



PROCEDURES, GUIDELINES, AND SPECIFICATIONS FOR DEVELOPING PUBLIC ROADS

PROCEDURES, GUIDELINES, AND SPECIFICATIONS FOR DEVELOPING PUBLIC ROADS

TABLE OF CONTENTS

	<u>Page Number</u>
I. PURPOSE AND SCOPE	35
II. EXCEPTION FROM CONSTRUCTION GUIDELINES	35
III. ORDER OF PROCEDURE	35
IV. PRELIMINARY REQUIREMENTS AND PLAN DEVELOPMENT	36
V. CONSTRUCTION REQUIREMENTS AND PLAN DEVELOPMENT	40
VI. GENERAL REQUIREMENTS	49
VII. FINAL ACCEPTANCE	50
VIII. ESCROW PROCEDURE	52
IX. SEVERABILITY CLAUSE	53
X. CONVERSION OF PRIVATE ROADS TO PUBLIC ROADS	53
XI. TRAFFIC IMPACT STUDIES	53

I. PURPOSE AND SCOPE

These procedures, guidelines and specifications for developing public roads in Kalamazoo County are the published rules adopted by the Board to carry out the provisions of the [Land Division PA 288 of 1967](#), as amended, MCL 560.101 et seq. These rules promote public safety, health and general welfare and enhance the opportunity for future interconnecting development. These procedures, guidelines and specifications apply only to lands located outside the corporate limits of any incorporated city or village in Kalamazoo County and to lands within incorporated areas, when such lands are adjacent to public highways under the jurisdiction of the RCKC.

The contents of this publication do not supersede any part of the Land Division Act, Act 288, Public Acts of 1967, as amended.

II. EXCEPTION FROM CONSTRUCTION GUIDELINES

All information regarding a exception from this policy is located in [Appendix G](#).

III. ORDER OF PROCEDURE

- A. Following is the sequence to be used by the Proprietor in the developing of lands, which are intended to be incorporated into the RCKC Road System.
 1. Hold a pre-application review meeting, as outlined in section 111 of the [Land Division PA 288 of 1967](#), as amended (MCL 560.111), if desired by the Proprietor.
 2. Submit preliminary plans to the County Engineer for review. The County Engineer will submit them to the Board for approval.
 3. Submit road and drainage construction plans to the County Engineer for approval.
 4. Construct streets and drainage systems per approved plans.
 5. Submit required documentation for final acceptance and approval. Final acceptance and approval will be sent to the Board
- B. Details for preparing projects are supplied in subsequent sections. To aid in submitting this material, checklists of Procedures, Guidelines and Specifications for Developing Public Roads are provided in [Appendix B](#).

IV. PRELIMINARY REQUIREMENTS AND PLAN DEVELOPMENT

A. General Requirements

1. An electronic reproducible file (PDF or similar) of the preliminary plans shall be submitted and approved by the RCKC Board before construction plans are submitted. Preliminary plans shall be prepared, signed and sealed by a Registered Land Surveyor or Professional Engineer registered in the State of Michigan. The plans shall be drawn on 24 inches x 36 inches sheets to a scale not less than 1 inch = 200 feet horizontal, 1 inch = 10 feet vertical.
2. A letter of transmittal introducing the proposed development and indicating the action requested by the RCKC shall accompany the plans. A plan review fee, in accordance with RCKC [Schedule of Fees](#), shall be paid at time of plan submission.
3. Submit the Preliminary Plat for approval by the Board. A cover letter shall specifically request Preliminary Plat Approval.
4. Within 30 days of receipt of the Preliminary Plat, RCKC staff shall either reject the proposed Preliminary Plat for noncompliance or recommend it for Board approval. A letter shall be returned indicating approval, approval subject to conditions, or rejection. No verbal approvals shall be given. If the plans are rejected, the RCKC shall include its reasons within the letter. The approval or rejection letter shall be sent to the individual whose name appears on the letter of transmittal. Depending on compliance with the requirements, review times for submittals may increase the approval process timeline.
5. The preliminary plan approval will be granted for a period of two years. If the construction plans are not submitted within this period, preliminary plans shall be resubmitted and reapproved. The required plan review fee shall be paid again. An extension may be requested within 30 days of expiration of the original approval period. Any such extension shall be requested in writing.
6. Road and drainage construction plans are to be submitted only after the preliminary plans have been approved.
7. Approval of any plans by the RCKC does not alleviate the Proprietor from meeting standards and obtaining permits required by other agencies.

B. Layout

1. Preliminary plans shall indicate the name of the proposed development and shall include a situation sketch that shows the relationship of the proposed development to the existing public roads.
2. The preliminary layout shall show the entire parcel from which the proposed development is to be taken, and shall be tied down to section and/or 1/4-section posts using bearings and distances. The owners of unplatted land within 300 feet of the proposed development boundaries shall be identified, along with the parcel number where applicable. Land use zoning for all abutting parcels shall be shown.

3. Streets, streams, lakes, railroads, cemeteries, county drains and any other features that may govern or influence the development shall be included on the plans. Using USGS datum, relief will be indicated at not more than 4 foot contour intervals. To assure sufficient sight distance requirements, the centerline profile of an intersected public road shall be shown for a minimum distance of 600 feet in both directions from the proposed centerline. Section and 1/4-section line roads shall be centered on the section line or 1/4 section line.
4. If a proprietor wishes to subdivide a given area, but desires to begin with only a portion of the total area, the preliminary layout plans shall include the proposed overall layout for the entire area. The part proposed to be subdivided first shall be clearly superimposed upon the overall plan in order to illustrate the method of development that the proprietor intends to follow.
5. Preliminary plans shall show the complete proposed street system layout and ROW.
6. Lot access from a proposed development will not be permitted onto a primary road and should be held to a minimum on local roads. Lot access onto boulevard sections shall be approved by RCKC, township planning commission, and township board.

C. ROW

1. Required minimum widths for road ROW are as follows:

Residential development roads	66 feet
Residential development roads — Boulevard	100 feet
Commercial development roads	66 feet
Commercial development roads — Boulevard	120 feet
Primary roads	100 feet
County local roads	100 feet

2. In special cases, the RCKC may require greater widths and/or an intersection corner triangle ROW, which may be used for clear-vision or for future intersection expansion. The additional property may be acquired in the form of a permanent easement to be consistent with the existing type of ROW.
3. Where a proposed development is located along a road that is currently part of the public road system, ROW shall be dedicated on the side of the road adjacent to the development equal to at least one-half the minimum width required above.

D. Connectivity

1. The street system shall provide a continuous circuit, without excessive street curvature, and shall continue the appropriate existing public streets terminating at the development's boundaries. The street system shall provide for a logical continuation of streets beyond the development by extending the proposed streets to the development boundaries. When a request is made to not extend a street to the development's boundaries, consideration will be given when the township planning commission and the

township board endorse the request by township resolution.

2. Because interconnected subdivisions facilitate efficient road maintenance, school busing, and emergency services while minimizing congestion and preserving the capacity on the public road system, no proposed development that isolates lands from existing public roads will be approved. The Board may require that any road constructed for a future connection shall have a temporary paved turnaround at its terminus to facilitate plowing and routine maintenance of the road system. Temporary turnarounds shall be located within the dedicated ROW or recordable easements. Proposed developments adjacent to existing developments with public roads shall connect to all such roads and shall fit the pattern established by adjacent road to provide a continuous circuit for travel. If a temporary turnaround is required on adjacent property, the Developer shall obtain an executed and recordable easement from the property owner prior to the Road and Drainage Plan approval.
3. If connectivity is required, out lots for future roads will not be allowed. Access streets for future connection to adjoining parcels shall be continued to the proposed development boundaries. Streets carrying non-residential traffic, especially truck traffic, will not normally be extended to the boundaries of adjacent existing and potential residential areas. No driveway access will be permitted to any dead-end street that does not have a turnaround conforming to RCKC requirements. Driveways will not be permitted onto gravel turnarounds. These driveway restrictions shall be noted on the pertinent recorded documents.
4. Privately held reserve strips controlling access to streets are prohibited.

E. Intersections

1. Intersection legs shall meet at 90-degree angles and have a minimum straight-a-way length of 100 feet, as measured from the centerline of the intersected street. Centerline-to-centerline distance between street intersections with primary and county local roads shall be a minimum of 266 feet (4 chains).
2. All streets shall afford safe ingress and egress at all intersections. Acceptance of site access onto an existing public road is subject to the field review and recommendation of the County Engineer. Considerations include, but are not limited to, vehicle speed, sight distance and topography. An area of clear vision, free from obstructions and encroachments, shall be provided. Trees, brush, shrubs, poles, signs, boulders, mailboxes, and other obstacles shall be removed from this area to afford an unobstructed view in both directions of the approaching traffic. See [Appendix A](#), Figure 14.
3. An intersected county primary or county local road shall be improved to provide any necessary auxiliary lanes (deceleration lane, right-turn lane and/or left-turn lane). MDOT Geometric Design Guidance Section 1.1.4 and 1.1.5 shall be utilized in order to promote a uniform system to determine where right-turn lanes or left turn lanes shall be required as a condition of permit issuance. RCKC may still require auxiliary lanes when MDOT Geometric Design Guidance Section 1.1.4 and 1.1.5 are not met based upon crash, traffic volume and other data. For design requirements of the auxiliary lanes, see [Appendix A](#), Figures 11 and 12.

F. Cul-de-Sacs

1. Permanent cul-de-sacs will be allowed where it is demonstrated that a street connection is not feasible due to site conditions, such as severe grade transitions or sensitive natural features, or other existing development will not allow for a continuous road system, or when endorsed by the township planning commission and township board by township resolution. Written justification shall accompany all cul-de-sac requests. That justification can be either the township's endorsement, or the unique site conditions.
2. The cul-de-sac turnaround shall provide a minimum back-to-back of curb diameter of 100 feet and shall be centered on a minimum dedicated ROW diameter of 140 feet. Only in residential developments may an island be included as an option in the center of the turnaround. Any such island shall have mountable concrete curb with a maximum back-to-back of curb diameter of 40 feet. The center of the island shall be no less than one foot higher than the back-of-curb, shall be graded to blend to the top back-of-curb and shall be clear of all obstructions. Alternative configurations of the turnaround will be allowed if found to be acceptable for traffic maneuvering. Recorded restrictions shall assign the maintenance of the island to adjacent lot owners, the township, or to an owner's association. See [Appendix A](#), Figure 13.
3. No existing cul-de-sac street may be extended without the removal and reconstruction of its turnaround to the extended road cross-section. The resulting roadside areas shall be restored, including lawn areas, driveways, and sidewalks, to match the adjacent existing areas.
4. Where a continuation of a road is planned, a temporary turnaround may be required. The temporary turnaround area shall be surfaced with MDOT 22A coarse aggregate or an approved alternate. The Proprietor shall provide an easement and a cash escrow or Irrevocable Letter of Credit equal to 175% of the cost remaining to complete the turnaround in accordance with RCKC requirements. If the Proprietor elects to submit a Letter of Credit then the Proprietor shall execute the RCKC Letter of Credit Agreement as designated in [Appendix A](#). The Letter of Credit shall have an expiration date of not less than 36 months. If the road is not extended within a two year time period, the RCKC will complete the construction of the turnaround using the cash escrow or by cashing the Letter of Credit. Any unused balance of the funds will be returned to the Proprietor. The easement will be released at such time as the road is extended as a public road.

G. Boulevards

1. A boulevard section may be permitted and shall provide a minimum 100 foot ROW width for residential development roads, and a minimum 120 foot ROW width for commercial development roads. A boulevard median shall be at least 75 feet in length. Sufficient taper of the ROW width, in accordance with design speed, shall be provided adjacent to a boulevard section. The minimum cross-section requirements are shown in [Appendix A](#), Figure 6 and 7.
2. A hold-harmless agreement to the RCKC and a maintenance agreement shall be provided, assuring permanent maintenance of landscaping or other items in a

boulevard. Median plantings should be selected on their ability to thrive in a roadside environment without sight obstruction and be specified in the maintenance and hold-harmless agreement and be approved by RCKC.

H. Utilities

1. The proposed road network shall be properly drained by a storm-sewer system and shall be in compliance with KCDC [Site Development Rules](#). Design and development of the storm-sewer system shall be in coordination with both the RCKC and the KCDC, where applicable. The RCKC will accept and maintain all storm-sewer facilities properly designed and constructed within the ROW.
2. The KCDC may accept responsibility for maintenance of the storm-sewer and appurtenances located outside the ROW by means of a [433 Agreement](#). A copy of the KCDC [Site Development Rules](#) may be obtained at the KCDC office. Where the law requires, private easements for public utilities shall be located outside and contiguous to the ROW along both sides of all proposed roads.

I. Non-Motorized Facilities

1. Sidewalks and non-motorized pathways are allowed along roads. The recommended location of the back-of-sidewalk or non-motorized pathway should be 1 foot inside the ROW line. Sidewalks and non-motorized pathways shall be at least 6.5 feet off the curb or edge of gravel shoulder. Sidewalks and non-motorized pathways shall be constructed in accordance with AASHTO or local ordinances. A [Non-motorized Facilities Application and Agreement](#) from the township is required.

V. CONSTRUCTION REQUIREMENTS AND PLAN DEVELOPMENT

A. General Construction Plan Requirements

1. After approval of the preliminary plans, an electronic reproducible file (PDF or similar) of road and drainage construction plans, [non-motorized agreements/applications](#) and/or an application for a permit for the work in the ROW where the proposed road intersects with the existing public road, shall be submitted for approval. The plans shall be signed and sealed by a Professional Engineer registered in the State of Michigan.
2. Within 30 days after the date of receipt, a letter will be sent indicating approval or rejection. No verbal approval will be given. If the plans are rejected, the RCKC will include its reasons within the letter. This letter will be sent to the Design Engineer unless instructed to do otherwise.
3. The plans shall be drawn on 24 inches x 36 inches sheets and to a standard scale of not less than 1 inch = 50 feet horizontal and 1 inch = 5 feet vertical.
4. The plans shall include a cover sheet indicating:
 - a. Name of the proposed development
 - b. Index of sheets
 - c. Location sketch of the proposed development within Kalamazoo County

- d. Name of the responsible contact person, on behalf of the Proprietor, including the company name, address, phone numbers and email address
 - e. Name of the design engineer and company name, address, phone number, and email address
5. The construction plans shall show at a minimum:
- a. The complete road, sidewalk and non-motorized pathway system within the ROW and centerline stationing for all roads
 - b. A plan view and profile view for all roads
 - c. A typical cross section of all proposed roads and non-motorized facilities
 - d. The names of all proposed roads shall be clearly labeled.
 - e. Soil erosion plan
 - f. A permanent or temporary benchmark established at USGS datum
 - g. The log and location of soil borings
 - h. Curve data for all proposed horizontal and vertical curves including points of curvature, points of tangency, points of compound curvature, radii of curves, central angles and the length and bearing of its long chord
 - i. All existing and proposed utilities
 - j. Storm water drainage plan
 - k. Signing and pavement marking plan (if necessary)
6. Benchmarks

A permanent benchmark shall be placed near the entrance to the proposed development and may be required at each additional phase as determined by the County Engineer. The permanent benchmark will be established at USGS datum.

A benchmark will be furnished by the RCKC and shall be installed by a survey crew under the supervision of a registered land surveyor. The benchmark shall be placed flush with the ground, in a location that is readily accessible, out of harm's way and within the ROW. The benchmark shall be placed in a cylindrical mass of concrete, 10 inches wide (diameter) and 48 inches deep.

If so desired, the permanent benchmark may be installed after all construction is complete and prior to RCKC acceptance. If the option of placing the benchmark after all construction is complete is desired, a temporary benchmark shall be established and shown on the construction plans. The permanent benchmark shall be shown on the as-built plans.

In the event the proposed development will encompass an original Government Survey Corner, the subject corner shall be preserved. A document outlining the procedures required to preserve Government Survey Corners can be obtained from the RCKC.

7. Soil Erosion Requirements

- a. A note stating that all work will comply with the provisions of Part 91 of the Erosion and Sedimentation Control Act of the [Natural Resources and Environmental Protection PA 451 of 1994](#), as amended and as administered by the KCDC, or the duly authorized agent, shall appear on the plans.
- b. A copy of the SESC control plan, as required by the controlling agency, shall be

- included in the construction plans. SESC control plans shall include the scheduled construction start date and completion date and the sequencing or phasing of the construction. Construction plans shall indicate limits of earth change.
- c. All SESC inspection reports shall be submitted to the RCKC inspector as they are created.
 - d. Construction activities for sites disturbing five (5) or more acres with storm water discharges must submit a Notice of Coverage (NOC). Sites with one (1) to five (5) acres of disturbance and a discharge to the surface waters of the state need to comply with the requirements of the Permit by Rule but do not need to file the NOC.
8. A letter of approval for street names shall be obtained from the [Kalamazoo County Department of Planning & Community Development](#) or appropriate agency. A copy of this letter shall be submitted with the construction plans. Any extension of a street shall retain the name of the existing street.
9. Soil borings shall be taken to identify unsuitable existing material. One soil boring for every 500 feet of road, with a minimum of three soil borings, will be required. Soil borings shall be a minimum of 6 feet below bottom of proposed aggregate base elevation. Locations of the soil borings shall be shown on the plans and a boring log provided with the plans.

Each boring shall be carefully examined and visually classified at the time of boring, and a written record (boring log) should be prepared. The boring log shall be on a sheet 8-1/2-by-11 inches in size, and shall show the following information:

- a. Project designation and project location
 - b. Boring number
 - c. Final location of boring by reference to station, offset, and survey line
 - d. Method of boring, type drill rig and sampling
 - e. Date of boring and weather
 - f. Ground elevation measured utilizing a transit or level instrument and referencing to a USC&GS Benchmark or other points of known elevation
 - g. Numerical thickness and depth of various soil layers to be shown in feet below ground surface or by elevation
 - h. A complete description of each soil layer including color, moisture, consistency or density, and visual grain-size classification. Descriptions shall be consistent with procedures outlined in ASTM D 2488, and classifications consistent with procedures outlined in ASTM D 2487.
 - i. The elevation of free water during the drilling, at completion of drilling and 24 hours later
 - j. Any additional information obtained during the boring shall be shown
 - k. Sample number, and depth of top and bottom of samples taken
 - l. County
 - m. Driller
 - n. Inspector
10. Work-zone traffic-control plans shall be developed and included in the construction plans. The plans shall be consistent with the current edition of the MMUTCD. The traffic control devices shall be installed prior to the beginning of any construction and shall be maintained and remain in place until all work associated with the proposed development

has been completed. Road Closed signage shall be installed and maintained at the proposed development entrances and shall be left in place until the roads are accepted by the RCKC.

When a right-turn lane and taper, passing or left-turn lane are required, separate traffic control plans shall be developed and included in the construction plans. Traffic control plans shall be consistent with the current edition of the MMUTCD. All traffic control devices shall be installed prior to the beginning of any construction on the auxiliary lanes and shall be maintained and left in place until all work associated with the construction of these auxiliary lanes has been completed.

B. Utilities

Utilities constructed prior to the acceptance of the plans shall be shown and comply with existing RCKC requirements. If they are to be placed within the ROW, utility locations shall be staked prior to their installation and shall be placed as indicated in [Appendix D](#).

All utilities shall be installed prior to placement of the HMA wearing course. Under no circumstances will final construction approval be given without issuance of all required RCKC utility permits and completion of proposed utility installation.

C. Geometric Road Design Requirements

1. Road design geometrics not specifically outlined in this policy, shall be in accordance with AASHTO.
2. The maximum grade of any street shall be 7%. Minimum grade for any concrete curb and gutter street shall be 0.75%. Minimum grade for any HMA valley gutter street shall be 1.00%. A cul-de-sac turnaround shall be constructed to ensure a minimum grade of 1.25% along the flow line of the gutter.
3. Grade transitions shall be designed with vertical curves. Vertical curve K Values for sags and crests shall be designed according to AASHTO.
4. All interior horizontal curves within a proposed residential development that are to be continuous shall have a minimum centerline radius of 165 feet. On non-continuous roads, 90-degree corners are permissible but will require a minimum 65 foot centerline radius. The non-continuous, 90 degree turns shall be designated with a maximum 2% slope within the turn. All intersections within a development shall have a minimum edge-of-pavement radius of 25 feet.
5. Any proposed street or road approaching an existing public road, or proposed street or road, shall be constructed with the approach profile grade between 0% and 2% for a minimum 50 feet in length, as measured from the edge of the through street. For proposed road grades of 6% to 7%, the 0% to 2% approach profile grade length shall be a minimum 100 feet in length.
6. While complying with AASHTO designed speed requirements, horizontal and vertical curve alignment shall be equal to the highest standard that is compatible with the topographical details and reasonably obtained ROW. Curve length deemed excessive

must be approved by County Engineer prior to construction.

D. Road Width Requirements

1. Residential Road

- a. Standard pavement (28 feet back-to-back): Roads within a single-family residential development shall be constructed with a 24 foot HMA pavement width with HMA valley gutter, mountable concrete curb and-gutter, or concrete pavement with mountable integral curb, as selected by the Proprietor.
- b. High back concrete curb-and-gutter (36 feet back-to-back): Roads within a single-family residential development may be constructed with a 32 feet HMA pavement width with the high back curb-and-gutter, as selected by the Proprietor.

2. Commercial Road (36 feet back-to-back): Roads within an industrial development shall be constructed with a 32 feet HMA pavement width with high-back concrete curb-and-gutter, or concrete pavement with high-back integral curbs, as selected by the Proprietor.

3. County Local Road: Roads shall be constructed with 11 foot lanes, a 2 foot gravel shoulder for roads with fewer or equal to 750 ADT, or a 1 foot paved shoulder / 2 foot gravel shoulder for roads with more than 750 ADT.

4. County Primary Road: Roads shall be constructed with 11 foot or 12 foot lanes (12 foot lanes to generally be used on roads with 10,000 ADT or more), a 2 foot paved shoulder / 2 foot gravel shoulder for roads with fewer or equal to 750 ADT, or a 3 foot paved / 3 foot gravel shoulder for roads with more than 750 ADT.

E. Road Surface and Base Requirements

1. Typical Minimum Cross-Sections are to be constructed as indicated in [Appendix E](#). Alternatives to those above may be permitted when approved by the County Engineer.
2. A pavement design using the AASHTO pavement design program shall be submitted to the RCKC for approval for roads within a commercial development.
3. Road subbase material shall conform to MDOT's specification for Class III Granular Material. Any unsuitable material shall be removed and replaced with MDOT Class III Granular Material. Plan notes shall indicate that all unsuitable subbase material will be removed to a minimum depth of 24 inches below the top of the subgrade or as determined by the County Engineer.
4. Aggregate base shall be final graded with an approved road grader. The RCKC inspector shall affirmatively indicate that the gravel base has been accepted and is ready for HMA paving.
5. All HMA courses shall be constructed with equipment capable of paving the road in two

passes, resulting in a single pavement joint at the centerline. Upon completion of paving but before pavement markings are installed, an application of fog seal on any longitudinal construction joints shall be required. Fog seal applications shall overlap new pavement on either side of the joint by 9 inches but not to exceed 12 inches.

6. Final adjustment of drainage structures, utility valves, and monument boxes located within the HMA pavement shall be made after the leveling course is completed and prior to placement of the wearing course. Mechanical adjustment rings are not acceptable.
7. Requirements for HMA mixtures shall meet the RCKC specifications supplied by the County engineer.
8. Epoxy coated reinforcement steel is required in concrete curb.

F. Drainage System Requirements.

All proposed roads shall have an underground storm-sewer system and shall be in compliance with KCDC [Site Development Rules](#) and approved by the RCKC county engineer. Storm-sewer facilities located in the road ROW will become the property of the RCKC. Storm-sewer facilities located outside the road ROW shall be coordinated with the KCDC with a [433 Agreement](#). The following storm-sewer system and storm water discharge area requirements are established as the minimum necessary to meet the concerns of the RCKC. Meeting these requirements does not in any way substitute for the necessity of obtaining any required permit from, and meeting all requirements of, the KCDC and the EGLE.

1. Storm-sewer design shall be based on a minimum ten-year storm of twenty minutes duration and not less than 30% imperviousness.
2. The storm-sewer system shall have a positive outlet. Discharge of the storm sewer system shall be one of the following:
 - a. An onsite basin
 - b. An offsite basin operated as a private basin (with a Resolution of Authority from the owner of the basin)
 - c. An offsite basin operated by KCDC (with a permit from the KCDC)
 - d. Surface discharge only under special conditions

The storm-sewer discharge area shall be constructed per the KCDC design criteria . All storm sewer outlets shall be a minimum of 2 feet above the bottom elevation of the basin. If the RCKC determines that the proposed storm sewer outlet is a direct discharge to surface waters then the RCKC requires the installation of [Best Management Practice](#) features.

All proposed road widening projects or roads being fully reconstructed shall ensure the existing storm drainage system is properly sized for road storm water runoff, shall be in compliance with KCDC [Site Development Rules](#) and be approved by the. Post-construction storm water criteria apply to sites that disturb at least one or more acres, including projects less than an acre that are part of a larger common plan of development and overland discharge into the RCKC storm sewer system. Storm drainage facilities

located in the road ROW shall become the property of the RCKC.

3. A complete engineering analysis supporting the design concept utilized for all developments is required and shall be submitted with construction plans. The submittal shall include a storm-sewer drainage area sketch, all calculations, required basin volume and provided basin volume. KCDC [Site Development Rules](#) shall be followed for storm-sewer designs. The design criteria used shall be shown on the calculation sheets.
4. The maximum surface run for storm water shall be no longer than 300 feet. The surface run shall not be longer than 200 feet for street grades exceeding 4%. For the purpose of storm-sewer cleanout, structures shall be placed no further than 300 feet apart.
5. Drainage structures shall be provided at the highest end of radii where drainage may cross an intersected road.
6. Main line drainage structures shall be constructed with 2 feet sumps. All other drainage structures may be constructed with a poured flow-line bottom.
7. Reinforced Concrete Pipe or Smooth-Lined Corrugated Plastic Pipe of appropriate size and class is acceptable. Storm sewer less than 12 inches in diameter will not be permitted. When using plastic pipe, a minimum of 3 feet of earth cover, and not more than 10 feet of earth cover, shall be maintained over top of pipe unless current MDOT specifications approve otherwise.
8. All installed pipes may be subject to testing per MDOT specifications and documentation of testing shall be submitted to RCKC. Typical tests include mandrel, television inspection and backfill compaction. Tests shall be completed prior to paving. The cost of testing will be paid for from the required inspection fee.
9. Concrete pipe joints shall be sealed with cold applied bituminous sealer, flexible watertight rubber gaskets, or external-type rubber gaskets. Plastic pipe shall have a joint sealing system per current MDOT specifications.
10. Leaching basins without direct outlet will be allowed only under very special circumstances. If a leaching basin is proposed, a full written justification shall be submitted with the plans. A suggested leaching basin detail may be obtained from the RCKC Engineering Department.
11. The County Engineer may require edge drains as soil borings and/or field observations warrant. Required edge drains shall meet the material and installation specifications of the MDOT.
12. Ditch lines adjacent to public roads may require installation of culverts.
13. Under no circumstance may drainage from private property have a direct piped discharge into the public storm-sewer system, including ditches. No overland flow from private property into the public storm sewer system containing an illicit discharge shall be allowed. No illicit discharge shall be permitted in the RCKC storm sewer system. If an illicit discharge is suspected, the RCKC may inspect, investigate, or monitor the discharge in order to eliminate the illicit connection.

14. If the storm-water discharge area is located outside the ROW, the KCDC may require a 48 inches or larger diameter manhole to be placed just outside the ROW line over the discharge pipe.
15. Drainage plans shall be included on the plans and shall clearly indicate percent of sewer grades, sizes, lengths, depths, locations and types of pipes and proposed drainage structures.
16. Storm-sewer facilities located outside the road ROW shall be coordinated with the KCDC. A [433 Agreement](#) shall be made with the KCDC for those facilities.

G. Grading & Roadside Vegetation Requirements

1. The distance from the back-of-curb or edge of paved shoulder to the side slope shall be not less than 10 feet. All woody vegetation shall be removed to provide a clear area within this 10 foot area. Where a high-back concrete curb-and-gutter residential road, back-of-curb distance to side slope and clear area may be reduced to 8 feet. Side slopes shall be a minimum of 1:3 infill sections and 1:2 in cut sections. See [Appendix A](#), Figures 1, 2, 3, 4, 5, 6, 7, 8, and 9.
2. The full ROW shall be properly pruned and brought to the required cross-section grade. Any overhead branches within 20' above the roadway shall be pruned. Removal of trees inside the remaining area, which is outside the 10 foot wide clear area, shall be in accordance with the [RCKC Roadside Vegetation Management Policy](#), and as necessary to construct and maintain the road. Soil erosion and sedimentation-control measures shall comply with PA 451 of 1994, as amended and all applicable EGLE and RCKC guidelines. In conformance with specifications of the MDOT, all disturbed areas shall be top soiled to a minimum 3 inches depth, fertilized, seeded and mulched, or covered with another approved ground cover.
3. All grading work required to construct the road cross-section that is outside the proposed ROW and that encroaches upon land not owned by the proprietor will require written permission from the abutting property owner. This document shall be submitted prior to the start of any grading.

H. Additional Provisions

1. Crossroad culverts and bridges shall meet minimum AASHTO and MDOT requirements and specifications and be of the size and type approved by the County Engineer. Crossroad culverts shall have a diameter of not less than 15 inches. All crossroad culverts 30 inches or larger shall be supplied with an approved end section. All necessary permits required for placement of culverts or construction of bridges shall be obtained from the agency that has jurisdiction over the watercourse. In accordance with requirements of the MDOT, a scour analysis shall be supplied for structures with a natural stream bottom.
2. Any existing public road abutting and/or providing an access to any part of the proposed development may be subject to improvements for upgrading as determined by the County Engineer. These improvements, which may include paving, resurfacing, curb

and gutter, storm drainage improvements, grading, etc., will be the responsibility of the Proprietor.

3. MDOT or RCKC standard plan and specification designations shall be noted on the road and drainage construction plans where applicable. A detail not specifically covered by MDOT or RCKC standard plan and specifications shall be submitted to and approved by the County Engineer prior to construction of or use of the item.
4. Street lighting poles shall be no closer than 6 feet off the back-of-curb and shall be of breakaway design.
5. Entry identification signs shall be located beyond the ROW. Installations shall be away from the clear-vision area to afford an unobstructed view in both directions of the approaching traffic.
6. All construction materials shall conform to the requirements of the current MDOT and/or RCKC specifications.
7. Mailboxes shall be located in the ROW pursuant to the current RCKC [Accommodation of Mailboxes and Newspaper Delivery Boxes on County Road Right-of-Way](#) policy and procedures for installation of mailboxes and newspaper delivery boxes along public roads.
8. Encroachments are strictly prohibited in the ROW. Examples of encroachments include, but are not limited to, plantings, rocks, berms, headwalls, private signs, flagpoles, irrigation systems, fences, buildings, landscape lighting, and privately owned utilities.
9. Road and drainage construction plan approval will be granted for a period of two years. If the development is not completed for acceptance within this period, construction plans shall be resubmitted and reapproved. All required fees shall be paid as if it were an original submittal. Also, an inspection fee shall be paid in accordance with the RCKC's schedule of Permit and Inspection Fees, minus the plan review fee previously submitted. Along with the inspection fee, an estimate of costs for the proposed road and drainage construction shall be submitted, which will be used to justify the amount of the inspection fee. An extension maybe requested within 30 days of the expiration of the original approval. Any such extension shall be requested in writing.
10. The minimum design standards, specifications, and details established in this policy are devised to meet specific goals with regard to future maintenance, drainage, and surface problems. The RCKC will give consideration to proposals that accomplish these goals in an innovative or unique fashion. Such alternate proposals shall be submitted with sufficient detail, documentation, and time to facilitate their review. When departure from minimum standards is contemplated, it is recommended that early and continuous ongoing contact be maintained with the RCKC.
11. During construction, the County Engineer will have authority to require minor changes in plan specifications. Modifications will be made only to serve the public's best interest. Special alterations include, but are not limited to, changes in location and number of drainage structures, changes in minor road and sewer grades, size of radii and other dimensions.

12. Major deviations from the approved plans shall be submitted in writing and approved by the County Engineer. All approved changes shall be reflected on the required as-built plans.

13. The attached appendices are hereby incorporated as part of this policy.

VI. GENERAL REQUIREMENTS

- A. Approval of road and drainage plans does not relieve the Proprietor of the responsibility to meet the minimum RCKC requirements in force at the time of approval.
- B. Preconstruction Meeting
1. Prior to any construction activity, the Proprietor, or his or her designee, shall schedule and hold a preconstruction meeting.
 2. Notification shall include the RCKC inspector, Proprietor, the township supervisor, the Proprietor's design engineer, representatives of each utility, and a representative of the Contractor that is to do the work.
 3. At the meeting, the Proprietor shall submit a written progress schedule outlining a systematic procedure of construction.
 4. An inspection fee shall be paid in accordance with the RCKC [Schedule of Fees](#) prior to scheduling of the meeting. An estimate of costs for the proposed road and drainage construction costs shall be submitted, which is used to justify the amount of the inspection fee.
 5. A project manager shall be named during the pre-construction meeting. This project manager will be responsible for all stages of construction of the roads. The project manager will act as the liaison between the RCKC and all other agencies and individuals pertaining to the construction and acceptance of the roads.
- C. No work will be permitted within the existing ROW until the Proprietor's contractor has provided proof of insurance in accordance with the Board's Requirement for Insurance.
- D. Construction staking, utility placement staking, and layout will be the responsibility of the Proprietor. Any construction staking and/or layout completed by the RCKC will be for the convenience of the RCKC inspector and are not a required responsibility of the RCKC. All construction staking, utility placement staking, and layout shall be completed in a method agreed upon between the RCKC and the agencies doing the construction and the agencies undertaking the staking and layout work. The method of staking and layout shall be presented at the preconstruction meeting. Under no circumstances should construction staking be done prior to this agreement being made. Specific items that shall be agreed upon are as follows:
1. Size of stakes: length and width,
 2. Information required on the stakes: cuts, fills, offset distance, stationing when it pertains,
 3. Staking intervals and offsets for: clearing stakes, slope stakes, rough centerlines takes, drainage stakes, curb stakes pavement stakes, and utility placement staking.

Construction staking, utility placement staking, and/or layout not done to the satisfaction of the RCKC will be re-staked or laid out at cost to the Proprietor and to the satisfaction of the RCKC inspector.

- E. The RCKC inspector shall be given notice, and the Proprietor receive acknowledgement of the notice, at least 24 hours, or one business day, whichever is longer, prior to the start or resuming of all phases of construction for the following:
1. Land clearing of site
 2. Topsoil stripping
 3. Construction staking and layout
 4. Subbase excavation and embankment
 5. Storm and sanitary sewer installation
 6. Water main installation
 7. Subgrade grading and compacting
 8. Aggregate base placing, grading and compacting
 9. Concrete curb and gutter installation
 10. HMA paving operations
 11. Landscaping

All paving operations will be subject to weather limitations, per [MDOT Standard Specifications for Construction](#), and will be strictly enforced, except that the final HMA surface course shall be installed prior to October 15 unless special approval in writing is obtained from the RCKC. Proof rolling may be required prior to paving, as determined by the RCKC inspector.

Work completed without proper notification to the RCKC inspector may be ordered removed or replaced and may be reason for non-acceptance of the entire road.

- F. The Proprietor will be legally and financially responsible to clean and keep clean all public roads, including intersecting or surrounding public roads, which have an accumulation of mud, dirt, debris etc. that is a result of the construction development.
- G. During construction, and until the County Engineer approves its removal, all drainage structures shall be covered with an approved filter fabric or a [Best Management Practice](#) as approved by the RCKC, to eliminate soils from infiltrating into the storm-sewer system. Routine cleaning of the fabric while in place shall be accomplished as needed. The Proprietor is responsible for this work.

VII. FINAL ACCEPTANCE

- A. The following requirements and provisions shall be satisfactorily completed before acceptance.
1. All construction shall be completed according to approved road and drainage plans. All utility permits and other required documents shall be in place, or an escrow arrangement made and accepted by the County Engineer, for unfinished work.
 2. The Proprietor shall submit a letter stating their understanding of the ongoing

responsibilities to meet soil erosion and sedimentation control requirements. This shall include all lots, impacted ROW, and storm-sewer discharge areas within and abutting the development. Additionally, silt fence shall be installed and maintained 4-feet from the edge of the public road throughout the development.

3. For plat roads, documentation and other issues pertaining to platting of land shall be met as required under the Land Division Act 288, Public Acts of 1967 as amended.
4. For roads not part of a plat, a warranty deed shall be provided to the Board for all lands within the ROW. Title insurance shall also be provided.
5. Storm-sewer facilities located outside the road ROW shall be coordinated with the KCDC and a [433 Agreement](#) shall be made with the KCDC for those facilities.

A checklist for required documents for non-platted developments is provided in [Appendix B](#).

6. A set of as-built plans shall be furnished showing all changes, additions and deletions and including utilities constructed within the ROW. All storm sewer information shall include GPS locations and elevations. The as-built plans shall be on reproducible Mylar and signed and sealed by a Professional Engineer registered in the State of Michigan. Electronic files shall also be furnished in .PDF and one of the following: .DXF, .DWG, or DGN on an electronic format acceptable to the RCKC.
7. All required test reports shall be submitted and accepted by the County Engineer. Examples of test reports that may be required are as follows:
 - a. Aggregate sieve analysis
 - b. Compaction tests
 - c. Log of Mandril test taken for plastic storm-sewer pipe
 - d. Concrete compression tests
 - e. HMA extraction and gradation tests
 - f. Videotaping of the storm sewer

Any other test result that is appropriate for the completed construction.

The costs of all required testing are included as part of the required inspection fee.

Testing frequency and type is at the discretion of the RCKC inspector.

8. The County Engineer may require a waiver of lien, certifying that the Proprietor's indebtedness relating to the proposed development has been satisfactorily discharged or secured.
9. The required permanent RCKC benchmark shall be in place and an information card shall be filled out and submitted to the RCKC with the required information.
10. Upon satisfactory completion of all provisions of this policy, the documentation related to the creation of the new public road(s) will be submitted to the Board for acceptance

and formal approval, including formal action adding the approved proposed road(s) into the RCKC public road system.

VIII. ESCROW PROCEDURE

- A. It is the policy of the RCKC to approve for final acceptance only developments in which all required and proposed improvements have been properly completed and all required documents have been received and approved, or for which an Escrow Agreement, Letter of Credit, or Cash Deposit is in place.
- B. The Escrow Procedure shall not be used for developments unless all construction has been completed up to and including the HMA base course. Backfill of the curb and gutter shall be in place. If the roadside landscaping is not complete, soil erosion measures shall be in place and approved by the County Engineer. However, the escrow procedure may be used as part of final plat approval, as provided by State Law (Land Division PA 288 of 1967 [MCL 560.183](#)) without regard to the amount of road construction accomplished. All required documentation shall be submitted, approved and accepted by the County Engineer.
- C. Escrow accounts shall be established in the form of a cash escrow or Irrevocable Letter of Credit, equal to 175% of the approved contract costs of the remaining improvements and the cost to develop as-built plans if not submitted at this time. If the Proprietor elects to provide a Letter of Credit then Proprietor shall also submit the Letter of Credit agreement shown in [Appendix A](#). The Letter of Credit shall have an expiration date of not more than one year from date of issuance. If there is a need to cash a Letter of Credit from a lending institution that is farther than 50 miles from the RCKC office, an administration fee will be added to the project inspection fee, based on the time required and the miles driven, or other appropriate form of transportation (charged at the current government rate), to and from the lending institution to cash the Letter of Credit. See Letter of Credit sample format, [Appendix A](#).
- D. If the Proprietor desires to use the escrow procedure, a letter shall be submitted to the RCKC requesting such action. Specifics pertaining to the request for use of the Escrow Procedure shall be included in the letter. The "who, what, where, when and why" for the request for use of the escrow procedure shall be outlined. The letter shall be submitted a minimum of seven days prior to the scheduled meeting.
- E. If the Proprietor is granted approval of the development using the escrow procedure, the Proprietor shall maintain all roads within the development until construction of the roads has been approved by the County Engineer and the Board grants final acceptance. Maintenance of the roads shall include but not be limited to snow and ice removal and soil erosion and sedimentation control. The Proprietor shall indemnify and hold the RCKC, its agent's officers, Board members and employees, harmless from any claims, which may be made against them for damages arising from the use of roads that have not been accepted into the county public road system. During this period, the Proprietor shall maintain liability insurance in accordance with the Board's [Insurance Requirement Policy](#). A copy of this insurance policy shall be on file at the RCKC. Under the Escrow Procedure, the RCKC will require completion of the development within one year; unless circumstances arise that can justify extending this period. In no case shall this period exceed two years.

IX. SEVERABILITY CLAUSE

If any part of these Procedures, Guidelines, and Specifications for Developing Public Roads are found to be invalid, such invalidity shall not affect the validity of the remaining portions of these Procedures, Guidelines, and Specifications for Developing Public Roads.

X. CONVERSION OF PRIVATE ROADS TO PUBLIC ROADS

All requests to incorporate existing private roads into the RCKC public system shall be in writing. The required plan review fee shall accompany this request. From this initial correspondence, the RCKC will make a determination that it may or may not be a possibility for the RCKC to assume ownership of the road(s). If the determination is a possibility the RCKC staff will examine the road or road(s). In order for the RCKC to examine the road(s), the following documentation, as outlined in the RCKC Procedures, Guidelines and Specifications for Developing Public Roads shall be submitted:

Section IV. PRELIMINARY REQUIREMENTS AND PLAN DEVELOPMENT paragraphs:

- B. Layout
- C. ROW
- D. Connectivity
- E. Intersections
- F. Cul-de-Sacs
- G. Boulevards
- H. Utilities
- I. Non-Motorized Facilities

and Section V. CONSTRUCTION REQUIREMENTS AND PLAN DEVELOPMENT paragraphs:

- A. General Construction Requirements
- B. Utilities
- C. Geometric Road Design Requirements
- D. Road Width Requirements
- E. Road Surface and Base Requirements
- F. Drainage System Requirements
- G. Grading Requirements
- H. Additional Provisions

This documentation shall be signed and sealed by a Professional Engineer assuring that the roads have been built to minimum RCKC requirements. In addition to the required verification pertaining to construction of the road or road system, all required documentation, as stated in the RCKC policy, shall be provided.

XII. TRAFFIC IMPACT STUDIES

The RCKC recognizes the direct correlation between land use decisions and traffic operations. The Permittee's proposed project or development, and its needs for access, will create traffic impacts on the public roads. The intent of these procedures and regulations is to provide a framework for proper evaluation and remediation of those impacts. In order that the RCKC may continue to meet its statutory duty to maintain roads under its jurisdiction in reasonable

repair, so as to be reasonably safe and convenient for public travel, the RCKC may require, as a permit condition, the completion by the Permittee's engineer of a Traffic Impact Study. Details of requirements for a traffic impact study can be found in [Appendix H](#).