STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
GRAND RAPIDS DISTRICT OFFICE

RICK SNYDER
GOVERNOR

C. HEIDI GRETHER
DIRECTOR

September 6, 2017

Mr. Jerry Olman, Environmental Coordinator
Ottawa County Road Commission
14110 Lakeshore Drive
Grand Haven, Michigan 49417

Dear Mr. Olman:

SUBJECT: Illicit Discharge Elimination Plan (IDEP) Review
National Pollutant Discharge Elimination System (NPDES)
Certificate of Coverage (COC) No. MIG610117
Municipal Separate Storm Sewer System (MS4)

On August 4, 2017, the Macatawa Area Coordinating Council (MACC) submitted a revised IDEP on your behalf to the Department of Environmental Quality (DEQ), Water Resources Division (WRD). In your cover letter dated October 13, 2016, you requested a review of the revised IDEP for approval in accordance with MS4 General Permit No. MIG619000 and Ottawa County Road Commission (OCRC) COC MIG610117. General Permit No. MIG619000, authorizes discharges of storm water from MS4s to the surface waters of the state, and thus you are subject to the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq; the "Federal Act"), Michigan Act 451, Public Acts of 1994, as amended (the "Michigan Act"), Parts 31 and 41, and Michigan Executive Orders 1991-31, 1995-4 and 1995-18.

The August 2017 submission was a revision of an IDEP drafts previously submitted on April 1, 2016, and February 23, 2017. Revisions were made according to comments provided by DEQ staff on July 8, 2016, and May 25, 2017, as well as several discussions with OCRC and MACC staff.

The August 2017 version of the IDEP is approved. Please replace your previous IDEP with the new version and begin implementing it immediately.

Per your request, the IDEP revision has also been reviewed for inclusion with the new permit application dated April 1, 2016. While the IDEP will not be formally approved for this use until the permit is issued, it appears to meet the minimum requirements of the new permit application.

The revised IDEP states that “the main goal of the IDEP is to eliminate and prevent illicit discharges and connections to waters of the state.” Please note that while the permittee is responsible for discharges entering waters of the state from its MS4, another important requirement of the IDEP is the requirement to prohibit and eliminate discharges into the MS4, rather than simply controlling pollution at the end of the system.

If you have any questions regarding this letter please contact me at 616-356-0215; stamoura@michigan.gov; or at DEQ, WRD, Grand Rapids District Office, 350 Ottawa Avenue NW, Unit 10, Grand Rapids, Michigan 49503-2341.

Sincerely,

Amanda St. Amour
Senior Environmental Quality Analyst

as/lr

cc: Ms. Kelly Goward, MACC

Illicit Discharge Elimination Program Plan

For

Ottawa County Road Commission

National Pollutant Discharge Elimination System

September 2017

Original developed November 2004
Revised May 2005
Revised August 2017

Prepared by
Macatawa Area Coordinating Council
301 Douglas Ave
Holland MI 49424

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Table of Contents

List of Appendices

I. Introduction

The goal of this Illicit Discharge Elimination Plan (IDEP) is to develop and implement a program within Ottawa County that will aid in the improvement of surface water quality. This program will be implemented by the Ottawa County Road Commission's (OCRC's) office per the requirements of their MS4 permit. This plan was originally developed in 2004 per the 2003 Certificates of Coverage issued to the Macatawa Watershed MS4 permittees, who at that time, applied for coverage under a Watershed General Permit. The plan was revised in April 2005 and approved by the DEQ.

A Macatawa Watershed Storm Water Committee (the Committee) comprised of representatives from each public entity in the watershed met originally to develop this plan. The committee has continued to meet on a quarterly basis to discuss and evaluate the plan as well as other aspects of the MS4 storm water management program.

II. Objectives

A. Maintain an accurate map of all known point sources and their respective receiving waters

B. Field locate, prioritize and eliminate illicit discharges and illicit connections found during dry weather

C. Minimize infiltration of seepage from sanitary sewers and on-site sewage disposal systems from separate storm sewer system

D. Maintain a records management system for discharge point and outfall construction plans, maps, inspection reports, complaint response, etc.

E. Conduct periodic evaluations of the effectiveness of this plan and progress toward meeting goals

F. Review existing ordinances and establish necessary enforcement measures

A. Maintain a Map of Discharge Points and Outfalls

The Ottawa County Road Commission's Office completed the process of updating their database of known point sources, both discharge points and outfalls, during 2014. The OCRC Environmental Coordinator maintains digital records of all discharge points and outfalls.

Additional discharge points and outfalls will be input into the database once they are identified or constructed. Some discharge points or outfalls may be deleted if it is determined that a discharge point or outfall does not fit the definition of a public discharge point or outfall, no longer exists or if ownership was transferred to another MS4. Additions, deletions and other changes will be input into the Environmental Coordinator's database within 30 days of discovery. The database includes an identification code, the receiving water body, structural information about the pipe, pipe condition, and other information. It is the intention of the OCRC to work towards inputting all discharge point and outfall data into a GIS system.

B. Inspect, Investigate and Eliminate Illicit Discharges and Connections

Dry weather inspections of discharge points and outfalls include observing systems when little to no storm water flow is expected. Not all illicit discharges are dependent on a rain event, such as illicit septic connections or dumping, and some legitimate discharges can occur during dry weather, such as runoff from lawn sprinklers or ground water sump pump discharges from home underdrains. Despite the previous examples, dry weather screenings provide the best mechanism for visual and odor detection of illicit discharges. Inspections will be conducted in dry weather. Dry weather conditions exist if there has less than 0.1" of precipitation in the previous 48-72 hours prior to inspection. Where discharge points or outfalls are submerged or partially submerged, the dry weather screening will occur at the first accessible upstream manhole, or where determined appropriate by the inspector. Rules of confined space entry may require an inspector and an attendant.

1. Procedure for Performing Field Observations

All discharge points and outfalls will be inspected once during the permit cycle (once every five years). Once the discharge point or outfall is located, it will be checked for flow. If no flow is present, then the observation will be recorded on the OCRC Illicit Discharge Monitoring Form (Appendix A). Additional observations will also be recorded if present including odor, deposits, floatables, biology (algae, bacterial sheens and slimes), and vegetation. Existing structural data (size, material and condition) will be verified as well as receiving water. Inspectors will also be encouraged to make additional observations related to presence of trash or evidence of erosion or pollution from surface runoff.

2. Procedure for Performing Field Screening when Flow is Present

If flow is present during a dry weather screening, the inspector will at a minimum make these additional observations on site at the time of the screening: odor, color, turbidity (visual

assessment), floatables, deposits/stains, biology, and vegetation. The following chemical assessments will also be completed on site when possible: pH, ammonia, surfactants, and temperature. pH, and ammonia will be assessed using test strips, and surfactants will be assessed by collecting a sample in a small glass bottle, securing the lid, shaking vigorously, and looking for bubbles. Temperature will be measured using a water thermometer. Visual and odor assessments are subjective and will be completed on site by the inspectors and recorded appropriately on the monitoring form. If sewage is suspected then a sample will be collected, if possible, and tested by the Ottawa County Department of Public Health or other OCRC approved laboratory for the presence of *E. coli*. If an illicit connection is suspected, the inspectors will proceed with initiating a source investigation, either themselves if they have been properly trained, or by notifying their supervisor by the close of business the same day that a source investigation is necessary. Inspectors will be provided training in how to carry out all onsite observations and measurements including how to properly fill out the monitoring form.

3. Procedure for Performing a Source Investigation

Once a discharge point or outfall has been identified as having a possible illicit connection, investigative activities will proceed within two business days starting at the discharge point or outfall and moving upstream within the suspect municipal storm drainage system. The investigation will continue upstream until the potential source is found. The initial investigation of the municipal drain and each service connection may involve several hours of visual and odor-based inspections or other suitable tracking methods. Any facility having suspicious dry weather discharge will be subject to inspection. Upon determining that a private facility needs to be investigated, the assigned employee from the OCRC's office will contact the facility explaining the suspected problem and establish permission to access the property. If it is determined that the facility has a discharge and is under an industrial or construction site NPDES permit, the DEQ will be contacted immediately to guide the response and enforcement procedure.

The following are standard operating procedures for investigating a suspected illicit discharge:

a. Upon arriving at the site, the property owner and/or facility manager will be advised of the inspector's strategy and interviewed by the inspector about the location of all property lines, storm lines and related catch basins, sanitary lines and service manholes, waste process lines, and hazardous and polluting material storage areas. A copy of the facility site plans and its related utility system will be requested.

b. The inspector will obtain and thoroughly review all maps of sanitary sewer and storm drains to determine critical information regarding all documented underground conveyance systems located on or near the property.

c. The inspector will review the facility plans and inspect the site to determine the location of the best access points to the storm, sanitary and any process waste lines. All key information will

be noted on a site plan for field use that will become an attachment to the Illicit Discharge Monitoring Form.

d. A review of hazardous and polluting materials (if applicable), and related handling procedures may be requested by the inspector of the property owner and/or facility manager.

e. All storm drains leaving the property shall be field located by the inspector to determine manholes or catch basins that can be used as access points to monitor for the presence of an illicit discharge.

f. The inspector may be able to determine the source of an illicit discharge through visual observation and/or odor detection of flow in the storm sewer at selected access points.

g. The inspector may facilitate televised inspection of portions of storm sewers that look suspicious to identify pollutant sources that cannot be located through visual observation, (*i.e.* blind connections between manholes). The inspector may use tracing dye or other suitable tracking methods to isolate the source of an illicit discharge (proper authorization for the use of tracer dyes must be requested from the MDEQ in accordance with Rule 1097.) In addition, water sampling can be performed to verify the presence of an illicit discharge. All of these methods can and will be used at the discretion of the inspecting staff and the owner of the illicit discharge. The inspector should contact the illicit discharge owner immediately to determine the best means for verification.

h. If an intermittent discharge is detected and it is expected that the discharge will disappear before sampling or televising can be performed, the inspector should take as many pictures and notes as possible. A grab sample can be taken if the inspector has the appropriate materials and protective gear. This sample can be used as proof of discharge and further analyzed. Priority should be given to eliminating and finding the source of the illicit discharge or connection. However, in order to determine the source, the above mentioned methods may need to be used.

   At a minimum, sampling parameters should include: pH, ammonia, and surfactants using the sampling methods as described under "Procedure for Performing Field Screening when Flow is Present". All parameters will be measured against the MDEQ and EPA standards for water quality. Onsite conditions, including landuse and activities occurring on or near the facility, will be observed and assessed for potential sources of the illicit discharge.

i. The illicit discharge owner will work with the Ottawa County Department of Public Health (OCDPH) office if bacterial contamination is suspected. The OCDPH will perform any necessary testing to confirm bacterial contamination. The owner will work with the OCDPH as soon as possible to eliminate the bacterial discharge. The department of public health will follow the local and state regulations for public notification. The owner will work with their local Board of Public Works to investigate the seepage of sanitary sewers into the MS4.

j. If the inspector suspects that the discharge may cause a public health concern or has the potential to seriously affect water quality, the appropriate agency, such as the Ottawa County Department of Public Health or the Michigan Department of Environmental Quality Pollution Emergency Alert System (1-800-292-4706), will be contacted within 24 hours.

k. Photographs may be taken by the inspector during the facility review and attached to the Illicit Discharge Monitoring Form as documentation of the conditions on site.

l. If a suspected facility is inspected and no illicit connection was found at that time, the owner/operator will be notified in writing of such findings.

Note: A private residence will be inspected using the standard operating procedure outlined above utilizing all available technical information.

4. Elimination of Illicit Discharges

Once a facility based illicit connection/discharge has been identified and verified, the OCRC's office will notify the property owner pursuant to applicable rules and instruct the illicit discharge to be eliminated within 30 days. Copies of the notice will also be sent to the local municipality and the Ottawa County Water Resources Commissioner's office. The notification will require the owner to inform the OCRC when the illicit discharge has been eliminated. If the owner does not eliminate the illicit connection within 30 days, the OCRC will take the action allowable pursuant to its authority to eliminate the illicit discharge and refer the case to the OCRC attorney for enforcement.

A schedule for the elimination of confirmed illicit connections or discharges will be developed between the OCRC and the owner of the illicit connection. The schedule will be determined based on public health and water quality concerns. Any illicit connections that may jeopardize either will be eliminated within a timeframe determined by the OCDPH. It is not expected that the OCRC will discover so many illicit connections that any issue found cannot be resolved within a reasonable timeframe.

5. Procedure for Responding to Illegal Dumping/Spills

Citizens are invited to call the main OCRC office or submit requests or questions via an online form on the OCRC's website (www.ottawacorc.com) to report illegal dumping or spills into an OCRC-owned MS4 or a water of the state. When a complaint is received, a Service Request Form is generated and forwarded to the appropriate department for response the same day or next business day if received after hours. If the complaint is regarding an OCRC-related activity, the District Forman is notified and he/she will investigate the complaint within 24 hours. If the District Forman determines further action is warranted by OCRC staff, corrective action will then be taken within 24 hours. If the complaint is related to a private property, the enforcement action will be taken by the OCRC Special Services Department. The Special Services Department will contact the owner of the private property within 24 hours. The property owner will be directed to take

immediate action to cease the dumping and clean up any spills they are responsible for within 24 hours of being notified. If immediate action is not taken by the property owner, the Special Services Department will work under their authority to ensure that the activity is stopped and cleaned up or will coordinate with the appropriate local authority to do so. Continued follow up by the Special Services Department will take place until the issue is resolved.

OCRC staff shall notify the MDEQ immediately upon becoming aware of any release of polluting materials from the MS4 to ground or surface waters of the state that meet the threshold reporting quantities found in the Part 5 Rules (Appendix B). The MDEQ Grand Rapids District office (616-356-0500) will be contacted during working hours and the report will be submitted to the Pollution Emergency Alerting System (800-292-4706) outside of normal office hours.

6. Training

Training of field inspectors will be arranged by the OCRC to provide the technical expertise and continuity necessary to inspect, identify, locate, and eliminate illicit discharges. At a minimum, training will include public relations, safety, inspection and/or investigative procedures, documentation requirements, online database operation, and reporting procedures.

The Wayne County Illicit Detection and Elimination Video is one tool used for training all field inspectors. This video will be viewed by all potential inspectors prior to the inspection season. The Michigan Department of Environmental Quality (MDEQ) *Natural Occurring Phenomena* brochures will be provided to all inspectors (Appendix C). Knowledge of these brochures will ensure that inspectors are aware of natural water quality issues that are frequently observed at discharge points or outfalls during inspections. These materials are available on the Macatawa Area Coordinating Council's (MACC's) website and will be incorporated into online training that is being developed by the MACC. The previous are examples of what type of materials the training may include. If other materials become available that are deemed more appropriate, the training will include those materials.

Dry weather screening inspectors, most likely OCRC staff, will be trained prior to commencing inspections each year that screenings are scheduled. At a minimum, training will require viewing the Wayne County video, reviewing the brochures and an overview of the Illicit Discharge Monitoring Form.

OCRC staff responsible for overseeing the implementation of the IDEP, completing source investigations, overseeing the elimination of illicit connections, and responding to complaints, will be fully trained once during the permit cycle, within 1 year of the new permit being issued. Any new employees will be trained within 1 year of their hire. At a minimum, training will include techniques for identifying an illicit discharge or connection, including field observation, field screening and source investigation; and procedures for reporting, responding to and eliminating an illicit discharge or connection and the proper enforcement response.

The MACC will ensure that the OCRC's inspectors receive all IDEP updates and any necessary program requirements or changes. All inspectors should have a copy of the IDEP plan and the *Natural Occurring Phenomena* brochures, as well as be familiar with the plan and the goals of the program.

Some inspectors may not be employees of the OCRC but contracted inspectors who are trained specifically for inspecting discharge points or outfalls during dry weather. These inspectors will receive the majority of their training through their employers, but will also obtain the IDEP goals and objectives specifically for the OCRC.

C. Minimize Infiltration of Raw Sewage

The potential for seepage from sanitary sewers that are often located in the vicinity or parallel to storm drains will be investigated in the process of IDEP inspections in cooperation with the proper sanitary sewer authority. Sanitary sewer overflows will be addressed with the owner and/or perpetrator in accordance with the requirements of wastewater NPDES permitting. Problems identified with onsite sewage disposal systems will be coordinated with the Ottawa County Department of Public Health.

Part of the IDEP includes reducing chemical and bacterial contamination in our surface waters. A continuing action is to minimize seepage from sanitary sewers and on-site sewage disposal systems. Dry weather screening will include identifying any suspected sources of human sewage. Some symptoms of sewage contamination may include growth of algae or other nuisance plants due to increased nutrients, the presence of sewage fungus and unpleasant odors. The use of ammonia test strips is one field screening method for the presence of sewage waste. The OCRC will work with the Ottawa County Water Resources Commissioner's office and the Ottawa County Department of Public Health to address any sanitary or septic seepage when detected. There have not been any historic or recent problems of sanitary or septic seepage into the OCRC's MS4.

D. Maintain a Records Management System

The OCRC maintains a digital database to track the inventory and inspections of their storm sewer system, including discharge points, outfalls and dry weather screenings. The database contains all physical information about the storm sewer system, discharge points and outfalls and is able to record dry weather inspection findings. All observations and any measurements will be recorded on datasheets and later entered into the database. A copy of the dry weather screening reports will be forwarded to the MACC upon completion for inclusion in the periodic status reports. The OCRC's office also stores all construction plans and maps in either hard copy or digital formats.

Tracking of violation enforcement actions and compliance related to eliminating illicit connections and illegal dumping/spills are tracked on an Excel spreadsheet (Appendix D). Hard copies of enforcement and compliance actions are also stored in hard copy files.

All monitoring information on file will be considered public information pursuant to the Freedom of Information Act.

E Plan Evaluation

OCRC staff will be asked on an annual basis via a brief survey to review the progress and effectiveness of the various aspects of the IDEP plan. Specifically, OCRC will evaluate the effectiveness of using different detection methods, the number of discharges eliminated using different enforcement methods, water quality monitoring data to measure changes in the receiving water, and program efficiently and staff training frequency. OCRC staff will provide the input necessary to prepare a report summarizing the accomplishments and recommending improvements to the objectives stated in this plan. The report will outline the illicit connections and discharges found and eliminated. Any illicits not eliminated at time of reporting will continue to be reported in the periodic progress report until elimination is successful. Also included will be estimated frequency of discharge and volume of discharge. A copy of this report will be on file and available upon request at the office of the Macatawa Area Coordinating Council, 301 Douglas Ave, Holland, Michigan, 49424.

Dry weather inspection of known discharge points and outfalls were performed during the first permit cycle 2003-2008 and again during the 2008-2013 cycle. No recurring problems were noted during these rounds of screenings. If any problems are discovered during future screenings, additional or increased screenings may be scheduled. Any confirmed significant illicit discharges will be documented and included with the periodic progress report. This data will include the pollutant(s) of concern (if sampling was performed), estimated volume and load discharges, the location that this discharge entered the OCRC's MS4 and the waters of the state (from map evaluation) and the current status of the discharge.

The main goal of the IDEP is to eliminate and prevent illicit connections and discharges into the OCRC's MS4 and ultimately into waters of the state. To evaluate the effectiveness of this plan and the program implementation, the OCRC will evaluate annually what the program has accomplished or is lacking and adjustments will be made accordingly. This IDEP plan will be continuously implemented and developed. The Macatawa Watershed Storm Water Committee has made the commitment to meet quarterly and will discuss IDEP updates and changes as appropriate.

F. Ordinances and Enforcement Procedures

The Committee completed a review all of the existing legal authority and enforcement procedures to assure fulfillment of IDEP requirements (See Summary of Current Ordinances). The Committee will review the work of the IDEP inspectors to determine barriers to ensure inspection quality. If code or enforcement changes are needed, the Committee will prepare a written report of recommended adjustments and forward this report to the OCRC for consideration. The OCRC primarily relies on local codes and ordinances and will work with the appropriate local authority

and/or county agency (Water Resources Commissioner or Department of Public Health) to eliminate illicit discharges.

III. Timeline

This new IDEP plan will be implemented immediately upon approval from the MDEQ Storm Water Program. Until this updated plan is approved, the previously approved 2005 plan will continue to be followed. This new IDEP will be effective until such time that a revision is deemed necessary and approved by the MDEQ Storm Water Program.

IV. Definitions

Discharge point: any location where storm water from one owned system empties into another system

Illicit discharge: any discharge to, or seepage into, an MS4 that is not composed entirely of stormwater or uncontaminated groundwater except discharges pursuant to an NPDES permit

Illicit connection: a physical connection to an MS4 that primarily conveys non-storm water discharges other than uncontaminated groundwater; or a physical connection not authorized or permitted by the local authority, where a local authority requires authorization or a permit for physical connections

Outfall: a type of discharge point that empties into a water of the state

Significant illicit discharge: a discharge that shows evidence of impairing water quality in the receiving water

V. Summary of Current Regulations

This section contains a discussion of current ordinances, codes, policies, and standard operating procedures, (hereafter referred to as rules). Portions of these rules are meant to be a summary only and not intended to be verbatim or to be inclusive of all rules or portions of rules applicable.

New rules and/or improvements to existing rules designed to eliminate illicit discharges in Ottawa County should be considered after a comprehensive review of the tools available in existing ordinances.

A review was conducted of the water quality related rules within the following:

A. Ottawa County Road Commission Rules

B. Ottawa County Environmental Health Regulations

C. City of Holland Rules and Regulations for Private Sewage Disposal Systems

D. City of Zeeland Storm Water Control Ordinance

E. City of Zeeland Wastewater Control Ordinance

F. Township Codes and Ordinances

G. Site Development Rules published by the Ottawa County Water Resources Commissioner

H. Excerpts from Act 283 of 1909 Public Highways and Private Roads

I. Drain Code of 1956 as amended.

J. Environmental Laws of the State of Michigan

K. Building department inspections

A. Ottawa County Road Commission Rules

1. Rules Governing the Granting of Permits for Driveways, Banners & Parades (4/4/2002) – See Appendix E.

Section I General Provisions. Any activity carried out in the county right-of-way without a permit is subject to its removal by the board at the proprietor's expense. Failure to comply with permit conditions shall cause permit activities to halt or the permit to be revoked. Costs for correcting non-compliance with permit conditions shall be borne by the proprietor.

Section III.A.3. Drainage from developments on private property shall not be discharged into the road right-of-way. The Engineer may allow discharge of storm water into the right-of-way if one or both of these are followed:

a. In accordance with Michigan Drain Code, the drainage of the proposed development external outlet(s) within the right-of-way shall be public and contained within a newly established or existing drainage district per Ottawa County Water Resources Commissioner standards and specifications.
b. The proposed development external outlet(s) are improved to an acceptable outlet based on Ottawa County Water Resources Commissioner standards and specifications.

Section III.B.1.k Drainage from private property will not be accepted in the highway drainage system unless it can be properly retained on the site and released at a controlled rate so as not to adversely affect or overload the existing drainage system. All connections to existing storm sewer systems shall be approved by the Ottawa County water resources Commissioner.

2. Rules Governing the Granting of Permits for Utilities, Sidewalks & Non-Motorized Facilities (1/9/2013) – See Appendix F.

Section I General Provisions. Any activity carried out in the county right-of-way without a permit is subject to its removal by the board at the proprietor's expense. Failure to comply with permit conditions shall cause permit activities to halt or the permit to be revoked. Costs for correcting non-compliance with permit conditions shall be borne by the proprietor.

Section IV.A.4. All existing drainage shall be accommodated with the construction of new sidewalk. All connections to existing storm sewer systems shall be approved by the Ottawa County Water Resources Commissioner.

Section IV.B.5 All existing drainage shall be accommodated with the construction of non-motorized facilities. All connections to existing storm sewer systems shall be approved by the Ottawa County Water Resources Commissioner.

3. OCRC Standards and Specifications for Plat Condominium and Public Road Development (1/12/2006) – See Appendix G

Section IV.B. Adequate surface and subsurface drainage shall be provided within the development as required by OCRC and OCWRC regulations. Leaching basins or ponding with the road right-of-way is not allowed.

Section IV.C. OCWRC shall approve the size, type and design of all surface and sub-surface drainage facilities providing outlets for public roads within proposed developments.

Section IV.C.3. In accordance with Michigan Drain Code, the drainage of a proposed new development shall be public and contained with a new or existing drainage district per OCWRC standards and specifications. The storm sewer hall have a positive outlet into a natural body of water, stream or established county drain, if available. If none of these outlets are available and if approved by the OCWRC, the outlet may be into an area provided ad prepared by the Proprietor to serve as an impoundment area.

Section IV.C.5. In commercial and industrial developments storm sewer access shall be provided to all lots. Future parking lot and building runoff will not be allowed to discharge onto the road surface. Access to the storm sewer system will be in strict compliance with OCWRC Storm Water Control Policy. Footing and sump pump drain laterals will not be allowed to directly connect to storm sewer or underdrain within existing or proposed public roadways.

B. Ottawa County Environmental Health Regulations

The Ottawa County Environmental Health Regulations are the operating framework of the Ottawa County Department of Public Health (OCDPH). These regulations have an effective date of 11/22/96, as amended August 23, 2005. The regulations draw their authority from The Public Health Code of Michigan, Act 368, P.A. 1978 as amended.

Important illicit discharge components of these regulations include:

Article III, D. Enforcement – The Health Officer is authorized to conduct inspections of all premises, public or private, to assure compliance with the provisions of this regulation.

Article III, E. Right of Entry and Inspection – Health Officer's must be allowed access to inspect at reasonable times and no person may resist or harm the Health Officer in the performance of his job. The Health Office may request the assistance of the Ottawa County Sherriff Department or other police agency where an imminent danger or health hazard is believed to exist that requires immediate inspection and prior consent cannot be obtained.

Article VIII, G. Non-complying Sewage Disposal Systems – It shall be unlawful for any person to create a sewage related nuisance whereby sewage effluent or septage waste is exposed, discharged,

deposited, or drains on or to the surface of the ground, or is permitted to drain into any surface water, may contaminate a public or private ground water supply, or creates a hazard to public health and safety, an nuisance or degradation of the natural environment or be in direct violation of any section of this Regulation.

Article VIII, H. Discharge From Public or Private Drain of Unknown Origin – Whenever the Health Officer determines that sewage is flowing from the outlet of any public or private drain of unknown origin, he may issue public notices requiring persons owning premises from which such sewage originates, to connect to a municipal sewage disposal system if available, or otherwise comply with the provisions of this Regulation. After not less than ten days following posting of the notices, the Health Officer may plug the outlet until such time as the sources of the sewage have been located. Owners of properties known to be discharging sewage in a drain shall be given written notice of corrections required within a specified period of time and shall be responsible for bearing the costs of correction and plugging the outlets. Failure to comply shall be considered a violation of this Regulation.

Article XIII – Real Estate Evaluations – This article requires that Real Estate Transfer Evaluations occur prior to the sale or ownership transfer of any dwelling or habitable premise served by on-site water or on-site sewage disposal. Evaluations are conducted following the Ottawa County Department of Public Health's Real Estate Transfer Evaluation Policy. The results of the evaluation are provided to the seller or a designated agent who are then responsible for proving the purchaser the complete evaluation as received by the Department of Public Health.

C. City of Holland Rules and Regulations for Private Sewage Disposal Systems

The City of Holland Rules and Regulations for Private Sewage Disposal Systems obtain their authority from the Ordinance Code, section 29-15 of the City of Holland. These regulations pertain to the small number of private residential sewage disposal systems remaining in the city. It is important to note that both the Ottawa County Environmental Health Regulations, (Article III C), and the Allegan County Water and Sewage Regulations, (Section 102.00), claim jurisdiction in their respective portions of the City of Holland. Both the Ottawa and Allegan County regulations make references accommodating overlap with existing municipal ordinances.

D. City of Zeeland Storm Water Control Ordinance

The City of Zeeland Storm Water Management Ordinance No. 826 (2006 – Chapter 18, Article II) establishes authority and control to carry out the efficient management and operation of the Zeeland Storm Water Drainage System. The ordinance allows for any county, state or federal law, rule or regulation imposing a greater restriction to control. Illicit Discharge components of this ordinance include:

1. Prohibited Discharges (Division 4, Sec 18-119). No person shall discharge to a water body, directly or indirectly, any substance other than stormwater or an exempted discharge. Any

person discharging stormwater shall effectively prevent pollutants from being discharged with the stormwater, except in accordance with best management practices. The city is authorized to require dischargers to implement pollution prevention measures, utilizing best management practices (BMPs), necessary to prevent or reduce the discharge of pollutants into the city's stormwater drainage system.

2. Discharge prohibitions (Division 4, Sec 18-123)
    a. *Prohibition of illicit discharges*. No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including but not limited to pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than stormwater. The commencement, conduct, or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:
        1) Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety.
        2) The prohibition shall not apply to any non-storm water discharge permitted under an NPDES permit, waiver, or water discharge order issued to the discharger and administered under the authority of the federal environmental requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.
    b. *Prohibition of illicit connections*.
        1) The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.
        2) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.
        3) A person is considered to be in violation of this article if the person connects a line conveying wastewater to the MS4, or allows such a connection to continue.

3. Inspection and Sampling (Division 5, Sec. 18-145). To ensure compliance with the standards in this pervasively regulated area, the city may inspect and/or obtain stormwater samples from stormwater management facilities of any discharger to determine compliance with the requirements of this article. Upon request, the discharger shall allow the city's properly identified representative to enter upon the premises of the discharger at all hours necessary for the purposes of such inspection or sampling. The city shall provide the discharger reasonable advance notice of such inspection and/or sampling. The city or its properly identified representative may place on the discharger's property the equipment or devices used for such sampling or inspection.

4. Accidental Discharges (Division 5, Sec 18-147)
    a. Any discharger who accidentally discharges into a water body any substance other than stormwater or an exempted discharge shall immediately inform the city concerning the discharge. If such information is given orally, a written report concerning the discharge shall be filed with the city within five days. The written report shall specify:
        1) The composition of the discharge and the cause thereof.
        2) The exact date, time, and estimated volume of the discharge.
        3) All measures taken to clean up the accidental discharge, and all measures proposed to be taken to reduce and prevent any recurrence.
        4) The name and telephone number of the person making the report, and the name of a person who may be contacted for additional information on the matter.
5. Enforcement measures, including sanctions for violations, are outlined in Division 8.

E. City of Zeeland Wastewater Control Ordinance

The focus of the City of Zeeland Wastewater Control Ordinance (No. 819, 2005, Chapter 40, Article V) to prevent pollution of the waters of the State of Michigan and to preserve and maintain the sewage system of the City of Zeeland. Illicit Discharge aspects of this ordinance include:

1. Storm sewer is defined as a sewer line intended to carry only storm waters, surface runoff, street wash waters, and drainage. (Note: All portions of the Macatawa Watershed have separate systems for storm and sanitary usage.)

2. Permits are required for all buildings that desire to connect to the City wastewater system, including all commercial and industrial facilities (Sec. 40-299). All significant industrial users, minor industrial users, and/or other nondomestic users, shall provide and operate, at the user's expense, a monitoring manhole to allow inspection, sampling, and flow measurement of each process discharge to the collection system. The monitoring manhole location shall be located on the user's property and shall be accessible to city employees at any time (Sec. 40-300).

3. Inspections – City applicants for a wastewater connection permit shall notify the manager or city building official when the building sewer connection is ready for inspection. The inspector or authorized person shall then inspect the wastewater connection construction therein. The inspection shall be made within 48 hours after notification, excluding Saturdays, Sundays, and holidays. The inspector or authorized person bearing proper credentials and identification shall be allowed to enter upon all properties for the purpose of inspection, observation, measurement and testing in accordance with the provisions of this article. (Sec. 40-302)

4. The ordinance also establishes fees, penalties, recovery of costs due to violation and potential liability for any costs or damages resulting from the termination of service.

F. Township Codes and Ordinances

Ottawa County Townships with urbanized areas include the following:

- Holland Urbanized Area: significant portions of Holland Charter, Park and Zeeland Charter Township and small areas in Olive and Port Sheldon Townships
- Grand Rapids Urbanized Area: significant portions of Allendale Charter, Blendon, Georgetown, Jamestown Charter, and Tallmadge Charter Townships and a small area in Wright Township
- Muskegon Urbanized Area: significant portions of Grand Haven Charter and Spring Lake Townships and small areas within Crockery and Port Sheldon Townships

A summary of codes and ordinances pertaining to illicit discharges and connections follows.

- Holland Charter Township Code of Ordinances, Chapter 34 – Utilities, Article II – Sewer System
- Park Township Code of Ordnances
    - Chapter 14 – Environment, Article III – Stormwater, Division 4 – Prohibitions and Exemptions
    - Chapter 34 – Utilities, Article III – Sewers
- Olive Township Zoning Ordinance
    - Article 21, Section 21.10 – Required Water Supply and Wastewater Disposal Facilities (refers to OCDPH codes)
    - Article 22 – Environmental Conservation Provisions, Section 22.04 – Lakes, Ponds, Rivers, Streams, Water Courses, and Drainageways
- Port Sheldon Township Zoning Ordinance, Section 4.13 – Water and Sanitary Disposal Facilities, Available (refers to OCDPH codes)
- Allendale Charter Township
    - Sewer System Ordinance (2006-26) (primarily refers to charges, rates and fees)
    - Storm Water Ordinance (2004-8), Article VI – Prohibitions and Exceptions
- Blendon Township Zoning Ordinance, Chapter 15 – General Provisions, Section 15.05 – Public Services, Utilities and Communication (requires OCDPH approval)
- Georgetown Township Code of Ordinances
    - Chapter 48 – Stormwater Management, Article IV – Prohibitions and Exceptions
    - Chapter 58 – Utilities, Article III – Sewer Service
- Jamestown Charter Township Zoning Ordinance, Chapter 3 – General Provisions, Section 3.21 – Water and Sewer (requires OCDPH approval)
- Tallmadge Charter Township Zoning Ordinance, Chapter 3 – General Provisions, Section 3.10(l) (requires OCDPH approval for sanitary or septic)
- Wright Township Zoning Ordinance, Chapter 3 – Regulations Applicable to all Districts, Sec. 314.3 – Water Supply and Sewer Systems (requires OCDPH approval)

- Grand Haven Charter Township
    - Storm Water Ordinance (No. 386, 2003, 14.05000), Sec. 4.01 – Prohibitions and Exemptions
    - Sewer Usage and Administration Ordinance (No. 180, 1993, 25.0200)
- Spring Lake Township Code of Ordinances,
    - Chapter 14 – Environment, Article VI – Stormwater Management (Division 4 – Prohibitions and Exemptions)
    - Chapter 38 – Utilities, Article III – Sewer Usage and Administration
- Crockery Township Zoning Ordinance, Article 3 – General Provisions, Sec. 3.18 – Health Department Approvals

G. Ottawa County Water Resources Commissioner's Site Development Rules

The Ottawa County Water Resources Commissioner's Developmental Standards and Specifications including the Stormwater Management Policy was acknowledged by the Ottawa County Board of Commissioners on May 14, 1996. The water resources commissioner's policy also establishes its authority through the Drain Code of 1956, the Land Division Act 591 of 1996, the Clean Water Act of 1974 and the Federal Water Pollution Act, MI Act 451 or 1994. New Site Development Rules were prepared for the submission of MS4 permit reapplication in 2016. The OCRC will continue to follow these rules as it pertains to development and permits in the road right of way.

H. Excerpts from Act 283 of 1909 Public Highways and Private Roads

224.19. (3). The construction, improvement, and maintenance of roads, bridges, and culverts, shall be in accordance with plans and specifications furnished or approved by the county highway engineer, who shall have supervision of the construction. The county road commissioners have all the authority in respect to the roads, bridges, and culverts which is vested in highway officers in townships, including the right to condemn gravel for road purposes and to petition the county drain commissioner for an outlet drain as provided in section 8 of chapter 15.

224.19b amended (effective April 5, 2017). (1) A person, partnership, association, corporation, or governmental entity shall not construct, operate, maintain, or remove a facility or perform any other work within the right-of-way of a county road except sidewalk installation and repair without first obtaining a permit from the county road commission having jurisdiction over the road and from the township, city, or village in which the county road is located when a permit is required by ordinance of the township, city, or village, under the authority conferred by section 29 of article VII of the state constitution of 1963. The adjacent property owner shall not be required to obtain a permit for work incidental to the maintenance of the right-of-way lying outside of the shoulder and roadway.

I. Drain Code of 1956

The Drain Code of 1956 as amended, Public Act 40 of the State of Michigan is primarily a water quantity document which relates to establishing drainage districts and construction and maintenance of drains. However, reference to illicits exists as follows:

> Section 280.423 Discharge of certain sewage or waste matter into drains is prohibited – A municipality, industry, public or private corporation, individual. Partnership association, or any other entity shall not continue to discharge or permit to be discharged into any county drain or intercounty drain of the state any sewage or waste matter capable of producing in the drains detrimental deposits, objectionable odor nuisance, injury to drainage conduits or structures, or such pollution of the waters of the state receiving the flow from the drains as to injure livestock, destroy fish life or be injurious to public health. If the water resources commission (of the State of Michigan) determines that sewage or wastes carried by any existing county or intercounty drain constitutes unlawful discharge as prescribed by section 6 of Act No. 245 of the Public Acts of 1929, as amended, being section 323.6 of the Compiled Laws of 1948, that 1 or more users of the drain are responsible for the discharge of sewage or other wastes into the drain and such users of the drain and the sources of pollution are identified in the order of the water resources commission and that the cleaning out such drain or the construction of disposal plants, filtration beds or other mechanical devices to purify the flow of such drain is necessary, it may issue an order of determination to the drain commissioner, as prescribed by section 7 of Act No. 245 of the Public Acts of 1929, as amended, being section 323.7 of the Compiled Laws of 1948, to that effect. That order serves as a petition under and shall waive the determination of necessity by a drainage board pursuant to chapters 20 and 21 or a board of determination pursuant to section 72 or 102, whichever is applicable.

J. Michigan Department of Environmental Quality

Michigan Department of Environmental Quality reacts to hazardous spills per Part 31 of Public Act 451 of the State of Michigan and is notified as part of the local Standard Emergency Operating Procedures, (see preceding paragraph). The MDEQ telephone number for pollution emergencies is 1-800-292-4706. MDEQ also maintains a quick response Environmental Assistance Center, telephone number 1-800-662-9278.

K. Part 91, Soil Erosion and Sedimentation Control

Part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act, 1994 MI PA 451 as amended by 2000 PA 504 addresses soil erosion and sediment control at construction projects involving an earth change of 1 acre in size or within 500’ of a lake or stream. In Ottawa County, this law is administered by the Ottawa County Water Resource Commissioner’s office. This statute provides a mechanism to address sediment, a pollutant type discharge, into the Macatawa drainage systems.

L. Building Department Inspections

Units of government in the Macatawa Watershed have building departments with active inspection programs. New construction is inspected to assure that unlawful sewer connections, for example to a municipal storm drain, do not occur.

M. Rules Summary

An Illicit Discharge Elimination Plan should utilize rules already in existence pertinent to detection and elimination of an illicit discharge. The existing rules of the public entities within the Macatawa Watershed provide a framework for both detection and elimination of illicit discharges. This framework may need to be enhanced as part of the OCRC's Illicit Discharge Elimination Plan. The greatest strength of existing rules resides in the elimination of illicit sanitary sewage type discharges, however other types of illicits referred to as waste, wash water, effluent, and hazardous liquid material are referenced. Existing rules provide for health officer/inspector access and inspection upon private property and specify a method of terminating as well as addressing cost and liability issues associated with an illicit sanitary sewage type discharge. A weakness is that chance discovery of an illicit is generally relied upon rather than a program of regular inspections. A program of regular public storm drainage discharge point and outfall inspections is addressed in the OCRC Illicit Discharge Elimination Plan. A general weakness of existing rules addressing illicit discharges is that these rules primarily pertain to sanitary sewage type illicit discharges. New rules may be needed to address elimination of certain illicit discharges. Rule existence and consistency throughout the watershed should be reviewed. Inspection of public storm drainage discharge points and outfalls in the Macatawa Watershed will focus on all types of illicit discharges. Departments of public entities providing an existing framework for illicit detection and elimination will need to be updated concerning their role, pursuant to their rules, in the implementation of the Illicit Discharge Elimination Plan for the OCRC.

VI. Resources

Ammonia test strips (25 for $23.85, August 2017): http://www.hach.com/ammonia-nitrogen-test-strips-0-6-0-mg-l/product?id=7640211610

pH test strips (100 for $25.39, August 2017): http://www.hach.com/ph-paper-0-14-ph-range-100-pk/product?id=7640233621&callback=qs

APPENDIX A

ILLICIT DISCHARGE MONITORING FORM

DRY WEATHER MS4 MONITORING FORM

Date: _____ Time: _____ Person Completing Form: _____

Current Weather Conditions: _____ Date of last rain: _____

Outfall #/Name: _____ Latitude/Longitude: _____

Receiving water body: _____

Outfall diameter: _____ Material or type: _____ Condition: _____

Flow observation (check one):

☐ Water flowing – Depth: _____ ☐ Standing water, no flow – Depth: _____

☐ Trace, too little to quantify ☐ Dry, no water present (*skip to Odor Assessment*)

Chemical Assessment – *complete if flowing or standing water is present*

pH: _____ NH_4: _____ Water Temp: _____°F Surfactants? ☐ YES ☐ NO

Color Assessment – *complete if flowing or standing water is present, check one*

☐ Clear ☐ Milky (grey) ☐ Muddy (brown) ☐ Black ☐ Green

Other/Comment: _____

Turbidity Assessment – *complete if flowing or standing water is present, check one*

☐ Clear ☐ Low ☐ Moderate ☐ High

Odor Assessment – *for all flow conditions, check all that apply*

☐ No odor ☐ Musty ☐ Sewage ☐ Rotten egg

☐ Gas/oil ☐ Fishy ☐ Chlorine ☐ Other: _____

Other Observations – *for all flow conditions, check all that apply*

Floatables	☐ None	☐ Trash	☐ Sewage	☐ Foam	☐ Oil	☐ Other _____
Deposits/Stain	☐ None	☐ Mineral	☐ Sediment	☐ Oil/Grease	☐ Other: _____	
Vegetation	☐ None	☐ Normal	☐ Excessive	☐ Other: _____		
Biology	☐ None	☐ Algae	☐ Slime	☐ Bacterial Sheen		
Erosion	☐ None	☐ Low	☐ Moderate	☐ Severe (attach photo)		

Comments:

Copies provided to:

☐ MACC

☐ File

☐ Follow up needed

☐ Map attached (if necessary)

☐ Photos attached (if necessary)

Inspector's signature:

APPENDIX B

PART 5 REPORTING REQUIREMENTS

Release Notification Requirements in Michigan

While diligent efforts have been made to assure that the information provided in the following table is accurate and complete as of August 18, 2015, there is no guarantee that it covers all of the regulatory requirements for release notification and reporting in Michigan.

Chemical releases in Michigan are potentially reportable under one *or more* of twenty-seven different **state and federal regulations**. Determining which regulations apply to a specific release can be an overwhelming task. The "Release Notification Requirements in Michigan" table was compiled by the Michigan SARA Title III Program staff in the Department of Environmental Quality (DEQ) to help owners and operators of facilities in Michigan, including vehicles and farms, determine their potential notification and reporting requirements in the event of a chemical release.

Check your permits, licenses, registrations, pollution prevention plans, and local ordinances for *additional* release reporting requirements. In particular, all NPDES permits and most air permits have release reporting requirements in them that are not included on this table.

This table should be used as a tool to identify potential reporting requirements *before* a release occurs, and to identify follow-up reporting requirements based on the release. The table outlines **what** releases must be reported, **when** they must be reported, and **to whom** they must be reported.

What Is a Chemical Release?

The term "release" means spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing. "Chemical" includes substances considered to be toxic or hazardous as well as substances as seemingly harmless as salad oil.

Chemical Lists

The EPA published a consolidated list of chemicals subject to SARA Title III, CERCLA, section 112(r) of the Clean Air Act called the "List of Lists." See the following EPA website for the List of Lists: http://www2.epa.gov/epcra/epcracerclacaa-ss112r-consolidated-list-lists-march-2015-version

The "List of Lists" includes:

- **CERCLA Hazardous substances**, including **RCRA waste streams** and **unlisted hazardous wastes**, with reportable quantities (RQ) for releases (originally published in 40 CFR 302, Table 302.4).
- **SARA Title III Extremely Hazardous Substances** (EHS) with RQs for releases (originally published in 40 CFR 355).
- **SARA Title III Section 313 Toxic chemicals** (originally published in 40 CFR 372 Subpart D).

The Part 5 Rules, Spillage of Oil and Polluting Materials, were promulgated pursuant to Part 31 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). These rules include a list of "**polluting materials**" with threshold reporting quantities for releases.

NREPA Part 201 has been updated and now refers to the **2015 version of the CERCLA list** of hazardous substances.

NOx Exemption in CERCLA and SARA Title III

On **October 4, 2006**, EPA finalized an exemption for certain releases of emissions of NO and NO_2 (collectively NOx) to air from CERCLA and SARA Title III reporting requirements (71 FR 58525). The exemption was effective November 3, 2006, and applies to releases to the air of less than 1,000 pounds of NOx in 24 hours that are the result of combustion. The exemption also applies to emissions from combustion-related activities such as detonation or processes that include both combustion and non-combustion operations, such as nitric acid production.

Petroleum Exclusion in CERCLA

Petroleum, including crude oil or any fraction thereof is excluded from the definitions of "hazardous substance," and "pollutant or contaminant" under CERCLA. Petroleum releases, accordingly, must generally be addressed under the authority of other law such as the underground storage tank (UST) provisions of RCRA, or the Clean Water Act (CWA). This exception, which has become known as the "***petroleum exclusion***," plays a significant role in CERCLA because many sites contain petroleum contamination. Petroleum frequently contains specific listed hazardous substances, the most common of which are benzene, toluene and xylenes. In general, such substances are not treated as CERCLA hazardous substances as long as they are found in refined petroleum fractions and are not present at levels that exceed those normally found in such fractions. Substances present in petroleum as a result of contamination during use or from mixing or combining are not within the petroleum exclusion and in such cases, the substances are considered CERCLA hazardous substances.

NREPA Part 201, Environmental Remediation, section 20114(1)(b) states that the requirements to report a release under this regulation apply to “reportable quantities of hazardous substances established pursuant to 40 CFR 302.4 and 302.6” This regulation references the listed hazardous substances published in the Code of Federal Regulations. It does not adopt the petroleum exclusion that applies to federal regulation of releases of CERCLA hazardous substances. As a result, petroleum constituents, including component substances such as benzene, toluene, and xylenes, plus any additives (e.g., MTBE, lead) are all reportable under Part 201 based on the reportable quantities in the 2015 version of the CERCLA list of hazardous substances published in 40 CFR 302.4 and 302.6.

Initial Notification: There is NO PENALTY for over-reporting!

When there is a release, determining if, when, and to whom it should be reported can be a daunting task even if you are familiar with the table. It is therefore recommended that **if there is a release, immediately call** the following three numbers even if the content or quantity of the released material has not yet been determined:

Post These Numbers by Every Phone

911 to notify Local authorities
800-292-4706 (PEAS) to notify State authorities
800-424-8802 (NRC) to notify Federal authorities

You can then respond to the release, reassess the situation, and make additional notifications as required (e.g. as specified in the table or in your permits). Your follow-up report will provide details that explain why a release was *or was not* reportable.

SARA Title III section 304 requires that the LEPC be notified immediately of a release. Many LEPCs accept the call to 911 as notification. Others require direct notification. Contact your LEPC in advance to find out their requirements.

Written Follow-up Report

Written follow-up report forms that are specified in the table are required by regulation. The DEQ has developed a generic written report form called "Spill or Release Report" (EQP 3465) that can be used to report releases of:

- Hazardous and extremely hazardous substances under SARA Title III,
- Hazardous waste under NREPA Part 111,
- Liquid industrial waste under NREPA Part 121,
- Hazardous substances under NREPA Part 201, and
- Polluting materials under NREPA Part 31, Part 5 Rules.

Hot Tip!

Use the generic Spill or Release Report form to record *initial* notifications.

Links to the release reporting forms and chemical lists referenced in the table are available on the DEQ SARA Title III Release Reporting website. Visit this site for updated DEQ and LEPC contact information.

NOTE: Executive Order 2012-14 transferred the DEQ storage tank program to the Bureau of Fire Services in LARA effective December 2, 2012. Phone numbers and email addresses associated with the storage tank program and staff have not changed.

For information regarding a specific regulation, contact the agency specified in the "notes" column of the table. If this is a DEQ division, contact the *district* division office.

General questions or comments regarding this table should be directed to the DEQ Environmental Assistance Center at 800-662-9278 or deq-assist@michigan.gov.

DEQ program information is available at www.michigan.gov/deq or you may contact the DEQ Environmental Assistance Center.

DEQ Release Reporting website:
www.michigan.gov/chemrelease

Acronyms are defined at the end of the table.

Release Notification Requirements in Michigan*

Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
SARA Title III Section 304 40 CFR 355.40 (**EHS & Hazardous Substances**)	Release of a CERCLA **hazardous** substance (40 CFR 302, Table 302.4) or **Extremely Hazardous** Substance (EHS) (40 CFR 355, Appendix A) from a facility (all buildings, equipment, etc. located on a single site or adjacent sites owned or operated by the same person) at which a hazardous chemical (as defined under 29 CFR 1910.1200(c)) is used, produced or stored (including motor vehicles, rolling stock, and aircraft) in a quantity equal to or greater than its corresponding reportable quantity in any 24-hr period that migrates beyond the facility boundaries. Includes continuous release reportable under CERCLA Section 103. Excludes release that is federally permitted or that results in exposure to persons solely within the boundaries of the facility. See 67 FR 18899 (4/17/02) for guidance on the CERCLA federally permitted release definition for certain air emissions. Does not apply to the application, handling, and storage by an agricultural producer of a pesticide product registered under FIFRA. Excludes release < 1000 lbs of NOx released to the air from combustion or combustion-related activities.	Immediate (within 15 minutes after discovery): to LEPC(s) of any area(s) potentially affected, and SERC (DEQ PEAS line accepts notification on behalf of SERC) by owner or operator. Continuous releases must be identified as such and are reported initially and when there is a significant change in the release. See 73 FR 76948 (12/18/08): Only CAFOs are required to report continuous releases to the air from animal waste. Transportation related releases can be reported to 911.	As soon as practicable (within 30 days) after release: to LEPC(s) and SERC. Not required for releases that occur during transportation or from storage incident to transportation. For continuous releases: Initial written within 30 days after initial telephone notification: to LEPC(s) and SERC. Michigan SARA Title III Program accepts reports on behalf of the SERC.	PEAS: 800-292-4706 Contact your LEPC for a phone number to report releases. Call 911 if your LEPC is not active. For further information & LEPC contact information, contact Michigan SARA Title III Program 517-284-7272
CERCLA Section 103 40 CFR 302 (**Hazardous Substances**)	Release into the environment of a CERCLA **hazardous** substance (40 CFR 302, Table 302.4) or hazardous constituent in a mixture or solution (including hazardous waste streams) from a vessel or facility (any building, structure, etc. including motor vehicles, rolling stock, aircraft, pipe, pipeline, well, pond, lagoon, impoundment, ditch, landfill, or site where a hazardous substance has come to be located) in a quantity equal to or greater than its corresponding reportable quantity in any 24-hour period. Excludes petroleum, including oil, or any fraction thereof. See 40 CFR 302.6 for notification requirements for radionuclide releases. Includes continuous release: occurs without interruption or abatement or that is routine, anticipated, and intermittent and incidental to normal operations or treatment processes. See 67 FR 18899 (4/17/02) for guidance on the CERCLA federally permitted release definition for certain air emissions. See 71 FR 58525 (10/4/06) re Exemption for NOx releases to the air of < 1000 lbs from combustion or combustion-related activities. Does not apply to the application, handling, and storage by an agricultural producer of a pesticide product registered under FIFRA.	Immediate (within 15 minutes after discovery): to NRC by person in charge of vessel or offshore or onshore facility. Continuous releases must be identified as such and are reported initially and when there is a significant change in the release. See 73 FR 76948 (12/18/08) re Exemption from reporting continuous releases to the air from animal waste.	For continuous releases only: Initial written within 30 days after initial telephone notification & Follow-up within 30 days of first anniversary of initial written notification: to EPA Region 5.	NRC 800-424-8802 or online at www.nrc.uscg.mil For further information contact Michigan SARA Title III Program 517-284-7272 or EPA's Superfund, TRI, EPCRA, RMP, and Oil Information Center 800-424-9346

NOTE: If the release is a **THREAT TO HUMAN HEALTH or SAFETY**, call 911 or your local fire department.

***This table covers only those reporting requirements found in rules and regulations that apply in Michigan. **Releases might be reportable under multiple regulations**.

Additional reporting requirements might be found **in permits**, licenses, registrations, **contingency and pollution prevention plans**, and local ordinances.

Release Notification Requirements in Michigan*

Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
NREPA 1994 PA 451 Part 201, **Environmental Remediation**	(i) Unpermitted release into the environment over a 24-hour period of a **hazardous** substance (*July 1, 2012, edition* of the CERCLA list, 40 CFR 302, Table 302.4) in a quantity equal to or greater than its corresponding reportable quantity. Does not include release solely from UST systems regulated under Part 213, and release solely from disposal area licensed under Part 115 and discovered through disposal area's hydrogeological monitoring plan. Release of substance regulated by MI Dept of Agriculture & Rural Development (MDARD) (fertilizer, soil conditioner, or pesticide) excluding normal agricultural practices: *also* report to MDARD.	Within 24 hours after discovery: to DEQ-RRD district office (PEAS after hours) by owner or operator or person holding easement interest. Report agricultural release to MDARD.	Upon request: Provide a response activity plan to DEQ-RRD district supervisor.	PEAS: 800-292-4706 MDARD Agriculture Pollution Emergency Hotline: 800-405-0101 For further information contact DEQ-RRD
NREPA 1994 PA 451 Part 201, **Environmental Remediation** (Continued)	(ii) The owner or operator has reason to believe that one or more **hazardous** substances are migrating or have migrated from his or her property and are present beyond the property boundary at a concentration in excess of cleanup criteria for unrestricted residential use. (iii) The release is a result of an activity that is subject to permitting under NREPA Part 615 and the owner or operator is not the owner of the surface property and the release results in **hazardous** substance concentrations in excess of cleanup criteria for unrestricted residential use. Hazardous substance means a hazardous substance defined in CERCLA (40 CFR 302), hazardous waste as defined in NREPA part 111, petroleum as defined in NREPA part 213, or any substance demonstrated to pose an unacceptable risk to public health, safety, welfare, or the environment. Cleanup criteria for unrestricted residential use means criteria that satisfy the requirements in section 20120a(1)(a) or (16); or as defined under NREPA part 213.	Within 30 days after discovery: to DEQ-RRD district office and owners of property to which hazardous substances migrated or owner of surface property by owner or operator of property where release occurred. Specific form required for: "Notice of Migration of Contamination" (Form EQP4482).	Upon request: Provide a response activity plan to DEQ-RRD district supervisor.	For further information contact DEQ-RRD

NOTE: If the release is a **THREAT TO HUMAN HEALTH or SAFETY**, call 911 or your local fire department.

***This table covers only those reporting requirements found in rules and regulations that apply in Michigan. **Releases might be reportable under multiple regulations**.

Additional reporting requirements might be found **in permits**, licenses, registrations, **contingency and pollution prevention plans**, and local ordinances.

Release Notification Requirements in Michigan*

Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
NREPA 1994 PA 451 Part 83, Pesticide Control Regulation 640, Commercial Pesticide Bulk Storage (**Agricultural**)	Release to the environment of a commercial **pesticide** >5 gallons or 100 pounds. Reportable agrichemical spills as defined in the provisions of SARA Title III section 304 and CERCLA section 103 shall be immediately reported to PEAS and the NRC. The term "release" excludes normal agricultural practices.	Immediate: to PEAS* Also notify NRC for spills reportable under SARA Title III & CERCLA. *MDARD prefers direct notification to their hotline. PEAS forwards all agriculture calls to MDARD.	Within 90 days: to MDARD Pesticide and Plant Pest Management Div. a revised site plan.	MDARD Agriculture Pollution Emergency Hotline: 800-405-0101 PEAS: 800-292-4706 NRC 800-424-8802 or online at www.nrc.uscg.mil For further information contact MDARD 517-284-5644
NREPA 1994 PA 451 Part 85, Fertilizers Regulation 641 Commercial Fertilizer Bulk Storage Regulation 642, On Farm Fertilizer Bulk Storage (**Agricultural**)	Release to the environment of a commercial **fertilizer** >55 gallons liquid or 650 pounds dry, or tank overfills; or an on farm fertilizer > 55 gallons liquid. For storage tank with bladder system instead of diking: also report all overfills and internal spills. The term "release" excludes normal agricultural practices. The term "liquid fertilizer" excludes anhydrous ammonia.	Immediate: to MDARD by commercial bulk storage facility personnel (For farms, the regulation does not specify who makes the report.)	Not required.	MDARD Agriculture Pollution Emergency Hotline: 800-405-0101 For further information contact MDARD 517-284-5644
Fire Prevention Code 1941 PA 207 Section 29.5g	A fire, explosion, spill, leak, accident, or related occurrence that involves the transportation, storage, handling, sale, use, or processing of hazardous material by a firm, person, or vehicle. **Hazardous** material = explosives, pyrotechnics, flammable gas, flammable compressed gas, flammable liquid, nonflammable compressed gas, combustible liquid, oxidizing material, poisonous gas or liquid, LPG, or irritating, etiologic, radioactive, or corrosive material. Act 207 amended 6/19/2006. The State Fire Marshall is in LARA, Bureau of Fire Services.	Immediately following incident, report known details regarding incident: to LARA Bureau of Fire Services *and* organized local fire department by owner of firm or vehicle or the person *and* the chief of first police or organized fire dept upon scene of incident.	Not required.	Contact LARA Bureau of Fire Services by calling the MSP HazMat hotline: 800-525-5555 For further information: contact local fire department

NOTE: If the release is a **THREAT TO HUMAN HEALTH or SAFETY**, call 911 or your local fire department.

***This table covers only those reporting requirements found in rules and regulations that apply in Michigan. **Releases might be reportable under multiple regulations**.

Additional reporting requirements might be found **in permits**, licenses, registrations, **contingency and pollution prevention plans**, and local ordinances.

Release Notification Requirements in Michigan*

Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
49 CFR 171 (**Transportation of Hazardous Materials**)	Initial verbal notice: Incident during transportation (including loading, unloading, temporary storage) involving (1) **hazardous** material and resulting in death, injury requiring hospitalization, public evacuation ≥ 1 hour, major transportation artery or facility closure ≥ 1 hour, or flight pattern alteration; (2) fire, breakage, spillage, or suspected radioactive contamination occurs involving a **radioactive** material; (3) fire, breakage, spillage or suspected contamination involving an **infectious** substance other than a regulated medical waste; (4) **marine pollutant** release exceeding 450 L (119 gal) liquid or 400 kg (882 lbs) solid; (5) other per judgment of person in possession of the hazardous material (e.g., continuing danger to life exists at scene of incident); (6) during transportation by aircraft, a fire, violent rupture, explosion or dangerous evolution of heat occurs as a direct result of a battery or battery-powered device. Hazardous material = CERCLA hazardous substance (40 CFR 302, Table 302.4), hazardous waste (40 CFR 262), marine pollutant (49 CFR 172.101 Appendix B), elevated temperature material, listed on Hazardous Materials Table (49 CFR 172.101), or meets criteria for hazard class/division in 49 CFR 173. Written follow-up report: Required for all of above, plus any unintentional release of hazardous material from a package (including tank); or any quantity of hazardous waste discharged during transportation; or structural damage to lading retention system, even if no release, on specification cargo tank with ≥ 1000 gal capacity containing hazardous material; or undeclared hazardous material discovered.	As soon as practical but no later than 12 hours after occurrence of the incident: to NRC by each person in physical possession of the hazardous material. (A reportable incident *must* be reported by telephone, not online.) For infectious substances, notice may be given to the Director, Centers for Disease Control and Prevention, U.S. Public Health Service instead of NRC.	Within 30 days after discovery: to US DOT on DOT Form F 5800.1 (01-2004) "Hazardous Materials Incident Report." Report online at https://hazmatonline.phmsa.dot.gov/incident/ Report must be updated w/i 1 year of incident if: Death results from injury; hazardous material or package info on prior report misidentified; damage, loss or cost not known on prior report becomes known or changes by $25,000 or 10%. See regulation for exceptions to written report.	NRC 800-424-8802 or online at www.nrc.uscg.mil U.S. Public Health Service 800-232-0124 For further information contact US DOT Hazardous Materials Information Center at 800-467-4922 or online at www.phmsa.dot.gov/hazmat
NREPA 1994 PA 451 Part 31, Water Resources Protection (Release to **surface of ground**, **surface water , groundwater** or **public sewer system**)	Unpermitted release directly or indirectly to public sewer system, surface of ground, surface water or groundwater from an oil storage facility or on-land facility of a "**polluting material**" (**oil**, **salt**, or any material specified in table 1 in R 324.2009) in excess of its threshold reporting quantity during any 24-hour period. See Part 5 rules, effective 8/31/01, for details and exemptions. HB 5586 effective 6/15/04 amended the reporting requirements. *Rule revisions pending as of November 2014.*	As soon as practicable after detection: to PEAS *and* 911 by owner, operator or manager. State agencies call 911 if release reported to them by another state or Canada.	Within 10 days after release: to DEQ-WRD district supervisor *and* to the local health department where the release occurred, outlining cause, discovery, response & prevention of recurrence.	PEAS: 800-292-4706 For further information contact DEQ-WRD

NOTE: If the release is a **THREAT TO HUMAN HEALTH or SAFETY**, call 911 or your local fire department.

*****This table covers only those reporting requirements found in rules and regulations that apply in Michigan. **Releases might be reportable under multiple regulations**.

Additional reporting requirements might be found **in permits**, licenses, registrations, **contingency and pollution prevention plans**, and local ordinances.

Release Notification Requirements in Michigan*

Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
CWA Section 311 33 CFR 153 (**Navigable waters** – Coast Guard/DOT) Control of Pollution by **Oil** and **Hazardous** Substances, Discharge Removal	Discharge of a harmful quantity of **oil** or a **hazardous** substance from a vessel or onshore or offshore facility into or upon navigable **waters** of the United States or adjoining **shorelines**. Harmful quantity = oil discharge that violates applicable water quality standards, or causes a film or sheen upon or discoloration of the surface of the water or adjoining shorelines, or causes a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines; or a CERCLA hazardous substance (40 CFR 302, Table 302.4) in a quantity equal to or greater than its corresponding reportable quantity. Oil = oil of any kind or in any form including petroleum, crude oil, petroleum refined products, sludge, oil refuse, oil mixed with wastes, etc., as well as vegetable and animal oils.	Immediate: to NRC by person in charge of vessel or facility. If direct reporting to NRC not practicable, may report to district Coast Guard or EPA predesignated OSC.	Not required.	NRC 800-424-8802 or online at www.nrc.uscg.mil District 9 Coast Guard 216-902-6117 EPA Region 5 for predesignated OSC 312-353-2318 For further information contact EPA Region 5 at 312-353-8200 or District 9 Coast Guard at 216-902-6045
CWA Section 311 40 CFR 110 (**Discharge of Oil**)	Discharges of **oil** that violate applicable **water** quality standards, or cause a film or sheen upon or discoloration of the surface of the water or adjoining **shorelines**, or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. Oil = oil of any kind or in any form including petroleum, crude oil, petroleum refined products, sludge, oil refuse, oil mixed with wastes, etc., as well as vegetable and animal oils.	Immediate: to NRC by person in charge of vessel or facility.	Not required.	NRC 800-424-8802 or online at www.nrc.uscg.mil For further information contact DEQ-WRD
NREPA 1994 PA 451 Part 31, Water Resources Protection (**Sewer Systems**)	Discharge of untreated sewage or partially treated sewage from a **sewer system** onto land or into the waters of the state. "Sewer system" means a sewer system designed and used to convey sanitary sewage or storm water, or both.	Immediate (within 24 hours): to DEQ-ODWMA district office (PEAS after hours); Local health depts.; Daily newspaper circulated in source & affected counties; & Affected municipalities.	At end of discharge: to same parties notified initially on Form EQP 5857 (Rev. 12/2011) "Report of Discharges of Untreated or Partially Treated Sewage." Includes results of E. coli testing.	PEAS: 800-292-4706 For further information contact DEQ-ODWMA
NREPA 1994 PA 451 Part 41, **Sewerage Systems**	Discharges of pollutants from **sewerage systems** (which can include combined sewers) in excess of those authorized by a discharge permit issued by the DEQ to surface water or groundwater as a result of a facility breakdown or emergency. Sewerage systems handle sanitary sewage or other industrial liquid wastes.	Promptly: to DEQ-ODWMA district office (PEAS after hours) by owner.	Within 72 hours: to DEQ-ODWMA district supervisor, outlining cause, discovery, corrective actions taken to minimize impact, restore operations, and eliminate future unpermitted discharges.	PEAS: 800-292-4706 For further information contact DEQ-ODWMA

NOTE: If the release is a **THREAT TO HUMAN HEALTH or SAFETY**, call 911 or your local fire department.

***This table covers only those reporting requirements found in rules and regulations that apply in Michigan. **Releases might be reportable under multiple regulations**.

Additional reporting requirements might be found **in permits**, licenses, registrations, **contingency and pollution prevention plans**, and local ordinances.

Release Notification Requirements in Michigan*

Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
NREPA 1994 PA 451 Part 211, **Underground Storage Tanks** Part 213, Leaking Underground Storage Tanks	Releases of a **regulated substance** of any amount from underground storage tank (UST) systems (includes the emergency shutoff valve on down) subject to registration; overfill from UST fillpipe or vent onto ground; release from aboveground pipe attached to UST system. Regulated substance = petroleum or CERCLA hazardous substance (40 CFR 302, Table 302.4) or substance listed in CAA title 1 part A sect 112. Petroleum includes, but is not limited to, crude oil, motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, and petroleum solvents.	(Part 211) Within 24 hours after discovery: to LARA Bureau of Fire Services, Storage Tank Division by email, or fax on Form EQP 3826 (Rev. 4/12) If free product, Form EQP 3800 (Rev 02/2003) required by UST owner or operator, or employee of owner or operator. Includes releases discovered years after UST system removed	(Part 213) At 180 days Initial Assessment Report on Form EQP3841 (Rev. 02/2003) if not closed; at 365 days Final Assessment Report on Form EQP3842 (Rev. 11/2006) if still not closed; at closure Closure Report on Form EQP3843 (Rev. 02/2003) to DEQ-RRD district project manager.	Email: deq-std-tanks@michigan.gov Fax:517-335-2245 For further information contact DEQ-RRD or phone 800-MICHUST
NREPA 1994 PA 451 Part 111, **Hazardous Waste** Management (Generators; Treatment, Storage & Disposal Facilities (TSDF); Transporters)	Any amount of characteristic **hazardous waste** or listed hazardous waste (as defined in R 299.9203 "Hazardous Waste Rule 203") reaches the surface water or groundwater, or A fire, explosion, or other release of hazardous waste or hazardous waste constituent occurs that could threaten human health or the environment. or A release of >1lb (or ≤1lb if not immediately cleaned up) hazardous waste to the environment from a tank system or associated secondary containment system. Additional hazardous waste reporting requirements under NREPA Part 201 and CERCLA. NREPA Part 111 requires transporters to comply with 49 CFR 171 and 33 CFR 153.	Immediate: to PEAS (or for Tank systems/secondary containment, within 24 hours of discovery: to DEQ-OWMRP) and to NRC if threat to human health or environment outside facility by generator, or owner or operator of TSDF, or transporter.	For large quantity generators and TSDF: Within 15 days after incident IF the contingency plan had to be implemented: to DEQ-OWMRP. For tank/secondary containment systems: Within 30 days of discovery: to DEQ-OWMRP. For transporters: to US DOT if required per 49 CFR 171.	PEAS: 800-292-4706 NRC 800-424-8802 or online at www.nrc.uscg.mil For further information contact DEQ-OWMRP
NREPA 1994 PA 451 Part 121, **Liquid Industrial Waste**	The **liquid industrial waste** spill could threaten public health, safety, welfare, or the environment, or has reached surface water or groundwater. Liquid industrial waste includes nonhazardous brine, by-product, industrial wastewater, leachate, off-spec commercial chemical product, sludge, sanitary or storm sewer clean-out residue, grease trap clean-out residue, spill residue, used oil, or other liquid waste not regulated by other laws.	Immediate: to PEAS and local authorities by generator, transporter, or owner or operator of facility. Refer to MCL 324.12111(1) for required report elements	Prepare within 30 days after incident. Submit upon request: to DEQ-OWMRP district supervisor. Refer to MCL 324.12111(1) for required report elements	PEAS: 800-292-4706 For further information contact DEQ-OWMRP
NREPA 1994 PA 451 Part 55, **Air Pollution** Control	Abnormal condition, start-up, shutdown, or malfunction that results in emissions exceeding permissible (in rule, permit or order) levels of **hazardous air pollutants** (HAPs) (CAA Sect. 112(b)) or **toxic air contaminants** (as specified in permit) for > 1 hour, or any air contaminant for > 2 hours. Written follow-up report only required for emission exceedences lasting > 2 hours.	As soon as possible, but not later than 2 business days after discovery: to DEQ-AQD district office (PEAS after hours) by owner or operator.	Within 10 days after start-up, shutdown, or abnormal condition, malfunction corrected. Or within 30 days of abnormal condition, malfunction discovery- whichever first: to DEQ-AQD district supervisor.	PEAS: 800-292-4706 For further information contact DEQ-AQD

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Additional reporting requirements might be found **in permits**, licenses, registrations, **contingency and pollution prevention plans**, and local ordinances.

Release Notification Requirements in Michigan*

Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
NREPA 1994 PA 451 Part 55, **Air Pollution** Control (Permit to Install Exemptions)	Emergency venting of **natural gas** from transmission and distributions systems or **field gas** from gathering lines in amounts > 1,000,000 standard cubic feet per event. Emergency = unforeseen event that disrupts normal operating conditions and poses a threat to human life, health, property or the environment if not controlled immediately. See R 336.1285(mm), effective 6/20/2008, for details.	Within 24 hours of the event: to PEAS by owner or operator.	Not required.	PEAS: 800-292-4706 For further information contact DEQ-AQD
Public Health Code 1978 PA 368 Part 133, **Dry Cleaning**	Condition or incident presents a threat or hazard to **public health** or safety.	Immediate: to DEQ-AQD district office (PEAS after hours) by owner or operator.	Within 30 days after incident: To DEQ-AQD district supervisor.	PEAS: 800-292-4706 For further information contact DEQ-AQD
NREPA 1994 PA 451 Part 615, Supervisor of Wells (**oil and gas production fields**)	A loss, spill or release of (1) any amount of **brine**, **crude oil**, or **oil or gas field waste** *unless* it is less than 42 gallons and occurs while an authorized representative is on site and is completely contained and cleaned up within 1 hour, or (2) any unpermitted amount of **natural gas**, or (3) **chemicals** used in association with oil and gas activities.	Within 8 hours after discovery of: 42 gallons or more of brine, crude oil, or oil or gas field waste, or any amount of chemical or natural gas, or; less than 42 gallons if the spill contacts surface water, groundwater, or other environmentally sensitive resources, or is not completely contained and cleaned up within 48 hours: to DEQ-OOGM district office (PEAS after hours) by permittee.	Within 10 days after discovery of loss or spill: to DEQ-OOGM district supervisor on Form EQP-7233 (Rev 1/2012) "Report of Loss or Spill." by permittee Written report only for less than 42 gallons of brine, crude oil, or oil and gas field waste if spill does not contact surface water, groundwater, or other environmentally sensitive resources, and is completely contained and cleaned up within 48 hours.	PEAS: 800-292-4706 For further information contact DEQ-OOGM
49 CFR 191 Transportation of Natural and Other **Gas by Pipeline**	An incident, meaning: (1) Event that involves a release of **gas** from a pipeline, or of liquefied natural gas, liquefied petroleum gas, refrigerant gas, or gas from an LNG facility that results in: Death or hospitalization; or Property damage ≥ $50,000; or estimated gas loss of ≥ three million cubic feet. (2) Event that results in emergency shutdown of LNG facility. (3) Significant event per operator. Written Incident reports not required for LNG facilities. Applies to pipeline systems and the transportation of gas through those systems in or affecting interstate or foreign commerce. (See 49 CFR 191.3 for details.)	Earliest practicable moment following discovery: to NRC by operator. Notification must electronic unless there is a safety-related condition to report.	As soon as practicable, and within 30 days after discovery: to US DOT. on DOT Form PHMSA F 7100.1 "Incident Report – Gas Distribution System." or PHMAS F 7100.2 "Incident Report – Gas Transmission and Gathering Systems" or PHMSA F 7100.3 "Incident Report – Liquefied Natural Gas (LNG) Facilities" Supplemental report filed as necessary as soon as practicable.	NRC 800-424-8802 or online at www.nrc.uscg.mil For further information contact US DOT Pipeline Safety Information Center at 202-366-4595 or online at http://ops.dot.gov

NOTE: If the release is a **THREAT TO HUMAN HEALTH or SAFETY**, call 911 or your local fire department.

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Additional reporting requirements might be found **in permits**, licenses, registrations, **contingency and pollution prevention plans**, and local ordinances.

Release Notification Requirements in Michigan*

Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
49 CFR 195 Transportation of **Hazardous Liquids by Pipeline**	Release of hazardous liquid (**petroleum**, **petroleum products**, or **anhydrous ammonia**) or **carbon dioxide** from a pipeline system that results in any of the following: (a) Explosion or fire; (b) Release of $\geq$ 5 gallons (except if < 5 barrels released due to maintenance and release not otherwise reportable, confined to property, does not pollute water, and cleaned up promptly); (c) Death of any person; (d) Injury requiring hospitalization; or (e) Property damage > $50,000. (See 49 CFR 195.50, revised 1/8/02, for details) Applies to pipeline facilities and the transportation of hazardous liquids associated with those facilities in or affecting interstate or foreign commerce. (See 49 CFR 195.1 for details.)	Earliest practicable moment following discovery: to NRC by operator if Release caused: Death or hospitalization; Fire or explosion; Property damage; Water pollution; or was Significant per the operator.	As soon as practicable, and within 30 days after discovery: to US DOT on DOT Form PHMSA F 7000-1 "Accident Report – Hazardous Liquid Pipeline Systems" Supplemental report must be filed within 30 days after operator receives changes or additions to original report.	NRC 800-424-8802 or online at www.nrc.uscg.mil For further information contact US DOT Pipeline Safety Information Center at 202-366-4595 or online at http://ops.dot.gov
1978 PA 368 Part 135, **Radiation** Control	For any emergency. Or for incident involving naturally occurring or accelerator produced **radioactive material**- Immediate notice if: Incident may have caused or threatens to cause: dose to body 25 rems, to skin 150 rems, to extremities 375 rems (per rule 247); 24 hour concentration exceeds 5000 times limits specified in table II of rules 261 to 269; contamination causes operation shut down for 1 week, or property damage >$100,000. Notice within 24 hours if: Incident may have caused or threatens to cause: dose to body 5 rems, to skin 30 rems, to extremities 75 rems (per rule 247); 24 hour concentration exceeds 500 times limits specified in table II of rules 261 to 269; contamination causes operation shut down for 1 day, or property damage >$1000.	Immediate or within 24 hours (see reporting criteria): to DEQ-OWMRP Radiological Protection Section (PEAS after hours) or MSP Operations Division for all **Power Plant** related incidents (day or night). by licensee or registrant.	Within 30 days after release: to DEQ-OWMRP Radiological Protection Section by licensee or registrant. Written report also required if level of radiation or concentration of radioactive material in unrestricted area >10 times any applicable limit. See Rule 250 (R 325.5250) for required report content.	DEQ-OWMRP Radiological Protection Section 517-284-5185 MSP Operations Div 517-241-8000 PEAS: 800-292-4706 For further information contact DEQ-OWMRP Radiological Protection Section
10 CFR 20 (Standards for Protection Against **Radiation**)	For incident involving source, by-product, or special nuclear **radioactive material**- Immediate notice if: Event that may have caused or threatens to cause: effective dose equivalent to individual 25 rems, lens dose equivalent 75 rems, shallow-dose equivalent to skin or extremities 250 rads; individual could receive 5 times annual limit on intake in 24 hours. OR Any lost, stolen, or missing licensed material in an aggregate quantity equal to or greater than 1000 times the quantity specified in appendix C to part 20 under such circumstances that it appears to the licensee that an exposure could result to persons in unrestricted areas. Notice within 24 hours if: Event that may have caused or threatens to cause: an individual in 24 hours to receive effective dose equivalent >5 rems, lens dose equivalent >15 rems, shallow-dose equivalent to skin or extremities >50 rems; individual could receive >1 times annual limit on intake in 24 hours.	Immediate or within 24 hours (see reporting criteria): to USNRC by USNRC Licensee responsible for the incident.	Within 30 days of incident: to USNRC by licensee. Report content specified in 10 CFR 20.2003 Written report also required for occurrences as specified in 10 CFR 20 Section 20.2203 and after the occurrence of any lost, stolen, or missing licensed material becomes known to the licensee, and if at the time the report is filed all licensed material in a quantity greater than 10 times the quantity specified in appendix C to part 20 is still missing.	US Nuclear Regulatory Commission (USNRC) 301-816-5100 For further information contact DEQ-OWMRP Radiological Protection Section 517-284-5185

NOTE: If the release is a **THREAT TO HUMAN HEALTH or SAFETY**, call 911 or your local fire department.

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Additional reporting requirements might be found **in permits**, licenses, registrations, **contingency and pollution prevention plans**, and local ordinances.

Release Notification Requirements in Michigan*

Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
MIOSHA 1974 PA 154 Section 61, Records & Reports; Notice of **Fatalities or Hospitalization**	A release that results in a **fatality** within 30 days of the incident or in-patient **hospitalization** within 24 hours of the incident. Note: the OSHA amendment to require employers to report all work-related hospitalization s within 24 hours becomes effective Jan 1, 2015. Michigan intends to adopt the new rules by reference within 6 months of the Sept 18, 2014 FR publication.	Within 8 hours: for a fatality or Within 24 hours: for hospitalization to MIOSHA Hotline by Employer.	Not required.	MIOSHA Fatality or Catastrophe Hotline 800-858-0397 For further information contact LARA-MIOSHA 517-322-1831
TSCA 40 CFR 761.125 (**PCBs**)	Spills of **PCB**s at concentrations of 50 ppm or more and subject to decontamination requirements under TSCA that: contaminate surface water, sewers, drinking water supplies, grazing lands or vegetable gardens, or exceed 10 pounds. (TSCA specifies that these requirements are in addition to any under CWA or CERCLA. e.g. CERCLA requires spills of 1 pound or more to be reported to NRC.)	As soon as possible after discovery, and within 24 hours: to EPA Region 5.	Not required to be submitted. Records of cleanup and certification of decontamination shall be documented.	EPA Region 5 Corrective Action Section 312-886-7890 For further information contact EPA Region 5 Corrective Action Section
SARA Title III Section 313 40 CFR 372 (**Toxic chemical** release reporting)	Covered facilities as defined in 40 CFR 372 subpart B are subject to **toxic** chemical release reporting for toxic chemicals and chemical categories listed in 40 CFR 372 subpart D.	Not applicable.	Annually by July 1: to EPA & SERC on EPA's Form R "Toxic Chemical Release Inventory Reporting Form" (EPA Form 9350-1, Rev.10/2011) Report aggregate releases (permitted & unpermitted)	Michigan SARA Title III Program accepts reports on behalf of SERC For further information contact Michigan SARA Title III Program 517-284-7272

Table prepared by the Michigan SARA Title III Program in the DEQ

Acronyms used in table:

AQD = Air Quality Division
AST = Above Ground Storage Tank
CAA = Clean Air Act
CAFO = Concentrated Animal Feeding Operation
CERCLA = Comprehensive Environmental Response, Compensation and Liability Act of 1980
CFR = Code of Federal Regulations
CWA = Clean Water Act
DEQ = Michigan Department of Environmental Quality
DOT = Department of Transportation
EHS = Extremely Hazardous Substance
EPA = U. S. Environmental Protection Agency
EPCRA = Emergency Planning & Community Right-to-Know Act
FIFRA = Federal Insecticide, Fungicide, & Rodenticide Act
FL/CL = Flammable and combustible liquids
FR = Federal Register
HAP = Hazardous Air Pollutant
HazMat = Hazardous Materials
HB = House Bill
LARA = Michigan Department of Licensing & Regulatory Affairs
LEPC = Local Emergency Planning Committee
LNG = Liquefied Natural Gas
LPG = Liquefied Petroleum Gas
MCL = Michigan Compiled Laws
MDARD = Michigan Department of Agriculture & Rural Development
MIOSHA = Michigan Occupational Safety and Health Administration
MSP = Michigan Department of State Police
NRC = National Response Center (U.S. Coast Guard)
NREPA = Natural Resources & Environmental Protection Act
ODWMA = Office of Drinking Water & Municipal Assistance
OOGM = Office of Oil, Gas, and Minerals
OPS = Office of Pipeline Safety (US DOT)
OSC = On Scene Coordinator
OWMRP = Office of Waste Management & Radiological Protection
PA = Public Act (Michigan)
PCB = Polychlorinated biphenyl
PEAS = Pollution Emergency Alerting System
PHMSA = Pipeline & Hazardous Materials Safety Administration
RMP = Risk Management Program
RRD = Remediation and Redevelopment Division
SARA = Superfund Amendments and Reauthorization Act of 1986
SERC = State Emergency Response Commission
TRI = Toxic Chemical Release Inventory
TSCA = Toxic Substance Control Act
TSDF = Treatment, Storage & Disposal Facility
US DOT = U.S. Department of Transportation
USNRC = U. S. Nuclear Regulatory Commission
UST = Underground Storage Tank
WRD = Water Resources Division

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APPENDIX C

NATURALLY OCCURRING PHENOMENON BROCHURES

Algae:
A Naturally-Occurring Phenomena

The Department of Environmental Quality often receives complaints of the presence of scum on a lake or that someone has dumped red, bright green, black or bluish-green paint, paint oil, or even antifreeze, into a lake, river, or stream. This phenomenon is often due to the presence of algae rather than the discharge of some type of substance.

Algae are simple plants that live in oceans, lakes, rivers, ponds, and moist soil. Algae grow in many forms. Some are microscopic and consist of just one cell and others are made up of many cells that form strands or colonies. Algae are less evolved than aquatic plants as they lack a true root, leaf, and stem system. Some algae species drift or swim, while others are attached to stones or aquatic plants in the water. All algae contain chlorophyll (a green pigment). They help purify the air and water by the process of photosynthesis.

Some algae multiply rapidly in polluted lakes and rivers. Thick layers of algae, called algal blooms, may form when nutrients (mainly phosphorus and nitrogen) are added to the water in amounts in excess of naturally-occurring nutrients. Fertilizers, pet waste, improperly functioning septic tanks, grass clippings, leaves, and other yard wastes are all sources of nutrients. The increased algae population sometimes upset the natural balance of life in water because during algae decomposition, oxygen is removed from the water and this may cause fish to die.

Algae are generally grouped according to color. The color is based upon the chlorophyll and other pigments found in the algae cells. Blooms of algae can give the water an unpleasant taste or odor, reduce clarity, and color the water body a vivid green, brown, yellow, or even red, depending on the species of algae.

Blue-Green Algae

The cells of blue-green algae are different from the other algae. Most blue-green algae can be seen only with a microscope and often smells badly. Besides chlorophyll, they contain blue or red pigments. Although lakes with large numbers of blue-green algae usually appear blue-green in color, the combination of pigments can cause some blooms to appear reddish, brownish, or even black. Unlike other algae which use nitrogen available in the water, many blue-green algae species can use nitrogen from the air as a nutrient source. Due to this ability, blue-green algae blooms most often occur in late summer when the nitrogen in the water is usually lower. A few species of blue-green algae form slippery, dark coatings on rocks along rivers and lakeshores, while other species of blue-green algae are toxic and can poison animals that drink water containing these organisms.

Notice the different color appearances due to pigments.

Green Algae

Green algae occur in fresh water in a free-floating form. Most species are microscopic and live in lakes, ponds, and streams. Large quantities of such algae may color an entire lake and appear like green paint. Green algae blooms are often found during early to mid-summer months. However, some lakes have been known to reflect a green color during a "whiting event" not related to algae bloom. This event does not produce thick surface algae mats.

If you find pollution and believe it is human-induced, please report it to the State of Michigan's Pollution Emergency Alerting System (PEAS) hotline: 1-800-292-4706.

For more information, including tips to help reduce the amount of nutrients that can enter a lake from your home activities, please contact any Surface Water Quality Division district office or call the State of Michigan's Environmental Assistance Center at 1-800-662-9278.

This publication was developed through the cooperative efforts of the Environmental Assistance and Surface Water Quality Divisions, Michigan Department of Environmental Quality, 800-662-9278.

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MDEQ Michigan Department of Environmental Quality

Algae

DEQ

John Engler, Governor ◆ Russell J. Harding, Director

Oil-Like Films and Slimes (Bacteria): A Naturally-Occurring Phenomena

The Department of Environmental Quality often receives complaints claiming that "someone dumped paint or a rust-colored substance" or that there is an unnatural colored oil-like sheen in moist areas or in a water body. Some oil-like films, coatings, and slimes, although they may look bad, are natural phenomena. These phenomena are caused by single-celled organisms called bacteria.

Slimes, films, and rock coatings can be found anywhere that groundwater carry minerals such as iron, manganese, copper, and sulfur. Slimes, oil-like films, and rock coatings are often made by bacteria that are reacting to the presence of minerals in the water. Bacteria live in wet areas, including: on the water surface, in the water column, and in the lake sediment. Some bacteria are getting energy and some are performing other life functions by transforming minerals to different chemical forms. These bacteria are of no threat to human health and have been involved in the iron and manganese cycles for billions of years. Some bacteria are very useful because they remove harmful materials from water.

A bacteria film is on the water: notice the broken appearance.

Bacteria create oil-like films when they attach themselves to the water surface. Sunlight bounces off the films, giving them an oily appearance. To test the difference between a bacterial film and oil floating on the water, break the film. If the film stays broken, it is a natural bacterial film. If it flows back into place, it is petroleum, which indicates pollution.

Notice the purple (sulfur).

Bacteria produce different color films, coatings, and slimes. Bacteria that precipitate (take out of water as a solid) copper minerals may make turquoise blue films. Green and purple bacterial slimes may appear when sulfur is present, while white slimes occur in the presence of aluminum, sulfur, or calcium minerals.

If you find pollution and believe it is human-induced, please report it to the State of Michigan's Pollution Emergency Alerting System (PEAS) hotline at 1-800-292-4706. For more information please contact any Surface Water Quality Division district office or call the State of Michigan's Environmental Assistance Center at 1-800-662-9278.

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Michigan Department of Environmental Quality

Bacteria

John Engler, Governor ◆ Russell J. Harding, Director

DEQ

Bryozoan

John Engler, Governor ◆ Russell J. Harding, Director

Bryozoan Colonies: A Naturally-Occurring Phenomena

The Department of Environmental Quality often receives complaints claiming that there are gelatinous balls, floating blobs and even "water boogers" some as large as basketballs on the lake shore or in a lake or pond. This phenomenon is due to the presence of bryozoans, also called moss animals.

Bryozoans are water animals that live in colonies made up of microscopically-connected individuals called zooids. Bryozoans are invertebrates (animals without backbones) that have a box-like or tube-shaped body, a U-shaped gut, and a cluster of tentacles to trap small particles of food. Worldwide, there are about 5,000 species of bryozoans.

Colonies of freshwater bryozoans form gelatinous ball-like masses and are commonly found in small farm ponds in water less than a meter in depth and in shallow eutrophic (nutrient enriched) lakes and open areas of swamps for brief periods. They have also been reported to wash up on shores of deep inland lakes after storms.

If you find pollution and believe it is human-induced, please report it to the State of Michigan's Pollution Emergency Alerting System (PEAS) hotline: 1-800-292-4706. For more information, please contact any Surface Water Quality Division district office or call the State of Michigan's Environmental Assistance Center at 1-800-662-9278.

This publication was developed through the cooperative efforts of the Environmental Assistance and Surface Water Quality Divisions, Michigan Department of Environmental Quality, 800-662-9278.

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Foam:
A Naturally-Occurring Phenomena

The Department of Environmental Quality often receives complaints claiming that "someone discharged laundry detergents into the lake" or that there are suds on the river or stream. This phenomenon is often the result of natural processes, not environmental pollution. Foam can be formed when the physical characteristics of the water are altered by the presence of organic materials in the water.

The foam that appears along lakeshores is most often the result of the natural die-off of aquatic plants. Plants are made up of organic material, including oils (i.e., corn oil and vegetable oil). When the plants die and decompose, the oils contained in the plant cells are released and float to the surface. Once the oils reach the lake surface, wind and wave action pushes them to the shore. The concentration of the oil changes the physical nature of the water, making foam formation easier. The turbulence and wave action at the beach introduces air into the organically enriched water, which forms the bubbles.

Foam commonly occurs in waters with high organic content such as productive lakes, bog lakes, and in streams that originate from bog lakes, wetlands, or woody areas. Oftentimes, streams that originate from woody areas will have a brown tint in the water. The brown tint is often caused by the presence of tannin, which is a substance that gives wood its brown color. The tannin is released during the decomposition of wood along with other materials that cause foaming when they are introduced in water. It is quite common to find foam in dark-colored streams, especially during late fall and winter, when plant materials are decomposing in the water.

Naturally-occurring foam: on Stoney Creek in Southeast Michigan and on Grand River in the Jackson area.

Some foam in water can indicate pollution. When deciding if the foam is natural or caused by pollution, consider the following:

- ◆Wind direction or turbulence: natural foam occurrences on the beach coincide with the onshore winds. Often, windrows of foam can be found along a shoreline and streaks of foam may form on open waters during windy days. Natural occurrences in rivers can be found downstream of a turbulent site.
- ◆Proximity to a potential pollution source: some entities such as the textile industry, paper production facilities, oil industries, and fire fighting activities work with materials that cause foaming in water. If these materials are released to a water body in large quantities, they can cause foaming. In addition, the presence of silt in water, such as from a construction site can cause foam.
- ◆Presence of decomposing plants or organic material in the water.
- ◆Feeling: natural foam is usually persistent, light, not slimy to the touch.

If you find pollution and believe it is human-induced, please report it to the State of Michigan's Pollution Emergency Alerting System (PEAS) hotline at 1-800-292-4706. For more information please contact any Surface Water Quality Division district office or call the State of Michigan's Environmental Assistance Center at 1-800-662-9278.

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Foam

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Pollen:
A Naturally-Occurring Phenomena

Tree pollen on and in water.

Pollen from plants, especially trees like pine and cottonwood, can be found in the late spring and in summer floating on and settling in surface waters. This naturally occurring phenomenon can look like a film on the water or appear as discolored pockets in the water. Pollen has been reported to the Michigan Department of Environmental Quality as yellow paint, white paint, oil, scum, and even sludge. This phenomenon is caused by plant pollen that is distributed onto the water where it sticks and collects.

Pollen consists of tiny grains that are produced in flowering and cone-bearing plants. Pollen grains of different plant species vary in shape, size, and surface features. Most pollen grains are round or oblong and range from 15 micrometers to more than 200 micrometers wide. (Ten thousand micrometers equal one centimeter). Every grain has an outer shell, which may be smooth or wrinkled or covered with spines or knobs. This shell prevents the inner cells from drying out.

The wind has a major role in carrying pollen for plant reproduction as it blows pollen from one flower or cone to another. Plants such as maize and wheat, which are pollinated by wind, produce vast amounts of pollen–a maize plant can produce more than 18 million pollen grains. Wind pollinated plants include many trees, various crops, grasses, and nettles. The wind may carry pollen grains 90 miles or farther from the plant. On some windy days, you can actually watch the pollen being carried from trees, especially evergreens.

Some airborne particles that collect in water can indicate pollution. When deciding if the phenomenon is natural or caused by pollution, consider the following:

Pollen washing ashore.

- Time of year: allergy season (especially spring and summer) usually coincides with this phenomenon.
- Oil sheen: no oil sheen will be visible, only a film may appear.
- Staining: pollen usually will not stain porous material.
- Wind direction: pollen will be found downwind of the plant source. It will accumulate on the ground and on everything around, including cars and in mud puddles.
- Feeling of substance: pollen should feel course, not slimy to the touch.

If you find pollution and believe it is human-induced, please report it to the State of Michigan's Pollution Emergency Alerting System (PEAS) hotline at 1-800-292-4706. For more information please contact any Surface Water Quality Division district office or call the State of Michigan's Environmental Assistance Center at 1-800-662-9278.

Special thanks and credit to Mary Hollinger, photographer, Huntingtown, Maryland.

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Pollen

John Engler, Governor ◆ Russell J. Harding, Director

Whiting Events
(Calcium Carbonate Precipitate):
A Naturally-Occurring Phenomena

The Department of Environmental Quality often receives complaints claiming that someone dumped a white milky substance into the lake. In some lakes, a naturally-occurring phenomenon makes the color of the water change from clear blue to gray or milky white. This phenomenon is often the result of natural processes, not environmental pollution.

The cause for this whiting phenomenon is the precipitation (coming out of the water as a solid) of calcium carbonate. Calcium carbonate is a white, crystalline mineral that is widely distributed in nature and is the main ingredient in limestone, marble, coral, calcite, and chalk. Whiting events occur in lakes with very high concentrations of calcium carbonate (hard water lakes) during early summer. As the calcium carbonate precipitates, it forms chalky white clouds underwater and rains calcium carbonate on the lake bottom. When the calcium carbonate particles consolidate on the lake bottom, they form a soft rock called marl.

Marl from lake bottom (left) and calcite (large crystalline rock on right).

In the summers of 1998 and 1999, NASA's satellite captured images of a mysterious flush of color that spread across Lake Michigan (please refer to the photo on the cover). The color change was attributed to either a whiting event or an algae bloom.

Some white material in water can indicate pollution. When deciding if the milky appearance is natural or caused by pollution, consider the following:

- Proximity to a potential pollution source. Some industries such as mining, metal cutting, salt processing, and paper manufacturing have materials that can cause water to appear milky when released into the environment. A defined waste stream into the lake could indicate a pollutant source, while a sudden change of color from within the lake may indicate a whiting event.
- The time of year. Whiting events most often occur in early to mid-summer.
- A simple field test. Gather white particles by filtering some of the lake water through a fine filter. Next, place a drop of vinegar on the filtered white particles. Bubbling or fizzing will occur in the presence of calcium carbonate. This is the same reaction that would occur if you put vinegar on baking soda.

If you find pollution and believe it is human-induced, please report it to the State of Michigan's Pollution Emergency Alerting System (PEAS) hotline at 1-800-292-4706. For more information please contact any Surface Water Quality Division district office or call the State of Michigan's Environmental Assistance Center at 1-800-662-9278.

Special thanks and credit to Larry Bean, rock collector, Livonia, Michigan.

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Whiting Events

John Engler, Governor ◆ Russell J. Harding, Director

APPENDIX D

STORMWATER VIOLATION ENFORCEMENT AND COMPLIANCE TRACKING SPREADSHEET

OTTAWA COUNTY ROAD COMMISSION

STORMWATER VIOLATION ENFORCEMENT AND COMPLIANCE TRACKING

DATE OF VIOLATION	LOCATION OF VIOLATION	RESPONSIBLE PARTY	VIOLATION TYPE	ENFORCEMENT ACTION	COMPLIANCE SCHEDULE	DATE RESOLVED

APPENDIX E

OCRC RULES GOVERNING THE GRANTING OF PERMITS FOR DRIVEWAYS, BANNERS & PARADES

Ottawa County Road Commission

Rules Governing The

Granting of Permits

For Driveways,

Banners & Parades

BOARD OF COUNTY ROAD COMMISSIONERS
COUNTY OF OTTAWA

These rules have been adopted by resolution of the Ottawa County Road Commission under the authority of Act 200 of the Public Acts of 1969, as amended, and are intended for the protection of the public thru the reasonable control of driveway access, parades and banners. The Road Commission recognizes that the right of access to county roads is incidental to ownership of abutting land. The goal herein is to permit proprietor access according to the needs of property use, consistent with the Road Commission's right and responsibility to require that the location and design of driveways will provide convenience of use and safety to roadway users.

The following Rules were adopted by the Board of County Road Commissioners on April, 4 2002.

CONTENTS

ILLUSTRATIONS

I. GENERAL PROVISIONS

Subsequent to the effective date of these rules, a person, organization or governing unit shall not undertake or conduct any of the following activities on or along roads within public road right-of-way unless a permit to allow such activity has been obtained from the Ottawa County Road Commission.

1. Construct, reconstruct, relocate, surface, resurface a driveway;
2. Engage in a use of the land served by the driveway which is changed or expanded from that previously existing, and the change or expansion causes the existing drive to be a safety hazard;
3. Erect a banner, decoration, or similar object to overhang the traveled portion of a highway;
4. Close a portion of a highway for a parade, celebration, festival or similar activity.

ANY ACTIVITY CARRIED OUT IN THE COUNTY RIGHT-OF-WAY WITHOUT A PERMIT IS SUBJECT TO ITS REMOVAL BY THE BOARD AT THE PROPRIETOR'S EXPENSE.

Failure to comply with the conditions set forth by the permit shall cause the Board, or its Engineer, to halt activities involved with the permit or the revocation thereof. Costs incurred by the Board in correcting non-compliance with terms and conditions set forth by the permit or the costs of correcting defective material or poor workmanship, as determined by the Engineer, shall be borne by the Proprietor.

Permit forms are available at the Ottawa County Road Commission at Rosy Mound Drive @ US-31, P.O. Box 739, Grand Haven, Michigan 49417.

A. DEFINITIONS

BOARD - The Board of County Road Commissioners of the County of Ottawa, State of Michigan.

ENGINEER - Engineering Director or any employee designated to act for him in implementing the Rules Governing the Granting of Permits for Driveways, Banners and Parades.

GOVERNING BODY - Local unit of government in which the construction activity will take place.

PROPRIETOR - Any person, firm, association, partnership, corporation, or any combination thereof desiring access to or conducting any activity on a County Highway.

M.D.O.T. SPEC. - Michigan Department of Transportation, 2003 Interim or current edition of the Standard Specifications for Construction will be used except where noted.

B. PERMIT REQUIREMENTS

1. Bonds

Bonds shall be required on all commercial driveways and construction activity within the public road right-of-way to protect the Ottawa County Road Commission against the cost of completing construction or repairing deficiencies. Acceptable types of bonds are cash, certified or cashier's checks and money orders made payable to the Ottawa County Road Commission. A $1,000.00 yearly blanket bond may be posted in lieu of individual bonding.

2. Indemnity and Certificates of Insurance

The Proprietor shall save harmless, defend and represent the Board and the Ottawa County Road Commission, its officers and employees against any and all claims for damages arising from operations covered by the permit. Certificates of insurance shall be required on commercial driveways to ensure that the licensee and/or applicant can meet all claims, including damage or personal injury. General liability insurance carried by an applicant or licensee may be acceptable if it equals or exceeds current amounts specified by the Board. Insurance must be kept in force until the permitted construction is completed and approved. Failure to do so will be just cause for immediate suspension and/or cancellation of the permit.

In the case of contractors performing alterations to Ottawa County roads (e.g. extra lanes, tapers, passing lanes, etc.), Ottawa County Road Commission, County of Ottawa, Board of County Road Commissioners and their officers, agents, and employees shall named as additional insured on the Insurance Certificate.

3. Safety

The Proprietor shall provide and maintain all necessary precautions to prevent injury or damage to persons and property from operations covered by the permit and shall use warning devices in accordance with the current edition of the **Michigan Manual of Uniform Traffic Control Devices**.

II. DRIVEWAY PERMITS

A. Permit Procedure

1. General

Construction of a new driveway or private road connecting to a county road or reconstruction of a driveway or private road connecting to a county road shall be allowed only after an approved permit has been obtained from the Ottawa County Road Commission. The construction or reconstruction of all driveways or private roads shall be as described in an approved permit and plans or drawings accompanying the permit.

When the use of the land served by the driveway is changed or expanded and the change or expansion causes the existing driveway to be a safety hazard, the driveway shall be considered a new driveway pursuant to Act 83, Public Acts of 1978. Factors that constitute a safety hazard shall include, but are not limited to, the following:

1. Increased accident rate at or near driveway;
2. Increased traffic volume on main road;
3. Increased turning movements using driveway;
4. Improper drainage;
5. Inadequate sight distance;
6. Excessive grades on driveway;
7. Improper driveway design for proposed use;
8. Creates a foreseeable risk of harm to the traveling public.

If, upon inspection, a driveway or private road approach constructed or reconstructed after the effective date of these rules is found to be in violation of these rules, the owner shall correct any deficiencies within a period of time not more than 30 days, specified in a notice of violation sent by certified mail to the owner. Dangerous or hazardous conditions shall be corrected immediately.

2. Application

Any person, organization or governing unit desiring to construct, reconstruct, relocate or resurface a driveway within Ottawa County Road Commission right-of-way shall make application and secure a permit before beginning construction. Platted road approaches shall be governed by the Board's ***Standards and Specifications for Plat, Condominium, and Public Road Development.*** The acceptable applicants for driveway permits are property owners or agents, or a contractor employed by the property owner. However, the owner or the owner's agent and the contractor shall be required to sign the permit.

Applications for driveway permits shall be submitted in the manner prescribed by and on the appropriate forms supplied by the Engineer.

Applications shall be submitted as early as possible. In the case of new commercial developments, the Engineer should be contacted in the initial site planning stages so that a preliminary access plan satisfactory to all parties can be established early in the development process. This access plan shall include satisfactory storm drainage outlets, proper driveway locations and shall consider the relationship between parking and storage facilities and other development in the vicinity, either on private property or on public right-of-way.

The permit is fully executed and in force after the plans are approved and the permit signed by the owner or the owner's agent, the contractor, and the Engineer.

3. Requirements on Plans of Proposed Commercial Driveway(s)

All copies of commercial driveway permit applications shall be accompanied by two (2) sets of plans or drawings clearly indicating the following features:

(a) Existing road pavement, ditches, right-of-way and property lines, road appurtenances, medians (if existing) and dimensions thereof, driveways on adjacent property and on property opposite the frontage, and names of existing and proposed roads.

(b) Existing and proposed buildings, and all appurtenances to any business being conducted and dimensions thereof including a notation as to present or proposed use of the buildings.

(c) Design standards of all driveways, tapers and right turn and passing lanes to be constructed, reconstructed, relocated, surfaced, resurfaced, operated, used or maintained to include the following dimensions and features:

1. Widths of all driveways;
2. Radii of driveway returns and other points of curvature;
3. Driveway grades or profile view of driveway;
4. Road centerline and edge of pavement grades;
5. Angle of the driveway(s) relative to the roadway centerline;
6. Dimensions of medians and other traffic islands adjacent to the road;
7. Driveway surface material and traffic island surface material;
8. Site distance for the approach.

(d) Distance from existing driveway(s) and proposed driveway(s) to the nearest intersecting road and distance from driveways to property lines.

(e) All roadside features, in addition to driveways, to be constructed within the road right-of-way including curb, sidewalks, authorized traffic signs and other roadside features such as manholes, poles, and utility pedestals.

(f) Existing and proposed drainage structures and controls to include:

1. Size and type of drive culvert;
2. Type of culvert end treatment;

3. Grade of culvert with sufficient upstream and downstream elevations to show the extent of flow across the proposed development and to the proposed outlet;
4. Direction of surface water flow on and from adjacent property;
5. Drainage structures;
6. Drainage plan and outlet for all storm drainage on the site.

(g) North directional arrow and scale of drawing.

4. Review Procedure

The Engineer will review the prepared application for compliance to these rules and note any revisions necessary for approval. Transmittal of a completed permit, approved by the Engineer, or transmittal of a denied application constitutes action on the permit application.

5. Conditions of Issuance

All driveway permits issued in accordance with these rules shall be subject to the following conditions and limitations:

(a) The Engineer reserves the right of inspection of any driveway construction within the public road right-of-way. The Proprietor shall provide the appropriate permit fee according to the Permit Fee Schedule for the services required for the review and approval of plans and for any on-the-job inspections that are required.

(b) The Engineer shall be given at least two days (excluding Saturdays, Sundays, and Holidays) notice prior to the commencement of any operation covered by the permit.

(c) The Proprietor shall have a copy of the permit available at the site during construction.

(d) The Proprietor shall comply with safety requirements as indicated in section I-B-3 of this publication.

(e) The Proprietor shall surrender the permit, cease operation and surrender all rights there under, whenever notified to do so by the Engineer because of a default of any condition of the permit.

(f) The Proprietor shall be responsible for all costs of construction, including tapers, widening, islands, gravel shoulders, pavement marking, signing, etc. within the road right-of-way.

(g) All work authorized by the permit shall be completed to the satisfaction of the Engineer on or before the completion date specified in the permit. Any request for an extension of time of completion of work authorized by permit shall include reasons for the request. Approval of extension of time shall be based on extenuating circumstances indicating no neglect on the part of the applicant. Additional requirements may be imposed as a condition of an extension of time due to seasonal limitations and other considerations.

(h) It shall be the responsibility of the Proprietor to maintain all driveways connecting the property to the roadway, as well as those appurtenances set forth in the permit as related requirements, in a manner as not to damage, impair, interfere or obstruct a public road or create a foreseeable risk of harm to the traveling public. Maintenance of road widening which becomes part of the main roadway will not be the responsibility of the permit holder.

III. DRIVEWAY DESIGN STANDARDS

A. General Requirements

1. Number of Driveways

The number of access points to any property should be limited to one, unless it can be shown that the property will generate sufficient traffic volumes to require two points of access or that additional access points are necessary for safe internal operations on the property. Should an additional access point be needed, joint access should be sought with adjacent property owners.

2. Driveway Location

Driveways shall be located to maintain the free movement of road traffic and to provide the required site distance and the most favorable driveway grade.

Driveways shall be avoided on primary roads where local road access is available.

Driveways shall not be constructed along the acceleration or deceleration lanes and tapers connected to a county road unless no other reasonable access point is available.

Unless written permission is obtained from adjacent property owners, proposed driveway shall not extend beyond the adjacent property lines extended toward the center of the road.

3. Drainage

The driveway, including any new lanes or tapers, shall be constructed so that the existing drainage is not adversely affected. The drainage and the stability of the road subgrade shall not be altered by driveway construction or roadside development.

Drainage from adjacent parking or storage areas on private property in excess of assumed agricultural runoff should not be discharged directly into the road drainage system.

All culvert pipe shall be of a size adequate to carry the anticipated natural flow of the ditch. The type, diameter and length of culvert shall be determined by the Engineer and conform to the following requirements:

(a) Minimum culvert length shall be twenty-four (24) feet or shall be determined as the sum of the allowed width of driveway and the distance needed to provide slopes adjacent fore slope and back slope: maximum of 1 on 2.
(b) The length of culvert shall not exceed ninety (90) feet unless a manhole or catchbasin is constructed.
(c) Minimum culvert diameter is twelve (12) inches.
(d) Culverts shall conform to Class “A” culverts (See M.D.O.T. Specification Table 401-1.).
(e) Smooth Lined Corrugated Plastic Pipe (SLCPP) shall meet AASHTO M-294 Type S Specifications.
(f) The use of headwalls on culvert ends shall not be permitted. The use of sloped end sections is encouraged. Sod, rip-rap or other suitable material shall be placed at all culvert ends to prevent erosion.

4. Installation

On roadways constructed without concrete or bituminous curb, driveways shall be constructed with slope of ¼ “ per foot downward starting at the existing edge of pavement and sloping for a minimum distance of eight (8) feet before a change in slope will be permitted. **(See Detail No. 1).**

The construction of any structure including parking areas within the road right-of-way shall not be permitted.

B. Commercial Driveways

The Proprietor shall provide a plan of the proposed commercial driveway(s) as indicated in section II-A-3 of this publication. The Ottawa County Road Commission may approve the proposed plan or may instruct the applicant as to changes to ensure safe operations and necessary spacing between driveways, based on anticipated traffic volumes on the driveways and the existing traffic volumes on the road, type of traffic to use the driveway, type of roadside development, and other safety and operational considerations.

1. Design and Construction Standards

(a) Location
A commercial driveway shall not be closer than forty (40) feet to the right-of-way line of an intersecting local road or fifty (50) feet to a primary road. **(See Detail No. 2).**

(b) Alignment
To prevent left turn conflicts, driveways shall be aligned with those across the street or offset a distance of fifty (50) feet minimum**. (See Detail No. 2).**

(c) Concrete Curb and Gutter
Concrete curb and gutter conforming to **Detail No. 6** is required for all commercial driveways. This requirement may be waived by the Engineer for Typical Standard Commercial Driveway **Detail No. 3** if:

1. Traffic volume on the road is less than 1000 vehicles/day.
2. Low traffic volume on the driveway is expected.
3. The area between the right-of-way line and roadway is ditched or constructed to prohibit vehicular use on all areas other than approved driveway locations.

(d) Width
The typical driveway design shall include one (1) entrance lane and one (1) exit lane with a maximum combined throat width of thirty (30) feet per **Detail No. 3.** When larger driveway traffic volumes are expected, two (2) exit lanes will be allowed. The driveway shall be designed with a curbed median dividing the exit lanes from the entrance lane **(See Detail No. 4)** or designed with permanent lane lines and arrows in accordance with **Detail No. 5**. Exit lane width is 12'. Entrance lane width will vary in design based on vehicle usage from 12' to 16'.

(e) Radii
Driveways shall have a minimum twenty-five (25) foot entrance radius and a twenty (20) foot exit radius when primarily passenger vehicular traffic is expected. When truck traffic is expected, a minimum thirty (30) foot radius shall be used.

(f) Extra Lanes
When two (2) driveways are less than two hundred (200) feet apart and abut a two-lane highway, an additional lane between the driveways will be required. **(See Detail No. 2).**

(g) Tapers, Deceleration and Passing Lanes
Additional lanes and tapers may be required where high traffic volumes are anticipated**. (See Detail No. 7).**

(h) Joint Driveways

When Proprietors of adjoining properties agree, a joint driveway may be constructed. The driveway shall meet the same rules regarding width and location as other driveways with exception to those stated in section III-A-2 of this publication.

(i) Surface Material Requirements and Specifications

Commercial driveways shall meet the following subbase and aggregate base course requirements and shall be hard surfaced with either bituminous or concrete materials as listed below:

(1) **Subbase** - M.D.O.T. Spec. 301
Material - Granular Material Class II
Gradation - M.D.O.T. Table 902-3
Thickness - 18"

(2) **Aggregate Base Course** - M.D.O.T. Spec. 302
Material - 22A
Gradation - M.D.O.T. 902-1 Minimum 25% crushed
Thickness - 7" compacted in place.

(3) **Bituminous Surface** - M.D.O.T. Spec. 500
Material - Bituminous Mixture 13A

(Lane Truck Volume 0-250 VPD)
- Bituminous Mixture 3B Leveling
- Bituminous Mixture 4B Surface

(Lane Truck Volume 250+ VPD)
Thickness - 3 1/4" 360#/Sq. Yd. Min.
Asphalt Cement - Performance Grade 58-28
Temperature & Seasonal Limitations Table 502.03.J

(4) **Concrete Surface and Curb and Gutter** - M.D.O.T. Spec. 802
Rolled Mountable Curb – **(See Detail No. 6)**
Material - 5 sack mix design
Thickness - 8"

(5) **Permanent Pavement Markings** – M.D.O.T.
Material - Thermoplastic or Cold Plastic Tape

(j) Sight Distance

In determining the location of a driveway, consideration shall be given to safety of traffic entering and exiting the driveway in relationship with the highway traffic**.** **Detail No. 9** shall be used as a guide to determine the minimum recommended sight distance. If this criterion cannot be met, other means of access shall be considered.

(k) Surface Drainage

Drainage from private property will not be accepted in the highway drainage system unless it can be properly retained on the site and released at a controlled rate so as not to adversely effect or overload the existing drainage system. All connections to existing storm sewer systems shall be approved by the Ottawa County Drain Commission.

(l) Traffic Impact Study

A traffic impact study shall either be a traffic impact statement or traffic impact assessment depending on the type and size of the proposed development.

A traffic impact statement shall be required for any proposed development which would be expected to generate over 100 or more peak-hour directional trips, or over 750 daily trips (over a 24 hour period). The difference in traffic generated shall be evaluated for its potential impact on the adjacent street system, including nearby intersections and at access points at the development under consideration.

A traffic impact assessment shall be required for a project generating 50-99 peak-hour directional trips. This type of study is recommended for smaller scale projects that should not have a significant impact on the overall road system, but will impact the site access. The analysis for this type of study can typically be isolated to the turning movements at all site access points.

2. Road Widening and Enclosed Storm Drainage

If the proposed project for a commercial driveway involves road widening and/or the construction of enclosed storm drainage in the public road right-of-way, the following shall be required:

(a) Bituminous Mixtures

The bituminous mix design shall be furnished to the Engineer for review and approval. A minimum of three working days is required for the review of the mix design. The Engineer reserves the right to request validation of mix designs developed for previous construction seasons.

The contractor shall be responsible for the production and quality control of the bituminous mixture furnished and placed. The contractor will test not less than one sample per day's production at the bituminous plant. The Proprietor's Engineer and Laboratory will monitor these tests, and their results.

In order to verify the contractors testing and assure end result compliance, splits of the samples used for quality control testing shall be made available to the Engineer for verification and acceptance testing. The Engineer reserves the right to take independent samples for verification and acceptance testing at the plant or at the project site.

(b) Concrete Mixtures

The concrete mix design shall be furnished to the Engineer for review and approval. A minimum of three working days is required for the review of the mix design. The Engineer reserves the right to request validation of mix designs developed for previous construction seasons.

The Proprietor's Engineer or Laboratory shall mold compressive strength cylinders and perform slump and air entrainment tests in accordance with M.D.O.T. Spec. 701.03.F. One set of tests shall be performed each day that concrete curb and gutter or sidewalk is placed.

The concrete test results shall be submitted to the Engineer within one week of the field and laboratory test dates.

(c) Compaction Requirements

The following densities shall be obtained on road construction by standard methods of compaction:

Embankment 95% of Maximum Unit Weight - M.D.O.T. Spec. 205.03.H.
Subbase 95% of Maximum Unit Weight – M.D.O.T. Spec. 301.03.
Aggregate Base 98% of Max. Unit Weight – M.D.O.T. Spec 302.03.A.
Bit. Surface 97% of Max. Unit Weight – M.D.O.T. Spec. 502.03.G.

The minimum frequencies of tests for density control are as follows:

(1) Trench Backfill – 1 test per layer of backfill per run of pipe, between structures. Minimum 1 test per lateral, unless waived by Engineer.
(2) Structure Backfill – 1 test per layer of backfill at each structure, unless waived by Engineer.
(3) Subbase – 1 test per 400 linear feet of roadway.
(4) Aggregate Base – 1 test per 400 linear feet of roadway.
(5) Bituminous Surface – 1 test per 400 linear foot of bituminous course.

Compaction test results are to be submitted to the Engineer within one week of the test date.

(d) Inspection

The Proprietor's Engineer shall provide daily inspections during construction operations. An IDR (Inspectors Daily Report) shall be submitted to the Engineer within one week of the inspection date. **(See Detail No. 10)**

Periodic inspections during construction by the Engineer shall not relieve the Proprietor's Engineer of any of his obligations. These periodic inspections are to verify the proper construction of the roads in their various stages of construction.

(e) Preconstruction Meeting

A preconstruction meeting shall be held at least one week prior to commencement of the work. The following personnel will be notified of this meeting: Ottawa County Road Commission, Township, Ottawa County Drain Commissioner, the utility companies and other agencies affected by the proposed construction.

At this meeting, matters pertinent to the project schedule, daily reports, material testing, inspection, utility coordination, traffic control, soil erosion control, and other items will be discussed and reviewed.

C. Residential Driveways

1. Definition

All driveways for the purpose of serving the residents of single or two-family dwellings or a farmyard adjacent to a farm residence shall be deemed a residential driveway. Residential driveways and private streets serving more than three (3) properties will be considered a commercial driveway and will be subject to all conditions thereto.

2. Design and Construction Standards

(a) Location

No portion of a driveway will be allowed closer than forty (40) feet to the right-of-way of an intersecting street, as measured along the right-of-way line**. (See Detail No. 8)**

(b) Spacing

Driveways to the same parcel of property shall be a minimum of forty five (45) feet apart, edge to edge. **(See Detail No. 8)**

(c) Width

10 feet minimum, 24 feet maximum

(d) Radii

10 feet minimum, 20 feet maximum

(e) Flares

A straight flare ten (10) feet in length and extending five (5) feet on each side of the driveway at the pavement edge may be constructed**. (See Detail No. 8)**

(f) Minimum Surface Material Requirements and Specifications

1. Aggregate M.D.O.T. 22-A, 6" Thick
2. Bituminous Surface M.D.O.T. Spec. 500, 2" Thick
3. Concrete M.D.O.T. Spec. 803, 5" Thick

D. Field Driveways

1. Definition

Any driveway serving cultivated fields, timberland or undeveloped land not used for industrial, commercial or residential uses, shall be considered a field driveway.

2. Location

For cultivated or undeveloped land, one (1) field driveway will be allowed for each five hundred (500) feet of frontage or portion thereof.

3. Requirements

The requirements for field entrance driveways shall be the same as residential driveways except surface shall be seeded, sodded or better.

IV. BANNER PERMITS

A permit for the installation of banners to be placed within or over a public road right-of-way will be issued **ONLY** to the Governing Body of a city, village or township.

Application for permits for the erection of banners shall be in the manner prescribed by or on the appropriate forms supplied by the Engineer.

A. Minimum Requirements

Permit applications shall be accompanied by a copy of a resolution from the local governing body designating an authorized official of the city, village or township as having the authority to make the application for the city, village or township. The resolution must also indemnify and hold harmless the Ottawa County Road Commission from all claims arising as a result of the permitted banner installation. The application should be submitted approximately one month in advance of the proposed installation.

Each application shall include the following information:

1. Activity in connection with which the banners are to be placed;
2. Location of proposed banner including distance to overhead traffic control devices;
3. Description of banner including proposed legend;
4. Height at lowest point of banner;
5. Dates on which banner is to be placed and removed;

B. Design and Placement Requirements

1. The design, method of installation and location shall not endanger persons using the highway or unduly interfere with the free movement of traffic.
2. Minimum bottom height of eighteen (18) feet above pavement shall be maintained.
3. A banner shall not be placed so as to obstruct a clear view of traffic signals or other traffic control devices.

C. Conditions of Issuance

1. A banner shall not display any legend or advertisement promoting the sale of any merchandise or commodity or to be political in nature.
2. A banner shall not imitate or resemble a traffic control device or attempt to direct the movement of traffic.
3. Flashing or steady burning lights will not be allowed.

V. PARADE, CELEBRATION OR FESTIVAL PERMITS

A permit for the closure of a highway for a parade, celebration or festival, or any other type of event, will be issued only to the governing body of a city, village or township in which the closure is taking place.

A. Required Information

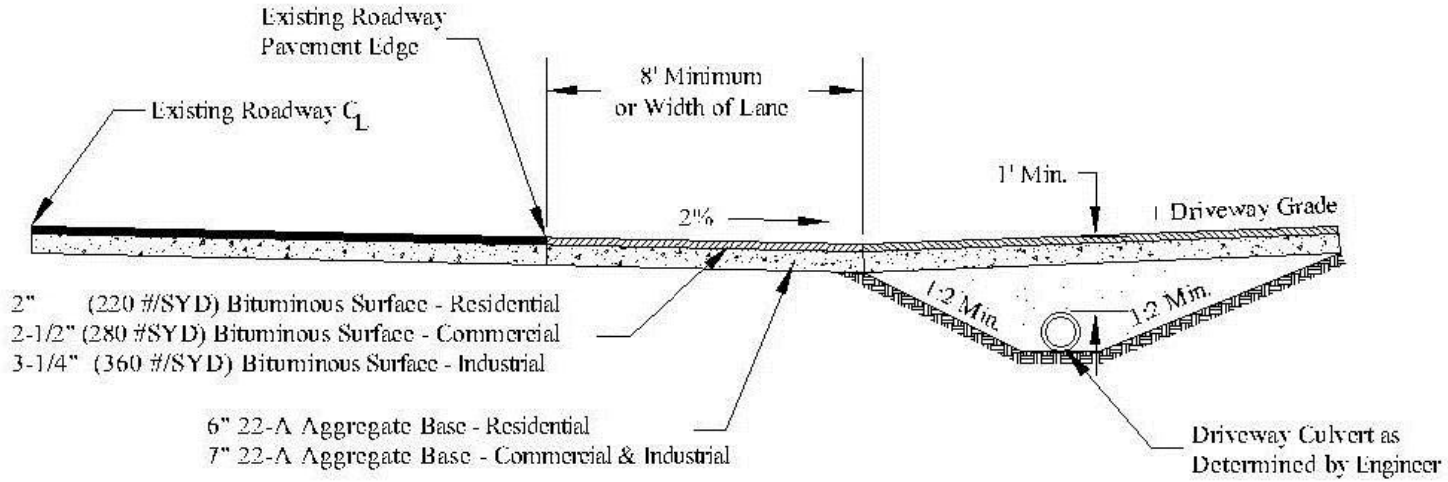
1. Nature of activity.
2. Dates and time proposed to close and reopen the highway.
3. Resolution from the local governing body designating the official of the city, village or township who has authority to make the application.
4. Traffic Control Plan.

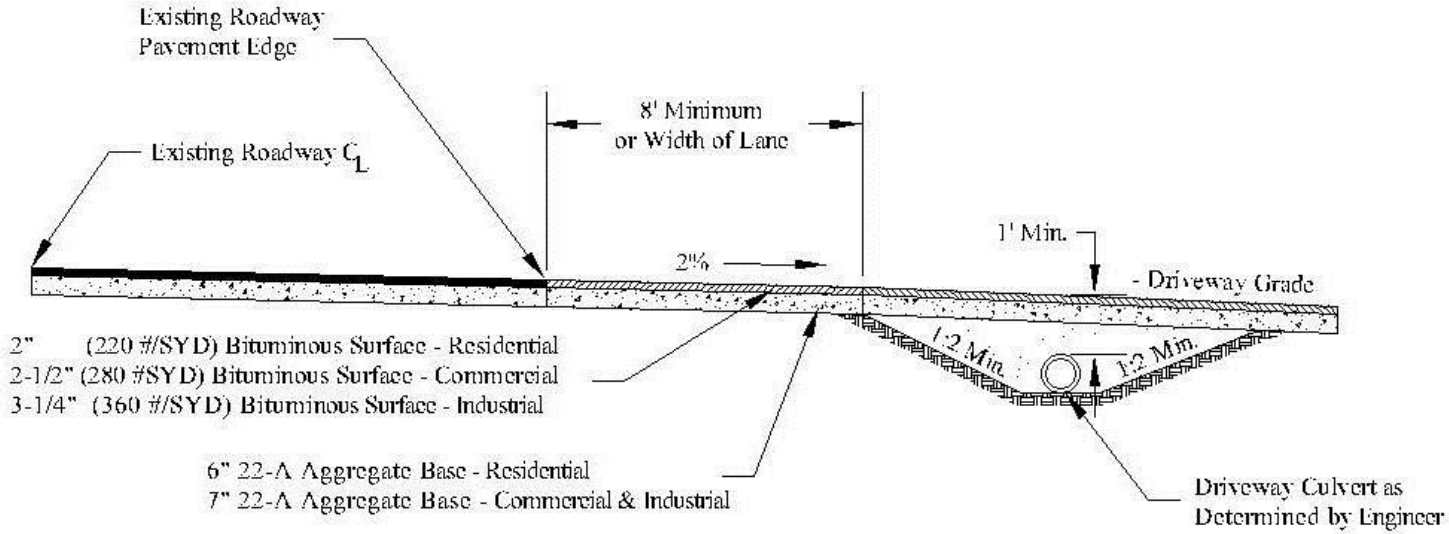
B. Conditions of Issuance

1. Closure shall be limited to daylight hours only.
2. An acceptable detour shall be submitted and approved by the Engineer prior to road closure.

3. Traffic control devices shall be in accordance with the ***Michigan Manual of Uniform Traffic Control Devices*** and shall be placed by the governing body.
4. The permit applicant shall arrange for the necessary police supervision, furnish and install necessary detour signs and barricades, maintain detour route and assume liability for any damage claims which may arise as a result of the closure
5. A permit will not be issued for the purpose of allowing private commercial activities such as advertising or sale of any goods.
6. Emergency agencies (i.e. 911, fire, police, ambulance) shall be notified in advance of closure.

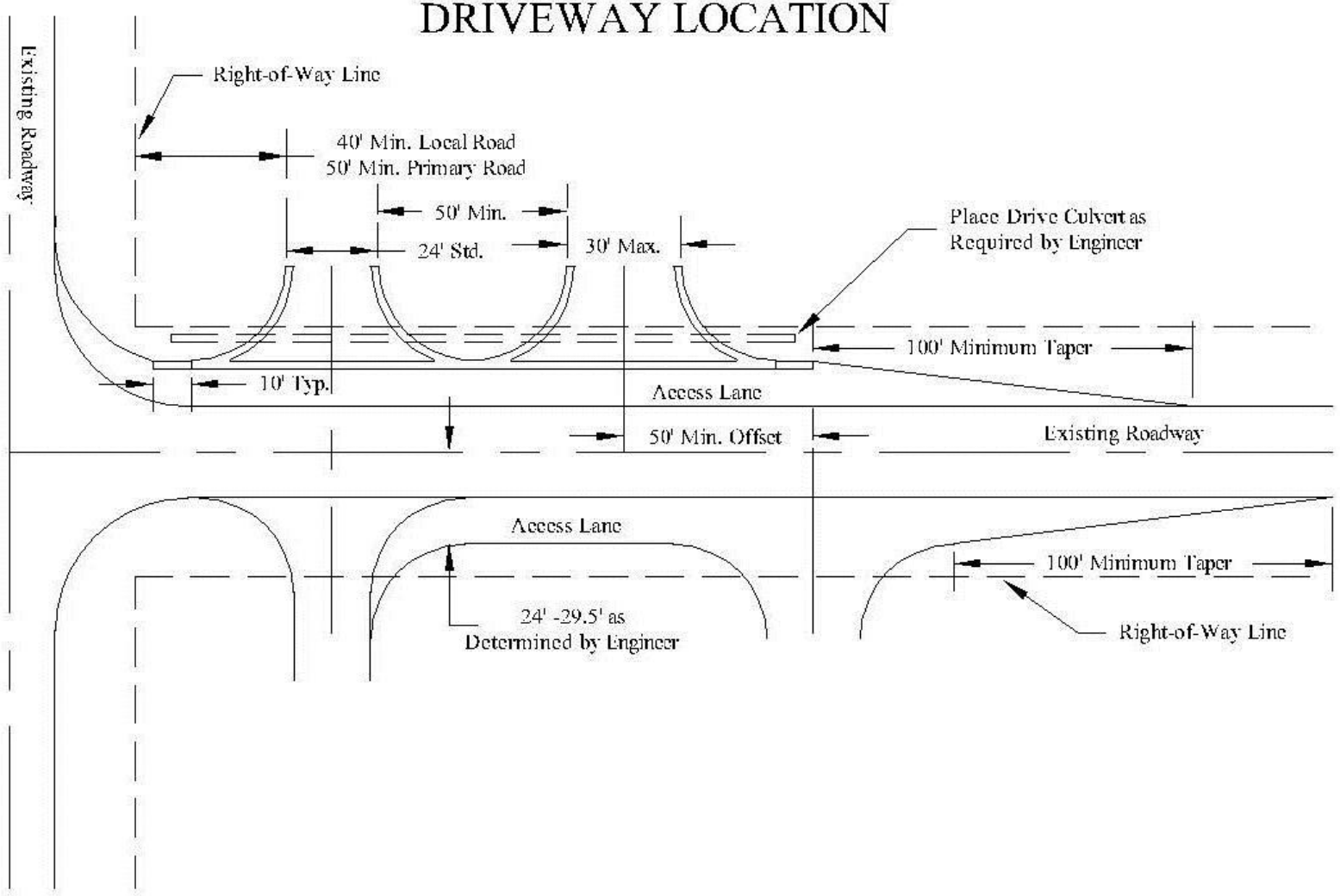
TYPICAL HALF SECTION
DRIVEWAY AND SHOULDER PROFILE





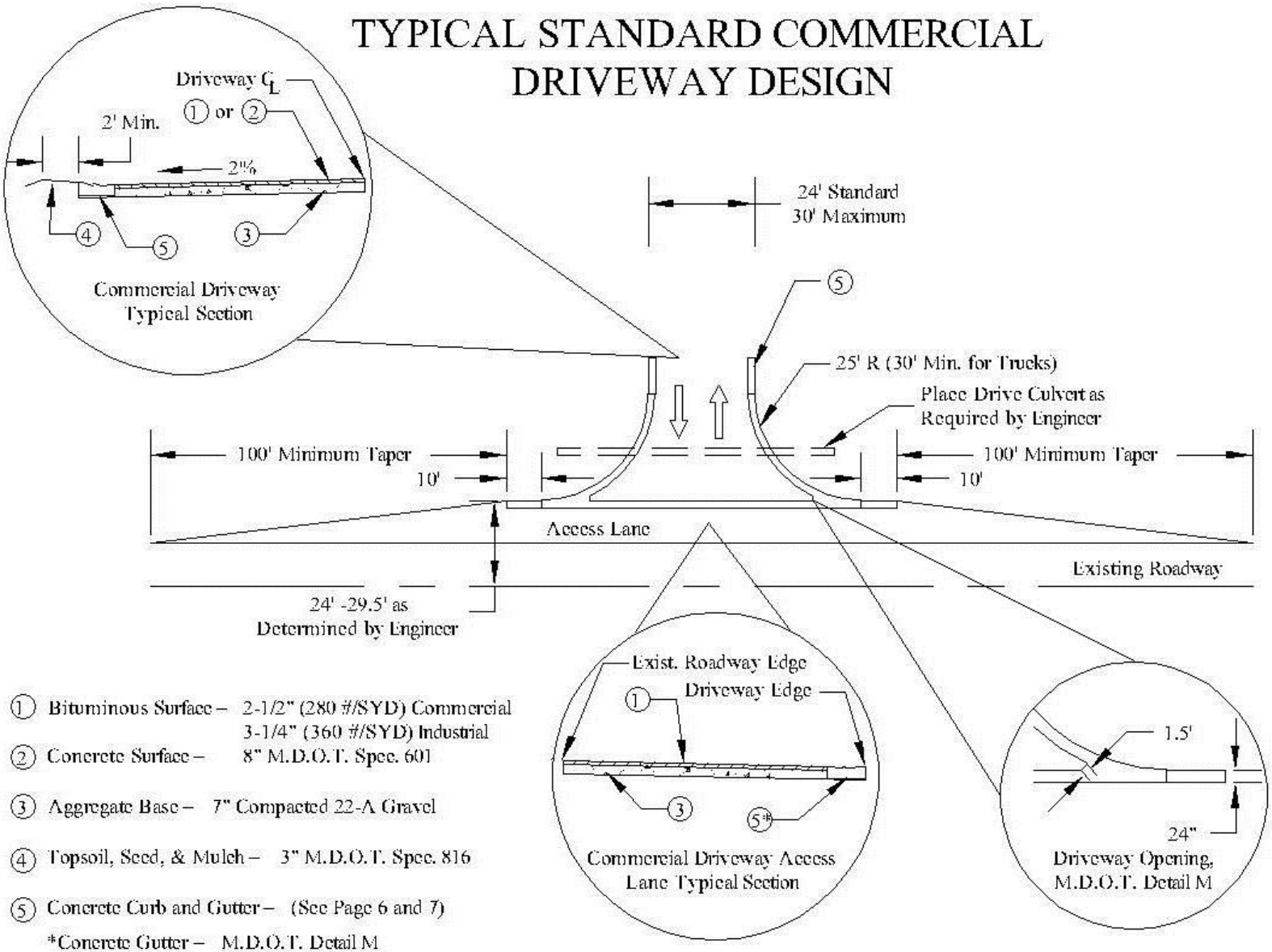
OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 1	REV. NO.:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 4-4-02	TYPICAL HALF SECTION DRIVEWAY AND SHOULDER PROFILE

STANDARD COMMERCIAL DRIVEWAY LOCATION



OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 2	REV. NO.:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 4-4-02	STANDARD COMMERCIAL DRIVEWAY LOCATION

TYPICAL STANDARD COMMERCIAL DRIVEWAY DESIGN



① Bituminous Surface – 2-1/2" (280 #/SYD) Commercial
3-1/4" (360 #/SYD) Industrial

② Concrete Surface – 8" M.D.O.T. Spec. 601

③ Aggregate Base – 7" Compacted 22-A Gravel

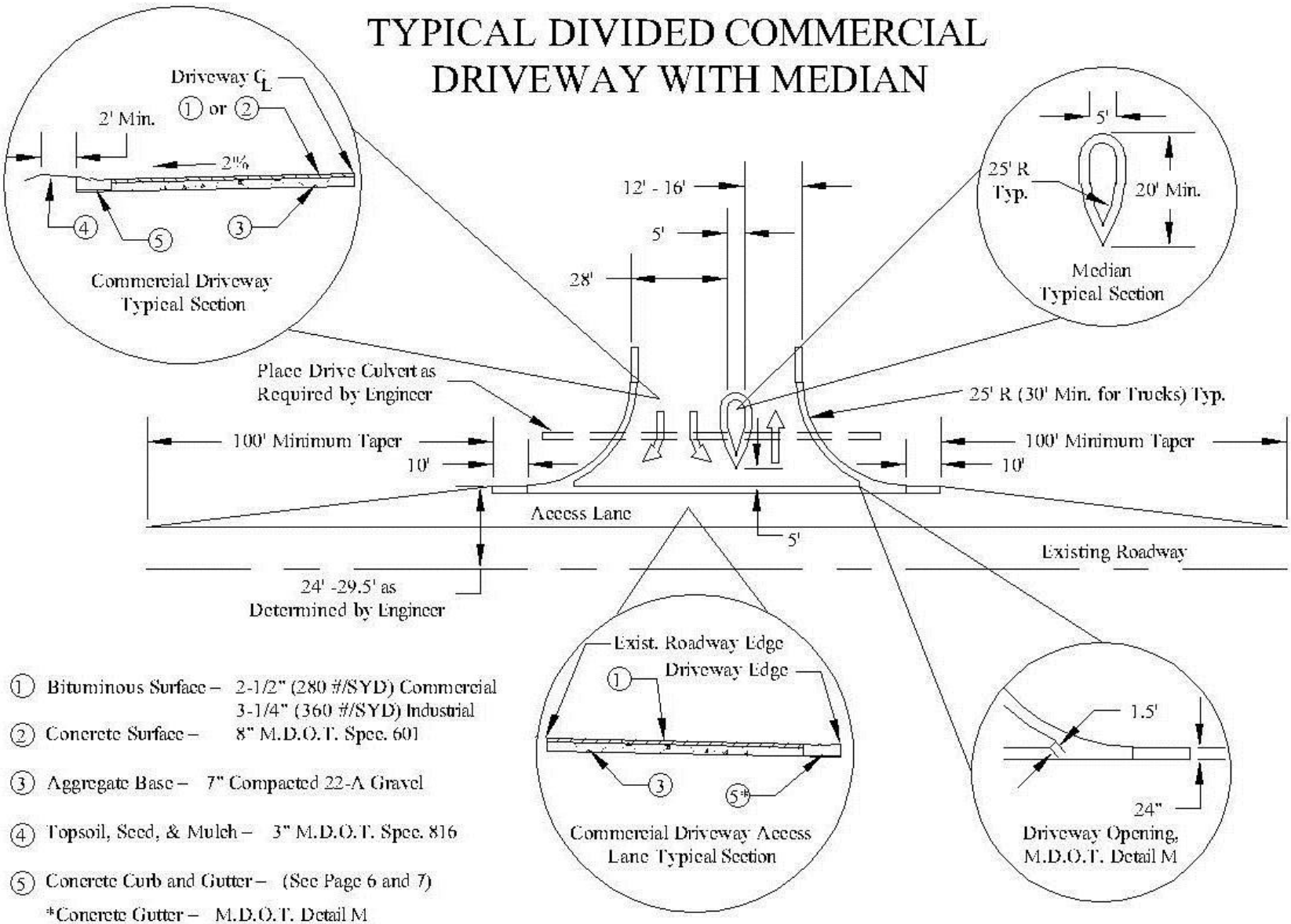
④ Topsoil, Seed, & Mulch – 3" M.D.O.T. Spec. 816

⑤ Concrete Curb and Gutter – (See Page 6 and 7)

*Concrete Gutter – M.D.O.T. Detail M

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 3	REV. NO.: 1	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 1-5-04	TYPICAL STANDARD COMMERCIAL DRIVEWAY DESIGN

TYPICAL DIVIDED COMMERCIAL DRIVEWAY WITH MEDIAN



① Bituminous Surface – 2-1/2" (280 #/SYD) Commercial
3-1/4" (360 #/SYD) Industrial

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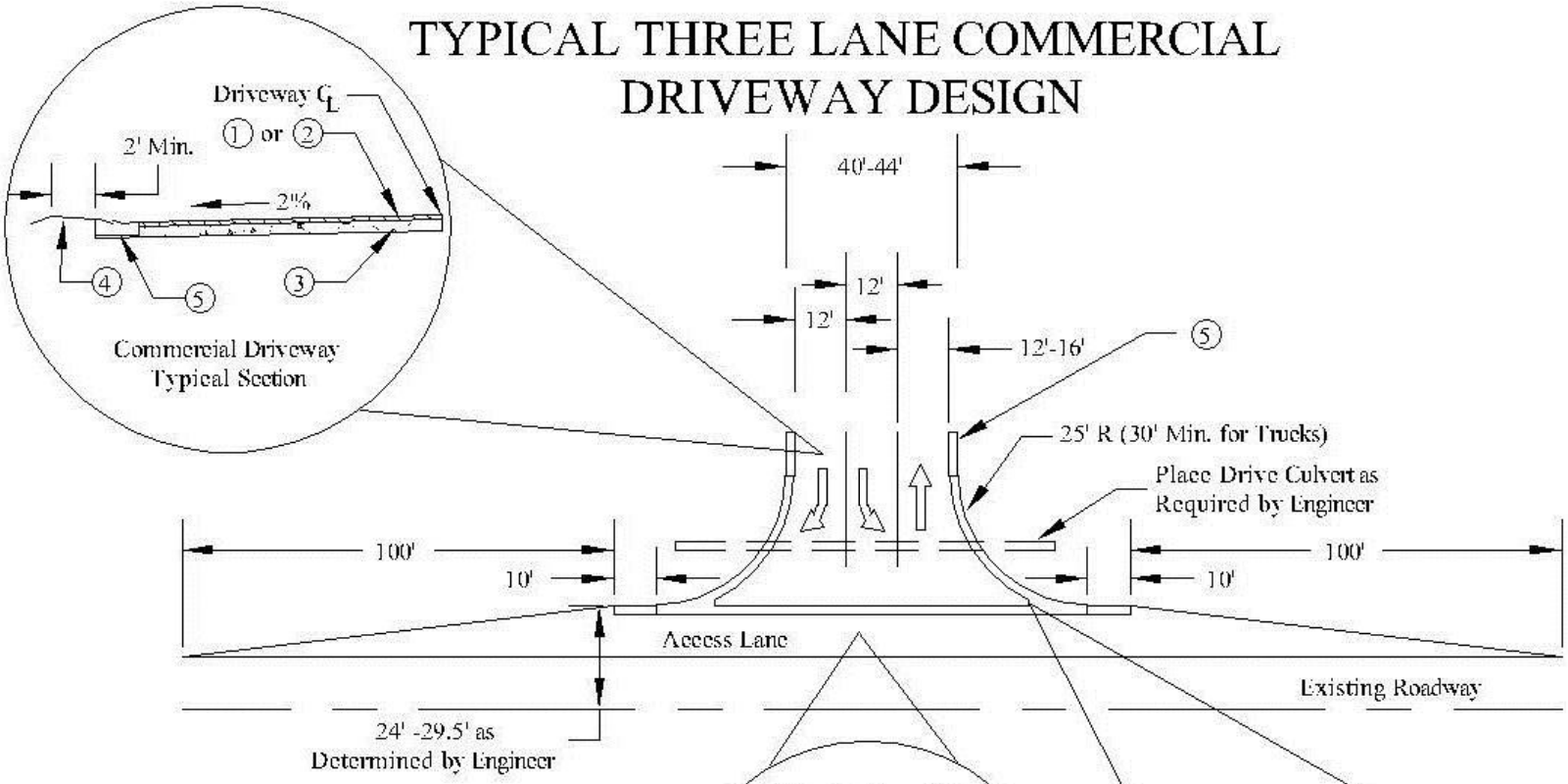
④ Topsoil, Seed, & Mulch – 3" M.D.O.T. Spec. 816

⑤ Concrete Curb and Gutter – (See Page 6 and 7)

*Concrete Gutter – M.D.O.T. Detail M

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 4	REV. NO.: 1	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 1-5-04	TYPICAL DIVIDED COMMERCIAL DRIVEWAY WITH MEDIAN

TYPICAL THREE LANE COMMERCIAL DRIVEWAY DESIGN

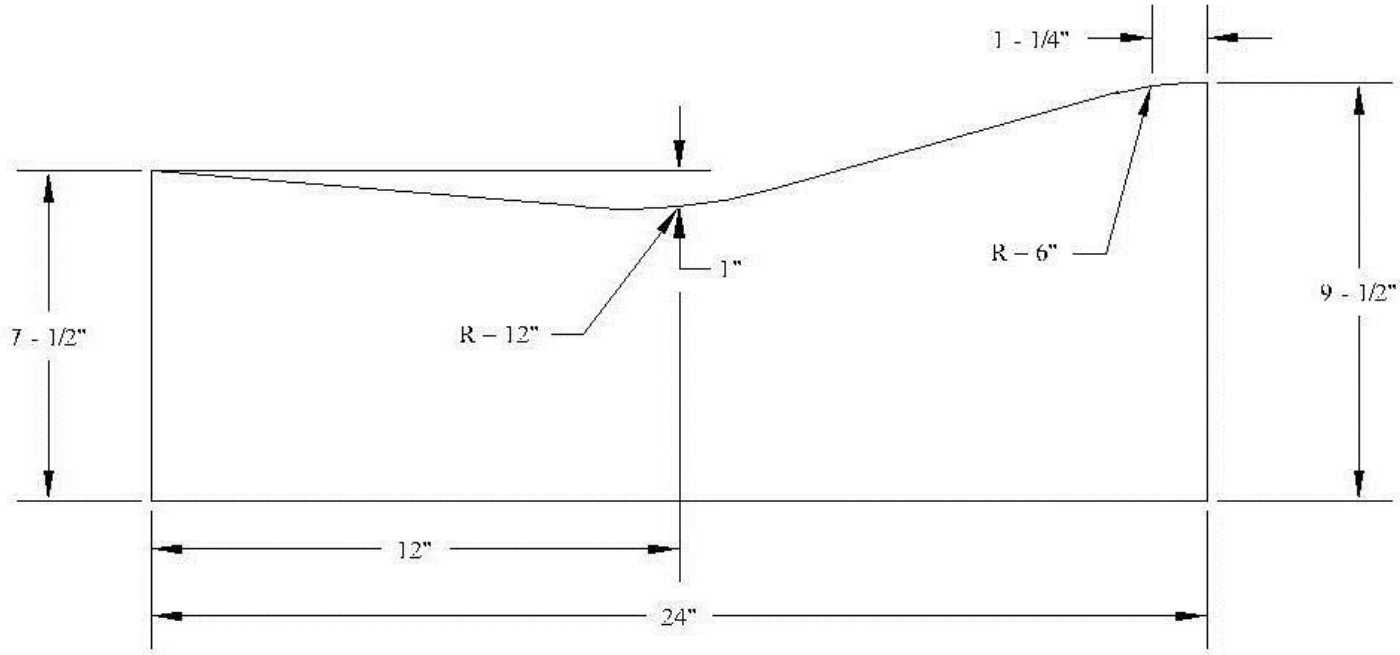


1. Bituminous Surface – 2-1/2" (280 #/SYD) Commercial
   3-1/4" (360 #/SYD) Industrial
2. Concrete Surface – 8" M.D.O.T. Spec. 601
3. Aggregate Base – 7" Compacted 22-A Gravel
4. Topsoil, Seed, & Mulch – 3" M.D.O.T. Spec. 816
5. Concrete Curb and Gutter – (See Page 6 and 7)

*Concrete Gutter – M.D.O.T. Detail M

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 5	REV. NO.: 1	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 1-5-04	TYPICAL THREE LANE COMMERCIAL DRIVEWAY DESIGN

24" CONCRETE CURB DETAIL

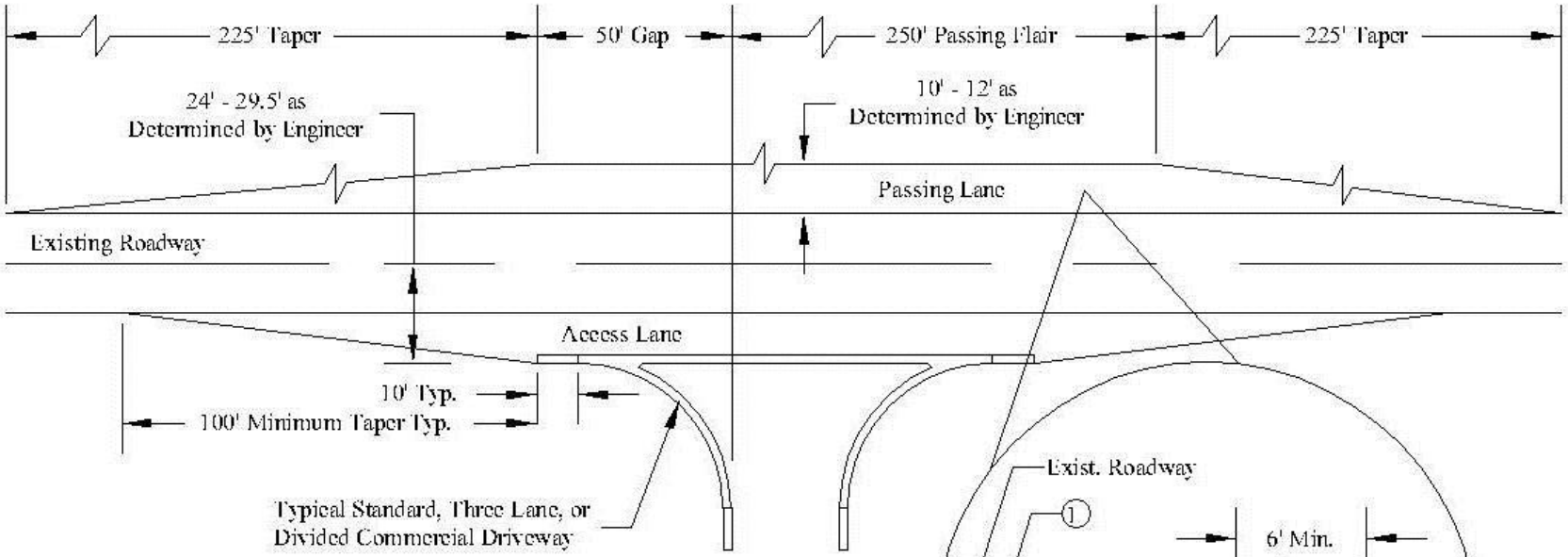


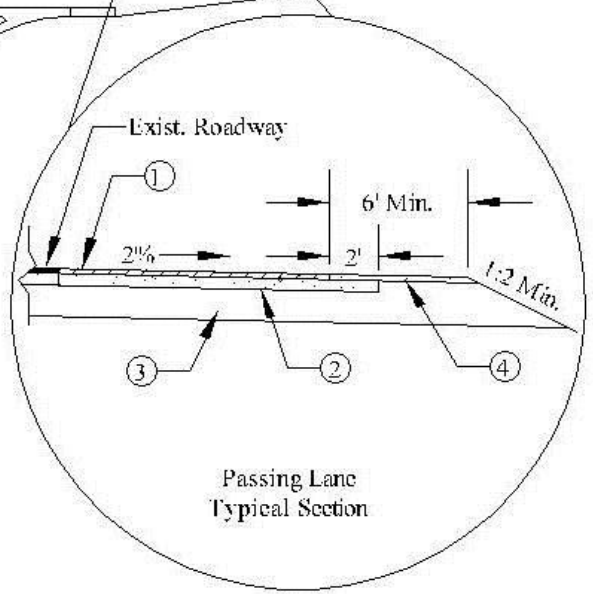
R – Radius

Notes:
1. Contraction Joints shall be placed every 10 ft.
2. Expansion Joints shall be placed at 350 ft. Min. and at all radius points.
3. Concrete shall conform to M.D.O.T. Spec. 802.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 6	REV. NO.:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 11-15-01	24" CONCRETE CURB DETAIL

TYPICAL STANDARD COMMERCIAL DRIVEWAY WITH PASSING FLARE AND ACCESS LANES





① Bituminous Surface – 3-1/4" (360 #/SYD)

② Aggregate Base – 7" Compacted 22-A Gravel

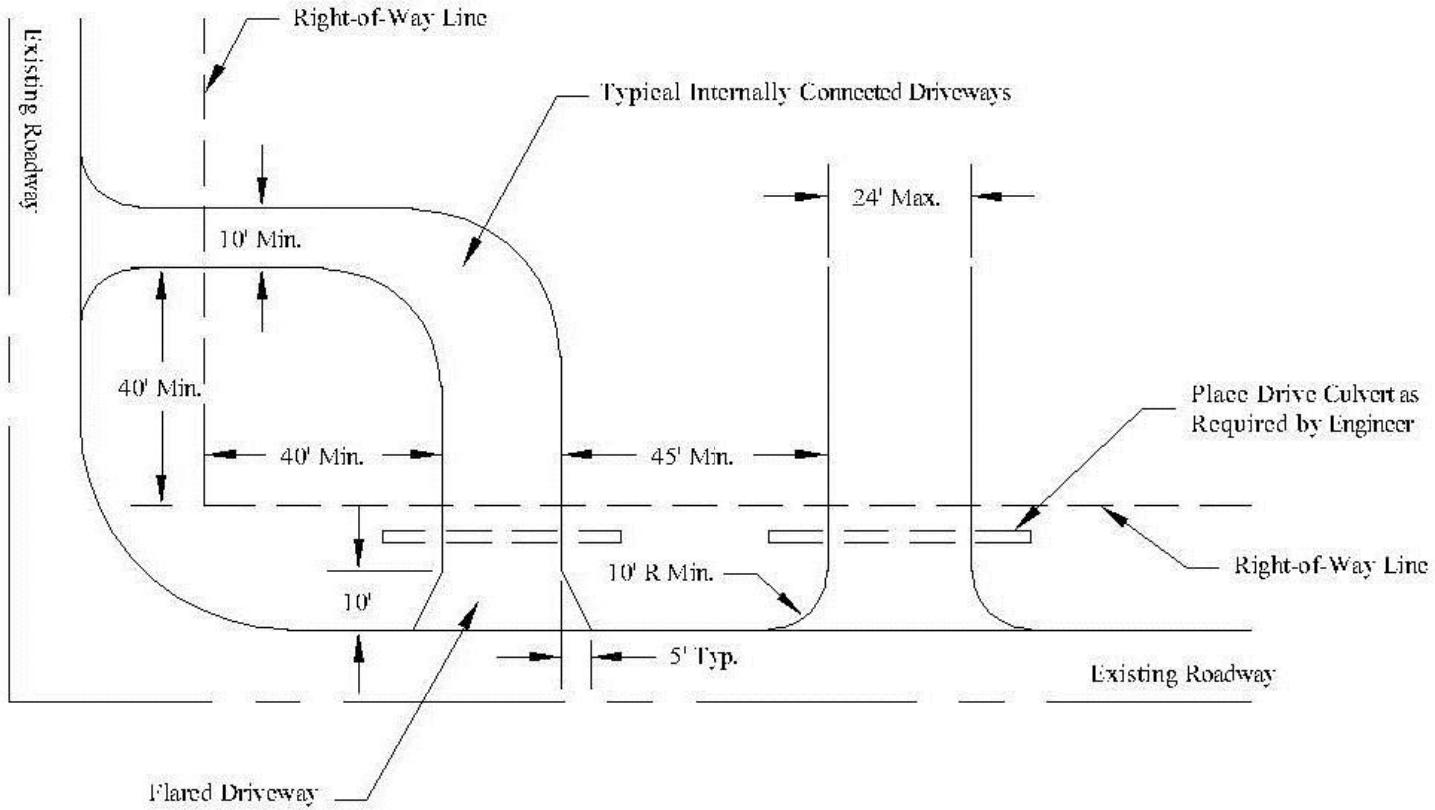
③ Subbase – 15" Class II Sand

④ Shoulder – 6" Min. Class I @ -4 % Slope

Notes: 1. Existing drainage shall be accommodated.

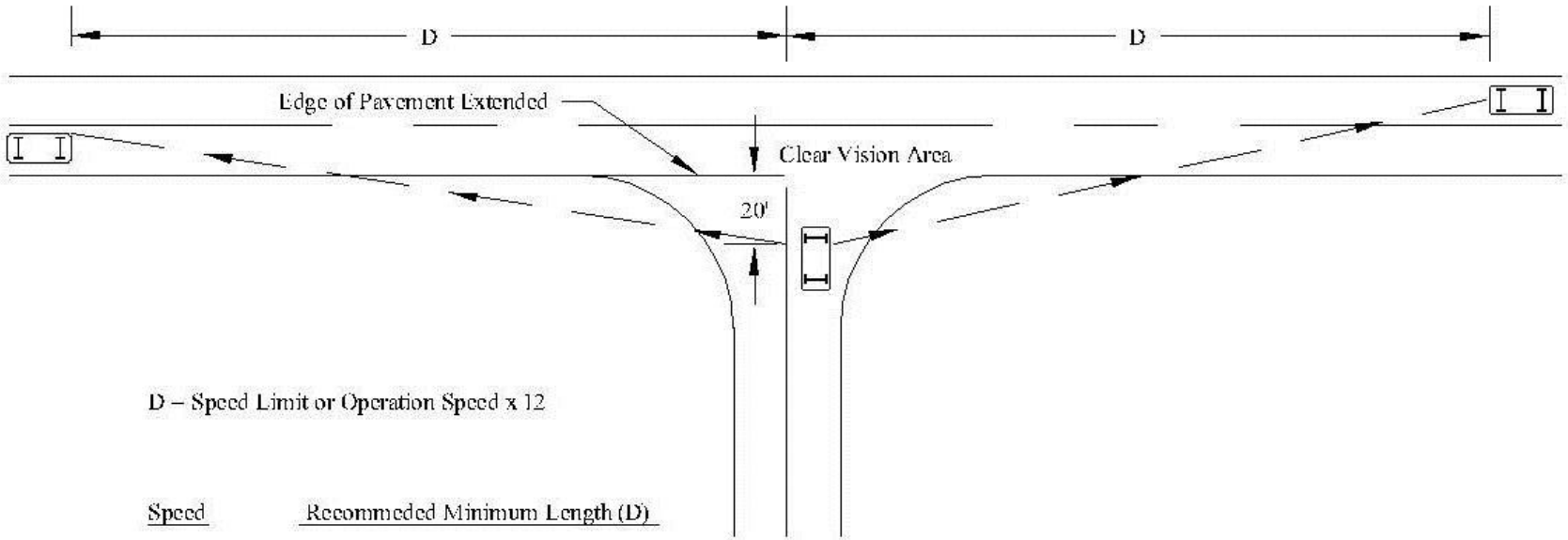
OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 7	REV. NO.:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 4-4-02	TYPICAL STANDARD DRIVEWAY WITH PASSING FLARE AND ACCESS LANES

STANDARD RESIDENTIAL DRIVEWAY DETAILS



OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 8	REV. NO.:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 4-4-02	STANDARD RESIDENTIAL DRIVEWAY DETAILS

RECOMMENDED MINIMUM DRIVEWAY AND INTERSECTION SITE DISTANCE



D – Speed Limit or Operation Speed x 12

Speed	Recommeded Minimum Length (D)
30 Mph	360'
35 Mph	420'
40 Mph	480'
45 Mph	540'
50 Mph	600'
55 Mph	660'
60 Mph	720'

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 9	REV. NO.:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 11-15-01	RECOMMENDED MINIMUM DRIVEWAY AND INTERSECTION SITE DISTANCE

ADDENDUM #1

To

OTTAWA COUNTY ROAD COMMISSION

RULES GOVERNING THE

GRANTING OF PERMITS

FOR DRIVEWAYS,

BANNERS AND PARADES

Adopted by the Board of County Road Commissioners, County of Ottawa January 22, 2004
Effective Date January 22, 2004

On Page 5, Section III A. 3 Drainage

Second Paragraph – Delete and replace with:

Drainage from developments on private property shall not be discharged into the road right-of-way. The Engineer may allow discharge of storm water into the right-of-way if one or both of the below items are followed:

1. In accordance with Michigan Drain Code as revised, the drainage (both open and/or enclosed) of a proposed development external outlet(s) within the right-of-way shall be public and contained within a newly established or existing drainage district(s) per Ottawa County Drain Commission standards and specifications.
2. The proposed development external outlet(s) are improved to an acceptable outlet based on Ottawa County Drain Commission design standards and specifications.

On Page 6, Section III B. 1. (c) Concrete Curb and Gutter

First Paragraph – Delete and replace with:

Concrete curb and gutter conforming to M.D.O.T F4 Concrete Curb and Gutter as shown in M.D.O.T Standard Detail R-30 is required for all commercial driveways, or if the adjacent roadway has concrete curb and gutter then the commercial driveway shall utilize the roadway concrete

curb and gutter profile. If the adjacent roadway has bituminous valley gutter then the commercial driveway shall utilize concrete curb and gutter that conforms to **Detail No. 6**. This requirement may be waived by the Engineer for Typical Standard Commercial Driveway **Detail No. 3** if:

On Page 7, Section III B. 1. (i) (4) Concrete Surface and Curb and Gutter – M.D.O.T. Spec. 802

Delete

Rolled Mountable Curb – **(See Detail No. 6)**

On Page 10, Section III C. 1. Definition

Delete and replace with:

All driveways for the purpose of serving the residents of single or two-family dwellings or a farmyard adjacent to a farm residence shall be deemed a residential driveway. Driveways serving more than three (3) residential properties will be considered a commercial driveway and will be subject to all conditions thereto.

On Page 11

Add new section.

E. Private Roads

A private road will be considered a commercial driveway and will be subject to all conditions thereto.

1. Private Road Name

The Engineer shall review and approve all proposed private road names. Private road names shall not be approved when they may be confused with similarly named roads within the Township and/or County. Punctuation or possessive names are not allowed.

Detail No. 3, Typical Standard Commercial Driveway Design

Delete and replace with attached.

Detail No. 4, Typical Divided Commercial Driveway With Median

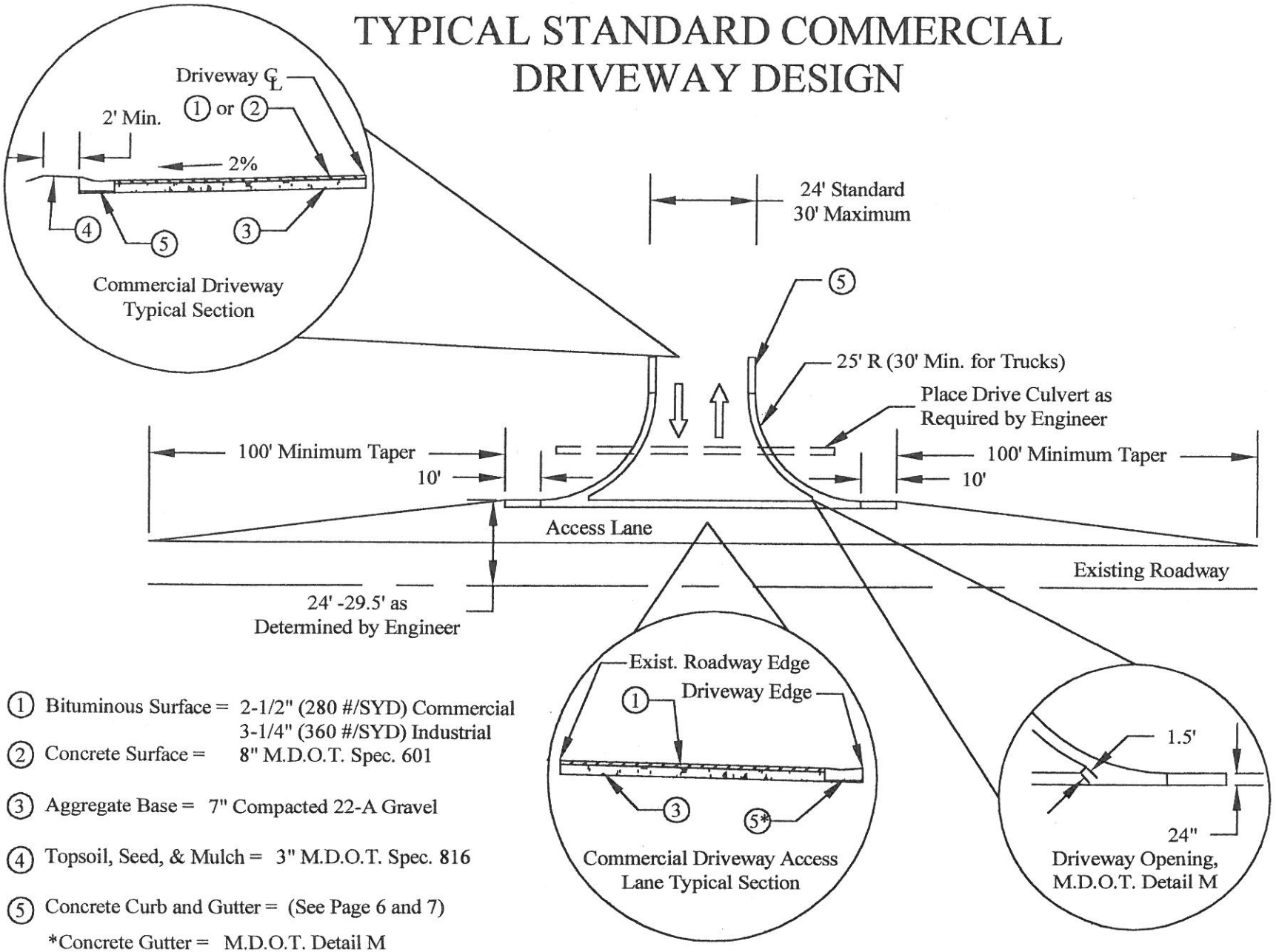
Delete and replace with attached.

Detail No. 5, Typical Three Lane Commercial Driveway Design

Delete and replace with attached.

.

TYPICAL STANDARD COMMERCIAL DRIVEWAY DESIGN



① Bituminous Surface = 2-1/2" (280 #/SYD) Commercial
3-1/4" (360 #/SYD) Industrial

② Concrete Surface = 8" M.D.O.T. Spec. 601

③ Aggregate Base = 7" Compacted 22-A Gravel

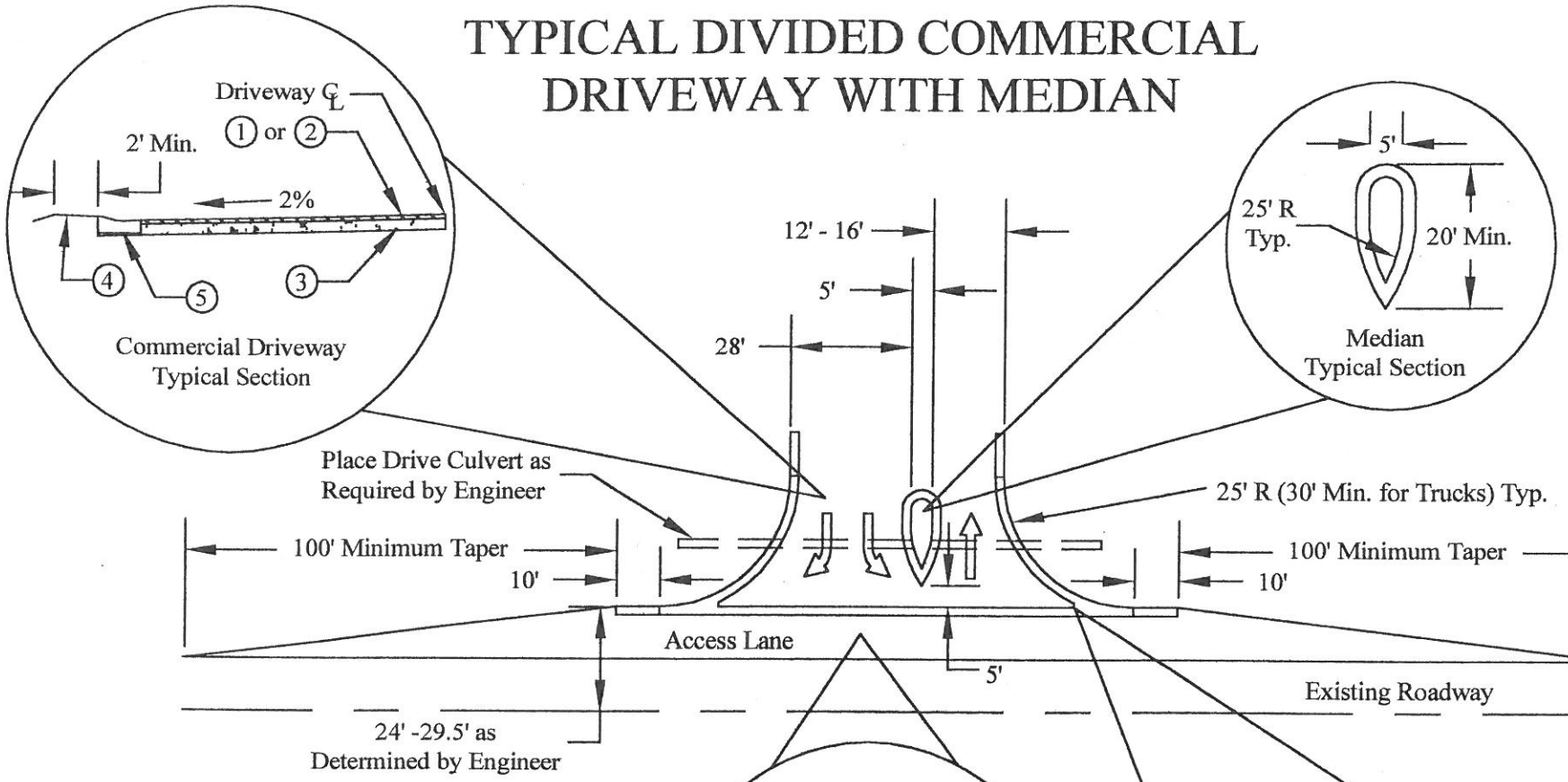
④ Topsoil, Seed, & Mulch = 3" M.D.O.T. Spec. 816

⑤ Concrete Curb and Gutter = (See Page 6 and 7)

*Concrete Gutter = M.D.O.T. Detail M

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 3	REV. NO.: 1	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 1-8-04	TYPICAL STANDARD COMMERCIAL DRIVEWAY DESIGN

TYPICAL DIVIDED COMMERCIAL DRIVEWAY WITH MEDIAN



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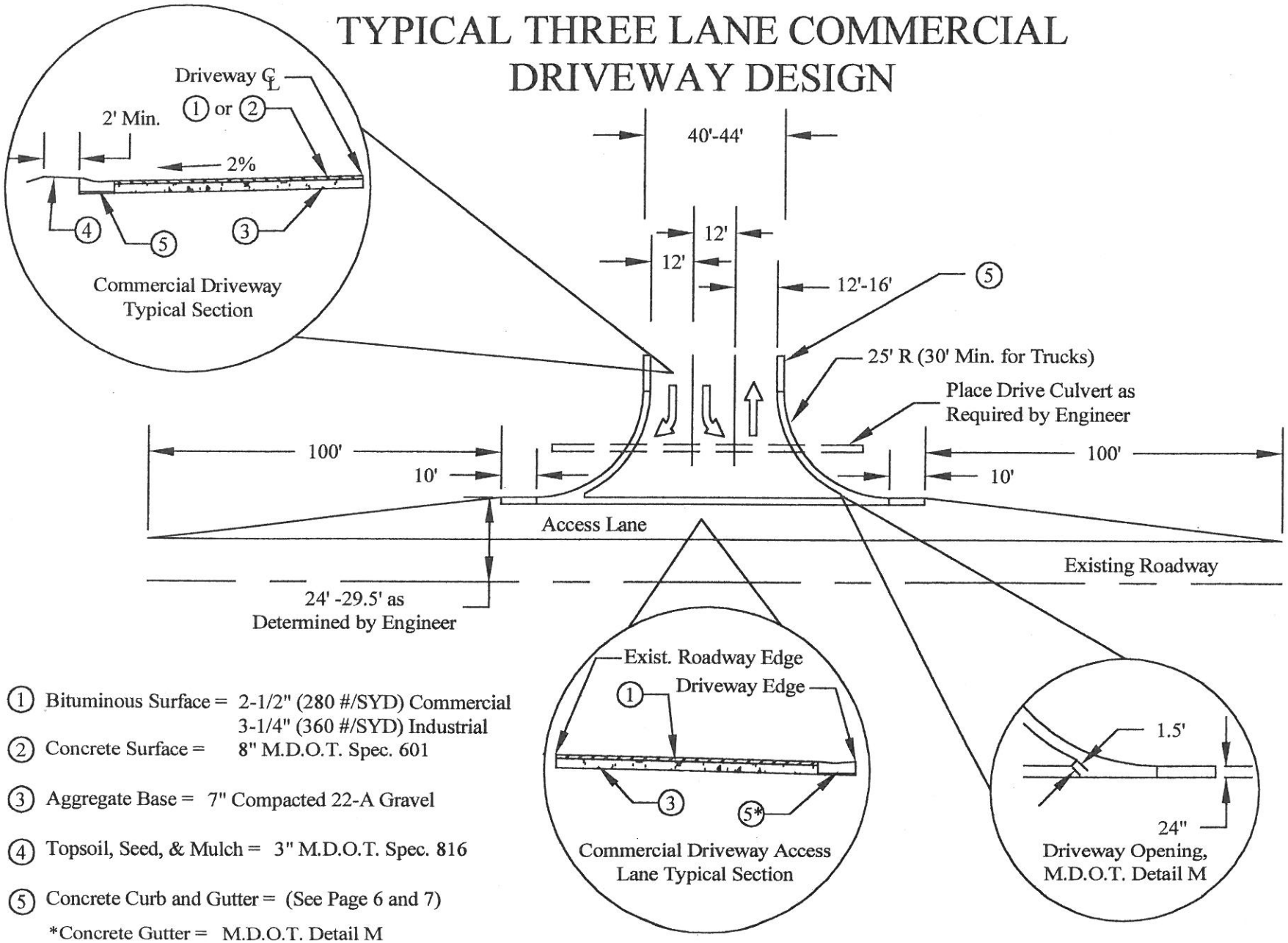
OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 4	REV. NO.: 1	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 1-8-04	TYPICAL DIVIDED COMMERCIAL DRIVEWAY WITH MEDIAN

TYPICAL THREE LANE COMMERCIAL DRIVEWAY DESIGN



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④ Topsoil, Seed, & Mulch = 3" M.D.O.T. Spec. 816

⑤ Concrete Curb and Gutter = (See Page 6 and 7)

*Concrete Gutter = M.D.O.T. Detail M

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 5	REV. NO.: 1	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 1-8-04	TYPICAL THREE LANE COMMERCIAL DRIVEWAY DESIGN

ADDENDUM #2

To

OTTAWA COUNTY ROAD COMMISSION

RULES GOVERNING THE

GRANTING OF PERMITS

FOR DRIVEWAYS,

BANNERS AND PARADES

Adopted by the Board of County Road Commissioners, County of Ottawa
Effective Date: October 1, 2007

On Page 5, Section III A. General Requirements

Add New Subsection

5. Sidewalk Ramps

Sidewalk ramps shall be provided in accordance with the American with Disabilities Act of 1990 (ADA) and the Rehabilitation Act of 1973 (Section 504) as amended. Sidewalk ramps shall conform to the current MDOT Standard Plan or Special Detail for Sidewalk Ramp Details R-28 and shall be required for all existing, proposed, or future sidewalks or non-motorized facilities crossing:

(a) Commercial Driveways
(b) Private Roadways

ADDENDUM #3

To

OTTAWA COUNTY ROAD COMMISSION

RULES GOVERNING THE

GRANTING OF PERMITS

FOR DRIVEWAYS,

BANNERS AND PARADES

Adopted by the Board of County Road Commissioners, County of Ottawa February 14, 2008
Effective Date February 14, 2008

On Page 6, Section III A. 4 Installation

After First Paragraph – Insert with:

The installation of a concrete surface treatment for the portion of the driveway from the roadway edge to the ROW line on County Roads without concrete curb or a bituminous valley gutter system is prohibited.

On Page 6, Section III A. 5. Restoration

Add new section:

Driveway restoration resulting from a construction project within the County Road ROW shall follow these guidelines:

Concrete Driveways: Concrete driveways will be restored with bituminous material in lieu of concrete from the edge of the roadway to the ROW line (or a shorter distance as determined by the Commission). However, if the County Road has a concrete curb or a bituminous valley gutter, then the driveway will be restored with concrete to a distance as determined by the Commission.

Bituminous Driveways: Bituminous driveways will be restored with bituminous material to a distance as determined by the Commission.

Aggregate Driveways: Aggregate driveways will be restored with aggregate material. However, if the construction project involves new concrete curb or bituminous valley gutter, then the aggregate driveway will be replaced with bituminous from the edge of curb 10 feet back or to the ROW line as determined by the Commission.

APPENDIX F

OCRC RULES GOVERNING THE GRANTING OF PERMITS FOR UTILITIES, SIDEWALKS & NON-MOTORIZED FACILITIES

Ottawa County Road Commission

Rules Governing The

Granting of Permits

For Utilities, Sidewalks,

& Non-Motorized Facilities

BOARD OF COUNTY ROAD COMMISSIONERS
COUNTY OF OTTAWA

The following Rules were adopted by the Board of County Road Commissioners on January 9, 2003.

CONTENTS

ILLUSTRATIONS

I. GENERAL PROVISIONS

A person, organization or governing unit shall not undertake or conduct any of the following activities on or along roads within public road right-of-way unless a permit to allow such activity has been obtained from the Ottawa County Road Commission.

1. Construct, reconstruct, or relocate watermain or sanitary sewer.
2. Open cuts of roads, non-motorized facilities and sidewalks for service and main line connections, locating of other utilities and maintenance of facilities.
3. Road bores.
4. Installation of vaults, manholes, and other utility structures.
5. New poles and anchors or replacement of poles and anchors.
6. Placement of conduit or interduct.
7. Placement of new facility within existing conduit or interduct.
8. Service cable running parallel with right-of-way.
9. Buried cable – new and replacement of damaged cable.
10. Aerial cable – new plant.
11. Construct, reconstruct, or relocate a non-motorized facility, sidewalk or paved shoulder.

ANY ACTIVITY CARRIED OUT IN THE COUNTY RIGHT-OF-WAY WITHOUT A PERMIT IS SUBJECT TO ITS REMOVAL BY THE BOARD AT THE PROPRIETOR'S EXPENSE.

Failure to comply with the conditions set forth by the permit shall cause the Board, or its Engineer, to halt activities involved with the permit or the revocation thereof. Costs incurred by the Board in correcting non-compliance with terms and conditions set forth by the permit or the costs of correcting defective material or poor workmanship, as determined by the Engineer, shall be borne by the Proprietor.

Permit forms are available at the Ottawa County Road Commission at Rosy Mound Drive @ US-31, P.O. Box 739, Grand Haven, Michigan 49417.

A. Definitions

BOARD - The Board of County Road Commissioners of the County of Ottawa, State of Michigan.

ENGINEER – Engineering Director of the Board or any employee designated to act for him in implementing the Rules Governing the Granting of Permits for Utilities, Sidewalks, & Non-Motorized Facilities.

GOVERNING BODY - Local unit of government in which the construction activity will take place.

PROPRIETOR - Any person, firm, association, partnership, corporation, unit of government, or any combination thereof desiring access to or conducting any activity on a County Highway.

M.D.O.T. SPEC. - Michigan Department of Transportation, 2003 Interim Standard Specifications for Construction (or current edition) will be used except where noted.

B. Permit Requirements

1. Bonds

Bonds shall be required on all construction activity within the public road right-of-way to protect the Ottawa County Road Commission against the cost of completing construction or repairing deficiencies. Acceptable alternatives to bonds are cash, certified or cashier's checks and money orders made payable to the Ottawa County Road Commission. A $1,000.00 individual project or yearly blanket bond shall be posted.

2. Indemnity and Certificates of Insurance

The Proprietor shall save harmless, defend and represent the Board and the Ottawa County Road Commission, its officers and employees against any and all claims for damages arising from operations covered by the permit. Certificates of insurance shall be required on utilities, sidewalks, and bike paths to ensure that the licensee and/or applicant can meet all claims, including damage or personal injury. General liability insurance carried by an applicant or licensee may be acceptable if it equals or exceeds current amounts specified by the Board. Insurance must be kept in force until the permitted construction is completed and approved. Failure to do so will be just cause for immediate suspension and/or cancellation of the permit.

The Ottawa County Road Commission, County of Ottawa, Board of County Road Commissioners and their officers, agents, and employees shall be named as additional insured on the Insurance Certificate.

3. Safety

The Proprietor shall provide and maintain all necessary precautions to prevent injury or damage to persons and property from operations covered by the permit and shall use warning devices in accordance with the current edition of the **Michigan Manual of Uniform Traffic Control Devices**.

II. UTILITY, SIDEWALK, AND NON-MOTORIZED FACILITY PERMITS

A. Permit Procedure

1. Application

Any person, organization or governing unit desiring to construct, reconstruct, or relocate an utility, sidewalk, or non-motorized facility within Ottawa County Road Commission right-of-way shall make application and secure a permit before beginning construction. The acceptable applicants for these permits are owners or agents, or a contractor employed by the owner. However, the owner or owner's agent and the contractor shall be required to sign the permit.

Applications for utility, sidewalk, or non-motorized facility permits shall be submitted in the manner prescribed by and on the appropriate forms supplied by the Engineer. Applications shall be accompanied by two (2) sets of plans or drawings.

The permit is fully executed and in force after the plans are approved and the permit signed by the owner or owner's agent, the contractor, and the Engineer.

2. Requirements on Plans of Proposed Utility, Sidewalk, or Non-Motorized Facility(s)

All copies of utility, sidewalk, or non-motorized facility permit applications shall be accompanied by two (2) sets of plans or drawings clearly indicating the following features as the Ottawa County Road Commission may require:

(a) Existing road pavement, ditches, drainage structures and controls, right-of-way and property lines, house/lot numbers, road appurtenances, medians (if existing) and dimensions thereof, and names of existing roads.

(b) All utilities, both existing and proposed.

(c) All proposed road crossings shall show the depth, diameter of bore and pipe.

(d) All sidewalks and non-motorized facilities, both existing and proposed.

(e) All roadside features, in addition to sidewalks or non-motorized facilities, to be constructed within the road right-of-way including roadside control island, curb, traffic signs, manholes, and poles.

(f) North directional arrow and scale of drawing.

(h) The location and elevation of the nearest United States Coastal and Geodetic Survey Bench marks used in establishing elevations.

3. Staking Requirements

Prior to the Ottawa County Road Commission reviewing permit applications the proposed utility, sidewalk, or non-motorized facility shall be staked in accordance to the following conditions:

(g) Any project that is 400' in length or longer is required to have the running line staked.
(h) Underground facilities will be staked at a maximum 200' intervals with stakes clearly marked with company name and distance from centerline.
(i) If the project is less than 400' in length a beginning and ending stake will be required.
(j) Road bores and utilities under the road pavement shall be staked on each side of the road.
(k) Utility poles and anchors will be staked individually.
(l) Utilities placed in conjunction with new roadway construction do not have to be staked.

4. Review Procedure

The Engineer will review the prepared application and field stakes for compliance to these rules and note any revisions necessary for approval. Transmittal of a completed permit, approved by the Engineer, or transmittal of a denied application constitutes action on the permit application.

5. Conditions of Issuance

All utility, sidewalk, or non-motorized facility permits issued in accordance with these rules shall be subject to the following conditions and limitations:

(a) The Engineer reserves the right of inspection of any utility, sidewalk, or non-motorized facility construction within the public road right-of-way.

(b) The Proprietor shall provide the appropriate permit fee according to the Permit Fee Schedule for the services required for the review and approval of plans and for any on-the-job inspections that are required.

(c) The Engineer shall be given at least two days (excluding Saturdays, Sundays, and Holidays) notice prior to the commencement of any operation covered by the permit.

(d) The Proprietor shall have a copy of the permit available at the site during construction.

(e) The Proprietor shall surrender the permit, cease operation and surrender all rights there under, whenever notified to do so by the Engineer because of a default of any condition of the permit.

(f) The Proprietor shall furnish all materials and bear all costs of necessary construction within the Ottawa County Road Commission right-of-way.

(g) The Proprietor shall remove all surplus materials to an area outside of the limits of the public right-of-way unless the permit provides the manner of

disposal at locations within the right-of-way. Excavated material shall not be stockpiled so as to adversely affect safety of the traveling public.

(h) All work authorized by the permit shall be completed to the satisfaction of the Engineer on or before the completion date specified in the permit. Any request for an extension of time of completion of work authorized by permit shall include reasons for the request. Approval of extension of time shall be based on extenuating circumstances indicating no neglect on the part of the applicant. Additional requirements may be imposed as a condition of an extension of time due to seasonal limitations and other considerations.

III. UTILITY CONSTRUCTION STANDARDS

A. Placement Rules and Regulations

The location of utilities within public right-of-way shall be in accordance with an established corridor plan. **(See Detail No. 1)**

1. Buried Electrical & Telephone

(a) South and West side of the right-of-way.
(b) Place at an approved distance of 1' to 7' from the right-of-way line.
(c) Minimum depth for plowed or trenched main cable is 30" below ground or 30" below centerline of road, which ever is the lower elevation.
(d) Minimum depth for services is 24" below ground or 24" below centerline of road, which ever is the lower elevation.
(e) Minimum depth below a ditch or culvert crossing is 24".
(f) Road crossing shall be at right angles to centerline and at a minimum depth of 48".
(g) Bore pits shall maintain a minimum clearance of 7' from bituminous pavement.

2. Buried Gas

(a) North and East side of right-of-way.
(b) Place at an approved constant location of 6.5' from the right-of-way line.
(c) Minimum depth for plowed or trenched main is 30" below ground or 30" below centerline of road, which ever is the lower elevation.
(d) Minimum depth for services is 24" below ground or 24" below centerline of road, which ever is the lower elevation.
(e) Minimum depth below a ditch or culvert crossing is 24".
(f) Road crossing shall be at right angles to centerline and at a minimum depth of 48".
(g) Bore pits shall maintain a minimum clearance of 7' from bituminous pavement.

3. Buried Cable TV

(a) Place at an approved constant location of 6" from either side of the right-of-way line.
(b) Minimum depth for plowed or trenched cable is 30" below ground or 30" below centerline of road, which ever is the lower elevation.
(c) Minimum depth for services is 24" below ground or 24" below centerline of road, which ever is the lower elevation.
(d) Minimum depth below a ditch or culvert crossing is 24".
(e) Road crossing shall be at right angles to centerline and at a minimum depth of 48".
(f) Bore pits shall maintain a minimum clearance of 7' from bituminous pavement.

4. Poles and Guy Wires

(a) Place at an approved location of 7' from either side of the right-of-way line.
(b) Wood poles shall maintain a minimum clearance of 10' from bituminous pavement.
(c) Fiberglass poles shall maintain a minimum clearance of 6' from bituminous pavement.
(d) No poles are allowed in the bottom of ditch or shoulder of the road.
(e) Only one pole line shall be allowed within the right-of-way.

5. Fiber Optics

(a) Place at an approved constant location between 0'-3' from the right-of-way line.
(b) South and West side of the right-of-way for Telephone.
(c) Either side of the right-of-way for Cable TV.
(d) Minimum depth shall be 36" below ground or 36" below centerline of road, which ever is the lower elevation.
(e) When crossing any drain, ditch, or drainage structure during installation of fiber optic cable and/or conduit, maintain a minimum of 4' of cover below solid bottom.
(f) All road crossings shall be bored at right angles to centerline and at a minimum depth of 48". Pits are to be placed at least 7' from the edge of the pavement.

6. Aerial Wire and Cables

(a) Place at an approved constant location of 7' from either side of the right-of-way line.
(b) The vertical clearance of wires, conductors, and cables over county roadways shall not be less than required by Rule 232 of The National Electric Safety Code, except that the underclearance for an unloaded sag with no wind at 60 degrees shall not be less than 18 feet.

7. Water Main

(a) North and East side of right-of-way.
(b) Place at an approved constant location of 4' from right-of-way line. (On residential subdivision roads the main shall be placed at 11' from right-of-way line.)
(c) Minimum depth for plowed or trenched main is 60" below ground or 60" below centerline of road, which ever is the lower elevation.
(d) Minimum depth for services is 60" below ground or 60" below centerline of road, which ever is the lower elevation.
(e) Road crossing are to be at right angles to centerline and at a minimum depth of 60".
(f) Bore pits shall maintain a minimum clearance of 7' from bituminous pavement.

8. Sanitary Sewer

(a) South and West side of right-of-way.
(b) Place at an approved constant location of 8' from right-of-way centerline for a gravity sewer main. (On primary or section line roads the gravity sewer shall be placed at 11' from right-of-way centerline.)
(c) Place at an approved constant location of 12' from right-of-way centerline for a sanitary sewer force main when constructed in conjunction with sanitary sewer. (When constructed separate of gravity sewer the sanitary sewer force main shall be placed at 18' from right-of-way centerline.)
(d) Minimum depth for plowed or trenched main is 60" below ground or 60" below centerline of road, which ever is the lower elevation.

(e) Minimum depth for services is 60” below ground or 60” below centerline of road, which ever is the lower elevation.
(f) Road crossing are to be at right angles to centerline and at a minimum depth of 60”.
(g) Bore pits shall maintain a minimum clearance of 7’ from bituminous pavement.

B. Road Cuts and Reconstruction

If the proposed utility project involves road cuts and/or road reconstruction the following shall be required:

1. General

The Engineer may, if the public safety requires immediate action, grant permission to make an emergency road cut or excavation before a permit is issued.

Transverse crossing of recently paved or resurfaced roads by utility main or service lead construction shall be bore and jacked, in lieu of open cut construction.

In all cases other than sidewalk or bike path construction the permit applicant for a road cut shall notify the Engineer a minimum of two working days prior to the time when the work is proposed to commence so, if necessary, arrangements may be made to have an inspector present while the work is in progress.

Whenever a part of a block, square or section of curb, sidewalk, or driveway is broken or damaged by the person making any excavation or opening in or under any street, road or within any public right-of-way, the entire block, square or section shall be removed to the score, groove or saw cut line and replaced or reconstructed. Where the line of cut would be less than two feet from an existing expansion or weakened plane joint, the concrete shall be removed to that joint.

At no time shall more than 200 feet of trench be opened and incompletely backfilled during working hours. The remainder of the area of trenching operation shall be available for safe vehicular and pedestrian traffic at all times. The Engineer may allow special exceptions.

An approved bituminous patching mixture shall be placed on all openings within the roadway surface at the close of each working day. The Engineer may grant an exception if the road is completely reconstructed. Minimum requirements for temporary pavement shall be a bituminous patching mixture conforming to MDOT Specification Section 503, as approved by the Engineer. The Proprietor shall properly maintain temporary pavement in a safe condition at all times until permanent pavement is placed. Each party making street openings shall routinely check their temporary pavement. All temporary patches made between November 15 and April 15 shall be checked at least every fourteen days and repairs made as needed.

If the paving surface adjacent to the road opening may be damaged where trenches are made parallel to the road, or where a number of cross trenches are laid in close proximity to one another, or where the equipment used may cause such damage, the Engineer may require the resurfacing of such road, instead of patching, if the total area of the proposed patch (or probably damaged area) exceeds twenty-five percent of the total pavement surfacing area.

The final pavement surface shall be placed within fourteen days of the completion of construction with in the right-of-way, as specified herein. All cuts made in the off season (November 15 to April 15) shall be completed before June 15 of the following season. Any permittee found in violation of these requirements will be denied additional permits until all openings produced by that permittee have been properly repaired.

Any operation in the right-of-way not covered by these Specifications, submitted with this permit, shall be done in accordance with the instructions of the Engineer.

2. Bituminous Mixtures

The bituminous mix design shall be furnished to the Engineer for review and approval. A minimum of three working days is required for the review of the mix design. The Engineer reserves the right to request validation of mix designs developed for previous construction seasons.

The contractor shall be responsible for the production and quality control of the bituminous mixture furnished and placed. The contractor will test not less than one sample per day's production at the bituminous plant. The Proprietor's Engineer and Laboratory will monitor these tests, and their results.

In order to verify the contractors testing and assure end result compliance, splits of the samples used for quality control testing shall be made available to the Engineer for verification and acceptance testing. The Engineer reserves the right to take independent samples for verification and acceptance testing at the plant or at the project site.

3. Concrete Mixtures

The concrete mix design shall be furnished to the Engineer for review and approval. A minimum of three working days is required for the review of the mix design. The Engineer reserves the right to request validation of mix designs developed for previous construction seasons.

The Proprietor's Engineer or Laboratory shall mold compressive strength cylinders and perform slump and air entrainment tests in accordance with M.D.O.T. Spec. 701.03.F. One set of tests shall be performed each day that concrete curb and gutter or sidewalk is placed.

The concrete test results shall be submitted to the Engineer within one week of the field and laboratory test dates.

4. Compaction Requirements

The following densities shall be obtained on road construction by standard methods of compaction:

Embankment 95% of Maximum Unit Weight - M.D.O.T. Spec. 205.03.H.
Subbase 95% of Maximum Unit Weight – M.D.O.T. Spec. 301.03.
Aggregate Base 98% of Max. Unit Weight – M.D.O.T. Spec 302.03.A.
Bit. Surface 97% of Max. Unit Weight – M.D.O.T. Spec. 502.03.G.

The minimum frequencies of tests for density control are as follows:

(a) Trench Backfill – 1 test per layer of backfill per run of pipe, between structures. Minimum 1 test per lateral, unless waived by Engineer.
(b) Structure Backfill – 1 test per layer of backfill at each structure, unless waived by Engineer.
(c) Subbase – 1 test per 400 linear feet of roadway.
(d) Aggregate Base – 1 test per 400 linear feet of roadway.
(e) Bituminous Surface – 1 test per 400 linear foot of bituminous course.

Compaction test results are to be submitted to the Engineer within one week of the test date.

5. Inspection

The Proprietor's Engineer shall provide daily inspections during construction operations. An IDR (Inspectors Daily Report) shall be submitted to the Engineer within one week of the inspection date. **(See Detail No. 4)**

Periodic inspections during construction by the Engineer shall not relieve the Proprietor's Engineer of any of his obligations. These periodic inspections are to verity that proper construction methods are being utilized in their various stages of construction.

6. Preconstruction Meeting

A preconstruction meeting shall be held at least one week prior to commencement of the work. The following personnel shall be notified of this meeting: Ottawa County Road Commission, Township, Ottawa County Drain Commissioner, the utility companies and other agencies affected by the proposed construction.

At this meeting, matters pertinent to the project schedule, daily reports, material testing, inspection, utility coordination, traffic control, soil erosion control, and other items will be discussed and reviewed.

C. Pavement Removal

The location of disposal areas and the proper disposal of asphalt and concrete shall be the responsibility of the Proprietor. At no time shall stockpiles of excavated material remain overnight on public right-of-way.

Cutting of bituminous surfaces for removal shall be by saw or jackhammer or other methods approved by the Engineer and shall have a clean, straight, vertical edge without disturbance to the adjacent pavement. Backhoe teeth, jackhammers equipped with spike points, and backhoe-mounted wheel cutters are not acceptable for cutting pavement edges, however, they may be used to break up pavement within the section to be removed. All pavement cuts shall be made perpendicular to, or parallel with, the centerline of the pavement. Pavements less than three years old may only be cut in the case of an emergency, and only with the approval of the Engineer.

For final patches required as a result of utility construction or repair, the existing pavement shall be removed to provide for a replacement of not less than one foot wider and longer than the utility trench on each side. All final patches (patches in the wearing course of asphalt) shall be rectangular. If these removals will result in existing pavement of less than five feet wide from the patch to a lane line, gutter edge-of-metal, or existing patch, this existing pavement shall also be removed to the lane, gutter edge-of-metal, or existing patch.

Any damage to the adjacent pavement, pavement base, subbase, or utility structures caused as a result of the removal of the bituminous surface shall be repaired.

Prior to filling the excavated areas with patching material, if the base has become damp/wet due to rain or due to the construction operations, it shall be dried by aerating or other approved method(s). Prior to patch placement, the excavation(s) shall be cleaned with compressed air to remove dirt and loose material. The base shall than be recompacted with a vibratory plate compactor or other approved method(s), and the exposed edges of each patch shall be tacked. No excavated areas will be allowed to remain open overnight and shall be properly refilled to grade with an approved bituminous patching material.

Butt joints shall be saw cut straight, cleaned and tacked prior to bituminous paving.

D. Maintenance and Restoration of Right-of-Way

1. Shoulder Resoration

Road shoulders shall be restored to the same type (paved, gravel, or earth), width, slope, and thickness as existed prior to the start of the work.

(a) Gravel shoulders that are removed during construction are to be replaced with MDOT 23A compacted gravel. If the shoulder had a sand subbase, it shall also be replaced.

(b) Gravel shoulders which are not removed but contaminated, rutted, or otherwise damaged shall be restored by removing the contaminated material and replacing it with MDOT 23A gravel to the original thickness, width, slope, and flush with the road surface. If the road is resurfaced, sufficient gravel shall be added to bring the shoulder up to the new surface elevation.

(c) If the shoulders were grass covered they shall be so restored to a stable condition.

(d) If all or a portion of the shoulder is paved, the paved shoulder shall be replaced with a bituminous mixture approved by the Engineer. The edge of roadway shall be trimmed to present a smooth edge for attachment of the paved shoulder and treated with a bond coat. The width and cross-section of the paved shoulder shall be replaced to match the existing.

2. Drainage Restoration

(a) All road drainage shall be restored as soon as possible following construction operations. Ditches, ditch slopes and other areas within right-of-way shall be restored to meet the current Ottawa County Road Commission standards, unless otherwise noted or shown on approved plans.

(b) All culverts and ditch enclosures removed shall be replaced with approved materials and re-laid in proper position and elevation. Culverts and other drainage structures that are damaged but not removed during construction operations shall be fully repaired to the satisfaction of the Engineer or be replaced in accordance with currenct Ottawa County Road Commission standards. Grading or ditching may be required near the inlet or outlet in order to re-establish drainage beyond that shown on approved plans.

(c) The Proprietor is responsilbe for restoration or re-establishment of drainage patterns or systems disturbed by the work or construction operations.

3. Topsoil, Seeding, and Mulch

The methods and time of seeding and mulching shall meet the requirements of the M.D.O.T. Spec. 816. All disturbed areas shall be covered with three (3) inches of fertile topsoil.

E. Reconstruction Design

The pavement cross-section for reconstruction projects shall be designed in accordance with latest edition of the Ottawa County Road Commission's Standards and Specifications for *Plat, Condominium, and Public Road Development* or **Details 2 and 3** of this publication.

IV. SIDEWALK AND NON-MOTORIZED FACILITY CONSTRUCTION STANDARDS

A. Sidewalks

Sidewalk construction shall be in accordance with section 803 of the MDOT Specificaions.

1. Location and Width

The sidewalk shall be 5' in width and the outside edge located 1' from the right-of-way line.

Sidewalk elevations shall be determined by the existing elevation of the road. Construct the property side of the sidewalk at 6" above the centerline of the road.

2. Grade

Sidewalks are to have a tranverse grade of 2% (1/4" per foot) draining toward the road.

The maximum allowed longitudinal grade shall be 5%. This grade shall not be exceeded unless the road grade is of a steeper grade, in which case the longitudinal sidewalk grade shall not exceed the road grade.

3. Surface Material Requirements and Specifications

Sidewalks shall meet the following aggregate base course requirements and shall be hard surfaced with concrete materials as listed below:

(a) **Aggregate Base Course** - M.D.O.T. Spec. 302
Material - 22A
Gradation - M.D.O.T. 902-1 Minimum 25% crushed
Thickness - 6" compacted in place.

(b) **Concrete Surface** - M.D.O.T. Spec. 802
Material - 5 sack mix design
Thickness - 4"
- 6" through residential driveways
- 8" through industrial driveways

4. Surface Drainage

All existing drainage shall be accommodated with the construction of new sidewalk. All connections to existing storm sewer systems shall be approved by the Ottawa County Drain Commission.

B. Non-Motorized Facilities

Non-motorized facility construction shall be in accordance with section 806 of the MDOT Specificaions.

1. Location and Width

The non-motorized facility shall be 8' in width and the outside edge located 1' from the right-of-way line.

Non-motorized facility elevations shall be determined by the existing elevation of the road. Construct the property side of the non-motorized facility at 6" above the centerline of the road.

2. Grade

Non-motorized facilities are to have a tranverse grade of 2% (1/4" per foot) draining toward the road.

The maximum allowed longitudinal grade shall be 5%. This grade shall not be exceeded, unless the road grade is of a steeper grade, in which case the longitudinal non-motorized facility grade shall not exceed the road grade.

3. Vertical and Horizontal Curves

Non-motorized facilities shall be designed in accordance with the requirements of the AASHTO – Guide for Development of New Bicycle Facilities (1991 or current edition).

4. Surface Material Requirements and Specifications

Non-motorized facilities shall meet the following aggregate base course requirements and shall be hard surfaced with either bituminous or concrete materials as listed below:

(a) **Aggregate Base Course** - M.D.O.T. Spec. 302
Material - 22A
Gradation - M.D.O.T. 902-1 Minimum 25% crushed
Thickness - 6" compacted in place.

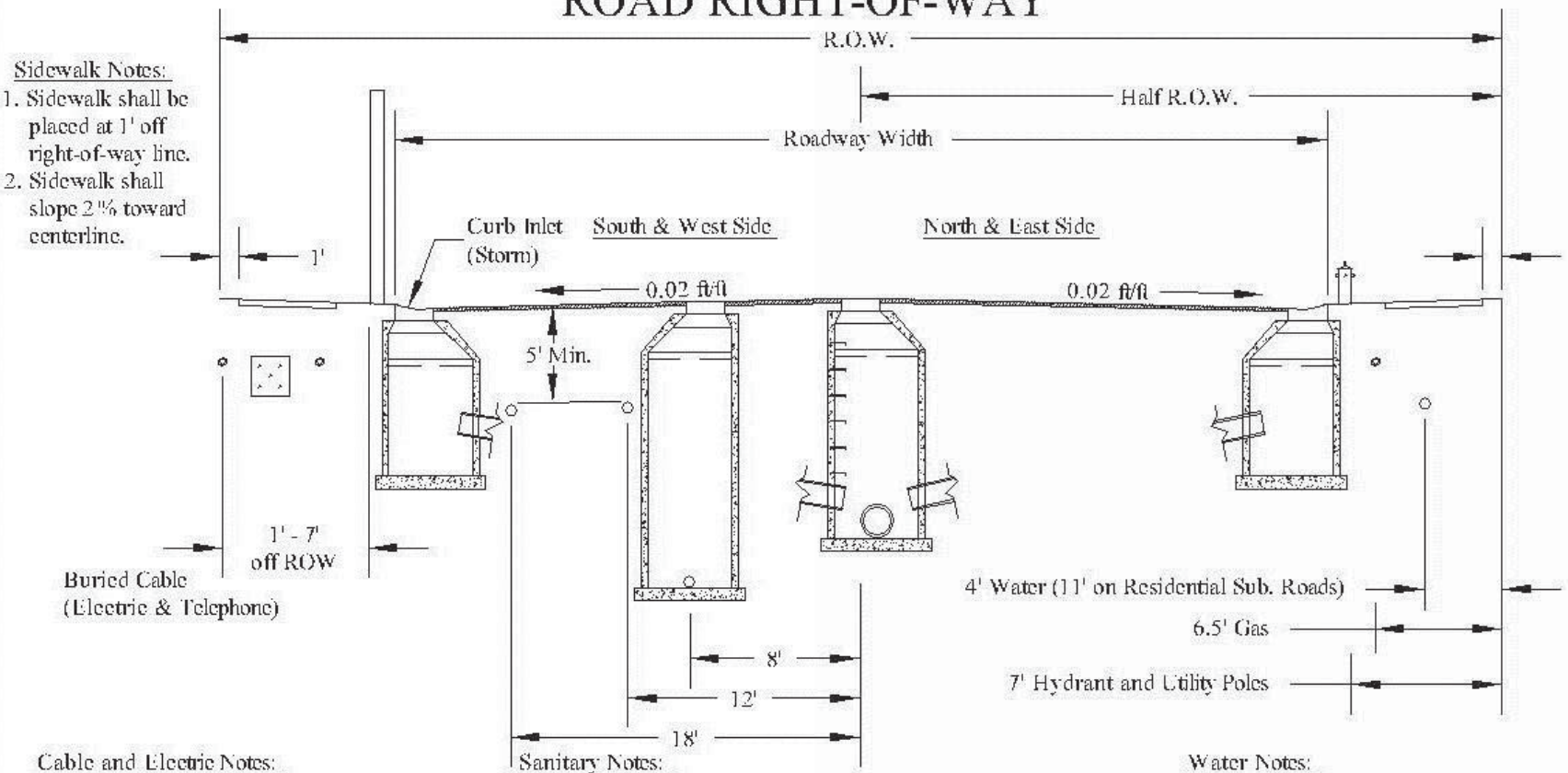
(b) **Bituminous Surface** - M.D.O.T. Spec. 500
Material - Bituminous Mixture 13A Leveling
- Bituminous Mixture 36A Surface
Thickness - 2 1/2" 275#/Sq. Yd. Min.
Asphalt Cement - Performance Grade 58-28
Temperature & Seasonal Limitations Table 502.03.J

(c) **Concrete Surface** - M.D.O.T. Spec. 802
Material - 5 sack mix design
Thickness - 4"
- 6" through residential driveways
- 8" through industrial driveways

5. Surface Drainage

All existing drainage shall be accommodated with the construction of non-motorized facilities. All connections to existing storm sewer systems shall be approved by the Ottawa County Drain Commission.

TYPICAL UTILITY LOCATION WITHIN ROAD RIGHT-OF-WAY



Sidewalk Notes:

1. Sidewalk shall be placed at 1' off right-of-way line.
2. Sidewalk shall slope 2% toward centerline.

Cable and Electric Notes:

1. C.A.T.V. at 6" from either side of R.O.W.
2. Fiber Optic Cable to be at 0'-3' off right-of--way line. Minimum depth of 36" below centerline elelvation. (Only if easement cannot be obtained.
3. Buried Cable at 1'-7' (Electric & Telephone) off right-of-way line.

Sanitary Notes:

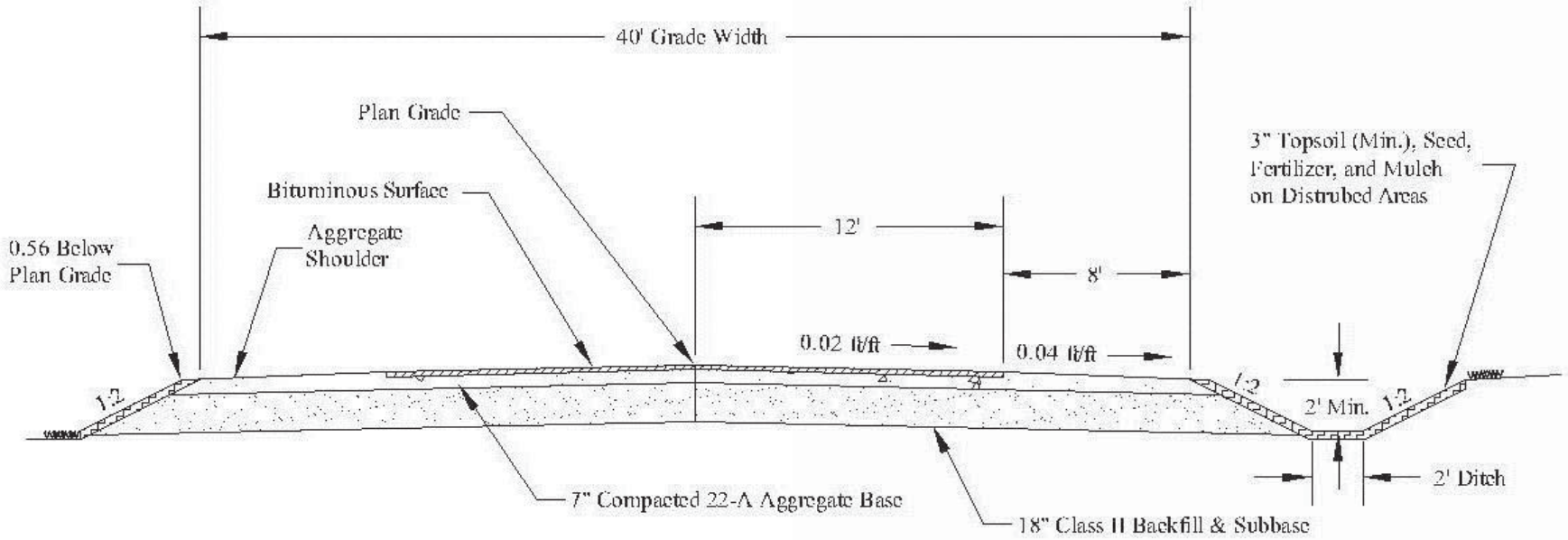
1. Sanitary sewer force main located at 12' when constructed in conjuction with sanitary sewer main.
2. Sanitary sewer force main located at 18' when constructed separate of gravity sewer.
3. Gravity sanitary sewer located at 11' when constructed on primary or major section line roads. **The gravity sanitary sewer may shifted to accommodate a mandated center of manhole casting location of 11'.**

Water Notes:

1. Water main shall be placed a minimum of 60" below centerline elevation.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO: 1	REV. NO:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE:	TYPICAL UTILITY LOCATION WITHIN ROAD RIGHT-OF-WAY

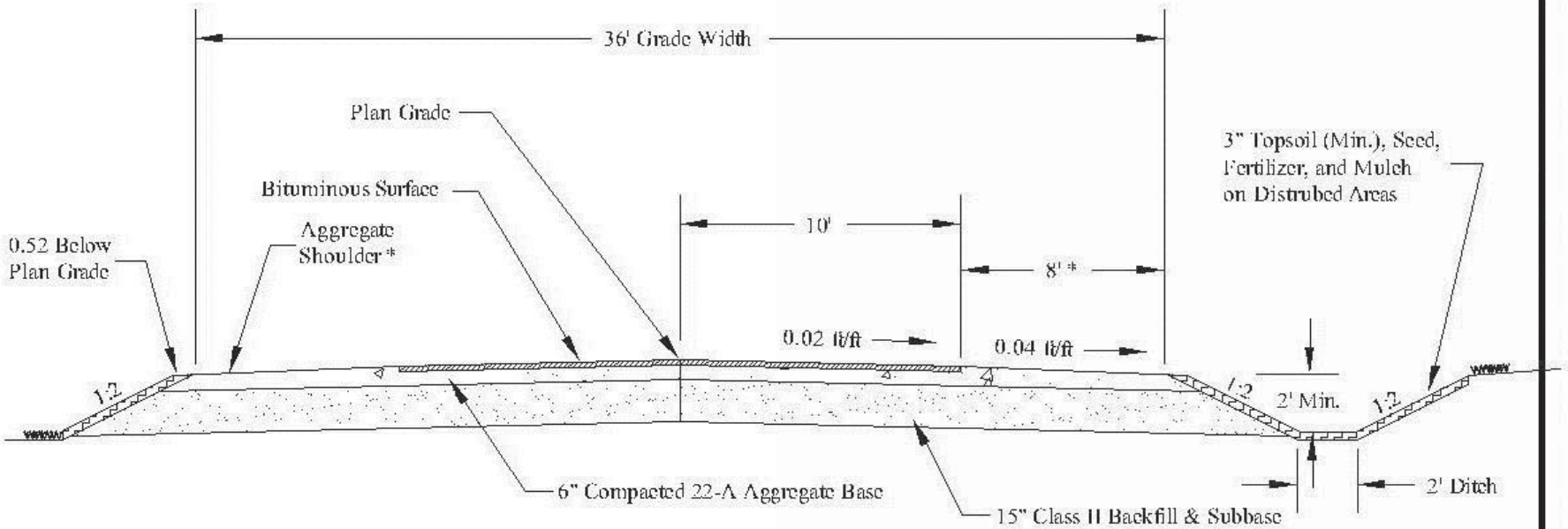
TYPICAL RECONSTRUCTION SECTION FOR 2-LANE ROADWAYS WITH MORE THAN 1000 ADT



Notes:
1. This street section will have a spring weight reduction of 35 %.
2. The top of the bituminous surface will be built to a minimum of 3' above the high water table.
3. Bituminous thickness shall be determined by the Ottawa County Road Commission.
4. The roadway shall be centered within the right-of-way.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 2	REV. NO.:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE:	TYPICAL RECONSTRUCTION SECTION FOR 2-LANE ROADWAYS WITH MORE THAN 1000 ADT

TYPICAL RECONSTRUCTION SECTION FOR 2-LANE ROADWAYS WITH LESS THAN 1000 ADT



* 3" Topsoil (Min.), Seed, Fertilizer, and Mulch may be utilized for part of the shoulder width. This shall be determined by the Ottawa County Road Commission.

Notes:
1. This street section will have a spring weight reduction of 35 %.
2. The top of the bituminous surface will be built to a minimum of 3' above the high water table.
3. Bituminous thickness shall be determined by the Ottawa County Road Commission.
4. The roadway shall be centered within the right-of-way.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 3	REV. NO.:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE:	TYPICAL RECONSTRUCTION SECTION FOR 2-LANE ROADWAYS WITH LESS THAN 1000 ADT

ADDENDUM #1

To

OTTAWA COUNTY ROAD COMMISSION

RULES GOVERNING THE

GRANTING OF PERMITS

FOR UTILITIES, SIDEWALKS,

& NON-MOTORIZED FACILITIES

Adopted by the Board of County Road Commissioners, County of Ottawa February 26, 2004
Effective Date February 26, 2004

On Page 1, Section I B. 1. Bonds

Delete and replace with:

> Bonds shall be required on all construction activity within the public road right-of-way to protect the Ottawa County Road Commission against the cost of completing construction or repairing deficiencies. Acceptable alternatives to bonds are cash, certified or cashier's checks and money orders made payable to the Ottawa County Road Commission.
>
> A $10,000.00 individual bond shall be required for all road cuts and/or road reconstruction work within the public road right-of-way. This bond shall be held for a period of one year upon the completion of the restoration of the road cuts and/or reconstruction work.
>
> A $1,000.00 individual project or yearly blanket bond shall be posted for all other utility work within the public road right-of-way.

On Page 3, Section II. A. 2. Requirements on Plans of Proposed Utility ……Facilities(s)

Add New Subsection

> (i) Existing soil and groundwater conditions.

On Page 4, Section III A. Placement Rules and Regulations

Add New Paragraph After First Sentence.

All underground utility crossings of paved roads shall be done by an approved method of boring. If a crossing cannot be bored due to extenuating circumstances, the Engineer may approve an open cut road crossing.

ADDENDUM #2

To

OTTAWA COUNTY ROAD COMMISSION

RULES GOVERNING THE

GRANTING OF PERMITS

FOR UTILITIES, SIDEWALKS,

& NON-MOTORIZED FACILITIES

Adopted by the Board of County Road Commissioners, County of Ottawa
Effective Date: October 1, 2007

On Page 10, Section IV. A. Sidewalks

Add New Subsection

5. Sidewalk Ramps

Sidewalk ramps shall be provided in accordance with the American with Disabilities Act of 1990 (ADA) and the Rehabilitation Act of 1973 (Section 504) as amended. Sidewalk ramps shall conform to the current MDOT Standard Plan or Special Detail for Sidewalk Ramp Details R-28 and shall be required for all sidewalks crossing:

(a) Commercial Driveways
(b) Private Roadways
(c) Public Roadways

On Page 11, Section IV. B. Non-Motorized Facilities

Add New Subsection

6. Sidewalk Ramps

Sidewalk ramps shall be provided in accordance with the American with Disabilities Act of 1990 (ADA) and the Rehabilitation Act of 1973 (Section 504) as amended. Sidewalk ramps shall conform to the current MDOT Standard Plan or Special Detail for Sidewalk Ramp Details R-28 and shall be required for all sidewalks or non-motorized facilities crossing:

(a) Commercial Driveways
(b) Private Roadways
(c) Public Roadways

APPENDIX G

OCRC STANDARDS AND SPECIFICATIONS FOR PLAT CONDOMINIUM AND PUBLIC ROAD DEVELOPMENT

Ottawa County Road Commission

Standards and Specifications

For

PLAT

CONDOMINIUM

And

PUBLIC ROAD DEVELOPMENT

BOARD OF COUNTY ROAD COMMISSIONERS
COUNTY OF OTTAWA

Regulations pertain to the subdivision of lands located outside the corporate limits of any city or village in the County of Ottawa and to the lands within incorporated areas when such lands are adjacent to public highways under the jurisdiction of the Board of County Road Commissioners of the County of Ottawa.

The following Standards and Specifications were adopted by the Board of County Road Commissioners on January 12, 2006

CONTENTS

I. PURPOSE

The Board of County Road Commissioners of the County of Ottawa reserves the right to reject any plat which does not comply with the requirements of Act 288 of the Public Acts of 1967, as amended, known as the Subdivision Control Act.

The owner of the property, plat or condominium to be developed, or his agent shall be required to grade, drain and surface the public roads proposed and pay the cost for erecting road and traffic signs as required by the Board.

The grading, draining and surfacing shall be done in accordance with the Board's Specifications and Plan Requirements for the improvement of public roads.

These published minimum requirements and specifications are subject to revision without notice, by the Board of County Road Commissioners of the County of Ottawa.

Developers of Site Condominiums or other developments with right-of-ways and roads to be dedicated to the public shall comply with same specifications required for platted roads. Dedication of all public roads other than those done through the platting procedure will be in the form of a warranty deed to the Ottawa County Road Commission (OCRC).

Developers should be cautioned that certain townships within the county have higher standards than this publication.

II. DEFINITIONS

BOARD - The Board of County Road Commissioners of the County of Ottawa, State Of Michigan.

ENGINEER - The Director of Engineering of the Board or any employee designated to act for him in implementing these standard requirements of the Board.

GOVERNING BODY - Local Unit of Government in which the development is situated.

PROPRIETOR - Any person, firm, association, partnership, corporation, or any combination thereof who submits a project with public roads or a development for processing under the Subdivision Control Act.

LABORATORY – A certified laboratory that has been approved by the Engineer.

MDOT – Michigan Department of Transportation

MDOT SPEC - Michigan Department of Transportation, 2003 Standard Specifications for Construction or current edition will be used except where noted.

SUBDIVISION – A development in accordance with the Michigan Subdivision Control (Act No. 288 Public Acts of 1967), as amended by the Land Division Act (Act No. 591 of 1996).

CONDOMINIUM - A development in accordance with the Michigan Condominium Act (Act No. 59, Public Acts of 1978), as amended.

CONTRACTOR – An individual, firm, association, partnership, corporation, or any combination thereof that furnishes, constructs, or installs any improvement for public roads.

III. DEVELOPMENT REQUIREMENTS

A. Preliminary Site Plan

1. Preparation of Plans

In order that plans for developments with public roads may be prepared in conformity with the general highway and road plans of the Board and the township in which the proposed development is located, the Proprietor shall have prepared a preliminary or tentative site plan of the entire area intended to be developed. The first phase of the development shall be clearly shown with each subsequent submission following the same procedure until the entire area is completed as proposed.

The preliminary or tentative site plan of the area to be developed shall be prepared under the direction of a Registered Professional Engineer or Land Surveyor. All road construction plans, construction supervision and inspection and testing shall be done under the direction of a Registered Professional Engineer.

The preliminary site plan shall be drawn to a convenient scale not smaller than one (1) inch equals one hundred (100) feet. The plan must show the following information: location of the proposed development with references to the township; section and part of section in which the parcel is situated; name of the development and proposed roads; name and address of the Proprietor; the name, address and seal of the Surveyor who prepared the plan; area location map; proposed road and lot layout; lot or development dimensions (dimensions difficult to calculate need not be given exactly on the tentative plan); governing factors such as subdivisions, condominiums, connecting roads, rivers, railroads, cemeteries, parks, natural watercourses, county drains, sewers; outlets for development drainage; elevations of the water table at various locations and the date obtained; top and toe of large slopes; and any other features, the location of which, or the knowledge of its existence, might be an influencing factor.

The preliminary plan shall include a topographic map with contour intervals of every two foot change in elevation. Any deviation from the two foot contour intervals shall be approved in writing by the Engineer. United States Coastal and Geodetic Survey bench marks shall be used in the preparation of preliminary plans. The location and elevation of the survey bench marks shall be indicated on the plan.

2. Road Names

Road names shall not be adopted which may be confused with similarly named roads within the County. New roads that are an extension of or in alignment with existing roads shall bear the name of the existing road.

Duplication of road names within the County will not be allowed. Maximum length of the road name is 10 letters with the space counting as a letter in a two-word name. Punctuation or possessive names are not allowed. Approved secondary names are: Avenue (north and south), Street (east and west), Boulevard (must be one), Court (permanent dead end), Drive, Highway, Lane, Pass, Parkway, Pike, Place, Road, Run, Trail, and Way.

3. Submission of Preliminary Plans

Three (3) blueprint copies of the preliminary plans prepared as noted above and one (1) copy of the Michigan Department of Public Health Subdivision site report shall be forwarded to the Engineer. Prior to proceeding with road and drainage plans, approval of the preliminary plan

shall be obtained from the governing body.

4. Approval of Preliminary Plans

Approval of the preliminary plan by the Engineer shall be given within 30 days of receipt of said development with one (1) copy returned to the Proprietor. If rejected, the reasons for rejection and requirements for approval shall be given to the Proprietor in writing.

Preliminary plan approval expires after two (2) years, after which a new submission is required.

B. Right-of-Way (ROW) Requirements

1. General Requirements

All developments with public roads shall have access to an existing public highway. All roads located along section and quarter section lines shall be centered on said lines. Exceptions to this requirement will require approval by the Engineer.

2. Width Requirements

Width of road ROW shall conform to the following requirements:

(a). Expressways or State Highways shall be of such width as required by MDOT.

(b). Primary Roads shall not be less than 120 feet in width.

(c). Local Roads on section line, 1/4 line and 1/8 line with traffic volumes over 1000 vehicles per day shall not be less than 100 feet in width.

Local Roads on section line, 1/4 line and 1/8 line with traffic volumes at or below 1000 vehicles per day shall not be less than 86 feet in width.

(d). All other roads shall not be less than 66 feet in width.

(e). Dead end roads shall include a turnaround having a minimum radius of 60 feet on residential roads and 70 feet on commercial or industrial roads. Turnarounds may not be required on dead end roads whose length is not greater than a normal lot depth and is being provided for access to adjoining property.

(f). The ROW widths required in this section shall be considered minimum and shall generally govern. However, if the Engineer determines that additional ROW is required due to special circumstances that include but are not limited to requirements for vertical and horizontal sight distances or grading operations, such facts will be noted on the preliminary plan when returned to the Proprietor's Engineer.

C. Conformity

The proposed development shall take into consideration the surrounding conditions in the immediate area bordering on the Proprietor's property. Road segments shall be provided to all developable adjoining properties. A development will not be approved if proposed layout

places unreasonable restrictions on future development(s) of adjoining properties.

Short road segments, which are to provide access to adjoining property for future developments, shall be constructed and dedicated to the public in the same manner as other roads in the development. Out lots intended for future roads will not be approved.

Roads with permanent turnarounds shall be designed in accordance with the Board's specifications **(See Detail Nos. 7, 8)**. Road section with permanent turnaround shall not have a length greater than 800 feet or less than 200 feet. Road sections with permanent turnarounds will only be approved when it is not feasible to connect to another roadway or an adjacent developable property line.

Dead end roads, which are to be extended in a future phase of the same development, shall be constructed with a temporary turnaround **(See Detail No. 9)** on a highway easement. This easement will revert to the property owner when the road is extended and the turnaround is no longer required **(See Detail No.19)**.

Dead end roads or road segment which abut an adjacent property for future developments shall be constructed with a permanent turnaround **(See Detail No. 7)** on a highway easement. This easement will revert to the property owner when the road is extended and the turnaround is no longer required **(See Detail No. 19)**.

Short road segments and/or roads ending with a temporary turnaround shall terminate 10 feet back of the usual development boundary. The development boundary shall jog around a 10 by 66 foot parcel conveyed to the OCRC **(See Detail No. 19)**. The 10 foot parcel will be used for snow storage, placement of guard rail or guard posts, and road ends warning signs. OCRC will retain this parcel until such time as a public road extension is proposed on adjoining property.

Any development having more than 75 lots, living units or a combination of lots and living units shall have a minimum of two points of access to an existing public road. For any development that is part of a phased development, any phase of the development having more than 75 lots, 75 living units or a combination of lots and living units in excess of 75 shall have a minimum of two points of access to an existing public road.

Sight distance at proposed road intersections shall comply with **Detail No. 17**.

Public road entrances shall be designed opposite of adjacent public road intersections, private road intersections with more than 10 lots/living units, and commercial driveways with ADT > 1000 or shall have a minimum separation of 150 feet where ADT < 1000, 300 feet where ADT is between 1000 and 3000, and 660 feet where ADT > 3000.

It is encouraged to keep lot access off the development road and not a primary road or heavily traveled section-line road. Lots with access to both a primary road and development road will not have access to the primary road. Where it is not possible to eliminate driveways to a primary road, shared driveways may be mandated. It is suggested that all houses shall be constructed twenty-four (24) inches above the proposed road elevations where at all possible.

IV. CONSTRUCTION PLANS AND IMPROVEMENTS

A. Road and Drainage Plans

Two (2) sets of road, drainage and site grading plans shall be submitted to the Engineer for review. After review a letter of approval or denial listing changes necessary to obtain approval will be provided.

Plans shall show plan and profile view, typical cross-section, location of drainage facilities and structures, proposed public and/or private utilities, existing soil and ground water conditions, special details and such other information necessary to complete the work as intended. Construction plan approval expires after two (2) years, and a new submission is required.

All plans submitted for review shall show the location and elevation of the nearest United States Coastal and Geodetic Survey bench marks used in establishing elevations. The bench mark location and elevation utilized by the Proprietor's Engineer in the immediate area of the development shall also be shown on the plans.

B. Drainage Easements

Adequate surface and subsurface drainage shall be provided within the development as required by OCRC and Ottawa County Drain Commission (OCDC) regulations. Leaching basins or ponding within the road right-of-way will not be allowed.

When appropriate drainage cannot be obtained within the right-of-way of proposed or existing roads, an easement shall be given by the Proprietor to provide access to an adequate outlet within or beyond the limits of development. The location and width of drainage easements shall be shown on the development to be recorded and shall be marked "____ feet wide Private Easement for Drainage Purposes to the (insert name) Drainage District."

C. Drainage Structures

OCDC shall approve size, type and design of all surface and sub-surface drainage facilities providing outlets for public roads within proposed developments. Refer to OCDC published standards and specifications for drainage systems. Open ditches along lot lines will not be permitted unless prior to subdividing the ditch meets the definition of a river or stream as stated in Part 301, Inland Lakes and Streams of the Natural Resources and Environmental Protection Act, 1994 PA 451 as amended.

1. Crossroad Culverts and Bridges

The Engineer and OCDC shall approve the size and type of crossroad culverts and bridges. Culverts shall have a minimum diameter of 15 inches. Where culverts are required in an established waterway such as a county drain, river, stream or natural watercourse, the entire width of the development street ROW, plus side slope length beyond the ROW shall be enclosed.

2. Driveway Culverts

When lots in a proposed development abut an existing county road with ditches, the Proprietor is responsible for placement of culverts for each lot fronting the county road. The culverts shall be properly sized for sufficient drainage, with a minimum length of 24 feet and a minimum diameter of 12 inches and conform to Class "A" culverts MDOT Specification Table

401-1. Culverts shall be placed to the designed grade, alignment and location as shown on the approved road plans and covered with native soil prior to final development approval, or the proprietor must guarantee their placement at the time the homes are built.

3. Storm Sewers

In accordance with Michigan Drain Code as revised, the drainage (both open and enclosed) of a proposed development including internal and/or external outlets shall be public and contained with a newly established drainage district(s) per OCDC standards and specifications.

Where storm sewers are to be installed, the construction plans and profiles will show the location, type and size along with elevations and proposed grades. A drainage study and the design computations for the proposed storm sewer shall be submitted with the construction plans.

Storm sewer shall be 12 inch minimum diameter and conform to MDOT Specification Table 402-1 for sewer pipe alternates and class based on depth and size. The minimum allowable storm sewer grade shall be 0.2 percent.

Standard 4 foot diameter manholes shall be located on the centerline of the road and are required at all changes in storm sewer alignment, size or grade. Spacing between manholes shall not be greater than 350 feet. For curvilinear roads, additional manholes will be required in order to locate the storm sewer within practical limits of centerline. Spacing for standard 4 foot diameter catch basins is not to exceed a maximum of 350 feet of surface drainage and located where possible on lot lines to avoid interference with driveways. Catch basins shall be placed at the transition of the concrete curb and gutter to bituminous valley curb. Frames and grates shall conform to the road section in which they are being placed. Standard grate for bituminous valley street section is MDOT Cover C.

The storm sewer system shall have a positive outlet into a natural body of water, stream or established county drain, if available. If none of these outlets are available and if approved by OCDC, the outlet may be into an area provided and prepared by the Proprietor to serve as an impoundment area.

4. Underdrains

In areas where under drains are necessary to provide roadway subbase drainage, the under drains shall be constructed in accordance with **Detail No. 2, 3, 4, 5**. In areas where under drains are necessary to control high water tables in the entire development, the under drain shall be constructed in accordance with OCDC specifications.

5. Storm Sewer Accessibility

In commercial and industrial developments storm sewer access shall be provided to all lots. Future parking lot and building runoff will not be allowed to discharge onto the road surface. Access to the storm sewer system will be in strict compliance with OCDC Storm Water Control Policy.

Footing and sump pump drain laterals will not be allowed to directly connect to storm sewer or underdrain within existing or proposed public roadways. Connections shall only be permitted to rear and/or side yard drainage systems outside of public roadways.

D. Utilities

The location of utilities within public right-of-way shall be in accordance with an established corridor plan **(See Detail No. 16)** and OCRC *Rules Governing the Granting of Permits for Utilities, Sidewalks, & Nonmotorized Facilities.* Installation of utilities within the utility easements outside public ROW shall be in accordance with Michigan Subdivision Control regulations.

Installation of underground utilities or conduit for future utilities prior to the placement of roadway aggregate base may be completed by the open-cut method. After completion of aggregate base, installation of utilities under the road will only be allowed by the bore method.

E. Guard Posts, Guard Rail, Barricades and Signs

Treated guard posts conforming to MDOT Standard Detail R-74-D are required at the ends of stub roads providing access to adjacent unplatted lands.

Guard rail or barricades are required at road ends, in addition to signs, in cases where the road end constitutes a possible hazard as determined by the Engineer.

"Road Ends" warning signs are required at the terminus of dead-end roads in excess of 660 feet in length, and " No Outlet" signs are required at the last road intersection.

Road name, traffic control, and warning signs shall be erected by the board and paid for by the developer.

F. Clearing, Removal of Trees, Brush, Roots and Topsoil

All brush, shrubs, trees and stumps/roots shall be entirely removed from within the right-of-way of all roads in the proposed development.

Trees that do not interfere with the construction and maintenance of the road and are classified as valuable by the Engineer may remain with his approval.

All topsoil within the roadway shall be removed before grading. This topsoil, free from roots and debris, if classified as fertile, may be salvaged and reused for permanent stabilization.

G. Road Improvements

1. Typical Road Sections

For typical commercial, residential, industrial road section, intersection details and turnarounds, **see Detail No. 2 thru 4 & 11 and 12.**

2. Turnaround Section

(a) Typical Turnaround

For typical turnaround details, **see Detail No. 7 and 8.**

An agreement for the maintenance of the center island for the optional residential turnaround is required. This agreement shall be made between the owner and the governing body of the township in which the development is taking place.

OCRC will not be responsible for maintenance of the center island nor for damage to landscaping/trees as a result of maintenance and snow removal operations.

Requirements:

The maximum height of grade at the center of the island for the optional residential turnaround shall not exceed 1 foot above the back of curb.

(b) Landscape:

(1) Ornamental Shrubs – Shrubs may be permitted in the center island provided they do not reach a height greater than two (2) feet and a registered horticulturalist certifies that the shrubs are salt tolerant.

(2) Irrigation System – Shall be required for all landscaped center islands.

(3) Stones – Stones less than 1 inch in diameter or greater than 6 inches in diameter shall not be allowed in the center island. Ornamental boulders shall not be allowed in the center island.

(4) Bituminous Surface – Shall be no less than 2 inches of MDOT 13A on 6 inches of compacted 22A gravel.

(5) Concrete Surface – Shall be no less than 4 inches thick conforming to MDOT Spec. 801.

(c) Trees:

(1) Size and Species One tree of the following species in addition to the species indicated in section IV-G-10 of this publication shall be allowed in the optional residential turnaround, providing that the tree is planted within 5 feet of the island center.

Picea – Spruces and varieties
1. White Spruce
2. Black Spruce
3. Colorado Blue Spruce

Nigra - Pine and varieties
1. Australian Pine
2. Black Pine

Abries - Firs and varieties
1. Balsam Fir
2. White Fir

3. Boulevard Section

(a) Typical Road Section

For typical boulevard section **see Detail Nos. 5 and 13.**

A boulevard road section will be considered for approval when the abutting properties have access to adjacent streets and where driveway access to the boulevard street section will not be required.

An agreement for the maintenance of the median is required. This agreement shall be made between the owner and the governing body of the township in which the development is taking place.

OCRC will not be responsible for maintenance of the median nor for damage to landscaping/trees as a result of maintenance and snow removal operations.

Requirements:

Minimum Length: A boulevard road section shall extend the entire distance between adjacent intersections.

Median Openings: Crossovers or openings in the median for driveways or other access shall not be allowed.

Signs: Signs other than those specified shall not be allowed in the median.

(b) Landscape:

Refer to section IV-G-2-b of this publication for details.

(c) Trees:

(1) Size and Species - Refer to section IV-G-10 of this publication for details.

(2) Location – Trees shall be no closer than 20 feet from either nose point of the median.

(3) Spacing – Trees shall be no closer than 50 feet apart from center of trunk to center of trunk.

(4) Height – Limbs shall not be any closer than 8 feet as measured from the lowest limb to the surface of the ground.

(d) Street Lights:

(1) Light Poles - Shall be placed on centerline.

(e) Signs:

(1) Regulatory Signs **- See Detail No. 13.**

(2) Delineator Posts - Shall be placed at radius points at each end of median.

4. Grades and Sight Distance

The maximum grade permitted shall be 7 percent. The minimum grade shall be 0.4 percent for concrete curb sections and 0.6 percent for bituminous valley gutter sections. The minimum stopping sight distance shall be 260 feet. Permanent turnarounds shall be constructed on a sufficient grade to insure a minimum of 0.6 percent along the flow line of the gutter while maintaining approximately 0.02 foot/foot crowned slope.

Horizontal curves for roads, which appear to be continuous, or which appear to be main outlets for future development shall have minimum 300 foot centerline radius. Minimum tangent between reverse curves is 50 feet. On other roads 90° corners are permissible and shall be in accordance with **Detail No. 10**.

5. Traffic Impact Study

A traffic impact study shall either be a traffic impact statement or traffic impact assessment depending on the type and size of the proposed development.

A traffic impact statement shall be required for any proposed development which would be expected to generate over 100 or more peak-hour directional trips or over 750 daily trips (over a 24 hour period). The volume of generated traffic shall be evaluated for its potential impact on the adjacent street system including nearby intersections and access points of the development under consideration.

A traffic impact assessment shall be required for a project generating 50-99 peak-hour directional trips. This type of study is recommended for smaller scale projects that are not anticipated to have a significant impact on the overall road system but will impact the site access. The analysis for this type of study can typically be isolated to the turning movements at all site access points.

6. Intersecting Roadway Improvements

Additional lanes, passing flares, or other improvements on adjacent public roadways may be required to provide access to a proposed development. Improvements may be identified in a traffic impact study or warranted based on traffic volumes and turning movements as follows:

(a) Left turns of 150 ADT from a public roadway into proposed development.
(b) Adjacent public roadway volume exceeds 3000 ADT and development has 15 or more lots/living units.

7. Existing Road Cleanup

If deemed necessary by the Engineer, ditches along existing county roads shown on the development shall be cleaned out by the Proprietor to provide adequate drainage before placing driveway culverts. Any work to be performed in existing road right-of-way requires a written permit from the Engineer.

The Board and any affected utility shall be notified a minimum of 72 hours prior to beginning construction. Contractor's One Number Alert (MISS DIG) may be used for this notification – 1-800-482-7171.

8. Material Requirements and Specifications

(a) Subbase - MDOT Spec. 301
Material - Granular Material Class II
Gradation - MDOT Spec. Table 902-3
Thickness - 15" Residential, 18" Commercial & Industrial
Required - All sub grades of heavy soils or frost heave materials or areas of high water table.

(b) Aggregate Base Course - MDOT Spec. 302
Material - Dense-Graded Aggregate 22A
Gradation - MDOT Spec. 902-1 Minimum 25% crushed
Thickness - 6" Residential, 7" Commercial and Industrial

(c) Bituminous Surface - MDOT Spec. 500
Material- Residential - Bituminous Mixture 13A
- Commercial - Bituminous Mixture 13A
- Industrial - Bituminous Mixture 13A
(Lane Truck Volume 0-250 VPD)
- Bituminous Mixture 3B Leveling
- Bituminous Mixture 4B Surface
(Lane Truck Volume 250+ VPD)
Thickness - Residential - 3" 330#/Sq. Yd. Effective Yield
Including Valley Curb 354#/Sq. Yd.
- Commercial - 3 1/4" 360#/Sq. Yd.
- Industrial - 3 1/4" 360#/Sq. Yd. **Min.**

Pavement structure for All Season Commercial and Industrial Roads is to be evaluated by the Proprietors Engineer utilizing AASHTO Interim Structural Pavement Design for All Season Roads. This evaluation will accompany street construction plan approval request. The typical cross section will incorporate the design evaluation.

Asphalt Cement - Residential, Commercial, Industrial
Performance Grade 58-28
- Industrial over 400 Commercial Vehicles
Performance Grade 58-28

(d) Concrete Curb and Gutter - MDOT Spec. 802
Residential -Rolled Mountable Curb – **(See Detail No. 6)**
Commercial -MDOT F4 Concrete Curb and Gutter
Industrial -MDOT F4 Concrete Curb and Gutter

9. Concrete Curb & Gutter

Short road sections with permanent curb and gutter turnarounds less than 400 feet in length will require concrete curb and gutter the entire length.

Concrete curb and gutter is required for intersection radii to county primary, section line and ¼ section line roads. A minimum curb opening of 36 feet back of curb to back of curb shall be used at the intersection of a minor development road, tapering the pavement back to the normal road width in 100 feet **(See Detail No. 11 and 12)**. For a major development road the curb opening will be 46 feet allowing for two 12 feet outbound lanes and a 18 feet inbound plus the curb **(See Detail No. 11 and 12)**. The curb opening width will be maintained to

provide vehicle storage for a sufficient distance based on anticipated traffic volumes, tapering to the normal road section in 150 feet.

All curb and gutter is to be constructed prior to placement of street pavement, unless integral with a concrete pavement. A minimum seven-day cure of the curb and gutter shall be required before paving of adjacent bituminous pavement.

10. Bituminous Surface

Bituminous surface course shall not be placed until all utilities have been constructed within the right-of-way unless the Engineer grants prior approval.

11. Topsoil, Seeding, and Mulch

The methods and time of seeding and mulching shall meet the requirements of the MDOT Spec. 816. All disturbed areas shall be covered with 3 inches of fertile topsoil. Developments will not be accepted where erosion or sedimentation is evident.

In cases where the time of year or other conditions prohibits proper stabilization, a cash bond will be required to assure satisfactory stabilization prior to acceptance.

12. Tree Planting

All tree planting shall comply with the current "Ottawa County Road Commission Tree Planting Policy".

(a) Size and Species

All trees planted by OCRC shall be a minimum of 1.5 inches in diameter.

The following list of trees has been selected for use because of their form, hardiness, foliage, cleanliness and relative resistance to salt, insects, diseases, damage and drought:

1. Acer Platanoides – Norway Maple and varieties
   - a. Emerald Queen
   - b. Cleveland
   - c. Summershade
   - d. Superform

2. Acer Rurum – Red Maple and varieties
   - a. Red Sunset
   - b. October Glory

3. Acer Saccharum – Sugar Maple
   - a. Sugar Maple
   - b. Green Mountain

4. Tilia Cordata – Littleleaf Linden and varieties
   - a. Greenspire
   - b. Euchlora
   - c. Redmond

Any other proposed tree requires a statement from a registered horticulturalist that the species/variety is salt tolerant.

(b) Location

Rural Primary and Rural Local Roads:

Less than 50' ROW	– new plantings not permitted
50' or more ROW	- according to Tree Planting Policy

Urban Primary and Local Collectors:

33' ROW	- planting not permitted
43' ROW	- 2 or 3 lane road – 34' to 36' from centerline
	- 4 lane road – 34' to 36' from centerline with 10' minimum from back of curb
	- 5 lane road – plantings not permitted
50' & 60' ROW	- 2 to 4 lane road – 40' to 43' from centerline
	- 5 lane road – 40' to' to 43' from centerline

Local Residential and Commercial:

33' ROW	- 2 lane road – 25' to 26' from centerline with 10' minimum from back of curb

New Plat or Subdivision with sidewalks:

33' ROW	-2 lane road – 23' to 26' from centerline with 8' minimum from back of curb

(c) General Conditions

1. Tree planting shall not be permitted in ditches, on ditch slopes, or between ditch and roadway.
2. Required distance from centerline of back of curb shall not be reduced due to existing sidewalks, bike paths, structures, or utilities.
3. Sight distance at intersections and driveways shall be maintained in accordance with current OCRC and AASHTO guidelines.
4. Other plantings such as shrubs may be permitted provided they do not reach a height greater than two (2) feet and a registered horticulturalist certifies they are salt tolerant.
5. Adjacent property owners shall be responsible to maintain tree planting and to trim and remove all foliage less than 8 feet from ground level.
6. OCRC shall not be responsible for damage or removal of tree planting by accidents, vandalism, disease, or normal road maintenance activities such as applying road salt or brine. Tree removal may be necessary in the future to accommodate road widening, reconstruction, or other normal uses of road right-of-way, and in such cases, compensation will not be made by OCRC.

H. Material Testing and Construction Inspection

1. Testing of Materials

Before roadway construction has begun, the Proprietor shall notify the Engineer of the source of all materials to be used.

The Laboratory at the expense of the Proprietor shall perform testing of materials. Materials may also be used which are obtained from approved stock piles tested by OCRC or MDOT. Certification for all construction materials shall be submitted to the Engineer prior to their use.

The Engineer shall accept or reject materials on the basis of standard test results. The Engineer's findings with respect to a proposed material suitability for its intended use and its substantial conformance to the specifications shall be final.

2. Granular and Aggregate Materials

Gradation analysis shall be performed on all granular and aggregate materials prior to their introduction to the site. The results of these analyses shall be forwarded to the Engineer prior to the commencement of construction activities. Additional gradation analysis shall be required when, in the opinion of the Engineer, the character of the material differs from that previously tested and approved.

3. Bituminous Mixtures

The bituminous mix design shall be furnished to the Engineer for review and approval. A minimum of three working days is required for the review of the mix design. The Engineer reserves the right to request validation of mix designs developed for previous construction seasons.

The contractor shall be responsible for the production and quality control of the bituminous mixture furnished and placed. The contractor will test not less than one sample per day's production at the bituminous plant. These tests, and their results will be monitored by the Proprietor's Engineer and Laboratory.

In order to verify the contractors testing and assure end result compliance, splits of the samples used for quality control testing shall be made available to the Engineer for verification and acceptance testing. The Engineer reserves the right to take independent samples for verification and acceptance testing at the plant or at the project site.

4. Concrete Mixtures

The concrete mix design shall be furnished to the Engineer for review and approval. A minimum of three working days is required for the review of the mix design. The Engineer reserves the right to request validation of mix designs developed for previous construction seasons.

The Proprietor's Engineer or Laboratory shall mold compressive strength cylinders and perform slump and air entrainment tests in accordance with MDOT Spec. 701.03.F. One set of tests shall be performed each day that concrete curb and gutter or sidewalk is placed.

The concrete test results shall be submitted in to the Engineer within one week of the field and laboratory test dates.

5. Compaction Requirements

The following densities shall be obtained on road construction by standard methods of compaction:

Embankment 95% of Maximum Unit Weight - MDOT Spec. 205.03.H.
Subbase 95% of Maximum Unit Weight – MDOT Spec. 301.03.
Aggregate Base 98% of Maximum Unit Weight – MDOT Spec 302.03.A.
Bituminous Surface 97% of Maximum Unit Weight – MDOT Spec. 502.03.G.

The minimum frequencies of tests for density control are as follows:

(a) Trench Backfill – 1 test per layer of backfill per run of pipe, between structures. Minimum 1 test per lateral, unless waived by Engineer.
(b) Structure Backfill – 1 test per layer of backfill at each structure, unless waived by Engineer.
(c) Subbase – 1 test per 400 linear feet of roadway.
(d) Aggregate Base – 1 test per 400 linear feet of roadway.
(e) Bituminous Surface – 1 test per 400 linear foot of bituminous course.

Compaction test results are to be submitted to the Engineer within one week of the test date.

6. Inspection

The Proprietor's Engineer shall be on site during all construction operations to inspect the contractor's work. An Inspectors Daily Report (IDR) shall be submitted to the Engineer within one week of the inspection date. **See Detail No. 20** for an example of an IDR form. The IDR shall include the following information:

(a) Weather for the day
(b) Contractor and subcontractor on site
(c) Type of work performed by contractor
(d) Location of work (from Sta. to Sta.)
(e) Materials utilized and tested
(f) Deviations from plan
(g) Other pertinent notes or sketches

Periodic inspections during construction by the Engineer shall not relieve the Proprietor's Engineer of any of his obligations. These periodic inspections are to verify the proper construction of the roads in their various stages of construction.

I. Engineering Review and Periodic Inspection Fees

A fee to cover the costs of engineering reviews and periodic inspections is required.

Schedule of payment shall be as follows:

(a) Prior to preliminary plan approval
    1. Development containing 10 lots or less - $150.00
    2. Development containing 11 lots or more - $300.00

(b) Prior to construction plan approval
    1. $.50 per lineal foot of road construction

Additional fees may be required to obtain permits for working on OCRC ROW

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J. Preconstruction Meeting

A preconstruction meeting shall be held at least one week prior to commencement of the work. The following personnel will be notified of this meeting: OCRC, Township, OCDC, utility companies and other agencies affected by the proposed construction.

At this meeting, matters pertinent to the project schedule, daily reports, material testing, inspection, utility coordination, traffic control, soil erosion control, and other items will be discussed and reviewed.

V. FINAL DEVELOPMENT APPROVAL

Development shall not be accepted until all roads within the development have been completed according to final plans as approved or a security deposit has been posted in an amount determined by the Engineer to guarantee the completion of all improvements in accordance with the OCRC specifications. This security deposit will either be in the form of an irrevocable bank letter of credit or cash. The minimum amount for security deposit shall be $10,000.

For acceptance of the development, the following items shall be submitted one week prior to scheduled Board meeting:

(a) Final plat for signature by current Board members.
(b) True copy of plat for signature by Board chairperson
(c) Warranty deed for road right-of-way if platting process is not utilized
(d) Original right-of-way deeds, temporary turnaround easements, and maintenance strip deeds with appropriate recording fees. Checks should be payable to Ottawa County Register of Deeds.
(e) Street sign fees
(f) Security deposit

Inasmuch as the Board upon acceptance of an uncompleted development will have jurisdiction of the roads in the development, the Proprietor and his contractor are required to obtain permits for all construction to be performed within the ROW. The Contractor will be required to show coverage of insurance and bonds.

All requests for final approval must be accompanied by a written statement **(See Detail No. 1)** bearing the signature of a Registered Engineer certifying that all detail of construction have been completed as approved in the final plans.

A set of permanent reproducible “As Built” plans of all improvements constructed shall be submitted after completion of the development. The final development shall not be accepted or the security deposit shall not be returned until the reproducible “As Built” plans have been submitted.

Detail No. 1

ENGINEERS CERTIFICATE

Date_____

Subdivision/Development
Name_____

Township
of_____Section_____

Ottawa County, Michigan

I hereby certify that the construction of all improvements is completed.

Exception_____

_____

and that:

(1) I have personally directed the supervision and inspection of the construction.

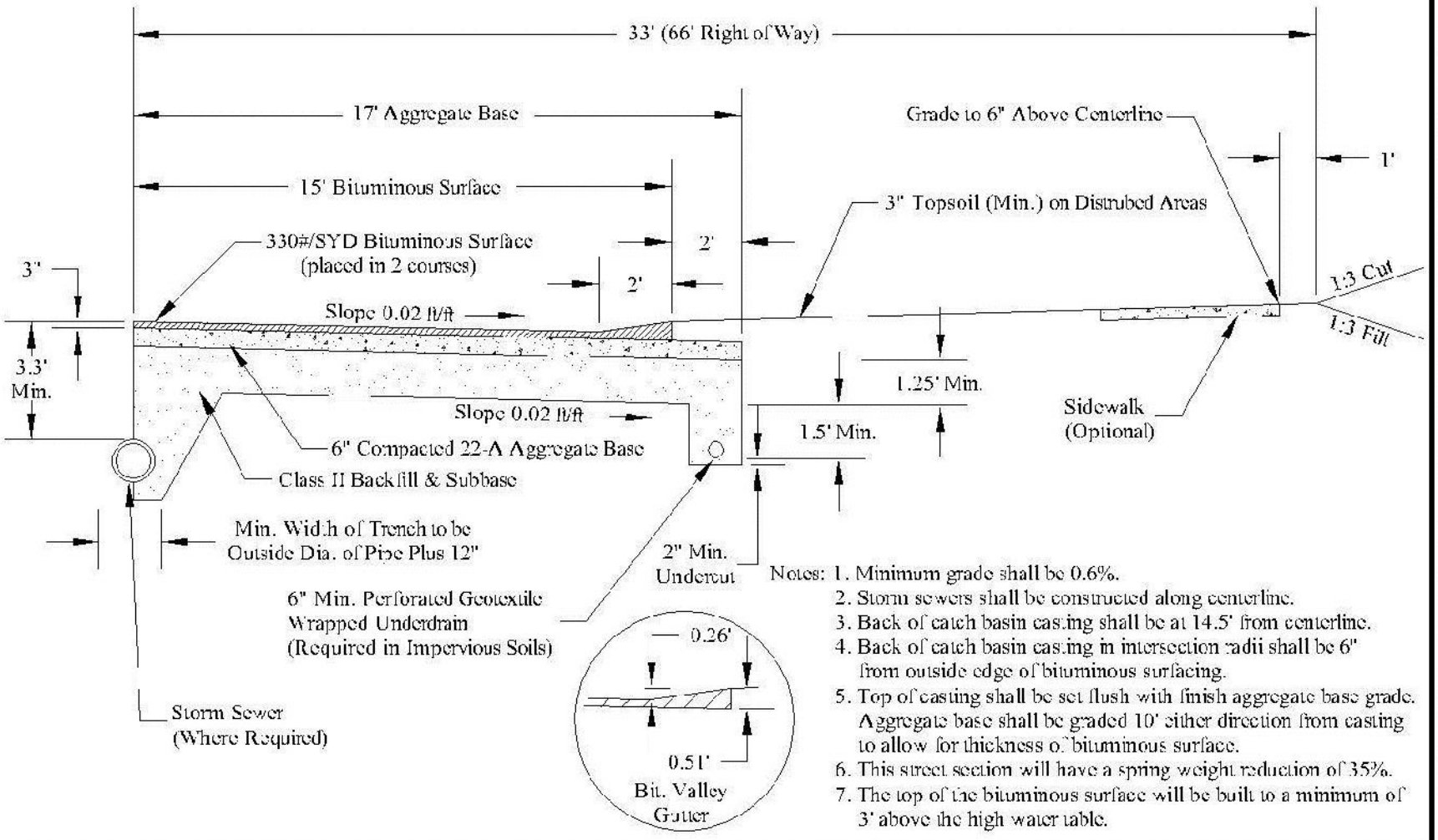
(2) All improvements to date have been installed in accordance with the approved construction plans and the current standards and specifications of the Ottawa County Road Commission.

(3) The construction materials meet the aforementioned specifications.

Seal

Signed:_____
Registered Professional Engineer

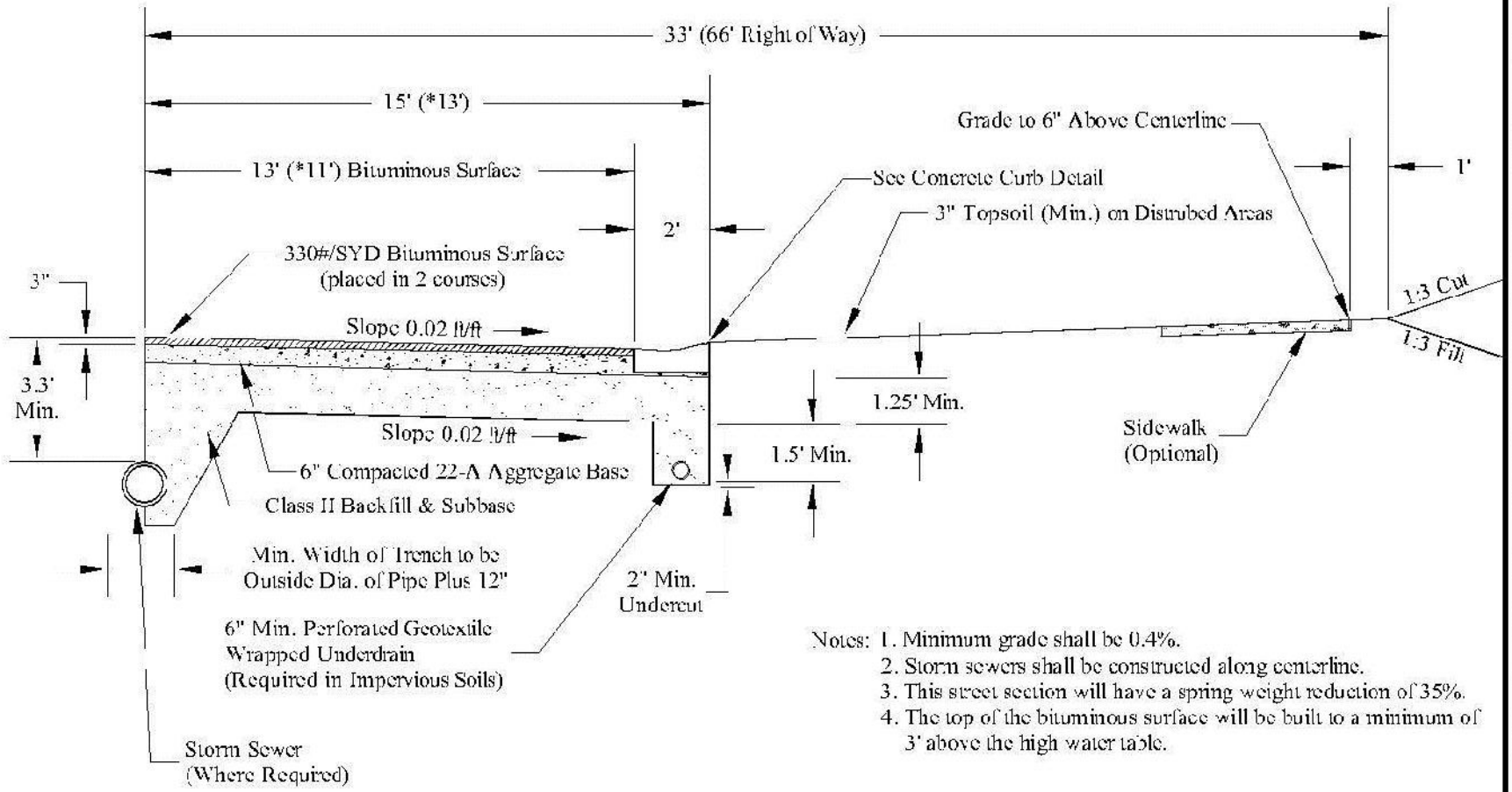
RESIDENTIAL
TYPICAL HALF-SECTION WITH BITUMINOUS CURB



Notes:
1. Minimum grade shall be 0.6%.
2. Storm sewers shall be constructed along centerline.
3. Back of catch basin casting shall be at 14.5' from centerline.
4. Back of catch basin casting in intersection radii shall be 6" from outside edge of bituminous surfacing.
5. Top of casting shall be set flush with finish aggregate base grade. Aggregate base shall be graded 10' either direction from casting to allow for thickness of bituminous surface.
6. This street section will have a spring weight reduction of 35%.
7. The top of the bituminous surface will be built to a minimum of 3' above the high water table.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO: 2	REV. NO:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 11-1-94	RESIDENTIAL TYPICAL HALF-SECTION WITH BITUMINOUS CURB

RESIDENTIAL
TYPICAL HALF-SECTION WITH CONCRETE CURB

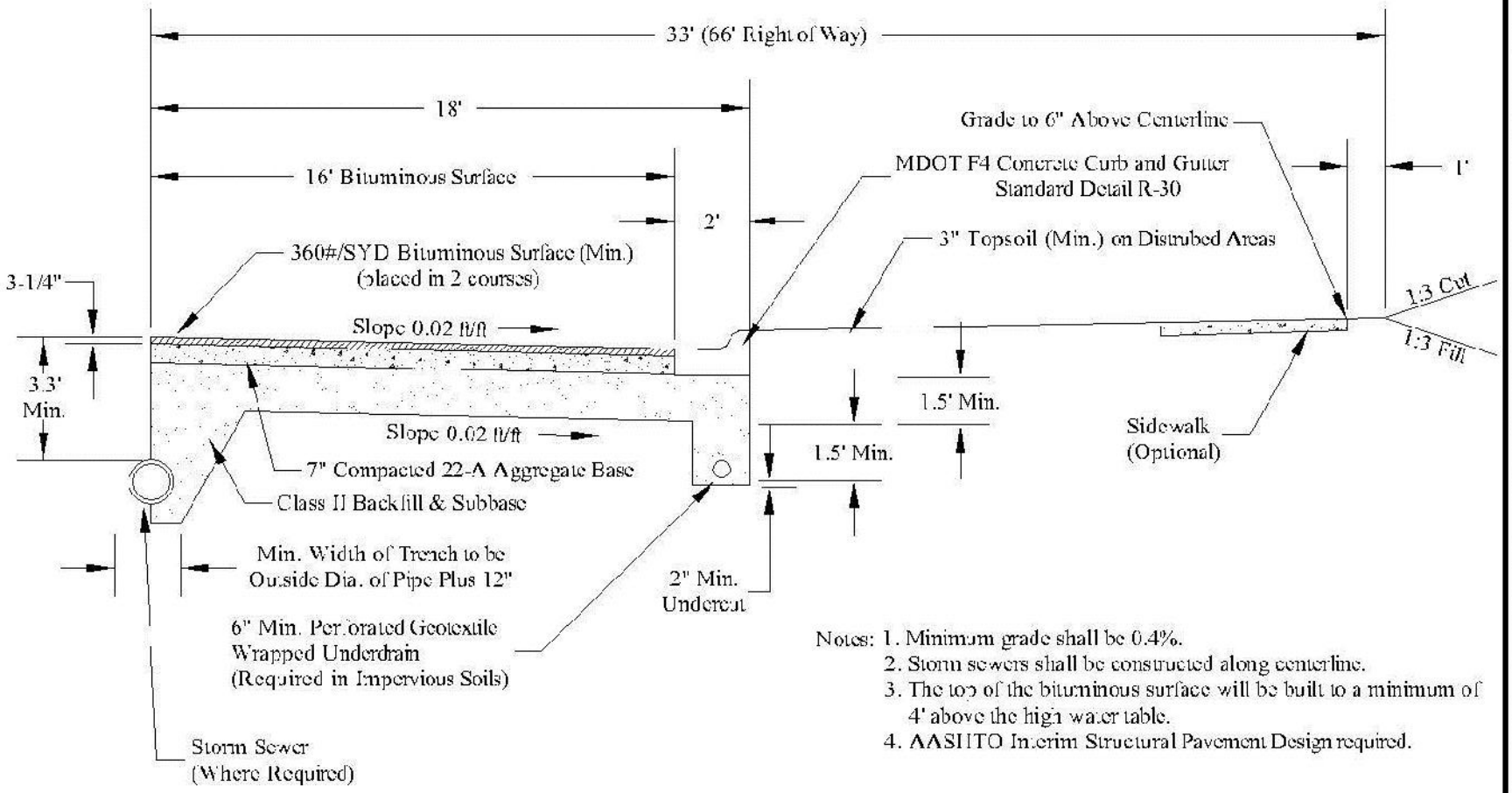


Notes: 1. Minimum grade shall be 0.4%.
2. Storm sewers shall be constructed along centerline.
3. This street section will have a spring weight reduction of 35%.
4. The top of the bituminous surface will be built to a minimum of 3' above the high water table.

* For dead end streets less than 800' in length with permanent turnaround (optional).

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO: 3	REV. NO:	DR. BY: EAL CH. BY: TP	SCALE: NONE DATE: 11-1-04	RESIDENTIAL TYPICAL HALF-SECTION WITH CONCRETE CURB

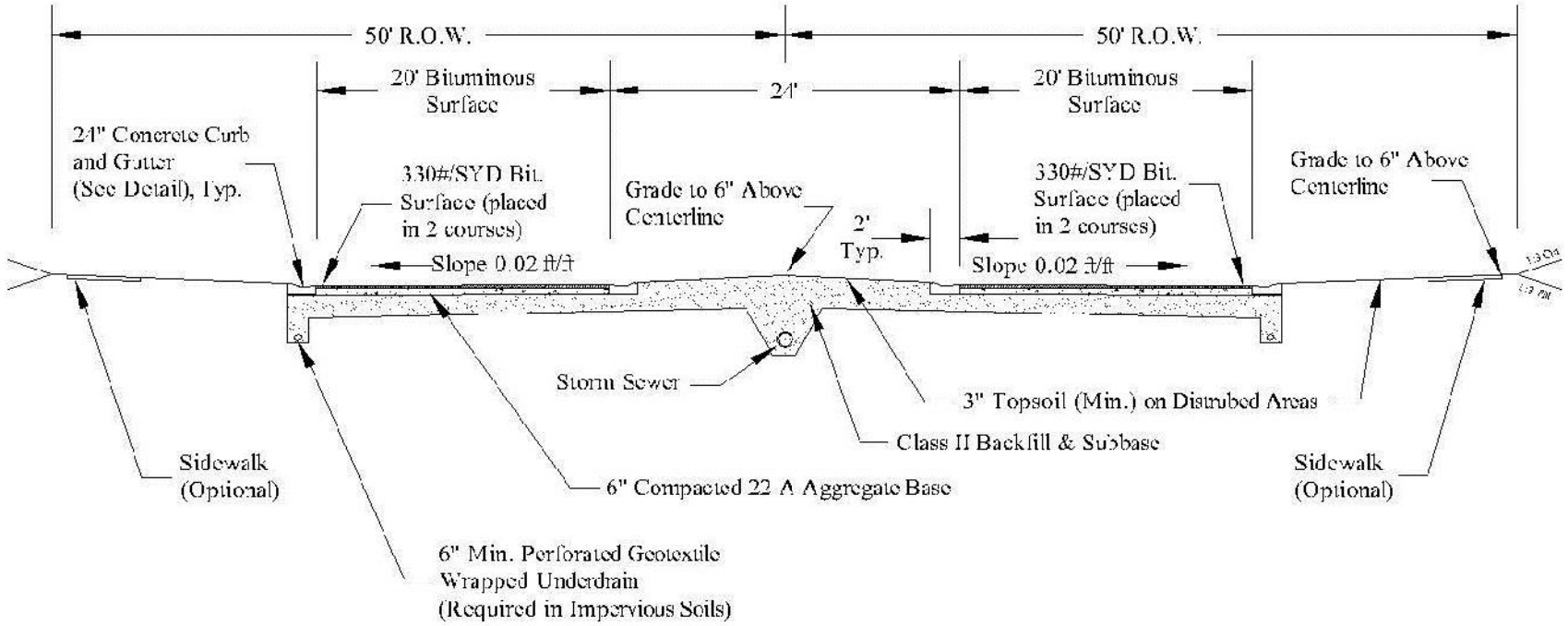
INDUSTRIAL & COMMERCIAL
TYPICAL HALF-SECTION



Notes: 1. Minimum grade shall be 0.4%.
2. Storm sewers shall be constructed along centerline.
3. The top of the bituminous surface will be built to a minimum of 4' above the high water table.
4. AASHTO Interim Structural Pavement Design required.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO: 4	REV. NO: 1	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 12-11-06	INDUSTRIAL & COMMERCIAL TYPICAL HALF-SECTION

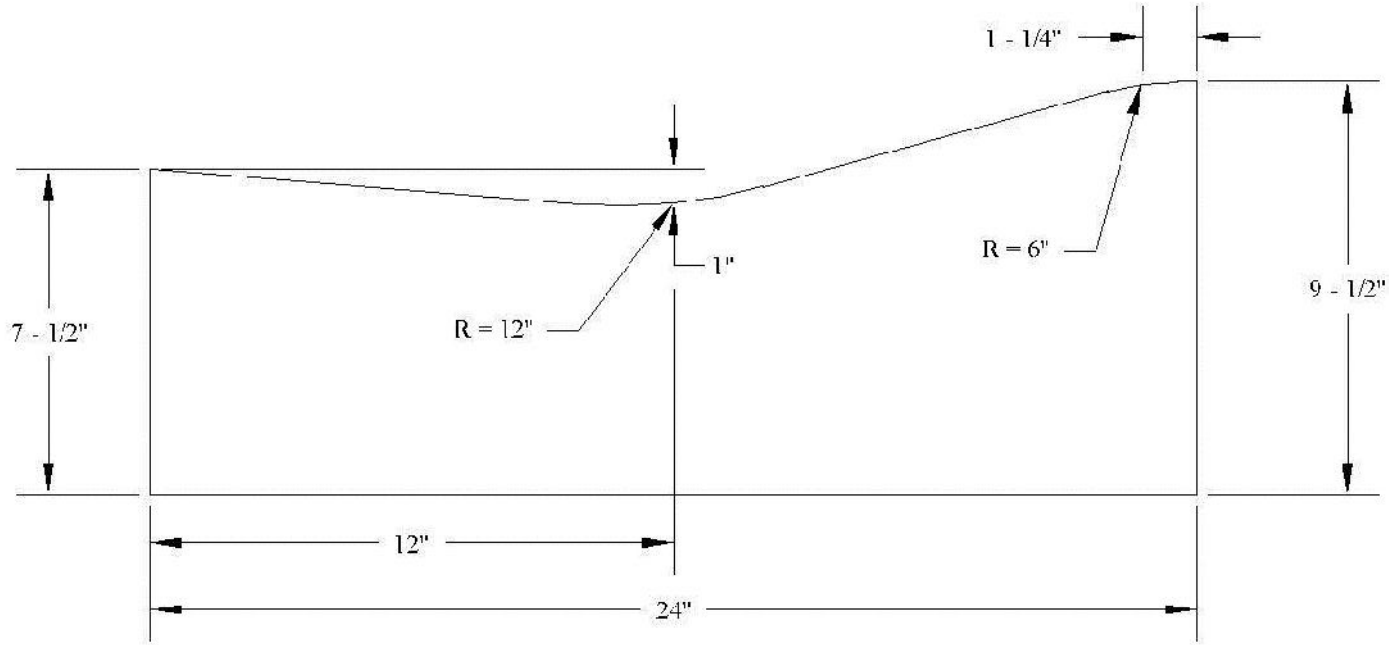
RESIDENTIAL TYPICAL BOULEVARD ROAD SECTION



Notes: 1. Minimum grade shall be 0.4%.
2. Storm sewers shall be constructed along centerline of median.
3. The top of the bituminous surface will be built to a minimum of 4' above the high water table.
4. Storm Sewer shall be placed a minimum of 4' below the proposed median ground elevation.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO: 5	REV. NO:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 12-24-05	RESIDENTIAL TYPICAL BOULEVARD ROAD SECTION

24" CONCRETE CURB DETAIL

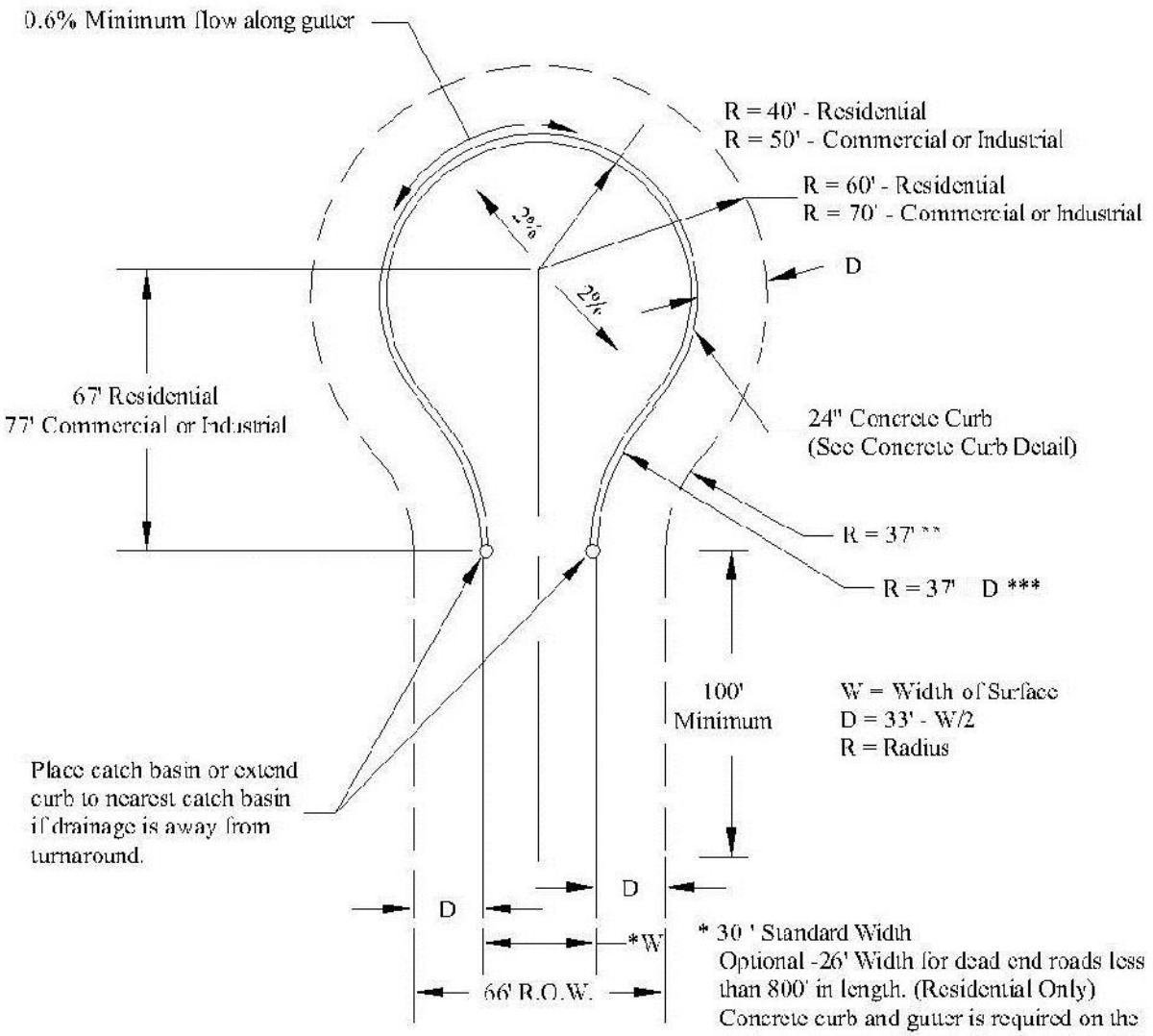


R = Radius

Notes: 1. Contraction Joints shall be placed every 10 ft.
2. Expansion Joints shall be placed at 350 ft. Min. and at all radius points.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO: 6	REV. NO:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 12-24-05	24" CONCRETE CURB DETAIL

TYPICAL PERMANENT TURNAROUND



The maximum turnaround length shall be 800' and the minimum turnaround length shall be 200'. Both measured from the pavement edge of the intersecting street to the back of curb at the end of the turnaround.

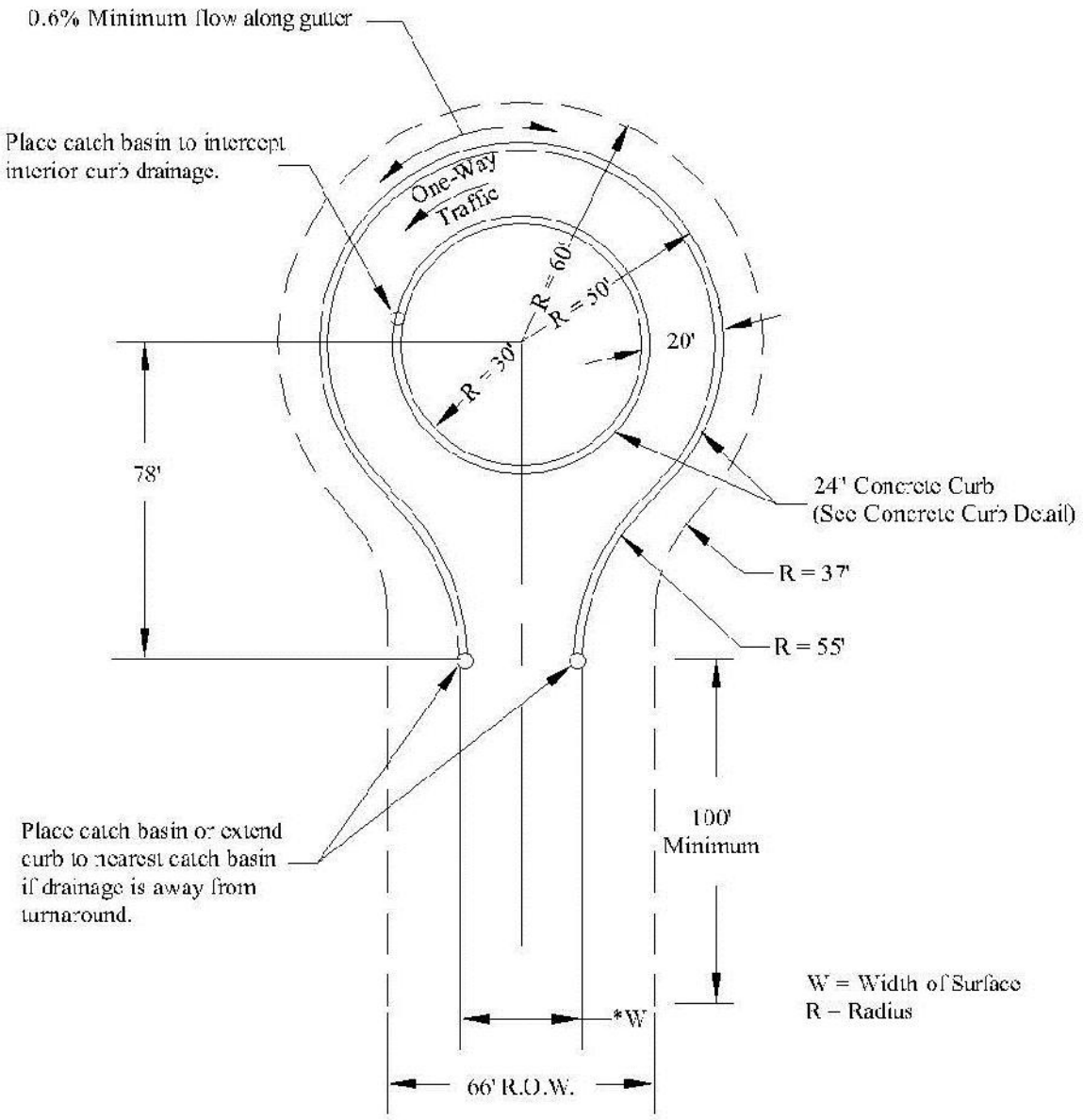
* 30 ' Standard Width
Optional -26' Width for dead end roads less than 800' in length. (Residential Only)
Concrete curb and gutter is required on the entire turnaround length for the optional 26 foot width.

** For offset or "teardrop" designs R=75'.

*** For offset or "teardrop designs R=75' + D.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 7	REV. NO.: 1	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 12-2005	TYPICAL PERMANENT TURNAROUND

OPTIONAL RESIDENTIAL TURNAROUND

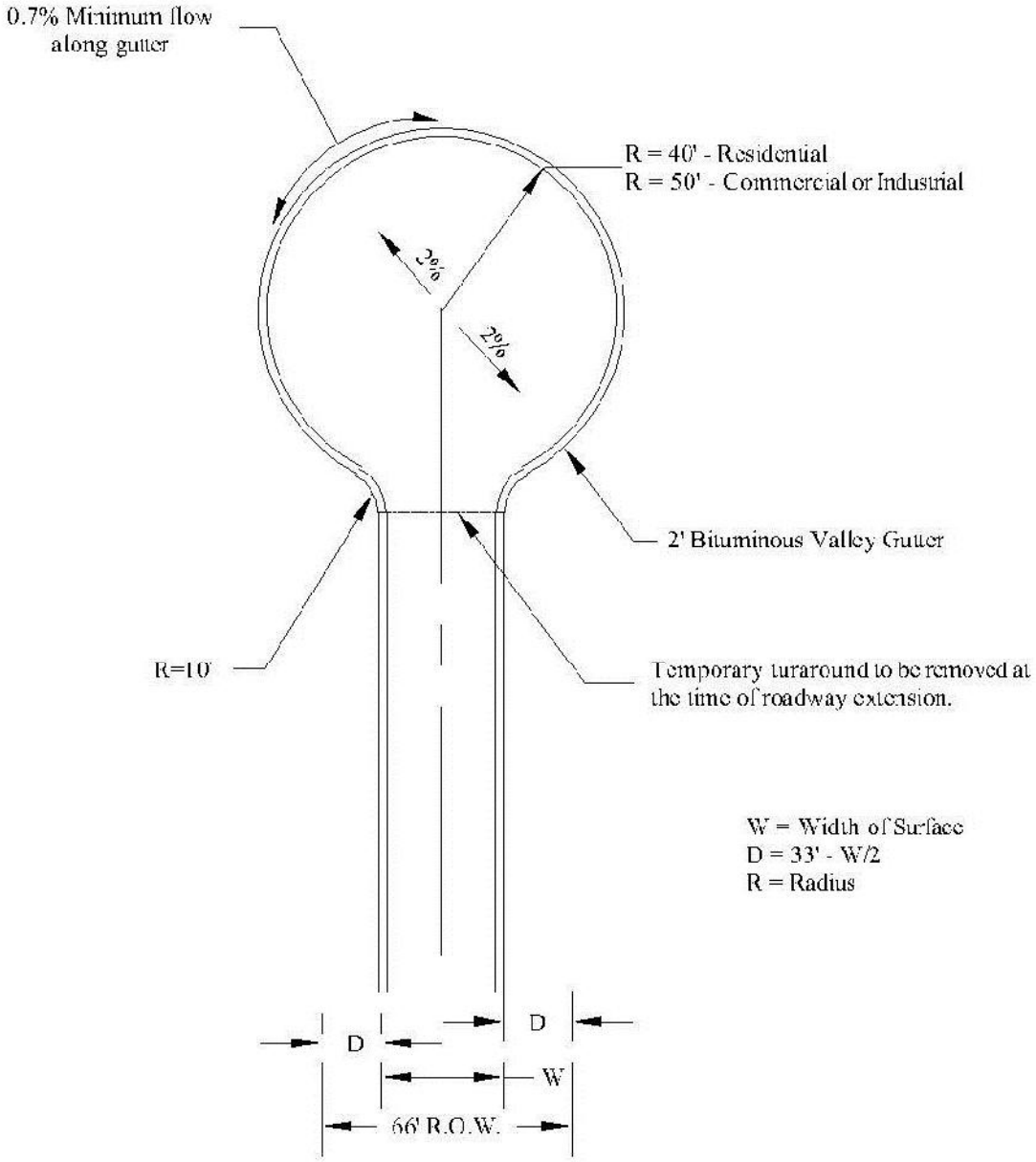


The maximum turnaround length shall be 800' and the minimum turnaround length shall be 200'. Both measured from the pavement edge of the intersecting street to the back of curb at the end of the turnaround.

* 30 ' Standard Width
Optional - 26' Width for dead end roads less than 800' in length. (Residential Only)
Concrete curb and gutter is required on the entire turnaound length for the optional 26 foot width.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 8	REV. NO.:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 11-13-01	OPTIONAL RESIDENTIAL TURNAROUND

TEMPORARY TURNAROUND

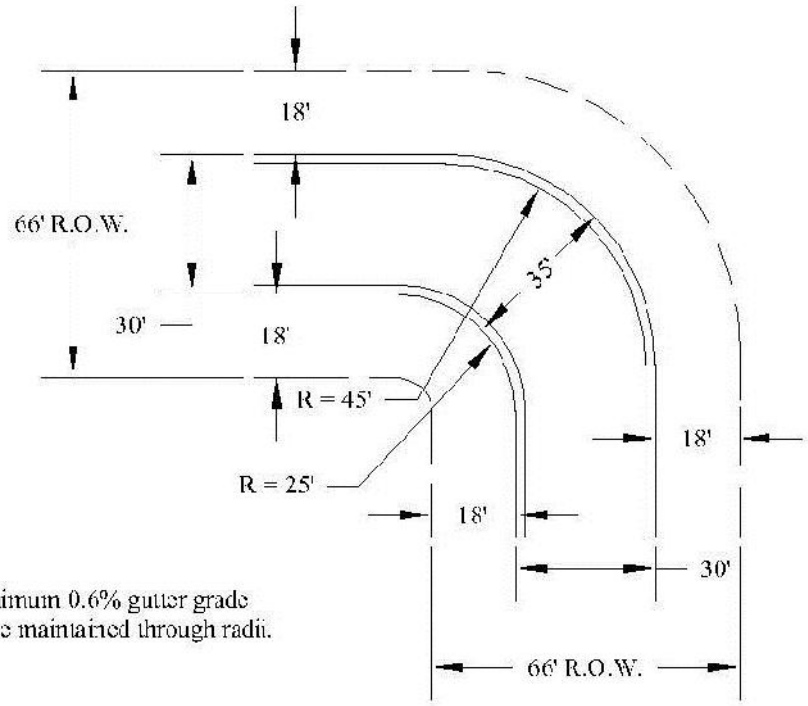


See Detail No. 17 for the appropriate temporary turnaround easement and maintenance strip details.

Drainage of the temporary turnaround shall be accommodated.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 9	REV. NO.:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 12-2005	TEMPORARY TURNAROUND

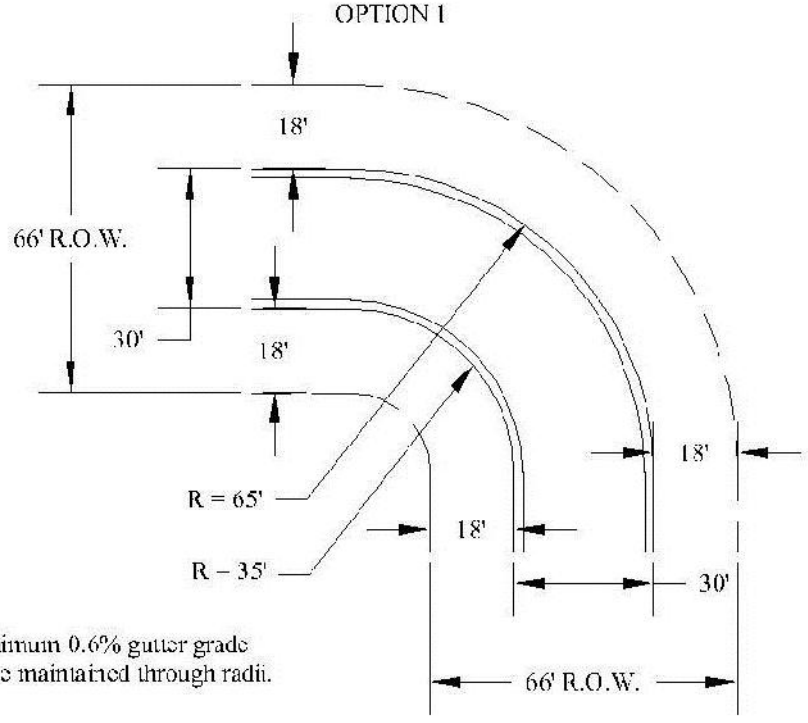
TYPICAL 90° CORNER



Note: A minimum 0.6% gutter grade shall be maintained through radii.

R = Radius

OPTION 1



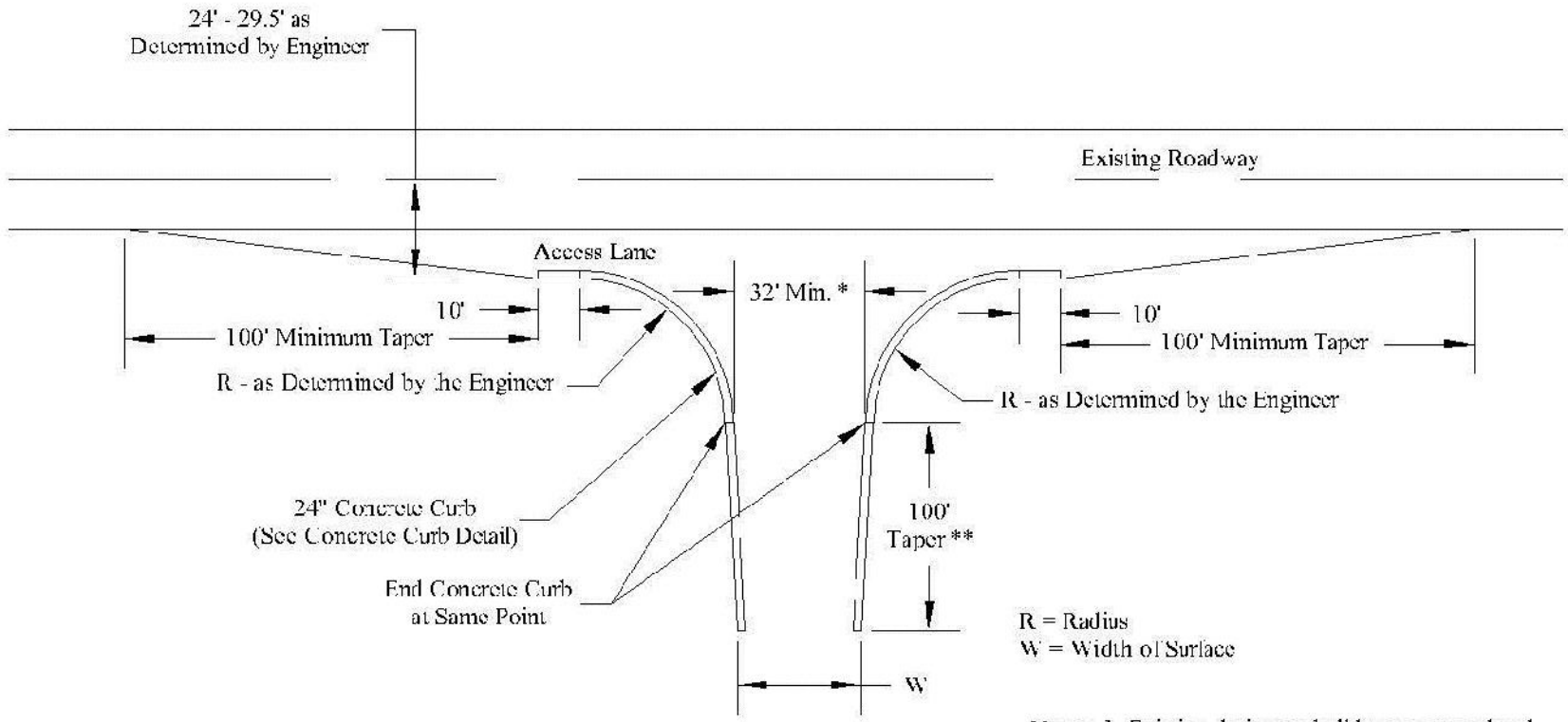
Note: A minimum 0.6% gutter grade shall be maintained through radii.

R = Radius

OPTION 2

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO: 10	REV. NO:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 11-13-01	TYPICAL 90° CORNER

TYPICAL SECTION - CURB AND GUTTER APPROACH TO PRIMARY OR MAJOR LOCAL ROAD WITHOUT CURB AND GUTTER

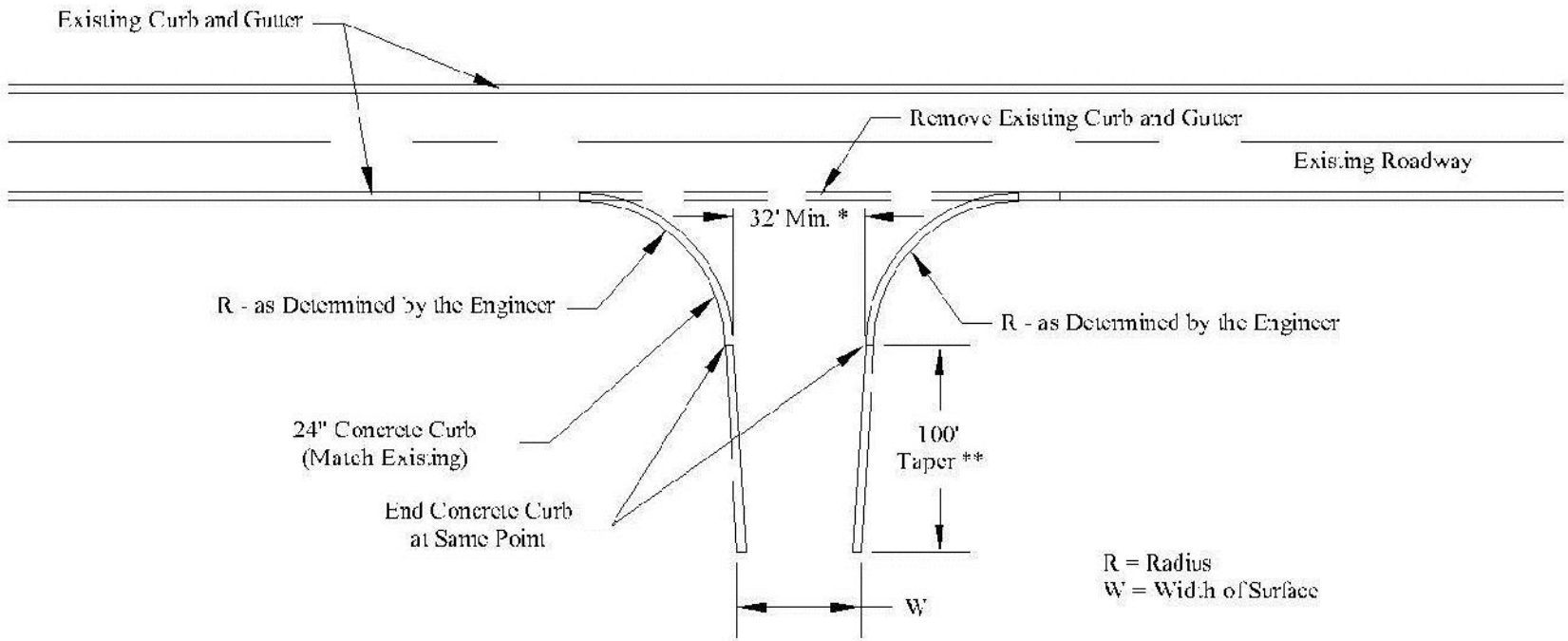


Notes: 1. Existing drainage shall be accommodated.
2. Intersecting roadway improvements may be required.

* 42' for Developmental Road with ADT > 750
** 150' for Developmental Road with ADT > 750

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO: 11	REV. NO:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 12-2005	TYPICAL SECTION - CURB AND GUTTER APPROACH TO PRIMARY OR MAJOR LOCAL ROAD WITHOUT CURB AND GUTTER

TYPICAL SECTION - CURB AND GUTTER APPROACH TO ROAD WITH CURB AND GUTTER OR BITUMINOUS VALLEY GUTTER

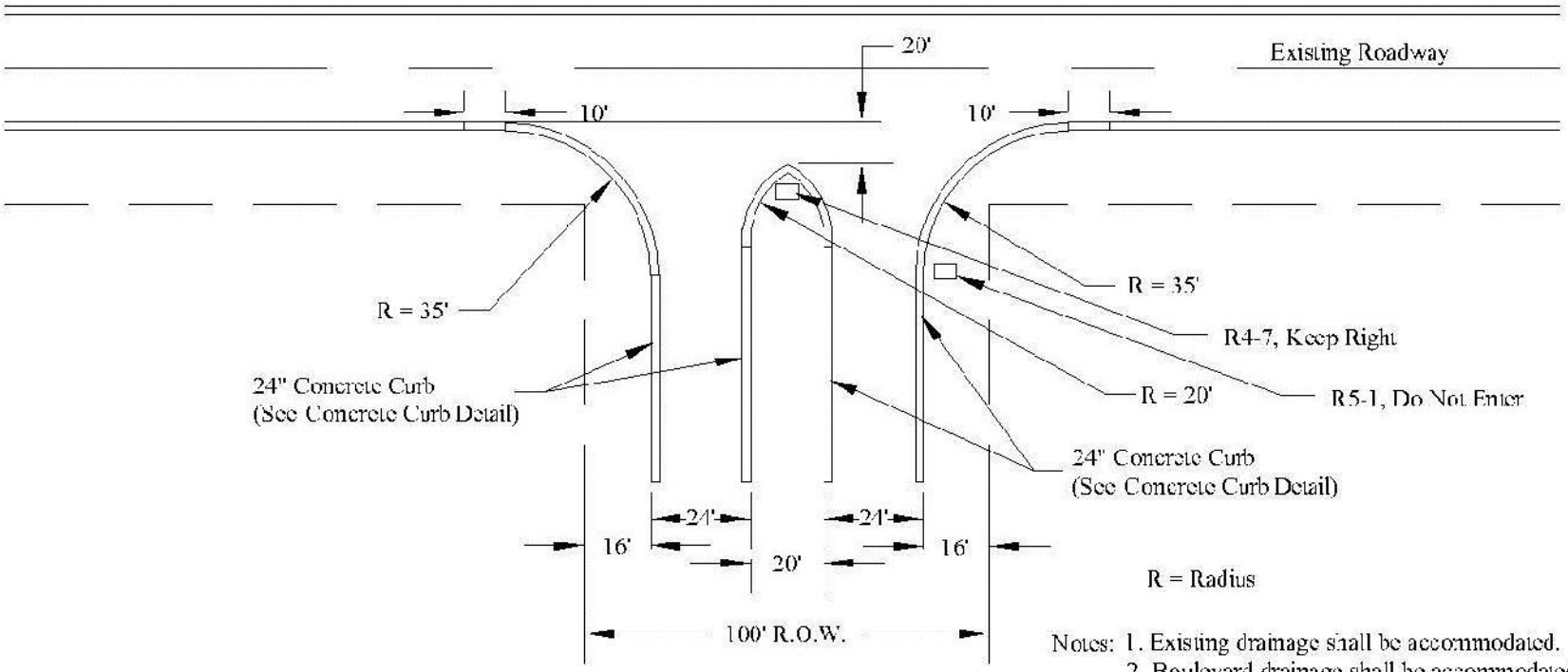


Notes: 1. Existing drainage shall be accommodated.
2. Intersecting roadway improvements may be required.

* 42' for Developmental Road with ADT > 750
** 150' for Developmental Road with ADT > 750

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO: 12	REV. NO:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 12-24-05	TYPICAL SECTION - CURB AND GUTTER APPROACH TO ROAD WITH CURB AND GUTTER OR BITUMINOUS VALLEY GUTTER

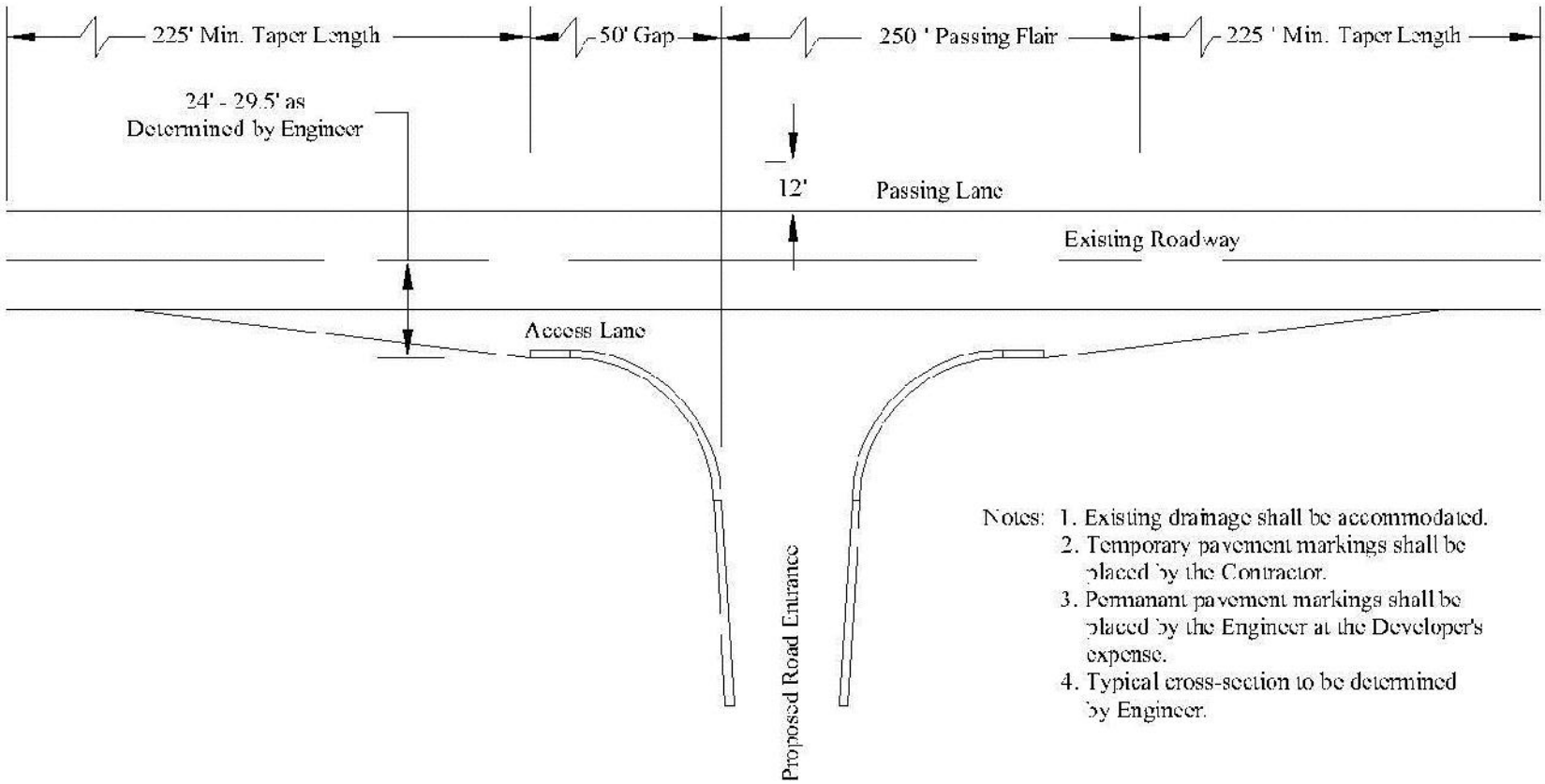
TYPICAL BOULEVARD ROAD APPROACH TO ROAD WITH CURB AND GUTTER OR BITUMINOUS VALLEY GUTTER



Notes: 1. Existing drainage shall be accommodated.
2. Boulevard drainage shall be accommodated.
3. Intersecting roadway improvements may be required.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO: 13	REV. NO:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 11-15-01	TYPICAL BOULEVARD ROAD APPROACH TO ROAD WITH CURB AND GUTTER OR BITUMINOUS VALLEY GUTTER

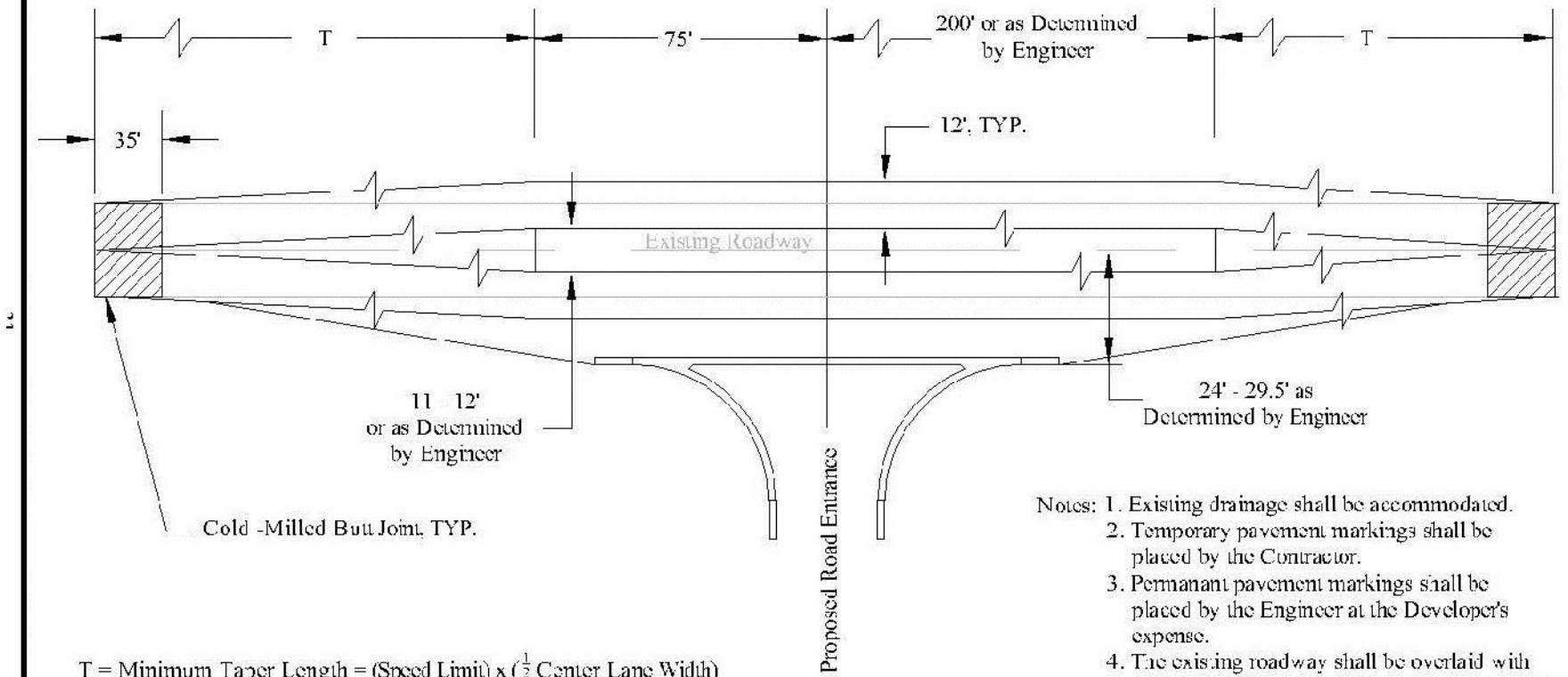
Passing Flare



Notes:
1. Existing drainage shall be accommodated.
2. Temporary pavement markings shall be placed by the Contractor.
3. Permanant pavement markings shall be placed by the Engineer at the Developer's expense.
4. Typical cross-section to be determined by Engineer.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO: 14	REV. NO:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 12-2005	Passing Flare

Center Left Turn Lane

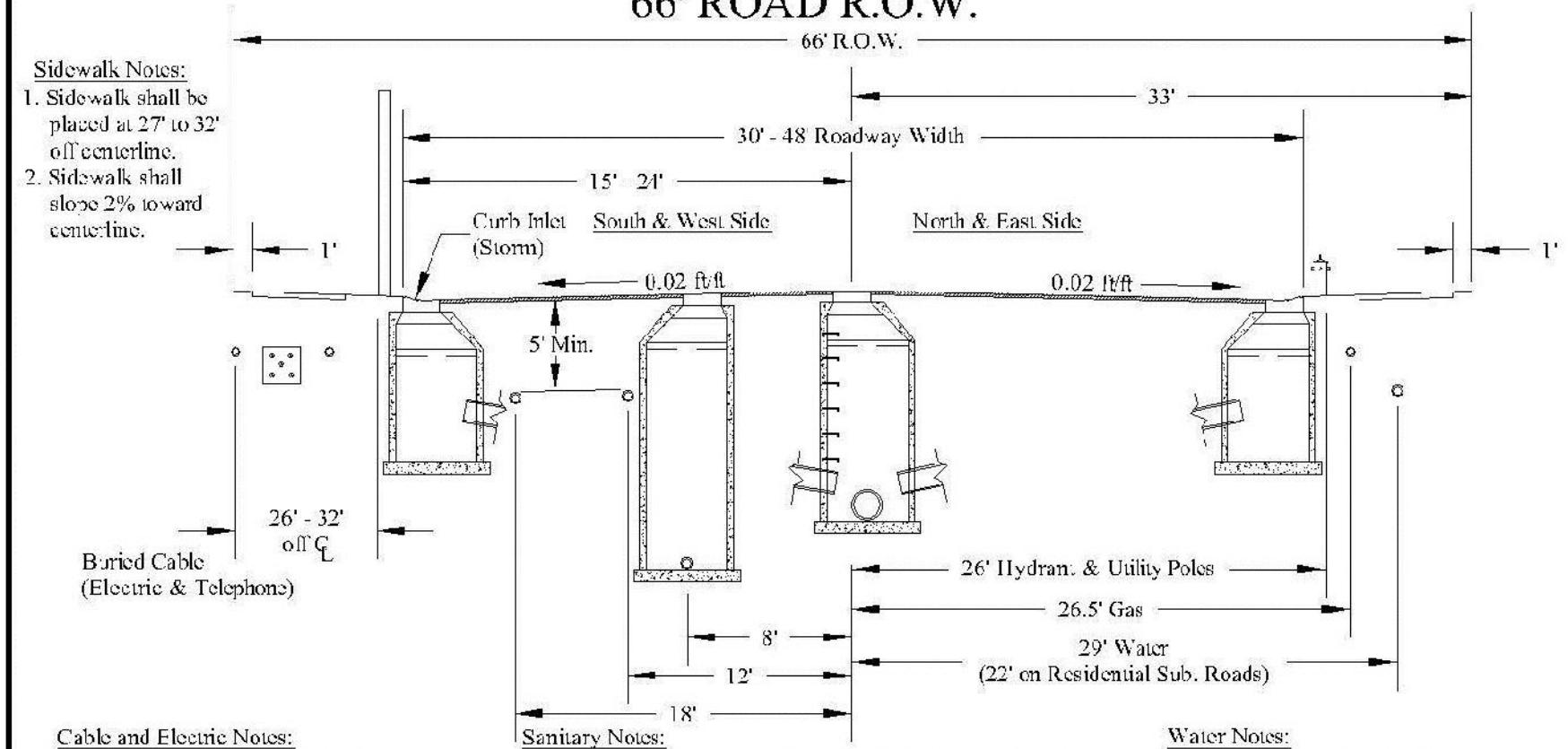


T = Minimum Taper Length = (Speed Limit) x ($\frac{1}{2}$ Center Lane Width)

Notes:
1. Existing drainage shall be accommodated.
2. Temporary pavement markings shall be placed by the Contractor.
3. Permanent pavement markings shall be placed by the Engineer at the Developer's expense.
4. The existing roadway shall be overlaid with a bituminous surface course for the limits of the center left lane improvement.
5. Typical cross-section to be determined by the Engineer.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO: 15	REV. NO:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 12-24-05	Center Left Turn Lane

TYPICAL UTILITY LOCATION WITHIN 66' ROAD R.O.W.



Sidewalk Notes:

1. Sidewalk shall be placed at 27' to 32' off centerline.
2. Sidewalk shall slope 2% toward centerline.

Cable and Electric Notes:

1. C.A.T.V. at 32.5' either side of R.O.W.
2. Fiber Optic Cable to be at 33'-30' off centerline. Minimum depth of 36" below centerline elelvation. (Only if easement cannot be obtained.
3. Buried Cable at 32'-26' (Electric & Telephone)

Sanitary Notes:

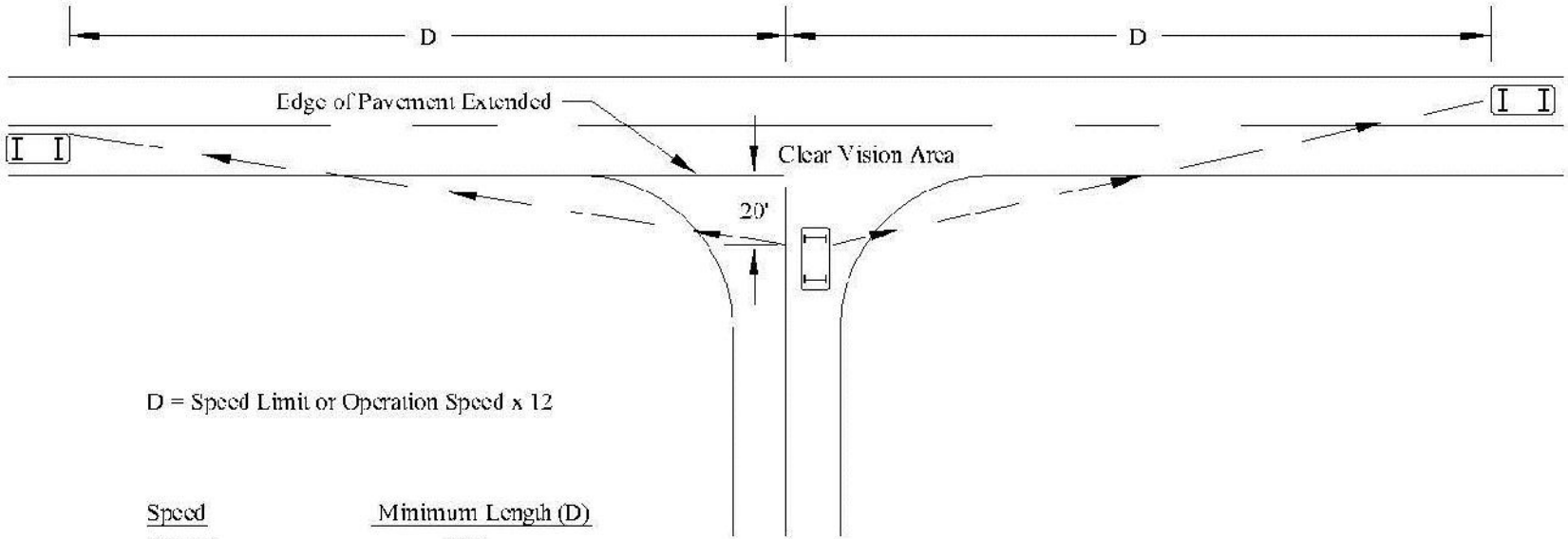
1. Sanitary sewer force main located at 12' when constructed in conjuction with sanitary sewer main.
2. Sanitary sewer force main located at 18' when constructed separate of gravity sewer.
3. Gravity sanitary sewer located at 11' when constructed on primary or major section line roads. **The gravity sanitary sewer may shifted to accommodate a mandated center of manhole casting location of 11'.**

Water Notes:

1. Water main shall be placed a minimum of 60" below centerline elevation.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO: 16	REV. NO:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 11-15-01	TYPICAL UTILITY LOCATION WITHIN 66' ROAD R.O.W.

MINIMUM DRIVEWAY AND INTERSECTION SITE DISTANCE

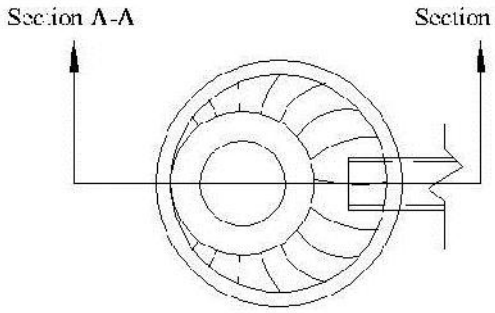


D = Speed Limit or Operation Speed x 12

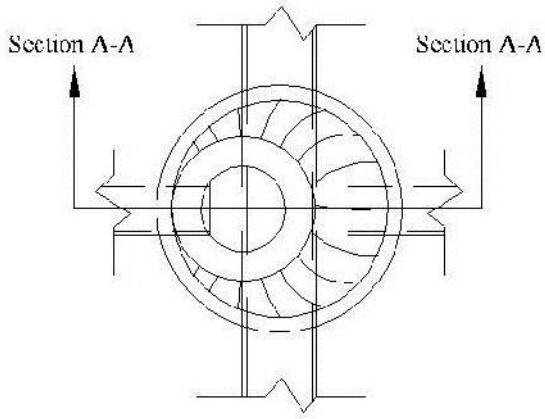
Speed	Minimum Length (D)
30 Mph	360'
35 Mph	420'
40 Mph	480'
45 Mph	540'
50 Mph	600'
55 Mph	660'
60 Mph	720'

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO: 17	REV. NO:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 12-24-05	MINIMUM DRIVEWAY AND INTERSECTION SITE DISTANCE

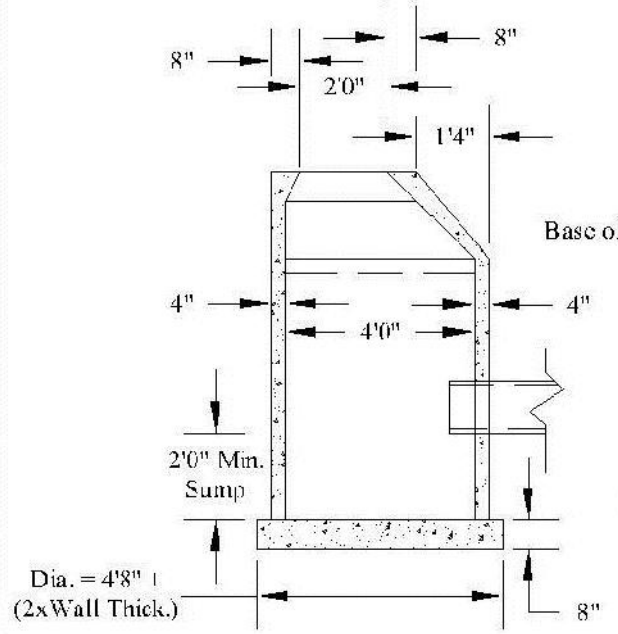
DRAINAGE STRUCTURE DETAIL



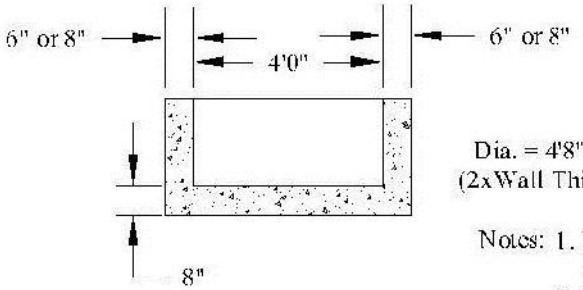
TYPICAL CATCH BASIN

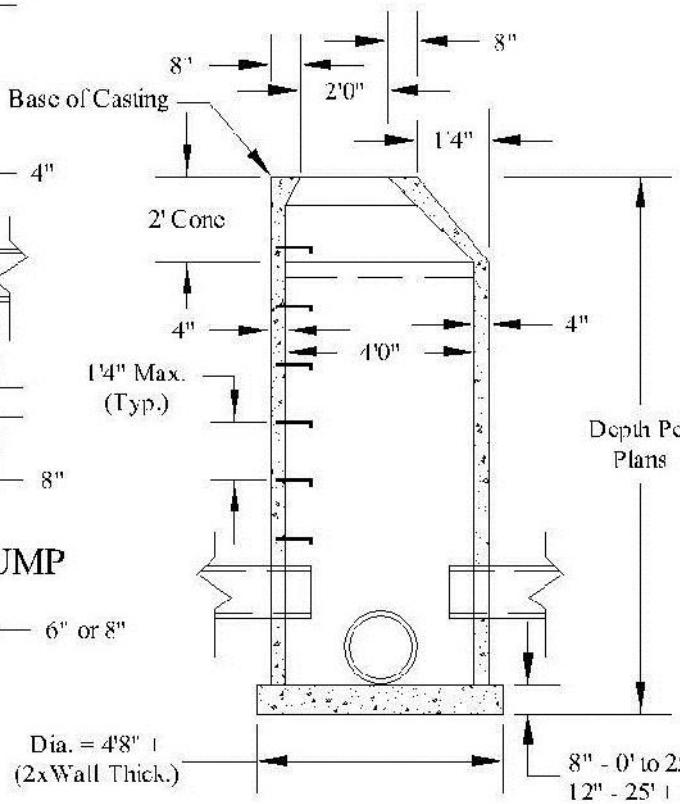


TYPICAL MANHOLE



TYPICAL PRECAST SUMP

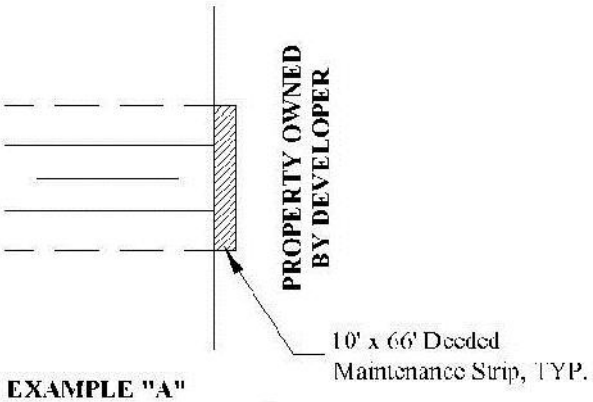




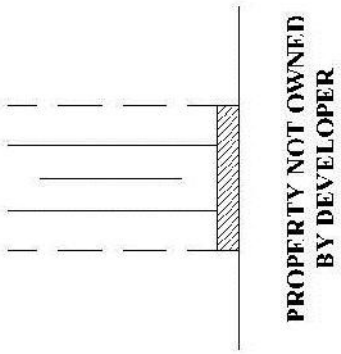
Notes: 1. Manhole diameter shall be a minimum of 4' for every 1' increase in dia. add 1" to wall thickness.
2. Manhole steps shall be embedded a minimum of 3" into the wall.
3. Shorter Manhole Cones may be used if approved by engineer.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 18	REV. NO:	DR. BY: BAL CH. BY: TD	SCALE: NONE DATE: 11-15-01	DRAINAGE STRUCTURE DETAIL

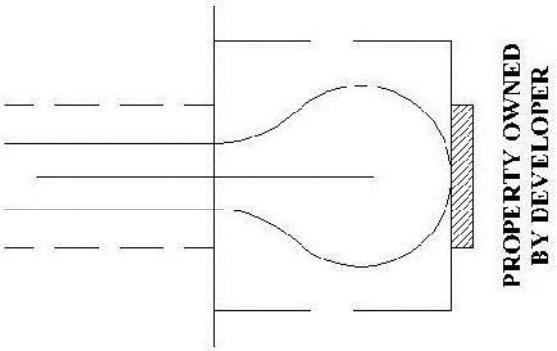
MAINTENANCE STRIP DETAILS



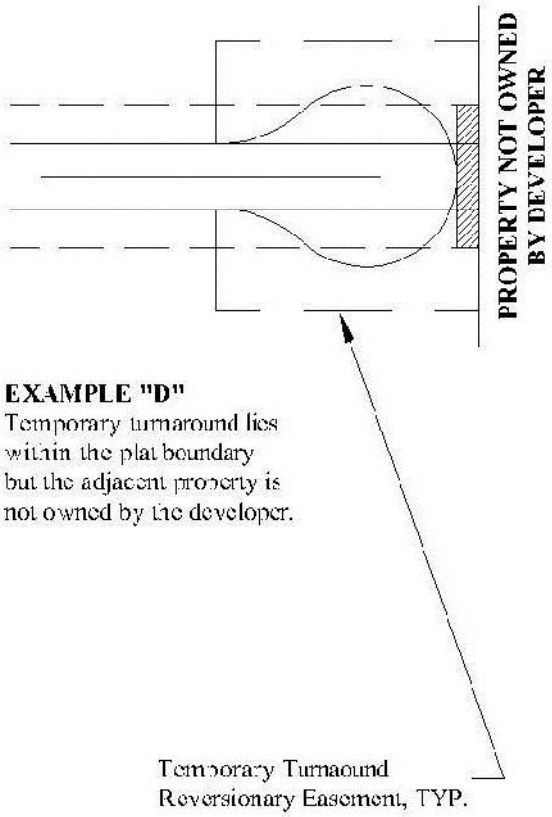
EXAMPLE "A"
No temporary turnaround, but adjacent property is owned by the developer.



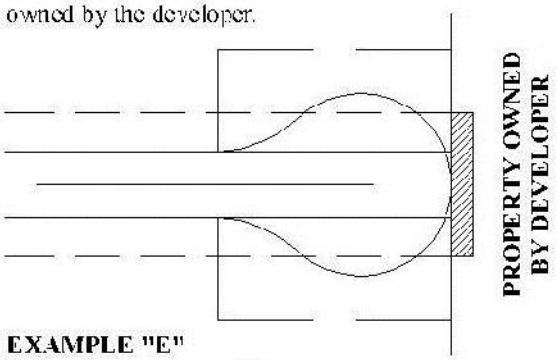
EXAMPLE "B"
No temporary turnaround, but adjacent property is not owned by the developer.



EXAMPLE "C"
Temporary turnaround lies outside of the plat boundary and the adjacent property is owned by the developer.



EXAMPLE "D"
Temporary turnaround lies within the plat boundary but the adjacent property is not owned by the developer.



EXAMPLE "E"
Temporary turnaround lies outside of the plat boundary and the adjacent property is owned by the developer.

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO: 19	REV. NO:	DR. BY: BAL CH. BY: TP	SCALE: NONE DATE: 11- 5-01	MAINTENANCE STRIP DETAILS

Detail No. 20
OTTAWA COUNTY ROAD COMMISSION
Inspector's Daily Report

Contractor _____ **Weather** _____

Subcontractor _____ **Temp High** _____ **Low** _____

Work Items and Materials

Work Item/Materials	Station & Location	Quantity	Remarks

Sketches, Computations, Remarks Etc.

Project Name _____ **Location** _____

Date _____

Inspector Signature **Project Engineer**

ADDENDUM #1

To

OTTAWA COUNTY ROAD COMMISSION

STANDARDS AND SPECIFICATIONS

For

PLAT, CONDOMINIUM

AND PUBLIC ROAD DEVELOPMENT

Adopted by the Board of County Road Commissioners, County of Ottawa April 13, 2006
Effective Date April 13, 2006

The following is to supplement page 15, H, 6. Inspection:

The Proprietor's Engineer shall be on site during construction operations to inspect the contractor's work. Items of work that will require continuous inspection include:

Placement and compaction of bituminous pavement
Placement of concrete curb and gutter
Placement and compaction of aggregate base
Placement and compaction of sand subbase
Placement and compaction of embankment
Excavation and backfill of undercut areas
Installation and backfill of storm sewer, culverts, sanitary sewer, and water mains.

Items of work that will require inspection on a daily basis for compliance and progress include:

Site Clearing
Tree Removal
Topsoil Placement
Seed and Mulch Placement
Other Stabilization Measures
Landscaping and Tree Planting

Any items of work not noted above shall require continuous inspection by the Proprietor's Engineer unless prior approval is granted from the Engineer.

ADDENDUM #2

To

OTTAWA COUNTY ROAD COMMISSION

STANDARDS AND SPECIFICATIONS

FOR

PLAT, CONDOMINIUM, AND

PUBLIC ROAD DEVELOPMENT

Adopted by the Board of County Road Commissioners, County of Ottawa
Effective Date: October 1, 2007

On Page 12, Section IV. G. Road Improvements

Add New Subsection

13. Sidewalks and Non-Motorized Facitilites

All proposed sidewalks and non-motorized facilities shall comply with the current Ottawa County Road Commission *Rules Governing the Granting of Permits for Driveways, Banners & Parades*.

Sidewalk ramps shall be provided in accordance with the American with Disabilities Act of 1990 (ADA) and the Rehabilitation Act of 1973 (Section 504) as amended. Sidewalk ramps shall conform to the current MDOT Standard Plan or Special Detail for Sidewalk Ramp Details R-28 and shall be required for all proposed, existing, or future sidewalks or non-motorized facilities crossing of public roadways.

ADDENDUM #3

To

OTTAWA COUNTY ROAD COMMISSION

STANDARDS AND SPECIFICATIONS

FOR

PLAT, CONDOMINIUM, AND

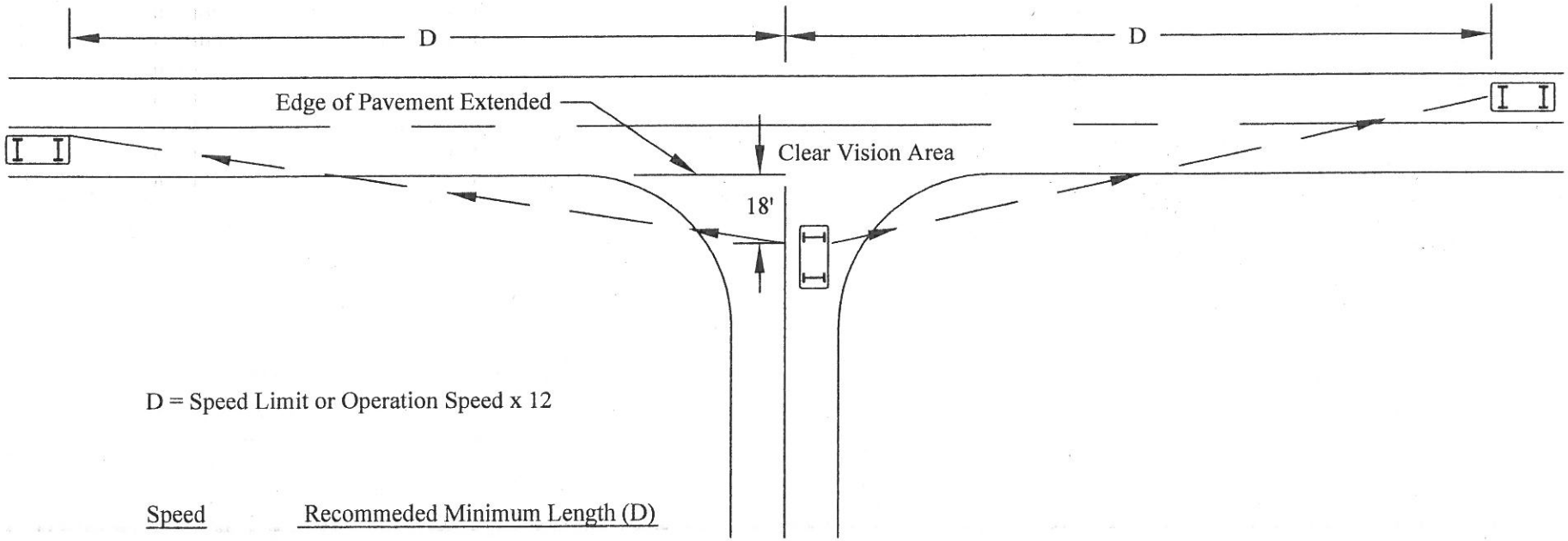
PUBLIC ROAD DEVELOPMENT

Adopted by the Board of County Road Commissioners, County of Ottawa on August 26, 2010
Effective Date: August 26, 2010

Detail No. 17, Minimum Driveway and Intersection Site Distance

Delete and replace with attached.

DESIGN DRIVEWAY AND INTERSECTION SITE DISTANCE



D = Speed Limit or Operation Speed x 12

Speed	Recommeded Minimum Length (D)
30 Mph	360'
35 Mph	420'
40 Mph	480'
45 Mph	540'
50 Mph	600'
55 Mph	660'
60 Mph	720'

OTTAWA COUNTY ROAD COMMISSION	DETAIL NO.: 9	REV. NO.: 1	DR. BY: JO CH. BY: JG	SCALE: NONE DATE: 08-26-2010	DESIGN DRIVEWAY AND INTERSECTION SITE DISTANCE