

**PRIVATE ROAD ORDINANCE
#22
IOSCO TOWNSHIP, MICHIGAN**

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PRIVATE ROAD ORDINANCE
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2200 PURPOSE

The Township of Iosco here by ordains an ordinance to regulate the construction, maintenance and use of private roads within Iosco Township. The use thereof by traffic, the parking of vehicles thereon, and the administration and enforcement of fees to defray the administrative and enforcement costs incident thereto. Also to insure that residences and buildings within the Township of Iosco may be accessible to police, fire, and emergency services, and for other purposes, as follows:

2201 INTENT

Unobstructed, safe, and continuous access to parcels is necessary to promote and protect the public health, safety, and welfare and ensure that police, fire and emergency services can safely enter and exit private property at all times. It is the intent of this Ordinance to permit access to the interior sections of Iosco Township by private roads which permit unobstructed, safe and continuous vehicle access and to provide procedures for application and review for said private roads. It is further the intent of this Ordinance to ensure that private roads are maintained and repaired by the private property owners who own and use the road.

The procedures, standards and specifications hereinafter set forth are determined to be the minimum procedures, standards and specifications necessary to meet the intention of this ordinance.

2202 DEFINITIONS

- A) **As Built Plans**- Documentation the same as required to be submitted with original application, per this Ordinance, but that have been updated to represent the actual site as constructed, and shall be submitted to the Township within 6 months of approval of a Private Road Temporary Letter of Completion. When a Private Road Temporary Letter of Completion is not requested, As Built Plans are required with submission of the Private Road Final Letter of Completion.
- B) **Building** - An enclosed structure used or intended for use for the housing, enclosure or shelter of people, animals or vehicles.
- C) **Construction Materials Analysis & Compaction Report** - A written report provided by an independent testing company signed by their test engineer and including reports on road sub grade analysis, analysis/certification of construction material and compaction test results.

- D) **County Road Commission** - The Road Commission of Livingston County, Michigan.
- E) **Easement** - In the context of this ordinance, a Private Road Easement shall designate the right of an owner of property by reason of such ownership, to use the property of another for purposes of ingress, egress, utilities, drainage and similar uses.
- F) **Parcel** - A lot in a recorded subdivision, a unit in a site condominium or any area of land defined by a meets and bounds description or aliquot parts and identified by a specific tax identification number.
- G) **Private Road** - An area of land that is privately owned, provides vehicular ingress and egress to more than one (1) parcel and is maintained by the parcel owners who directly benefit from its use.
- H) **Private Road Application Approval** - Approval granted to applicant, by the Iosco Township Planning Commission, to begin construction per plans submitted and approved per this Ordinance.
- I) **Private Road Maintenance Agreement** - A recorded contract between deed holders of parcels serviced by the private road, for the upkeep, repair and any improvements to the said private road.
- J) **Private Road Letter of Completion** - A legal binding Iosco Township document, provided by the applicant to the Township, which attests that the private road has been completed to the Iosco Township Private Road Ordinance. The Private Road Letter of Completion may be submitted as a Private Road Temporary Letter of Completion (see definition K) or a Private Road Final Letter of Completion as outlined in this Ordinance. A copy of the Private Road Letter of Completion (see definition K) can be found on Page 22 of this Ordinance.
- K) **Private Road Temporary Letter of Completion** - A legal binding Iosco Township document, provided by the applicant to the Township, which attests that the private road has been completed in accordance with the Iosco Township Private Road Ordinance, with the exception of the final topcoat of asphalt, and signed by the applicant and the applicants licensed Professional Engineer or Professional Surveyor.
- L) **Private Road Temporary Approval** - Approval signified when the applicants "Private Road Temporary Letter of Completion" is approved by the Iosco Township Planning Commission and the Planning Commission approves the document as noted in the meeting minutes.
- M) **Private Road Final Letter of Completion** - A legal binding Iosco Township document, provided by the applicant to the Township, which attests that the private road has been completed in accordance with the Iosco Township Private Road Ordinance and is signed by the applicant and the applicants licensed Professional Engineer or Professional Surveyor.

- N) **Private Road Final Approval** - Approval signified when the applicants "Private Road Final Letter of Completion" is approved by the Iosco Township Planning Commission and the Planning Commission approves the document as noted in the meeting minutes.
- O) **Professional Engineer** - Professional Engineer licensed in the State of Michigan.
- P) **Professional Surveyor** - Professional Surveyor licensed in the State of Michigan.
- Q) **Public Street or Right of Way** - A public or dedicated right of way, which affords the principal means of vehicular access to abutting property, and which is under public ownership or control.
- R) **Spec Home** - Any home built prior to approval of the Private Road Temporary Letter of Completion or the Private Road Final Letter of Completion.
- S) **Shared Driveway** - Otherwise known as a Class 'C' Private Road within this Ordinance.
- T) **Township** - The Township of Iosco.
- U) **Township Board** - The Board of Iosco Township.
- V) **Township Planning Commission** - The commission appointed by the Township Board to review all planning matters in Iosco Township, otherwise known as the Iosco Township Planning Commission.
- W) **Township Clerk** - The Clerk of Iosco Township.
- X) **Township Engineer** - An engineer/organization or company, appointed by the Township Board to the position of Township Engineer or any other person authorized by the Township Board to perform the duties of Township Engineer as set forth in this Ordinance.
- Y) **Township Planner** - A planner/organization or company, appointed by the Township Board to the position of Township planner or any other person authorized by the Township Board to perform the duties of Township Planner as set forth in this Ordinance.
- Z) **Township Zoning Administrator** - The Zoning Administrator of Iosco Township.

2203 GENERAL INFORMATION REGARDING PRIVATE ROADS

A) Uses Regulated

New Uses:

- 1) Every parcel of land shall have frontage upon a public road or, if there is no public road available, a parcel shall front upon a private road established in accordance with this ordinance. Private roads authorized by this ordinance shall comply with all applicable Township Ordinances prior to the issuance of any land use permits. Provided, however, that nothing in this Ordinance shall prohibit the construction of a driveway servicing only one parcel.

B) Previously Existing Non-Conforming Uses:

The township recognizes that there exist private roads that were constructed according to standards that were lawful prior to the adoption of this Ordinance but which are inconsistent with the standards herein. Such roads are deemed valid previously existing non-conforming roads. Such roads may continue as they existed on the effective date of this ordinance, and may undergo routine maintenance for safety purposes without having to be upgraded to the standards set forth herein. However, any future land splits or road extensions, alterations or added roads that are; serviced from a previously existing non-conforming private road, that service an existing private road or that result in additional parcels having access to a previously existing non-conforming road, shall result in the required upgrading of the previously existing non-conforming road to the standards herein prior to issuance of any Land Use Permits for the additional parcels, unless an exception or variance is granted by the Township Board.

The specific amount and extent of upgrading that could be required under the consideration of a variance request will be determined on a case by case basis, with consideration being given to the particular circumstances of the road, including but not limited to the following:

- a) Location of parcels requesting variance on existing private road system.
- b) Existing private road condition and maintenance history.
- c) Traffic increase that will impact existing private road system.
- d) Potential future build out that would utilize the existing private road system.
- e) Potential for future private road extension requests.

This section in no way usurps the Township's authority to require that all private roads which have been approved prior to the adoption date of this Ordinance shall comply with the provisions of this Ordinance if the Township Board, by resolution, determines that such compliance is necessary to protect and promote the public health, safety and welfare in accordance with the purposes set forth in Section 2201, herein.

C) Variances

Variances from the requirements of the standards herein may be made by the Township Board for reasons of practical difficulty or unnecessary hardship affecting the applicant so that strict application of the standards herein would clearly be impractical or unreasonable. The Township Board shall have the power to vary or modify the application of this Ordinance, so long as the intent and purpose of the Ordinance is maintained and public safety secured. Any applicant may apply for a variance from the provisions of this Ordinance by requesting a variance from the Township Board.

The Township Board may attach reasonable conditions in granting a variance from any provision of this Ordinance, and the breach of any conditions attached to granting of the variance shall void the variance.

D) Fees

Iosco Township shall by resolution adopt a schedule of review fees. All applications for the construction of private roads shall be accompanied by full payment of all applicable fees. In cases where the road is part of a development requiring Site Plan Review per Iosco Township Zoning Ordinance's, the fees shall be included with the specific site plan review application. The fees shall be imposed to cover Township administrative costs as well as engineering review, field inspection, planning review, legal and other professional services.

The Township shall establish an escrow account with the Private Road application fee, to cover ongoing costs that the Township may incur through the Final Approval of the Private Road Certification. Should the escrow account be depleted prior to the Final Approval of the Private Road Certification, the applicant shall be required to submit funds to the Township Clerk equivalent to the then existing Private Road Application fee. The balance of the escrow account shall be refunded to the applicant upon Final Approval of the Private Road Certification.

All fees other than those held in escrow per this Ordinance, are non-refundable.

E) Inspection

1) Responsibility

The Applicant is responsible for the submission of all inspection documentation to the Township Zoning Administrator as well as the costs associated with all inspections. When a Township Engineer is authorized, the cost of inspections will be taken from the escrow account as established per this Ordinance.

2) In Process Inspections

The Township Engineer or applicant's Engineer/Professional Surveyor, if designated by the Township, shall inspect all required improvements at various stages of construction as

outlined in the Private Road Letter of Completion. The Township or applicant's Engineer/Professional Surveyor, as previously determined, shall certify to the Iosco Township Zoning Administrator that the required improvements were made in accordance with this Ordinance and all approved plans at completion of each step identified in the Private Road Letter of Completion.

3) Final Inspection

The Applicant shall submit the completed Private Road Final Letter of Completion, signed by the Applicant and the Applicants Engineer/Professional Surveyor, to the Iosco Township Zoning Administrator. Final approval is signified when the applicants "Private Road Final Letter of Completion" is approved by the Iosco Township Planning Commission and the Planning Commission approves the document as noted in the meeting minutes.

F) Issuance of Land Use Permits

No land use permits shall be issued for improvements to any property abutting a private road until such time as the private road has been constructed, Recorded documents provided to the Township Zoning Administrator, a Private Road Final Letter of Completion or a Private Road Temporary Letter of Completion submitted to the Township Zoning Administrator and approved by the Township Planning Commission, other than as may be allowed under the following special conditions:

1) Spec Home Allowance

In the case of development sites with more than two parcels on a private road, a developer may build a maximum of two spec homes simultaneously with the construction of the private road, pursuant to the developer depositing with the Township Zoning Administrator a sum of money, bank letter of credit, certified check, or performance bond in an amount established by the Township Planning Commission, sufficient to guarantee completion of the remaining required private road improvements

2) Finish Course Considerations

A Private Road Temporary Letter of Completion, approved by the Iosco Township Planning Commission, will authorize the un-restricted issuance of building permits by the Township Zoning Administrator so long as all requirements of this ordinance are met, with the exception that the finish course of asphalt for Class 'A' roads need not be applied for a period of up to eighteen (18) months after the date of approval of the "Private Road Temporary Letter of Completion".

G) Recording of Easements

All easements, including all agreements as identified in Section 2205 and 2206 of this Ordinance, shall be recorded in the office of the Register of Deeds for Livingston County. Copies must be provided to the Iosco Township Zoning Administrator prior to the Iosco Township Planning Commission approving a "Private Road Temporary Letter of Completion" or a "Private Road Final Letter of Completion".

H) Failure to Perform

Failure by the applicant to begin construction of the private road according to approved plans on file with the Township within one (1) year from the date of the Private Road Plan Approval shall void the approval and a new application with fees shall be required by the Township, subject to any changes made herein, and subject to any changes made by the Township in its standards or specifications for road construction and development. For Class 'A' roads, the private road shall be completed, to the point where the finish top coat of asphalt is all that remains to be completed within one and eighteen (18) months of the date of the Private Road Plan Approval.

I) Performance Guarantee's

As a condition to the granting of any permits under this Ordinance, the Township Planning Commission shall require that the applicant deposit with the Township Zoning Administrator a sum of money, bank letter of credit, certified check or performance bond in an amount, established by the Township Planning Commission, sufficient to guarantee that the applicant shall perform the terms and conditions of the permit, including the payment of required fees.

The Township may, upon request, reduce the amount of the Performance Guarantee as the project progresses, in proportion to the work completed. All such requests shall be made in writing to the Township Planning Commission along appropriate documentation of proof of completion.

J) Violations

Any person who violates any provision of this Ordinance shall be guilty of a misdemeanor and shall be subject to a fine not exceeding FIVE HUNDRED (\$500.00) DOLLARS or by imprisonment. Any violation of the terms of this Ordinance shall be and the same is hereby declared to be a nuisance per se, and such use may be abated, restrained, enjoined, and prohibited, upon the commencement of an appropriate action in the Circuit Court.

K) Severability

This Ordinance and the various parts, sections and clauses thereof are hereby declared to be severable. If any part, sentence, paragraph, section or clause is adjudged unconstitutional or invalid, it is hereby provided the remainder of the Ordinance shall not be affected thereby.

2204 PRIVATE ROAD CLASSIFICATIONS

A) CLASS 'A' Private Roads shall be paved and meet one or more of the following criteria:

- 1) Serves ten (10) or more single family residential lots, or has a reasonably foreseeable potential to be extended in the future to serve a total of ten (10) or more single family residential lots. The potential shall be based upon the amount of acreage serviced and the potential building parcels.

- 2) Connects with more than one, or has a reasonably foreseeable potential to be extended at a future time to connect with more than one public or private road.
 - 3) Connects with an existing paved public or private road.
 - 4) Has a reasonable probability as dedication to a public road at a future time.
 - 5) Serves one or more non-residential uses, not including farm uses and farm buildings.
- B) CLASS 'B' Private Roads do not have to be paved and are defined by the following criteria:**
- 1) Serves five (5) to nine (9) Parcels.
 - 2) Does not meet any of the criteria for a CLASS 'A' road defined above, but which does exceed the criteria for CLASS 'C' roads as defined below.
- C) CLASS 'C' Private Roads (Shared Driveways) do not have to be paved, do not require a land use permit, must meet the requirements per Sections 2205 and 2206, and are defined by the following criteria:**
- 1) Serves two (2) to four (4) single family residential lots or parcels.
 - 2) Does not have access to a Class 'A' or Class 'B' Private Road (only allowed for direct access onto public roads).

Class 'C' private roads do not meet county or state road standards, and are considered by Iosco Township to be a shared driveway. As such, it is not permitted to post street signs or seek addresses for parcels on a Class 'C' private road other than with reference to the public road that the Class 'C' private road accesses.

2205 ROAD MAINTENANCE AGREEMENT

All private road applicants shall be required to provide a copy of the Iosco Township Private Road Maintenance Agreement (See Appendix for copy), signed by applicant/owner(s) and recorded with the Livingston County Register of Deeds, to the Township Zoning Administrator prior to approval of a "Private Road Final Letter of Completion", approval of a Private Road Temporary Letter of Completion", or the issuance of any land use or building permits, including permits that may be issued under the Spec Home Allowance in Section 2203 (F).

2206 BY-LAWS

All private road applications require By-Laws as part of the approval process. All By-Laws must be approved by the Township, signed by the applicant/owner(s) and recorded with the Livingston County Register of Deeds. The By-Laws shall be recorded against all parcels/properties that will have deeded access to use of the applied for private road. For private roads that are contained within an application for PUD/PRD or other permit process that does not require a separate private road application, the following By-Law requirements shall be included as part of the By-Laws as drafted under the applicable Ordinance.

In addition to the following By-Law requirements, all By-Laws must be in accordance with the requirements contained within the Iosco Township Road Maintenance Agreement. If a conflict should arise, the Road Maintenance Agreement requirements shall prevail for the resolution of the specific conflict. All By-Laws must include, but are not restricted to, the following items:

- A) A statement that clearly indicates that all Owners of land or parcels that will have deeded access to use of the private road shall abide by the terms of the By-Laws and the Road Maintenance Agreement.
- B) A procedure for the establishment of a Private Road Association to implement the By-Laws, including when responsibility for the Association would transfer from the applicant/owner(s) to any individual land owners that have access to the Private Road.
- C) Association officer job descriptions for, at minimum, a President, Secretary and Treasurer.
- D) A procedure for Association officer election, also to include length of term, compensation if any and a removal from office process.
- E) A specific method of initiating and financing of such road in order to keep the road up to Township specifications and free of snow and debris.
- F) A specific method of apportioning and collecting the costs of maintenance and improvements among current and future lots or parcels that will have deeded access to use of the private road.
- G) A statement that if repairs and maintenance are not made, the Township Board may bring the road up to established Iosco Township Specifications per this Ordinance through the implementation of a Special Assessment District, as outlined in the Township Road Maintenance Agreement.
- H) A statement that no public funds of the Township of Iosco are to be used to build, repair, or maintain the private road other than as may be allowed per the required Road Maintenance Agreement (Appendix A).

- I) A declaration of covenant and restriction against each parcel of land defining how costs for road upgrades will be apportioned and collected when, if ever, the number of parcels accessing the road exceeds the Private Road Application limits as defined in Section 2204 .
- J) An acknowledgement that in addition to any requirements within the required Road Maintenance Agreement, it is the collective responsibility of the property owners benefiting from the private road to maintain the following: surface grading and resurfacing at regular intervals; snow and ice removal; repair of potholes; maintenance of road drainage systems; cleaning of retention and detention ponds; regular cutting of weeds and grass within the easement; and replacement or reconstruction of the roadway and all related improvements, such as but not limited to road base, road surface, culverts, bridges, catch basins, drains, and traffic signs.

2207 PRIVATE ROAD SPECIFICATIONS

	CLASS'A' (10 or more homes)	CLASS'B' (5 to 9 homes)	CLASS'C' (2 to 4 homes)
Right of Way	Minimum of 66 feet, with a 20 feet minimum radius at roadway intersections	Minimum of 66 feet, with a 20 feet minimum radius at roadway intersections	Minimum of 66 feet, with a 20 feet minimum radius at roadway intersections. Also see Section 2206 (H)
Average Daily Traffic Volumes	10 vehicles per single family detached or attached dwelling	10 vehicles per single family detached or attached dwelling	Not Applicable
Design Speed	30 mph maximum	30 mph maximum	Not Applicable
Stopping Sight Distance	200 feet minimum with 30 mph design speed.	200 feet minimum with 30 mph design speed.	Not Applicable
Sight Distance	300 feet minimum on internal road intersections.	300 feet minimum on internal road intersections.	Not Applicable
Road Approach Design Requirements	Per Livingston County Road Commission specifications for "Paved Private Road Approach on Gravel County Road", "Paved Road Approach on Paved County Road", or "Divided Paved Road Approach on Paved County Road" as defined in Appendix D. In addition, roads that support 16 or more parcels and exit onto a	Per Livingston County Road Commission specifications for "Gravel Private Road Approach on Gravel County Road" or "Paved Road Approach on Gravel County Road", as defined in Appendix D. Standards listed apply as minimum requirements to roads exiting onto gravel or paved county or private roads unless	Per Livingston County Road Commission specifications for "Gravel Private Road Approach on Gravel County Road", as defined in Appendix D. Standards listed apply as minimum requirements to Shared Driveways exiting onto gravel or paved county or private roads unless otherwise allowed for in writing by the

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	paved county road shall be required to use the "Divided Road Approach on Paved County Road", also found in Appendix D. Standards listed apply as minimum requirements to roads exiting onto gravel or paved county or private roads unless otherwise allowed for in writing by the Livingston County Road Commission and by variance of the Iosco Township Board.	otherwise allowed for in writing by the Livingston County Road Commission and by variance of the Iosco Township Board	Livingston County Road Commission and by variance of the Iosco Township Board
Vertical Alignment	0.5% minimum. 7.0% maximum. 2.0% within 50 feet of all intersections. Vertical curve on all grade changes of 40 times the percent change in grade or 100 feet, which ever is larger.	0.5% minimum. 7.0% maximum. 2.0% within 50 feet of all intersections. Vertical curve on all grade changes of 40 times the percent change in grade or 100 feet, which ever is larger.	0.5% minimum 7.0% maximum 2.0% within 50 feet of all intersections
Horizontal Alignment	200 feet minimum curve radius with 30 mph design speed. 100 feet minimum curve radius with 20 mph design speed.	200 feet minimum curve radius with 30 mph design speed. 100 feet minimum curve radius with 20 mph design speed.	Not Applicable
Road Pavement / Surface Width	20 feet minimum	22 feet minimum	12 feet minimum
Shoulder Width	3 feet minimum	2 feet minimum	Not Applicable
Curb and Gutter (Optional for Class 'A' roads)	23 feet minimum from back of curb to back of curb. 18" wide concrete curb and gutter minimum.	Not Applicable	Not Applicable

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	CLASS'A' (10 or more homes)	CLASS'B' (5 to 9 homes)	CLASS'C' (2 to 4 homes)
Slopes & Ditches	Back slopes of 3 on 1 maximum. Road side slopes of 4 on 1. Minimum depth of 24 inches. Minimum bottom width of 24 inches, rounded.	Back slopes of 3 on 1 maximum. Road side slopes of 4 on 1. Minimum depth of 24 inches. Minimum bottom width of 24 inches, rounded.	See Drainage and Culverts below.
Drainage & Culverts	Drainage must be such that extra water flow is not diverted to neighboring properties. Culvert and storm sewer pipes must comply with Livingston County Drain Commission Standards. End Sections must be provided at culvert ends. Provide minimum of 1 foot of coverage over pipe at road crossings.	Drainage must be such that extra water flow is not diverted to neighboring properties. Culvert and storm sewer pipes must comply with Livingston County Drain Commission Standards. End Sections must be provided at culvert ends. Provide minimum of 1 foot of coverage over pipe at road crossings.	Drainage must be such that extra water flow is not diverted to neighboring properties. Natural drainage flow must not be impacted. Culvert and storm sewer pipes must comply with Livingston County Drain Commission Standards.
Cul-de-Sacs	Required on all dead end roads. 75 feet radius minimum right of way. All parcels must have 66 feet minimum lot width at the intersection of right of way. Parcels are not required to meet 4.2:1 depth ratio.	Required on all dead end roads. 75 feet radius minimum right of way. All parcels must have 66 feet minimum lot width at the intersection of right of way. Parcels are not required to meet 4.2:1 depth ratio.	Not Applicable
Intersection Offsets	Intersections shall be directly aligned with other roads, or offset 250 feet minimum from a public road and 125 feet minimum from a private road (measured from centerline to centerline).	Intersections shall be directly aligned with other roads, or offset 250 feet minimum from a public road and 125 feet minimum from a private road (measured from centerline to centerline).	Not Applicable

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	CLASS'A' (10 or more homes)	CLASS'B' (5 to 9 homes)	CLASS'C' (2 to 4 homes)
Sub-base	6 inches of Class 2 sand compacted to 95%.May include on site material if analysis indicates specifications will be met. Base width should extend to the front slope of ditch. Not required if using 9" of limestone for "Base for Paved Roads.	6 inches of Class 2 sand compacted to 95%. May include on site material if analysis indicates specifications will be met. Base width should extend to the front slope of ditch.	6 inches of compacted Class 2 sand. May include on site material if analysis indicates specifications will be met. Base width should extend to the front slope of ditch, but no less than 14 feet in width.
Base/Road Surface for Gravel Road	Not Applicable	7 inches of 23A processed road gravel in two equal courses, each compacted to 95% and 26 feet wide.	Same as Class 'B' except 12 feet wide.
Base for Paved Road	9" inches of crushed limestone or 7 inches of 22A processed road gravel in two equal courses, each compacted to 98% and 26 feet wide.	Not Applicable	Only required for optional paving. Same as Class 'A' except 14 feet wide.
Pavement/Road Surface	3 inch bituminous aggregate, #1100 mix, 20 feet wide minimum. Applied in two 1.5 inch lifts.	Not Applicable	Only required for optional paving. Same as Class 'A' except 10 feet wide.
Horizontal Clearance to Obstructions	All trees and other objects must be removed from the roadway to the back of all ditch slopes.	All trees and other objects must be removed from the roadway to the back of all ditch slopes.	All trees and other objects must be removed from the roadway to the back of all ditch slopes.

	CLASS'A' (10 or more homes)	CLASS'B' (5 to 9 homes)	CLASS'C' (2 to 4 homes)
Erosion control & restoration	All areas disturbed by construction must be top soiled, seeded and mulched. Steep slopes may require sod or riprap. Temporary erosion controls must be utilized. LCDC soil erosion standards shall be adhered to.	All areas disturbed by construction must be top soiled, seeded and mulched. Steep slopes may require sod or riprap. Temporary erosion controls must be utilized. LCDC soil erosion standards shall be adhered to.	All areas disturbed by construction must be top soiled, seeded and mulched. Steep slopes may require sod or riprap.
Traffic Control Devices	Stop signs and street signs must be located at all intersections and comply with the MMUTCD.	Stop signs and street signs must be located at all intersections and comply with the MMUTCD.	Not Applicable
Dry Hydrants	Provisions shall be made to provide a dry hydrant(s) where ever possible, upon review with Township and the Fowlerville Fire Department, per FFD standards or Appendix E.	Provisions shall be made to provide a dry hydrant(s) where ever possible, upon review with Township and the Fowlerville Fire Department, per FFD standards or Appendix E.	Not Applicable

In addition to the above specifications, all private roads shall meet the following minimum requirements:

- A) The roadway surface, cul-de-sac areas, shoulders and ditches must be located within the right-of-way.
- B) The connection between the private road and the public road shall conform to the standards and specifications of the County Road Commission. Where a Class B road connects to a paved public road, the Class B road shall have a paved approach. The applicant shall obtain a road permit issued by the Road Commission prior to approval by the Township Planning Commission.
- C) Underground crossroad drainage shall be provided where the proposed road crosses a stream or other drainage course. Necessary culverts and erosion treatments shall be provided in accordance with the specifications of the Livingston County Road Commission and/or Livingston County Drain Commissioner.

- D) The private road easement and constructed road shall be adequately drained so as to prevent flooding or erosion of the roadway and surrounding properties. Ditches shall be located within the private road easement. Road drainage shall be constructed so that the runoff water shall be conveyed to existing watercourses or water bodies. The discharged water shall not be discharged upon the land of another property owner unless the water is following an established watercourse. The discharged water onto adjoining properties shall also not exceed the normal agricultural runoff rate. Connection to county drains shall be approved by the Livingston County Drain Commissioner prior to the issuance of a permit. Connection to roadside ditches within public road rights-of-way shall be approved by the County Road Commission prior to the issuance of a permit.
- E) The road easement shall provide for ingress, egress, drainage, and installation and maintenance of public/private utilities.
- F) All Class 'A' and 'B' private roads shall be designated as such and shall be clearly posted with a clearly readable name that can be easily seen in an emergency. The sign shall be paid for and posted by the developer, and thereafter maintained by the property owner's Private Road Maintenance Agreement. Private road signs shall be designated with the word "private" and shall be erected and maintained in accordance with the Michigan Manual of Uniform Traffic Control Devices.
- G) The private road shall be subject to all other Township, County and State permits and regulations.
- H) In cases where it is known that at most, two (2) parcels will ever share a common private road, an exception may be made to the width of the easement to use not less than 33 feet instead of the standard 66 foot width. It should be understood that under no circumstances will additional parcels be allowed to have access to the 33 feet wide easement in the future. If future land divisions are expected, or are possible, then the use of the standard 66 foot easement is recommended. Applicants wishing to use this option, shall submit a signed and Recorded document attesting to their understanding and agreement to Section 2206 H, to the Township Zoning Administrator, prior to being issued a Land Use Permit.

2208 PRIVATE ROAD PREAPPLICATION PROCEDURE (OPTIONAL)

A) Intent

The following pre-application procedure is at the option of the applicant. It is offered so that an applicant might ensure that he/she understands the requirements of this ordinance thoroughly. There are no fees for this service. Participation in a pre-application review may prevent delays in the permit process outlined in Section 2208, that may be caused by incomplete information or misunderstandings of the Ordinance.

B) Procedure

To request a Pre-application review, the applicant should contact the Zoning Administrator at least 14 days prior to the next regularly scheduled Planning Commission meeting. The applicant must, at the time of requesting a Pre-application review, submit 8 copies of a sketch of the proposed land divisions and private road, at a minimum scale of one (1) inch equals one hundred (100) feet, including the following information:

- 1) Parcel identification number of the parent parcel.
- 2) Proposed lines of divisions.
- 3) GIS colored aerial photo, at least 15 inch x 15 inch in size, of the parent parcel and all parcels with boundaries located within 500 feet of the parent parcel. Aerial photos shall also include tax identification number overlays.
- 4) Names of adjacent property owners with boundaries located within 500 feet of the parent parcel.
- 5) Identification of significant natural features such as water courses, bodies of water, stands of trees and highly sloped areas.
- 6) Proposed location of private road.

To be placed on the agenda for a pre-application review, the Zoning Administrator must contact the Planning Commission Chair at least seven (7) days prior to the next regularly scheduled meeting of the Planning Commission.

After the pre-application review, the Planning Commission may seek Township consultants' input on the proposed Private Road.

2209 PRIVATE ROAD APPLICATION PROCEDURE

Application for private road construction shall be at least fourteen (14) days prior to the regularly scheduled Planning Commission meeting date for which the applicant requests consideration. All roads shall be designated as Class A, B or C per outlined in Section 2204 of this Ordinance. The applicant for Class A and Class B roads, shall provide eight (8) sets of completed site plans complying with Sections 2206, 2207 & 2208 of this Ordinance as well as Iosco Township Zoning Articles 9 (Planned Residential Development PRD) and Sections 2002 and 2003 of Article 20 (Site Plan Review), where appropriate. Applications for Land Use Permits for the construction of a Private Road shall be delivered to the Township Zoning Administrator, who will in turn provide a copy, along with funds submitted, to the Township Clerk.

Application Content Requirements:

- A) **Class A or B Private Road** - Each application for a Class A or B private road shall be accompanied by completed plans prepared, signed and sealed by a Professional Engineer or Professional Land Surveyor licensed by the State of Michigan. Where the required information is incorporated in the overall site plan of a development, separate road plans shall not be required.
- 1) The names and addresses of the existing parent parcel(s)/tract(s) owners to be served by the private road, including parcel ID's.
 - 2) GIS colored aerial photo, at least 15 inch x 15 inch in size, of the parent parcel and all parcels with boundaries located within 500 feet of the parent parcel along with the names of the all property owners. Aerial photos shall also include tax identification number overlays.
 - 3) A vicinity map of a minimum scale of one inch equals two thousand feet (1" = 2,000'), showing the location of the private road in the Township, any access roads and cross streets, road names, a scale and a north arrow.
 - 4) Existing topography at two (2) foot contour intervals for the portions of the site sufficient to determine drainage to the Private Road Easement and from the private road easement to a suitable storm water outlet along with the identification of significant natural features such as water courses, bodies of water, stands of trees and highly sloped areas.
 - 5) Proposed improvements (including but not limited to, roads, sewers and ditches) shown in plan and profile indicating all materials, grades, dimensions and bearings in compliance with the standards set forth in this Article and Articles 9 and 20 of the Iosco Township zoning ordinance where applicable. The plans shall also show all existing and proposed grades, the location of all existing and proposed drainage facilities, the location of existing and/or proposed utilities and structures, other structures, physical or natural conditions existing adjacent to such improvements, and any connections to existing public and private roads.
 - 6) Existing vegetation and wetland areas within one hundred (100) feet of either side of the proposed route.
 - 7) The location of existing buildings on the parcels being served or intended to be served by the private road.
 - 8) The existing or proposed location of private utilities and easements, such as gas, telephone, cable TV and electric.
 - 9) A copy of the completed road maintenance agreement per Section 2205 of this Article.

- 10) Road entrance design approved by the Livingston County road commission.
- 11) Storm water drainage and soil erosion plan as will be presented to the Livingston County Drain Commissioner.
- 12) Permit from the Michigan Department of Environmental Quality if any construction that will be within a regulated wetland.
- 13) Ground water level study identifying appropriate location(s) for Dry Hydrant(s).

B) Class C Private Road - Each application for a Class C private road shall be accompanied by completed plans which include the information contained herein. Where the required information is incorporated in the overall site plan of a development, separate road plans shall not be required. All information shall be filed with the Township Zoning Administrator pursuant to the issue of any land use permit.

- 1) The names and addresses of the lot or parcel owners to be served by the private road.
- 2) The location of existing buildings with existing and proposed grades in sufficient detail to depict drainage patterns. Existing storm drains, ditches, and swales crossing the road easement or adjacent to the easement shall be shown on the sketch plan.
- 3) The relationship of the proposed road to an existing public roadway right-of-way which will serve as access for the private road.
- 4) The location of the proposed road within the easement together with proposed drainage and grading.
- 5) The proposed roadway materials, thickness, width per Ordinance, and type of underlying soil.
- 6) A copy of the completed road maintenance agreement per Section 2205 of this Article.

2210 APPLICATION APPROVAL PROCEDURE (Applies to Class A and Class B Roads Only)

A) Submission of Application:

Upon receipt of an application and applicable fees, the Zoning Administrator shall review for completeness. If the application is not complete, the Zoning Administrator shall return the application to the Applicant for correction. Upon receipt of a complete application, the Zoning Administrator shall forward the complete application to the Planning Commission at least fourteen (14) days prior to the regularly scheduled Planning Commission meeting date for

addition to the agenda and all fees shall be forwarded to the Township Clerk.

B) Review of Application:

The Planning Commission Chairman shall bring the application before the Township Planning Commission at its next regular meeting. The Planning Commission shall review the package and take comment from the Applicant and/or the Applicants representative. The Planning Commission may elect to refer the plans to the Township Engineer or Planner or any other appropriate body for review and comment.,

The Township Engineer, Planner and/or other consultants shall report in writing to the Township Planning Commission as to whether or not the proposed private road conforms to the standards and specifications of this Ordinance. Said report may include any suggested conditions to be attached to the Permit which are necessary to achieve the intent of this Ordinance.

C) Conditions of Application Approval:

The Township Planning Commission shall consider the application, all Township consultant reports and all other relevant information in determining whether to grant the Permit application. If the information submitted by the applicant does not establish that the proposed private road will conform to the standards and specifications of this Ordinance, the Township shall not grant Approval of the Permit. The Township Planning Commission shall impose such conditions on the approval of the Permit as it deems necessary to achieve the intent and objectives of this Ordinance, which may include, but need not be limited to, conditions suggested by the Township Engineer, Township Planner or other Township consultant. The breach of any such condition proposed by the Township shall automatically invalidate the Permit.

D) Granting Approval of Application and Issuance of Land Use Permit:

Based upon the review process outlined within this Ordinance, the Planning Commission shall either reject the application or grant approval. Approval will be signified as such by publication in the Planning Commission meeting minutes.

Only the Township Planning Commission shall have the authority to approve or deny applications for permits. No other permit issued by any Township official or other governmental body or official shall be a substitute for a Permit issued by authorization of the Iosco Township Planning Commission.

E) Upon receipt of the required deposit and predetermined fees and approval of the applicant by the Township Planning Commission, the Township Zoning Administrator shall issue the Permit pursuant to the terms, established by the Township Planning Commission, during the approval process, in addition to the following conditions:

- 1) As a condition to the granting of any permits under this Ordinance, the Township Planning Commission shall require that the applicant deposit with the Township Clerk a sum of money, bank letter of credit, certified check, or performance bond in an amount established by the Township Planning Commission, sufficient to guarantee that the applicant shall perform the terms and conditions of the permit, including the payment of required fees. Upon completion of all improvements required by this ordinance, any unused portion of the deposit shall be refunded to the applicant.
- 2) As a condition to the granting of any permits under this Ordinance, the Township Planning Commission shall require that the applicant file a copy of the "Construction Materials Analysis & Compaction Report" and a copy of the Storm Water Drainage Report per the Livingston County Drain Commission guidelines.
- 3) As a condition to the granting of any permits under this Ordinance, the Applicant agrees to provide As Built plans including all calculations required per this Ordinance, including As Built drainage plans approved by the Livingston County Drain Commissioner within six months of receiving approval of a Private Road Temporary Letter of Approval. In the case when a temporary approval is not applicable, As Built Plans are required with submission of the Private Road Final Letter of Completion. Failure to submit As Built Plans will result in discontinuation of issuing further land use permits regarding parcels that have access to said private road, until As Built Plans are submitted, reviewed and approved by the Township Planning Commission per the review process outlined in Section 2209.

F) Variances:

The Iosco Township Board retains authority to grant variances to this Ordinance upon formal request of Applicant.

Requests for variance shall be submitted to the Iosco Township Clerk no less than fourteen (14) days prior to the next regularly scheduled Township Board meeting in order to be included on that meetings agenda.

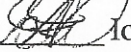
All decisions regarding variances are made on an individual bases and do not indicate a precedence of the Township.

All decisions regarding variances are final.

Iosco Township
Private Road Ordinance #22
Draft June 15, 2006

IOSCO TOWNSHIP BOARD

This ordinance is hereby declared adopted by the Township Board of the Township of Iosco at the meeting thereof held on the 15th day of JUNE, 2006, and ordered to be given publication in accordance with the statutes made and provided. This ordinance shall take effect and shall be in force the day after publication of this ordinance.

I, Daniel A. Delmerico  Iosco Township Clerk, hereby certify as follows:

The above ordinance was passed by the Iosco Township Board of Trustees on the 15th day of JUNE, 2006. The names of the members voting thereon and how each member voted was as follows:

Yeas: 5

Nays: 0

Absent: 0

IOSCO TOWNSHIP
PRIVATE ROAD
REPAIR AND MAINTENANCE AGREEMENT

This Agreement made this _____ day of _____, _____, by and between Iosco Township (the "Township"), a Michigan municipal corporation, whose address is 2050 Bradley Road, P.O. Box, Fowlerville, Michigan 48836, and _____ (the "Owner"), whose address is _____.

WHEREAS, the Owner is the owner of land located in Iosco Township, Livingston County, described in the attached Exhibit "A", and

WHEREAS, the Owner is seeking approval for a private road (the "Road"), as described in Exhibit "B"; it being a part of a land division application sought by Owner (the "Development"), and

WHEREAS, the Township requires assurances that the Road will be properly constructed, repaired and maintained at all times and without cost to the Township; and

WHEREAS, the Owner desires to provide assurances to the Township that the Road will be properly constructed, repaired and maintained; and

WHEREAS, the Owner desires to receive approval for the construction plans of the Road from the Township, and

WHEREAS, the parcels of land within the Development will benefit from the Road being properly constructed, repaired and maintained;

NOW, THEREFORE, in consideration of the mutual promises contained herein, the parties agree as follows:

(1) All parcels within the Development shall be responsible for the construction, repair and maintenance of the Road and to collect fees necessary for such construction, repair and maintenance.

(2) The Owner dedicates and conveys to the Township and to the owner of each parcel within the Development a right and easement to use the land for the Road, and the Owner hereby covenants for itself, its successors, heirs and assigns, to the owner of each parcel within the Development, the continued right to use the land for the Road of this Development.

(3) The Owner and the subsequent owners of each parcel within the Development shall be responsible for the construction, repair and maintenance of the Road, at no cost to the Township or to Livingston County.

IOSCO TOWNSHIP, PRIVATE ROAD ORDINANCE #22 – APPENDIX A

(4) Owner and the subsequent owners of each parcel within the Development shall enforce the responsibilities of the Owner hereunder.

(5) The Road shall not be altered by the Owner, or any subsequent owners of the parcels within the Development, in any way, without the approval and consent of the Township or any other appropriate governmental agencies having jurisdiction over any portion thereof.

(6) Easements for the construction, repair and maintenance of the Road are acknowledged and reserved as described on attached Exhibit "B". The maintenance of all easement areas shall be the responsibility of parcel owners of each parcel described in Exhibit "A".

(7) The cost of construction, repair and maintenance of the Roads, and any related easements, shall be borne by each parcel owner within the Development, as if a special assessment district were created, and such cost shall be collected and paid by the Owner, or any subsequent owners of each parcel. The cost of constructing, repairing and maintaining the Road shall be prorated among the parcel owners within the Development using the Road for ingress and egress. A simple majority of the parcel owners shall determine the type of maintenance needed for the Road and each parcel owner shall pay their proportionate share (based on the number of parcels using the Road for ingress and egress) of the cost of all maintenance and/or improvements within seven (7) days after receipt of billing for the cost. If the event any parcel owner does not pay their appropriate share, a lien may be placed on their parcel for the cost due and interest shall accrue at the maximum allowable interest rate within the State of Michigan.

(8) The Road shall remain free of all debris and snow removal shall be done at any time the accumulation of snow meets or exceeds three (3) inches.

(9) The Road shall be periodically graded to remain passable for normal ingress and egress and remain free of any ruts. Re-graveling of the Road shall be done periodically as needed to maintain the Road.

(10) In the event the Township determines that the Road is not being properly constructed, repaired or maintained, the Township shall serve written notice upon the Owner (or any subsequent owners of the parcels within the Development, setting forth the manner in which they have failed to construct, repair or maintain the Road in reasonable condition and order. The notice shall include a demand that deficiencies in the construction, repair or maintenance be cured within fifteen (15) days. If the deficiencies set forth in the notice are not cured within said fifteen (15) day period, the Township may enter upon the described property and the easements to construct, repair or maintain same, and assess the cost of such maintenance, including any related administrative expense and attorney fees, to the owners of parcels within the Development. The Township may add to the actual cost to construct, repair and maintenance a sum of twenty-five (25%) percent to cover the costs of servicing this Agreement. All construction, repair and maintenance assessments shall be due and payable upon receipt. Any assessment not paid within thirty (30) days shall bear interest at the rate of one and one-half (1½%) percent per month until paid.

(11) Should deficiencies in the construction, repair and maintenance of the Road be determined by the Township to constitute an impending and immediate danger to the health, safety and welfare of the public, or a private or public nuisance, the Township shall have the right to take immediate corrective action and summarily abate such danger or nuisance.

(12) The Owners of each parcel shall allow ingress and egress for public safety, police, fire, and emergency services.

(13) In the event any owner, their invitee, trades persons, or employee damage the Road during construction of a dwelling or other structure, that owner shall be liable for all costs of repair to the Road and any necessary repairs shall be completed within thirty (30) days after creating the damage, weather permitting.

(14) Each owner having the Road run through their property shall have the right to mow any portion of the Road not being used as the surface Road area and shall have the right to plant and maintain grass, shrubs, trees or similar vegetation within the Road easement provided access and maintenance of the Road surface is not limited by such actions.

(15) No equipment or vehicle storage is permitted within the Road easement.

(16) The Road is open to the general public for use.

(17) Any party having an ownership interest in the Road easement agrees to execute any and all documents, including easement agreements, necessary for the installation of public utilities.

(18) The owners agree to share in the cost of maintaining or improving the storm water system for the Development in the same manner as maintaining and improving the Road.

(19) The Township shall have the right to defray any costs of constructing, repairing and maintaining the Road by establishing a special assessment district against any property benefited by the Road in accordance with the provisions of Act 188 of Public Acts of 1954, as amended. The Owner agrees that this Agreement shall constitute a petition pursuant to and in accordance with the aforesaid Act 188 and hereby waives any and all hearings, notices of hearings and other requirements preliminary to the establishment of a special assessment district as may be required by the aforesaid Act 188.

(20) It is expressly understood that any construction, repair or maintenance assessments provided for herein shall be a lien and encumbrance upon the property with respect to which the assessment is made, which lien may be enforced by the Township in the same manner as enforcement of liens for delinquent sewer or water charges or enforcement of Special Tax Assessments.

(21) The easements for the Road provided for herein shall continue in effect until such time as the Township may determine that there is no further need for them.

IOSCO TOWNSHIP, PRIVATE ROAD ORDINANCE #22 – APPENDIX A

(22) By execution of this Agreement, which shall be recorded with the Livingston County Register of Deeds, the Owner warrants that it is the owner in fee simple of the property described in Exhibit "A" and on behalf of their heirs and assigns, including all future owners of parcels within the Development, intend that the benefits and burdens of this Agreement shall run with the land.

(23) The Owner, its successors, heirs and assigns, and all future owners of parcels within the Development shall hold harmless and indemnify the Township for any liability incurred by the Township resulting from any loss, claim or damage to persons or property arising out of the design, placement, construction, operation, use, maintenance, repair or replacement of the Road, or the failure of any of the parties to perform their obligations under this Agreement.

(24) In the event any provisions contained in this Agreement should be held ineffective or invalid by reason of judgment, decree, court order or otherwise, all other parts and provisions of this Agreement shall nevertheless remain in full force and effect.

(25) These covenants run with the land and may be amended by a majority of the property owners provided that said amendment is approved by Iosco Township or its designee.

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and date above written.

WITNESSES:

IOSCO TOWNSHIP

By:

WILLIAM MILLER

Its: Supervisor

By:

DAN DELMERICO

Its: Clerk

ACKNOWLEDGEMENT

STATE OF MICHIGAN)
) ss
COUNTY OF LIVINGSTON)

On this _____ day of _____, 2006, before me appeared William Miller and Dan Delmerico, to me personally known, who, being by me duly sworn, did say that they are, respectively, the Supervisor and the Clerk of Iosco Township, Livingston County, Michigan, and that said instrument was signed and sealed on behalf of said Township, by the authority of its Township Board, and they acknowledge said instrument to be the free act and deed of said Township.

_____, Notary Public
Livingston County, Michigan
My Commission Expires: _____

WITNESSES:

OWNER:

ACKNOWLEDGEMENT

IOSCO TOWNSHIP, PRIVATE ROAD ORDINANCE #22 – APPENDIX A

STATE OF MICHIGAN)
) ss
COUNTY OF _____)

On this _____ day of _____, 2006, before me appeared _____ (Owners/Applicant), to me personally known, who, being by me duly sworn, and they acknowledged said instrument to be their free act and deed.

_____, Notary Public
_____, County, Michigan
My Commission Expires: _____

EXHIBIT “A”

**LEGAL DESCRIPTION, PARCEL TAX I.D. NUMBER & SKETCH
FOR ENTIRE DEVELOPMENT**

**Land situated in the Township of Iosco, County of Livingston, State of Michigan to
wit:**

EXHIBIT “B”

**CENTERLINE OF A 66 FOOT WIDE PRIVATE ROAD EASEMENT FOR INGRESS,
EGRESS, AND PUBLIC UTILITIES:**

Iosco Township

Private Road Letter of Completion

TYPE OF APPROVAL REQUEST

Temporary ☐

Final ☐

Applicant: _____
Project Name: _____
Road Name(s): _____
Engineering Firm: _____

In addition to the requirements of Iosco Township Private Road Ordinance #22, the following are required by the Iosco Township Board, prior to approval of the Private Road Final Letter of Completion:

	<u>Completed</u>	<u>Date Submitted to Township Zoning Administrator</u>
Private Road Plan Approval	<input type="checkbox"/>	_____
Site Distance/Road Entry Approval	<input type="checkbox"/>	_____
Construction Materials Analysis Reports	<input type="checkbox"/>	_____
Drainage Inspection	<input type="checkbox"/>	_____
Compaction Test Report	<input type="checkbox"/>	_____
Grade Inspection Report	<input type="checkbox"/>	_____
Private Road Maintenance Agreement	<input type="checkbox"/>	_____
Private Road By-Laws	<input type="checkbox"/>	_____
Performance Guarantee	<input type="checkbox"/>	_____
Engineering Certification	<input type="checkbox"/>	_____
As Built Plans Complete	<input type="checkbox"/>	_____

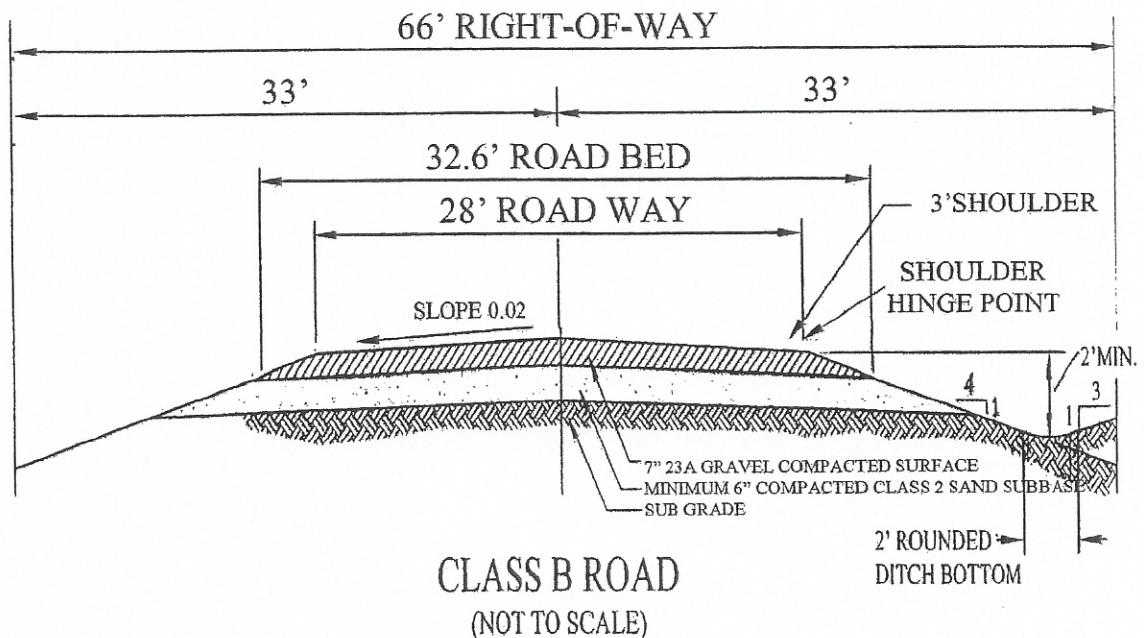
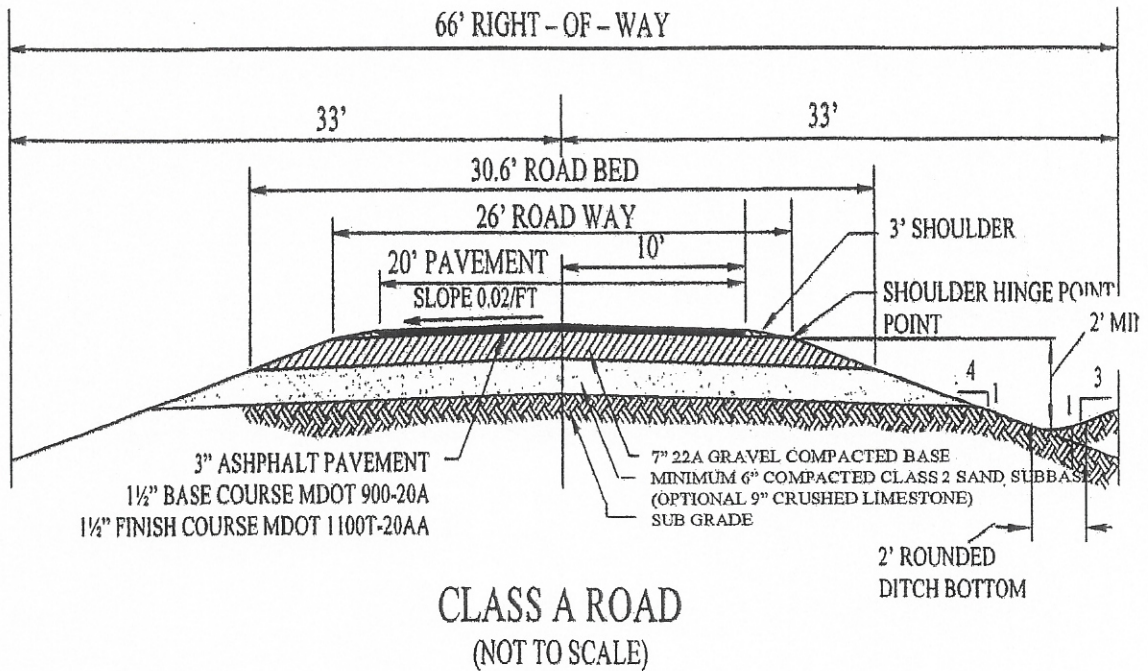
Iosco Township Board Comments:

Approved on (date) _____

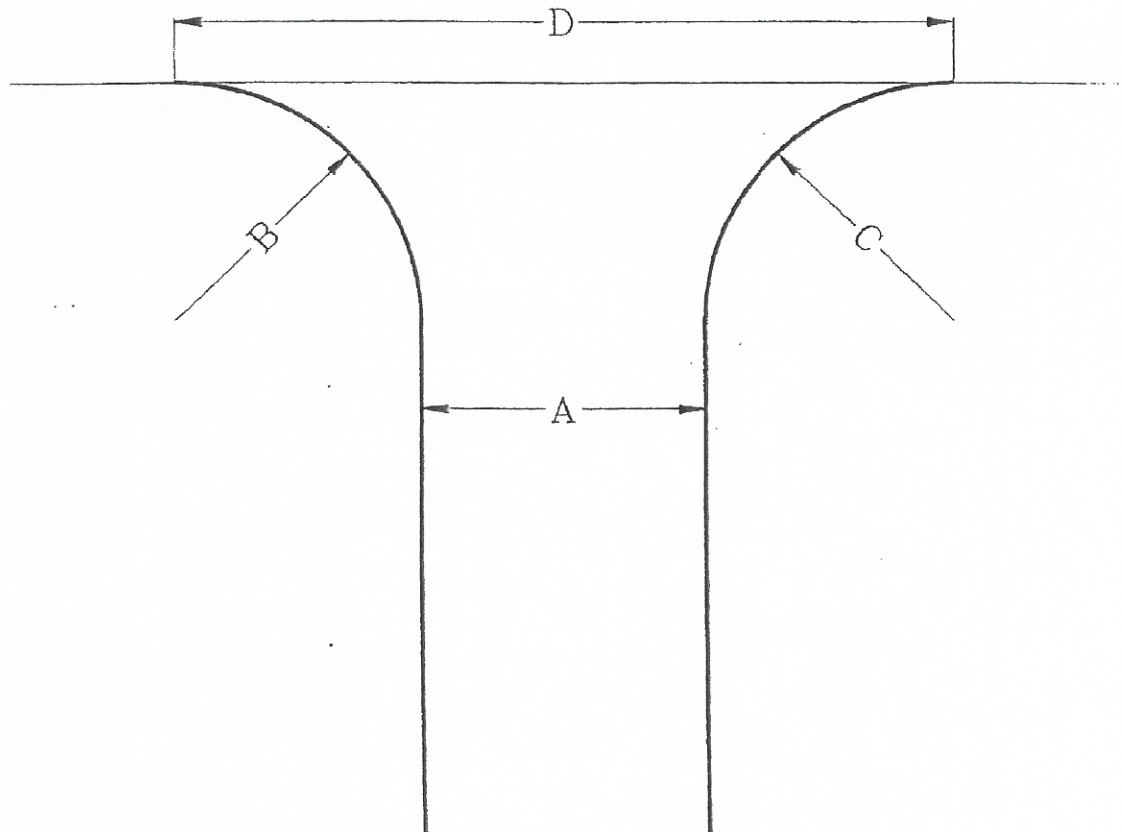
Township Zoning Administrator _____

IOSCO TOWNSHIP PRIVATE ROAD CROSS SECTION

(IOSCO TOWNSHIP PRIVATE ROAD ORDINANCE #22, Updated 6/15/06)



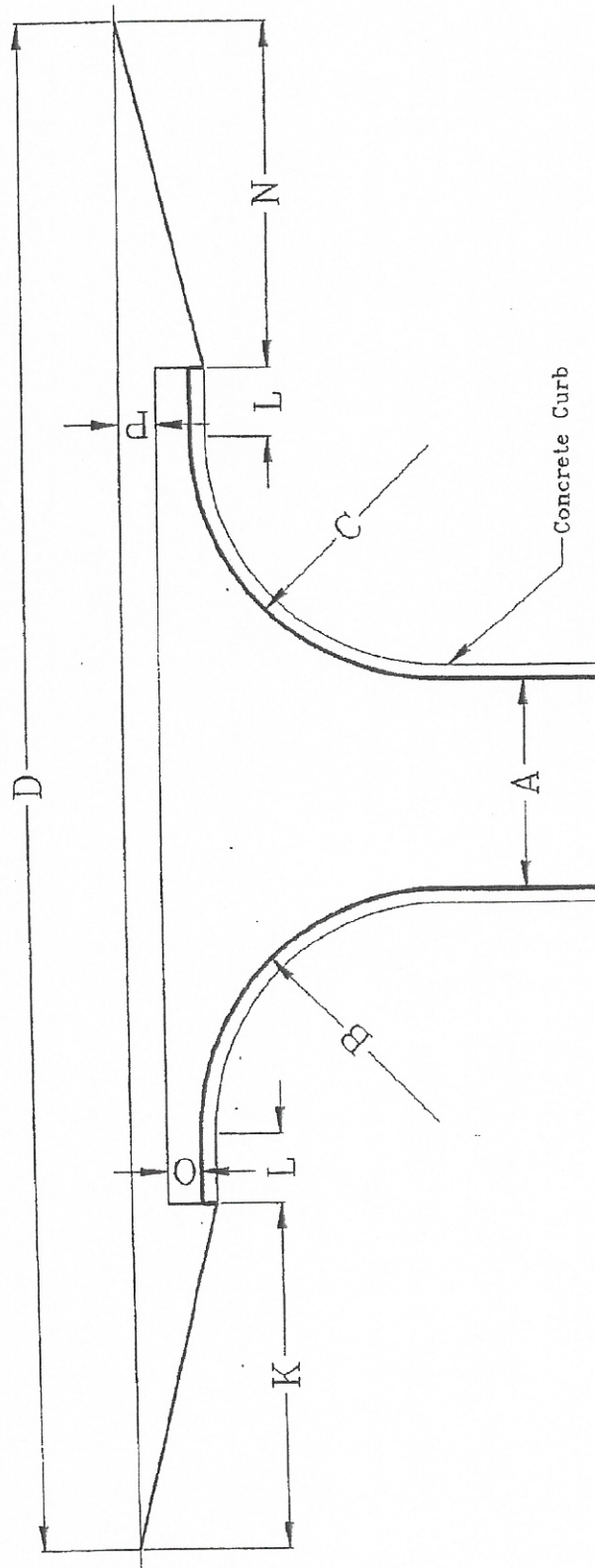
Gravel Private Road Approach on Gravel County Road



Design Feature		Standard	Range
A	Driveway Width	30'	22' to 40'
B	Entering Radius	35'	25' to 40'
C	Exiting Radius	35'	25' to 40'
D	Total Opening (A+B+C)	100'	72' to 120'

The Standard shall be used unless engineering judgment determines that another dimension within the range is more suitable for a particular site or special condition and is approved by Livingston County Road Commission.

Paved Road Approach on Gravel County Road

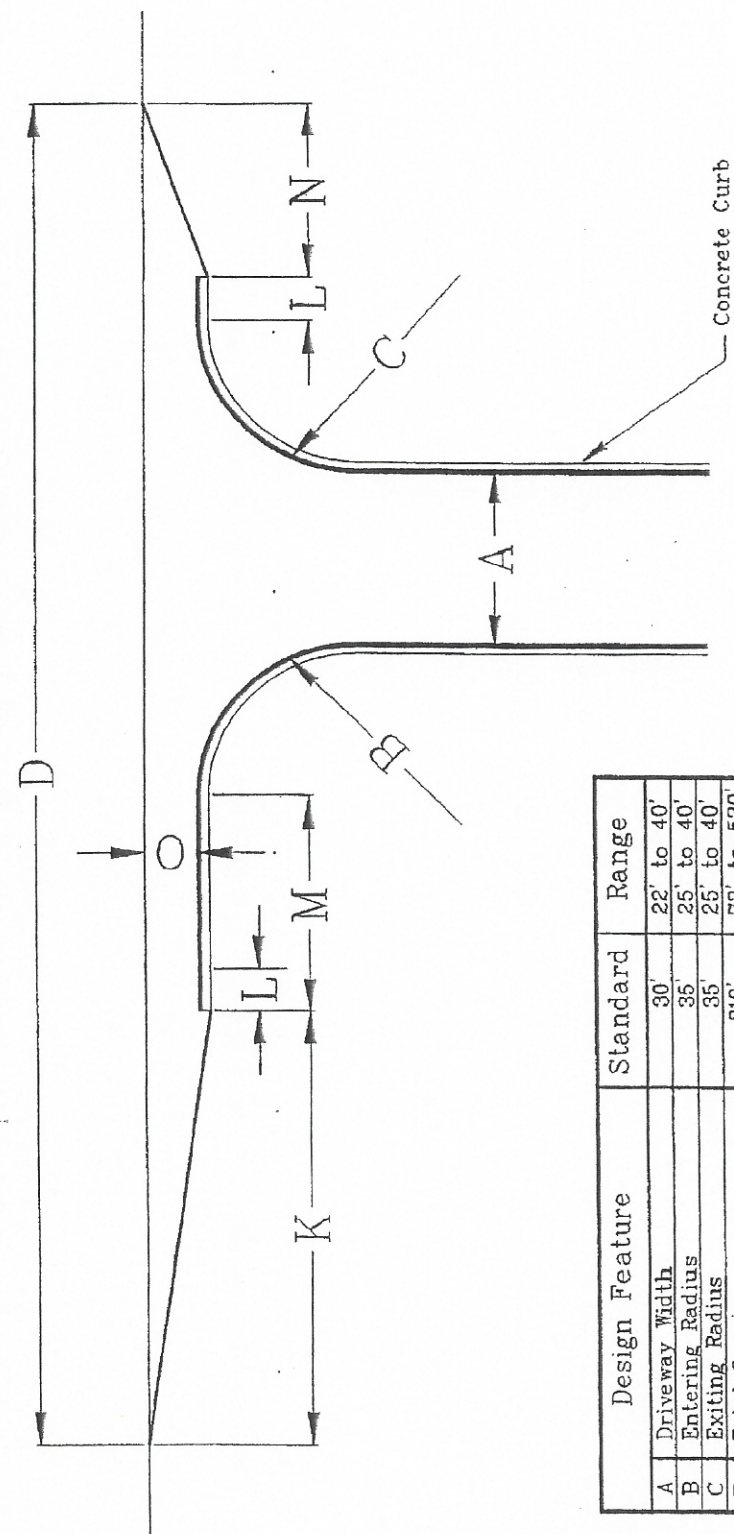


Design Feature		Standard	Range
A	Driveway Width	30'	22' to 40'
B	Entering Radius	35'	25' to 40'
C	Exiting Radius	35'	25' to 40'
D	Total Opening	220'	122' to 340'
K	Entering Taper	50'	25' to 100'
L	Curb Ending	10'	No Range
N	Exiting Taper	50'	25' to 100'
O	Pavement Width at Radius Springpoint	5'	4' to 7'
P	Pavement Offset	7'	5' to 8'

The Standard shall be used unless engineering judgement determines that another dimension within the range is more suitable for a particular site or special condition and is approved by Livingston County Road Commission.

NOTE: Concrete curb is optional on approaches to uncurbed county roadways

Paved Road Approach
on Paved County Road

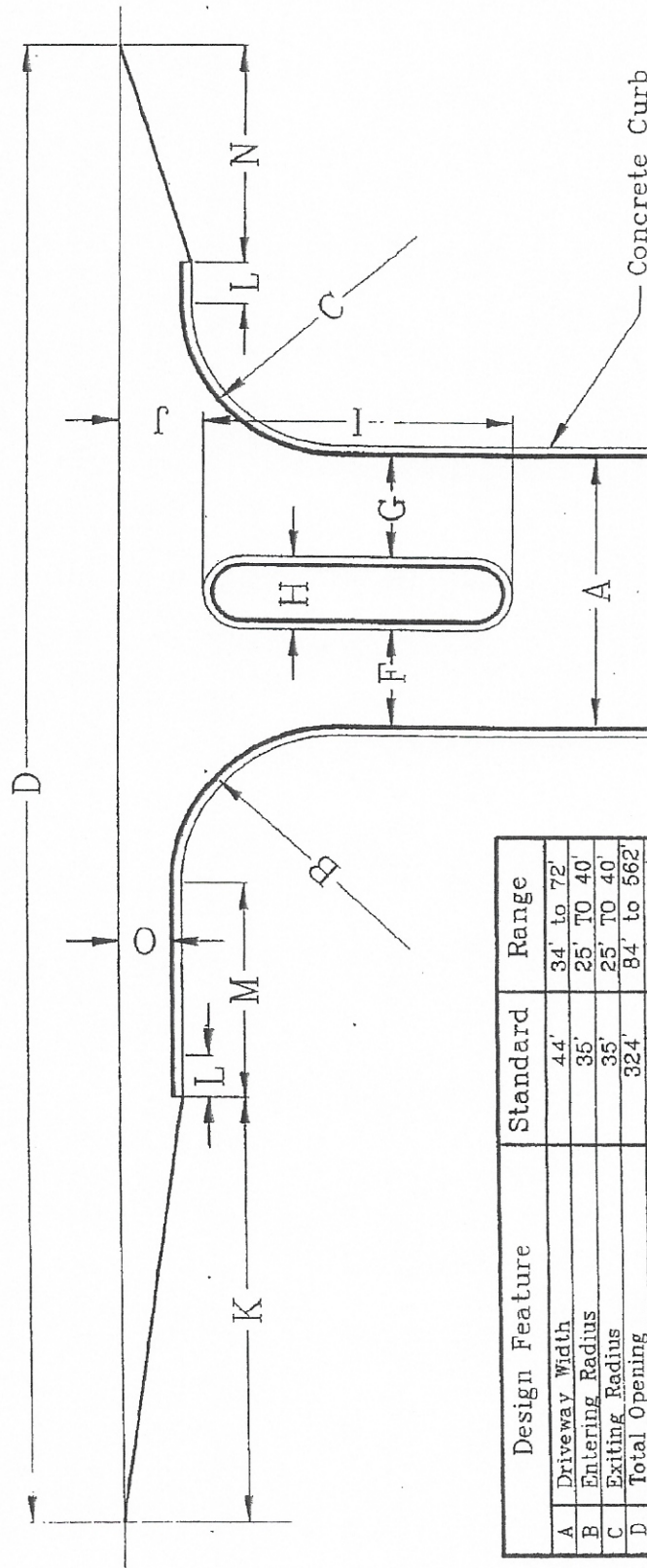


Design Feature		Standard	Range
A	Driveway Width	30'	22' to 40'
B	Entering Radius	35'	25' to 40'
C	Exiting Radius	35'	25' to 40'
D	Total Opening	310'	72' to 530'
E	Entering Taper	100'	0' to 150'
F	Curb Ending	10'	No Range
G	Right-Turn Lane Length	50'	0' to 150'
H	Exiting Taper	50'	0' to 100'
I	Pavement Width at Radius	12'	0' to 14'

The Standard shall be used unless engineering judgement determines that another dimension within the range is more suitable for a particular site or special condition and is approved by Livingston County Road Commission.

NOTE. Concrete curb is optional on approaches to uncurbed county roadways

Divided Paved Road Approach on Paved County Road



Design Feature	Standard	Range
A Driveway Width	44'	34' to 72'
B Entering Radius	35'	25' TO 40'
C Exiting Radius	35'	25' TO 40'
D Total Opening	324'	84' to 562'
F Entrance Drive Width	15'	12' to 24'
G Exit Drive Width	15'	12' to 24'
H Island Width	14'	10' to 24'
I Island Length	35'	30' to 100'
J Nose Offset	18'	12' TO 24'
K Entering Taper	100'	0' to 150'
L Curb Ending	10'	No Range
M Right-Turn Lane Length	50'	0' to 150'
N Exiting Taper	50'	0' to 100'
O Pavement Width at Radius Springpoint	12'	0' to 14'

The Standard shall be used unless engineering judgement determines that another dimension within the range is more suitable for a particular site or special condition and is approved by Livingston County Road Commission.

NOTE: Concrete curb is optional on approaches to uncurbed county roadways

FOLLOW-UP

- A. Notify the DNR Water Management Specialist or designee when your installation is complete so that they can close out the surveillance forms for the project.
- B. Compile all records, bills, canceled checks, and submit them to the DNR at Madison for payment of RCFP Title IV moneys if you received a grant.
- C. Contact property owners, township and county officials, and let them know of the hydrant location(s). Get a commitment from them to keep the hydrant sites plowed and shoveled out during the winter. You may need to contract for this service if it will not be provided by local units of government.
- D. Give maps of hydrant locations to mutual aid fire departments and local fire dispatch so they can quickly locate them. You might want to assign a fire plate or rural address number to the hydrant site to assist in locating the hydrant.
- E. Advise all property owners in the area of the hydrant(s) to contact their insurance agents and explain that they now have an all-weather, year around water source near them for fire suppression. This may decrease their property insurance rates.
- F. The fire department may wish to contact ISO to advise them of their dry fire hydrant system to see if this may affect the rating of all, or portions, of their fire district. In order to possibly affect the ISO rating, accurate records must be kept on the flow capacity, testing, maintenance, and use of the hydrants for fire suppression.

Chart A
STRAIGHT PIPE EQUIVALENT FOR FITTINGS (IN FEET)*

PVC PIPE DIAMETER	2.5"	3.0"	4.0"	5.0"	6.0"	8.0"	10.0"
90° Elbow, Standard	6.5	8.5	11.0	14.0	16.0	22.0	27.0
90° Elbow, Medium Sweep	5.5	7.0	9.5	12.0	14.0	18.0	22.0
90° Elbow, Long Sweep	4.5	5.5	7.0	9.0	11.0	14.0	18.0
45° Elbow	3.0	4.5	5.0	6.5	7.5	10.0	13.0
Hydrant Connection(6"x4.5")					2.5		
Reducer (8" x 6")						3.5	

*Source: *Handbook of PVC Pipe*

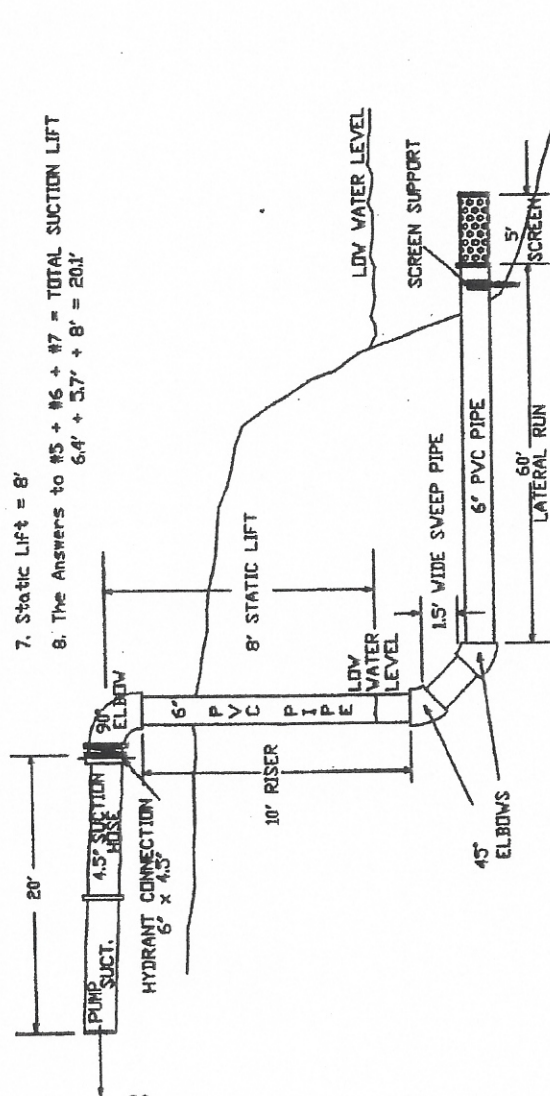
IOSCO TOWNSHIP, PRIVATE ROAD ORDINANCE #22 – APPENDIX E

Chart B
HEAD LOSS PER 100 FEET OF PVC PIPE

Size	3"	4"	5"	6"	7"	8"	10"
GPM							
100	2.4	.6	.2	.1			
200	8.6	2.1	.7	.3	.1	.1	
250	13.0	3.2	1.1	.5	.1	.1	
300	18.2	4.5	1.5	.6	.2	.2	.1
350	24.2	6.0	2.0	.8	.3	.2	.1
400	30.9	7.6	2.6	1.1	.4	.3	.1
500	46.8	11.5	3.9	1.6	.8	.4	.1
600	65.6	16.2	5.5	2.2	1.1	.6	.2
700	87.2	21.5	7.3	3.0	1.4	.7	.2
750	99.1	24.4	8.3	3.4	1.6	.8	.3
800	111.7	27.5	9.3	3.8	1.8	.9	.3
900	138.9	34.3	11.6	4.8	2.3	1.2	.4
1000	168.8	41.6	14.1	5.8	2.7	1.4	.5
1100	201.4	49.7	16.8	6.9	3.3	1.7	.6
1200	236.7	58.4	19.7	8.1	3.8	2.0	.7
1300	274.5	67.7	22.9	9.4	4.4	2.3	.8
1400	314.9	77.7	26.2	10.8	5.1	2.7	.9
1500	357.7	88.5	29.8	12.3	5.8	3.0	1.0
1600	403.2	99.5	33.6	13.8	6.5	3.4	1.2
1700	451.1	111.3	37.6	15.5	7.3	3.8	1.3
1800	501.5	123.7	41.8	17.2	8.1	4.2	1.4
1900	554.3	136.7	46.1	19.0	9.0	4.7	1.6
2000	609.5	150.4	50.8	20.9	9.9	5.2	1.7
2100	667.2	164.6	55.6	22.9	10.8	5.6	1.9
2200	727.2	179.4	60.6	24.9	11.8	6.2	2.1
2300	789.6	194.8	65.8	27.1	12.8	6.7	2.3
2400	854.4	210.7	71.2	29.3	13.8	7.2	2.4
2500	921.4	227.3	76.7	31.6	14.9	7.8	2.6
2600	990.9	244.4	82.5	34.0	16.1	8.4	2.8
2700	1062.6	262.1	88.5	36.5	17.2	9.0	3.0
2800	1136.6	280.4	94.7	39.0	18.4	9.6	3.2
2900	1213.0	299.2	101.0	41.6	19.7	10.3	3.5
3000	1291.6	318.6	107.6	44.3	21.0	10.9	3.7

Example 1

1. Lateral + Screen + Riser + Wide Sweep Pipe = STRAIGHT PIPE
 $60' + 5' + 10' + 1.5' = 76.5'$
2. 2-45° Elbows + 1-90° Elbow + Hydrant Connection (Chart A) = STRAIGHT PIPE EQUIV.
 $15' + 16' + 2.5' = 33.5'$
3. STRAIGHT PIPE + STRAIGHT PIPE EQUIV. = TOTAL STRAIGHT PIPE EQUIV.
 $76.5' + 33.5' = 110'$
4. Desired GPM Flow = 1000 GPM
5. Head Loss for Pipe & Fittings (Chart B) = 6.4'
 $5.8' \times 110' / 100' = 6.4'$
6. Head Loss in Hard Rubber Suction Hose (Chart C) = 5.7'
 $28.5' \times 20' / 100' = 5.7'$
7. Static Lift = 8'
8. The Answers to #5 + #6 + #7 = TOTAL SUCTION LIFT
 $6.4' + 5.7' + 8' = 20.1'$



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RECOMMENDED WAY TO INSTALL HYDRANT

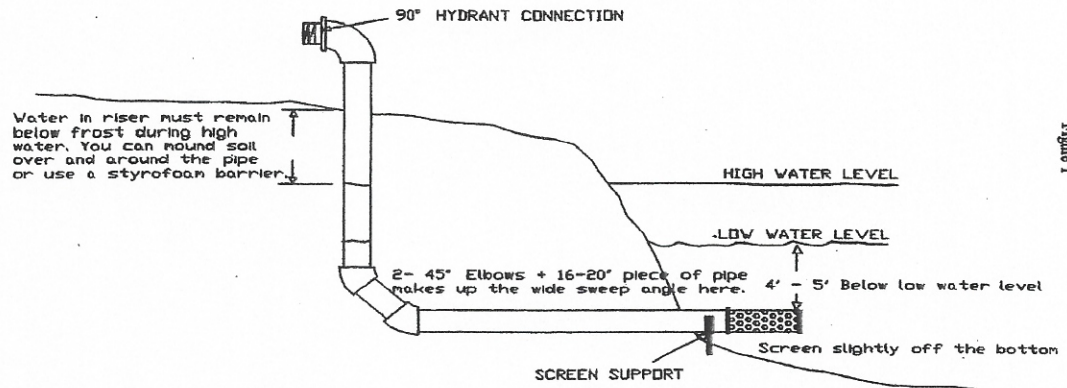
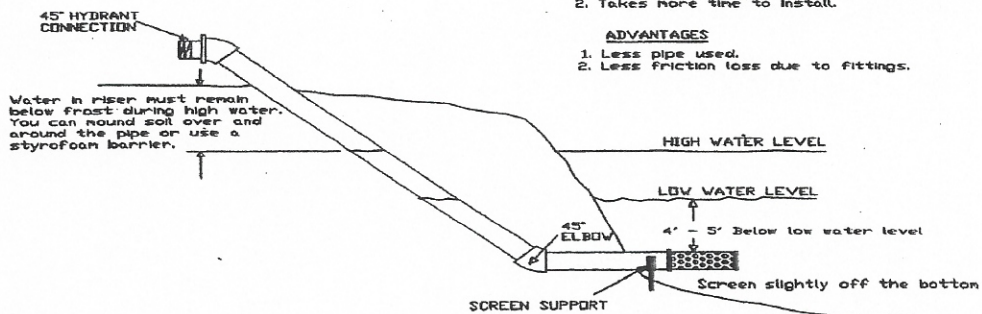


Figure 1

OPTIONAL INSTALLATION METHOD

Use this option only if you have a steep bank such that the backhoe cannot reach deep enough to maintain a level trench cut to the riser or if you have a long uphill run. The idea here is to minimize your use of pipe and to have less angled elbows for your joints. This will help reduce the total suction lift. Remember to maintain adequate soil cover over buried portions of pipe to prevent frost penetration.



PROBLEMS

1. It is hard to dig the trench to match the angle.
2. Takes more time to install.

ADVANTAGES

1. Less pipe used.
2. Less friction loss due to fittings.

Figure 2

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