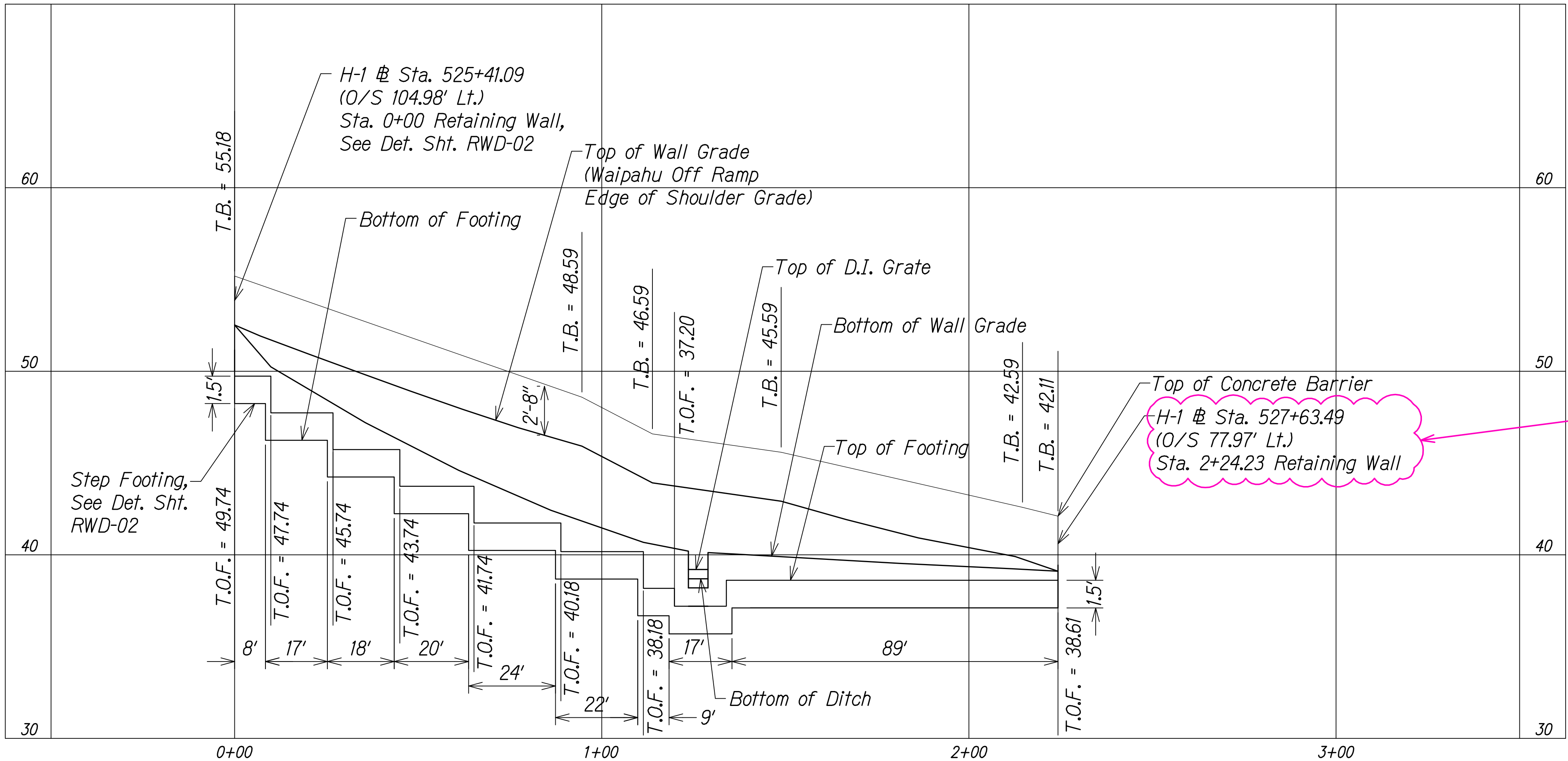


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-H1-1 (260)	2014	90	605



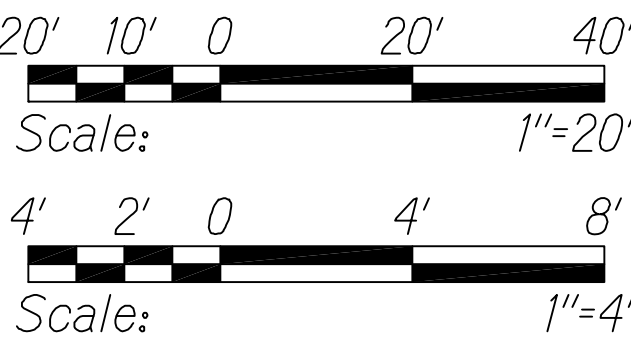
Install Quadguard 69"  
#QS6906

QC/QA REVIEW 100%	DATE MARCH 23, 2014
BY	
BY	
BY	
BY	

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

Legend:  
T.O.F. = Top of Footing  
T.B. = Top of Barrier

Graphic Scales:



## RETAINING WALL PROFILE

Scale: Horiz. 1" = 20'  
Vert. 1" = 4'

### LEGEND FOR AS-BUILT POSTINGS

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



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APRIL 30, 2016  
WILSON OKAMOTO CORPORATION LIC. EXP. DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

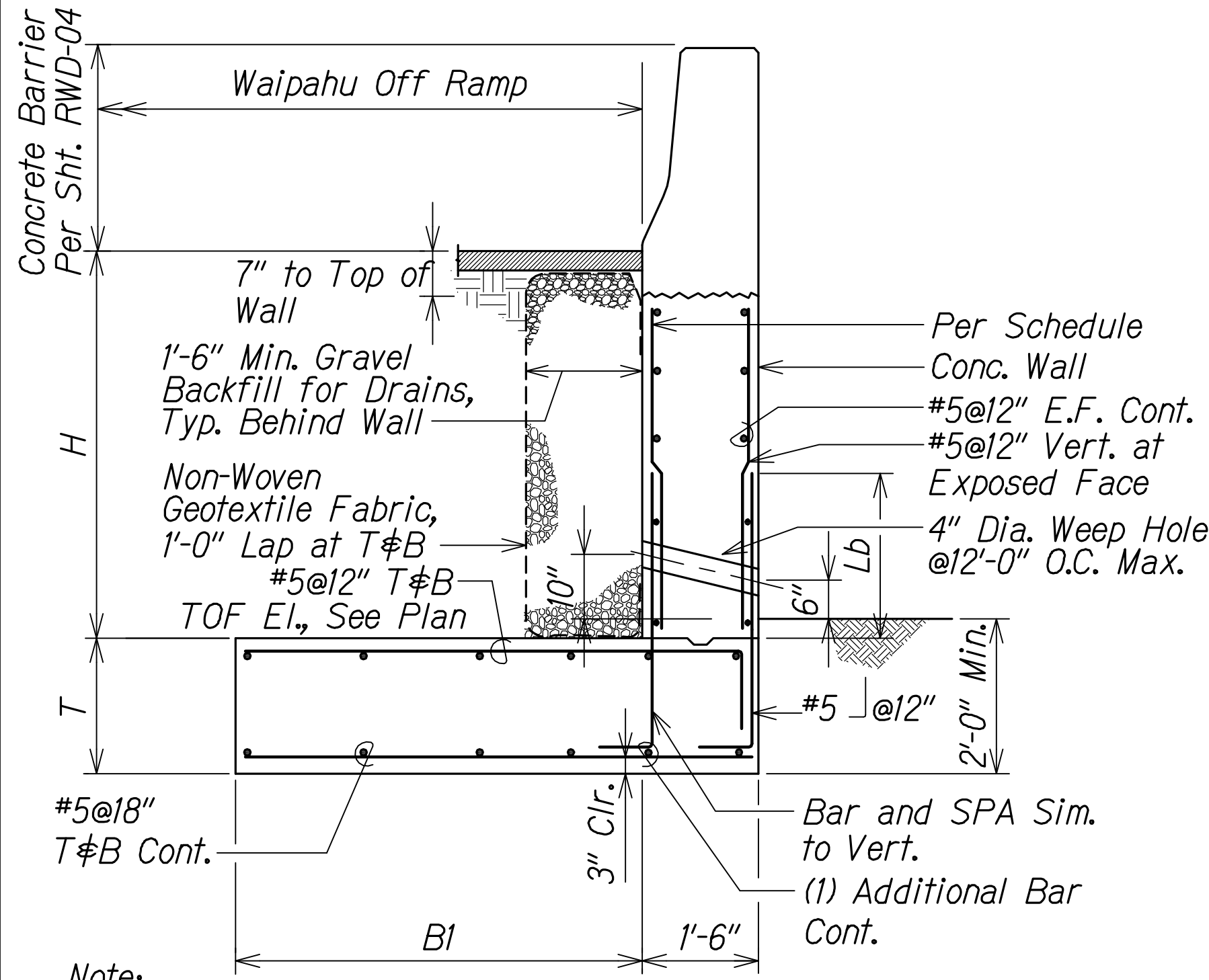
### RETAINING WALL PROFILE

INTERSTATE ROUTE H-1  
PM CONTRAFLOW LANE, PHASE 1 & 2  
FEDERAL AID PROJECT NO. NH-H1-1 (260)

Scale: As Noted Date: July, 2016

SHEET No. RWD-01 OF 5 SHEETS

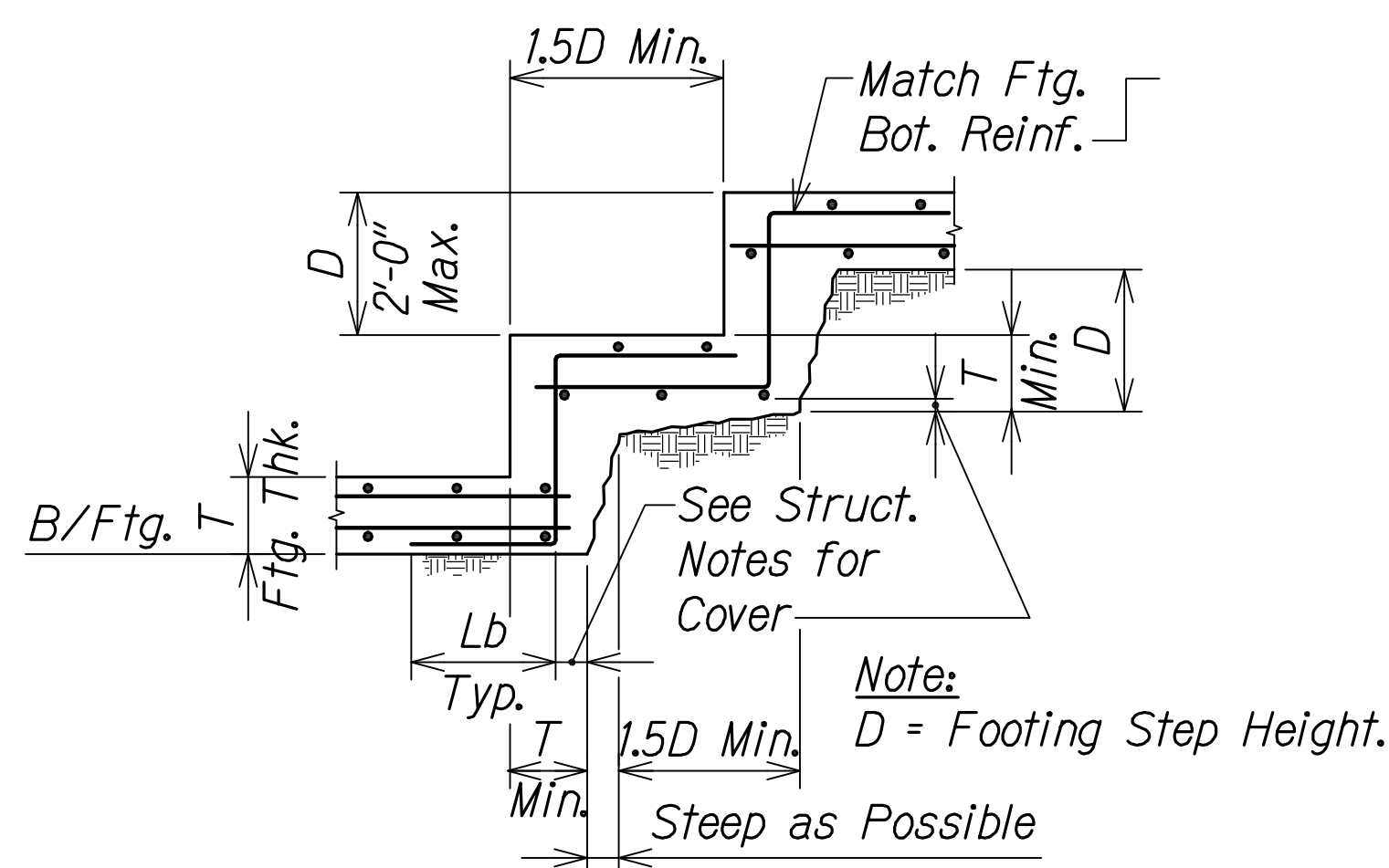
"AS-BUILT"



Note:  
1. Reinforcement Concrete Clear Cover Shall be 2" Typ. U.N.O.

SCHEDULE			
H	Bl	T	STEM REINFORCING
			VERT
5'-6"	7'-9"	1'-6"	#5 @ 12"

RETAINING WALL DETAIL  
Scale: 3/4" = 1'-0"



TYPICAL STEP FOOTING DETAIL  
Not to Scale

- Notes:
- Use the Lengths in the Below Table, Unless Noted Otherwise.
  - For Bars with Low Cover or Spacing, Increase Length by 50%. If Bars are Enclosed in Stirrups or Ties, Increase Applies when Bar Cover or Clear Bar Spacing is less than db. If Bars are not Enclosed in Stirrups or Ties, Increase Applies when Bar Cover is less than db or Clear Bar Spacing is less than 2db.
  - For Top Bars Increase Length by 30%. A Top Bar is a Horizontal Bar with more than 12 Inches of Fresh Concrete Cast Below it.

F'c = 4,000 p.s.i								
Size	L <sub>s</sub> <sup>(2,3,4)</sup>	L <sub>j</sub> <sup>(2,3,4)</sup>	L <sub>dh</sub> <sup>(2,3,4)</sup>	L <sub>c</sub>	L <sub>cl</sub>	L <sub>ds</sub> <sup>(4,5,6)</sup>	L <sub>bs</sub> <sup>(4,5,6)</sup>	L <sub>dhs</sub>
3	15	19	8	8	12	15	20	6
4	19	25	10	10	15	19	24	8
5	24	31	12	12	19	23	30	10
6	29	37	15	15	23	28	36	11
7	42	54	17	17	27	32	42	13
8	48	62	19	19	30	37	48	15
9	54	70	22	22	34	42	54	17
10	61	79	25	25	39	47	61	19
11	67	87	27	27	43	52	67	21

Abbreviations:

db Bar Diameter

L<sub>d</sub> Tension Development Length

L<sub>dt</sub> Tension Development Length For a Top Bar (See Note 3)

L<sub>a</sub> Class A Lap Splice Length

L<sub>at</sub> Class A Lap Splice Length For a Top Bar (See Note 3)

L<sub>b</sub> Class B Lap Splice Length

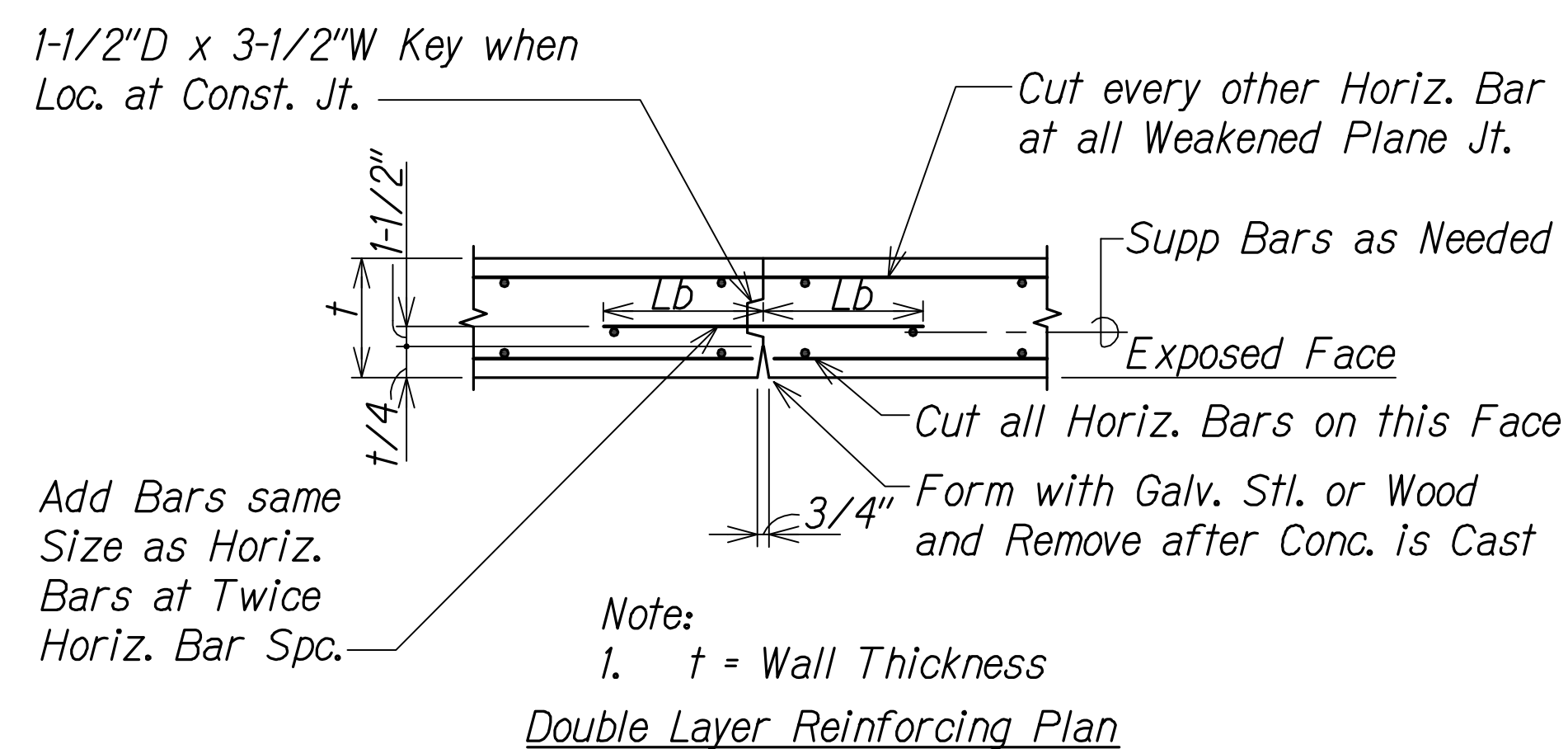
L<sub>bt</sub> Class B Lap Splice Length For a Top Bar (See Note 3)

L<sub>dh</sub> Tension Development Length For a Standard Hook

L<sub>c</sub> Compression Development Length

L<sub>cl</sub> Compression Lap Splice Length

REINFORCING BAR DEVELOPMENT TABLE  
Not to Scale



TYPICAL CONCRETE WALL WEAKENED PLANE JOINT (WJ)  
Scale: 3/4" = 1'-0"

QC/QA REVIEW 100%  
DATE MARCH 23, 2017  
BY [Signature]  
OBY [Signature]  
OBY [Signature]  
OBY [Signature]

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

LEGEND FOR AS-BUILT POSTINGS

~~~~~ Squiggly line for as-built deletion

===== Double line for as-built deletion

Roadway Text for as-built posting

MATTHEW K. FUJIOKA  
LICENSED PROFESSIONAL ENGINEER  
No. 11473-C  
HAWAII, U.S.A.

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APRIL 30, 2018  
LIC. EXP. DATE

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HIGHWAYS DIVISION

RETAINING WALL / BARRIER DETAILS

INTERSTATE ROUTE H-1  
PM CONTRAFLOW LANE, PHASE 1 & 2  
FEDERAL AID PROJECT NO. NH-HI-1 (260)

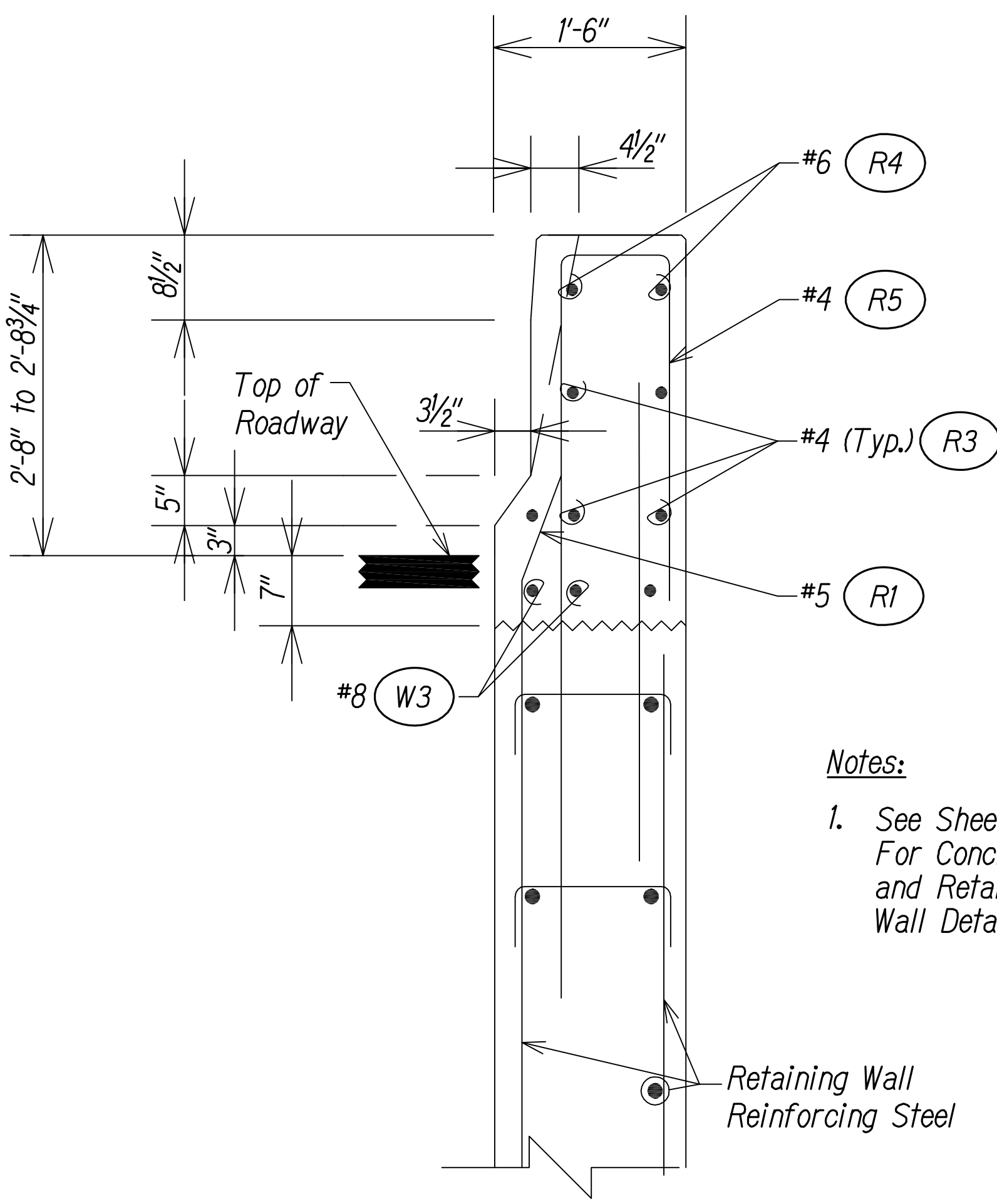
Scale: As Noted Date: July, 2016

SHEET No. RWD-02 OF 5 SHEETS



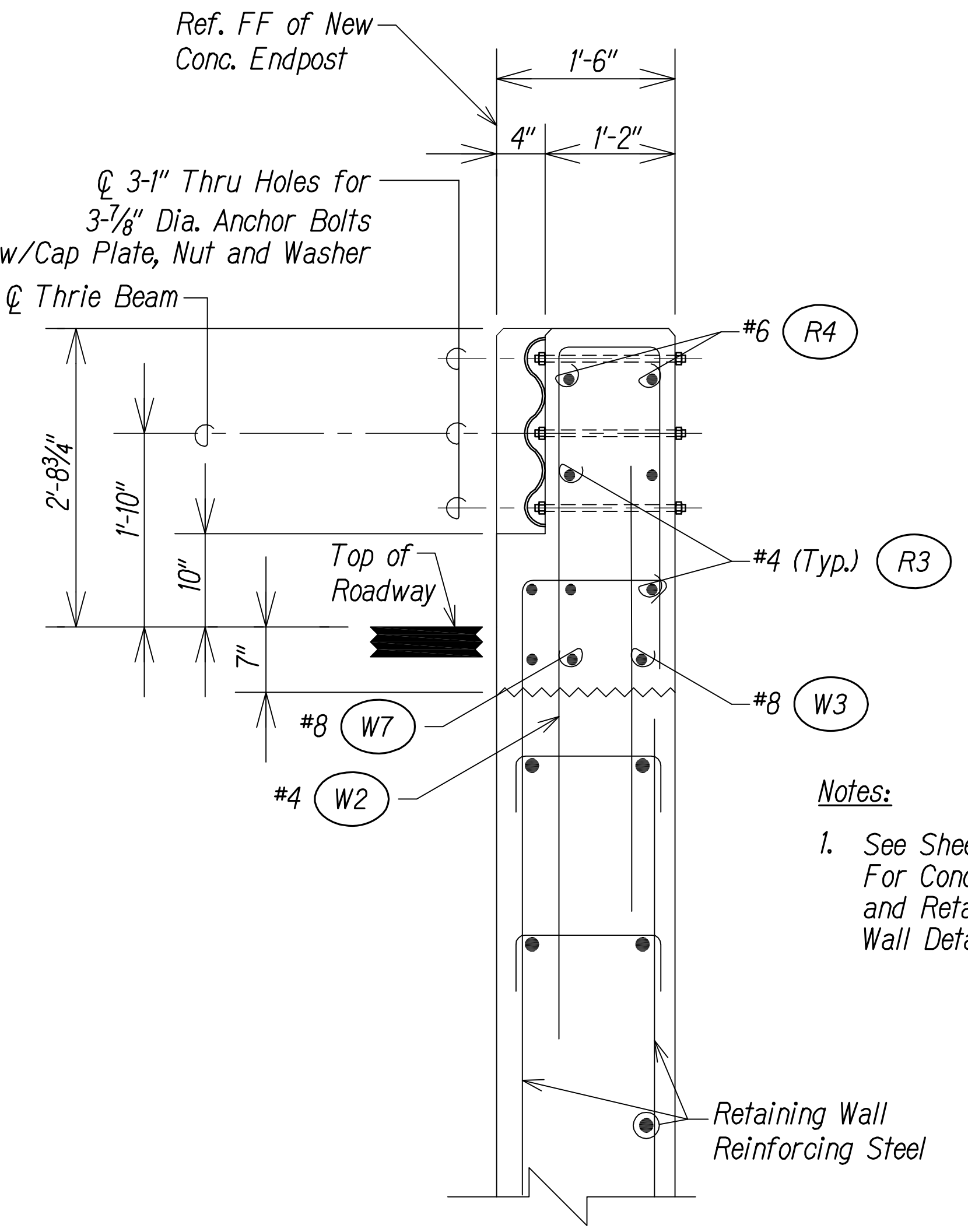


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | NH-HI-1 (260)      | 2014        | 93        | 605          |



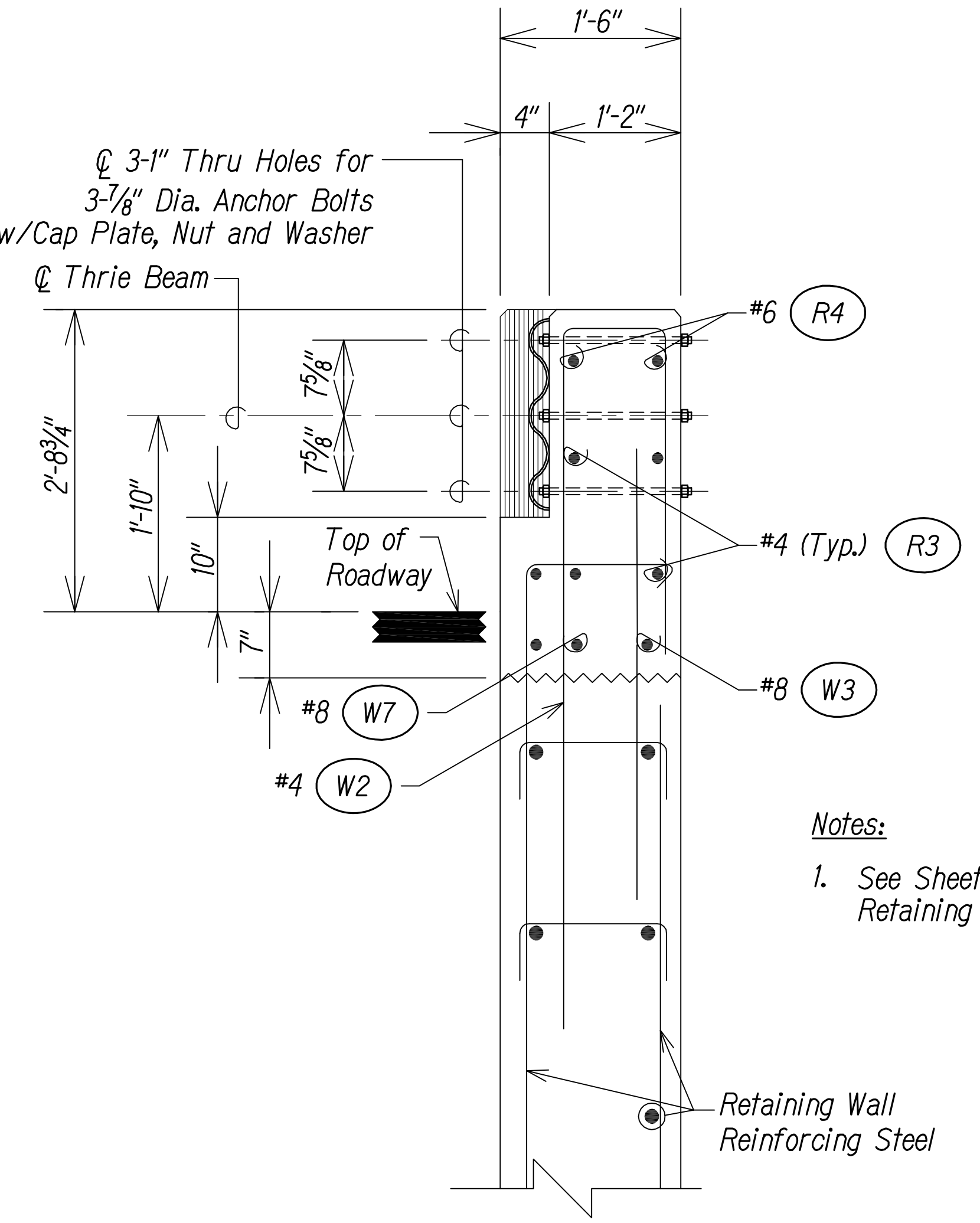
Notes:  
1. See Sheet RWD-02 For Concrete Barrier and Retaining Wall Details

SECTION A



Notes:  
1. See Sheet RWD-02 For Concrete Barrier and Retaining Wall Details

SECTION C



Notes:  
1. See Sheet RWD-02 For Retaining Wall Details

SECTION B

TYPICAL SECTIONS – ENDPOST DETAILS  
NOT TO SCALE

**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



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APRIL 30, 2018  
LIC. EXP. DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**RETAINING WALL / BARRIER DETAILS**

INTERSTATE ROUTE H-1  
PM CONTRAFLOW LANE, PHASE 1 & 2  
FEDERAL AID PROJECT NO. NH-HI-1 (260)  
Scale: None Date: July, 2016

SHEET No. RWD-04 OF 5 SHEETS

QC/QA REVIEW 100% DATE: MARCH 23, 2014  
BY: [Signature]  
OBY: [Signature]  
OBY: [Signature]  
OBY: [Signature]

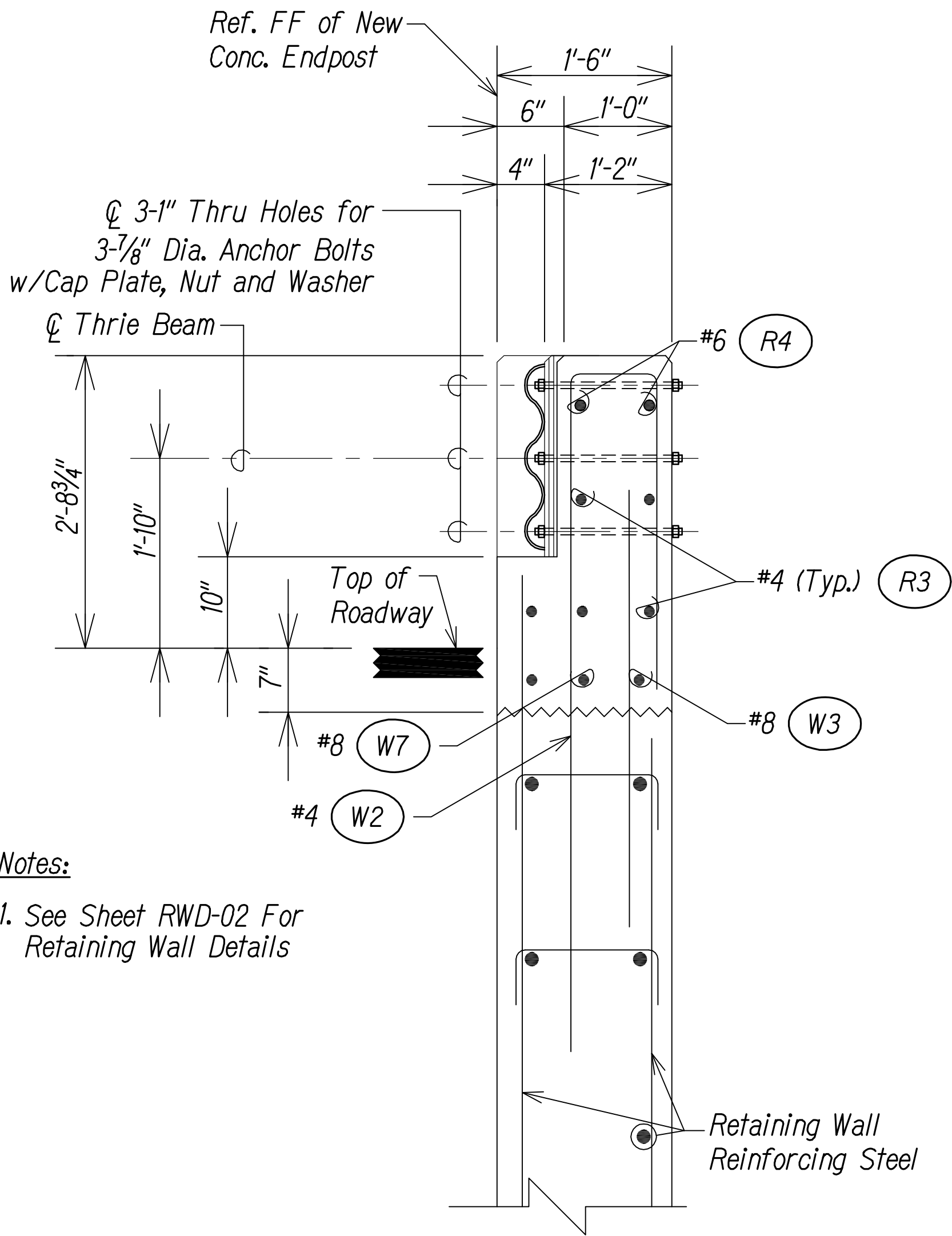
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DESIGNED BY: [Signature]  
QUANTITIES BY: [Signature]  
CHECKED BY: [Signature]

ORIGINAL PLAN  
NOTE BOOK  
No. [Signature]

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | NH-HI-1 (260)      | 2014        | 94        | 605          |

|              |      |                      |
|--------------|------|----------------------|
| QC/QA REVIEW | 100% | DATE: MARCH 23, 2014 |
| BY           |      |                      |
| BY           |      |                      |
| BY           |      |                      |
| BY           |      |                      |

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



Notes:  
1. See Sheet RWD-02 For Retaining Wall Details

SECTION D

TYPICAL SECTIONS – ENDPOST DETAILS  
NOT TO SCALE

**LEGEND FOR AS-BUILT POSTINGS**

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Double line for as-built deletion

Roadway Text for as-built posting



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HIGHWAYS DIVISION

**RETAINING WALL / BARRIER DETAILS**

INTERSTATE ROUTE H-1  
PM CONTRAFLOW LANE, PHASE 1 & 2  
FEDERAL AID PROJECT NO. NH-HI-1 (260)  
Scale: None Date: July, 2016

SHEET No. RWD-05 OF 5 SHEETS