CROCKERY TOWNSHIP

PRIVATE STREET

DESIGN AND CONSTRUCTION STANDARDS

DECEMBER 2008

TABLE OF CONTENTS

INTRODUCTION

TO ALL DEVELOPERS, CONSULTING ENGINEERS AND CONTRACTORS:

The Crockery Township Design and Construction Requirements are intended to ensure the use of uniform, adequate, and acceptable construction methods and materials. The Township strives at all times to stay up to date regarding construction engineering developments.

This 2008 Edition is considered the standard requirements that are to apply to work and materials bid or contracted on or after January 1, 2009.

Crockery Township also has ordinances to administer, regulate, and provide additional requirements and regulations related to public and private improvements. Owners, consulting engineers, contractors, and plumbers are encouraged to review the document ordinances for requirements pertaining to private water services, fire lines, and sanitary sewers, private streets and ponds.

Leon Stille, Supervisor
Kathleen Buchanan, Clerk
Judith VanBemmelen, Treasurer
Scott Constantine
Rich Sucheki

CROCKERY TOWNSHIP

PRIVATE STREET
DESIGN AND CONSTRUCTION STANDARDS

INTENT AND PURPOSE

It is the purpose of this section to establish and define the specific details of construction improvements required for project approval. The standards set forth in this document shall be the minimum standards for all private street improvements occurring in Crockery Township. Private Easements established for the purpose of obtaining frontage are called private streets. All private streets shall be built to Crockery Township Design and Construction Standards and Specifications.

The minimum design and construction standards for private streets are as follows:

1. Plan Requirements

A. All Street Plans submitted for approval shall be prepared under the supervision of and be signed and sealed by a Civil Engineer, Registered in the State of Michigan.

B. The name and address of the firm responsible for the preparation of the plans is to be clearly indicated on the plans.

C. The name, address and telephone number of the property owner and applicant (if different from the owner) is to be clearly indicated on the plans.

D. Drawings must be to a scale of 1”=50 scale or larger. (i.e. A drawing with a scale of 1”=40’ will be accepted but a drawing with a scale of 1”=60’ is not acceptable).

E. Show north arrow on all drawings along with an overall site location map indicating adjacent roads etc. The location map is to show the surrounding roads with the project area highlighted.

F. Show a minimum of one benchmark per plan sheet.

G. Plans are to indicate the latest revision date.

H. Property lines, dimensions, and access points of parcels are to be indicated for the lots being serviced by the private street.

I. Clearly label and dimension the proposed property lines, utility easements, ingress and egress easements, and street right-of-way.

J. Provide notes on the construction plans, as needed, to ensure the proposed project will meet the required Township Standards.

K. The location of the existing and proposed pavement and the right-of-way of all streets impacted by the construction of the private street shall be

clearly indicated on the construction drawings. Dimension of the right-of-way, pavement widths, deceleration/acceleration lanes, and radii are to be clearly labeled.

L. Electronic record "as-built" plans from the developer are required in a geographically referenced format compatible with Ottawa County GIS data.

2. General Requirements

A. The standards set forth in this section shall be the minimum standards for streets, intersections and associated utilities.

B. All private streets shall have direct access to a public street.

C. All private streets shall have a recorded permanent right-of-way or easement. The right-of-way or easement shall expressly permit public or private utilities to be installed within the right-of-way.

D. The layout of the private street and the intersections of the private street with either a public or private street shall be such that clear vision, safe turning and travel in all directions at the posted speed limit is reasonably assured.

E. All private streets shall be named and identified as required by the Crockery Township Addressing and Street Naming Ordinance.

F. The street layout shall fit the pattern established by adjacent streets. All existing private streets that terminate at parcel boundaries must be connected with the street system of a proposed adjacent development and/or provide an easement for future extensions of the private street and public and private utilities.

G. The bottom of the aggregate base course is to be set no closer than two (2) feet above the historical high water elevation. Soil borings shall be provided indicating historical high water elevations.

H. Streets will intersect at 90 degrees or closely thereto, and never at less than 80 degrees.

I. Entrance to public roadway will require permit from the Ottawa County Road Commission.

J. In cases where the private street is adjacent to a property line, the vegetation is to be maintained to the maximum extent possible.

K. Three hundred sixty feet (360') distance between intersections of public and/or private streets. This offset may be reduced to 250 feet within the development as approved by the Township and Ottawa County Road Commission.

L. The standards set forth in this document are minimum design standards. It is acceptable to use a higher standard than the minimum specified within each classification.

M. Streets must respect local topography and the alignment of the land.

N. Private Street Rights-of-Way shall not be located within 50 feet of any existing building.

O. Show proposed cross section on the plan indicating details such as widths, depths, slopes, etc.

P. No private street shall extend for a distance of more than 1,000 feet in length from the nearest public street right-of-way as measured along the centerline of the private street, unless direct access is provided thereto from another public street, or if any of the following exist:

i. That there are extraordinary circumstances or unusual hardship pertaining to the use and development of the land, such that a greater length of private street is reasonably necessary.

ii. That another direct access to and from another public street cannot reasonably be provided.

iii. That unless a greater length of private street is permitted, there will be land that cannot be used or developed and that there is no reasonable likelihood of such use or development unless the greater length of private street is approved.

3. Drainage

Private streets shall be constructed to sufficiently control storm water, protect against, or minimize soil erosion, and to prevent damage to the lakes, streams, wetlands, and other significant natural features of the Township. The developer shall submit a Storm Water Drainage Plan including hydrologic and hydraulic calculations along with a topographic map. A lot grading plan with proposed lot elevations shall also be submitted.

A. Show all drainage improvements including but not limited to county drains, ditches, drainage structures, culverts, storm sewer piping, retention basins, detention basins and applicable overflow structures.

B. Culverts will be placed at all natural drainage courses or other waterways.

C. The Storm Water Drainage Plan shall meet the requirements of the Ottawa County Drain Commissioner and the Township Engineer. The Drain Commissioner's office shall review and approve the proposed Storm Water Drainage Plan. Storm run-off calculations for the completed development shall govern drainage designs.

D. The developer shall provide a storm water system to carry a 25-year frequency storm through the subdivision from the tributary area.

E. Ditch slopes at 1V:4H fore slope and 1V:3H back slope. A steeper back slope may be approved as specific site conditions warrant.

F. Storm water management techniques used by the developer shall comply with Best Management Practices (BMP).

G. Closed storm sewer systems are to be designed to convey the 10-year 24-hour storm event. The minimum pipe size for the closed storm sewer system is twelve (12) inches. No surcharging shall be present for the 10-year 24-hour rain event.

H. Storm sewer material is to be reinforced concrete pipe C-76 Class IV or smooth lined corrugated plastic (AASHTO M-294 Type S Polyethylene). All materials must be new.

I. Maximum catch basin spacing within the street: 350 feet

J. Minimum cover over storm sewer: 2.5 feet from top of pipe

K. Storm sewer shall be located on the centerline of the private street.

L. Outlets of storm sewers, ditches, and areas where concentrations of runoff occur shall be protected against erosion by placement of sod, placing riprap, or other means approved by the Township Engineer.

M. Drainage easements shall be a minimum of 20 feet in width.

4. Driveway Culverts

A. Plans are to show the approximate location of proposed drive culverts.

B. Drive culverts are required only if the ditches are designed to convey water.

C. The minimum size of a drive culvert is to be twelve (12) inches.

D. Material: Reinforced concrete pipe C-76 Class IV or smooth line corrugated plastic (AASHTO M-294 Type S Polyethylene). All material installed must be new.

E. Each residential building site is to be serviced with a driveway with a minimum width of 12 feet. Commercial and industrial drive entrances shall be a minimum of 24 feet.

5. Restoration

A. All disturbed areas outside of the gravel or Hot Mix Asphalt Pavement (HMA) limits will be restored with a minimum of 4” of topsoil, seed, mulch, and fertilizer nutrient to produce a close stand of weed free grass.

B. Areas with slopes steeper than 1V:3H shall use mulch blanket in lieu of regular mulch.

6. Construction Materials

Private streets shall be constructed of suitable materials to ensure minimal maintenance and safe passage of vehicles.

A. Granular Material

MDOT Class II. If existing on-site material meets MDOT Class II or Class IIA requirements, no sand sub-base is required.

B. Aggregate Base

MDOT 22A, 22A Modified or 21AA Modified. Crushed concrete, slag or other commonly found non-native aggregates may be substituted for the natural aggregate.

C. Aggregate/Gravel Surface

MDOT 23A Modified. Crushed concrete, slag or other commonly found non-native aggregates may be substituted for the natural aggregate.

D. HMA (Hot Mix Asphalt Pavement)

MDOT Mixture No. 13A, PG 58-28

E. Crown Point of the road to be at the centerline with a 2% cross slope.

F. Where existing sub-grade material is not granular meeting MDOT Class II, a minimum of 12” Class II material will be placed, and sub-grade drainage is to be addressed with the use of sub-grade under-drain or edge drain and proper outlet. The under-drain shall be 6” diameter with parallel systems or 8” minimum diameter with a single line. The under-drain shall be directed to the storm sewer or other positive outlet.

G. Soil Borings are to be submitted with the street plan during the review and approval process. The locations of the soil borings are to be clearly indicated on the drawing submitted. Maximum spacing of the soil borings is every 1000 or closer as field and design conditions dictate. Sub-base correction in addition to that shown on the typical cross sections shall be provided where directed by the Township Engineer.

7. Minimum Design Requirements

A. If a multi-phased development adds lots and falls within the next design category, all pre-existing work within that development must then subsequently meet the required design conditions. Multi-phase projects should always be constructed to the details according to the ultimate project size.

B. All intersection(s) shall have no more than four (4) separate legs.

C. All conduits being used for future utility crossings are to be installed prior to the base course of asphalt. The developer is to coordinate the locations of the conduits with the appropriate utility companies.

D. Corner lots on both the private street and a public road shall not access the public road. All lots on the private street shall have an address on the private street. However, where corner lots are not a part of the private street development, the lot may access either the new private street or the pubic road. If access is to the private street, the owner of such lot is subject to participate in the maintenance of the private street.

E. All utilities including but not limited to gas, telephone, electric and cable are to be run underground within the given utility easement.

F. The method and construction technique to be used in the crossing of any natural stream, wetland, or drainage course, by a private street, shall satisfy the requirements of the Township Engineer and/or any governmental agency having jurisdiction.

8. Private Residential Street Serving 1 to 3 Lots (See Figure 1)

A. The minimum radius for the improved surface of a cul-de-sac radius is 40 feet. Alternates to a standard cul-de-sac are shown in Figure 5 at the end of this section.

B. Right-of-Way

i. A private street shall have a minimum right-of-way width of sixty-six feet (66'), with provisions for all utilities within right-of-way or 10 feet on either side.

ii. Right-of-way width may be reduced to forty feet (40') for a private street that is seven hundred fifty feet (750') or less in length.

iii. A private street terminating in a cul-de-sac shall provide a cul-de-sac right-of-way having a minimum radius of sixty feet (60').

iv. A private street terminating in an approved form of non-circular turnaround (see Figure 5) shall provide a right-of-way for the turnaround that extends a minimum of twenty feet (20') in all directions from the outer edge of the improved aggregate surface of the turnaround; provided, however, that where the private street right-of-way width has been reduced to forty feet (40') under subsection ii, the right-of-way for non-circular turnaround may be reduced to a minimum of ten feet (10') in all directions from the outer edge of the improved aggregate surface of the turnaround.

v. If a private street (a) is equal to or less than seven hundred fifty feet (750') in length from the public street intersection, and (b) provides access to no more than one parcel located in the AG-1, AG-2 or R-1A

District, the minimum road frontage for such parcel may be reduced, in the Planning Commission's discretion, to not less than one hundred fifty feet (150'), provided that such parcel shall meet the minimum width requirement of the applicable zoning district at the parcel's minimum front yard setback line. In determining whether to reduce the required road frontage to not less than one hundred fifty feet (150'), the Planning Commission shall consider the following:

a. Whether the private road will be constructed primarily over lands for which the minimum required road frontage is one hundred fifty feet (150') or less;

b. Whether a reduced minimum road frontage would be consistent with the minimum road frontage that is required for other parcels in the same general vicinity;

c. Whether a reduced minimum road frontage would provide safe vehicular access for emergency vehicles; and,

d. Whether a reduced minimum road frontage would be a detriment to adjacent property, impair the intent and purpose of the Zoning Ordinance, or otherwise impair the public health safety and welfare of the community.

C. Minimum Cross Sectional Requirements

i. Width

a. Aggregate Surface: 20 feet
b. Sand Subbase: 20 feet.

ii. Slope

a. Aggregate surface and sand subbase 2% cross slope.

iii. Depth

a. Aggregate Surface: 6 inches
b. Sand Subbase: 12 inches

D. Maximum longitudinal grade is 6%.

E. There shall be a maximum grade of 1% for a distance of 50' back from edge of public road. There shall be a maximum of 6% slope for a minimum distance of thirty (30') feet back from an intersection of a private street.

F. Existing contours are to be shown on submittal drawing with two (2) foot maximum contour intervals.

G. Thirty-foot (30') cleared minimum maintained area with fourteen foot (14') trimmed height over roadbed. Center of cleared area is to be generally centered on road and right-of-way centerline. Clearing limits may be

modified on a case-by-case basis to ensure an overall pleasing appearance to the final development, while maintaining a safe and functional street.

H. Minimum intersection radius: 25 feet

9. Private Residential Street Serving 4 to 15 Lots (See Figure 2 – Paving Not Required)

A. The minimum cul-de-sac radius is 40' for residential and shall meet the requirements of the Ottawa County Road Commission standards for plat development and public roads. Streets with public water shall have a minimum 95' diameter cul-de-sac to meet fire apparatus turnaround requirements. Alternates to a standard cul-de-sac are shown in Figure 5 at the end of this section.

B. Right-of-Way. Sixty-six foot (66') right-of-way width with provisions for all utilities within right-of-way or 10 feet on either side. Minimum cul-de-sac right-of-way radius shall be 60'.

C. Minimum Cross Sectional Requirements

i. Width

a. Aggregate Base: 24 feet.
b. Sand Subbase: 24 feet.

ii. Slope

a. Aggregate base and sand subbase 2% cross slope.

iii. Depth

a. Aggregate Base: 6 inches.
b. Sand Subbase: 12 inches.

D. Vertical alignment shall have a design speed of 35 mph or greater.

E. Forty foot (40') cleared minimum, maintained area with fourteen foot (14') trimmed height over roadbed. Center of cleared area is to be generally centered on road and right-of-way centerline. Clearing limits may be modified on a case-by-case basis to ensure an overall pleasing appearance to the final development, while maintaining a safe and functional street.

F. Minimum street grade shall be 0.6% and maximum street grade shall be 6%, except that the Township may allow up to 8% maximum street grade, if the applicant submits adequate justification that such grade will not adversely affect public safety. Township may allow grades less than 0.6% if adequate justification that such grade will not cause adverse drainage impacts on adjacent properties and street.

G. There shall be a maximum grade of 1% for a distance of 50' back from edge of a public road. There shall be a maximum of 6% slope for a minimum distance of fifty feet (50') back from an intersection of a private street.

H. Existing contours shall be shown on the drawing with minimum contour intervals of two (2) feet. Significant natural features and other natural characteristic, including but not limited to open space, stands of trees, water bodies, floodplains, rock outcrops, utilities and other topographic features shall be indicated on the private street construction plan sheet.

I. Show street centerline profile indicating proposed and existing centerline elevations.

J. Minimum intersection radius: 25 feet

10. Private Residential Street Serving 16 to 29 Lots (See Figure 3)

A. The minimum cul-de-sac radius is 40' for residential shall meet the requirements of the Ottawa County Road Commission standards for plat development and public roads. Streets with public water shall have a minimum 95' diameter cul-de-sac to meet fire apparatus turnaround requirements. Alternates to a standard cul-de-sac are shown in Figure 5 at the end of this section.

B. Right-of-Way. Sixty-six (66') right-of-way width with provisions for all utilities within right-of-way or 10 feet on either side. Minimum cul-de-sac right-of-way radius is 60'.

C. Minimum Cross Sectional Requirements

i. Width

a. HMA Surface: 24 feet.
b. Aggregate Base: 26 feet.
c. Sand Subbase: 26 feet
d. Gravel shoulder is to be 2' wide

ii. Slope

a. HMA, aggregate base, and sand subbase 2% cross slope.
b. Gravel shoulder: 4% cross slope.

iii. Depth

a. HMA: 330 lbs/syd.
b. Aggregate Base: 6 inches.
c. Sand Subbase: 12 inches.

D. Vertical alignment shall have a design speed of 35 mph or greater.

E. Forty (40') cleared minimum, maintained area with fourteen foot (14') trimmed height over roadbed. Center of cleared area is to be generally centered on road and right-of-way centerline. Clearing limits may be modified on a case-by-case basis to ensure an overall pleasing appearance to the final development, while maintaining a safe and functional street.

F. Minimum street grade shall be 0.6% and maximum street grade shall be 6%, except that the Township may allow up to 8% maximum street grade, if the applicant submits adequate justification that such grade will not adversely affect public safety. Township may allow grades less than 0.6% if adequate justification that such grade will not cause adverse drainage impacts on adjacent properties and street.

G. There shall be a maximum grade of 1% for a distance of 50' back from edge of a public road. There shall be a maximum of 6% slope for a minimum distance of fifty feet (50') back from an intersection of a private street.

H. Existing contours shall be shown on the drawing with minimum contour intervals of one (1) foot. Significant natural features and other natural characteristic, including but not limited to open space, stands of trees, water bodies, floodplains, rock outcrops, utilities and other topographic features shall be indicated on the private street construction plan sheet.

I. Show street centerline profile indicating proposed and existing centerline elevations.

J. Minimum intersection radius: 25 feet

K. Speed limits shall be posted. All signs shall be in accordance with the current Michigan Manual of Uniform Traffic Control Devices and MDOT Construction Specifications.

L. Valley gutters are required on streets with longitudinal slopes of 2% and greater.

M. Concrete Curb and Gutter:

i. Concrete curb and gutter is to be used on all radii and cul-de-sacs when adjacent section consists of an HMA Valley Gutter.

ii. 5½-sack air entrained concrete is to be used on all curbs.

iii. White membrane curing compound is to be placed on all concrete curbing once the free moisture has left the surface. Upon stripping the forms, the remainder of the surface shall be sprayed with the curing compound.

11. Private Street Serving 30 lots or more

A private street or private streets in combination, shall not serve more than 30 separate lots or parcels.

12. Private Commercial and Industrial Street (See Figure 4)

D. The minimum cul-de-sac radius is 50' for Commercial and Industrial and shall meet the requirements of the Ottawa County Road Commission standards for plat development and public roads.

E. Right-of-Way. Sixty-six (66') right-of-way width with provisions for all utilities within right-of-way or 10 feet on either side. Minimum cul-de-sac right-of-way radius is 70'.

F. Minimum Cross Sectional Requirements

iv. Width

e. HMA Surface: 32 feet.
f. Aggregate Base: 36 feet.
g. Sand Subbase: 36 feet

v. Slope

HMA, aggregate base, and sand subbase 2% cross slope.

vi. Depth

d. HMA: 360 lbs/syd.
e. Aggregate Base: 7 inches.
f. Sand Subbase: 18 inches.

N. Vertical alignment shall have a design speed of 35 mph or greater.

O. Forty (40') cleared minimum, maintained area with fourteen foot (14') trimmed height over roadbed. Center of cleared area is to be generally centered on road and right-of-way centerline. Clearing limits may be modified on a case-by-case basis to ensure an overall pleasing appearance to the final development, while maintaining a safe and functional street.

P. Minimum street grade shall be 0.6% and maximum street grade shall be 6%, except that the Township may allow up to 8% maximum street grade, if the applicant submits adequate justification that such grade will not adversely affect public safety. Township may allow grades less than 0.6% if adequate justification that such grade will not cause adverse drainage impacts on adjacent properties and street.

Q. There shall be a maximum grade of 1% for a distance of 50' back from edge of a public road. There shall be a maximum of 6% slope for a

minimum distance of fifty feet (50') back from an intersection of a private street.

R. Existing contours shall be shown on the drawing with minimum contour intervals of one (1) foot. Significant natural features and other natural characteristic, including but not limited to open space, stands of trees, water bodies, floodplains, rock outcrops, utilities and other topographic features shall be indicated on the private street construction plan sheet.

S. Show street centerline profile indicating proposed and existing centerline elevations.

T. Minimum intersection radius: 25 feet

U. Speed limits shall be posted. All signs shall be in accordance with the current Michigan Manual of Uniform Traffic Control Devices and MDOT Construction Specifications.

V. Valley gutters are required on commercial and industrial streets.

W. Concrete Curb and Gutter:

iv. Concrete curb and gutter is to be used on all radii and cul-de-sacs when adjacent section consists of an HMA Valley Gutter and at the intersection radii to county primary, section line and ¼ section line roads.

v. 5½-sack air entrained concrete is to be used on all curbs.

vi. White membrane curing compound is to be placed on all concrete curbing once the free moisture has left the surface. Upon stripping the forms, the remainder of the surface shall be sprayed with the curing compound.

13. Construction Requirements

A. Tolerances and Testing Requirements:

i. Compaction (Based on the Michigan One Point Cone Test). Test results shall be submitted to Crockery Township.

a. Aggregate Base: 98%
b. Aggregate Surface: 98%
c. Gravel Shoulder: 95%
d. Sand subbase: 95%
e. Hot Mix Asphalt Pavement (HMA): 92%-96% of the Theoretical Maximum Density

ii. Tolerances

a. Grade on Subgrade: +/-3/4"

b. Grade on Aggregate Base and Subbase: +/-1/2”
c. Aggregate depth: +/-1/2”
d. Pavement depth:

1) In no instance shall the finished bituminous thickness be more than ½” thinner than plan thickness.

2) The average pavement thickness is to be no more than ¼” thinner than plan thickness.

3) In no case shall any area in a single course of HMA be less than 75% of plan thickness. Areas thinner than this will be removed and replaced at no expense to the Township.

B. Provide load tickets showing date of delivery, quantity of product, type of material, location of source and drivers name for all aggregates, granular material, and HMA product brought to the site. Material shall be provided by a state certified pit or owner may pay an independent laboratory to sample onsite material and provide independent testing proving that the requirements are meant.

C. All castings located within the HMA surface shall be raised to grade between the leveling and the top course of asphalt and shall be adjusted to ¼” below the finished paved surface.

D. Bond coat is to be applied between successive courses of asphalt and to all surfaces that the pavement will be in contact with including existing pavement edges, edges of concrete curb, etc.

E. A minimum of two rollers are to be used for compacting and finishing HMA surface. There shall be no visible roller marks on the finished surface of all courses of HMA.

F. Pavement cores may be taken for density determination if it appears that there is not enough compactive effort being made during paving operations. Cost for testing and repair will be the responsibility of the owner if the tests indicate the pavement surface falls below the specifications listed in this section.

G. Total yield will be calculated based from the area of pavement and the HMA delivery tickets. If the yield calculations warrant, pavement will be cored to determine thickness. Owner is responsible to correct any work that is outside the specified tolerances. A proposed repair/replacement plan or any other alternative is to be submitted to the Township for review within two weeks of notification that the work is not within the required tolerances. No repair work shall proceed prior to authorization by the Township.

H. Contractor is to submit HMA mix design prior to paving.

I. HMA Temperature: Minimum – 250 degrees Fahrenheit.

J. Subgrade is to be proof rolled prior to placing subbase material. Any areas indicating signs of yielding are to be undercut and filled and compacted with material meeting MDOT Class II requirements.

14. Utilities

A. All utilities available at the public street intersection with the private street shall also be provided to the private street; provided, however, that water main is not required to be provided for private streets that are less than seven hundred fifty feet (750') in length, from the public street intersection, and serving a single parcel, upon the condition that the property owner(s) shall prepare and record a restrictive covenant, with form and content satisfactory to the Township, and specifying that the parcel to be served by the private street shall not be further divided. The proposed restrictive covenant shall be subject to approval by the Township attorney, prior to recording. The covenant shall be prepared so as to run with the land, and thereby bind all subsequent owners of the property. After recording of the approved covenant, a recorded copy thereof shall be promptly submitted to the zoning administrator.

B. All utilities shall be provided underground.

C. All utility locations shall be installed per the Ottawa County Road Commission Typical Utility location within sixty-six foot (66') road right of way included in their standards and specifications for plat, condominium, and public road development.

15. Signage

A. STREET NAME SIGNS

All streets will be named, identified, and marked by a sign that that contains the approved name of the street, in accordance with the Crockery Township Addressing and Street Naming Ordinance. Street name signage must be provided at the entry point of private streets to public streets and at all intersections within the development. All signage will be installed at the owner's expense and will be in accordance with the current Michigan Manual of Uniform Traffic Control Devices and the following standards:

i. Signs for private streets leading from a public road shall contain the name or number of the public road and the name or number of the private street.

ii. Private Street signs shall be green with white lettering.

iii. Street name signs shall be installed to the same height and location requirements as stop signs except on the opposing side of the street.

B. STOP SIGNS

i. When traffic is required to stop a STOP sign shall be used.

ii. The STOP sign shall be an octagon with a white legend and border on a red background.

a. Sign Placement - The STOP sign shall be installed on the right side of the approach to which it applies.

b. The STOP sign shall be located as close as practical to the intersection it regulates, while optimizing its visibility to the road user it is intended to regulate.

c. The minimum lateral offset should be nine feet (9 ft) from the edge of the traveled way and no less than two feet (2 ft) from the edge of the shoulder, if one exists.

iii. Stop signs shall be installed to a height of five feet (5.5 ft) measured from the bottom of the sign to the ground at the near edge of the pavement.

a. Where pedestrian movements are likely, the clearance to the bottom of the sign may be increased to not more than seven feet (7 ft).

b. The mounting height may be adjusted when supports are located near the edge of the right-of-way on a steep back slope.

iv. Stop signs should be vertically mounted at right angles to the direction of, and facing, the traffic that they are intended to serve.

v. Signposts, foundations, and mountings shall be so constructed as to hold signs in a proper and permanent position, and to resist swaying in the wind or displacement by vandalism. Stop sign supports shall be breakaway, yielding, or shielded.

16. Private Street Maintenance Agreement

A private street maintenance agreement meeting the requirements of the attached private street maintenance agreement shall be completed and properly recorded with the Ottawa County Register of Deeds. (See Appendix)

Exhibit A: Legal Description of Private Street and Easements

Crockery Township

Private Street Maintenance Agreement

Sample Required Content

Title- "Private Street Maintenance Agreement for_____ Street".

Preamble- The Whereas's…

"This agreement made this _____ day of _____, by the undersigned, all owners of land within the following described":

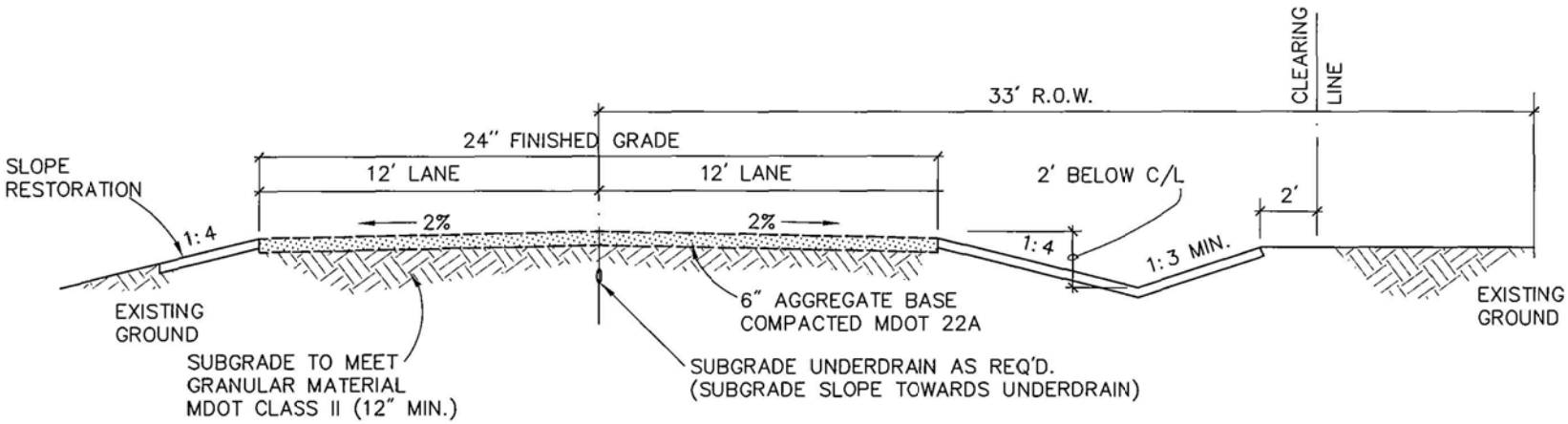
[INSERT LEGAL DESCRIPTION HERE]

1. All undersigned are owners of land which have access to _____ Street, described on attached Exhibit A.
2. Only access to said parcels shall be by said private street.
3. Crockery Township, Ottawa County Road Commission and Michigan Department of Transportation are not responsible for, obligated or permitted to maintain.
4. Private street and drainage ways subject to this agreement are described and shown on a survey recorded in liber _____, page _____, Ottawa County Records, and as described on Exhibit A attached.
5. Private Street will be constructed in accordance with the Crockery Township Zoning Ordinance ("Ordinance") and engineering plans dated _____ prepared by _____.
6. It is the interest of the health, safety, and welfare of the residents of Crockery Township and future parcel owners that the Private Street be constructed and maintained in a safe and effective manner.

Now Therefore, It Is Mutually Agreed as Follows:

1. Private Street Association - Creation of Private Street association, Membership, Voting rights, Election of officers.
2. Annual Meeting - Annual meeting required. Purpose - Elect officers, approve maintenance program and budget for next year.
3. Assessment - Annual assessment required, proportional to share of budget, based on number of parcels owned.
4. Assessment Collection - How assessment will be collected, treasurer responsible, due dates, where funds will be deposited.
5. Failure to Pay Assessment - Recourse(s) available to Association if landowner fails to pay, liens, suits, collection costs.
6. Street and Utility Easement – 66 ft. easement for street and utilities when street is over 750 ft. in length, 40 ft. easement for street and utilities when street is 750 ft. or less in length, access assured to owners, public, utilities and the Township. Minimum cul-de-sac radius to be 60'.

7. Estimate Of Expenses - Estimates required yearly for maintenance of street, Association responsible for securing estimates for grading, drainage, snow removal and base/surface repair.
8. Extraordinary Repairs - Unanticipated repairs, method of assessment collection, Association empowered to take immediate steps to repair.
9. Notice to Township - Association required to notify Township yearly with Association contact, agenda and minutes for annual meeting, proposed and approved maintenance budgets.
10. Maintenance and Repair Work - Association Chair responsible to schedule maintenance, bills paid by treasurer, all work to be in conformance with Township - Approved plans dated_____ and The Crockery Township Private Street Design and Construction Standards specify that township and Ottawa County Road Commission ARE NOT responsible for maintenance of private streets.
11. Remedies - Vested right of Association to take legal actions deemed necessary for violations.
12. Drainage Maintenance - Drainage to be maintained, drainage patterns not to be altered unless prior approval by appropriate governmental authority and Township, owners not to block or alter.
13. Dust Control - (If Applicable) For gravel streets, method & frequency of dust control.
14. Subsequent Owners - Agreement runs with the land, binding on all current and future owners, owner required to disclosed this agreement.
15. Public Street Dedication - Process for future dedication, sole responsibility of Association to comply with Road Commission requirements at that time.
16. Owners Not To Restrict Street Access - Owners prohibited from blocking or hindering use of street.
17. Recording Required - Maintenance Agreement, survey and legal description to be recorded.
18. Copy of Agreement To Be Provided At Closing - Seller required to provide copy of maintenance agreement to each property owner at time of closing.
19. Amendments - Amendments to Maintenance Agreement require Township approval, cannot have effect of reducing or eliminating Association's responsibility for street maintenance.
20. Hold Harmless – Owners shall indemnify and hold Township harmless from any liability, loss, damage, injury or casualty to persons or property arising out of owner's construction, maintenance or use of the Private Street.
21. Signatures.



NOTES:

1) A PRIVATE STREET MEASURING 660 FEET OR LESS IN LENGTH AND SERVING NOT MORE THAN THREE SEPARATE LOTS OR PARCELS MAY HAVE A RIGHT OF WAY MEASURING NOT LESS THAN 40 FEET.
2) MINIMUM CLEARED WIDTH OF 30 FEET
3) PRIVATE ROAD BED OF 20 FEET IS ACCEPTABLE FOR PRIVATE STREETS 750 FEET OR LESS IN LENGTH AND SERVING NOT MORE THAN FOUR SEPARATE LOTS OR PARCELS.
4) MINIMUM CUL-DE-SAC RIGHT OF WAY RADIUS TO BE 60'.
5) WHERE A FIRE HYDRANT IS LOCATED ON A FIRE APPARATUS ACCESS ROAD, THE MINIMUM ROAD WIDTH SHALL BE 26'.

SLOPE RESTORATION

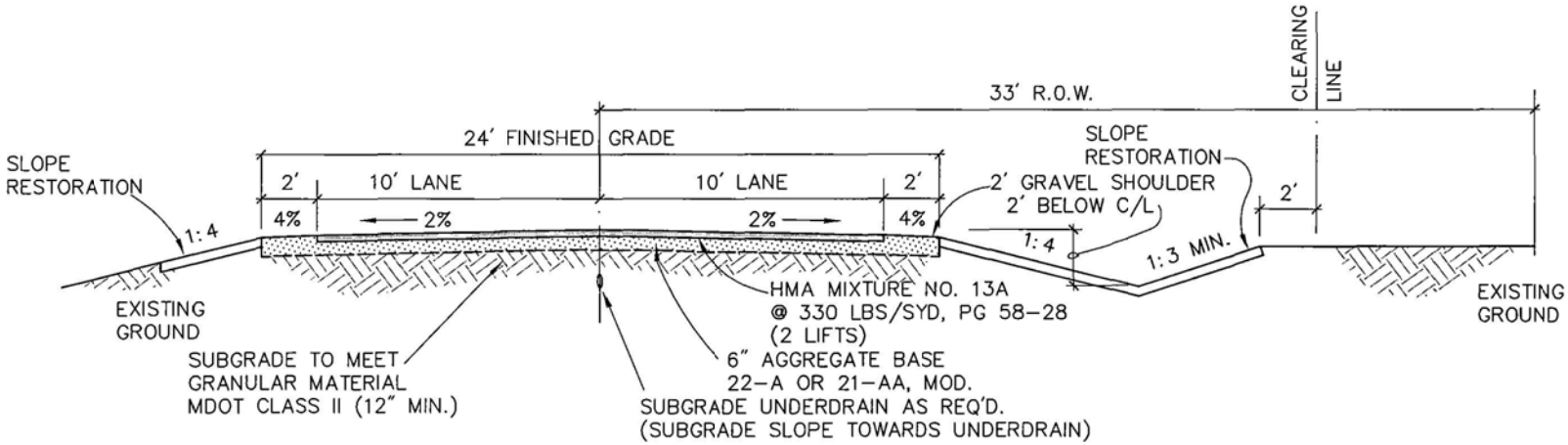
PLACE 4" TOPSOIL, SEED, FERTILIZER AND MULCH

DENSITY REQUIREMENTS

(PER MDOT GUIDELINES)
SUBGRADE -- 95%
AGGREGATE BASE -- 98%

CROCKERY TOWNSHIP CONSTRUCTION STANDARDS

FIGURE NO. 1 TYPICAL PRIVATE RESIDENTIAL GRAVEL STREET



NOTES:

1) A PRIVATE STREET MEASURING 750 FEET OR LESS IN LENGTH AND SERVING NOT MORE THAN THREE SEPARATE LOTS OR PARCELS MAY HAVE A RIGHT OF WAY MEASURING NOT LESS THAN 40 FEET.
2) MINIMUM CLEARED WIDTH OF 40 FEET
3) PRIVATE ROAD BED OF 20 FEET IS ACCEPTABLE FOR PRIVATE STREETS 750 FEET OR LESS IN LENGTH AND SERVING NOT MORE THAN THREE SEPARATE LOTS OR PARCELS.
4) MINIMUM CUL-DE-SAC RIGHT OF WAY RADIUS TO BE 60'.
5) WHERE A FIRE HYDRANT IS LOCATED ON A FIRE APPARATUS ACCESS ROAD, THE MINIMUM ROAD WIDTH SHALL BE 26'.
6) PAVING IS NOT REQUIRED FOR A PRIVATE STREET SERVING LESS THAN 16 LOTS

SLOPE RESTORATION

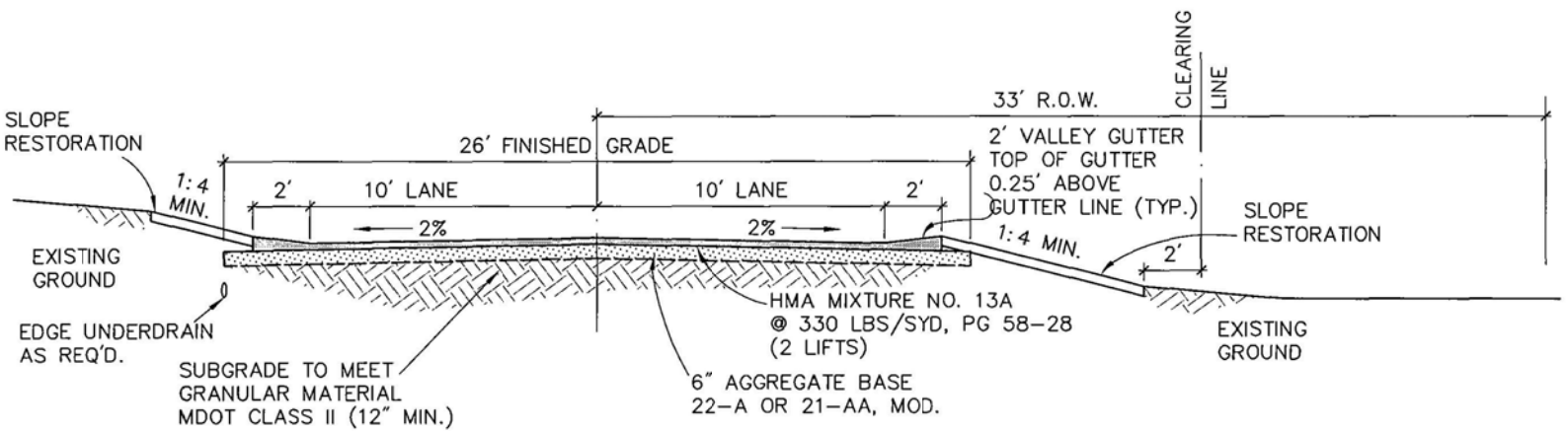
PLACE 4" TOPSOIL, SEED, FERTILIZER AND MULCH @ 100 LBS/ACRE.

DENSITY REQUIREMENTS

(PER MDOT GUIDELINES)
SUBGRADE -- 95%
AGGREGATE BASE -- 98%
BITUMINOUS PAVEMENT -- 98%

CROCKERY TOWNSHIP CONSTRUCTION STANDARDS

FIGURE NO. 2 TYPICAL PRIVATE RESIDENTIAL STREET DITCH SECTION



NOTES:
1) MINIMUM CLEARED WIDTH OF 40 FEET
2) MINIMUM CUL-DE-SAC RIGHT OF WAY RADIUS TO BE 60'.
3) WHERE A FIRE HYDRANT IS LOCATED ON A FIRE APPARATUS ACCESS ROAD, THE MINIMUM ROAD WIDTH SHALL BE 26'.

SLOPE RESTORATION

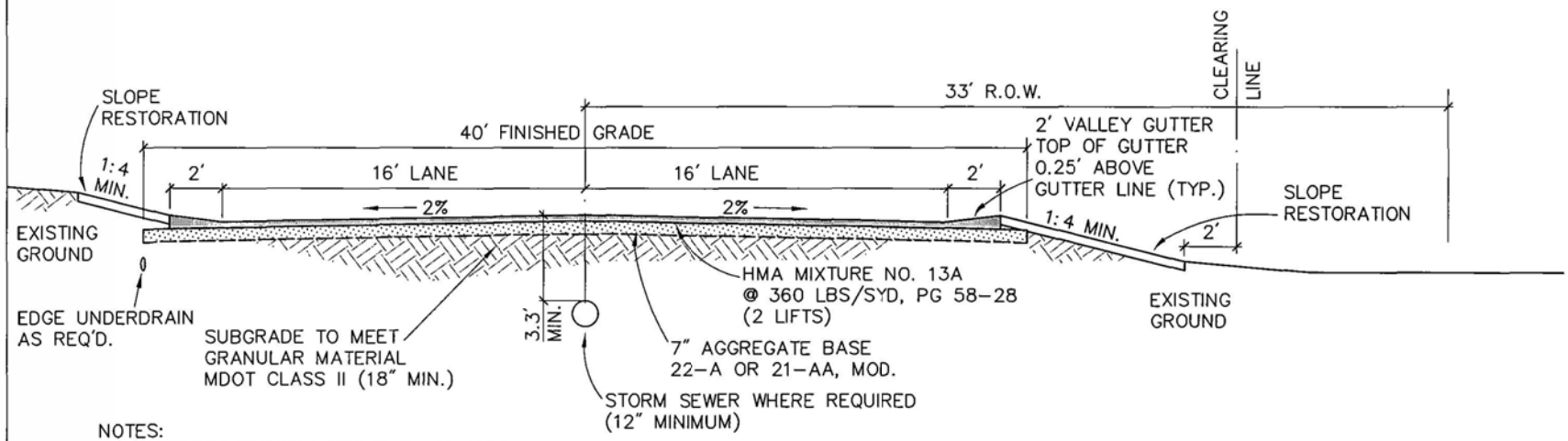
PLACE 4" TOPSOIL, SEED, FERTILIZER AND MULCH

DENSITY REQUIREMENTS

(PER MDOT GUIDELINES)
SUBGRADE -- 95%
AGGREGATE BASE -- 98%
BITUMINOUS PAVEMENT -- 92% - 96% OF THE THEORETICAL MAX. DENSITY

CROCKERY TOWNSHIP CONSTRUCTION STANDARDS

FIGURE NO. 3
TYPICAL HMA VALLEY GUTTER SECTION
PRIVATE RESIDENTIAL STREET STANDARD



NOTES:
1) MINIMUM CLEARED WIDTH OF 40 FEET
2) MINIMUM CUL-DE-SAC RIGHT OF WAY RADIUS TO BE 70'.
3) MDOT F4 – CURB AND GUTTER IS REQUIRED FOR INTERSECTION RADII TO COUNTY PRIMARY, SECTION LINE AND 1/4 SECTION LINE ROADS PER O.C.R.C. REQUIREMENTS.

SLOPE RESTORATION

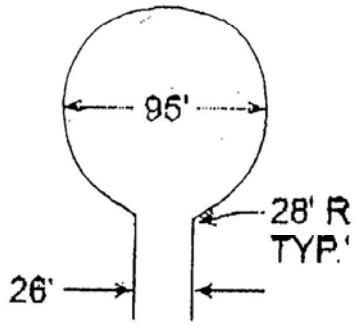
PLACE 4" TOPSOIL, SEED, FERTILIZER AND MULCH

DENSITY REQUIREMENTS

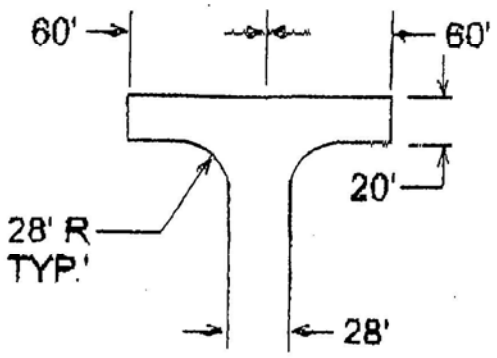
(PER MDOT GUIDELINES)
SUBGRADE -- 95%
AGGREGATE BASE -- 98%
BITUMINOUS PAVEMENT -- 92% – 96% OF THE THEORETICAL MAX. DENSITY

CROCKERY TOWNSHIP CONSTRUCTION STANDARDS

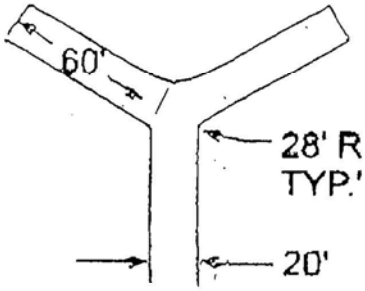
FIGURE NO. 4
TYPICAL HMA VALLEY GUTTER SECTION PRIVATE COMMERCIAL AND INDUSTRIAL STREET STANDARD



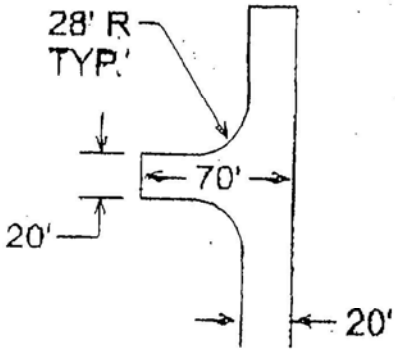
95' DIAMETER
CUL-DE-SAC



120' HAMMERHEAD



ACCEPTABLE ALTERNATIVE
TO 120' HAMMERHEAD



ACCEPTABLE ALTERNATIVE
TO 120' HAMMERHEAD

FIGURE 5: Alternates to Standard Cul-de-sac Turnaround (Residential Use Only)