

Board of County Road Commissioners
County of Ingham, State of Michigan

**PROCEDURES AND GUIDELINES
FOR
DEVELOPING PUBLIC ROADS**

INGHAM COUNTY ROAD COMMISSION
301 Bush Street, P.O. Box 38
Mason, Michigan 48854
Ph.: (517) 676-9722
Fax: (517)676-2085
www.inghamcrc.org

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Mason, Michigan 48854
(517) 676-9722

This publication contains detailed requirements and procedures for the preparation, review, denial, and approval of plans for public roads, subdivisions, land divisions, and condominiums to be constructed within Ingham County. In addition, it presents the minimum standards and specifications for the planning and construction of new public roads. The publication is intended to provide guidelines for design engineers who prepare the plans, Road Commission staff who review the plans, Township officials, and members of the Board of County Road Commissioners who approve the plans and ultimately accept new roads into the Ingham County Road System.

The scope of this publication applies only to those lands located outside the corporate limits of all cities and villages within the county of Ingham and to lands within incorporated areas when said lands are subject to public highways and roads under the jurisdiction of the Board of County Road Commissioners of the County of Ingham, State of Michigan.

This publication supersedes the previous Ingham County Road Commission publications, Rules for Plat Street Development, dated April 23, 1987, and Procedures and Guidelines for Developing Public Roads, dated October 2006. The procedures and guidelines contained herein were approved and adopted by the Board of Ingham County Road Commissioners at its meeting held May 11, 2009. The review and inspection fees were approved and adopted by the Board of Ingham County Road Commissioners after the public hearing held December 5, 2002.

The content of this publication does not supersede any part of Act 288, Public Acts of 1967, Act 591, Public Acts of 1997, or any part of Act 59, Public Acts of 1978, as amended, and is intended for use only as an instrument to expedite the processing of proposed subdivisions, land divisions, and condominiums to be constructed within Ingham County.

BOARD OF INGHAM COUNTY ROAD COMMISSIONERS

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SECTION I - Definitions

- A. **A.A.S.H.T.O.**
The American Association of State Highway and Transportation Officials.
- B. **Agreement:**
A document signed by the Proprietor and the Road Commission that indicates construction and financial obligations of the Proprietor and the intention of the Road Commission to accept the new roads as public roads.
- C. **A.S.T.M.**
The American Society for Testing Materials.
- D. **Board:**
The Board of County Road Commissioners of the County of Ingham, State of Michigan.
- E. **Condominium Act of 1978:**
Act 59 of the Michigan Public Acts of 1978 and all amendments thereto.
- F. **County Engineer:**
The Director of Engineering or other representative designated by the Board of Ingham County Road Commissioners.
- G. **Final Plat:**
A map of all or part of the subdivision prepared and certified by the Proprietor's Land Surveyor in accordance with the requirements of the Subdivision Control Act of 1967, Act 288, of the Public Acts of 1967, as amended.
- H. **Governing Body:**
Township Board, City Council, or Village Board having jurisdiction of the land in which the plat, land division, or condominium is to be located.
- I. **Independent Testing Agent:**
Any materials testing laboratory which is approved by the County Engineer.
- J. **Inspection:**
The close observation and examination of the various construction operations and products as a means of determining the acceptability of completed roads.
- K. **Land Division Act of 1967:**
Act 288 of the Michigan Public Acts of 1967 and all amendment thereto.
- L. **Local Road:**
Lowest of the two functional classifications that county road commissions must use to describe their roads. Local roads typically carry traffic from the origination point of a vehicle trip to the primary road grid, which has a higher functional classification. Residential subdivision roads and local collector roads are examples of local roads.

- M. **Local Collector Road:**
Local roads, other than residential subdivision roads, that provide a link between subdivision roads and the primary road grid. Many local collector roads exhibit a grid type pattern, similar to the primary road grid, but don't qualify for primary road status.
- N. **M.D.O.T.**
Michigan Department of Transportation
- O. **M.D.O.T. Specifications:**
The Michigan Department of Transportation Standard Specifications for Construction, current edition.
- N. **M.M.U.T.C.D:**
Michigan Manual of Uniform Traffic Control Devices, current edition.
- O. **Pre-Preliminary Plat:**
A sketch or plan, drawn to scale, showing the existing features of a site, its surroundings, and the general layout of the proposed subdivision, land division, or condominium. In the case of land divisions and condominiums the drawing may be referred to as a pre-preliminary plan or pre-preliminary plat.
- P. **Preliminary Plat:**
A refined plan, drawn to scale, showing the existing features of a site, its surroundings, and the layout of the proposed subdivision, land division, or condominium. In the case of land divisions and condominiums the drawing may be referred to as a preliminary plan or pre-preliminary plat.
- Q. **Primary Road:**
Highest of the two functional classifications that county road commissions must use to describe their roads. Primary roads are part of the basic road grid that connect local roads (subdivision and local collector) to places that generate higher concentrations of traffic.
- R. **Proprietor:**
A natural person, firm, association, partnership, corporation or combination of such which holds ownership interest in land upon which a plat, land division, condominium, or other development is planned.
- S. **Proprietor's Engineer or Proprietor's Land Surveyor:**
- A. With reference to the Preliminary Plat, and/or the Final Plat, means a civil engineer who is licensed as a professional engineer in the State of Michigan or a land surveyor who is licensed as a professional land surveyor in the State of Michigan and who is representing the Proprietor.
- B. With reference to design and construction plans, means a civil engineer who is licensed as a professional engineer in the State of Michigan and who is representing the Proprietor.

- T. **Sight Distance:**
The length of clear view along a roadway required so that a specified object is visible to the driver of a specified design vehicle.
- U. **Subdivision:**
A division of land as described in Subdivision Control Act, the Land Division Act, and the Condominium Act.
- V. **Subdivision Roads:**
Subdivision roads are assigned the lowest functional classification and are part of the county's local road system. Subdivision roads are typically serpentine in nature, have a posted speed of 25 mph, and lined entirely by residential properties.
- W. **Utilities:**
All persons, firms, corporations, copartnerships, municipal, or other public authority providing gas, electricity, water, steam, telephone, sanitary sewer, storm sewer or other services of a similar nature. Also included is the service that these utilities would provide.

SECTION II - Order of Procedure

The following steps, which will be explained in detail in subsequent sections, will be followed by the Road Commission in considering any plat, land division, condominium project, and other development that involve additions to the public road network. In the case of proposed land division developments and condominium projects, Preliminary Plans will also be referred to as Preliminary Plats. At various stages of the following procedures, the Road Commission will require a 30 day review period for plans and supporting information submitted for formal Board action. All items required to support a developer's request must be submitted at least 14 days in advance of a scheduled Board meeting in order to assure that the request can be adequately considered before the meeting.

1. Review of Preliminary Plat by the County Engineer: As set forth in MCL 560.112 and MCL 560.113, the Proprietor shall submit a proposed Preliminary Plat and support information meeting the requirements of Section IV of this document. The County Engineer may require a letter from the Governing Body indicating they have reviewed the Preliminary Plat, agree with the general layout, and that the proposed use conforms to all applicable ordinances, published rules, and zoning requirements of the Governing Body. The County Engineer shall then review the proposed Preliminary Plat, the letter from the Governing Body, and all other required documents, as submitted, and make a recommendation to the Board.
2. Consideration of the Preliminary Plat by the Board: The Road Commission, within 30 days of receipt of the Preliminary Plat, shall either approve it and note its approval on the copy to be returned to the Proprietor or reject it. If rejected, the reasons for rejection and requirements for approval, if possible, shall be given the Proprietor in writing. Preliminary Plat approval by the Board shall be void after two years from the date of approval unless otherwise extended in writing.
3. Consideration of road and drainage construction plans by the Board: When the road and drainage plans are approved or denied, such action will be marked on the plans and a copy will be returned to the Proprietor's Engineer. Revised plans will be approved for construction when they show compliance with all requirements identified by the County Engineer. If construction is not started within two years of the date of approval, then the approval will become null and void.
4. Inspection of road & drainage facilities during construction: A pre-construction meeting shall be held with the Proprietor and/or the Proprietor's Engineer, the Proprietor's independent testing agent, the Contractor, a Township representative, and an Ingham County Road Commission representative in attendance. The meeting is intended to delineate the proposed construction, discuss testing requirements, progress inspections, identify haul routes, and define the sequence of construction and construction schedule.

5. Final Inspection of completed construction: Once proper progress inspections have been performed and a request for final inspection is received, the Ingham County Road Commission will inspect the completed construction, prepare a punch list of items to be corrected and provide said list to the Proprietor or the Proprietor's Engineer for further action.
6. Acceptance of completed road(s) into the Ingham County Road System: The Proprietor's Engineer shall certify that he or she has personally directed the observation and inspection of the construction and that the construction and materials testing results conform to the requirements of this document, the approved construction plans, and the final punch list. As-constructed drawings shall also be submitted with the Engineer's certificate. Once submitted the County Engineer will review the submitted information, consult those responsible for providing the information contained in the submittal, ask for additional information, or make a recommendation to the Board regarding acceptance of roads.
7. Approval of Final Plat or acceptance of deeded road right of way: Once all of the above procedures have been completed the Ingham County Board of Road Commissioner's will sign the Final Plat signature sheet or accept road right of way deeded to the Road Commission as part of land division and condominium developments.

SECTION III - General Requirements

- A. The contents of this publication do not supersede any part of Act 288, Public Acts of 1967, Act 591, Public Acts of 1996, or any part of Act 59, Public Acts of 1978, as amended.
- B. Pre-Preliminary Plats may be submitted by the Proprietor or the Proprietor's Engineer to solicit comments from the County Engineer. The Pre-Preliminary Plat should contain enough detailed information concerning the proposed geometry and drainage that comments can be forwarded to the Proprietor prior to commencing with the Proprietor's development plans and Preliminary Plat submittal. It is hoped that these discussions will avoid needless delays and wasted effort by acquainting the Proprietor and the Proprietor's Engineer with any long range plans of the Board which may have bearing on the development; any coordination which may be required between the Board and the affected Governing Body; and to discuss any points contained herein that may not be clear to the Proprietor or the Proprietor's Engineer.
- C. Private roads within developments, if allowed by the Governing Body, shall become the jurisdiction of the Governing Body or other entity holding title of the land. The location of their intersection with the county road system, drainage, and geometry shall be reviewed and approved by the County Engineer during the preliminary plat and road and drainage construction plan review phase. All approaches of private roads within county road right of way shall conform to the minimum requirements for public roads as established in this document, Procedures and Guidelines for Developing Public Roads.
- D. Roads that are to be public roads within proposed platted and unplatted lands shall conform to the requirements of this document, "Procedures and Guidelines for Developing Public Roads". The standard fees covering engineering review costs and progress inspection costs will be required for both types of developments.
- E. Proprietors desiring variations from these requirements may submit their requests in writing to the Board. The Board, in cases which it considers meritorious, may waive individual requirements in specific instances. Variance request submittals shall include all materials pertinent to the issue. Once a complete variance submittal is received, the County Engineer will schedule an appointment for the appeal. Allow a minimum of two weeks for review and scheduling. (Rev. 09-09-04)
- F. When a proposed plat, land division, or condominium project is adjacent to an existing county road which is not constructed to current standards, said existing road shall be reconstructed, by the Proprietor, as necessary to improve the road to conform with standards acceptable to the Board. In addition, the Board may require service roads to be constructed, by the Proprietor, where development is proposed so that damage to existing county roads by construction equipment is minimized. When a proposed residential lot is bordered by an interior subdivision road, an existing local collector road, or a primary road, vehicular access will be allowed only from an interior subdivision road in the proposed plat.

- G. Ingham County Road Commission permits must be obtained by the Proprietor's contractor for all construction within the right-of-way of existing county roads. All proposed work within any existing or proposed road right-of-way must be reviewed and approved by the County Engineer. Road and drainage plans for said work shall conform to the requirements contained herein.
- H. All proposed public and private underground utilities within the proposed road right-of-way shall be installed prior to the installation of the subbase and base of the new road. Exceptions to this rule may be solicited for action by the County Engineer.
- I. It is recommended that all open trench underground utility installation and road base construction work be accomplished in one construction season and road surfacing be placed during a subsequent construction season after construction traffic and, at least, one freeze/thaw season has further compacted the utility trenches and road base materials, or revealed construction defects and material problems. In some instances, the first course of pavement may be installed immediately with the final course to follow after the development is substantially built-out. Regardless, any settlement problems, construction defects, and material problems are to be corrected, to the County Engineer's satisfaction, prior to placement of the final pavement surface.
- J. The Proprietor may be required to furnish a bond in the amount deemed sufficient by the Board to repair or remedy problems or situations including, but not limited to the following:
 - 1. In the event it is determined that destructive construction traffic must travel roads built and accepted into the County Road System as part of previous phases of the development.
 - 2. Repair of existing and proposed roads damaged as a result of any activity attributed to a development and to provide for the cost of required road clean-up not performed by the Proprietor.
 - 3. To construct and maintain a construction haul road throughout development of the plat to minimize construction traffic on existing roads and to minimize damage to existing roads.
 - 4. Situations which, in the discretion of the Board, is in the best interest of the public and/or the public roads.
- K. All proposed road construction and testing shall be in accordance with the current edition of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction and the provisions contained herein. When a conflict exists between the MDOT standards and the provisions contained herein, the more stringent standards shall prevail.
- L. The Board reserves the right, in its discretion, to add requirements and to delete or modify existing requirements in the exercise of its statutory authority to maintain streets reasonably safe and convenient for public travel.

- M. All roads shall be designed in accordance with current AASHTO guidelines, MDOT standard plans, and the design guidelines contained herein. Roads shall also be designed to serve the convenience and safety of the traveling public. All design features relative to public safety and convenience shall be subject to review by the County Engineer.
- N. The Proprietor will be responsible for all costs deemed necessary, by the County Engineer, to provide for public safety and convenience along existing and proposed roads directly affected by the development. These costs include, but are not limited to, Road Commission approved road signs, traffic signals, pavement striping, and pavement markings.
- O. The Proprietor shall be responsible for submission and implementation of an approved traffic control plan and or detour plan to control vehicular and pedestrian traffic during the development's construction. The Proprietor shall provide all traffic control devices called for on the approved traffic control plan or detour plan, if any.
- P. In the event that the standards contained herein change between the approval date of the Master Preliminary Plat and submission of road and drainage construction plans for a particular phase of the development, the standards in effect when the road and drainage construction plans are submitted are to be followed.

SECTION IV - Submittal Requirements

As set forth in MCL 560.112 and MCL 560.113, the Proprietor must submit, along with the Preliminary Plat which meets the requirements of this document, all other supporting documents, and a letter from the Governing Body indicating that it has reviewed the Preliminary Plat, agree with the general layout, and that the proposed use conforms to all applicable ordinances, published rules, and zoning requirements of the Governing Body.

The Proprietor is reminded that approval of the Preliminary Plat and the Road and Drainage Construction Plans by the Governing Body and the Ingham County Drain Commissioner are also required under the Subdivision Control Act. The Proprietor is also reminded that if a Preliminary Plat or the Road and Drainage Construction Plans, approved by the Board, are revised because of requirements of the above mentioned agencies, or revisions are otherwise made by the Proprietor, those revisions shall be incorporated into the respective document(s) and re-submitted for approval or denial by the Board. The Proprietor is further reminded that under certain conditions, the Michigan Department of Transportation, the Michigan Department of Natural Resources, the Michigan Department of Environmental Quality, and the Ingham County Health Department may also be required to review and approve Preliminary Plats and the Road and Drainage Construction Plans.

When received, final approval of the Preliminary Plat by the Board imparts upon the Proprietor for a period of two years from date of approval, the conditional right that the general terms and conditions under which Preliminary Plat approval was granted, will not be changed.

A. Preliminary Plat

Five copies of the Preliminary Plat submittal, drawn to a scale no smaller than one inch equals 200 feet on either a 22" x 34" or 24" x 36" sheet(s), prepared by the Proprietor's Engineer or the Proprietor's Surveyor shall be submitted to the County Engineer for review. Preliminary Plats that are incomplete or require more information shown to facilitate the County Engineer's review, will be returned to the Proprietor's Engineer or the Proprietor's Surveyor. An example of a Preliminary Plat can be found in the appendix.

The Preliminary Plat layout must, at minimum, plainly show all of the following and meet the requirements listed:

1. Show dimensions and bearings of the entire parcel proposed for development, a layout of the entire development (Master Plan), and that portion of layout for which approval is requested. Approximate dimensions are sufficient.
2. Indicate the location of the plat with reference to the Township, and Section in which the parcel is situated. Include a location map showing the plat in relation to the Ingham County road system.
3. Each initial Preliminary Plat layout shall be superimposed on a topographic map with not more than two foot contour intervals, using USGS elevation datum.

4. Show locations and names of proposed roads together with arrows indicating direction of overland drainage flow. It is desirable to show proposed storm sewers, detention basins, and other proposed drainage features so that the County Engineer can develop a good picture of what is proposed.
5. Show all existing and proposed road right of way widths within and adjacent to the development. Proposed widths shall comply with the requirements of established Road Commission standards.
6. Plainly show all governing conditions such as:
 - a. Adjoining subdivisions with lot lines and lot numbers and easements for public access to drains, public utilities, etc., and adjoining roads. Include existing and proposed zoning for the subject parcels along with descriptions of what type of development can be built within the given type of zoning.
 - b. State highways shall be identified by name and route number. Proposed work within a state right of way shall be noted as such.
 - c. Rivers, the one hundred year flood plain contour, wetlands, natural water courses, existing county or private drains, sewers and cross culverts.
 - d. Railroads, cemeteries and parks.
 - e. All other existing topographic features whose location or existence might influence the layout of the plat, including existing and proposed private roads, and driveways within 300 feet of the proposed subdivision's boundaries.
7. Show typical cross section of roads to be constructed including right-of-way width, pavement width, pavement materials, and pavement thicknesses. The typical cross section shall comply with the requirements contained herein.
8. Show the name of the Proprietor and Proprietor's Engineer and Land Surveyor, with mailing addresses, email addresses, fax numbers, and telephone numbers for each.
9. Show sight distances, in both directions, at all proposed intersections with existing county roads. Plan and profile sheets of the existing county road centerline may be required by the County Engineer.
10. In the case where the Proprietor proposes to subdivide a given parcel of land but wishes to begin with only a portion of the total parcel, the Preliminary Plat submittal shall include the proposed general layout for the entire parcel (Master Plan). The portion which is proposed to be subdivided first and subsequent portions shall be clearly defined upon the master plan in order to clearly illustrate the sequence of development which the Proprietor intends to follow. Each subsequent plat shall follow the same procedure until the entire development is subdivided.

11. The minimum road length to be constructed in each subdivision or phase of subdivision, shall not be less than 500 feet.
12. The Board may require proposed developments, and possibly future adjacent developments to connect to the existing county road system for reasons of public safety and welfare. A proposed development that isolates lands from existing public roads will not be allowed. The layout of roads in proposed developments shall provide a continuous circuit for travel. Dead-end roads, ending in permanent cul-de-sacs are allowed only when, in the opinion of the Board, the lands subdivided are limited in area or are subject to natural barriers. Dead-end roads, ending in cul-de-sacs shall be not less than 250 feet or greater than 660 feet in length as measured from the intersecting road centerline and the center of the cul-de-sac. All culdesacs shall be designed in accordance with the specifications contained herein. The layout of roads shall also include road stubs, with dedicated right of way, to provide future connections to unplatted or undeveloped lands adjacent to the proposed development. The road stubs shall have, if required by the County Engineer, temporary turnarounds at their terminus to facilitate plowing and routine maintenance of the road system. Temporary turnarounds shall be located within dedicated road right of way or recordable easements. Proposed developments adjacent to existing developments with road stubs shall connect to all road stubs at their boundaries, shall fit the pattern established by adjacent roads, and shall display a continuous circuit for travel. (Rev. 08-14-06)
13. The edge of pavement, both left and right of the centerline, must maintain a parallel alignment. "Elbows", "eyebrows", "bumpouts", and other non-uniform sections of roadway will not be allowed unless approved or required by the Board. The Proprietor's Engineer may be required to incorporate traffic calming features into their designs to address future traffic problems identified by the County Engineer. Most common examples of traffic calming measures are legitimate use of horizontal curves, roundabouts, and mini-traffic circles. Proposed traffic calming measures shall encourage efficient traffic flow, reduced speeds, and promote safe pedestrian facilities. Traffic calming measures shall be designed so that maintenance of the roadway can be performed using normal procedures and techniques.
14. All roads which are extensions of, or in line with, existing streets must carry the names of those in existence. Other roads shall be given such names as the owner may choose, subject to the recommendation of the Tri-County Regional Planning Commission and the approval of the Board.
15. Half width road right of ways will be accepted only when the boundary of the proposed development coincides with the boundary of a recorded plat on which a half width road right of way has previously been dedicated. Developments proposed for parcels of land that extend to a section or quarter section line that does not already have a road centered upon it, may be required to dedicate half width right of ways along the section or quarter section line for future road construction.

16. Strip-type subdivisions along existing non-subdivision roads where access to each lot is from the existing primary or local collector road will not be allowed. The concept of fronting lots on an internal road system is encouraged for reasons of public safety and welfare. Existing parcels adjacent to proposed subdivision roads that have driveways that provide access to non-subdivision roads may have their driveways redirected onto the proposed subdivision road. Access shall not be denied by the Proprietor for reasons of public safety and welfare.
17. Proposed subdivision roads that intersect with existing primary or local roads shall be designed in accordance with the current Ingham County Road Commission standards and the provisions contained herein. The Road Commission may require the Proprietor to provide either a Traffic Impact Statement or Traffic Impact Assessment depending on the trip generation data calculated for the proposed development. Criteria outlining the need for traffic studies are contained in the Evaluating Traffic Impact Studies handbook.
18. The Road Commission, within 30 days of receipt of the Preliminary Plat, shall either approve it and note its approval on the copy to be returned to the Proprietor or reject it. If rejected, the reasons for rejection and requirements for approval, if possible, shall be given to the Proprietor in writing.
19. Preliminary Plat approval by the Board shall be void after two years from the date of approval unless otherwise extended in writing. When approval of a Preliminary Plat is granted, the Proprietor's Engineer may proceed with Road and Drainage Construction Plans.

B. Road and Drainage Construction Plans

1. General

After approval of the Preliminary Plat, three copies of the Road and Drainage Construction Plans, prepared by the Proprietor's Engineer, covering all the roads within the proposed development may be submitted to the County Engineer for review. The plans shall be in accordance with the requirements stated in this document and comply with the current specifications required by the Board. The construction plans must bear the seal of a licensed professional engineer, licensed to practice in the State of Michigan.

Final approval of the Road and Construction Plans by the County Engineer imparts upon the Proprietor for a period of two years the conditional right that the general terms and conditions will not be changed. (Rev. 09-09-04)

The County Engineer may require the Proprietor to obtain and submit a detailed soils investigation that can be used to determine the suitability of the proposed road bed material. The soils investigation report shall be prepared and sealed by a licensed professional engineer, licensed to practice in the State of Michigan. Soil boring log information shall be gathered and reported in accordance with the Michigan Department of Transportation Requirements for Geotechnical Investigations and Analysis.

A construction haul road, to be constructed and maintained during the course of the development's construction, may need to be included in the plans. Said construction haul road may be required, at the sole discretion of the Board, for reasons stated in Section III of this document.

Road stubs, with dedicated right of way, extending to adjacent properties may be required to provide a continuous circuit for travel between a proposed development and adjacent properties. Interconnected subdivisions facilitate road maintenance, school bus routing, emergency services, and lessens congestion of the primary road system. The expense to convey the road right of way and construct the road stub to the development's property line shall be the responsibility of the Proprietor.

Galvanized steel beam guard rails, installed by the Proprietor, will normally be required at the end of road stubs which are temporarily dead-ended at the subdivision limits. At such dead-end streets, the Proprietor will be required to pay for signs as the County Engineer specifies, informing the public that the street is not a through street. Temporary turnarounds may not be required, as determined by the County Engineer, if the road stub length is less than 250 feet, measured from the centerline of the intersecting street to the subdivision limits.

Vehicular access to residential developments onto two-lane county primary roads shall be provided with paved acceleration, deceleration, passing lane, or center left turn lane. Vehicular access to residential developments onto two-lane county local roads shall be evaluated in accordance with the Ingham County Road Commission Rules, Standards and Procedures for Driveways, Banners, and Parades manual, Exhibit 6, Warrants for Left Turn Passing Lane". Acceleration, deceleration, and passing lane design shall conform to the standards shown in Exhibit 7 of the manual. (Rev. 09-09-04)

The Proprietor's Engineer shall completely illustrate proposed intersections with the existing county primary or local collector road system. Illustration details shall include, but are not limited to, radii dimensions, lane widths, taper lengths, and pavement striping details. Boulevard roads within proposed developments shall transition to a normal cross section at its intersection with county primary or local collector road systems, unless otherwise approved by the Board.

Intersections within proposed developments shall not be less than 250 feet apart. Intersections of proposed roads entering onto the county primary or local collector road system shall not be less than 660 feet apart. The maximum length of blocks within a development shall be 1320 feet. The maximum distance between access points (road stubs) to abutting property shall be 1320 feet. The above requirements shall be measured from the centerline of intersecting road to the centerline of the nearest intersecting road.

All roads shall be provided with facilities for adequate surface drainage. This may be accomplished by the use of ditches, county drains, natural water courses, or constructed tributaries thereto. It is strongly recommended that this be accomplished with an underground storm drainage system, but rural developments may be approved utilizing a combination of roadside ditches and underground storm drainage. Proposed developments

within the Lansing Federal Aid Urban Boundary shall be designed with an underground storm drainage system.

Where surface drainage courses (other than standard roadside ditches) and underground storm drainage systems are provided, they shall be made a part of the county drain system, using the proper legal procedures. The Proprietor shall work with the Ingham County Drain Commissioner to meet all necessary drainage system requirements.

The Road Commission, within 30 days of receipt of the Road and Drainage Construction Plans, shall either approve them and note its approval on the copy to be returned to the Proprietor or reject them. If rejected, the reasons for rejection and requirements for approval, if possible, shall be given the Proprietor in writing. Revised plans will be approved when they show compliance with all requirements.

No construction of roads or utilities shall be started until the Road and Drainage Construction Plans have been approved.

2. Drawing Requirements

All proposed development work within proposed and existing rights of way must be detailed and the construction plans reviewed and approved by the County Engineer. The construction plans shall show all pertinent data necessary to review and construct the development. The construction plans shall be submitted drawn on either 22" x 34" or 24" x 36" sheets to a scale of not less than one inch to 50 feet horizontal and 5 feet vertical. All road and drainage construction shall be illustrated using plan and profile drawings with the existing and proposed road centerline profile along with all proposed vertical curve data illustrated directly below the plan view. The County Engineer may elect not to review construction plans that are deemed incomplete or lack sufficient information to conduct a complete review. The construction plans must, at minimum, show all of the following information:

- a. Typical cross section of the road(s) to be constructed and any road widening to be performed;
- b. Proposed grades shall correspond to USGS or NGVD datum, unless otherwise approved. At least one permanent bench mark shall be established within the development and its location and description shall be noted on the plans;
- c. The location, size, material type, and depth of all existing and proposed drainage systems and underground utilities within existing and proposed road right of way;
 1. Clearly show sizes, lengths, end treatments, and locations of all road cross culverts.

2. Show location and type of proposed catch basins, inlets, and clean-out points for underground drainage systems.
- d. Show plan and profile of all proposed drainage system elements outside of the road right of way that are to be connected to existing or proposed road drainage facilities.
- e. Show details for all applicable trench details, catch basins, inlets, manholes, etc. This may be done by reference to current M.D.O.T. Standard Plans, except for curb & gutter details.
- f. Soil boring locations shall be shown on the plans at the true and accurate locations where they were performed. Soil boring logs shall be forwarded to the County Engineer as part of the Road and Drainage Construction Plan submittal.

3. Location of Underground Utilities

Storm sewers, sanitary sewers, gas main, and water main may be located in the road right of way or an adjacent easement for public utilities. All other utilities shall be located outside the road right of way in an adjacent easement for public utilities. Utility manhole castings shall be located outside of the road pavement whenever possible. If utility manhole castings must be within the road pavement, they shall be centered within a travel lane and outside the normal wheel path of a motor vehicle.

Utility alignments shall conform to Township requirements or the following standards:

- a. Storm sewers shall be located and aligned as to best conform with the layout of existing facilities and according to the Ingham County Drain Commissioner's standards. In roads where no pattern has been established, storm sewers should be located on the east or north side of the road.
- b. Sanitary sewers shall be located and aligned as to best conform with the layout of existing facilities. In roads where no pattern has been established, sanitary sewers shall be located on the west or south side of the road.
- c. Water mains shall be located on the east or north side of the road, between the back of curb or edge of pavement and the right of way line.
- d. Gas mains shall be located on the west or south side of the road, between the back of curb or edge of pavement and the right of way line.
- e. Other utilities shall be located within an easement adjacent to the right of way.

C. **Right-of-Way Requirements**

1. The right of way required for proposed public roads shall be conveyed by dedication of the land in a subdivision plat or by warranty deed conveyed to the Road Commission for site condominiums, land divisions, or similar developments.
2. The Board may require that additional right of way be conveyed to the Road Commission when proposed developments border existing primary and local collector roads. When required, the right of way shall be at least 45 feet in width, measured from the existing center of right of way to the proposed right of way line for local roads and 50 feet in width, measured from the existing center of right of way to the proposed right of way line for primary roads. State or U.S. highway right of way widths are determined by the Michigan Department of Transportation.
3. All proposed public roads shall have minimum rights of way as illustrated in Table 1 - Standard Pavement Sections. Right of ways shall be of sufficient width to allow proper drainage, installation of sidewalks, and allow installation of public utilities as described above.
4. The right of way on all curvilinear roads shall be the same width as the right of way on the tangent portions of roads.
5. All road construction shall be centered within the road right of way. Section line and quarter section line roads shall be centered on the respective lines unless otherwise approved by the County Engineer.
6. Widths of right-of-way in excess of the widths illustrated in Table 1 - Standard Pavement Sections, may be required by the Board when considered necessary due to existing situations or future adjacent developments including, but not limited to commercial areas, multi-lane roadways, divided roadways, non-motorized facilities, utilities, cut or fill sections of roadway, or for reasons of health, welfare, or safety.
7. The above right of way requirements are only intended to represent the minimum widths established by the Board. The Townships within Ingham County may have other requirements that need to be researched, considered, and possibly required by the County Engineer.
8. When addition of a by-pass lane or center left turn lane is required at the entrance to a proposed development, the Proprietor shall be responsible for obtaining additional right of way for the by-pass lane, when the existing right of way is not sufficient.
9. When a grading permit, tree removal agreement, or tree trimming agreement is required for work on neighboring private property, the Proprietor shall be responsible for obtaining the permits and providing a copy to the County Engineer.

10. Any additional deeds or permanent easements required to properly construct proposed developments must be identified and submitted to the County Engineer for review prior to approval of the construction plans. The additional deeds and easements may include grading easements, drainage easements, clear vision easements, by-pass lane right of way, and any other type required to properly construct the required roadways. All easement documents shall be recorded with the Register of Deeds office upon acceptance of the roads by the Road Commission.
11. Platted subdivisions with outlots for future road purposes, or similar descriptions will not be accepted. Right of way for future stub roads shall be dedicated to the Road Commission in the same manner as roads that exhibit a continuous circuit.

SECTION V - Road Design Elements and Construction Standards

A. Typical Cross Sections

1. The minimum requirements for road widths and pavement structures are shown in Table 1 - Standard Pavement Sections. The table is divided into sections for bituminous pavement with granular base, full depth asphalt pavement, and concrete pavement. Each section is further divided according to commonly used road classifications. Also included in this portion of the document are illustrations of Ingham County Road Commission typical cross sections that show the pavement sections contained in Table 1.
2. Non-standard pavement section designs may be considered by the Road Commission, provided their structural strengths are equivalent or greater than those contained in Table 1. The Proprietor's Engineer may submit complete pavement designs using the AASHTO Pavement Design Procedure using actual roadbed soil characteristics from an acceptable soils investigation report, prepared by a licensed Geotechnical Engineer, for the County Engineer's review and approval or denial.
3. The road width and pavement structure requirements shown in Table 1 - Standard Pavement Sections are only intended to represent the minimum requirements established by the Board. The Townships within Ingham County may have other requirements that need to be researched, considered, and possibly incorporated into the road and drainage construction plans.

The requirements in Table 1 for Industrial/Commercial developments will result in roads with Class A trucking designations, which will be subject to annual restricted axle loads (generally in spring) of 75% of normal legal loads. If the Proprietor desires, or the Township requires, the roads in a particular development to be all-season (no annual spring weight restrictions), the Proprietor's Engineer must perform a pavement design using the AASHTO pavement design procedure, or approved equal. The pavement design shall be based on 20 year pavement life, using reasonably estimated, fully developed, lifetime 18,000 pound equivalent axle loadings, and using actual roadbed soil characteristics from an acceptable soils investigation report, prepared by a licensed Geotechnical Engineer, and submitted for the County Highway Engineer's review. If approved, the Proprietor shall include the cross-section in the project plans, and construct the roads per the plans in order for the roads to be designated all-season and avoid spring weight restrictions. (Rev. 05-11-09)

4. The cross slope (crown) on all pavements shall be 2% to 4% unless otherwise approved. The cross slope of all pavement shoulders shall be 4% or ½" per foot, unless otherwise approved.
5. Road and ditch foreslopes (front slopes) and back slopes shall be 4:1 unless otherwise approved. Slopes behind curbs shall be no more than +4% through cut sections and -4% through fill sections from the back of curb to the hinge point. The

hinge point shall be located five feet from the back of curb. Slopes from the hinge point to existing ground shall be 4:1 unless otherwise approved.

6. Landscaping berms or any other type of berm will not be allowed within the road right of way. Designs that necessitate the need for guard rail installation are prohibited. Resulting construction that necessitate the need for guard rail installation shall be corrected by the Proprietor immediately. The cost for corrective action shall be the responsibility of the Proprietor.
7. Continuous subbase drains shall be provided on all curb and gutter cross sections. Subbase drains shall be 4" diameter, with filter sock, and conform to M.D.O.T. specifications.
8. In a residential subdivision where each lot has an area of at least 40,000 square feet and lot frontage as shown in Chart 1, concrete curb and gutter may be deleted. However, the pavement shall have a minimum width of 22 feet with aggregate shoulders, at least, three feet wide on each side of the pavement.

CHART 1 - MINIMUM LOT WIDTH

Location	Minimum Lot Width at Building Setback Line	Minimum Lot Width at Right of Way Line
Cul-de-sac	165 feet	90 feet ^(a)
Other	165 feet	120 feet ^(b)

(a) The maximum number of lots per cul-de-sac shall be four. A cul-de-sac shall be defined as the circular portion of the roadway at the end of a dead end road.

(b) For each lot less than 165 feet in width at the right of way line, there must be another lot such that the average width of the two is at least 165 feet at the right of way line. A lot shall not be used more than once for averaging.

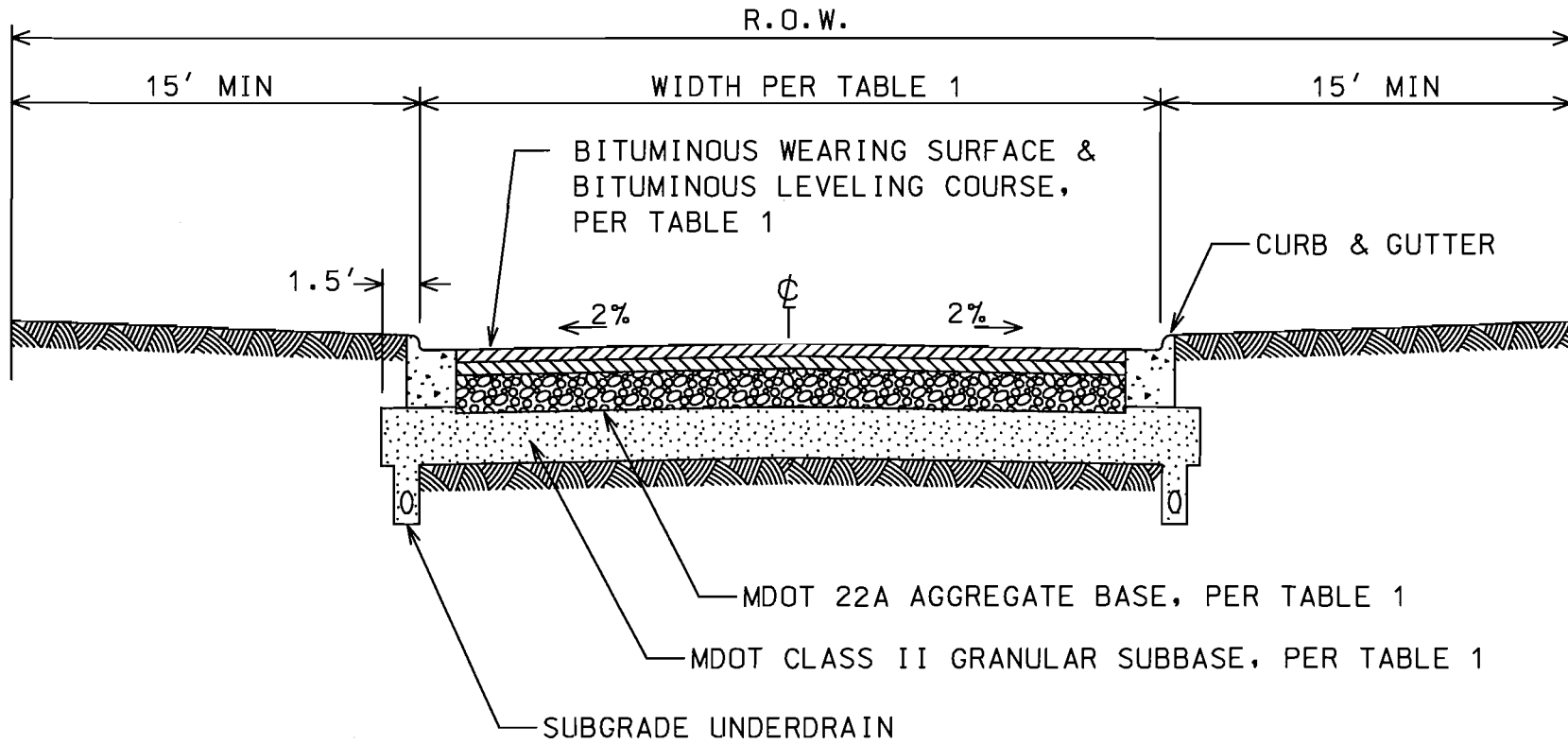
The maximum number of consecutive lots with less than 165 feet of width at the right of way line shall be four.

All lots on a road with a speed limit greater than 25 MPH shall have a minimum lot width of 165 feet at the right of way.

TABLE 1 - STANDARD PAVEMENT SECTIONS

Pavement Section/ Design Feature	Light Residential Section	Medium Residential Section	Heavy Residential Section	Industrial or Commercial Section
No. of Lots Served	0-25	26-50	51+	-----
Width of R/W, feet	60 - 66	60 - 66	66	66 - 90
Bituminous Pavement with Granular Base: (Urban and rural areas)				
Urban: Curb & Gutter, Fact-to-Face, feet	30	30	30 - 36	36 - 60
Rural: Edge-to-Edge with 3' Shoulder, feet	22	22	22	-----
Bit. Pav't, inches	5	5	5	7 - 11
Aggregate Base, inches	6	8	8	8 - 10
Subbase, inches	8	8	10	12
Full Depth Bituminous Pavement: (Urban areas only)				
Curb & Gutter, Fact-to-Face, feet	30	30	30 - 36	36 - 60
Bit. Top, inches	1 ½	1 ½	1 ½	2
Bit. Base, inches	5 ½	6 ½	7 ½	9
Open Graded Aggregate Base, inches	6	6	6	8
Concrete Pavement: (Urban areas only)				
Curb & Gutter, Face-to-Face, feet	30	30	30 - 36	36 - 60
Portland Cement Concrete, inches	7	7	9	9
Open Graded Aggregate Base, inches	6	6	6	6
Longitudinal Lane Tie Spacing, inches	21	21	18	18
Transverse Lane Tie Spacing, inches	12	12	10	10

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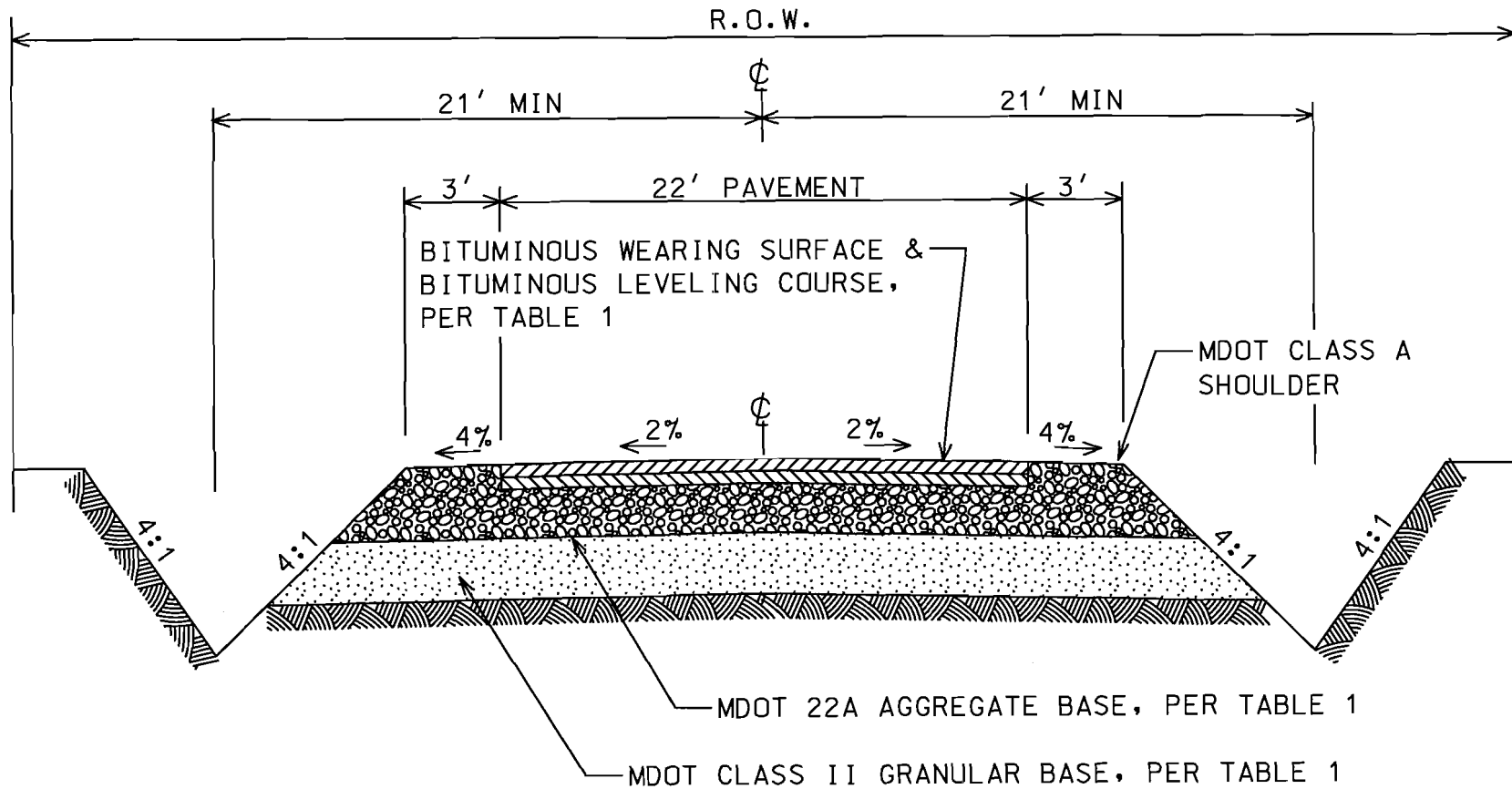


NOT TO SCALE

URBAN SECTION

BITUMINOUS PAVEMENT WITH GRANULAR BASE

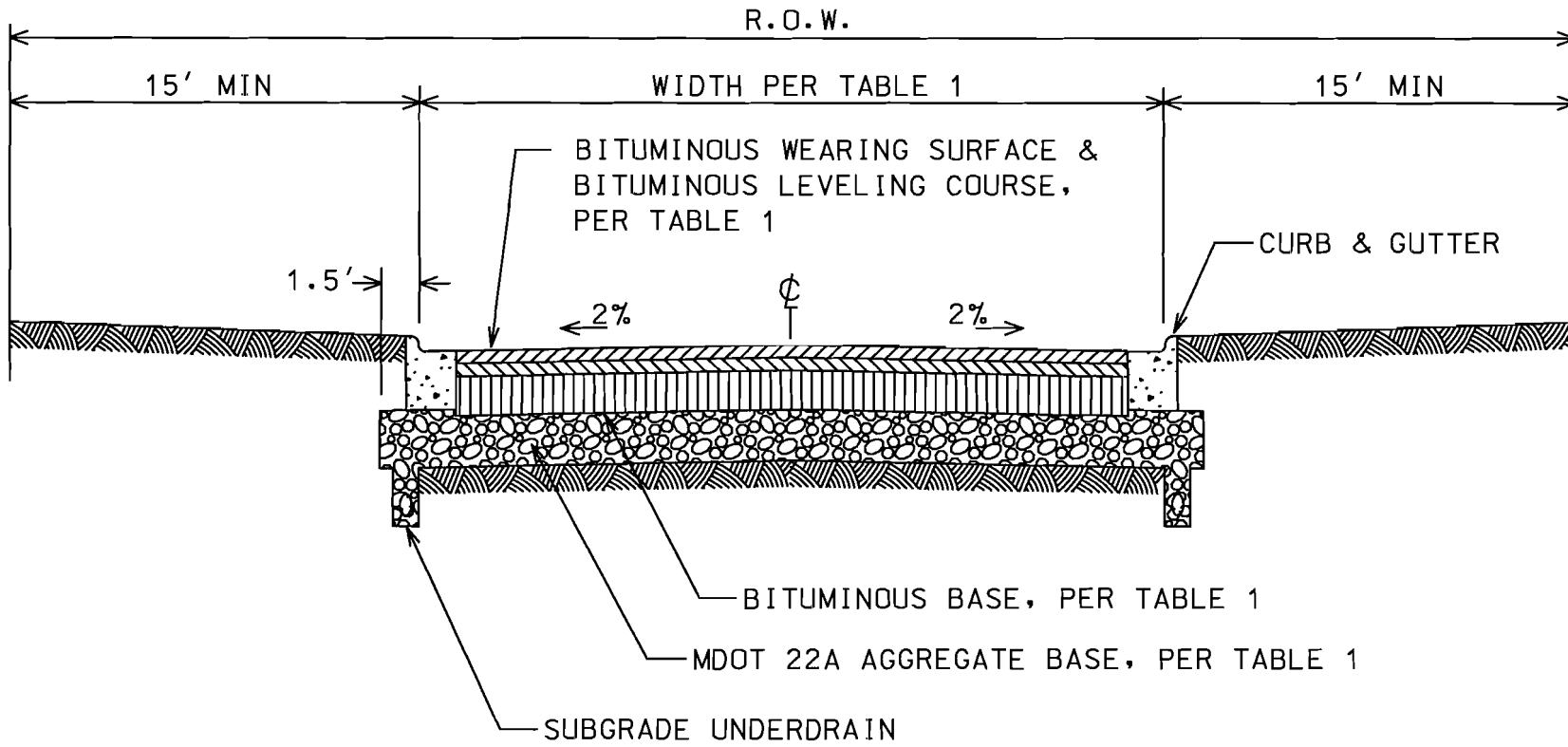




NOT TO SCALE

RURAL SECTION BITUMINOUS PAVEMENT WITH GRANULAR BASE

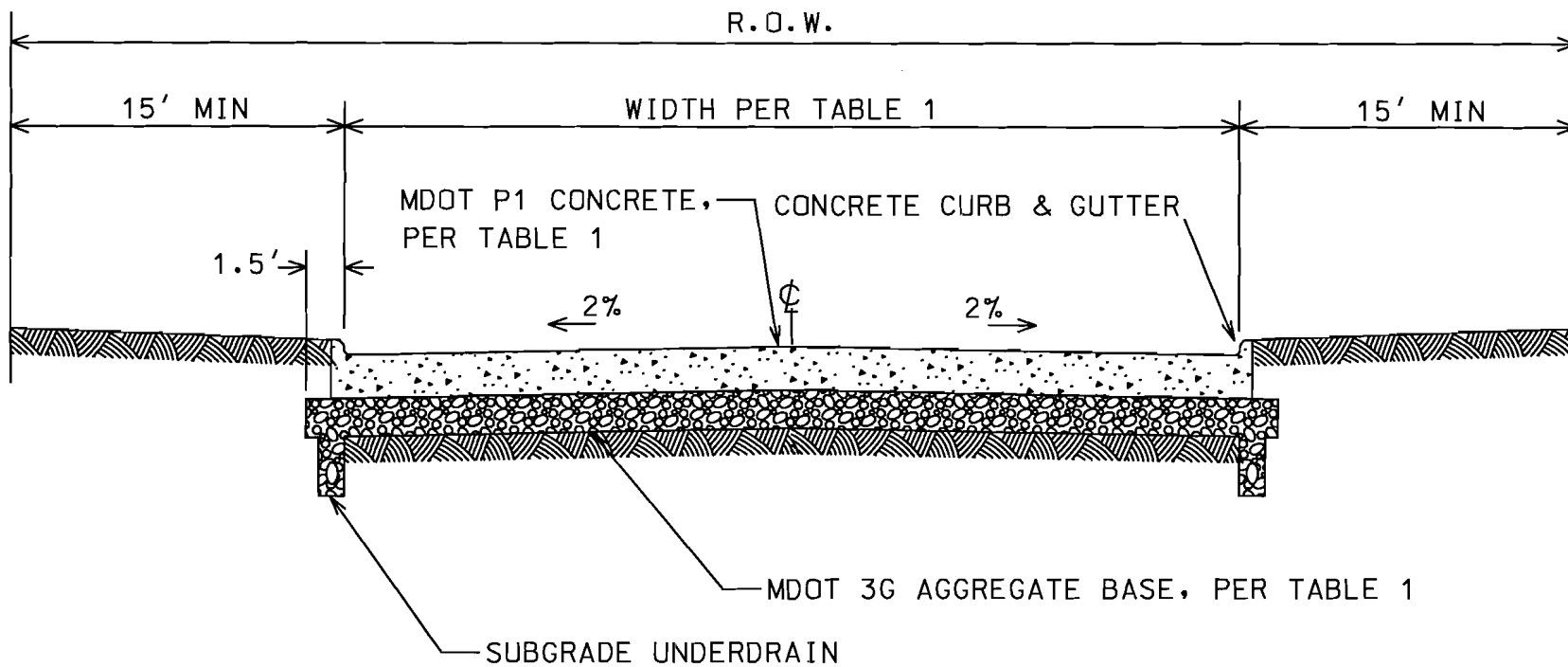




NOT TO SCALE

URBAN SECTION FULL DEPTH BITUMINOUS PAVEMENT





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NOT TO SCALE

URBAN SECTION CONCRETE PAVEMENT



B. Alignment

1. The centerline of construction shall coincide with the centerline of the right of way. All variations from this standard must be noted on the plans and approved by the County Engineer.
2. Minimum sight distance values to be used for design of proposed public roads and modifications of existing public roads shall be as follows:
 - a. For vertical alignment, stopping sight distance shall meet or exceed the stopping sight distance "k" values illustrated in Table 2.
 - b. Corner sight distance at internal subdivision intersections shall meet or exceed 330 feet.
 - c. Sight distance at an intersection of a subdivision road with a local road or primary road shall meet or exceed the values illustrated in Table 3 as amended by Table 4.
3. Vertical curves shall have minimum length of 100 feet and be designed with "k" values within the tolerances listed in Table 2.
4. Horizontal curves shall be designed with a minimum centerline radius as shown in Table 5.
5. The minimum grade on any road shall be 0.5 percent. The maximum grade on any street shall be 5.0 percent.
6. The radius of corners at intersections within a development without curb and gutter shall be at least 20 feet to the edge of pavement. The radius of corners at intersections within a development with curb and gutter shall be at least 25 feet to the back of curb. The radius of corners when subdivision roads intersect with existing primary or local collector roads shall be at least 35 feet to the back of curb.
7. The intersecting angle of proposed roads shall be 90 degrees, unless a variance is approved by the County Engineer. In no case will a variance be granted for intersections that have more than a 10 degree difference from the standard 90 degree requirement.

TABLE 2 - MINIMUM STOPPING SIGHT DISTANCE & DESIGN "K" VALUES

Design Speed (mph)	Speed for Condition (mph)	Minimum Stopping Sight Distance for Roadway Design (ft.)	K Value ^a for Crest Vertical Curves (Rounded)	K Value ^a for Sag Vertical Curves (Rounded)
25	24-25	150	20-20	30-30
30	28-30	200	30-30	40-40
35	32-35	250	40-50	50-50
40	36-40	325	60-80	60-70
45	40-45	400	80-120	70-90
50	44-50	475	110-160	90-110
55	48-55	550	150-220	100-130

Table 2 values were taken from Tables III-32 and III-34 of the AASHTO, A Policy on Geometric Design of Highways and Streets, 1984 edition.

For stopping sight distance the height of eye is 3.5 feet above the pavement surface and the height of object is 0.5 feet above the pavement surface.

(a) K value is a coefficient by which the algebraic difference in grade may be multiplied to determine the length in feet of the vertical curve which will provide minimum sight distance.

TABLE 3 - INTERSECTION SIGHT DISTANCE REQUIREMENTS AT SUBDIVISION ROADS & TWO-LANE LOCAL COLLECTOR OR PRIMARY ROADS (Single Unit Trucks)

Local or Primary Road Posted Speed (mph)	Minimum Decision Sight Distance (ft.) ^a
55	770
45	630
35	490
25	350

Table 3 values were taken from the AASHTO manual, A Policy on Geometric Design of Highways and Streets, 2001 edition.

(a) Intersection sight distance measured from a point on the minor road at least 18 feet from the edge of the local collector or primary road pavement and measured from a height of eye located 3.50 feet above the pavement surface of the minor road to a height of object located 3.50 feet above the pavement surface of the local collector or primary road.

Intersection sight distance requirements for commercial or industrial roads where the design vehicle, as determined by the County Engineer, is a WB-50 will be evaluated on a case by case basis. A case by case evaluation of required sight distance will also be performed for proposed subdivision roads that intersect with multi-lane local collector and primary roads.

All intersection sight distance requirements shall be subject to adjustment using the factors set forth in Table 4 - Effect of Grade on Sight Distance.

TABLE 4 - EFFECT OF GRADE ON SIGHT DISTANCE

Grade of Local Collector or Primary Road (%)	Downgrade ⁽¹⁾	Upgrade ⁽²⁾
2.0% to 3.0%	0.9	1.1
3.1% to 4.0%	0.7	1.3
4.1% to 5.0%	0.6	1.4

(1) When the local collector or primary road in the section to be used for acceleration after a vehicle has made a turning movement exhibits a downgrade, sight distance in the direction of approaching descending traffic should be reduced by these factors.

(2) When the local collector or primary road in the section to be used for acceleration after a vehicle has made a turning movement exhibits an upgrade, sight distance in the direction of approaching ascending traffic should be increased by these factors.

TABLE 5 - MINIMUM HORIZONTAL CURVES (Centerline Radius)

Type of Street	Design Speed (25 mph)	Design Speed (35 mph)
Light Residential	150 feet	-----
Medium Residential	175 feet	350 feet
Heavy Residential	175 feet	350 feet
Indus. Or Heavy Commercial	175 feet	450 feet

C. **Storm Sewer**

1. **Design.**

- a. Storm sewer sizing shall be in accordance with the Ingham County Drain Commissioner's design standards and be approved by the Ingham County Drain Commissioner and the County Engineer.
- b. Storm sewer installation within county road right of way shall conform to M.D.O.T. specifications, or the Ingham County Drain Commissioner's standards.

2. **Structures and Covers.**

- a. Proposed drainage structures installed within county road right of way shall conform to M.D.O.T. specifications, or the Ingham County Drain Commissioner's standards, whichever is more stringent.
- b. Drainage structure covers shall conform to the Ingham County Drain Commissioner's standards, or approved equivalent.

3. **Spacing of Structures.**

- a. Catch basins, inlets and culverts shall be placed such that all intersections and low points are properly drained. Additional or intermediate catch basins, inlets, or culverts may be required by the County Engineer to facilitate proper drainage patterns, existing or proposed.
- b. Catch basins and inlets should be designed so that they align with side lot lines and therefore don't conflict with proposed driveway opening locations.
- c. Drainage structures shall be located at all changes in sewer alignment, size, or grade. Storm sewers shall be located and aligned such as to best conform with the layout of existing facilities. In roads where no pattern has been established, storm sewers shall be located on the east or north side of the road.

- d. Drainage structure spacing and inlet capacity shall conform to the Ingham County Drain Commissioner's standards and prevent standing water on the roadway.

4. **Construction.**

All storm sewer installation shall be inspected and certified by the Proprietor's Engineer and be true to line, grade, properly bedded, and backfilled.

D. **Roadside Ditches and Crossroad Culverts**

1. All ditches shall have an established growth of vegetation provided by top-soiling, seeding and mulching in accordance with M.D.O.T. specifications. The minimum roadside ditch grade shall be 0.5%. Ditch grades with slopes from 0.5% to 4% shall be stabilized with mulch to prevent soil erosion and sedimentation. Ditch grades with slopes in excess of 4% shall have properly installed mulch blankets and check dams to prevent soil erosion and sedimentation.
2. Roadside ditches shall be stabilized with vegetation and free of rills and sediment prior to acceptance by the Board.
3. Where culverts cross a proposed public road, the culvert shall consist of reinforced concrete culvert pipe with flared end sections on each side.
 - a. Reinforced concrete culvert pipe shall meet the current specifications of ASTM, designation C-76, with elliptical reinforcement.
 - b. Materials and methods for installation of culverts shall be in accordance with M.D.O.T. Specifications.
4. The maximum distance that surface water may be carried in an open roadside ditch shall be 1320 feet, unless otherwise approved by the County Engineer.
5. The proprietor shall provide an acceptable system of drainage to enable property owners to drain sump pump outlets, roof drains and similar private drainage. In all cases, discharge of any sump pump outlets, roof drains and similar private drainage to the curb and gutter or onto the roadway is prohibited.

E. **Clearing and Grubbing.**

All trees and brush, including the roots thereof, shall be removed from the right-of-way of the roads within the limits of the subdivision, unless otherwise permitted by the County Engineer.

F. Existing Road Cleanup

Ditches along existing county roads, adjacent to proposed developments, shall be cleared and graded to provide positive drainage for both the existing and proposed roads. All brush, fences, obstructions, etc., shall be removed from the right-of-way. Trees or tree limbs that obstruct proper site distance shall be removed, as directed by the County Engineer, before new roadways can be considered for acceptance into the county road system.

G. Utilities and Backfill

1. All utilities shall be located in accordance with Section IV of this document. All lot or house services shall be extended to the right-of-way line prior to sand subbase and aggregate base installation. All public and private underground utilities shall be installed after the rough grading has been completed so that proper cover over the utilities can be determined and verified.
2. The following backfill requirements shall apply to all utilities located within an area delineated by a 1 on 1 slope measured from the back of curb or a point on the outside edge of shoulder toward the right-of-way line.
 - a. Pipe bedding material shall conform to M.D.O.T. specifications or the respective utility's standard requirements, whichever is more stringent.
 - b. All trench excavations shall be backfilled with M.D.O.T. class II or class III granular material compacted to 95% of its maximum unit weight in accordance with M.D.O.T. specifications. Backfill material shall be placed in lifts so that standard mechanical compaction equipment can thoroughly and uniformly achieve the stated compaction requirements. Material and compaction testing shall be performed by an independent testing agent and the results reported and approved by the County Engineer before subgrade preparation can begin. All testing shall be performed by an independent testing agent and conform to M.D.O.T. specifications.
 - c. The use of native material may be approved if an approved soils investigation report indicates that the native material is suitable as backfill and if the material testing frequency and effort meets the approval of the County Engineer. Material and compaction testing shall conform to the Controlled Density Method for Embankment as contained in the Michigan Department of Transportation's Standard Specifications for Construction. Native material analysis and compaction testing shall be performed by an independent testing agent, throughout the backfilling operation, and the results sealed by a licensed professional engineer, licensed to practice in the State of Michigan. The results shall be reported in a timely manner and be approved by the County Engineer before subgrade preparation can begin.

H. **Subgrade Preparation:**

1. The finished subgrade shall be free of all topsoil, stones, stumps, organic material, muck, peat, and material prone to frost heave. The finished subgrade shall be prepared in accordance with M.D.O.T. Specifications. Material and compaction testing shall be performed by an independent testing agent and the results reported and approved by the County Engineer before subbase installation can begin. All testing shall conform to M.D.O.T. specifications.
2. Upon completion of the subgrade preparation, the Proprietor's Engineer shall request and accompany the County Engineer, or County Engineer's representative, on an inspection of the finished subgrade. If approval of the subgrade is granted, installation of subbase material may begin. ICRC personnel will be inspecting the subgrade for suitability only. ICRC inspection does not relieve the Proprietor's Engineer of the responsibility of ensuring and certifying that the roadway is built per the approved plans and the specifications herein. Sufficient construction staking shall be present so that horizontal and vertical alignment can be determined and subgrade elevations can be verified. Construction staking is the responsibility of the Proprietor.

I. **Sand Subbase Installation:**

1. Sand subbase shall consist of M.D.O.T. class II granular material compacted to 95% of its maximum unit weight in accordance with M.D.O.T. specifications. Material and compaction testing shall be performed by an independent testing agent and the results reported and approved by the County Engineer before aggregate base installation can begin. All testing shall conform to M.D.O.T. specifications.
2. Upon completion of subbase installation, the Proprietor's Engineer shall request and accompany the County Engineer, or County Engineer's representative, on an inspection of the subbase installation. If written approval of the subbase is granted, installation of aggregate base material may begin. ICRC personnel will be inspecting the subbase for suitability only. ICRC inspection does not relieve the Proprietor's Engineer of the responsibility of ensuring and certifying that the roadway is built per the approved plans and the specifications herein. Sufficient construction staking shall be present so that horizontal and vertical alignment can be determined and subbase elevations can be verified. Construction staking is the responsibility of the Proprietor.

J. **Aggregate Base Installation:**

1. Aggregate base material shall conform to M.D.O.T. specifications and as illustrated on the approved plans. Aggregate base shall be compacted to 98% of its maximum unit weight in accordance with M.D.O.T. specifications. Material and compaction testing shall be performed by an independent testing agent and the results reported and approved by the County Engineer before preparation for pavement placement can begin. All testing shall conform to M.D.O.T. specifications.

2. Upon completion of aggregate base installation, the Proprietor's Engineer shall request and accompany the County Engineer, or County Engineer's representative, on an inspection of the aggregate base installation. If written approval of the aggregate base is granted, preparation for pavement placement may begin. ICRC personnel will be inspecting the aggregate base for suitability only. ICRC inspection does not relieve the Proprietor's Engineer of the responsibility of ensuring and certifying that the roadway is built per the approved plans and the specifications herein. Sufficient construction staking shall be present so that horizontal and vertical alignment can be determined and aggregate base elevations can be verified. Construction staking is the responsibility of the Proprietor.

K. Bituminous Base, Leveling and Top Course Placement:

1. Bituminous mixtures and placement shall conform to M.D.O.T. specifications, this document, and the approved plans. Bituminous mixtures shall be compacted to 97% of the Theoretical Maximum Density from the Job Mix Formula in accordance with M.D.O.T. specifications or as contained herein. Material and compaction testing shall be performed by an independent testing agent and the results reported and approved by the County Engineer before further paving can begin. All testing shall conform to M.D.O.T. specifications.
2. ICRC personnel shall be given a minimum of 48 hours notice of the intent to place bituminous pavement. Placement of bituminous mixtures shall not commence unless the existing aggregate surface or pavement's surface temperature is a minimum of 40 degrees Fahrenheit and rising.
3. Bituminous mixture placement shall not exceed an application rate of 330 lbs per square yard for any single lift of base or leveling course unless approved by the County Engineer.
4. Bituminous mixture placement shall not exceed an application rate of 220 lbs per square yard for any single lift of top course unless approved by the County Engineer.
5. Pavements to receive additional lifts of bituminous pavement shall be swept clean of all dirt, dust, grit, and other loose material prior to application of the asphaltic bond coat.
6. Butt joints shall be provided at connections to existing paved roads and at "overnight" construction joints when the top course is being placed.
7. All utility manhole castings within roadway pavement shall be adjusted to grade after the base or leveling course has been placed to ensure proper elevation and cross slope.

L. **Concrete Pavement Placement:**

1. Concrete pavements shall conform to M.D.O.T. specifications, this document, and the approved plans. Material testing shall be performed by an independent testing agent and the results reported to the County Engineer in a timely manner. All testing shall conform to M.D.O.T. specifications.
2. ICRC personnel shall be given a minimum of 48 hours notice of the intent to place concrete pavement. Placement of concrete pavement shall not commence unless the ambient air temperature is at least 25 degrees Fahrenheit and no more than 90 degrees Fahrenheit. The Contractor shall provide cold weather, hot weather, and rain protection, as directed by the County Engineer, to protect the concrete from environmental damage during curing.
3. Integral curb and gutter may be allowed if approved by the County Engineer.

M. **Sidewalks:**

Sidewalks, when called for on the plans, shall conform to M.D.O.T. specifications, or the local Governing Body's standards, as approved by the County Engineer. The thickness of sidewalk shall be not less than four inches (4"), except at driveways where it shall be not less than six inches (6"). Sidewalk locations, grades, and construction details shall be shown on the plans.

N. **Curb and Gutter:**

1. Roadway cross section elements, back of curb elevations, and standard Ingham County Road Commission curb and gutter details shall be shown on the plans. Materials and methods for construction of concrete curb and gutter shall conform to M.D.O.T. Specifications and shall include two continuous half inch ($\frac{1}{2}$ ") diameter deformed reinforcing bars. Material testing shall be performed by an independent testing agent and the results reported and approved by the County Engineer before paving can begin.
2. ICRC personnel shall be given a minimum of 48 hours notice of the intent to place concrete curb & gutter. Placement of concrete curb & gutter shall not commence until the line and grade of the curb & gutter has been approved by the Proprietor's Engineer.
3. Expansion joint material shall be placed at all spring points and at 200' intervals as measured along the back of curb and gutter. Contraction joints shall be located at 10' intervals.
4. Either straight faced curb and gutter or rolled curb and gutter may be used if requested by the Proprietor and approved by the County Engineer.

5. Horizontal sawing of curb cuts on straight back curbs is allowed providing the finished curb cut conforms to the geometric requirements of M.D.O.T. Standard Plan Series R-29.

O. **Topsoil, Seed, Fertilizer and Mulch:**

All areas void of acceptable vegetative growth within the right-of-way shall be top-soiled, seeded, fertilized and mulched. The methods and time of seeding and mulching shall be in accordance with M.D.O.T. specifications. All disturbed areas within the road right of way shall be covered with a minimum of three inches (3") of topsoil. Vegetative cover shall be established, to the County Engineer's satisfaction, on all ditches and drainage courses within the right-of-way before the roads are accepted into the county road system.

P. **Trees:**

1. Any new trees to be planted must be a minimum of 15 feet behind the back of curb or 19 feet from the nearest edge of pavement, if no curb is proposed. The above limitations may be waived by the County Engineer, in accordance with ICRC Board policy BP-226, if certain conditions are obeyed. At no time shall a tree be planted within five feet of the back of curb along roadways and ten feet in cul-de-sac islands.
2. Existing trees within 15 feet of the proposed back of curb shall be removed unless specifically allowed by the County Engineer. Trees allowed to remain must be deciduous trees with significant aesthetic value, not obstruct motorists sight lines, and be no closer than five feet behind the proposed back of curb.

Q. **Nonspecified Materials and Construction:**

All materials and methods of construction that are not specified herein but that are essential to the proper construction of the roads in question, shall be in accordance with M.D.O.T. specifications or as approved by the County Engineer.

R. **Traffic Control:**

1. The contractor is responsible for furnishing, erecting, and maintaining all temporary construction traffic control measures in accordance with the Michigan Manual of Uniform Traffic Control Devices (MMUTCD), current edition.
2. At the start of construction, or during construction, the Ingham County Road Commission may require the Proprietor to furnish and install signs stating "**STREET NOT OPEN FOR PUBLIC TRAVEL**" at each access point to a proposed public road or extension of a public road until the County Engineer determines that the roadway is reasonably safe and convenient for public travel.

S. **Inspection and Testing:**

1. Inspections may be performed by the County Engineer or County Engineer's representative prior to, during, and after any and all road construction. The Proprietor shall allow access onto the site as a condition of the Road and Drainage Construction Plan approval. As stated in Section V, Subsection H through L, upon completion of each of the elements in the road building process, the Proprietor's Engineer shall request and accompany the County Engineer, or County Engineer's representative, on an inspection of the completed construction. If written approval of the completed construction is granted, the Contractor may continue with the road building process. ICRC personnel will be inspecting for suitability of the completed work only. ICRC inspection does not relieve the Proprietor's Engineer of the responsibility of ensuring and certifying that the roadway is built per the approved plans and the specifications herein.
2. The Proprietor's Engineer shall give ICRC personnel a minimum of 48 hours notice of the intent to place bituminous or concrete pavement.
3. The Proprietor's Engineer shall inspect grades and alignment, verify all materials incorporated into road and utility construction, arrange and supervise independent materials testing services, evaluate the test results, and inspect all roadway construction so that he or she can certify that the roadways are constructed per the approved plans and the specifications herein.
4. Construction on, or use of frozen material will not be accepted.
5. Minimum testing requirements and documentation to be provided to the County Engineer by the Proprietor's Engineer are as follows:
 - a. Subgrade - visual inspection while the grade is being proof-rolled with a loaded tandem-axle truck, rubber tired roller, or loader with full bucket to identify areas of unstable materials. Inspection with a level to ensure that the prepared subgrade has at least a 2% slope from the centerline of the proposed road to the edge of the subgrade. Inspector's daily report (IDR) approved by Proprietor's Engineer is required.
 - b. Subbase - at least one sieve analysis per 3,000 cubic yards of material used with a minimum of one sieve analysis per project. Density tests shall be taken in accordance with the M.D.O.T. Sampling and Testing Guide every 1,500 square yards of roadway at varying depths to verify compaction requirements. Frequency of sieve analyses and density testing may be increased if compaction is a problem or if the subbase material characteristics shows a lot of variability throughout the project. Conversely, frequency of sieve analyses and density testing may be decreased if consistent acceptable compaction is obtained and the subbase material characteristics remain consistent throughout the project. This also applies to granular material under the concrete curb and gutter.

- c. Aggregate Base - at least one sieve analysis per 1,000 tons or 600 cubic yards of aggregate base material used with a minimum of one sieve analysis per project. Density tests shall be taken in accordance with the M.D.O.T. Sampling and Testing Guide every 1,500 square yards of roadway at varying depths to verify compaction requirements. Frequency of sieve analyses and density testing may be increased if compaction is a problem or if the aggregate base material characteristics shows a lot of variability throughout the project.
 - d. Concrete Curb and Gutter - verification of proper base installation and compaction, air tests, slump tests, and strength tests of concrete in accordance with the M.D.O.T. Sampling and Testing Guide. At least one series of concrete tests shall be performed per day during concrete placement. During "all day" pours, concrete tests shall be performed at least once in the A.M. and once in the P.M.
 - e. Bituminous Mixture - at least one extraction test per course of bituminous mixture placed in a day, or one extraction test per 1,000 tons of mixture placed.
6. Copies of all independent testing results are to be forwarded to the County Engineer as soon as they are available so that an evaluation can be made as to whether subsequent construction should continue or not. The Contractor shall be informed by the independent testing agent when tests indicate that the required materials don't meet specifications or if the required density is not being achieved. Upon notice, the Contractor shall alter their construction methods to meet or exceed the requirements contained herein.
7. Any field changes to the approved plans and specifications deemed necessary due to unforeseen circumstances encountered during construction shall be submitted to the County Engineer for approval before the work begins. If work is performed without approval, the work may need to be redone, in accordance with the County Engineer's recommendations. Costs associated with the above work shall be the responsibility of the Proprietor. All field changes are to be illustrated and or noted on the as constructed drawings.
8. The Ingham County Road Commission may perform pavement cores of proposed public roads and conduct tests to verify the results of the independent testing agent. The Contractor shall provide assistance and a safe work zone for the coring rig, if requested. If, in the opinion of the County Engineer, the results of road commission tests show that the road(s) are not built in accordance with this document or the construction plans, the roads may be rejected for inclusion into the county road system, regardless of whether an Engineer's Certificate has been submitted or not.

T. Construction Within Existing County Right-of-Way:

Construction activities within existing county road right-of-way, such as by-pass lanes, turn lanes, shoulder additions, underground utilities, drainage facilities, and intersection construction shall be performed with due diligence. The Contractor shall diligently work toward completing said construction and minimize the traveling public's exposure to the construction work zone. If, at the discretion of the County Engineer, the work is not proceeding in an orderly manner, the Ingham County Road Commission may perform the required work and invoice the Proprietor for the cost of the work, including but not limited to labor, material, equipment, signing, and administrative costs.

U. Acceptance of Roads for Maintenance:

1. After completion of all construction within the existing and proposed right-of-way, the Proprietor or Proprietor's Engineer shall furnish the County Engineer a letter requesting a final visual inspection of the project, a set of as constructed plans reflecting field changes, and a letter from the Ingham County Drain Commissioner's office stating that the storm drainage system installed as part of the development has been approved and will be accepted as part of the county drainage system.
2. If the work is not completed to the satisfaction of the County Engineer, the Proprietor will be notified by the County Engineer as to the deficiencies found during the visual inspection or subsequent inspections. The County Engineer will conduct a reinspection of the work after being notified that the deficiencies have been corrected.
3. Once the County Engineer has completed the visual inspection and accepts the construction, the Proprietor's Engineer may submit an Engineer's Certification, which certifies that the project was constructed per the approved plans and specifications. If the Engineer's Certificate, sufficient testing reports, verification of County Drain Commissioner approval, and all required warranty deeds have been received, the County Engineer will recommend to the Board, acceptance of the roads into the county road system. In the case of platted subdivisions, the County Engineer will recommend signing of the Final Plat. Approval of any phase of construction by the County Engineer does not guarantee acceptance by the Ingham County Board of Road Commissioners or relieve the Proprietor of responsibilities and liabilities inherent in pursuing development of a parcel of land.
4. The Ingham County Road Commission may assume maintenance of the roads before the final course of paving is installed, if the construction performed to date has been accepted by the County Engineer, a Bituminous Paving Agreement has been executed, and the Board has accepted maintenance responsibility. However, before assuming responsibility for maintenance, if any construction defect repairs or road reconstruction is required, they shall be accomplished at the expense of, and by the Proprietor. In this circumstance, the Ingham County Road Commission will only provide routine maintenance, such as snow removal and emergency repairs for the affected roads. All other maintenance or repair including, but not

limited to, asphalt pavement repairs, catch basin cleaning, and turf restoration shall be the responsibility of the Proprietor.

5. On occasion, manhole castings and water boxes are raised after the bituminous leveling course is placed, but the top course of asphalt isn't able to be placed until the following summer. For that case, and similar cases, the Proprietor is responsible for installing and maintaining asphalt ramps around the exposed castings or valve boxes so that they don't hamper winter maintenance (snow plowing). If the asphalt ramps are not installed or maintained in a timely manner, the Ingham County Road Commission may have the work performed and bill the Proprietor for all costs associated with scheduling the work and ensuring proper installation.
6. In no case will a partial acceptance of a street in the plat be given for maintenance.
7. The Proprietor may be required to furnish the Board a deposit using either cash, certified check, or irrevocable bank letter of credit, in an amount and term to be determined by the County Engineer, to be used to insure the integrity of new roads built as part of a development. Said deposit shall be used to correct any deficiencies that manifest themselves after acceptance of the roads.

SECTION VI - Procedures for Road Construction to be Completed After Acceptance of Roads

A. Escrow Agreements

The Proprietor is encouraged to complete all construction within the road right-of-way through placement of the second to last course of asphalt and place the final course of asphalt after the majority of the development is built out. Therefore, the Proprietor and ICRC may, in the interim, enter into a bituminous pavement agreement with escrow funds deposited to guarantee the completion of the final course of bituminous paving, in accordance with the approved plans and specifications. Once the agreement has been executed and escrow funds have been secured, the Board may accept the new roads into the county road system and accept limited maintenance responsibility for the affected roads (refer to Section V, Subsection U).

1. Escrow agreements covering pavement placement are prepared by the County Engineer and approved or denied by the Board. The agreements are intended to be implemented for a one to five year build out period.
2. Deposits shall be in the form of cash, certified checks, certificates of deposit or an irrevocable bank letter of credit.
3. The amount of the deposit required shall equal 120 percent of the County Engineer's estimate of the cost of the road improvements or \$10,000, whichever is more. The extra 20 percent is to cover inflation that may occur during the build out period.
4. If the roads are not completed and in acceptable condition within the terms of the escrow agreement, the Proprietor will be held in default and steps may be taken to have the roads completed using the deposit money.
5. Release of the deposit money will be made upon receipt of the Engineer's Certificate, sufficient testing reports, verification of County Drain Commissioner's approval, all required deeds and easements, and Board acceptance of the roads into the county road system.
6. The Board may rebate to the Proprietor, as work progresses, amounts of any deposits equal to the ratio of the work completed to the entire project. However, a minimum balance of \$10,000 shall be retained until all items of work in the agreement are complete and acceptable to the County Engineer.

B. Insurance Requirements

The Proprietor, prior to performing any work within any existing or proposed county road right-of-way and continuing through completion of the project, shall furnish to the Ingham County Road Commission, and maintain, the following:

1. Copy of the Comprehensive General Liability Certificate, naming the Ingham County Road Commission and the Board of County Road Commissioners of the County of Ingham, Michigan, as an Additional Named Insured under the contractors Comprehensive General Liability Certificate, with minimum policy limits of \$1,000,000 per occurrence. The County Engineer and the Board Secretary are authorized to perform a review process to determine whether higher limits of insurance coverage will be required according to risk exposure, size of plat or ultimate size of the plat, location, any unique characteristics, current stage of construction of the road right-of-way, and including any other criteria pertinent to the individual plat.
2. The policy should protect against all risks of liability typically associated with the work performed, including but not limited to, coverage for products and completed operations, coverage for property of others in the contractors care, custody and control, coverage against the perils of explosion, collapse and underground hazards, XCU, and contractual.
3. In addition, the Proprietor shall furnish, or cause to be furnished, Certificate of Insurance covering Workers' Compensation Insurance, as required under the Michigan Workers' Compensation Act.
4. Alternatively, rather than comply with Section VI, Subsection B. 1., the Proprietor shall provide an Owner's Protective policy, naming the Proprietor and Ingham County Road Commission and the Board of County Road Commissioners of the County of Ingham, Michigan, as a named insured covering the project as described in the proposal. Limits of the coverage under the Owners Protective policy shall be the amount of limits indicated in Section VI, Subsection B. 1.

SECTION VII - Fees

A. Review and Inspection Fee

A fee in the amount of three percent (3%) of the County Engineer's estimate of the total cost of road construction shall be paid to the Board of Ingham County Road Commissioner's prior to Board acceptance of the roads into the county road system. The fee is to cover administrative costs, progress inspections, and all other development related costs incurred by the Ingham County Road Commission. The fee is non-refundable and shall be paid in cash or certified check.

B. Bituminous Pavement Agreement

The Proprietor is encouraged to complete all construction within the road right-of-way through placement of the second to last course of asphalt during the initial construction phase and place the final course of asphalt after the majority of the development is built out or completed. The Board may accept the incomplete roads into the county road system if the work to date is acceptable to the County Engineer and upon received assurance that the final course of asphalt will be placed when appropriate. To accomplish this, it will be necessary for the Proprietor to enter into a Bituminous Pavement Agreement with the Board and place sufficient funds in escrow to accomplish placement of the final course of bituminous pavement. The final course of bituminous pavement shall be completed by a contractor hired by the Proprietor and be subject to inspection and approval by the County Engineer. The pavement contractor's equipment and work force must be capable of performing the work as determined by the Ingham County Road Commission. The amount of the escrow fund required will be estimated by the County Engineer.

C. Sign Fee

The Proprietor shall pay a fee to the Board to furnish and erect road name signs, traffic control signs, and devices as determined necessary at locations specified by the County Engineer. The fee amount will be determined by the County Engineer, is non-refundable, shall be paid in cash or certified check, and shall be submitted prior to Board acceptance of the roads into the county road system.

D. Permits

1. All proposed work within existing and proposed right-of-way of roads must have plans reviewed and approved by the County Engineer.
2. If the proposed work is outside existing county road rights-of-way, but within the right-of-way of proposed roads to be dedicated to the Ingham County Road Commission, included in the construction plans approved by the County Engineer, and the road has not been accepted by the Ingham County Road Commission for maintenance, a permit will not be required.
3. If the work is within the right-of-way of an existing county road and the work is

included in the construction plans, a permit, free of charge, is required from the Permit Office of the Ingham County Road Commission. The permit applicant shall be the contractor that will perform the work within the existing right-of-way.

4. If the work is within the right-of-way of an existing county road, is not included in the construction plans, approved by the County Engineer, or the road has been accepted by the Ingham County Road Commission for maintenance, a permit, including applicable fees, is required from the Permit Office of the Ingham County Road Commission. The permit applicant shall be the contractor that will perform the work within the right-of-way.
5. All driveways installed prior to acceptance of the road for maintenance will be inspected during final inspection. If not included on the construction plans, a driveway shall require a completed driveway permit, including applicable fees, processed through the Permit Office of the Ingham County Road Commission.
6. There may be imposed upon the Proprietor a bond in an amount deemed sufficient by the Board to repair existing and proposed roads damaged as a result of any activity attributed to a development and to provide for the cost of required road clean-up not performed by the Proprietor. The bond shall be released at such time as the Board determines, in the reasonable exercise of its discretion.

SECTION IX - Severability Clause

If any part of these procedures or requirements are found to be invalid, each invalidity shall not affect the remaining portion of the procedures or requirements which can be given effect without the invalid portion, and to this end the procedures or requirements are declared to be severable.

APPENDIX

(Plat, Land Division, or Condominium Name)

BITUMINOUS PAVEMENT AGREEMENT

This Agreement made and entered into this the _____ day of _____, 20____, A.D., by and between _____, party of the first part; and the Board of County Road Commissioners of the County of Ingham, Michigan, a public body corporate, party of the second part.

WITNESSETH

WHEREAS, the party of the first part is the proprietor of the development of _____, a development lying in the _____ of Section _____, in _____, Ingham County, Michigan.

WHEREAS, both parties desire that _____, located within said development, be constructed in conformance with the standards and specifications of the party of the second part, be surfaced with a bituminous pavement, and that the bituminous surface be applied approximately _____ feet in width and approximately _____ inches in depth on the above named road(s).

WHEREAS, the party of the first part is desirous that said constructed road(s) become public roads under limited control and jurisdiction of the party of the second part before the road(s) are totally finished and ready to be accepted into the county road system;

NOW THEREFORE, IT IS AGREED AS FOLLOWS:

1. The party of the first part agrees to:
 - (a) Deposit with the party of the second part, the sum of _____, in the form of an irrevocable letter of credit as a commitment to payment for the placing of the final bituminous surface mixture, restoration, and final cleanup on _____.
 - (b) Agrees to reimburse the party of the second part for the total cost as outlined in paragraph 2(b) below if the costs exceed the amount of the irrevocable letter of credit.
 - (c) Comply with, and abide by, any and all current, applicable Rules for Plat Street Development of the Ingham County Road Commission in the construction of all roads within the Plat. The obligation of the party of the first part to cause the roads to be constructed in accordance with the published standards and requirements of the party of the second part is an on-going requirement upon the party of the first part until it is accomplished. Party of the first part's acceptance of this on-going

obligation is a condition for final Plat approval permitting the sale of lots within said Plat, which requirement is not waived under any circumstance. The irrevocable Letter of Credit required pursuant to this Agreement is security to insure that party of the first part meets its road construction obligations necessary for Plat approval and is not a waiver or release of those obligations whether or not the party of the second Part exercises its rights under the irrevocable Letter of Credit.

(d) Accomplish the placing of the final course of bituminous pavement on or before October __, _____.

2. If the party of the first part does not conform to the conditions above, the party of second part may cash the irrevocable letter of credit and use the money to complete the work. If the party of the second part completes the work, it shall:

(a) Keep cost records on the work accomplished.

(b) Upon completion of the work when final costs have been determined, including overhead, engineering and inspection, the party of the second part will submit an accounting to the party of the first part of the costs incurred and invoice the party of the first part for costs in excess of the amount collected.

(c) The party of the second part may, if it so desires, subcontract for the performance of the work specified herein.

(d) In the event the irrevocable letter of credit expires prior to completion of construction, the party of the second part shall have the right to draw upon the entire amount of said letter of credit and to deposit same, in its own name, in a secure account pending completion of the construction. The party of the second part shall have the right to withdraw funds from said account for any of the reasons it could draw upon the letter of credit. Any funds remaining at the termination of construction and acceptance of same by the party of the second part shall be returned to the party of the first part.

3. IT IS FURTHER AGREED that during the term of this Agreement and at all times prior to completion of the above work, the party of the first part shall, at its expense, ensure the structural integrity, condition, and ability to maintain the road(s) within said development. The party of the second part only agrees to provide routine maintenance, such as snow removal and emergency repairs.

The party of the first part further agrees that at any time during the term of this Agreement and at all times prior to completion of the above work, the party of the second part shall determine that any of said roads are not maintained as stated above, the party of the first part shall immediately upon receiving notice of such necessity from the party of the second part, proceed to correct such conditions in a manner acceptable to the party of the second part, which shall be completed within the period of time specified when noticed.

Additionally, the party of the first part agrees that upon its failure to immediately proceed with correcting the condition(s) or to complete the same within the period of time specified when noticed, the party of the second part shall proceed to make such correction(s) and shall charge the costs of said correction(s) to the party of the first part and retain an amount equivalent to said costs from the performance guarantee deposit.

4. The party of the first part shall hold harmless and defend the party of the second part against any and all claims, lawsuits and demands of any kind whatsoever for damage to public or private property and/or for injuries or death to persons arising out of and during the progress of the work under this Agreement.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals the day and year first above written.

IN THE PRESENCE OF:

**COMPANY NAME
ADDRESS**

Witness

Proprietor's Name, Title

**BOARD OF COUNTY ROAD COMMISSIONERS
OF THE COUNTY OF INGHAM, MICHIGAN**

Witness

JOSEPH A. GUENTHER, Chair

ANY BANK, MICHIGAN

Number _____

Date: _____

IRREVOCABLE COMMERCIAL LETTER OF CREDIT

Board of Ingham County Road Commissioners
301 Bush Street, P.O. Box 38
Mason, Michigan 48854

Dear Commissioners:

We hereby establish our Irrevocable Letter of Credit #12345 and hereby authorize the Ingham County Road Commission to draw on us at sight for the account of _____ Proprietor's Name and Address up to a total of \$ _____.

Funds are available hereunder in an amount not exceeding in the aggregate \$ _____ for bituminous paving or street construction (select one) in _____ Name of Development.

This Letter of Credit will expire _____ Date.

All drafts must be marked "Drawn under Letter of Credit of _____ Name of Proprietor number _____ dated _____".

We hereby agree with the drawers, endorsers, and bona fide holders of drafts drawn under and in compliance with the terms of this credit, that such drafts will be duly honored on due presentation to the drawees negotiated on or before the expiration date of this Letter, or presented at this office together with this Letter of Credit on or before that date.

NAME OF BANK

Signature of Authorized Personnel

ENGINEER'S CERTIFICATE

TO: COUNTY ENGINEER
ENGINEERING DEPARTMENT
INGHAM COUNTY ROAD COMMISSION

Please be advised that the finished grades of the roads built as part of the (plat) (land division) (condominium) named _____, located in _____ Township, Michigan, are as shown and approved on the road and utility plans reviewed and approved by the Ingham County Road Commission on _____, or are as subsequently changed and approved on _____, for construction and shown on the enclosed "as constructed" street and utility plans.

I _____ a Professional Engineer, licensed to practice in the State of Michigan, do hereby certify that the construction of all the streets is complete and that:

1. Water main, storm sewers, sanitary sewers, and all other facilities shown on the plans have been installed in accordance with the approved plans;
2. All roads are built in accordance with the approved plans and Ingham County Road Commission standard specifications;
3. The surfacing materials and other specified construction materials meet the requirements of the Ingham County Road Commission standard specifications and that material testing and density reports are filed with the County Engineer that meet or exceed the minimum standards of the Ingham County Road Commission.

(Consulting Firm)

SEAL

By _____
(Signature of Licensed Professional Engineer)

Date: _____

(Plat, Land Division, or Condominium Name)

PROGRESS INSPECTION CHECKLIST

UTILITIES AND BACKFILL:

Date Requested _____ Date Approved _____

SUBGRADE PREPARATION:

Date Requested _____ Date Approved _____

SAND SUBBASE INSTALLATION:

Date Requested _____ Date Approved _____

AGGREGATE BASE INSTALLATION:

Date Requested _____ Date Approved _____

BITUMINOUS PAVEMENT INSTALLATION:

Base

Date Requested _____ Date Approved _____

Leveling

Date Requested _____ Date Approved _____

Top

Date Requested _____ Date Approved _____

CONCRETE PAVEMENT INSTALLATION:

Date Requested _____ Date Approved _____

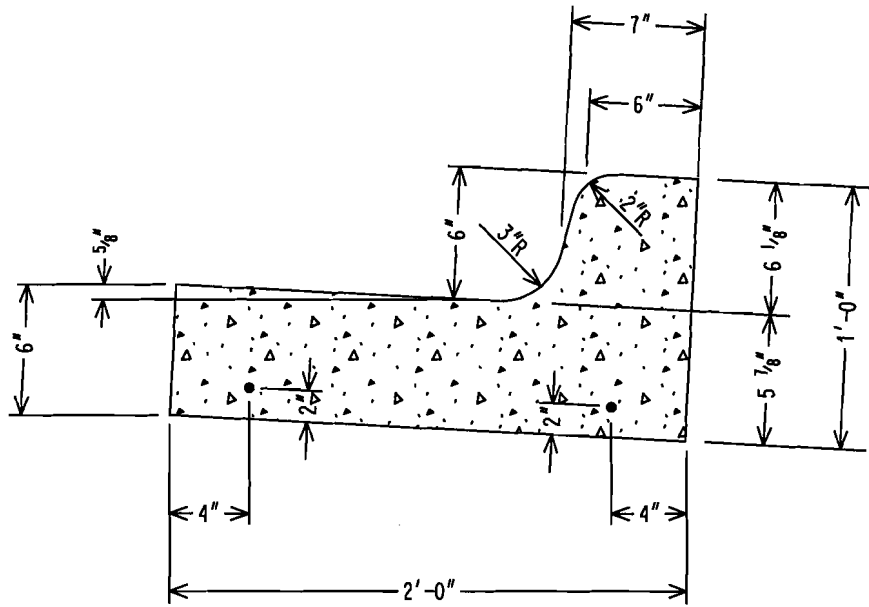
RESTORATION:

FINAL INSPECTION:

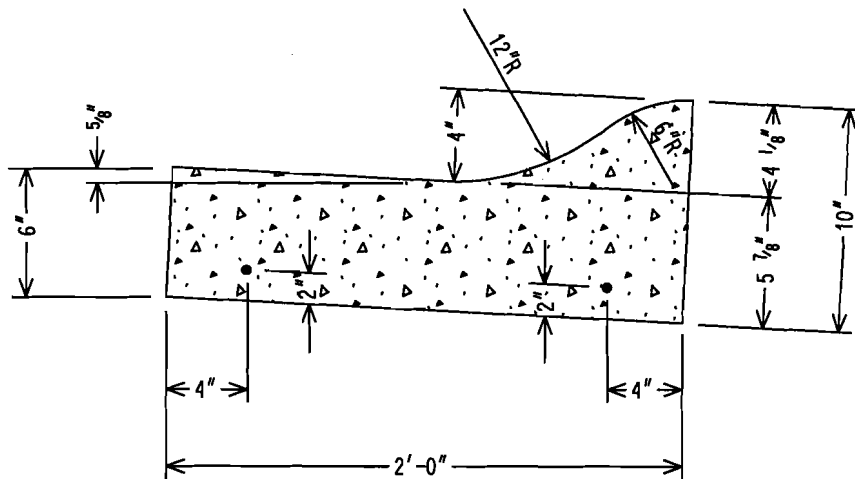
Date Requested _____ Date Approved _____

PUNCH LIST:

CONCRETE CURB & GUTTER



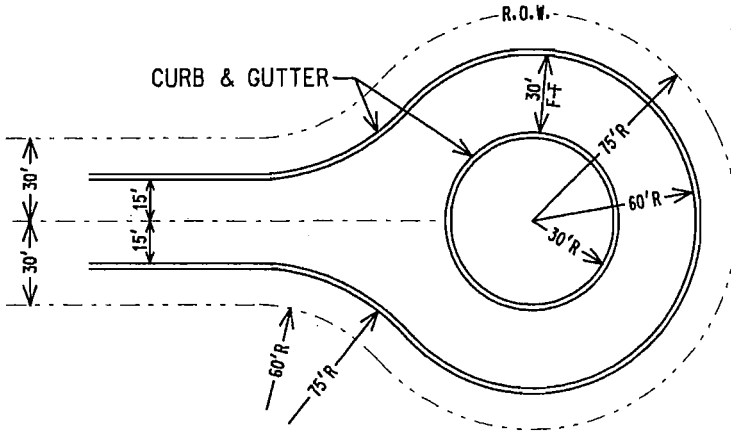
STANDARD



ROLL

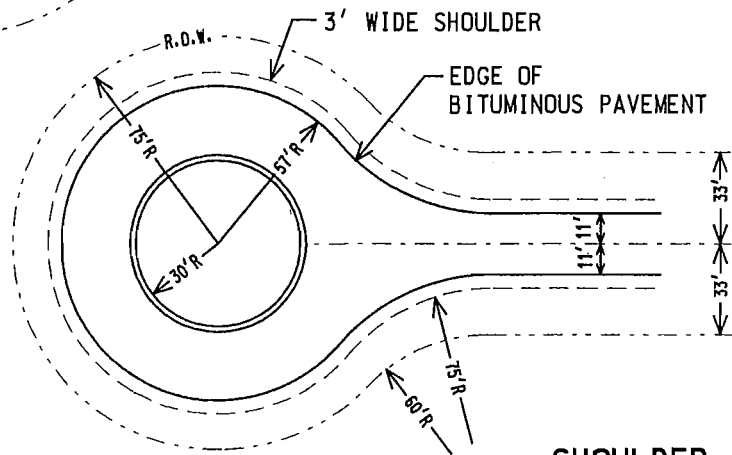
CUL-DE-SAC

ISLAND IS REQUIRED
USE F-4 CURB & GUTTER



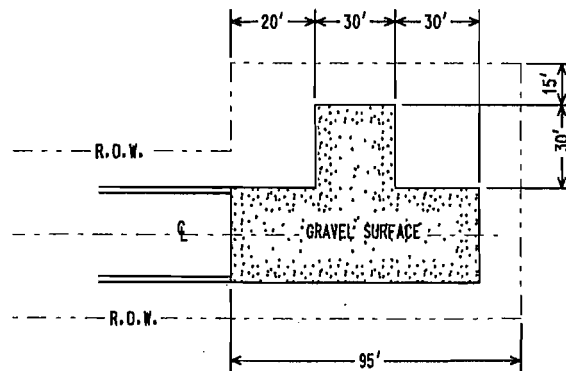
ISLAND IS REQUIRED
USE F-4 CURB & GUTTER

CURB & GUTTER

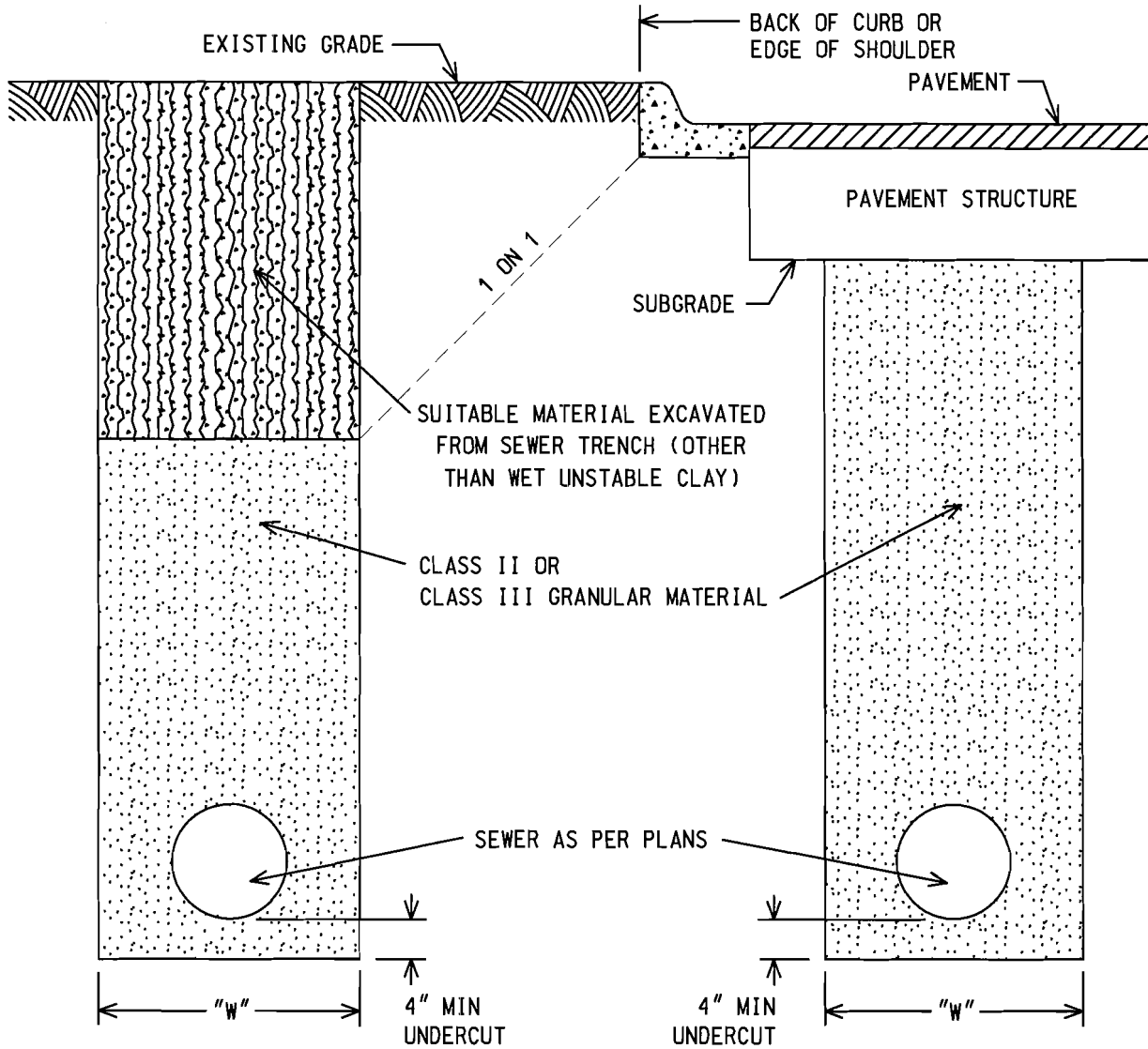


SHOULDER

TEMPORARY TURNAROUND



NOTE: BITUMINOUS SURFACE
MAY BE REQUIRED



SEWER UNDER ROADBED OR
WITHIN INFLUENCE OF ROADBED

**BOARD OF INGHAM COUNTY
ROAD COMMISSIONERS**

BOARD POLICY

EFFECTIVE DATE: Immediate POLICY #BP-267

SUPERSEDES BP# RESOLUTION #071-02

SUBJECT: Turning Private Roads to Public Roads

ADOPTED BY THE BOARD OF INGHAM COUNTY ROAD COMMISSIONERS ON MARCH 28, 2002.

WHEREAS, the Road Commission receives numerous inquiries regarding turning private roads to public roads; and

WHEREAS, in the past the Road Commission has provided free engineering services and has done all the work required to bid the job to a contractor for residents along private roads wishing to make the roads public; and

WHEREAS, this practice has become cost prohibitive to the Road Commission;

WHEREAS, the Ingham County Road Commission publishes procedures and guidelines for developing public roads within Ingham County; and

THEREFORE, BE IT RESOLVED that effective immediately, citizens requesting that their private roads become public will be required by the Road Commission to follow the same procedures and guidelines imposed upon developers when developing public roads; and

BE IT FURTHER RESOLVED that citizens who request that their private roads become public will be required to retain a qualified Professional Engineer to prepare plans and drawings and will also be required to hire their own contractor to perform the work required to bring the condition of the road to Ingham County Road Commission standards; and

BE IT FURTHER RESOLVED that citizens who request that their private roads become public will also be required to provide the Ingham County Road Commission with a Warranty Deed and certificate of survey for the road right of way to become public, in accordance with the Ingham County Road Commission's procedures and guidelines; and

BE IT FURTHER RESOLVED that the Board of Ingham County Road Commissioners will accept the private road into the county's public road system when all of the above requirements have been met.