

ORDINANCE NO. 5725

AN ORDINANCE amending Ordinance No. 4463 which adopted the "King County Road Standards" as the standards for road design in King County; KCC 19.20.010.

PREAMBLE:

The King County Road Standards were adopted by King County Ordinance No. 4463, dated August 30, 1979 as the standards for road design in King County. The proposed new ordinance amends these standards to provide modest functional improvements in drainage structures and curb ramps (for the handicapped).

BE IT ORDAINED BY THE COUNCIL OF KING COUNTY:

SECTION 1. Ordinance 4463, Section 2 and KCC 19.20.010 are hereby amended to read as follows:

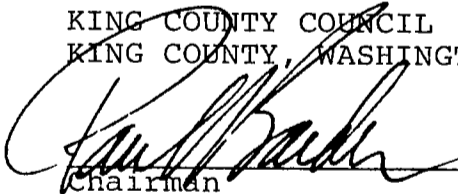
Adoption. "King County Road Standards", Attachment A with revised pages iv, 21, (new) 21A, 26, (new) 26A, 27, 29, 30, 31, 51, 62, 77, 78, 79, 82, 84, 85, 86, (new) 87, and (new) 88, and Attachment B, revised accordingly, are hereby approved and adopted as the King County Standards for road design and construction.

SECTION 2. This ordinance shall take effect sixty (60) days from its enactment.

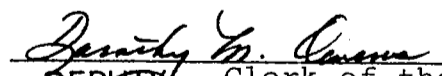
INTRODUCED AND READ for the first time this 5th day of October, 1981.

PASSED this 26th day of October, 1981.

KING COUNTY COUNCIL
KING COUNTY, WASHINGTON


Chairman

ATTEST:


DEPUTY Clerk of the Council

APPROVED this 5th day of November, 1981.


King County Executive

Ord 5725

PROPOSED REVISED PAGES TO KING COUNTY ROAD STANDARDS 1979

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6.00 ROADSIDE FEATURES

6.01 Driveways

A. Permissible dimensions, slope and detail shall be as indicated in Drawing Nos. 10 and 11 and as further specified in the following subsections.

B. Conditions of Approval of New Driveways:

1. Driveways directly giving access unto arterials may be denied if alternate access is available.
2. All abandoned driveway areas on the same frontage shall be removed and the curbing and sidewalk, or shoulders and ditch section, shall be properly restored.
3. Maintenance of driveway approaches shall be the responsibility of the owner whose property they serve.
4. For a commercial establishment on a shoulder and ditch type road, where development of adjoining lands and highway traffic assume urban characteristics as determined by the Engineer, the following rule shall apply: The entire frontage area shall be graded and paved to the property line with asphalt or portland cement concrete. Surface drainage shall be intercepted and carried in a closed system as set forth in Section 7.00. Access control by means of a 6-inch curbing will be required. See Extruded Asphalt or Cement Concrete Curb detail, Drawing No. 9.

5. For driveways crossing an open ditch section, culverts shall be 12 inches in diameter or larger if so required to carry anticipated stormwater flows. The property owner making the installation shall be responsible for determining proper pipe size. The Engineer may require the owner to verify the adequacy of pipe size.

C. Location and Width of New Driveways. Refer to Drawing No. 12.

1. A residential driveway is one that normally serves one parcel. Except as provided in Section 6.01 C3a below, a driveway serving more than one parcel shall be classed as a commercial driveway or a private street.

2. On frontage 75' or less, no more than one driveway shall be constructed; on frontages over 75', two or more driveways may be permitted, subject to approval by the Engineer.
3. No portion of driveway width shall be allowed within 5' of extensions of property lines in residential areas or 9' in commercial areas except as follows:
 - a. Joint-use driveways serving two adjacent parcels may be built upon formal written agreement of both property owners and approval of the Engineer.

7.00 DRAINAGE

7.01 Drainage Plan

Drainage facilities on County roads shall conform to Requirements & Guidelines for Drainage Control In King County, current edition. This is hereafter referred to as "Drainage Guidelines." Note the requirements for a drainage plan, beginning on page 1 of that publication, and "Drainage Policies and/or Recommendations," which follows in the latter part of the same manual. Note also Section 2.05 of the Standards.

(7-02) (Ditches-in-Rural-Ditch-Section)

(On-rural-sections, ditches shall be constructed as shown-in-Drawing-Nos.--17-37-47--and-77-with-drive-way-culverts-as-shown-in-Drawing-No.--10.)

7.02 Drainage Methods in Rural Ditch Section

A. In the general case, unlined ditches may be used for the drainage requirement. These ditches shall be designed and constructed in accordance with Section 4 of the Drainage Guidelines and Drawing Nos. 1, 3, 4 and 7 of the Standards. Driveway culverts shall be in accordance with Drawing No. 10.

B. Where erosion is a potential problem due to flow velocity or unstable soil conditions, a closed drainage system such as an asphalt curbed or turnpike shoulder with pipe is preferred. Alternatively the Engineer may approve a rock-lined ditch except in the case of cul-de-sacs, which shall be provided with a closed drainage system.

1. The rock lining shall be in accordance with Section 4 of the Drainage Guidelines and Section 9.13.1 of the State Standard Specifications. Rock graduation shall be as follows:

<u>Passing 8-inch square sieve</u>	<u>100%</u>
<u>Passing 2-inch square sieve</u>	<u>0-10%</u>

Rock shall be placed so as to form a firm, dense protective mat consistent with examples in Drawing No. 50 and conforming to the design surface of the ditch. Individual rocks shall not protrude more than three inches from that surface. Actual ditch dimensions shall be based on calculated stormwater flows.

2. The asphalt curbed or turnpike shoulder shall be consistent with examples in Drawing No. 50. Actual dimensions of section, spacing of inlets, and size of pipe shall be based on calculated stormwater flow. Surfacing of section shall be as for paved shoulder, Section 5.01 A 2, Alternatives I, II or III.

7.03

Storm Drains in Curb & Gutter Section

- A. Underground storm drainage shall be provided for curb street section whenever the length of surface drainage exceeds 300 feet on road grade extending either direction from crest or sag on vertical curves.
- B. Storm drain pipe other than pipe connecting street inlets to main storm drain shall be minimum 12-inch diameter and of specified rubber-gasketed corrugated metal or rubber-gasketed concrete pipe. Runoff shall be computed and, if the flow requires it, larger pipe shall be used.
- C. Storm drain pipe connecting street inlets to main storm drain by structure, i.e., catch basin or manhole, shall be minimum 8-inch diameter rubber-gasketed corrugated metal or rubber-gasketed concrete pipe, with maximum length of 44 feet.
- D. Connections of storm drain pipe leading from a street inlet location may be made into a main storm drain without structure, subject to case-by-case approval by the Engineer and subject to the following requirements:
 - 1. The inletting structure shall be a catch basin and not a simple inlet lacking a catch or drop section.
 - 2. Outside diameter of inlet pipe shall not exceed one-half the inside diameter of the main storm drain. (~~Inlet pipe however shall be not less than 8 inches nor more than 24 inches inside diameter and the main storm drain not less than 36 inches in inside diameter.~~)
 - (3) (~~Inlet connecting and main storm drain pipes shall be of same material and type either rubber-gasketed corrugated metal or rubber-gasketed concrete pipe.~~)
 - (4) 3. Length of inlet connection shall not exceed 25 feet.

- (5-) 4. Standard shop-fabricated tees, wyes, and saddles shall be used, except that connections with concrete pipe may be field-tapped in accordance with Drawing No. 21.
- E. Zinc-coated (galvanized) corrugated iron or steel pipe shall be coated with protective Treatment 1 in accordance with Section 9-05.4(3) of the State Standard Specifications. Aluminized Type 2 corrugated steel pipe conforming to AASHTO M274 and M 36 may be used without Treatment 1.
- F. Subject to approval by the Engineer, other pipe materials and methods, such as but not limited to plastic or to cast-in-place concrete pipe, may be used provided that conditions make it feasible, recognized specifications are available to control quality, and acceptable user experience with the product can be shown.
- G. The rubber-gasket requirement in 7.03 B and C above may be waived by the Engineer if it can be shown that joint leakage will not be (an-adverse-factor) detrimental.
- H. Storm drain gradients shall be such as to assure minimum flow velocity of three feet per second when flowing full.
- I. Closed (underground) drain lines shall not be located with centerline closer than five feet to any property line separating adjacent lots or tracts. A drainage easement shall be located entirely within a single lot or tract, except where linear extent of the drain line may involve additional properties.

7.04 Catch Basins, Manholes & Inlets

- A. Maximum spacing on surface drainage courses between inlets or catch basins shall be 200 feet on road grades up to 3.0%. When road grade is 3.0% or greater, maximum spacing shall be 300 feet.
- B. Maximum spacing on main storm drains between access structures, whether catch basins or manholes, shall be 600 feet.
- C. On the storm drains with depths less than five feet to flow line, catch basins may be one of the following:

1. Catch Basin Type I
2. Catch Basin Type I-K
3. Catch Basin Type II-48"

(Drawing No. 22)
(Drawing No. 23)
(Drawing No. 24)

(Revised, May 1981)

2. Three-inch pipe laid from yard inlet under sidewalk and out through curb face. This method is not permissible when curb is on high side of super-elevation or in any situation in which street drainage cannot be confined to gutter receiving yard runoff.
3. Eight-inch pipe stubbed from catch basin or curb inlet structure to within one foot of the lot line and plugged, to provide future connection to one or more yard drains.

7.05 Frames, Grates, and Covers

A. On drainage structures under vertical curb and gutter, under average conditions, the frame and grate shall be Olympic Foundry 18" x 24" cast iron grate No. 5435A and frame No. 5435 (Drawings No. 39 and 40) or equal. When structure does not serve as inlet, solid cover, Olympic Foundry Type No. 5435 (Drawing No. 41) or equal shall be used.

(1-) ~~(When frame and grate or solid lid are located in or close to wheel tracks of prevailing traffic on arterial streets, grate or lid shall be ductile iron instead of cast iron.)~~

(2-) Frame and grate or lid shall be incorporated into curb and gutter section as shown on Drawing No. 40.

B. On drainage structures under vertical curb and gutter, a through-curb inlet frame, Olympic Foundry No. 5435 Special or equal (Drawing No. 42) shall be used where conditions limit the effectiveness of a flat surface inlet. Examples of such conditions are road grades exceeding 12% and likelihood of clogging from leaf fall or other debris, especially in sag vertical curves.

1. When used with this special through-curb inlet frame, the standard grate No. 5435A shall in all cases be ductile iron.

2. Installation of the through-curb inlet shall be as shown in Drawing No. 43.

C. On drainage structures taking run-off from rolled curb, a rolled curb inlet, Olympic Foundry Company Gutter Inlet No. 5503, frame and grate, or equal (Drawing No. 44) shall be used. This gutter inlet shall be installed with back of gutter frame matching the back of the rolled curb and front edge of frame even with the rolled curb surface, as shown in Drawing No. 45.

(Continued)

Page 29 (Continued)

- D. On manholes functioning exclusively as access structures Olympic Foundry Company round 24" Cover and Frame No. 5943 or equal (Drawing No. 46) shall be used.

(Revised, June 1981)

(E) (Solid lids on all storm drain structures shall have the word "DRAIN" in block letters at least two inches high, recessed so as to be flush with the surface. All grates and covers furnished for King County use shall have words "PROPERTY OF KING COUNTY" in block letters 1/2 inch high recessed so as to be flush with the surface.)

E. Block lettering is required on top surfaces of grates and covers as follows:

1. "DRAIN" -- 2 inches high, in raised letters on all solid covers.
2. "OUTFALL TO STREAM DUMP NO POLLUTANTS" -- 1/2 inch high recessed letters on all grates.
3. "PROPERTY OF KING COUNTY" -- 1/2 inch high recessed letters on all grates and on solid cover 5435.
4. "PROPERTY OF KING COUNTY" -- 1 inch high raised letters on round solid cover.

(F) When catch basin manhole or inlet is located off the traveled portion of the roadway or under other conditions of limited surveillance, frame and grate or cover shall be provided with locking bolts. See Drawings Nos. 39, 40, 41, 47 and 48.

F. Locking bolts shall be provided on frames and grates or covers when:

1. Location is off the travelled portion of roadway or otherwise limits public surveillance.
2. Structure is flow restrictor/oil pollution (FROP) control device.

Bolts shall be 5/8 inch 11-NC stainless Type 304 steel socket head cap screws 1-3/4 inch long. See Drawings Nos. 40, 41, 47, 48 and 49. Holes in frames shall be drilled and tapped entirely through the frames.

G. Unless otherwise specified, cast iron products shall conform to ASTM Designation a 48 Class 30 and ductile iron to ASTM Designation A 536 Grade 80-55-06.

7.06 Runoff Control Policies

The following elements of King County Code Title 20.50 and the Drainage Guidelines are summarized for emphasis:

(Continued)

A. Runoff Diversion: Surface water entering the road right of way shall be received at the naturally occurring location. Surface water existing in the right of way shall be discharged at the natural location with adequate energy dissipators to minimize downstream damage. There shall be no diversion at either of these points. In subdivisions in planning stage these rules shall apply to the total property, by division, which is under development and not just to the proposed road right of way.

B. Peak Discharge Control:

1. The peak discharge from the road right of way or from total subdivided property as provided in Section 7.06A above shall not be increased due to the proposed construction, and

2. Retention or detention facilities acceptable to the Engineer shall be provided in order to handle all surface water excess of the peak discharge.

(Gr) ~~(Oil Separation Devices:-- Whenever significant contamination of runoff with oil or grease is anticipated, an oil/grease separation device, as specified in Drainage Guidelines of acceptable to the Engineer, shall be installed. It shall be located at a point where it can be maintained and where it will intercept floating contaminants flowing off the road right of way.)~~

C. Flow Restrictor/Oil Pollution (FROP) Control Device: A FROP device shall be installed when one or both of the following conditions exist in the storm drainage system:

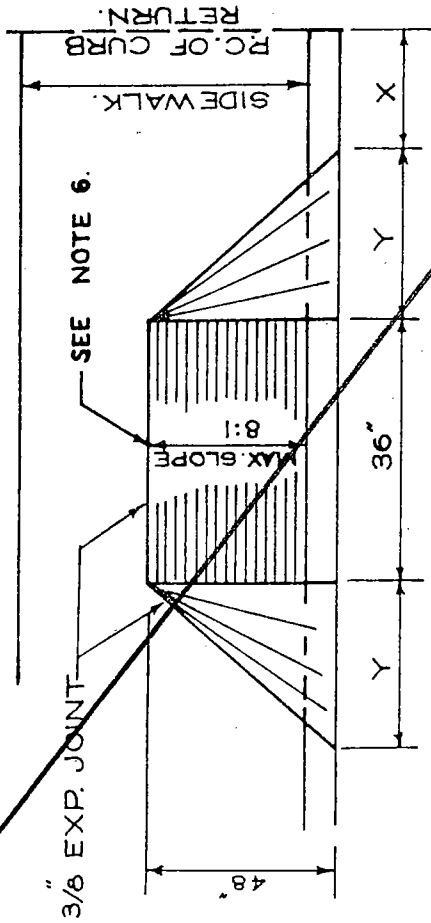
1. Excessive peak flows which must be controlled in accordance with Section 7.05 A and B above.
2. Potential contamination of runoff with oil or grease.

The FROP device shall be located at a point where it can function and be maintained effectively. It shall be constructed and installed in accordance with Drawing No. 49 or as specified or approved by the Engineer.

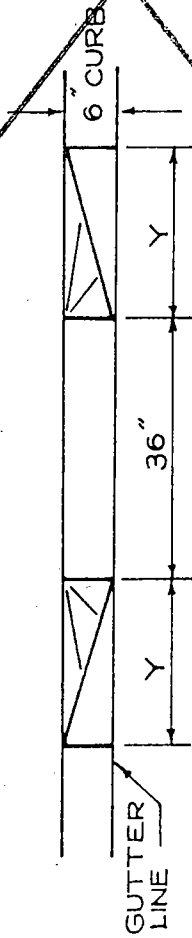
D. Erosion & Siltation Control: In addition to catch basins as provided in Section 7.04, measures such as the following shall be taken as necessary during and after construction to prevent erosion and to prevent silt from being carried offsite and/or into bodies of water:

1. Excavation and grading shall be done in a manner to maintain controlled drainage of the worksite and to minimize the exposure of unprotected slopes to the action of precipitation or flowing ground water.
2. When possible, existing natural vegetation shall be left intact.
3. Exposed slopes when completed shall be given appropriate permanent protection as soon as practical, e.g., grass or other groundcover, riprap, rockeries, or retaining walls.
4. The provisions of Section 3, Temporary Erosion/Sedimentation Control, of the Drainage Guidelines shall apply. This shall include the submittal of an effective temporary erosion/sedimentation control plan to be approved by the Engineer prior to starting any clearing and grubbing or earthwork.

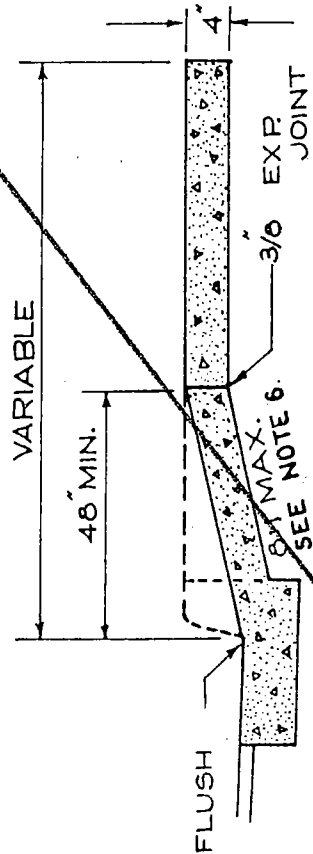
(Revised, May 1981)



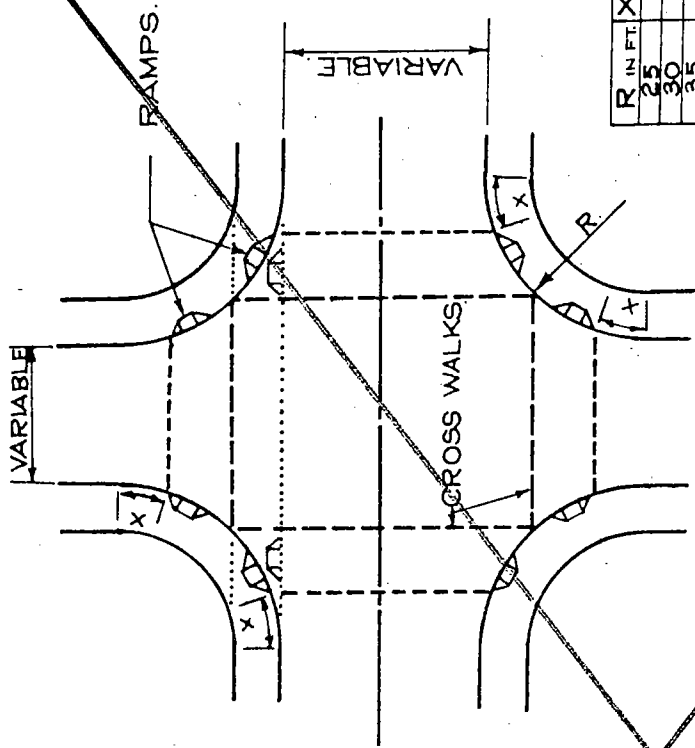
PLAN VIEW.



FRONT VIEW.



SIDE VIEW.



RAMP LOCATION.

R	X	Y
IN. FT.	IN. FT.	IN. FT.
25	8	18
30	12	18
35	15	36
40	20	36
45	23	36

NOTES:

1. CATCH BASIN AND INLETS SHALL BE OUTSIDE THE WHEEL CHAIR RAMP (24 MIN. CLEARANCE FROM RAMP).
2. CARE SHALL BE TAKEN TO KEEP THE RAMP FROM CONFLICTING WITH HYDRANTS, POLES, INLETS, AND OTHER UTILITIES.
3. THE RAMP MAY HAVE A COARSE TEXTURED SURFACE APPROVED BY THE ENGINEER
4. CROSS WALKS ARE NOT ALWAYS MARKED.
5. X AND Y ARE MEASURED AT CURB FACE.
6. WHILE 8:1 IS MAX. STEEPNESS OF SLOPE, THE SLOPE SHALL BE MADE 12:1 WHEREVER SPACE PERMITS.
7. WHEN RAMPS ARE CONSTRUCTED ON ONE SIDE OF STREET, RAMPS SHALL BE CONSTRUCTED AT CORRESPONDING LOCATIONS ON OPPOSITE SIDE OF STREET.

DO NOT SCALE

CURB RAMPS

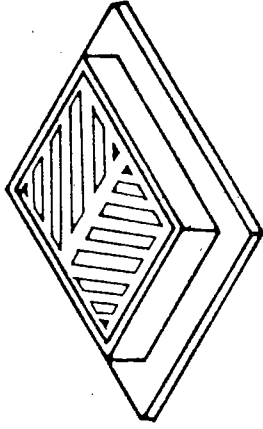
KING CO. WASHINGTON

SUPERSEDED

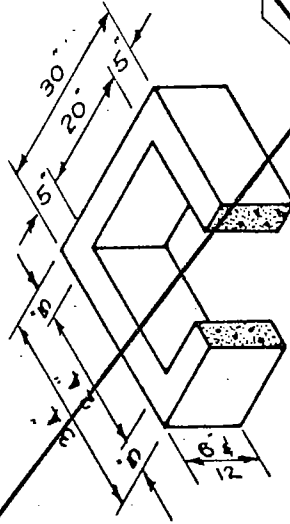
DWG. NO. 13

NOTE:

FOR DETAILS SEE
APWA STD. SPECIFICATIONS SECTION 63

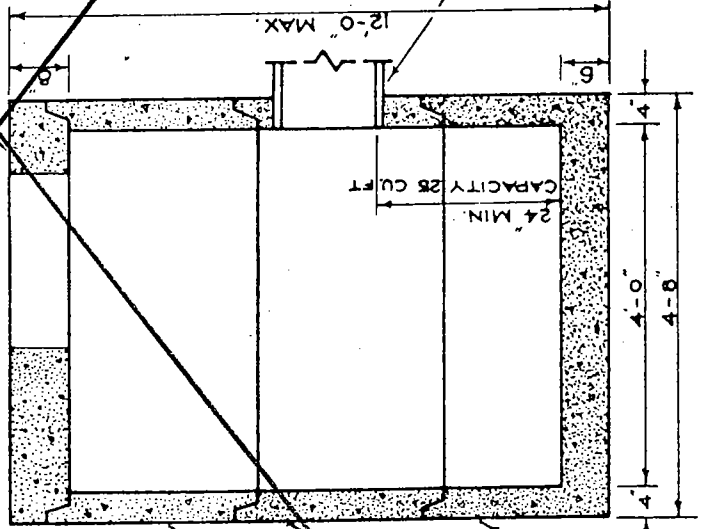


FRAME AND GRATE.
(SEE SEC. 2.04 (b) 7.05)



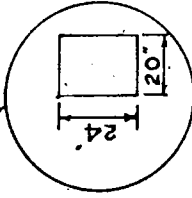
EXTENSION SECTION.
UNIT: 6" 6"
UNIT: 12"

TOP SLAB SEE DWG. NO. 28



PRECAST MANHOLE SECTION. SEE SEC. 63 2.09B

PRECAST MANHOLE BASE SECTION. SEE SEC. 63 2.09A

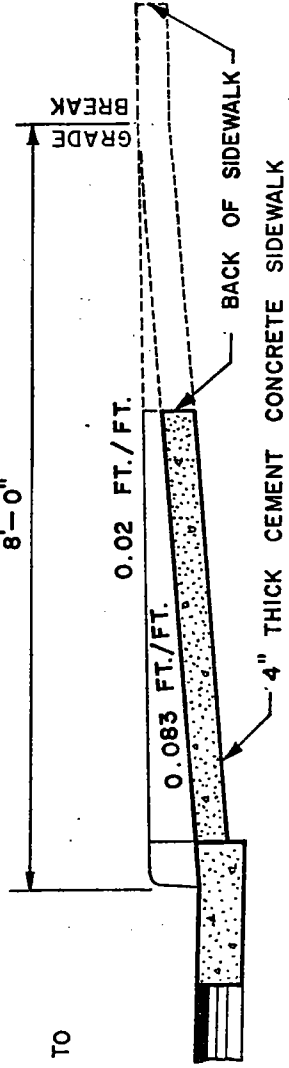
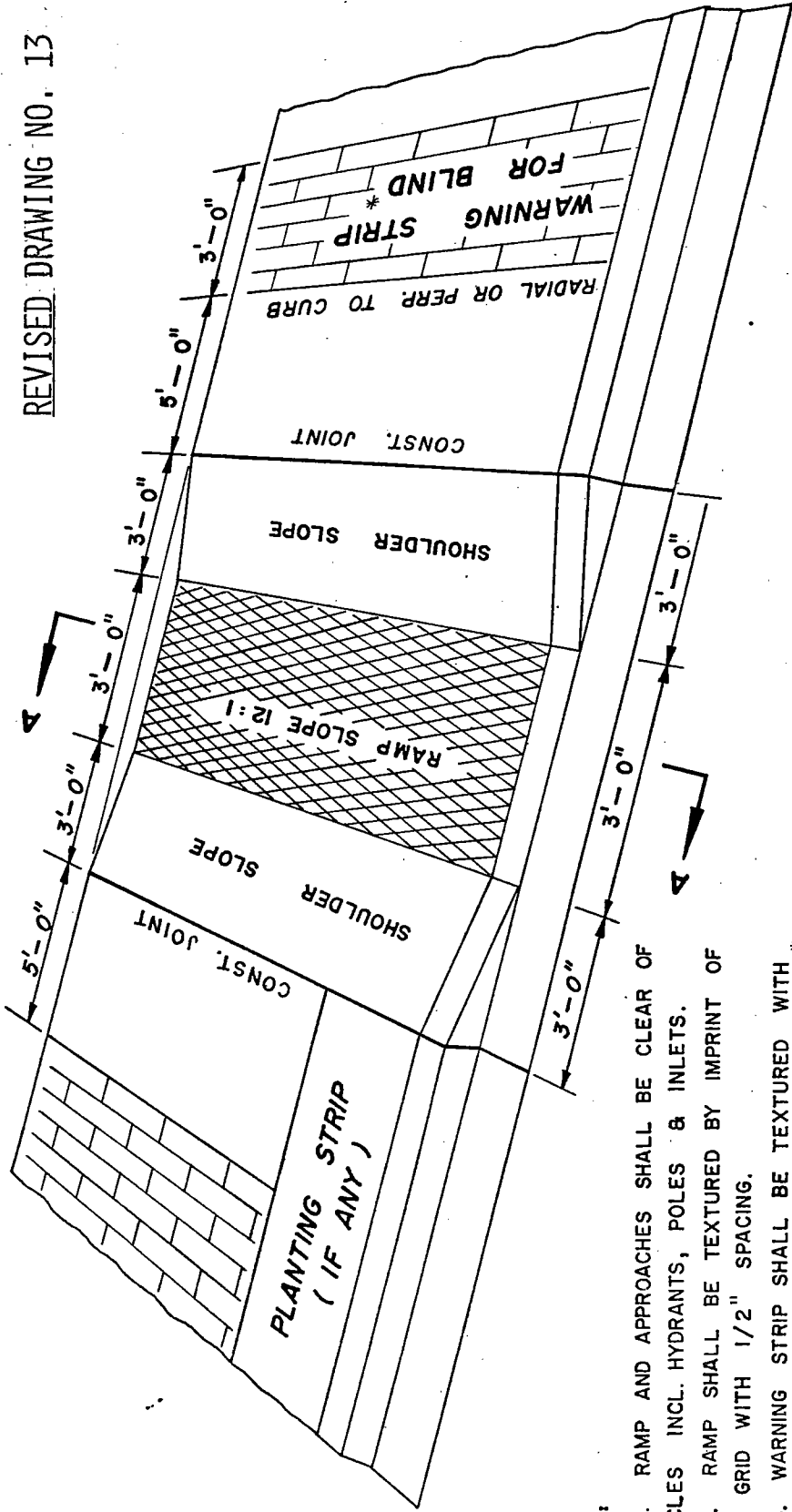


OUTLET PIPE. MAX. PIPE 21" I.D.
(MAX. PIPE SIZE MAY BE LIMITED
BY PIPE CONFIGURATION)

DO NOT SCALE

CATCH BASIN TYPE II-48"

KING CO. WASHINGTON



SECTION A - A

NOTES:

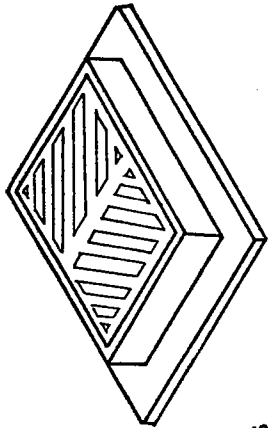
1. RAMP AND APPROACHES SHALL BE CLEAR OF OBSTACLES INCL. HYDRANTS, POLES & INLETS.
2. RAMP SHALL BE TEXTURED BY IMPRINT OF METAL GRID WITH 1/2" SPACING.
3. WARNING STRIP SHALL BE TEXTURED WITH BRICK OR COMPARABLE SURFACE APPROVED BY ENGR. *
4. RAMP CENTER LINE SHALL BE PERPENDICULAR TO OR RADIAL TO CURB RETURNS UNLESS OTHERWISE APPROVED BY ENGINEER.
5. WHEN RAMPS ARE CONSTRUCTED ON ONE SIDE OF STREET, RAMPS SHALL BE CONSTRUCTED AT CORRESPONDING SIDEWALK LOCATIONS ON OPPOSITE SIDE OF STREET.
6. ON ARTERIAL STREETS, IN GENERAL CASE, CURB RAMPS SHALL BE CONSTRUCTED TWO PER RADIUS, IN OR PREFERABLY ADJACENT TO THE MAIN PEDESTRIAN PATHS.
7. ON RESIDENTIAL STREETS AND / OR WHEN UTILITIES ARE IN CONFLICT OR STREET GRADE EXCEEDS 4.0 %, CURB RAMPS MAY BE CONSTRUCTED ONE PER RADIUS, AT MIDPOINT OF CURB RETURN OR AT MAIN PEDESTRIAN PATH.

* WARNING STRIP TO BE PROVIDED IF SPECIFIED

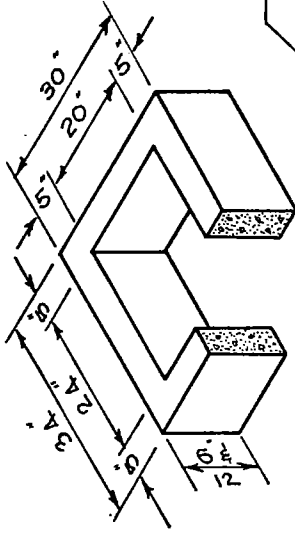
DO NOT SCALE

CURB RAMPS

KING CO, WASHINGTON

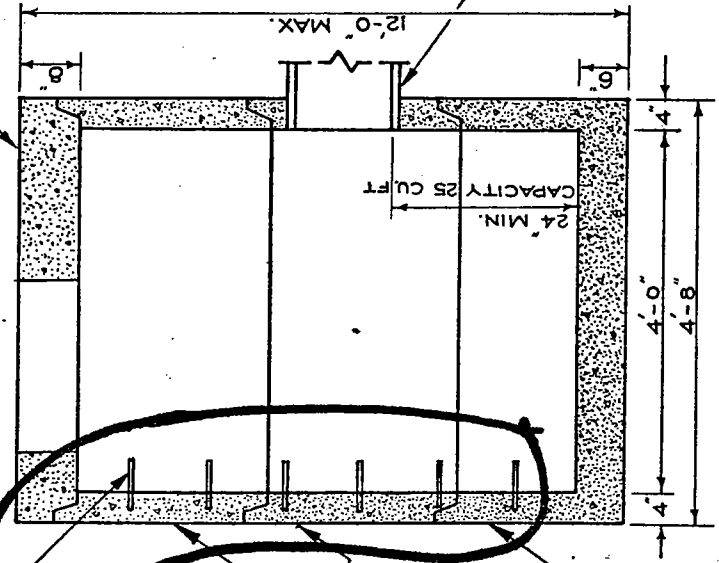
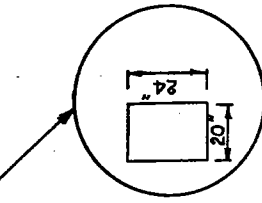


FRAME AND GRATE.
SEE SEC. 7.05 K.C. ROAD STANDARDS



EXTENSION SECTION.
UNIT "5" 6"
UNIT "1" 12"

TOP SLAB SEE DWG. NO.28



LADDER STEPS

PRECAST MANHOLE SECTION. SEE SEC.63 2.09 B
APWA STANDARD SPECIFICATIONS

PRECAST MANHOLE BASE SECTION. SEE SEC. 63 2.09 A
APWA STANDARD SPECIFICATIONS

OUTLET PIPE. (MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION)

MAX. PIPE 21" I.D.

DO NOT SCALE

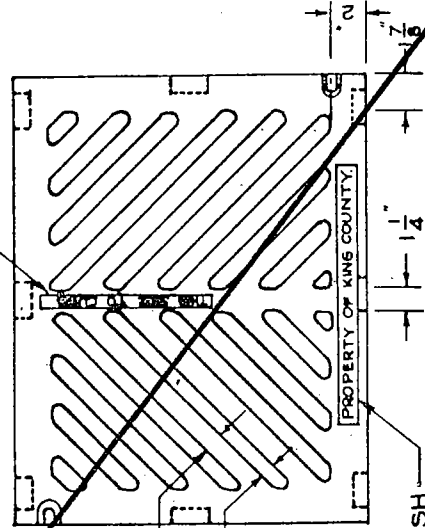
CATCH BASIN TYPE II-48"

KING CO. WASHINGTON

SUPERSEDED DRAWING NO. 39

7/4" FOR MACHINING CLEARANCE

1/2" HIGH LETTERS RECESSED TO BE FLUSH.

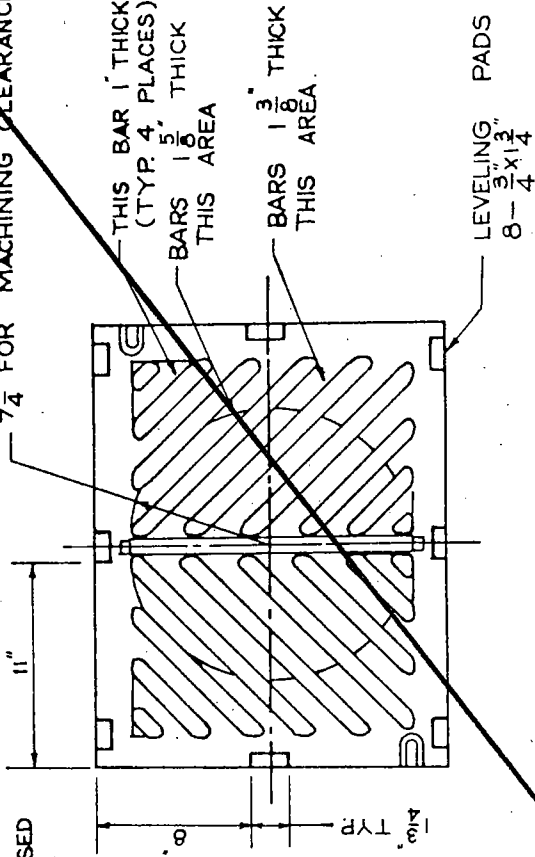


1 1/8" TYP BAR
7/8" TYP SLOT

1/2" HIGH LETTERS RECESSED TO BE FLUSH

PROPERTY OF KING COUNTY

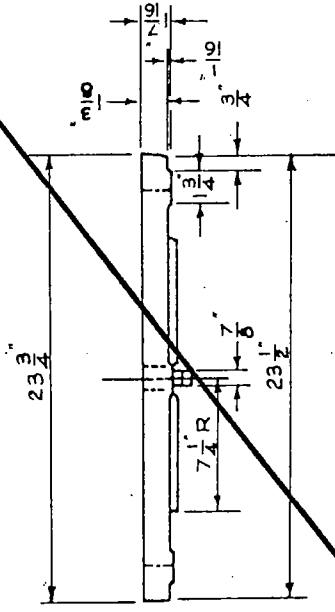
TOP VIEW.



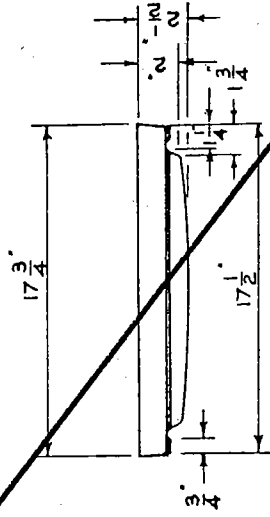
THIS BAR 1" THICK (TYP. 4 PLACES)
BARS 5/8" THICK THIS AREA
BARS 3/8" THICK THIS AREA

LEVELING PADS
8-3/4" X 1 3/4"

BOTTOM VIEW.



SIDE VIEW.



END VIEW.

DO NOT SCALE

STANDARD GRATE NO 5435 A.

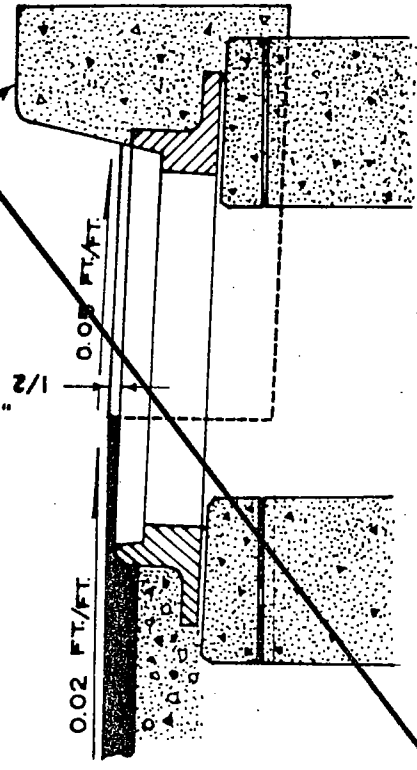
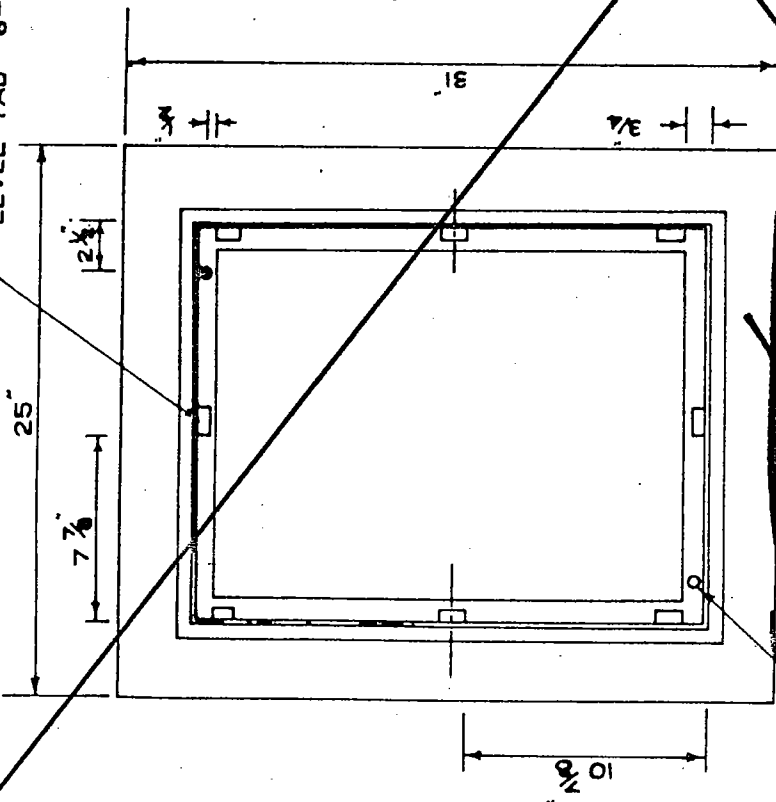
GRATE NO. 5435A OLYMPIC FDY. CO.
OR EQUAL SEE SEC. 7.05 A.B. & G

KING CO. WASHINGTON

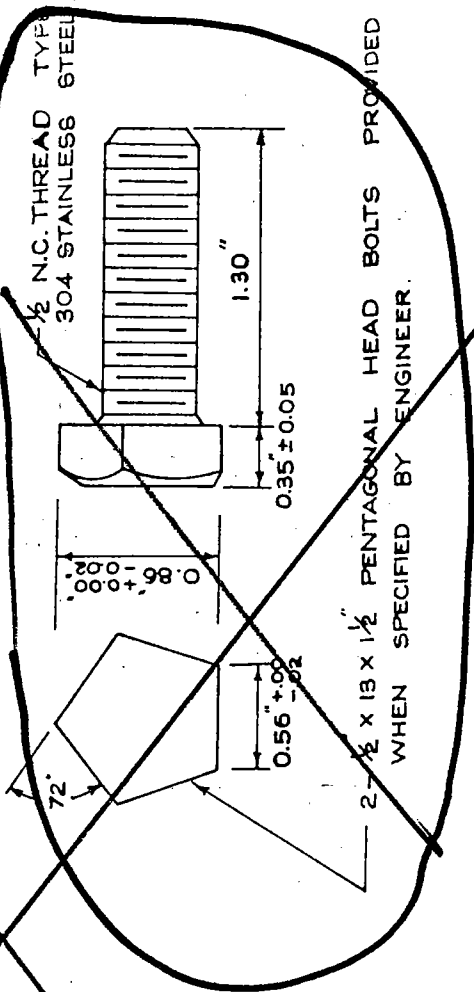
SUPERSEDED DRAWING NO. 40

STANDARD VERTICAL CURB

LEVEL PAD 6 - $3 \times 2 \frac{1}{4} \times 1 \frac{1}{8}$



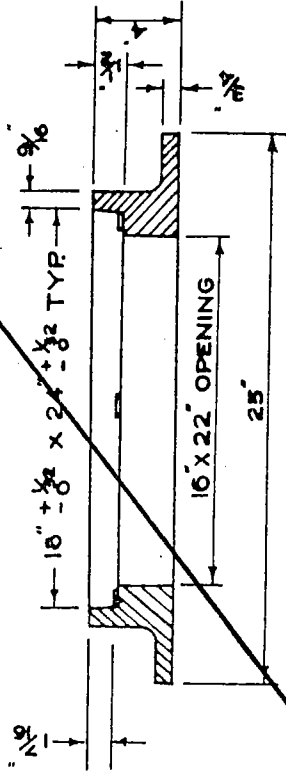
MATERIAL CAST IRON PER ASTM. A 48 CLASS 30.



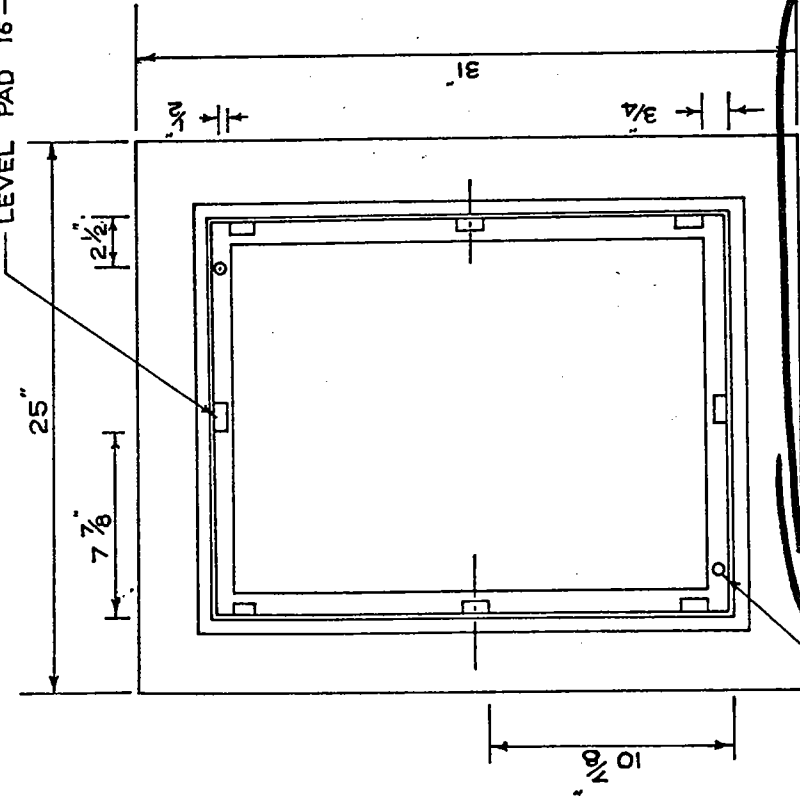
DO NOT SCALE

STANDARD FRAME 5435 WITH VERTICAL CURB INSTALLATION

KING CO. WASHINGTON



LEVEL PAD 16 - $\frac{3}{4} \times 2\frac{1}{4} \times 16$

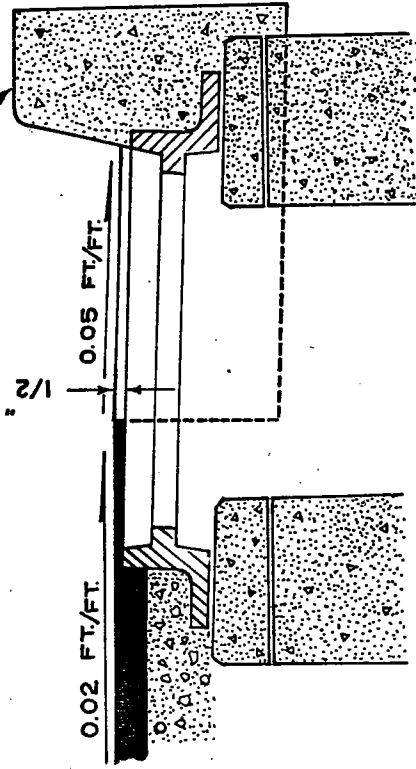


DRILL AND TAP $\frac{5}{8}$ -11INC 2 HOLES THRU FRAME WHEN SPECIFIED BY ENGINEER

PLAN

REVISED DRAWING NO. 40

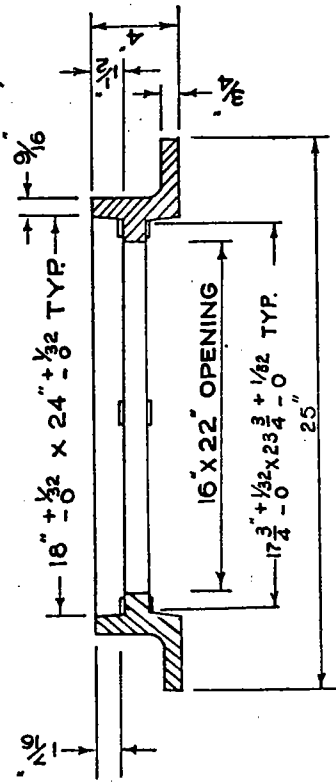
STANDARD VERTICAL CURB.



NOTES

1. LOCKING BOLTS $\frac{5}{8}$ -11INC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS $1\frac{3}{4}$ LONG PROVIDED WHEN SPECIFIED BY ENGINEER. SEE SEC. 7.05 F
2. FRAME MATERIAL IS CAST IRON PER ASTM A48 CLASS 30

DO NOT SCALE

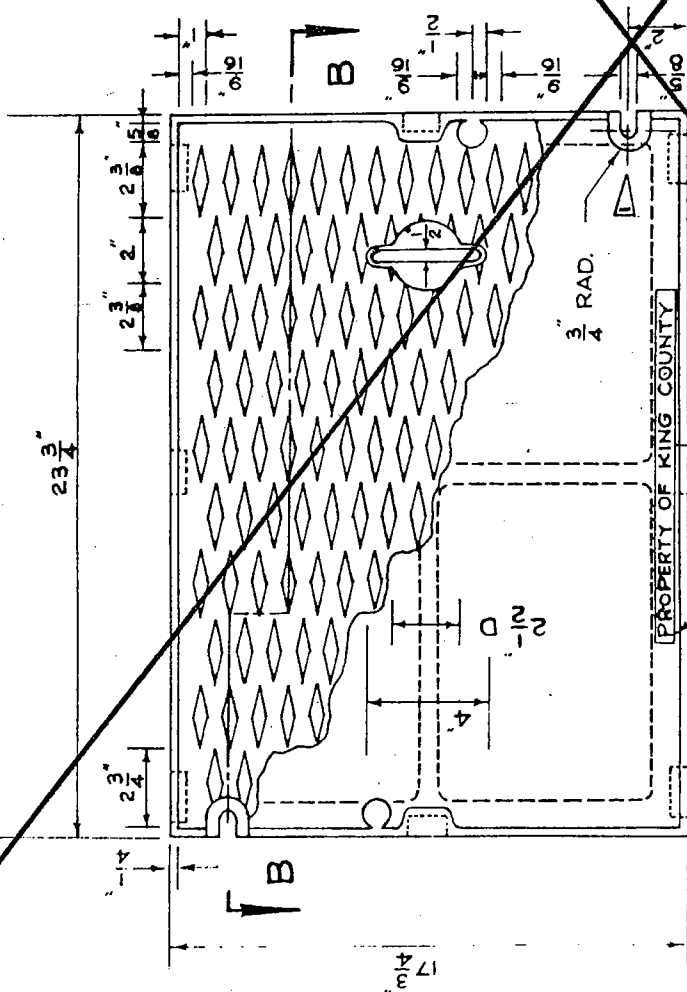


ELEVATION.

STANDARD FRAME 5435 WITH VERTICAL CURB INSTALLATION

KING CO. WASHINGTON

SUPERSEDED DRAWING NO. 41



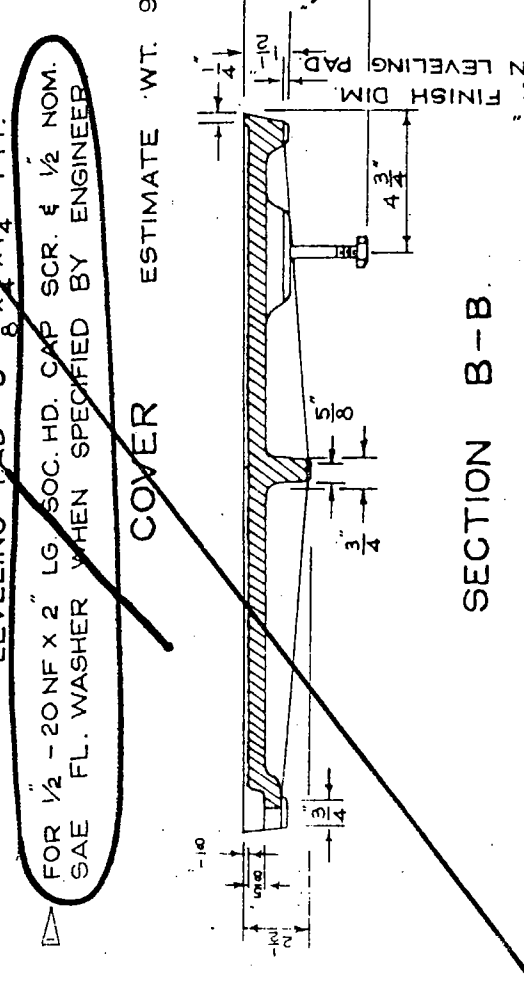
3/4" TYP

1/2" HIGH LETTERS RECESSED TO BE FLUSH.

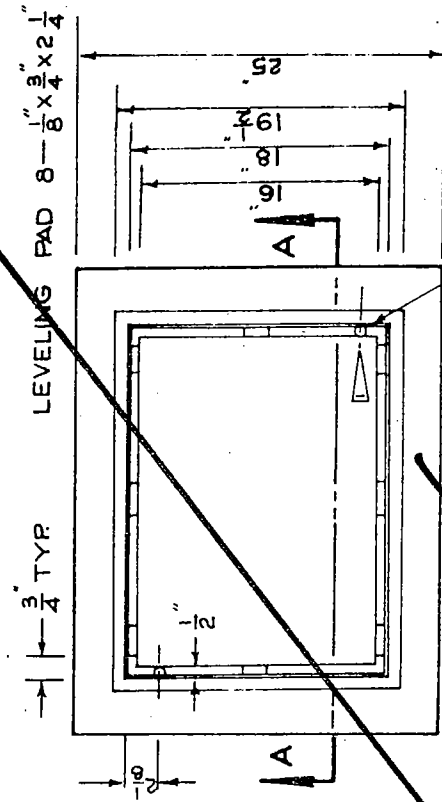
LEVELING PAD 8-1/8" x 3-1/4" x 1/4" TYP.

FOR 1/2" - 20 NF X 2" LG. SOC. HD. CAP SCR. & 1/2" NOM. SAE FL. WASHER WHEN SPECIFIED BY ENGINEER.

COVER ESTIMATE WT. 92"



SECTION B-B

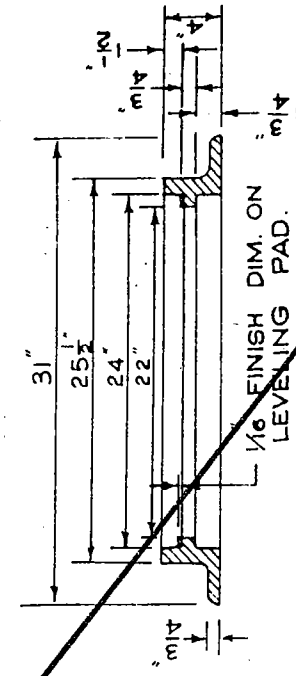


3/4" TYP

LEVELING PAD 8-1/8" x 3-1/4" x 1/4"

DRILL & TAP 1/2" - 20 NF 2 HOLES

FRAME ESTIMATE WT. 135"



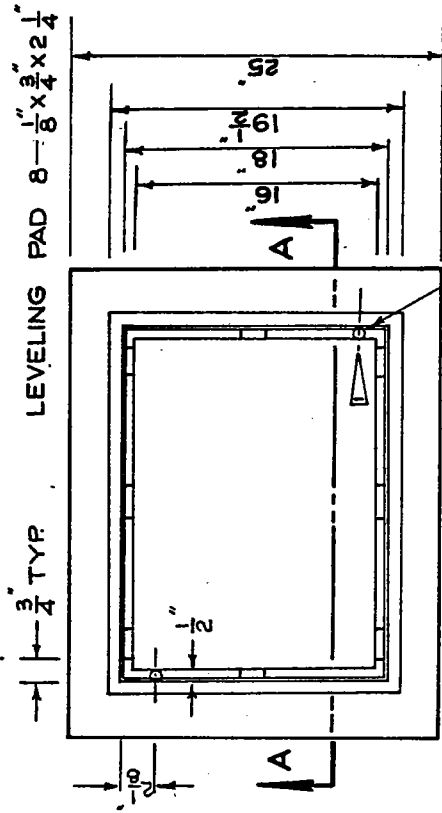
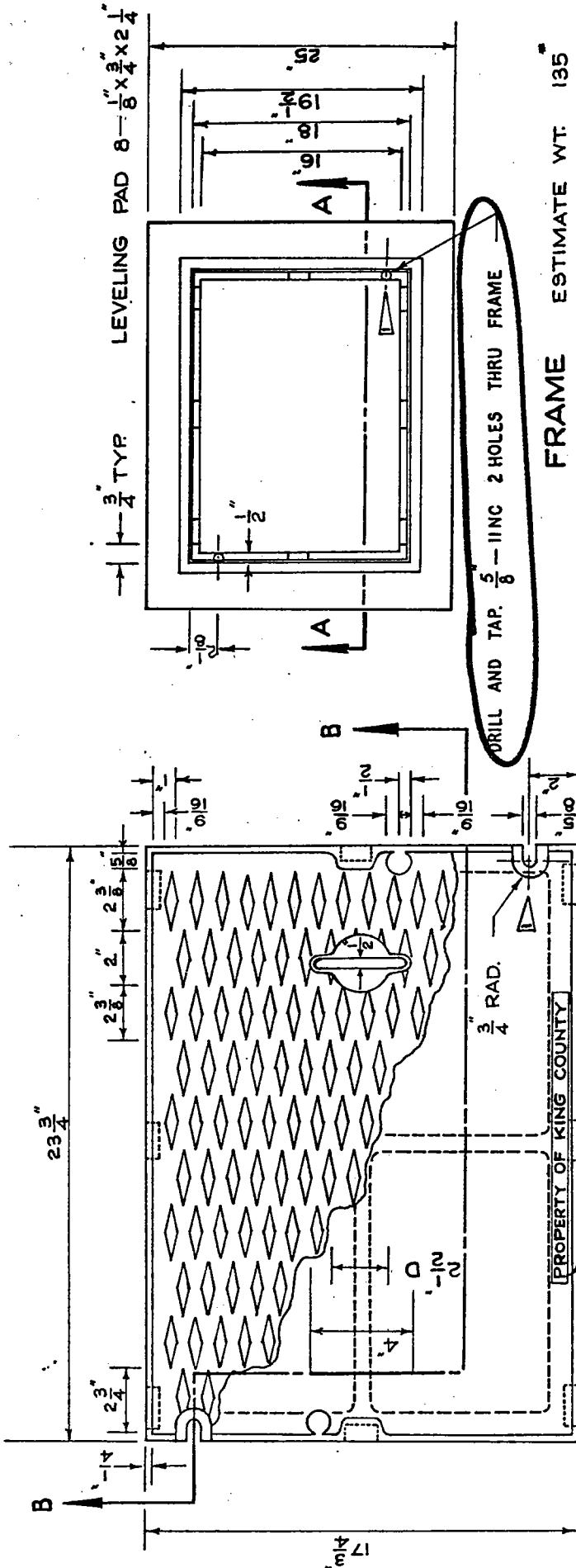
SECTION A-A

DO NOT SCALE

SOLID COVER NO. 5435

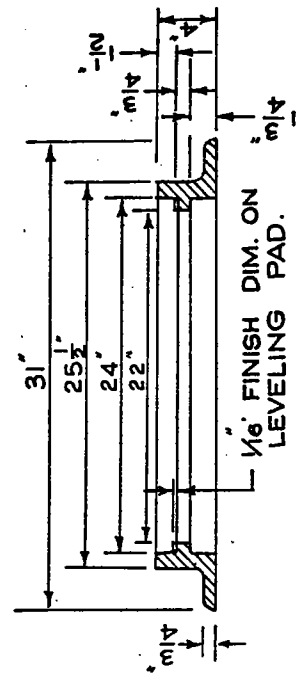
KING CO. WASHINGTON

SUPERSEDED DWG. NO. 41



DRILL AND TAP. 5/8" - 11NC 2 HOLES THRU FRAME

FRAME ESTIMATE WT. 135

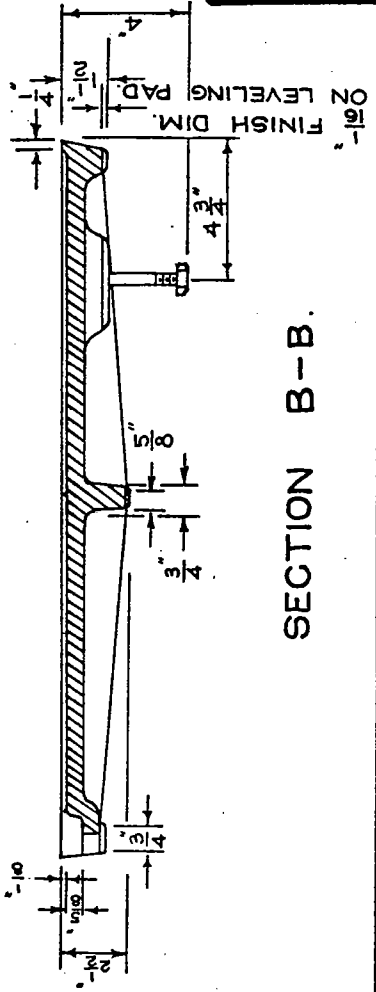


SECTION A-A

DO NOT SCALE

FOR 5/8" - 11NC X 1 3/4" SOCKET HEAD (ALLEN HEAD) CAP SCREW

COVER ESTIMATE WT. 92



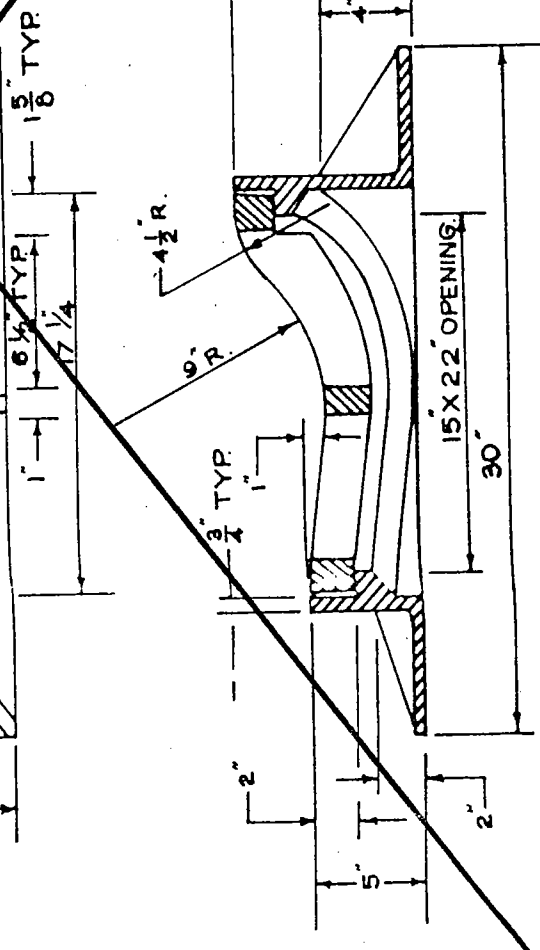
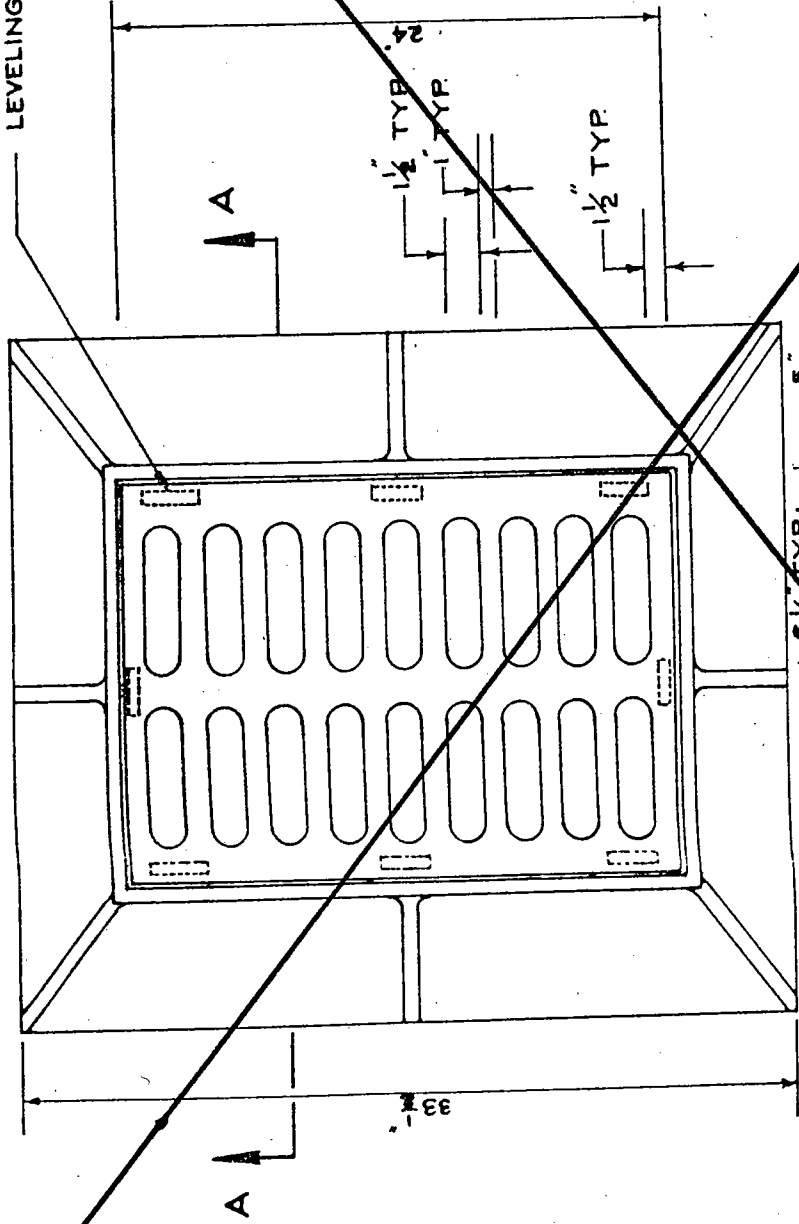
SECTION B-B

SOLID COVER NO. 5435

KING CO. WASHINGTON

SUPERSEDED DRAWING NO. 44

LEVELING PAD 6-3/4 x 2 1/4 x 1 1/16



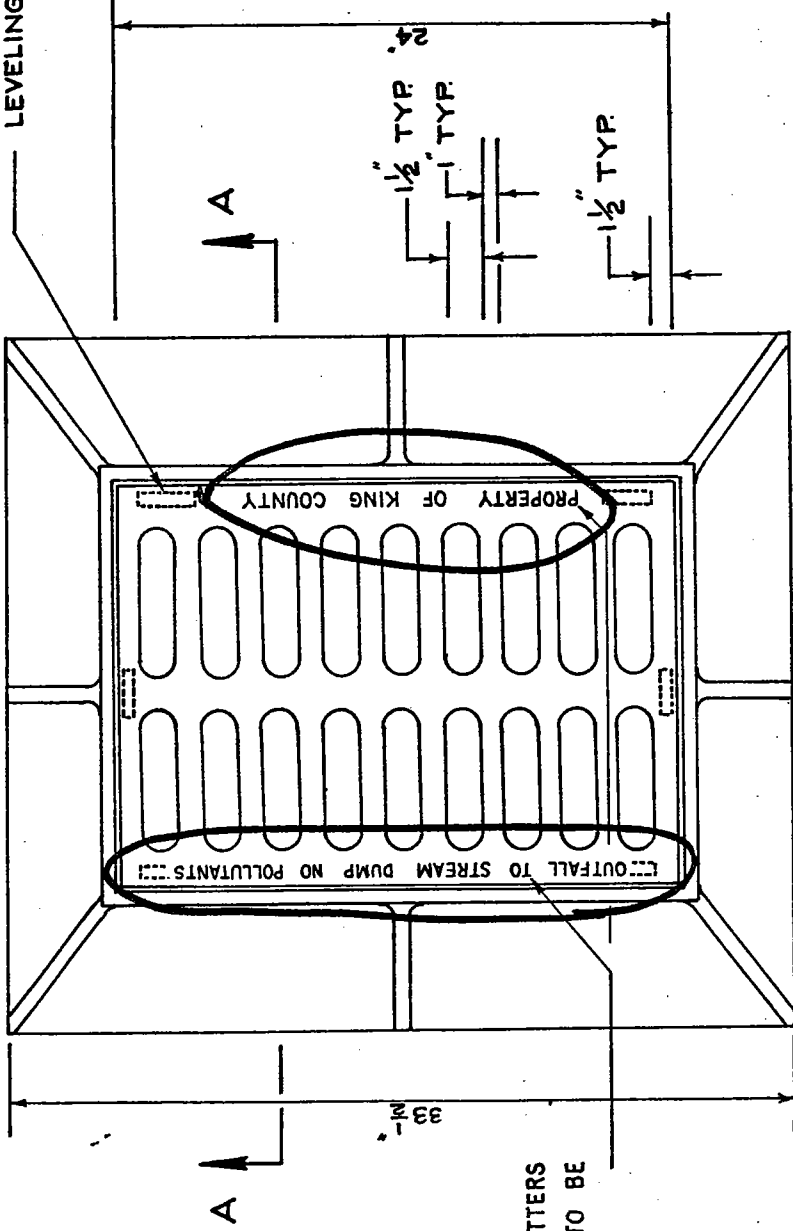
DO NOT SCALE

ROLLED CURB INLET

KING CO. WASHINGTON

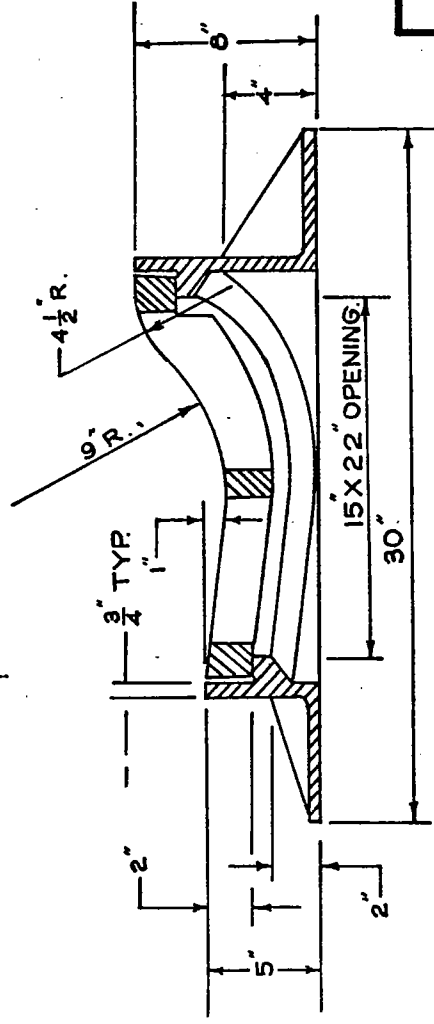
SUPERSEDED DWG. NO. 44

REVISED DRAWING NO. 44
LEVELING PAD 8- $\frac{3}{4}$ x 2 $\frac{1}{4}$ x $\frac{1}{16}$



1/2 HIGH LETTERS
RECESSED TO BE
FLUSH

1" → | 6 1/2" TYP | → 17 1/4"
 → 15 5/8" TYP →



SECTION A A

DO NOT SCALE

ROLLED CURB INLET

KING CO. WASHINGTON

DWG. NO. 44

(REVISED MAY 1981)

82

SUPERSEDED DRAWING NO. 46

3-1" HOLES STD. 1 HOLE - OPTIONAL

CLEATED SURFACE $1\frac{1}{2} \times 3 \times \frac{3}{8}$

COVER & FRAME NO. 5943
OLYMPIC FDY. CO. OR EQUAL.

MATERIAL: CAST IRON PER ASTM. A 46
CLASS 30.

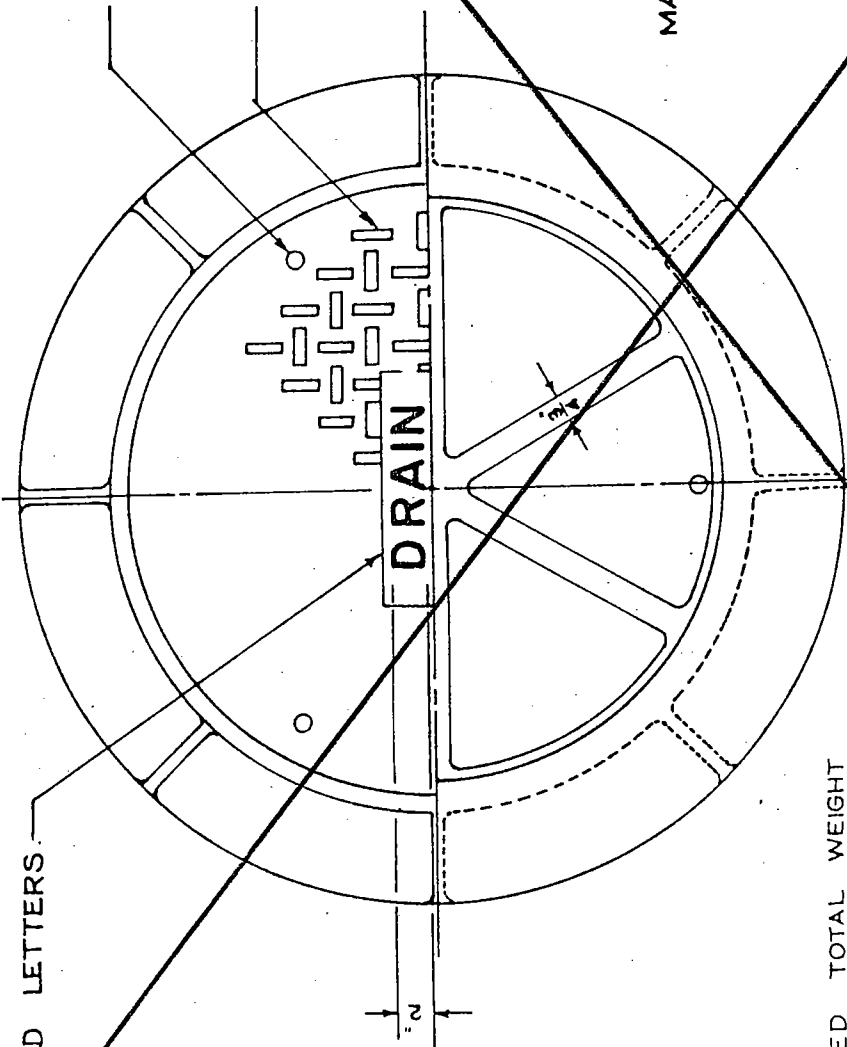
MACHINE SURFACE ON
FRAME AND COVER.

DO NOT SCALE

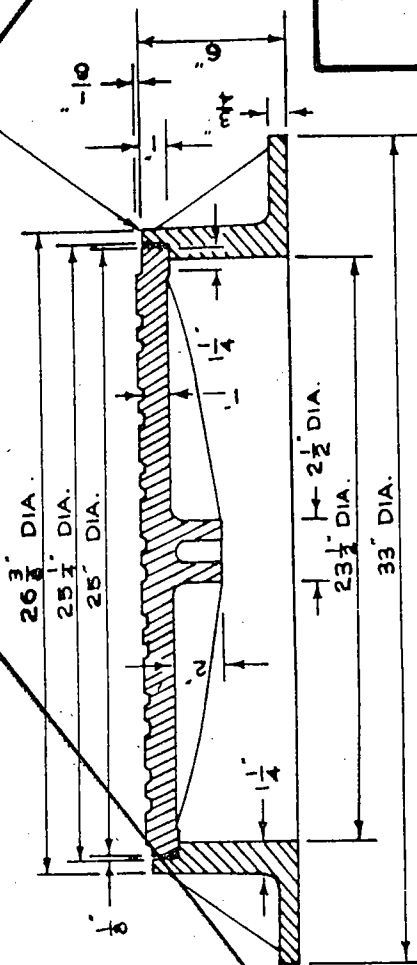
MANHOLE COVER AND FRAME

KING CO. WASHINGTON

SUPERSEDED DWG. NO. 46



ESTIMATED TOTAL WEIGHT
400 LBS.

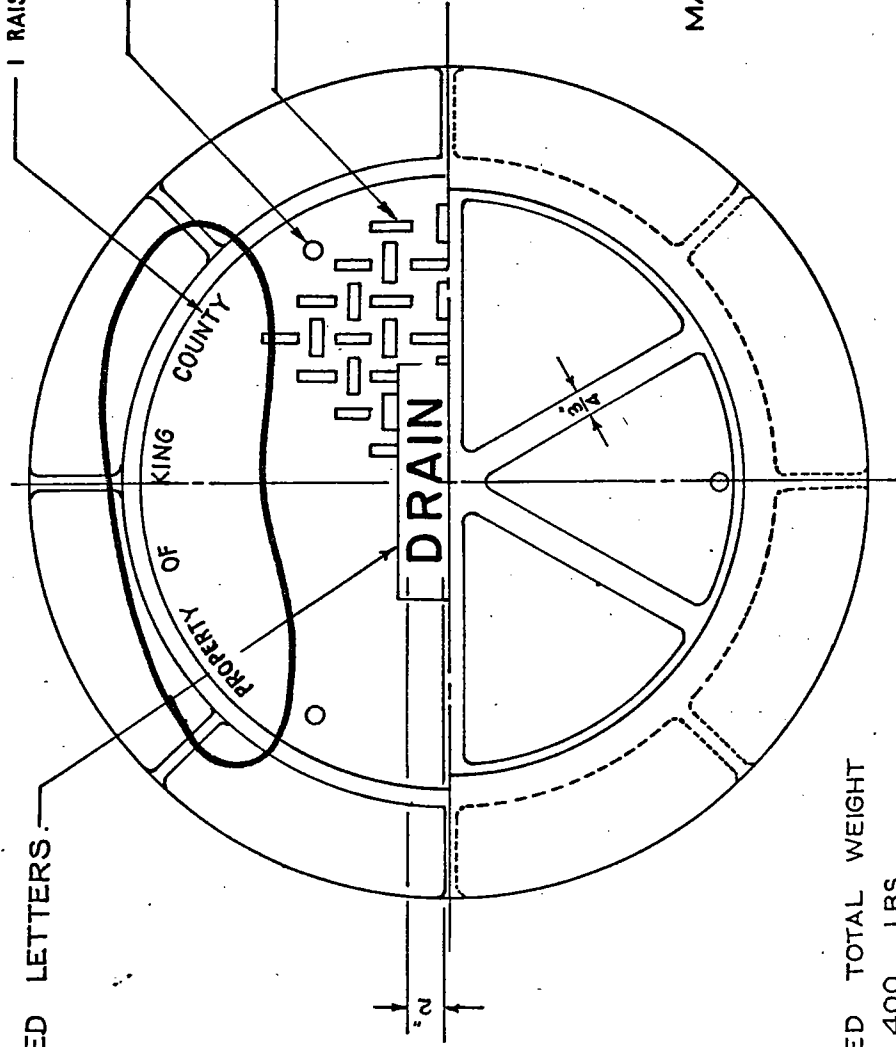


2" RAISED LETTERS.

1" RAISED LETTERS

3-1" HOLES STD. 1 HOLE - OPTIONAL.

CLEATED SURFACE 1/2" x 3/8"

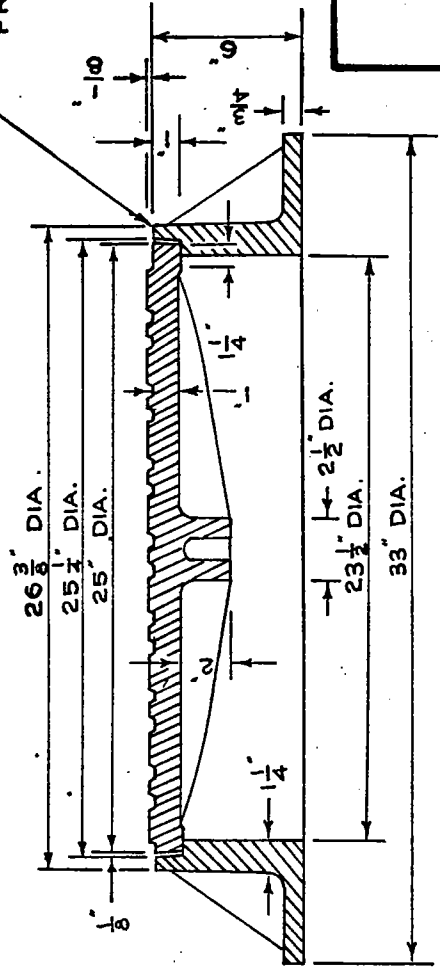


COVER FRAME NO. 5943
OLYMPIC FDY. CO. OR EQUAL.

MATERIAL: CAST IRON PER ASTM. A 48
CLASS 30.

ESTIMATED TOTAL WEIGHT
400 LBS.

MACHINE SURFACE ON
FRAME AND COVER.



DO NOT SCALE

MANHOLE COVER AND FRAME

KING CO. WASHINGTON

SUPERSEDED DRAWING NO. 47

2 RAISED LETTERS

3-1" HOLES

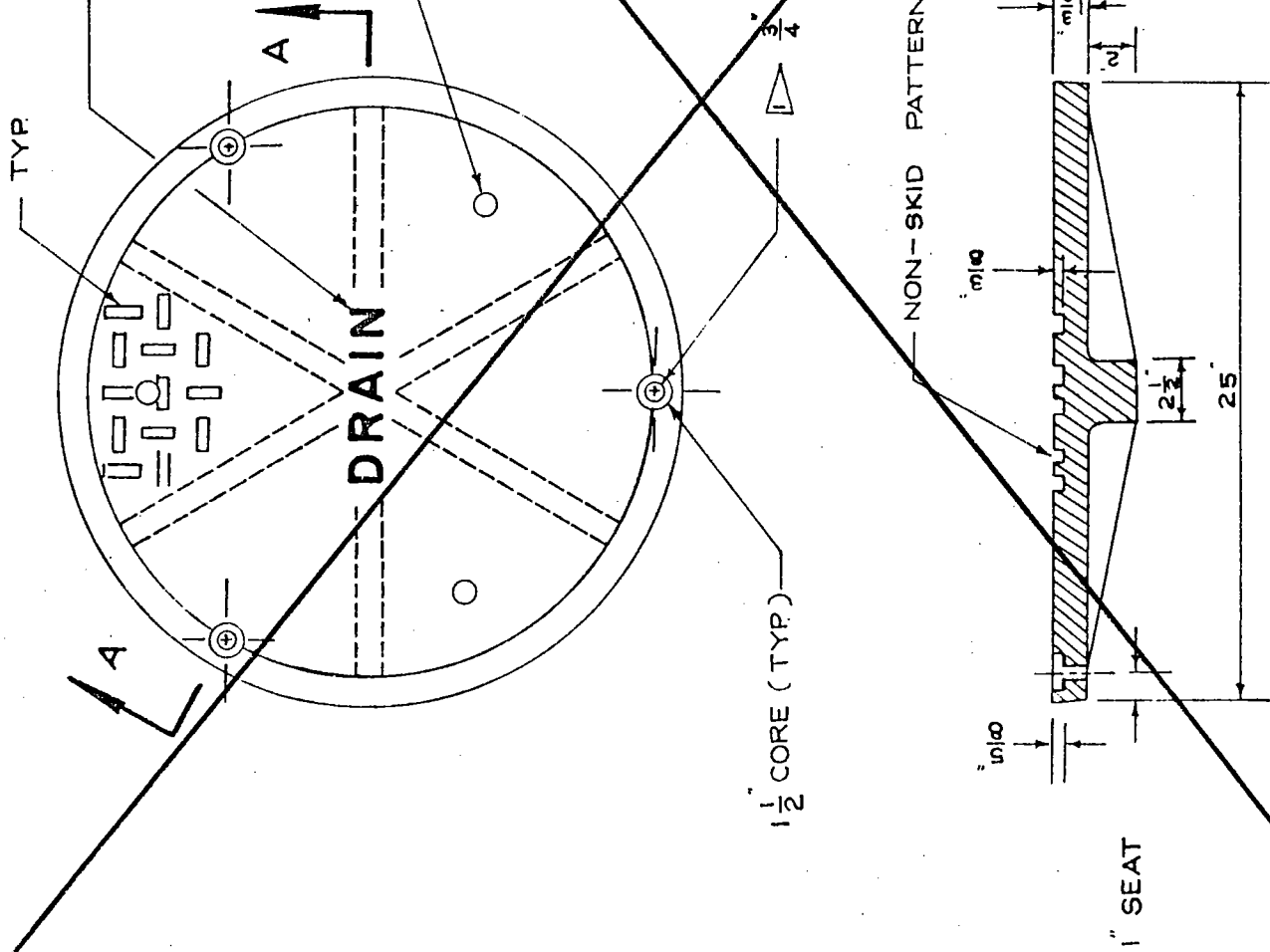
FOR $\frac{5}{8}$ " - 11 IN. C. X $1\frac{1}{4}$ " S.S. SOC. HD. CAP SCREW 3 REQ'D WHEN SPECIFIED BY ENGINEER.

$\frac{3}{4}$ " CORE (TYP) ON 23" B.C.

NO. 5943 - WS - L
OLYMPIC FDY. CO. OR EQUAL.

NON-SKID PATTERN (TYP)

DO NOT SCALE

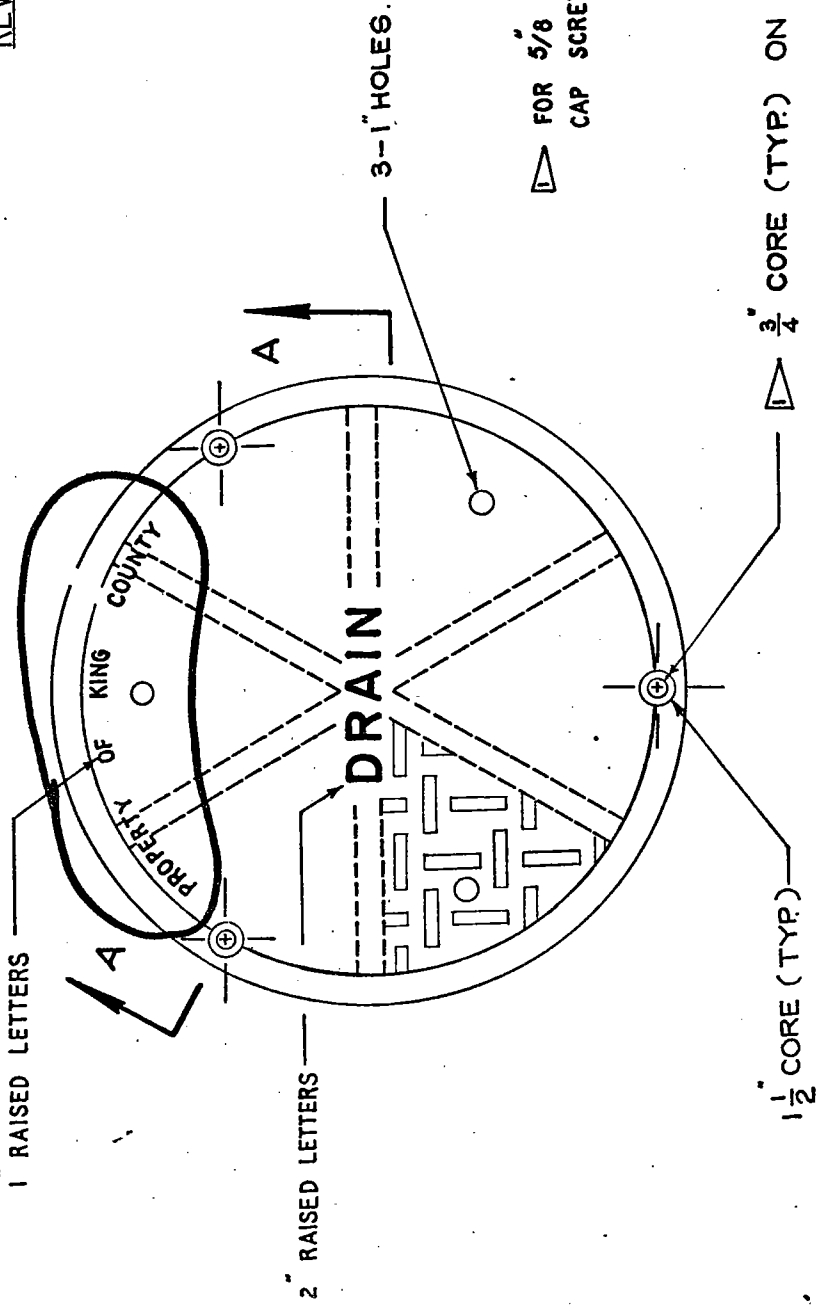


SECTION A-A

LOCKING MANHOLE COVER

KING CO. WASHINGTON

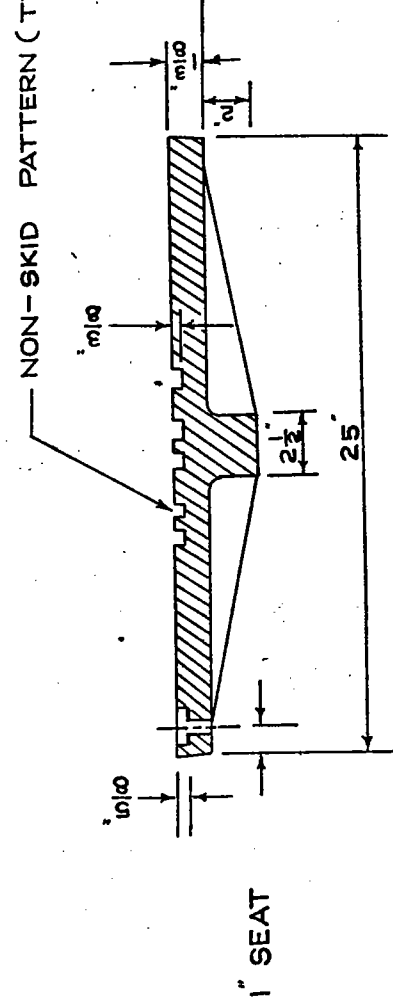
SUPERSEDED DRAWING NO. 47



▷ FOR 5/8" 11 NC. X 1 3/4" S.S. SOC. HD. (ALLEN HD.)
 CAP SCREW 3 REQ'D WHEN SPECIFIED BY
 ENGINEER

▷ 3/4" CORE (TYP) ON 23" B.C.

NO. 5943—WS—L
 OLYMPIC FDY. CO. OR EQUAL.



DO NOT SCALE

SECTION A-A

LOCKING MANHOLE COVER

KING CO. WASHINGTON

SUPERSEDED DRAWING NO. 48

DRILL AND TAP $\frac{5}{8}$ " N.C. ON 23" B.C. WHEN SPECIFIED BY ENGINEER.
TYP. 3 PL.

OLYMPIC NO. 5943-W6-L
FOUNDRY CO. OR EQUAL

$\frac{1}{2}$ " TYP

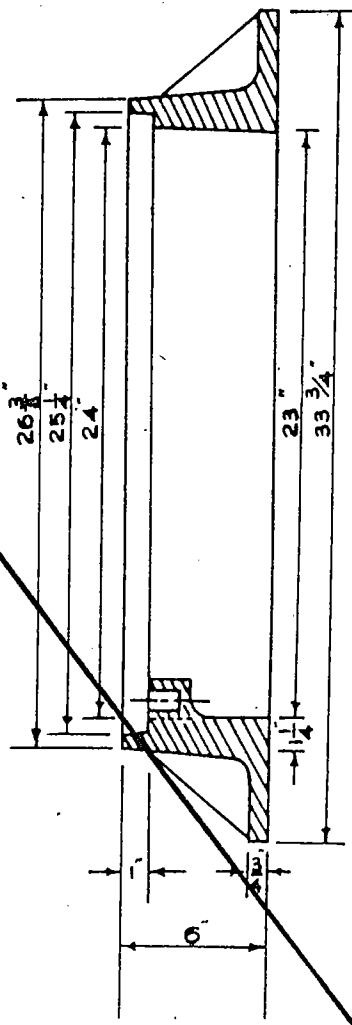
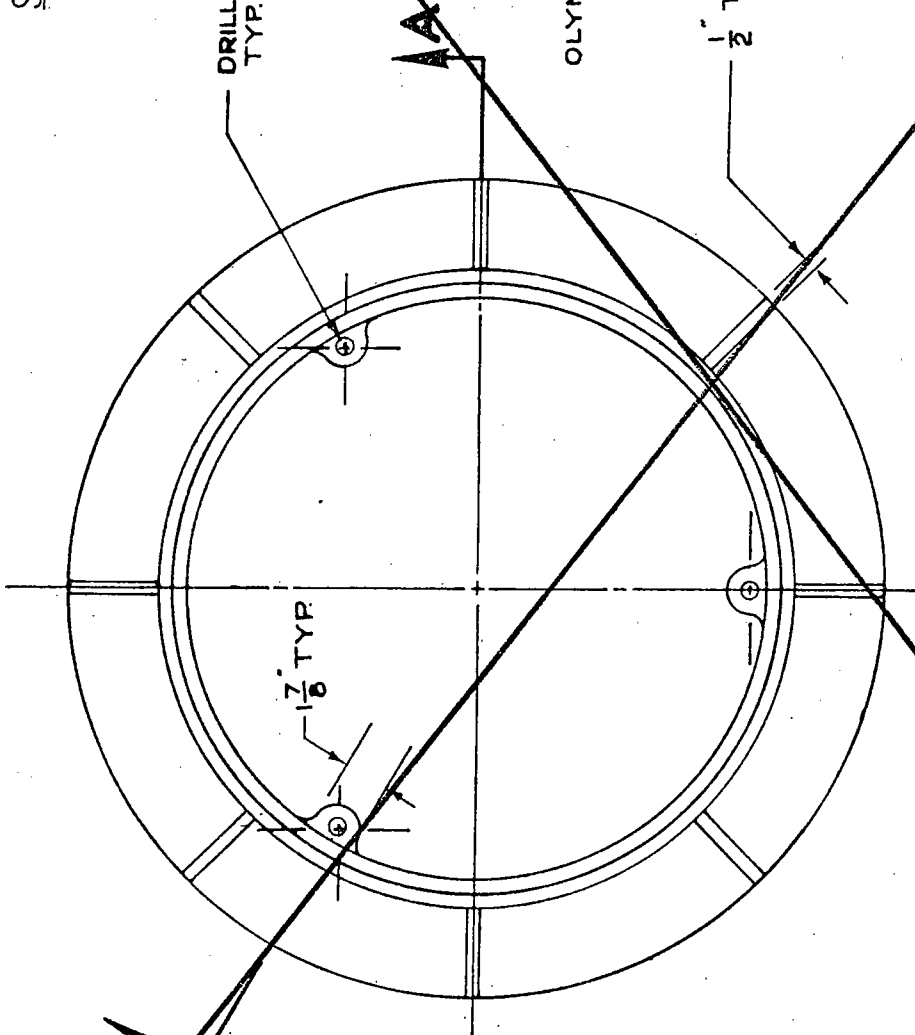
$\frac{7}{8}$ " TYP

DO NOT SCALE

LOCKING MANHOLE FRAME

KING CO. WASHINGTON

SUPERSEDED DWG. NO. 48

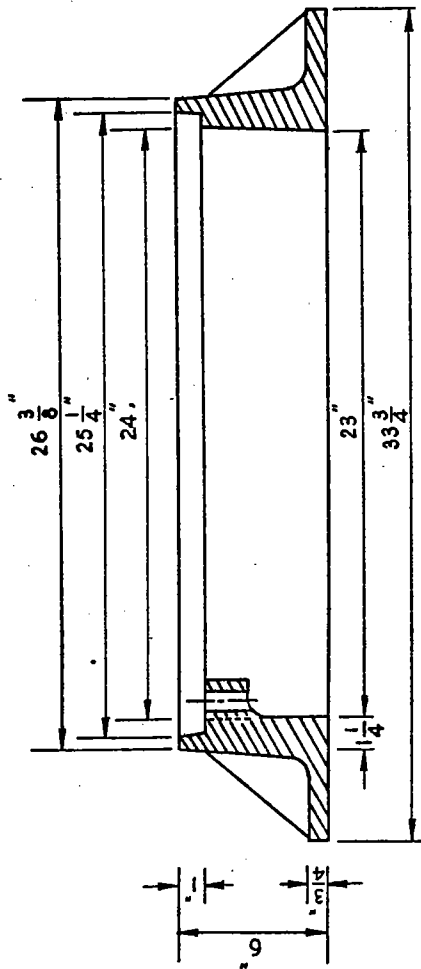
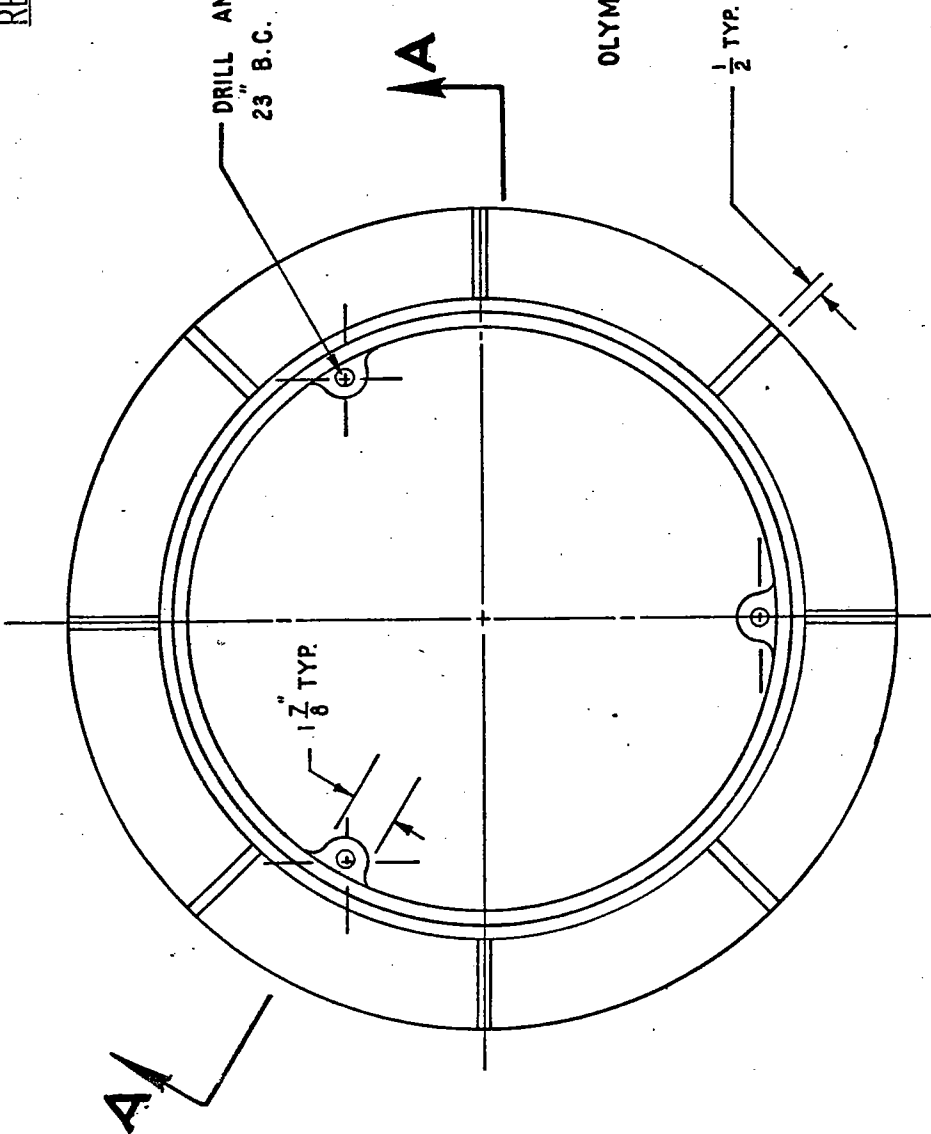


SECTION A-A

REVISED DRAWING NO. 48

DRILL AND TAP $\frac{5}{8}$ " - 11 INC THRU FRAME ON
23" B.C. TYP. 3 PL. WHEN SPECIFIED BY ENGINEER

NO. 5943 - WS - L
OLYMPIC FOUNDRY CO. OR EQUAL



DO NOT SCALE

LOCKING MANHOLE FRAME

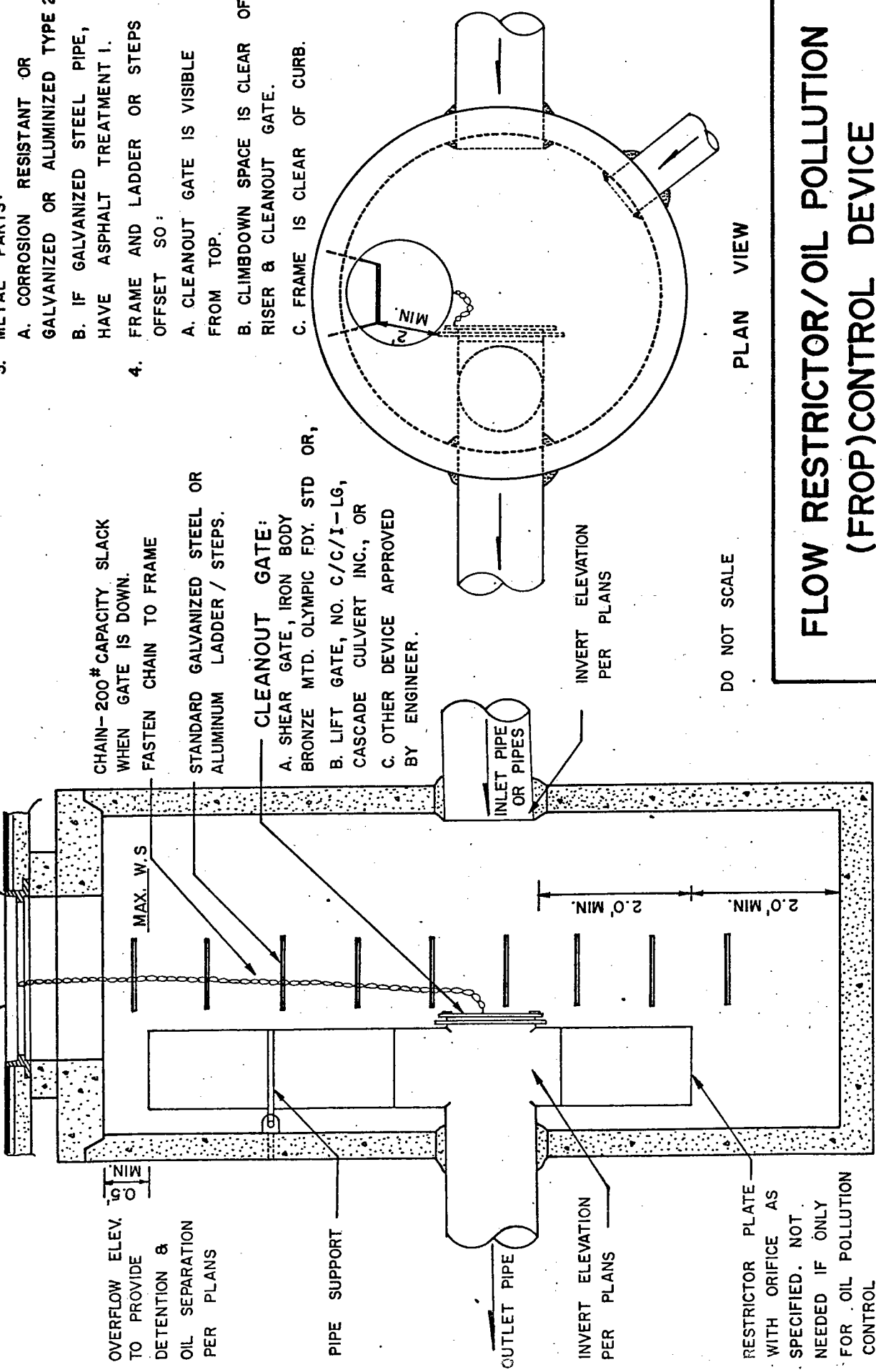
KING CO. WASHINGTON

SECTION A - A

- NOTES:**
1. PIPE SIZES & SLOPES, PER PLANS.
 2. OUTLET CAPACITY NOT LESS THAN COMBINED INLETS.
 3. METAL PARTS:
 - A. CORROSION RESISTANT OR GALVANIZED OR ALUMINIZED TYPE 2.
 - B. IF GALVANIZED STEEL PIPE, HAVE ASPHALT TREATMENT 1.
 4. FRAME AND LADDER OR STEPS OFFSET SO:
 - A. CLEANOUT GATE IS VISIBLE FROM TOP.
 - B. CLIMBDOWN SPACE IS CLEAR OF RISER & CLEANOUT GATE.
 - C. FRAME IS CLEAR OF CURB.

ROUND SOLID COVER MARKED "DRAIN", WITH LOCKING BOLTS, UNLESS OTHERWISE APPROVED BY ENGINEER

FRAME & LADDER OR STEPS OFFSET SEE NOTE 4. FRAME & GRATE ELEVATION PER PLANS



CHAIN-200 # CAPACITY SLACK WHEN GATE IS DOWN. FASTEN CHAIN TO FRAME

STANDARD GALVANIZED STEEL OR ALUMINUM LADDER / STEPS.

CLEANOUT GATE:

- A. SHEAR GATE, IRON BODY BRONZE MTD. OLYMPIC FDY. STD OR,
- B. LIFT GATE, NO. C/C/I-LG, CASCADE CULVERT INC., OR
- C. OTHER DEVICE APPROVED BY ENGINEER.

DO NOT SCALE

PLAN VIEW

FLOW RESTRICTOR/OIL POLLUTION (FROP) CONTROL DEVICE

CATCH BASIN TYPE II, DIAMETER AS REQUIRED

KING CO. WASHINGTON