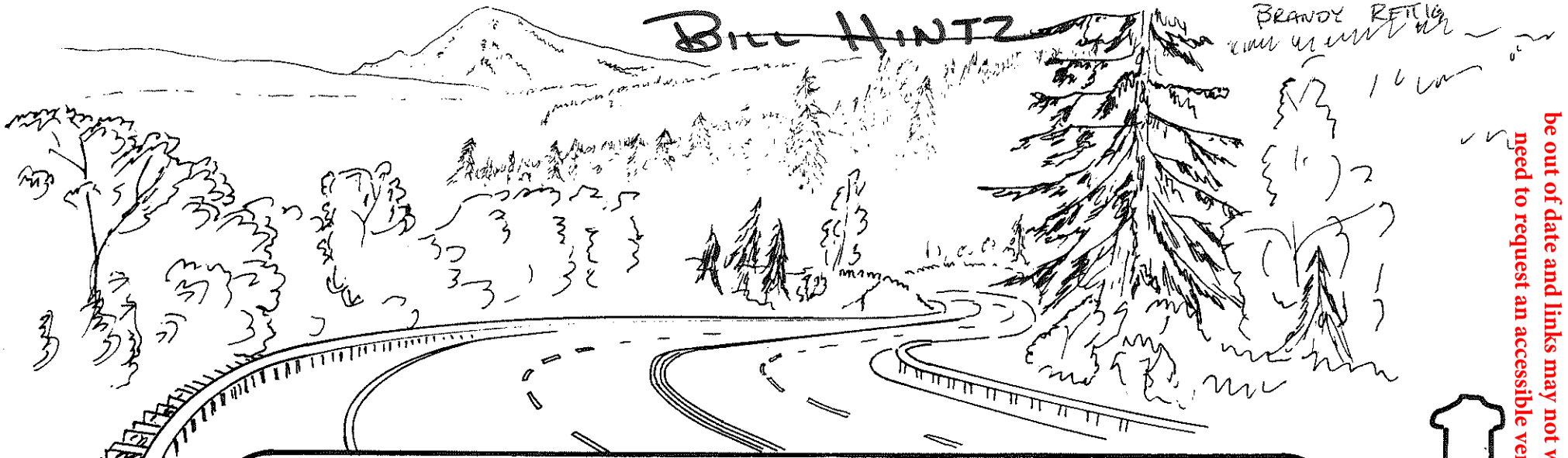

KING COUNTY
ROAD STANDARDS
1979

Department of Public Works
James W. Guenther, Director

1400

JRB

TO: HOLDERS OF KING COUNTY ROAD STANDARDS 1979:

In accordance with King County Ordinance No. 5725, copied on this page, this copy of the Standards should contain revised pages as listed. Each affected page is so annotated in the bottom margin.

Questions or comments may be addressed to

County Road Engineer
900 King County Administration Building
Seattle, WA 98104

or phone (206) 344-3821

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 6th day of November, 1981.

King County Executive

ORDINANCE NO. 0004463

AN ORDINANCE approving and adopting the "King County Road Standards" as the standards for road design in King County, repealing King County Resolution No. 33864; K.C.C. 19.12.010 through 19.12.040 and K.C.C. 19.16.020.

PREAMBLE:
The King County Road Standards were last updated by King County Resolution No. 33864, dated July 10, 1967, under the title "Design Standards and Specifications for Plat Roads and Private Work on County Right of Way." The proposed new publication "King County Road Standards" updates the 1967 document, adds material to answer the questions most frequently arising during plat review, and makes the Standards applicable to construction by King County as well as private builders.

BE IT ORDAINED BY THE COUNCIL OF KING COUNTY:

Section 1: Repeal. King County Resolution No. 33864; K.C.C. 19.12.010 through 19.12.040 and K.C.C. 19.16.020 are hereby repealed.

Section 2: Adoption. "King County Road Standards", Attachment A, and Attachment B, are hereby approved and adopted as the King County standards for road design and construction.

Section 3: Terms.

(1) "Standards". King County Road Standards.

(2) "Engineer": King County Road Engineer, having authorities specified in RCW 36.75.050 and 36.80, or his authorized representative.

Section 4: Applicability. These Standards shall govern all construction and upgrading of public and private roads in King County except there otherwise provided in other ordinances such as those regulating planned unit developments, short subdivisions, mobile home parks, multifamily development, commercial developments and industrial developments. The Standards are applicable both to private work within King County right of way and to construction by King County.

Section 5: Responsibility to provide. All development except that which does not create or add significantly to the traffic of an abutting road shall include provision for construction or improvement according to these Standards.

Section 6: References. The Standards implement and are intended to be consistent with the references listed in Section 1.04 of Attachment A, "King County Road Standards".

Section 7: Variances. Variances from these Standards may be granted by the Engineer upon evidence that such variances are in the public interest, that they are based upon sound engineering judgement, and that requirements for safety, function, appearance, and maintainability are fully met. Desired variances must be approved prior to construction.

Section 8: Penalties. Failure to comply with these Standards will be cause for withholding or withdrawing approval of plans or plats, forfeiture of bond, and/or other penalties as provided by law.

Section 9: Severability. If any part of these Standards as established by ordinance shall be found invalid, all other parts shall remain in effect.

Section 10: This Ordinance shall take effect sixty (60) days from its enactment.

INTRODUCED AND READ for the first time this 13th day of February, 1979.

PASSED this 27th day of August, 1979.

KING COUNTY COUNCIL
KING COUNTY, WASHINGTON

Ruby Chow
Chairman

ATTEST:

John H. Hammond
Clerk of the Council

APPROVE this 30th day of August, 1979.

John D. Spellman
King County Executive

KING COUNTY ROAD STANDARDS

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KING COUNTY ROAD STANDARDS

0. INTRODUCTION

The purpose of these Road Standards is to standardize road design elements where necessary for consistency and to assure so far as practical that the minimum requirements of the motoring, bicycling, equestrian and pedestrian public are met. These requirements include safety, convenience, pleasant appearance and economical maintenance. The Standards also provide guidelines for location and installation of utilities within the right of way.

These Standards cannot provide for all situations. They are intended to assist but not to substitute for competent work by design professionals. It is expected that land surveyors, engineers, and architects will bring to each project the best of skills from their respective disciplines.

The Standards are also not intended to limit unreasonably any innovative or creative effort which could result in better quality, better cost savings, or both. Any proposed departure from the Standards will be judged, however, on the likelihood that such variance will produce a compensating or comparable result, in every way adequate for the road user and County resident.

I. King County Urban Trail Plan.

J. State of Washington Shoreline Management Act.

K. King County Capital Improvement Program, as updated annually or oftener.

1.05 State Specifications & Plans: Except where these Standards provide otherwise, design detail, workmanship and materials shall be in accordance with the following Washington State Department of Transportation publications, current editions as adopted by King County:

A. Standard Specifications for Road and Bridge Construction. These will be referred to as the "State Standard Specifications."

B. Standard Plans for Road and Bridge Construction.

1.06. Other Specifications: These include the following, which shall be applicable when pertinent, when specifically cited in the Standards, or when required by higher funding authority.

A. U.S. Department of Transportation Manual on Uniform Traffic Control Devices, as amended and approved by Washington State Department of Transportation; abbreviated as the "MUTCD".

B. Washington Chapter APWA Standard Specifications for Municipal Public Works Construction, current edition. These will be referred to as the "APWA Standard Specifications".

C. Recommended Standards for Water Works, a Report of Committee of the Great Lakes - Upper Mississippi Board of State Sanitary Engineers, also known as the "10 - State Standard," current revised edition.

D. Rules and regulations of the State Board of Health regarding public water supplies, as published by the State Department of Social and Health Services.

E. Standard Specifications for Highway Bridges, adopted by the American Association of State Highway and Transportation Officials (AASHTO), current edition.

F. Design criteria of Federal agencies including Department of Housing and Urban Development and the Federal Housing Administration.

1.07 Variances: Variances from these Standards may be granted by the Engineer upon evidence that such variances are in the public interest, that they are based upon sound engineering judgement, and that requirements for safety, function, appearance, and maintainability are fully met. Desired variances must be approved prior to construction.

2.00 PLAN FORMAT

2.01 Submittal Procedure: Plans for proposed road construction shall be submitted in accordance with King County Code Title 19. Specifically:

A. For proposed road and drainage construction by a developer, complete road plans and profile, together with a drainage plan, shall be signed and sealed and submitted by the applicant's engineer to the King County Road Engineer for review. Applicant's engineer shall be a Professional Civil Engineer registered as such in the State of Washington. Final plan and profile drawings must be approved by the County Road Engineer prior to the start of construction and recording of the plat. A temporary erosion/sedimentation control plan must be approved by the County Road Engineer prior to construction.

B. Plans for County force or County contract construction shall be submitted according to instructions from the County Road Engineer. Plans shall be approved by him and if necessary by higher funding authority prior to construction.

2.02 General Formatting: General formatting, copying, and submittal processes shall include:

A. For private developers:

1. Plan sheets and profile sheets or combined plan and profile sheets, detail sheets as required, all in sheet sizes 24" x 36" or 18" x 24". Original sheets shall be good quality reproducibles, Mylar or equal.

2. First submittal: 3 sets of prints of road plans, profiles, and detail sheets; 2 sets of prints of drainage area plans and drainage calculations.

3. Final submittal: Original and 2 sets of prints of corrected road plans, profiles, detail sheets, and drainage plans and calculations; complete quantity take-off of proposed construction; together with the most recent review set previously marked up by the County reviewers. Upon the Engineer's approval of the final submittal, the Department will make a reproducible set, cost to be paid by the developer, and return original set to the developer's engineer. The Department will retain this reproducible, utilizing it to make copies for public inspection and distribution as required.

B. For County design staff: As required for coordination and for approval by funding authorities.

2.04 Profile Elements: Profile elements shall include the following:

A. Original ground line at 100' stations and at significant ground breaks and topographic features, with accuracy to within 0.1' on unpaved surface and 0.02' on paved surface.

B. Final road and storm drain profile with stationing same as horizontal plan, reading from left to right, to show stationing of points of curve, tangent, and intersection of vertical curves, with elevations to 0.01'.

C. On grid of numbered lines, a continuous plot of vertical positioning against horizontal.

D. Road grade and vertical curve data; road to be measured at centerline.

E. Datum used and all bench marks, which must refer to established control when available.

F. Vertical scale 1"=5'. As exception, vertical scale shall be 1"=10' if optional 1"=100' horizontal scale is used on developments of lots 1-acre or larger. Clarifying details may be done to a convenient scale.

2.05 Drainage Plan: A drainage plan is required by King County Code Title 20.50 and its implementing directive Requirements and Guidelines for Storm Drainage Control in King County, also referred to as "Drainage Guidelines." This drainage plan shall be submitted either integral with the above plan and profile for the road design, if graphic space permits, or on separate plan and data sheets. In either case the drainage plan shall include runoff calculations keyed to topographic maps; location, specific size, grade, and elevation data on all hydraulic features; and facilities for retention and for grease and siltation control.

3.01 ARTERIAL ROADS: See Drawings No. 1 and 2.

CLASSIFICATION		MAJOR ARTERIALS		SECONDARY ARTERIALS		COLLECTOR ARTERIALS	
Function		Inter-community highways connecting largest community centers & facilities.		Intra-community highways connecting community centers & facilities.		Intra-community highways connecting residential neighborhoods with community centers & facilities.	
Access		Controlled		Controlled		Controlled but with some access to abutting properties.	
Max. Arterial Spacing		2 to 5 miles		Under 2 miles		Under 2 miles	
		RURAL	URBAN	RURAL	URBAN	RURAL	URBAN
ADT (X 1,000)			1.5 to 40		1.5 to 40	.4 to .75	.5 to 5
DHV		Over 600		200 to 600		100 to 200	
CRITERIA							
A. Design Speed* (MPH)	Flat	65	55	55	55	55	55
	Rolling	55	45	45	45	45	45
	Mountainous	45	35	35	35	35	35
B. Max.Superelevation (Ft./ft.)		.06	.06	.06	.06	.06	.06
C. Horizontal Curvature		Max. D° Min. R'	Max. D° Min. R'	Max. D° Min. R'	Max. D° Min. R'	Max. D° Min. R'	Max. D° Min. R'
	Flat	4 1430	6 1040	6 1040	6 1040	6 1040	6 1040
	Rolling	6 1040	9 660	9 660	9 660	9 660	9 660
	Mountainous	9 660	14.5 400	14.5 400	14.5 400	14.5 400	14.5 400
D. Max.Grade** (%)	Flat	4	6	4	6	6	7
	Rolling	5	7	5	7	7	10
	Mountainous	7	9	7	9	9	12
E. Min.Stopping Sight Dist. (Ft.)	Flat	550	410	410	410	410	410
	Rolling	410	310	310	310	310	310
	Mountainous	310	240	240	240	240	240
F. Min.Passing Sight Dist. (Ft.) on 2-Ln.Rd.	Flat	2300	1950	1950	1950	1950	1950
	Rolling	1950	1650	1650	1650	1650	1650
	Mountainous	1650	1300	1300	1300	1300	1300
G. Min.Pavement Width (Ft.)	2-Lane	24	44	24	44	22	36
	4-Lane	44	44	44	44	44	44
	5-Lane	56	56	56	56	--	56
H. Min.Roadway*** Width (Ft.)	2-Lane	40	44	40	44	38	36
	4-Lane	60	44	60	44	60	44
	5-Lane	72	56	72	56	--	56
I. Min.Right of Way Width (Ft.)	2-Lane	100	100	84	84	60	60
	4-Lane	100	100	84	84	60	60
	5-Lane	100	100	84	84	--	60
J. Type of Curb or Shoulder*** & Ditch		8' Shoulder & Ditch	Vert.Curb & Gutter	8' Shoulder & Ditch	Vert.Curb & Gutter	8' Shoulder & Ditch	Vert.Curb & Gutter

K. Within the above parameters, geometric design requirements shall be determined for specific arterial roads based on the State Transportation Design Manual.

* Design Speed (See Page 10) -- *** Guardrail Installations (See Page 10)

** Max. grade may be exceeded for short distances, provided no practical alternative exists and subject to approval by the Engineer.

3.03 Cul-De-Sacs. See Drawing Number 8. CLASSIFICATION: A dead-ending local or minor access street.

CRITERIA

A. Geometrics of stem section are same as for local or minor access streets.

B. Min. right of way width across bulb section: 100 feet.

C. Min. pavement width across bulb: 80 feet in urban curb and gutter section, 64 feet in rural shoulder and ditch.

D. Cul-de-sac Island: Optional feature when paved diameter is 80 feet or less; mandatory when paved diameter exceeds 80 feet. If provided, island shall have concrete extruded or full-depth vertical curb. There shall be at least 22 feet of paved traveled way in a rural shoulder and ditch section, and 30 feet of paved travel way in a curb and gutter section around circumference. Island shall be grassed or landscaped. It shall be maintained by the adjoining lot owners.

3.04 Commercial Streets. See Drawing Number 2

CLASSIFICATION: This is a subclassification of any street that provides local access to abutting commercial or industrial properties and carries significant trunk traffic.

CRITERIA

A.	Design Speed	35 MPH
B.	Min. Right of Way Width	60 feet
C.	Min. Pavement Width	40 feet
D.	Type of Curb	Vertical Curb and Gutter
E.	Min. Stopping Sight Dist.	300 feet
F.	Max. Grade	12.0%
G.	Max. Super Elevation	.06'/foot

The main difference between these and other street criteria is the minimum pavement width of 40 feet. The width must be sufficient to accommodate both significant through traffic and frequent local truck movements such as backing, turning, and positioning for loading.

3.05 Median. Optional design feature. A median shall be additional to, not part of, the specified width of traveled way. Edges shall be similar to outer road edges: either urban, extruded or formed vertical curb; or rural, shoulder and ditch; except that median shoulders shall be minimum 4 feet in width. Median may be grassed, landscaped, or surfaced with aggregate or pavement. Median shall be designed so as not to limit turning radii or sight distance at intersections.

2. Topographic, geological or soil conditions make development of a public road undesirable, or
3. The streets are within a private community with a corporate identity, or
4. Neighborhood traffic circulation and lot access can be met more logically by private streets than by public streets.

CRITERIA FOR CONSTRUCTION:
Private streets shall conform to these Standards except where otherwise provided in other ordinances such as those regulating planned unit developments, short subdivisions, mobile home parks, multifamily developments, commercial developments, and industrial developments.

3.08 Freeways & Expressways are higher classification roads which are usually State or Federal responsibility. In the event that the County has jurisdiction over the construction or improvement of such a facility, the work shall be done in accordance with appropriate State or Federal standards.

3.09 Other Road Design Criteria. Criteria under other recognized road classifications, such as those of the Federal-Aid Rural Area Design Standards, may be applied and the County's criteria may be reduced for special facilities such as planned unit developments and mobile home parks under conditions deemed appropriate by the Engineer.

3.10 Slope, Wall, & Drainage Easements. Either the functional classification or particular design features of a road may necessitate slope, wall or drainage easements beyond the right of way line. Such easements may be required by the Engineer in conjunction with dedication or acquisition of right of way.

4.02 Asphalt Walkways shall be required on rural category, shoulder and ditch type streets as follows:

A. In business areas and residential areas with density of three or more dwelling units per gross acre:

1. On all Arterials and Neighborhood Collector streets, both sides.

2. On Local Access streets capable of serving 25 dwelling units or more, one side.

3. On perimeter streets except when such streets are Local Access streets capable of serving less than 25 dwelling units.

B. In residential areas having less than three dwelling units per acre but more than 1/2 dwelling unit per acre:

1. On all Arterials, both sides.

2. On Neighborhood Collector streets, one side.

3. On perimeter streets except when they are Local Access streets, one side adjacent to development.

C. Full width of shoulder or, if separated from street, at least five feet in width.

D. Surfacing shall be as specified in Section 5.01.

4.03 Roadway Bikeways

A. A Class II Bikeway, with lanes designated for bicycles and contiguous to the motor vehicle travelled way, should be provided when:

1. Called for in the King County General Bike Plan, the County's Urban Trails Plan, or an approved community plan, or when traffic analysis shows substantial bicycle usage which would benefit from a designated bike facility, and

2. Space or routing considerations do not warrant Class I separate, off-street bikeways, and

3. Traffic speed or volume makes it difficult or hazardous for bicycles to share travelled lanes with motor traffic.

B. For Class II bike lanes the following specifications shall apply; whether to paved shoulders or to space next to curb:

C. When right of way permits, an equestrian lane may be constructed outside the ditch line. In such case, the criteria for an off-street facility as stated in Section 4.06C shall apply.

4.05 Combination Roadway Bike & Equestrian Lanes

Where both bike and equestrian uses are warranted, in accordance with Section 4.03 and 4.04 above, the available shoulder area may be divided to provide hard-paved surface next to motor-travelled way and crushed rock surface towards the ditch. At least four feet of width should be provided for each mode.

4.06 Off-Street Bikeways, Walkways, & Equestrian Trails

As a matter of policy, separate off-street facilities for bicyclists, pedestrians, and horseback riders are encouraged wherever there is significant public demand for such facilities and space can be made available. Where such facilities are provided, the following standards shall apply:

A. Off-street bikeways shall be at least 10 feet and preferably 12 feet wide, and surfaced as indicated in Section 5.01. Grades shall be as moderate as terrain will permit.

B. Off-street walkways shall be at least 5 feet wide and surfaced as indicated in Section 5.01.

C. Off-street equestrian trails shall be at least 8 feet wide and surfaced as indicated in Section 5.01.

D. Where crowding is not a factor, the walkway function can be combined with a bikeway or, less desirably, with an equestrian trail. See Section 4.05 above.

E. Where bikeways, walkways, or equestrian trails intersect with motorized traffic, sight distance, marking, and signalization (if warranted) shall be as provided in the MUTCD.

TYPE OF FACILITIES	ASPHALT CONCRETE	LI.BITUM. SURF.TREAT.	CRUSHED SURF.TOP COURSE	CRUSHED SURF.BASE COURSE	PORTLAND CEMENT CONCRETE
4. WALKWAYS & BIKEWAYS					
Alternative I	2"		1-1/2". . .	2-1/2"	
Alternative II	.3-1/2"				
Alternative III		Class A	1-1/2". . .	2-1/2"	

When a walkway or bikeway is incorporated into a road shoulder, the required shoulder section, if higher strength, shall govern. Equestrian trails incorporated into road shoulders shall be constructed with crushed surfacing material as indicated in Alternative IV for Shoulders.

5. DRIVEWAYS may be surfaced similar to shoulders or as desired by the owner, except:

   (a) On curbed streets with sidewalks, driveway shall be paved with minimum 5 inches portland cement concrete from curb to back edge of sidewalk; See Drawing No. 11; and

   (b) On rural ditch section, driveway between paved travel lane and property line shall be surfaced with material other than portland cement concrete; See Drawing No. 10.

6. EQUESTRIAN TRAILS, when separated from other traffic modes, shall be constructed on graded and compacted native soil. Existing soil which is not free-draining shall be removed and be replaced with free-draining soil. If heavy usage is anticipated, particularly in wet weather, the surface should be improved by adding crushed surfacing aggregate, cinders, or other materials which will tend to stabilize the surface while preserving its resiliency under hooved traffic.

NOTE: ASPHALT TREATED BASE may be substituted for asphalt concrete in temporary surfacing or in leveling course in the ratio of four parts thickness of asphalt treated base to three parts asphalt concrete. Four inches asphalt treated base may be substituted for total four inches of crushed surfacing top and base courses.

6.00 ROADSIDE FEATURES

6.01 Driveways

A. Permissible dimensions, slope and detail shall be as indicated in Drawings 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.

2. The rock material shall be as nearly rectangular as possible. No stone shall be used which does not extend through the wall. The rock material shall be hard, sound, durable and free from weathered portions, seams, cracks and other defects. The rock density shall be a minimum of 160 pounds per cubic foot.

C. The retaining wall shall be started by excavating a trench, not less than six (6) inches or more than one (1) foot in depth below subgrade in excavation sections or below the existing ground level in embankment sections.

D. Rock selection and placement shall be such that there will be minimum voids and, in the exposed face of the wall, no open voids over six (6) inches across in any direction. The final course shall have a continuous appearance and be placed to minimize erosion of the backfill material. The larger rocks shall be placed at the base of the rockery so that the wall will be stable and have a stable appearance. The rocks shall be placed in a manner such that the logitudinal axis of the rock shall be at right angles or perpendicular to the rockery face. The rocks shall have all inclining faces sloping to the back of the rockery. Each course of rocks shall be seated as tightly and evenly as possible on the course beneath. After setting each course of rock, all voids between the rocks shall be chinked on the back with quarry rock to eliminate any void sufficient to pass a 2 inch square probe.

E. The wall backfill shall consist of quarry spalls with a maximum size of four (4) inches and a minimum size of two (2) inches. This material shall be placed to an eight (8) inch minimum thickness between the entire wall and the cut or fill material. The backfill material shall be placed in lifts to an elevation approximately six (6) inches below the top of each course of rocks as they are placed, until the uppermost course is placed. Any backfill material on the bearing surface of one rock course shall be removed before setting the next course.

F. When a sidewalk is to be built over a rock retaining wall, the top of the wall shall be sealed and leveled with a cap constructed of Cement Concrete, Class C in accordance with the applicable provisions of Section 6-02 of the State Standard Specifications, but with reduced water content resulting in slump of not over two (2) inches.

6.04 Side Slopes

A. Side slopes shall be constructed no steeper than 1-1/2 to 1 on fill slopes and 1 to 1 on cut slopes. Flatter slopes are preferred and may be required by the Engineer if there are indications that the earth is unstable and subject to sliding or sloughing.

6.08 Survey Monuments

A. All existing survey control monuments which are disturbed, lost, or destroyed during surveying or building shall be replaced by the responsible surveyor or builder at his own expense.

B. Survey control monuments shall be placed or replaced in accordance with recognized good practice in land surveying, and in conformance with Drawing Nos. 19 and 20.

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 a 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.

3. Length of inlet connection shall not exceed 25 feet.

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 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 storm drains with depths less than five feet to flow line, catch basins may be one of the following:

1.	Catch Basin Type I	(Drawing No. 22)
2.	Catch Basin Type I-K	(Drawing No. 23)
3.	Catch Basin Type II-48"	(Drawing No. 24)

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. 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.

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)

B. Peak Discharge Control:

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

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

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.

8.04 Special Permits: Include but are not limited to the following:

A. Bridges over navigable waterways require U.S. Coast Guard approval.

B. Bridges over other waterways require the Engineer's approval in regard to size and shape of hydraulic opening, height of superstructure over high water, location of piers, channel improvement, and other hydraulic considerations.

C. Bridges over waterways supporting aquatic life require approval of the Washington State Departments of Fisheries, Game and Ecology.

D. Bridges located on shorelines or in wetlands as defined in King County Code Title 20.40 require permit from King County Department of Planning and Community Development, subject to concurrence from the State Department of Ecology.

E. Bridges crossing major rivers within King County may require a State Flood Control Zone Permit from the State Department of Ecology issued through the King County Division of Hydraulics.

C. Sanitary and water lines shall be separated in accordance with good engineering practice such as the Recommended Standards for Waterworks, a Committee Report of the Great Lakes - Upper Mississippi River Board of State Sanitary Engineers, known as the "10-State Standard," specifically Section 8.4.

D. Gravity systems, whether sanitary or storm drainage, shall have precedence over other systems in planning and installation.

E. Electric utilities, power, telephone, cable TV:

Preferable: Underground, either side of road, at plan location and depth compatible with other utilities and storm drains.

Otherwise: On poles set back of ditchline or sidewalk, at locations compatible with driveways, intersections, and other essential road features. To extent practical, utilities should share facilities so that a minimum of poles are needed, and preferably on only one side of road.

F. Notwithstanding other provisions, underground systems shall be located at least five feet away from road centerline and where they will not otherwise disturb existing survey monumentation.

9.03 Underground Pipe Materials & Installation

Water mains and sanitary sewer pipe installed in the public right of way shall conform to the provisions of Division III and Division IV of the Washington Chapter APWA Standard Specifications, current edition, except as otherwise provided herein.

9.04 Scheduling of Utilities Installation & Relocation

A. Pole utilities and underground utilities, including service crossings, shall be installed or relocated prior to the start of road construction if planned road cuts and fills are minimal and location of road elements can be clearly indicated in advance. Otherwise such utilities, with connections, shall be installed or relocated after the subgrade has been completed but before surfacing has been placed.

B. As a matter of policy, utility trenching or transverse cuts in County roads will be discouraged. They will not be permitted unless it can be shown that alternatives such as boring or jacking or relocating outside the paved area are infeasible, or

10.00 INSPECTION

10.01 Basis for Control of the Work

A. Work performed in the construction or improvement of County roads, whether by or for a private developer, by County forces, or by County contractor, shall be done to the satisfaction of the Engineer and in accordance with approved plans (Section 2.00). It is emphasized that no work may be started until such plans are approved. Any revision to such plans shall be approved by the Engineer before being implemented.

B. The Engineer shall have authority to enforce the Standards as well as other referenced or pertinent specifications. He will appoint project engineers, assistants, and inspectors as necessary to inspect the work and they will exercise such authority as the Engineer may delegate.

C. Provisions of Section 1-05 of the State Standard Specifications shall apply, it being understood that the term "Engineer" therein shall be construed to be the County Road Engineer as defined in Section 1.09 of the County Standards.

10.02 Subdivision Road Inspections

On all plat road construction, inspections will be done by the Construction Engineer and his designated Plat Inspectors. Unless otherwise instructed by the County Road Engineer, inspections will be made as follows:

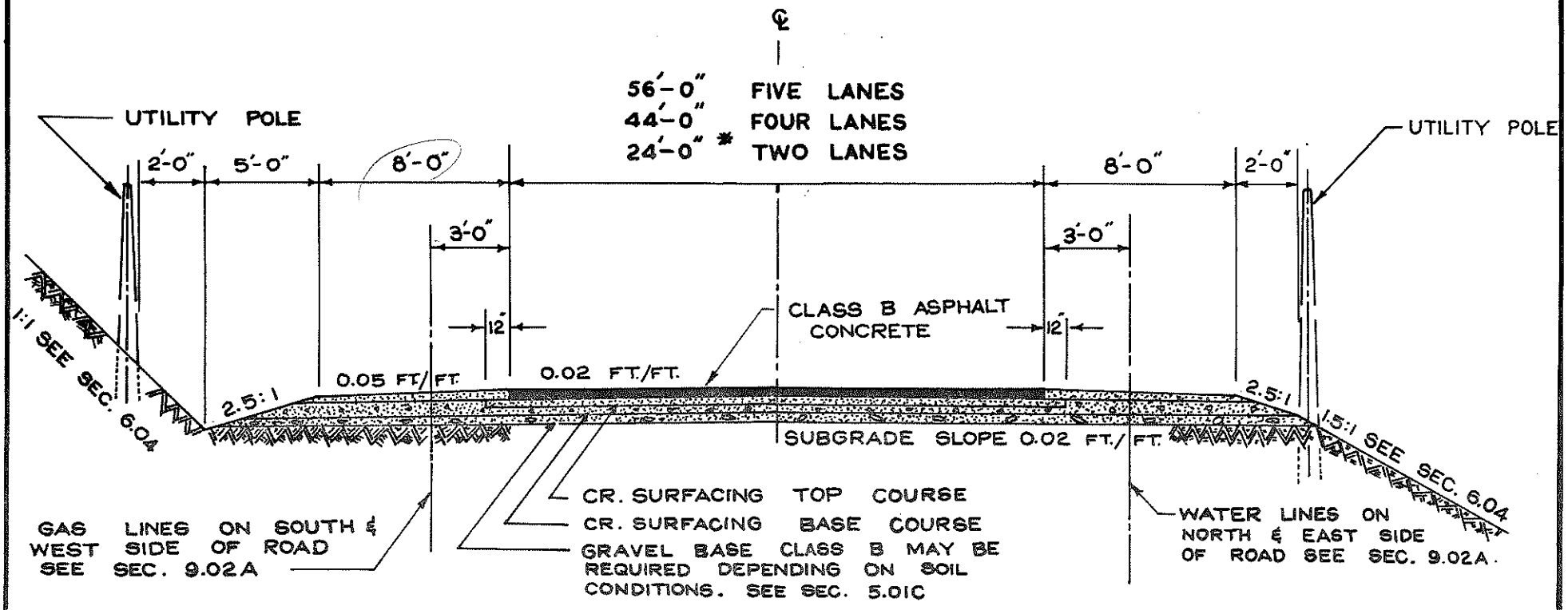
A. Inspection No. 1: temporary water detention/retention and siltation control in accordance with paragraph 7.05 above and Section 3 of "Drainage Policies and/or Recommendations" in latter part of Drainage Guidelines.

B. Inspection No. 2: underground drainage, at stage that trenching and placing of pipe are complete but prior to cover.

C. Inspection No. 3: general roadway, at stage that drainage system, underground utilities, and roadway grading to suitable subgrade are complete, including gravel ballast if required.

D. Inspection No. 4: general roadway, at stage that crushed gravel surfacing or base course has been placed, as well as curbing if required.

E. Inspection No. 5: general roadway, while paving is in progress.



* TWO-LANE COLLECTOR ARTERIALS MAY HAVE PAVEMENT WIDTH OF 22'-0"

NOTE:

THIS DRAWING ILLUSTRATES A TYPICAL ASPHALT CONCRETE ROAD SECTION. ACTUAL SURFACING DESIGN SHALL BE BASED ON SOILS AND TRAFFIC ANALYSES, PER SEC. 5.02

SHOULDERS SHALL BE SURFACED AS REQUIRED BY SECTION 4.02 AND 5.00

"SEE SECTION" REFERENCES ARE IN KING COUNTY ROAD STANDARDS

RIGHT OF WAY

MAJOR ARTERIALS	100'
SECONDARY ARTERIALS	84'
COLLECTOR ARTERIALS	60'

MIN. GRADE 0.5 %

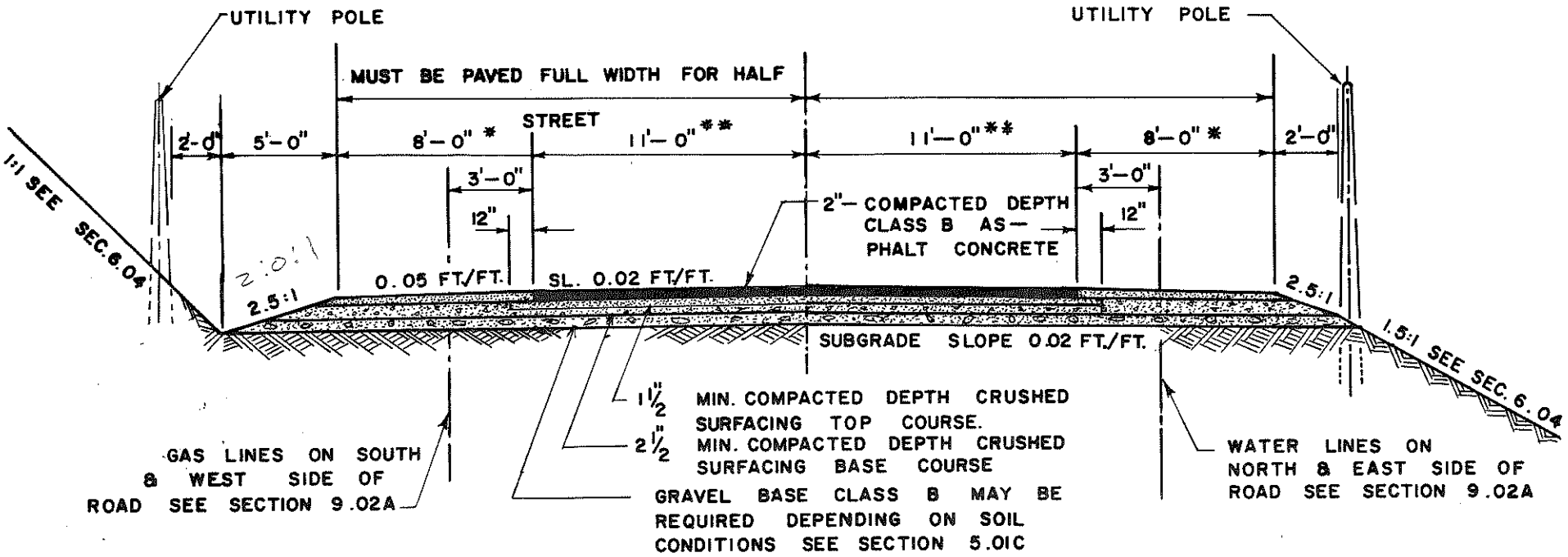
MAX. GRADE SEE SECTION 3.01

DO NOT SCALE

MAJOR, SECONDARY, AND COLLECTOR ARTERIALS RURAL DITCH SECTION

KING CO. WASHINGTON

DWG. NO. 1



* SHOULDERS ON MINOR ACCESS STREETS MAY BE 4'-0"

** LANES ON MINOR ACCESS STREETS MAY BE 10'-0"

RIGHT OF WAY

NEIGHBORHOOD COLL. & LOCAL ACCESS	60'
MINOR ACCESS STREETS	48'

MIN. GRADE 0.5 %

MAX. GRADE. SEE SECTION 3.02

DO NOT SCALE

NOTE:

THIS DRAWING ILLUSTRATES A TYPICAL ASPHALT CONCRETE SECTION, ALTERNATIVE I. FOR OTHER ALTER - NATIVES AND POSSIBLE REQUIREMENTS FOR INCREASED THICKNESS OF SURFACING MATERIALS, SEE SECTION 5.00

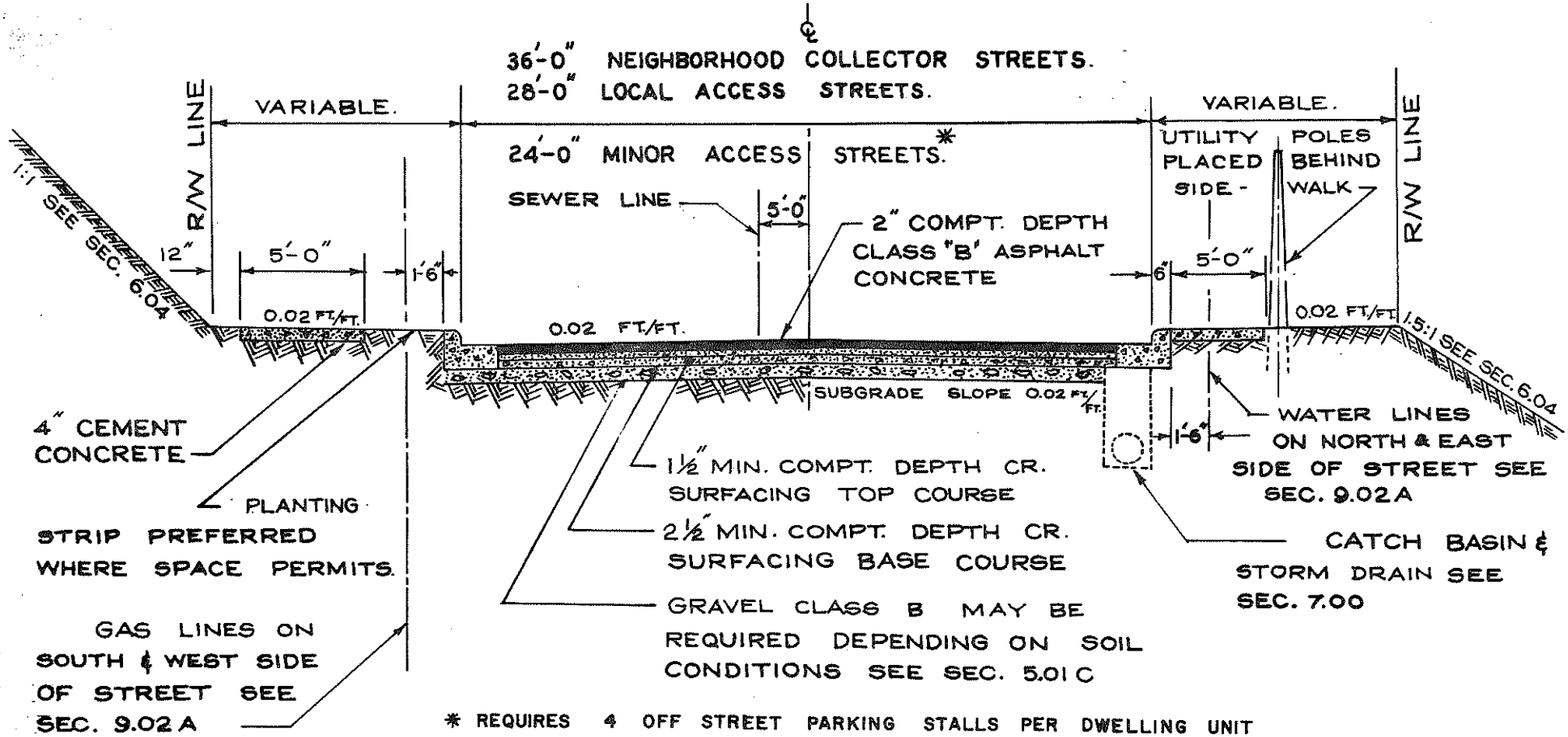
SHOULDERS SHALL BE SURFACED AS REQUIRED BY SECTIONS 4.02 AND 5.01

"SEE SECTION" REFERENCES ARE IN KING COUNTY ROAD STANDARDS

NEIGHBORHOOD COLLECTOR LOCAL & MINOR ACCESS STREETS A.C. RURAL DITCH SECTION

KING CO. WASHINGTON

DWG. NO. 3



* REQUIRES 4 OFF STREET PARKING STALLS PER DWELLING UNIT

RIGHT OF WAY:

NEIGHBORHOOD COLLECTOR STREETS	56'
LOCAL AND MINOR ACCESS STREETS	48'

MIN. GRADE 0.5 %

MAX. GRADE SEE SECTION 3.02

DO NOT SCALE

NOTE:

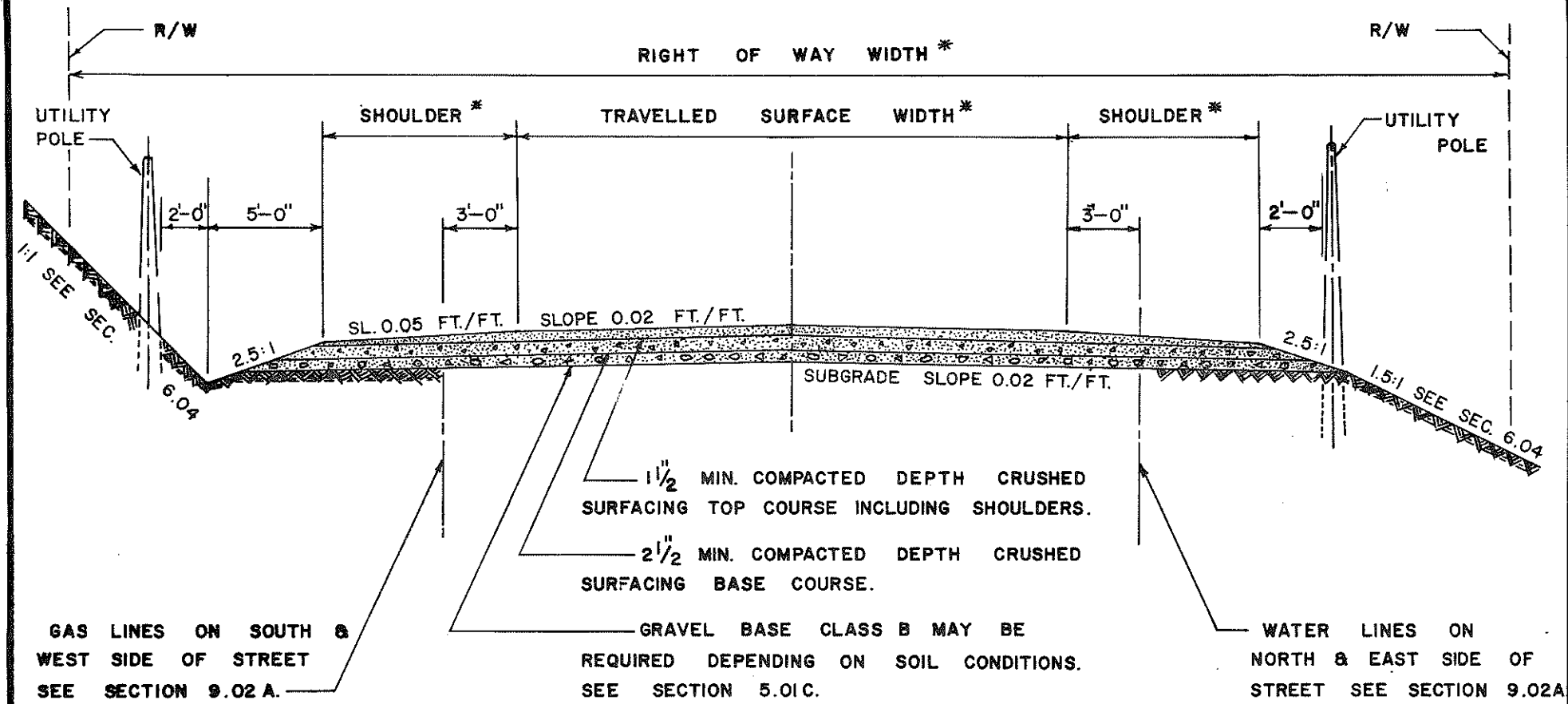
THIS DRAWING ILLUSTRATES A TYPICAL ASPHALT CONCRETE SECTION, ALTERNATIVE I. FOR OTHER ALTERNATIVES AND POSSIBLE REQUIREMENTS FOR INCREASED THICKNESS OF SURFACING MATERIALS SEE SEC. 5.00

"SEE SECTION" REFERENCES ARE IN KING COUNTY ROAD STANDARDS

NEIGHBORHOOD COLLECTOR LOCAL & MINOR ACCESS STREETS URBAN CURB & GUTTER SECTION

KING CO. WASHINGTON

DWG. NO. 5



* SEE SHORT PLAT ORDINANCE FOR DIMENSIONS.

MIN. GRADE	0.5 %
MAX. GRADE	12.0 %

DO NOT SCALE

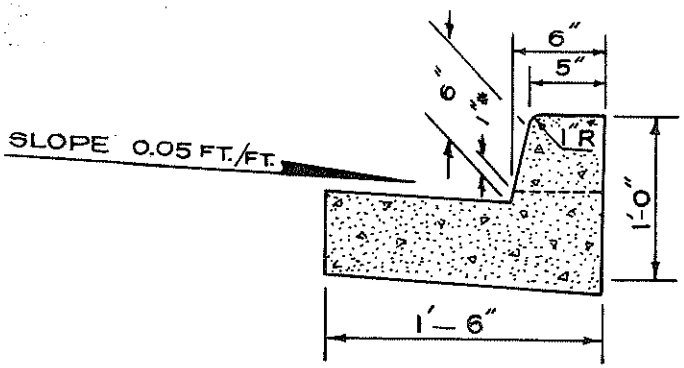
NOTE:

"SEE SECTION" REFERENCES ARE IN KING COUNTY ROAD STANDARDS

PRIVATE GRAVEL SURFACE ROADS, RURAL DITCH SECTION

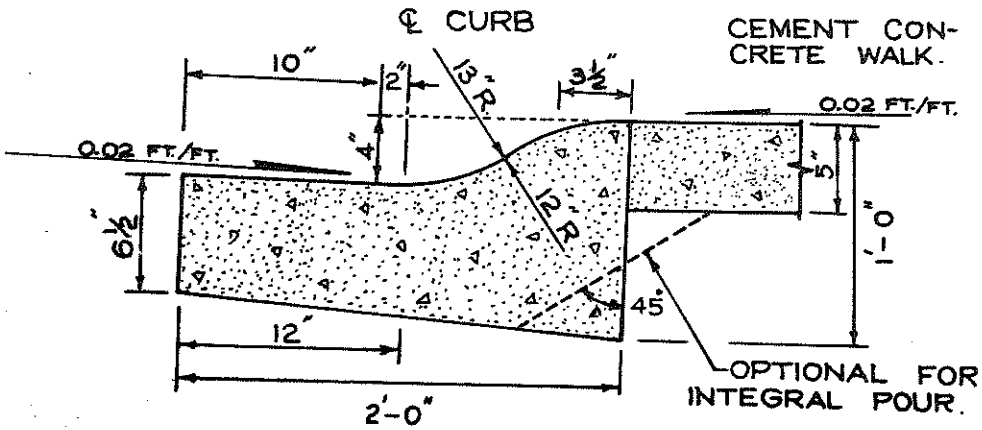
KING CO. WASHINGTON

DWG. NO. 7

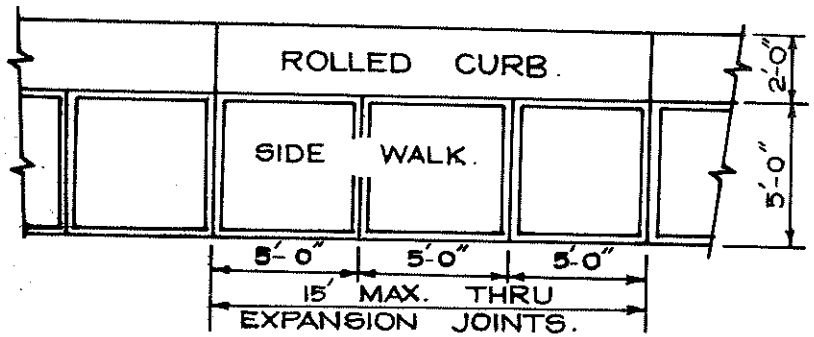


* NOTE: TOP OF CURB @ DRIVEWAYS

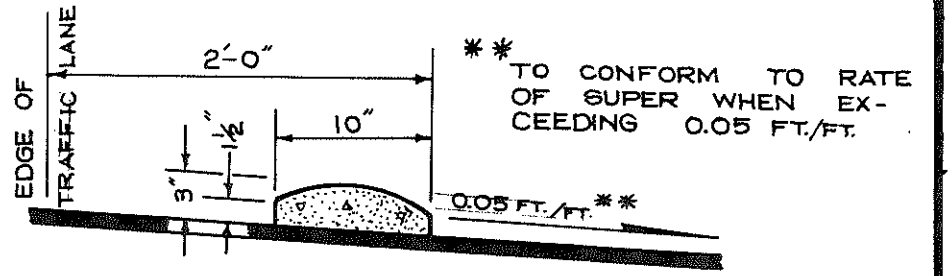
CEMENT CONCRETE CURB & GUTTER.



CEMENT CONCRETE ROLLED CURB.

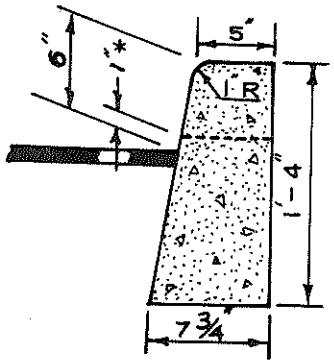


PLAN VIEW SIDEWALK & ROLLED CURB.



NOTE: DELETE AT DRIVEWAYS AND INTERSECTIONS ALSO 10 FT. BREAKS EVERY 150 FT. FOR DRAINAGE.

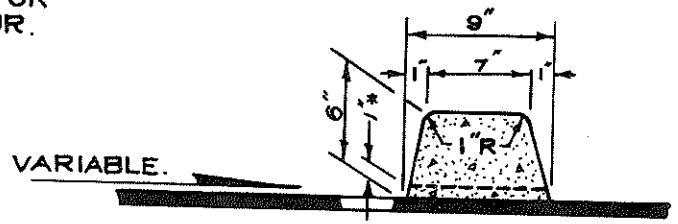
MOUNTABLE CEMENT CONCRETE CURB.



* TOP OF CURB @ DRIVEWAYS.

NOTE: FORMS OR SLIPFORM MAY BE USED. FORMING METHOD AND EXPANSION JOINTS SHALL CONFORM TO SEC. 8-04.3 OF STATE STANDARD SPECIFICATIONS.

CEMENT CONCRETE CURB.



* TOP OF CURB @ DRIVEWAYS.

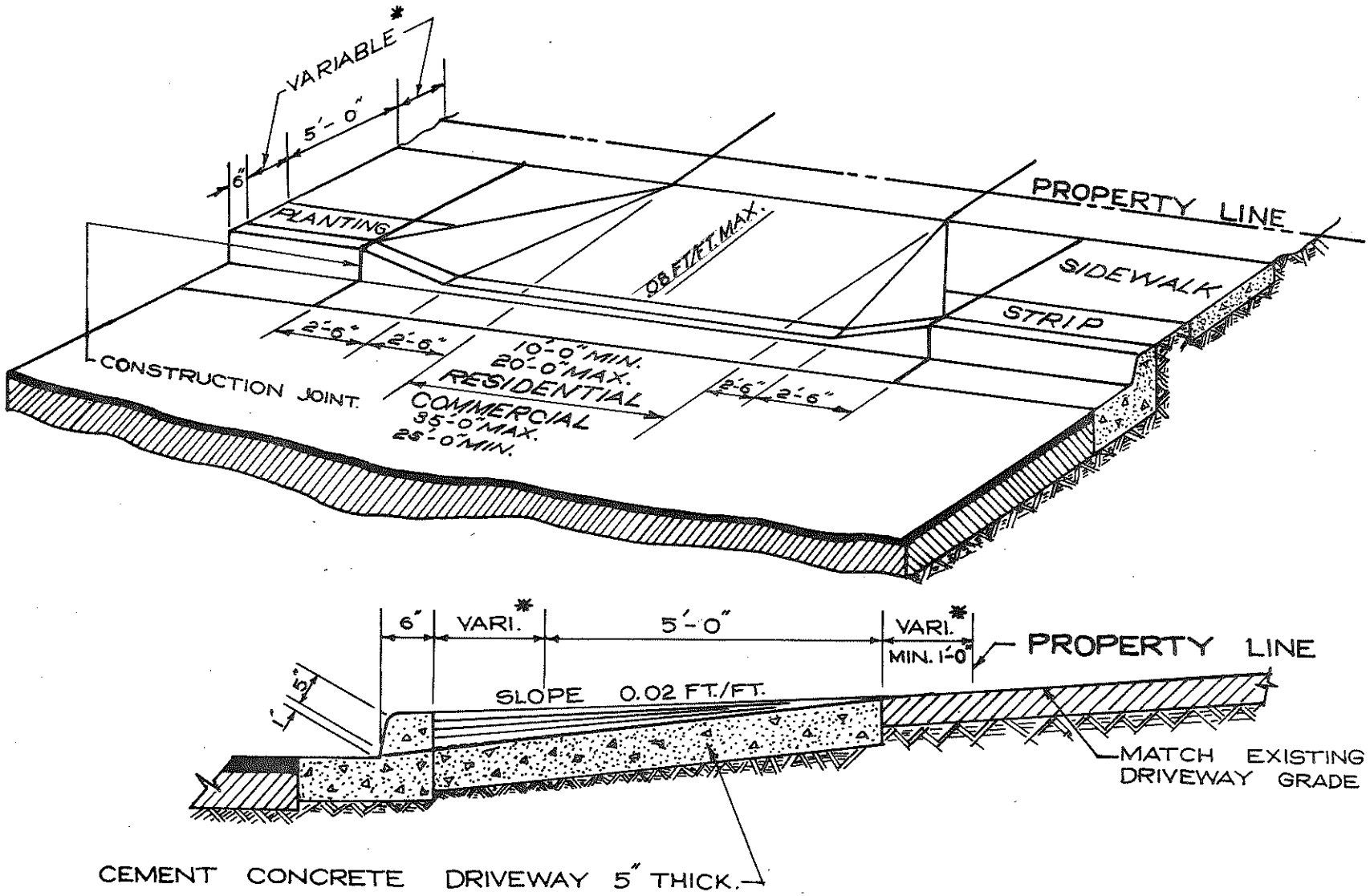
EXTRUDED ASPHALT OR CEMENT CONCRETE CURB.

DO NOT SCALE

CURB DETAILS

KING CO. WASHINGTON

DWG. NO. 9



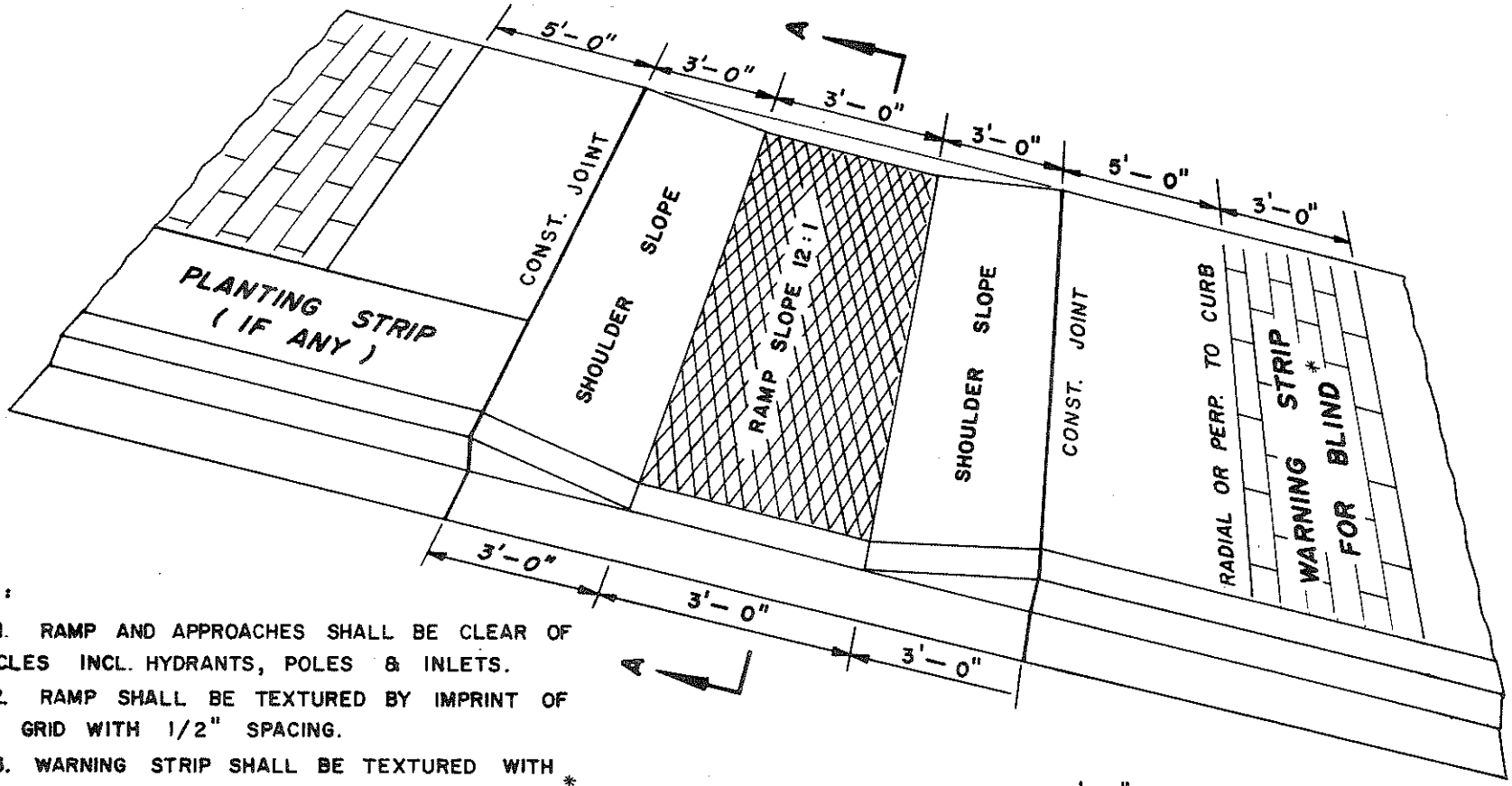
DO NOT SCALE

*. 1'-0" MIN. BETWEEN SIDEWALK AND PROPERTY LINE

CURB AND GUTTER SECTION DRIVEWAY

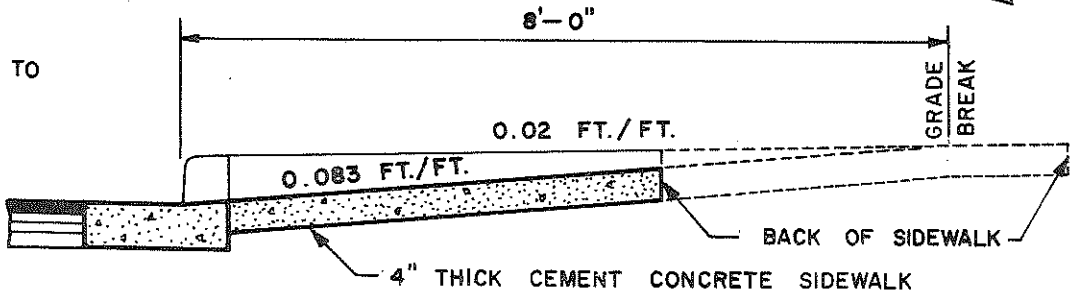
KING CO. WASHINGTON

DWG. NO. 11



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.



SECTION A — A

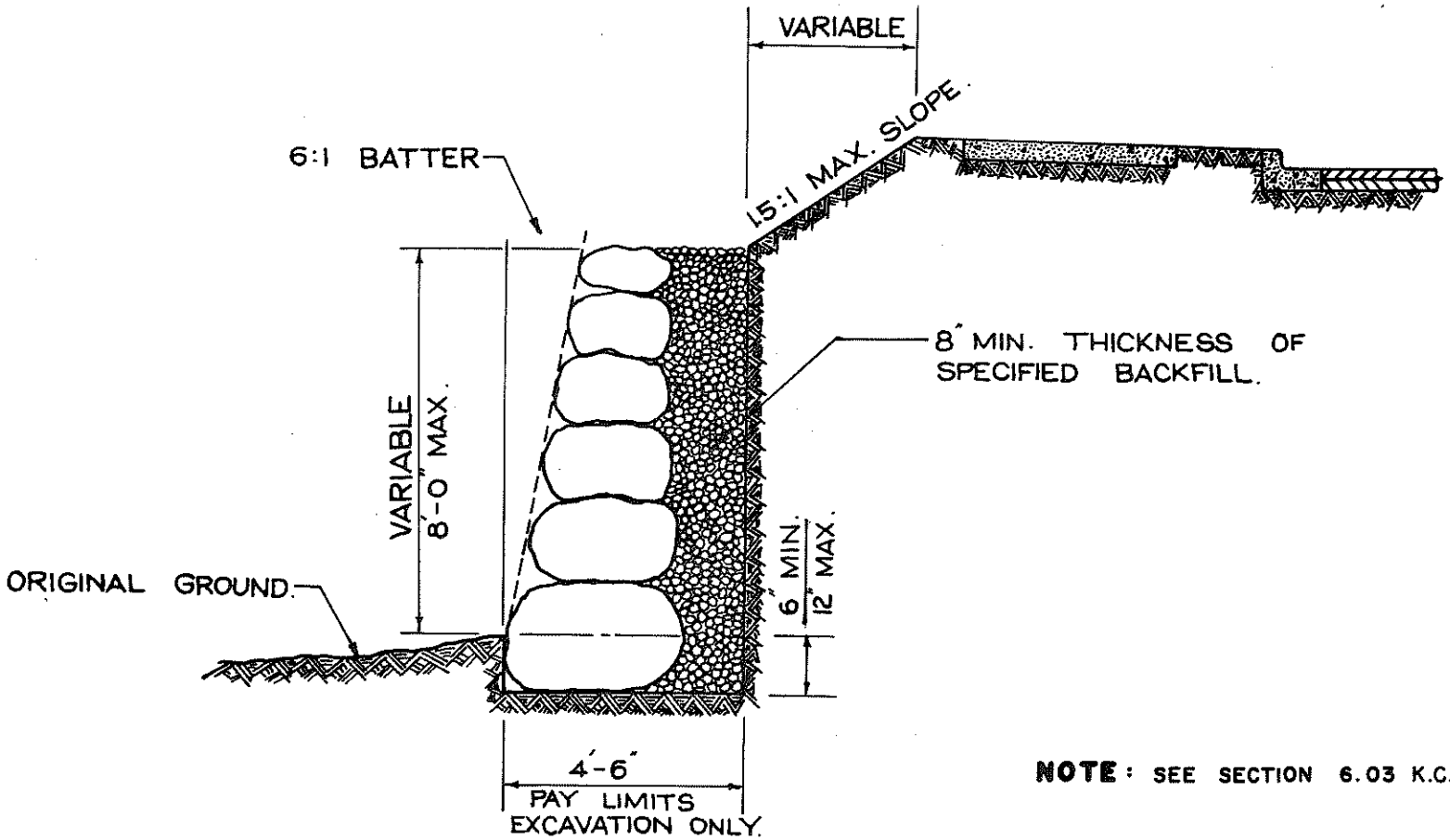
* WARNING STRIP TO BE PROVIDED IF SPECIFIED

DO NOT SCALE

CURB RAMPS

KING CO. WASHINGTON

(REVISED OCT. 1981) DWG. NO.13



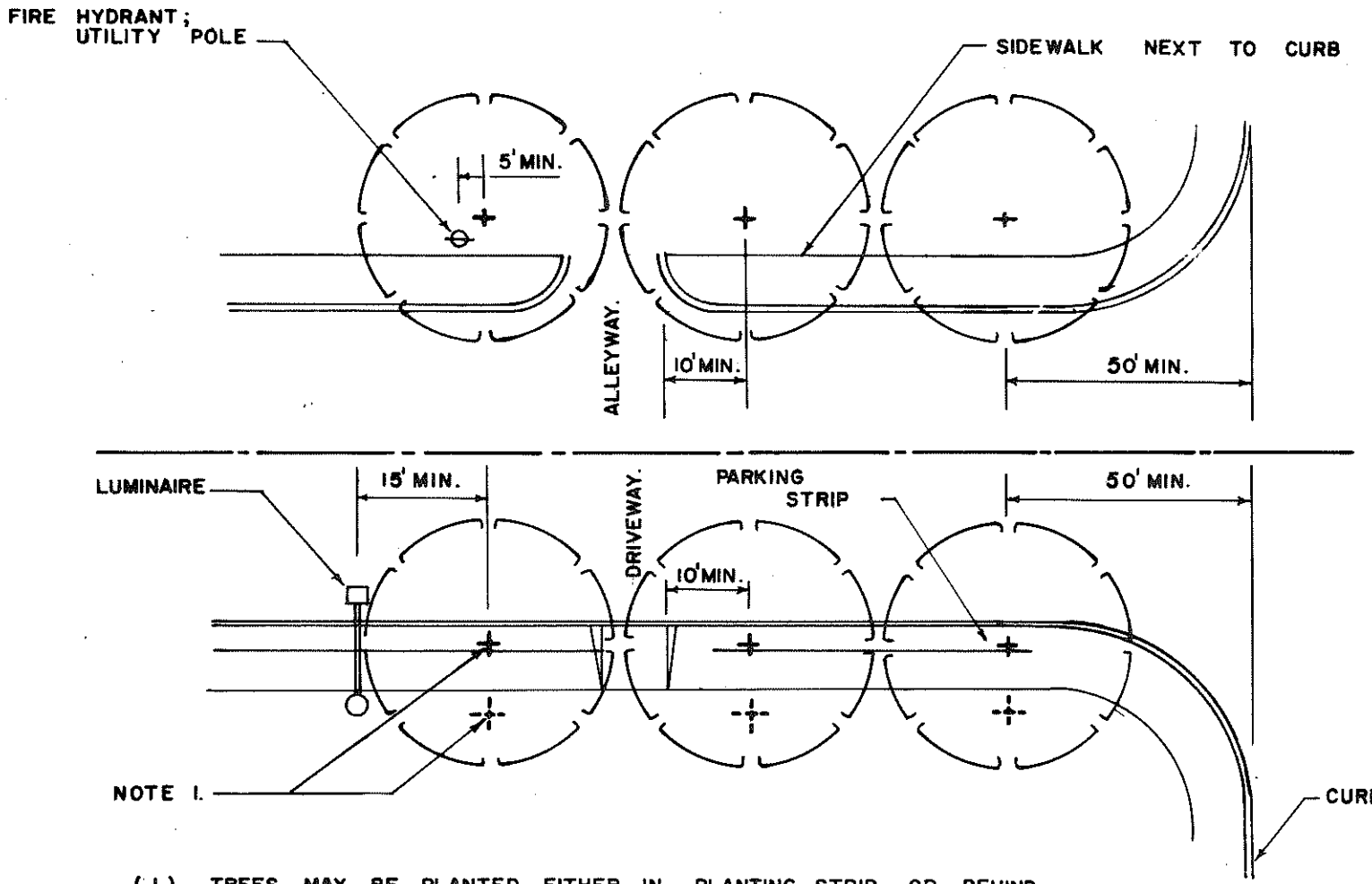
NOTE: SEE SECTION 6.03 K.C. ROAD STANDARDS

DO NOT SCALE

ROCK RETAINING WALL FILL SECTION

KING CO. WASHINGTON

DWG. NO. 15



(1). TREES MAY BE PLANTED EITHER IN PLANTING STRIP OR BEHIND THE SIDEWALK.

(2). MIN. PLANTING STRIP WIDTH (DISTANCE BETWEEN SIDEWALK AND NEAREST EDGE OF CURB) FOR PLANTING TREES = 2 1/2 FT.

(3). MIN. DISTANCE FROM CENTER OF TREE TO NEAREST EDGE OF CURB = 2 1/2 FT.

(4). TREES SHALL BE STAKED IN A MANNER NOT TO OBSTRUCT SIDEWALK TRAFFIC.

(5). MIN. CLEAR SIDEWALK WIDTH SHALL BE 5 FT.

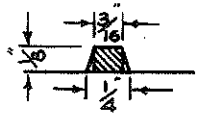
(6). SEE SECTION 6.05 K.C. ROAD STANDARDS

DO NOT SCALE

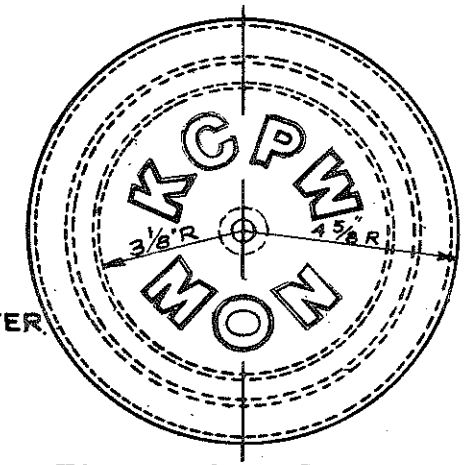
STREET TREE STANDARDS

KING CO. WASHINGTON

DWG. NO. 17



SECTION OF LETTER.

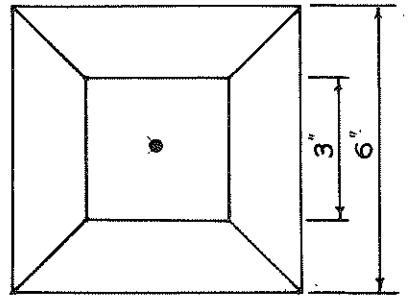


PLAN OF COVER.

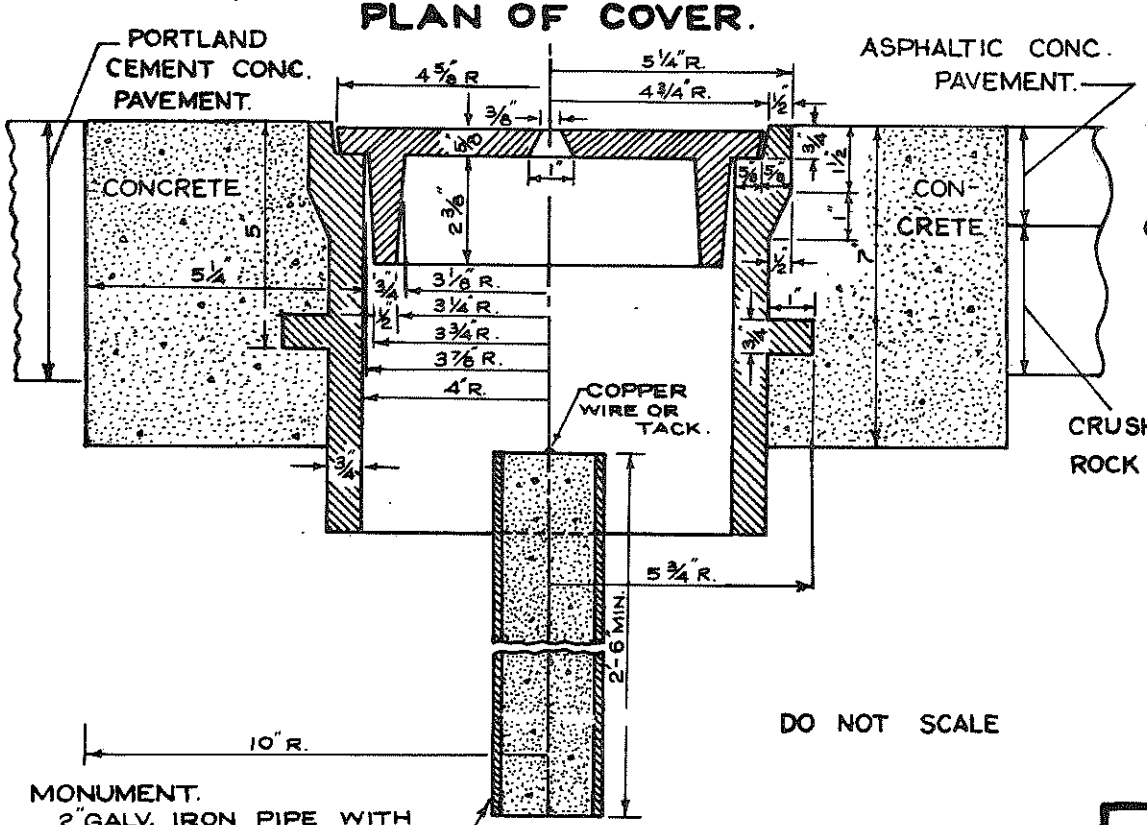
THE CASTINGS SHALL BE GRAY IRON CASTING ASTM. DESIGNATION A-48, CLASS 40. THE COVER AND SEAT SHALL BE MACHINED SO AS TO HAVE PERFECT CONTACT AROUND THE ENTIRE CIRCUMFERENCE AND FULL WIDTH OF BEARING SURFACE.

APPROXIMATE WEIGHTS STANDARD

CASE	60	LBS.
COVER	19	LBS.
TOTAL	79	LBS.



PLAN.



DO NOT SCALE

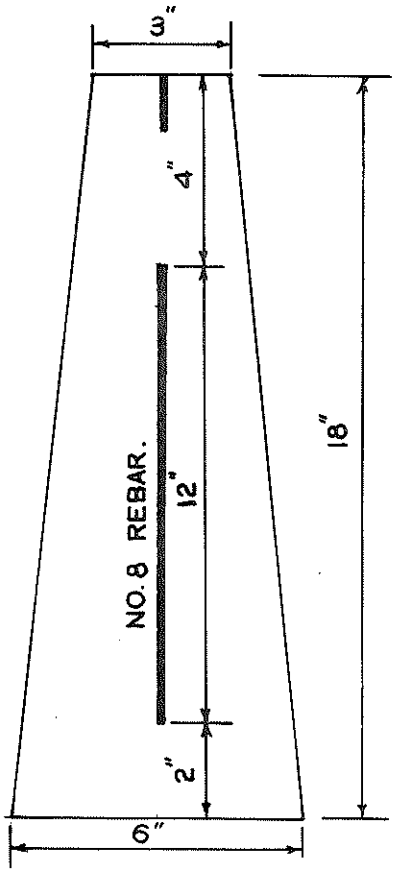
MONUMENT.
2" GALV. IRON PIPE WITH CONCRETE CORE FOR GENERAL USE. (TO BE SET BY ENGINEER)

ALTERNATIVELY, CONCRETE SURVEY MONUMENT, DETAIL AT RIGHT, MAY BE USED

SECTION.

ALTERNATE:
CONCRETE SURVEY MONUMENT.

NOTES:
COPPER WIRE OR TACK.
CONCRETE SHALL BE CLASS A. MIX
A 12" LENGTH OF NO. 8 DEFORMED STEEL BAR SHALL BE PLACED IN THE MONUMENT

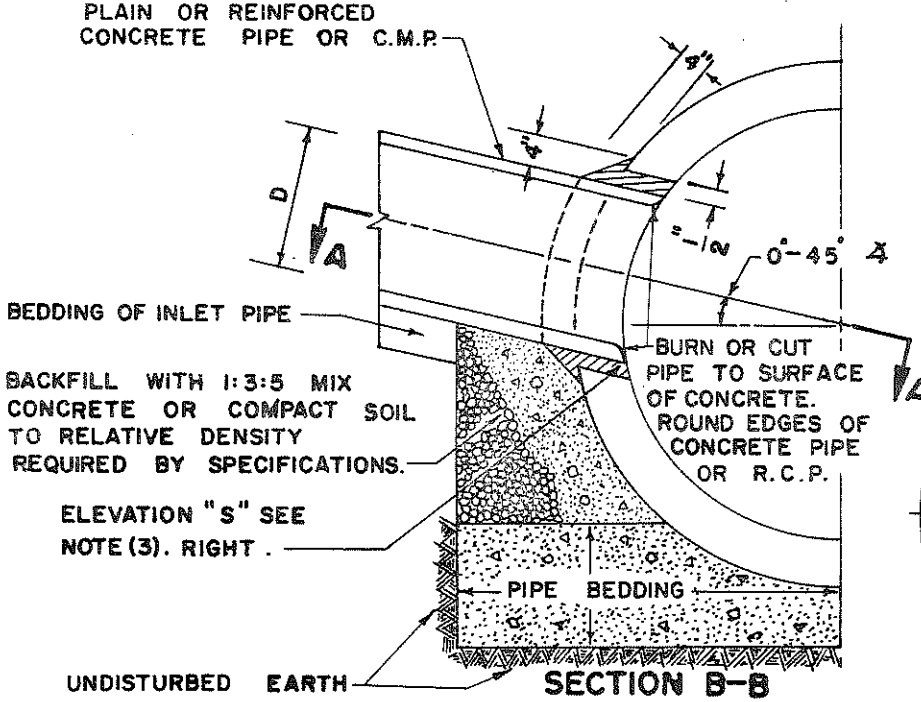


ELEVATION.

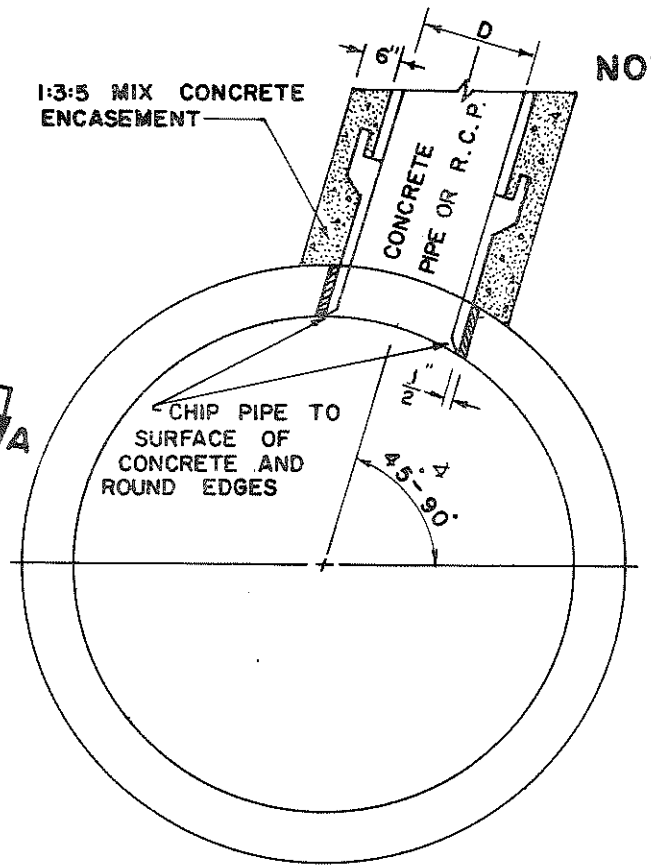
ROADWAY SURVEY MONUMENT WITH CASE & COVER

KING CO. WASHINGTON

DWG. NO. 19.



CASE-1



CASE-2

NOTES: CASES 1 & 2

(1). "D" SHALL BE 24" OR LESS. FOR LARGER VALUES OF "D" USE AN APPROVED STRUCTURE.

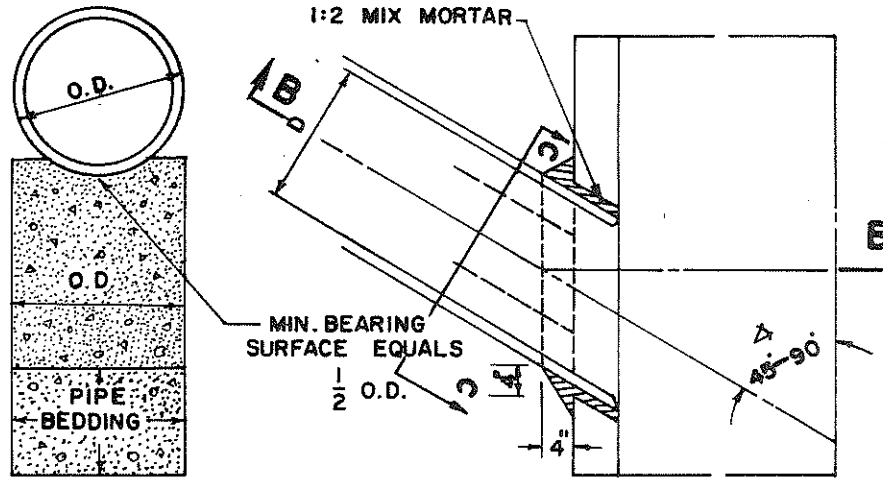
(2). IN NO CASE SHALL THE OUTSIDE DIA. OF THE INLET PIPE EXCEED ONE-HALF THE INSIDE DIA. OF THE MAIN STORM DRAIN.

(3). ℄ OF INLET SHALL BE ON RADIUS OF MAIN STORM DRAIN EXCEPT WHERE ELEVATION "S" IS OTHERWISE SPECIFIED BY THE ENGINEER.

(4). THE MIN. OPENING INTO THE EXISTING STORM DRAIN SHALL BE THE OUTSIDE DIA. OF THE CONNECTING PIPE PLUS 1 INCH

(5). IF Δ IS 45° OR LESS, USE CASE-1; IF Δ IS GREATER THAN 45°, USE CASE-2.

CATCH BASIN ABOVE STORM DRAIN



CASE-1 SIDE INLET

NOTE:

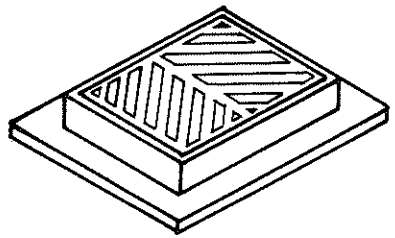
ALL CONNECTOR PIPES (WITHIN THE ANGLES SPECIFIED FOR CASE 2) SHALL BE ENCASED WHEN LAID WITHIN THE MAIN LINE EXCAVATED TRENCH, OR WHEN LAID ON FILL WHICH HAS NOT BEEN DENSIFIED.

DO NOT SCALE

FIELD-TAPPING OF CONCRETE PIPE

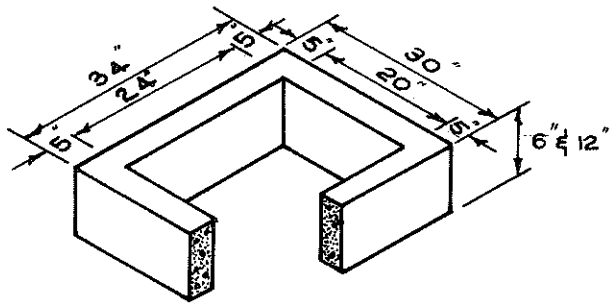
KING CO. WASHINGTON

DWG. NO. 21

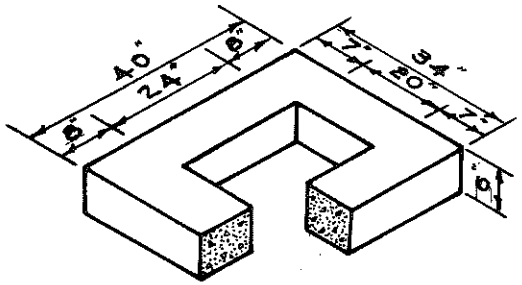


FRAME AND GRATE.

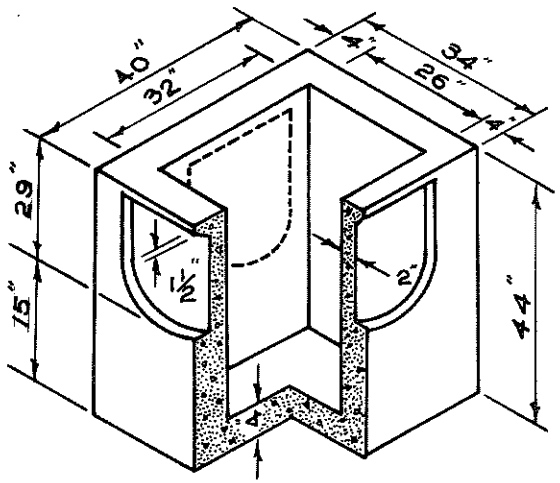
SEE SEC. 7.05
K.C. ROAD STANDARDS.



EXTENSION SECTION.



REDUCING SLAB.



MAX. PIPE SIZE 18"
(MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION).

FOR DETAILS OF REINFORCEMENTS AND INSTALLATION SEE APWA STD. SPECIFICATIONS SECTION 63

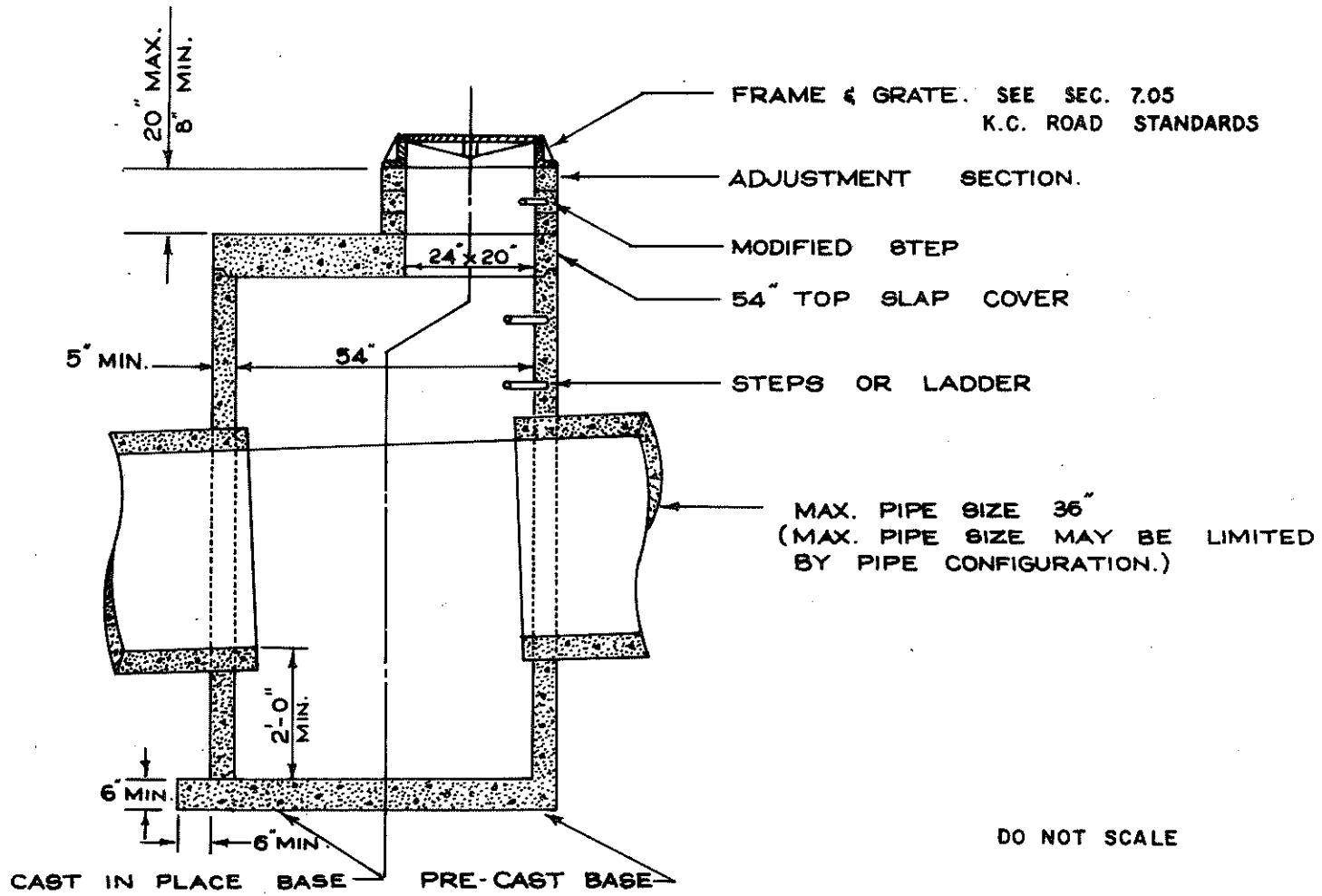
BASE SECTION

DO NOT SCALE

CATCH BASIN TYPE 1-K

KING CO. WASHINGTON

DWG. NO. 23



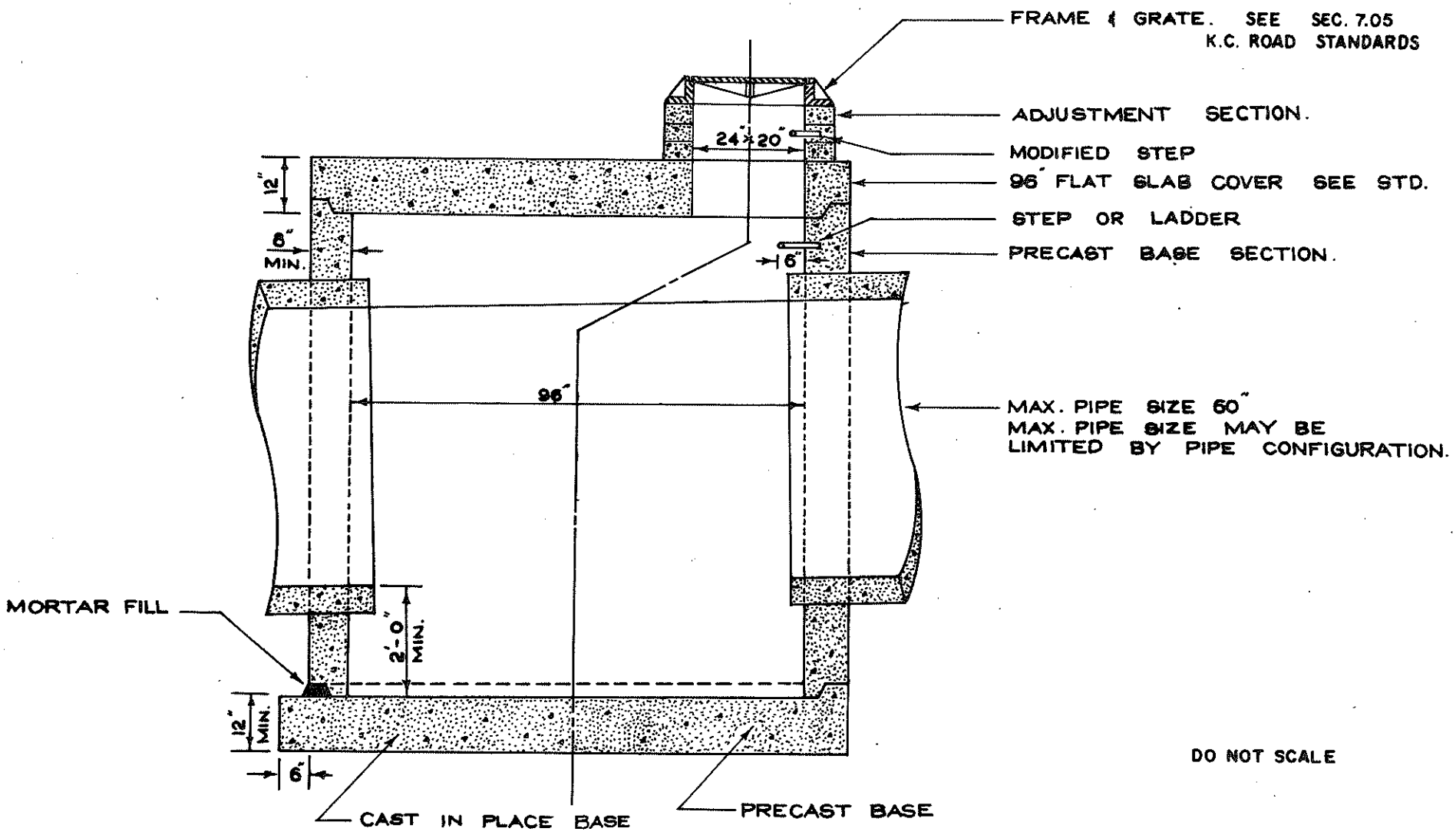
DO NOT SCALE

FOR CATCH BASIN SPECIFICATIONS SEE APWA STD. SPECIFICATIONS FOR MUNICIPAL PUBLIC WORKS CONSTRUCTION SECTION 63.

CATCH BASIN TYPE II-54"

KING CO. WASHINGTON

DWG. NO. 25

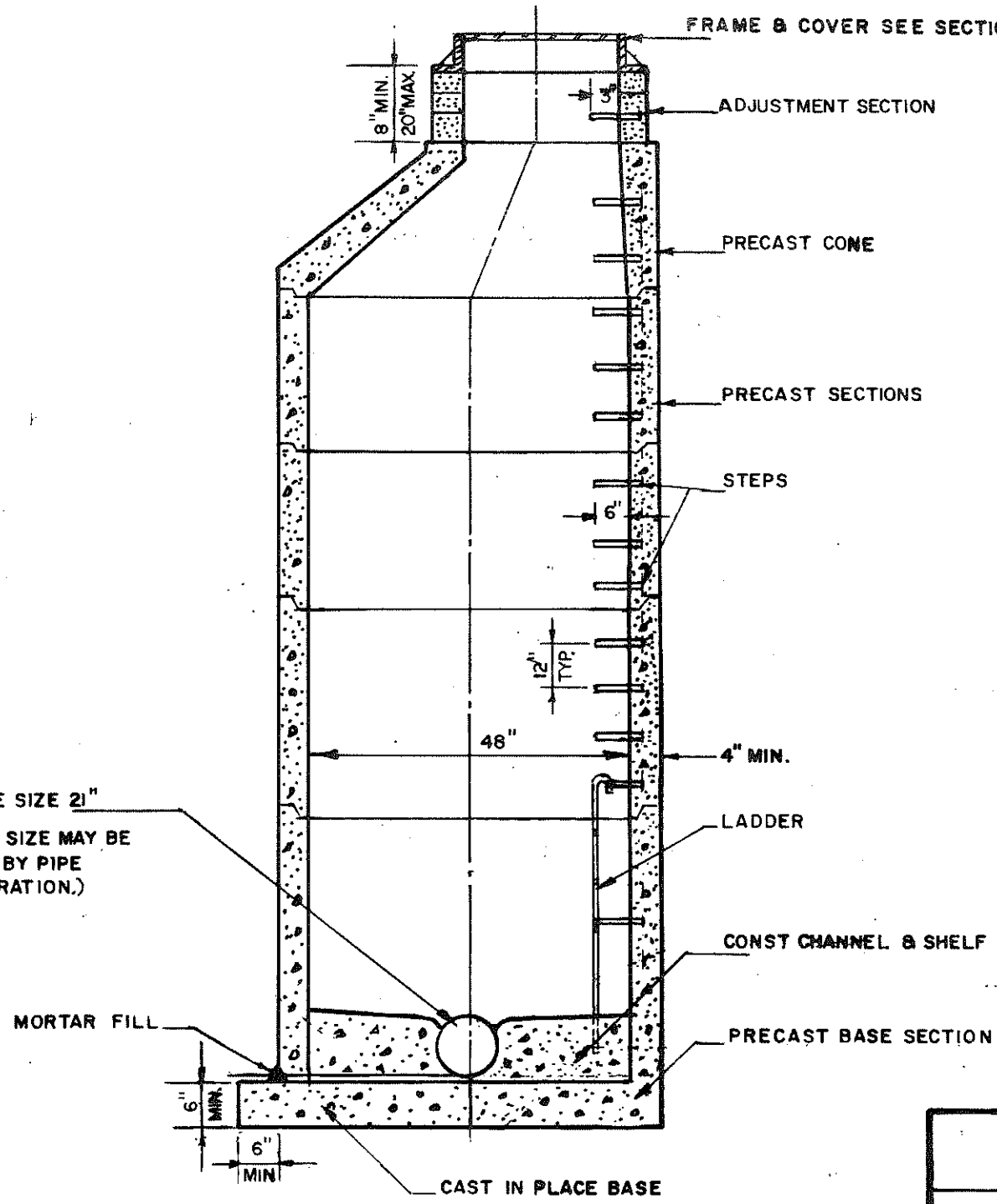


FOR CATCH BASIN SPECIFICATIONS. SEE STANDARD SPECIFICATIONS FOR MUNICIPAL PUBLIC WORKS CONSTRUCTION SECTION 63.

CATCH BASIN TYPE II-96"

KING CO. WASHINGTON

DWG. NO. 27



NOTE:

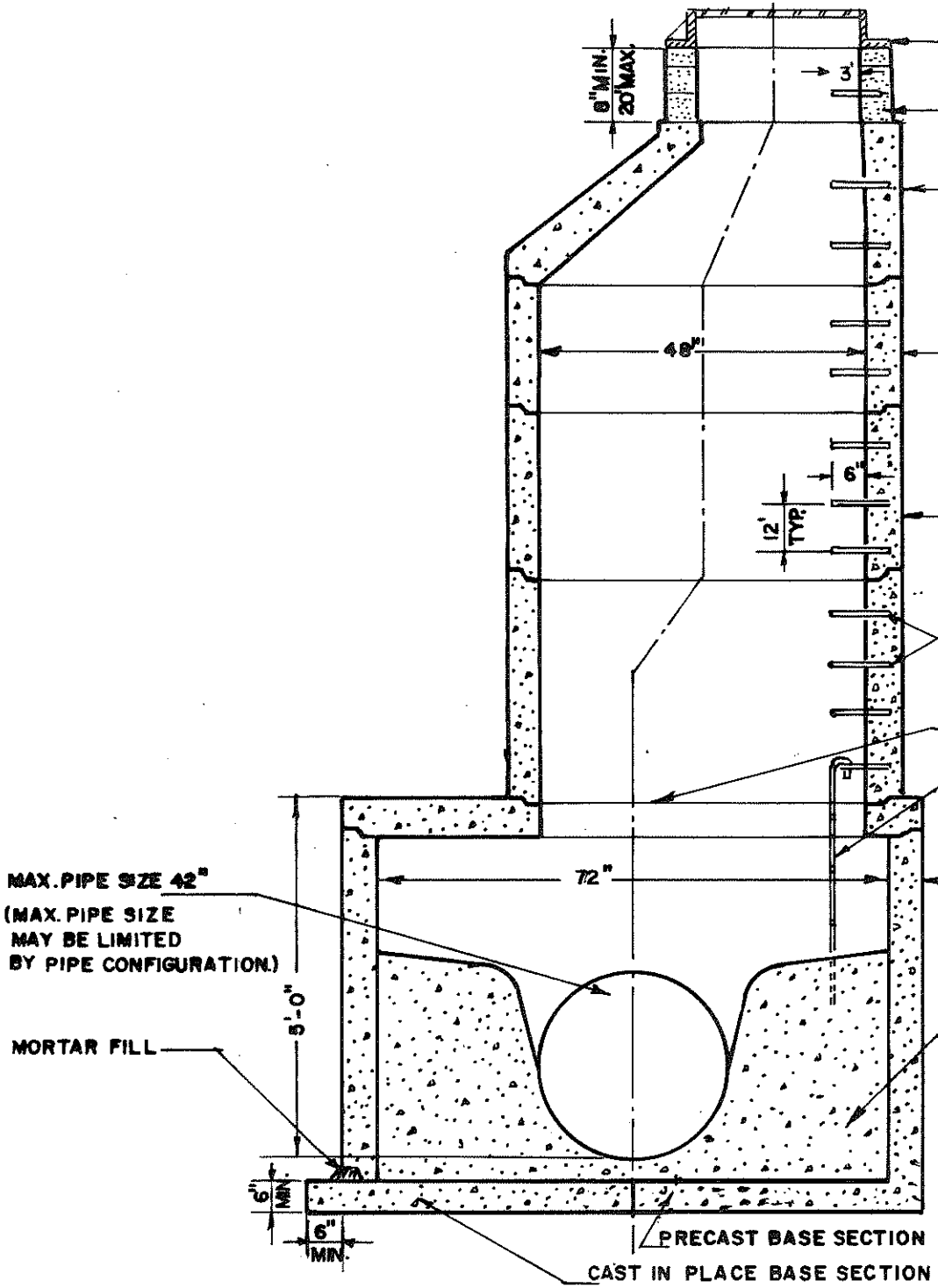
FOR STRUCTURE DETAILS SEE APWA STANDARD SPECIFICATIONS SECTION 63

DO NOT SCALE

TYPE I-48" MANHOLE

KING CO. WASHINGTON

DWG. NO. 29



NOTE:

FOR STRUCTURE DETAILS SEE APWA STANDARD SPECIFICATIONS SECTION 63

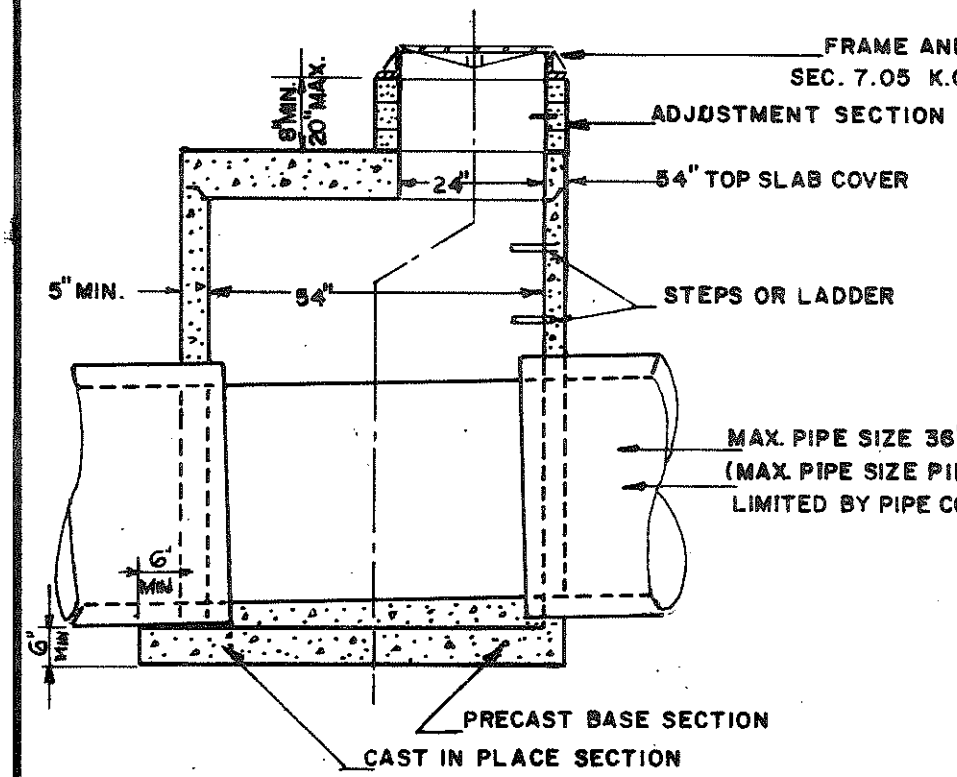
DO NOT SCALE

TYPE II-72" MANHOLE

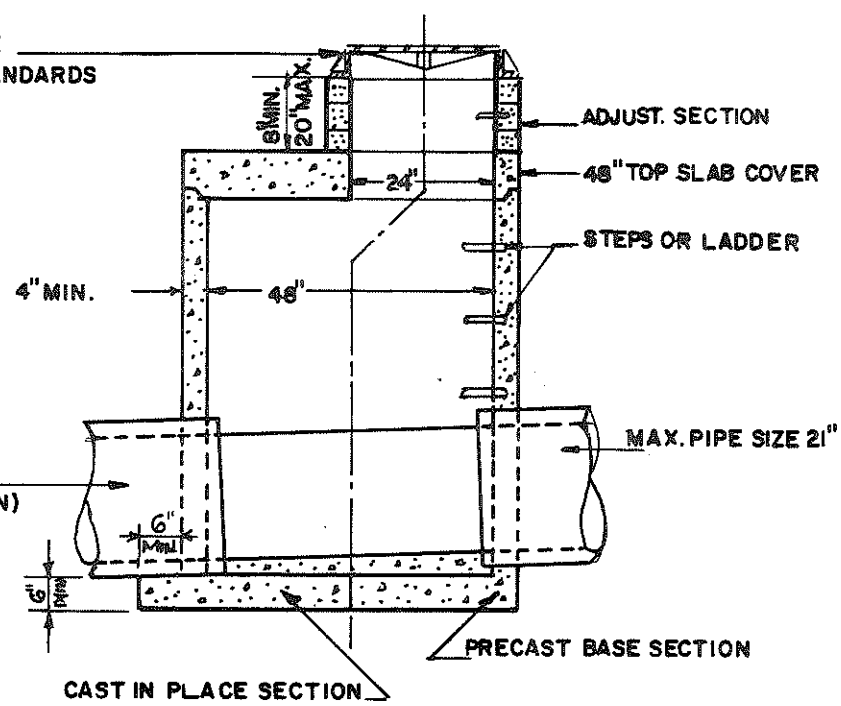
KING CO. WASHINGTON

DWG. NO. 31

54" MANHOLE



48" MANHOLE



DO NOT SCALE

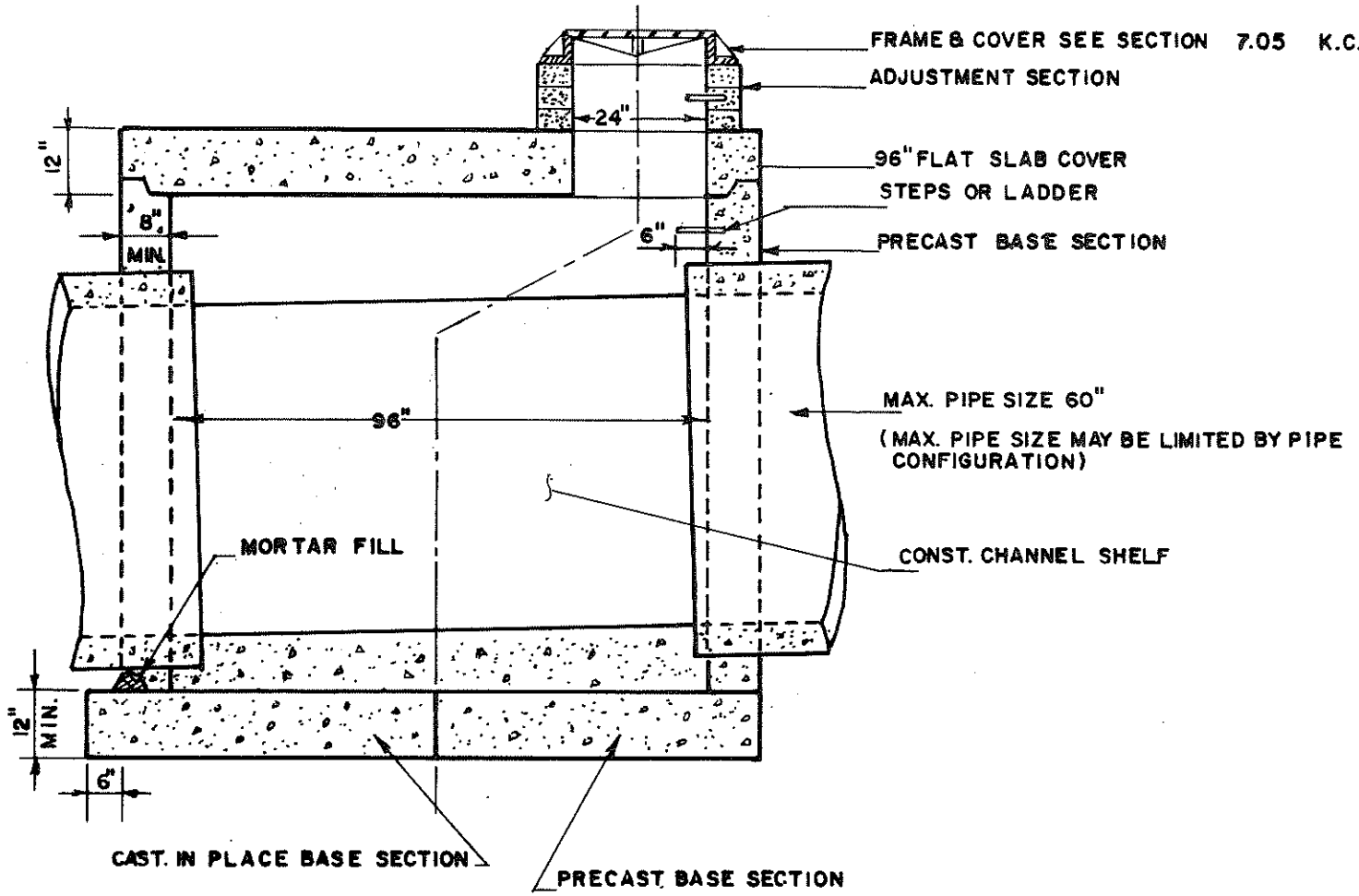
NOTE:

FOR STRUCTURE DETAILS SEE
APWA STANDARD SPECIFICATIONS SEC. 63

TYPE III-48"MANHOLE
TYPE III-54"MANHOLE

KING CO. WASHINGTON

DWG. NO. 33



DO NOT SCALE

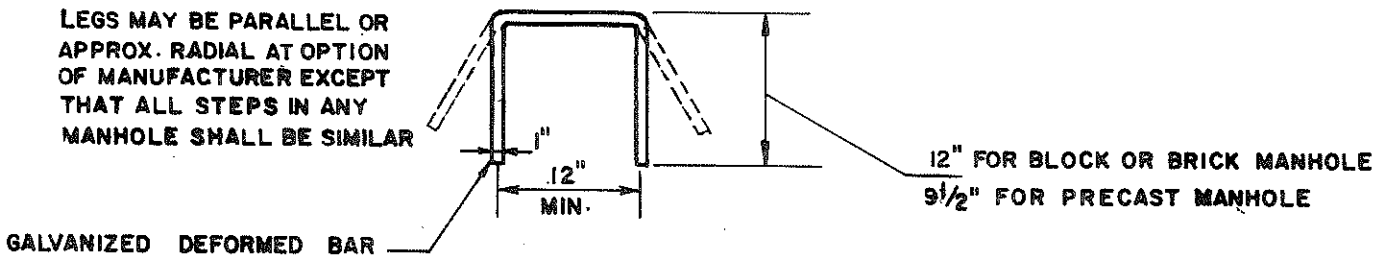
NOTE:

FOR STRUCTURE DETAILS SEE
APWA STANDARD SPECIFICATIONS SECTION 63

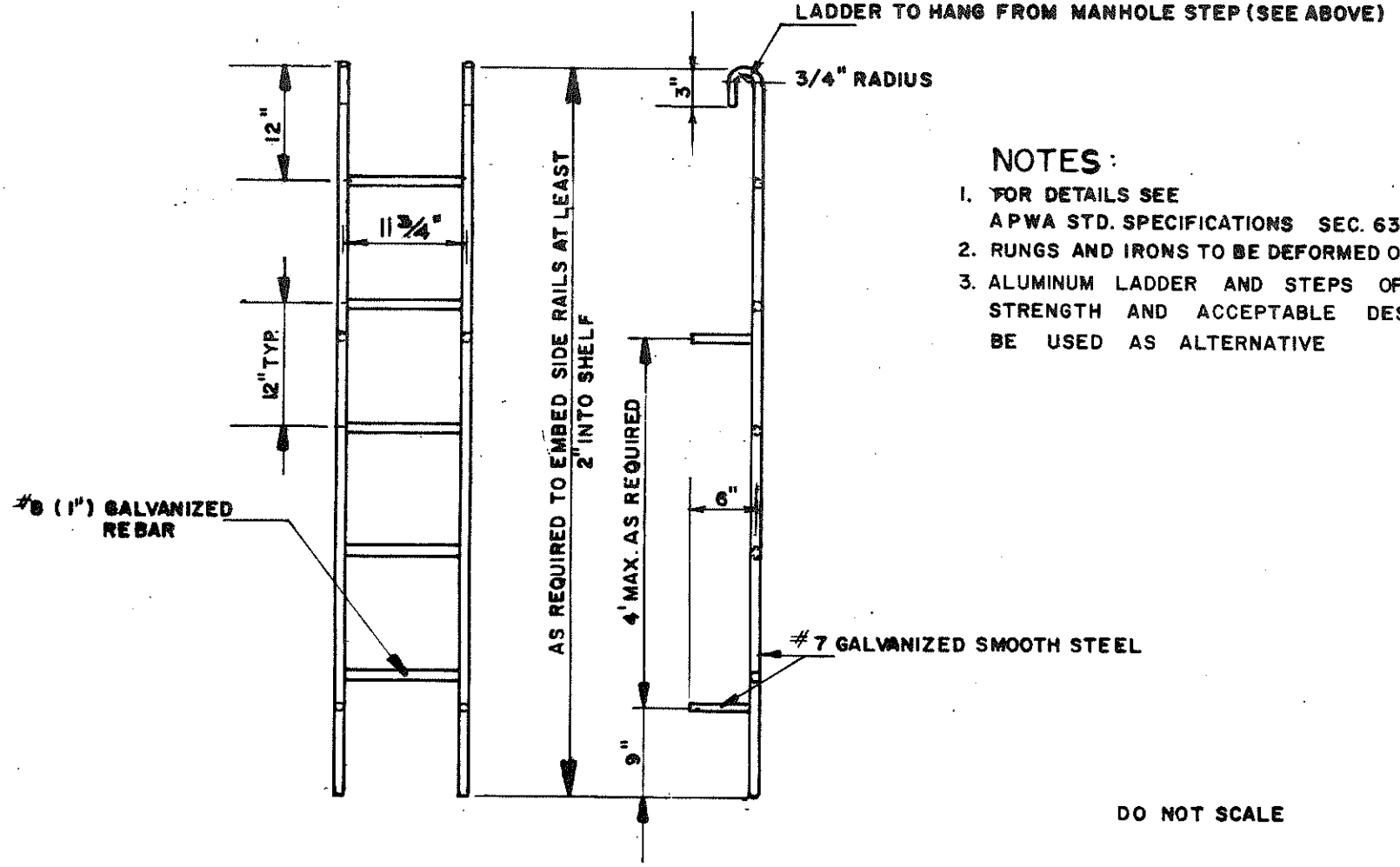
TYPE III-96" MANHOLE

KING CO. WASHINGTON

DWG. NO. 35



MANHOLE STEP



PREFABRICATED LADDER

NOTES:

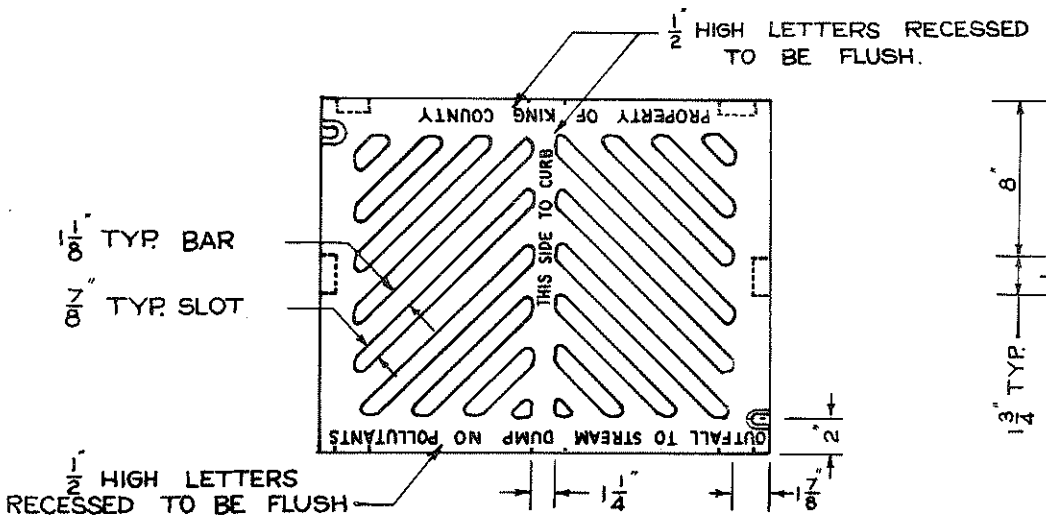
1. FOR DETAILS SEE APWA STD. SPECIFICATIONS SEC. 63
2. RUNGS AND IRONS TO BE DEFORMED OR NON-SKID.
3. ALUMINUM LADDER AND STEPS OF EQUAL STRENGTH AND ACCEPTABLE DESIGN MAY BE USED AS ALTERNATIVE

DO NOT SCALE

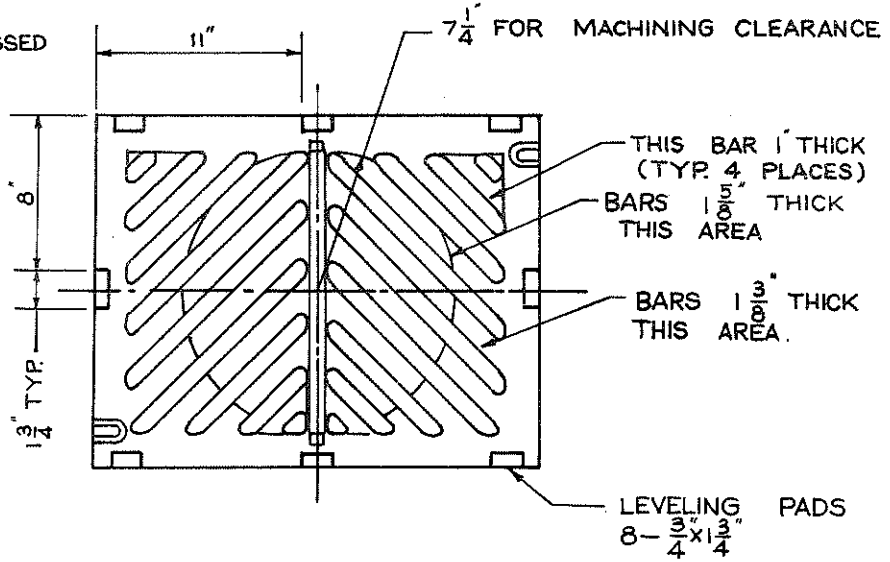
LADDER AND MANHOLE STEP

KING CO. WASHINGTON

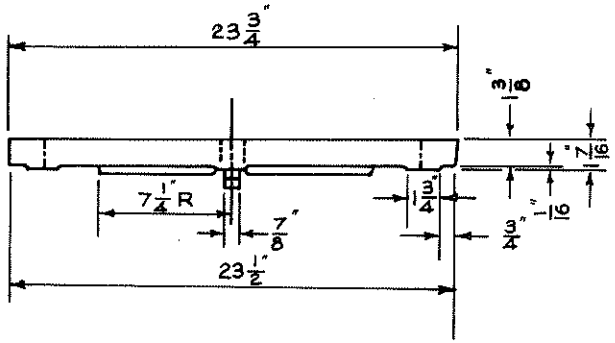
DWG. NO. 37



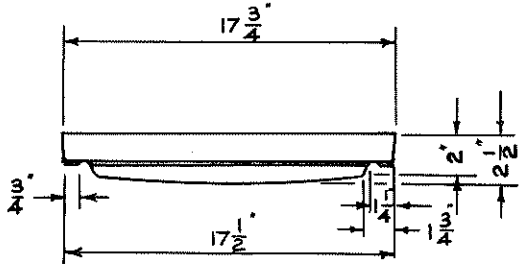
TOP VIEW.



BOTTOM VIEW.



SIDE VIEW.



END VIEW.

DO NOT SCALE

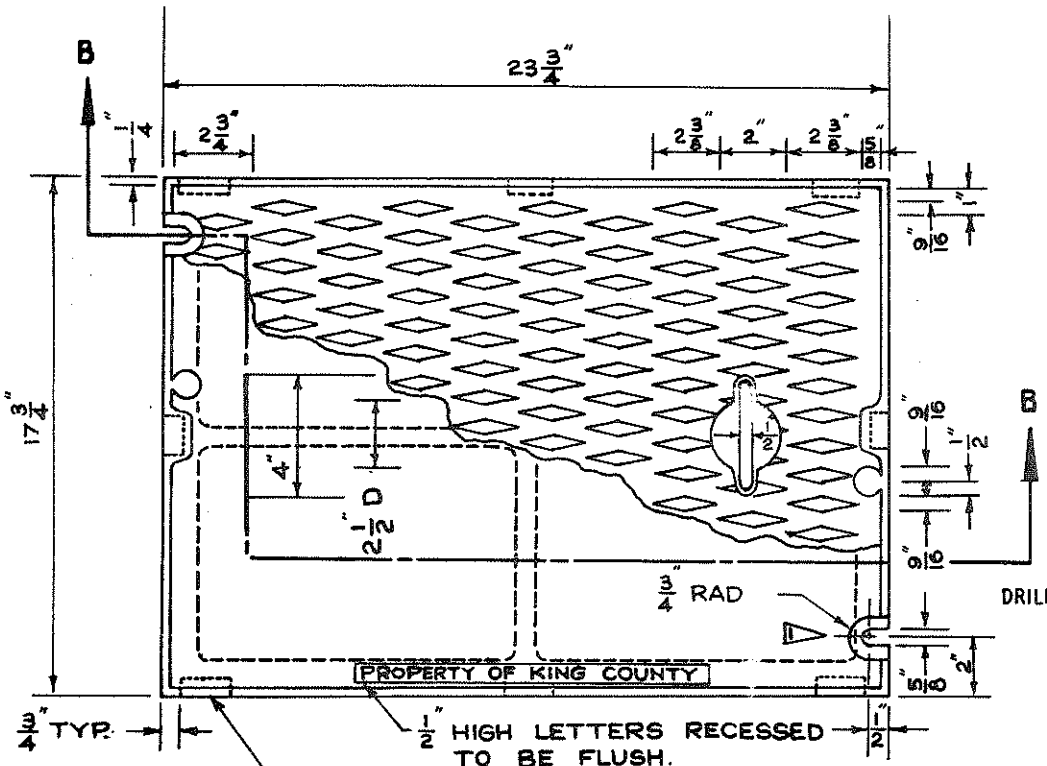
GRATE NO. 5435 A OLYMPIC FDY. CO. OR EQUAL
SEE SEC. 7.05 A, B & G. K.C. ROAD STANDARDS

STANDARD GRATE NO 5435 A.

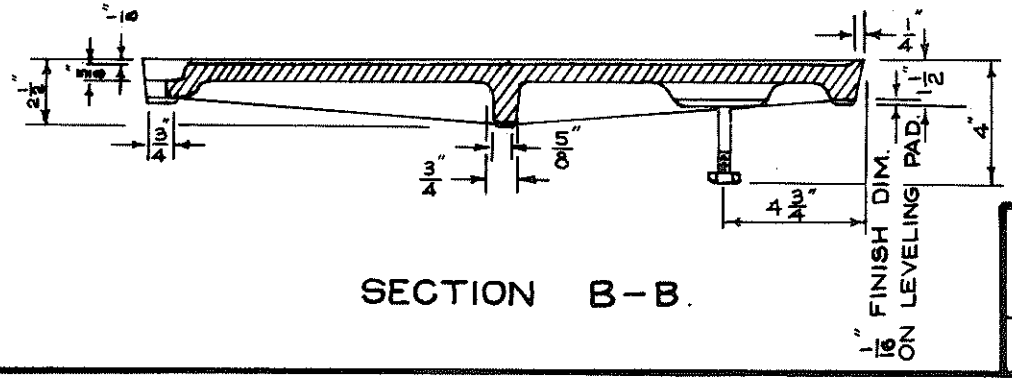
KING CO. WASHINGTON

(REVISED OCT. 1981)

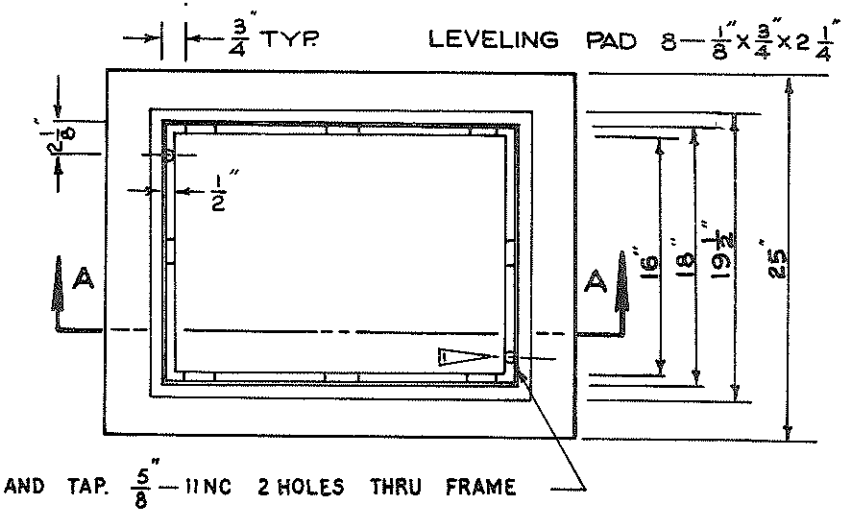
DWG. NO. 39



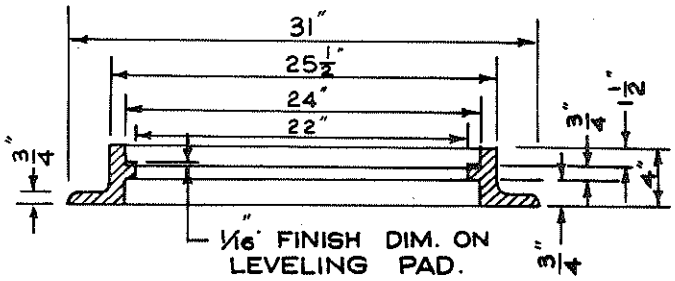
COVER ESTIMATE WT. 92*



SECTION B-B.



FRAME ESTIMATE WT. 135*



SECTION A-A

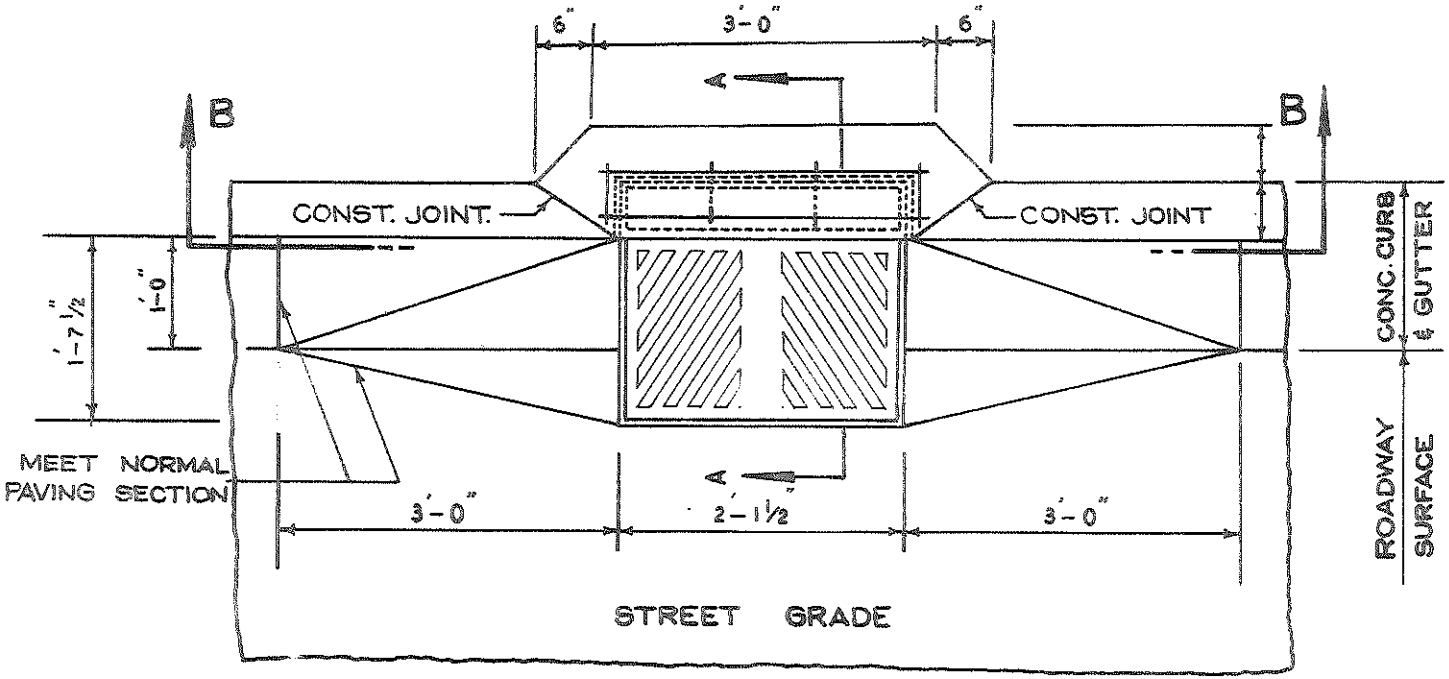
DO NOT SCALE

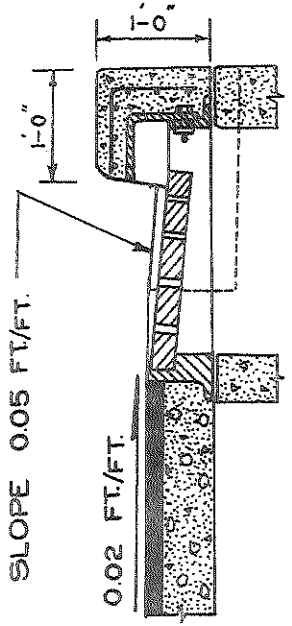
SOLID COVER NO. 5435

KING CO. WASHINGTON

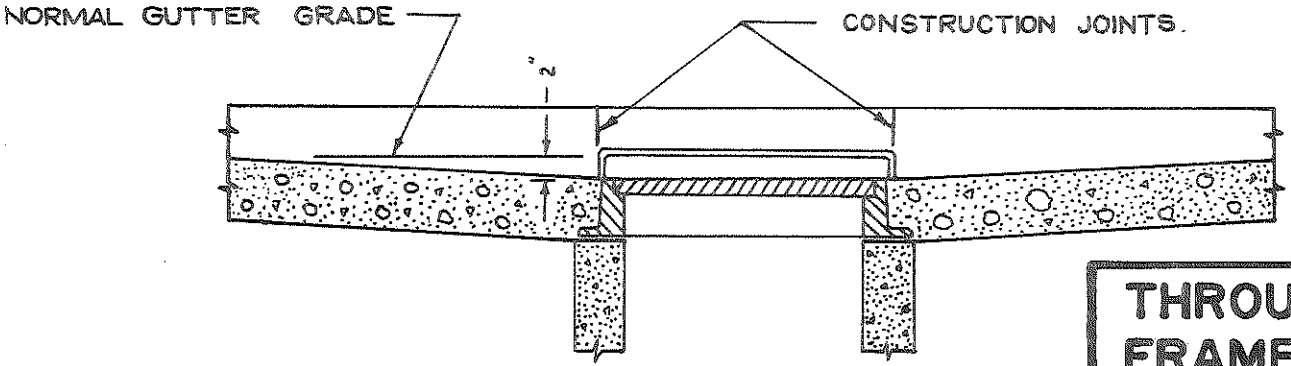
(REVISED OCT. 1981)

DWG. NO. 41





SECTION A-A



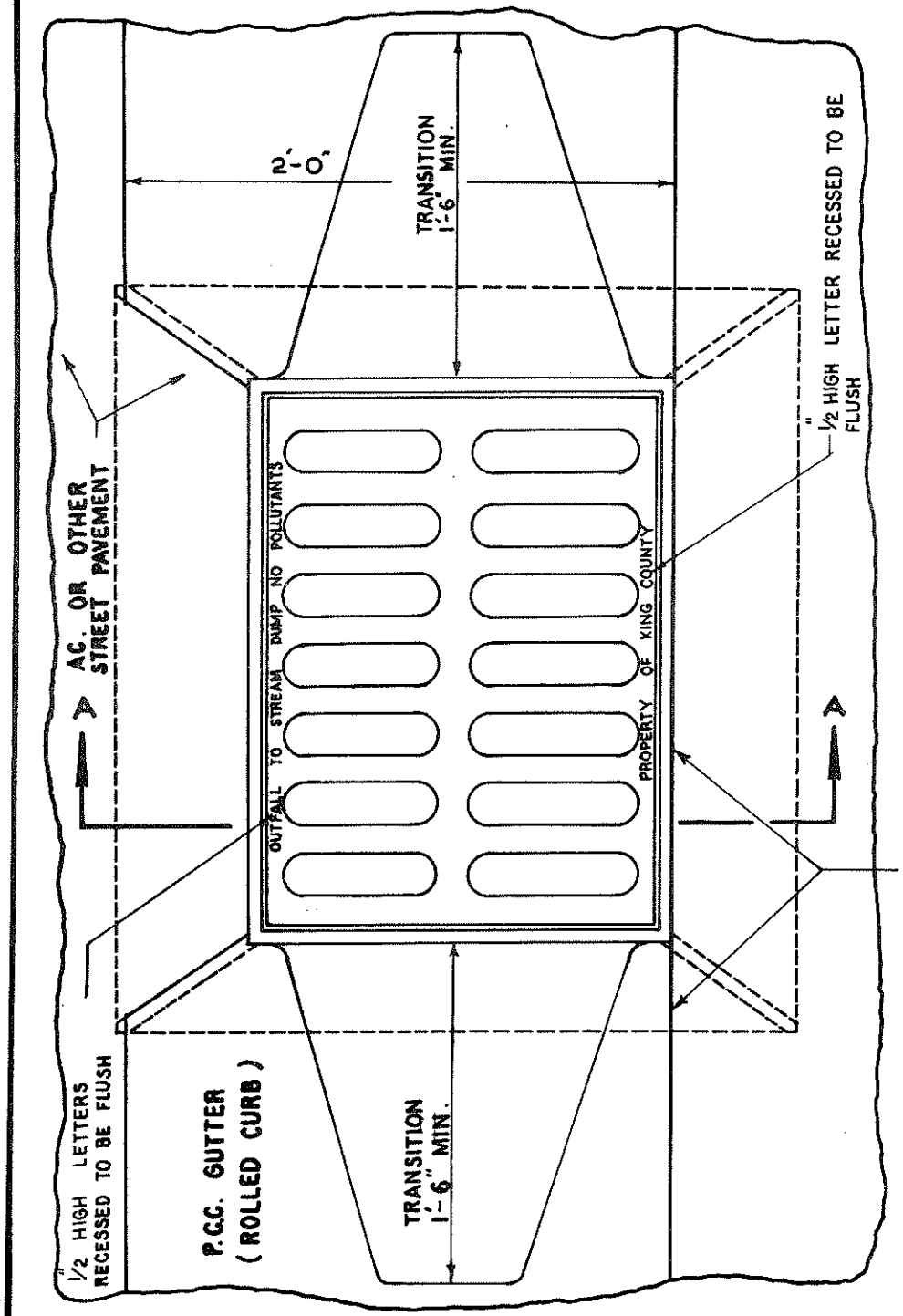
SECTION B-B.

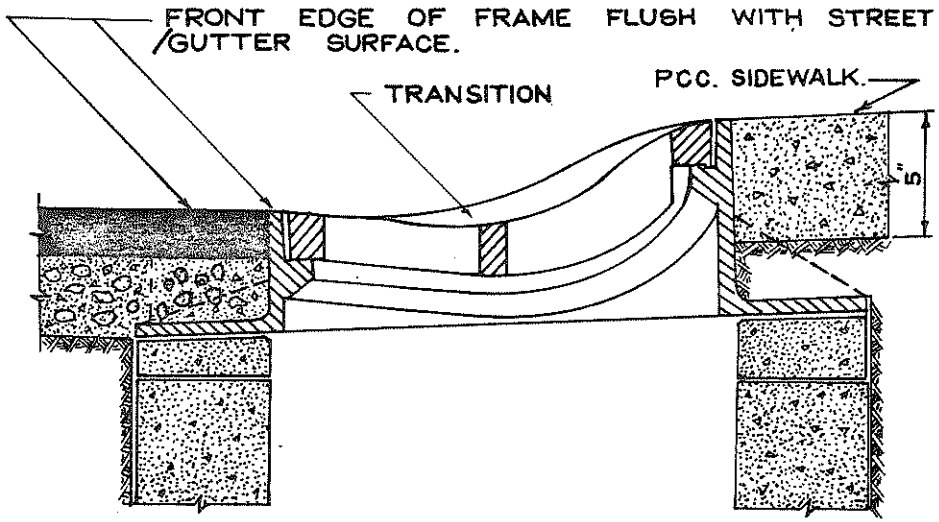
DO NOT SCALE

THROUGH - CURB INLET FRAME & GRATE WITH VERTICAL CURB INSTALLATION

KING CO. WASHINGTON

DWG. NO. 43





SECTION A A

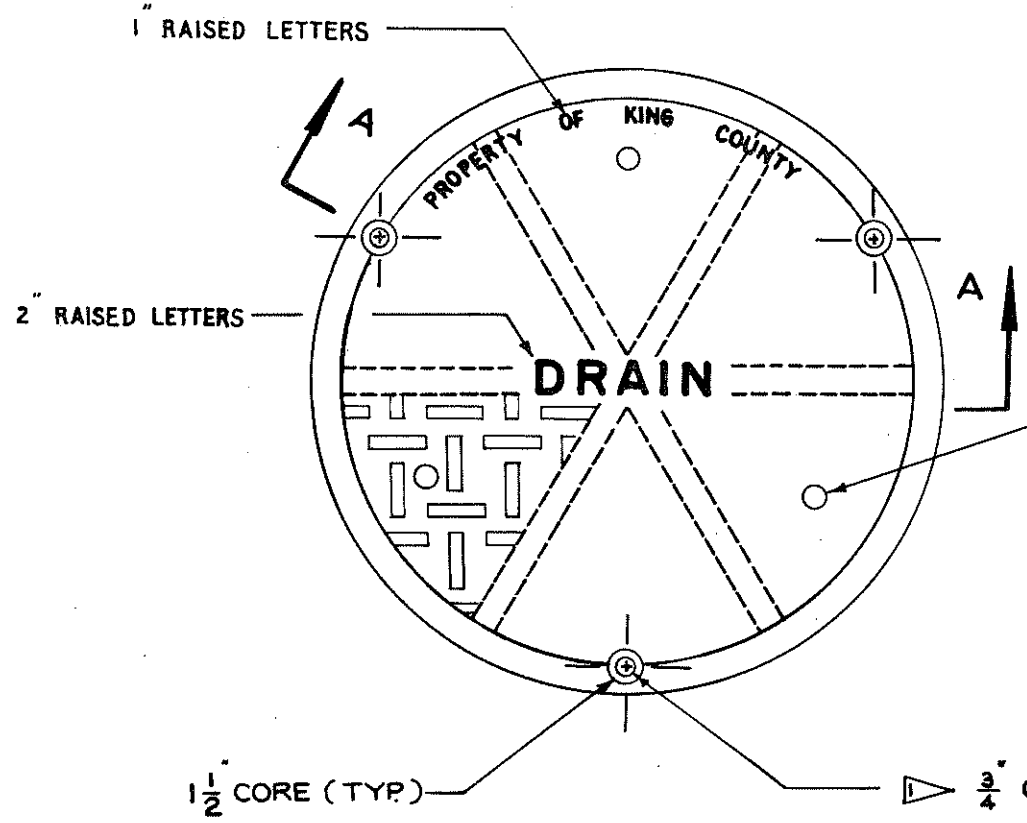
BACK EDGE OF FRAME EVEN WITH BACK FACE OF CURB.

DO NOT SCALE

ROLLED CURB INLET WITH ROLLED CURB INSTALLATION

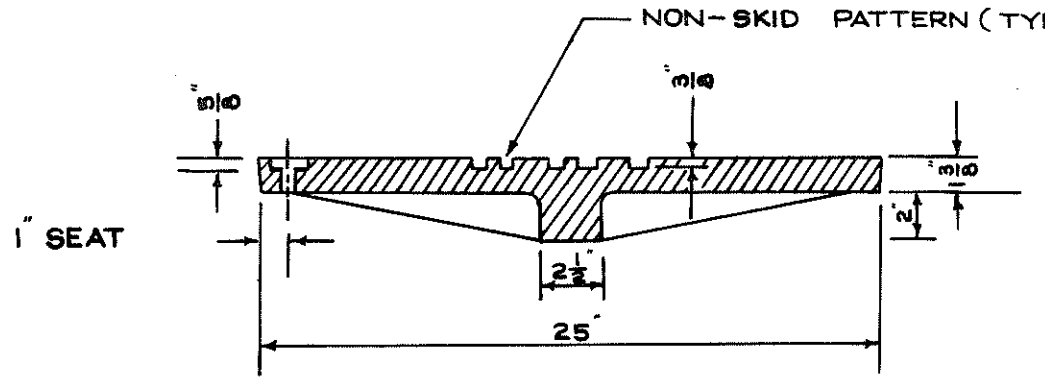
KING CO. WASHINGTON

DWG. NO. 45



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

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



SECTION A-A

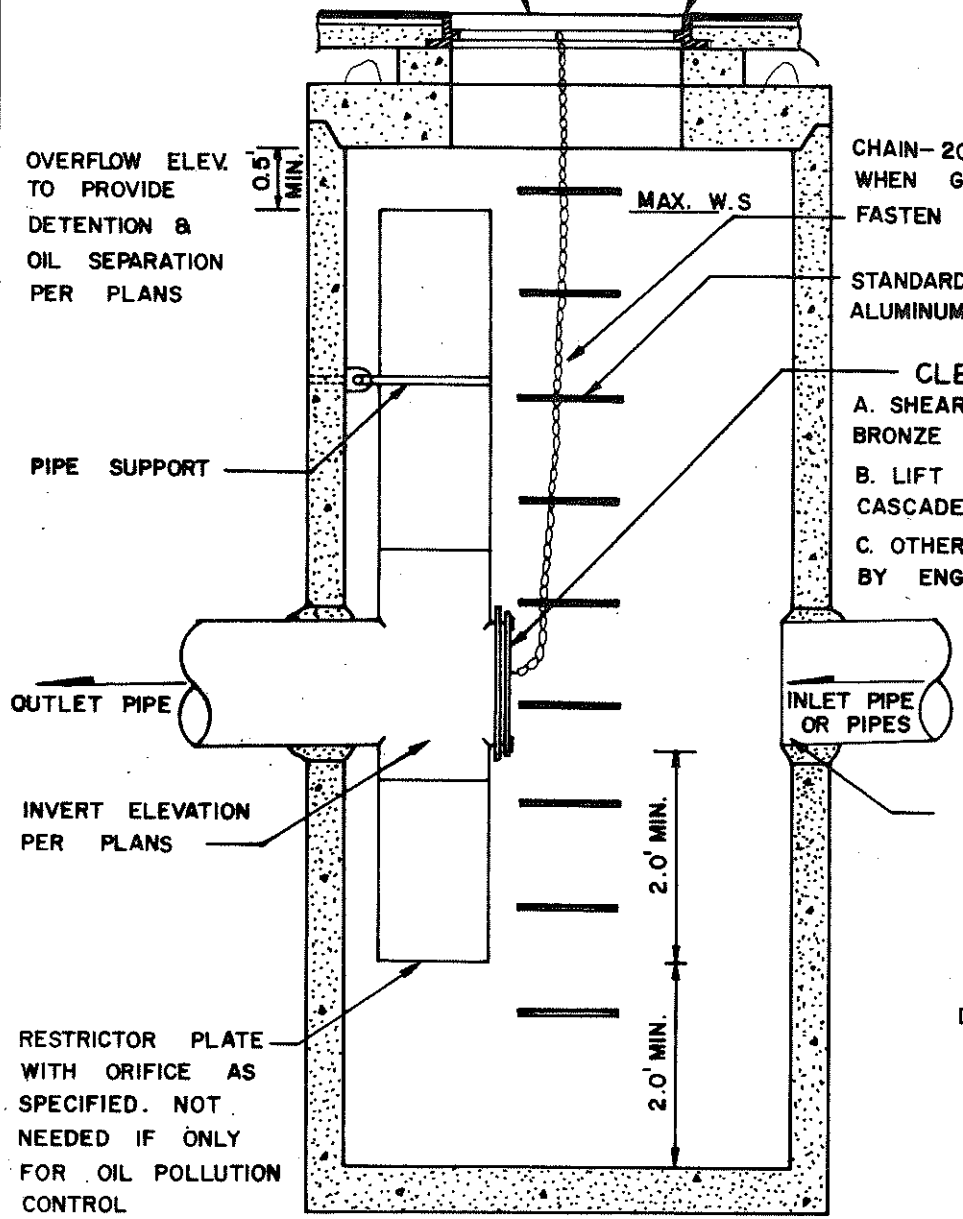
DO NOT SCALE

LOCKING MANHOLE COVER

KING CO. WASHINGTON

(REVISED OCT. 1981)

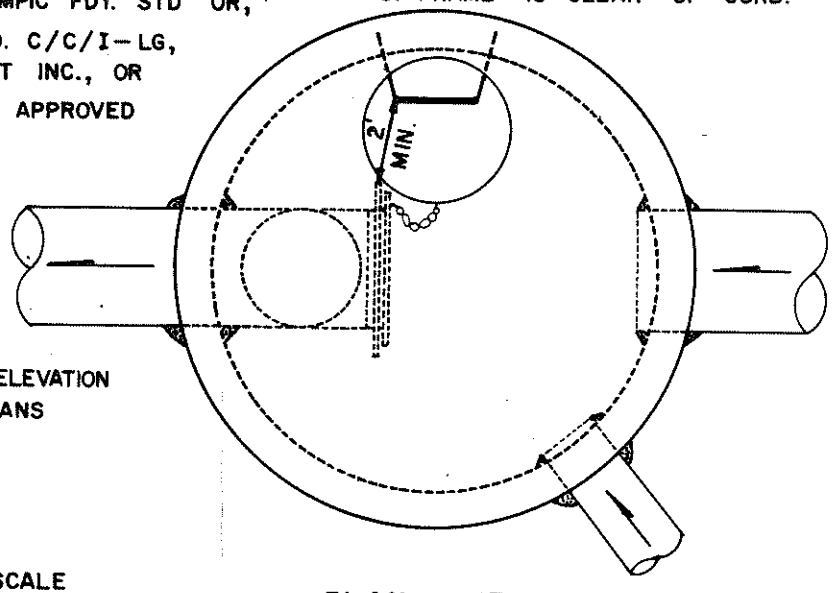
DWG.NO. 47



CATCH BASIN TYPE II, DIAMETER AS REQUIRED

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.



PLAN VIEW

DO NOT SCALE

FLOW RESTRICTOR/OIL POLLUTION (FROP)CONTROL DEVICE

KING CO. WASHINGTON

87 (ADDED OCT. 1981)

DWG. 49