MIDLAND COUNTY ROAD COMMISSION

Subdivision Regulations

Adopted 8/23/95

PLATS \ PLATSPEC.NH

8-24-95

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RESOLUTIONS

SECTION I - SCOPE OF DOCUMENT

It is the intent of this document to limit itself to the subdivision of lands located outside the corporate limits of incorporated places within Midland County, or to land within incorporated places when they are adjacent to public roads under the jurisdiction of the Board of County Road Commissioners of Midland County, Michigan.

The contents of this document do not supersede Act 288 of Public Acts of 1967, also known as the Subdivision Control Act of 1967, but are regulations established under Section 105 (c) of that Act. This document is intended for use as an instrument to assist and direct proposed plats in Midland County in as much as they involve the interests of the Board of County Road Commissioners of Midland County, Michigan.

SECTION II - DEFINITIONS

(A) THE PLAT ACT

Shall be Act 288, Public Acts of 1967, sometimes known as the Subdivision Control Act, and amendments thereto.

(B) BOARD

The Board of County Road Commissioners of Midland County, Michigan.

(C) COUNTY ROAD COMMISSION ENGINEER

The County Road Commission Engineer, or authorized agent designated to carry out duties as assigned by the Board.

(D) PLAT PROPRIETOR OR PROPRIETOR

A natural person, firm, association, partnership, corporation or combination of any of these, which may hold any owner interest in land either recorded or not recorded.

(E) ENGINEER

The Engineer shall be a registered professional engineer or registered land surveyor employed by the proprietor of a plat, to prepare plans and supervise construction of roads and streets within the plat.

(F) GOVERNING BODY

Shall be the township board of the township within which said plat is located, or the municipal authority when the designated plat falls within the corporate limits of any incorporated community in Midland County and abuts on a road or street under the jurisdiction of and maintained by the Board.

(G) DRAIN COMMISSION

The Midland County Drain Commissioner or authorized agent who shall be responsible for determining the sufficiency of any proposed storm water system.

(H) PRELIMINARY PLAT

Shall be a layout of the proposed subdivision in sufficient detail to allow proper review by the municipality, county engineer and other interested agencies.

(I) THE PLAT

The properly prepared final map of the layout of all or a portion of a subdivision prepared in accordance with provisions and requirements of the Plat Act.

(J) M.D.O.T. SPECIFICATIONS

The current standard specifications for road and bridge construction and supplemental specifications thereto, as may be issued by the Michigan Department of Transportation from time to time.

(K) MIDLAND COUNTY ROAD COMMISSION

Specifications and design criteria published by the board from time to time. When such specifications conflict with those published by the Michigan Department of Transportation, the board's specifications will control.

(L) INSPECTION

The close observation of construction operations and materials to determine the acceptability of completed roads.

(M) A.S.T.M.

American Society For Testing Materials.

(N) A.A.S.H.O.

American Association of State Highway Officials.

(O) M.D.O.T.

Michigan Department of Transportation

(P) RURAL CROSS SECTION

That roadway design, wherever it is used, which provides a traveled surface, road shoulders and valley ditches, or storm sewers.

(Q) S.I. NUMBER

Strength Index Number -- Strength index numbers are comparative values for various construction materials on a per inch of material basis. The values used here are based on information furnished by A.A.S.H.O. and the various technical societies and associations. See Table II of Appendix for more detailed information.

(R) U.S.G.S.

United States Geological Survey.

(S) U.S.C.& G.S.

United States Coast & Geodetic Survey.

SECTION III - PROCEDURES AND GENERAL PLATTING REQUIREMENTS

(A) Compliance with Section 113 of the Plat Act by submission to the Road Commission Engineer of three (3) copies of the preliminary plat which shall have sufficient topographic detail to show direction of drainage and proposed width of all roads presently under or to come under the jurisdiction of the Board.

(B) In accordance with the Subdivision Control Act, Section 113(3) the County Road Commission within 30 days of receipt of the preliminary plat shall approve it and note its approval on the copy to be returned to the proprietor or reject it. If rejected, the reasons for rejection and requirements for approval shall be given the proprietor in writing.

(C) Review of a final plat.

(D) Inspection and approval of construction.

(E) Final plat shall be submitted to the Board within two (2) years after review and approval of preliminary plat and construction of all streets shall be completed within one (1) year after approval of the final plat. Failure to comply with these time requirements shall make the plat subject to any modifications or upgrading of construction specifications and rules which might have been established by the Board subsequent to either the preliminary or the final plat stages. This time frame may be modified by written appeal to the Board and their formal authorization.

SECTION IV - PROCEDURE IN DETAIL

(A) Preliminary Plat

The preliminary plat shall meet the following requirements:

(1) Shall show the locations and extent of the property.

(2) Shall show plat dimensions on the portion of layout for which approval and recommendation is requested.

(3) Shall give location of the plat with regard to the portion of section and township in which parcel is situated.

(4) Shall show location and names of proposed streets, approved by the Housing Commission, together with the drainage arrows.

(5) Shall show or be accompanied by a location map showing the plat in relation to the existing county road system and all such governing situations as:

(a) Adjoining subdivisions and streets.

(b) State trunklines highways which shall identified by number.

(c) Rivers, natural water courses, existing county drains, sewers and cross culverts on existing roads.

(d) Railroads, cemeteries and parks.

(e) All other features, the location and existence of which might influence the plat layout.

(B) Final Plat

Before a final plat may be submitted to the Board for approval, the proprietor through his engineer shall submit a copy to the Road Commission Engineer containing all information necessary to assure its approval by the Board. It shall be submitted no less than fourteen (14) calendar days previous to the Board meeting at which final approval will be requested.

The following information must accompany submission of the final plat:

(1) A location map showing the streets and roads in the area and the relationship of the streets within the subdivision to the existing road system.

(2) Typical cross sections of the streets to be constructed, indicating the kind of construction and right-of-way widths. Construction shall comply with "Requirements and Specifications for New Street Construction of the Board of County Road Commissioners of Midland County, Michigan."

(3) The names of the proprietor and his engineer and their addresses and telephone numbers shall be included on construction plans.

(4) All streets and highways which are extensions of, or in line with existing streets, must carry the names of those in existence. Other streets and highways shall be given such names as the owner may choose, subject to the approval of the Housing Commission.

(5) Half width streets will not be accepted in the future except where currently approved plats have provided for corresponding half streets. This shall not prohibit platting to the center of an existing road.

(6) Road plans submitted must show plainly the following information, and must be submitted on standard FAS plan and profile sheets (24" x 36").

(a) Plan view with centerline and top of curb right and left in profile directly below (ditch profile, if no curb and gutter).

(b) Typical cross section of road to be constructed and cross sections of any unusual areas.

(c) Grades shall coincide with datum determined by the U.S.G.S. or U.S.C. & G.S., if this datum exists within one (1) mile of the project. One or more permanent bench marks shall be established in the plat and shall be shown on plans.

(d) The location, size, and depth of all underground structures used for drainage within the plat, and all other utilities.

(1) Show clearly the size, length, and locations of all cross road culverts.

(2) Show locations and type of inlets and cleanout points for all underground drainage systems.

(3) Show standard plans for all catch basins, inlets, manholes, etc. This may be done by references to M.D.O.T. Standard Plans.

(4) Show locations and profiles of all drains outside of roadway area to be utilized for roadside drainage.

(7) Such plans shall be prepared under the supervision of, and sealed by a civil engineer, registered in the State of Michigan. No construction of subdivision streets will be approved unless it is based on plans so prepared.

(8) Financial guarantee and other provisions:

(a) Final plat submission before subdivision street construction.

(1) Submission shall be accompanied by a cash deposit, certified check, or an irrevocable letter of credit drawn on a form generally acceptable, and by a financial institution familiar to the Board.

(2) All surety provided shall exceed by 10% the amount indicated in the engineer's detailed estimate which shall accompany said surety and shall show all items of work and material involved in construction.

(3) When the proprietor chooses to provide surety in form of cash deposit, bond or letter of credit the Board will reduce to the proprietor as work progresses amounts equal to the ratio of work completed to the entire project if the proprietor provides revised bond or letter of credit to the Midland County Road Commission as provided for in the Subdivision Control Act of 1967, being Section 560.183 (3) of the Compiled Laws of the State of Michigan. When the balance on hand reaches 10% of the total estimated cost or a minimum of $2,000, that amount will either be retained as surety to guarantee proper correction and repairs of streets for a period of one year following the date of acceptance by the Board, or will be exchanged for other satisfactory surety.

(4) Inspection and administrative fee.

A fee in the amount of 2% of the engineer's estimate of all that portion of the street construction bonded to the Board, shall be paid to the Board prior to construction and final plat approval. This fee is to cover administrative and inspection costs incurred by the board in relation to the plat, and will not be returned. The inspection covered by this fee is solely to inform the Board of the progress and quality of work being done and in no way relieves the proprietor of his responsibility to supervise and inspect work being done for him. It is not intended that inspection performed by the Board or its staff is to be a substitute for the inspection performed by the proprietor's engineer. The Board takes no responsibility for the quality of work being performed as a result of its inspection.

(5) After construction of streets has been completed and such construction has been approved by the Road Commission Engineer, and recommended to the Board for inclusion in the county system, the subdivider shall provide surety in the amount of 10% of the engineer's estimate of construction costs or a minimum of $2,000. This surety shall run for a period of one (1) year from the date of acceptance of the streets for maintenance purposes by the Board. Upon receipt of this surety, the Board will release all previously supplied surety guaranteeing street construction. This 10% surety is provided to guarantee the repairs to the streets should any fault develop within this one (1) year period because of faulty materials or construction methods used in the construction of the streets. Developer will have opportunity to fix; if not, surety is used.

(b) Submission of final plat after subdivision street construction is completed.

(1) Submission shall include a statement from the engineer that streets have been completed in accordance with plans presented at the time of final plat submission. Such plans shall show streets as constructed and that such construction is in compliance with recommendations of the Board as published, and enforced at the time of construction, and shall be accompanied by an estimate as indicated in IV, B-8, a-2.

(2) A cash deposit, certified check, surety bond or irrevocable letter of credit to the amount of 10% of the actual cost of construction or a minimum of $2,000, running for a period of one (1) year from the date of plat approval by the Board shall be submitted to the Board before said plat will be signed. Said 10% surety shall be for the purpose of assuring the repairs, should any repairs during this one (1) year period be necessary because of faulty construction materials or methods.

(3) A fee in the amount of 2%, as indicated in a-4, shall be paid to the Board when the plat is requested. This fee will be based on the engineer's estimate or records kept by the engineer and available to the Board for examination. No plat will be approved in which street construction has been completed unless the Board has been kept informed of the progress of the street construction so that its construction may have been properly inspected by the Road Commission Engineer or his staff.

(9) Whether final plat submission is made before or after street construction, it shall be the responsibility of the engineer to provide all necessary information and data to properly inform surety as to progress of construction, dates of completion and construction costs, when such requests are made.

(10) Street name signs shall be erected at all street intersections, and shall be of the size and type as specified by the Board. Also, all streets in the plat shall be signed as required by the "Michigan Manual of Uniform Traffic Control Devices." Private streets shall be signed as such at all entrances. At the time of the final approval of the plat the proprietor shall pay to the Board, in cash, the amount necessary to furnish and place all warranted traffic control and street signs. The Board will then install the street signs as soon as practicable.

(C) RIGHT-OF-WAY REQUIREMENTS & SPECIAL PROVISIONS

(1) Right-of-way provisions for state and federal trunklines shall be that required by the M.D.O.T.

(2) All platted subdivision streets shall be a minimum of 66' wide unless the platted streets have functional use greater than residential access or secondary collector.

(3) Right-of-way provision for existing streets on which the proposed plat abuts or extensions of survey line streets and roads, shall conform to the functional requirements indicated in Plate I and Table I of Appendix. (66' all other roads, 86' all mile roads, 150' state trunklines)

(4) All dead end streets shall provide a turn-around (cul-de-sac) with minimum external diameter of 150 feet (120' when curb and gutter is provided). 66' x 30' "T" ends will be allowed on streets where future extension is expected. See Plate IV of Appendix.

(5) Boulevard sections shall be permitted at the main entrance to a plat development. Boulevard sections shall not exceed 300 feet in length. Street width on each lane of boulevard shall be no less than twenty (20) feet. The Road Commission does not maintain boulevard medians. Other boulevard sections will require a variance issued by the Board.

(D) CONSTRUCTION PROCEDURE

A systematic procedure of construction shall be followed to eliminate disagreement between the Board and the proprietor and/or his agents.

(1) The developer should make every effort to install all available underground utilities before or after rough grading has been completed and before construction of finished surface.

(2) Undesirable top soil shall be removed from the roadway. All frost heave material shall be removed. Sub-grade undercut shall be made if soil conditions indicate necessity. Construction with frozen materials will not be approved.

(3) All street name signs are to be shown on construction plans.

(4) Necessary permits must be obtained from the Road Commission Engineer and the Drain Commission by the contractors for any construction within the right-of-way of existing roads. (i.e. Soil Erosion & Sedimentation Permit)

(5) Inspection by the Board does not relieve proprietor's engineer of his responsibility and obligations, it is done to provide the Board with first hand knowledge of construction procedures and suitability of results.

(6) The proprietor's engineer shall set and check grade and alignment; shall inspect and approve materials incorporated in street and drainage construction; shall supervise all construction within the street right-of-way and drainage easements.

(7) The Board, acting through the Road Commission Engineer or his staff, reserves the right to halt construction at any time, when in their opinion the specifications and regulations of the Board are not being compiled with.

(8) Upon completion of construction, the proprietor's engineer shall submit with his letter of acceptance and request for maintenance by the board, one (1) set of "as constructed" plans and project dimensions. If unavailable at the time acceptance is requested, the engineer shall indicate when they will be provided.

(E) BOARD APPROVAL OF PLAT

The Board will approve and sign the plat after one of the following conditions have been met:

(1) Upon submission of all proper documents as previously indicated, surety bond, cash deposit or irrevocable letter of credit guaranteeing completion of construction and inspection fees (see B-8-a of this section).

(2) After construction of all roads, streets and drains are completed, and the necessary conditions to qualify them for maintenance by the Board have been complied with, and the necessary maintenance bonds and inspection fees have been submitted (see B-9 of this section).

SECTION V - DESIGN STANDARDS AND CONSTRUCTION METHODS

Road shall be designed and construction methods shall be used which meet the following standards and criteria:

Any minimum standards imposed by the governing bodies of the townships wherein the construction occurs which exceed these standards shall be complied with. Certain design cross sections which are typical of various kinds of construction are included in the Appendix. These typical sections are not exclusive. All design will be based on the use of strength index numbers for various materials and combination of materials. Minimum total accumulative strength indexes established for each type of design will be controlling factors. Certain minimum thicknesses of various materials are established and must be met when those materials are used. Surface may be bituminous aggregate or concrete and may conform to either rural or urban type cross sections. The proprietor through his engineer, shall make a good and sufficient evaluation of subgrade conditions in all areas where roads and streets are to be constructed. At the time he submits construction plans for approval he shall provide boring data and soil analysis indicating the kind and nature of soils to a depth of at least 3' below plan grade. In all instances where existing soils show a 50% or greater silt content and a plasticity index greater than 10, sub-grade undercutting to a minimum depth of 3' below plan grade will be required. The excavated area shall be filled to the bottom of subbase as required for the type of surface to be constructed with sound earth which shall be compacted in layers of 12" or less to a 95% optimum density (Proctor) and which shall not contain more than 50% silt with a plasticity index of less than 10. A 6" tile under drain shall be installed if granular material Class
II is used or if positive drainage cannot be obtained.

(A) GRAVEL BASE - S.I. 2.36

Roadways constructed with the intent of providing a gravel base material shall have a minimum compacted gravel thickness complying with Table II. Subbase material shall be carried to ditch slopes.

The roadway sub-base material shall be granular material conforming to current M.D.O.T. specifications for Class II material. The surface may be crushed stone or natural gravel with gradation meeting M.D. O. T. specifications 22A which shall be a minimum of 22' wide and shall be placed in layers compacted to 98% optimum density (Proctor). The road shoulder shall be stabilized in a manner adequate to carry occasional vehicular traffic and be resistant to erosion. Shoulder slope shall be at the rate of 3/4" per foot. Conditions relative to paving indicated in Section IV, B-6, Plate I & II will apply.

(B) BITUMINOUS SURFACE IN RURAL CROSS SECTION - S.I. 3.14

Bituminous concrete or bituminous aggregate wearing course shall meet respective M.D.O.T. standards and specifications. The acceptable rate of application will be dependent on base and subbase material used. Minimum application shall be at least 275# per Syd. on crushed stone or natural gravel base and a minimum of 165# per Syd for any one lift.

Aggregate base course shall have a minimum depth of 6" and shall be applied as indicated in Section V-A, which shall consist of crushed stone or natural gravel meeting M.D.O.T. specifications for 21AA or equal.

Deep base asphalt shall consist of material passing the following gradation:

1"	100%
3/4"	90-100%
3/8"	60-90%
#8	20-65%
#30	20-40%
Loss by wash	0-7%

The minimum amount of asphalt shall be 4% weight, unless in the opinion of the Road Commission Engineer, it must be higher because of aggregate gradation. The bituminous aggregate base course shall be placed in lifts of no less than 1½" or greater than 3". Each course shall be rolled by a steel roller for breakdown rolling. A pneumatic type roller with capacity of providing contact pressures of at least 60 p.s.i. will be used for intermediate rolling and a steel roller used for finish rolling. Vibratory rolling may be substituted for breakdown and intermediate rolling provided the vibrator is not in operation when the roller is standing. See Plates II & III of Appendix.

(C) CONCRETE PAVEMENT - S.I. 3.60

Where concrete roadway is constructed without curb and gutter, it shall meet the width requirements for bituminous aggregate. Sub-grade shall be compacted with pneumatic or steel wheeled rollers weighing no less than eight (8) ton or appropriate vibratory rollers. If adequate compaction of sub-grade cannot be achieved so that paving operations proceed on a firm and stable surface, aggregate base course meeting the requirements of M.D.O.T. 21AA shall be placed to a minimum depth of 4" and this material shall be compacted to 100% density (Proctor) or Michigan cone.

A tail drag shall be required immediately ahead of the paving operation. A mechanical finishing machine will be required which is capable of compacting and striking off the concrete with a screeding and troweling action. The finishing machine need not be self-propelled. In areas where a mechanical finishing machine cannot be used, hand finishing methods may be applied. When striking off and consolidating by hand methods, the concrete shall be approximately level when struck off, to such an elevation that when properly consolidated this surface will conform to the required finish grade. The entire area of the pavement shall be consolidated by the use of a vibratory strike board or screed, to insure a minimum of voids.

Contraction joints must be sawed except with special permission of the Road Commission Engineer. The contractor may install styrofoam joints for full width of the pavement using a steel template, at no greater than sixty (60) foot intervals. Only full width material will be allowed. These joints will be hooked and sealed before completion.

In the event that a pour must be stopped for more than thirty (30) minutes and it is located in the center 1/3 between joints, a keyed construction joint with tie bars will be required. This joint must be edged and sealed.

(D) CONCRETE RESIDENTIAL CROSS SECTION

Urban cross section shall provide a curb construction which shall be a minimum of 27' back to back of curb for both independent curb and gutter and integral curb (where concrete surface is provided). Curb design for concrete curb and gutter shall conform to Plate II of Appendix detail or such modification as may be approved for specific location. Curb may be constructed by any approved method, including continuous extrusion. Integral curb shall provide a minimum of 12" depth at back of curb.

(E) BITUMINOUS ROADWAY SURFACES

Where curb and gutter with bituminous aggregate surface is constructed, the bituminous material shall be placed no sooner than thirty (30) days after base construction nor later than six (6) months. Construction procedures as provided in Section V-B shall be followed.

(F) CONCRETE ROADWAY SURFACES

Concrete design requirements shall be as indicated in V-C & D.

(G) INDUSTRIAL AND COMMERCIAL CONSTRUCTION

In general the construction practice procedures indicated above will be followed when constructing industrial or commercial all-season streets. On curb and gutter cross sections a minimum of thirty six feet (36').

Where curb and gutter is not to be provided, a minimum of thirty two feet (32') wearing surface and six feet (6')Class AA shoulders will be constructed. The construction design will provide a total S.I. value of 7.02 or greater and a minimum of 9" reinforced or non-reinforced concrete where concrete pavement is constructed, or 460# of bituminous aggregate in accordance with M.D.O.T. specs or higher will be provided when bituminous construction is used on stone or aggregate base. See Plates V & VII of Appendix.

(H) GENERAL CONSTRUCTION PRACTICE

In all subdivision street designs, all undesirable soil shall be removed from the roadway. All fill soil shall be compacted according to approved methods. All trees, brush, shrubs and stumps, and all other organic material shall be removed from the area between the back edge of gutter lines on rural cross section design and within the area lying between lines ten feet (10') behind the curbs on urban cross sections. No subdivision street construction will be approved if unsatisfactory or frozen materials have been used. Edge drains shall be installed in all locations, both rural and urban cross sections, where sub-soil drainage, in the opinion of the Road Commission Engineer, is inadequate. Such drains to be minimum 6" perforated slotted plastic pipe, laid in at least 24" of granular material, Class I.

(I) WEATHER LIMITATIONS

The following limitations shall apply to concrete and bituminous construction on all subdivision streets:

(1) Concrete weather and temperature limitations

(a) Protection against rain - Precautions will be taken as necessary to protect fresh concrete from damage.

(b) Cold weather - Concrete shall be protected from freezing until it has attained at least 20% of its design strength. Any concrete injured by frost action shall be removed and replaced.

(c) Cold weather limitations - No concrete shall be placed unless the temperature of the air shall be 25° and rising, without specific approval of the Road Commission Engineer.

(2) Bituminous aggregate construction shall occur between May 15th. and Nov. 1st. After Nov. 1st. (as per M.D.O.T. 4.13.06) construction will not be approved unless special permission of the Road Commission Engineer is obtained.

(J) CUL-DE-SAC AND DEAD END STREETS

(1) If, in the event a subdivision design necessitates the construction of a cul-de-sac in order to properly utilize the area, then such cul-de-sac shall be so designed as to provide a minimum outside radius of forty five feet (45'). If an island is constructed, a maximum island radius of twenty-three feet (23'). Alternate cul-de-sac shapes, other than circles, will be approved provided these minimum turning limitations are met. See Plate IX of Appendix. The Road Commission does not maintain islands.

(2) Squared dead ends will be approved whenever street extension at some future date is probable, however, a "T" must be provided at the street end on any such dead end street which extends in excess of 250' from the nearest intersection. The provided "T" shall extend thirty three feet (33') each way from the center line of the dead end street at its extreme end and shall provide a width on the crossing equal to the design width of the street.

(3) It is recommended by Midland County Road Commission that the length of a cul-de-sac is not to exceed 1/4 mile (1,320'). However, the actual allowed length shall be as desired by the township. (Added 10-8-97)

(K) DRAINAGE

(1) Storm drainage shall be established through the County Drain office and it shall be a portion of a county drain except on existing county roads. When a county drain is established, those portions of the following paragraphs that relate to carrying street water into the county drain shall apply.

(2) All streets shall be provided with facilities for adequately draining surface in compliance with the specifications of the Board. Street construction plans shall indicate the disposition of storm sewers to the nearest adequate functioning county drain.

(3) All storm sewers within the subdivision which are enclosed shall conform to the then current standard specifications for construction for the Michigan Department of Transportation.

(a) All construction shall be so designed as to provide a minimum thirty six inches (36") of cover on roadways and road shoulders, and shall provide no less than twenty four inches (24") on all other locations.

(b) All storm drainage shall be designed to provide sufficient area to handle anticipated increased in flow caused by future extensions, etc. In the event any question arises concerning capacity of area, the proprietor's engineer shall provide calculations used to determine recommended size.

(c) Capped leads from the storm sewer to the property line shall be provided for each lot, or some other approved solution, to provide for future housing construction.

(4) Catch Basins

(a) Shall be provided per design of road intersections, and shall be spaced at a distance no greater than 300'. Catch basins shall be constructed according to Plate V of Appendix, or shall be precast catch basin units, providing minimum 18" sump. If use of such units is approved by the Road Commission Engineer.

(b) When catch basins are not placed directly on storm sewer, manholes conforming to Plate VI of Appendix shall be installed at street intersections and at a distance not greater than 400' apart.

SECTION VI - VARIANCE

A person may seek relief from the provisions of these regulations by petition to the Board. Such variance may be granted only by a showing of hardship, exigent circumstances or impossibility of compliance through no fault of the proponent.

SECTION VII - SERVICEABILITY CLAUSE

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

TABLE I

FUNCTIONAL CLASSIFICATION OF HIGHWAYS AND STREETS

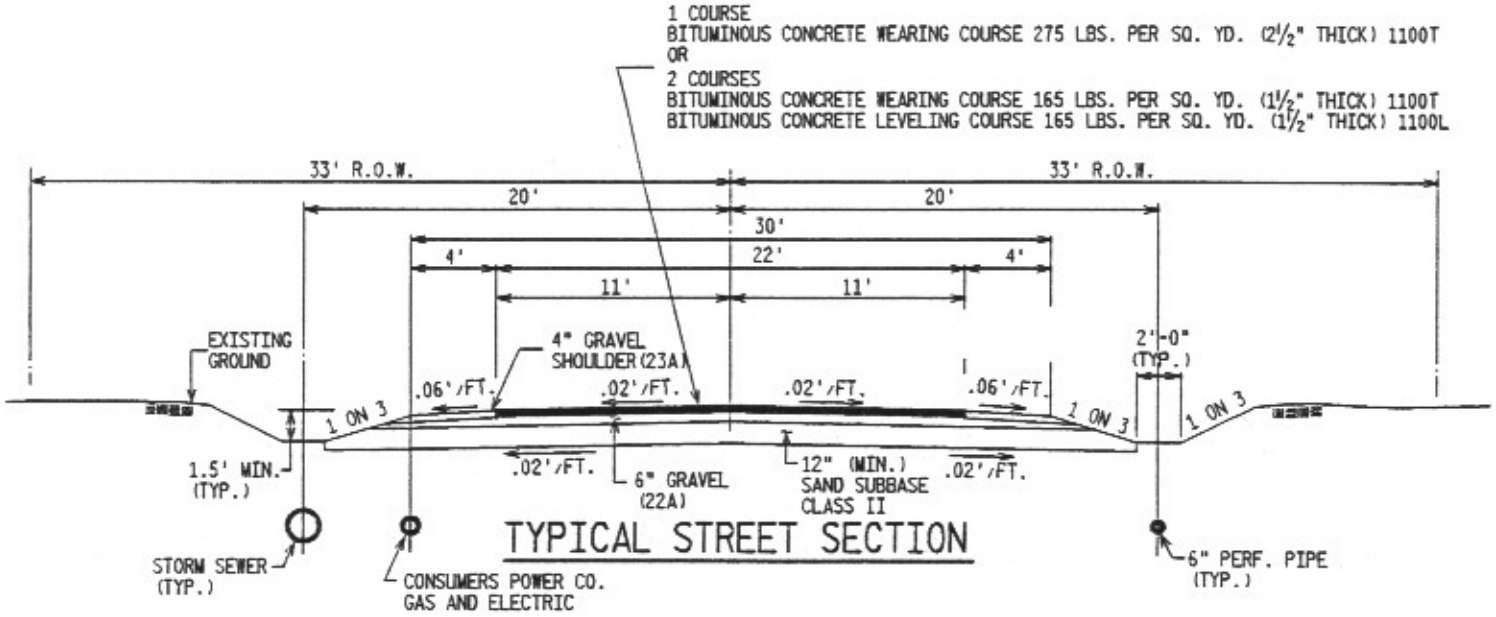
CLASSIFICATION	PRIMARY SERVICE FUNCTION	ACCESS CONTROL	DESIRABLE OPERATING SPEEDS (MPH)	RIGHT-OF-WAY
ARTERIAL SYSTEM				
Statewide Arterials	Through traffic	Full or none	45 - 55	150' - 320'
Regional Arterials	Through traffic, limited land service	Usually none	30 - 45	120' - 150'
Metro-Area Arterials	Intra-area traffic, connect other arterials, moderate level of land service	Usually none	30 - 45	120'
Local Arterials	Lesser arterial service at local level, more emphasis on land access	None	30 - 45	96'
COLLECTOR SYSTEM				
Principal Collectors	Connect local systems to arterials	None	25 - 40	86' - 96'
Secondary Collectors	Connect local systems to arterials and other collectors	None	25 - 35	66' - 86'
LOCAL ROAD AND STREET SYSTEM				
Residential	Access to residences	None	20 - 25	66'
Local Access	Land service, local access	None	20 - 25	66'
Industrial-Commercial	Service to industrial and commercial land areas	None	20 - 30	66'

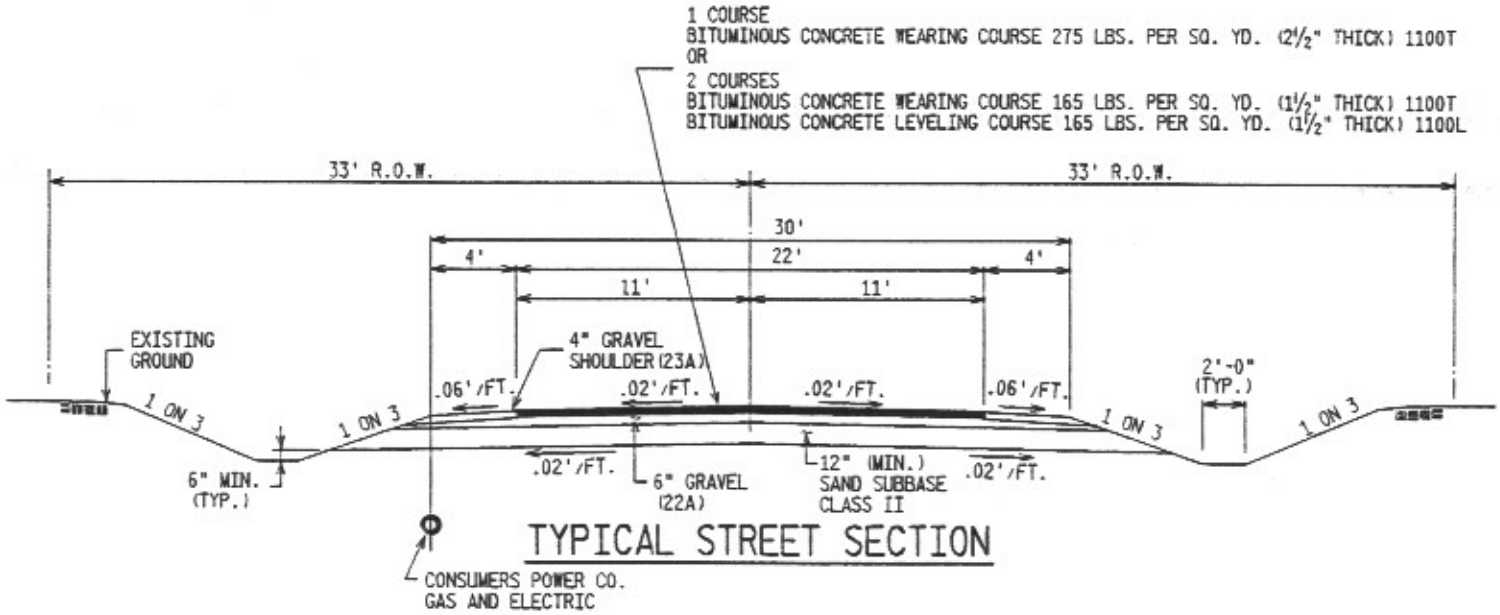
TABLE II

STRENGTH INDEX OF CONSTRUCTION MATERIALS PER 1" THICKNESS

CONCRETE		.60
ASPHALTIC CONCRETE 4.12		.42
BITUMINOUS AGGREGATE 4.11		.40
DEEP BASE ASPHALT	< 6"	.32
	> 6"	.25
STONE BASE		.16
21AA & 22A GRAVEL		.13
CLASS II SAND		.11

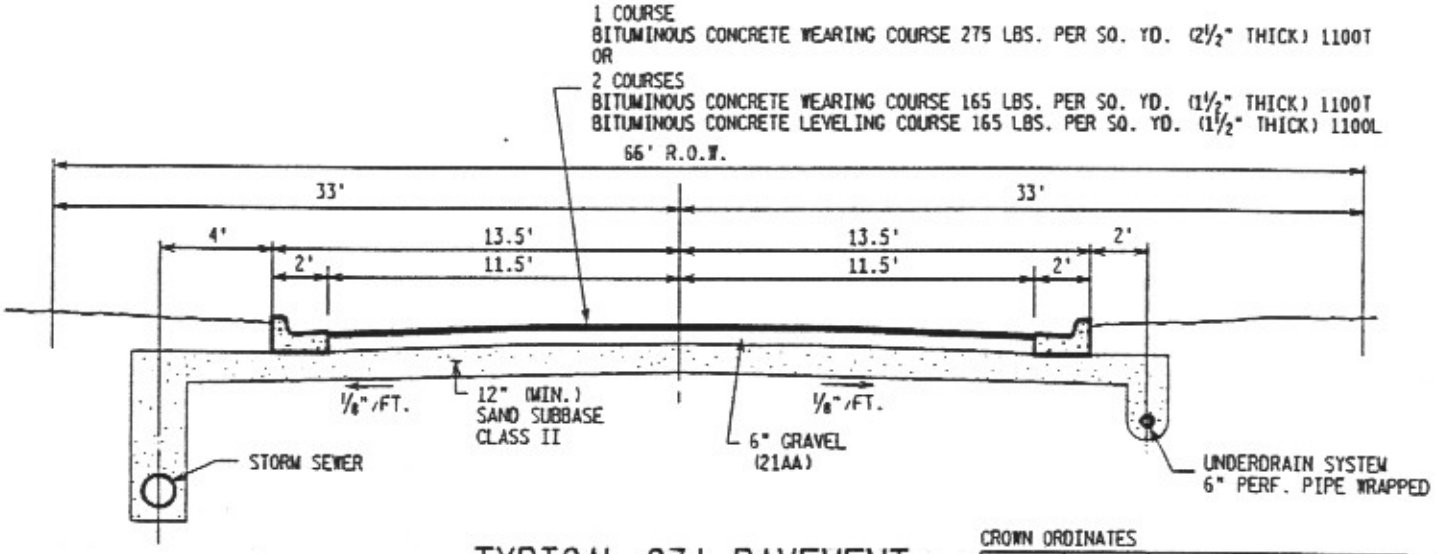
Material not included above will be considered. When the proprietor proposes to use other materials he shall provide, through this engineer, a proposed index number and sufficient data from recognized sources to support his proposal.





NOTE: Any ditch which is not a part of a county drain system shall have a 1 on 3 slope front and back. All others shall be as directed by the Midand County Drain Commission.

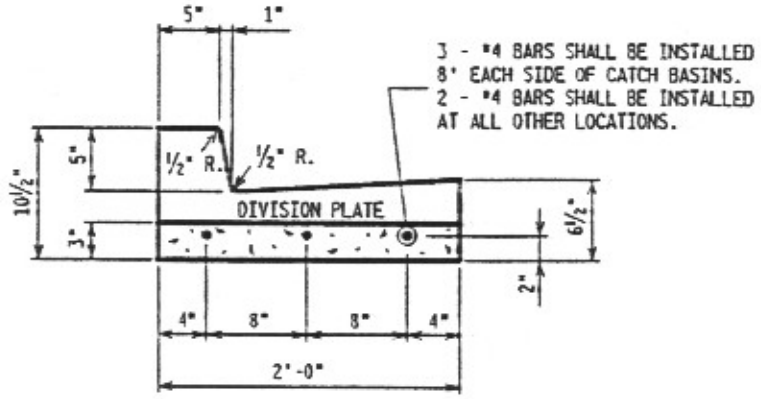
PLATE I



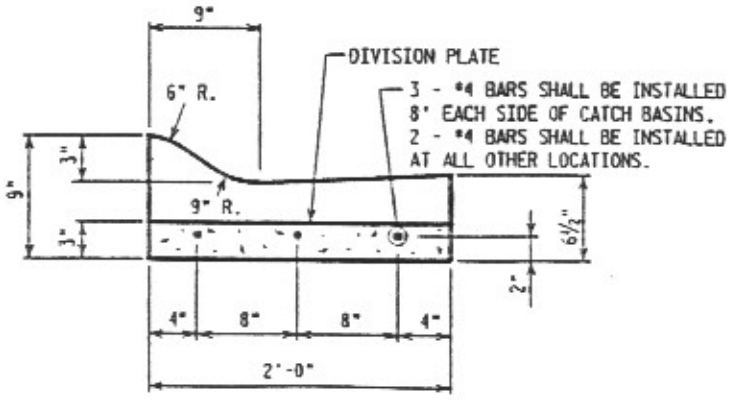
TYPICAL 27' PAVEMENT

CROWN ORDINATES

℄	3'	6'	9'	11.5'
0.00'	0.06'	0.12'	0.18'	0.23'



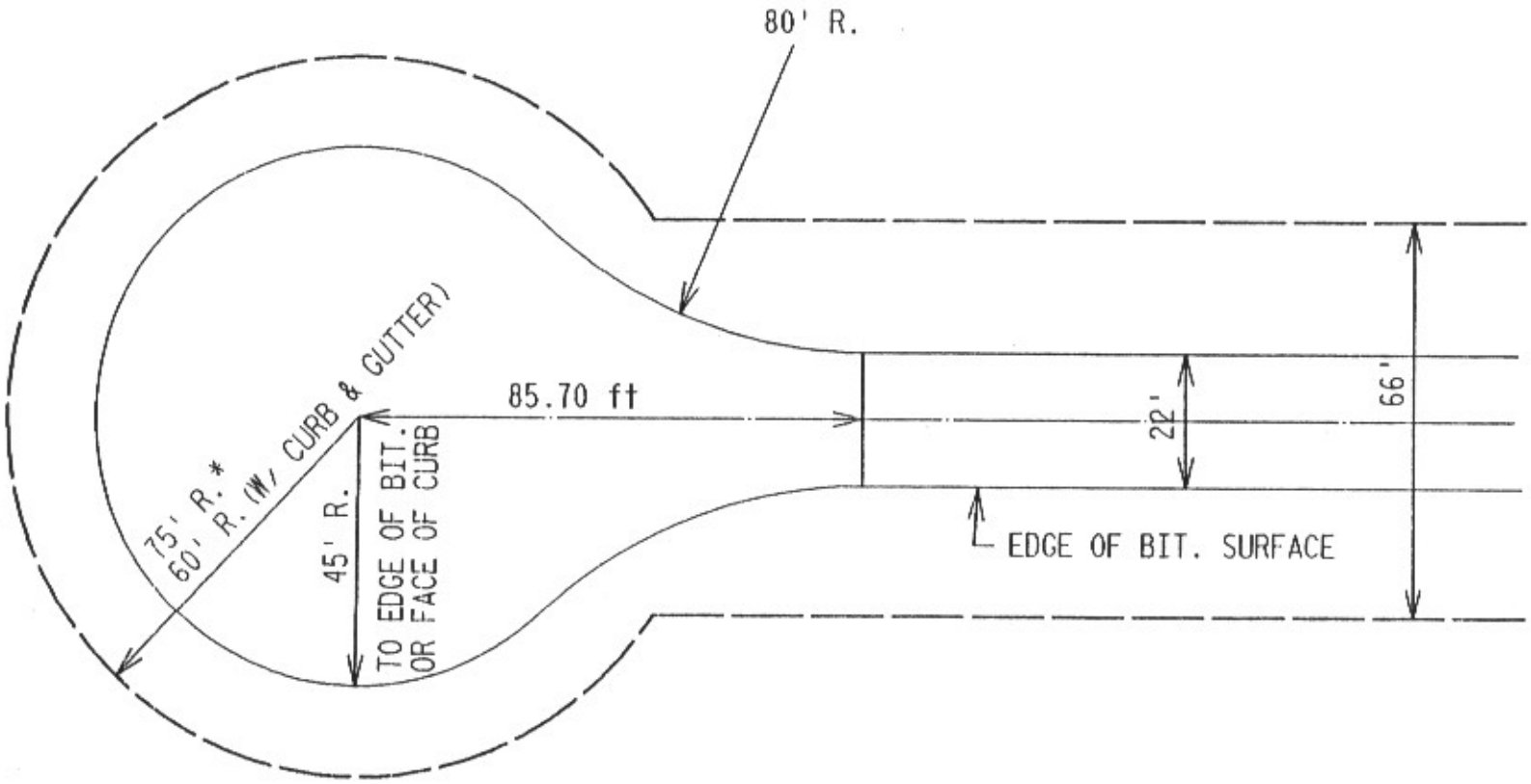
STANDARD CURB DETAIL



ALTERNATE ROLL CURB DETAIL

IN RESIDENTIAL AREAS ONLY

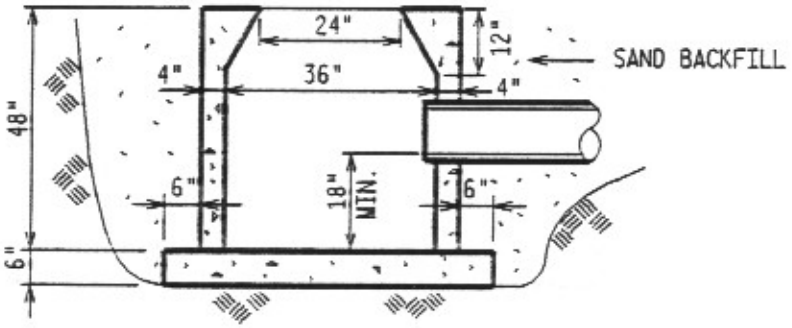
PLATE II



MIDLAND COUNTY STANDARD CUL-DE-SAC

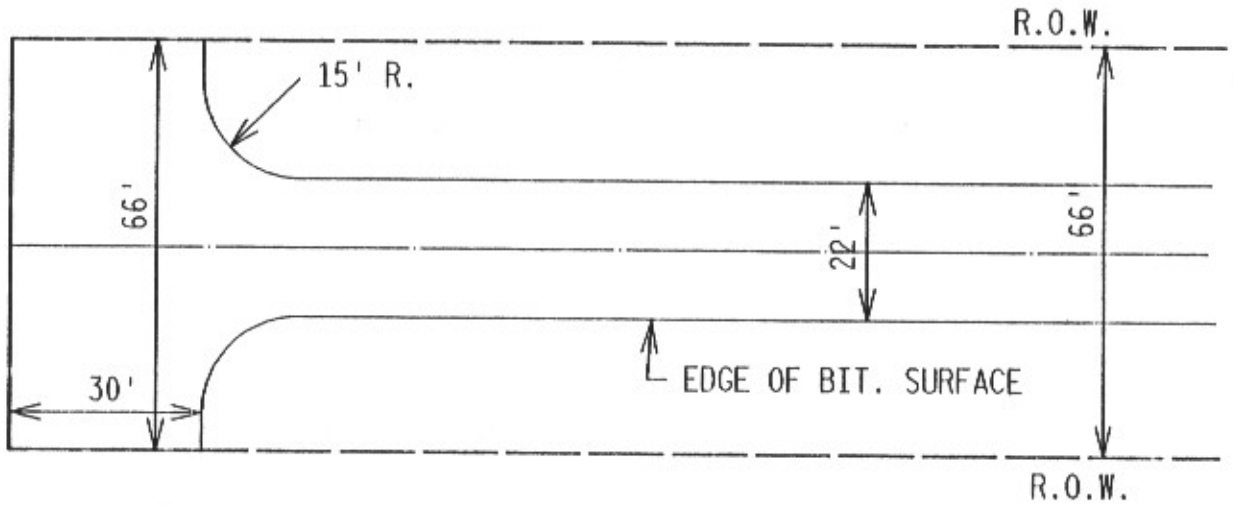
*R.O.W. TO BE ADJUSTED AS
NEEDED FOR GRADING

PLATE III



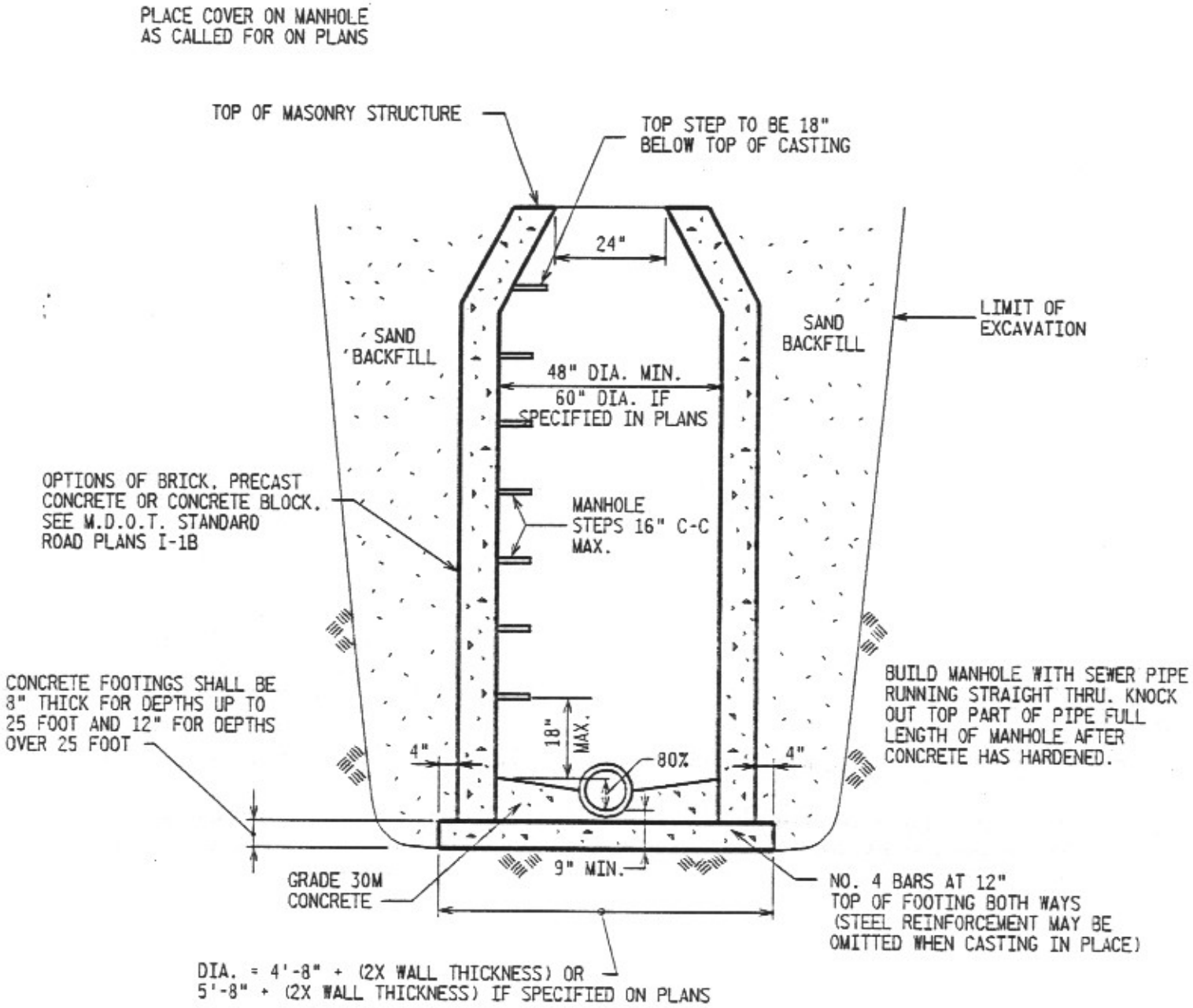
TYPICAL CATCH BASIN DETAIL

(BLOCK OR PRECAST)



MIDLAND COUNTY STANDARD "I"

PLATE IV



TYPICAL MANHOLE DETAILS

(BLOCK OR PRECAST)

PLATE VI