

Roscommon Equipment Center

PROJECT NO. 8

SCHEMATICS OF NEW JERSEY

BRUSH ARMORING

Sept. 1981

NORTHEAST FOREST FIRE SUPERVISORS

SCHEMATICS OF NEW JERSEY
BRUSH ARMORING
ROSCOMMON EQUIPMENT CENTER
PROJECT NO. 8

Almost every state now uses 4x4 and 6x6 trucks for forest fire control. Some of these units are well guarded against damage likely to be incurred during off-the-road operation. Others have no protection at all.

The objective of this project was to record in working drawings, for general distribution among the Northeastern States, the work New Jersey has done in protecting water tankers against off-the-road brush hazards. The armor shown in the seven prints included in this report is designed primarily to fit 1971 Dodge Model W-300 Power Wagons. Alterations will have to be made for use on other models. The Roscommon Equipment Center has produced detailed drawings of brush armor for military vehicles including:

1. REC Project No. 4 "Jeep Tanker Handbook"
2. REC Project No. 22 "1000 Gallon Low-Profile Tanker Handbook, Military 2½ ton 6x6 Cargo Truck, GMC & REO"
3. REC Project No. 33 "Tanker Handbook, Military 1¼ ton 4x4 Cargo Truck"
4. REC Project No. 34 "Tanker Handbook, Military ¾ ton 4x4 Cargo Truck"
5. REC Project No. 39 "1500 Gallon Low-Profile Tanker Handbook, Military 5 ton 6x6 Truck"
6. REC Project No. 40 "Tanker Handbook, Military 880 1¼ ton 4x4 Cargo Truck (Dodge W-200)"

For copies of these reports contact your State Forester, or:

U. S. Forest Service
Northeastern Area, FP
370 Reed Road
Broomall, PA 19008

Roscommon Equipment Center
Forest Fire Experiment Station
PO Box 68
Roscommon, MI 48653

Caution should be taken to avoid exceeding Gross Vehicle Weight (GVW) when adding brush armor and other accessories to vehicles. Reference "Users' Caution", on the next page.

USER'S CAUTION...

A NOTE ABOUT GROSS VEHICLE WEIGHT (GVW)

American truck manufacturers have long relied on GVW (gross vehicle weight) to designate the maximum allowable loading of their vehicles. These gross weight limits are carefully established through numerous design considerations and often depend, amongst other factors, on the strength and life expectancy of such vehicle components as frames, axles, springs, wheels, tires and power trains. Most manufacturers will not guarantee their products if users exceed GVW specifications.

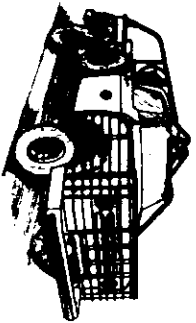
The U. S. Armed Forces are acutely conscious of the importance of vehicle reliability. They have insisted that manufacturers clearly specify vehicle gross vehicle weight and have rigidly adhered to these weight limits to the full extent that conditions will allow.

At the present time, a large number of military vehicles are becoming available to state and local agencies through federal government excess property programs and surplus sales. Many of these vehicles are being converted into fire fighting units. Those anticipating such conversions are urged to heed the GVW limits, and other vital information, posted on the dashboard of most of these vehicles. Federal excess property vehicles, on loan through State Forestry organizations, may be recalled if they are abused.

Blueprints and construction procedures prepared and issued by the Roscommon Equipment Center are intended to serve as guidelines for potential users of this equipment. It is possible that if all the options and alternatives specified on these drawings are used on any single vehicle, that GVW limits may be exceeded.

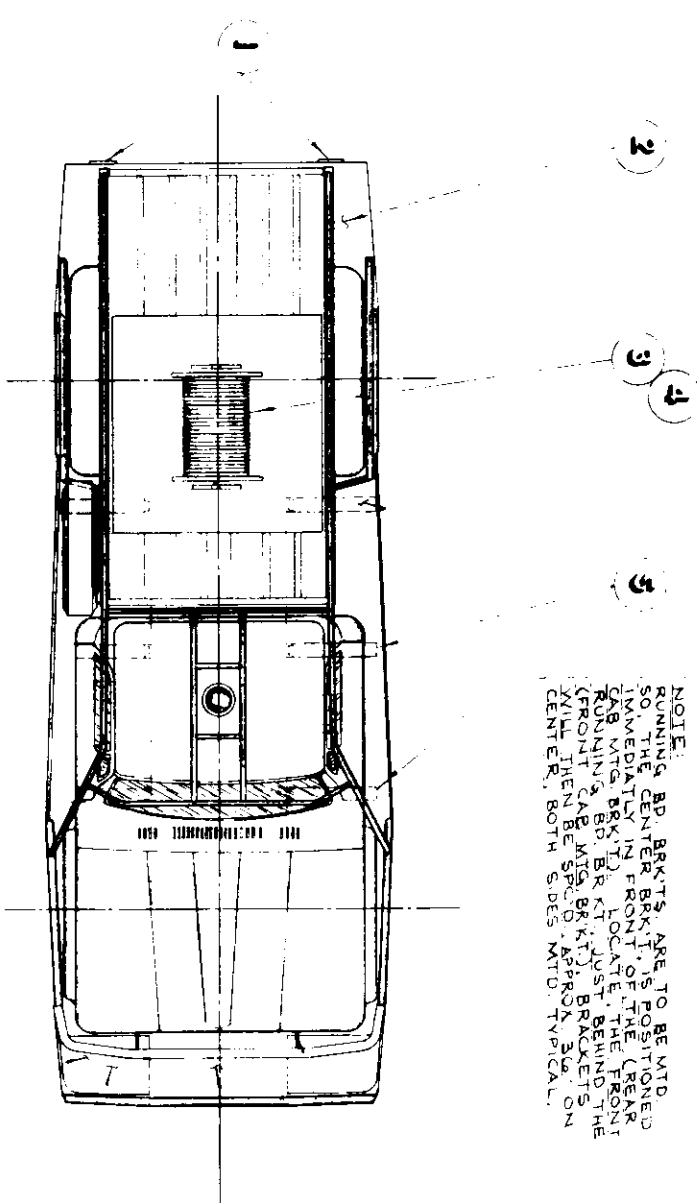
Therefore, users are cautioned to:

- (1) plan design and construction carefully,
- (2) weigh each unit before actual duty assignment, and
- (3) make whatever weight adjustments are necessary to bring the system into safe load limits.

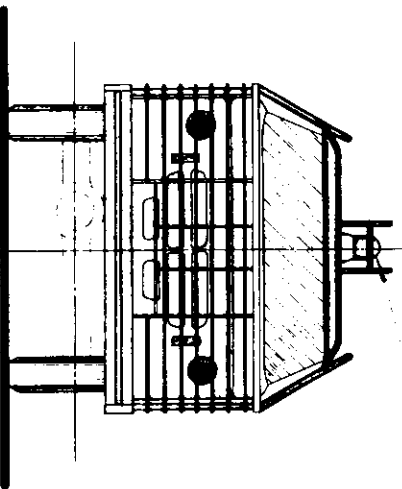
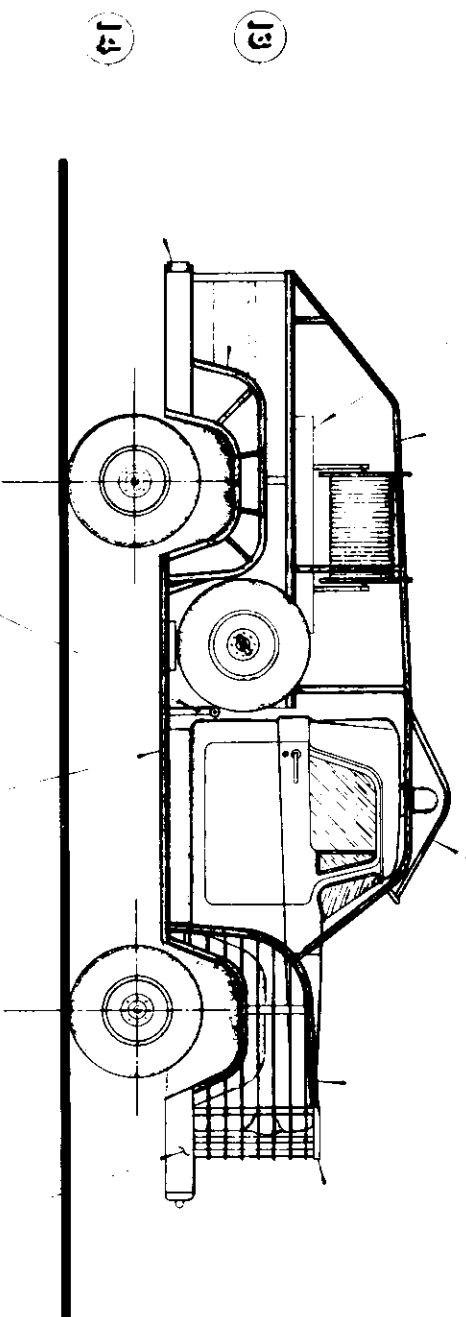


PERSPECTIVE VIEW

1971 DODGE W-300 POWERWAGON
W/ EQUIPMENT ARMOR & PUMPER
UNIT



NOTE: RUNNING BOARD BRKTS ARE TO BE MTD. SO THE CENTER BRKT IS POSITIONED IN VERT. CENTER OF FRONT END (REAR BRKT LOCATED JUST BEHIND THE RUNNING BOARD BRKT). FRONT CAB MTD BRKTS WILL THEN BE SPACED APPROX 30" ON CENTER, BOTH SIDES MTD. TYPICAL.



VEHICLE BRUSH PROTECTION SYSTEM

AS DESIGNED BY THE STATE OF NEW JERSEY,
FOREST FIRE SERVICE FOR A 1971 DODGE
W-300 POWERWAGON.

GENERAL NOTE:
THIS ASSEMBLY DRAWING, SHOWN W/ THE ATTACHED DETAIL DRAWINGS, ARE DESIGNED PRIMARILY, TO FIT A 1971 MODEL DODGE W-300 POWERWAGON. FOR USE ON OTHER MODELS, ALTERATIONS WILL HAVE TO BE MADE TO FIT ANY SPECIFIC VEHICLE.

DET	QTY	DESCRIPTION OR TITLE	PRINT
1	1	REAR TAILLIGHTS (REAR BUMPER MOUNTED)	PUR.
2	1	REAR BUMPER ASSEMBLY	0-402 PUR.
3	1	BOOSTER LINE HOSE REEL	0-401 PUR.
4	1	PUMPING DIAGRAM & DETAILS	0-403 PUR.
5	1	RUNNING BOARD BRACKETS	0-403 PUR.
6	2	GRILL BRACE (ALTER FROM ORIGINAL)	0-403 PUR.
7	1	WINCH	0-401 PUR.
8	1	FRONT BUMPER ASSEMBLY	0-401 PUR.
9	1	SIREN	0-404 PUR.
10	2	FRONT FENDER GUARD	0-404 PUR.
11	1	EMERGENCY LIGHT BEACON GUARD	0-405 PUR.
12	2	EQUIPMENT GUARD SIDE RAILS	0-405 PUR.
13	2	REAR FENDER GUARD	0-406 PUR.
14	1	PINTLE HOOK	0-407 PUR.
15	1	SUCTION PIPE SUPPORT	0-407 PUR.
16	2	RUNNING BOARD ASSEMBLY	0-403 PUR.
17	2	FRONT BUMPER SIDE CHANNEL	0-403 PUR.
18	1	GRILL GUARD	0-404 PUR.
19	1	EMERGENCY LIGHT BEACON	0-404 PUR.
20	1	WATER TANK (APPROX CAPACITY: 300 GALL.)	0-404 PUR. MFG.

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VEHICLE BRUSH PROTECTION SYSTEM ASSEMBLY

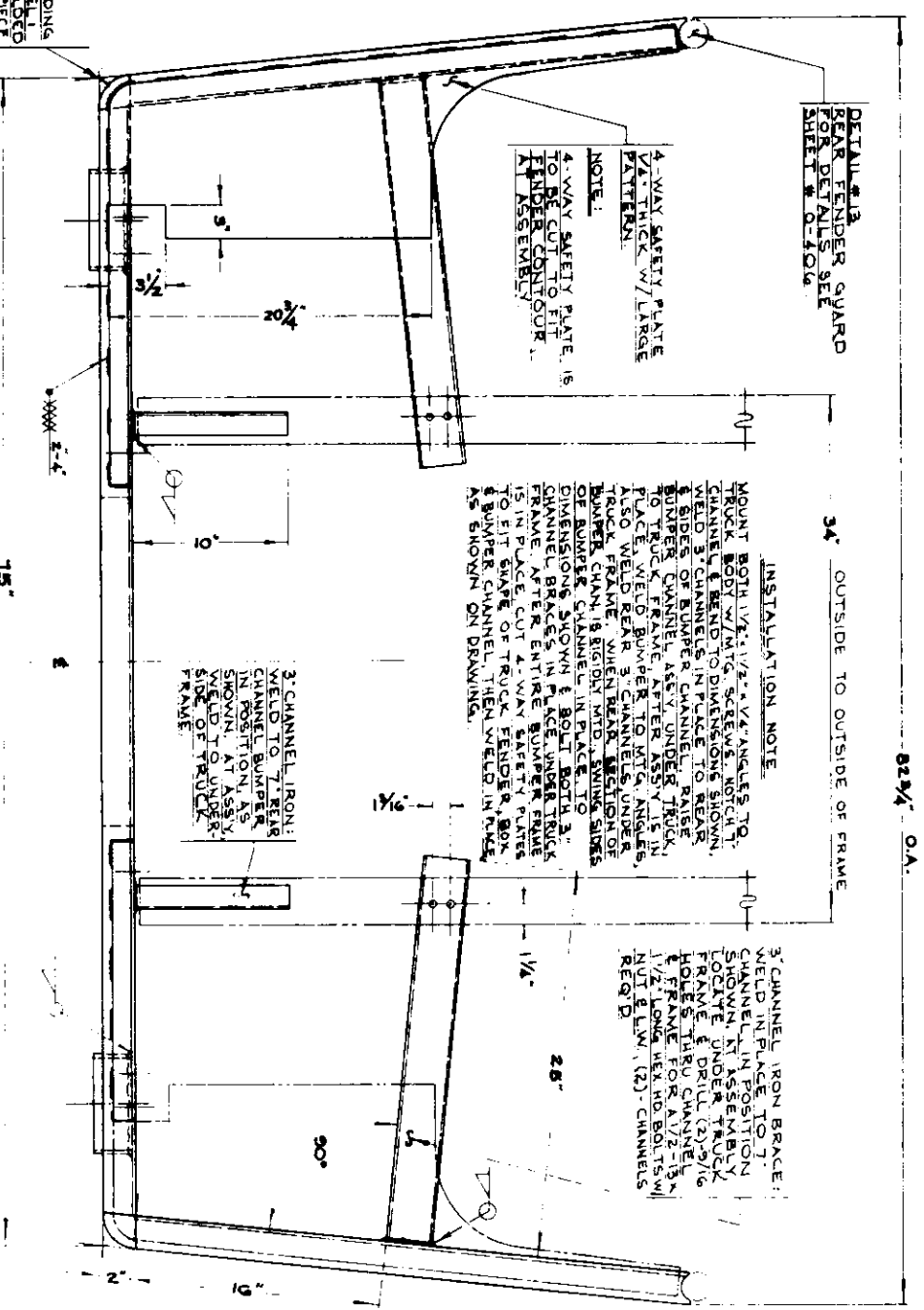
SCALE: 1/2" = 1'-0"

DESIGNED BY: NEW JERSEY
DRAWN BY: G. J. ...
TRACED BY: ...

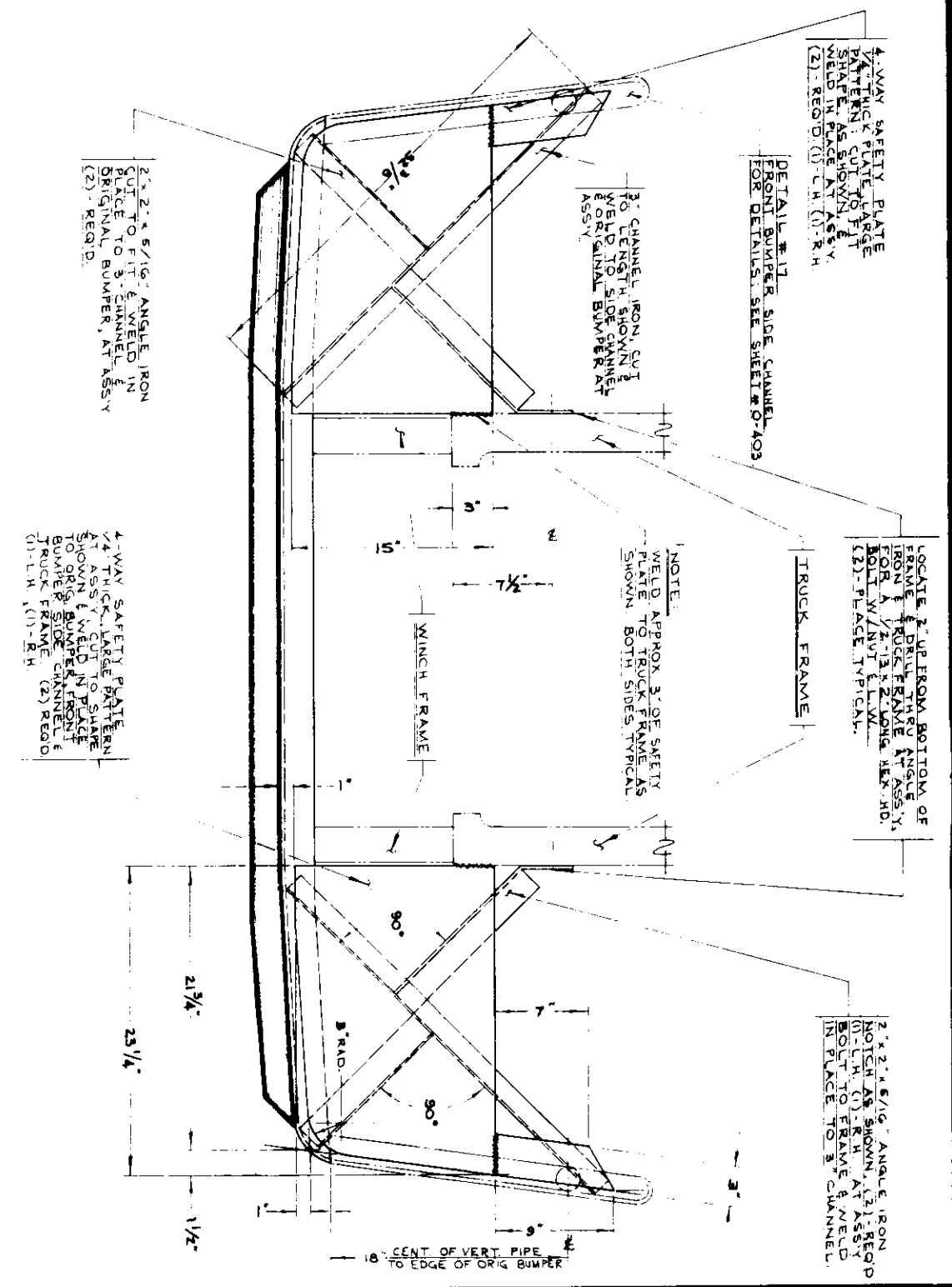
DATE: 5/1/72
CHECKED BY: ...
APPROVED BY: ...
REVISED: ...

PROJECT NO. 8

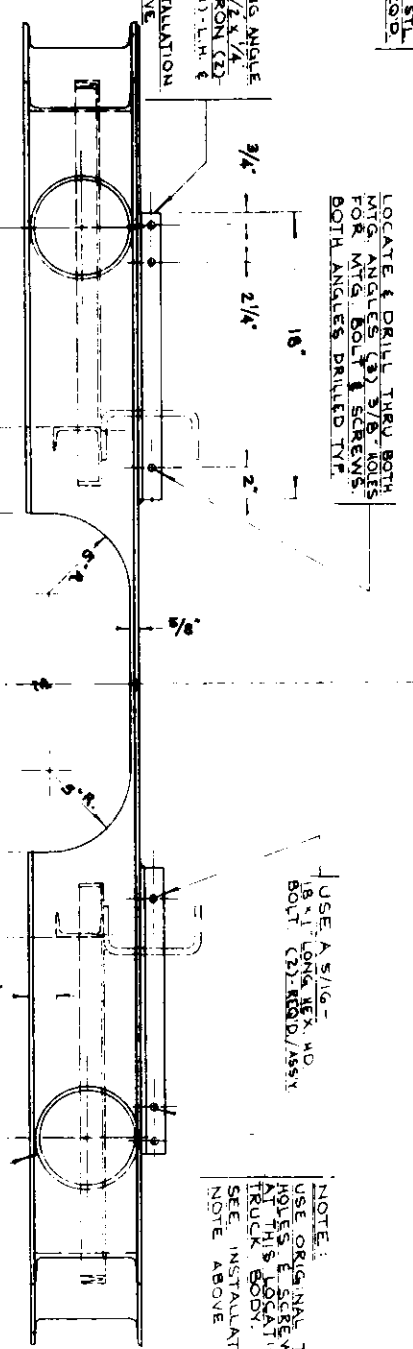
DETAIL #13
REAR FENDER GUARD
FOR DETAILS SEE
SHEET # 0-404



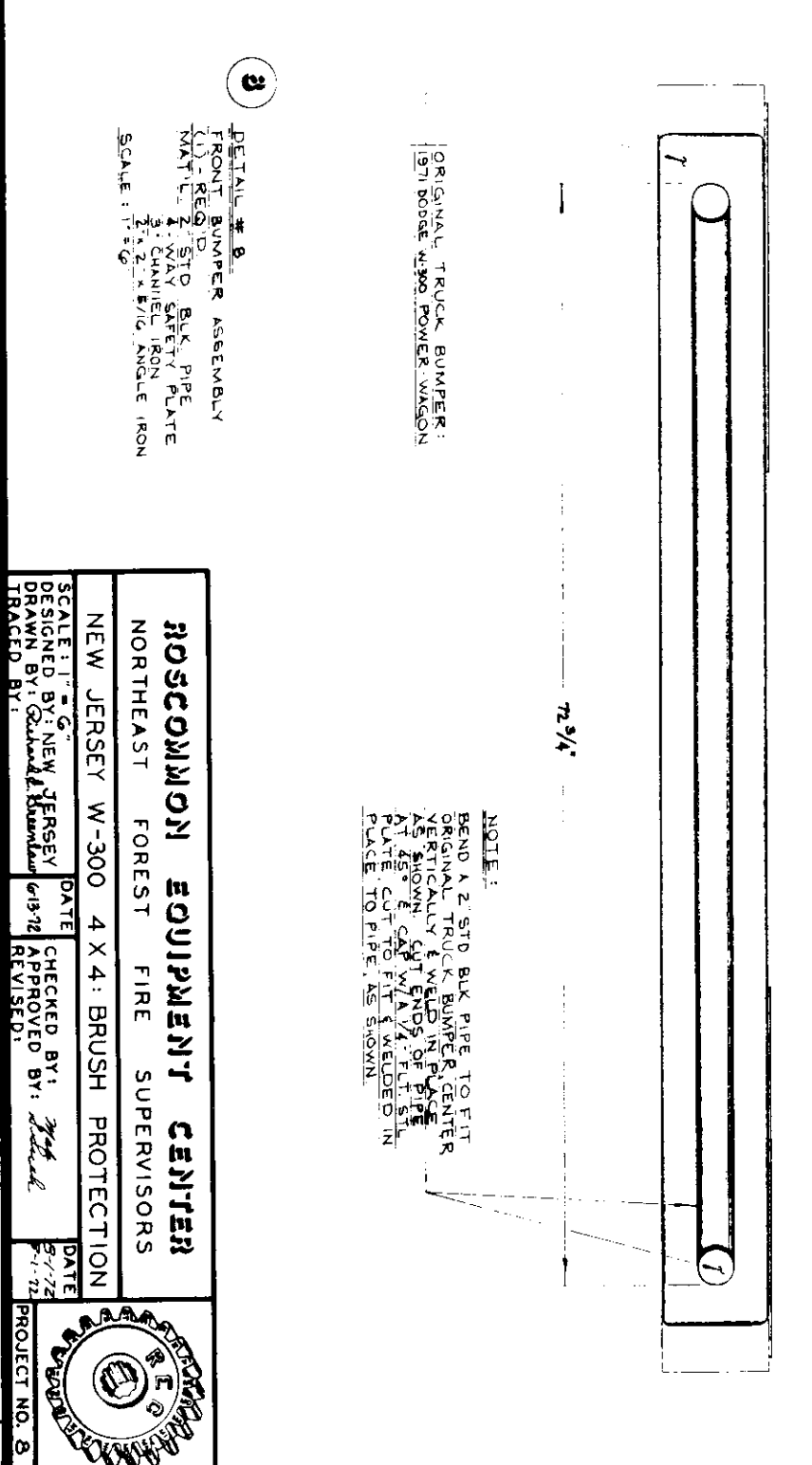
DETAIL #14
FRONT BUMPER SIDE CHANNEL
FOR DETAILS SEE SHEET # 0-403



DETAIL #15
FRONT BUMPER ASSEMBLY
FOR COMPLETE ASSY. SEE SHEET # 0-401



DETAIL #16
FRONT BUMPER ASSEMBLY
FOR COMPLETE ASSY. SEE SHEET # 0-401



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NEW JERSEY W-300 4 X 4: BRUSH PROTECTION

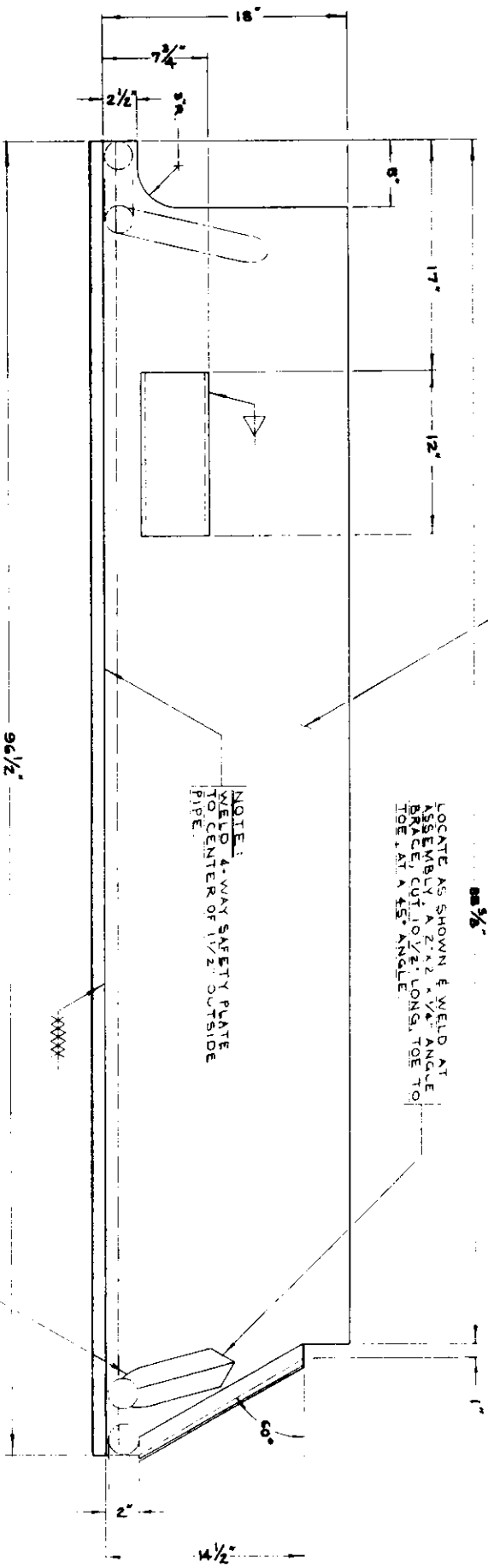
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DESIGNED BY: [Signature]
DRAWN BY: [Signature]
TRACED BY: [Signature]

DATE: 6/13/72
CHECKED BY: [Signature]
APPROVED BY: [Signature]
REVISI: [Signature]

DATE: 5/1/72
PROJECT NO. 8

SHEET 2 of 7 0-492

4-WAY SAFETY PLATE
1/4" THICK LARGE PATTERN,
WELD TO OUTSIDE PIPE
RAIL & RUNNING BD. BRKTS.



LOCATE AS SHOWN & WELD AT
ASSEMBLY. A 2"x2" 1/4" ANGLE
BRACE, CUT 10 1/2" LONG, TOE TO
TOE AT A 45° ANGLE

NOTE:
WELD 4-WAY SAFETY PLATE
TO CENTER OF 1/2" OUTSIDE
PIPE.

BEND ANGLE TO FIT
ADJOINING PIPE &
WELD IN PLACE AT
ASSEMBLY

WELD IN PLACE TO RUNNING
BOARD. A 5" DIA. CHANNEL,
SPARE FIRE RESTS ON THIS,
TO PROVIDE CLEARANCE FOR
SUCTION PIPE (SEE PLUMBING).
(PROVIDE ONLY ON RIGHT SIDE)

NOTE:
RUNNING BOARD (LEFT SIDE)
IS IDENTICAL TO RIGHT SIDE.
EXCEPT IT DOES NOT HAVE
THE 5" X 5/8" CHANNEL FIRE REST

16

DETAIL # 16
RUNNING BOARD (RIGHT-HAND SHOWN)
MATERIAL: 4-WAY SAFETY PLATE
1/2" STD. BULK PIPE
2"x2" 1/4" ANGLE IRON
1/4" x 4" FLT. STL.
(2) - REQ'D (0) L.H. & (0) R.H.
SCALE: 1/4" = 1'-0"
FOR COMPLETE ASSY. SEE SHEET # 0-401

1/4" x 4" FLT. STL. LOCATE
AS SHOWN & WELD IN
PLACE AT ASSEMBLY

OUTSIDE PIPE RAIL
1/2" STD. BULK PIPE

FRONT FENDER GUARD
WELD TO RUNNING BOARD
AT ASSEMBLY

RADIUS FLANGE TO FIT
ADJOINING PIPE OF FRONT
FENDER GUARD

CUT AWAY CHANNEL FLANGE
AS SHOWN & BEND TO FIT
ADJOINING PIPE. CUT AWAY
EXCESS FLANGE.

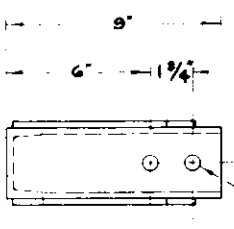
FRONT FENDER
GUARD - SEE
SHEET # 0-404

17

DETAIL # 17
FRONT BUMPER SIDE CHANNEL
MATERIAL: 1/2" x 3/8" BULK CHANNEL
(2) - REQ'D (0) L.H. & (0) R.H.
SCALE: 1/4" = 1'-0"
FOR COMPLETE ASSY. SEE SHEET # 0-401

ORIGINAL FRONT
BUMPER - SEE
SHEET # 0-402

1/32" DRILL THRU
(2) HOLES, TYP.
FOR A 1/2" - 13 x 1/2"
HEX. HD. BOLT



TRUCK FRAME: LOCATE
BOTTOM EDGE OF RUNNING
BD. BRACKET & BELOW
TRUCK FRAME. ALL BRACKETS
MOUNTED TYPICALLY

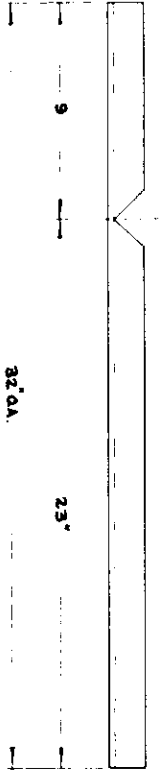
1/4" x 2" FLT. STL.
(2) - REQ'D / BRKT.
WELD IN PLACE, AS SHOWN

OUTSIDE PIPE RAIL OF
RUNNING BOARD

5

DETAIL # 5
RUNNING BOARD BRACKET
MATERIAL: 5" x 5/8" BULK CHANNEL & 1/4" x 2" FLT. STL.
(6) - REQ'D (3) - PER SIDE
SCALE: 1/4" = 1'-0"
FOR COMPLETE ASSY. SEE SHEET # 0-401

CHANNEL LAYOUT FOR BENDING



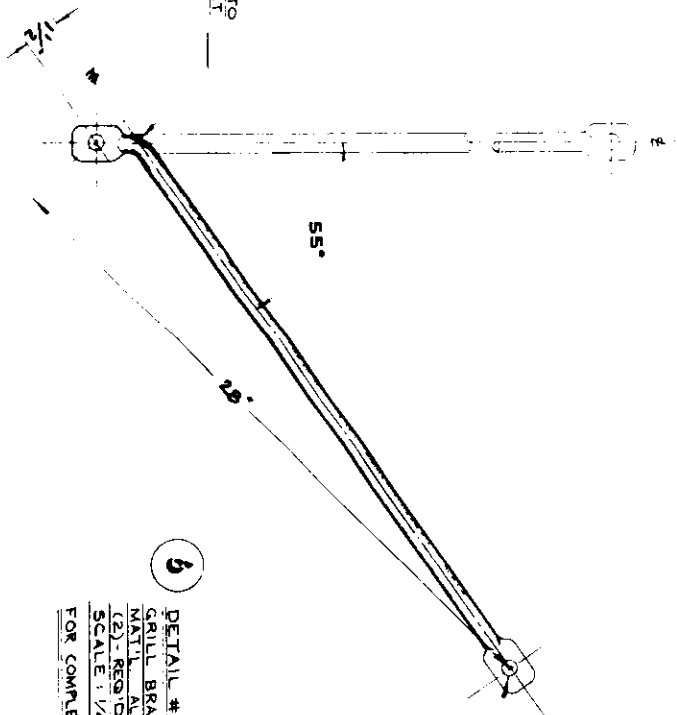
NOTE:
FOR MOUNTING LOCATIONS
OF RUNNING BD. BRACKETS,
SEE ASSY. DRAW'G. SHEET #
0-401, FOR DETAILS.

MOUNT BRACKET
W/ A 1/2" - 13 x 1/2"
SLOTTED HD. CAP SCR
(2) - REQ'D.

COLD BEND TO
ANGLE & OFFSET
AS SHOWN

6

DETAIL # 6
GRILL BRACE
MATERIAL: ALTER FROM EXISTING BRACE
(2) - REQ'D.
SCALE: 1/4" = 1'-0"
FOR COMPLETE ASSY. SEE SHEET # 0-401



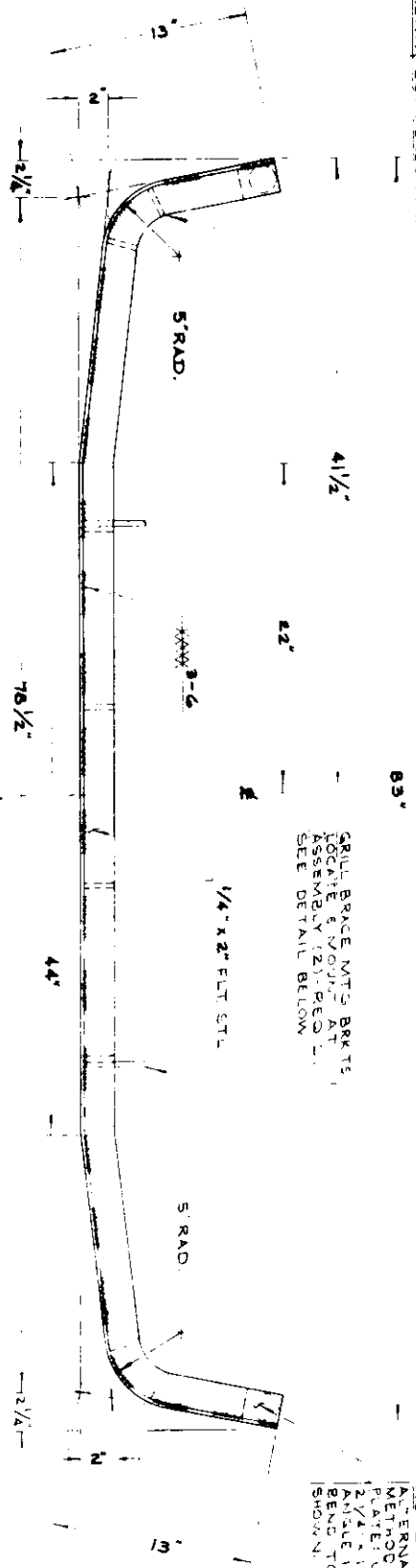
ROSCOMMON EQUIPMENT CENTER
NORTHEAST FOREST FIRE SUPERVISORS
NEW JERSEY W-300 4 X 4 : BRUSH PROTECTION

SCALE: 1/4" = 1'-0"
DESIGNED BY: NEW JERSEY
DRAWN BY: [Signature]
TRACED BY: [Signature]

DATE: 5-12-72
CHECKED BY: [Signature]
APPROVED BY: [Signature]
REVISION: [Signature]

PROJECT NO. 8

LOCATE (2) OUTSIDE VERT. SUPPORTS AT RANDOM RAD. INTERVALS ALONG 5' RAD. AS SHOWN. BOTH ENDS TYP.

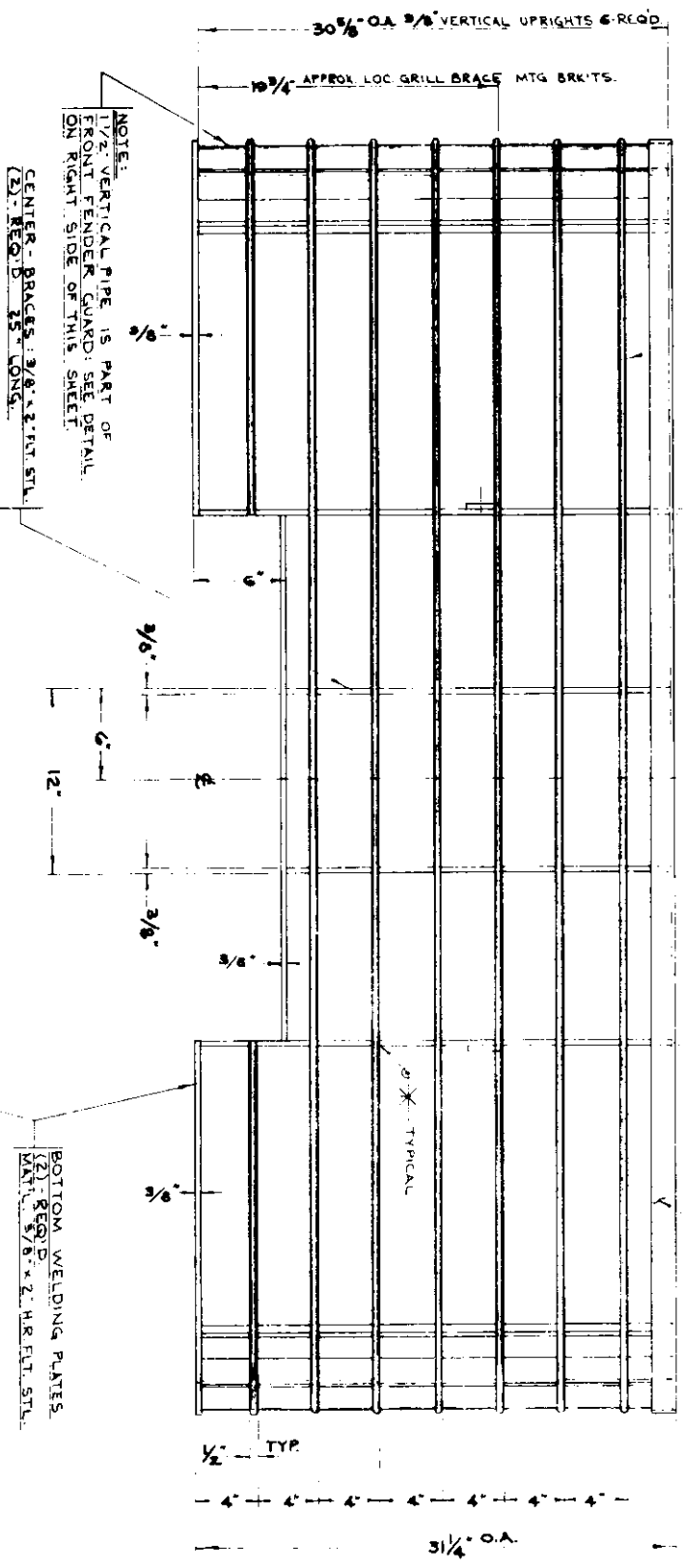


NOTE: GRILL BRACE MTS BRKTS. LOCATE & MOUNT AT ASSEMBLY (2) REQ'D. SEE DETAIL BELOW.

NOTE: FABRICATE CONST. METHOD FOR TOP PLATE. USE A 1/4\"/>

NOTE: 1\"/>

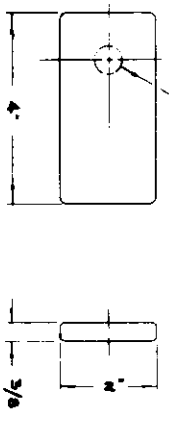
NOTE: SPOT WELD 1/2\"/>



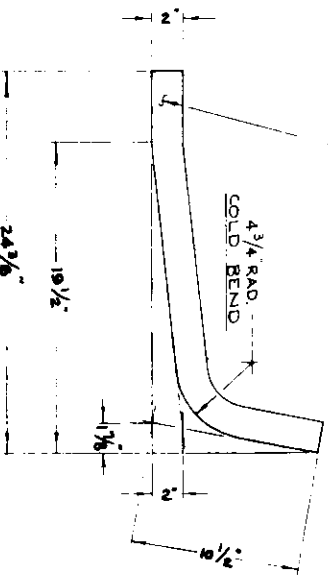
NOTE: 1/2\"/>

CENTER BRACES: 3/8\"/>

BOTTOM WELDING PLATES
MATERIAL: 5/8\"/>



GRILL BRACE MTS BRKTS (2) REQ'D. 3/8\"/>



DETAIL #10
FRONT FENDER GUARD
MATERIAL: 1/2\"/>

FOR COMPLETE ASSY SEE SHEET #0-401

13

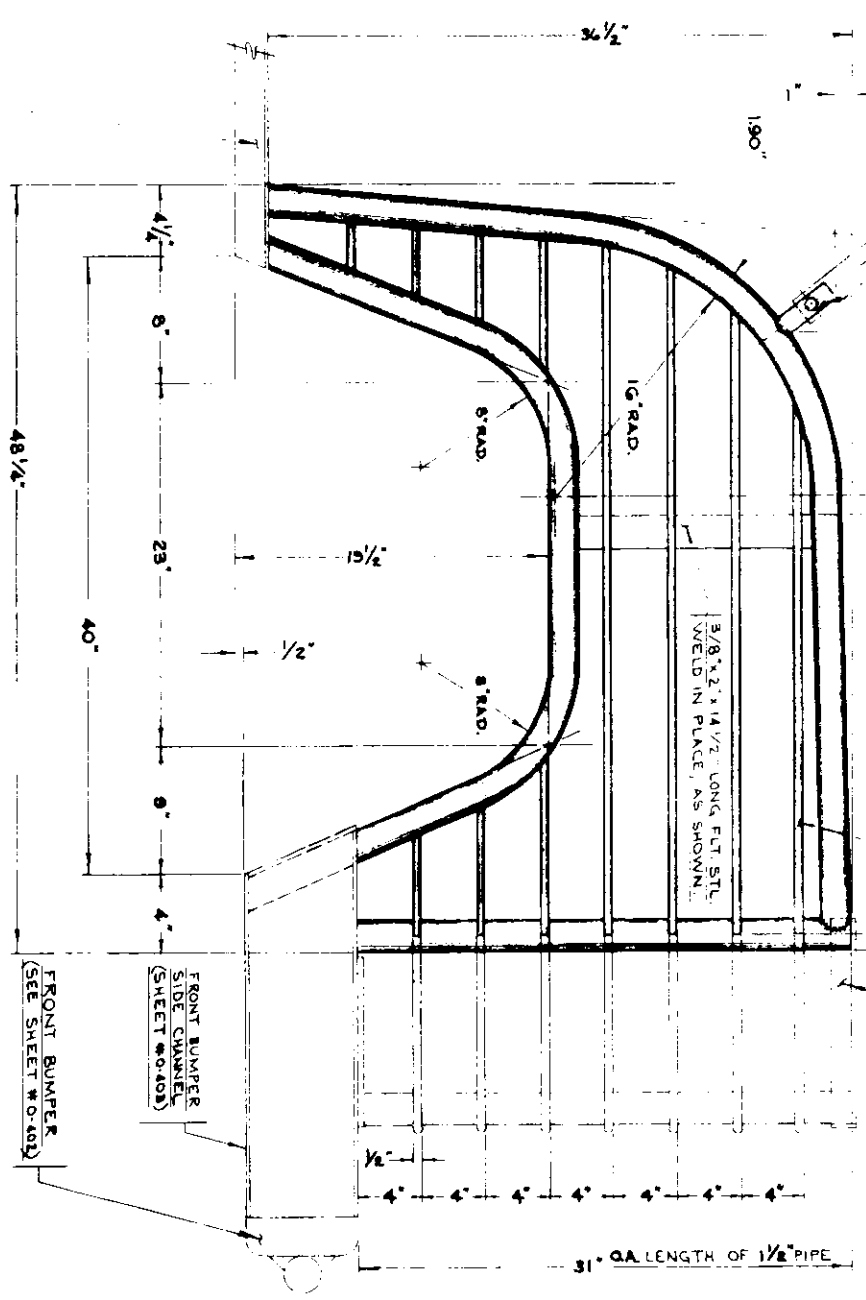
DETAIL #13

GRILL GUARD
MATERIAL: 3/8\"/>

SCALE: 1:1

FOR COMPLETE ASSY SEE SHEET #0-401

NOTE: FABRICATE TOP & BOTTOM PLATES, THEN WELD 3/8\"/>



3/8\"/>

FRONT BUMPER
SIDE CHANNEL
(SEE SHEET #0-403)

FRONT BUMPER
(SEE SHEET #0-403)

10

DETAIL #10

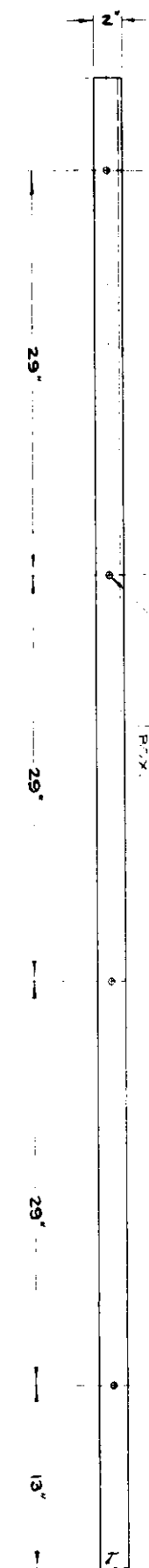
FRONT FENDER GUARD
MATERIAL: 1/2\"/>

FOR COMPLETE ASSY SEE SHEET #0-401

RUNNING BOARD
(SEE SHEET #0-403)

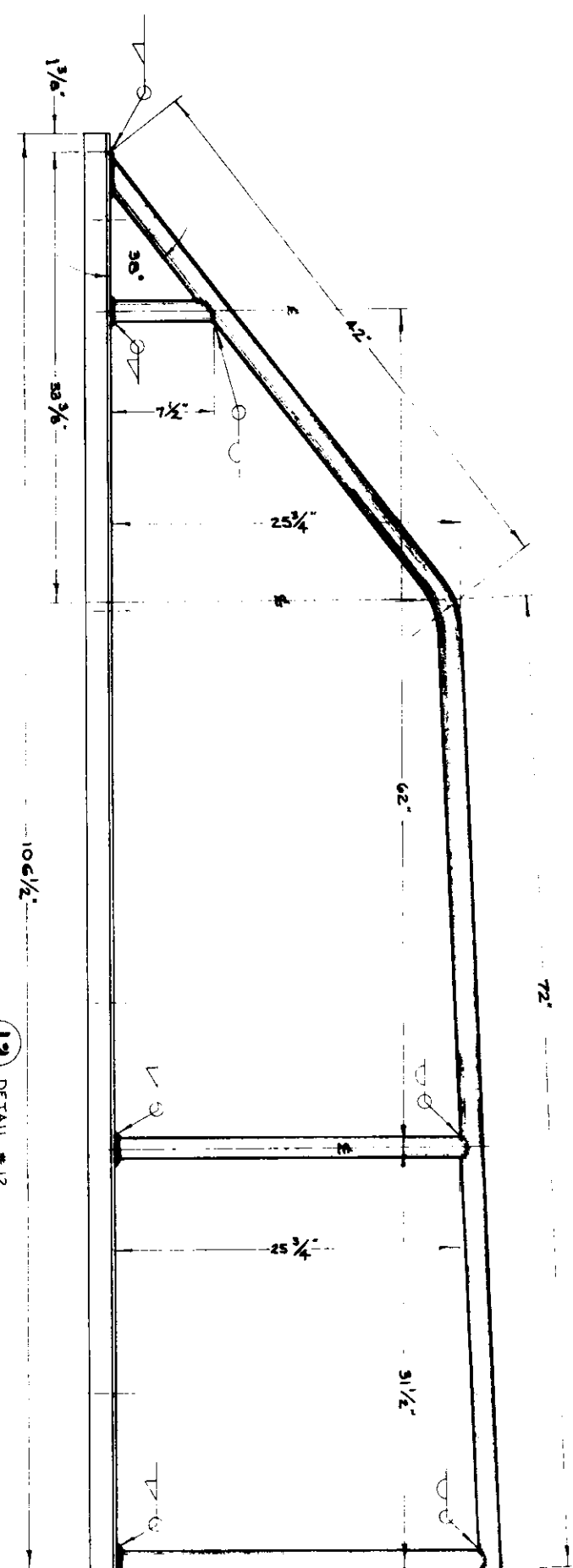
<p>ROSCOMMON EQUIPMENT CENTER NORTHEAST FOREST FIRE SUPERVISORS</p>		DATE	DATE
		CHECKED BY: <i>[Signature]</i>	DATE: 5-17-72
<p>NEW JERSEY W-300 4 X 4: BRUSH PROTECTION</p>		DATE	DATE
<p>SCALE: 1\"/> </p>		CHECKED BY: <i>[Signature]</i>	DATE: 5-17-72
<p>DESIGNED BY: <i>[Signature]</i></p>		APPROVED BY: <i>[Signature]</i>	DATE: 5-17-72
<p>DRAWN BY: <i>[Signature]</i></p>		REVISION:	
<p>TRACED BY: <i>[Signature]</i></p>		PROJECT NO. 8	

AT ASSEMBLY: 7/16" DRILL THRU (4) HOLES (TYPICAL) FOR A 3/8" X 1/4" BOLT. ANGLES ARE TO BE MOUNTED TO INSIDE EDGES OF TRACK P.V.



TOP-VIEW OF SIDE RAILS MTG ANGLE:
 MAT'L: 2" X 2" X 3/8" ANGLE I.H.
 (2) REQ'D: (1) L.H., (1) R.H.
 (RIGHT HAND ANGLE SHOWN)

DETAIL #11
 EMERGENCY LIGHT BEACON GUARD:
 FOR CONSTRUCTION DETAILS, SEE SHEET #0-406



12
 EQUIPMENT GUARD SIDE RAILS
 2-REQ'D: (1) L.H., (1) R.H.
 MAT'L: 1/4" STD. BLK. PIPE
 2" X 2" X 3/8" ANGLE
 SCALE: 1" = 6"

FOR COMPLETE ASS'Y. SEE SHEET #0-401

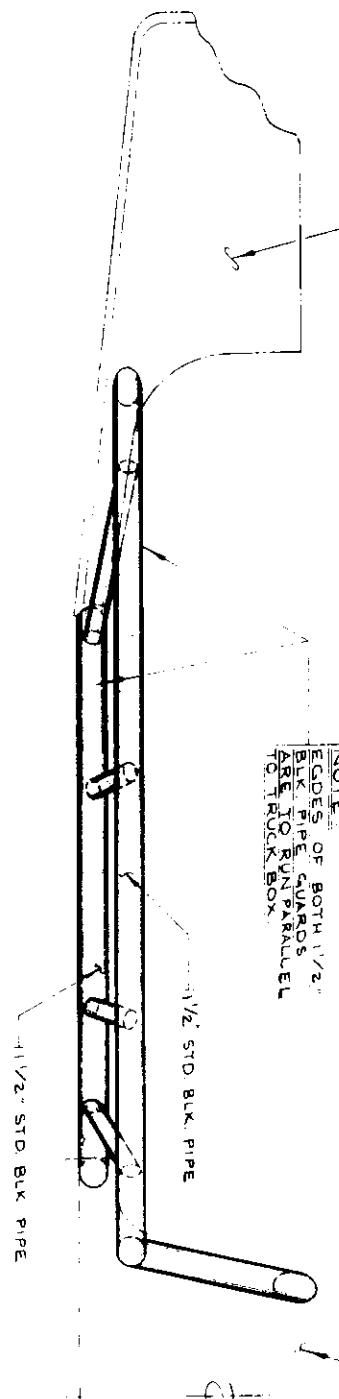
FRONT FENDER GUARD
 FOR DETAILS SEE SHEET #0-404

EQUIPMENT GUARD SIDE RAIL (TOP VIEW)
 REQ'D: (4) HOLES (TYPICAL) FOR A 3/8" X 1/4" BOLT.
 ANGLES ARE TO BE MOUNTED TO INSIDE EDGES OF TRACK P.V.

NOTE:
 TO ALLOW PROPER FIT W/
 ADJOINING PARTS, APPROXIMATE
 DIMENSIONS MAY VARY AT ASS'Y.

ROSCOMMON EQUIPMENT CENTER	
NORTHEAST FOREST FIRE SUPERVISORS	
NEW JERSEY W-300 4 X 4: BRUSH PROTECTION	
SCALE: 1" = 6"	DATE: 5-26-72
DESIGNED BY: NEW JERSEY	CHECKED BY: M.L.
DRAWN BY: G. J. J. J.	APPROVED BY: G. J. J. J.
TRACED BY:	REVISION:

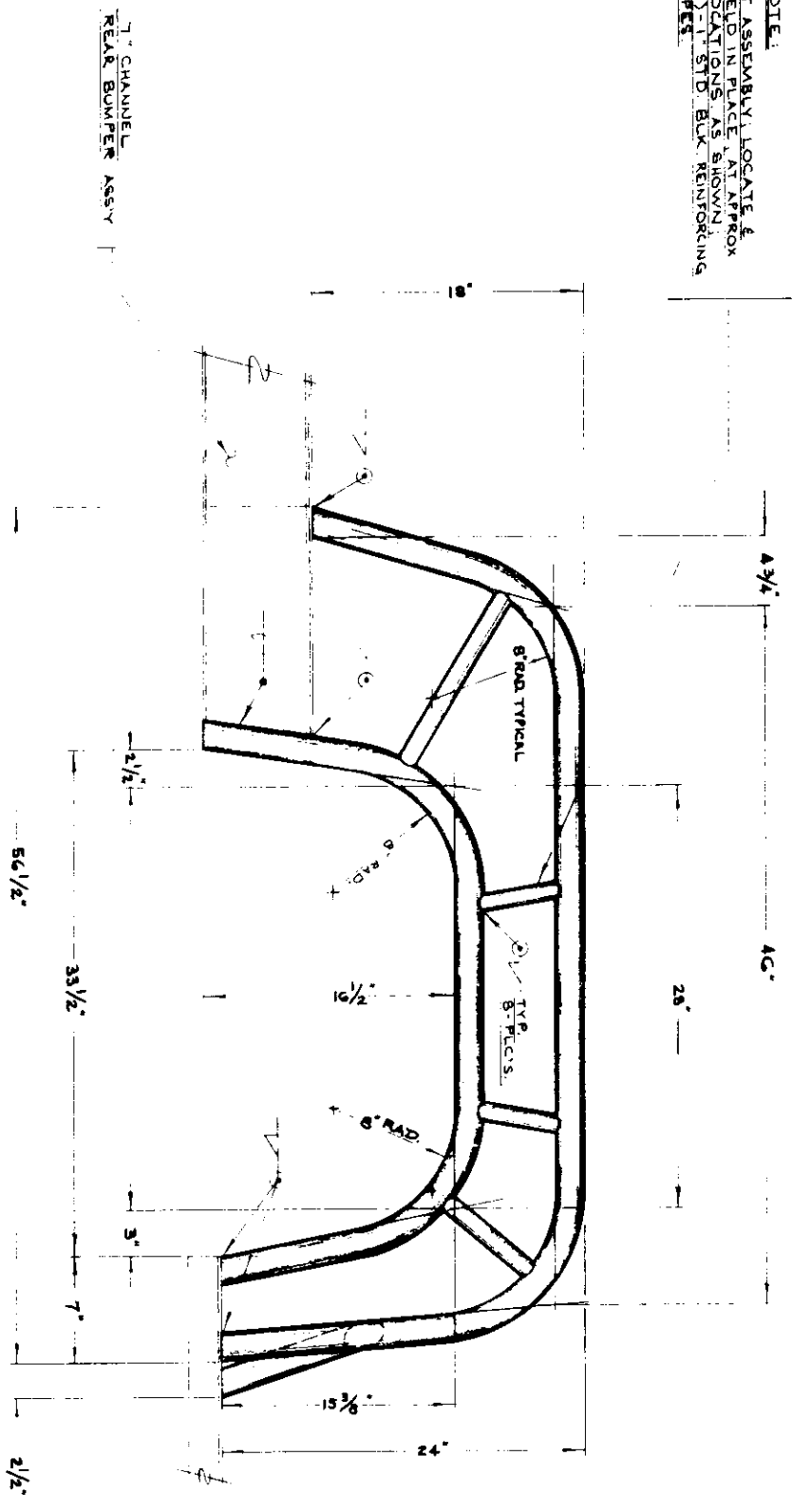
DETAIL #2
FOR EQUIPMENT
SEE SHEET
O-402



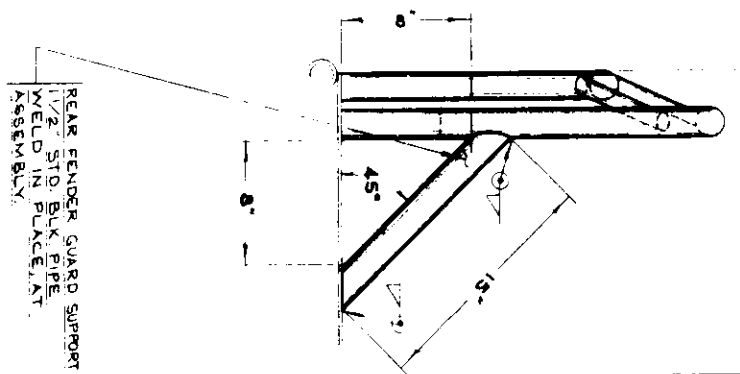
NOTE:
EDGES OF BOTH 1 1/2"
PIPE SUPPORTS
ARE TO BE SQUARE
PARALLEL
TO ROCK BOX

DETAIL #10
RUNNING BOARD
FOR DETAILS, SEE SHEET # O-403

NOTE:
AT ASSEMBLY, LOCATE &
WELD IN PLACE AT APPROX
POSITIONS AS SHOWN
(A) - 1/2" STD. BLK. REINFORCING
PIPES



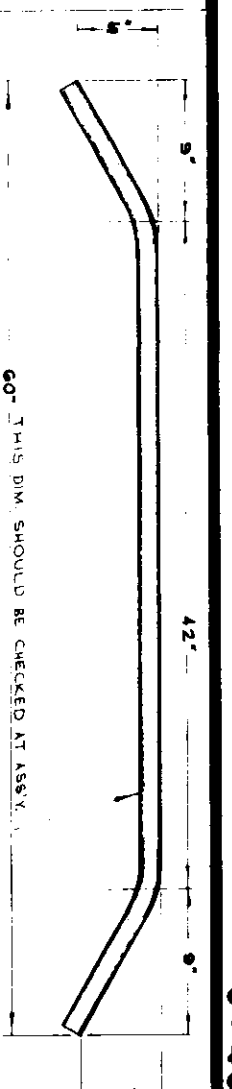
5"
DIMENSION OF 5"
PIPE MAY VARY AT
ASSEMBLY



REAR FENDER GUARD SUPPORT
1 1/2" STD. BLK. PIPE
WELD IN PLACE AT
ASSEMBLY

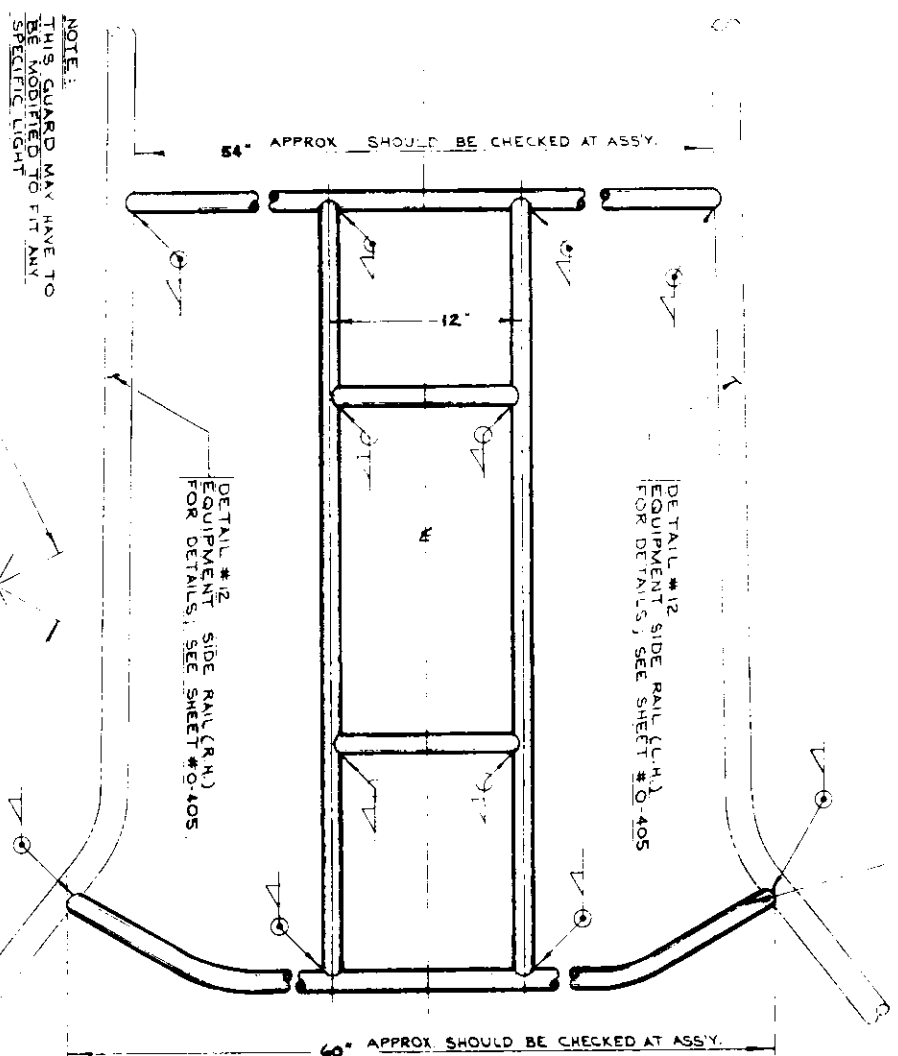
13

DETAIL #13
REAR FENDER GUARD
(2) - REQ'D (1) - LEFT HAND
(1) - RIGHT HAND
MATERIAL: 1 1/2" STD. BLK. PIPE
SCALE: 1" = 6"
RIGHT-HAND GUARD SHOWN
FOR COMPLETE ASSY. SEE SHEET # O-401



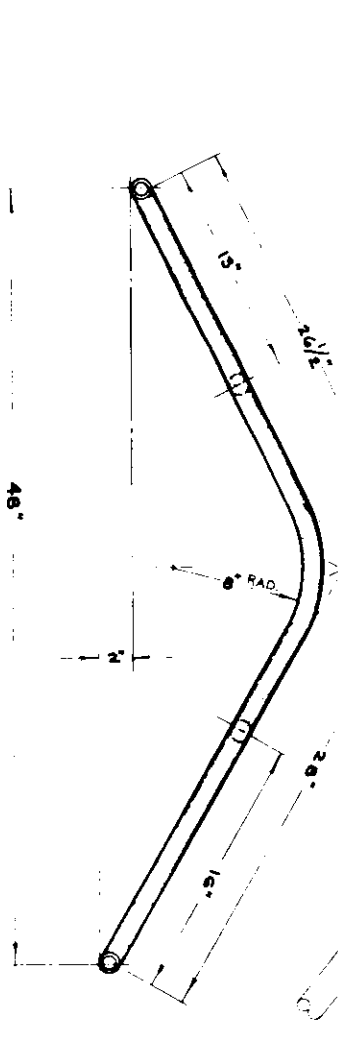
NOTE:
FOR EXACT MOUNTING LOCATION
OF LIGHT GUARD TO EQUIPMENT
SIDE RAILS, SEE SHEET # O-405
FOR DETAILS.

60" THIS DIM. SHOULD BE CHECKED AT ASSY.



DETAIL #12
SIDE RAIL (R.H.)
FOR DETAILS, SEE SHEET # O-405

NOTE:
THIS GUARD MAY HAVE TO
BE MODIFIED TO FIT ANY
SPECIFIC LIGHT



11

DETAIL #11
EMERGENCY LIGHT BEACON GUARD
(1) - REQ'D
MATERIAL: 1" STD. BLK. PIPE
SCALE: 1" = 6"

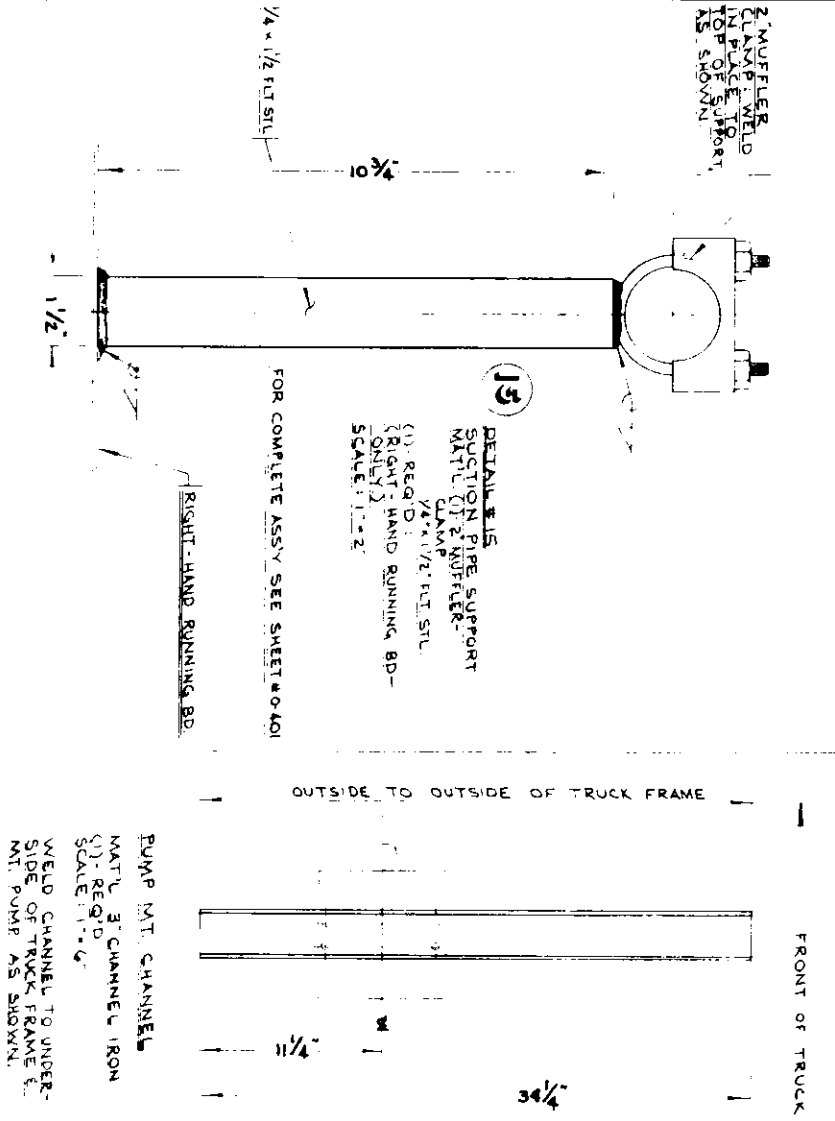
ROSCOMMON EQUIPMENT CENTER
NORTHEAST FOREST FIRE SUPERVISORS
NEW JERSEY W-300 4 X 4: BRUSH PROTECTION

SCALE: 1" = 6"
DESIGNED BY: NEW JERSEY
DRAWN BY: G. G. & S. S.
TRACED BY:

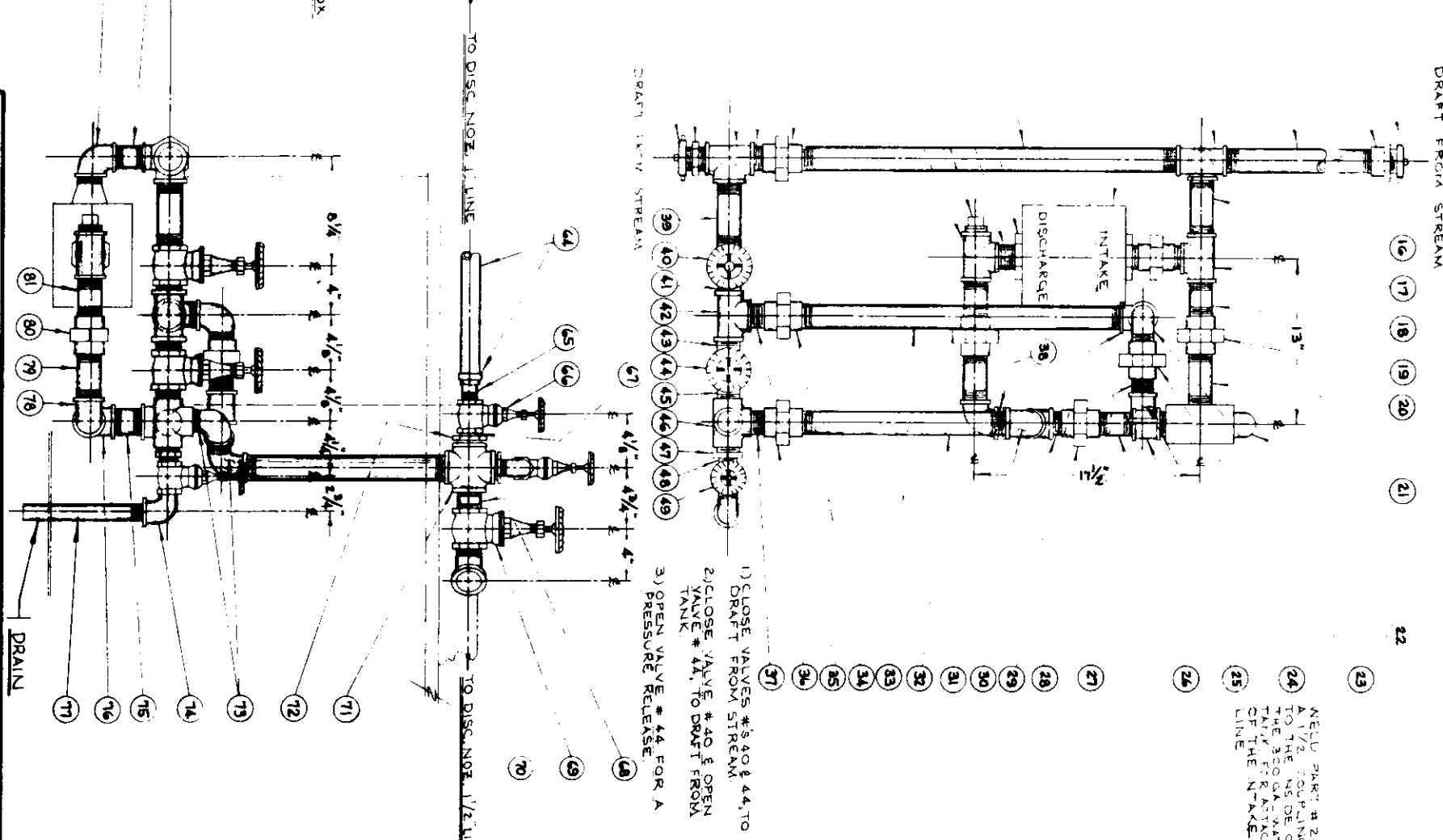
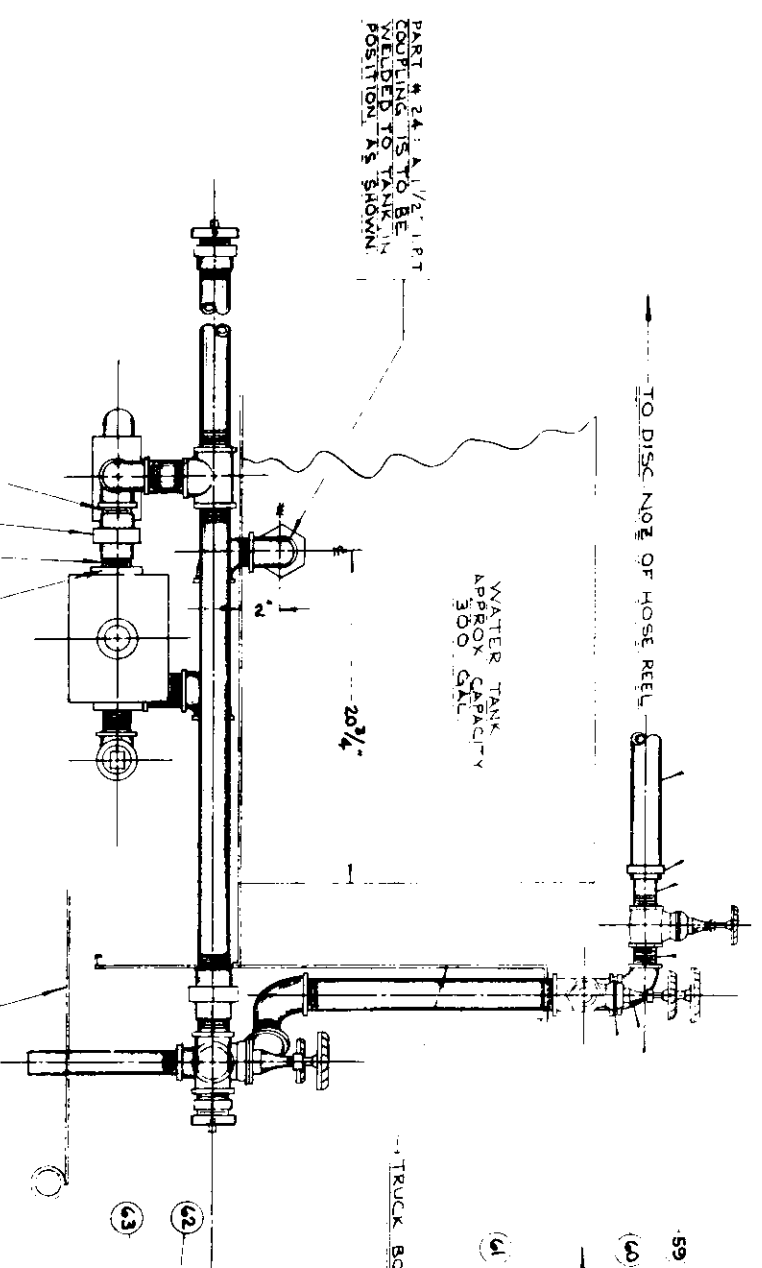
DATE	CHECKED BY:	DATE
6-2-72	APPROVED BY:	6-2-72
REVISED:		

PROJECT NO. 8

2. MUFFLER CLAMP WELD IN PLACE TO TOP OF SUPPORT AS SHOWN



4 PLUMBING ASSEMBLY & DETAILS SCALE: 1:1.6



ROSCOMMON EQUIPMENT CENTER
NORTHEAST FOREST FIRE SUPERVISORS

NEW JERSEY W-300 4x4: PLUMBING ASSEMBLY

SCALE: 1" = 6'-2"
DESIGNED BY: NEW JERSEY
DRAWN BY: G. M. ...
TRACED BY: ...

DATE: 2/24/72
CHECKED BY: ...
APPROVED BY: ...
REVISION: ...

PROJECT NO. 8

NO.	PART NAME OR DESCRIPTION
81	1/2" I.P.T. X 4" LONG GALV NIPPLE
82	1/2" I.P.T. UNION
83	1/2" I.P.T. X 5 1/2" LONG GALV NIPPLE
84	1/2" I.P.T. X 90° EL.
85	1" GALV PIPE, 10' LONG. (DRAIN PIPE)
86	1/2" I.P.T. TEE
87	1/2" I.P.T. X 2" LONG GALV NIPPLE
88	1" I.P.T. X 90° STREET EL.
89	1/2" I.P.T. X 90° STREET EL. (2) REQ'D
90	1/2" I.P.T. TO A 1" I.P.T. REDUCING BUSHING
91	1/2" I.P.T. CROSS
92	1/2" I.P.T. X 4.5" ST. EL.
93	1/2" GATE VALVE
94	1/2" I.P.T. X 2 1/2" LONG GALV NIPPLE
95	1" I.P.T. X 1 1/2" LONG GALV NIPPLE
96	1" I.P.T. X 1 1/2" LONG GALV NIPPLE
97	1" I.P.T. X 1 1/2" LONG GALV NIPPLE
98	1" I.P.T. X 1 1/2" LONG GALV NIPPLE
99	1" I.P.T. X 1 1/2" LONG GALV NIPPLE
100	1" I.P.T. X 1 1/2" LONG GALV NIPPLE