NASSAU COUNTY

ROADWAY AND DRAINAGE

STANDARDS ORDINANCE 99-17

Adopted May 17, 1999

NASSAU COUNTY
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ROADWAY AND DRAINAGE STANDARDS ORDINANCE
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ORDINANCE NO. 99- 17

AN ORDINANCE OF NASSAU COUNTY, FLORIDA REGULATING THE DESIGN AND CONSTRUCTION OF PUBLIC AND PRIVATE ROADWAY AND DRAINAGE IMPROVEMENTS WITHIN THE UNINCORPORATED AREAS OF NASSAU COUNTY, FLORIDA. THIS ORDINANCE ALSO REGULATES CONSTRUCTION AND DEVELOPMENT THAT AFFECTS OR IS AFFECTED BY ROADS AND DRAINAGE; IT REGULATES PLAN REQUIREMENTS FOR MINING AND BORROW PIT OPERATIONS; IT MAKES FINDINGS; SETS FORTH THE BOARD'S POLICIES IN RELATION TO MATTERS ADDRESSED IN THIS ORDINANCE; PROVIDES DEFINITIONS; REQUIRES DATA SUBMITTALS; REQUIRES AND PROVIDES FOR PERMITS AND INSPECTIONS; REGULATES CONSTRUCTION AND THE PLACEMENT OF IMPROVEMENTS WITHIN THE RIGHTS-OF-WAY; REGULATES DRIVEWAY AND OTHER CONNECTIONS TO RIGHTS-OF-WAY; REGULATES THE DESIGN AND CONSTRUCTION OF ROADS AND STORMWATER MANAGEMENT IMPROVEMENTS; REGULATES FINISHED FLOOR ELEVATIONS; REGULATES THE PLACING OF CERTAIN FILL MATERIAL; REQUIRES SITE GRADING PLANS; REQUIRES BONDS; PROVIDES ENFORCEMENT PROCEDURES; PROVIDES FOR EXEMPTIONS; CONTAINS EXHIBITS DESIGNATING MINOR AND MAJOR COLLECTOR ROADS AND DESCRIBING REGULATORY FLOODWAYS; PROVIDES FOR STANDARD DETAILS; PROVIDES PENALTIES; PROVIDES FOR VARIATIONS AND WAIVERS; DESIGNATES CONSTRUCTION AND DEVELOPMENT SUBJECT TO THIS ORDINANCE; PROVIDES FOR NON-CONFORMING USES; PROVIDES FOR VESTED RIGHTS CRITERIA DETERMINATIONS AND APPEALS THEREOF; PROVIDES FOR SEVERABILITY; PROVIDES FOR CONFLICTS WITH OTHER COUNTY ORDINANCES; AND PROVIDES AN EFFECTIVE DATE.

BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF NASSAU COUNTY, FLORIDA as follows:

SECTION 1. SHORT TITLE

This Ordinance shall be known as and may be referred to as the "Roadway and Drainage Standards Ordinance of Nassau County, Florida".

SECTION 2. FINDINGS

It is hereby found, ascertained, determined and declared that:

It is in the best interest of the citizens of Nassau County to establish a procedure for:

a. The design and construction of adequate roads on public and private right-of-ways located within residential, commercial, industrial, and institutional areas located within Nassau County, Florida; and,

b. The design and construction of adequate drainage facilities so that the effect of stormwater runoff resulting from the construction or residential, commercial, industrial, and institutional projects on any neighborhood landowner is diminished.

The requirements imposed by this Ordinance are just and equitable in that all persons seeking to construct improvements within the unincorporated areas of Nassau County will be required to provide a level of improvement consistent with the service needs of the occupants, neighboring land owners, and other residents of Nassau County.

SECTION 3. POLICY

It is hereby declared that it is Nassau County policy that both individual owners and developers are required to meet essentially the same requirements in constructing new roadways and drainage improvements in the unincorporated areas of Nassau County, Florida.

SECTION 4. DEFINITIONS

When used in this Ordinance, the following terms shall have the following meanings, unless the context clearly otherwise requires:

4.1 **Base:** A layer of selected, processed, or treated aggregate material of specified thickness and quality placed immediately below the pavement and above the subgrade to support the asphalt or concrete surface.

4.2 **Building Pad:** The horizontal limits of the area defined by the building foundation and up to five (5) feet outside of the building foundation.

4.3 **Connection:** Driveways, streets, turnouts or other means of providing for the right of access to or from public or private roadways.

4.4 **Construction:** Any activity which results in the modification of surface features, including but not limited to grading, or the placement or alteration of buildings, structures or utilities, unless specifically exempted by this or any other applicable Nassau County ordinance.

4.5 **Detention:** A process for collecting, temporarily storing, and releasing through a controlled outlet a defined amount of stormwater runoff generated from a runoff contributing area to downstream and lower lying areas for the purpose of providing for flood protection through attenuation of discharge rate and flood volumes as well as detention of state regulated water quality discharges.

4.6 **Development:** All activities as set forth in Section 380.04, Florida Statues, including but not limited to: a subdivision of land pursuant to a subdivision plat or a development plan; a residential mobile home park; and any other construction whether residential, commercial, industrial, office, professional, institutional, or recreational.

4.7 **Development Review Process:** The review and permitting process enacted by Nassau County for the purpose of assessing the impacts of new development or alterations to existing development and ensuring that the development has met applicable federal, state and local regulations and permitting requirements.

4.8 **Drainage/Utility Easement:** A nonpossessing interest held by one person in land of another whereby the first person is accorded partial use of such land for a specific purpose. An easement restricts but does not abridge the rights of the fee owner to the use and enjoyment of his land.

4.9 **Drainage/Utility Right-of-Way:** Any strip or area of land, including surface, overhead, or underground, granted by deed for fee ownership, for construction and maintenance according to designated use, such as for drainage and irrigation canals and ditches; electric power, telegraph, and telephone lines; gas, oil, water, and other pipe lines; highways, and other roadways, including right of portage; sewers; flowage or impoundment of surface water; and tunnels.

4.10 **Dry Detention System:** A normally dry stormwater storage area which meets the herein defined function of "Detention". Dry detention systems are similar in function to retention systems; however, due to soil and hydrological conditions full recovery of the facility within the regulatory time period cannot be accomplished through ground infiltration alone and additional measures must be implemented through secondary controlled outlets or bleed-down devices to assure these type systems will function as designed. The secondary outlet also provides for gradual release of a defined flood protection volume if applicable under Section 10 of this Ordinance.

4.11 **Engineer:** A Professional Engineer registered in Florida pursuant to the provisions of Chapter 471, Florida Statutes, who is competent in the field of Civil Engineering.

4.12 **Foundation:** Structural support for exterior walls and columns of a building as required in the Nassau County Building Code.

4.13 **Institutional Lender:** A financial intermediary such as a state or federally chartered bank, a life insurance company or other similar entity subject to regulatory oversight for the protection of depositors, investors or policy holders.

4.14 **Joint Use Driveway:** A single connection that serves as a driveway to more than one residential or non-residential property or development, including those of different ownership.

4.15 **Legal Positive Outfall:** An outfall to a natural water body such as the ocean, a river or a creek, or State of Florida jurisdictional wetlands contiguous to a natural water body or to some other legally established drainage way which has the hydraulic capacity to accept and convey the proposed stormwater discharge. "Legally established drainage way" refers to a drainage way within a public right-of-way, a recorded or platted easement, or an implied easement or servitude under Florida law.

4.16 **Mining:** Any surface excavation for the principal purpose of removing material from the site and transporting to another site for sale, processing, refining, filling, construction or disposal. Mining includes the operation of "Borrow Pits" for soil, shell, clay, rock, and similar materials. Projects which remove material for sale as a secondary function in the creation of a stormwater management system within the scope of a development plan shall be exempted from the provisions of this Ordinance pertaining to Mining or Borrow Pit Operations.

4.17 **Owner:**

a. The private owner or developer (or their agents) owning the right-of-ways and lands being improved; or,
b. A third party constructing on public right-of-way with a permit to construct.

4.18 **Pavement:** The subgrade, base and surface course installed within the roadbed to specific design criteria which, in combination, constitute the roadway.

4.19 **Public Works Department:** The operating department of Nassau County is responsible for the administration of this Ordinance. The Director of Public Works or his designee shall be responsible for determining whether the technical objectives and standards of this Ordinance have been met and has the authority to permit technical variations to certain requirements of this Ordinance under the provisions of Section 16 of this Ordinance and other applicable Federal, State, and Local law.

4.20 **Regulatory Floodway:** The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the 100 year base flood without cumulatively increasing the water surface elevation more than the designated height. The location and extent of Regulatory Floodways are defined and may be updated or amended from time to time.

4.21 **Retention:** A process for collecting and permanently storing with subsequent release through ground infiltration or evaporation a defined amount of stormwater runoff from a runoff contributing area without release to downstream and lower lying areas.

4.22 **Retention System:** A normally dry stormwater storage area which meets the herein defined function of "Retention". In general, retention systems are limited to areas where soil and hydrological conditions do not influence the systems infiltrative capacity and/or recovery rates. In general, these systems are shallow and/or limited to areas where the seasonal high groundwater table is well below the ground surface such as in areas consisting of Hydrological Soil Group A (see definition of Stormwater Management System).

4.23 **Roadway Classifications:**

4.23.1 **Major Collector:** A part of the roadway system serving as a principal network for a through traffic flow. The routes connect areas of principle traffic generators. Roadways classified as Major Collectors shall be as set forth in EXHIBIT 1.

4.23.2 **Minor Collector:** A distributor and collector roadway servicing traffic between Major Collectors and Local Roads. Roadways classified as Minor Collectors shall be as set forth in EXHIBIT 1. In addition, roadways serving as major entrances to residential or commercial developments will be classified as Minor Collectors when the traffic volume is projected to exceed 2000 vehicles per day (VPD) at build out.

4.23.3 **Local Road:** Roadway used primarily for direct access to Residential Driveways, Commercial Driveways, or other abutting roads.

4.23.4 **Commercial Driveway:** Roadways used for direct access from Local Roads or Collector Roadways to commercial, office, industrial, institutional uses, or multi-family residential projects.

4.23.5 **Residential Driveway:** A cleared or improved driveway located on a privately owned parcel or located within a right-of-way or easement with a minimum width required of (60) sixty feet owned by property owners adjoining the driveway. The right-of-way or

easement must be recorded. A residential driveway located entirely within a single parcel need not be located within an easement. A residential driveway does not serve more than three (3) dwelling units and does not extend beyond property lines of those units served. Additional dwelling units may be added only by upgrading the driveway to a higher class roadway standard.

4.24 **Roadway, Private:** An improved street or road located within a right-of-way or access easement owned by a Property Owners' Association, private individuals or any entity other than Nassau County, the State of Florida, or another local government. Ownership of private roadways serving residential development shall be vested jointly by all abutting land owners or in a Property Owners' Association whose voting members include such abutting land owners. A developer retaining ownership of private roadways after construction and approval shall grant a recorded easement to all abutting properties which will provide for the use of the private roadways by all future lot owners, their guests, invitees, successors and assigns. The grant of easement may be accomplished by recorded plat.

4.25 **Roadway, Public:** A street or road located within a right-of-way owned by Nassau County, the Florida Department of Transportation, or another local governmental entity. The roadway must have been dedicated or deeded to, and accepted by, the governmental entity.

4.26 **Shall:** Designates a mandatory condition. Where certain requirements in design or application are described with the "shall" stipulation, it is mandatory that these requirements be met, unless exempted through the provisions of Section 16 of this Ordinance.

4.27 **Should:** Designates an advisory condition. Where the word "should" is used, it is considered to be advisable usage, recommended but not mandatory.

4.28 **Standard Details:** The detailed criteria and standards which graphically depict typical roadway and drainage design for construction within unincorporated Nassau County, and which are consistent with the objectives and standards of this Ordinance.

4.29 **Stormwater:** The flow of water which results from, and which occurs immediately following, a rainfall event.

4.30 **Stormwater Management System:** A system designed and constructed or implemented to control discharges which are necessitated by rainfall events. These systems incorporate methods to collect, convey, store, absorb, inhibit, treat, use or reuse stormwater to prevent or reduce flooding, overdrainage, environmental degradation and water pollution or otherwise affect the quantity and quality of the discharges from a project to downstream and lower lying areas. In general, all stormwater management systems within Nassau County, unless exempt from the discharge requirements in Section 10 of this Ordinance, will function as "Detention" or combination of "Retention" and "Detention" as defined herein.

4.31 **Subgrade:** The portion of a private or public roadway, which has been prepared as specified, upon which the base course is to be placed.

4.32 **Swale:** A man-made trench which:

a. Has a top width-to-depth ratio of the cross-section equal to or greater than 6 feet horizontal to 1 foot vertical (6:1), or side slopes equal to or greater than 3 feet horizontal to 1 foot vertical (3:1); and,

b. Contains contiguous areas of standing or flowing water only following a rainfall event; and,

c. Is planted with or has stabilized vegetation suitable for soil stabilization, stormwater treatment, and nutrient uptake; and,

d. Is designed to take into account the soil erodibility, soil percolation, slope, slope length, and drainage area so as to prevent erosion and reduce pollutant concentration of any discharge.

4.33 **Wet Detention System:** A permanently wet stormwater detention storage area normally used in areas where soil and hydrological conditions are not conductive to "Dry Detention" or "Retention" systems as defined herein. In addition to the herein defined function of "Detention", these systems provide through a secondary controlled outlet or bleed-down device, detention of a defined stormwater treatment volume per state regulations for removal of dissolved and suspended pollutants by taking advantage of physical, chemical, and biological processes within the pond. The secondary outlet also provides for detention of a defined flood protection volume if applicable under Section 10 of this Ordinance.

SECTION 5. DATA SUBMITTAL

5.1 GENERAL

5.1.1 Signed and sealed construction plans and drainage calculations shall be prepared by an Engineer and submitted to the Public Works Department under the Nassau County Development Review Process procedures to demonstrate compliance with this Ordinance.

5.1.2 The Public Works Department shall establish checklists relating to the contents of development review submittals. The checklists shall establish minimum requirements for the contents of construction plans and design documents to assure requirements herein have been met. Additional information may be requested if the Public Works Department believes the information is reasonably necessary for support of the drainage analysis including maps, charts, graphs, tables, photographs, narrative descriptions, calculations, explanations, and citations to supporting references as appropriate to communicate the required information for responsible evaluation of the site.

5.2 COMMENCEMENT OF CONSTRUCTION

Prior to commencement of land clearing, site preparation, or construction of any roadway and drainage improvements the following shall be obtained:

a. Applicable Local, State and Federal Permits referenced in Section 6 of this Ordinance which are required by the appropriate permitting authorities for the particular portion of development to proceed with the land clearing, site preparation, or construction;

b. Approval of construction plans and related documents required for the proposed land clearing, site preparation, or construction through the Nassau County Development Review Process;

c. Compliance with other appropriate land use and development regulations of Nassau County.

It is the intent of this Section to require documentation of necessary permits and approvals appropriate to the stage of construction and for the portion of the development under construction. It is not the intent of this Section to prohibit incremental development and construction.

5.3 COMPLETION OF CONSTRUCTION

5.3.1 The following documentation is required upon completion of the construction

project and prior to issuance of any building certificates of occupancy:

a. An "As-Built" Survey meeting the requirements contained in the Nassau County As-Built checklist;

b. Engineer's Certification of Completion (see EXHIBIT 4);

c. Any other documents which are necessary to comply with the requirements of other permitting agencies and are required by Nassau County as a condition to issuance of Certificates of Occupancy, see Section 6.3, State and Federal Permits.

5.3.2 In addition to the requirements of Section 5.3.1 above, the following documentation is required to be submitted to the Public Works Department prior to construction bond release:

a. Documentation from the responsible utility company approving water and sewer installations and acceptance of same;

b. Surveyor's Certification (see EXHIBIT 3);

c. A Construction Bond, securing the completion of sidewalks, if applicable;

d. Test reports prepared by a licensed testing laboratory as required by Section 11 of this Ordinance;

e. Documentation from the Department of Environmental Protection verifying acceptance of Certification of Completion of the sewer and/or water system;

f. If roads and related drainage improvements are dedicated to the County, a Maintenance Bond meeting the requirements of Section 12 of this Ordinance;

g. A copy of Record Covenants and Restrictions and/or other publicly recorded or filed documentation which establish the Property Owners' Association.

5.3.3 Acceptance for Maintenance by Nassau County:

Upon satisfactory completion of the Sections 5.3.1 and 5.3.2 above, the developer may petition the Board of County Commissioners to accept the roadways for maintenance by the County. This request must be submitted 10 working days prior to the date of the next Board meeting.

SECTION 6. PERMITS

6.1 RIGHT-OF-WAY PERMITS

6.1.1 An "Application for Right-of-Way Permit" shall be submitted to, and approved by, the Public Works Department prior to commencement of any planned construction activities within County right-of-way. Construction activities include, but are not limited to: utility installations, driveway connections, sidewalks, drainage alterations, and construction or placement of fences, walls, signs, and other appurtenances or structures unless exempted by provisions of subsection 8.4 herein. Right-of-Way Permits shall not be required for construction activities that are approved through a "Development Permit" subject to the provisions of Subsection 6.2 herein.

6.1.2 Upon approval by the Public Works Department, the right-of-way permit shall allow the described construction for a specified period not to exceed 6 months from the date of approval. Right-of-way permits for construction may by extended with prior written approval from the Public Works Department up to a total period of 12 months. Additional extensions beyond a total permit period of 12 months shall require a new "Application for Right-of-Way Permit" to be submitted and approved including payment of all applicable fees.

6.1.3 Right-of-way permits and all construction work within County right-of-ways shall comply with provisions set forth in Ordinance 97-14.

6.2 DEVELOPMENT PERMITS

6.2.1 A "Development Permit" issued through the Nassau County Development Review Process as specified in the Nassau County Development Review Regulations shall be obtained prior to commencement of construction for all residential, commercial, industrial, and institutional projects meeting review requirements established by the Nassau County Development Plan Review and Approval Procedures. The "Development Permit" shall be valid for a specified period not to exceed 5 years but no less than 3 years. The designated duration for the "Development Permit" will be dependent on the facts and circumstances of each situation, including but not limited to: the size of the project and the anticipated amount of time required to complete the project. Commencement of construction shall be made during the designated permit time period.

6.2.2 The "Development Permit" shall expire unless construction has commenced and continued in good faith on the 3 year anniversary of approval for projects less than or equal to 50 acres. For projects greater than 50 acres, the "Development Permit" shall expire based on the 3 year anniversary period plus 1 year for each additional 10 acres or portion thereof up to a

maximum of 5 years. Prior to expiration, a "Development Permit" may be granted one extension upon demonstration of significant progress toward start of construction of the development through a written request from the Owner/Applicant to the Public Works Department.

6.2.3 Once a "Development Permit" has expired, renewal can only be made by resubmittal through the Nassau County Development Review Process. Resubmittals shall be subject to the current land development regulations of Nassau County including all applicable review fees.

6.2.4 The Owner/Applicant and their agents are responsible for constructing the site improvements in accordance with the approved construction drawings under the authority of the "Development Permit". Any substantial deviations shall be reviewed by the Engineer of Record with concurrent review through the Nassau County Development Process prior to field changes being made. If approval is granted for the construction deviations, revised construction drawings and related documents showing compliance with Nassau County land development regulations may be required.

6.3 STATE AND FEDERAL PERMITS

Copies of applicable permits, including permit conditions, from all agencies having jurisdiction over construction projects shall be provided to the Public Works Department prior to issuance of the "Development Permit". Construction plans may be conditionally approved subject to permits being received by the Public Works Department from other regulatory agencies prior to commencement of construction. These permits include, but are not limited to: work in or near wetland areas, stormwater management systems, specialized flood hazard areas, coastal construction and roadway construction. The burden of obtaining these permits, if required, will be the sole responsibility of the Owner/Applicant including any work to upgrade existing public or private roadway and drainage facilities which will be unreasonably impacted by the project. Agencies, which may have jurisdiction over the proposed work include, but are not limited to, the following:

- St. Johns River Water Management District
- Florida Department of Environmental Protection
- Florida Department of Transportation
- United States Army Corps of Engineers
- United States Environmental Protection Agency
- Federal Emergency Management Agency

SECTION 7. NOTIFICATION AND INSPECTIONS

7.1 AUTHORIZATION FOR INSPECTION

7.1.1 The Public Works Department shall have the right to inspect any project that has been issued a "Development Permit" to ensure that all roadway and drainage improvements are constructed in accordance with the approved construction drawings and related specifications.

7.1.2 The Public Works Department shall have the right to enter upon and inspect land where construction activities have commenced in violation of Nassau County Land Development Regulation, regardless of whether or not an application for "Development Permit" has been made to Nassau County.

7.2 NOTIFICATION

7.2.1 All site-related roadway and drainage improvements shall be constructed in accordance with approved construction drawings and related specifications under the authority of the "Right-of-Way Permit" or "Development Permit", as approved by the Nassau County Development Review Process. To ensure construction is in compliance with permit conditions, the Public Works Department shall be given advanced notification of the following items in the format indicated:

PERMIT TYPE/WORK ITEM	ADVANCE NOTIFICATION	FORMAT
Development Permits		
Commencement of Construction	48 hours	Written
Storm Sewers and Underdrains (prior to backfilling)	24 hours	Verbal
Roadway Subgrade	24 hours	Verbal
Roadway Curb and Concrete Work	24 hours	Verbal
Roadway Base Course	24 hours	Verbal
Roadway Surface Course	24 hours	Verbal
Final Inspections	5 days	Verbal
Right-of-Way Permits		
All Construction and Installations	24 hours	Verbal

7.2.2 The Public Works Department acknowledges that conflicts may occur in scheduling and there may be times when a County inspector will not be available. In those instances where an inspector is not available, and to wait would unreasonably delay the project, the inspection requirements may be met by having the Engineer of Record submit, with applicable test reports, a signed and sealed certification to the Public Works Department that construction was performed and completed as specified in the approved construction drawings and specifications.

7.2.3 **Pre-construction Conference:**
If a development is large enough, as determined by the Public Works Director, a pre-construction conference will be held prior to commencement of work. Pre-construction conferences shall include all interested parties. A proposed project schedule is required for all pre-construction conferences.

7.3 TESTING

The Public Works Department shall have the right to require adequate testing during construction on-site and off-site related improvements to ensure that work is performed and completed as specified on the construction drawings and related documents. All roadway and drainage projects, public or private, which serve or provide services to the citizens of Nassau County shall meet the construction and testing requirements as contained within this document.

7.4 FINAL INSPECTION

7.4.1 All roadway and drainage improvements shall be completed including, if applicable, installation of street name signs, directional signs, and traffic control signs prior to scheduling for Final Inspection.

7.4.2 Unless otherwise approved by the Public Works Department, an "As-Built" Survey shall be submitted at the time of scheduling for Final Inspection.

7.4.3 The Final Inspection shall be a joint inspection consisting of at least a representative of the Public Works Department, the General Contractor, and the Engineer of Record.

7.4.4 Upon completion of the Final Inspection and review of the "As-Built" Survey, the Public Works Department shall notify the Owner/Applicant of the results of the Final Inspection and "As-Built" review including any remedial action which may be necessary to bring the on-site and related off-site roadway and drainage improvements into compliance with the approved construction drawings and related specifications.

SECTION 8. CONSTRUCTION WITHIN RIGHT-OF-WAY

8.1 GENERAL

8.1.1 This section is established to regulate construction or installation of any utility or placement of any temporary or permanent structure within any right-of-way owned by Nassau County. In addition, and in the interests of public health, safety and welfare, this section should be used as a guide for construction, installation or placement of the same in private road right-of-way. Failure to meet these guidelines may jeopardize future acceptance of any private facility by Nassau County.

8.1.2 The presence of existing above-ground and under-ground facilities within County right-of-way will be presumed to be properly permitted in accordance with the existing guidelines in effect at the time of their installations whether or not documentation to that effect exists. The utility Agency/Owner shall relocate or adjust those existing above-ground and under-ground utility facilities to comply with current utility accommodation standards when roadway improvement projects are planned or traffic accident statistics indicate a hazard exists, providing the relocation does not conflict with other standards, codes or regulations that provide for public health and safety or will be economically unfeasible for the benefit desired.

8.2 APPLICATION FOR RIGHT-OF-WAY PERMIT

8.2.1 Unless exempted herein, or otherwise approved by the Public Works Department, any construction, installation, or placement of any above-ground or under-ground temporary or permanent structure or utility within County right-of-way is prohibited unless an "Application for Right-of-Way Permit" has been submitted and approved by the Public Works Department.

8.2.2 Temporary or permanent structures shall include but not be limited to: driveway connections, signs, posts, fences, landscaping, drainage connections, above-ground and under-ground utility installations, cross drains, side drains, ditches, swales, and mailboxes.

8.2.3 The "Application for Right-of-Way Permit" and related drawings shall be submitted in triplicate to the Public Works Department for review. One of the 3 applications shall be an original. Upon approval, the applicant will receive one copy of the approved application which shall be kept on the job site during the duration of the construction or installation activities and shall be made available to Public Works Department personnel upon request during field inspections. The original will be placed in County files and one copy shall be used by County inspection staff.

8.2.4 The Public Works Department shall have the right to revoke any "Right-of-Way Permit" where it is found that the permitted activity is not being performed in accordance with permit conditions, where there has been a misrepresentation of a material fact in the permit application, or where the activity is detrimental to the health, safety, and welfare of the public.

8.3 MAINTENANCE OF TRAFFIC

8.3.1 Whenever construction or construction-related activities within County right-of-way will affect the movement of traffic or traffic safety, the activities shall comply with applicable traffic control standards contained in the Manual of Uniform Traffic Control Devices (Part VI) and the F.D.O.T. Standards for Traffic Control through Work Zones.

8.3.2 Temporary closure of one or more travel lanes shall require flagmen to control vehicular traffic. Total closure of a roadway for more than 5 minutes shall require prior approval of the Public Works Department.

8.3.3 The Public Works Department shall require that a Maintenance of Traffic Plan be submitted with the "Application of Right-of-Way Permit" prior to commencement of any work within County right-of-way on all Major and Minor Collectors, and on other Local Roads where such work could obstruct traffic or threaten the health, safety and welfare of the public.

8.4 MAILBOXES

The location and construction of mailboxes within County right-of-way shall conform to the rules and regulations of the United States Postal Service.

8.5 CONSTRUCTION STANDARDS

8.5.1 All underground utility installations, excavations, and backfill within County right-of-way shall be installed to the following standards:

8.5.1.1 Utility locations within County right-of-way shall conform to the STANDARD DETAILS for utility placement within County right-of-way unless otherwise approved by the Public Works Department.

8.5.1.2 Minimum depths for under-ground utilities shall be as follows unless otherwise approved by the Public Works Department:

UTILITY	OUTSIDE PAVEMENT	UNDER PAVEMENT
Sewer Force Mains	30 inches	36 inches
Water Reuse Lines	30 inches	36 inches
Sanitary Sewer	36 inches	36 inches
Water Mains	30 inches	36 inches
Telephone	30 inches	36 inches
Cable TV	24 inches	36 inches
Electric	36 inches	36 inches
Gas	36 inches	36 inches
Fiber Optic	36 inches	36 inches

8.5.1.3 The minimum depth shall be based on the vertical distance from the top of the utility to the design cross-section of the roadway. Actual depth as stated in the Right-of-Way Permit, conditions may be greater depending on the existing field conditions. In general, depths of water mains and sewer force mains shall be 36 inches outside pavement and 42 inches under pavement unless otherwise approved by the Nassau County Public Works Department.

8.5.1.4 All activity under pavement or other stabilized surface within 8 feet of edge of pavement on paved roads, or within 15 feet of the centerline of unpaved roads, should have backfill material placed in no greater than 12 inch lifts, except for the top 2 feet which should be placed in no greater than 8 inch lifts. Backfill material shall be compacted to a density of not less than 95 percent of the maximum density obtained using the Modified Proctor Method.

8.5.1.5 All activity under pavement or other stabilized surface more than 8 feet from the edge of pavement on paved roads, or more than 15 feet from the centerline of unpaved roads, should have backfill material placed in no greater than 12 inch lifts, and compacted to a density not less than 90 percent of the maximum density obtained using the Modified Proctor Method.

8.5.2 "Jacking and boring" or "directional boring" of utilities under existing paved roadways are the preferred methods for all underground utility installations crossing County paved roadways. Standards pertaining to these methods shall be the guidelines contained in the then current F.D.O.T. Utilities Accommodation Manual.

8.5.3 Jetting of utilities under any roadway is prohibited. Where a utility is found to be illegally jetted under an existing roadway, the roadway section shall be removed to a depth and width and the roadway section reconstructed as directed by the Public Works Department.

8.5.4 Open cutting of existing pavement and side roads under the jurisdiction of Nassau County generally will not be allowed. Under certain conditions, such as subsurface obstructions, limited space for jacking, high water table, or substandard roadway surface, open cutting may be allowed with approval of the Public Works Department. The applicant shall provide written justification for approval of open roadway cuts. Primary consideration will be given to the age and condition of the existing roadway pavement and safety and convenience to the public. Where open roadway cuts are permitted, replacement of fill, base and surface course shall be in conformance with requirements set forth by the Public Works Department.

"Flowable Fill" or an equivalent material is the required method for reconstruction of open roadway cuts.

8.5.5 All areas disturbed by construction activities within County right-of-way shall be restored to the standards specified for new construction, or restored to a condition equal to conditions prior to the disturbance if the prior conditions exceeded new construction standards.

8.5.6 Drainage shall be maintained throughout the construction or installation process and shall not be blocked, restricted, or inhibited unless otherwise approved by the Public Works Department. All roadway swales shall be returned to design grade within 30 days of completion of the utility installation.

8.6 RIGHT-OF-WAY IMPROVEMENTS AND OWNER RESPONSIBILITIES

8.6.1 No fencing, shrubs, trees or construction other than grassing shall be placed in the right-of-way without prior County approval or permit.

8.6.2 Construction and maintenance of any driveway connection or other access across public and private right-of-way or drainage facilities is the responsibility of the individual owner. No person shall block or impede the flow of water through any county or private drainage facility, nor shall leaves, trash or other materials be placed in or burned within the aforementioned facilities.

8.6.3 All driveway and/or drainage connections to and/or across public right-of-way shall require a permit. The pipe size and invert depth of all side drains/driveways culverts shall be approved by the County and set to the County specified grades. In cases where the driveway connection does not require a pipe, the driveway should be constructed with a minimum of 6 inches of reinforced concrete (3000 psi) to conform with the existing flow line of the roadside swale, or as established by the Public Works Department. Swale driveways will not be allowed.

8.6.4 Any connection to public roadways found to be installed incorrectly or without permit shall be subject to enforcement procedures, fines and/or removal of the facility by the Public Works Department. The Owner/Applicant has the option to replace the facility at the Owner/Applicant's expense upon approval of the Public Works Department.

8.6.5 All privately owned facilities shall be continuously maintained by the Owner, a Property Owners' Association, the developer, or other entity approved by the County and designated in the construction application. Failure to adequately maintain the facilities shall be a violation of this Ordinance.

SECTION 9. ACCESS MANAGEMENT

9.1 GENERAL

Nassau County has the authority to establish, control, and limit points of ingress and egress from County roadways to ensure the safety and efficiency of its roadway system. These standards are intended to implement Florida law. Consequently, this Ordinance shall be consistent with the Florida Department of Transportation (F.D.O.T.) "Manual of Uniform Standards for Design, Construction and Maintenance for Streets and Highways" (Green Book), F.D.O.T. "Roadway and Traffic Design Standards" (Standards), and the United States Department of Transportation "Manual on Uniform Traffic Control Devices" (MUTCD) unless specifically revised by this Ordinance or the STANDARD DETAILS. References will be made to the F.D.O.T. "Standard Specifications for Road and Bridge Construction" (Specifications). No facilities for ingress or egress to County roadways shall be constructed unless they comply with the standards set forth in this Ordinance.

9.1.2 Development or Redevelopment of Abutting and Existing Parcels:

Any property being redeveloped or altered, such that it requires alterations to the pavement or parking areas, shall be inspected by the Public Works Director or his designee to determine that all provisions of this Ordinance are being met.

Any existing access points not in use after redevelopment of a parcel shall have the unused apron removed and any dropped curb section along the street at abandoned access points shall be replaced with a new curb (and sidewalk if previously existing) at the expense of the property owner.

9.2 LOCATION OF CONNECTIONS

9.2.1 Separation of Access Points:

a. Access for all land uses located on segments of the major roadway networks as defined in the Traffic Circulation Element of the Comprehensive Plan shall comply with the following:

Functional Class of Roadway	Distance Between Access Points
Primary Arterial or Minor Arterial	Access to the State Highway System must comply with the rules of the Department of Transportation Chapter 14-97, State Highway System Access Management Classification System and Standards.
Collector	100 Feet.

b. The distance between access points shall be measured from the centerline of the proposed driveway or roadway to the centerline of the nearest adjacent roadway or driveway.

c. Lots shall not, in general, derive access from an arterial street. Where driveway access from an arterial street may be the only possible access for several adjoining lots, the Public Works Director may require that such lots be served by combined access drives in order to limit possible traffic hazards from multiple access to such streets. Where possible, driveways should be designed and arranged so as to avoid requiring vehicles to back into traffic on arterial roads.

d. Commercial driveway connections shall align with other driveways on the opposite side of an undivided roadway or shall be offset a minimum of 100 feet. Offset requirements may be increased where auxiliary lanes are required.

e. Residential driveway connections shall be restricted to Local Roads unless otherwise approved by the Public Works Department. Planned developments shall incorporate design of the roadway systems to alleviate residential connections to Major and Minor Collectors.

9.2.2 Number of Access Points:

Access for all land uses located on roads under the jurisdiction of this Ordinance shall in addition to the requirements above comply with the following:

a. New development sites shall be required, where possible according to the Public Works Director, to share access points.

b. Commercial parcels shall be allowed a maximum of two accesses along each street fronting the parcel.

c. Commercial properties located at the intersection of two roads (corner property) shall be limited to one access point for the first 100 feet of property frontage from the intersection.

d. Non-commercial property located at the intersection of two roads shall be limited to one access point for the first 100 feet of property frontage from the intersection.

e. Driveway Location: No driveway may be constructed closer than 100 feet to the right-of-way line of any intersection or the nearest driveway except for single family dwellings located on marginal access or minor streets intersecting with a marginal access or minor street, where minimum separation shall be 50 feet.

f. Commercial lots shall not receive access from residential streets unless authorized by the Board.

9.2.3 Residential driveway connections shall be restricted to Local Roads unless otherwise approved by the Public Works Department. Planned developments shall incorporate design of the roadway systems to alleviate residential driveway connections to Major and Minor Collectors.

9.3 DRIVEWAY DESIGN

9.3.1 Driveway widths, spacing, radii, and minimum angles for residential and commercial driveways shall be based on the following guidelines (See Figure 1 for a depiction of the measurement criteria):

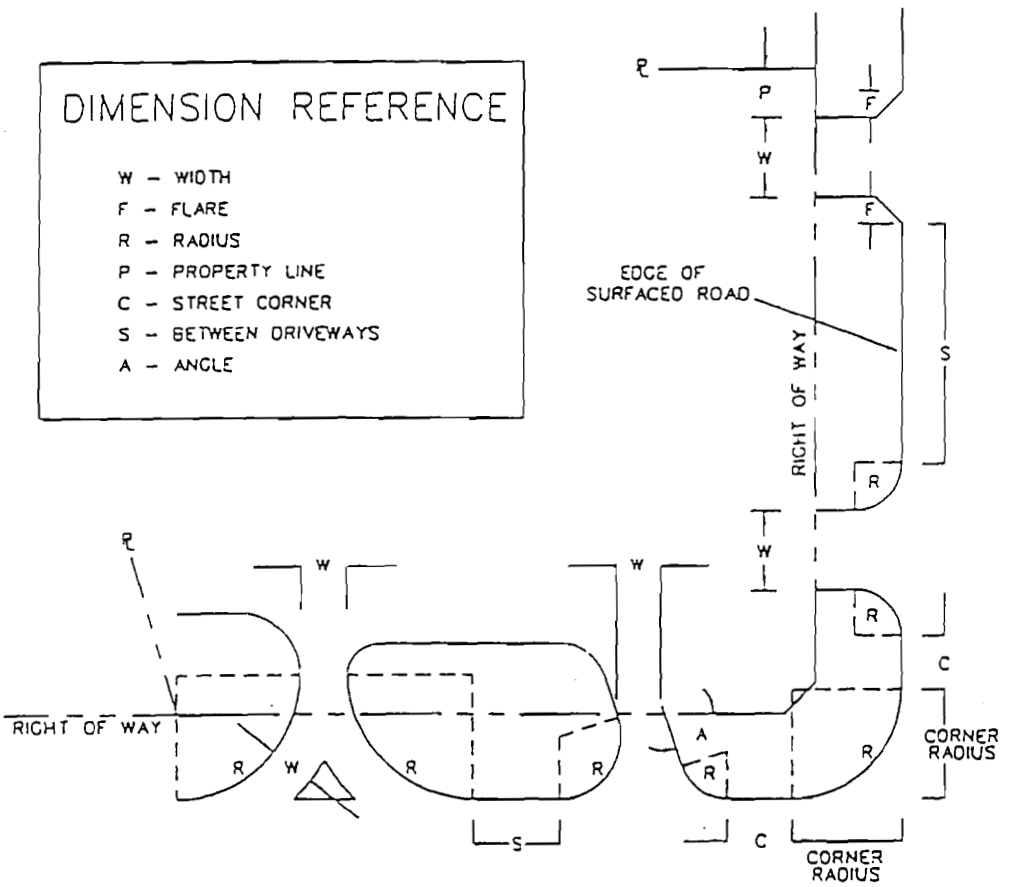
RESIDENTIAL DRIVEWAYS	LOCAL ROADS	MINOR COLLECTORS	MAJOR COLLECTORS
Nominal Width			
Single Residence (W)	12 - 18 feet	12 - 18 feet	14 - 18 feet
Two or Three Residence (W)	20 - 24 feet	20 - 24 feet	22 - 26 feet
Minimum Flare (F)	5 feet	5 feet	10 feet
Minimum Spacing			
From Property Line (P)	5 feet	5 feet	15 feet
From Street Corner (C)	50 feet	100 feet	100 feet
Between Driveways (S)	100 feet	100 feet	100 feet
Minimum Angle (A)	80 degrees	80 degrees	80 degrees

COMMERCIAL DRIVEWAYS	LOCAL ROADS	MINOR COLLECTORS	MAJOR COLLECTORS
Nominal Width			
One-Way (W)	16 feet	16 feet	16 - 20 feet
Two-Way (W)	24 - 30 feet	24 - 36 feet	24 - 36 feet
Minimum Radius (R)	25 feet	30 feet	35 feet
Minimum Spacing			
From Property Line (P)	25 feet	30 feet	35 feet
From Street Corner (C)	100 feet	100 feet	100 feet
Between Driveways (S)	100 feet	100 feet	100 feet
Minimum Angle (A)	80 degrees	80 degrees	80 degrees

Note: These design values are typical minimum standards but may be adjusted by the Public Works Department as required for the projected traffic conditions or for other good cause.

9.3.2 The location of the driveway should be compatible with the internal movement of traffic and the planned parking layout. The location of the driveway connection shall never allow vehicles to back across the throat of a driveway or back into the "through" travel lane. Developments with 30,000 square feet gross floor area or more shall be a minimum of 75 feet of storage lane at the entrance to avoid obstructing through traffic.

9.3.3 In the event that the guidelines set forth in this section will cause hardship or make driveway installation impossible, the Public Works Director may relax these requirements if suitable justification is demonstrated.



DRIVEWAY CONNECTION DIAGRAM

FIGURE 1

9.4 DRIVEWAY GRADES

Figure 2 established maximum grade changes for driveways from the three classes of roadways. For the values shown, no vertical curve connecting the tangents is necessary. For grade changes more abrupt than those in Figure 2, vertical curves at least 10 feet in length shall be used to connect tangents.

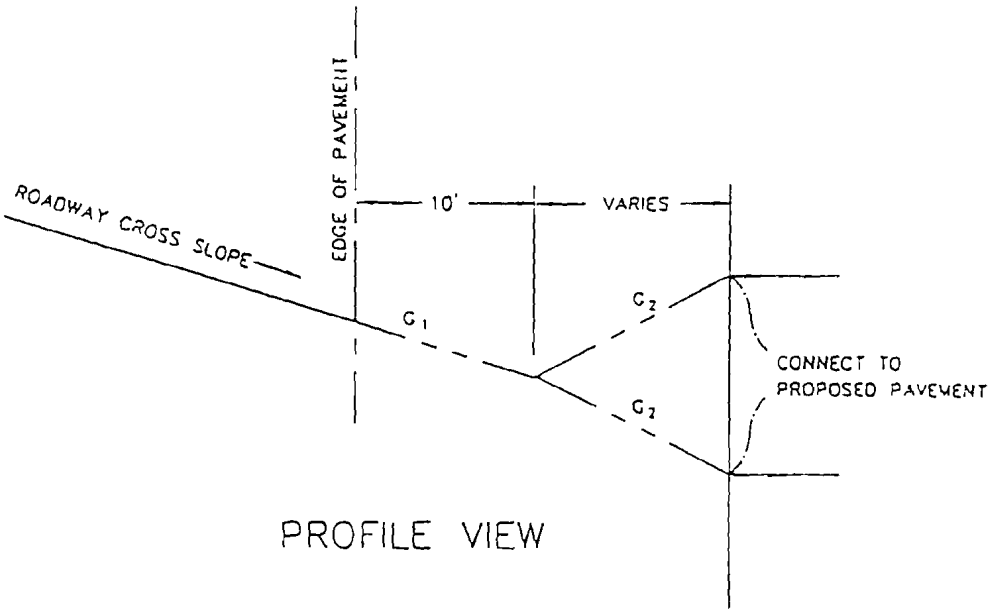
9.5 CONNECTION DESIGN

9.5.1 The plans submitted for review shall depict the proposed improvements for driveway connections and driveway approaches. The plans shall provide the driveway size, width, return radii, angle to the roadway, approach taper length, existing and proposed pavement marking, existing and proposed drainage pipes or other drains (including pipe size and type of material), and existing and proposed grades (including pavement design).

9.5.2 Proposed connections shall have no fences, walls, hedges, or other obstacles that will obstruct vision between a height of 2.5 feet and 10 feet above the centerline grade of the intersecting driveway, per F.D.O.T. Standards, Index No. 546.

9.5.3 All connections, both commercial and residential, to paved roadways shall be permanent type pavement, including Portland Cement Concrete or asphaltic concrete. Gravel, bituminous surface treatments, and other materials without a permanent surface are prohibited.

9.5.4 Pavement design requirements of commercial driveway connections, for the extent of permanent pavement required in Section 9.6 below, including stabilized subgrade, base course, and surface course, shall equal or exceed the requirements of the adjacent roadway travel lane. Pavement design requirements of residential driveway connections, for the extent of permanent pavement required in Section 9.6 below, shall equal or exceed the requirements for Local Roads, with the exception of Portland Cement Concrete driveways which shall have a minimum pavement thickness of 6 inches.



PROFILE VIEW

MAXIMUM GRADE CHANGE FOR DRIVEWAY CONNECTIONS

LOCAL ROADS	8.0%
MINOR COLLECTOR	4.0%
MAJOR COLLECTOR	3.0%

MAXIMUM GRADE CHANGE (Δ) = $G_1 - G_2$

FIGURE 2

9.5.5 All culvert ends shall be constructed with end treatments as shown in the Standard Details. All side drains shall be constructed with mitered end sections in accordance with Standard Detail number 23 of this ordinance or in accordance with F.D.O.T. Roadway Design Standards, Index number 273.

9.6 CONNECTION LIMITS

9.6.1 Permanent pavement for commercial driveways shall extend at least to the end of the driveway curb radius, or to the right-of-way line, whichever is greater. Permanent pavement for residential driveways shall extend a minimum of 8 feet from the edge of travel lane.

9.6.2 Easement for Ingress Egress: Easements dedicated for ingress and egress to provide access to property not having direct access on a state, county, or approved private roadway, shall be in conformance to the Nassau County Zoning Ordinance and this Ordinance.

9.7 TEMPORARY DRIVEWAY CONNECTIONS

9.7.1 Temporary driveway connections shall be permitted for activities which do not require a permanent driveway connection. Examples of activities that may obtain a temporary driveway connection may include, but are not limited to:

a. Temporary construction driveways;
b. Silviculture operations;
c. Agriculture activities;
d. Borrow pit and mining activities.

9.7.2 Right-of-way permits shall be obtained for all temporary driveway connections and shall meet the requirements of Section 8 of this Ordinance. Right-of-way permits for temporary connections shall expire after a 12 month period and may be extended for additional 6 month periods upon payment of the applicable right-of-way permit fee.

9.7.3 Temporary driveway connections shall be paved for a minimum of 5 feet from the edge of travel lane or paved shoulder. If a ditch or swale is present, a side drain is required which meets the requirements of Section 11.11.3 of this Ordinance. Any unpaved portion of the driveway connection shall be constructed to ensure that erosion will not occur that could affect the roadway drainage system.

9.7.4 Upon expiration of the temporary driveway connection permit, the driveway connection shall be removed and the right-of-way shall be restored to its original condition.

9.8 AUXILIARY LANES

9.8.1 Auxiliary turn lanes shall be required where safety and capacity considerations warrant their use for vehicle deceleration and storage. The provision of auxiliary lanes shall be required under the following conditions unless an engineering study can demonstrate that safety hazards or capacity deficiencies will not exist. Auxiliary turn lanes shall be required at connections to all Major and Minor Collectors under the following criteria:

9.8.1.1 Collector Roads With Posted Speed Limits of 35 mph or Greater:

a. Right Turn Lane

- Development will generate 250 vehicles per day (VPD) on the intersecting roadway connection; or,
- Gross floor area of non-residential development is 25,000 square feet; or,
- Development will generate 5 semitrailer truck (WB-40 or larger) trips per day.

b. Left Turn Lane

- Development will generate 500 VPD on the intersecting roadway or driveway connection; or,
- Gross floor area of non-residential development is 50,000 square feet; or,
- Development will generate 10 semitrailer truck (WB-40 or larger) trips per day.

9.8.1.2 Collector Roads With Posted Speed Limits of 30 mph or Less:

a. Right Turn Lane

- Development will generate 500 VPD on the intersecting roadway or driveway connection; or,
- Gross floor area of non-residential development is 50,000 square feet; or,
- Development will generate 5 semitrailer truck (WB-40 or larger) trips per day.

b. Left Turn Lane

- Development will generate 1,000 VPD on the intersecting roadway or driveway connection; or,
- Gross floor area of non-residential development is 100,000 square feet; or,
- Development will generate 10 semitrailer truck (WB-40 or larger) trips per day.

9.8.2 The geometric design of the auxiliary lanes shall be in accordance with F.D.O.T. Standards. The construction of auxiliary lanes shall meet other provisions of this Ordinance. Pavement design requirements of the auxiliary lanes, including stabilized subgrade, base course, and surface course, shall be the same as the requirements of the adjacent roadway travel lane. The entire width of the road

surface must be overlaid for the total length of the auxiliary lanes with a surface course of similar type as the adjacent roadway sections.

9.8.3 Protection of Right-of-Way:
Any property being developed or redeveloped shall be reviewed by the Public Works Director to determine if right-of-way shall be required for future widening of adjacent roadways or if right-of-way is required to bring roadway to current standards. Where the requirement exists that right-of-way be protected, the submitted plans for development or redevelopment may be modified by the Public Works Director to provide for the required right-of-way.

9.9 PARKING AND LOADING REQUIREMENTS

9.9.1 All parking lots, loading areas and vehicular use areas shall have durable surfaces with adequate drainage and stormwater management provisions as required by Section 10 of this Ordinance. Use of non-permanent surfaces will require demonstration that off-site impacts will not occur.

9.9.2 All off-street parking spaces shall be directly accessible from an aisle or driveway. Access to parking areas shall be designed so as not to obstruct free flow of traffic. Improvements shall be provided as necessary to prevent ingress and egress to parking areas at any point other than designated driveways.

9.9.3 Parking spaces at the perimeter of parking lots shall be provided with curbing, wheel stops, or other similar physical barrier to ensure that parked vehicles do not come into contact with sidewalks, landscaping, walls fences, or buildings. If a raised sidewalk is located immediately adjacent to the front overhang of the parking spaces, the parking stall depths may be decreased by 2 feet, provided the sidewalk width is increased by the corresponding 2 feet.

9.9.4 All parking spaces, except handicap accessible spaces and small car spaces, shall be a minimum of 9 feet in width. Other stall and aisle dimensions shall be based on the following standards (see Figure 3 for a depiction of the measurement criteria):

ANGLE (DEGREES)	STALL DEPTH TO WALL (D)	STALL DEPTH TO INTERLOCK (I)	AISLE WIDTH (W)*
90 (2-WAY)	18.0 feet	18.0 feet	24.0 feet
60 (2-WAY)	19.0 feet	17.5 feet	24.0 feet
75 (1-WAY)	19.5 feet	18.8 feet	23.0 feet
60 (1-WAY)	19.0 feet	17.5 feet	16.0 feet
45 (1-WAY)	17.5 feet	15.3 feet	12.0 feet

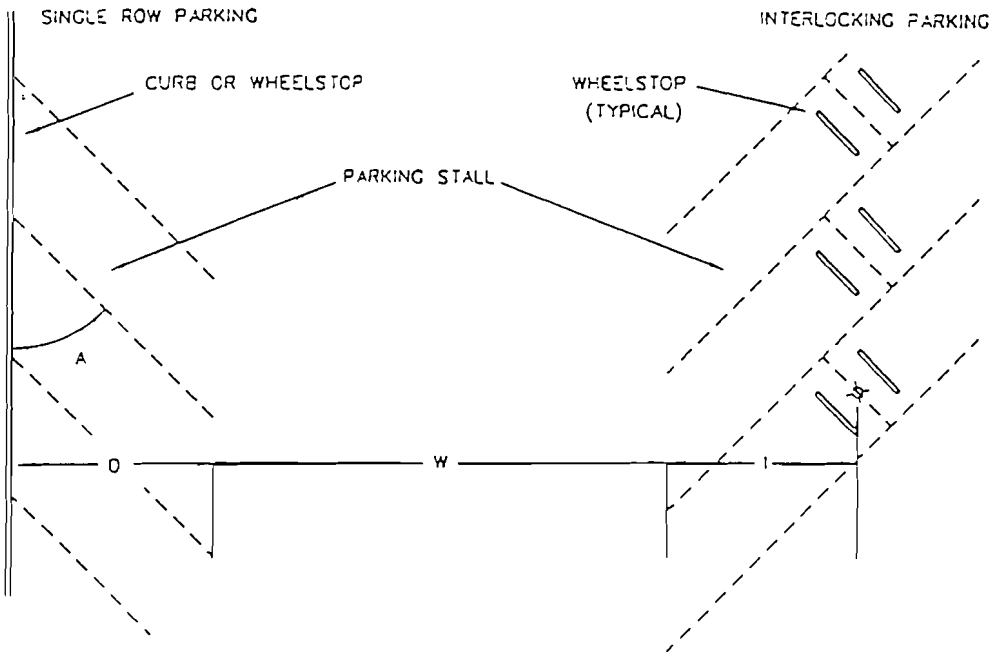
- Aisle width may be decreased by 2 feet for one-sided parking modules where 4 feet of clear, unobstructed area is provided adjacent to the parking aisle opposite the parking spaces.

9.9.6 Small car parking spaces shall be permitted in low turnover parking areas such as employee lots and residential parking sites. The small parking spaces shall not exceed 30 percent of the total required spaces and shall be clearly designated with signs. Small parking spaces shall be a minimum of 8 feet

in width with stall depths a minimum of 16 feet. Small car spaces shall be considered only for 90 degree layout.

9.9.7 Parking stall dimensions, access aisles, and curb ramps for handicap accessible spaces shall be designed to meet the standards of the Americans with Disabilities Act and the Florida Accessibility Code for Building Construction.

9.9.8 Commercial facilities with drive-through windows shall provide adequate vehicle storage area for queuing outside the road right-of-way.



PARKING DIMENSION REFERENCES

A = PARKING ANGLE

D = STALL DEPTH TO WALL

I = STALL DEPTH TO INTERLOCK

W = AISLE WIDTH

FIGURE 3

SECTION 10. STORMWATER MANAGEMENT

10.1 OBJECTIVES

10.1.1 Section 10 of this Ordinance shall govern the design and construction or alteration of all drainage systems, natural or man-made, within the unincorporated areas of Nassau County. The following objectives are hereby established in order to protect, maintain and enhance both the immediate and the long term health, safety, and welfare of the citizens of Nassau County, while allowing landowners reasonable use of their property:

a. To reduce the risk of loss of life and property due to flooding;

b. To reduce the capital expenditures associated with flood control and the installation and maintenance of storm drainage systems;

c. To minimize the adverse impact of land development and related construction activities on property, environmentally sensitive areas, water and other natural resources.

10.1.2 The Owner/Applicant should respect the rights of other land owners with regard to volume, rate, and quality of stormwater runoff leaving a project site; and, shall mitigate in accordance with the requirements of this Ordinance, the predicted impacts of the proposed activity on other lands through

the use of a properly designated, constructed and maintained stormwater management system. In mitigating impacts the following shall be addressed:

a. Impacts to adjacent and downstream collection, storage, and conveyance systems due to increased volume and rate of stormwater runoff leaving a project site;

b. Impacts to adjacent and upstream runoff contributing areas which may be hydrologically or hydraulically connected to the project;

c. Impacts to adjacent and downstream property due to sediments and other pollutants carried by stormwater runoff during and after construction of the project;

d. Impacts to "Special Flood Hazard Areas" due to earthwork activities associated with the project which may result in reduced flood storage or conveyance capacity;

e. Impacts to "Volume Sensitive" areas which are flood prone due to being land-locked or closed areas having either no drainage outlet or limited outlet capacity.

10.1.3 Nassau County acknowledges that under certain circumstances, it may not be possible or practical to meet all of the objectives of Section 10.1. Projects will be evaluated to determine the methods by which the Owner/Applicant proposes to mitigate undesirable effects resulting from an inability to meet all the objectives herein. A project that meets all of the minimum design standards and permitting requirements established by Section 10 shall be presumed to adequately mitigate for stormwater runoff impacts identified above.

10.1.4 Compliance with this Ordinance shall not, by itself, relieve the designer, the contractor, or the owner of his or her liability to others affected by the drainage work.

10.2 ACTIVITIES REQUIRING A PERMIT

10.2.1 Unless exempted under Section 10.3 below, the following activities will require prior approval through the Nassau County Development Review Process:

a. Alteration, restriction, or removal of existing natural drainage collection, storage and conveyance systems;

b. Alteration, restriction, removal, reconstruction, or abandonment of existing man-made collection, storage, and conveyance systems;

c. Any activity which alters or disrupts the natural flow patterns of stormwater runoff, or would result in an increase in stormwater discharge volume and/or rate. These activities include, but are not limited to: draining, compaction, filling, excavating, diverting or otherwise altering the natural flow patterns of stormwater runoff;

d. Changing the use of land and/or the construction of a structure or change in the size of one or more structures;

e. The development of recorded and unrecorded subdivisions or the replatting of recorded subdivisions, residential or non-residential.

10.3 EXEMPTIONS

10.3.1 Except as noted, the following projects shall be exempted from the stormwater permitting requirements of this Ordinance:

a. Agricultural and forestry pursuits;

b. Maintenance work performed on existing mosquito control drainage canals;

c. Maintenance work performed on existing stormwater management systems provided that such maintenance work does not alter the purpose and intent of the system as constructed;

d. Maintenance or renewal of existing pavement or buildings;

e. Single family dwelling units and duplexes which are not a part of a larger common plan of development or sale;

10.3.2 Projects meeting the provisions of Section 10.3.1(e) above shall be subject to the requirements of Section 10.6.8, "Special Flood Hazard Areas and Flood Prone Areas", and Section 10.8, "Finished Floor Elevations and Lot Grading Plans".

10.3.3 The following projects shall be considered minor in nature and shall be exempted from the stormwater discharge requirements of Section 10.6.3.1 only. However, depending on soil types and hydrologic conditions, projects exempted under this provision shall at a minimum provide retention of stormwater runoff generated from the first one inch of rainfall resulting from the developed or redeveloped area. In cases where soil types and groundwater table conditions are not conducive to retention systems, a stormwater detention system shall be provided with the above required stormwater volume released over a period of 24 to 72 hours following the storm event.

10.3.3.1 Single triplexes and quadraplexes provided that lot coverage including the building, driveways, and parking area does not exceed 35 percent of the total developable lot area and the lot is not part of a larger common plan of development or sale.

10.3.3.2 Expansions or modifications to existing projects provided that all of the following requirements are met:

a. The site is currently served by an existing and maintained stormwater management system;

b. The existing site improvements plus the proposed expansion does not exceed 70 percent total site impervious coverage;

c. The expansion consists of no more than 2800 square feet of building, sidewalks, and associated parking area. The requirement is based on a one-time only expansion or a cumulative expansion up to the 2800 square feet. Any further expansions shall be nonexempt and shall meet all the stormwater management requirements of Section 10 of this Ordinance;

d. The existing stormwater management system can be enlarged to collect and retain or detain, as required above, stormwater runoff from the developed or redeveloped area;

e. The proposed improvements and alterations to the project site will not cause unreasonable impacts to adjacent properties;

f. All other applicable land development regulations have been met.

10.3.3.3 New projects which are less than or equal to 35 percent impervious lot coverage up to a maximum of 9000 square feet of impervious lot coverage including building, sidewalks, driveway, and parking area and provided that all of the following are met:

a. No more than 15,000 square feet of the project site is altered, including clearing and earthwork;

b. Retention or detention of stormwater runoff as required above can be provided;

c. The proposed improvements and alterations to the project site will not cause unreasonable drainage impacts to adjacent properties;

d. All other applicable land development regulations have been met.

10.3.4 Projects meeting the requirements of Section 10.3.3 above shall be required to submit a drainage plan meeting the requirements referenced in Section 10.7 below and are subject to "As-Built" inspection and certification.

10.3.5 The Public Works Department shall have the right to exempt any project from the drainage requirements herein, where, in the judgment of the Public Works Department, the proposed improvements will result in less than a 5 percent increase in volume and/or rate of stormwater runoff from the project site; impacts adjacent and downstream properties are negligible; and, there is no history of flooding problems. This exemption must be in writing to be valid.

10.3.6 Exemption of any project under the provisions of Section 10.3 does not relieve the Owner/Applicant from obtaining permits from other local, state or federal agencies which may have jurisdiction over the project or from meeting all other applicable land development regulations.

10.4 CERTIFICATIONS

10.4.1 Professional Certification

10.4.1.1 All construction drawings and related design documents pertaining to stormwater management shall be prepared by a Florida Registered Engineer or other professional allowed under state law, who is competent in the fields of hydrology; drainage and flood control; erosion and sediment control; and, stormwater pollution control. All final drawings, specifications, plans, reports, or documents prepared or issued by the registered professional shall be signed, dated, and sealed in accordance with Florida Statues. Each sheet or page of the final drawings of record shall bear the signature, date and embossed seal of the registered professional. All drawings of record shall clearly identify in a legible manner the name and registration number of the registered professional.

10.4.1.2 The registered professional shall certify to Nassau County, either on the drainage plan or by separate document, that the drainage facilities shown on the final drawings of record were designed in conformance with the Nassau County Roadway and Drainage Standards Ordinance. A standard form meeting this requirement is provided as EXHIBIT 2 of this Ordinance.

10.4.2 Operation and Maintenance

Projects which do not otherwise require establishment of operation and maintenance responsibility in public records shall be required to designate the entity responsible for operation and maintenance prior to approval for construction. A standard form meeting this requirements is provided as EXHIBIT 5 of this Ordinance. The designated entity responsible for the operation and maintenance of the stormwater retention facility shall submit a copy of the bi-annual report required by St. Johns River Water Management District to the Public Works Department.

10.4.3 As-Built Certification

"As-Built" survey requirements and related certification shall be provided in accordance with the requirements of Section 5 of this Ordinance. A standard form meeting this requirement is provided as EXHIBIT 4 of this Ordinance.

10.5 LEGAL POSITIVE OUTFALL

10.5.1 All stormwater discharges from a project shall be directed to a point of Legal Positive Outfall from the point of discharge to the receiving body of water without unreasonably impacting the flood levels of any upstream, downstream, or adjacent property relative to the minimum design standards of Section 10.6 and the design considerations for mitigating unreasonable impacts set forth in Section 10.1.2. No diversions of surface waters will be permitted if properties downstream of the diversion would be unreasonably impacted by such diversion for storm events up to and including the 100 year storm. Any improvements or increase in capacity of downstream facilities necessary to serve the project shall be the responsibility of the Owner/Applicant and shall be constructed in conjunction and prior to the project construction unless otherwise approved or provided for by Nassau County.

Financial assurances meeting the requirements of Section 12 of this Ordinance may be required prior to approval by Nassau County.

10.5.2 County approval of a project does not result in the grant of any easements or property rights or authorize encroachment upon or use of the property by others. The County will require proof that the Owner/Applicant and the Project Engineer have verified the existence of a legal right to discharge stormwater from the project outfall.

10.6 MINIMUM DESIGN STANDARDS

10.6.1 General

10.6.1.1 In meeting the objectives of Section 10.1 above, storage of stormwater runoff shall be provided to meet the minimum design standards below. Required storage shall meet the volume requirements for water quality and attenuation of peak discharge rate and/or volume (for volume sensitive areas), whichever is greater. In the event another local, state, or federal regulation is more restrictive, the more restrictive standards shall prevail.

10.6.1.2 Projects which are to be constructed in phases shall provide drainage improvements meeting the minimum design standards for each phase. No phase shall be dependent upon the ultimate installation of a future phase.

10.6.1.3 Treatment or attenuation of stormwater runoff will not be allowed in roadside swales.

10.6.1.4 All wet retention ponds used for the treatment or attenuation of stormwater runoff located within commercial developments shall be fenced. Minimum fencing requirements shall be F.D.O.T. Type B (6' High).

10.6.1.5 All wet retention ponds used for the treatment or attenuation of stormwater runoff must be posted "No Swimming". Public warning signs shall be no larger than two (2) square feet in size and must be placed every two hundred feet (200') around the perimeter of the pond.

10.6.2 Geotechnical Evaluation

10.6.2.1 The United States Department of Agriculture (U.S.D.A.), Soil Conservation Service "Soil Survey of Nassau County, Florida" shall be used as a planning guide only. Soil profiles using the U.S.D.A. soil classification method shall be performed on sufficient areas throughout the site to verify soil types and hydrological conditions.

10.6.2.2 A geotechnical report from a licensed engineer or other professional authorized under the Florida Statues to do such work shall be submitted for any stormwater storage facility proposed as a "dry" facility or any stormwater storage facility which uses infiltration for sizing of the facility. The report shall include soil boring logs, estimated seasonal high water table, locations of confining layers, results of hydraulic conductivity tests, and any other parameters which may affect the design or recovery of the facility. Soil borings shall extend a sufficient

distance below the proposed bottom elevation of the stormwater storage facility to identify any constraints that may affect the design or recovery of the system. Guidelines pertaining to the depth and number of borings and hydraulic conductivity tests may be obtained from the Public Works Department. In area where it is evident that a seasonal high water table or a confining or impermeable soil lay is within 4 feet of the bottom elevation of the proposed retention area, a "mounding analysis" is required to substantiate the design and recovery of the system.

10.6.3 Specific Design and Performance Criteria

10.6.3.1 Except for those projects which are exempted under Section 10.3 above, allowable stormwater discharge rate and discharge volume from a project shall be based on the following design and performance criteria unless otherwise indicated below:

a. Projects which discharge or contribute runoff to downstream areas which are not volume sensitive and have adequate capacity to accept and convey stormwater runoff from the project site without increasing flood levels shall limit peak rates of discharge for developed conditions to pre-developed or existing conditions for the 5 year, 10 year, and 25 year design storm event.

b. Projects which discharge or contribute runoff to downstream areas which are volume sensitive and/or do not have adequate capacity to accept and convey stormwater runoff from the project site without increasing flood levels shall provide detention of the 25 year discharge volume for developed conditions such that the volume released from the project during the critical time period is no greater than the volume released under pre-developed or existing conditions during the same time period. For the purposes of this requirement the critical time period shall be the storm duration as indicated in Section 10.6.3.7 below unless a detailed hydrologic study of the contributing watershed demonstrates otherwise.

c. Unless exempt, all projects shall meet State water quality discharge standards as regulated by the St. Johns River Water Management District. The Public Works Department shall presume that this requirement is met upon submittal of a copy of a valid St. Johns River Water Management District permit.

10.6.3.2 The Public Works Department shall have the right to exempt any project from the discharge requirements of Section 10.6.3.1(a) which borders on and discharges directly into the Nassau River; the St. Mary's River, the Intercoastal Waterway and its tributaries, or the Atlantic Ocean.

10.6.3.3 Stormwater discharge analysis shall consist of generating pre-development and post-development runoff hydrographs; routing the post-development runoff hydrographs through the stormwater storage system; and, sizing the storage system and discharge control structure(s) to limit post-development discharge rate and/or volume to pre-development or existing conditions for the storm events indicated in Section 10.6.3.1 above. Stormwater discharge computations shall include the storm frequency, storm duration, rainfall amount, rainfall distribution, hydrologic soil conditions, surface storage, changes in land use cover and

slope conditions, off-site runoff contributing areas, time of concentration, tailwater conditions, and any other changes in topographic and hydrologic characteristics. Where applicable, projects will be divided into sub-basins according to the drainage divides to allow for more accurate hydrologic simulations. Interconnected pond systems shall be molded as such.

10.6.3.4 Depending on soil types and hydrologic conditions, infiltration may be utilized in conjunction with flood routing procedures to satisfy the requirements of Section 10.6.3.1(a) and 10.6.3.1(b) where soil and groundwater table conditions are conducive to such practices, such as SCS Hydrologic Group "A" soils.

10.6.3.5 All stormwater storage facilities shall be designed to recover sufficient volume to satisfy state water quality discharge standards with total volume recovery within 7 to 14 days following the design storm event.

10.6.3.6 Rainfall data shall be based on the 24 hour precipitation amounts contained in the SJRWMD Technical Publication SJ 91-3 entitled "24-Hour Rainfall Distributions for Surface Water Basins Within the St. Johns River Water Management District, Northeast Florida".

10.6.3.7 Rainfall distributions shall be based on the 24 hour duration rainfall event utilizing the SCS Type II Florida Modified rainfall distribution or an applicable basin specific storm frequency distribution contained in the SJRWMD Technical Publication SJ 91-3 entitled "24-Hour Rainfall Distributions for Surface Water Basins Within the St. Johns River Water Management District, Northeast Florida".

10.6.3.8 Except as indicated in Section 10.6.3.9, hydrographs for flood routing procedures shall use the U.S. Department of Agriculture, Soil Conservation Services (SCS) runoff curve number method. Ultimate land usage shall be utilized for post-development design and analysis using average antecedent moisture conditions (AMC II). Selection of appropriate runoff curve numbers shall be based on values contained in the latest edition of the SCS Technical Release 55 entitled, "Urban Hydrology for Small Watersheds". With prior approval of the Public Works Department, other methods may be accepted based on applicability to site conditions, soil and hydrologic conditions, and demonstration that results are comparable to the SCS runoff curve number method.

10.6.3.9 The following methods are accepted for generating runoff hydrographs for flood routing procedures:

a. SCS Unit Hydrograph Method
b. Santa Barbara Urban Hydrograph Method
c. Modified Rational Method*

* Use of the Modified Rational Method for flood routing procedures shall be limited to small non-residential projects less than 5 acres.

10.6.4 Collection and Conveyance Facilities

Unless otherwise approved by the Public Works Department, the following standards shall apply to all collection, storage, and conveyance facilities.

10.6.4.1 Temporary roadway flooding for the storm events indicated below may be permissible during the design storm event only if full recover and use of the roadway is available at the end of the design storm event. Flood routing analysis shall show that flood elevations at no time will exceed the following:

a. Exceed an elevation that would permit flood water encroachment of more than one-half of a travel lane at the lowest elevation on the centerline profile of a roadway for a 25 year storm event;

b. Exceed a depth of 1.0 foot (12 inches) above the lowest elevation on the centerline profile of a roadway located within a Special Flood Hazard Area or exceed the finished floor elevation of any structure within the project for the 100 year storm event whether located in a Special Flood Hazard Area or not.

10.6.4.2 Roadway storm sewer systems shall be designed to transport stormwater runoff resulting from a 5 year frequency storm event using the F.D.O.T. Zone 4 intensity-duration-frequency curves. Time of concentration shall be based on standard accepted engineering practice and should consider, where applicable, overland sheet flow, shallow concentrated flow, open channel flow, or a combination of these conditions. For systems with time of concentrations less than 10 minutes, the time of concentration of 10 minutes may be used.

10.6.4.3 Storm sewer systems serving parking lots or other non-residential projects shall be designed to collect and handle all stormwater flows into and through the system without creating unreasonable impacts to adjacent properties. Temporary ponding in parking lots is permissible if a shallow depth and if full recovery and use of the parking area is available at the end of the storm event. At a minimum, the storm sewer system shall be designed to convey the 5 year storm event using the F.D.O.T. Zone 4 intensity-duration-frequency curves.

10.6.4.4 Friction losses shall be considered in the computation of the design hydraulic gradient for all storm sewer systems. Energy losses associated with special pollution control structures (weirs, baffles, etc.) and losses due to utility conflict structures shall also be included when present in the system. When hydraulic calculations do not consider all minor energy losses, the elevation of the hydraulic gradient for design storm conditions shall be at least 1.0 foot below the gutter elevation. If all energy losses are calculated, the hydraulic gradient shall be allowed to reach the roadway gutter elevation. Minor energy losses shall include those losses associated with entrance, exit, expansion, contraction, bends, and junction/manhole losses.

10.6.4.5 Determination of hydraulic gradient and sizing of the storm sewer system shall be based on the highest tailwater which can be reasonably expected to occur coincident with the applicable design storm event. Standard design tailwater conditions for the design of storm sewer systems are as follows:

a. Systems which discharge into ponds, lakes, and other wet facilities shall use the stage occurring at peak flow conditions for the design storm event used. Where no outlet exists, the seasonal high water elevation shall be used at the beginning of the storm event;

b. Systems discharging into tidal areas such as the Atlantic Ocean, the Intracoastal Waterway, the St.Mary's River and the Nassau River use the Mean High Tide elevation plus 12 inches;

c. Systems discharging into regulatory floodways shall use a tailwater elevation derived by use of the Federal Emergency Management Agency (FEMA) flood profile data contained in the FEMA Flood Insurance Rate Study or other approved water surface profile study;

d. Systems discharging into ditches shall use the normal depth flow in the ditch or if downstream control exists, the greater of the normal depth flow or the stage due to backwater from the downstream control;

e. Systems which connect to existing storm sewer systems shall use the hydraulic grade line of the existing system at the connection.

10.6.4.6 All manual calculations shall be submitted in standard FDOT storm sewer tabulation format. Printouts from commercially available computer software developed specifically for analysis and design of storm sewer systems is permissible.

10.6.4.7 The minimum design velocity for storm sewer systems shall be 2.5 feet per second. Energy dissipation will be required at the point of discharge for velocities greater than 6 feet per second. Submergence of the pipe outlet by at least two-thirds of the pipe diameter below normal water level may be considered as energy dissipation.

10.6.4.8 Unless otherwise approved by the Public Works Department, the minimum allowable pipe size for storm sewer systems shall be 15 inches. The maximum pipe lengths without maintenance access structures shall be based on the following:

PIPE SIZE	MAXIMUM PIPE LENGTH
15 inches	200 feet
18 inches	300 feet
24 inches to 36 inches	400 feet
42 inches and larger	500 feet
Box Culverts	500 feet

10.6.4.9 Open channels (swales, ditches, and canals) shall be designed to convey, without damage, stormwater flow from design storm frequencies as follows:

a.	Outfall ditches and canals	25 year
b.	Collector Road swales and ditches	10 year
c.	Local Road swales and ditches	10 year

10.6.4.10 Unless site specific factors warrant the use of larger design storm events, local road cross-drains shall be designed to convey, without damage, the 5 year storm event based on open channel flow conditions and the 10 year storm event utilizing available head at the entrance. Collector road cross-drains shall be designed to convey, without damage, the 10 year storm event based on open channel flow conditions and the 25 year storm event utilizing available head at the entrance.

10.6.4.11 Unless site specific factors warrant the use of larger design storm events, roadway side drains shall be designed to convey, without damage, the 5 year storm event.

10.6.5 Erosion and Sediment Control

10.6.5.1 Erosion and sediment control best management practices shall be used as necessary during construction to retain sediment on-site. These management practices shall be designed according to specific site conditions and shall be shown and noted on the "Grading and Drainage Plan" or on a separate "Erosion and Sediment Control Plan". Information pertaining to the construction, operation and maintenance of the erosion and sediment control practice shall be included. Sediment accumulations in the system from construction activities shall be removed to prevent loss of storage volume. Sedimentation occurring to off-site areas shall be halted and the area immediately restored to conditions prior to sedimentation.

10.6.5.2 All side slopes and other areas disturbed by construction shall be stabilized by sodding, hydro-mulching or other appropriate vegetative or non-vegetative erosion control measures. Grass shall be fully established prior to scheduling for final inspection of the project and/or acceptance by the Public Works Department.

10.6.6 Public Safety

Normally dry basins designed to impound more than two feet of water or permanently wet basins shall be designed with side slopes no steeper than 4 feet horizontal to 1 foot vertical (4:1) out to a depth of 2 feet below the surface control elevation. As an alternative, the basins shall be fenced or otherwise restricted from public access if the slopes must be steeper due to space limitations or other constraints.

10.6.7 Access and Maintenance

10.6.7.1 Stormwater storage facilities shall be designed and constructed to permit adequate equipment access. Facilities designed and constructed to serve more than one property owner, such as residential and non-residential subdivisions shall provide an access and maintenance buffer contained within a dedicated tract or easement designated for the stormwater storage

facility adequate to provide for future maintenance. Except where existing septic systems or wells are present on adjacent property, an access and maintenance buffer of width meeting the requirements below shall be provided landward of the top of bank elevation of all stormwater storage facilities. Where existing septic systems or wells are present on the adjacent property, a buffer of sufficient width to meet separation requirements between the stormwater storage facility and the well or septic system shall be provided as approved by the State Health Department or, in the case of public water wells, as approved by the St. Johns River Water Management District. Minimum buffer widths shall be based on the following unless the Owner/Applicant can demonstrate lesser widths will be adequate to provide maintenance of the stormwater storage facility:

STORAGE FACILITY SIZE	**BUFFER WIDTH**
Less than ¼ acre	5 feet
¼ acre to 1 acre	10 feet
Greater than 1 acre	15 feet
MAXIMUM SLOPE	**10 feet horizontal to 1 foot vertical (10:1)**

10.6.7.2 Minimum drainage easement widths for conveyance facilities other than those within a road right-of-way shall be based on the following:

a. Piped Systems:

15 feet of the pipe width plus 2 times the average depth to the pipe invert rounded up to the nearest 5 foot increment, whichever is greater.

b. Open Channels:

30 feet or the width to convey the required design flow plus 12 feet for access and maintenance rounded up to the nearest 5 foot increment, whichever is greater.

Lesser widths may be approved by for minor conveyance systems such as rear yard swales upon demonstration that these minor systems are adequate to convey the design flows from the contributing drainage area; are capable of being effectively maintained by the property owner; and, are not crucial to the master stormwater conveyance system.

10.6.7.3 Unless otherwise approved by the Public Works Department, no permanent structure shall be allowed within any public or private drainage easement. For the purpose of this Ordinance, examples of permanent structures that include, but are not limited to: buildings, footings, decks, screened enclosures, patios, swimming pools, and swimming pool decks.

10.6.7.4 The Public Works Department may require a "Drainage Right-of-Way" in lieu of a drainage easement where necessitated by maintenance requirements and functional importance to the contributing drainage easements. No structures, whether temporary or permanent, shall be allowed within an area designated as a drainage right-of-way.

10.6.8 Special Flood Hazard Areas and Flood Prone Areas

10.6.8.1 Construction occurring in "Special Flood Hazard Areas" as identified by the Flood Insurance Rate Maps and/or the Flood Hazard Boundary Maps shall meet the requirements of the Federal Emergency Management Agency national Flood Insurance Program as adopted by Ordinance 98-01entitled, "Flood Plain Ordinance" and any revisions and updates thereof.

10.6.8.2 Filling of "Flood Prone Areas" will be prohibited unless the Owner/Applicant can mitigate for the lost storage volume by providing other drainage improvements to compensate for the lost storage volume elsewhere within the flood prone area. Other drainage improvements may include compensating storage, downstream conveyance improvements, or, a combination of compensating storage and downstream conveyance improvements. No filling shall be allowed within land-locked or closed type basins unless the Owner/Applicant can demonstrate that the filling activities will not negatively impact other properties within the flood prone area.

10.6.8.3 Flood prone areas shall be designated by the Board of County Commissioners upon Staff recommendations.

10.7 SUBMITTAL REQUIREMENTS

10.7.1 The Owner/Applicant is responsible for including in the stormwater management review submittal sufficient information for the Public Works Department to evaluate the environmental characteristics of the affected areas, the potential and predicted adverse impacts of the proposed activity on other lands, and the effectiveness of reducing adverse impacts. The Public Works Department will establish submittal criteria relating to the contents of all development review submittals. The criteria for submittals shall establish minimum requirements for the contents of construction plans and related design documents to assure requirements herein have been met.
Other information may be requested if the Public Works Department believes the information is reasonably necessary for support of the drainage analysis including maps, charts, graphs, tables, photographs, narrative descriptions, calculations, explanations, and citations to supporting references as appropriate to communicate the required information for responsible evaluation of the site.

10.8 FINISHED FLOOR ELEVATIONS AND LOT GRADING PLANS

10.8.1 Finished floor elevations shall be constructed at a level 1 foot or greater than the 100 year flood level. Buildings located in "Special Flood Hazard Areas" shall meet the requirements of the Federal Emergency Management Agency and related regulations as referenced in Section 10.6.8.1 above. Unless greater finished floor elevations have been specified within an approved drainage master plan, floor slab elevations shall be constructed a minimum of 18 inches above the centerline elevation of adjacent roadways on lots one acre or less in size. In all cases, the 100 year flood elevation as established by the Federal Emergency Management Agency shall be the controlling minimum elevation.

10.8.2 Fill may be placed within the horizontal limits of the area defined by the building foundation and up to 5 feet outside the building foundation under the authority of the building permit issued. If fill

is to be placed outside of the building foundation plus 5 feet, or within 10 feet of a property line, a lot grading plan shall be required depicting the existing and proposed conditions prior to any filling activities unless otherwise approved by the Public Works Department. This requirement shall also include fill associated with raised septic systems. Additionally, a lot grading plan is required for any fill work that changes the existing or natural stormwater drainage patterns and causes off-site impacts. The lot grading plan is required regardless of whether the fill work is associated with a building permit. At a minimum, the lot grading plan shall be drawn to a scale of 1 inch equals 50 feet or larger and shall include the following information:

a. Property boundary lines;

b. Existing drainage patterns on the site including points of entry of off-site drainage contributing areas, points of exit of stormwater runoff and if necessary, existing elevations and/or elevation contours;

c. Proposed limits of filling and grading of the site including fill depth, slopes, floor elevations, and if necessary, final elevations and/or elevation contours of the site;

d. Location of swales and drains to convey stormwater runoff from the site and any off-site contributing drainage areas to an appropriate point of disposal without unreasonably impacting adjacent and downstream properties;

e. Any other pertinent information as may be required by the Public Works Department as appropriate for responsible evaluation of the grading plan.

In addition, the lot grading plan shall demonstrate that the fill will not block natural flow of stormwater runoff from adjacent properties and will not divert or direct additional stormwater runoff onto adjacent properties. Any additional stormwater runoff shall be directed to the roadway drainage system or other approved drainage facility.

10.8.3 The Public Works Department may require construction of retaining walls, roof gutters, underdrains, swales, or any other facility deemed necessary to provide adequate drainage.

SECTION 11, ROADWAY DESIGN

11.1 GENERAL

11.1.1 All new roadways shall be paved in accordance with approved design and construction plans prepared to equal or exceed the design standards established in this section.

11.1.2 The design and specifications for Major and Minor Collectors shall comply, at a minimum, with the Florida Department of Transportation (F.D.O.T.) "Roadway and Traffic Design Standards" (Standards), "Manual of Uniform Standards for Design, Construction and Maintenance for Streets and Highways" (Green Book), and the "Manual of Uniform Traffic Control Devices" (MUTCD), unless specifically revised by this Ordinance or the STANDARD DETAILS. Material specifications and construction procedures shall comply to the F.D.O.T. "Standard Specifications for Road and Bridge Construction" (Specifications).

11.1.3 The STANDARD DETAILS graphically depict the roadway and drainage design details for construction within unincorporated Nassau County and are consistent with the objectives and standards contained within this Ordinance. The County Coordinator, upon the recommendation of the Director of Public Works, shall be authorized to amend the STANDARD DETAILS from time to time when necessary for the benefit of the citizens of Nassau County. Variations and waivers to the STANDARD DETAILS shall be permitted consistent with the provisions of Section 16 of this

Ordinance. The STANDARD DETAILS shall not be incorporated into construction plans by reference.

11.2 RIGHT-OF-WAY REQUIREMENTS

11.2.1 Minimum right-of-way widths shall be as listed below. These minimum widths may be increased to allow sufficient width for drainage facilities, utilities, sidewalks, bicycle paths, or other appurtenances within the right-of-way.

MINIMUM RIGHT-OF-WAY WIDTHS

ROADWAY	CURB/GUTTER		SWALE SECTION	
CLASSIFICATION	2-LANE	4-LANE	2-LANE	4 -LANE
Local Roads	60 feet*	N/A	60 feet	N/A
Minor Collectors	80 feet	110 feet	90 feet	130 feet
Major Collectors	80 feet	130 feet	100 feet	150 feet

* Right-of-way widths for local road curb and gutter sections may be reduced to 50 feet upon demonstration that a utility easement 5 feet in width or greater is provided outside of the right-of-way on each side.

11.2.2 All access easements shall be a minimum width of sixty (60) feet. The roadway within said easement shall be constructed as per this Ordinance, Section 11 Roadway Design. A sixty (60) foot easement can serve up to five (5) dwelling units. Any additional dwelling units will require the approval of the Public Works Director, or his designee.

11.2.3 If pavement within a roadway is divided, such as to allow for preservation of trees within the right-of-way, the width for the remaining portion of the right-of-way outside of the travel lanes shall comply with the Roadway Typical Section for the designated roadway classification. Design must be adequate to assure that the tree root system will not adversely affect the integrity of the roadway in the future. The County will not assume maintenance responsibility, for landscaped medians within the County right-of-way.

11.2.4 All intersecting roadways shall require additional right-of-way at the corners. The corner clip shall connect the two points which are 20 feet from the intersecting right-of-way lines (see STANDARD DETAILS).

11.2.5 Reduction of the minimum right-of-way widths listed in Section 11.2.1 above may be permitted if documentation demonstrates sufficient width to safely accommodate all planned or required drainage facilities, utilities, sidewalks, bicycle paths, or other appurtenances within the right-of-way or separate easements. Requirements of this Ordinance shall not prohibit the County from undertaking, or permitting, expansion of existing travel lanes within right-of-way not meeting the minimum widths in Section 11.2.1 above if environmental, legal, or physical constraints prevent expansion of such right-of-way to the minimum widths so long as public safety is not jeopardized.

11.2.6 A curb and gutter section is required in all developments containing lots 1 acre or less in size.

11.3 MINIMUM LANE WIDTHS

11.3.1 Minimum travel lane widths shall be as follows:

ROADWAY CLASSIFICATIONS	MINIMUM LANE WIDTHS
Local Roads (curb & gutter)	10 feet
Local Roads (swale)	11 feet
Minor Collectors	12 feet
Major Collectors	12 feet

Note: See Section 9, ACCESS MANAGEMENT for details on driveway connections.

11.3.2 If pavement within a roadway is divided, such as to allow for preservation of trees, the minimum pavement width shall be 14 feet. The minimum pavement width of 14 feet shall be measured from the gutter line for curb and gutter sections. Right-of-way widths for the divided section shall be in accordance with Section 11.2.3 above.

11.4 CUL-DE-SACS

11.4.1 All roadways without paved outlet shall be terminated with a cul-de-sac (see STANDARD DETAILS).

11.4.2 The minimum right-of-way width for a cul-de-sac bulb with curb and gutter sections shall be a 65 feet radius. For a swale section, the minimum right-of-way width shall be a 65 feet radius. These widths may be increased to allow sufficient width for drainage facilities, utilities, sidewalks, bicycle paths, or other appurtenances within the right-of-way.

11.4.3 The minimum pavement radii for cul-de-sacs shall be 50 feet with the pavement design for the cul-de-sac bulb consistent with the roadway.

11.4.4 Other variation or shapes of cul-de-sacs may be allowed if the right-of-way is available and the design conforms to American Association of State Highway and Transportation Officials (AASHTO) criteria contained in "A Policy on Geometric Design of Highways and Streets".

11.5 PAVEMENT DESIGN

11.5.1 Stabilized Subgrade

11.5.1.1 All roadway and driveway subgrades shall have a minimum width of 48 inches greater than the finished surface course (See Roadway Typical Sections, in the STANDARD DETAILS). Minimum depth and bearing values shall be as follows:

ROADWAY CLASSIFICATION	STABILIZED DEPTH	LIMEROCK BEARING RATIO (L.B.R.)
Local Roads	12 inches	40
Minor Collectors	12 inches	40
Major Collectors	12 inches	40

11.5.1.2 Where the existing soils to be used in the roadway subgrade have the required bearing value, no additional stabilizing material will be required. The stabilizing material, if required, shall be high-bearing value soil, sand-clay, limerock, shell or other materials which meet the standards established in the F.D.O.T. Specifications.

11.5.1.3 The construction of the stabilized roadbed shall meet the criteria as set forth in the F.D.O.T. Specifications. Minimum density shall be 98 percent (Modified Proctor Method).

11.5.1.4 Tests for the subgrade bearing capacity shall be located no more than 500 feet apart or every soil change, and tests for compaction shall be located no more than 300 feet apart. Tests shall be staggered to the left, right, and on the centerline of the roadway with no less than 2 tests conducted per roadway section. When conditions warrant, in the judgment of the Public Works Department, additional tests may be required to assure compliance with F.D.O.T. Specifications. The Contractor/Project Engineer will be advised in writing that additional tests will be required and the extent of such additional tests.

11.5.2 Base Course

11.5.2.1 Base course materials shall be limerock or material with an equivalent structural value. The minimum thickness and density for limerock shall be as follows:

ROADWAY CLASSIFICATIONS	STABILIZED DEPTH	LIMEROCK BEARING RATIO (L.B.R.)
Local Roads	6 inches	100
Minor Collectors	8 inches	100
Major Collectors	8 inches	100

11.5.2.2 Base Course- The base course width shall be a minimum of 12 inches greater than the finished surface course (see Roadway Typical Sections in the STANDARD DETAILS). Limerock shall conform to F.D.O.T. Specifications for base course material and construction methods. Under special conditions where base material may be subjected to greater than normal moisture, soil cement or asphaltic base may be used after approval by the Public Works Department. In such instances, the applicant shall submit the justification, test data to be used to determine mix, the Contractor's experience record, and quality control procedure. The Engineer of Record shall state whether a fabric or other method will be used in the system to minimize surface cracking.

11.5.2.3 All bases shall be primed in accordance with the Specifications. A tack coat will not be required on primed bases except on areas which have become excessively dirty and cannot be cleaned, or in areas where the prime has cured and lost all bonding effect. Tack coat material and construction methods shall conform to F.D.O.T. Specifications.

11.5.2.4 The construction of the base shall meet the criteria as set forth in the F.D.O.T. Specifications. Minimum density shall be 98 percent (Modified Proctor Method).

11.5.2.5 Testing for the base thickness and compaction shall be located no more than 300 feet apart and staggered to the left, right, and on the centerline of the roadway with no less than 2 tests conducted per roadway section. When conditions warrant, in the judgment of the Public Works Department, additional testing may be required to assure compliance with F.D.O.T. Specifications, the Contractor/Engineer will be advised in writing that additional tests will be required and the extent of such additional tests.

11.5.3 Asphaltic Concrete Surface Course

11.5.3.1 Surface courses for flexible pavements shall meet the following minimum thickness requirements:

ROADWAY CLASSIFICATION	STRUCTURAL COURSE THICKNESS	STRUCTURAL COURSE TYPE	SURFACE COURSE THICKNESS	SURFACE COURSE TYPE
Local Roads	N/A	N/A	1 ¼ inches	S-1*
Minor Collectors	N/A	N/A	1 ½ inches	S-1*
Major Collectors	1 ¼ inches	S-1	¾ inches	S-111

* S-111 with an equivalent structural value shall be permitted.

11.5.3.2 Asphaltic concrete types or equivalent structural courses shall conform to the F.D.O.T. Standards and Specifications for design, materials, and method of construction.

11.5.3.3 Asphalt cores for thickness shall be located no more than 200 feet apart and staggered to the left, right, and on the centerline of the roadway with no less than 2 cores taken per roadway section.

11.5.4 Portland Cement Concrete Pavement

11.5.4.1 Stabilized subgrade requirements for Portland Cement Concrete Pavements shall be the same as those for flexible pavements.

11.5.4.2 Minimum pavement thickness requirements shall be as follows:

ROADWAY CLASSIFICATIONS	MINIMUM THICKNESS
Local Roads	8 inches
Minor Collectors	8 inches
Major Collectors	10 inches

11.5.4.3 Portland Cement Concrete Pavement, including joints, shall conform to F.D.O.T. specifications for materials and method of construction.

11.6 ROADWAY ALIGNMENT

11.6.1 Curves on Collector roads shall be superelevated per Florida Department of Transportation Standards.

Roadways shall be designed with the following minimum radii for the centerline of curves:

ROADWAY CLASSIFICATIONS	MINIMUM CENTERLINE RADIUS
Local Roads	100 feet
Minor Collectors	325 feet*
Major Collectors	500 feet*

* Minimum centerline radius may be increased based upon design speed of roadway.

11.7 SIDEWALKS

11.7.1 Sidewalks shall be required on all roads that are classified as Major or Minor Collectors and on State Highways. Sidewalks shall be required on all commercial developments and in subdivisions containing lots 1 acre or less. Sidewalks shall be constructed on each side of the roadway to be developed unless otherwise provided through an approved pedestrian circulation plan.

11.7.2 Sidewalks shall be designed and constructed in accordance with F.D.O.T. Standards except as modified herein and meet requirements set forth in the Florida Accessibility Code.

11.7.3 The minimum sidewalk width shall be 5 feet on Major and Minor Collectors, with 6 feet provided in area of high pedestrian travel such as near schools, parking facilities, shopping center, and transportation facilities. Sidewalks provided on Local Roads shall be a minimum of 4 feet in width. Handicap ramps are required on all curb and gutter sections. If an obstruction is unavoidable, the sidewalk shall be widened to compensate for the obstruction.

11.7.4 Sidewalks should be placed as far as possible from the roadway travel lane as practical. If right-of-way constraints require the sidewalk to abut curb and gutter, the minimum sidewalk width shall be 6 feet. Utility strips should be considered in determining the location of the sidewalk to better serve the needs of the pedestrian traffic as well as the utility companies and to increase roadway safety.

Location of roadway signs and signal poles should also be a consideration in establishing sidewalk location.

11.7.5 Sidewalks, bicycle paths, or multipurpose trails shall be provided at the time of construction or reconstruction along roads which provide access from neighborhoods to county parks.

11.7.6 Construction of sidewalks in new subdivisions may be deferred until installation of housing. In this case, the housing contractor will be required to install sidewalks before a final inspection will be approved. This deferral must be approved by the Public Works Director and a bond equal to 10% of the estimated construction cost must be posted to insure complete installation.

11.8 SHOULDER TREATMENT

11.8.1 Construction areas within County right-of-way and easements shall be treated with seed and mulch, at a minimum, to protect the right-of-way against erosion, siltation and rivulets caused by surface run-off.

11.8.2 All roadway work shall require a minimum of 16 inches of sod adjacent to the edge of pavement (see Roadway Typical Sections in the STANDARD DETAILS). Grasses shall be Argentine Bahia or an approved alternative. Winter Rye and/or Millet may be mixed for protection until germination. Grasses shall be fully established and free of disease and damaging insects prior to County approval of the project. All soil preparation, grassing, mulching, sod and watering shall meet F.D.O.T. Specifications for material and method of construction.

11.8.3 Local roadways with swale sections may be installed with a 10 foot lane width if a 12 inch wide by 8 inches deep ribbon curb is installed adjacent to the asphalt surface course.

11.8.4 All Arterial roadways shall be constructed with paved shoulders.

11.9 SIGNING AND PAVEMENT MARKING

11.9.1 All roadways shall comply with the Manual on Uniform Traffic Control Devices (MUTCD) for signing and pavement markings. Signing and pavement marking plans shall be submitted on all development plans and shall require approval from the Public Works Department. All traffic control signs and pavement markings for new developments shall be furnished and installed at no cost to the County.

11.9.2 Thermoplastic material shall be used for all pavement markings, including turn lanes, stop bars, crosswalks, and other areas as designated by the Public Works Department. New asphalt shall be allowed a 30 day curing period before placement of thermoplastic materials. Temporary pavement markings shall be applied where necessary to control traffic on existing roadways during the curing period.

11.9.3 All Major and Minor Collectors shall be delineated with roadway pavement markings according to F.D.O.T. Standards and Specifications. The approach leg of a Local Road with a Major or Minor

Collector shall be delineated with a stop bar and a yellow centerline for a minimum length of 100 feet from the stop bar.

11.9.4 All major and Minor Collectors shall be delineated with Reflective Pavement Markers (RPM) according to F.D.O.T. Standards and Specifications. Variances may be granted for roads where highway lighting exists, or when, in the judgment of the Public Works Department, the need for Reflective Pavement Markers does not exist.

11.9.5 All signs installed shall conform to the criteria in the MUTCD and F.D.O.T. Standards and Specifications. When access is to a Major Collector, the stop sign shall be 36 inches wide. The back side of each sign is required to have the date of installation stenciled on it (month/year), in inch figures using a long lasting flat black paint or decal.

11.9.6 Street name signs on public roadways shall have white lettering on green background. Street name signs on private roadways shall be white lettering on blue background. All street name signs shall conform to County specifications for size, shape, lettering style, and other requirements.

11.9.7 All signs shall be manufactured with high-intensity sheeting material unless otherwise specified by the Public Works Department.

11.10 TRAFFIC SIGNALS

Traffic signals may be required if justified based upon traffic signal warrants contained in the MUTCD and the signal location is approved by the Public Works Department. All expenses, including signal warrant study, design, materials, and installation shall be the responsibility of the applicant at no cost to the County. Traffic signals shall be designed to comply with the MUTCD and F.D.O.T. Standards and Specifications, and the signal equipment shall meet County Specifications. The traffic signal shall become the property of Nassau County upon acceptance by the County of the signal installation following a 90 day burn-in time period to ensure that all equipment is functioning properly.

11.11 ROADWAY DRAINAGE

11.11.1 Open Channels

11.11.1.1 The design of open channels shall be based on design and performance criteria contained in Section 10.6.4, entitled "Collection and Conveyance Facilities".

11.11.1.2 The design of open channels shall consider the need for channel linings. Standard treatment for roadside swales shall be solid sodding. Sodding shall be used when the design flow velocity does not exceed 4 feet per second or where side slopes exceed a steepness of 3 feet horizontal to 1 foot vertical (3:1). Sodding shall be staggered, to avoid seams in the direction of flow. For flow velocities greater than 4 feet per second, flexible or rigid linings shall be used. Flexible linings may include use of geotextile grids, rock rip-rap, and interlocking concrete grids. Rigid linings shall include concrete pavement. The following table sets forth guidelines for lining types based on various design factors which include open channel gradient, side slopes, and velocity ranges. Subject to applicability to site conditions,

manufacturer's recommendations and approval from the Public Works Department alternative channel linings may be acceptable.

GRADIENT (%)	SIDE SLOPES	VELOCITY RANGE (fps)	PROTECTIVE LINING
2.00% and Less	Flatter than 3:1	Less than 4.0	Sod
Greater than 2.00%	Steeper than 3:1	Greater than 4.0	Flexible/Rigid Lining

Note: Channel velocities greater than 6 feet per second may require energy dissipation.

11.11.1.3 For open channels where positive flow conditions are required, a minimum physical slope of 0.1 foot per 100 feet (0.1 percent) or the slope to provide for conveyance of the design flow, whichever is greater, shall be used.

11.11.1.4 The design of all open channels and roadside swales shall consider ease of maintenance and accessibility. Side slopes for roadside swales shall be in general conformance with the Roadway Typical Sections. Side slopes for other facilities requiring regular maintenance shall not be greater than 3 feet horizontal to 1 foot vertical (3:1).

11.11.1.5 All drainage structures and ends of pipe shall be located a minimum of 6 feet from the edge of pavement.

11.11.1.6 Roadway drainage shall be designed to direct storm drainage in a manner that such water will be filtered through soils and vegetation before the runoff enter drainage creeks.

11.11.2 Cross-Drains

11.11.2.1 Cross-drains shall be sized based on design and performance criteria contained in Section 10.6.4, entitled "Collection and Conveyance Facilities".

11.11.2.2 The minimum allowable pipe diameter for cross drains shall be 18 inches or the equivalent section for arch or elliptical pipe.

11.11.2.3 The minimum length of pipe to be used, including the end treatment, shall be length necessary to provide for the required roadway shoulder width and adequate clear zone requirements.

11.11.2.4 Unless otherwise approved, minimum pipe cover shall be 12 inches measured from the outside top of pipe to the bottom of the roadway base at any point in the roadway cross-section.

11.11.2.5 Culverts under intersecting side roads shall be considered as cross-drains and shall be designed using cross-drain criteria.

11.11.2.6 Valley gutters are not allowed.

11.11.3 Side-Drains (Driveway Culverts)

11.11.3.1 Side-drains shall be sized based on design and performance criteria contained in Section 10.6.4, entitled "Collection and Conveyance Facilities".

11.11.3.2 Unless otherwise approved by the Public Works Department, the minimum allowable pipe diameter for side drains shall be 15 inches or the equivalent section for arch or elliptical pipe.

11.11.3.3 All construction drawings submitted for review shall include a schedule showing the size, type, and invert elevation of the side-drain needed to provide access to each subdivided lot.

11.11.3.4 Side-drains shall be installed with County approved end treatments. End treatments shall include mitered ends and "U" type mitered end walls. Headwalls may be allowed where placement meets clear zone requirements. Mitered ends shall be required on all roadways with speed limits greater than 30 miles per hour.

11.11.3.5 Pipe length including shoulder and end treatment for side-drains shall be based on the following:

DRIVEWAY TYPE	MAXIMUM PIPE LENGTH*
Residential Driveways	Driveway Width plus 4 feet
Non-Residential Driveways	Driveway Width plus 8 feet

* Pipe length does not include the length of end treatment.

11.11.4 Curb, Gutter and Inlets

11.11.4.1 The F.D.O.T. Standards shall be used as a guideline for selection of drainage structure types and hydraulic capacities.

11.11.4.2 Selection of curb, gutter, and inlet type, location, and spacing shall consider roadway geometry; width of spread (flow); inlet geometry and intake capacity; maximum pipe length without maintenance access; potential for flooding of off-site property; and pedestrian and bicycle safety. Maximum spacing for curb inlets shall be based on the width of spread. Width of spread shall not exceed one-half of the travel lane adjacent to the gutter for a rainfall intensity of 4 inches per hour. In general, maximum spacing for inlets shall be 500 feet with consideration for closer spacings for flat grades. Longer spacings may be allowed upon demonstration that the width of spread meets requirements set forth above.

11.11.4.3 Inlets shall be placed at all low points in the gutter grade, and as appropriate at intersections, median breaks, and on side streets where drainage could adversely affect the safety of vehicular or pedestrian movements within the roadway intersection.

11.11.4.4 Curb inlets shall not be located within drop curb locations.

11.11.4.5 The minimum allowable gutter grade shall be 0.3 percent.

11.11.5 Pipe Material and Specifications

11.11.5.1 The Florida Department of Transportation Standard Specification for Road and Bridge Construction shall be used as a guideline for specifications on pipe material, placement, bedding, and backfill requirements.

11.11.5.2 Pipe material shall be selected based on durability, structural capacity, and hydraulic capacity. The design service life of the facility shall be based on the following:

FACILITY TYPE	SERVICE LIFE
Storm Sewer Systems	20 or 100 years
Cross-Drains	25 or 50 years
Side-Drains	25 years

Note: Where more than one service life is given, the lower value shall be used for locations on local and minor collector roadways, and the higher value shall be used for locations on major collectors and in urban areas.

11.11.5.3 In estimating the projected durability of a material, consideration shall be given to actual performance of the material in nearby similar environmental conditions, its theoretical corrosion rate, the potential for abrasion, and other appropriate side factors. To avoid unnecessary site specific testing, generalized soil maps such as SCS Soil Survey for Nassau County may be used to delete unsuitable materials from consideration. In the event testing is necessary, tests shall be based on F.D.O.T. approved test procedures. They shall also be considered to the extent practical. Backfill material shall not be more corrosive than that which is required to provide the design service life.

11.11.5.4 All gravity flow pipe installations shall have a soil tight joint performance unless site specific factors warrant watertight joint performance.

11.11.5.5 The following pipe materials and cross-sections may be accepted for use by the Public Works Department:

PIPE MATERIAL
Corrugated Steel Pipe or Arch
Bituminous Coated Corrugated Steel Pipe or Arch
Reinforced Concrete Pipe
Reinforced Concrete Elliptical Pipe
Concrete Box Culvert
Aluminum Box Culvert *see note on Page 59
Corrugated Polyethylene Pipe
Polyvinyl-Chloride Pipe

* Prior to any aluminum pipe installation, test reports on the soil pH shall be submitted with a certification that the material furnished will provide sufficient resistance to corrosion to maintain the design service life.

11.11.6 Other Drainage Structures

11.11.6.1 The Florida Department of Transportation Roadway and Traffic Design Standards shall be used as a guideline for selection and construction of all drainage structures, including but not limited to: manholes, inlets, pipe end treatment, and box culverts.

11.11.6.2 Bridges shall be designed and constructed in accordance with the Florida Department of Transportation Standards and Specifications, Florida Department of Transportation Structures Design Guidelines, and American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Highway Bridges.

11.11.7 Special Flood Hazard Areas

All proposed collector and arterial roadway shall have a centerline elevation equal to or greater than the Base Flood Elevation of the special flood hazard area.

SECTION 12. BONDING

12.1 GENERAL

12.1.1 Bonds shall be required for all roadway, drainage, and water and sewer construction within a platted subdivision, for all roadway and drainage construction outside a development's project boundaries, and for all construction within county or municipal service district right-of-way.

12.1.2 The bonds referred to in this section may be in the form of a certified or cashier's check, irrevocable letter of credit, escrow agreement, surety bond, or three-party agreement under which an institutional lender providing construction financing to the Owner binds itself to the County, the forms of which shall be subject to approval by Nassau County.

12.1.3 Surety bonds referred to in this section shall be payable to the order of Nassau County Board of County Commissioners on a form acceptable to the County. Each bond shall include language covering all improvements constructed on private or public easements and right-of-way within the platted area, and any off-site improvements if required.

12.2 CONSTRUCTION BOND

12.2.1 No clearing or construction of roadway, drainage, underground utilities or any improvements within County Right-of-way is authorized until such time as the construction bond is submitted to the Public Works Department for approval and acceptance by the Clerk of Circuit Court. The Clerk, upon acceptance of the Construction Bond shall forthwith provide a copy to the Public Works Department.

12.2.2 A Construction Bond shall be approved and on file or the subdivision improvements must be completed in accordance with the requirements for release of the Construction Bonds as stipulated in Section 5.3 of this Ordinance, prior to the time the subdivision plat is accepted by the Clerk of the Court for recording. The bond amount shall be adequate to secure construction of the approved roadway, drainage, and water and sewer improvements.

12.2.3 All construction shall be completed by the Owner/Applicant and approved or accepted by the County prior to recording of the plat or, if a Construction Bond is provided, within 1 year after the date the bond is received and approved by the Clerk of the Circuit Court. The bond shall be payable to the County in a sum equal to 115 percent of the cost of constructing the roadway, drainage, and water and sewer improvements as estimated by the Owner/Applicant's engineer and as approved by the Public Works Department. The bond shall remain in force for a term of at lease 14 months from the date of approval, this bond requirement may be waived only by the Board of County Commissioners.

12.2.4 If at the end of one year following receipt and acceptance of the Construction Bond by the Clerk, the developer has not completed the improvements required and furnished a good and sufficient Maintenance Bond to the County (if applicable), the County shall give 10 days notice to the developer and his surety of the intent to begin procedures to cause forfeiture of the Construction Bond. The County Coordinator may, after a recommendation from the Public Works Department, accept an extension to the Construction Bond or proceed with the forfeiture. The County may give the notice described above prior to the end of said year if it appears to the Public Works Department that the bonded improvements will not be constructed within the year.

12.2.5 If an extension is granted, the developer shall cause the Construction Bond to be renewed for a minimum of 6 months beyond the new completion date. All requests for extension must be accompanied by certification that the amount of the renewed bond is equal to 115 percent of the cost to complete the project or cause same to be increased.

12.2.6 At the discretion of the Public Works Department, a Construction Bond may not be required for minor work authorized by a right-of-way permit or construction plans approved through the Public Works Department.

12.3 RELEASE OF CONSTRUCTION BOND

12.3.1 Upon completion of the roadway, drainage, and water and sewer improvements, the Owner/Applicant's engineer shall submit to the Public Works Department, a request to the County Coordinator that the Construction Bond be released. This request must be accompanied by those items as required in Section 5.3 of this Ordinance.

12.3.2 Upon review and approval of the request, a letter will be forwarded by the Public Works Department to the Clerk confirming that the improvements have been constructed as required by this Ordinance. The Construction Bond may be released upon receipt by the Clerk of Maintenance Bond in the amount required by Section 12.4 below for all facilities dedicated to Nassau County or located within public right-of-way.

12.4 MAINTENANCE BOND

12.4.1 When the request is made for acceptance of the bonded improvements or for release of the Construction Bond, the person, firm or corporation seeking such acceptance or release shall first furnish a good and sufficient bond acceptable to the Clerk in an amount equal to 15 percent of the total of all construction contracts issued for construction of roadway, drainage, and water and sewer improvements.

12.4.2 The Maintenance Bond is to be furnished to secure the timely maintenance of the roads and improvements as a guarantee against faulty workmanship, construction and materials. Said bond shall be submitted by the Owner/Applicant to the Public Works Department for approval and forwarding to the Clerk and shall remain in force until released as stipulated in Section 12.5 below, but in no case for less than 26 months. If the County elects to repair and take remedial action to correct deficiencies during the warranty period, the cost will be drawn from the bond. No Maintenance Bond shall be required for subdivision improvements that will not be dedicated to the County provided the

Owner/Applicant presents satisfactory evidence that a responsible Property Owners' Association or other private entity will accept responsibility for perpetual maintenance of the improvements.

12.5 RELEASE OF MAINTENANCE BOND

At least 2 months prior to the expiration date of the Maintenance Bond, the Developer shall submit a request to the Public Works Department for release of the Maintenance Bond. The Public Works Department shall again inspect the improvements covered by the bond and shall notify the Owner/Applicant and his surety of any required remedial actions. The Owner/Applicant shall complete all required repairs 3 weeks prior to the scheduled termination date of the Maintenance Bond and notify the County upon completion thereof, provide evidence to the County that the bond has been extended and continues in force for an additional 90 days, or forfeit the bond in the amount equal to the total cost of repairs. Authorization for bond extension must be approved by the County Coordinator. The County shall again inspect the improvements and notify the Owner/Applicant of the acceptability of the repairs. If repairs are satisfactory, the bond will be released by written authorization of the County Coordinator. In the event the Owner/Applicant does not complete the required repairs 3 weeks prior to the termination date of the Maintenance Bond, the Owner/Applicant must provide the County evidence that the bond continues in force for an additional 90 days, or show cause why the bond should not be presented for collection.

SECTION 13. MINING AND BORROW PIT OPERATIONS

13.1 GENERAL

13.1.1 The requirements of this section shall apply to all mining and borrow pit activities. The following activities are exempt from the requirements of this section:

1. Agricultural or silviculture activities which involve standard agricultural or silviculture practices;
2. Maintenance dredging of canals, lakes, and stormwater ponds, provided permit requirements from other local, state, and federal agencies are met;
3. Work included in an approved construction project permitted through other provisions of this Ordinance;
4. Any excavation activity which does not have adverse impacts to surface water drainage systems and does not remove material from the project site.

13.1.2 Any activity resulting ponds with sideslopes steeper than 4:1 shall be fenced regardless of the exemptions listed above.

13.2 PLAN REQUIREMENTS FOR MINING AND BORROW PIT OPERATIONS

13.2.1 A site plan for mining and borrow pit operations shall be submitted to the Public Works Department which shall describe at a minimum:

- Property boundary
- Existing and proposed contours
- Typical cross-section
- Existing and proposed surface water drainage patterns
- Erosion and sediment control measures
- Plans for any dewatering activities which discharge water off-site
- Access to the project
- Hours of operation
- Fence detail, if side slopes are less than 4 feet horizontal to 1 foot vertical (4:1) down to 2 feet below normal water level.

13.2.2 The Owner/Applicant is required to obtain permits from the St. Johns River Water Management District (SJRWMD) for projects which exceed thresholds for Management and Storage of Surface Waters and Consumptive Use permits. The Owner/Applicant is responsible for determining requirements of the SJRWMD.

13.3 BONDING

13.3.1 A Maintenance bond may be required if the Public Works director determines that the mining or borrow pit operations will be detrimental to county right-of-ways.

SECTION 14. ENFORCEMENT

The violation of any of the provisions of this Ordinance, as now existing or hereafter amended, shall be prosecuted in the same manner as misdemeanors are prosecuted. Any person, firm or corporation shall, upon conviction of violation hereof, be punished by a fine not to exceed $500.00 or by imprisonment in the County jail not to exceed sixty (60) days, or by both such fine and imprisonment. Each day that an offense or violation of any regulation, restriction or limitation continues shall be deemed a separate offense.

In addition, the violation of any provision of this Ordinance, as now existing or hereafter amended, may be restricted by injunction, including a mandatory injunction and otherwise abated in any manner provided by Law. Such a suit or action may be instituted and maintained by the Nassau County Board of County Commissioners, or by any person, firm, corporation, association or other group or body affected by the violation of any such regulations, restrictions, or limitations.

In addition, the violation of any provision of this Ordinance, as now existing or hereafter amended, may be enforced by the Nassau County Code Enforcement Officers in accordance with Chapter 125 and 162, Florida Statutes, including but not limited to "Citation" enforcement as adopted and implemented by Resolution 96-78, as may be amended from time to time. Upon notice from an authorized code enforcement officer, work on any site that is contrary to the provisions of this Ordinance, or work being performed in a dangerous or unsafe manner, shall immediately cease. Such notice shall be posted at the site, and a warning or citation given to the owner of the property or the person performing the work. The notice shall state the specific conditions under which works may resume.

SECTION 15. VARIATIONS & WAIVERS

15.1 VARIATIONS

The Director of Public Works or his designee has the duty and authority to administer the provisions of this Ordinance. Variations to the standards and criteria herein may be permitted by the Director of Public Works or his designee upon showing of good cause and where the Owner/Applicant proposes an alternative which conforms to the general intent and spirit of these regulations, and where the objectives of this ordinance have been substantially met. Notwithstanding the above, variations to the following provisions shall not be allowed:

1. Ordinance Section 5.1.1 Construction Plan and Drainage Calculation Submittals
2. Ordinance Section 9.9.7 Handicap Accessible Parking Requirements
3. Ordinance Section 10.4.1 Professional Certification
4. Ordinance Section 12.1 Bonding

15.2 WAIVERS

15.2.1 Unless otherwise provided for in this Ordinance, after a request for a variance has been denied by the Director of Public Works, the Owner/Applicant may appeal to the Board of County Commissioners for a waiver of these regulations where compliance would be a practical impossibility. In the granting of waivers, the Board of County Commissioners shall weigh the benefits or hardships against the general standards and objectives of this Ordinance, and may require such conditions that will, in its judgment, substantially secure the objectives of the standards or requirements so varied or modified.

15.2.2 The Board of County Commissioners is authorized to establish by resolution, reasonable application and review fees to be charged by the County for such waivers. Such fees shall be deposited in the General Fund of the County.

SECTION 16. CONSTRUCTION AND DEVELOPMENT SUBJECT TO ORDINANCE

This Ordinance shall apply to and regulate all construction or development for which formal application for approval has been, is, or should have been made to Nassau County after the effective date of this Ordinance, except for construction or development which is determined by the Director of Public Works to be vested pursuant to Florida Law in regards to regulation under Ordinance 87-18, as amended, or other applicable land development regulations. The requirements of this Ordinance shall also apply to approved Developments of Regional Impact, approved Planned Unit or Special Developments, and approved Final Development Plans existing at the time this Ordinance becomes effective, unless specific contrary provisions have been included in the Order for such Development or the construction or development is determined by the Director of Public Works to be vested pursuant to Florida law in regards to other conflicting land development regulations.

SECTION 17. NON-CONFORMING USES

This Ordinance shall not apply to construction or development approved by Nassau County and completed prior to the effective date of this Ordinance or to construction to development that has been approved by the County and is determined by the Director of Public Works to be vested under the other land development regulations pursuant to Florida law. The provisions of Nassau County Ordinance 87-18, as amended, or other applicable land development regulations shall continue to apply to such does not comply with this Ordinance. Such non-conforming uses may continue in use or construction to a completed state under authority and terms of this section and applicable land development regulations under which they may be vested, but such construction or development shall not be expanded, replaced or reconstructed under authority of such regulations.

SECTION 18. VESTED RIGHTS DETERMINATIONS AND APPEALS

An applicant may appeal a vested rights determination of the Director of Public Works to the County Coordinator by written notice filed with the Coordinator within thirty (30) days of the Director of Public Works determination. An applicant may appeal a vested rights determination of the County Coordinator to the Board of County Commissioners by filing written notice of such appeal within thirty (30) days of the date of the County Coordinator's determination.

The applicant has the duty and responsibility to demonstrate that vested rights to proceed with the proposed construction or development have been legally established and/or to demonstrate that the County is equitably stopped from applying this Ordinance or other land development regulations to the construction or development. The applicable legal requisites are: that the applicant has made such substantial change of position or has incurred such extensive obligations and expenses, acting in good faith and in reasonable reliance on a valid, unexpired act or omission of the County, that it would be highly inequitable or unjust to affect such rights by
requiring the applicant to conform to the requirements of this Ordinance.

SECTION 19. SEVERABILITY

Should any section, clause or provision of this Ordinance, or any amendment hereto, be declared by a court of competent jurisdiction to be invalid, the same shall not affect the validity of this Ordinance as a whole or any part thereof, other than the part so declared to be invalid.

SECTION 20. CONFLICT WITH OTHER COUNTY ORDINANCES

In the event of a conflict between the Roadway and Drainage Standards Ordinance and other County Ordinances as adopted prior to this Roadway and Drainage Standards Ordinance, the Roadway and Drainage Standards Ordinance shall prevail.

SECTION 21. JURISDICTION

This Ordinance shall be effective in the unincorporated areas of Nassau County, Florida.

SECTION 22. EFFECTIVE DATE

This Ordinance shall take effect upon the receipt by the Secretary of State.

PASSED AND ENACTED BY THE BOARD OF COUNTY COMMISSIONERS OF NASSAU COUNTY, FLORIDA, this 17th day of May, 1999.

BOARD OF COUNTY COMMISSIONERS OF NASSAU COUNTY

By: _____
PETE COOPER, Chairman

ATTEST: _____
J.M. "CHIP" OXLEY, Ex-Officio Clerk

Approved as to Form by the Nassau County Attorney

_____
Michael S. Mullin

EXHIBIT 1

ROADWAY FUNCTIONAL CLASSIFICATIONS

MAJOR COLLECTORS

14^{TH} Street
Amelia Island Parkway
CR 200A (Pages Dairy Road)
CR 107 (Black Rock Road)
CR 107 (Nassauville, Road)
Chester Road
CR 108 (Hilliard)
CR 108 (Callahan)
CR 121

MINOR COLLECTORS

C-105A (Amelia Road)
Amelia Road
Sadler Road
Lime Street
Citrona Avenue
Will Hardee Road
Simmons Road
Jasmine Street
T. J. Couson Road
Barnwell Road
Miner Road
CR 121A
CR 115
CR 115A
Lessie Road
Andrews Road
CR 119
Ratliff Road
CR 2
Ford Road
Prattsiding Road

Note: Major Collectors require a structural course of 1 ¼ S-1 and surface course of ¾" S-1
Minor Collectors only require 1 ½ " S-1. **This list is subject to change upon revisions.**

EXHIBIT 2

ENGINEERS CERTIFICATION

Project Name: _____

Development Permit Number: _____

I hereby certify that I am a licensed Engineer in the State of Florida. To the best of my knowledge, information and belief, it is my professional opinion, the construction plans for the referenced project have been designed and prepared in substantial conformance with the Nassau County Roadway and Drainage Standards Ordinance and that application has been made to the St. Johns River Water Management District, if required.

_____	_____
Name (Please Print)	Signature
_____	_____
Company Name	Florida Registration Number
_____	_____
Company Address	Date and Seal
_____	
City, State, Zip Code	
_____	
Telephone Number	

EXHIBIT 3

SURVEYOR'S CERTIFICATION

Project Name: _____

This is to certify that all Permanent Reference Monuments and Permanent Control Points have been set according to Florida Statutes Chapter 177, Part I, Platting and Nassau County Development Review Regulations for the above referenced plat.

_____	_____
Name (Please Print)	Signature
_____	_____
Company Name	Florida Registration Number
_____	_____
Company Address	Date and Seal
_____	
City, State, Zip Code	
_____	
Telephone Number	
_____	
LB Number (if applicable)	

EXHIBIT 4

AS-BUILT CERTIFICATION BY REGISTERED PROFESSIONAL

Project Name: _____

Development Permit Number: _____

I hereby certify that all improvements to the above referenced project and all components of the stormwater management system have been built substantially in accordance with the approved plans and specifications on file at Nassau County and the project is ready for final inspection. Any substantial deviations, as noted below, will not place the site out of compliance with the Nassau County Roadway and Drainage Standards Ordinance and furthermore will not prevent the stormwater management system from functioning in compliance with the requirements of Nassau County when properly maintained and operated. These determinations have been based upon on-site inspections(s) by me or by my designee under my direct supervision and my review of the As-Built drawings accompanying this certification.

_____	_____
Name (Please Print)	Signature
_____	_____
Company Name	Florida Registration Number
_____	_____
Company Address	Date and Seal
_____	
City, State, Zip Code	
_____	
Telephone Number	

Substantial Deviations from the Approved Plans and Specifications:

_____
_____
_____
_____
_____

EXHIBIT 5

OPERATION AND MAINTENANCE ENTITY

Project Name: _____

Development Permit Number: _____

Name of Entity: _____

Corporate Title: _____
(if applicable)
Contact Person: _____

Street Address: _____
_____

Mailing Address: _____
_____

Telephone Number: _____

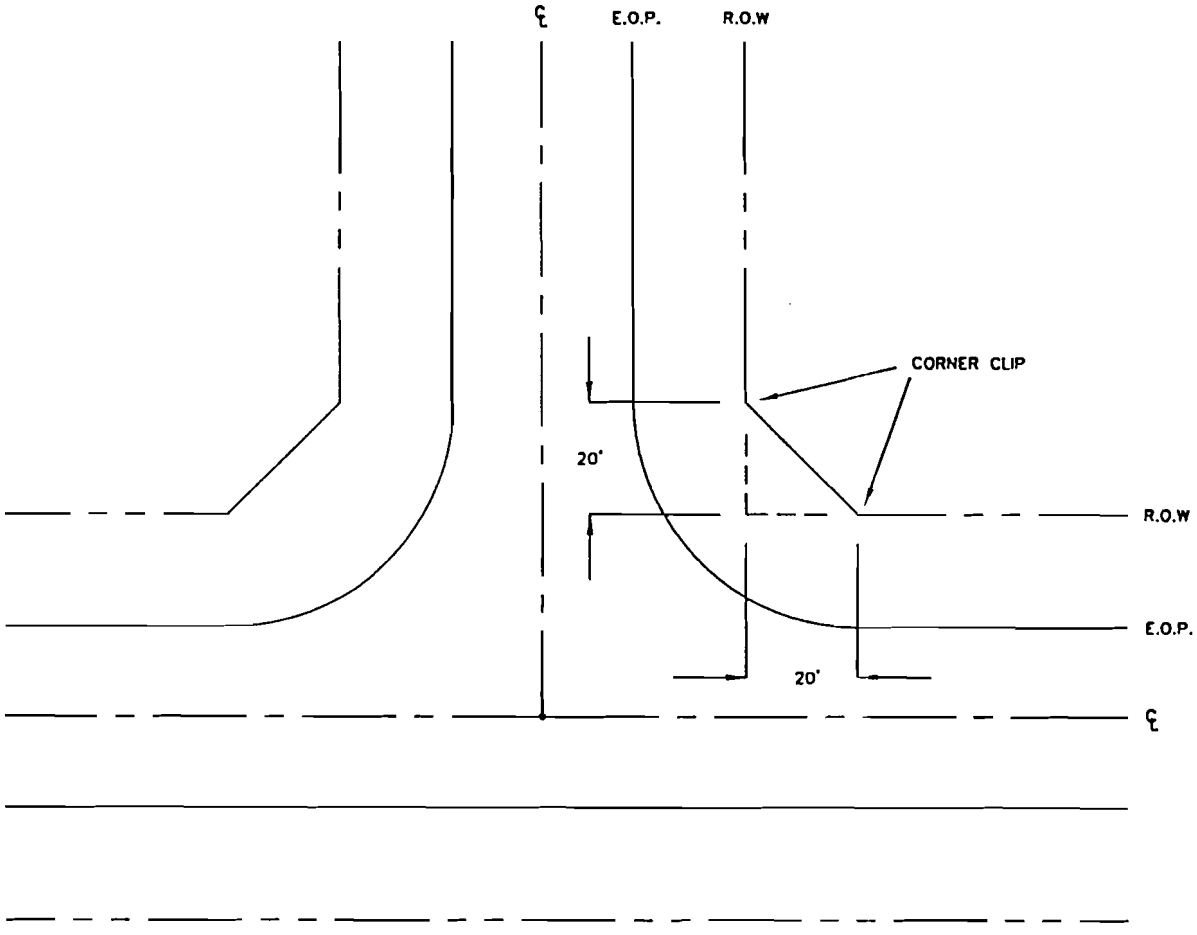
I, my successors and/or assigns, do hereby agree to operate and maintain in perpetuity the stormwater management facility located at the above referenced project.

_____
Signature of Entity Date

[Corporate Seal]
(if applicable)

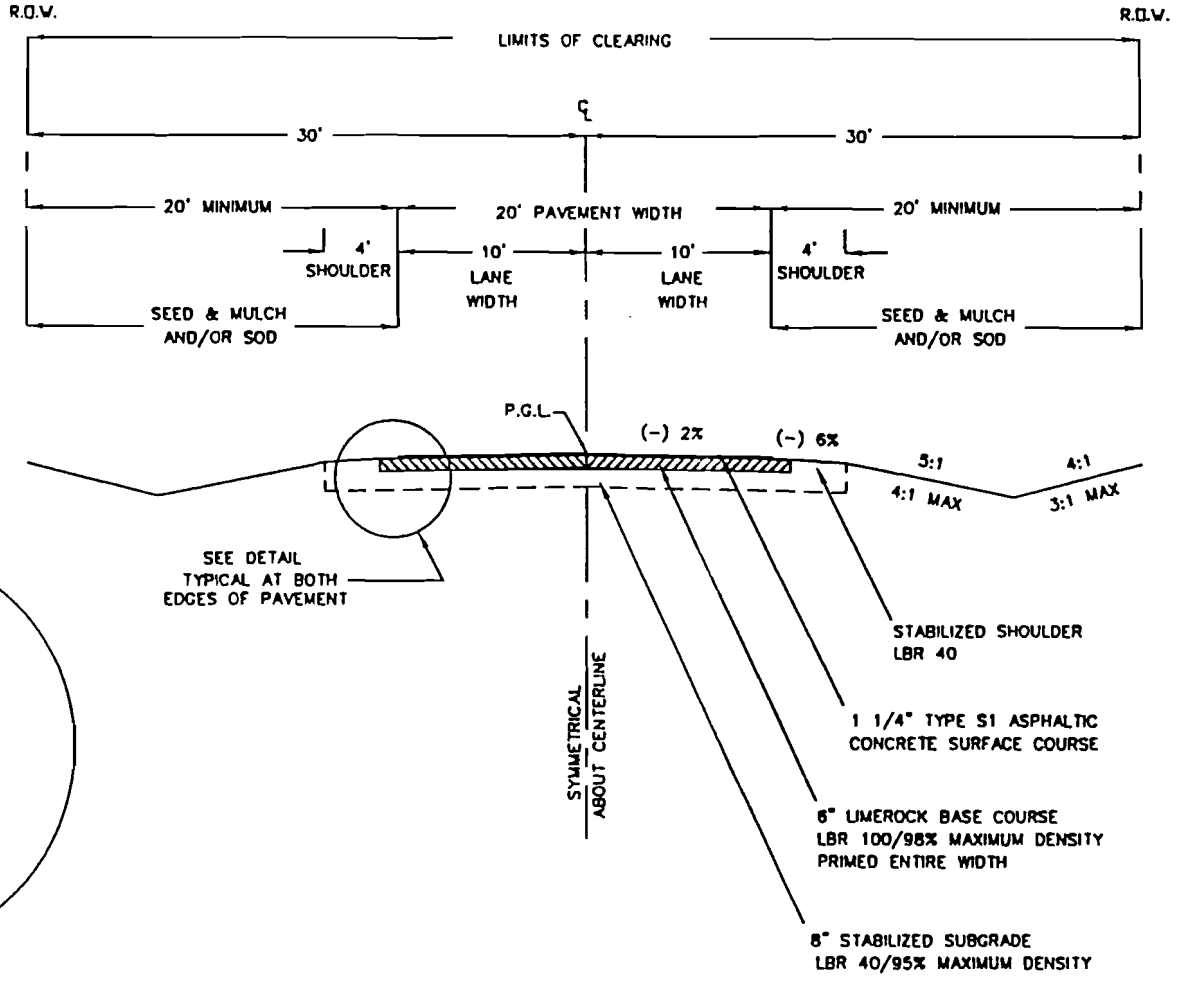
EXHIBIT 6. ROADWAY & DRAINAGE DESIGN STANDARDS

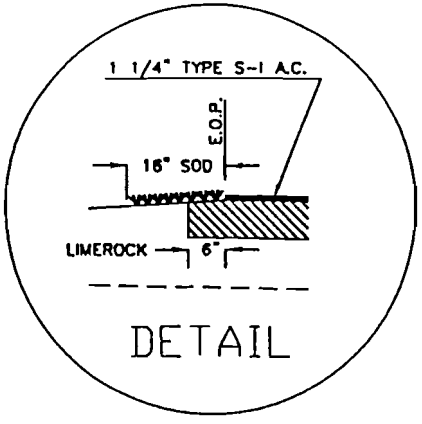
DETAIL	DESCRIPTION OF DETAIL
1	RIGHT-OF-WAY CORNER CLIPS
2	LOCAL ROAD - 2 LANE - TYPICAL SWALED SECTION - 60' RIGHT-OF-WAY
3	LOCAL ROAD - 2 LANE - TYPICAL CURB & GUTTER SECTION - 60' RIGHT-OF-WAY
4	LOCAL ROAD - 2 LANE - TYPICAL CURB & GUTTER SECTION - 50' RIGHT-OF-WAY
5	MINOR COLLECTOR - 2 LANE - TYPICAL SWLAE SECTION - 80' RIGHT-OF-WAY
6	MINOR COLLECTOR - 2 LANE - TYPICAL CURB & GUTTER SECTION - 80' RIGHT-OF-WAY
7	MAJOR COLLECTOR - 2 LANE - TYPICAL SWALED SECTION - 100' RIGHT-OF-WAY
8	MAJOR COLLECTOR - 2 LANE - TYPICAL CURB & GUTTER SECTION - 80' RIGHT-OF-WAY
9	MINOR COLLECTOR - 4 LANE - TYPICAL SWALED SECTION - 130' RIGHT-OF-WAY
10	MINOR COLLECTOR - 4 LANE - TYPICAL CURB & GUTTER SECTION - 110' RIGHT-OF-WAY
11	MAJOR COLLECTOR - 4 LANE - TYPICAL SWALED SECTION - 150' RIGHT-OF-WAY
12	MAJOR COLLECTOR - 4 LANE - TYPICAL CURB & GUTTER SECTION - 130' RIGHT-OF-WAY
13	RESIDENTIAL CUL-DE-SAC - SWALED SECTION - CURB & GUTTER SECTION - TYPICAL CONSTRUCTION DETAIL
14	CURB AND CURB & GUTTER - TYPICAL CONSTRUCTION DETAILS
15	OPEN ROAD CUTS - FLOWABLE FILL
16	OPEN ROAD CUTS - COMPACTED FILL
17	TYPICAL UTILITY LOCATION PLAN - 60' RIGHT-OF-WAY
18	TYPICAL UTILITY LOCATION PLAN - 50' RIGHT-OF-WAY
19	WET DETENTION POND - TYPICAL DETAIL
20	DRY DETENTION FACILITY - TYPICAL DETAIL
21	RETENTION FACILITY - TYPICAL DETAIL
22	RESIDENTIAL HEADWALLS: END WALL, WING WALL, FLARED WALL
23	RESIDENTIAL HEADWALLS: MITERED END SECTION, U-WALL



ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	RIGHT–OF–WAY CORNER CLIPS	DETAIL NO. 1 DWG: ADOPTED:

RIGHT-OF-WAY WIDTH: 60 FEET



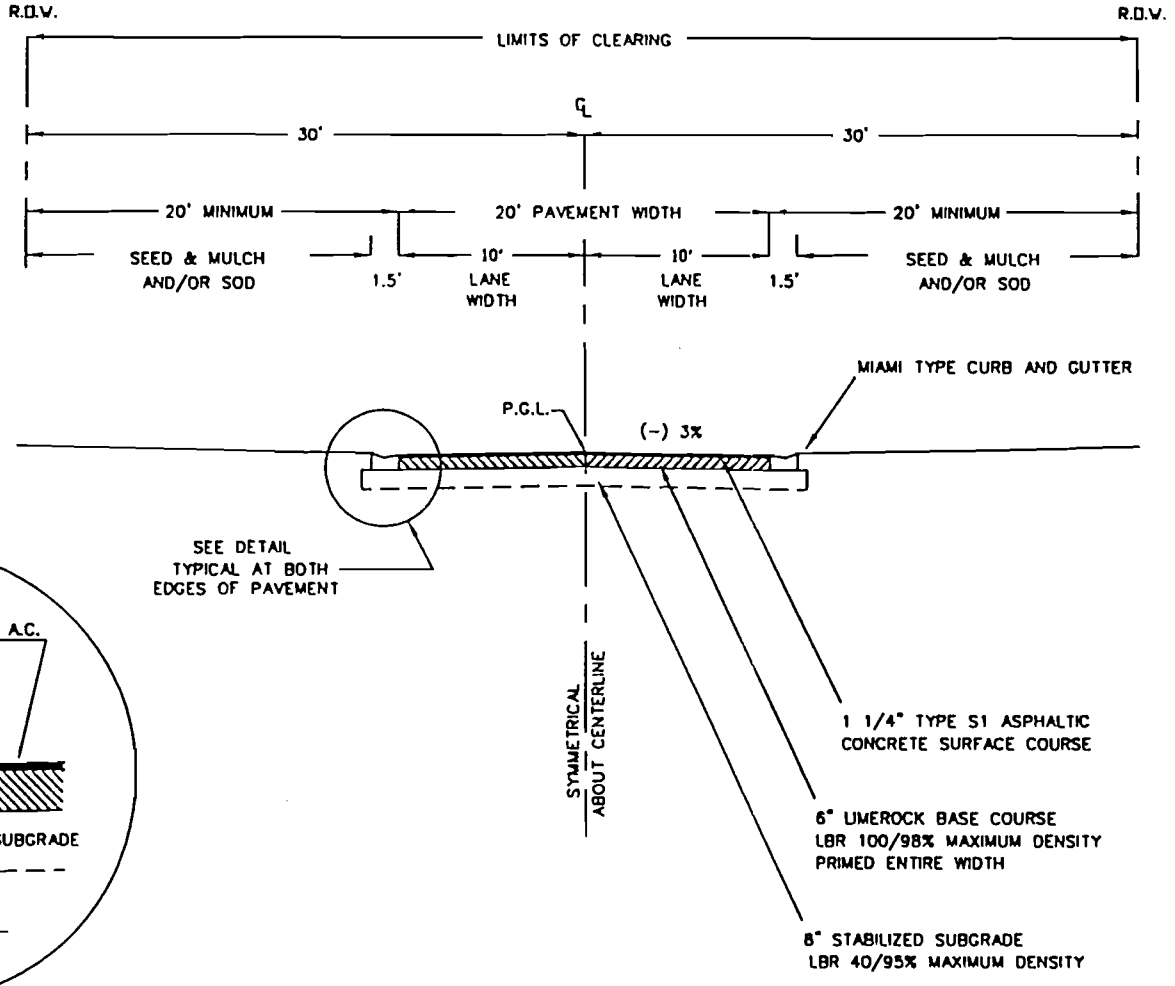


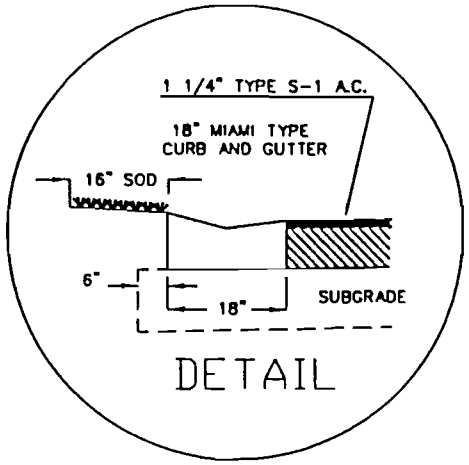
OPTIONAL BASE MATERIALS MAY BE ACCEPTABLE
UPON APPROVAL BY THE PUBLIC WORKS DEPARTMENT

STRUCTURAL NUMBER: 2.27

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	LOCAL ROAD – 2 LANE TYPICAL SWALED SECTION	DETAIL NO. 2 DWG: ADOPTED:

RIGHT–OF–WAY WIDTH: 60 FEET



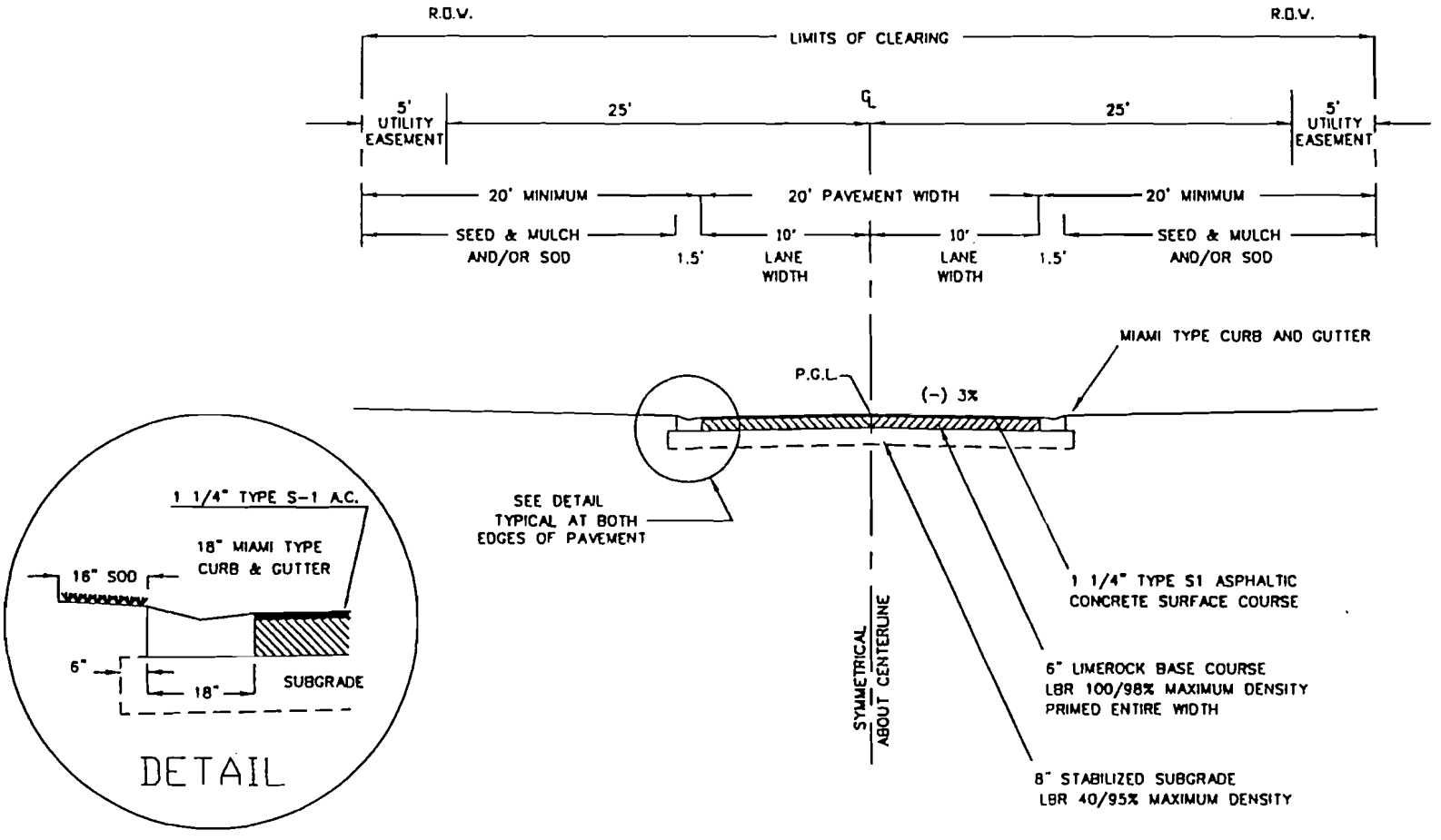


OPTIONAL BASE MATERIALS MAY BE ACCEPTABLE
UPON APPROVAL BY THE PUBLIC WORKS DEPARTMENT

STRUCTURAL NUMBER: 2.27

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	LOCAL ROAD – 2 LANE TYPICAL CURB & GUTTER SECTION	DETAIL NO. 3 DWG: ADOPTED:

RIGHT–OF–WAY WIDTH: 50 FEET

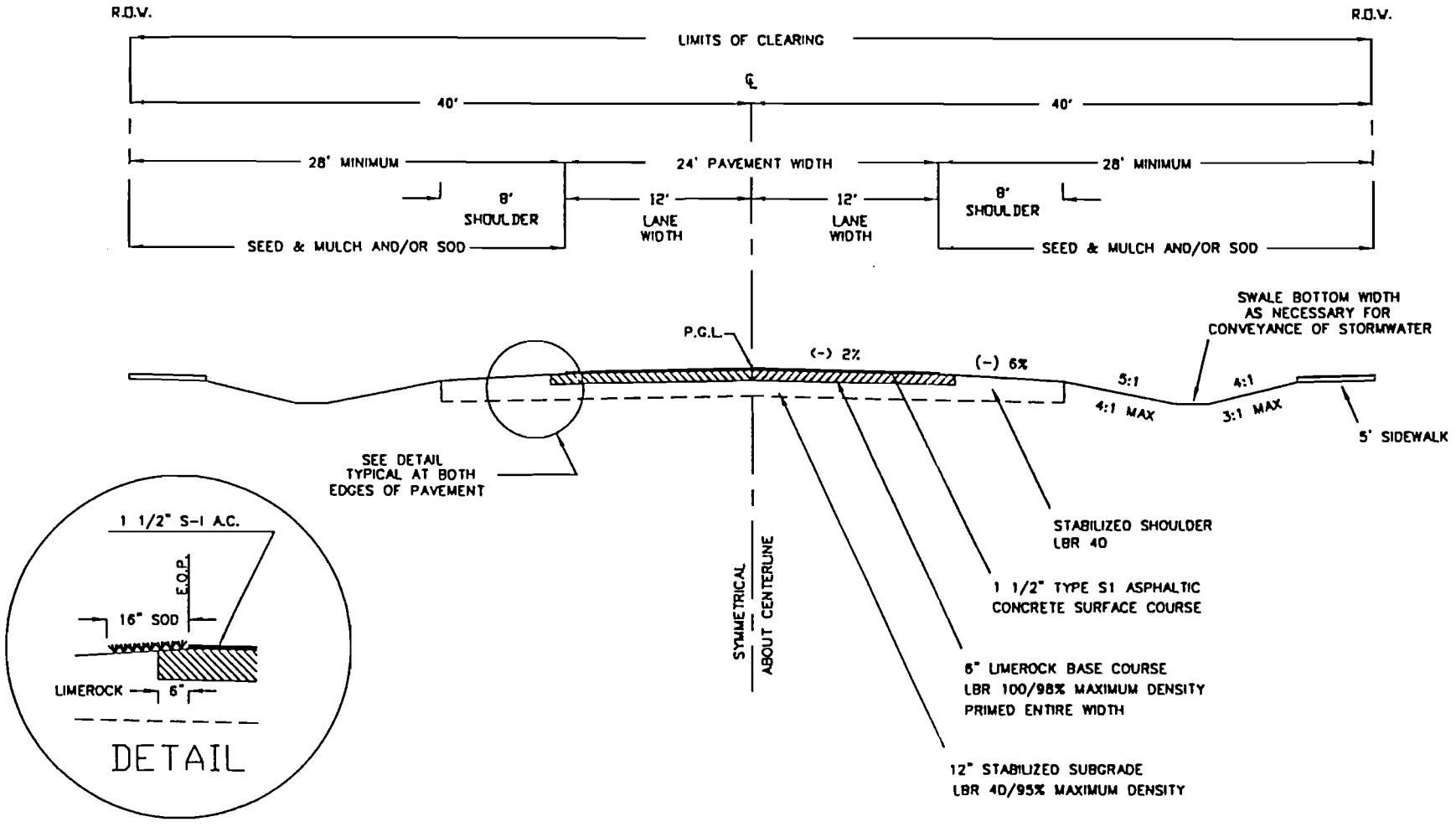


OPTIONAL BASE MATERIALS MAY BE ACCEPTABLE
UPON APPROVAL BY THE PUBLIC WORKS DEPARTMENT

STRUCTURAL NUMBER: 2.27

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	LOCAL ROAD – 2 LANE TYPICAL CURB & GUTTER SECTION	DETAIL NO. 4 DWG: ADOPTED:

RIGHT-OF-WAY WIDTH: 80 FEET

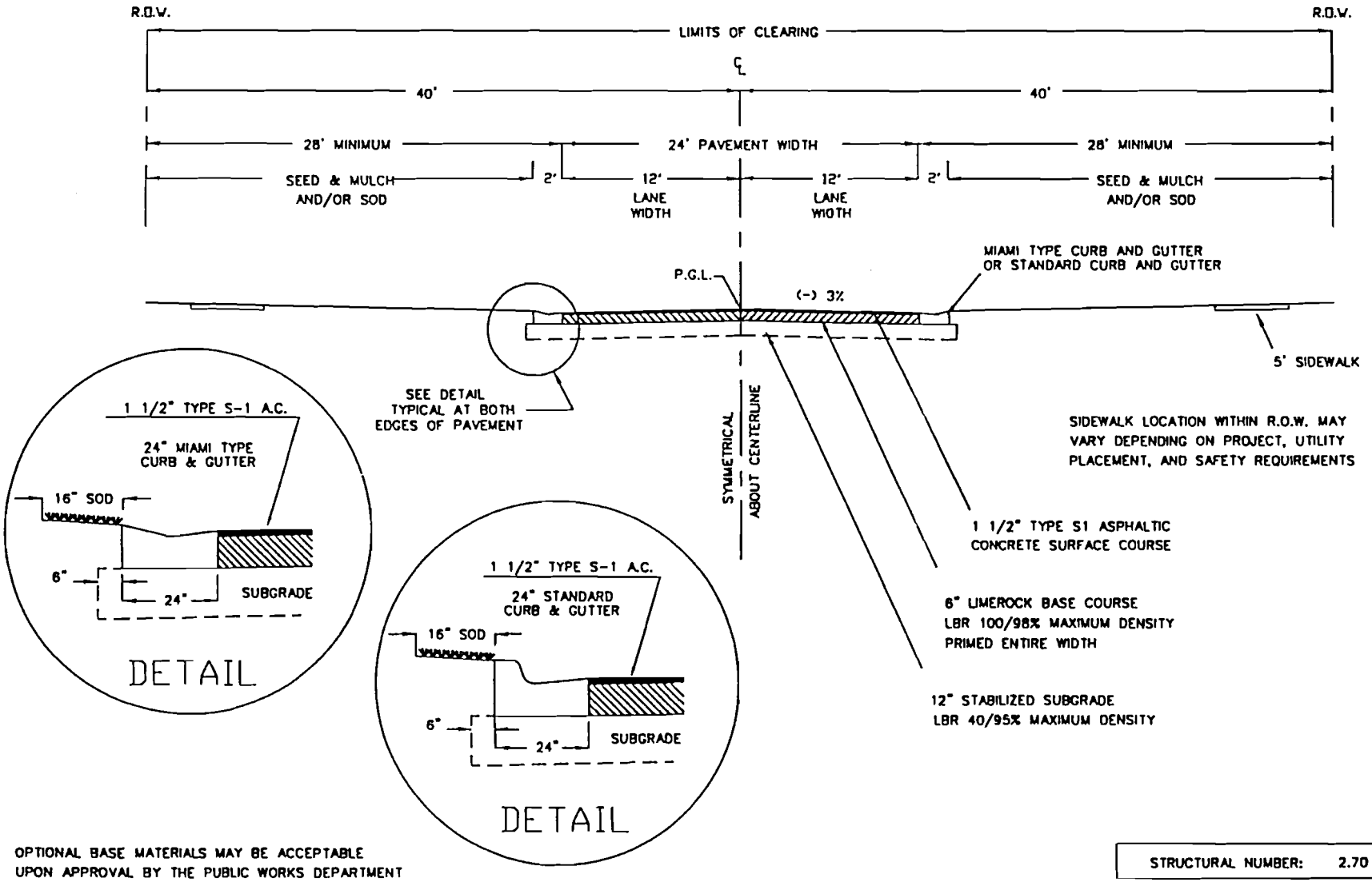


OPTIONAL BASE MATERIALS MAY BE ACCEPTABLE
UPON APPROVAL BY THE PUBLIC WORKS DEPARTMENT

STRUCTURAL NUMBER: 2.70

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	MINOR COLLECTOR – 2 LANE TYPICAL SWALED SECTION	DETAIL NO. 5 DWG: ADOPTED:

RIGHT-OF-WAY WIDTH: 80 FEET

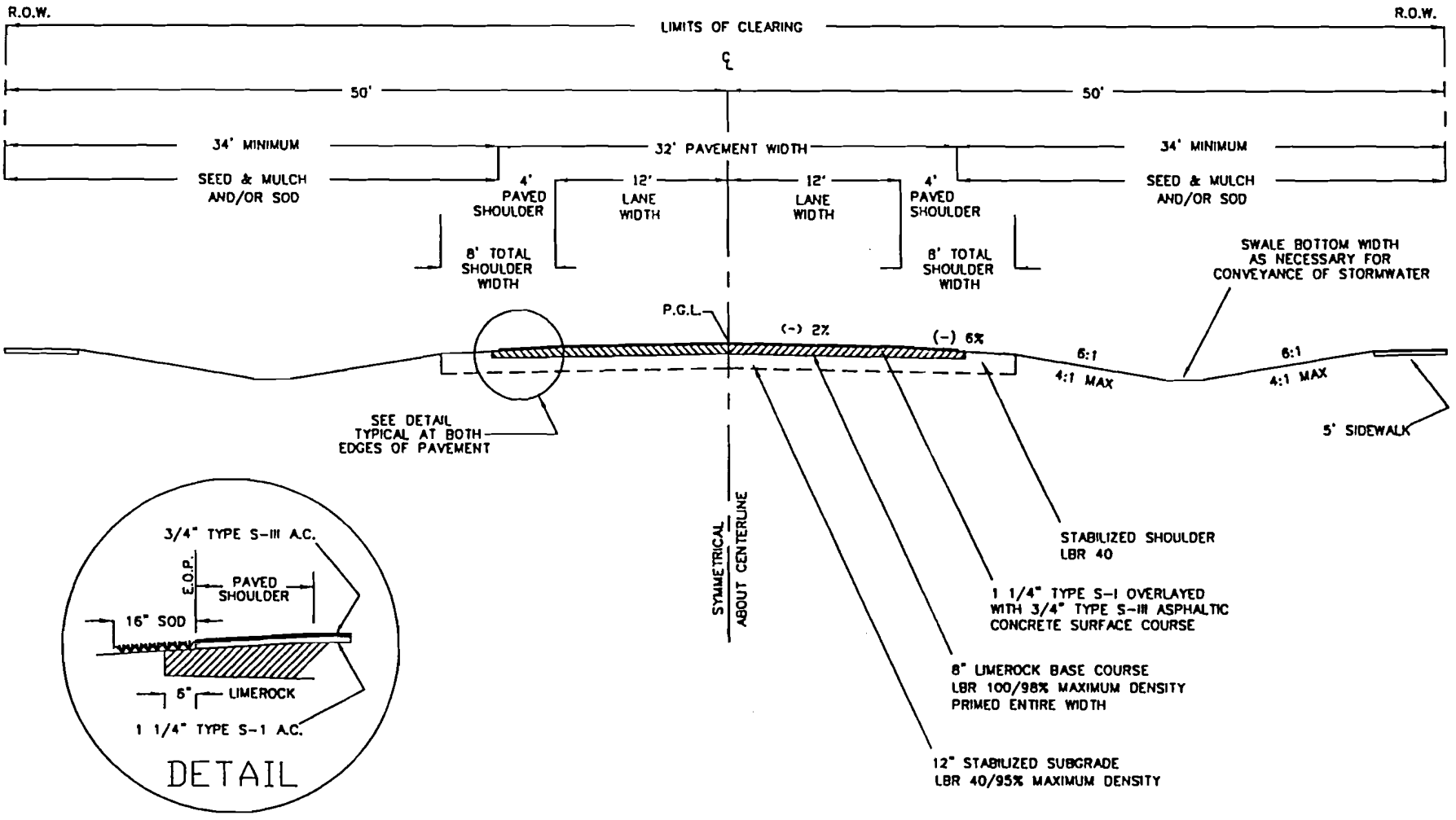


OPTIONAL BASE MATERIALS MAY BE ACCEPTABLE UPON APPROVAL BY THE PUBLIC WORKS DEPARTMENT

STRUCTURAL NUMBER: 2.70

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	MINOR COLLECTOR – 2 LANE TYPICAL CURB & GUTTER SECTION	DETAIL NO. 6 DWG: ADOPTED:

RIGHT-OF-WAY WIDTH: 100 FEET

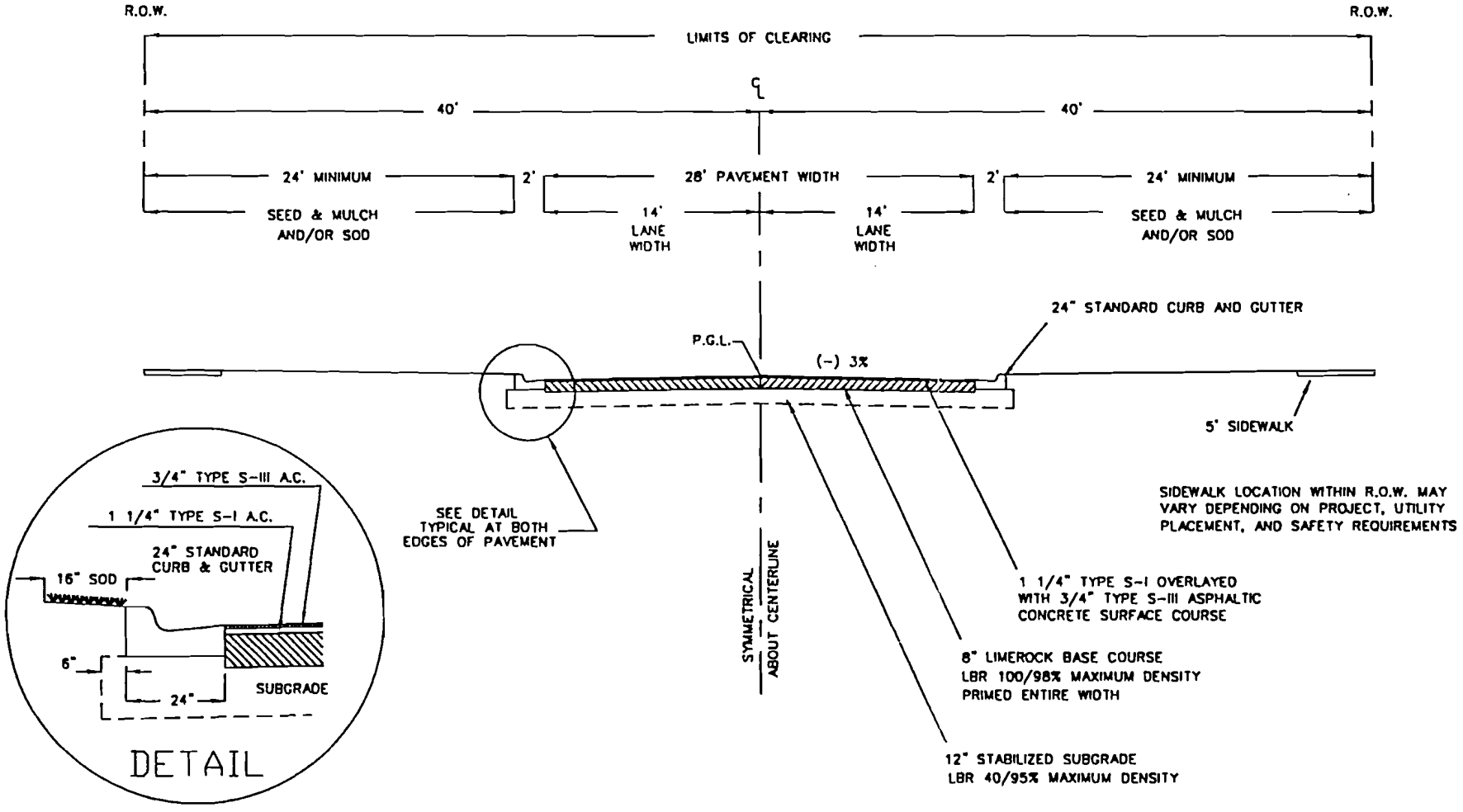


OPTIONAL BASE MATERIALS MAY BE ACCEPTABLE
UPON APPROVAL BY THE PUBLIC WORKS DEPARTMENT

STRUCTURAL NUMBER: 3.28

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	MAJOR COLLECTOR – 2 LANE TYPICAL SWALED SECTION	DETAIL NO. 7 DWG: ADOPTED:

RIGHT–OF–WAY WIDTH: 80 FEET

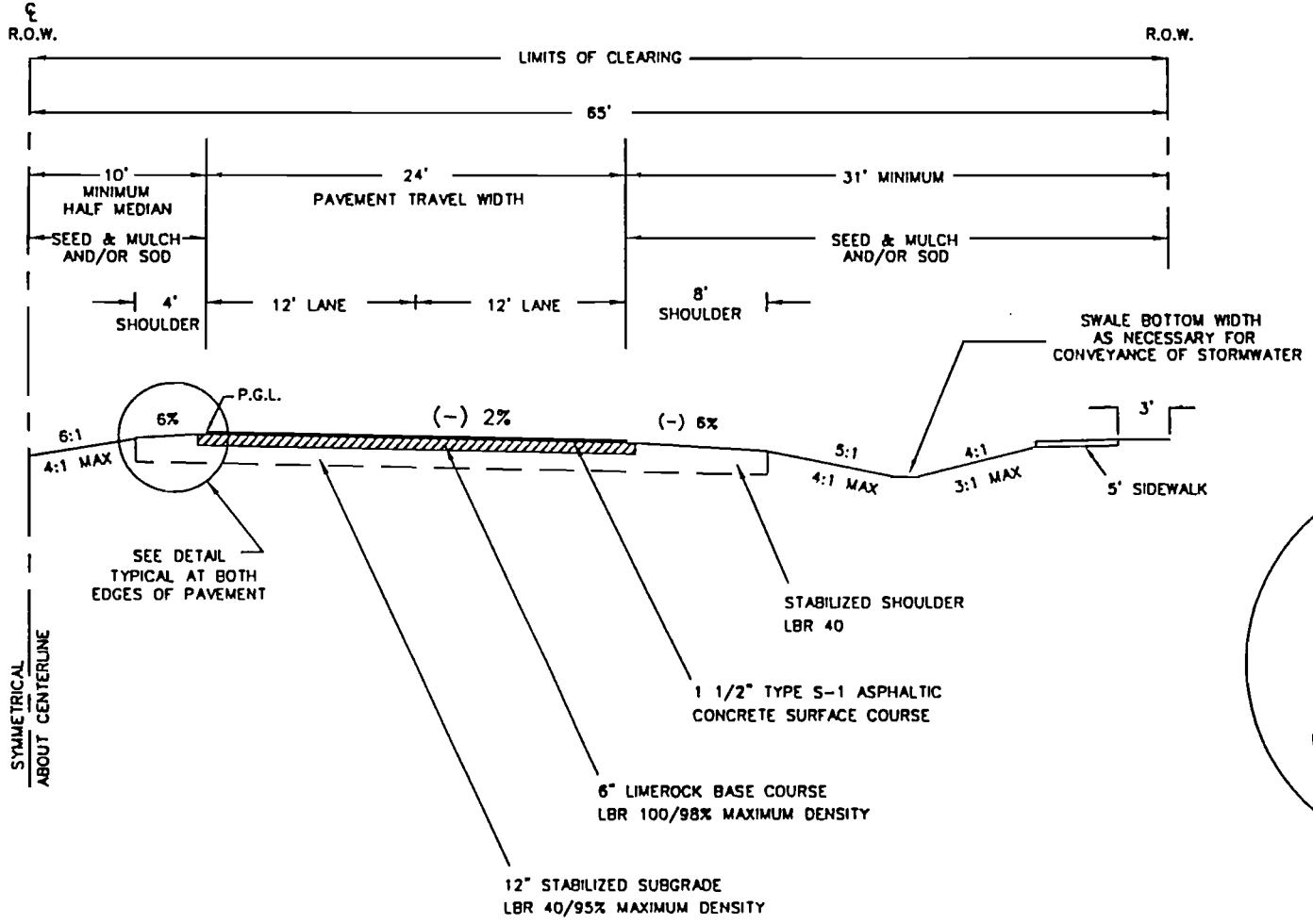


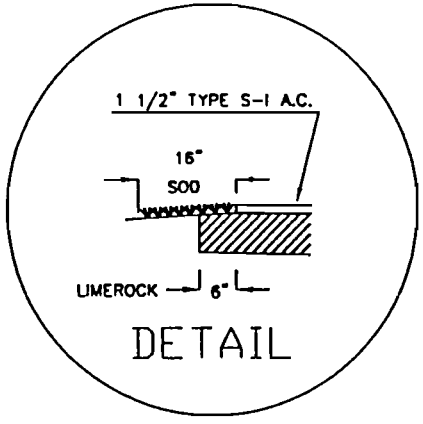
OPTIONAL BASE MATERIALS MAY BE ACCEPTABLE UPON APPROVAL BY THE PUBLIC WORKS DEPARTMENT

STRUCTURAL NUMBER: 3.28

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	MAJOR COLLECTOR – 2 LANE TYPICAL CURB & GUTTER SECTION	DETAIL NO. 8 DWG: ADOPTED:

RIGHT-OF-WAY WIDTH: 130 FEET (HALF SECTION SHOWN)



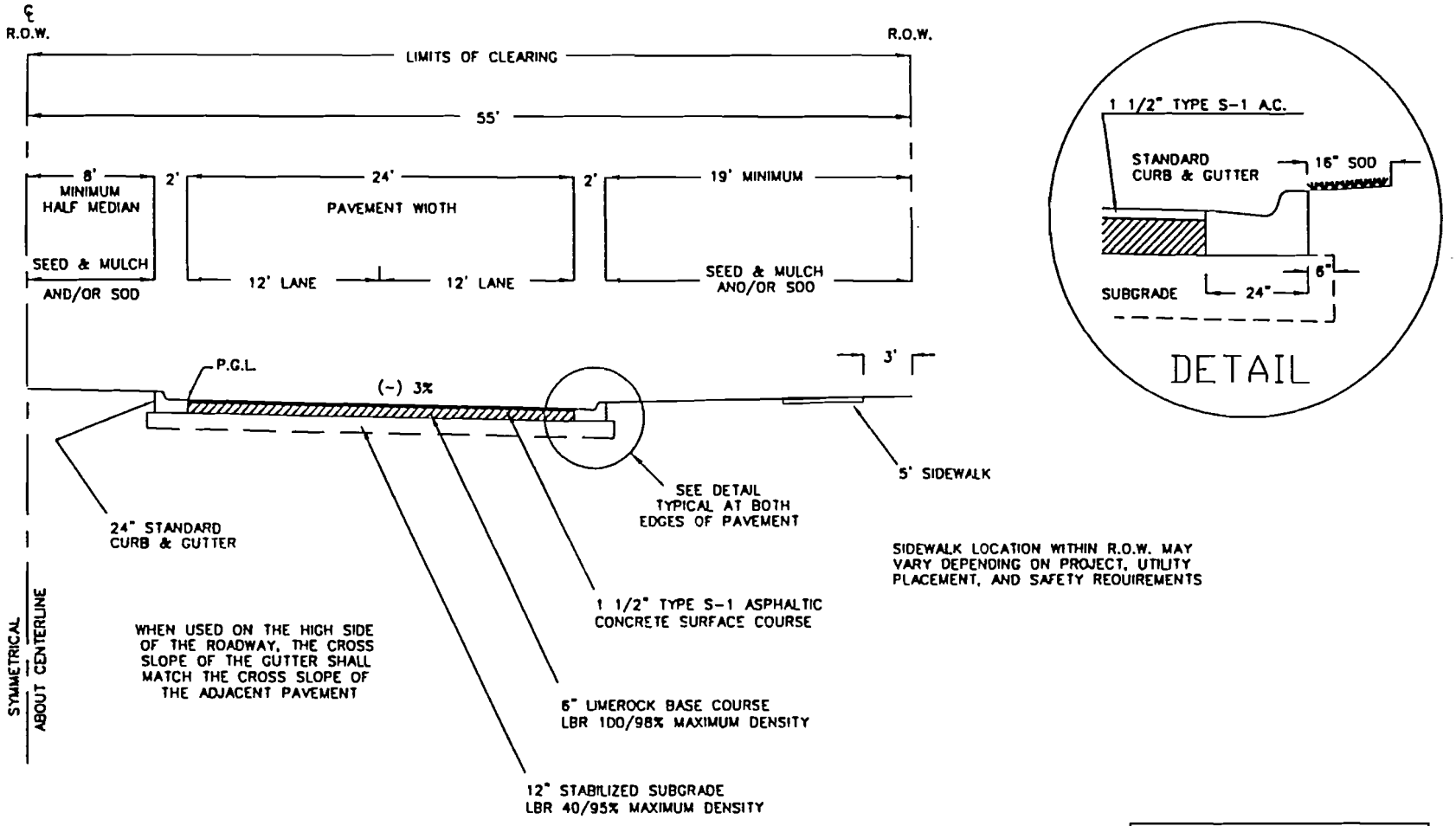


OPTIONAL BASE MATERIALS MAY BE ACCEPTABLE
UPON APPROVAL BY THE PUBLIC WORKS DEPARTMENT

STRUCTURAL NUMBER:	2.70

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	MINOR COLLECTOR – 4 LANE TYPICAL SWALED SECTION	DETAIL NO. 9 DWG: ADOPTED:

RIGHT-OF-WAY WIDTH: 110 FEET (HALF SECTION SHOWN)

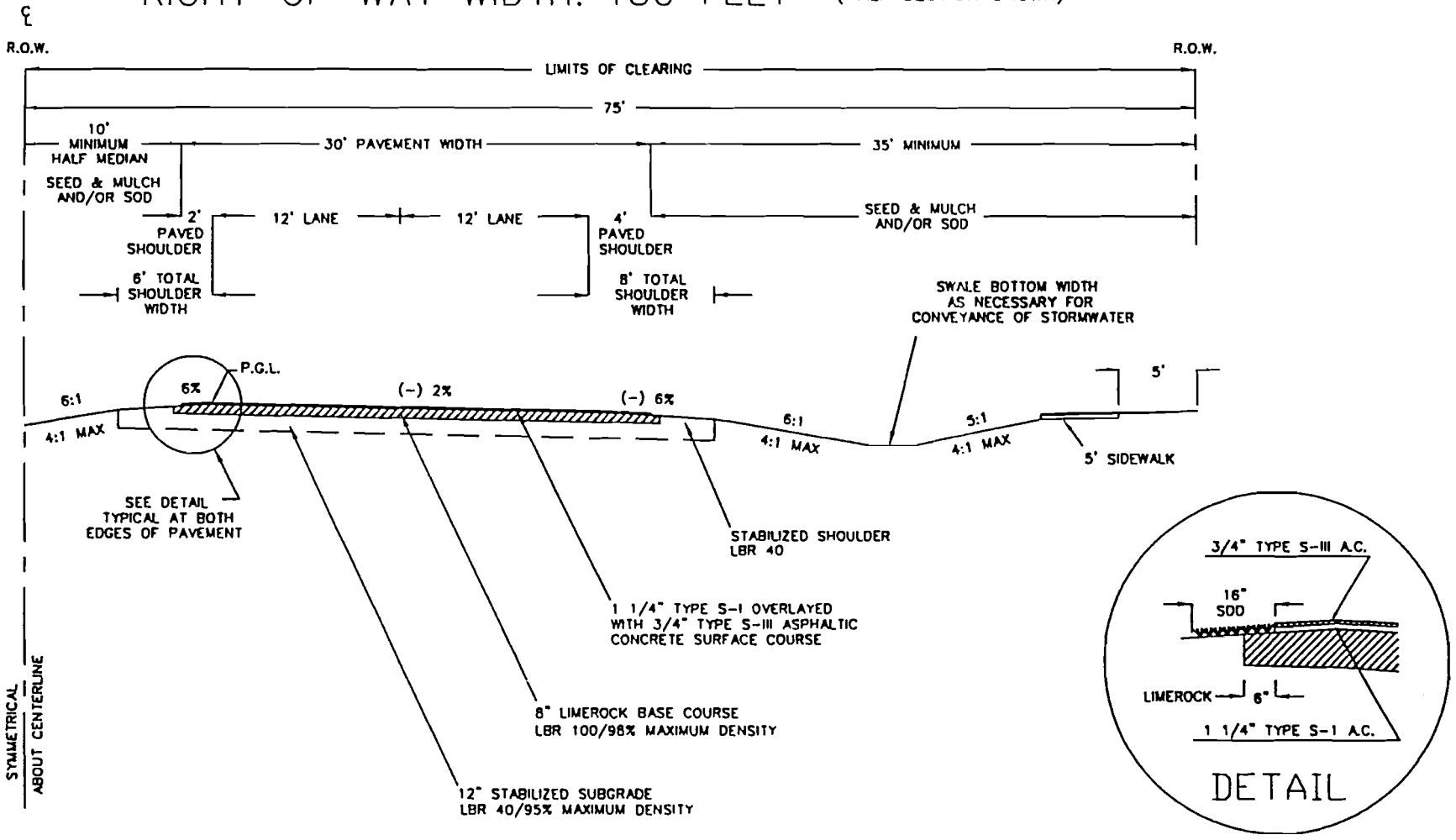


OPTIONAL BASE MATERIALS MAY BE ACCEPTABLE
UPON APPROVAL BY THE PUBLIC WORKS DEPARTMENT

STRUCTURAL NUMBER:	2.70

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	MINOR COLLECTOR – 4 LANE TYPICAL CURB & GUTTER SECTION	DETAIL NO. 10 DWG: ADOPTED:

RIGHT–OF–WAY WIDTH: 150 FEET (HALF SECTION SHOWN)

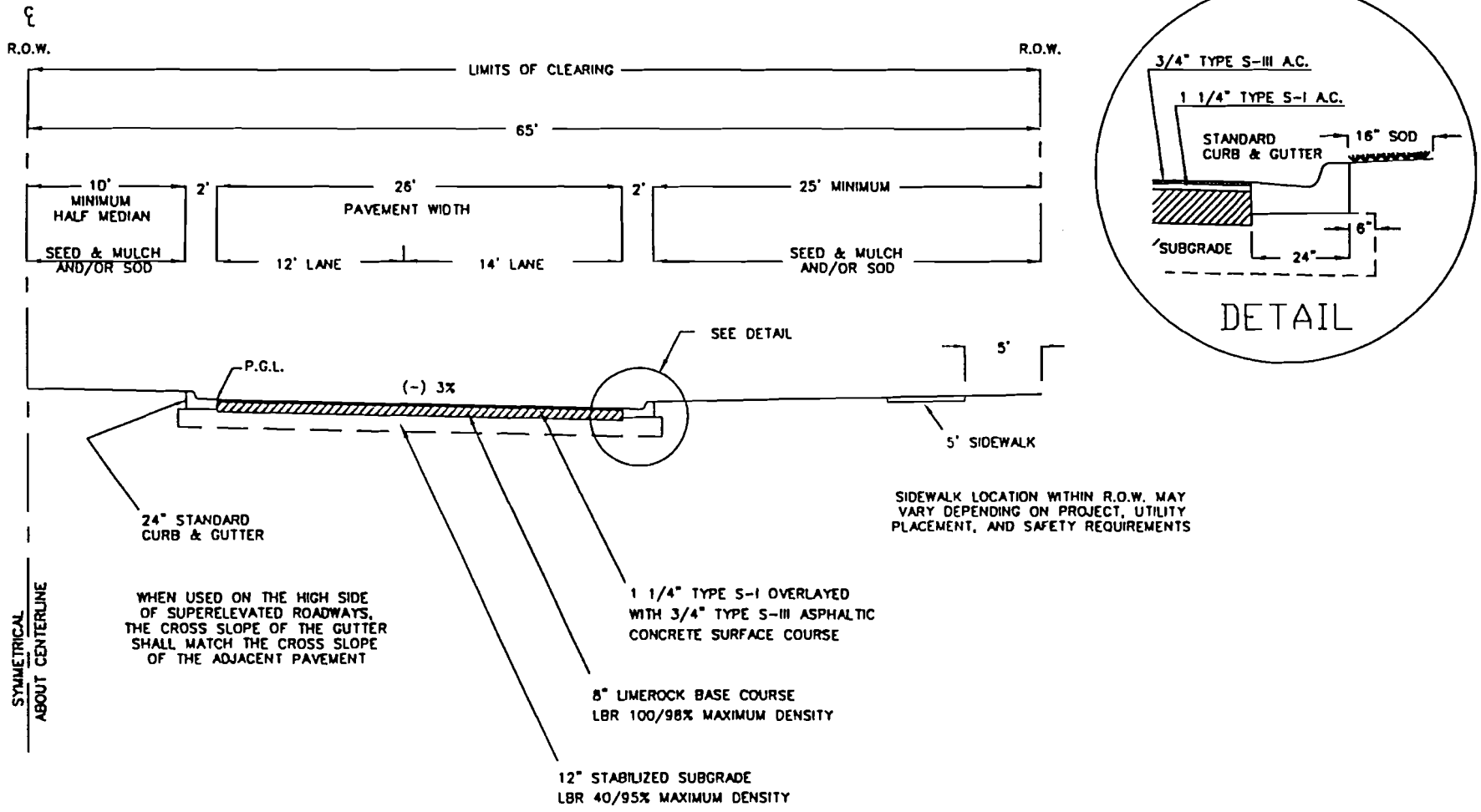


OPTIONAL BASE MATERIALS MAY BE ACCEPTABLE UPON APPROVAL BY THE PUBLIC WORKS DEPARTMENT

STRUCTURAL NUMBER: 3.28

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	MAJOR COLLECTOR – 4 LANE TYPICAL SWALED SECTION	DETAIL NO. 11 DWG: ADOPTED:

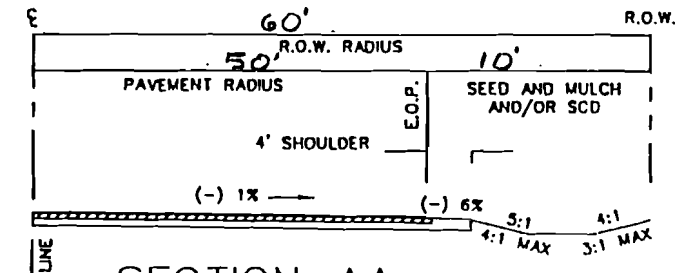
RIGHT-OF-WAY WIDTH: 130 FEET (HALF SECTION SHOWN)



OPTIONAL BASE MATERIALS MAY BE ACCEPTABLE
UPON APPROVAL BY THE PUBLIC WORKS DEPARTMENT

STRUCTURAL NUMBER: 3.28

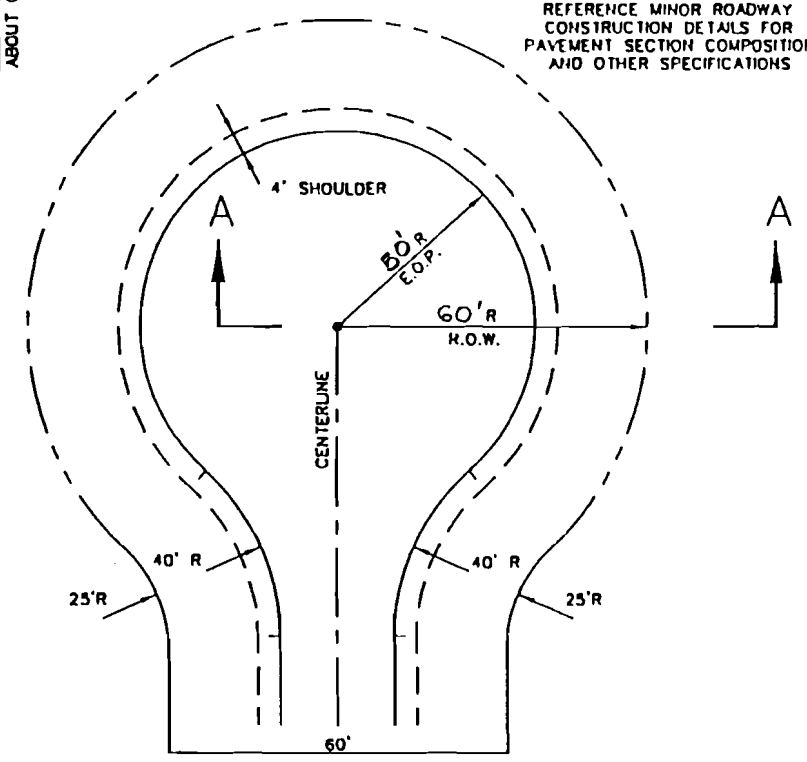
ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	MAJOR COLLECTOR – 4 LANE TYPICAL CURB & GUTTER SECTION	DETAIL NO. 12 DWG: ADOPTED:



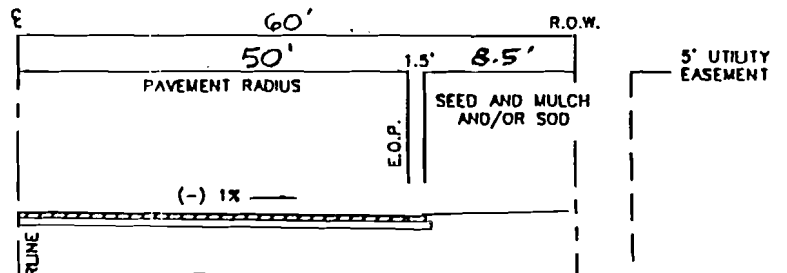
SECTION AA

SYMMETRICAL ABOUT CENTERLINE

REFERENCE MINOR ROADWAY CONSTRUCTION DETAILS FOR PAVEMENT SECTION COMPOSITION AND OTHER SPECIFICATIONS



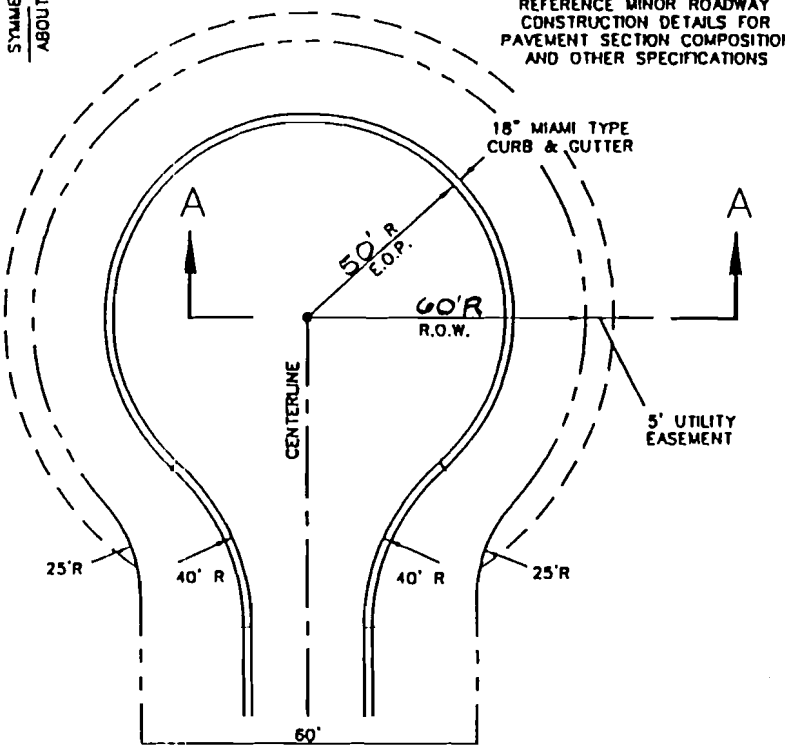
SWALED SECTION



SECTION AA

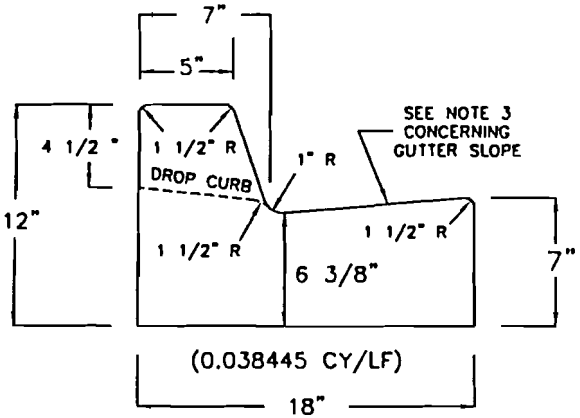
SYMMETRICAL ABOUT CENTERLINE

REFERENCE MINOR ROADWAY CONSTRUCTION DETAILS FOR PAVEMENT SECTION COMPOSITION AND OTHER SPECIFICATIONS



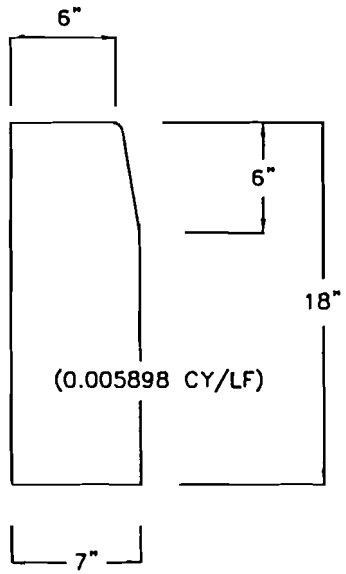
CURB AND GUTTER SECTION

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	RESIDENTIAL CUL-DE-SAC TYPICAL CONSTRUCTION DETAIL	DETAIL NO. 13 DWG: ADOPTED:



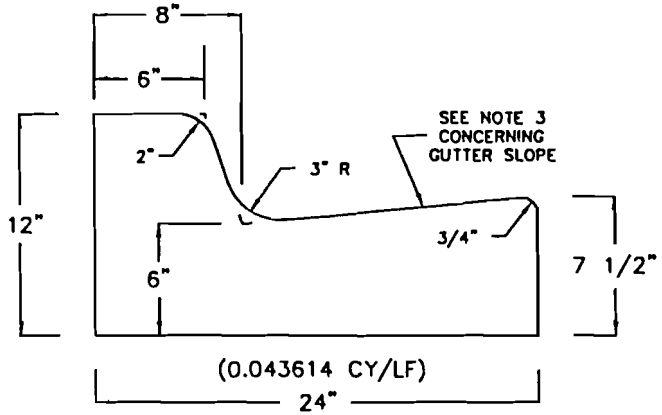
18" CURB & GUTTER

SPECIFIC USE: LOCAL ROAD CLASSES



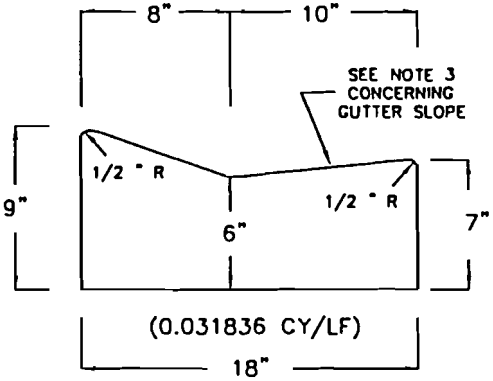
HEADER CURB

SPECIFIC USE: PARKING LOTS, TREE PROTECTION, ETC... NOT FOR USE IN ROADWAYS UNLESS OTHERWISE APPROVED BY THE PUBLIC WORKS DEPARTMENT



F.D.O.T. STANDARD TYPE "F" CURB AND GUTTER

SPECIFIC USE: LOCAL, MINOR COLLECTOR AND MAJOR COLLECTOR ROADWAY CLASSES

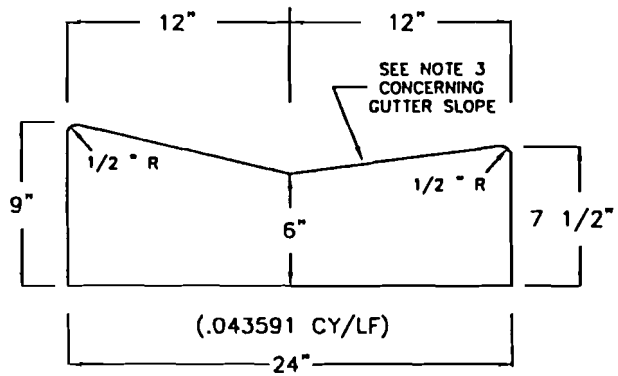


18" MIAMI TYPE CURB & GUTTER

SPECIFIC USE: LOCAL ROAD CLASSES

GENERAL NOTES:

1. MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
2. CONCRETE SHALL BE CLASS I CONCRETE WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI.
3. WHEN USED ON THE HIGH SIDE OF SUPER ELEVATED ROADWAY SECTIONS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT. WHERE THIS CONDITION IS ENCOUNTERED, THE FRONT FACE VERTICAL DIMENSION SHALL REMAIN AS SHOWN FOR NORMAL SECTIONS SHOWN HEREON.



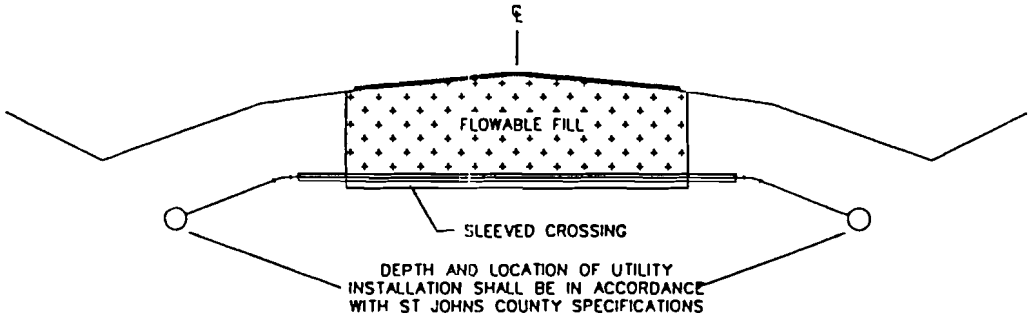
24" MIAMI TYPE CURB AND GUTTER

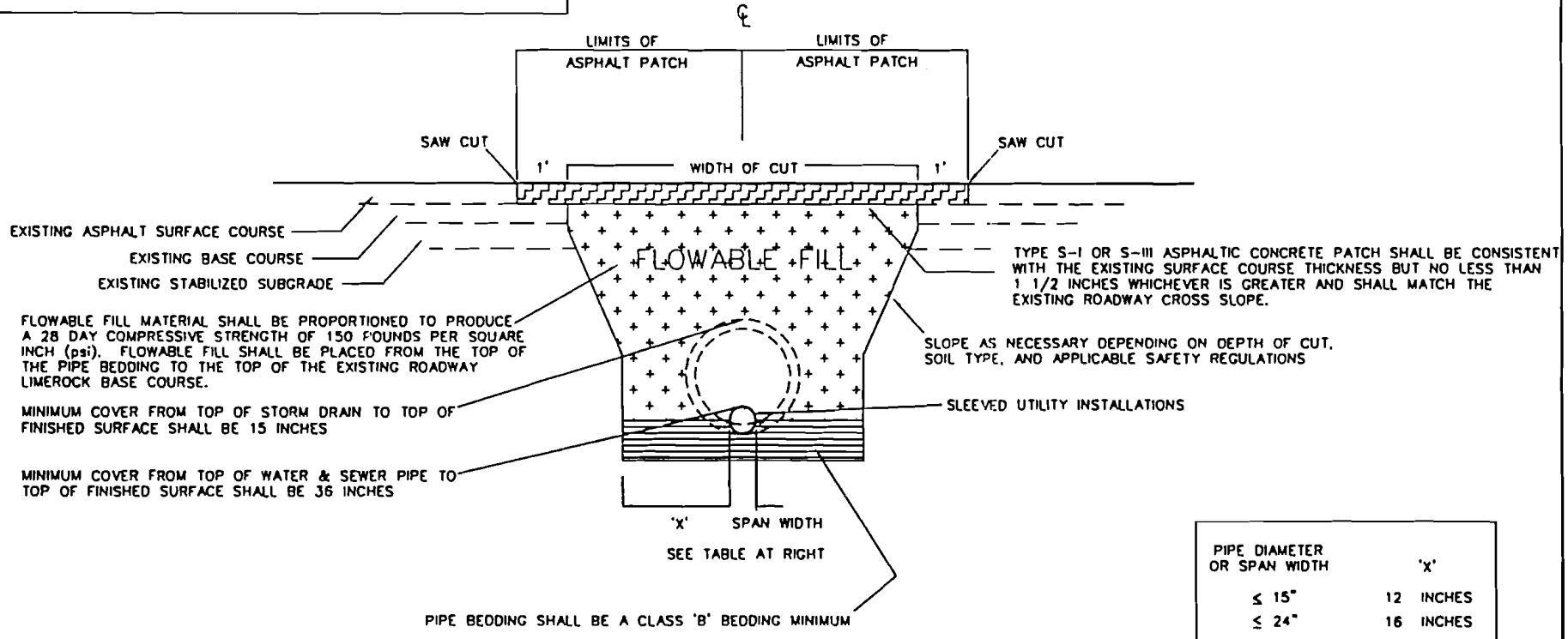
SPECIFIC USE: LOCAL AND MINOR COLLECTOR ROADWAY CLASSES

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	CURB AND CURB & GUTTER TYPICAL CONSTRUCTION DETAILS	DETAIL NO. 14 DWG: ADOPTED:

NOTES:

1. MATERIALS, MIX PROPORTIONS, PRODUCTION, PLACING, CONSTRUCTION REQUIREMENTS, AND ACCEPTANCE OF FLOWABLE FILL SHALL BE IN ACCORDANCE WITH ST. JOHNS COUNTY SPECIFICATIONS.
2. ALL OPEN CUTS SHALL REQUIRE A 24 HOUR ADVANCE NOTICE TO THE PUBLIC WORKS DEPARTMENT INSPECTION STAFF PRIOR TO COMMENCEMENT OF CONSTRUCTION. A REPRESENTATIVE FROM THE HIGHWAY INSPECTION STAFF MUST BE PRESENT AT THE TIME OF INSTALLATION OF THE UTILITY.
3. PUBLIC SAFETY SHALL BE MAINTAINED DURING CONSTRUCTION IN ACCORDANCE WITH THE PROVISIONS OF PART 6, WORK ZONE TRAFFIC CONTROL, OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
4. THE CONTRACTOR SHALL PROVIDE TO THE HIGHWAY INSPECTOR CERTIFICATION OF THE MIX DESIGN FROM THE SUPPLIER AT THE TIME OF CONSTRUCTION.



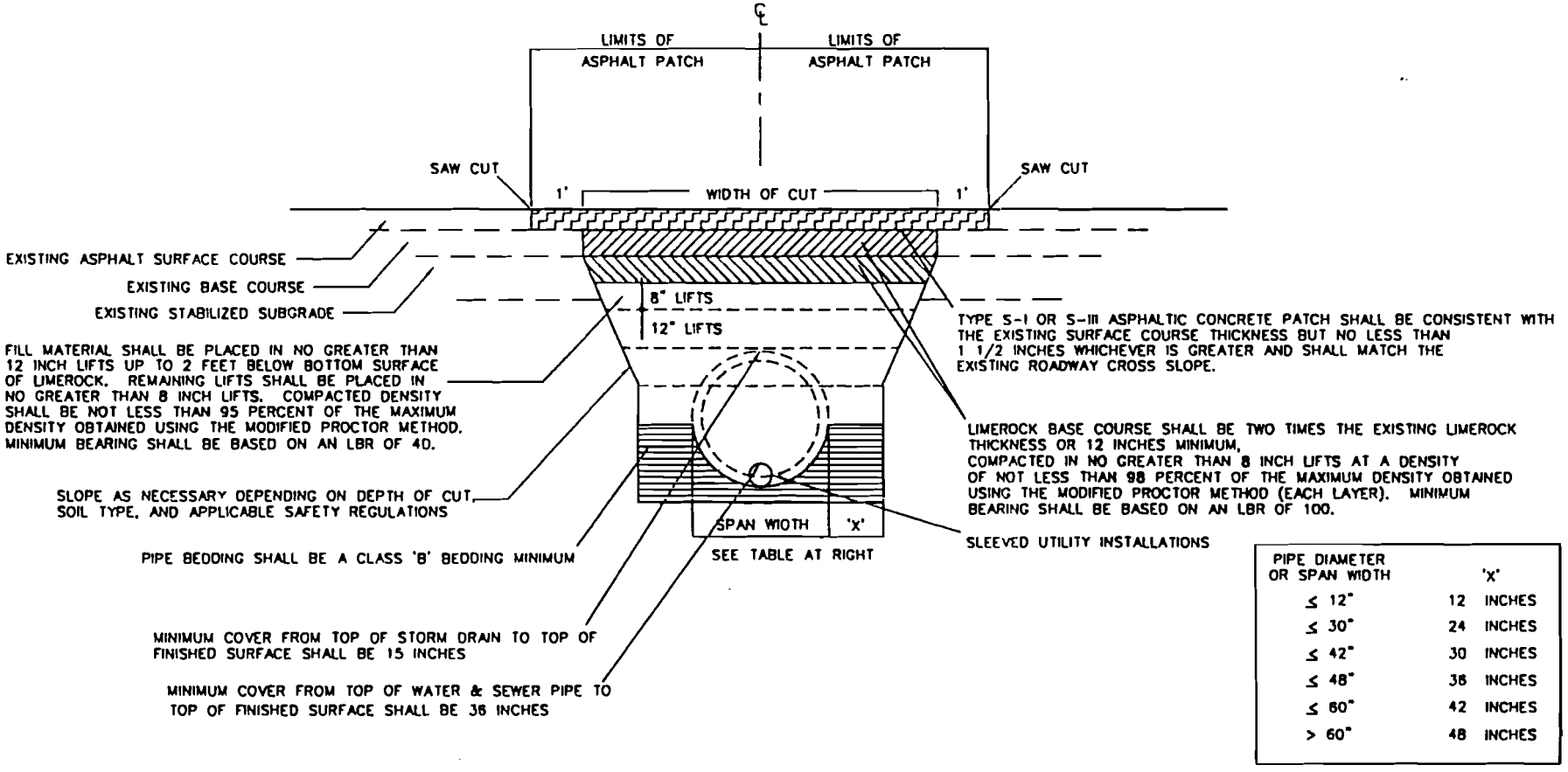


PIPE DIAMETER OR SPAN WIDTH	'X'
≤ 15"	12 INCHES
≤ 24"	16 INCHES
≤ 30"	24 INCHES
> 30"	36 INCHES

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	OPEN ROAD CUTS/FLOWABLE FILL	DETAIL NO. 15 DWG: ADOPTED:

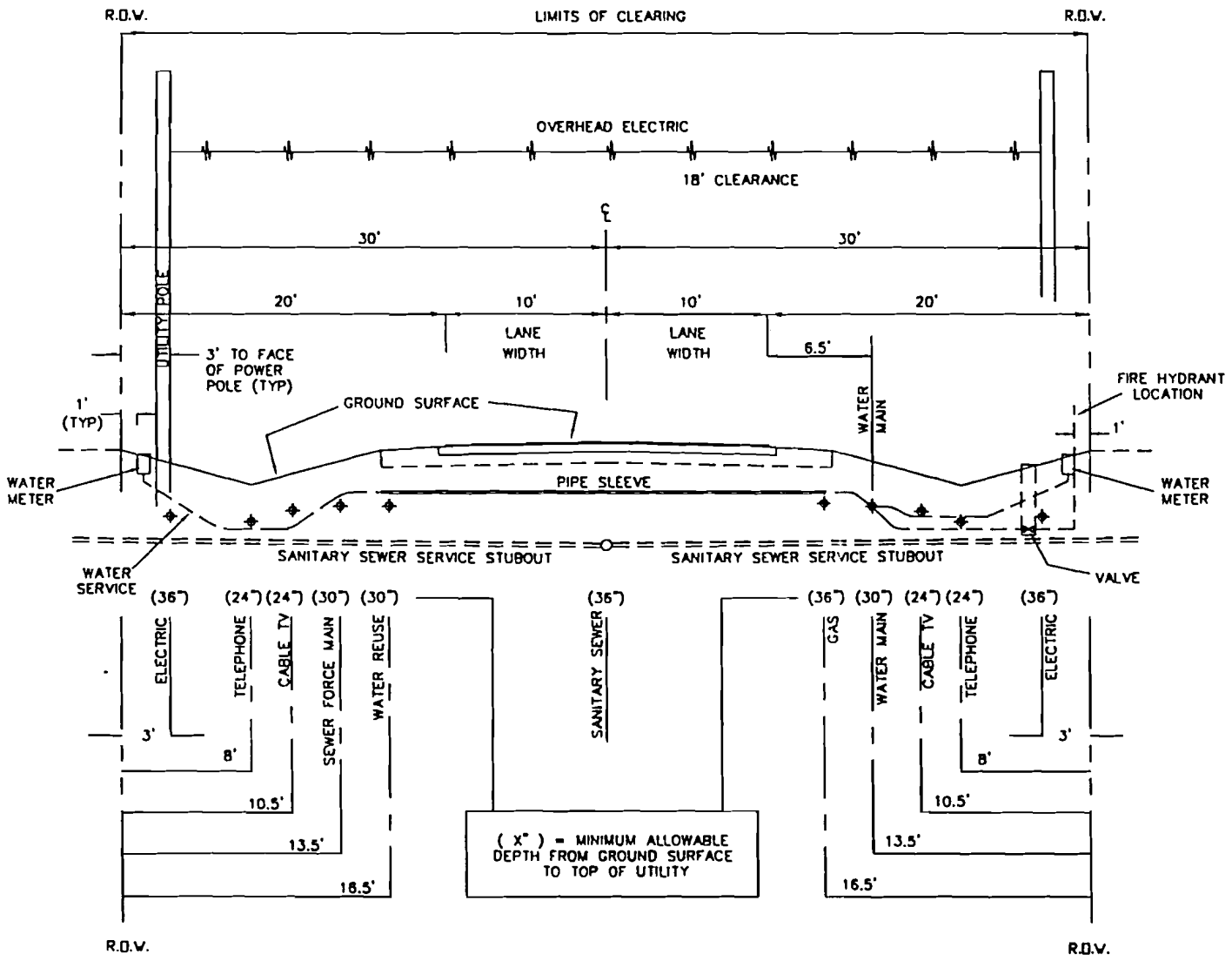
NOTES:

1. TEST REPORTS FOR DENSITY AND BEARING SHALL BE REQUIRED FOR ALL COMPACTED LIFTS.
2. SOIL BEARING MAY BE DETEMINED BY A STATIC CONE PENTROMETER.
3. FLOWABLE FILL IS THE PREFERRED ALTERNATIVE FOR ALL BACKFILL REQUIREMENTS. (SEE OPEN ROADWAY CUT DETAIL NO. 17 FOR USE OF FLOWABLE FILL)
4. PUBLIC SAFETY SHALL BE MAINTAINED DURING CONSTRUCTION IN ACCORDANCE WITH THE PROVISIONS OF PART 6, WORK ZONE TRAFFIC CONTROL, OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
5. ALL OPEN ROADWAY CUTS SHALL REQUIRE A 24 HOUR ADVANCE NOTICE TO THE PUBLIC WORKS DEPARTMENT INSPECTION STAFF PRIOR TO COMMENCEMENT OF CONSTRUCTION. A REPRESENTATIVE FROM THE HIGHWAY INSPECTION STAFF MUST BE PRESENT AT THE JOB SITE AT THE TIME OF INSTALLATION.

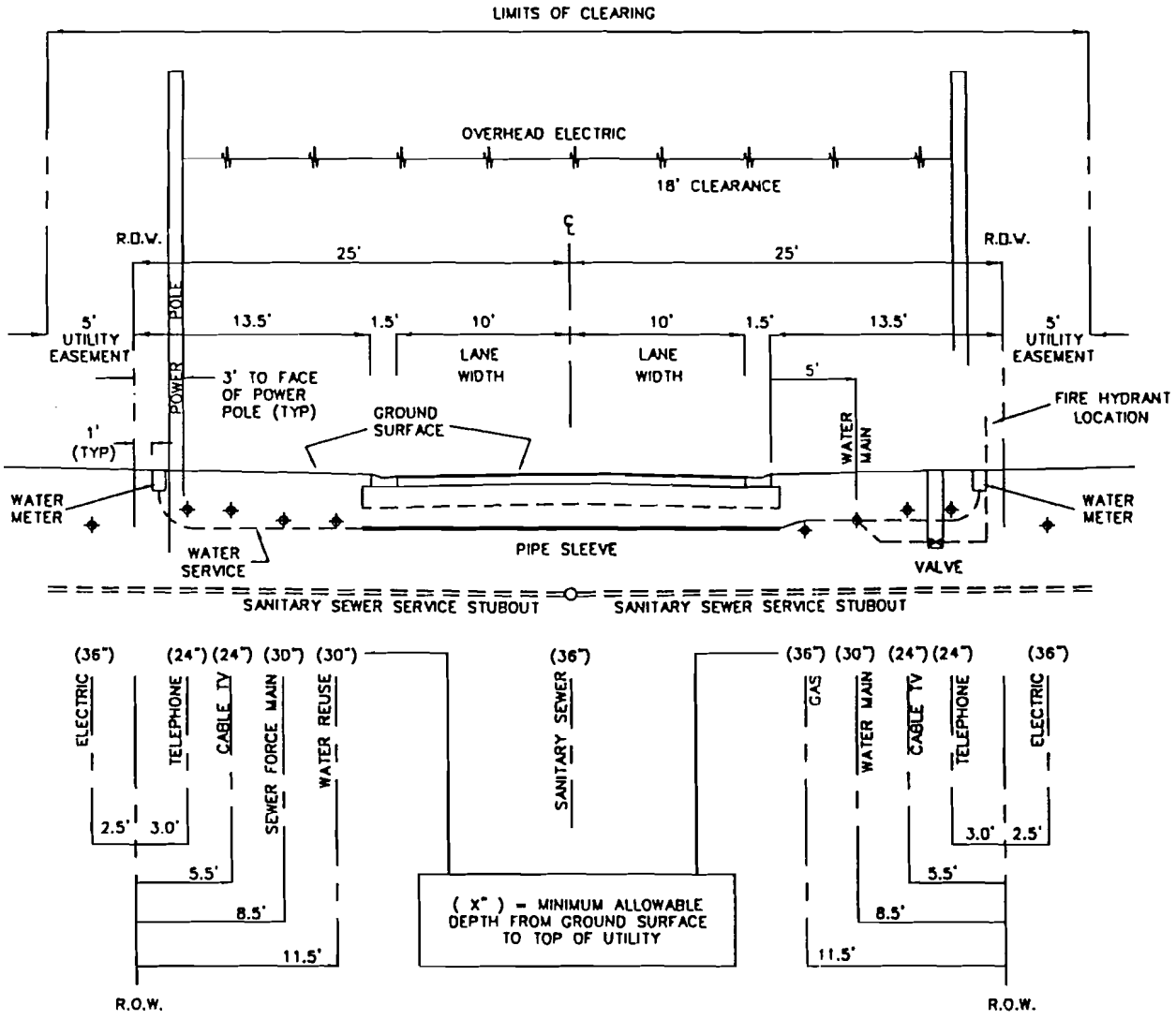


PIPE DIAMETER OR SPAN WIDTH	'X'
≤ 12"	12 INCHES
≤ 30"	24 INCHES
≤ 42"	30 INCHES
≤ 48"	36 INCHES
≤ 60"	42 INCHES
> 60"	48 INCHES

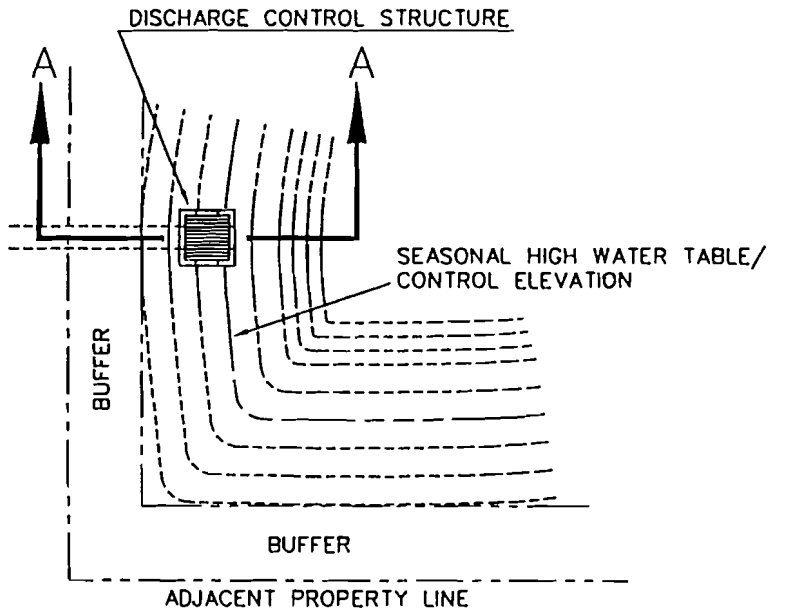
ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	OPEN ROAD CUTS/COMPACTED FILL
		DETAIL NO. 16
		DWG:
		ADOPTED:



ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	TYPICAL UTILITY LOCATION PLAN 60 FOOT RIGHT-OF-WAY	DETAIL NO. 17 DWG: DETAIL19.DWG ADOPTED:



ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	TYPICAL UTILITY LOCATION PLAN 50 FOOT RIGHT-OF-WAY	DETAIL NO. 18 DWG: ADOPTED:



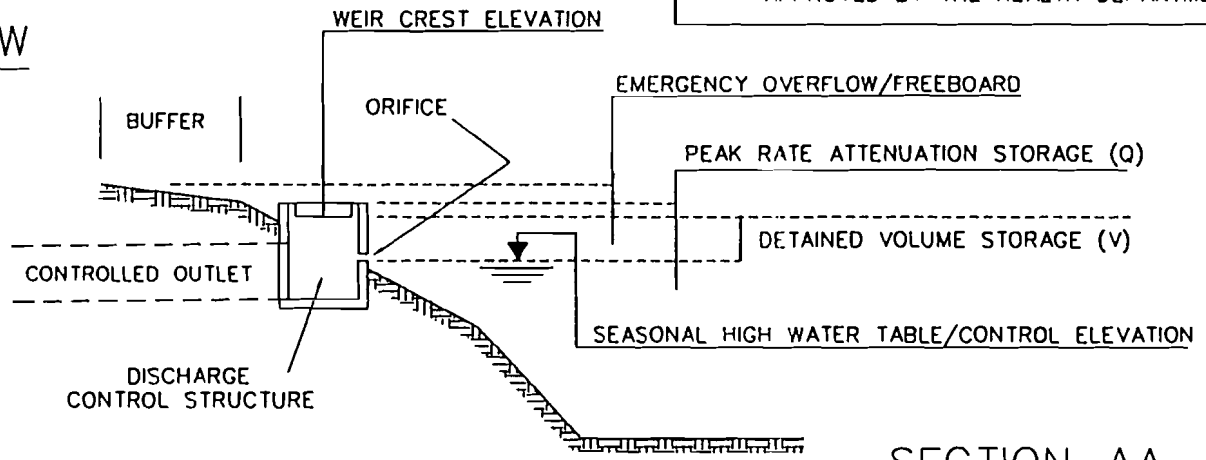
PLAN VIEW

GENERAL NOTES:

1. THIS DETAIL DEPICTS A TYPICAL DESIGN FOR "WET" DETENTION SYSTEMS. OTHER DESIGN CONFIGURATIONS MAY BE POSSIBLE. THIS SYSTEM IS DESIGNED FOR USE WHERE SOIL AND GROUND WATER TABLE CONDITIONS PROHIBIT USE OF "DRY" RETENTION OR DETENTION SYSTEMS.
2. THIS DETAIL IS FOR CLARIFICATION PURPOSES ONLY. ACTUAL DESIGN AND CONSTRUCTION DETAILS ARE THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL.
3. BUFFER WIDTH SHALL BE BASED ON THE FOLLOWING:

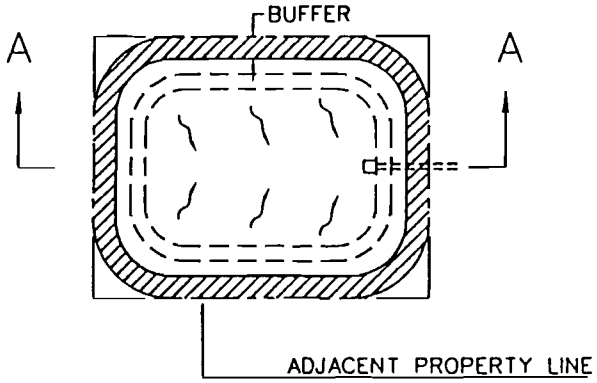
POND AREA	BUFFER WIDTH
LESS THAN 0.5 ACRE	5 FEET
0.5 ACRE TO 1 ACRE	10 FEET
GREATER THAN 1 ACRE	15 FEET

BUFFER WIDTH SHALL BE INCREASED TO 75 FEET FOR CASES WHERE SEPTIC SYSTEMS ARE PRESENT ON ADJACENT PROPERTIES UNLESS OTHERWISE APPROVED BY THE HEALTH DEPARTMENT



SECTION AA

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	WET DETENTION POND TYPICAL DETAIL	DETAIL NO. 19 DWG: ADOPTED:



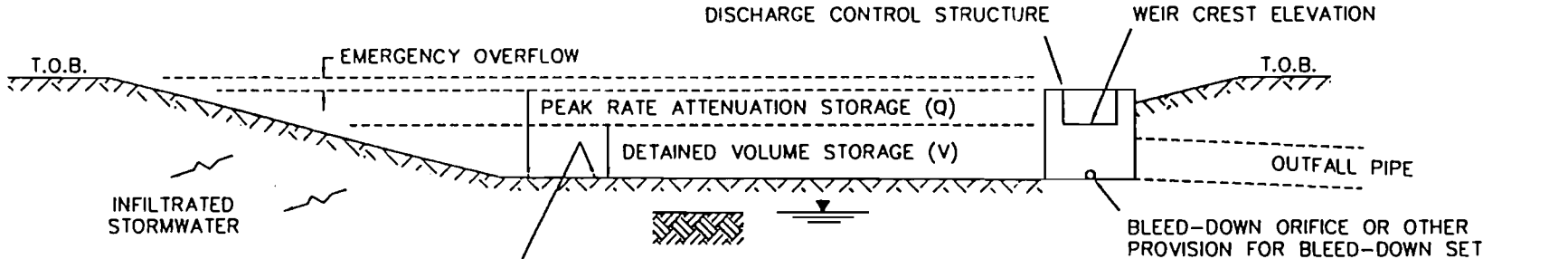
PLAN VIEW

GENERAL NOTES:

1. THIS DETAIL DEPICTS A TYPICAL DESIGN DETAIL FOR "DRY" DETENTION. OTHER DESIGN CONFIGURATIONS MAY BE POSSIBLE. THIS SYSTEM IS DESIGNED FOR USE WHERE SOIL AND SEASONAL HIGH GROUND WATER TABLE CONDITIONS ARE NOT CONDUCIVE TO ALLOW FOR FULL VOLUME RECOVERY THROUGH INFILTRATION WITHIN THE REGULATED TIME PERIOD.
2. THIS DETAIL IS FOR CLARIFICATION PURPOSES ONLY. ACTUAL DESIGN AND CONSTRUCTION DETAILS ARE THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL.
3. BUFFER WIDTH SHALL BE BASED ON THE FOLLOWING:

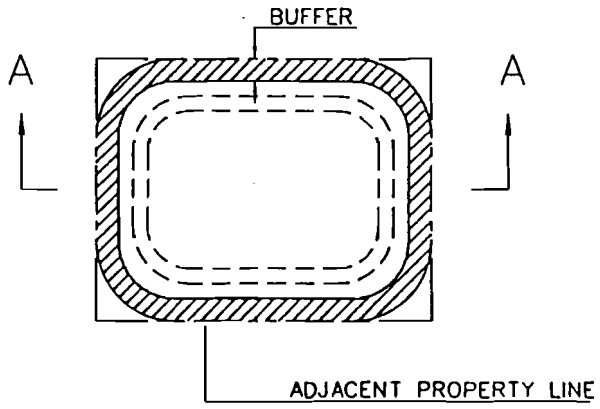
POND AREA	BUFFER WIDTH
LESS THAN 0.5 ACRE	5 FEET
0.5 ACRE TO 1 ACRE	10 FEET
GREATER THAN 1 ACRE	15 FEET

BUFFER WIDTH SHALL BE INCREASED TO 75 FEET FOR CASES WHERE SEPTIC SYSTEMS ARE PRESENT ON ADJACENT PROPERTIES UNLESS OTHERWISE APPROVED BY THE HEALTH DEPARTMENT



SECTION AA

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	DRY DETENTION TYPICAL DETAIL	DETAIL NO. 20 DWG: ADOPTED:



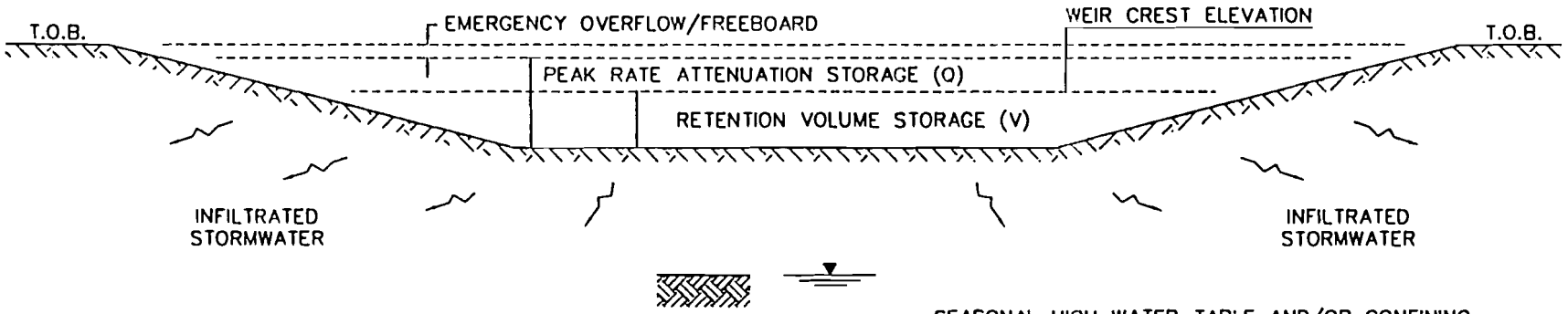
PLAN VIEW

GENERAL NOTES:

1. THIS DETAIL DEPICTS A TYPICAL DESIGN DETAIL FOR RETENTION OF STORMWATER RUNOFF. OTHER DESIGN CONFIGURATIONS MAY BE POSSIBLE. THIS SYSTEM IS DESIGNED FOR USE WHERE SOIL AND SEASONAL HIGH GROUNDWATER TABLE CONDITIONS ARE CONDUCIVE TO ALLOW FOR FULL VOLUME RECOVERY THROUGH INFILTRATION OF STORMWATER WITHIN THE REGULATED TIME PERIOD.
2. THIS DETAIL IS FOR CLARIFICATION PURPOSES ONLY. ACTUAL DESIGN AND CONSTRUCTION DETAILS ARE THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL.
3. BUFFER WIDTH SHALL BE BASED ON THE FOLLOWING:

POND AREA	BUFFER WIDTH
LESS THAN 0.5 ACRE	5 FEET
0.5 ACRE TO 1 ACRE	10 FEET
GREATER THAN 1 ACRE	15 FEET

BUFFER WIDTH SHALL BE INCREASED TO 75 FEET FOR CASES WHERE SEPTIC SYSTEMS ARE PRESENT ON ADJACENT PROPERTIES UNLESS OTHERWISE APPROVED BY THE HEALTH DEPARTMENT

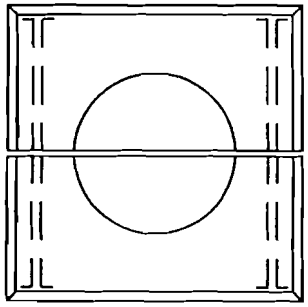


SECTION AA

SEASONAL HIGH WATER TABLE AND/OR CONFINING LAYER ARE LOCATED AT A DEPTH WHERE RECOVERY OF THE RETENTION VOLUME IS ATTAINED WITHIN THE REGULATORY TIME PERIOD.

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	RETENTION TYPICAL DETAIL	DETAIL NO. 21 DWG: ADOPTED: ,

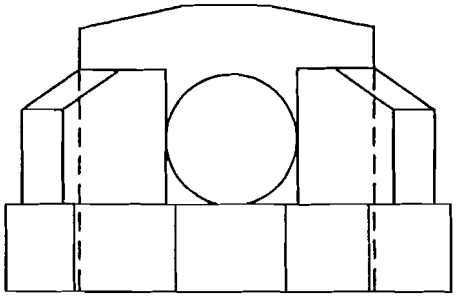
END WALL



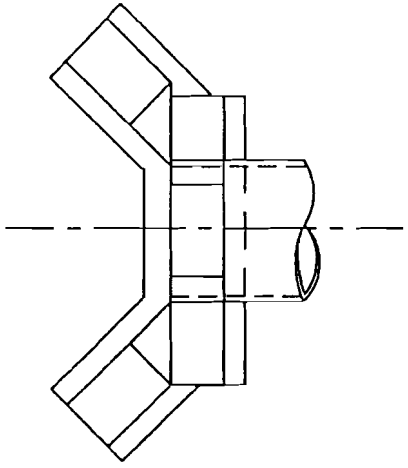
FRONT VIEW

PLAN VIEW

WING WALL

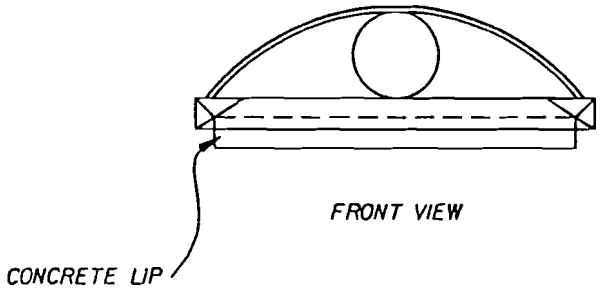


FRONT VIEW

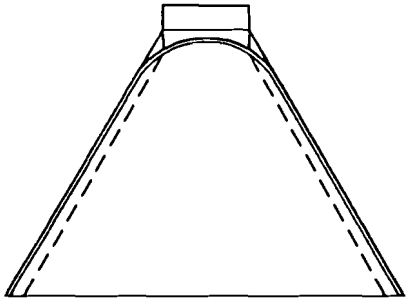


PLAN VIEW

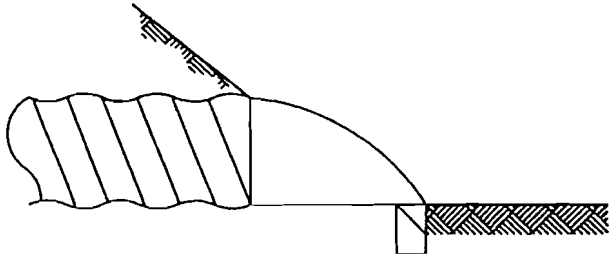
FLARED WALL



FRONT VIEW



PLAN VIEW



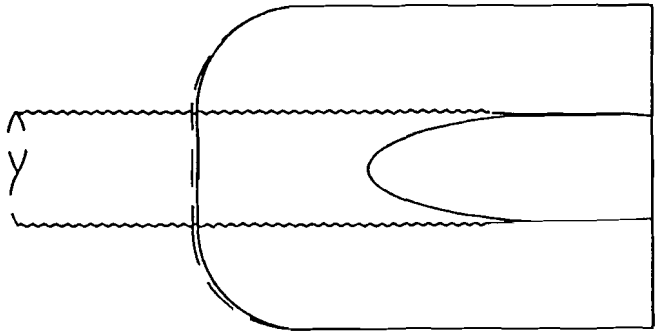
CROSS SECTION

GENERAL NOTES:

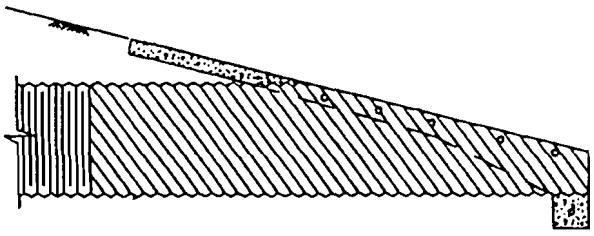
1. MINIMUM 12" FILL OVER TOP OF CULVERT.
2. EDGES MUST BE STABILIZED WITH A MINIMUM OF ONE ROW OF SOD FOR ALL END TREATMENTS.
3. FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS SHALL BE USED AS A GUIDELINE FOR ALL END TREATMENTS. REFER TO INDICIES 261, 266, & 272.
4. CULVERTS MUST BE INSTALLED AT START OF CONSTRUCTION.
5. MINIMUM CULVERT SIZE IS 15".
6. MITERED END SECTIONS REQUIRED WHEN SPEED LIMIT IS GREATER THAN 30 MPH.
7. GRATES REQUIRED FOR CULVERTS LARGER THAN 24".
8. SIDE SLOPES SHALL BE 2:1 (OR LESS) FOR 15" & 18" CULVERTS, AND 4:1 FOR CULVERTS 24" AND GREATER.

ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	RESIDENTIAL HEADWALLS END WALL, WING WALL, FLARED WALL	DETAIL NO. 22 DWG: ADOPTED:

POURED IN PLACE MITERED END SECTION

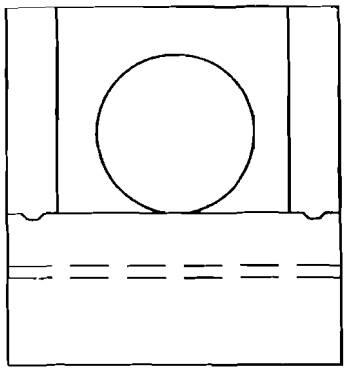


PLAN VIEW

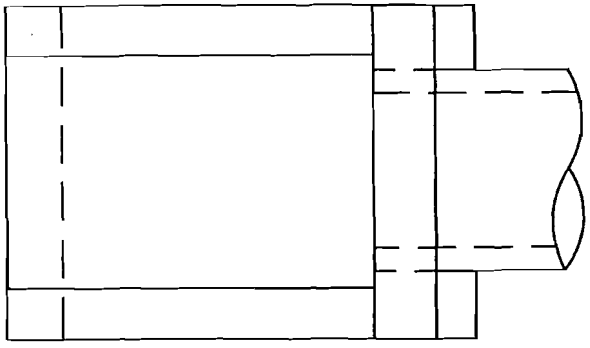


CROSS SECTION

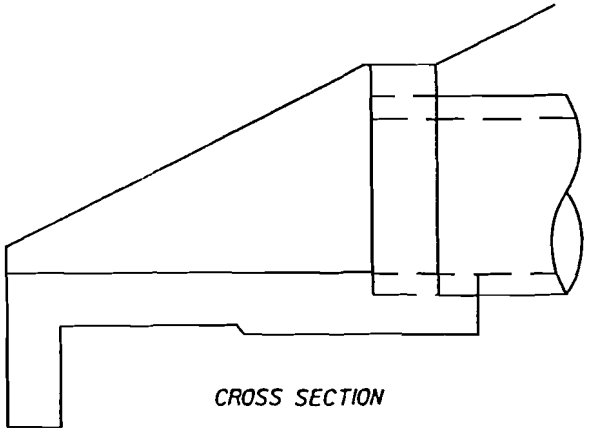
U-WALL



FRONT VIEW



PLAN VIEW



CROSS SECTION

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ROADWAY AND DRAINAGE STANDARDS PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	REVISION DATES	RESIDENTIAL HEADWALLS MITERED END SECTION, U-WALL	DETAIL NO. 23 DWG: ADOPTED: