

ARTICLE 1
GENERAL INFORMATION

TABLE OF CONTENTS

<u>Section Title</u>	<u>Page</u>
SECTION 1-100 INTRODUCTION.....	2
SECTION 1-200 PURPOSE.....	3
1-201 AUTHORITY AND ENFORCEMENT	3
1-202 AMENDMENTS AND UPDATE	4
1-203 EFFECTIVE DATE.....	5
SECTION 1-300 ADMINISTRATION.....	5
1-301 CONSTRUCTION DRAWINGS	5
1-302 MODIFICATIONS	6
1-302.1 PRIOR TO PLAN APPROVAL	6
1-302.2 AFTER PLAN APPROVAL – ALSO REFERRED TO AS REVISIONS	6
1-303 ADMINISTRATIVE PUBLICATIONS.....	7
1-304 DESIGN RESPONSIBILITY.....	7
1-305 APPROVAL REQUIRED.....	7
SECTION 1-400 SITE DEVELOPMENT PLANS	8
1-401 GENERAL REQUIREMENTS	8
1-402 FEES FOR APPLICATION	8
1-403 SUMMARY OF REVIEW OF APPLICATION PROCESS	8
1-404 APPROVAL.....	9
1-405 CRIMINAL PENALTIES- EMERGENCY ORDERS.....	10
SECTION 1-500 DEFINITIONS.....	11

ARTICLE 1

GENERAL INFORMATION

SECTION 1-100 INTRODUCTION

The City of Manassas Design and Construction Standards Manual (DCSM) establishes guidelines and standards for the design and construction of private and public facilities constructed within the City limits.

Qualified professionals are encouraged to seek innovative solutions to technical problems. However, to promote orderly development and to expedite plan processing and subsequent construction, standardized procedures and the use of minimum design standards must be employed. Familiarity with, and use of, the standards set forth herein by designers, contractors, and inspection personnel, will result in more timely and economical project review, approval, and completion.

Requirements based on Federal and State regulations, as well as standards established by the Virginia Department of Transportation within existing state rights-of-way, shall govern design and construction in all cases where they impose a greater requirement or a higher standard than is required by this Manual. In all other instances, the provisions of this Manual shall govern.

Required minimum standards governing form, drawing size, scale, and presentation methods are included herein. Such information is presented both for professional designers and subsequent reviewing agencies as general minimum requirements and professional reminders.

New information on design criteria, and change in pertinent Federal and State laws, regulations, and standards will be reflected in periodic reviews and subsequent changes to this publication. Public notice will be posted on the City's web page.

The references to standards, details, and sections provided in this document provide general reference only, and are not intended to provide a comprehensive cross reference. The engineer is responsible for the correct selection and use of the appropriate standards for individual applications as required.

SECTION 1-200 PURPOSE

This Manual, fully named the City of Manassas Design and Construction Standards Manual, has been developed and designed to assist the public in knowing the rules, regulations, and policies which apply to land development in the City of Manassas. The provisions contained herein relate primarily to the requirements which apply to the review and approval process of site development plans and construction in accordance with those plans. The primary purpose of this Manual is to effectuate the requirements of the City while also ensuring that development in the City of Manassas is consistent with and in concert with the requirements of all other applicable local, state and federal ordinances, regulations and laws. In the event any part or provision of this Manual is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions of this Manual which shall remain effective.

The standards and specifications contained herein are the minimum acceptable standards. The City may, in certain circumstances, require higher standards if it is deemed necessary for the assurance of health, safety and welfare of the citizens.

1-201 AUTHORITY AND ENFORCEMENT

The City's DCSM is authorized by the City Code of Ordinances, Section 106 – Subdivisions as approved by the City Council of Manassas, and shall be administered jointly by the Director of Public Works and Utilities and the Director of Community Development or as may otherwise be designated by the City Manager.

As a general guide, Community Development shall be responsible for the formal application processes and distribution to other review agencies and shall be

responsible for the technical review in accordance with the Zoning Ordinance, Subdivision Ordinance, Erosion and Sediment Controls, and the coordination with other review agencies. The Department of Community Development shall also be responsible for plan submission requirements, permits, site inspections, bond releases and reductions.

The Department of Public Works and Utilities shall be responsible for the technical and engineering review of the public roads, stormwater management, water, sanitary sewer, vegetation and landscaping, their respective easements, plats for recordation and vacations, electrical lines, and electrical service to each project. Site plan enforcement after the performance bond is released is done by the Department of Community Development.

The Development Services Manager of the City of Manassas shall have the day to day responsibility of administering and enforcing the regulations contained in the DCSM unless otherwise designated by the Director of Public Works & Utilities and the Director of Community Development.

1-202 AMENDMENTS AND UPDATE

The Manual is subject to review by a Design and Construction Standards Revision Committee which shall be staffed by representatives from departments within the City with responsibility for ensuring compliance with specific chapters of the Manual as well as certain other agencies. The City's Development Services Manager shall act as the Chairperson and shall convene the Committee as they deem necessary to review proposed amendments to the Manual. Whenever amendments to the Manual are being proposed which the Chairperson has not been able to review in advance with the Committee, the proposed amendments shall be submitted to the Committee, in writing, prior to the effective date of the amendment. All proposed amendments to the Manual shall be submitted to the Director of Public Works and Utilities and the Director of Community Development for approval.

Prior to amending the Manual, the Development Services Manager shall post a notice of intent to do so, together with a short description of the proposed amendments, on the City's public Webpage. The Development Services Manager shall notify by mail all individuals or firms on the DCSM mailing list.

All appeals of this Manual shall be pursuant to Section 106-42 of the City of Manassas Code.

1-203 EFFECTIVE DATE

This Manual is a policy which is adopted by an official ordinance permitted under the charter of the City of Manassas and shall have the force and effect of law. Its original effective date was July 1, 1997. When amended by the City of Manassas, such amendments shall become effective thirty (30) calendar days from the date of approval thereof or on such later dates as may be selected. During the thirty (30) days after approval, an applicant may choose to have a site development project comply with the newly amended standards prior to their effective date. The applicant may do so if copies of the newly amended standards are available to the development community and if the applicant states in writing on the application which set of standards he chooses to comply with for the site development project.

SECTION 1-300 ADMINISTRATION

1-301 CONSTRUCTION DRAWINGS

All construction documents shall be routed to the appropriate agencies to interpret the technical language contained in the DCSM for specific meaning and intent, and shall also interpret said technical language for applicability to a specific construction drawing prior to approval. All Interpretations and Waivers shall be routed to the appropriate department for technical input prior to a final decision. If the final decision of the Development Services Manager is contrary to the recommendation of the affected department and/or agency, the request shall be forwarded to the

Director of Community Development for process issues and to the Director of Public Works/Utilities for technical issues for a final determination.

The Development Services Manager, after receiving technical input from the appropriate departments, may approve construction drawings which do not strictly adhere to the technical standards, technical specifications, or numerical values set forth in the DCSM where:

- A. Unusual conditions specific to the site in question would render strict adherence impossible or impractical;
- B. The construction drawings are in keeping with established engineering practice, normal construction procedure, and accomplishes the intent of the standard; and
- C. There is not a direct conflict with a Federal, State or local code or regulation.
- D. See Section 2-900 for waivers submission requirements and procedure.

1-302 MODIFICATIONS

Modifications to site construction plans after initial submission shall be facilitated by the City under the followings circumstances.

1-302.1 PRIOR TO PLAN APPROVAL

During review, when a plan is deemed to be inadequate, written notice stating the specific reasons for disapproval shall be communicated to the applicant. The notice shall specify the modifications, terms, and conditions that will permit approval of the plan.

1-302.2 AFTER PLAN APPROVAL – ALSO REFERRED TO AS REVISIONS

An approved plan may be changed by the authority that approved the plan in the following cases:

- A. Where inspection has revealed that the plan is inadequate to satisfy applicable regulations; or
- B. Where the person responsible for carrying out the approved plan finds that because of changed circumstances or for other reasons the approved plan

cannot be effectively carried out, and the proposed amendments to the plan, consistent with the requirements of this article, are agreed to by the plan-approving authority and the person responsible for carrying out the plan.

1-303 ADMINISTRATIVE PUBLICATIONS

The Development Services Manager may, from time to time, issue "Letters to Industry" to the public to "interpret" or "correct" the technical standards, technical specifications, or numerical values contained herein. The interpretations or corrections shall not be in conflict with these standards and specifications. All "Letters to Industry" shall be approved by the appropriate agency prior to publication.

1-304 DESIGN RESPONSIBILITY

Construction of water supply, fire protection, sanitary sewer, storm drainage, erosion and sediment control, transportation or geotechnical systems required by the Zoning, Street, and Subdivision Ordinances shall conform to the standards in this Manual. Plans for these systems shall be prepared and designed under the direction of a registered professional engineer or licensed 3(b) land surveyor, licensed to practice in the Commonwealth of Virginia. A licensed 3(b) land surveyor may not design pressure hydraulic systems. A licensed landscape architect, a certified landscape designer, or a certified nurseryman will be required to approve all landscaping plans. Photometrics shall be signed by a professional engineer. Each plan sheet or calculation package shall bear the professional seal and signature of the design professional of record.

1-305 APPROVAL REQUIRED

Prior to construction of any water system, fire protection, sanitary sewer, storm drainage, erosion and sediment control, transportation or geotechnical provision required by this Manual, Zoning, or the Subdivision Ordinances, all plans must be certified and signed by the Development Services Manager as meeting the

requirements of the ordinances and applicable City standards and as recommended for approval by the various City reviewing Departments

SECTION 1-400 SITE DEVELOPMENT PLANS

1-401 GENERAL REQUIREMENTS

A subdivision plan (and/or plat) is required, when a person wishes to subdivide parcels of real property within the City. A Subdivision is defined in Chapter 106 of the City of Manassas Code.

A site plan is required for all new construction, outside reconstruction and alteration, and change in use within all zoning districts in accordance with Chapter 130 of the City of Manassas Code. A minor site plan may be submitted in instances where the proposed development does not significantly or adversely alter existing improvements; Development Services will determine if the project requires a full site plan submission or a minor site plan as specified in Section 2-402 of this Manual. A separate erosion and sediment control plan is required for any land disturbing activity exceeding 2,500 square feet, as specified in Section 2-806 of this Manual.

1-402 FEES FOR APPLICATION

The fees for application for plat, plan, and other reviews are established by the City Council through an uncodified ordinance and are collected by the Development Services Department at time of submission for review.

1-403 SUMMARY OF REVIEW OF APPLICATION PROCESS

Once a complete application for review of a Site or Subdivision plan has been submitted to the City, and the appropriate fees paid, copies will be transmitted to a number of governmental agencies for their review and comment. The most basic review of plan and subdivision plats analyzes the physical layout in terms of the dimensions, the topography, the natural features of the site, and a determination whether the use proposed comports with law. This review is accomplished primarily by the Department of Public Works and Utilities and the Department of Community

Development and includes review for conformance with the State Erosion and Sediment Control Law. Although the erosion and sediment control plan review could be, and occasionally is, performed separately from the development plan review, the City's program has been approved by the State, and the City administers it jointly with site development plans.

Aspects of plans extending beyond internal agencies are circulated by the Department of Community Development to appropriate internal and external agencies. The Airport Manager transmits all plans to FAA when appropriate for review under their standards and regulations. The Public Works and Utilities Director (or designee) is responsible for transmitting all plans to VDOT and/or VDH when appropriate for review under their standards and regulations. The Department of Public Works and Utilities shall be responsible for conducting all technical engineering reviews. Every effort is made to ensure that all comments made by the agencies who received the plan are satisfactorily addressed before Development Services approves the plan administratively. However, Development Services approval in no way affects the authority of the external agencies to issue their own permits for those aspects of the land development process which are within their respective jurisdictions. Development Services can refuse to approve plans based on decisions made by such external agencies. To ensure compliance with proper regulations adopted by the City, developers must understand the importance of satisfying outside agency requirements.

1-404 APPROVAL

After the final site development plan approval has been secured and other administrative requirements identified in this Manual have been satisfied, the applicant may obtain appropriate permits.

Site plans are approved administratively by the Development Services Manager. The Manassas City Council approves subdivision plans pursuant to the City of Manassas Code of Ordinances Chapter 106 – Subdivisions.

The Development Services Manager has the authority to grant permission for temporary activities on property in which the City has an interest by developers of adjoining property in order to complete their improvements, if review of the plans for such grading or other work indicates that there will be no adverse impact on the City's interest in its property. Activities which are permitted shall be described in the approval granted by the Development Services Manager. Prior to approval, Development Services shall obtain a recommendation for approval from appropriate review agencies.

If permanent improvements or fixtures are to be installed or permanent changes in grade or elevation are proposed, the applicant shall attach appropriate instruments (deeds, plats) proposed for approval.

1-405 CRIMINAL PENALTIES- EMERGENCY ORDERS

Any person, including the owner of property on which construction subject hereto is occurring, who violates any provisions of this Manual or who fails to comply with a violation notice and stop work order, shall be guilty of a Class 1 misdemeanor. Each day on which a violation is found to exist shall constitute a separate offense.

Whenever the Development Services Manager, or his/her designated agent, finds that any grading, drainage or other condition involving the application of required improvements constitutes or creates a public hazard, the owner of the property or their agent on which such condition is identified shall, upon receipt of notice in writing from the Development Services Manager, perform or cause to be performed such remedial work, repairs, or maintenance as the Development Services Manager deems necessary to abate the hazard. Any such work shall be done in conformance with the requirements of this Manual and any orders issued by the Development Services Manager. Failure to comply with an emergency order hereunder shall constitute a Class 1 misdemeanor.

SECTION 1-500 DEFINITIONS

For the purpose of this document the following terms shall be used as defined below.

AASHTO: The American Association of State Highways and Transportation Officials.

ACRE-FOOT: Quantity of water that would cover 1 acre, 1 foot deep. An acre-foot contains 43,560 cubic feet.

ADA: Americans with Disabilities Act.

ADDENDA: Written or graphic instruments issued prior to the award of the contract which modify or interpret the Contract Documents, Drawings and Specifications by additions, deletions, clarifications or corrections.

ADEQUATE CHANNEL: A natural or man-made channel or pipe which is capable of conveying the run-off from the applicable design storm (Section 8-200) without overtopping its banks or eroding, after development of the site in question.

ANSI: The American National Standards Institute, Inc.

APPROACH CHANNEL: The reach of channel upstream from a dam, bridge, constriction, culvert, or other structures.

APPROACH SECTION: A cross-section of a stream channel, normal to thread of current, located in the approach channel.

APRON: A floor or lining of concrete to protect a surface from erosion, such as the pavement at the outlet of culverts or storm sewers.

ARCHITECT: A person who, by reason of his knowledge of the mathematical and physical sciences and the principles of architectural design, acquired by professional education, practical experience, or both, is qualified to engage in the practice of architecture as attested by the issuance to said person of a license as an architect by the Virginia State Board of Architects, Professional Engineers, Land Surveyors and Certified Landscape Architects.

AREA: Area shown to the nearest whole square foot or to the nearest one hundred thousandth of an acre.

ASCE: The American Society of Civil Engineers.

ASTM: The American Society for Testing and Materials.

AWWA: The American Water Works Association.

BACKWATER:

- A. In a general sense, a flow retarding influence due to a dam or other constrictions such as a bridge or a culvert, or another stream;
- B. The increase in water surface elevation due to a bridge constriction above the normal unstricted elevation, at an approach section located one bridge length upstream from the bridge constriction.

BACKWATER CURVE: A particular form of the surface curve of a stream of water which is concave upward. It is caused by an obstruction in the channel such as an overflow dam; the depth is greater at all points than Belanger's critical and normal depths and the velocities diminish downstream. The term is used in a generic sense to denote all water surface curves.

BERM: The space left between the upper edge of a cut and the toe of an embankment to break the continuity of an otherwise long slope.

BIDDER: Any person, firm or corporation submitting a proposal for the work.

BLASTING: The use of an explosive to excavate.

BMP: Best Management Practice. An effective practicable means of reducing the amount of pollution generated by nonpoint sources, which may be structural or non-structural practices or a combination of practices.

BOCS: The Prince William Board of County Supervisors.

BONDS: Bid, performance and payment bonds, erosion control bonds, and other instruments of security, furnished by the CONTRACTOR and his/her surety agent in accordance with the Contract Documents, City of Manassas Code, and this Manual.

BOUNDARY LINE ADJUSTMENT: Refer to “resubdivision” below or the City’s Subdivision Ordinance, Chapter 106.

BPR: The Bureau of Public Roads.

BRIDGE: A structure erected over a watercourse, depression, or obstacle (Webster's Collegiate Dictionary). As distinguished from a culvert, it is a large structure spanning a watercourse, the bed of which is left comparatively undisturbed. The opening width is generally large compared to length (in the direction of flow). The structure generally consists of a deck or superstructure supported on two or more abutments or piers.

CATCHMENT AREA OR BASIN: Watershed or drainage basin; also, the area of such a basin.

CERTIFIED LANDSCAPE ARCHITECT: A person who, by reason of his/her special knowledge of natural, physical and mathematical sciences and the principles and methodology of landscape architectural design acquired by professional education, practical experience, or both, is qualified to engage in the practice of landscape architecture and whose competence has been attested through certification as a landscape architect by the Virginia State Board of Architects, Professional Engineers, Land Surveyors and Certified Landscape Architects.

CFS: Cubic Feet per Second

CHANGE ORDER: A written order to CONTRACTOR signed by OWNER authorizing an addition, deletion or revision in the work, or an adjustment in the Contract Price or the Contract Time issued after execution of the Agreement.

CHANNEL: An elongated open depression in which water may, or does flow. An elongated depression, either naturally or artificially created and of appreciable size, which periodically or continuously contains moving water or which forms a connecting link between two bodies of water. It must have a definite bed and bank which serves to confine the water.

CHANNEL COEFFICIENT: A roughness factor in the Kutter, Manning, Hazen, and other formulas expressing the character of a channel as affecting the friction slope of water flowing therein. More specifically, the roughness factor (n) in the Manning formula.

CITY: City of Manassas or its designated representative as the OWNER.

COEFFICIENT OF ROUGHNESS: See CHANNEL COEFFICIENT.

CONDUIT: A general term for any channel intended for the conveyance of water, whether open or closed; any container for flowing water.

CONTRACT: The written agreement between OWNER and CONTRACTOR covering the work to be performed; other Contract Documents are attached to the Agreement.

CONTRACT DOCUMENTS: The Contract consists of the Addenda (whether issued prior to the opening of Bids or the execution of the Agreement), Instructions to Bidders, Proposal, the Bonds, the Notice of Award, the General Conditions, the Special Provisions, the Standard Specifications, Plans and Standard Details.

CONTRACT PRICE: The total monies payable to the CONTRACTOR under the Contract Documents.

CONTRACT TIME: The number of calendar days stated in the Contract for the completion of the work.

CONTRACTOR: Any person, including a subcontractor, who contracts with an operator or property owner, public or private, for the purpose of engaging in, at least, excavation, demolition, blasting or construction. The person, firm or corporation with whom the OWNER has executed the Agreement; or, the person, firm or corporation performing work to meet City specifications.

CONTROL: A section or a reach of a conduit where conditions exist that make the water level about it a fairly stable index of discharge. A control may be partial or complete. A complete control is independent of downstream conditions and is effective at all stages, such as an overflow dam, a ledge of rock crossing a channel, a boulder-covered reach, or an indurated bed.

COUNCIL: The Council of the City of Manassas.

CRADLE: A footing structure shaped to fit the conduit it supports.

CREST: (A) The top of a dam, dike, spillway, or weir; frequently restricted to the overflow portion: (B) The summit of a wave; peak of a flood.

CRITICAL DEPTH: A given quantity of water in an open conduit may flow at two (2) depths having the same energy head. When these depths coincide, the energy head is at a minimum and the corresponding depth is Belanger's critical depth. It is the depth at which, for any given energy content of the water in a channel, maximum discharge occurs; or the depth at which in a given channel a given quantity of water flows with minimum content of energy.

CRITICAL WATERSHEDS: Those watersheds in the City, in which the effect of any increased run off creates significant flooding and drainage problems.

CULVERT: A culvert is a closed conduit of waterway carrying water through a highway or railroad embankment. Although there are borderline cases, a culvert is distinguished from a bridge by certain characteristics, such as (a) a culvert generally has the same material all around its perimeter and has a regular, symmetrical shape, where a bridge opening has not - in other words, a culvert is a large pipe; (b) a culvert usually has a large ratio of length to width.

CURVE DATA: Delta, radius, arc, tangent, and chord bearing and length.

CUTOFF: A wall, collar, or other structure intended to reduce percolation of water along otherwise smooth surfaces, or through porous strata.

DAM: Any artificial barrier together with appurtenant works intended to impound water.

DAM FAILURE ANALYSIS: An analysis to determine possible failure modes, breach configurations, failure time, outflow hydrography and the area of inundation downstream from a dam in the event of failure.

DAM HEIGHT: The vertical distance from the natural bed of the stream at the downstream toe of the dam to the top of the dam. This is also the structural height.

DAM OWNER: Any person or entity owning the land on which a dam is situated, and/or any person or entity holding an easement permitting the construction of a dam, and/or any person or entity agreeing to maintain a dam.

DANGER REACH: The area downstream from a dam that will experience an increase in flooding depth or inundation as a result of failure of the dam.

DAY - CALENDAR: Any day of twenty-four hours measured from midnight to the next midnight. Included are weekends and holidays.

DAY – WORK: Monday through Friday, excluding, however any public and legal holidays.

DEBRIS: Any material, including floating trash, suspended sediment, or bed load, moved by a flowing stream; detritus. This term also includes those materials which may be disposed of in a debris landfill (see Chapter 34 of the City of Manassas Code).

DEMOLITION: The razing of any structure above the existing grade or demolition of any structure below the existing grade.

DESIGN ENGINEER: The licensed engineer of record who represents the owner/developer of a specific project.

DESIGN STORM: A selected rainfall pattern of specified amount, intensity, duration, and frequency that is used as a basis for design.

DETENTION: Managing stormwater run-off of sewer flows through temporary and/or controlled release facilities.

DETENTION FACILITY: A facility that provides detention storage of storm run-off and controlled release of this run-off and drains completely to a pre-storm condition when precipitation stops and the stored run-off has been released.

DEVELOPMENT: Any man-made change to improved or unimproved real estate including, but not limited to, buildings or other structures, the placement of streets and other paving, utilities, filling, grading, and excavation. Includes subdivisions and development plans.

DEVELOPER or SUBDIVIDER: An individual, corporation, proprietor, trust trustee, partnership, or other entity having legal title to any tract or parcel of land to be developed, whether or not they have given their power of attorney to one of their group, or other individual or entity to act on their behalf in planning or negotiation in representing or executing the requirements of this Manual or the City of Manassas Zoning Ordinance.

DIKE: An embankment to confine or control water, especially one built along the banks of a river to prevent overflow of lowlands; a levee.

DIRECTOR: The person representing the Department of Community Development. All other directors will be specifically identified.

DISCHARGE: (A) The quantity of water, silt, or other mobile substances passing along a conduit per unit of time, rate of flow; cubic feet per second, liters per second, millions of gallons per day, etc. (B) The act involved in water or other liquid

passing through an opening or along a conduit or channel. (C) The water or other liquid which emerges from an opening or passes along a conduit or channel.

DITCH: An artificial channel, usually distinguished from a canal by its smaller size.

DPW&U: The Department of Public Works & Utilities.

DRAINAGE AREA: The area of a stream at a specified location, measured in a horizontal plane, which is enclosed by a topographic divide such that the direct surface run-off from precipitation normally would drain by gravity into the river basin above the specified point.

DRIP LINE: A vertical line extending from the outermost edge of the tree canopy or shrub branch spread to the ground.

DRIVE or DRIVEWAY: An area specifically designated and designed for vehicular access to a building, use, parcel or lot. The term drive for the purpose of this document shall include travel-way or access-way.

DRIVEWAY PIPESTEM: Vehicular access constructed on the stem or stems of a lot, or lots. No parking is allowed along a pipestem driveway since it is also for emergency vehicles.

DRIVEWAY PRIVATE: Vehicular access constructed entirely within the limits of one lot for use only by that lot and may connect to a public street, private street, common driveway or common parking court.

TRAVELWAY: A vehicular access in through and across any property for the purpose of moving motorized vehicles in an orderly manner and may be used by one or more than one parcel.

DROP:

- A. A structure for dropping the water in a conduit to a lower level and dissipating its surplus energy. A drop may be vertical or inclined; the latter is called a chute;
- B. A fall. Also, the drop or fall (h) in water surface elevation between the upstream and downstream (between headwater and tail water) sides of a bridge construction or submerged culvert or between two sections of a slope reach.

EASEMENT: A granting by a property owner of the use and/or access of land for a specific purpose to another party.

EMBANKMENT: A man-made deposit of soil, rock, or other material used to form an impoundment.

EMERGENCY: Any condition which may cause an interruption of essential services resulting from the destruction of, disruption of, or damage to, underground utility lines. Emergency is classified as less severe than hazardous.

ENERGY GRADIENT: The slope of the energy line with reference to any plane.

ENERGY HEAD: The elevation of the hydraulic grade line at any section plus the velocity head of the mean velocity of the flow in that section. The energy head may be referred to any datum, or to an inclined plane, such as the bed of a conduit. Total head is above datum at any cross-section.

ENERGY LINE: A line joining the elevations of the energy heads of a stream. The energy line is above the hydraulic grade line a distance equivalent to the velocity heads at all sections along the stream. A line representing the energy in flowing water. It is plotted at a distance equal to depth plus velocity head above a profile of

the flow line of a conduit. The slope of this line represents the rate of loss of head and it must always slope downward in the direction of the flow.

ENGINEER: The Public Works and Utilities Director's designee(s) authorized to provide technical guidance, to interpret, and to discern the intent of this Design and Construction Standards Manual when required.(For private development firms see definition under Design Engineer (define function)).

ENTRANCE LOSS: The head lost in eddies and friction at the inlet to a conduit or structure.

EXCAVATE: The movement or removal of earth, using mechanized equipment of blasting, and includes auguring, backfilling, digging, ditching, drilling, grading, plowing-in, pulling-in, ripping, scraping, trenching and tunneling, except for agricultural purposes, on land containing no underground gas utility lines.

FEMA: Federal Emergency Management Agency.

FHA: The Federal Housing Administration.

FLOOD HAZARD AREA (FLOOD HAZARD DISTRICT): Any normally dry area that is susceptible to being inundated by water. The flood hazard areas include, but are not limited to, land subject to the 100- year flood.

FLOOD PEAK: The maximum discharge of a particular flood at a given point along a stream.

FLOOD PLAIN: Any land area susceptible to being inundated by water from any source.

FLOOD ROUTING: (Reservoir Routing) Determination of the hydrograph for a particular site in a surface channel on the basis of hydrograph data for another site some distance up or downstream.

NOTE: Flood routing is generally used to determine changes made in flood hydrograph by the floods passing through a stream reach or reservoir.

FLOOD WAY: The channel of a river, stream or other water course and the adjacent land area that must be reserved to discharge the 100-year flood without cumulatively increasing the water surface.

FPS: Feet per second.

FREQUENCY CURVE: A graphical representation of the frequency of occurrence of specific events. In flood studies, frequency is expressed as recurrence interval which is the average number of years within which a given peak discharge or rainfall intensity will be equaled or exceeded.

FRICTION LOSS (OR HEAD): The head or energy loss as the result of disturbances set up by the contact between a moving stream of water and its containing conduit. For convenience friction losses are best distinguished from losses due to bends, expansions, obstruction, impacts, etc., but there is no recognized line of demarcation between them, and all such losses are often included in the term "friction loss".

GPH: Gallons per hour.

GPM: Gallons per minute.

GIS: Geographic Information System.

GRADE: The slope of a road, channel, or natural ground. The finished surface of a canal bed, road bed, top of embankment, or bottom excavation; any surface prepared for the support of construction such as paving or laying of a conduit.

HAZARDOUS: Any condition which may cause an interruption of essential services, or any condition in which there is eminent threat of loss of life, property or irreparable harm and, in addition, may result in death or injury to persons or property due to destruction of, disruption of, or damage to underground utility lines. Hazardous is classified as more severe than emergency.

HEAD: The height of water above any point or plane of reference. Used also in various compounds such as energy head, entrance head, friction head, static head, pressure head, lost head, etc.

HEADWATER: (A) The water upstream from a structure; (B) The source of a stream.

HIGHWAY: A general term denoting a public way for purposes of vehicular travel.

HYDRAULIC GRADE LINE: In a closed conduit, a line joining the elevation to which water could stand in risers. In an open conduit, the hydraulic grade line is the water surface; piezometric head line.

HYDRAULIC GRADIENT: The slope of the hydraulic grade line; the slope of the water surface in uniform, open-channel flow.

HYDRAULIC JUMP: The sudden and usually turbulent passage of water from a stage below critical depth, to a stage above critical depth, during which the velocity passed from supercritical to subcritical. It represents the limiting conditions of the surface curve wherein it tends to become perpendicular to the stream bed.

HYDROLOGY: The science dealing with the waters of the earth in their various forms; precipitation, evaporation, run-off, and ground water.

IMPERVIOUSNESS: That quality or condition of a material that minimizes percolation.

IMPOUNDING CAPACITY: The volume in acre-feet that is capable of being impounded at the elevation of the top of the dam.

IMPROVEMENTS: All utilities, facilities, signs, lights, buildings, and structures including, but not limited to, streets, cul-de-sacs, storm and sanitary sewers, water lines, curb and gutter and landscaping required pursuant to the terms of this Manual.

INSPECTOR: The authorized representative of the Engineer or Director assigned to make detailed inspection of any or all portions of the work or materials.

INVERT: The floor, bottom, or lowest part of the internal cross-section of conduit.

KINETIC ENERGY: Energy due to motion. The kinetic energy of a given discharge is generally taken as proportional to the product of its weight per unit of time and the velocity head of its mean velocity. For a constant discharge, kinetic energy may be represented by a line at a distance above a flowing water surface proportional to the velocity head of its mean velocity. The elevation of such a line above any datum represents the total energy (potential plus kinetic) of the given discharge above that datum. Strictly, the kinetic energy of a given discharge is the integral of the kinetic energies of its particles.

LAND SURVEYOR: A person who, by reason of his/her knowledge of, the several sciences and of the principles of land surveying and of the planning and design of land developments acquired by practical experience and formal education, is

qualified to engage in the practices of land surveying, as attested by the issuance to said person of a license as land surveyor by the Virginia State Board of Architects, Professional Engineers, Land Surveyors and Certified Landscape Architects.

LANDSCAPE ARCHITECT: A person whose profession is the arrangement of land for human use and enjoyment involving the placement of structures, pedestrian ways, and plantings, as attested by the issuance to said person of a license of such by the Virginia State Board of Architects.

LIMITS OF CLEARING: The boundaries of that area of land to be cleared of trees and other vegetation in conjunction with the proposed development or land use, except that the area within these limits for such proposed development or use shall not include the removal of any outstanding or monarch trees unless approved by the Director of Public Works and Utilities.

LIMITS OF GRADING: The outermost edge of the area in which the existing topography is to be altered by cutting or filling.

LONG LINE: An unconnected water line more than 100 feet in length.

LOT: A parcel of land, upon which a structure may be built, which is the result of subdivision or resubdivision in accordance with Chapter 106 of the City of Manassas Code, the Subdivision Ordinance.

MANUAL: City of Manassas Design and Construction Standards Manual.

MECHANIZED EQUIPMENT: Powered equipment used to excavate, and equipment used for plowing-in or pulling-in cable or pipe.

MONARCH TREE: Any tree which is 90 percent of the State champion rating as defined by the formula (height in feet) + (the circumference [at 4½ feet], in inches) +

(¼ of the spread measured in two (2) directions perpendicularly in feet) = rating. A listing of current State champions is available from the Director.

MUTCD: The Manual of Uniform Traffic Control Devices.

NATURAL WATER COURSE: A natural stream flowing in a defined bed or channel; one formed by the natural flow of the water, as determined by the general superficies or conformation of the surrounding county, as distinguished from an "artificial" water course, formed by the work of man, such as a ditch or canal.

NOTICE OF AWARD: The written notice by OWNER to the apparent successful Bidder stating that upon compliance with the conditions precedent to be fulfilled by him within the time specified, OWNER will execute and deliver the Agreement to him.

NOTICE TO PROCEED: A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Time will commence to run and on which CONTRACTOR shall start to perform his/her obligations under the Contract Documents.

OFF-SITE: Any area which does not fall within the boundary of property to be developed or planned, but generally is in proximity thereto.

ON-SITE: That area within the boundary of any land to be developed or planned.

OPEN-CHANNEL FLOW: Flow in any open or closed conduit where the water surface is free; that is, where the water surface is at atmospheric pressure.

OPERATOR: Any person who furnishes or transports any of the following materials or services by means of a utility line:

- A. Flammable, natural, toxic or corrosive gas

- B. Petroleum, petroleum products and hazardous liquids
- C. Electricity
- D. Sanitary sewer
- E. Water
- F. Communications

OWNER: Listed owner of record in the Prince William County Courthouse.

PERMIT: Written authorization to perform the stipulated work.

PERMITS, TYPES:

EROSION CONTROL PERMIT: A permit issued by Development Services to install siltation and erosion control devices in accordance with the approved site development plan.

EXCAVATION PERMIT: This permit is issued by the Development Services for access to build pools on private property, install or repair underground utilities within a City right-of-way or dedicated easement, and to construct or reconstruct a driveway entrance that connects to a public roadway.

FLOOD HAZARD USE PERMIT: A permit required for any development within the flood hazard district.

LAND DISTURBANCE PERMIT: This is a permit to ensure compliance with Section 58 of the City of Manassas Code of Ordinances and all other sections of this Manual when no other permits are required. This permit is required for any land disturbance greater than 2,500 square feet. The applicant must submit a plan outlining proposed disturbances and erosion control practices. A house location survey, record plat, city topographical map with parcel overlay, or a non-engineered outline of the lot correctly drawn to scale may be used as a basis for this plan. The plan must locate

the disturbed area by offsets to the property lines and must contain a signed statement by the owner that appropriate erosion control devices will be provided.

SITE IMPROVEMENT PERMIT: A permit issued by the Development Services Department for the installation of all site improvements in accordance with the approved development plans. This permit does not include the construction of any building. This permit does, however, include installation of water and sanitary sewer lines, storm drainage, and roadways in areas within the jurisdiction of the City.

PERSON: Any individual, partnership, association, corporation, state, subdivision or instrumentality of a state, or the legal representative thereof.

PLANS, TYPES:

The drawings which show the character and scope of the work to be performed and which have been prepared or approved by the appropriate City of Manassas Officials and may be also known as or referred to in the Contract Documents.

APPROVED PLAN: A final plan recommended for approval by all City review agencies and signed by the Development Services Manager. Plan validity period shall begin upon approval.

AS-BUILT PLAN: Final set of engineered plans, prepared by a licensed professional engineer or licensed land surveyor registered in the State, submitted upon completion of a project site.

COMPREHENSIVE PLAN: The adopted official statement of a legislative body of a local government that sets forth (in words, maps, illustrations, and/or tables) goals, policies, and guidelines intended to direct the present and future physical, social, and economic development that occurs within its planning jurisdiction and that includes a unified physical design for the public and private development of land and water.

CONSTRUCTION PLANS: Same as “Site Development Plans” below.

DEVELOPMENT PLAN: Renamed “Site Development Plans”

EARLY GRADING PLAN: For the purpose of beginning land disturbing activity and demolition prior to final plan approval.

FINAL PLAN: The initial full submission of a Subdivision Plan, Site Plan, Minor Site Plan having passed QAQC for the purpose of review by City staff. Compliance reviews may or may not generate comments from staff. If comments are generated, resubmissions will be reviewed for compliance.

GENERAL DEVELOPMENT PLAN: A schematic plan (any portion of which was/is proffered or conditioned) that was attached and presented in conjunction with a rezoning or special use permit application.

MINOR SITE PLAN: A sketch, drawing, schematic, or portion of an approved plan or engineered drawing showing the site design, alteration and proposed improvements, and any required improvements to be made, demonstrating compliance with the Zoning Ordinance and relevant sections of this Manual.

MULTI-PHASED PLAN: Development plans illustrating sectional phasing within an overall development. Each phase or section is Bonded and Permitted individually prior to land disturbing activities within phases or a section.

PRELIMINARY PLAN: A substantive engineering drawing prepared by a registered/certified professional engineer, land surveyor, and/or architect which illustrates the overall proposed site layout and design of a legally defined land area and that area's physical relationship to adjacent/contiguous development both existing and proposed.

PRESUBMISSION PLAN: An informal voluntary process consisting of a single submission, review and/or meeting.

PUBLIC IMPROVEMENT PLAN: A site development plan showing a major public project or improvement that is ultimately dedicated to public use, such as a road, sewer outfall, water mains, and/or storm drainage.

ROUGH GRADING PLAN: For the purpose of balancing a site when a final plan is not proposed. This is a standalone plan.

SEDIMENT AND EROSION PLAN: Describes detailed, site specific, project management strategies in a narrative for the implementation of sediment and erosion control phasing. This plan must be included in all final plans.

SITE DEVELOPMENT PLAN: Detailed drawings indicating all building and land improvements, including landscaping treatments, photometric details and any information required by this Manual, City of Manassas Ordinances or City of Manassas policies.

SITE PLAN: A detailed engineering drawing containing one or more pages and the associated technical reports showing the proposed improvements required in the development of a given parcel, and demonstrating compliance with the requirements of this Manual and other law, prepared by a qualified professional who is licensed, to prepare such, in accordance with the Code of Virginia and the regulations of the State Board of Architects, Professional Engineers, Land Surveyors and Certified Landscape Architects. A Site Plan can be either a subdivision plan, schematic plan or a site plan.

STORMWATER PREVENTION PLAN (SWPP): A document that is prepared in accordance with good engineering practices and that identifies potential sources of

pollutants that may reasonably be expected to affect the quality of stormwater discharges from the construction site, and otherwise meets the requirements of City Ordinances as well as state and federal legislation. The SWPP document shall identify and require the implementation of control measures, and shall include, but not be limited to the inclusion of, or the incorporation by reference of, an approved erosion and sediment control plan, an approved stormwater management plan, and a pollution prevention plan.

SUBDIVISION PLAN: A plan submitted for the express purpose of the division or redivision of a parcel of land.

PLAT, TYPES:

FINAL PLAT: The initial full submission of a plat having passed QAQC for the purpose of review by City staff. Compliance reviews may or may not generate comments from staff. If comments are generated, resubmissions will be reviewed for compliance.

SUBDIVISION PLAT: A legal document, prepared by a qualified professional, who is licensed to prepare such in accordance with the Code of Virginia and regulations of the State Board of Architects, Professional Engineers, Land Surveyors and Certified Landscape Architects; in accordance with the Manual and Chapter 106 of the City of Manassas Code, Virginia, for the legal division or redivision of a parcel of land into lots or parcels, for the purpose of transfer of ownership or site development.

APPROVED PLAT: A final plat recommended for approval by all City review agencies and signed by the appropriate City Staff.

PPM: Parts per million.

PRECIPITATION: The total measurable supply of water received directly from the clouds, as rain, snow, and hail; usually expressed as depth in a day, month, or year, and designated as daily, monthly or annual precipitation.

PROFESSIONAL ENGINEER: A person who is qualified to practice engineering by reason of his/her special knowledge and use of mathematical, physical and engineering sciences and the principles and methods of engineering analysis and design acquired by engineering education and experience, and who has complied with the requirements of the Virginia State Board of Architects, Professional Engineers, Land Surveyors and Certified Landscape Architects for licensing as a professional engineer.

PROFILE: A drawing of a side or structural elevation of an object.

PROJECT: The entire construction to be performed as provided in the Contract Documents.

PROPOSAL: The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the work to be performed.

PSI: Pounds per square inch.

PUBLIC RETENTION FACILITY: A publicly owned and maintained facility that provides retention storage of storm run-off and controlled release of this run-off in the freeboard area of a natural or man-made pond or lake above the normal water level.

PWCCD: Prince William County Conservation District

REACH: A comparatively short length of a stream or channel.

RLD: Responsible Land Disturber. Attached to the site improvement permit and plans.

RESUBDIVISION: A boundary line adjustment that does not result in the creation of additional lots or parcels or alter existing easements.

RIGHT-OF-WAY: The entire area reserved for the purpose of constructing or maintaining the public access typically dedicated in fee to the City.

RUN-OFF COEFFICIENT: The rate of run-off to precipitation.

RUN-OFF CURVE NUMBER: (CN) An index developed by the United States Soil Conservation Service which represents the combined hydrologic condition and antecedent soil moisture.

SECOND-FOOT: A cubic foot per second; optional usage, cu. ft. per sec.; cfs.

SEEDLING: A plant which will become a tree with further growth, is not over three years old, and has been transplanted no more than twice.

SHEET FLOW: Non-concentrated surface water run-off.

SHOP DRAWINGS: All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by a CONTRACTOR, a Subcontractor, manufacturer, supplier or distributor, and which illustrate the equipment, material, or some portion of the work.

SPECIFIC ENERGY: The energy of a stream referred to its bed; namely, depth plus velocity head of mean velocity.

SPILLWAY FLOWPATH: The area immediately downstream from the discharge end of a spillway that will be inundated during passage of the design flood for the dam.

STANDARD DETAILS: City of Manassas standard details showing standard products, methods and materials for use in the City.

STANDARD SPECIFICATIONS: City of Manassas Specifications consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the work.

STORM DRAINAGE SYSTEM: Any structure used principally to retain, detain, collect, direct, transfer, transport, carry, convey, distribute, or treat, singly or in any combination, stormwater or other surface water, including, but not limited to, aprons, basins, berms, BMP facilities, catchments, conduits, culverts, dams, dikes, ditches, drains, drops, filters, grates, infiltration devices, inlets, manholes, man-made channels, outlets, pipes, ponds, rip-rap, risers, spillways, storm sewers, swales and trenches; and also including any maintenance areas needed for such structures.

STREET: A strip of land designed to provide vehicular or pedestrian traffic and providing direct or indirect means of access to property, including but not limited to road, lane, drive, trail, court, place, terrace, alley, avenue, highway, boulevard and any other thoroughfare. For functional classification of City of Manassas streets refer to Transportation Section 9-200 of this Manual.

STREET, CUL-DE-SAC: A local street, one end of which is permanently closed to dedication to public use and consists of a circular turnaround.

Temporary cul-de-sacs shall be required only where deemed necessary by the Director when the roadway is expected to be continued or connected to another roadway.

STREET, PUBLIC: An existing or platted street dedicated for the use of the general public, designed to be graded and paved in a manner that the general public has the right to pass and to use it at all times for the purpose of travel, transportation or parking to which it is designed and devoted.

SUBCONTRACTOR: An individual, firm or corporation having a direct contract with the CONTRACTOR or with any other Subcontractor for the performance of a part of the work at the site.

SUBDIVISION ORDINANCE: Chapter 106 of the City of Manassas Code.

SUPPLIER: Any person or organization who supplies materials or equipment for the work (including that fabricated to a special design), but who does not perform labor at the site.

SURCHARGE: The flow condition occurring in closed conduits when the hydraulic grade line is above the crown of the sewer.

SWCB: The State Water Control Board.

SWM: Stormwater Management.

SWM FACILITY: Any storm drainage facility that is designed or otherwise intended to, or that actually does, detain or retain stormwater or other surface water. When this term is used in the text of this chapter, all portions of such a facility shall be considered as included.

TAIL WATER: The water just downstream from a structure.

TAX MAP NUMBER: The separate and unique numerical identifier for the parcels as identified by the Commissioner of the Revenue or provided by the GIS/Mapping Group (e.g., 090-01-00-143A).

TIME OF CONCENTRATION: The time it takes for run-off to travel from the hydraulically most distant part of the watershed to the point of reference. In hydrograph analysis it is the time from the end of excessive rainfall to the point of inflection on the falling limb of the hydrograph.

TRAFFIC STUDY: A study conducted to assess the impact of traffic generated by a new use or change in use on existing or future roadway network and to obtain the required information in evaluating any potential roadway network improvements.

USE GROUP: The classification of a building or structure based on the purpose for which it is used as listed in the Virginia Uniform Statewide Building Code.

UTILITY LINE: Any underground or overhead line and its related facilities by which an operator furnishes or transports material or services.

VCS 1983: The Virginia Coordinate System of 1983 as established by the Code of Virginia, Section 55-287 et seq.

VEGETATION: All plant life, which for the purposes of this Manual, shall be restricted to mean trees, shrubs, grass and vines.

VELOCITY HEAD: Equal to the square of the velocity divided by twice the acceleration of gravity. The theoretical vertical height through which a liquid body may be raised due to its kinetic energy.

VDH: Virginia Department of Health.

VDOT: The Virginia Department of Transportation. References from the Road and Bridge Specifications Manual. Current Edition.

VESCH: The Virginia Erosion and Sediment Control Handbook. Current Edition.

VPD: Vehicles per day.

VUSBC: The current edition of Virginia Uniform Statewide Building Code.

WALKWAY: A strip of land designed for the sole purpose of providing pedestrian access from one point to another.

WORK: Any and all obligations, duties and responsibilities necessary to the successful completion of the Project assigned to or undertaken by CONTRACTOR under the Contract documents including all labor, materials, equipment and other incidentals, and the furnishing thereof.

WRITTEN NOTICE: Any notice to any party of the Contract relative to any part of the Contract in writing and considered delivered and the service thereof completed when posted by mail to the said party at his/her last given address, or delivered in person to said party or his/her authorized representative.

ZONING ORDINANCE: Chapter 130 of the City of Manassas Code.