APPENDIX B

STREET CONSTRUCTION AND DRAINAGE SPECIFICATIONS

STANDARD DRAWINGS

SECTION I

GENERAL

A. JURISDICTION

These rules and regulations governing the construction of roads and streets shall apply within the Robertson County, Tennessee Planning Region.

B. PURPOSE

The purpose of these specifications is to establish standards of design and construction, including construction procedures and quality of materials, that are adequate to assure the safety, convenience, and welfare of the people within the planning jurisdiction.

C. DEFINITIONS

1. Local Government - The city or county government having jurisdiction within the area where a development is located.

2. Local Government Engineer - That individual designated by the local government to receive and review plans submitted in conformance with the provisions of this section.

3. Engineer - An engineer certified and registered by the State Board of Architectural and Engineer Examiners pursuant to Section 62-202, Tennessee Code annotated.

4. Enforcing Officer - That individual designated by the chief executive officer of the local government to enforce these provisions.

5. Standard Specifications - Standard Specifications for Road and Bridge Construction, Tennessee Department of Transportation, Bureau of Highways, Nashville, Tennessee, March 1, 1981, and subsequent revisions and additions.

6. A.A.S.H.T.O. - American Association of State Highway and Transportation Officials.

7. A.S.T.M. - American Society for Testing Materials.

8. Basic Regulations - The basic subdivision regulations of Robertson County Planning Region to which this material is attached as an appendix.

D. APPROVALS

All construction plans shall be prepared and submitted to the local government engineer. The content and submission procedure shall be as set forth in SECTION II, PLANNING.

E. ACCEPTANCE

Acceptance for public maintenance of any facilities or improvements located within any subdivision may only be accomplished by formal action of the governing body in the manner established in Subsection 3-101.7, Basic Regulations. Any approval of plans, etc., submitted in conformance with these provisions, shall not in any manner bind or presuppose acceptance of these facilities by the governing body.

F. RESPONSIBILITY FOR COMPLIANCE

In all matters involving enforcement of, or compliance with, the provisions contained herein, the subdivider (as defined in Basic Regulations, Section 6-102) is considered as the party legally responsible for performance; and the use of engineers, contractors, or other agents shall in no way diminish or absolve the subdivider of this basic responsibility.

(Amended by Resolution No. 2005-01, September 1, 2005)

SECTION II

PLANNING

A. PLAN PREPARATION

All construction plans for improvements within land subdivisions shall be prepared by engineers registered to practice within the State of Tennessee. The plans shall bear the stamp and signature of the individual responsible for their preparation.

B. CONTENT

The information set forth in Section 5-105, Basic Regulations, shall be required upon each and every plan submitted hereunder. In any instance where special conditions may warrant, additional data may be required.

C. SUBMISSION, REVIEW, AND APPROVAL

When the plans are complete, with all required data entered thereon, they shall be submitted to the local Planning Commission's consulting engineer and County Highway Department for review and comment prior to formal presentation before the planning commission. If the local Planning Commission's consulting engineer or County Highway Department finds that the plans are in order and all required information is presented, he shall forward the plans to the planning commission for review and approval. Should any disagreement between the local government engineer and the subdivider (or his engineer) arise as to the nature of, or requirement for, any particular improvement or facility, the plans may be forwarded to the planning commission for arbitration of the dispute.

Action by the planning commission may come in the form of unconditional approval of the plans as submitted, conditional approval, or disapproval. Should the commission's action come in the form of conditional approval, the applicant may modify and resubmit the plans to the Planning Commission's consulting engineer and County Highway Department for further review. Should the local government engineer find that the conditions established by the commission have been met, he may so certify in which instance the plans shall be considered approved. Should the commission act to conditionally approve the plans and no subsequent action is pursued by the subdivider (or his engineer) for a period of six (6) months following the date on which action was taken by the planning commission, the plans shall become null and void and any subsequent action shall require submission of new plans.

D. ACTION UPON APPROVAL

Once the plans and preliminary subdivision plat have received approval as set forth above, a preconstruction meeting shall be set involving the County department heads, local government engineer, developer, developers engineer and all contractors performing work for the developer. No construction or excavation may begin until this meeting has taken place.

(Amended by Resolution No. 2005-01, September 1, 2005)

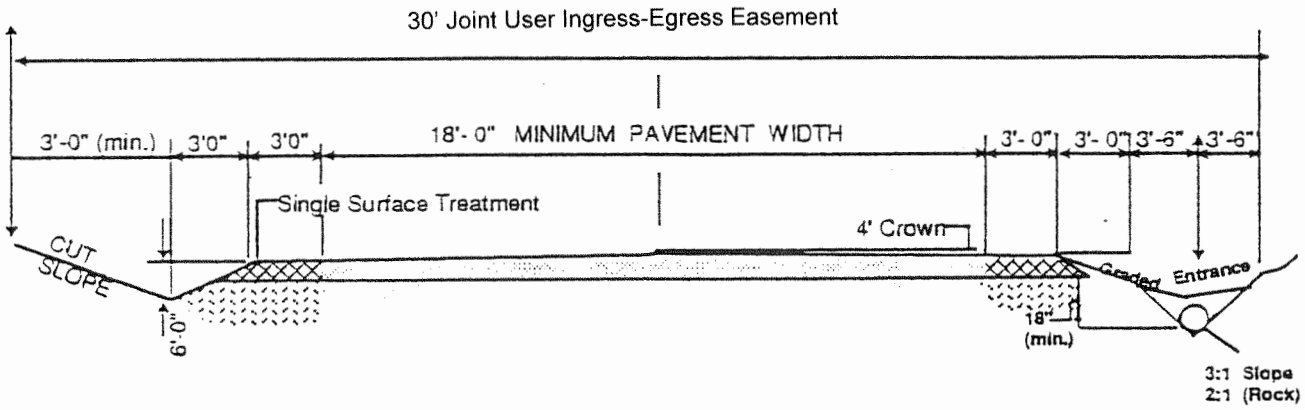
APPENDIX B

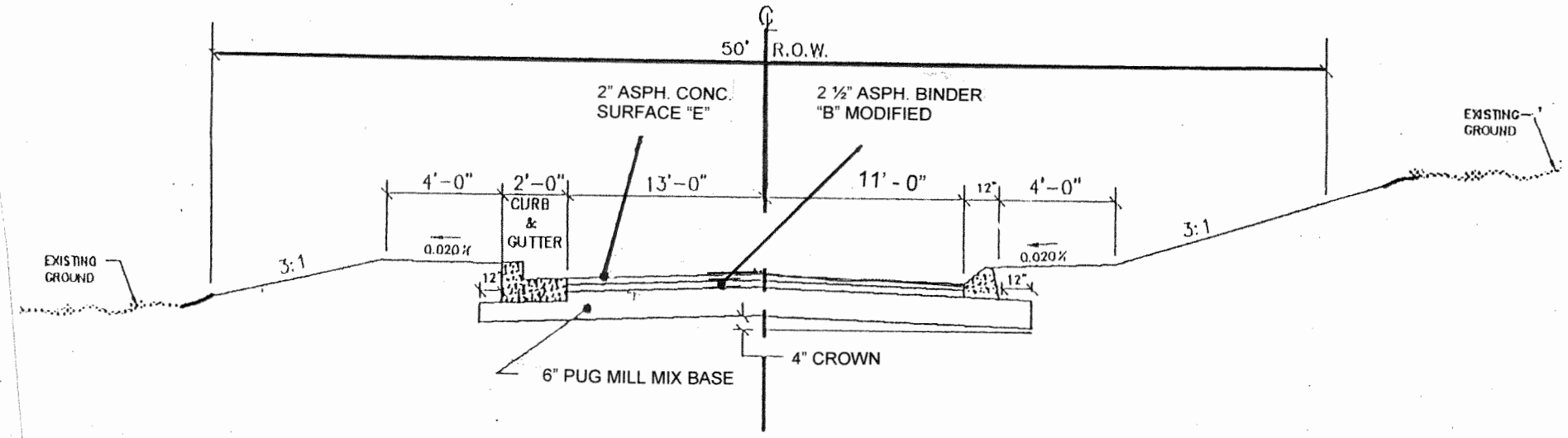
SECTION III

TYPICAL ROAD SECTIONS

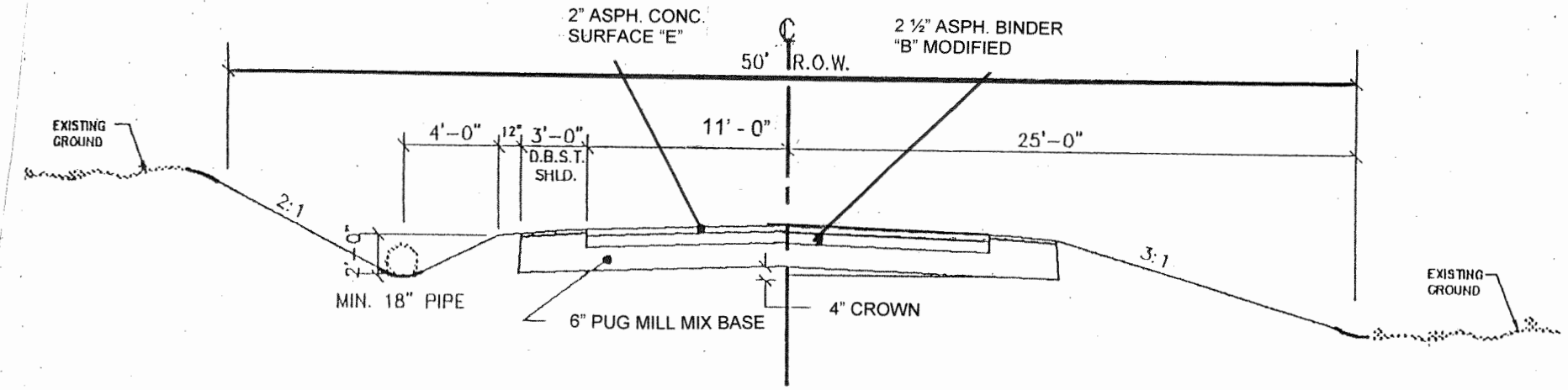
TYPICAL ROAD PLANS

PRIVATE STREET





CURB AND GUTTER SECTION (OPTIONAL)



DITCH SECTION (REQUIRED)

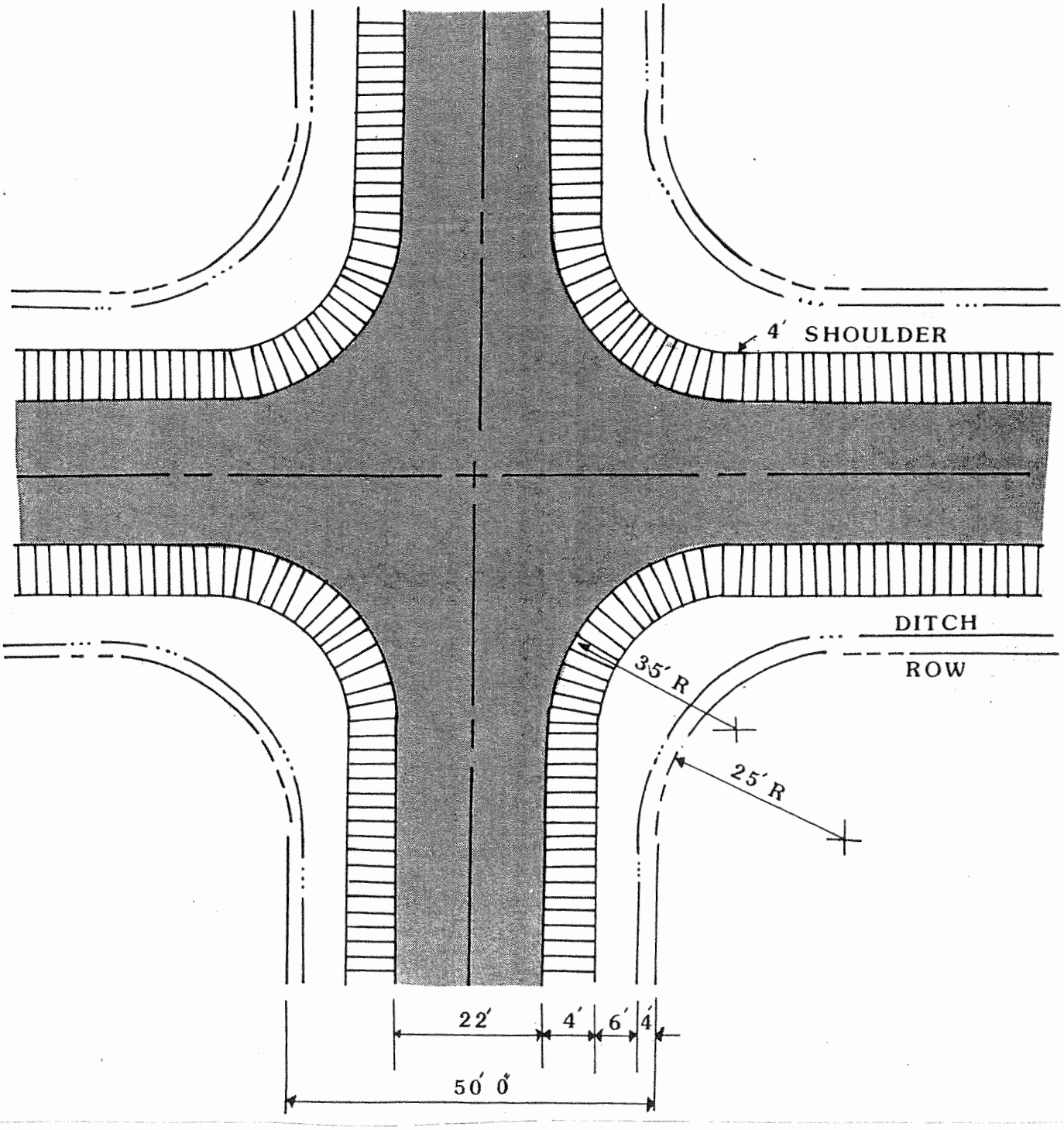
ROAD SECTION FOR MINOR RESIDENTIAL STREETS

NOT TO SCALE

PLAN FOR DITCHED LOCAL RESIDENTIAL STREETS

REQUIRED ROAD SECTION

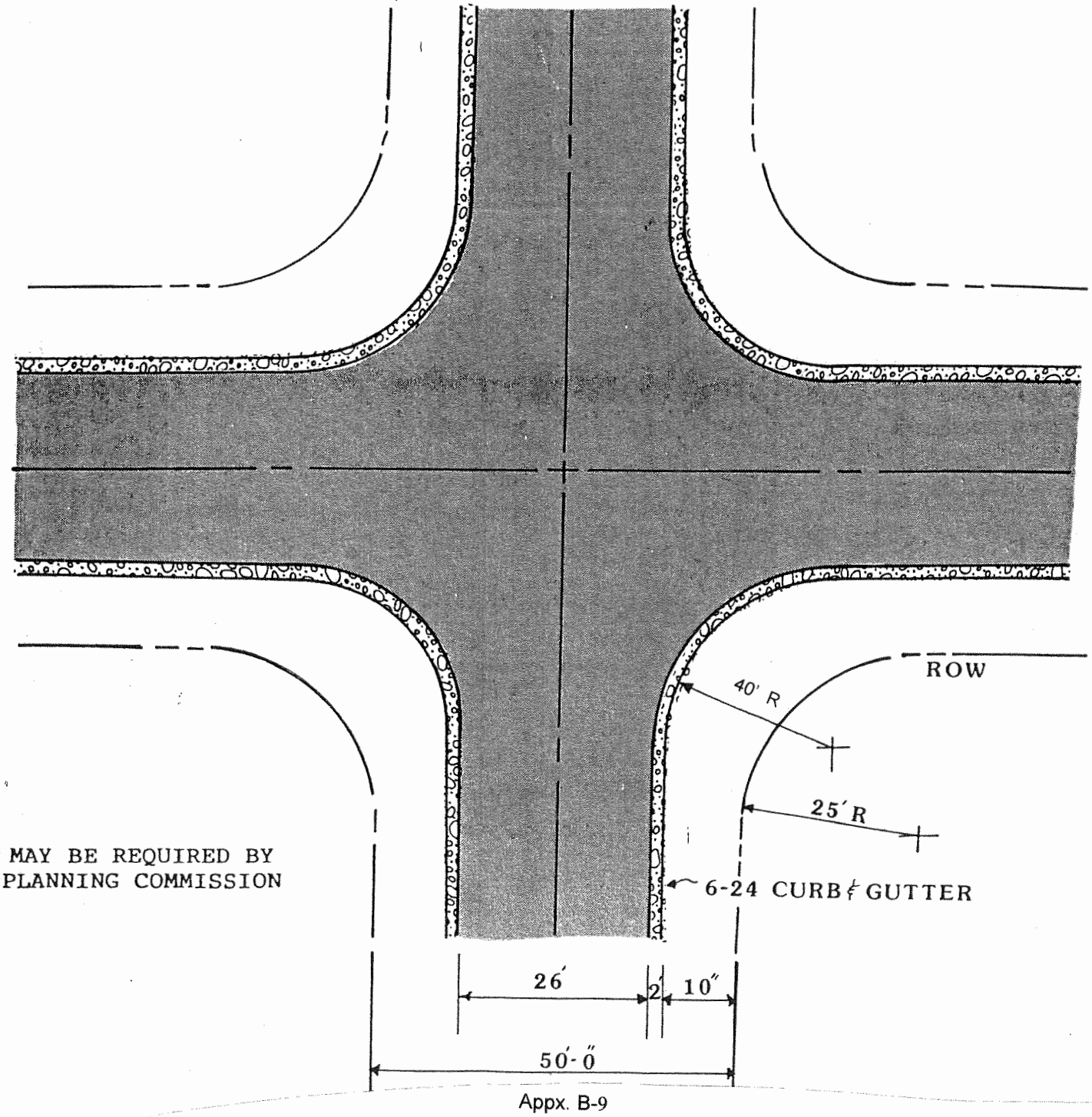
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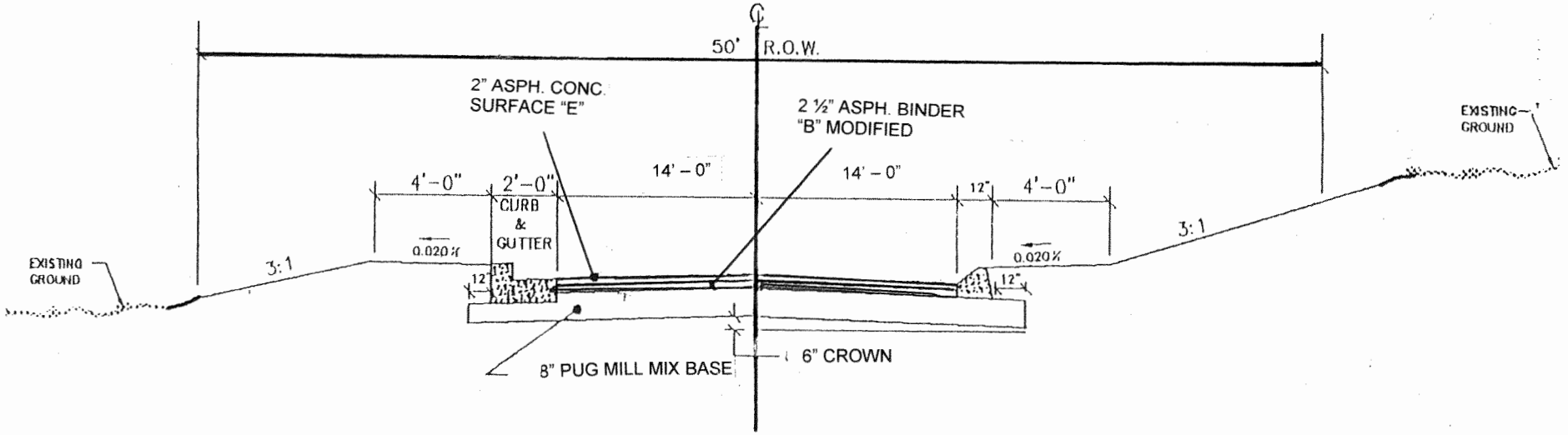
PLAN FOR CURBED LOCAL RESIDENTIAL STREETS

ALTERNATIVE ROAD SECTION*

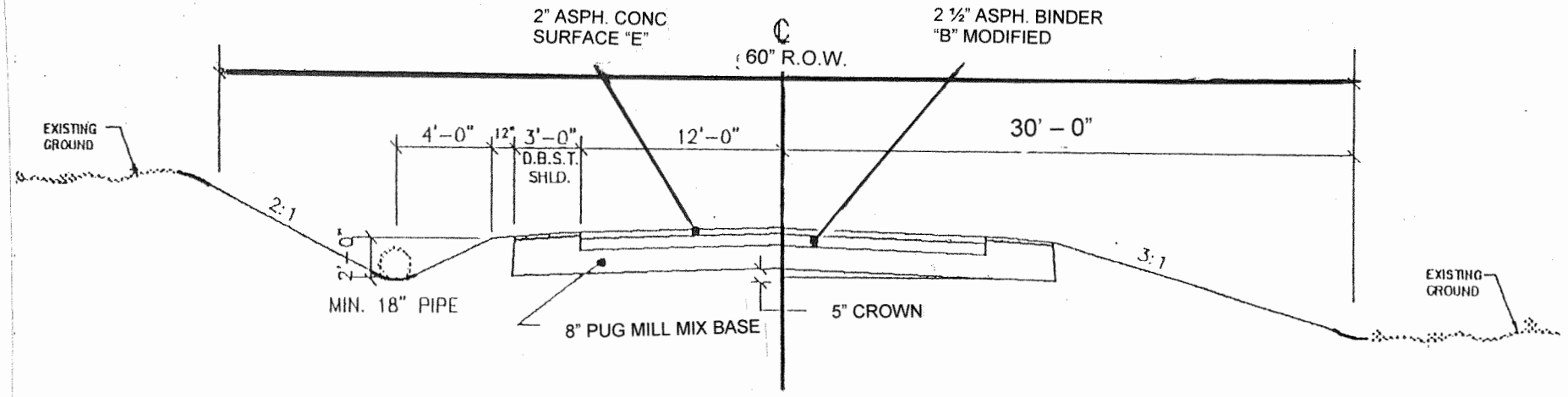
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* MAY BE REQUIRED BY PLANNING COMMISSION



CURB AND GUTTER SECTION (OPTIONAL)



DITCH SECTION (REQUIRED)

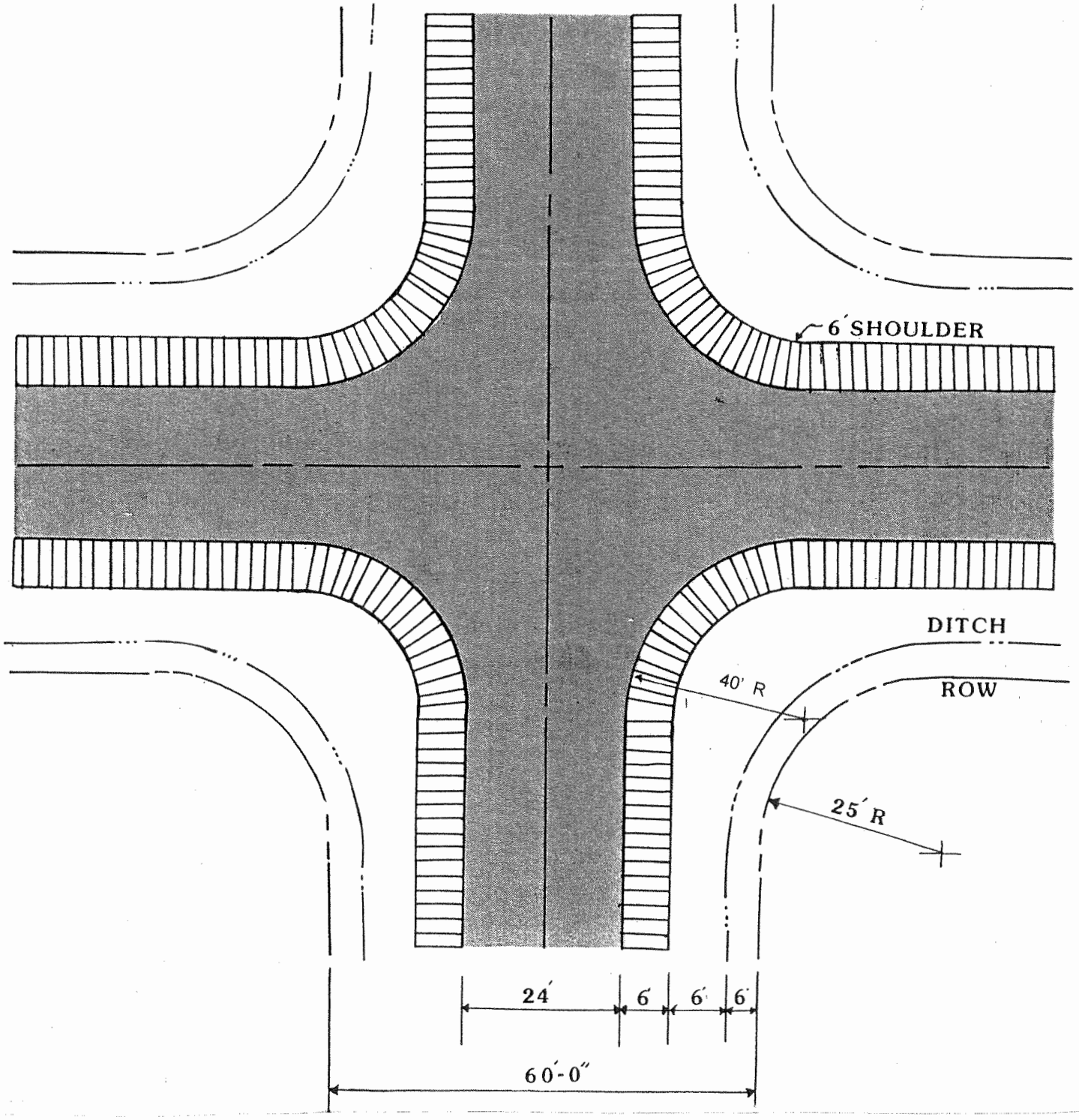
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NOT TO SCALE

PLAN FOR DITCHED COLLECTOR STREETS

REQUIRED ROAD SECTION

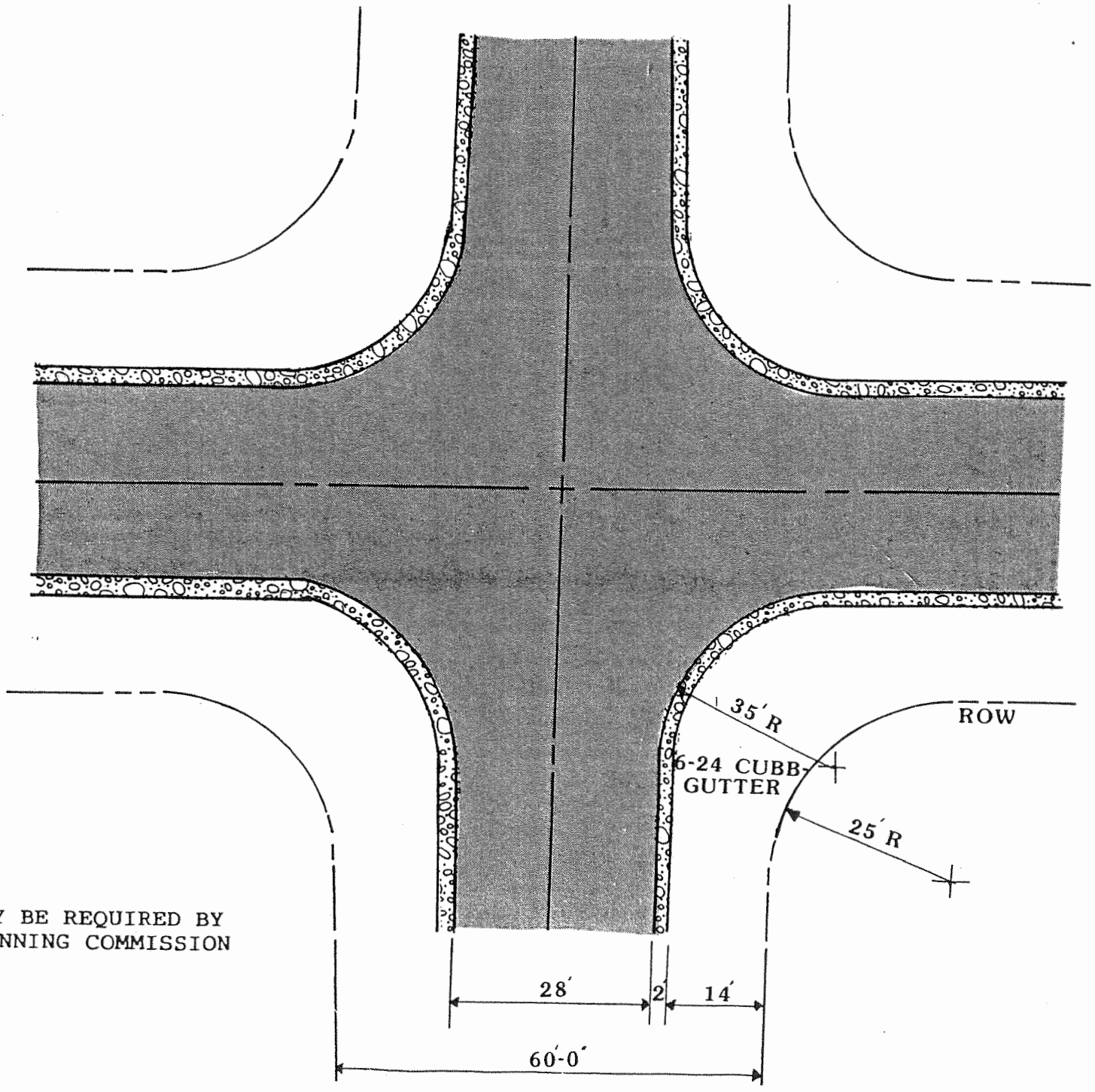
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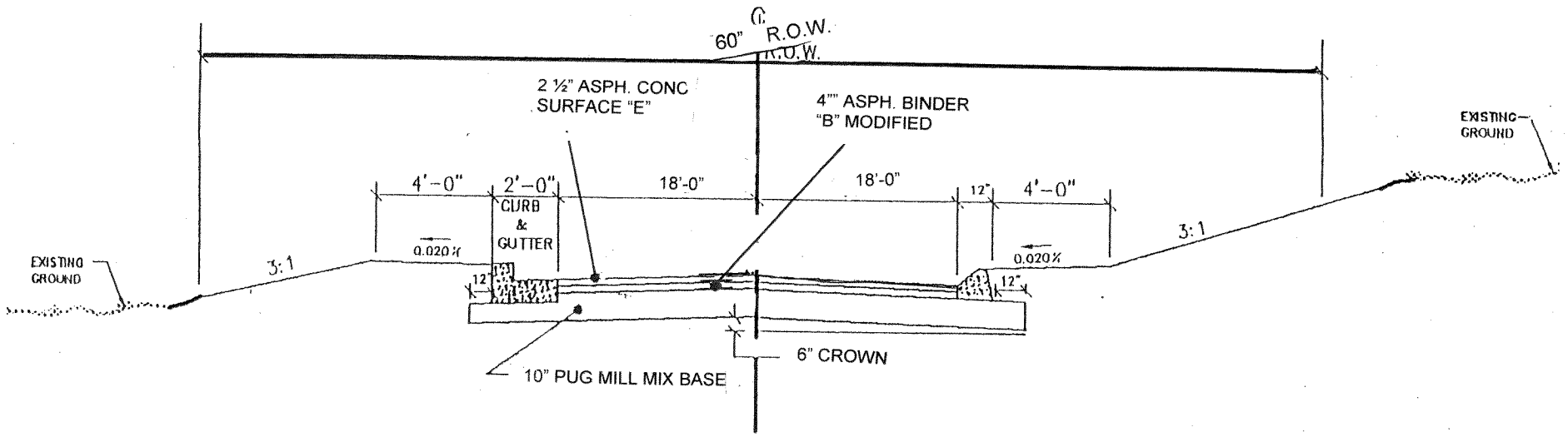
PLAN FOR CURBED COLLECTOR STREETS

ALTERNATIVE ROAD SECTION*

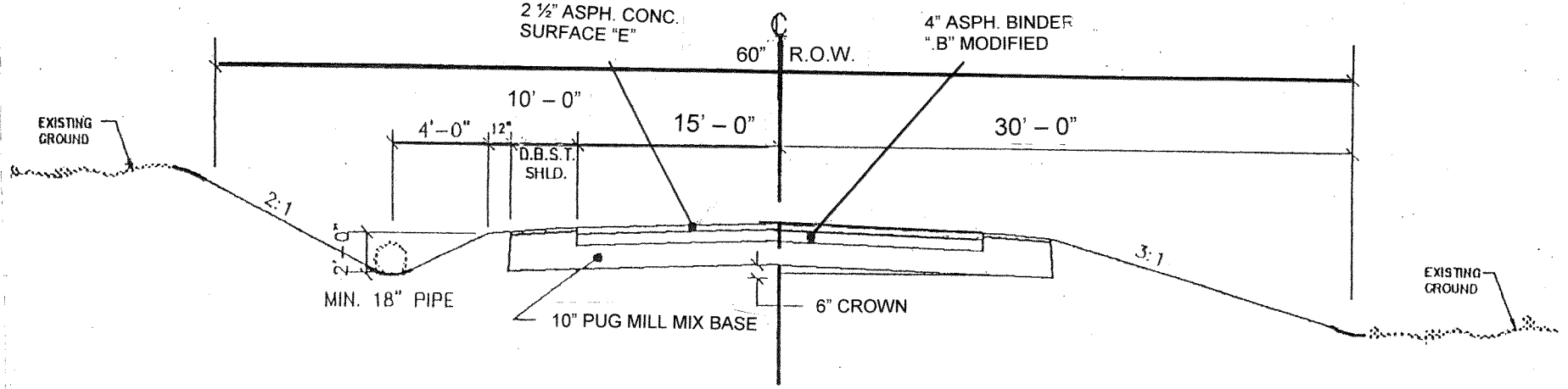
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MAY BE REQUIRED BY
PLANNING COMMISSION



CURB AND GUTTER SECTION (OPTIONAL)



DITCH SECTION (REQUIRED)

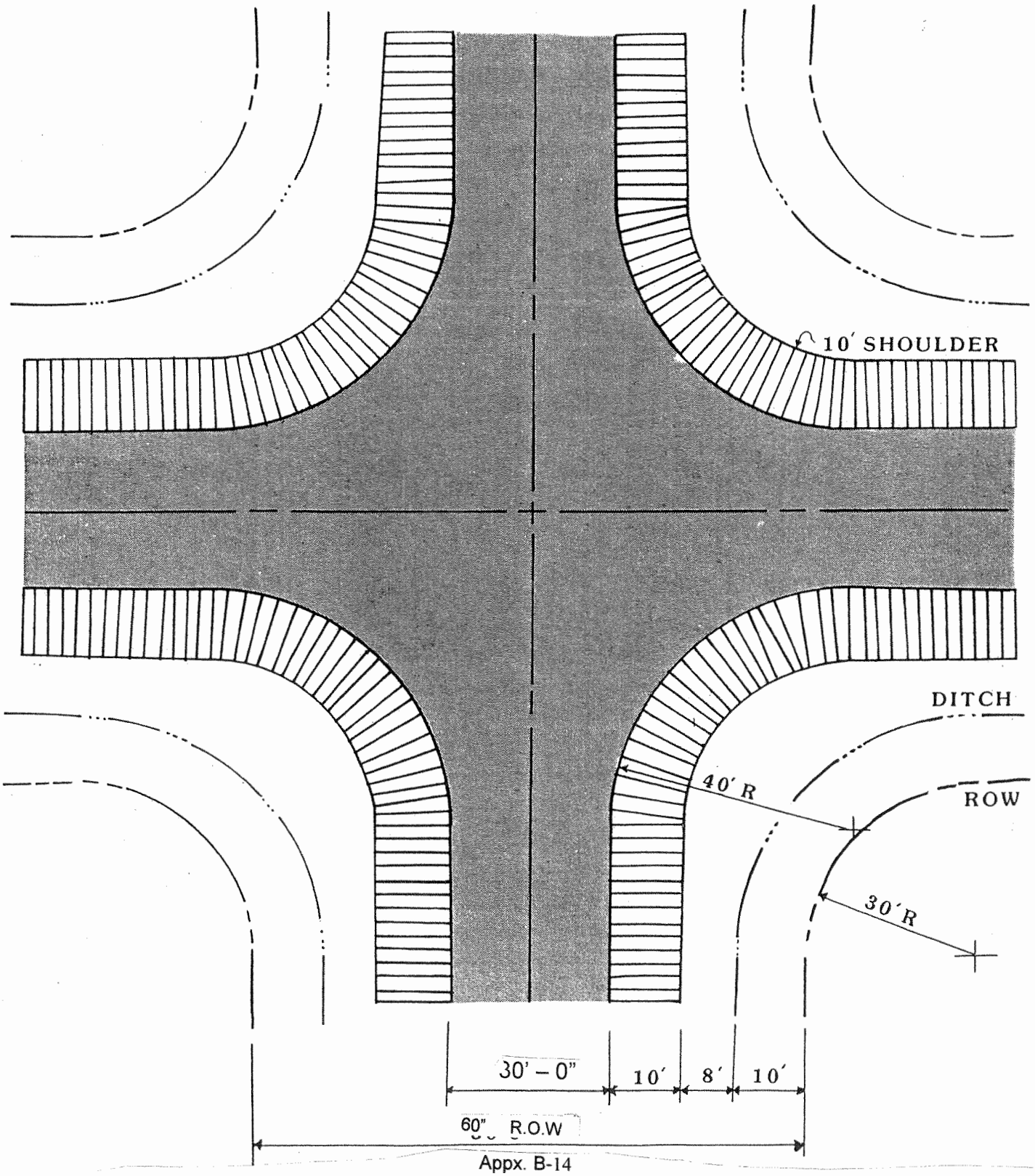
ROAD SECTION FOR COMMERCIAL/INDUSTRIAL STREETS

NOT TO SCALE

PLAN FOR DITCHED COMMERCIAL - INDUSTRIAL STREETS

REQUIRED ROAD SECTION

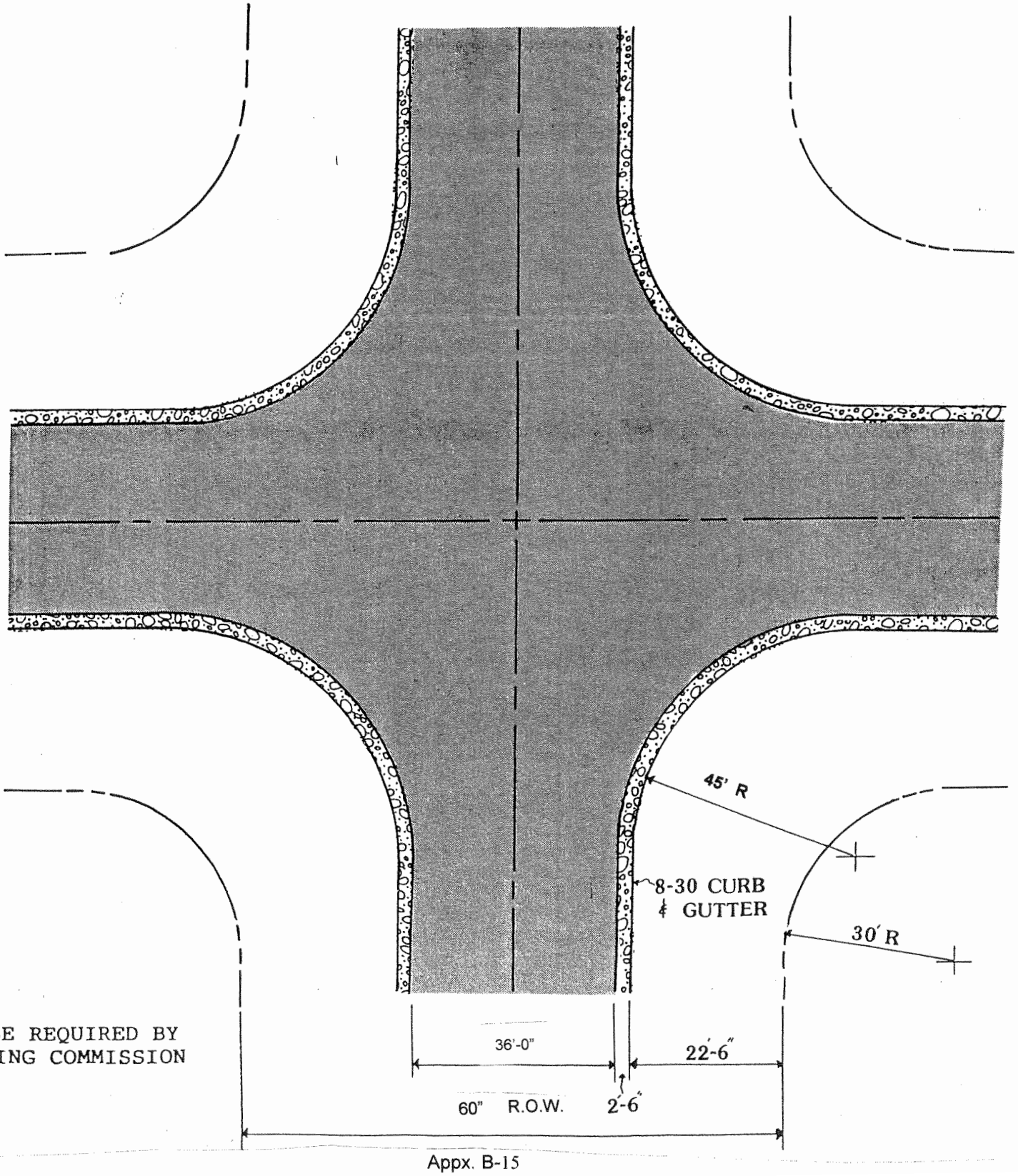
NOT TO SCALE



PLAN FOR CURBED COMMERCIAL - INDUSTRIAL STREETS

ALTERNATIVE ROAD SECTION*

NOT TO SCALE



* MAY BE REQUIRED BY PLANNING COMMISSION

(Amended by Resolution No. 2005-01, September 1, 2005)

SECTION IV

MATERIALS SPECIFICATION AND CONSTRUCTION PROCEDURES

A. PRELIMINARY WORK

1. Location and Protection of Underground Utilities

Prior to beginning excavation or grading, the subdivider shall determine, insofar as possible, the actual locations of all underground utilities in the vicinity of his operations and shall clearly mark them so that they can be avoided by equipment operators. Where such utility lines or services appear to lie in the path of construction, they shall be uncovered in advance to determine their exact location and depth and to avoid damage due to excavation or grading operations. Existing facilities shall be protected during construction or removed and replaced in equal condition, as necessary.

Should any existing utility line or service be damaged during or as a result of the subdivider's operations, the subdivider shall take such emergency measures as may be necessary to minimize damage and shall immediately notify the utility agency involved. The subdivider shall then repair the damage to the satisfaction of the utility agency or shall pay the utility agency for making the repairs. In all cases the damaged structure shall be in as good or better condition as before the damage occurred.

2. Surveying and Staking

The subdivider shall be responsible for his own surveys and establish his own grades unless otherwise directed by the enforcing officer.

3. Removal of Obstructions

The subdivide shall be responsible for the removal, safeguarding, and replacement of fences, walls, structures, culverts, street signs, billboards, shrubs, mailboxes, or other obstructions which must be moved to facilitate construction. Such obstructions shall be restored to at least their original condition.

4. Clearing and Grubbing

The subdivider shall be responsible for cutting, removing, and disposing of all trees, brush, stumps, roots, and weeds within the construction area. Disposal shall be by means of chippers, landfills, or other approved methods not in conflict with state or local ordinances.

Care shall be taken to avoid unnecessary cutting or damage to trees not in the construction area. The subdivider shall be responsible for loss or damage to trees outside the permanent easement or rights-of-way.

5. Traffic Control and Safety

The subdivider shall provide and maintain access to and from all properties along the line of his work. The subdivider shall also provide temporary bypasses and bridges where necessary to route traffic and shall maintain them in a safe and usable condition whenever, in the opinion of the enforcing officer, detouring of traffic to parallel routes cannot be done without hardship or excessive increase in travel by the public.

Where single-lane bypasses are provided the subdivider shall furnish signalmen to control traffic operations and minimize delays.

The subdivider shall provide, erect, and maintain adequate barricades, warning signs, and lights at all excavations, closures, detours, points of danger, and uncompleted pavement.

B. ROADWAY CONSTRUCTION

1. Stripping, Stockpiling, and Placing Topsoil

All topsoil shall be stripped within the street right-of-way and from any other area designated by the enforcing officer. Topsoil shall be stored in stockpiles. All organic matter within the right-of-way shall be stripped and disposed of unless directed otherwise by the enforcing officer.

A three (3) or four (4) inch layer of topsoil shall be placed where seeding is required or where required by the enforcing officer.

After the stockpiled topsoil has been placed as specified above, the area where the topsoil was stockpiled shall be neatly graded and dressed.

2. Excavation

Excavation shall conform to limits indicated on the plans. Excavation materials shall be removed in such manner that the slopes can be neatly trimmed. Excavation shall not be made below grade except where rock or stone masonry is encountered or undercutting of unstable materials is required. Materials removed below grade shall be replaced with approved materials thoroughly compacted. Where borrow materials are required to complete embankments or fills the subdivider shall be responsible for providing them.

Rock excavation shall be removed to a minimum depth of twelve (12) inches below the subgrade and backfilled with approved materials which shall be thoroughly compacted.

Where a spring or seepage water is encountered that is not provided for on drainage plans it shall be reported to the enforcing officer.

3. Fills and Embankments

Embankment and fill materials shall be free from frost, stumps, trees, roots, sod, or muck. Only materials from excavation or borrow pits, or other materials approved by the enforcing officer shall be used. Materials shall not be placed on frozen ground.

Where excavated materials are used in fill construction and the materials consist of earth and various grades of rock, the fills shall be carefully constructed with the larger or hard rock on the bottom followed by the smaller or soft rock and finally the earth fill to provide a well-compacted and void-free embankment.

All depressions or holes below the natural ground surface, whether caused by grubbing, rock removal, undercutting, or otherwise, shall be filled with suitable materials and compacted to ground surface before fill construction is started.

Backfilling around a structure shall have been completed and thoroughly compacted to ground surface before any embankment materials are placed thereon.

Embankments shall be so constructed that adequate surface drainage will be provided at all times.

Fill areas shall be compacted by a sheep's foot roller, to a density of not less than ninety-five (95) percent of optimum density and within three (3) percent of optimum moisture content per ASTM D 698, and each lift of fill materials shall be rolled until the roller "walk out".

The finished grade shall be test rolled with a truck to be selected by the enforcing officer. Any areas found to be soft or "pumping" shall be cut out and replaced with suitable materials in lifts, each lift shall be compacted until the excavation has been brought back to finish grade.

Fill materials shall be placed in eight (8) inch lifts, maximum thickness. Where excavated materials consist mainly of rock too large to be placed in the normal eight (8) inch thickness without crushing or further breaking down the pieces, such materials shall be placed in the fill in layers not exceeding three (3) feet in depth. No rock larger than eighteen (18) inches in dimension shall be placed in fill. Care shall be taken to fill all voids between large rock and to assure that fill materials are compacted such that settling is minimized. Compaction of the top six (6) inches of cuts or fills shall be accomplished with pneumatic-tire rollers.

Backfill around structures shall be of crushed stone or earth meeting the approval of the enforcing officer; and the fill shall be placed and compacted in eight (8) inch lifts and brought up evenly on all sides of the structure.

4. Undercutting

This work shall consist of the removal and disposal of unsatisfactory materials below grade in cut sections or areas upon which embankments

are to be placed. It shall also include undercutting for pipes and box culverts where required.

Known areas to be undercut shall be designated on the materials approved by the enforcing officer. The backfill materials shall be placed in eight (8) inch lifts and compacted as specified for fill construction.

Disposal of unsatisfactory materials shall be approved by the enforcing officer.

5. Subgrade Construction and Preparation

The subgrade shall be prepared in reasonably close conformity with the lines and grades as shown on the plans.

Grading of subgrade shall be performed in such manner as to provide ready drainage of water. Ditches and drains shall be maintained to provide proper drainage during construction.

Hauling over finished subgrade shall be limited to that which is essential for construction purposes, and all ruts or rough places that develop in a completed subgrade shall be smoothed and recompacted. Soft areas shall be removed and replaced with crushed stone or as directed by the enforcing officer.

The subgrade shall be checked and approved by the enforcing officer for adherence to the plans before any base materials are placed.

6. Shoulders and Slopes

All shoulders and slopes shall be trimmed and shaped to conform with the cross sections shown on the plans and as specified in Section C-5, below. Rock cuts shall be sealed of all loose fragments, projecting points, etc., so as to leave a clean and neat appearance. Shoulders shall be completed where required as shown on the plans and shall be double bituminous surface treated, with care being taken to protect the surface and edges of pavement. Shoulder materials shall be placed in uniform layers and compacted by overlapped rolling of both base course and pavement. The finished shoulder shall be firm against the pavement.

C. BASE AND PAVING

1. Base Stone

The base course of stone shall be a pug mill mix of Type A, Grading D, mineral aggregate conforming to placed and compacted in layers or lifts upon the prepared subgrade to a finish thickness as described and shown on the plans. No single layer or lift shall exceed four (4) inches in depth.

The base course shall be a pugmill mix of mineral aggregate conforming to the technical specifications set forth in Section 303, Standard Specifications. The aggregate base shall not be spread on a subgrade that is frozen or that contains frost. The base shall be placed and spread in uniform layers or lifts without segregation of size; each layer shall be

compacted to a thickness no greater than four (4) inches. The stone shall be mixed with graders or other equipment until a uniform mixture is obtained. Each layer shall be compacted by rolling with alternate blading until a smooth, even, and uniformly compacted finish is obtained.

The base stone shall be graded and rolled while it is still moist from the pugmill mix. If the enforcing officer determines that the mix is too dry, water shall be added with a distributor tank truck while the stone is being graded and rolled. Compaction shall be uniform for the entire width of the roadway until a density of eighty (80) percent of the solid volume has been achieved. Placement and compaction of each layer shall be approved by the enforcing officer before materials for the next successive layer are placed.

No pavement shall be placed until the stone base has been approved by the enforcing officer.

2. Prime Coat

After the base stone has been prepared as outlined above, a bituminous prime coat shall be applied uniformly over the surface of the base by the use of an approved bituminous distributor. The prime coat shall be applied at the rate of the three-tenths (3/10) gallon per square yard, using Grade RC-70 or RC-250, or refined tar Grade RT-2, RT-3, or emulsified asphalt, Grade AE-P. If, after the bituminous materials have been applied, they fail to penetrate before the time that the roadway is to be used by traffic, dry cover materials shall be spread at a rate established by the enforcing officer, (between eight (8) and twelve (12) pounds per square yard) to prevent damage to the primed surface. An excess of cover materials shall be avoided. No succeeding stage of construction shall be placed upon the prime coat until it has properly cured. Aggregate for cover materials shall be Size No. 78 or 8.

In addition to these general requirements, unless, otherwise, stipulated, all materials and methods of installation shall conform to the technical specifications set forth in Section 402, Standard Specifications.

3. Tack Coat

A tack coat shall be applied to old or existing pavement surface or to a previously prepared base or surface to provide bond for an overlaid course. The tack coat shall be applied at the rate of one-tenth (1/10) gallon per square yard using materials and methods of installation set forth in Section 403, Standard Specifications.

4. Binder Course

Upon completion of the application of the prime coat, or tack coat, an asphaltic binder course (hot mix) shall be applied. The wearing surface shall be the thickness shown on the detail sheet for that class street. All materials and methods of installation shall conform to the technical specifications set forth in Section 411, Standard Specifications for

asphaltic concrete. The binder course shall be constructed of "B" Grade modified materials described in the, Standard Specifications. The asphalt mix design shall be submitted to the Robertson County Highway Department for review and approval prior to the placement of any asphalt. All materials used shall be virgin materials.

5. Wearing Surface

Upon completion of the Binder Course and when approved by the Robertson County Highway Department (a minimum of seventy (70) percent of the lots are completed), an asphaltic concrete surface (hot mix) shall be applied. The wearing surface shall be the thickness shown on the detail sheet for that class street. All materials and methods of installation shall conform to the technical specifications set forth in Section 411, Standard Specifications for asphaltic concrete surface. The wearing surface shall be constructed of E materials described in Section 903, Standard Specifications. The asphalt mix design shall be submitted to the Robertson County Highway Department for review and approval prior to the placement of any asphalt. All materials used shall be virgin materials.

6. Shoulders

Shoulder construction shall be completed by bleeding, moistening as necessary, and by thoroughly compacting. The shoulders shall be the width and thickness shown on the typical section as required herein and covered with the typical section as required herein and covered with a double bituminous surface treatment. The surface shall be prepared as directed in advance of the surface construction. Upon completion of the prime coat, a double bituminous surface treatment shall be applied with the first course being at a rate of between 0.38 and 0.42 gallons per square yard. If the width of application is wider than the distributor, each width of spread shall not be less than one-half (1/2) the surface to be treated. Areas inaccessible to the distributor shall be treated either with hand sprays or pouring pots. Immediately after each application of bituminous materials has been made, it shall be covered uniformly with Size No. 6, mineral aggregate. The aggregate shall be spread at a rate of between thirty (30) and forty (40) pounds per square yard. This first application shall be allowed to cure for a length of time to be determined by the enforcing officer before the second application is begun.

The second application of bituminous materials shall be applied in the same manner as the first application, at a uniform rate between 0.30 and 0.35 gallons per square yard. Mineral aggregate, Size No. 7, shall then be spread in the same manner as for the first spread at a rate between twenty (20) and twenty-five (25) pounds per square yard.

Immediately after each spread of cover aggregate, uniform coverage shall be achieved by hand brooming. Additional aggregate shall be placed by hand on thin or bare areas.

Immediately after spreading and brooming the cover aggregate, the entire surface shall be rolled, beginning at the edges and progressing to the edge of the pavement. Rolling shall begin within thirty (30) minutes after

the aggregate has been spread. The same rolling and curing procedures required in making the first application shall be repeated in making the second application.

In addition to these general requirements, unless otherwise stipulated, all materials and methods of installation shall conform to the technical specifications set forth in Section 404, Standard Specifications.

D. DRAINAGE SYSTEM DESIGN

1. Ditching and Channelization

This work shall consist of the construction of ditches adjacent to roadway shoulders and feeding to and from culverts under or adjacent to the roadway. All drainage ditches shall be graded in their entirety during the time the roadways are being graded; such grading shall be completed prior to final inspection of the roadways.

2. Stabilization of Ditches

All open ditches shall be stabilized in accordance with the following requirements:

Size of Nearest Culvert (Upstream)	Sod Required	Concrete Lined	To Be Determined by Engineer
15"	Grades 1.00%-3.00%	Grades 3.00%-12.00%	Grades Exceeding 12.00%
18" thru 24"	Grades 1.00%-1.50%	Grades 1.50%-7.00%	Grades Exceeding 7.00%
30" thru 36"	Grades 1.00%-1.50%	Grades 1.00%-4.00%	Grades Exceeding 4.00%
42" thru 72"	Grades	Grades 2.50% or Less	Grades Exceeding 2.50%

Note: Any waiver to the above requirements shall be approved by the Robertson County Highway Department and the Planning Commissions consulting engineer.

3. Concrete Ditch Paving

Concrete ditch paving shall consist of the construction of paved ditches on a prepared subgrade. The subgrade shall be shaped and compacted to a firm even surface. All soft materials shall be removed and replaced with acceptable materials and shall be compacted as directed by the enforcing officer.

Concrete ditch pavement shall be four (4) inches in thickness throughout and shall be back-filled immediately after the concrete has set and the forms have been removed. The back-filled materials shall be thoroughly compacted and a two (2) foot strip of sod placed along the edges of the concrete ditch. Expansion joints shall be located as directed by the enforcing officer.

4. Culverts and Storm Drains

This work shall consist of the construction of pipe culverts and storm sewers as shown on the plans. All culverts and storm sewers under County roads shall be reinforced concrete pipe.

Driveway culverts shall be a minimum diameter of fifteen (15) inches and a minimum length of twenty (20) feet; cross drains shall be a minimum diameter of eighteen (18) inches.

Reinforced concrete pipes shall conform to minimum standards for Class III, Reinforced Pipes, A.S.T.M. C76. Any corrugated metal pipes placed in areas outside the roadway shall conform to Section 915.02 or 915.04, Standard Specifications and to gage as follows:

For pipes smaller than forty-eight (48) inches in diameter, a minimum cover of one (1) foot, exclusive of base and paving, is required from top of pipes to finished subgrade. A minimum cover of two (2) feet is required for pipes forty-eight (48) inches in diameter and larger. All pipes shall be built on straight line and grade and shall be laid with the spigot end pointing in the direction of the flow, with the ends fitted and matched to provide tight joints and smooth uniform invert.

Pipes shall be bedded on a six (6) inch thickness of Class B materials and backfilled to a depth of thirty (30) percent of the diameter of the pipes. Recesses shall be dug in the bedding materials to accommodate the bell. Class B bedding shall be Size No. 7, as shown in Chart No. 903.23, Standard Specifications. Culverts and storm drains in existing and proposed roadways shall be backfilled with crushed stone to the depth of the cut.

5. Headwalls

Concrete headwalls shall be constructed at both ends of cross drains as shown and detailed on the standard drawings included herein.

6. Catchbasins

This work shall consist of constructing catchbasins complete within inlets, outlets, and inverts. Tops and inlets shall be constructed to conform to the roadway grade so that drainage can easily be caught and no ponding created. Catchbasins shall be constructed as shown and detailed on the standard drawings contained herein.

7. Box Culverts and Bridges

Design of box culverts and bridges shall be designed to the latest TDOT Standards and approved before construction is permitted.

8. Roadside Ditches

Roadside ditches, in conventional sections, shall be built to a grade that will permit good drainage, and in no case shall the slope of the ditch be less than one (1) percent (a fall of 1.00 foot in 100 feet). All drainage ditches shall be stabilized to prevent erosion as indicated in these specifications.

9. Changes in Water Channels

Where the subdivider rechannels water through a subdivision he will be responsible for replacing cross drains under public streets, as directed by the enforcing officer. This work shall be done at the expense of the subdivider.

10. Curb or Curb Gutter (Formed)

Concrete curbs and gutter shall conform to the standard drawings as detailed herein. Concrete for curbs and gutter shall be Class A, at 3,500 psi.

Curb and gutter shall be constructed to the lines and grades shown on the plans, or as designated by the enforcing officer. The final subgrade for curb and gutter shall be carefully graded and compacted to an even density and shall be smooth and true to grade. Curb and gutter shall be constructed with materials and methods which conform to the technical specifications set forth in Section 702, Standard Specifications.

Concrete driveway ramps shall be required on all curbed and gutter streets. The ramps shall extend a minimum of five (5) feet behind the curb. Materials for the remaining portion of the driveway shall be determined by the subdivider. Driveway ramp construction shall conform to detailed standard drawings included herein.

Any driveway ramp to be placed after initial laying of curb shall require a permit and shall be installed in accordance with the standard drawings included herein.

Any ramp not conforming to the foregoing requirements shall be removed and replaced by the subdivider at his expense and shall be enforced under provision of the maintenance bond.

E. FINAL DRESSING, SEEDING, AND SODDING

1. Final Dressing

This work shall consist of dressing all slopes and areas to within reasonable close conformity to the lines and grades indicated on the plans, or as directed by the enforcing officer. Final dressing shall be performed by hand or machine to produce a uniform finish to all parts of the roadway including

embankments, ditches, etc. Rock cuts shall be cleaned of all loose fragments; side slopes shall be laid back to a three to one (3:1) slope and seeded as described in these specifications.

The entire right-of-way shall be cleaned of all weeds and brush and all structures both old and new shall be cleared of all brush, rubbish, sediment, or other objectionable materials.

2. Seeding

In all areas damaged or disturbed by the construction operation where established ground cover was present before beginning of construction, the subdivider shall be responsible for restoring the ground cover after completion of construction, unless noted otherwise on drawings. All areas seeded shall be graded smooth prior to seeding and the subdivider shall be responsible for maintenance of the smooth finished grade until grass is established.

After designated areas have been carefully hand graded, soil shall be prepared for fertilizing and seeding. Fertilizer shall be a standard commercial fertilizer Grade 15-15-15, or equivalent, and shall be applied at a rate of not less than ten (10) pounds per one thousand (1,000) square feet. The fertilizer shall be lightly harrowed, raked, or otherwise incorporated into the soil for a depth of approximately one half (1/2) inch. The subdivider shall be responsible for any regrading or reseeding required to produce an acceptable grass cover. Rutting and washing shall be restored by reseeding and strawing; in areas of extreme erosion sodding may be required.

The seed shall be as follows:

Name	Percent by Weight
Lespedeza	**20**
Sericea Lespedeza	**15**
Kentucky 31 Fescue	**40**
English Rye	**15**
White Dutch Clover	**5**
Weeping Love Grass	**5**
or	
Kentucky 31 Fescue	**55**
Redtop	**15**
English Rye	**20**
White Dutch Clover	**5**
Weeping Love Grass	**5**

The seed shall be sown uniformly at the rate of one and one-half (1 1/2) pounds per one thousand (1,000) square feet.

3. Sodding

Sodding shall consist of furnishing and placing sod at all locations shown on the plans, or as directed by the enforcing officer. Work shall include the furnishing and placing of new sod, consisting of live, dense, well-rooted growth of permanent grasses free from Johnson grass and other obnoxious grasses or weeds, well suited for the soil on which it is placed. All sod shall be cleanly cut in strips having a uniform thickness of not less than two and one-half (2 1/2) inches. Sod shall be set when the soil is moist and favorable to growth. No setting shall be done between October 1 and April 1, without permission of the enforcing officer. The area to be sodded shall be brought to the lines and grades shown on the plans, or as directed by the enforcing officer.

The surface of the ground to be sodded shall be loosened to a depth of not less than one (1) inch with a rake or other device. If necessary, it shall be sprinkled until saturated for a minimum depth of one (1) inch and kept moist until the sod is placed. Immediately before placing the sod, fertilizer and lime shall be applied uniformly to the prepared surface of the ground. Fertilizer shall be applied at the rate of eight pounds of Grade 15-15-15, or equivalent, per one thousand (1,000) square feet.

Sod shall be placed as soon as practical after removal from the point of origin, it shall be kept in a moist condition during the interim. Sod shall be carefully placed by hand on the prepared ground surface with the edges in close contact and, as far as possible, in a position to break joints. Each strip of sod laid shall be fitted into place and tamped. Immediately after placing, the sod shall be thoroughly wetted and rolled with an approved roller. On slopes of two to one (2:1) or steeper, pinning or pegging may be required to hold the sod in place.

The sod shall be watered as directed by the enforcing officer for a period of two (2) weeks. The subdivider shall not permit any equipment or materials to be placed on any planted area and shall erect suitable barricades and guards to prevent equipment, labor, or the public from traveling on or over any area planted with sod.

F. Street and Traffic Signs

Street signs and traffic signs shall be installed as required by the appropriate governmental body. The installation of these signs shall be coordinated with the Robertson County Highway Department.

G. Road Construction and Testing Requirements

Testing of the subgrade crushed stone base and asphaltic concrete installed shall be performed according to the latest procedures of the Robertson County Planning Commission and the Robertson County Highway Department.

The Robertson County Highway Department must be contacted at least forty-eight (48) hours prior to construction of each of the following phases of construction: earthwork, placing of crushed stone base, placing of asphalt, and bedding and backfilling of culverts.

All Testing must be performed by a laboratory which is approved by the Tennessee Department of Transportation at the time the road is constructed. The developer shall pay all costs associated with testing requirements. The selection of test points may be determined by the Robertson County Highway Department, if desired by them.

H. Striping

All roadways constructed shall be striped with centerline striping in accordance with the latest edition of the Manual of Uniform Traffic Control Devices.

I. Standard Drawings

The purpose of this section is to include drawings of details for construction. These drawings are to be used in conjunction with the specifications.

Details concerning the construction of sewer and service lines shall be referenced to the specifications for collector sewers, service lines, and house connections for appropriate utility.

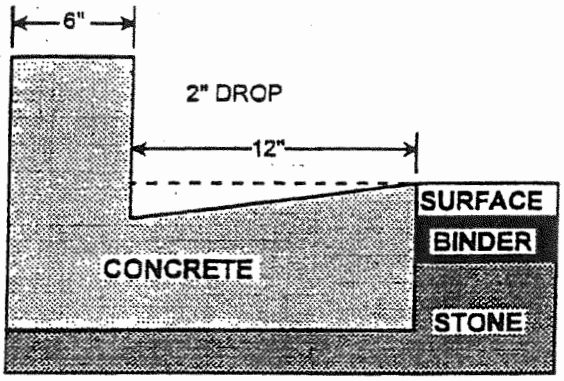
Any special construction problems or conditions not covered by these specifications or drawings, shall be submitted to the Robertson County Planning Commission for approval.

The following Standard Drawings are included in this section:

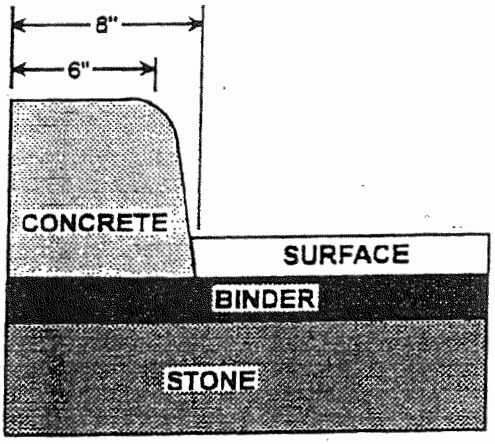
B-1 - Curb Design Alternatives
B-2 - Commercial and Industrial Streets
B-3 - Details of Single Inlet Catch Basin
B-4 - Details of Single Inlet Catch Basin
B-5 - Details of Double Inlet Catch Basin
B-6 - Details of Double Inlet Catch Basin
B-7 - Details of Triple Inlet Catch Basin
B-8 - Reinforced Concrete Headwall
B-9 - Area Drain
B-10 - Straight Endwall for Circular Pipe
B-11 - Straight Endwall for Pipe Arch
B-12 - Concrete Lined Ditch
B-13 - Typical Stabilized Ditch Section

DRAWING B-1

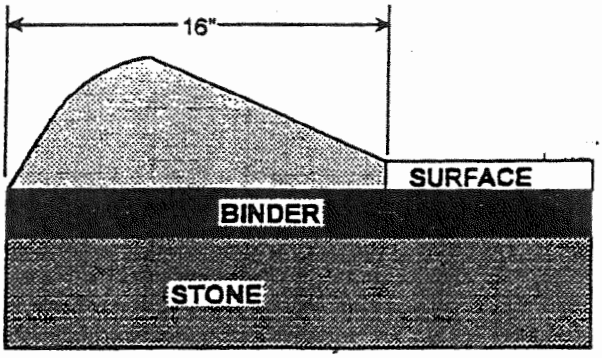
CURB DESIGN ALTERNATIVES



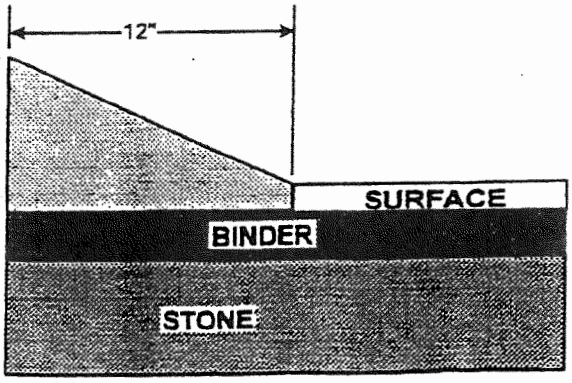
CONCRETE ONLY



CONCRETE ONLY

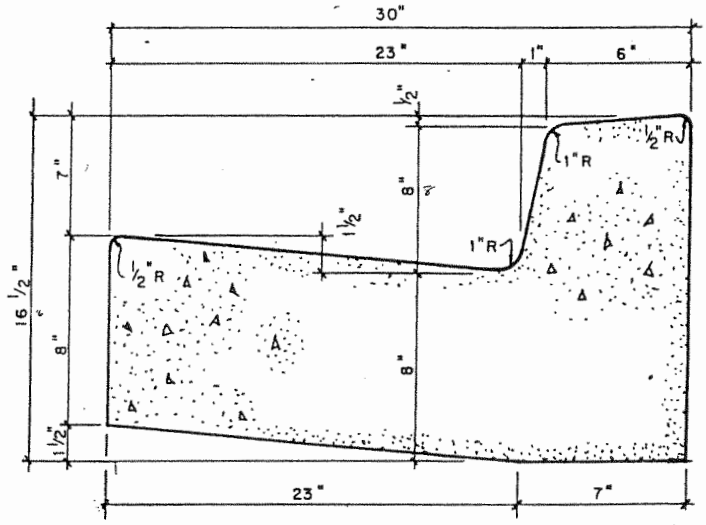


CONCRETE OR ASPHALT



CONCRETE OR ASPHALT

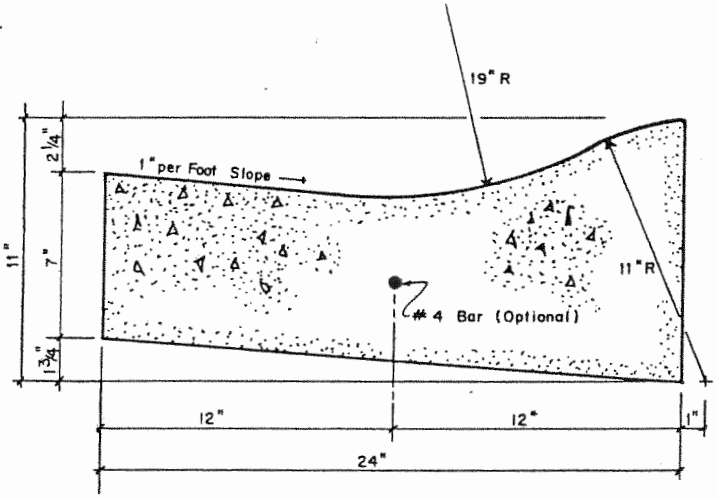
Commercial and Industrial Streets



8 - 30

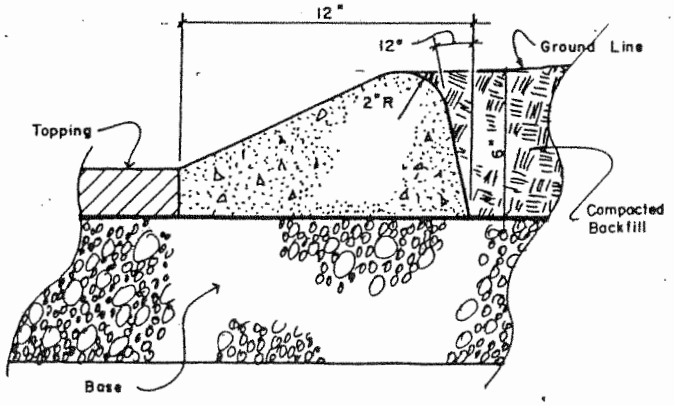
Concrete Curb and Gutter

(Not To Scale)



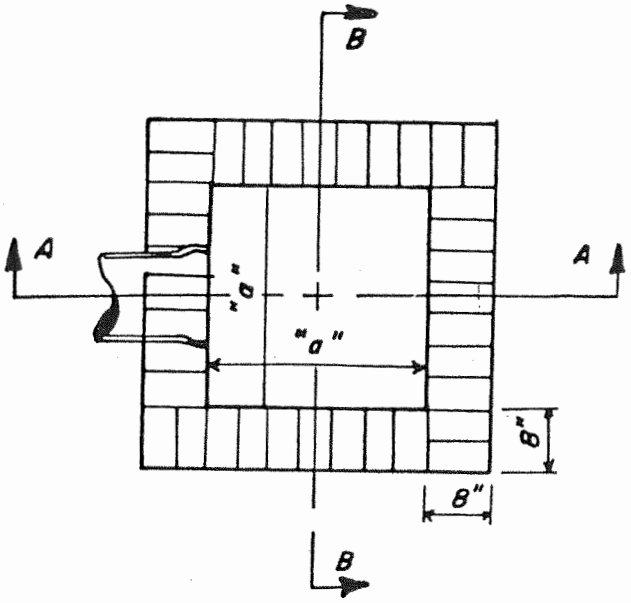
Rolled or Mountable Concrete Curb

(Not To Scale)

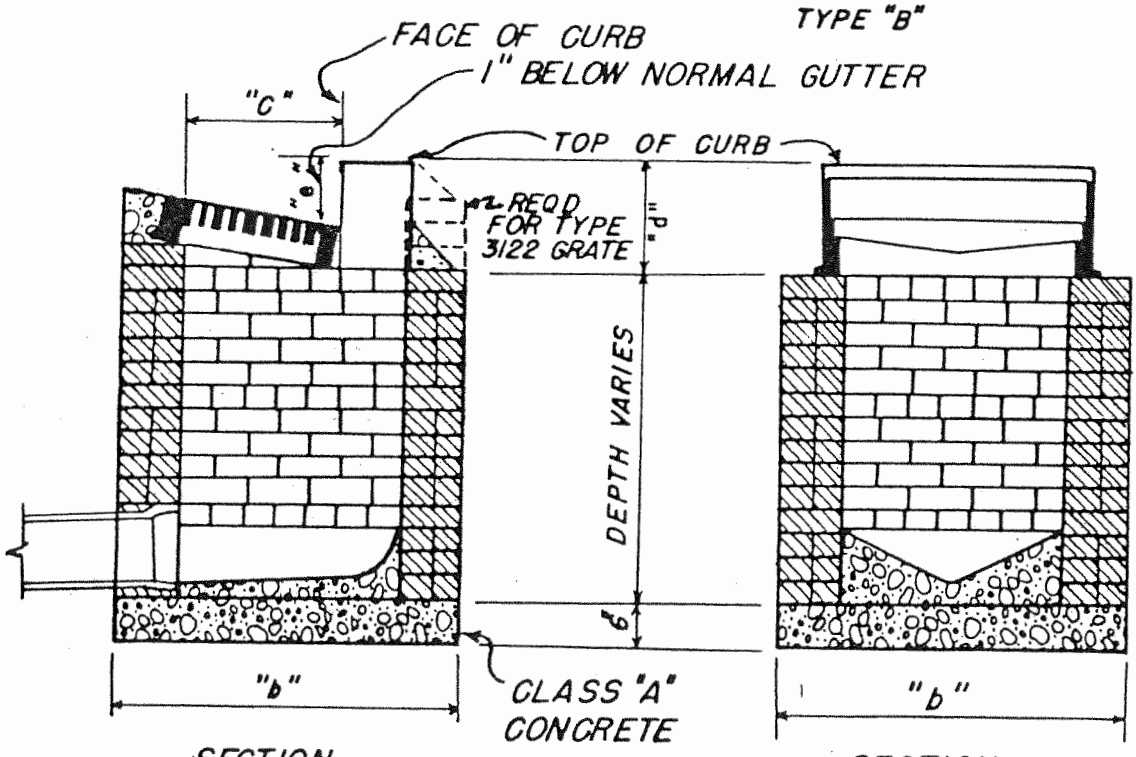


Extruded Curb

(Not To Scale)



NOTE: CASTINGS SHOWN IN PLACE. JOHN BOUCHARD & SONS CO. NO. 3080, 3122 OR APPROVED EQUAL FOR TYPE "A" OR NO. 3100 OR APPROVED EQUAL FOR TYPE "B"



SECTION A-A

SECTION B-B

	TYPE "A"	TYPE "B"
"a"	24"	28"
"b"	3'-4"±	3'-8"±
"c"	19"	20"
"d"	12"	14"
"6"	6"	7"

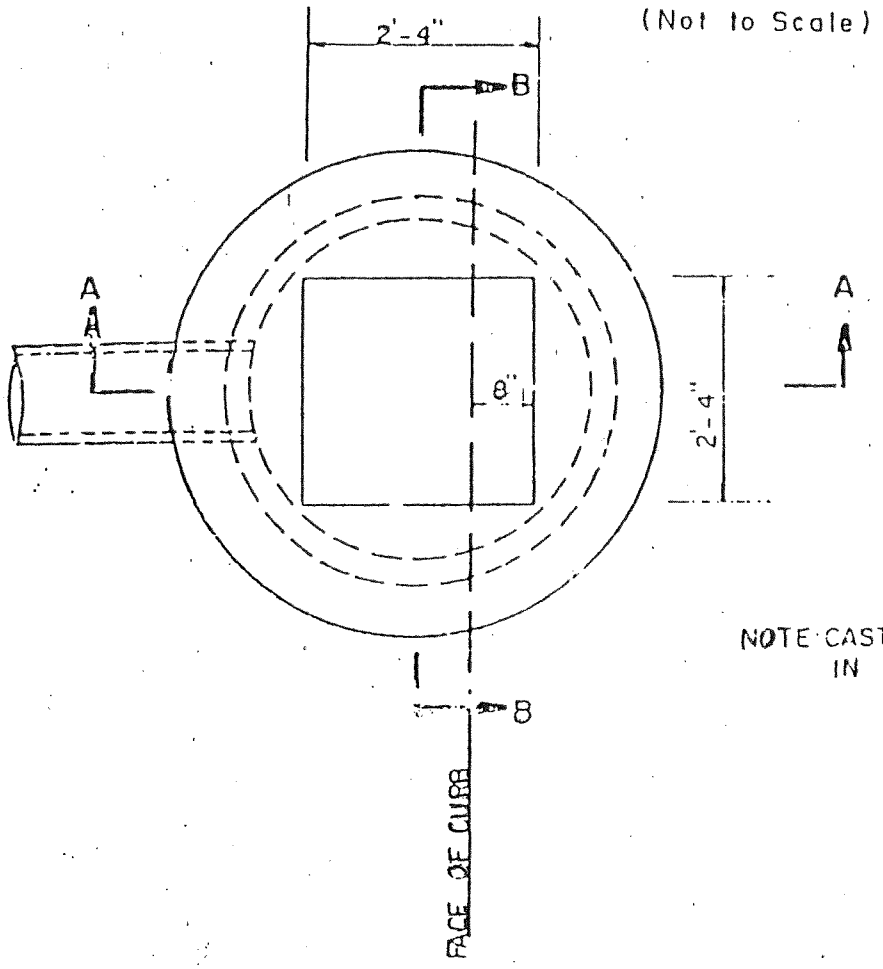
NOTE TYPE "A" CATCH BASIN TO BE USED WITH 6-24 CURB & GUTTER
TYPE "B" CATCH BASIN TO BE USED WITH 8-30 CURB & GUTTER

DETAIL OF CATCH BASIN

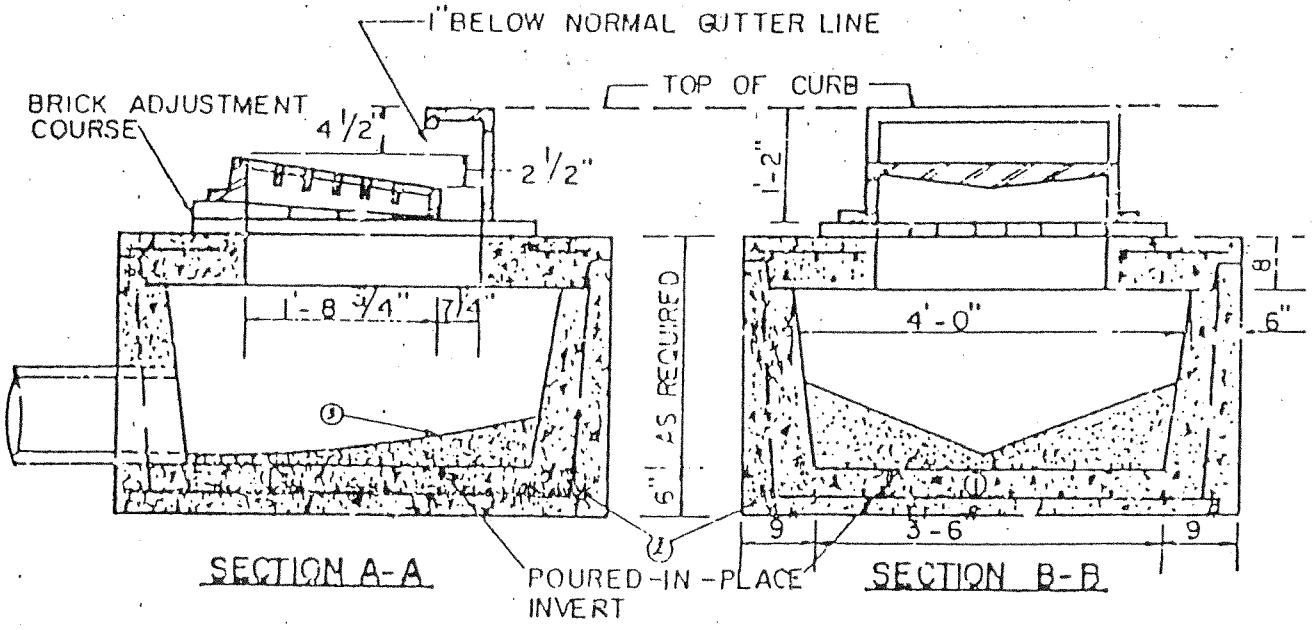
No Scale

DETAILS OF SINGLE INLET

(Not to Scale)



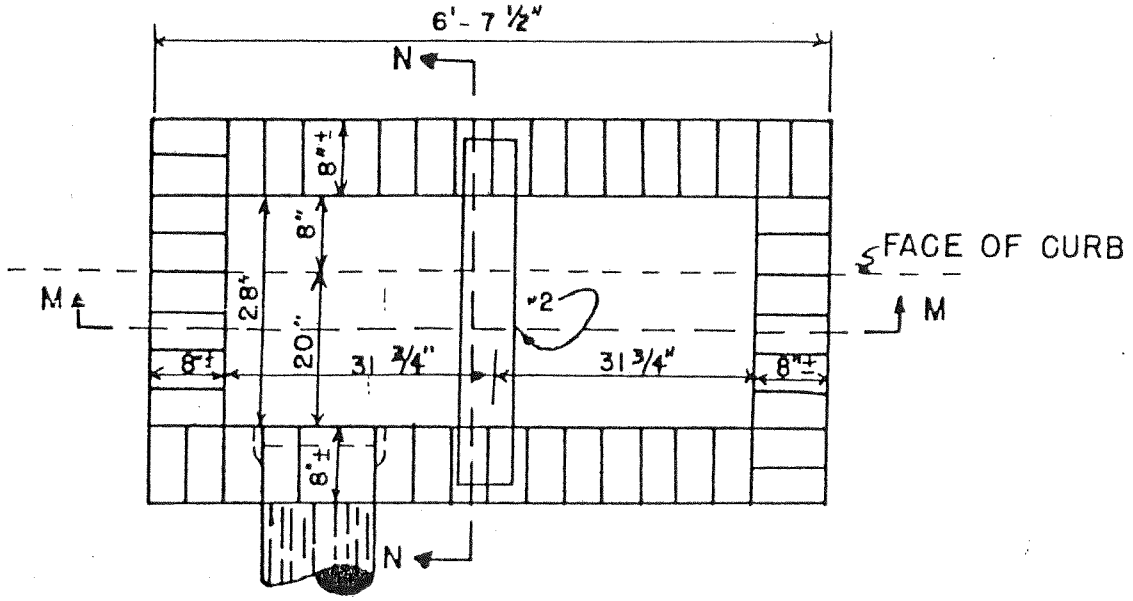
NOTE CASTINGS "M" & "H" SHOWN IN PLACE



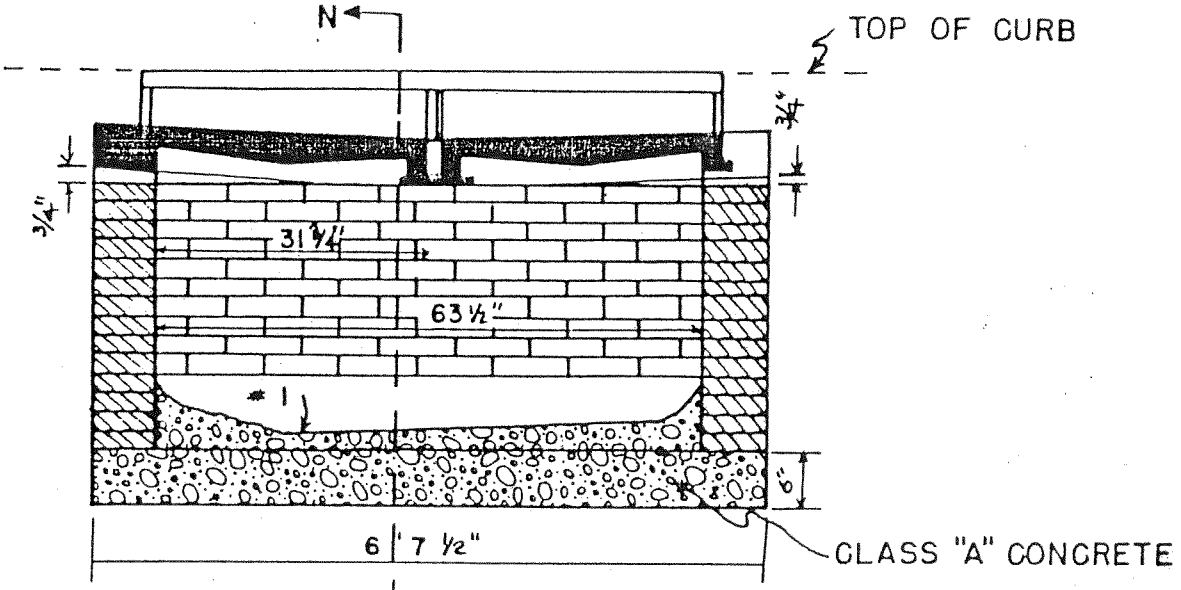
① CLASS A CONCRETE

② #6 WIRE AT 3'X 8" CENTERS

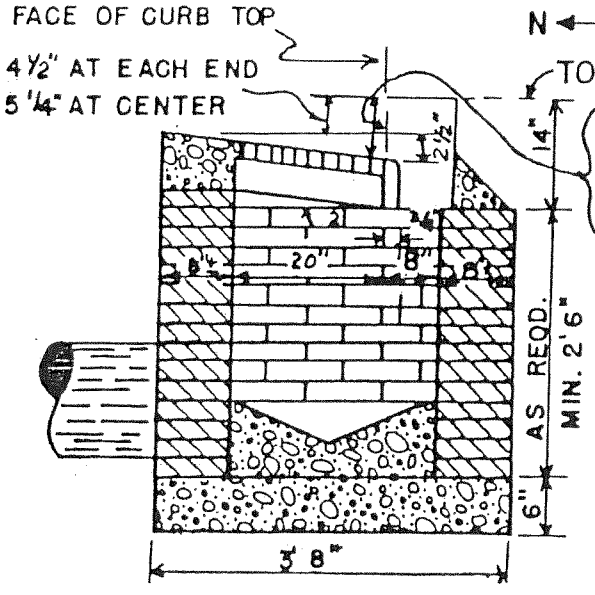
③ MIN. SLOPE 1"=12"



PLAN



N SECTION M-M



SECTION N-N

NOTE: CASTINGS SHOWN IN PLACE TO BE JOHN BOUCHARD & SONS CO. NO. 3101 OR APPROVED EQUAL.

#1. MIN SLOPE 3/4" IN 12"

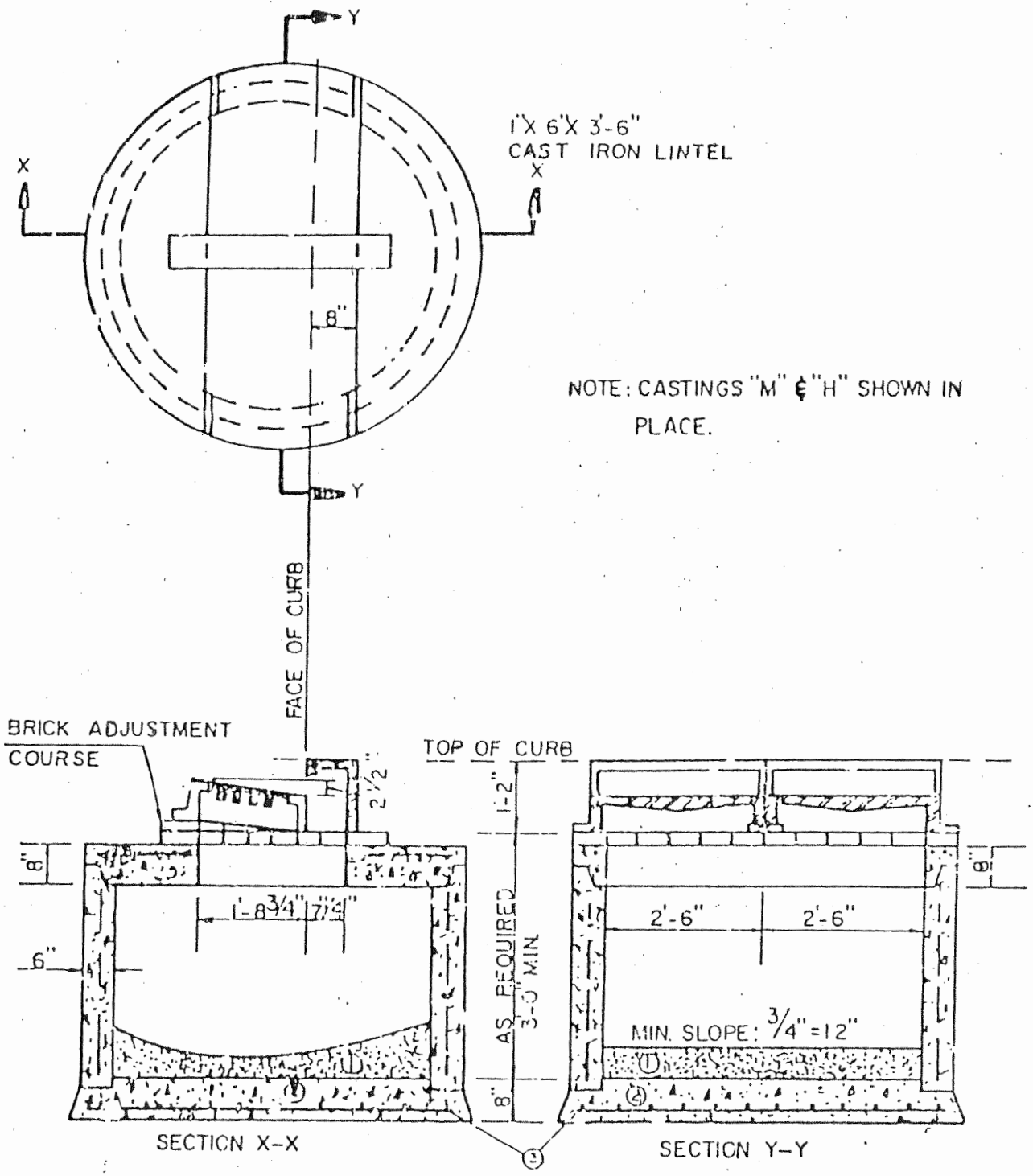
#2. CAST IRON LINTEL TO BE 1" X 6" X 42". WEIGHT = APPROXIMATELY 70 LBS

DETAIL OF DOUBLE CATCH BASIN

No Scale

DETAILS OF DOUBLE INLET

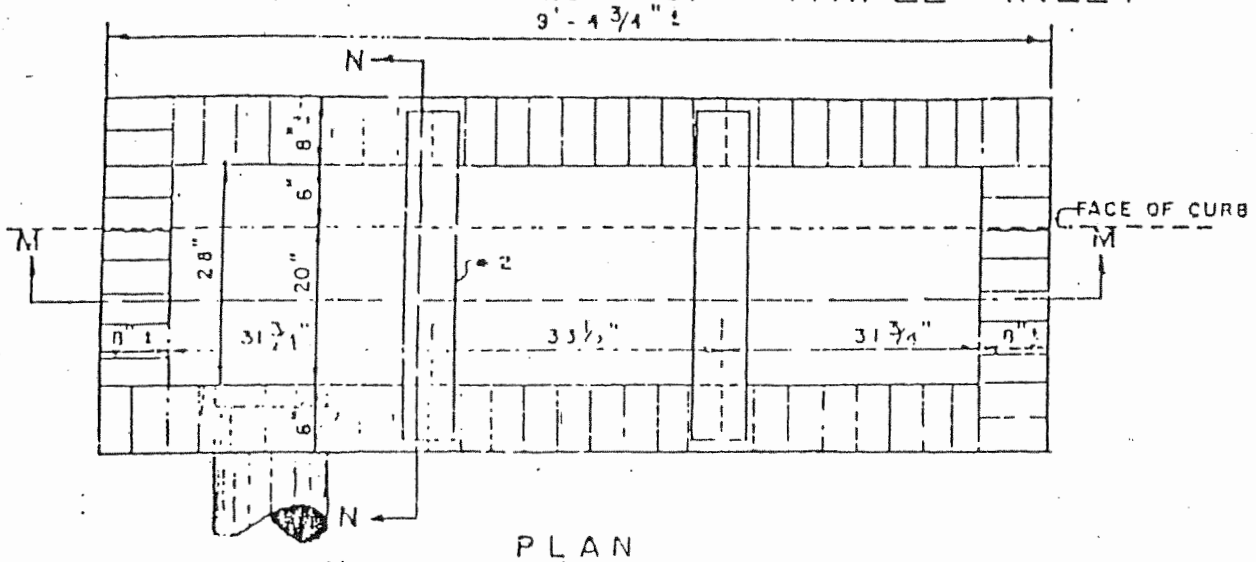
(Not to Scale)



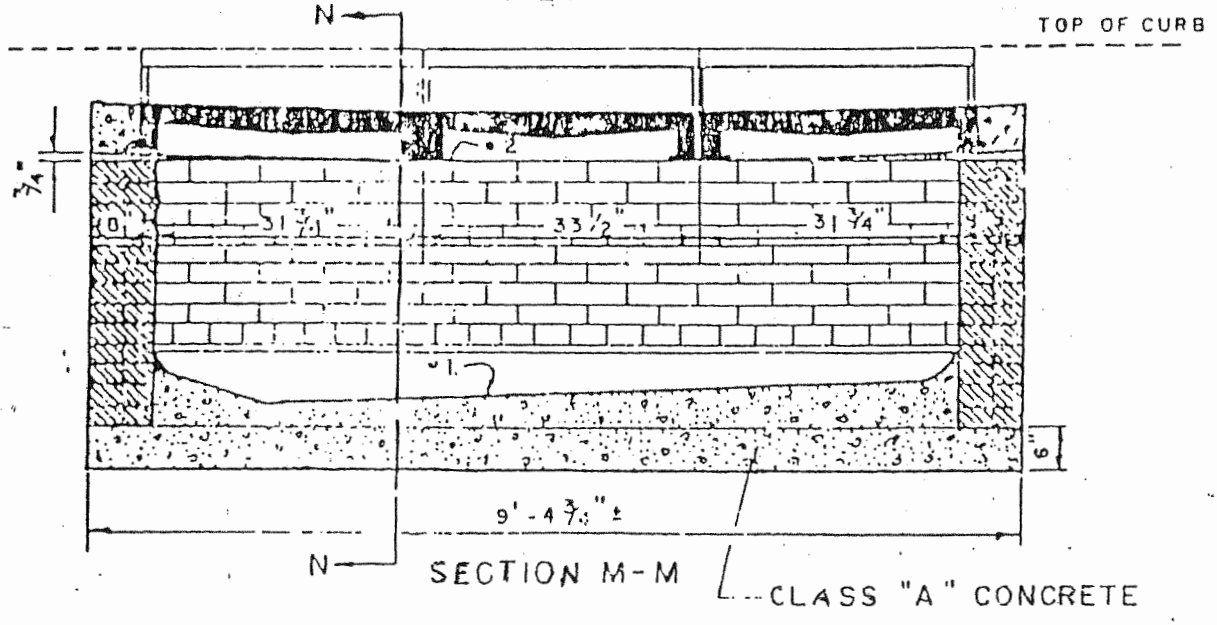
NOTE: CASTINGS "M" & "H" SHOWN IN PLACE.

① POURED IN PLACE CONCRETE INVERTS
② CLASS "A" CONCRETE
③ "3 WIRE AT 3"X 8" CENTERS

DETAILS OF TRIPLE INLET

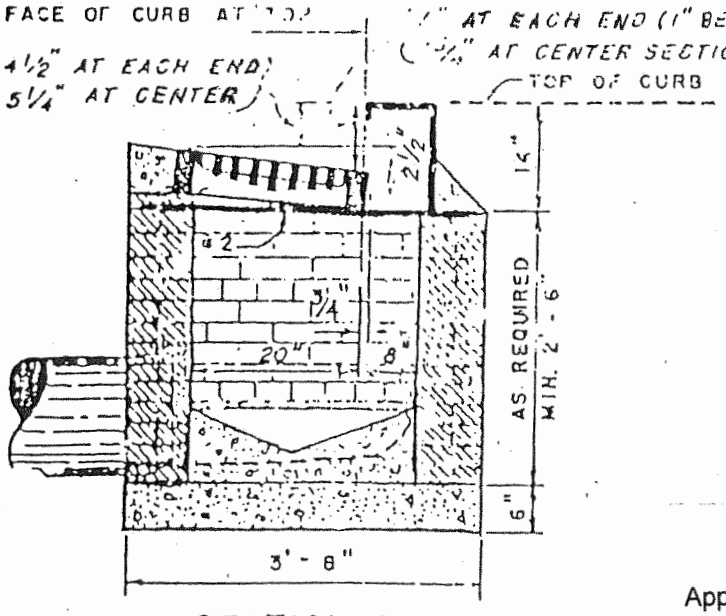


PLAN



SECTION M-M

CLASS "A" CONCRETE



SECTION N-N

NOTE: CASTINGS "M" AND "H" SHOWN IN PLACE. CASTINGS "J" OR "K" TO BE USED WHERE DIRECTED.

*1. MIN. SLOPE 1/2" IN 12"

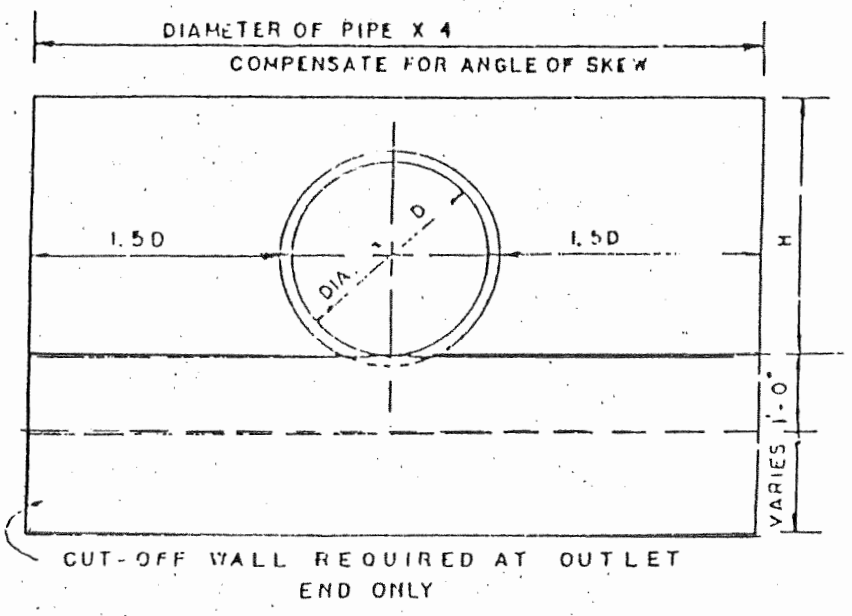
*2. CAST IRON LINTEL TO BE 1" X 6" X 42". WEIGHT APPROXIMATELY 70 LBS.

(Not to Scale)

Drawing B-8

REINFORCED CONCRETE HEADWALL

(Not to Scale)



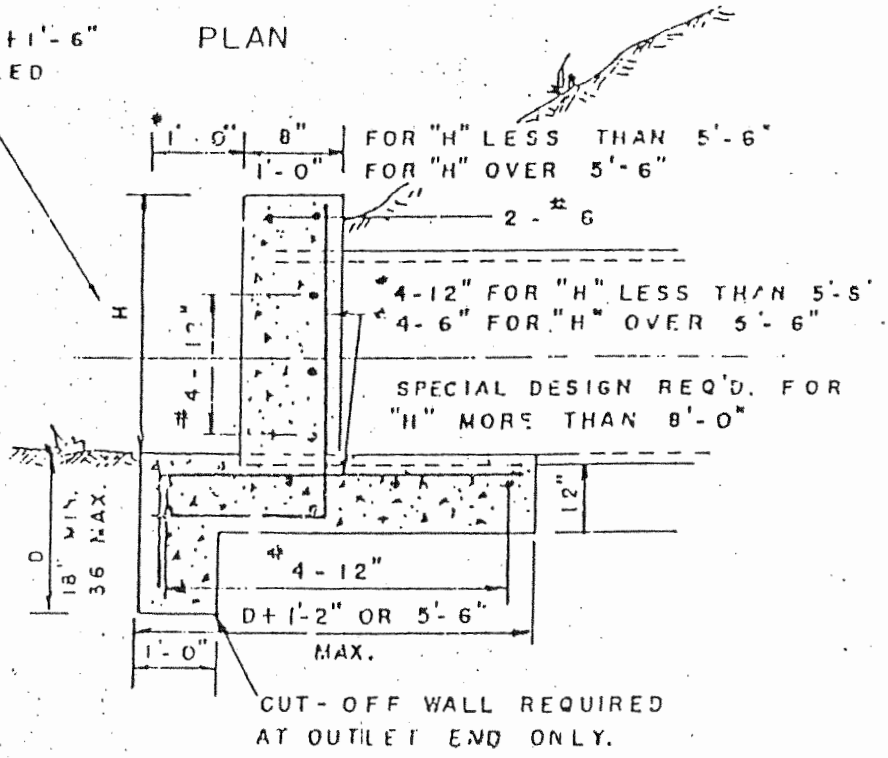
NOTE:

DIMENSION "H" = D + 1'-6" MIN. OR AS CALLED FOR ON PLANS.

* 1'-10" WHERE TRASH RACK IS REQUIRED

** QUANTITIES INCLUDE CUT-OFF WALL

PLAN

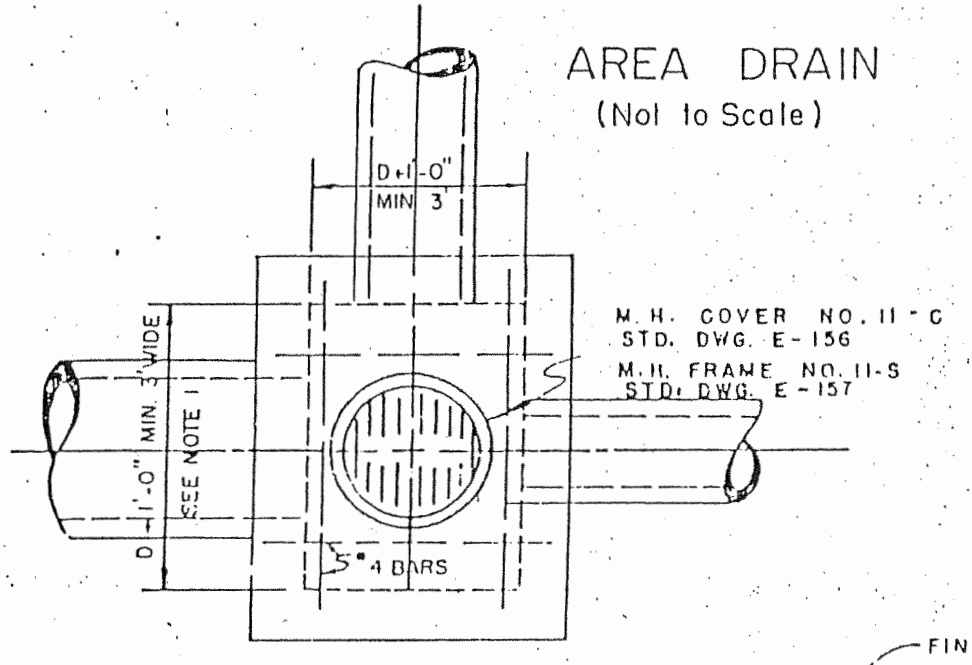


SECTION

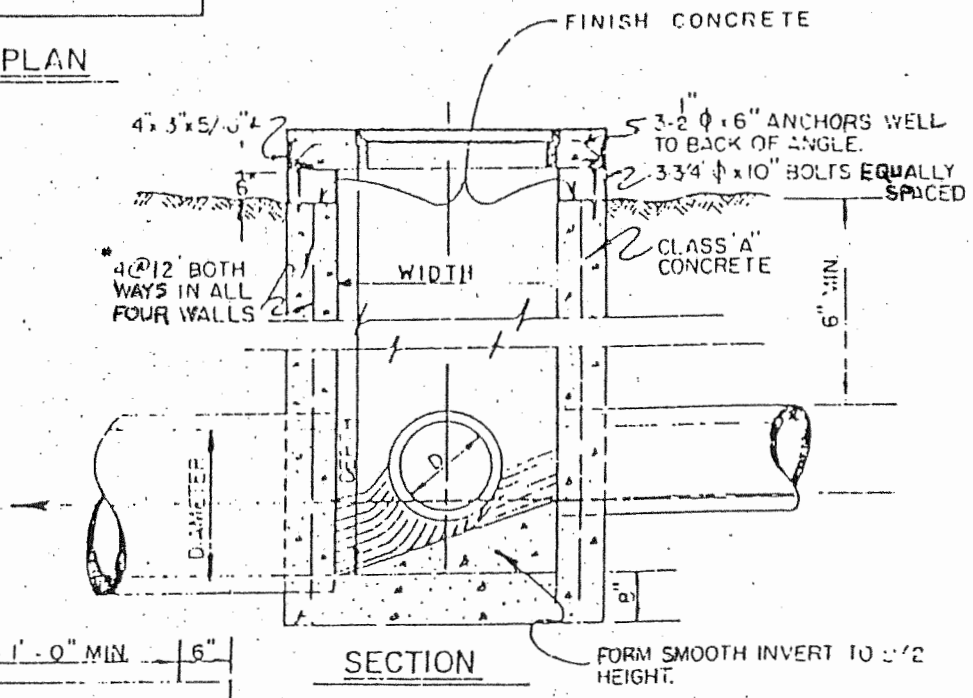
QUANTITIES		
PIPE DIA.	CONC. C.Y. **	REINF. STL LBS. *
12	0.7	35
15	0.9	45
18	1.2	55
24	2.3	105
30	3.0	130
36	4.3	180
42	5.6	230
48	7.9	350
54	9.6	410
60	11.0	480
66	12.5	520
72	14.2	590

AREA DRAIN

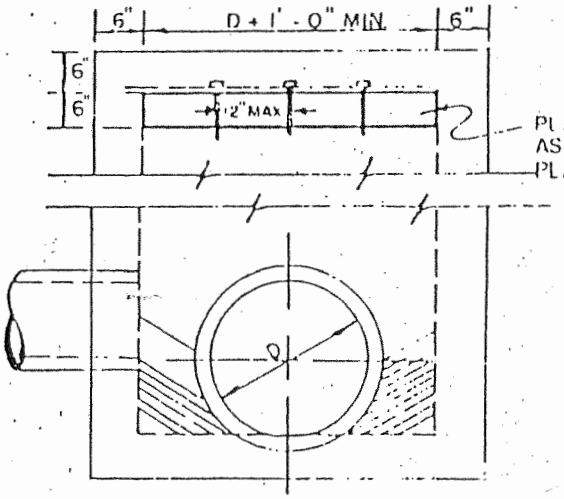
(Not to Scale)



PLAN



SECTION



ELEVATION

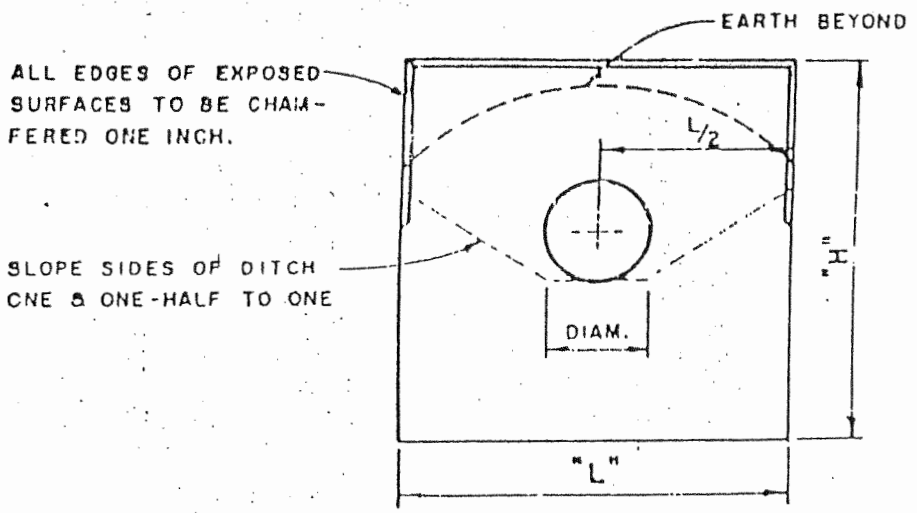
NOTE: 1- WHEN DEPTH EXCEEDS 4' INCREASE MIN WIDTH TO 4'.

2- WHEN DEPTH IS 4' OR LESS BRICK MAY BE USED IN LIEU OF CONCRETE SIDE WALLS

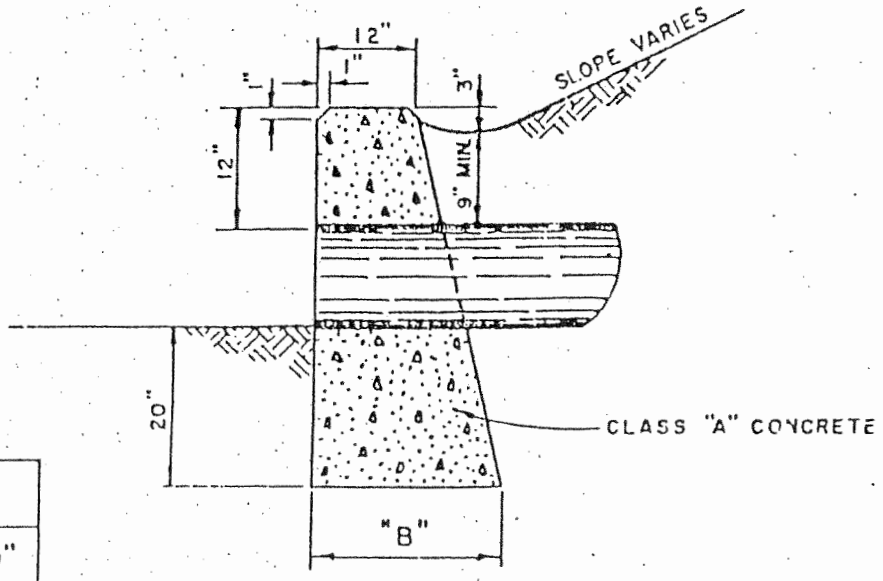
3- USE LADDER BARS (DWG E-103) FOR DEPTH EXCEEDING 1'.

STRAIGHT ENDWALL FOR CIRCULAR PIPE

(Not to Scale)



ELEVATION

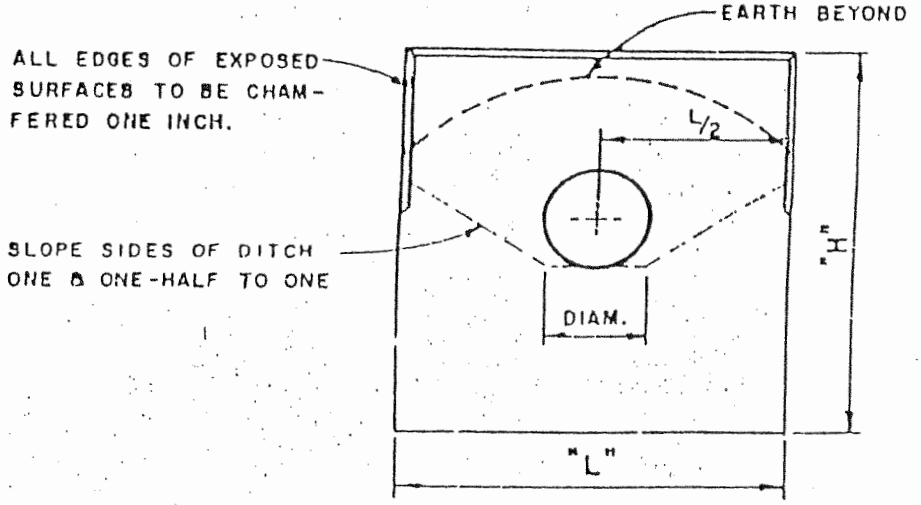


SECTION

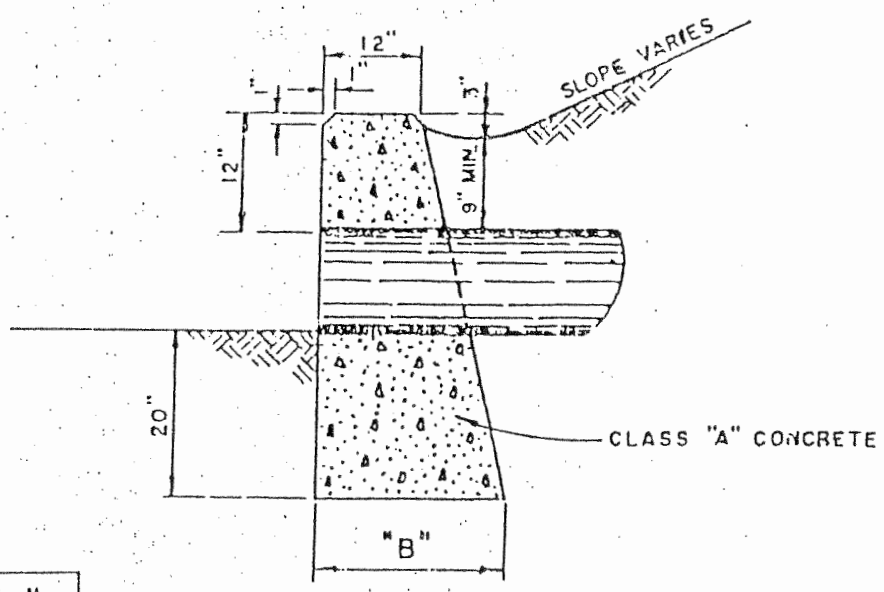
DIAM.	"H"	"B"	"L"
12"	3'- 8"	1'- 11 "	4'- 0"
15"	3'-11 "	1'-11¾"	5'- 0"
18"	4'- 2"	2'- 0½"	6'- 0"
21"	4'- 5"	2'- 1¼"	7'- 0"
24"	4'- 8 "	2'- 2 "	8'- 0"
30"	5'- 2"	2'- 3½"	10'- 0"

STRAIGHT ENDWALL FOR PIPE ARCH

(Not to Scale)



ELEVATION

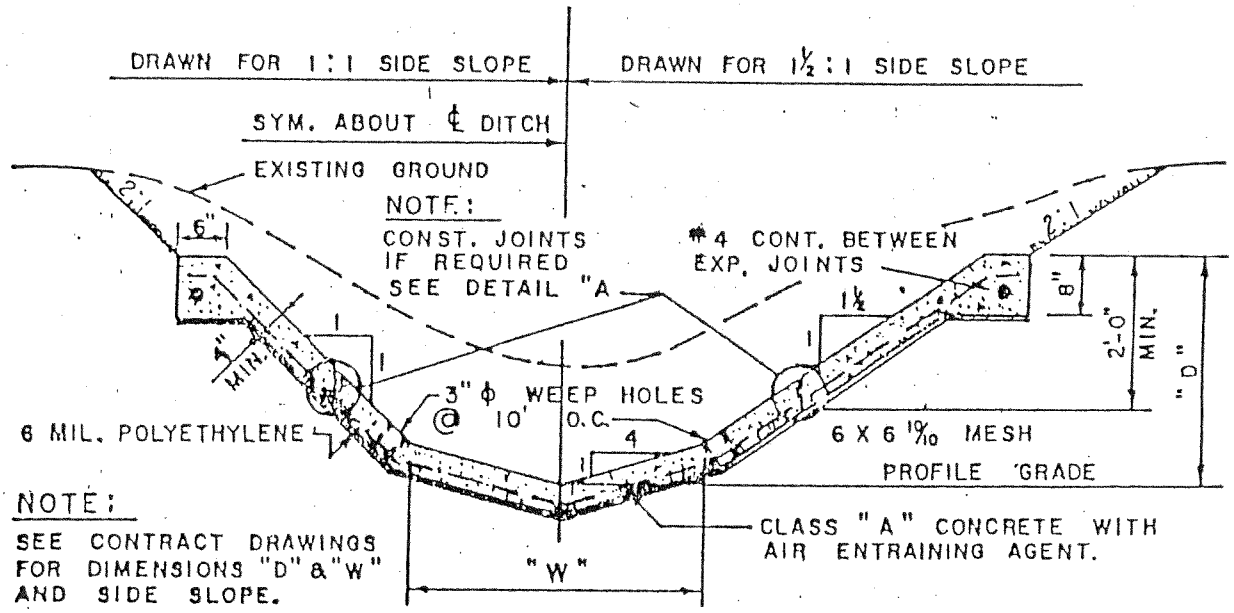


SECTION

DIAM.	"H"	"B"	"L"
12"	3'-8"	1'-11"	4'-0"
15"	3'-11"	1'-11¾"	5'-0"
18"	4'-2"	2'-0½"	6'-0"
21"	4'-5"	2'-1¼"	7'-0"
24"	4'-8"	2'-2"	8'-0"
30"	5'-2"	2'-3½"	10'-0"

CONCRETE LINED DITCH

(Not to Scale)

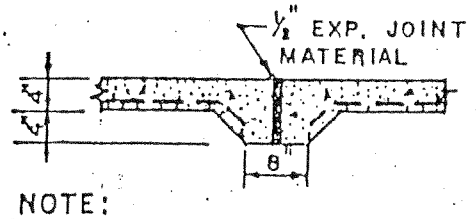


NOTE:

SEE CONTRACT DRAWINGS FOR DIMENSIONS "D" & "W" AND SIDE SLOPE.

TYPICAL SECTION

SCALE: 1" = 2'-0"



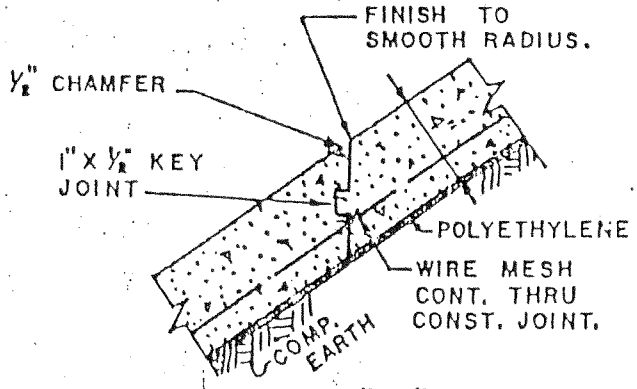
NOTE:

EXPANSION JOINTS TO BE PLACED AT 40' MAX. O.C.

TYPICAL SECTION AT EXPANSION JOINTS

NOTE:

1. TRANSVERSE GROOVE MARKING TO BE PLACED IN TOP OF CONCRETE AT 10' O.C. BETWEEN EXP. JOINTS.
2. TOP SURFACE OF CONCRETE LINING TO HAVE A LIGHT, BROOM FINISH.

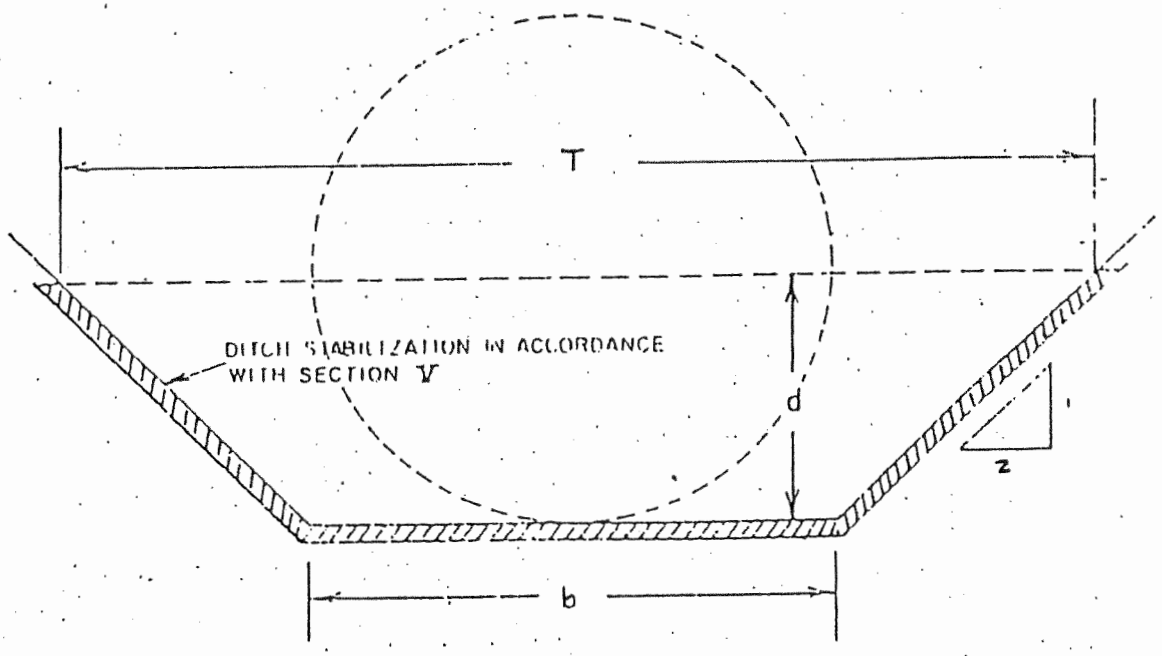


DETAIL "A"

SCALE: 1½" = 1'-0"

CONSTRUCTION JOINTS SHALL BE USED ONLY WHERE DEPTH OF LINING PERMITS A MINIMUM DEPTH OF 2'-0" OF LINING ABOVE THE JOINTS AS SHOWN IN TYPICAL SECTION ABOVE.

TYPICAL STABILIZED DITCH SECTION



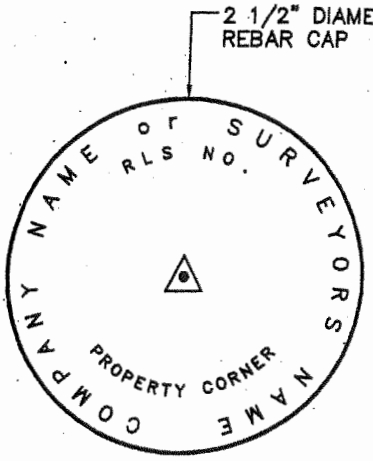
b = Pipe Diameter + 2 Feet

T = b + 4 d

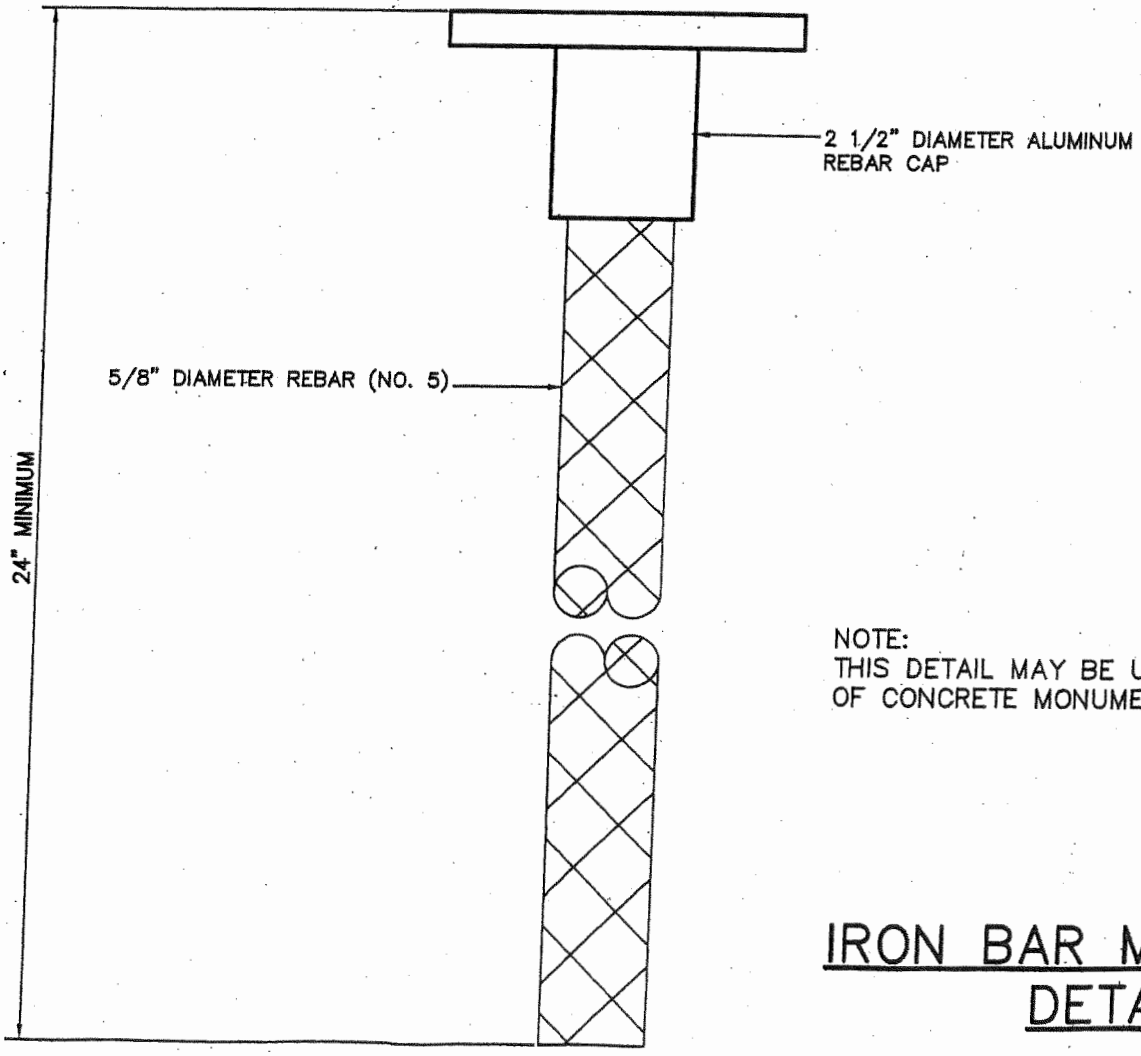
d = 1/2 Pipe Diameter

ADDED BY RESOLUTION 03-01, MAY 1, 2003

Drawing 14



TOP VIEW



NOTE:
THIS DETAIL MAY BE USED IN LIEU OF CONCRETE MONUMENTS.

SIDE VIEW

IRON BAR MONUMENT DETAIL