

City of Milwaukee
Department of Public Works

Milwaukee Water Works

Material Specifications for
Cast Iron Service Boxes
(Buffalo Pattern)



City of Milwaukee Specification No. 30-C-1
Revised June 16, 2010

841 N. Broadway
Zeidler Municipal Building
Room 409
Milwaukee, Wisconsin 53202
www.milwaukee.gov/water

I. **GENERAL REQUIREMENTS:** Vendors bidding through the Department of Administration – Business Operation Division, Procurement Services Section, shall comply with the latest version of City of Milwaukee Specification No. 70b-D-7, except as modified herein. **MATERIAL FURNISHED UNDER THIS SPECIFICATION SHALL BE MANUFACTURED IN THE UNITED STATES.**

II. **TECHNICAL REQUIREMENTS**

A. **Description:** A service box is installed to provide access to the operator of a direct buried curb stop. Service boxes specified herein shall be screw type.

A Service Box – Complete, shall consist of a base section, top section with cover and if necessary, one intermediate extension section to achieve a nominal length of seven feet.

The top section shall be designed to thread onto the base or extension section so that the length of the unit can be continuously variable within the range specified. Additional extension sections designed to fit on the base shall be used to achieve a service box length in excess of seven feet. The top section shall be designed to receive a circular cover, which can be bolted in place.

B. **Material:** The service box and component parts shall be cast iron in accordance with ASTM-A48 Class 20, 30, 35 or approved equal.

C. **Service Box Design:** The service box and component parts shall be of the "Buffalo Pattern" design as shown in drawings SB-1 thru SB-5 and SB-11 thru SB-15. The service box shall be a 2-1/2 inch or 3 inch diameter unit, screw type, cast iron, in accordance with the following requirements:

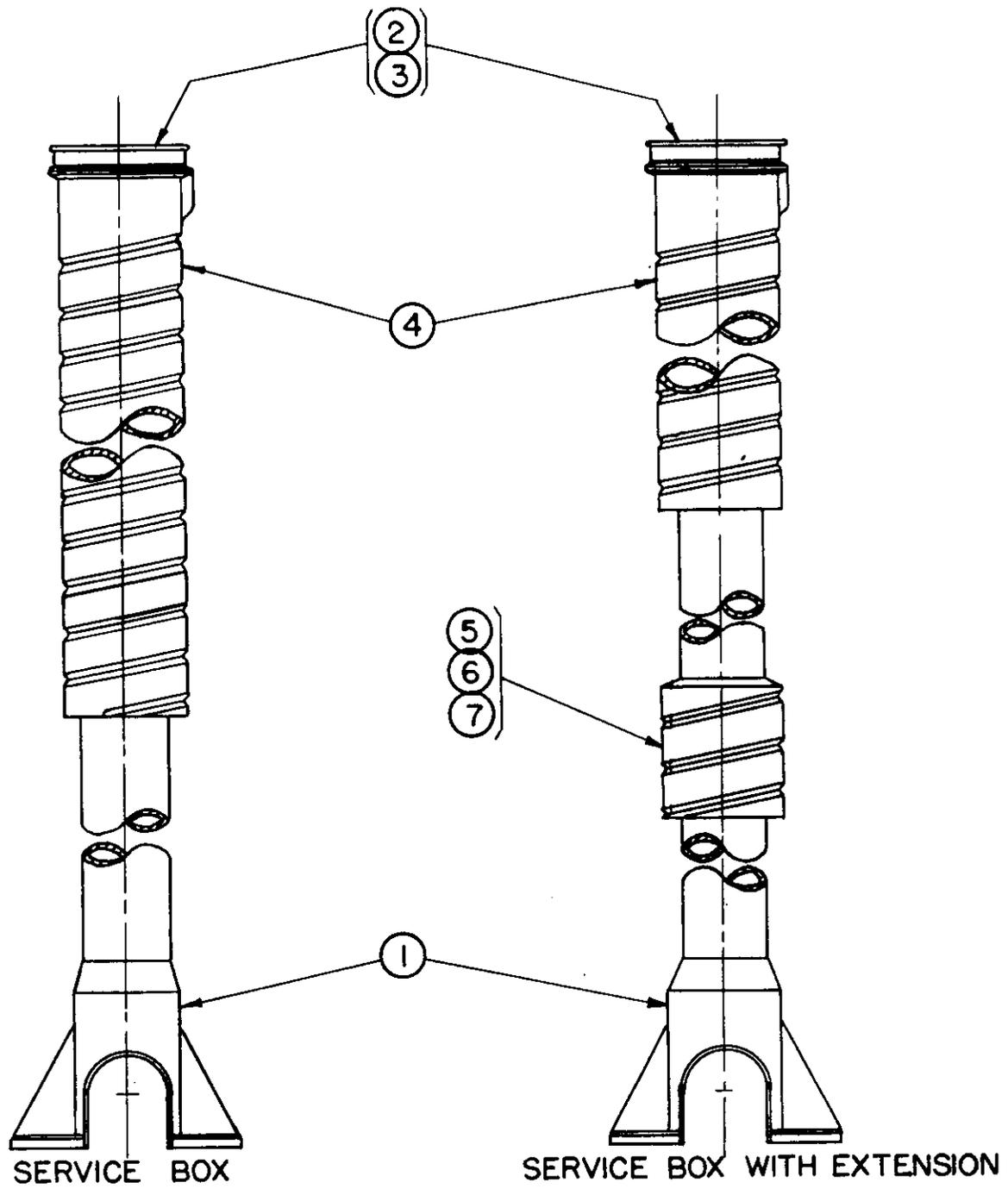
1. The 2-1/2 inch diameter base section shall be constructed in accord with drawing SB-2. An enlarged base adapter, for ball curb stops up to 2", shall be constructed in accord with drawing SB-10. The 3 inch diameter base section shall be constructed in accord with drawing SB-12.
2. The standard service box retracted length shall be 63" maximum and the extended length shall be 82" minimum. The 30" long nominal top section shall be between 28" and 32" in length. The base section may be composed of two castings to provide the overall length required. The intermediate extension section, if furnished, shall be of sufficient length to allow the top section to be turned down the required distance without interruption.
3. The nominal length of service box extensions shall be the length specified on the bid form.
4. The cover shall be the standard drop type with locking plate and bolt. The word "WATER" shall be cast in the top of the service box cover. The cover bolt shall be brass with a pentagon head of the manufacturers thread design and length.

- D. **Tolerances:** The service box and component parts shall be constructed within dimensional tolerances that will assure interchangeability with service boxes manufactured in accord with the drawings. The minus tolerance for metal thickness shall not be more than 0.10 inch. An additional tolerance of 0.02 inch shall be permitted over areas not exceeding 8 inches in any direction.
- E. **Enlarged Base Adapter:** The service box adapter as shown in drawing SB-10 is to adapt 2-1/2" service boxes for use over 2" ball curb stops. The adapter shall be furnished with the 3" maximum O.D. of the stem portion and the 3-3/4" minimum base clear opening as shown.
- F. **Workmanship and Finish:** The cast iron service box and components shall be free from blowholes, cold shots, shrinkage defects, cracks, other injurious defects and shall have a normal smooth casting finish.
- G. **Coating:** All cast iron service box component parts and cover shall be thoroughly coated with asphaltum pitch varnish or approved equal.

III. **ACCEPTABLE BRANDS:** Following brands are acceptable to the City of Milwaukee:

Bingham & Taylor – All component parts except E-14 enlarged base

Tyler – All component parts 6500 Series



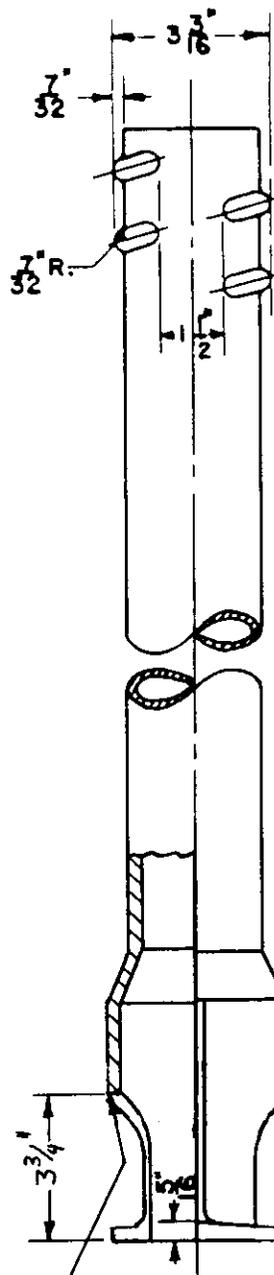
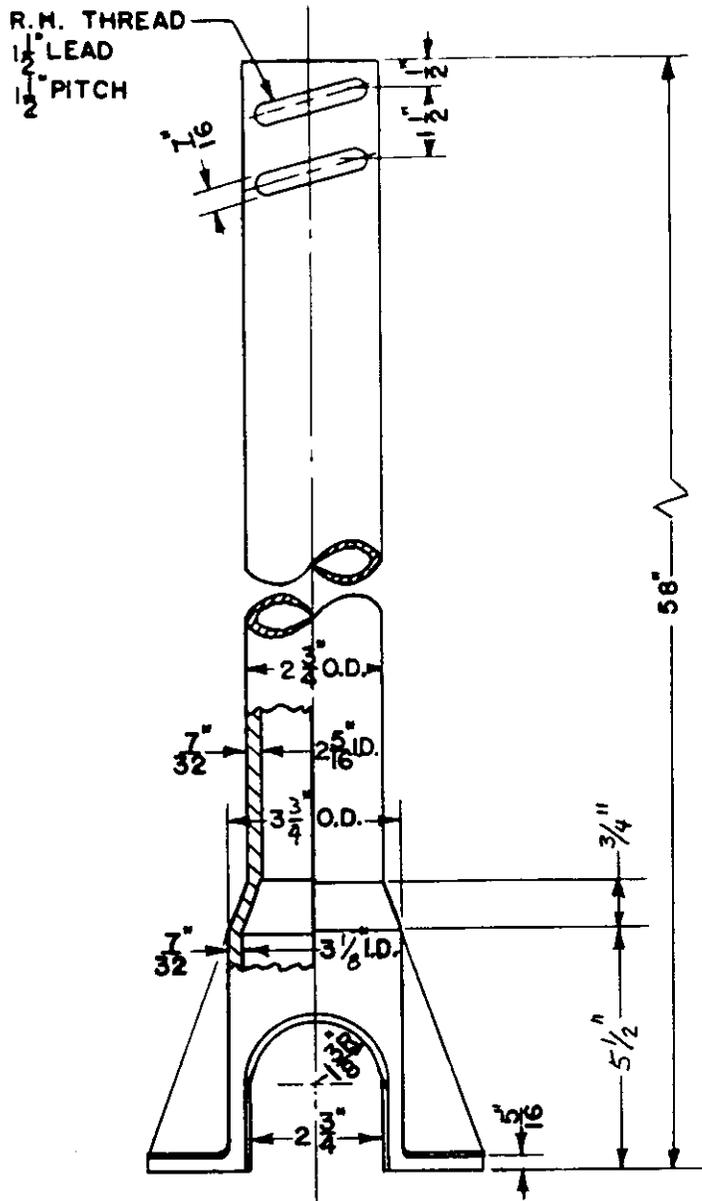
- ① BASE
- ② COVER
- ③ BOLT
- ④ TOP SECTION
- ⑤ ⑥ ⑦ EXTENSIONS

ENVIRONMENTAL ENGINEERING SECTION
 DIVISION OF ENGINEERS
 MILWAUKEE WATER WORKS
 DEPARTMENT OF PUBLIC WORKS

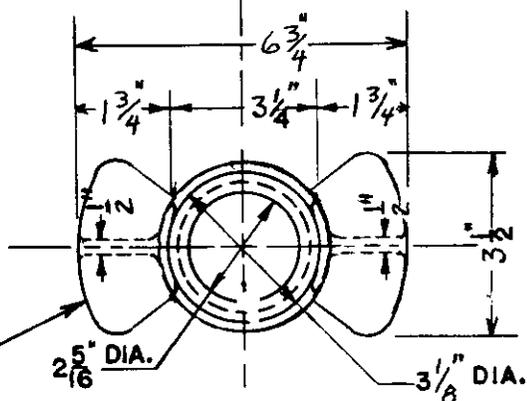
SERVICE BOX ASSEMBLY (2 1/2")

Richard A. DeLor / *Mariano Schifano*
 ENGINEER-IN-CHARGE CITY ENGINEER

DRAWN	RWB	DATE	1-23-95
CHECKED	DPS	SCALE	3/16"=1"
FILE	A-4-7B	DWG.	SB-1



REMOVE ALL SHARP EDGES ON BASE



① **BASE**
WEIGHT - 21 LBS.

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SERVICE BOX BASE (2 1/2")

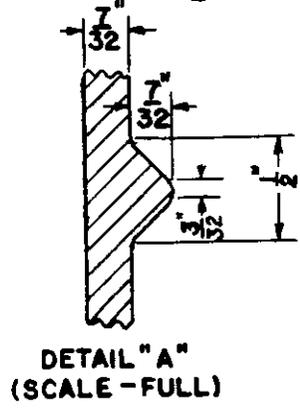
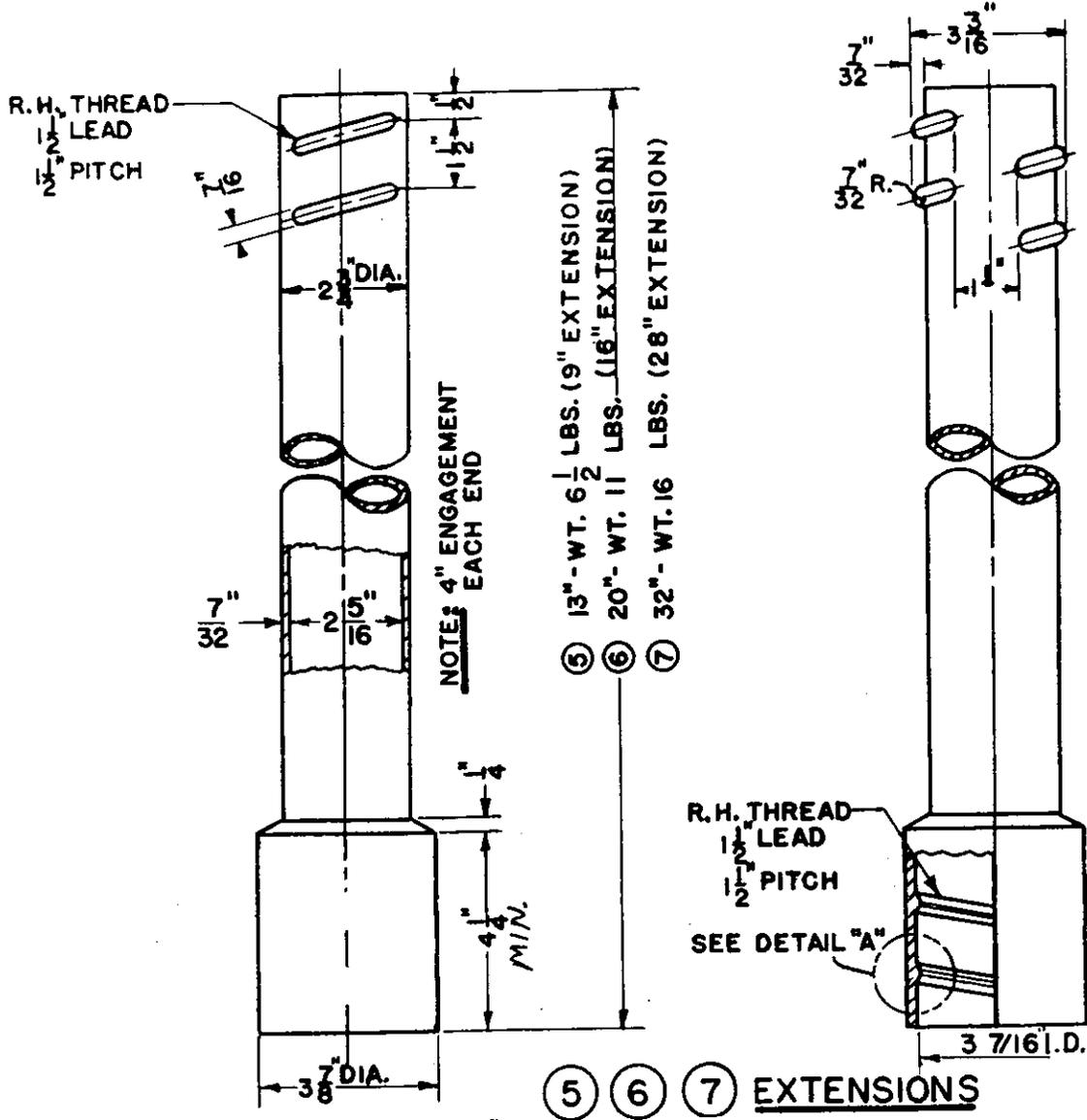
BASE SUPPORT MAY BE OF MANUFACTURER'S DESIGN

MATERIAL: CAST IRON A.S.T.M. A 48 CL.20
TO BE COATED WITH ASPHALTUM PITCH VARNISH

Richard J. Beckler 1/24/95 *Mariano Schifalacqua*
ENGINEER-IN-CHARGE CITY ENGINEER

DRAWN RWB DATE 1-23-95
CHECKED DPS SCALE 1/4"=1"
FILE A-4-7B DWG. SB-2

MATERIAL: CAST IRON A.S.T.M. A 48 CL.20
 TO BE COATED WITH ASPHALTUM PITCH VARNISH

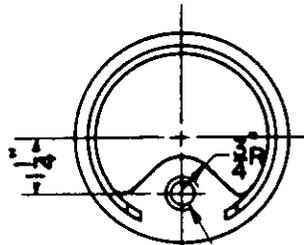


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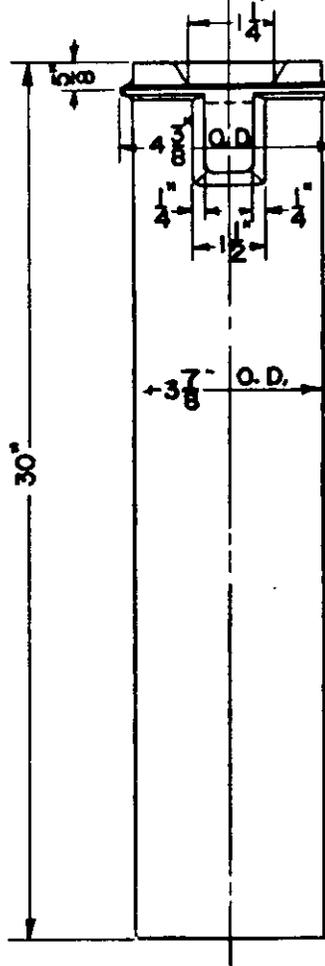
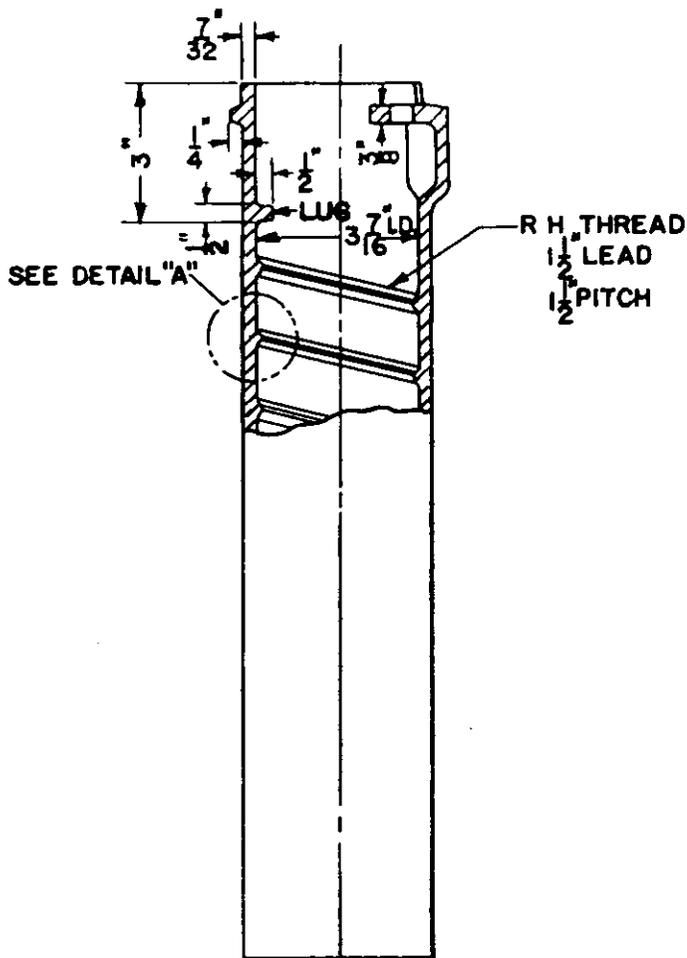
SERVICE BOX EXTENSION (2 1/2")

Richard H. Beckler 1/24/95 *Mariano Schifalacqua*
 ENGINEER-IN-CHARGE CITY ENGINEER

DRAWN RWB DATE 1-23-95
 CHECKED DPS SCALE 1/4"=1"
 FILE A-4-7B DWG. SB-3



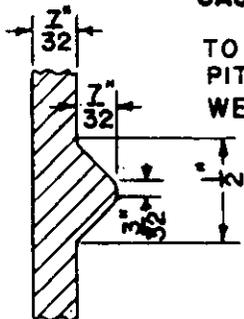
TAP $\frac{1}{2}$ "-13 UNC OR FOR
MANUFACTURER'S BRASS
BOLT



④ TOP SECTION

CAST IRON-A.S.T.M. A 48 CL. 20

TO BE COATED WITH ASPHALTUM
PITCH VARNISH.
WEIGHT 21 LBS.



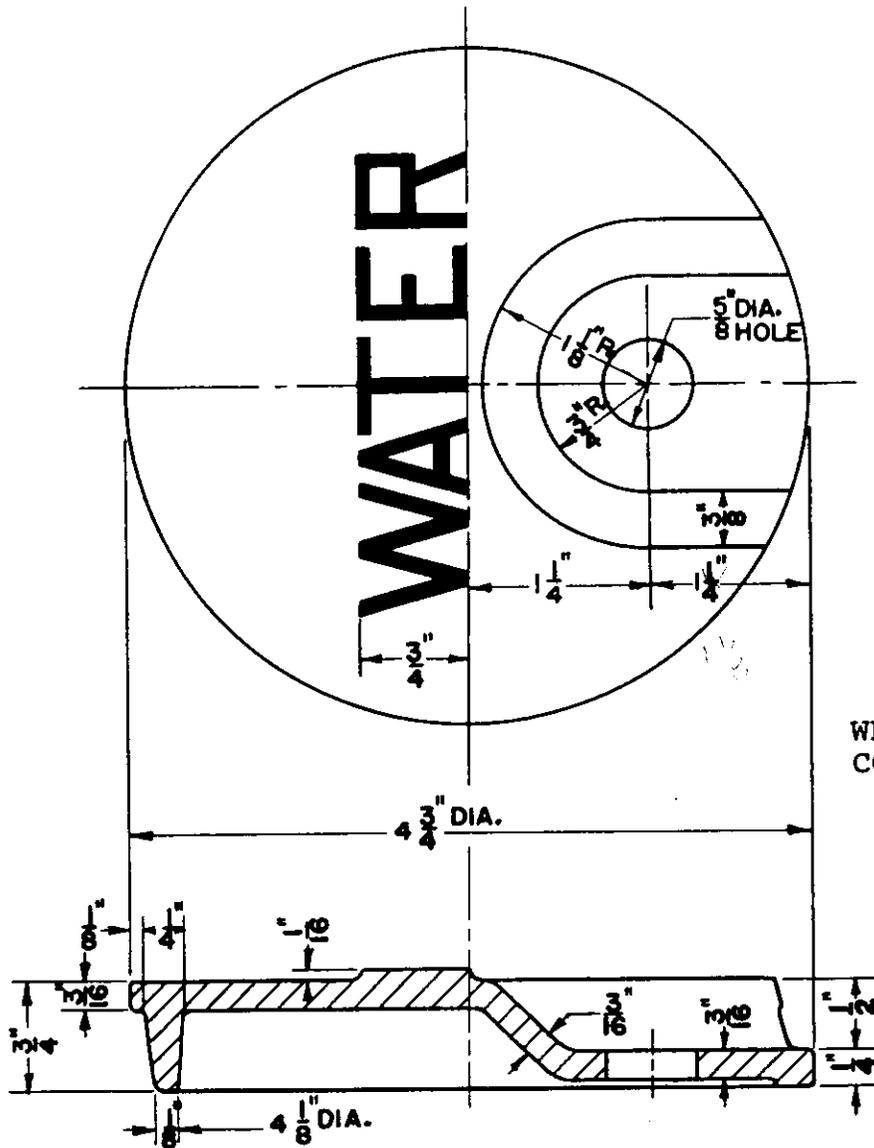
DETAIL "A"
(SCALE - FULL)

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SERVICE BOX TOP SECTION ($2\frac{1}{2}$ ")

Richard L. Seelow 1/24/95 *Mariano Schifalacqua*
ENGINEER-IN-CHARGE CITY ENGINEER

DRAWN RWB DATE 1-23-95
CHECKED DPS SCALE 1/4"=1"
FILE A-4-7B DWG. SB-4



WEIGHT -
COVER & BOLT 1 1/2 LBS.

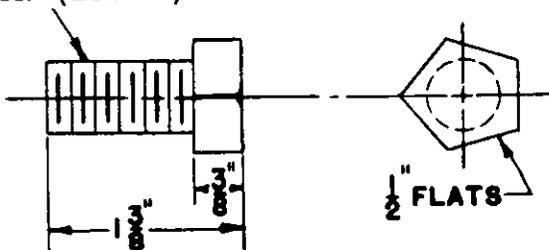
② COVER

MATERIAL: CAST IRON A.S.T.M. A 48 CL.20,
TO BE COATED WITH ASPHALTUM PITCH VARNISH

1/2"-13 UNC OR
MANUFACTURER'S
DESIGN (BRASS)

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SERVICE BOX (2 1/2")
COVER AND BOLT



③ PENTAGON HEAD BOLT

Richard H. Bealor 1/24/95 *Maiano Schifalacqua*
ENGINEER-IN-CHARGE CITY ENGINEER

DRAWN RWB

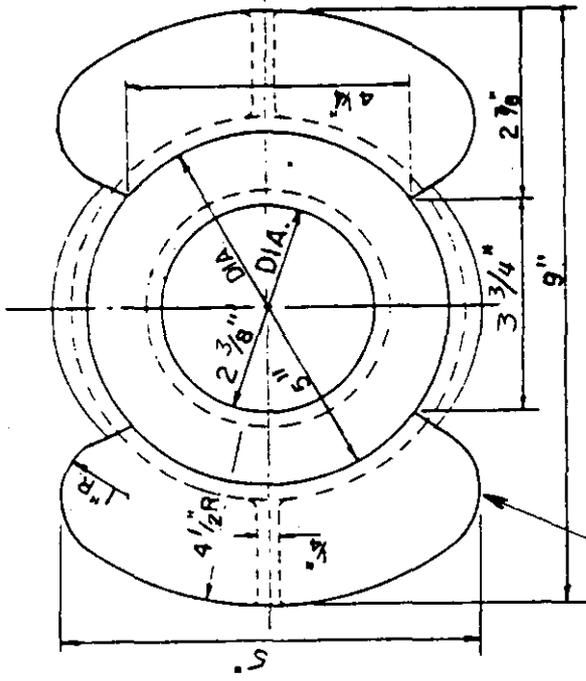
DATE 1-23-95

CHECKED DPS

SCALE 3/4"=1"

FILE A-4-7B

DWG. SB-5

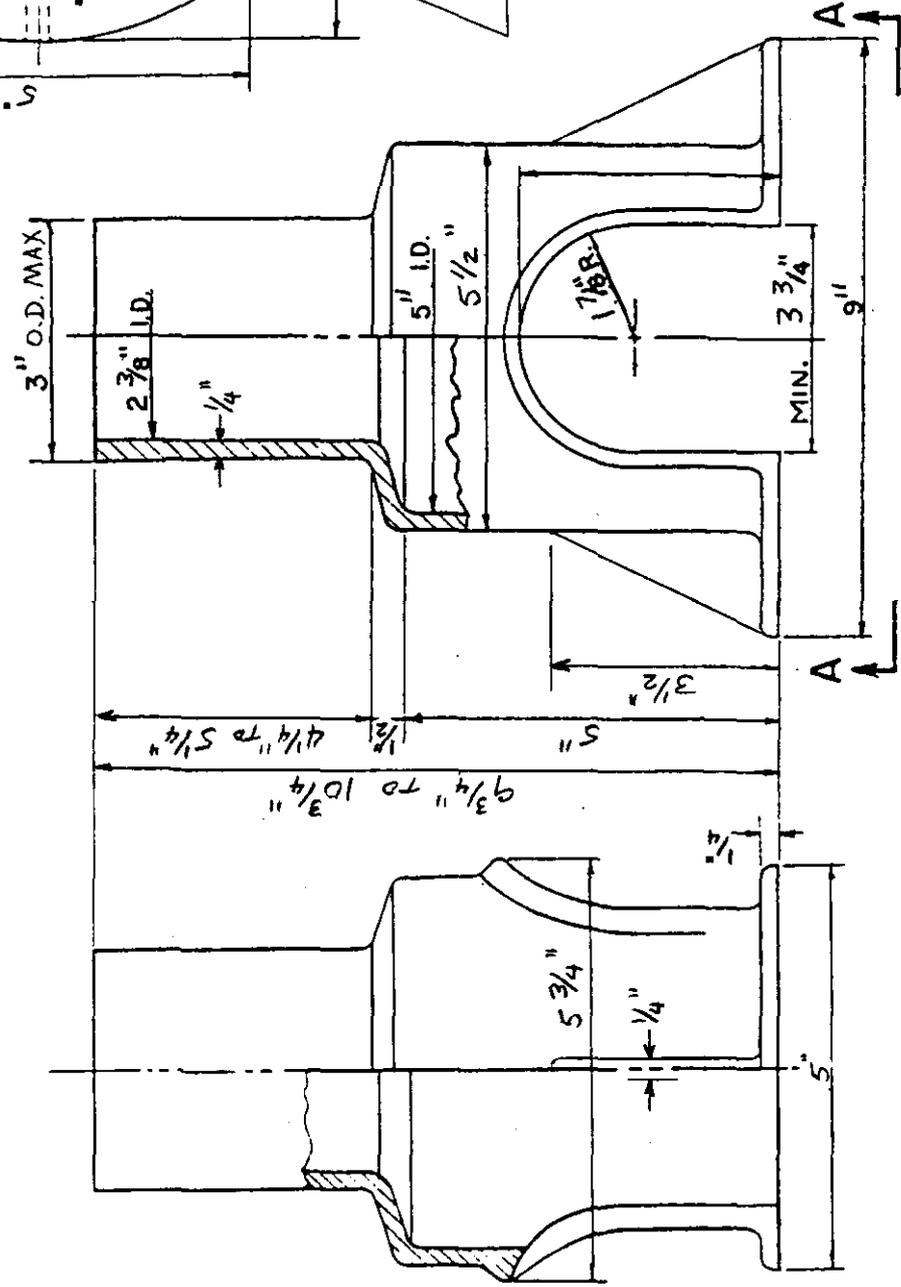


VIEW A-A

BASE SUPPORT WINGS MAY BE OF MANUFACTURER'S DESIGN

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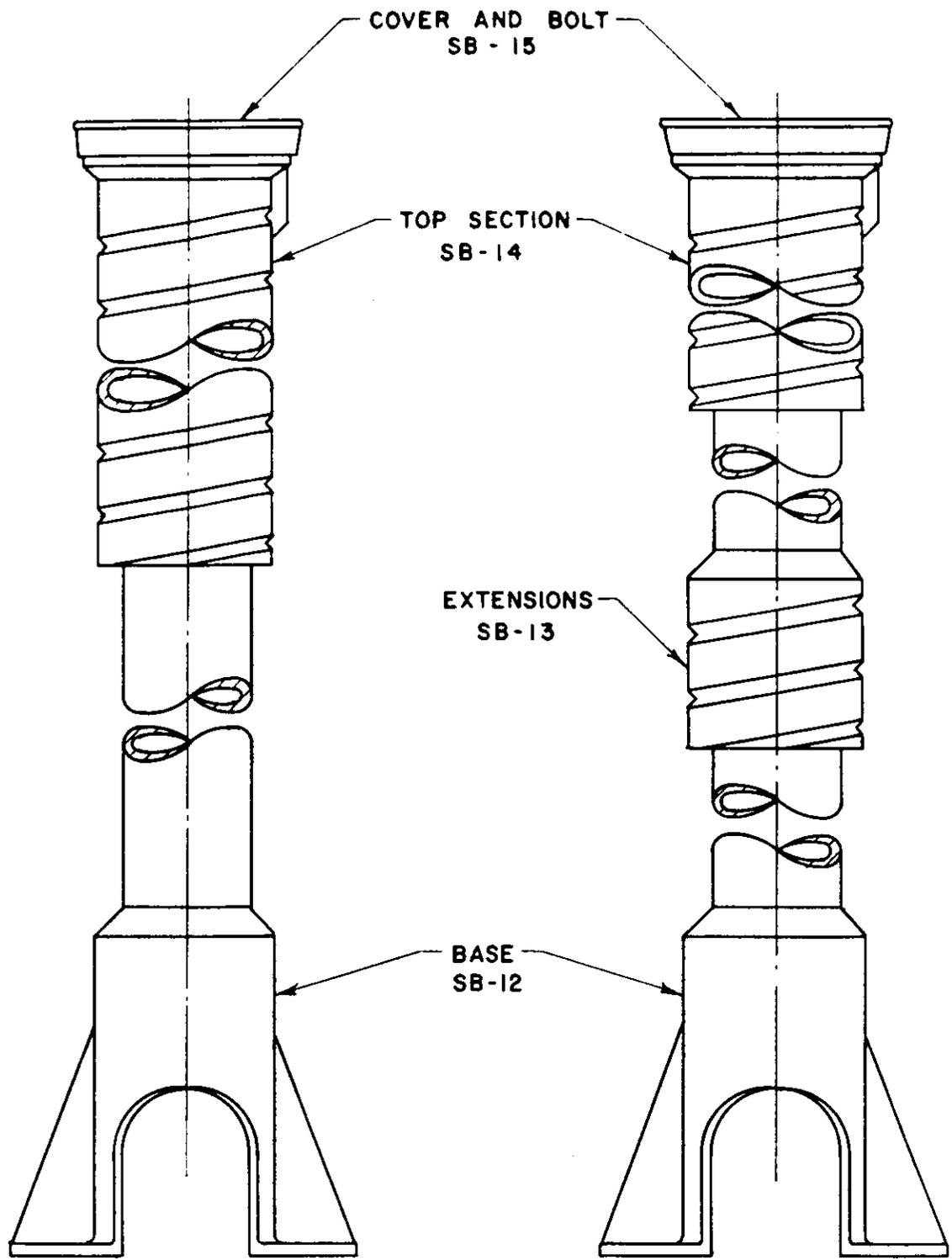
**ENLARGED BASE ADAPTER
FOR USE WITH 2 1/2" SERVICE BOX
OVER 2" CURB STOPS**



MATERIAL: CAST IRON A.S.T.M. A 48 CL.20,
TO BE COATED WITH ASPHALTUM PITCH VARNISH

Richard E. ...
ENGINEER-IN-CHARGE
CITY ENGINEER

DATE	1-23-95
SCALE	None
CHECKED	DPS
FILE	A-4-7B
DWG.	SB-10



STANDARD SERVICE BOX

SERVICE BOX WITH EXTENSION

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SERVICE BOX ASSEMBLY (3")

Richard L. Kelow 1/24/95 - *Mariano Schifalacqua*
 ENGINEER-IN-CHARGE CITY ENGINEER

DRAWN RWB

DATE 1-23-95

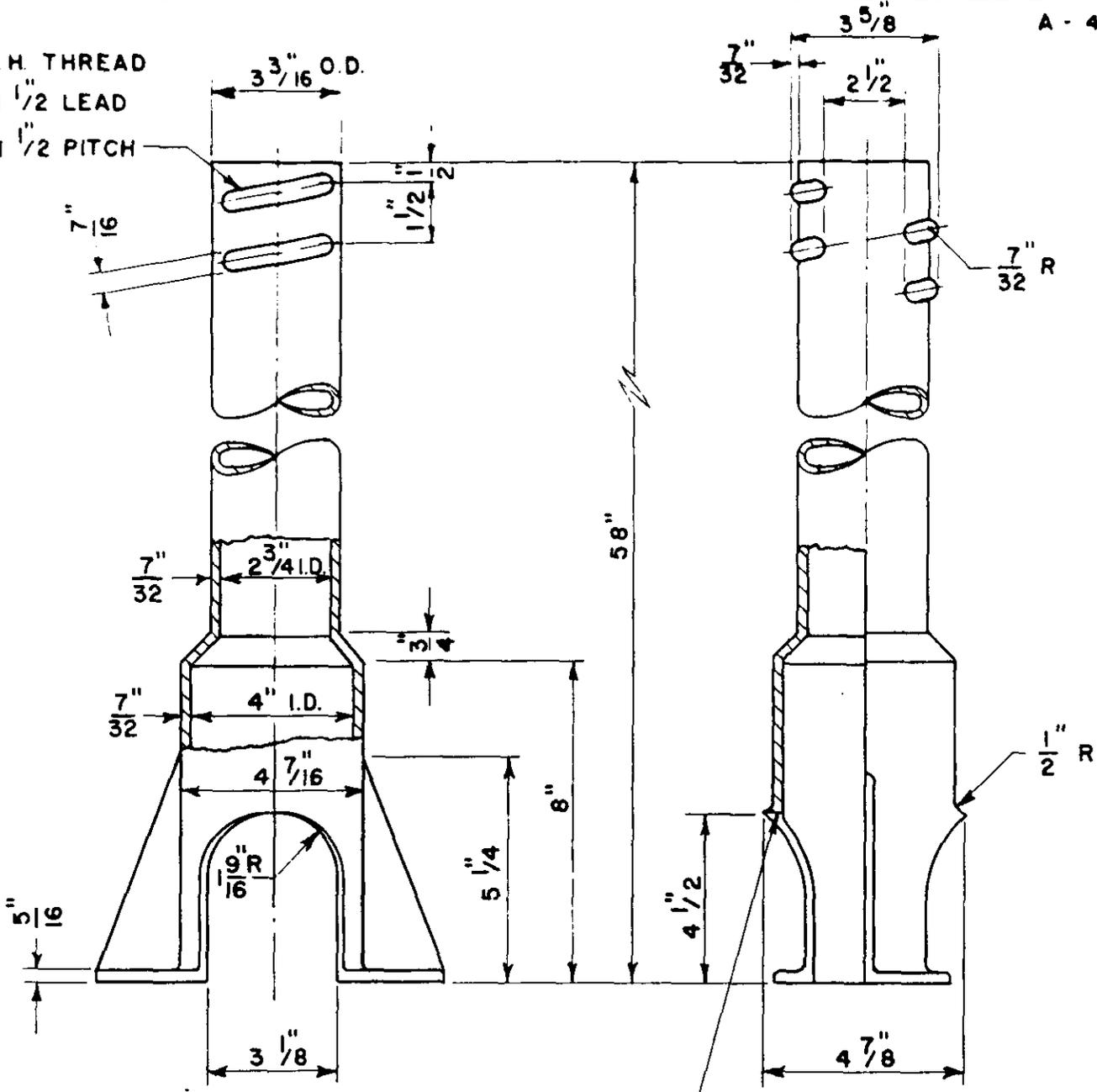
CHECKED DPS

SCALE 1/4"=1"

FILE A-4-7B

DWG. SB-11

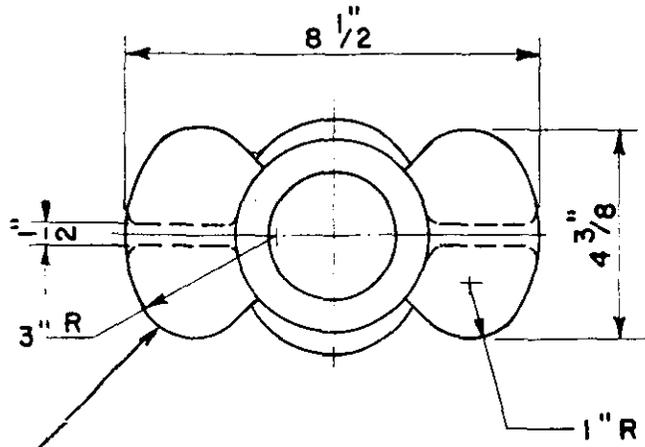
R. H. THREAD
1 1/2" LEAD
1 1/2" PITCH



BASE
WEIGHT 40 LBS.

REMOVE ALL SHARP
EDGES ON BASE

MATERIAL :-
CAST IRON - A.S.T.M. A48 CL. 20
TO BE COATED WITH ASPHALTUM
PITCH VARNISH.



BASE SUPPORT MAY BE OF
MANUFACTURER'S DESIGN

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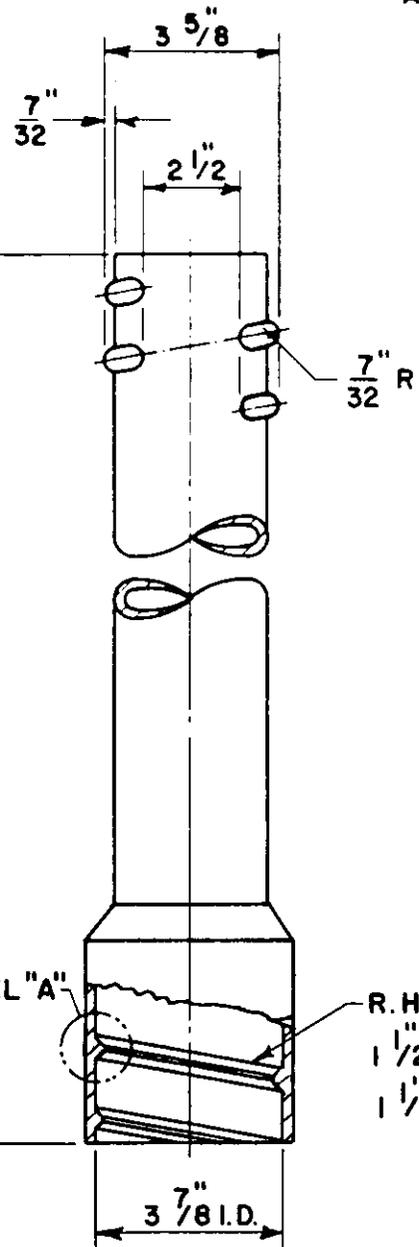
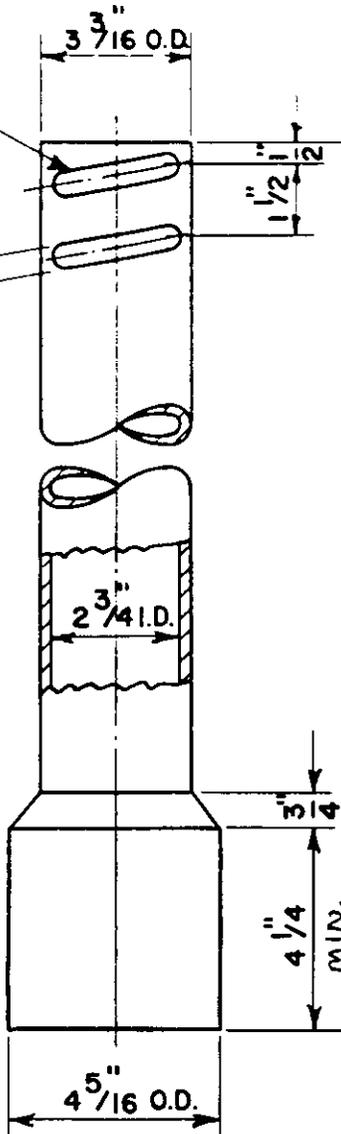
SERVICE BOX BASE (3")

Richard K. Schow 1/24/95, *Mariano S. Delacruz*
ENGINEER-IN-CHARGE CITY ENGINEER

DRAWN	RWB	DATE	1-23-95
CHECKED	DPS	SCALE	1/4"=1"
FILE	A-4-7B	DWG.	SB-12

R.H. THREAD
 1 1/2" LEAD
 1 1/2" PITCH

7/16"



EXTENSION

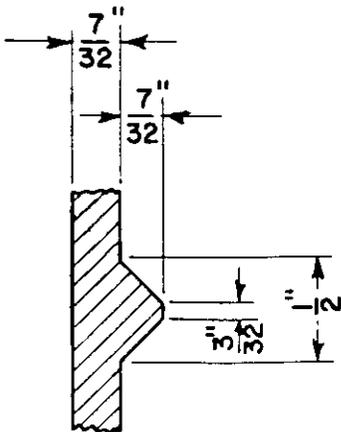
SEE DETAIL "A"

NOTE :-
 4" ENGAGEMENT EACH END

MATERIAL :-
 CAST IRON - A.S.T.M. A 48 CL. 20
 TO BE COATED WITH ASPHALTUM
 PITCH VARNISH.

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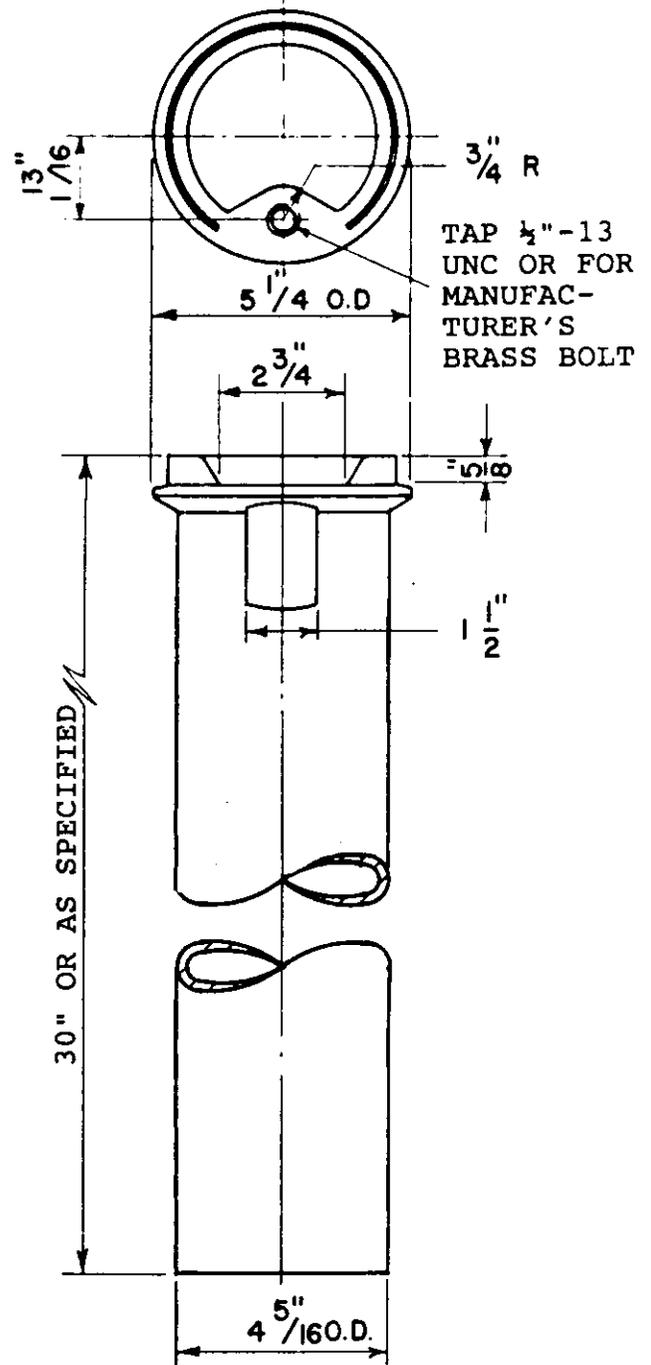
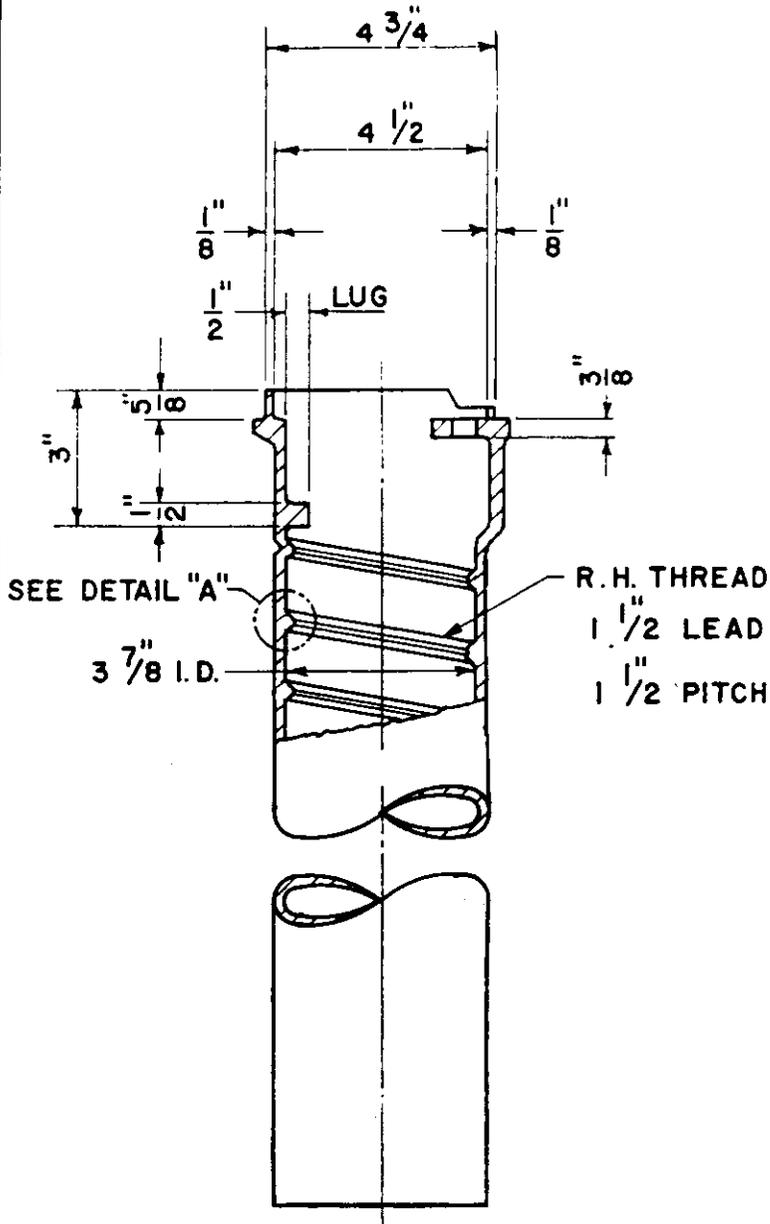
SERVICE BOX EXTENSION (3")



DETAIL "A"
 SCALE FULL

Richard Schulz 1/24/91 *Mariano Schiffalacqua*
 ENGINEER-IN-CHARGE CITY ENGINEER

DRAWN	RWB	DATE	1-23-95
CHECKED	DPS	SCALE	1/4"=1"
FILE	A-4-7B	DWG.	SB-13



TOP SECTION

WEIGHT 27 LBS.

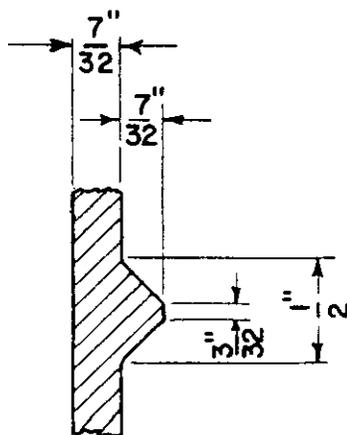
MATERIAL: CAST IRON A.S.T.M. A 48 CL.20
 TO BE COATED WITH ASPHALTUM PITCH VARNISH

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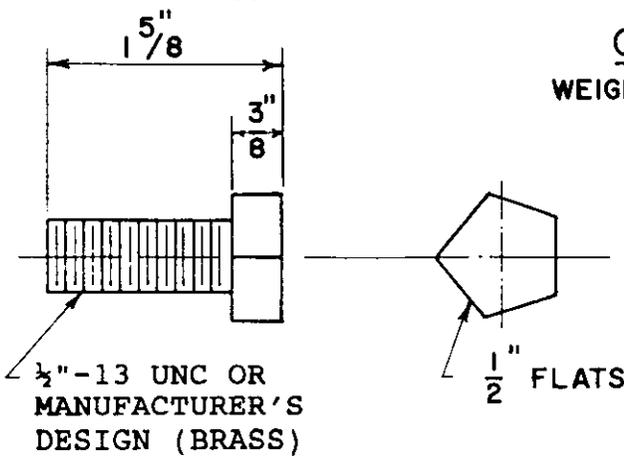
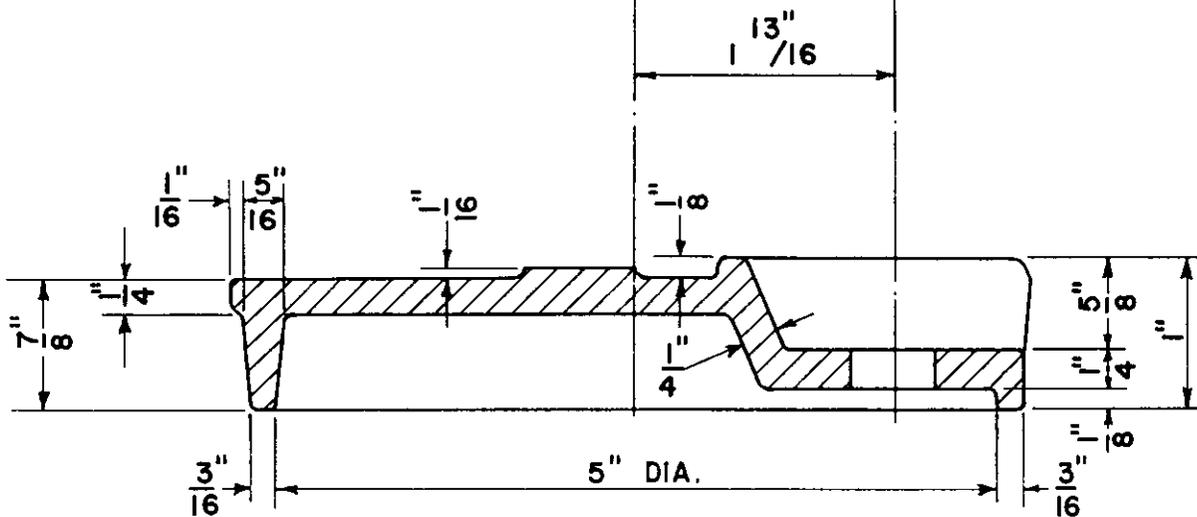
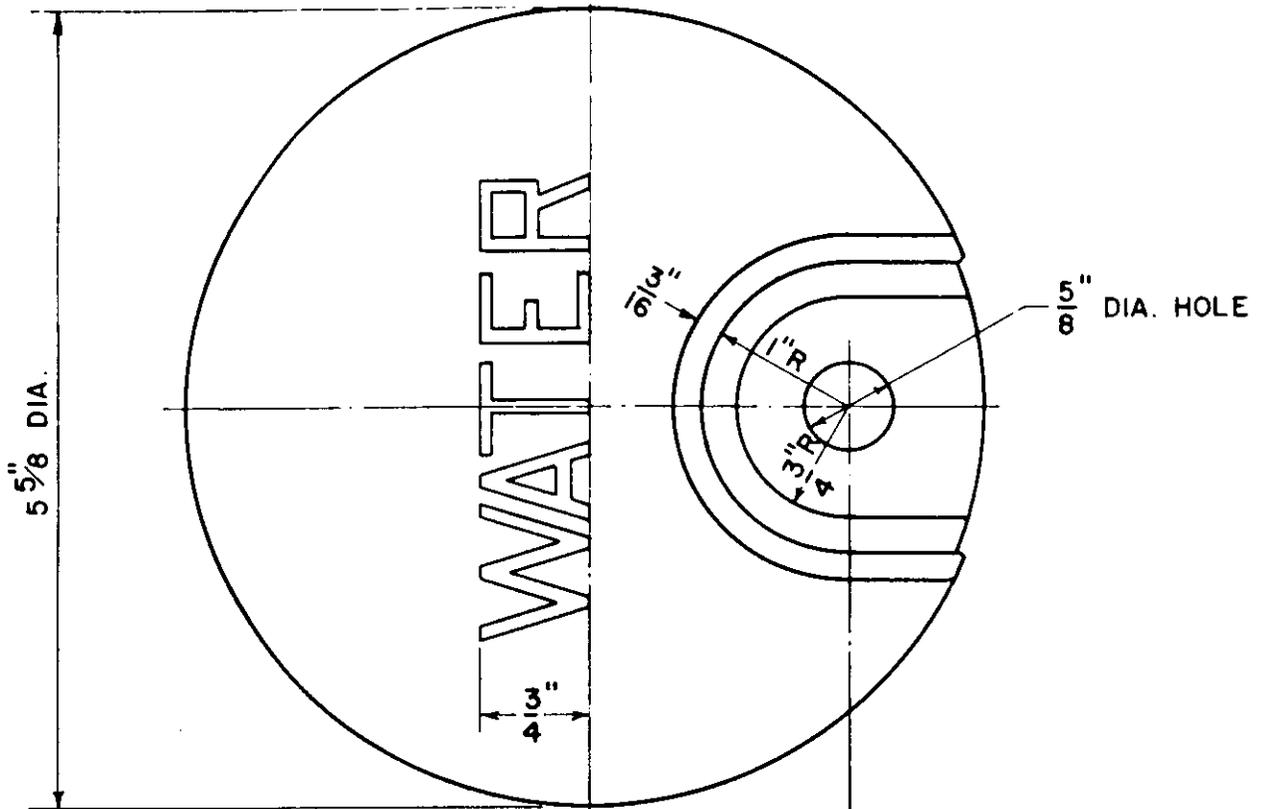
SERVICE BOX TOP SECTION (3")

Richard S. Sulow 1/24/91 *Mariano S. Palacquin*
 ENGINEER-IN-CHARGE CITY ENGINEER

DRAWN RWB DATE 1-23-95
 CHECKED DPS SCALE 1/4"=1"
 FILE A-4-7B DWG. SB-14



DETAIL "A"
 SCALE FULL



COVER
WEIGHT 2 LBS.

MATERIAL: CAST IRON
A.S.T.M. A 48 CL.20,
TO BE COATED WITH
ASPHALTUM PITCH VARNISH

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**SERVICE BOX (3")
COVER AND BOLT**

Richard Wilson 1/24/95 *Mariano Schifano*
ENGINEER-IN-CHARGE CITY ENGINEER

DRAWN RWB

DATE 1-23-95

CHECKED DPS

SCALE 3/4"=1"

FILE A-4-7B

DWG. SB-15

PENTAGON HEAD BOLT