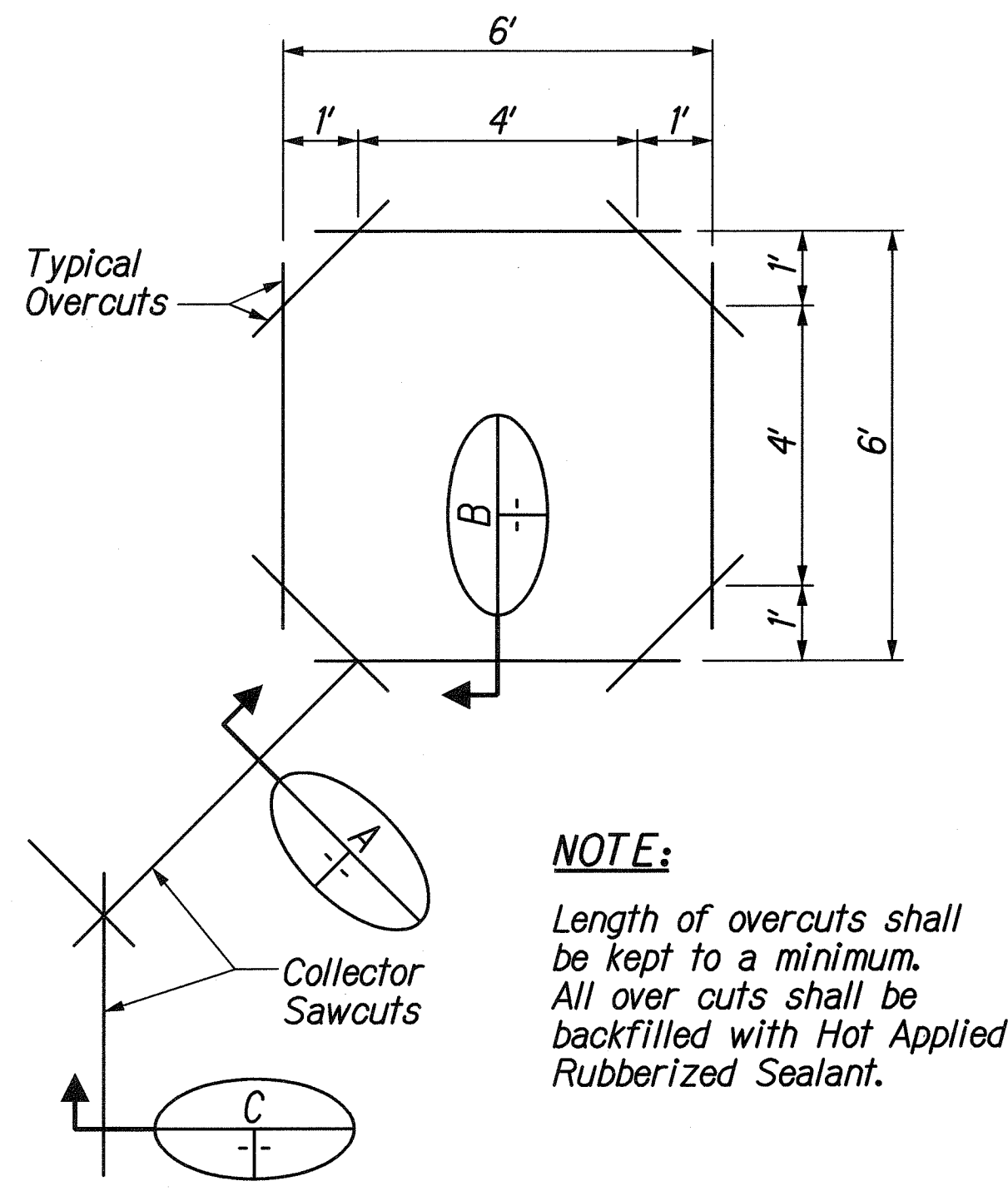


| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-----------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | CMAQ-076-1(9)         | 2006        | 169       | 371          |

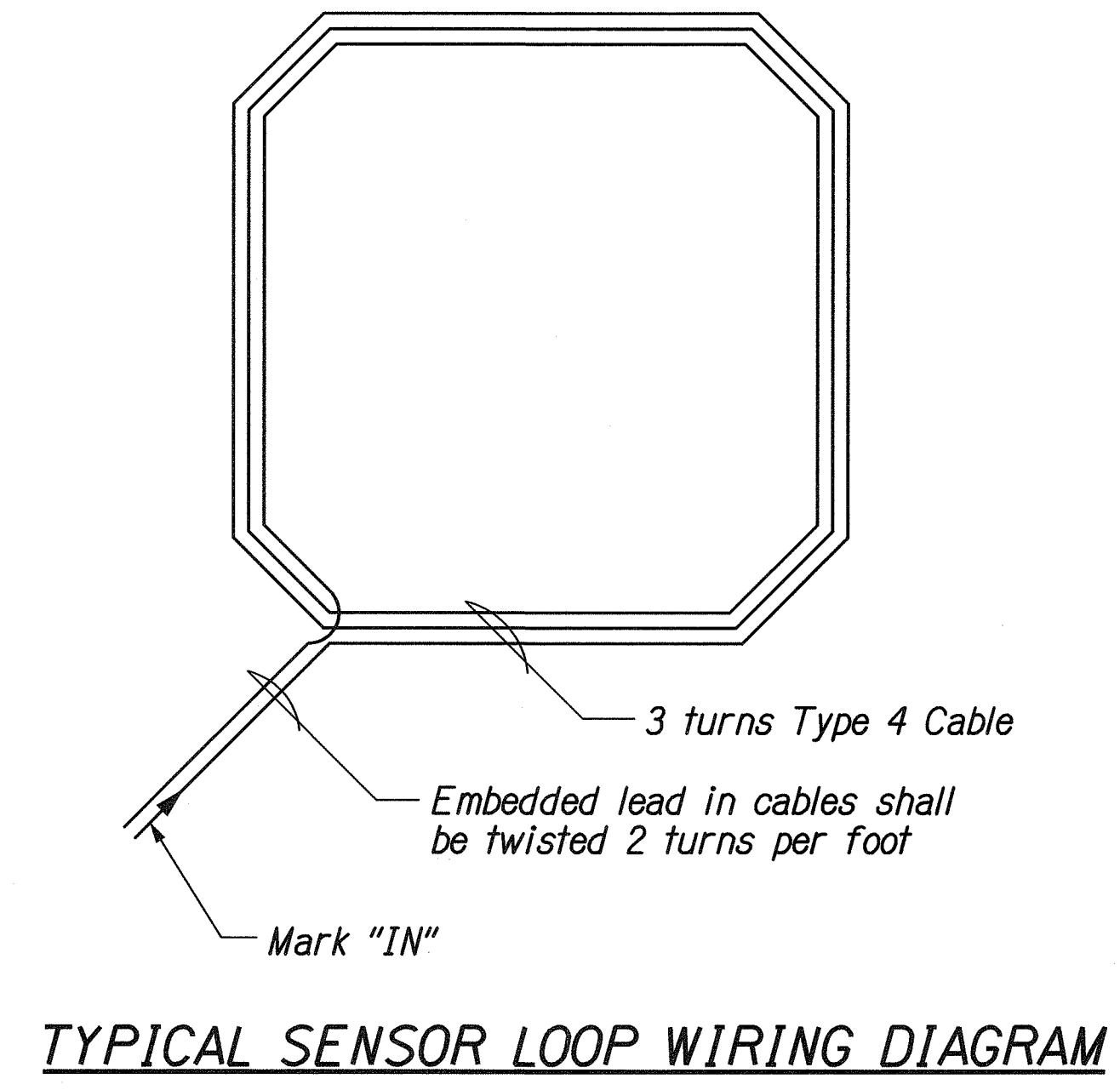


- NOTES:**
1. Center sensor loops in lanes.
  2. Collector Cables shall be twisted 2 turns per foot.
  3. Number of loops and locations vary. See project plans.
  4. Number and locations of Collector Sawcuts may be varied in the field.

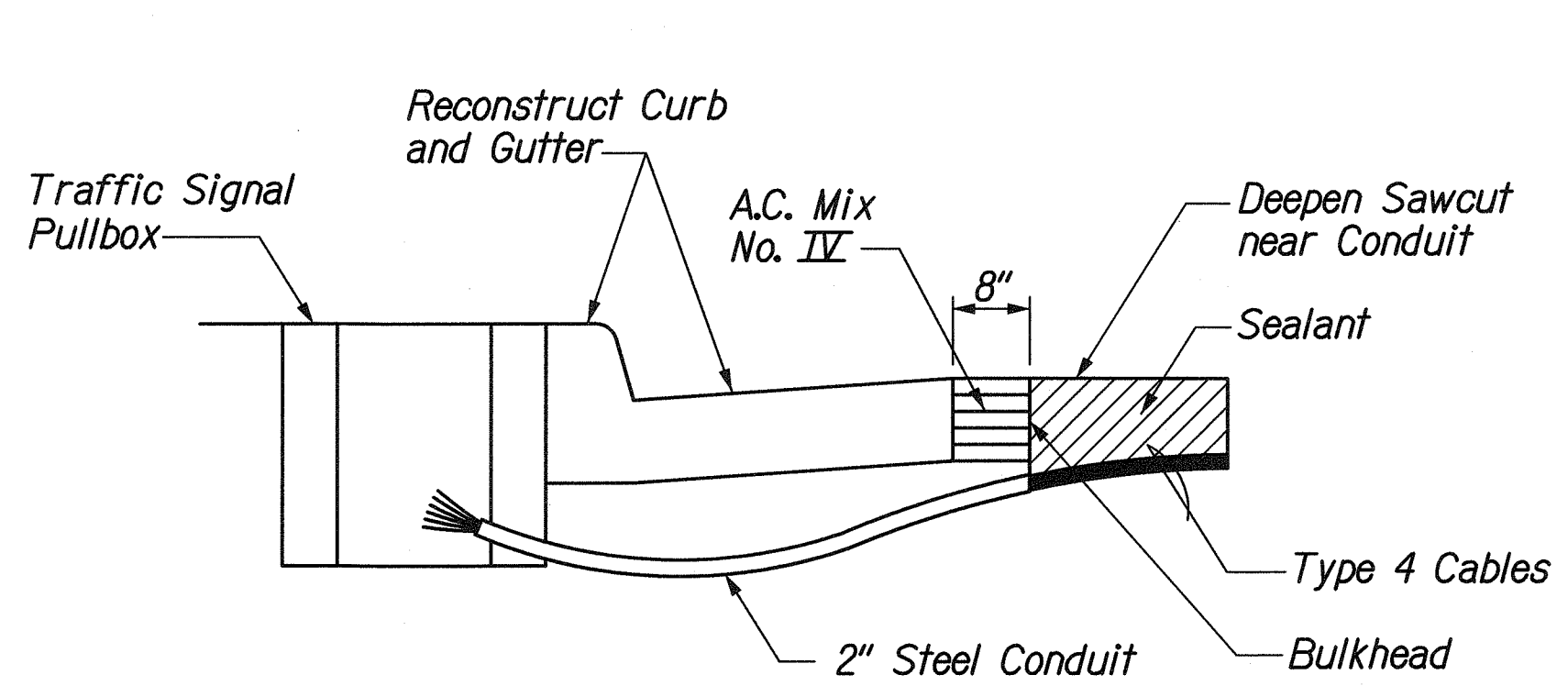
**TYPICAL SENSOR LOOP LAYOUT**



**TYPICAL SENSOR LOOP SAWCUT DETAIL**

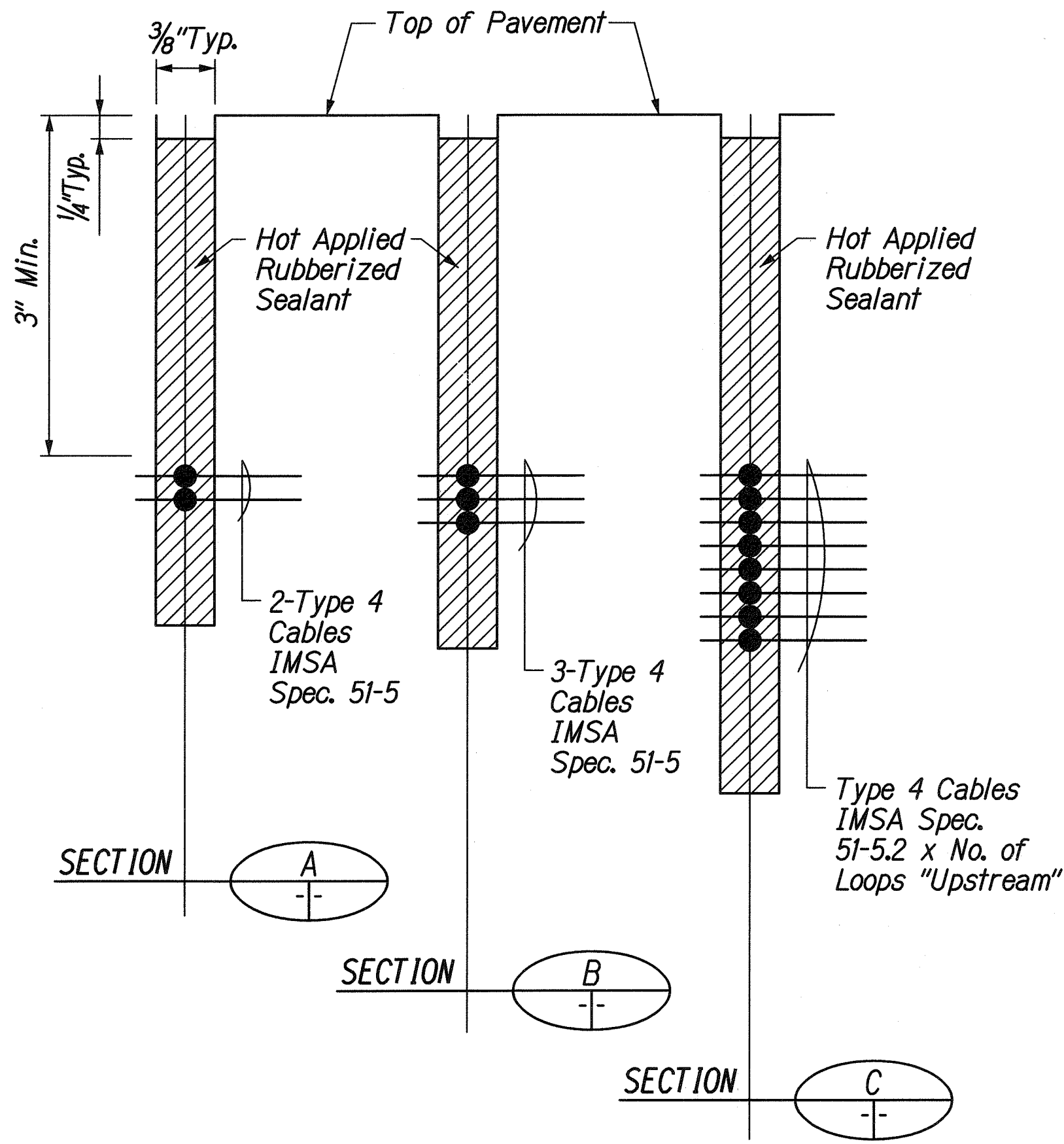


- TYPES OF CABLES**
- Type 1 Signal Loop Cable: Stranded No. 14, 26 conductors
  - Type 2 Detector lead in cable and pedestrian push button circuit cable: Stranded, No. 14, two conductors
  - Type 3 Interconnect Cable: Solid No. 19, 12 pairs
  - Type 4 Loop Sensor Cable: Solid No. 12, single conductor to IMSA spec. 51-5
  - Type 5 Cable from signal loop to signal head: Stranded, No. 14, four conductors
  - Type 6 Service Cable: Solid, No. 6, three conductors
  - Type 7 Optical Detector Cable: Berktek Type B, Stranded, No. 20, three conductors
  - Type 8 Drop Cable: Solid, No. 14, four conductors



- 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 PAVEMENT**



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SIGNATURE: *R. Urasak* EXPIRATION DATE OF THE LICENSE: 04/30/10

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAFFIC SIGNAL PLAN  
LOOP DETECTOR DETAILS**

FORT WEAVER ROAD WIDENING  
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: None Date: Feb. 22, 2008

|                   |      |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DRAWN BY          |      |
| DESIGNED BY       |      |
| QUANTITIES BY     |      |
| CHECKED BY        |      |
| ORIGINAL PLAN     |      |
| NOTE BOOK         |      |
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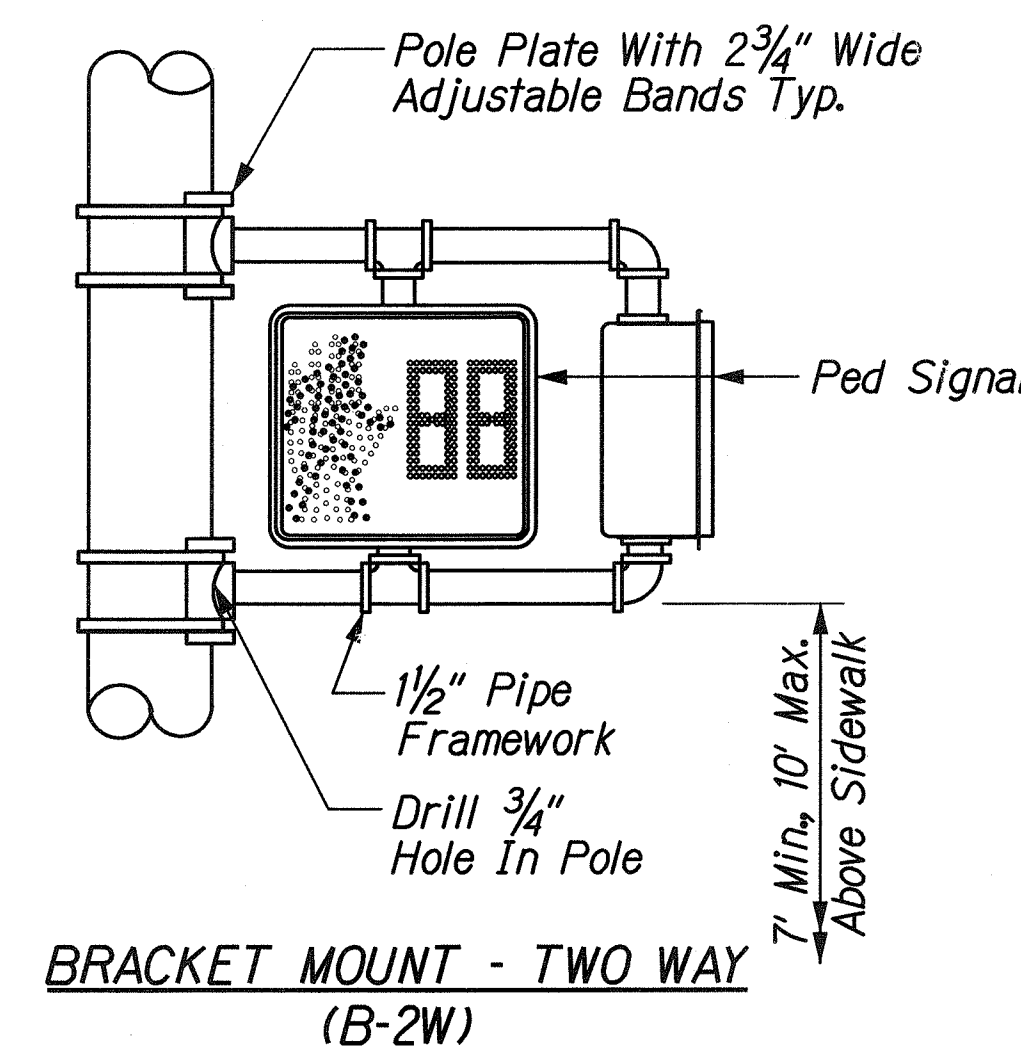
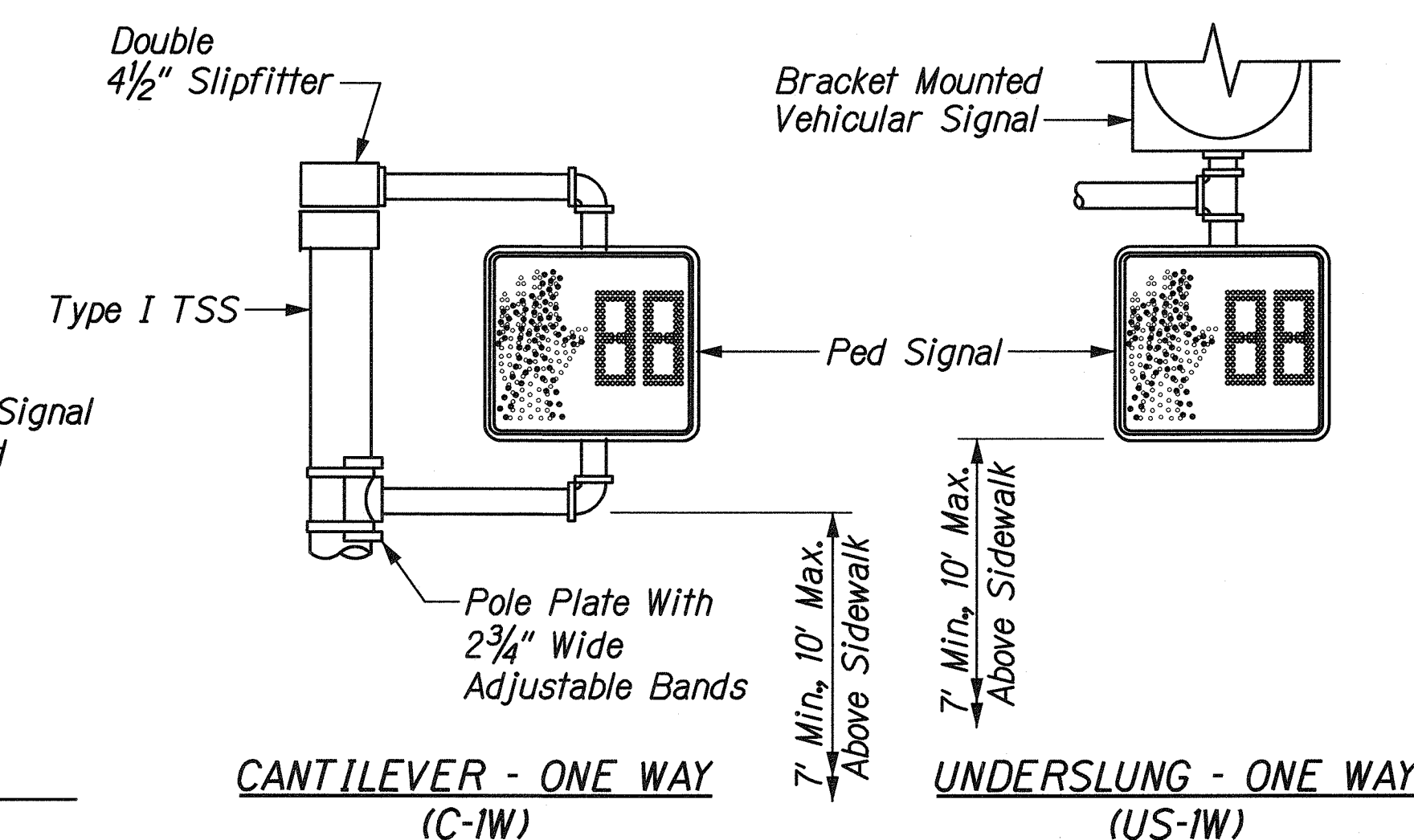
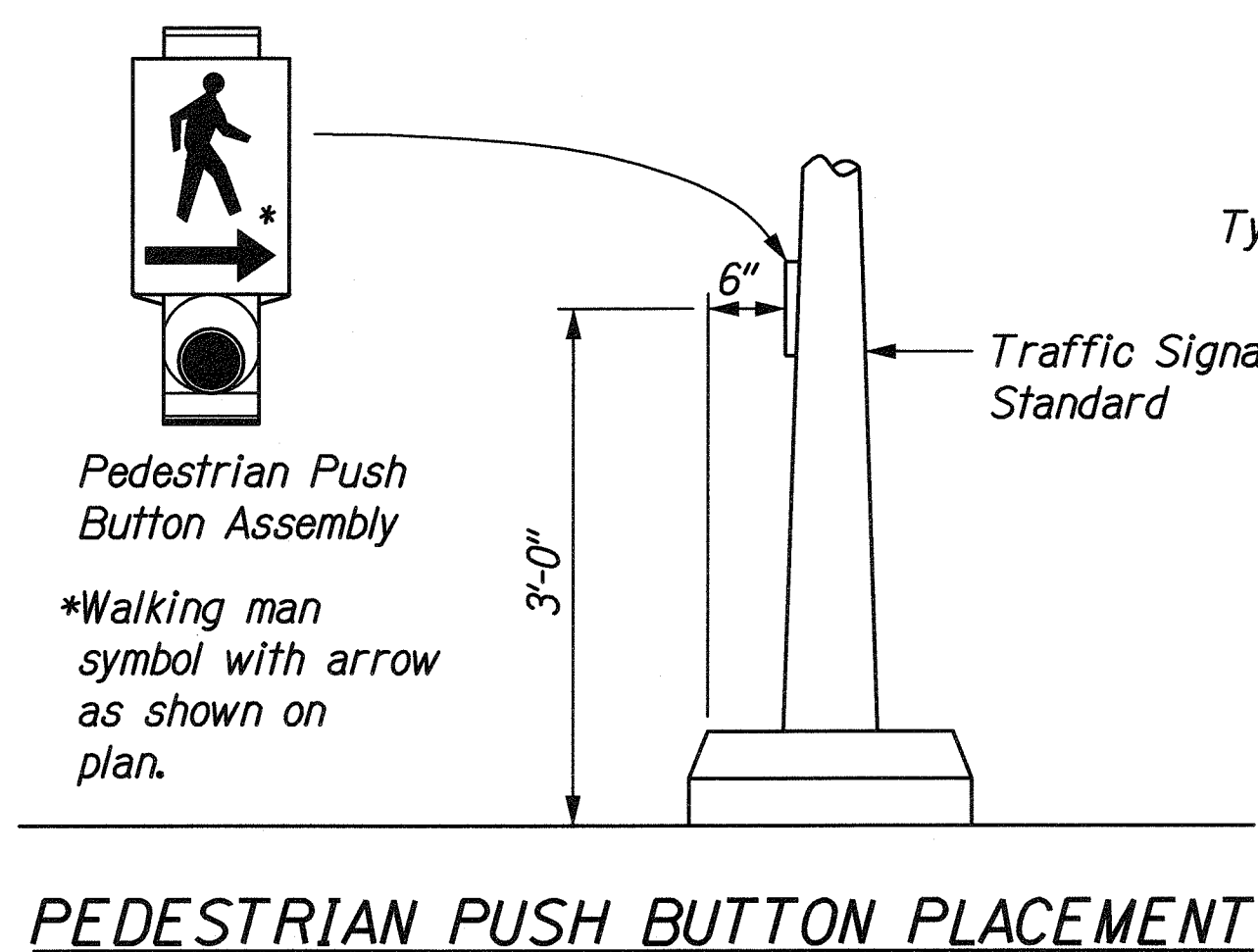
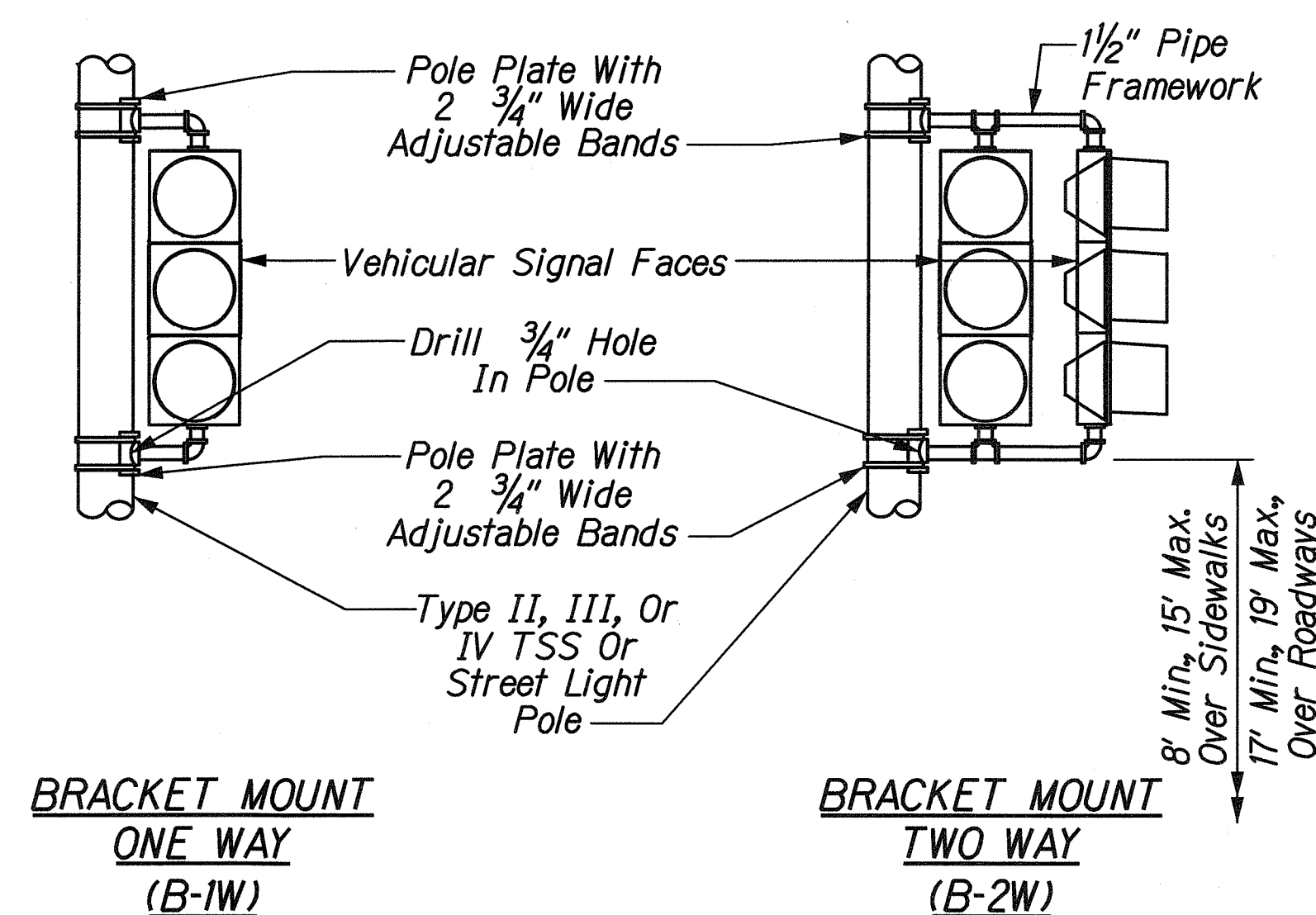
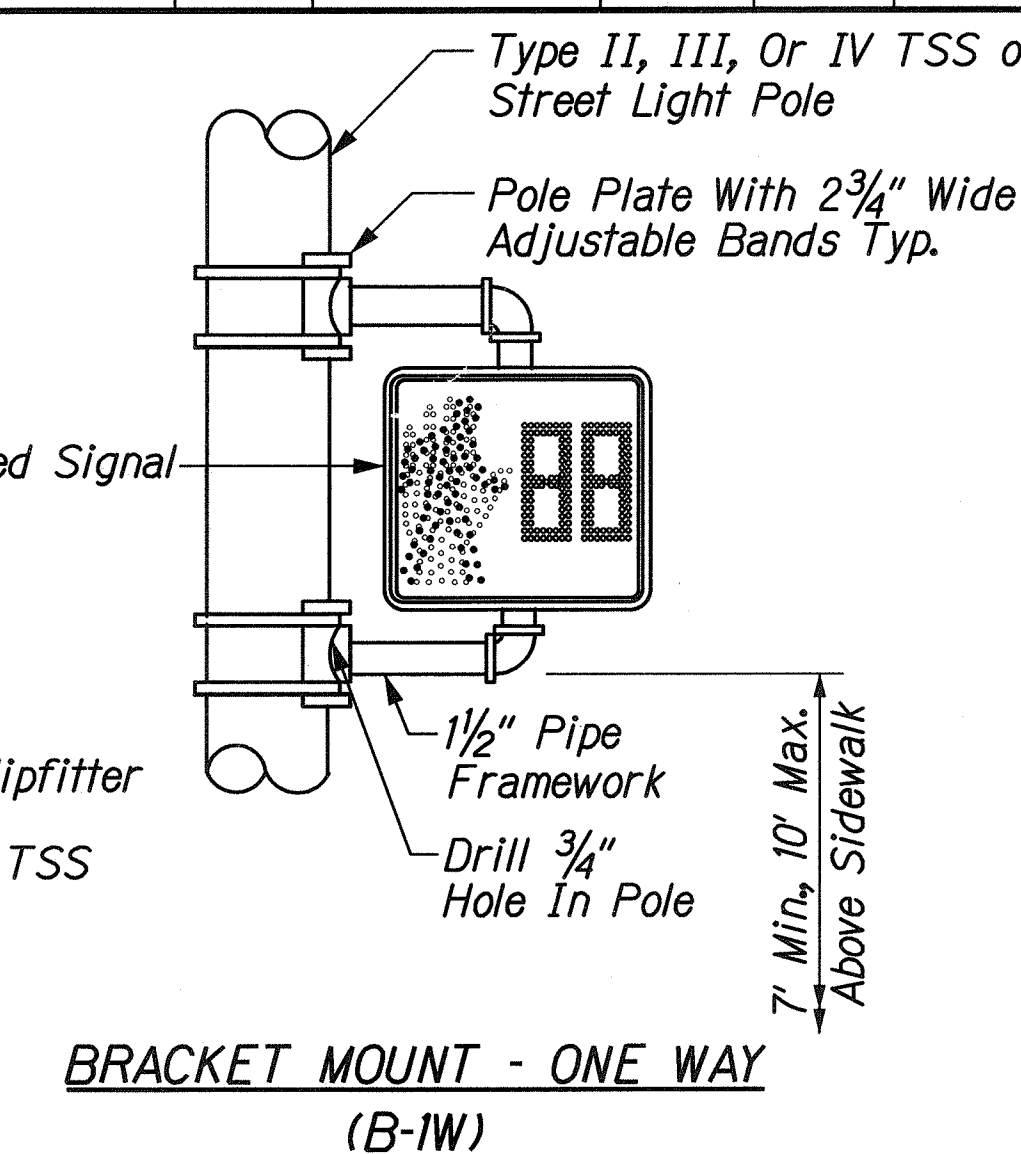
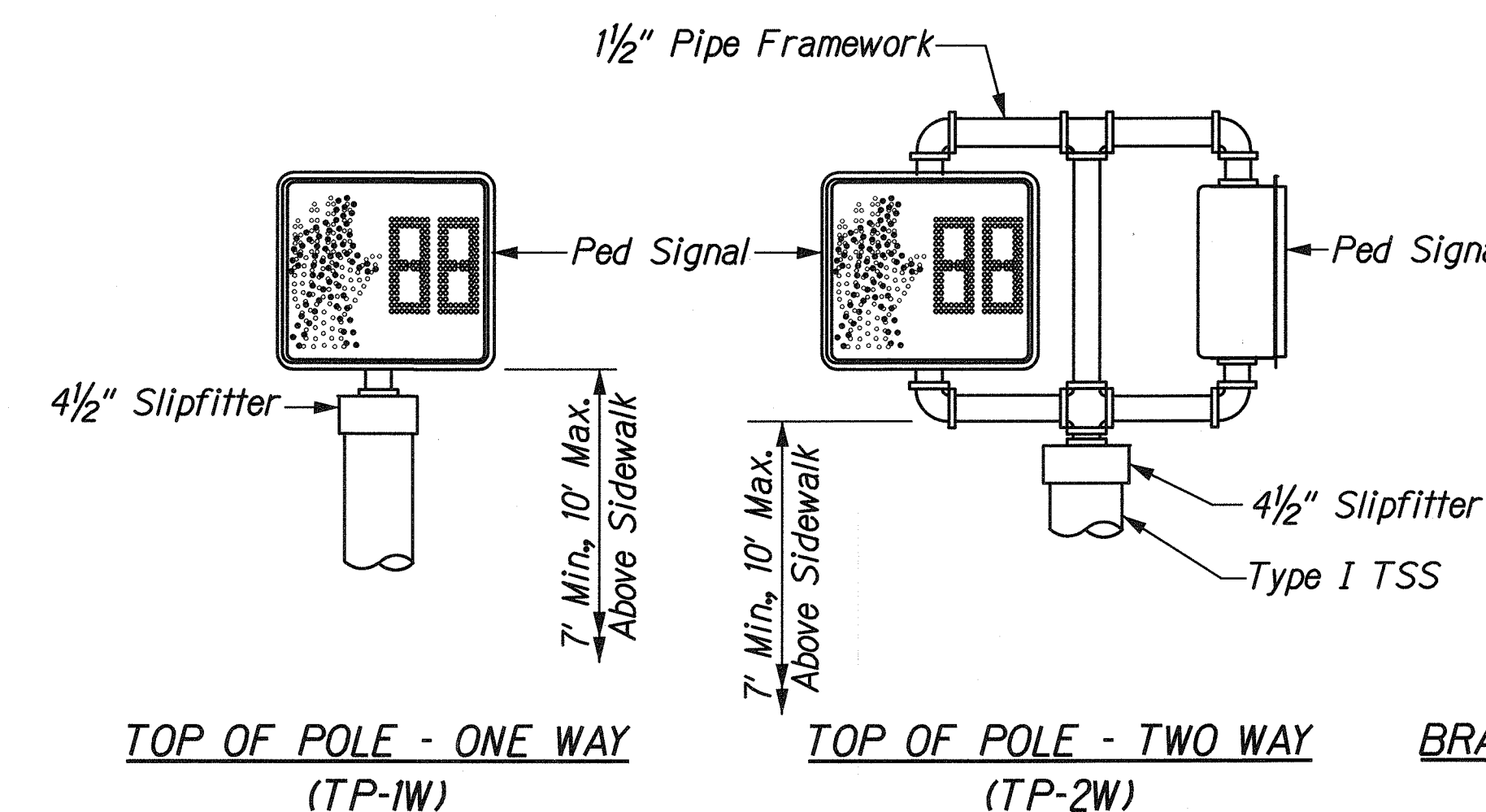
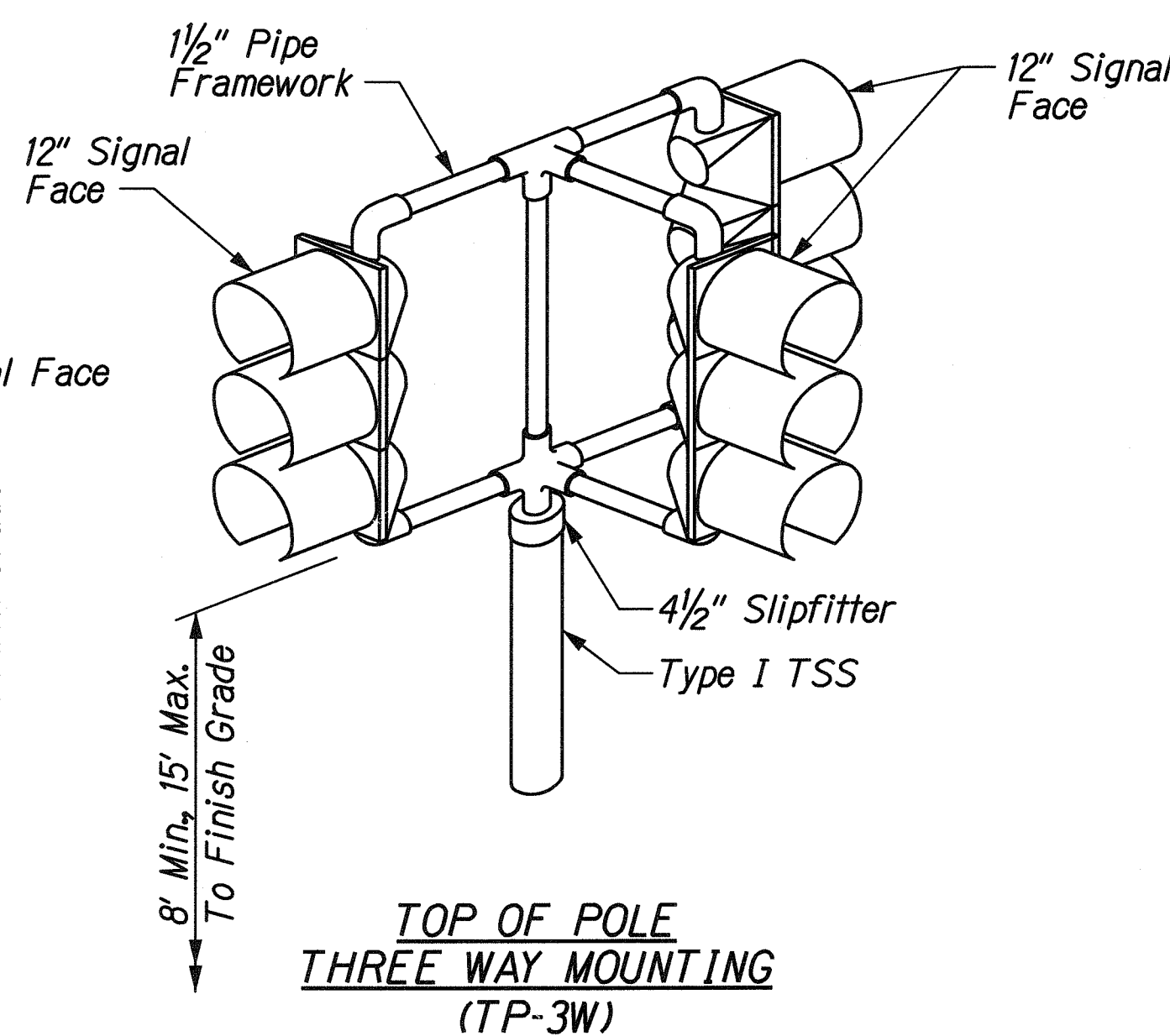
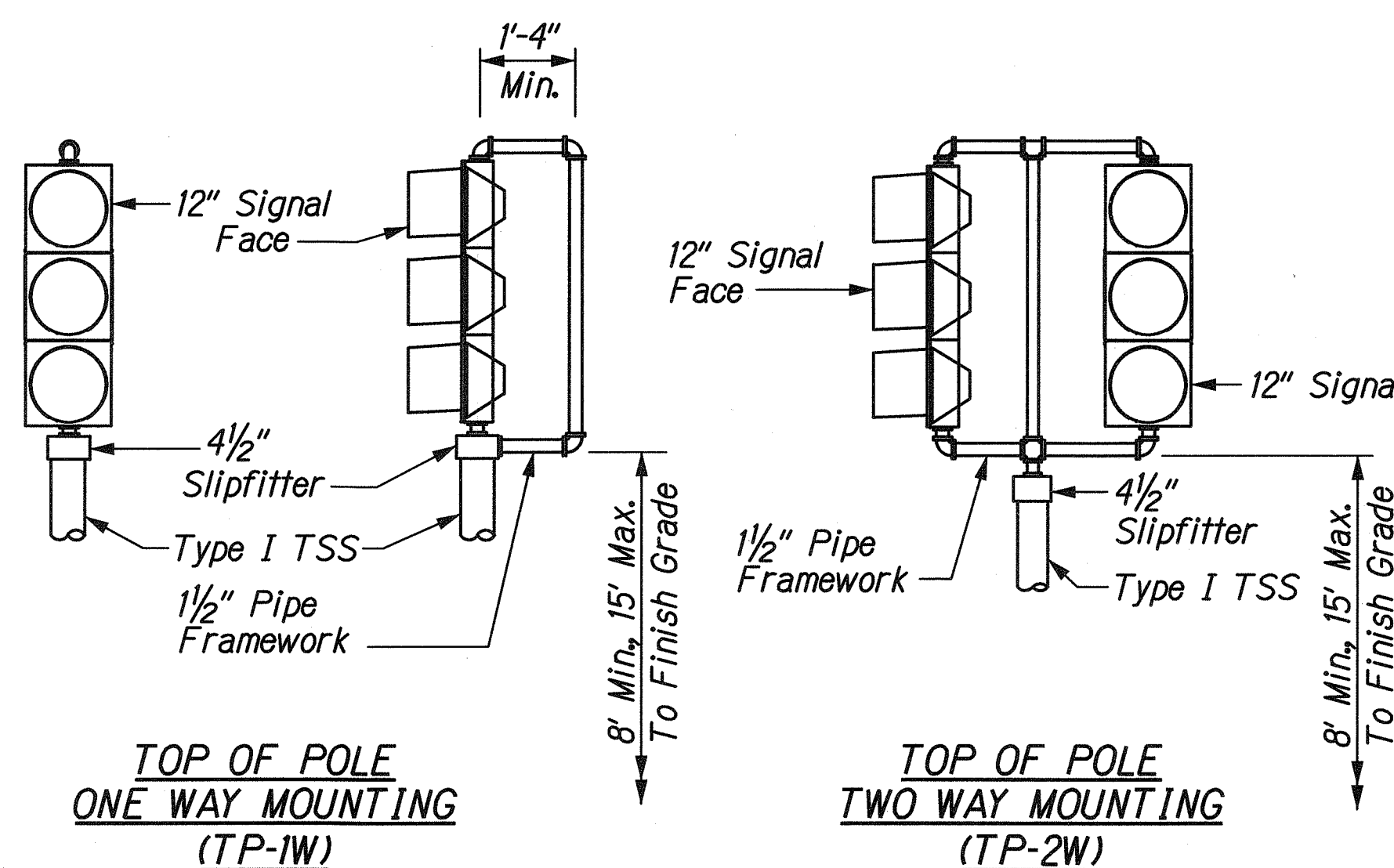
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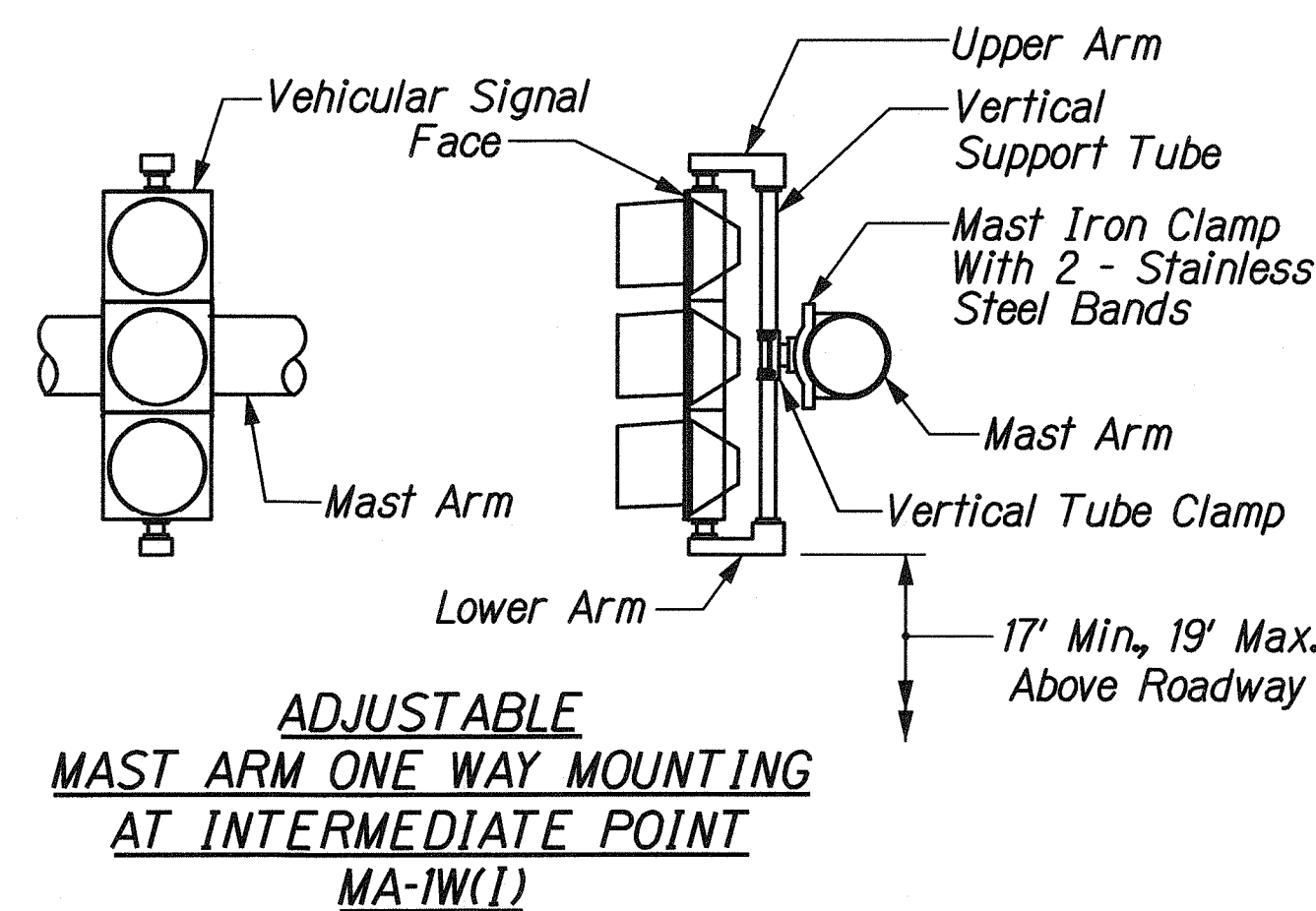
| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-----------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | CMAQ-076-1(9)         | 2006        | 171       | 371          |



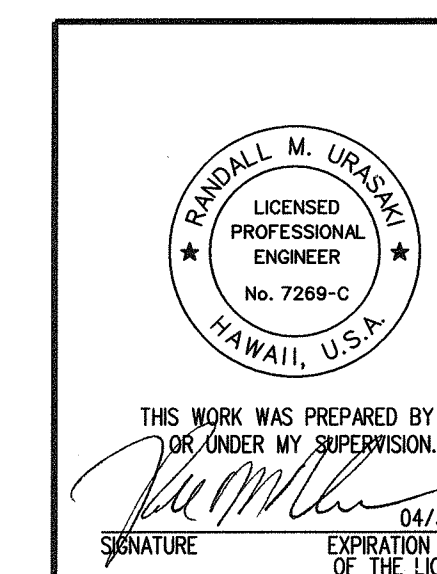
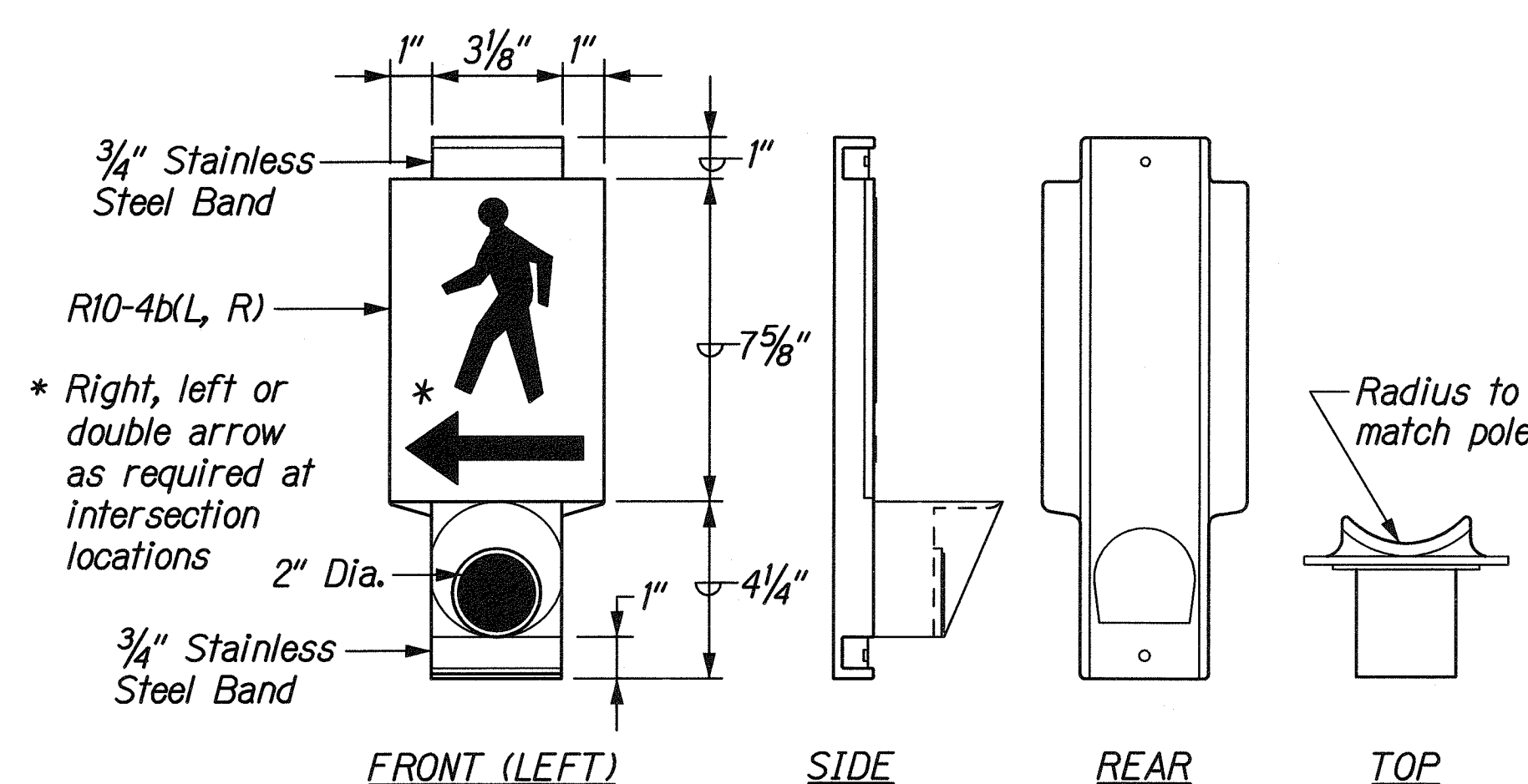
### PEDESTRIAN SIGNAL MOUNTINGS

#### NOTES:

1. Stainless Steel Bands shall be 1/2" Wide X .050" thick, minimum. Tensile strength shall be 100,000 PSI minimum.
2. Upper Arm, Lower Arm And Vertical Support Tube shall be of 356 Cast Aluminum.
3. All Wiring Shall Be Concealed.
4. Vertical Tube Clamp shall be of Malleable Iron, Grade 32510.
5. All Aluminum Parts shall have an Alodine 1200 finish.



### VEHICULAR SIGNAL MOUNTINGS



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

### TRAFFIC SIGNAL PLAN MOUNTING BRACKET DETAILS

FORT WEAVER ROAD WIDENING  
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: None

Date: Feb. 22, 2008

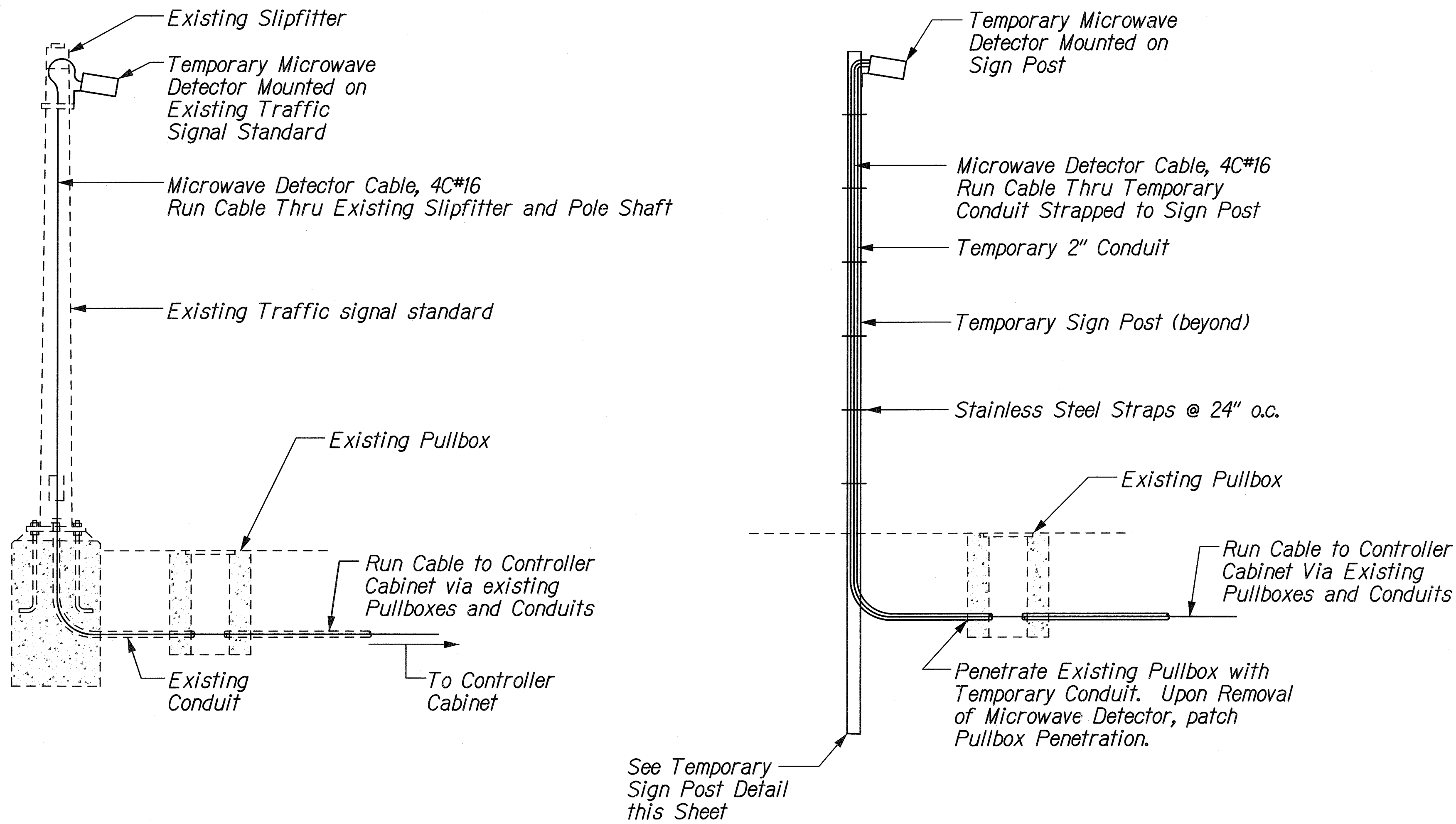
SHEET No. TS2-13 OF 15 SHEETS







| FED. ROAD DIST. NO. | STATE | FEDERAL AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-----------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | CMAQ-076-1(9)         | 2006        | 173       | 371          |

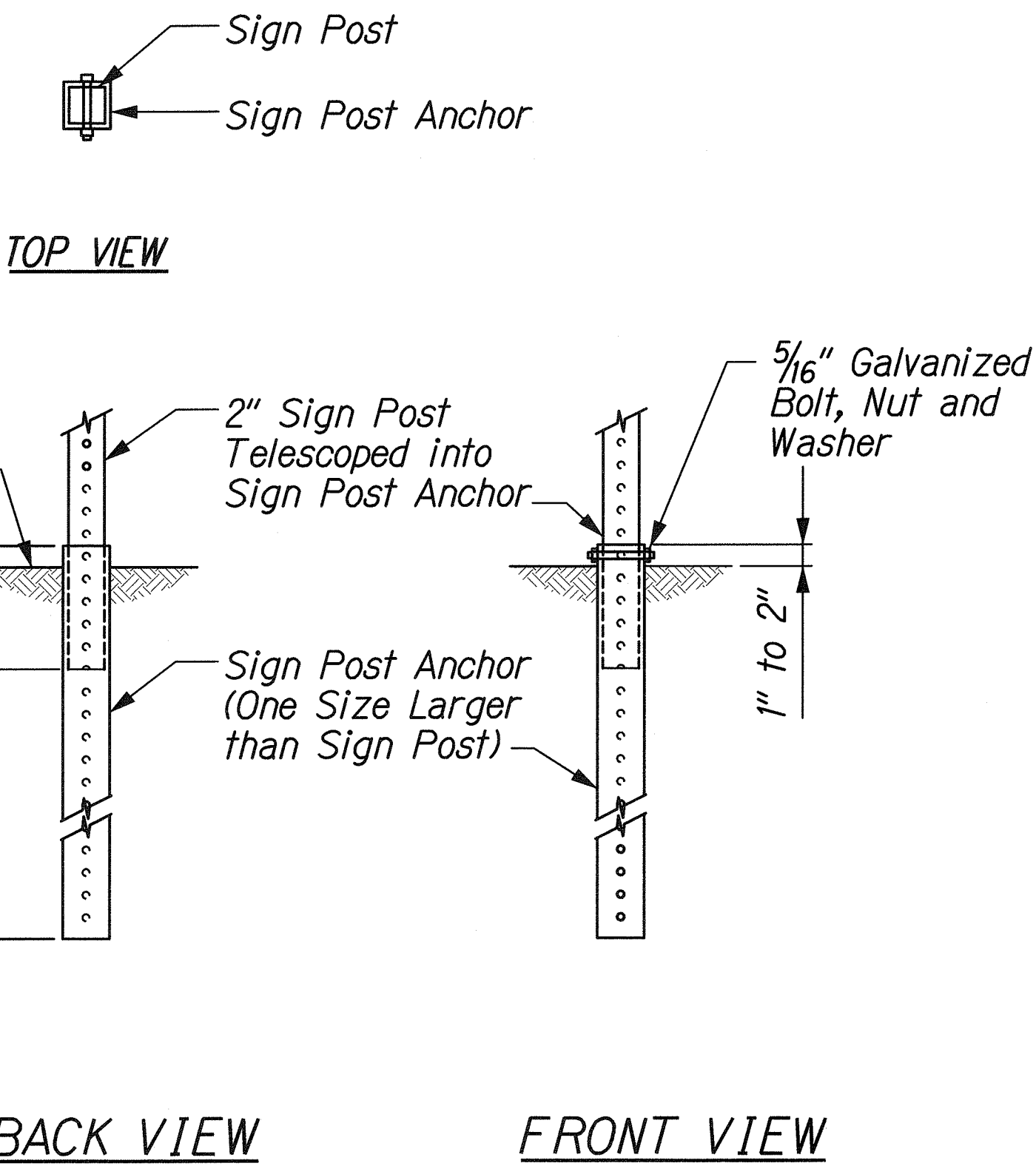


AT EXISTING TRAFFIC SIGNAL STANDARD

AT TEMPORARY SIGN POST

### TEMPORARY MICROWAVE DETECTOR DETAIL

Not to Scale



TEMPORARY SIGN POST DETAIL

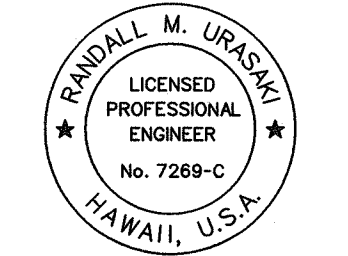
Not to Scale

#### NOTES:

1. Microwave Detector shall be operational before existing Loop Detectors are deactivated.
2. Remove Microwave Detector and all associated cables after new loop detectors are installed and operational.

|             |      |
|-------------|------|
| DESIGNED BY | DATE |
| DRAWN BY    |      |
| CHECKED BY  |      |
| IN CHARGE   |      |
| NOTED BY    |      |
| DATE        |      |

J:\FORT WEAVER ROAD\PACKAGE 2\TSP\TS-DET5.dgn

|                                                                                                                                                                                                                     |                                                                      |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|---------------------|
|  <p>THIS WORK WAS PREPARED BY ME<br/>OR UNDER MY SUPERVISION.</p> <p>SIGNATURE: <i>R. Urasak</i> EXPIRATION DATE: 04/30/10</p> | STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION |                     |
|                                                                                                                                                                                                                     | <b>TRAFFIC SIGNAL PLAN</b><br><b>MICROWAVE DETECTOR DETAILS</b>      |                     |
|                                                                                                                                                                                                                     | FORT WEAVER ROAD WIDENING<br>VICINITY OF AAWA DRIVE TO GEIGER ROAD   |                     |
|                                                                                                                                                                                                                     | Scale: None                                                          | Date: Feb. 22, 2008 |