SALEM COUNTY ENGINEER'S OFFICE
110 Fifth Street, Suite 600, Salem, New Jersey 08079
856-935-7510, Ext. 8549

ROADWAY/DRIVEWAY ACCESS APPLICATION INSTRUCTIONS

A Salem County Road Access Application must be submitted to the Salem County Engineer's office prior to construction, reconstruction or alteration of an entrance or exit of a driveway onto a county road, per Resolution 8087, Dated May 15, 1968.

Enclosed are two (2) copies of the Salem County Road Access application, please submit a drawing with each application. This drawing may be a hand drawn sketch indicating the nearest intersection, utilities, etc. If you have a recent survey or plot plan prepared by a Licensed Professional, you may submit that plan with your application. If you use a hand drawn sketch, indicate the Block and Lot number of the property in question, along with street address.

All proposed driveways must conform to the requirements of Land Development Standards for Salem County, Section 5.4 Sight Triangles, Section 5.5 Driveways, Section 5.7 Curbing, Section 5.17 Drainage or any other section as it may pertain; as adopted in December 2011. Please include these requirements on your sketch plan in addition to the requirements in Resolution 8087, dated May 15, 1968.

If the proposed driveway is to span an existing ditch or steep slope/grade, Salem County will request a Professional Engineer to design the driveway crossing to address any drainage or grading issues prior to any approval. If the proposed hand drawn sketch plan does not show topographic features of the ditch or Slope, the County Engineer will request a survey plan be submitted showing these features. Additionally, per resolution 8087, a head wall at each end of the pipe crossing shall be installed to stabilize the drive and to prevent soil erosion.

If the proposed driveway requires a culvert pipe for drainage purposes, please include the driveway width desired over the cross drain on your drawing, not to exceed 30 feet. The proposed driveway width shall not negatively impact the County of Salem's NJDEP Storm Water Management Permit. The Engineers office will make recommendation on the proposed location to remain in compliance. At no time, shall a crossing completely fill in a road drainage ditch.

If the driveway crosses a wet ditch, a ditch that flows to a regulated waterway or a head of a dry stream; additional permits from NJDEP will be required prior to construction. This permit does not supersede any NJDEP wetlands requirements.

Applicant must place a stake with flagging to indicate where the center of the proposed driveway will be. If you intend to use an existing driveway, place a stake with flagging on each edge of your proposed driveway. This is to aid the inspection by the Engineers office and the Road Department prior to permit approval.

You may either mail the application and drawings or bring them in person at the address above for both options. Typical approvals are made within twenty-one (21) business days. If you have any questions, please call the office at the number listed above.

8087
May 15, 1968
Public Service

RESOLUTION OF THE
BOARD OF CHOSEN FREEHOLDERS
OF THE COUNTY OF SALEM

ENTRANCES TO COUNTY ROADS

WHEREAS, it is the duty and responsibility of the Board of Chosen Freeholders of the County of Salem to maintain a network of county roads in safe and efficient condition at all times; and

WHEREAS, under the authority of N.J.R.S. 27:16-31 the Board of Chosen Freeholders is empowered to establish such regulations to protect the physical condition, safety and efficiency of its road system as it may deem proper; and

WHEREAS, growth and development conditions within Salem County have made it imperative to establish rules and regulations to control the establishment of entrances to and exits from county roads to private property because of the unnecessary interruption of traffic flows and safety hazards to pedestrians and traffic now being created, and which would be created in the future, by the unregulated access to county roads by owners of adjacent properties;

NOW THEREFORE BE IT RESOLVED by the Board of Chosen Freeholders of the County of Salem that the following rules, regulations and procedures are adopted to regulate the establishment, reconstruction, or relocation of entrances to and exits from County Roads:

1. Procedures - Prior to the construction, reconstruction or alteration of an access driveway to or from a county road, the owner of the involved property or his duly authorized agent shall make application to the County Engineer on forms provided by the County of Salem. In the case of single lots to be occupied by one family

traffic likely to be produced by the proposed construction without creating a hazardous condition or otherwise unduly impeding flow of traffic on the county road.

(c) Except in the case of single lots to be used for residential purposes existing at the time of adoption of this Resolution or acreage parcels to be used for agricultural purposes, all private property access drives shall intersect with a county road that meets the established standards of the county for right-of-way width. Where the county road does not meet these standards at the present time, the property owner shall provide the County of Salem with a Road Easement, in form and content satisfactory to the County Solicitor, to provide a right-of-way width on that side of the county road and within the limits of subject property, to meet said standards.

(d) Where curbs exist, a full section of curb shall be entirely removed and a depressed curb constructed as determined by the County Engineer. Curved sections of existing curbs shall not be broken or depressed unless determined necessary by the County Engineer.

(e) Entrance drives shall not exceed thirty (30) feet in width at the property line, but may be increased to thirty-six (36) feet in width at the curb or shoulder line through introduction of depressed curbs or radius curbs not less than three (3) feet in radius, or as determined by the County Engineer.

(f) In the case of large industrial or commercial projects, where deemed necessary, by the County Engineer or the County Planning Board, acceleration and deceleration lanes, together with the necessary pavement and curb construction, shall be required as part of the arrangement of access drives together with all right-of-way easements required by the County.

(g) In the case of large residential projects, where individual building lots would front on the county road, creating frequent driveway entrances to the county road, the County Planning Board, upon the advice of the County Engineer, may require the installation of a marginal access road between the county road and the individual building lots with limited points of access between the marginal access road and the county road. In these cases, such requirements may be applied in connection with subdivision review. The design and construction of any required marginal access road shall conform to municipal road design and construction standards.

(h) Where sidewalks exist or are proposed to be constructed as part of the project, a concrete ramp not less than six (6) inches in thickness shall be built connecting the inner edge of the depressed curb with the outer edge of the sidewalk.

(i) Where sidewalks do not exist, a safety zone for pedestrians shall be created in the area between the curb or shoulder line and the property line, as determined by the County Engineer.

(j) In cases where drainage ditches exist along the county road, pipe of a size and material approved by the County Engineer shall be installed beneath the drive by the owner. At each end of the pipe, a concrete headwall shall be constructed, unless the County Engineer shall determine otherwise. Where more than one driveway is proposed and conditions are favorable, the County Engineer may permit installation of continuous pipe under the drives and safety islands. Where such an installation exceeds 300 feet in length, a manhole must be constructed -- its location to be determined by the County Engineer.

4. Engineering Inspection - After reviewing any county road entrance applications referred to it by the County Engineer, the County Planning Board shall forward its review and report to the County Engineer. After reviewing the report, the County Engineer shall approve, approve with modifications or deny the application. Any action of the County Engineer taken under this section may be appealed to the Road Committee of the Board of Chosen Freeholders. Procedures for application, issuance of permits, inspection of work authorized and certification of satisfactory completion shall be developed by the County Engineer.

5. Construction Standards - In the construction of the drives pursuant to County Engineer approval, the following standards and regulations shall be adhered to:

(a) The owner shall properly safeguard all work during construction and shall maintain sufficient warning

lights or other such devices during the hours of darkness to the satisfaction of the County Engineer.

(b) The work shall be so conducted that there will be no interference with the drainage or cross-section of the county road, nor any structures over or under the road except as indicated in the approved plans.

(c) Where concrete is required as part of the construction within the county road right-of-way, it shall consist of one part Portland cement, two parts sand, and two and one-half parts crushed stone or washed gravel.

(d) Drives on county road right-of-way shall be covered with not less than six (6) inches when compacted, of a suitable paving material approved by the County Engineer.

(e) The County Engineer may impose such other construction requirements within the county road right-of-way as he deems appropriate in order to properly protect the travelling public and the county road facility.

6. Liability - The owner shall save harmless the County of Salem, its officers and agents from and against any loss, injury or damage resulting from any negligence or fault of the owner or his agents in performance of the work covered by an approved permit.

7. Violations and Penalties - Any person, firm, corporation, or public utility who shall violate any of the provisions of this Resolution, shall, upon conviction thereof, be punished by a fine or imprisonment, or both; such fine not to exceed two hundred ($200.00) dollars and such

imprisonment not to exceed the term of ninety (90) days. Any day during any part of which such violation shall be permitted to exist shall constitute a new and separate violation pursuant to this Resolution, and shall be subject to the same penalties, as the original violation.

8. When Effective - This Resolution shall be duly advertised according to law, as provided by N.J.R.S. 40:24-3, and shall become effective May 15, 1968.

Dated:

I hereby certify the above to be a true copy of a Resolution passed by the Salem County Board of Chosen Freeholders at their regular meeting held on May 15, 1968.

Thomas A Pankok

LAND DEVELOPMENT RULES AND REGULATIONS
OF THE COUNTY OF SALEM
-2011-

Adopted 12-28-2011 Board of Chosen Freeholders Resolution # 2011-658

Board of Chosen Freeholders

Lee R. Ware, Director

David Lindenmuth, Dep. Director
Beth E. Timberman
Bruce L. Bobbitt

Julie A. Acton
Dale Cross
Benjamin H. Laury

Salem County Planning Board

John Willadsen, Chairman

John Humphreys, II, Vice- Chair
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Lee R. Ware, Freeholder
Benjamin H. Laury, Freeholder
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Charles Tisa
Brian Demarest
Bill Stoms
Brent Rowand, Alt. 1
Guy Waddington, Alt. 2
Charles Munyon, Sec.

Salem County Department of Planning and Agriculture

Louis C. Joyce, PP, AICP, Director of Planning
Charles Munyon, Supervising Planner
Matt Goff, Principal Planning Aide
Kris Alexander, Agriculture Program Coordinator

SECTION 5.4 Sight Triangles

A. Sight triangle easements shall be required as recommended by the County Engineer except where existing trees covered by regulations of Municipal Shade Tree Commissions or existing buildings are involved.

B. A sight triangle easement shall be defined as the area bounded by the right-of-way lines and a straight line connecting "sight points" on street centerlines which are the following distances from the intersections of the centerlines.

1. Where a minor street intersects a Collector road in the County system ninety (90) feet on the minor, and two hundred (200) feet on the Collector.

2. Where a Collector or minor street or road intersects an Arterial and either is in the County system, ninety (90) feet back on the Collector and three hundred (300) feet on the Arterial.

3. Where a Collector intersects a Collector street or road, and either is in the County system, two hundred (200) feet on the road designated as thru road and ninety (90) feet on the other Collector.

4. Where an Arterial intersects an Arterial street or road and either is in the County system, two over-lapping sight triangles shall be required formed by three hundred (300) feet and ninety (90) feet on each Arterial.

C. The County shall have the right to compel the owner to remove any obstruction to vision within the sight triangle not conforming to the standards controlling the area, upon proper and sufficient notice to the property owner.

D. Sight Distances: In addition to the clear sight triangles described above, there shall be a clear, unobstructed line of sight along both roads at an intersection and across the corners for adequate distances to allow drivers sufficient time to stop. The determination of said line of sight shall consider both the horizontal and vertical alignment of both intersecting roadways, as well as the height and position of the object. In making this determination, it shall be assumed that the driver's eye is 3.5 feet above the roadway surface and that the object to be seen is 3.5 feet above the surface of the intersecting road. For passenger vehicles, the required sight distance shall be measured from a point 18 feet behind the extended curb line or edge of road (along the County road). The minimum sight distances for left and right turns shall be as shown in the table below.

Table 5-2
Minimum Sight Distances

Posted Speed Limit	Design Speed V_{major}	ISD for Left Turn	ISD for Right Turn
25	35	390	335
35	45	500	430
40	50	555	480

45	55	610	530
50	60	665	575

The sight distances indicated in the table are based upon the formula ISD = $1.47V_{major}t_g$ where:

ISD = Intersection Sight Distance in feet (length of the leg of sight triangle along the County road)
V_{major} = Design speed of the County road in miles per hour, mph (posted speed limit + 10 mph)
t_g = Time gap (in seconds) for the vehicle on the minor road to enter the County road

The time gaps are for a stopped vehicle to turn onto a two-lane road with no median and approach grades of three percent (3%) or less. The time gap for passenger cars under those conditions shall be 7.5 seconds for vehicles turning left onto the County road and 6.5 seconds for vehicles turning right. Where necessary the table values require adjustment as follows:

For multilane County roads: For left turns onto 2-way roads with more than two lanes (one each way), add 0.5 second to the time gap for cars for each additional lane to be crossed by the turning vehicle. (For example, a passenger car turning left onto a 4-lane undivided road would need to cross two near lanes rather than one. That would increase the time gap from 7.5 to 8.0 seconds.)

For minor road approach grades exceeding 3%: Add 0.2 second to the time gap for each percent grade for left turns. (For example; if the approach street has a four percent (4%) grade, the time gap for left turns would be increased by 0.8 second (4 x 0.2) from 7.5 seconds to 8.3 seconds.

Compliance with the clear sight distance requirements described above shall be demonstrated by plotting the sight triangles on the plan and profile views of the County road plans. Where an approach street or driveway will be subject to regular truck traffic, clear sight distance for semi-trailer trucks must comply with the **guidelines described in the current edition of "A Policy on Geometric Design of Highways and Streets" published by the American Association of State Highway and** Transportation Officials (AASHTO).

SECTION 5.5 Driveways

A. No driveway which intersects the County right-of-way line shall be constructed unless a Road Access Permit is first obtained from the County Engineer.

B. Driveways shall be at right angles whenever possible, and an angle of less than seventy-five (75) degrees will not be permitted.

C. The number of driveways provided from any one lot or site onto a County road shall not exceed the following:

1. Frontage of one hundred (100) feet and less: one (1) driveway.

2. Frontage of one hundred (100) feet to three hundred (300) feet: 2 driveways.

3. Frontage of over three hundred (300) feet: as recommended by the County Engineer.

D. Where two (2) or more driveways serve a single site they shall be located at least fifty (50) feet apart measured by the closest edges.

E. Driveways shall be so located as to avoid undue interference with, or restriction of, free movement of normal road traffic so that areas of traffic congestion shall not be created. In accordance with this principal, driveways shall be constructed where road alignment and road profile are favorable.

F. Driveways shall be located so as to avoid interference with traffic movements at intersections. No driveway shall be located less than fifty (50) feet from any intersection, measured from the edge of the driveway to the point of curvature of the existing or proposed curb radius of the intersection. Driveways for non-residential uses shall be located at least 100 feet from any intersection.

G. Inasmuch as driveways are, in effect, low volume intersections, all driveways shall be located to conform to the sight distance requirements as tabulated in Section 5.4 above. The required sight distance for driveways shall be measured from a point 14.5 feet behind the extended curb line or edge of road (along the County road).

SECTION 5.6 Sidewalks

A. Each land development subject to County approval shall provide a sidewalk within the County road right-of-way if such is required by a zoning, subdivision, or site plan ordinance of the municipality in which the land development will be located.

B. No sidewalks will be required along the County road in the case of a subdivision providing a marginal access street or reverse frontage.

C. Sidewalks may be required in the County right-of-way in order to protect pedestrian traffic while facilitating vehicular traffic when no local ordinance provides for the installation of sidewalks.

D. Curb cut ramps shall be provided for the physically handicapped at all intersections. Handicap ramp design and construction shall be in conformance with the requirements of the "Americans with Disabilities Act" (ADA) standards.

E. In the event that no local specifications exist and a sidewalk is required, the following shall apply:

1. Sidewalks shall be constructed of Class B portland cement concrete, in accordance with the current edition of the "New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction"

(NJDOT Standard Specifications). Portland cement concrete sidewalk is hereinafter termed "concrete sidewalk."

2. Sidewalks shall be a minimum of four (4) feet in width. The outside edge of the sidewalk shall be one (1) foot inside the right-of-way line except in a commercial area.

3. In all cases, the sidewalk shall conform to standard slope specifications of sidewalk and sidewalk area which shall be ¼" per foot rising from the top of standard curb, except where depressed curb type driveways and curb cut ramps require a lowering of the sidewalk grade. In such cases, sidewalk grades shall be approved by the County Engineer.

4. Concrete sidewalk shall be four (4) inches thick except at points of vehicular crossing, where it shall be at least six (6) inches thick. At vehicular crossings, concrete sidewalk shall be reinforced with welded wire fabric or approved equivalent. The welded wire fabric shall be positioned halfway between the bottom and top, finished surface of the concrete.

SECTION 5.7 Curbing

A. Each land development requiring County site plan approval shall install a curb and gutter along the entire property frontage of the County road if such is required by the following:

1. Curbing is deemed necessary for traffic control.

2. Curbing is required by the County Engineer to handle existing or potentially adverse drainage conditions.

3. Curbing is existing at contiguous sites.

4. Curbing required by any zoning, subdivision, site plan or other ordinance of the municipality in which the land development is to be located.

5. Curb may be required if sidewalk is to be constructed along the County road.

B. The alignment and grade of curb and gutter are to be determined by the County Engineer. In special cases at driveway openings, curb returns rather than depressed curbing may be required by the County Engineer.

C. Where depressed curbs are used at driveways, the following specifications shall apply:

1. Existing curb or curb and gutter: to construct a depressed curb in locations where either curb or gutter exists, they shall be removed and replaced in accordance with the specifications as set forth by the County Engineer.

2. New depressed curb: new depressed curb shall be constructed in accordance with specifications as set forth by the County Engineer.

3. Height of depressed curb above street pavement or shoulder: the top of the depressed curb shall be no greater than one and one half (1.5) inches higher than the gutter grade.

4. The horizontal transition of depressed curb from full curb height to depressed curb height shall not exceed eighteen (18) inches.

5. Any existing curb opening not required by the proposed developer shall be closed as set forth by the County Engineer.

D. Concrete curb and gutter shall be constructed of Class B concrete (as per NJDOT Standard Specifications) and in conformance with the detail illustrated on Plate 10 of the Salem County Land Development Standards.

SECTION 5.8 Paving

A. Each land development requiring County site plan approval shall pave the area between the existing edge of pavement and new curb, and along the entire property frontage of the County road in accordance with the standards and specifications as set forth by the County Engineer.

SECTION 5.9 Signs

A. To facilitate the safe and efficient movement of traffic into and out of a land development, the County Planning Board may require as a condition of the land development approval require the installation of specified directional, regulatory or advisory signs or pavement markings at designated locations on the land development on the County right-of-way. Such signs shall be of size, color and design as specified in the "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD) (2003 or more recent edition).

B. No advertising sign, device or marking may be designed to be erected on or overhang a County right-of-way. Advertising signs which revolve, move, flash, or give the illusion of movement shall be prohibited within twenty-five (25) feet of the existing or proposed future curb line.

SECTION 5.10 Off-Street Parking

A. Each land development, subject to County Planning Board site development approval shall provide on-site, the number of off street parking spaces required by any zoning, subdivision, site plan, or other ordinances of the municipality in which the land development is located.

B. In the absence of local off-street parking requirements, the standards specified below shall apply:

5. Where development warrants left turn lanes or jug-handles as recommended in the "Manual on Uniform Traffic Control Devices", published by the Federal Highway Administration.

SECTION 5.16 Public Utility Relocation

A. When improvements herein required result in existing utility poles, telephone circuit boxes, fire hydrants, light standards or other above ground utility structures to be relocated along a County road, the applicant developing the land shall be responsible for the relocation of said utilities.

B. All utilities shall be located behind the curb line. The location of said utility structures shall be approved by the County Engineer.

C. An acknowledgment of the applicant's responsibility for relocating utility structures shall be required, by certified mail, prior to the granting of final approval and such relocation of said utility structures shall also be noted on the final construction plans to be reviewed by the County Engineer.

SECTION 5.17 Drainage

A. General Requirements:

1. All applications for land development submitted to the Salem County Planning Board for review and approval shall include a written report summarizing a stormwater management analysis of the property proposed for development. Both existing and post-development storm drainage conditions shall be evaluated as they relate to County road and drainage systems in accordance with the guidelines described herein. The report shall include but not be limited to the following information:

   a. A narrative summarizing the methods and results of the analyses with supporting calculations as appropriate, as well as verification of compliance with Salem County drainage requirements.

   b. Separate maps illustrating the pre-development and post-development drainage conditions to aid in verification of compliance with the requirements described herein. The maps shall include all pertinent information pertaining to drainage conditions, including; acreages, runoff curve numbers and/or coefficients, time of concentration flow paths, hydrologic soil groups, types of soil cover, existing and proposed drainage structures and pipes, and any other information deemed necessary by the County Engineer.

   c. A summary table showing the resultant changes in peak rates of runoff for the designated design storms from the various areas on the site that drain toward County road and/or drainage systems.

d. Hydraulic computations for the analysis and design of the stormwater management facilities.

e. Stormwater management basin routing calculations, when applicable.

f. A maintenance plan providing for short-term and long-term maintenance of the stormwater management facilities following the guidelines provided in the "New Jersey Stormwater Best Management Practices Manual" published by the New Jersey Department of Environmental Protection. (The Manual may be obtained on-line at http://www.njstormwater.org/bmp_manual2.htm.)

g. When the proposed stormwater control measures (e.g. infiltration basins) depend on the hydrologic properties of soils, a soils report shall also be submitted. The soils report shall be based on onsite soil boring logs and permeability testing of in situ soils.

2. Stormwater management measures meeting the requirements of this section shall be provided for all developments subject to County subdivision/site plan review and approval. The intent of such measures is to prevent adverse stormwater drainage conditions on County roads or in County drainage facilities. All stormwater drainage improvements required to accommodate additional stormwater runoff and/or changes in drainage conditions that would result from proposed land development shall be constructed by the developer at no cost to the County.

3. Where road widening along a County road would result in an increase in impervious area of one-quarter (1/4) acre or more, all stormwater within the County right-of-way shall be directed internally to the stormwater management and treatment facilities to be constructed in the development or shall be remediated in accordance with current NJDEP Stormwater Management Regulations.

4. Where required for any County facilities, drainage easements shall be a minimum of 20 feet in width. Larger easements may be required if and where directed by the County Engineer.

B. General Design Criteria:

1. Sites to be developed shall be designed so that there shall be no increase in stormwater runoff to County road and drainage systems for 2-year, 10-year, 25-year, and 100-year storm events. In cases where the development would include a stormwater management basin or basins that would release water to an existing County drainage system, the basin shall be designed for compliance with N.J.A.C. 7:8-5.4 through 5.6 as amended.

2. County stormwater drainage facilities (pipe and inlets) shall be designed for the 25-year storm frequency unless directed otherwise by the County Engineer.

3. County storm pipe systems shall be constructed of reinforced concrete pipe, Class III, Wall B unless otherwise directed or approved by the County Engineer. County storm pipe shall be constructed with a minimum of two (2) feet clear cover over the top of the pipe wherever practicable. Construction shall comply with the methods and requirements of the New Jersey Department of Transportation (NJDOT) "Standard Specifications for Road and Bridge Construction," 2007 edition as amended, which are incorporated herein by reference.

4. Design engineers shall use the runoff hydrograph peak rates to determine the configuration and sizes of pipes, channels, and other routing or control structures. They shall use the hydrograph to determine the sizes of stormwater management facilities.

C. Calculation of Stormwater Runoff:

1. The peak rates of runoff shall be calculated using one of the following methods, unless an alternate method is approved by the County Engineer:

   a. The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) methodology described in the NRCS National Engineering Handbook Section 4, utilizing either: "Technical Release No. 20 (TR-20), Computer Program for Project Formulation – Hydrology"; or "Technical Release No. 55 (TR-55), Urban Hydrology for Small Watersheds."

   b. The Rational Method for peak flow and the Modified Rational Method for hydrograph computations. The use of the Rational and Modified Rational Methods shall be confined to drainage areas occupying less than 20 acres.

2. In computing stormwater runoff from all design storms, the design engineer shall consider the relative stormwater runoff rates and/or volumes of pervious and impervious surfaces separately to accurately compute the rates and volume of stormwater runoff from the site.

3. For the purpose of determining runoff coefficients and runoff curve numbers for existing conditions, the design engineer shall presume good cover in good hydrologic conditions.

4. When using the Rational Method, the design engineer shall utilize the runoff coefficients for the various land uses and hydrologic soil groups appearing in Table 7.1 of the New Jersey Residential Site Improvement Standards (N.J.A.C. 5:21).

D. Design of Stormwater Runoff Collection & Conveyance Systems:

1. Storm drainage inlets shall be constructed to accommodate the design storm and to minimize the spread of gutter line flow along County roads. Bicycle-safe grates shall be used on all inlet structures within the County right-of-way unless approved otherwise by the County Engineer

2. Inlets spacing shall depend upon inlet and gutter line flow capacity. The maximum inlet capacity of a curb inlet shall be 6 (six) cubic feet per second. However, the maximum gutter line flow shall be 400 feet. Furthermore, the maximum gutter line flow spread for a 10-year design storm must leave at least two-thirds of the width of the travel lane free of water. The calculations for flow in gutters shall be performed in accordance with the procedures outlined below. To the maximum extent practicable, inlets shall be constructed of precast concrete according to the aforementioned NJDOT Standard Specifications.

3. Curb-style inlets (e.g. NJDOT Type "B" inlet) shall have curb head height two (2) inches greater than curb height specification, with the gutter line elevation at the inlet set two (2) inches below the calculated gutter line elevation, so the top of the inlet header matches the top of curb.

4. If required, storm manholes shall be precast concrete conforming to ASTM Specification C478 with rubber gasketed joints conforming to ASTM Specification C923. Both ASTM specifications are incorporated herein by reference.

5. Storm drainage pipe shall be a minimum inside diameter of eighteen (18) inches unless approved otherwise by the County Engineer.

6. Reinforced concrete storm drainage pipe shall be designed using the Manning Formula with a roughness coefficient "n" of 0.013. Other pipe materials shall have commensurate friction factors as may be approved by the County Engineer. The conveyance system shall be designed with a minimum pipe slope required to maintain a velocity of at least 2.5 feet per second when the pipe is flowing one-quarter of its full flow rate.

7. For pipe sizes less than forty-eight (48) inches in diameter, all transitions in slope, horizontal direction, junctions and change in pipe sizes shall be confined to manholes, drainage inlets, or other accessible structures designed for one or more of these purposes. For forty-eight (48) inch pipe lines and larger, vertical and horizontal deflections may be accomplished using one hundred (100) feet radius curves or greater.

8. Ends of pipe starting or terminating at an open channel or ditch shall be provided with suitable headwalls and conduit outlet protection designed in accordance with the "Standards for Soil Erosion and Sediment Control in New Jersey" published by the New Jersey Department of Agriculture.

9. "Dish" street intersections and "rocker gutters" are not permissible without the prior permission of the County Engineer. Sufficient drainage inlets shall be constructed at intersections to avoid gutter overflow through the intersection.

10. Calculations for the width or spread of flow in the gutter lines shall be provided for all stormwater runoff collection systems to be constructed within the County road system. The objective in the design of the drainage system is to collect

runoff in the gutter and convey it to inlets in a manner that provides reasonable safety for traffic and pedestrians. As spread from the curb increases, the risks of traffic accidents and delays and the nuisance and possible hazard to pedestrian traffic increase. Therefore, limitations for allowable spread have been established to minimize those risks. As noted above, the flow of stormwater runoff in gutters shall be limited to one-third of the width of the travel lane along the respective roadway.

The hydraulic capacity of a gutter depends on its cross-section geometry, longitudinal grade, and roughness. The typical curbed gutter section is a right triangular shape with the curb forming the vertical leg of the triangle. A modified version of the Manning Equation shall be used for the calculation of curbed gutter flow. The equation is provided below.

$$Q = (0.56/n)(S_x^{5/3})(S_o^{1/2})T^{8/3}$$

where:

Q = rate of discharge in ft^3/s

n = Manning's coefficient of roughness (See table)

S_x = Pavement cross slope in ft/ft

S_o = Pavement longitudinal slope if ft/ft

T = Spread, or width, of flow in feet

The coefficient of roughness to be utilized in the calculations depends upon the surface material as summarized in the following table.

Table 5-3
Roughness Coefficients

Gutter Surface Material	Manning's "n"
Concrete gutter; troweled finish	0.012
Asphalt pavement; smooth texture	0.013
Asphalt pavement; rough texture	0.016
Concrete gutter w/ smooth asphalt pavement	0.013
Concrete gutter w/ rough asphalt pavement	0.015
Concrete pavement; float finish	0.014
Concrete pavement; broom finish	0.016

Calculation of flow in gutters of composite section or non-triangular section may be made using the guidelines provided in "Hydraulic Engineering Circular No. 12" (HEC-12) published in 1984 by the Federal Highway Administration

SECTION 5.18 Culverts and Bridges – New Structures

A. The County may, upon specific agreement, assume responsibility for the future maintenance of culverts or bridges on new public roads within land developments when approved by the County Planning Board and the County Engineer, before

Salem County Road Access Application
Salem County Engineer=s Office 110 Fifth Street, Suite 600, Salem, New Jersey 08079
(856) 935-7510 extension 8549

Application No. _____

Application is hereby made to the County of Salem to establish or alter an access to a County Road.

Name of Property Owner: _____

Address: _____

_____

Home Phone: _____ Cell Phone: _____

Name and Number of County Road: _____

Block and Lot No. _____ Name and distance to nearest intersecting Road: _____

Type of Property (check one)

- ☐ 1. Single Lot - Single Family Dwelling (2 copies of Application & Sketch plat are required)
- ☐ 2. Acreage Parcels for Agriculture (2 copies of Application & Sketch plat are required)
- ☐ 3. All Other Uses (2 copies of Application & Sketch plat are required)

Applicant: _____ Date: _____
(Print Name)

By: _____
(Property Owner/Authorized Signature)

INSPECTION

Sight triangle clear? ☐ ☐ Yes ☐ ☐ No Pipe Needed? ☐ ☐ Yes ☐ ☐ No

Addition to: _____

_____

_____

_____

_____

Inspected By: _____ Date: _____

COUNTY ROAD ACCESS PERMIT

Permission is hereby granted to the above Applicant to establish or alter an entrance to the above state Salem County Road in accordance with the procedures, requirements and stipulations of Resolution #8087 of the County of Salem adopted May 15, 1988 by the Salem County Board of Chosen Freeholders, as stipulated below:

☐ ☐ According to Plans and Specifications submitted ☐ ☐ Subject to the preceding requirements

Approved By: _____ Date: _____
(County Engineer or his authorized agent)

Completed by Salem County Public Works: _____ Date: _____

Salem County Road Access Application
Salem County Engineer=s Office 110 Fifth Street, Suite 600, Salem, New Jersey 08079
(856) 935-7510 extension 8549

Application No. _____

Application is hereby made to the County of Salem to establish or alter an access to a County Road.

Name of Property Owner: _____

Address: _____

_____

Home Phone: _____ Cell Phone: _____

Name and Number of County Road: _____

Block and Lot No. _____ Name and distance to nearest intersecting Road: _____

Type of Property (check one)

- ☐ 1. Single Lot - Single Family Dwelling (2 copies of Application & Sketch plat are required)
- ☐ 2. Acreage Parcels for Agriculture (2 copies of Application & Sketch plat are required)
- ☐ 3. All Other Uses (2 copies of Application & Sketch plat are required)

Applicant: _____ Date: _____
(Print Name)

By: _____
(Property Owner/Authorized Signature)

INSPECTION

Sight triangle clear? ☐ ☐ Yes ☐ ☐ No Pipe Needed? ☐ ☐ Yes ☐ ☐ No

Addition to: _____

_____

_____

_____

_____

Inspected By: _____ Date: _____

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