

Plan view of a manhole structure. The structure is rectangular with a central square opening. The overall width is 5'-4" and the overall height is 4'-10". The central opening is 4'-0" wide and 2'-4" high. The structure is composed of a 24" culvert (existing or new) and a 12/14/14P steel frame and grates. The manhole is labeled "Manhole Rung". The structure is shown with a cross-section line A-A and a detail line B-B. The detail line B-B is labeled "Type 12/14/14P Steel Frame and Grates (For det. see Sht. No. 15)".

Technical drawing of a 24-inch culvert structure. The drawing shows a cross-section of a rectangular culvert with a circular opening in the center. The culvert is surrounded by a concrete structure. Key dimensions and labels include:

- Type 1211214P Steel Frame and Grates
- Finish grade
- 5'-4"
- 4'-0"
- 8"
- 2"
- 1'-0"
- 1'-6"
- 2"
- 1 1/2" cl.
- 2-#4 Typ.
- 3" cl. Typ.
- 1'-0"
- varies
- #4 @ 12" (typ.)
- #5 @ 9" (typ.)
- For added reinforcing around culvert see Standard Plan H-04.
- 24" Culvert

18" Bend
Typ.

3 1/2" cl.
Typ.

#5 @ 9"

#4 @ 12"

1'-0"

Technical drawing of a manhole structure showing dimensions and materials. The drawing includes the following details:

- Top Section:** A sloped top section with a 4:1 slope. The total width is 4'-10". The bottom width is divided into segments: 8", 1'-2", 2'-4", and 8". The height of this section is 2".
- Frame and Grates:** Labeled as "Type 121414P Steel Frame and Grates".
- Manhole Rung:** A horizontal rung inside the manhole.
- Reinforcement:**
 - Vertical reinforcement: #4 @ 12" (typical) for the first 1'-0" section, and #5 @ 9" for the remaining 1'-6" + 1'-6" = 3'-0" section.
 - Horizontal reinforcement: #5 @ 10" Bothways.
- Dimensions:**
 - Overall width: 4'-10"
 - Overall height: 1'-0"
 - Top section height: 2"
 - Bottom section width segments: 8", 1'-2", 2'-4", 8"
 - Vertical reinforcement spacing: 12" (typical) for the first section, 9" for the second.
 - Horizontal reinforcement spacing: 10" bothways.
 - Manhole Rung position: 3 1/2" c.l. (typical).
- Finish grade:** Indicated by a line at the top of the manhole structure.

ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE <u>5/23/98</u>
NOTE BOOK <u>ms3.teddy</u> <u>24ekmat2.dgn</u> <u>24ekmat2.dgn</u>	DRAWN BY _____	_____
	TRACED BY _____	_____
	DESIGNED BY <u>B. Toda</u>	_____
	QUANTITIES BY _____	_____
	CHECKED BY _____	_____

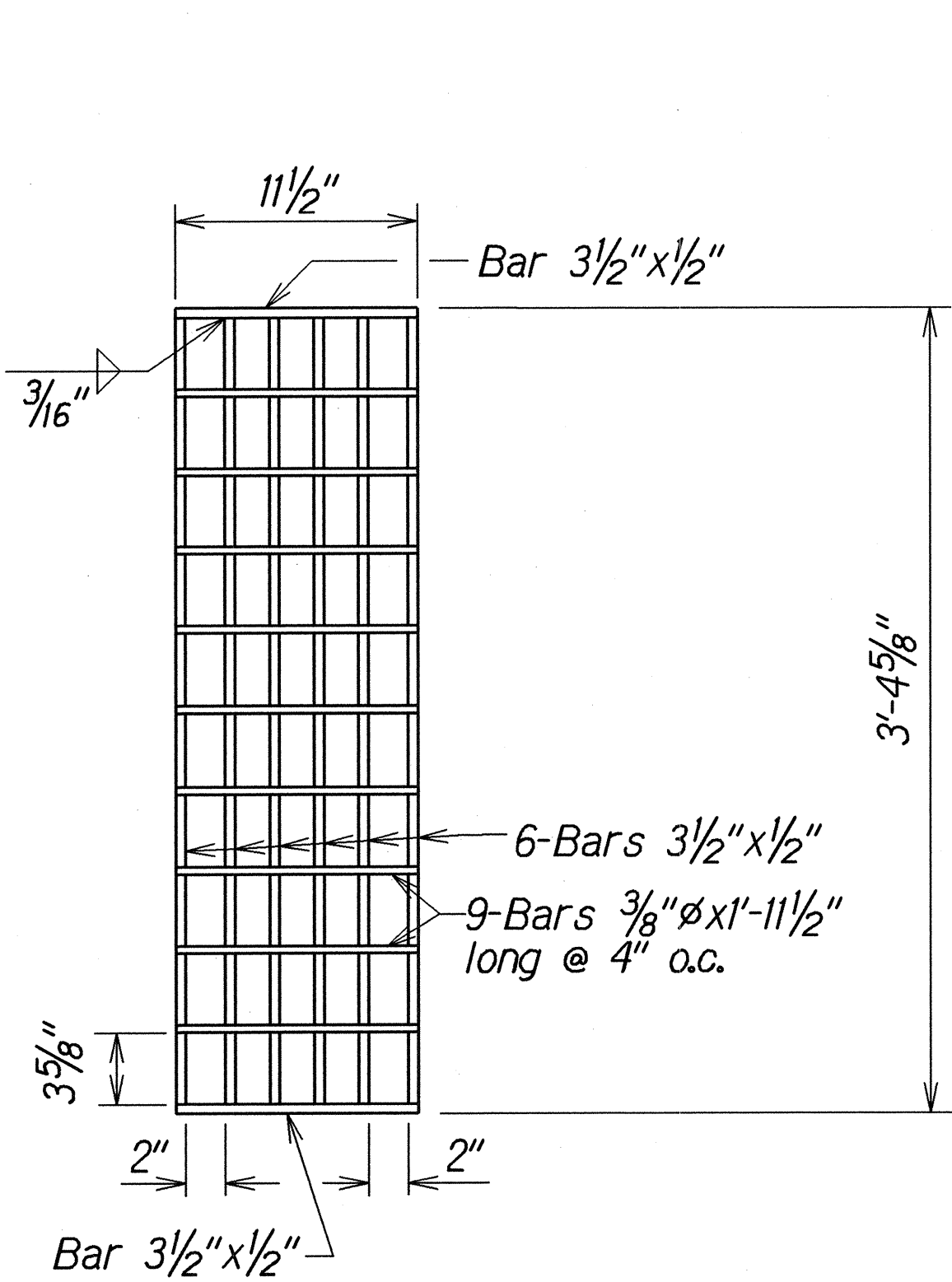
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS
KEKAULIKE AVENUE REPAIRS AND
MAINTENANCE AT VARIOUS LOCATIONS
Haleakala Crater Road to Kula Highway
Project No. 377A-01-03M

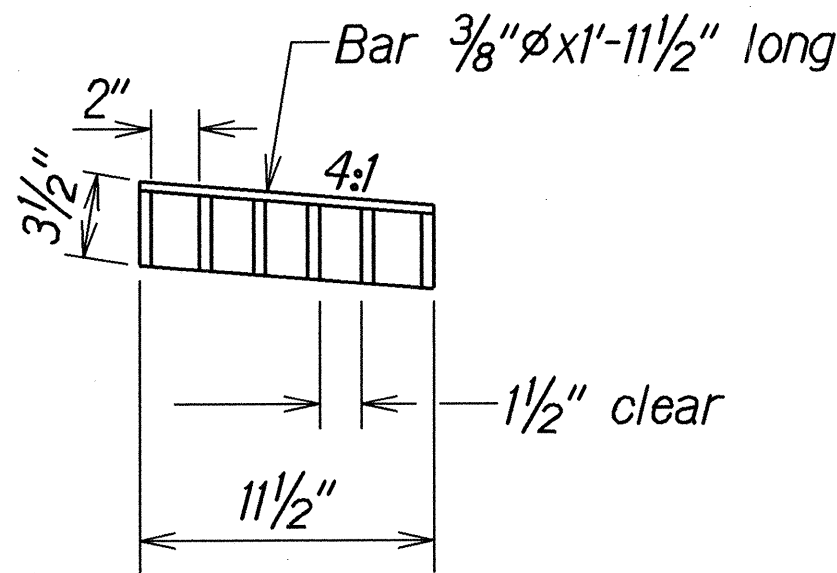
Scale: $\frac{3/4"}{1'-0"}$ Date: April, 2003

SHEET No. 1 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	377A-01-03M	2003	ADD.15	16



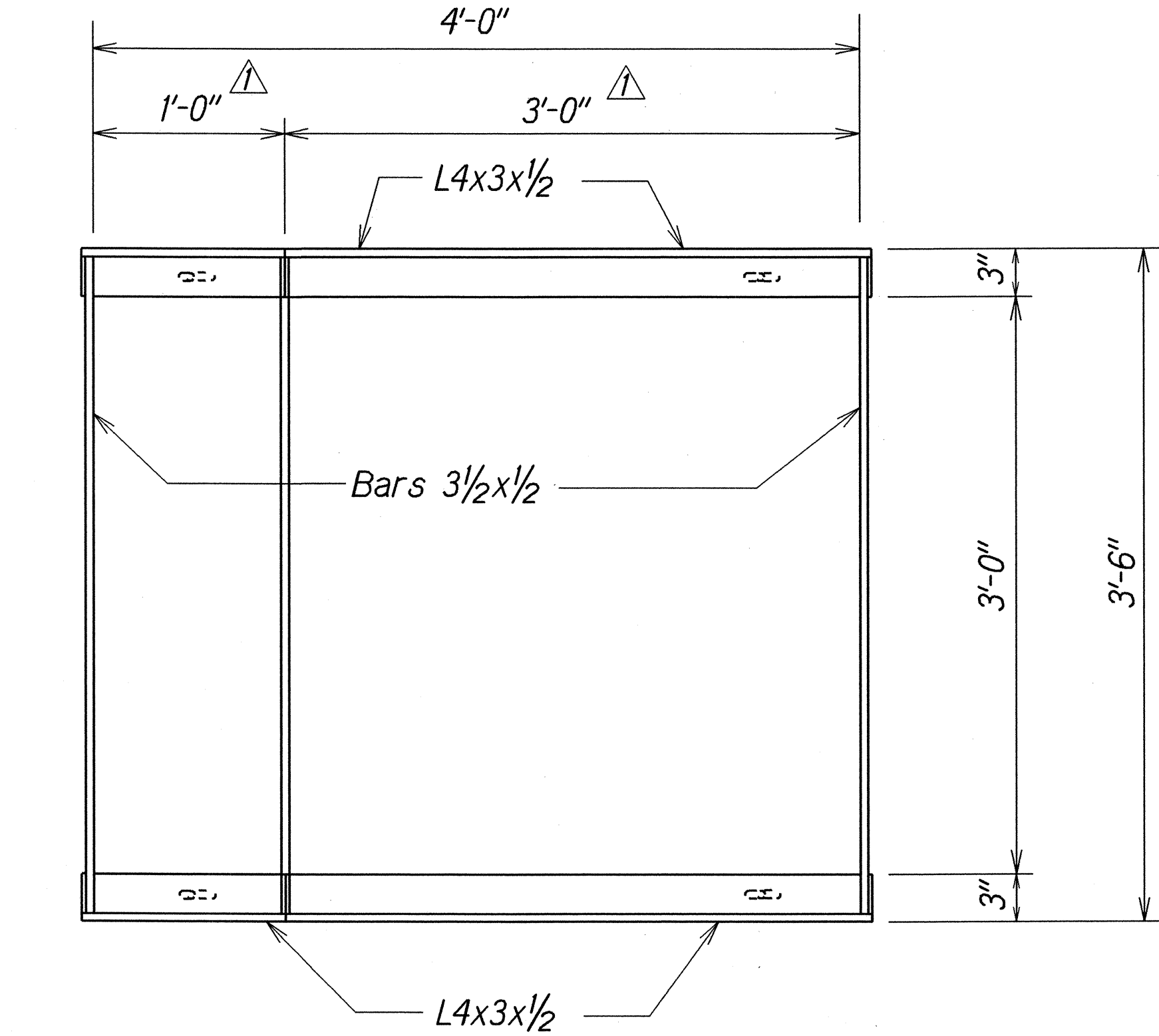
PLAN



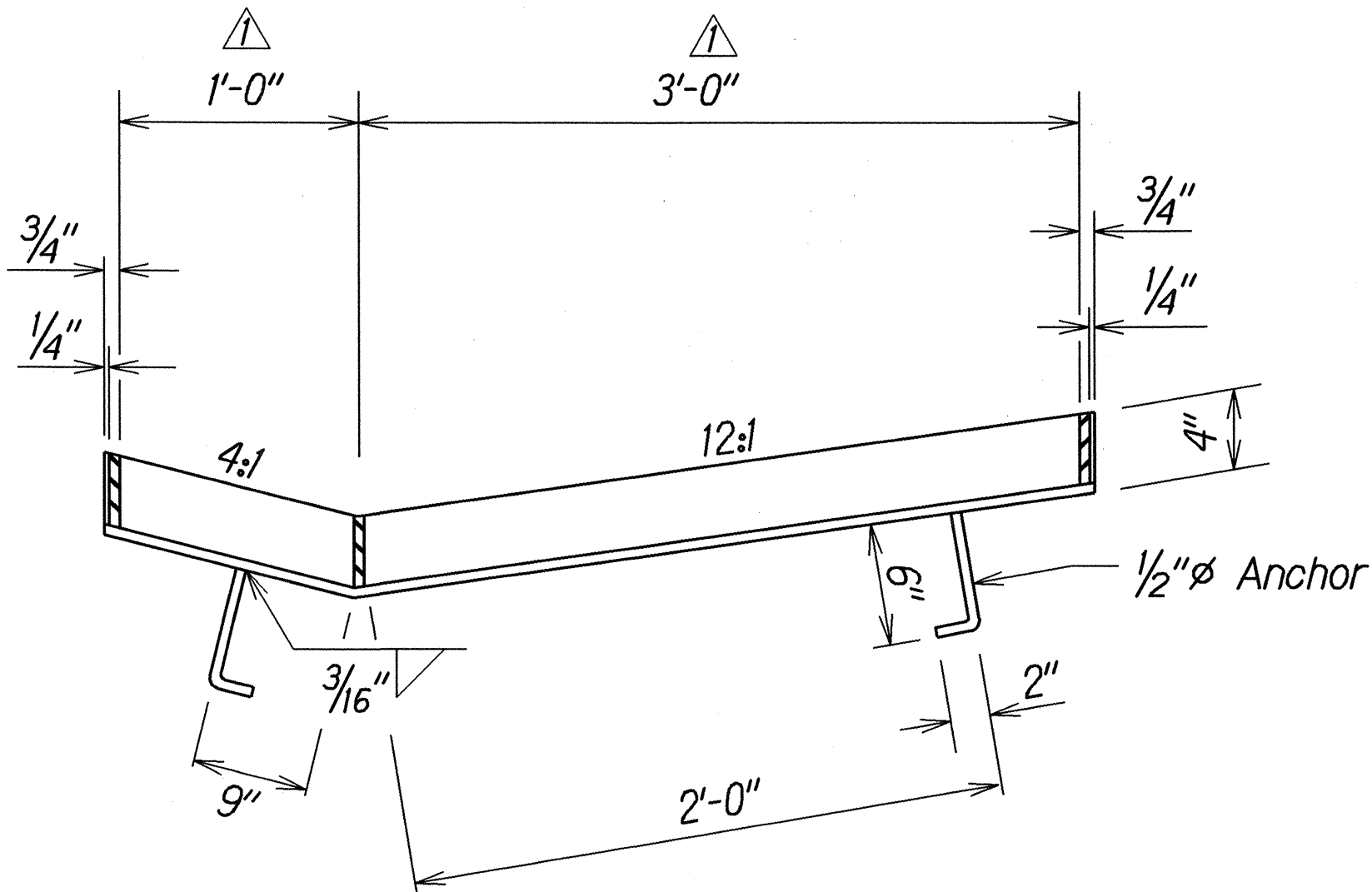
SECTION

GRATE

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



PLAN

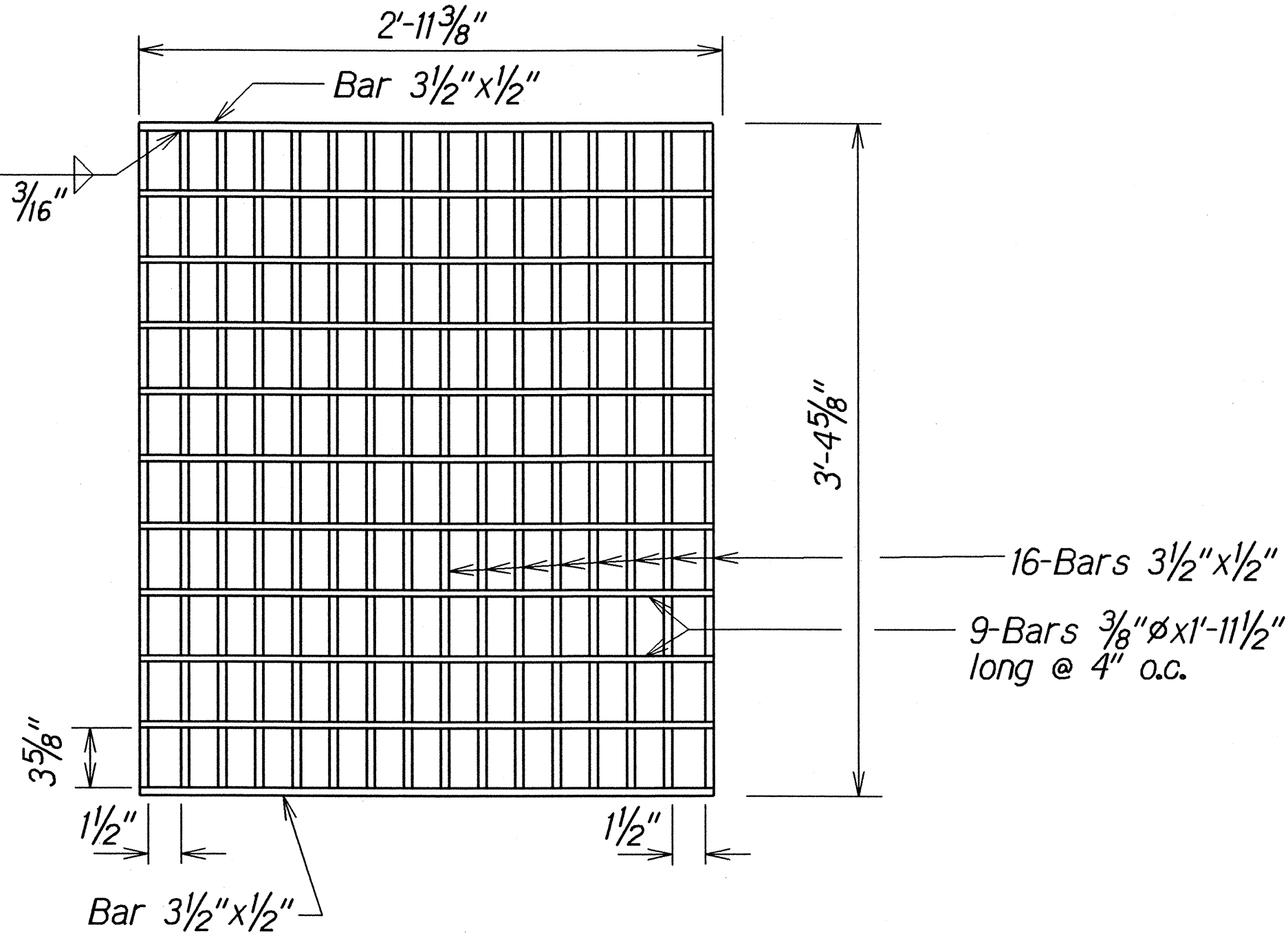


SECTION

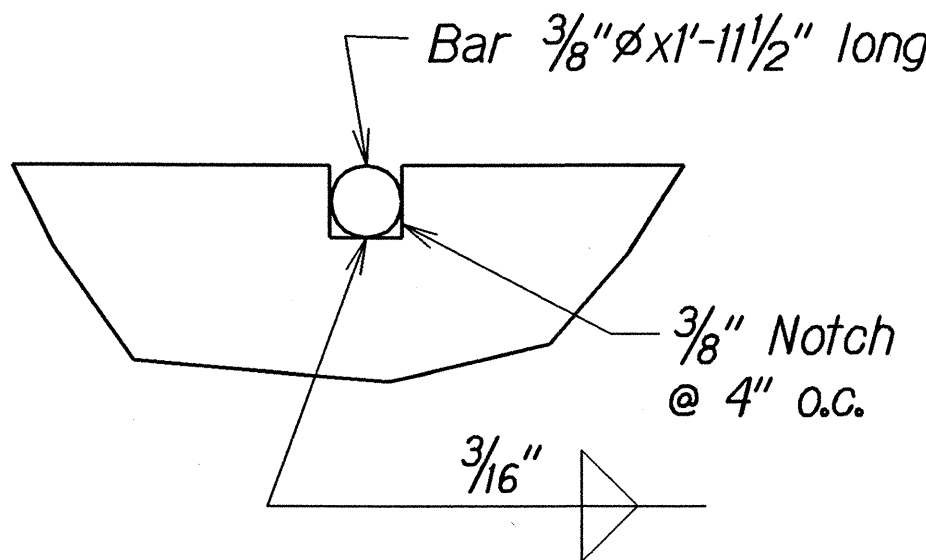
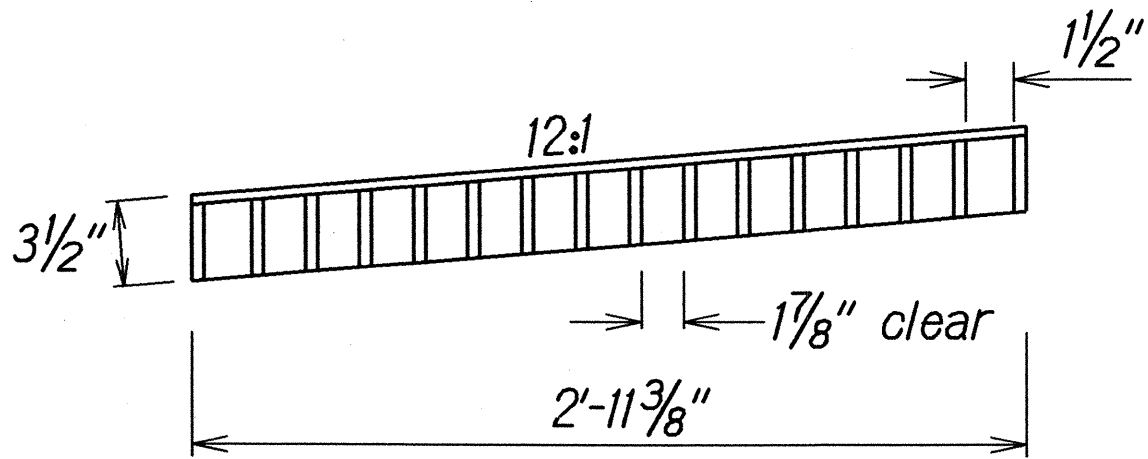
FRAME

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

NOTE:
All welds 3/8" unless otherwise noted.



PLAN



NOTCH DETAIL

Full Size

DETAILS OF TYPE 121414P STEEL FRAME AND GRATES

6/16/03	Revised Grate Dimensions.
DATE	REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
DRAINAGE DETAILS
KEKAULIKE AVENUE REPAIRS AND MAINTENANCE AT VARIOUS LOCATIONS
Haleakala Crater Road to Kula Highway
Project No. 377A-01-03M
Scale: As Shown Date: April, 2003
SHEET No. 2 OF 2 SHEETS

ORIGINAL	DATE
PLAN	6/16/03
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	