

FAIRFAX COUNTY DEPARTMENT OF TRANSPORTATION



ENGINEERING PROPOSAL DOCUMENT (EPD)

March, 2015

**COUNTY OF FAIRFAX
DEPARTMENT OF TRANSPORTATION
ENGINEERING PROPOSAL DOCUMENT (EPD) FOR
TRANSPORTATION DESIGN PROJECTS**

PART I – GENERAL CRITERIA

Development of engineering design plans for Transportation projects shall be in accordance with and generally follow Virginia Department of Transportation (VDOT) design standards, procedures, processes, and formats. Unless otherwise directed by the County, and as noted below, the Engineer shall prepare plans and designs in accordance with the following manuals, standards and guidelines and the latest revisions thereto:

American Association of State Highway and Transportation Officials (AASHTO)
Green Book

VDOT Road Design Manual (RDM)

VDOT Road and Bridge Standards

VDOT Location & Design Division Instructional and Informational Memoranda
(I & IM)

VDOT Drainage Manual

VDOT Locally Administered Projects Manual (LAP)

VDOT Traffic Engineering Manual

VDOT Materials Division Manual of Instructions

Virginia Stormwater Management Handbook

Virginia Erosion and Sediment Control Handbook (VESCH)

Manual on Uniform Traffic Control Devices (MUTCD)

Virginia Supplement to the MUTCD

Virginia Work Area Protection Manual (WAPM)

Fairfax County Public Facilities Manual (PFM)

Design guidelines, criteria, standards and manuals are periodically updated and/or revised. Revisions to design criteria, standards and guidelines shall be incorporated into project plans and designs in accordance with the effective dates and/or phase as noted in the directives. However, the Engineer shall coordinate implementation of any revised standards, criteria, or guidelines with the County Project Manager (PM).

1. **Plan Development**

Plan development and presentation of design elements shall generally follow VDOT standards and formats. The County requires certain modifications to these standards. The following sections provide guidance for preparation of plans and designs in accordance with County requirements. The Engineer's proposal shall include all work necessary to adhere to these standards and requirements. The Engineer's fee proposal shall include a plan sheet summary in the format and content as noted below. Any deviation from these requirements must be reviewed and approved in advance and in writing by the County and should be agreed to during the Scope & Fee Development Phase of the project. The Engineer shall reference the latest version of the VDOT CAD Standards and the RDM for plan sheet order, index and description.

A. **Title Sheet:** The County shall provide the Engineer with the current County standard title sheet(s) in AutoCAD format. The Engineer shall coordinate with the Project Manager regarding the correct title sheet and appropriate signature blocks to be utilized on the project. In addition to VDOT standard content, the title sheet shall include the following:

- County Fund number (provided by County)
- Project Name
- County Project Number (provided by County)
- Appropriate Signature Blocks
- County Tax Map Number
- Maintenance Map with Legend (including proposed SWM BMP ownership/maintenance)

Locally Administered, VDOT funded projects shall utilize VDOT standard title sheets modified to include the items noted above to include appropriate County and VDOT signature block(s).

B. **Location Map, Index of Sheets:** On small projects, the location map and index of sheets shall be placed on the Title Sheet. On large projects, or where space does not permit, the Engineer shall provide a separate Location Map and/or Index of Sheets.

C. **Right of Way Data Sheet:** The Engineer shall prepare the RW Data sheet in accordance with VDOT standards and guidelines and include all proposed areas of dedication, permanent and temporary easements, and utility easements required for each property impacted by the project.

D. **Survey Alignment Data Sheet:** This sheet shall include traverse/control point descriptions, locations, traverse alignment data, control datum descriptions and all other data developed during the Survey Phase of the project. If survey data compilation and base mapping is prepared under a separate contract with the County, the County shall provide this

information to the Engineer, in electronic format, suitable for plan development. The Engineer shall be responsible for compiling and presenting the survey alignment data into plan sheet format. Specific plan elements to be shown are described further in the Survey Phase.

- E. Construction Alignment Data Sheet: The Engineer shall prepare the Construction Alignment Data Sheet. The Plan shall include all data necessary to properly locate and tie the proposed alignment and all other elements of the design in the field. Details shall be provided as necessary to facilitate construction layout. VDOT standard bullet nose/curb return data sheets may be utilized in conjunction with the Construction Alignment Data Sheet.
- F. Underground Utility Test Hole Data Sheet: The Underground Utility Test Hole Data Sheet shall be prepared in accordance with VDOT Standards and formats. In most cases the County shall obtain the test hole data information under separate contract and provide the data to the Engineer for inclusion in the plan assembly. The Engineer shall consult with the Project Manager to determine the need for this sheet.
- G. Transportation Management Plan: All projects shall include a transportation management plan consisting of temporary traffic control plan and sequence of construction, public communication plan, and transportation operations details. The level of detail required and provided shall be in accordance with VDOT standards and guidelines including the RDM, WAPM, MUTCD and I&IM directives. Applicable standard WAPM details shall be included in the plans.
- H. Stormwater Pollution Prevention Plan (SWPPP): County staff typically prepares the VPDES permit application to include the applicable SWPPP documentation for submission to DEQ. The Engineer shall provide the County with a narrative summary to include the project description, disturbed area data, stream data, receiving waters information, soil types, slopes, etc., to be part of the Erosion & Sediment Control General Requirements Sheet. The Engineer shall coordinate with the County PM to determine the SWPPP plans requirements for a specific project.
- I. Erosion & Sediment Control Plans: The Engineer shall prepare erosion and sediment control plans in accordance with current VDOT and PFM standards, practices and formats and as directed by the County and in compliance with all applicable federal, state and local regulations. Phased erosion and sediment control plans shall be prepared and developed for projects requiring phased or sequenced construction activities.
- J. General Notes and Utility General Notes: The County shall provide the Engineer with the current County standard General Notes and Utility General Notes sheets in AutoCAD format, which shall NOT be modified, edited or otherwise altered. The Engineer shall provide supplemental

project specific notes which shall be presented on plan sheets, additional general notes sheets or as directed by the County. On Locally Administered projects that are to be constructed by VDOT, the Engineer shall not utilize the County standard General Notes and Utility General Notes sheets. In these cases, the Engineer shall utilize and include VDOT standard copied notes, as appropriate.

- K. Typical Sections: The Engineer shall prepare Typical Section sheets in accordance with VDOT standards and formats. County PFM standard details shall be included where appropriate.
- L. Grading Summary Sheets: The Engineer shall coordinate with the County to determine the need for these sheets on a specific project. Regardless of the need for a grading summary sheet, the Engineer shall prepare a summary of earthwork/grading quantities for every project in accordance with the following:
1. The Grading Summary shall be computed and presented in accordance with VDOT standards with regard to earthwork quantities taking into account root mat, regular excavation, sediment control excavation, structure excavation, minor structure excavation, borrow, etc. The Engineer shall provide a summary of the earthwork requirements for each construction phase, with summary totals for each phase, and grand/net totals for the entire project. The Summary shall include the following note:

“The earthwork summary computations shown are for information only. The contractor shall be responsible for performing his own investigations to determine the completeness and accuracy of the quantities indicated in preparing unit price and lump sum bid prices for the earthwork items noted in the Form of Bid.”
- M. Roadside Development Sheet: The Engineer shall prepare and provide the VDOT standard Roadside Development Sheet when appropriate and as directed by the County. Data shall be prepared and presented in accordance with VDOT standards and in coordination with the VDOT Materials Division and Roadside Development guidelines.
- N. Detail Sheets: The Engineer shall design and prepare all appropriate details necessary to adequately depict the intent of the design and provide for proper construction stakeout of all design elements.
- O. VDOT Special Design Drawings: Unless otherwise directed by the County, the Engineer shall incorporate VDOT Special Design Drawings, also referred to as Insertable Sheets, as needed and required by the project.
- P. Plan Sheets: The Engineer shall prepare plan sheets in conformance with standard VDOT form and format. Plan sheets shall be developed at a

scale of 1"=25' on a STANDARD 24" x 36" sheet, unless otherwise approved by the County.

- Q. Profile Sheets: The Engineer shall prepare profile sheets in accordance with VDOT standards and formats. Plan scale shall be 1"=25' horizontal, 1"=5' vertical on a standard 24" X 36" plan sheet, unless otherwise directed by the County.
- R. Entrance Profile: The Engineer shall design and prepare Entrance Profile sheets in accordance with VDOT standards and directives paying close attention to maximum allowable grade breaks permitted based upon the type of entrance. All Entrance profiles shall be developed at a scale of 1"=10' horizontal, 1"=2' Vertical, unless otherwise directed.
1. Although not required and not included in the plan assembly, the Engineer is encouraged to develop cross sections along all entrance profiles particularly for residential properties where yards/lawns will be impacted by construction. Accurate depiction of construction limits, and finished grades in residential yards is imperative.
- S. Drainage Area Maps: The Engineer shall prepare pre- and post-construction drainage area maps of sufficient scale and detail to delineate the drainage areas of all existing and new storm drain systems, outfalls, and proposed stormwater management facilities in the project area. Supplemental sheets may be required for large offsite drainage areas that contribute to or pass through the project area. Engineer shall include the Maps in the Drainage Report. Additionally, the Drainage Area Maps for outfalls and Stormwater Management facilities shall be included with the plan sheets.
1. Pre- and Post-Development Drainage area maps shall include drainage data used in designing the storm drainage system including, but not limited to the following:
 - Drainage area in Acres
 - Runoff coefficient(s)
 - Time of Concentration (in minutes) Tc line to be depicted
 - Drainage/inlet structure number
 - Outfall number
 - Existing waterways, RPA's, wetlands, etc.
- T. Storm Drainage Profile Sheets: The Engineer shall design and prepare profiles of all new and existing storm drainage systems within the limits of the project area. Existing utilities based on test hole information shall be shown on all profiles. Profiles shall be prepared at a scale of 1"=25' horizontal, 1"=5' vertical. All drainage elements including structures, pipes and appurtenances shall be labeled and noted in VDOT standard formats, except as noted in this document

- U. Drainage Description: The Engineer shall prepare Drainage Description Sheets in accordance with VDOT standard practices. All drainage structures, pipes and appurtenances shall be described utilizing VDOT standard formats except as noted. In lieu of separate drainage description sheets, and where space permits, drainage description data may be provided on the plan sheets.
- V. Stormwater Management Plan Sheets: The Engineer shall prepare stormwater management plans in accordance with accepted local, state and federal design criteria, standards, guidelines, and regulations in force at the time the design contract is approved and notice to proceed is issued to the Engineer. Refer to Part I.4.A for updates to SWM design criteria and guidelines. Typically, the proposed stormwater management facilities will be designed for VDOT maintenance, unless otherwise determined by the County PM. The plans shall include location, type and details of proposed facilities. In addition, a stormwater management narrative to include executive summary of Stormwater Quantity and Quality Compliance, and Outfall Analysis shall be prepared and included in Plans.
- W. Pavement Marking & Signing Plans: Pavement marking and signage plans shall be prepared and presented in accordance with VDOT standards. Pavement marking and signage plans shall be prepared separately from the plan/profile sheets.
- X. Traffic Signal Plans: Traffic signal plans shall be prepared in accordance with VDOT NOVA District standards and requirements. The Engineer shall ensure appropriate VDOT standard notes are incorporated into the plans and coordinated with the project estimate. In some cases, signal plans may be prepared under a separate contract with another consultant. In which case the County shall provide plans to the Engineer for incorporation into the final plan set. The Engineer shall coordinate designs with the Traffic Signal design consultant.
- Y. Bridge/Structure Plans: Bridge and/or Structure Plans shall be developed in accordance with VDOT standards and formats. Retaining wall plans/designs, regardless of type, shall include a profile of the wall depicting the top of wall elevation, bottom of wall/footing elevation, and proposed finished grade at the face/back of the wall as appropriate. Recommended locations for construction and/or expansion joints shall also be included on the wall profile.
- Z. Water Main Relocation Plans: Water main relocation plans will be prepared by Fairfax Water. The County will provide water main relocation plans to the Engineer for coordination purposes. The Engineer will be responsible for including the plans in the Index of Sheets and include any notes, details or other references necessary on all plan sheets prepared by the Engineer.

AA. Cross Section Index and Cross Sections:

1. Cross Section Index: A cross section index shall be included on the first sheet of cross sections. On large projects, with multiple base lines, a separate stand-alone index may be required.
2. Cross Sections: Cross sections shall be prepared at 25' intervals and at critical locations for the length of the improvement. Critical locations include driveways, critical drainage elements or structures, retaining walls or other structures and as directed by the County. All cross sections shall be developed at a scale of 1"=10' horizontal, 1"=5' vertical. Sections shall be wide enough to show the entire width of construction. Cross sections shall include/illustrate the design pavement thickness and subgrade.

2. Plans Sheet Development:

The Engineer shall prepare plan sheets in accordance with VDOT standard practices, procedures, and formats. Plans shall be developed at a scale of 1"=25' on a STANDARD 36" X 24" sheet. In highly urbanized or congested areas, the Engineer and County PM should consider producing plans, profiles and other designs or details at a scale of 1"=10' horizontal.

Where space is available, and on a case by case basis, plan and profile may be combined on the same sheet.

- A. Curb Ramps, Median and Refuge Islands: The Engineer shall provide detail drawings of all curb ramps, median and refuge islands depicting station, offset and elevation at all critical points and at sufficient intervals between critical points to adequately locate, stakeout and construct said islands.
- B. VDOT standard bullet nose/curb return data sheets may be utilized in conjunction with the Construction Alignment Data Sheet.
- C. Grading Details: The engineer shall provide grading plan(s) showing the proposed contours and other details necessary to accurately assess and delineate construction limits, impacts to private property and to ensure positive drainage.

3. Profile Sheet Development:

Profiles for all transportation projects shall be developed and presented in accordance with VDOT standard practices and procedures with the following exceptions and/or additions:

- A. Construction Centerline/Baseline: Profiles shall be prepared at a scale of 1"=25' horizontal and 1"=5' vertical on a STANDARD 36" X 24" sheet. The Engineer shall provide existing and proposed elevations along the construction centerline/baseline at 25' intervals and at all critical points.
- B. Curb, Curb and Gutter Profiles: The Engineer shall provide proposed top of curb elevations at 25' intervals along all proposed curb lines. Station, offset and elevation data shall also be provided at all critical points along proposed curb lines such as PT's, PC's, angle breaks, etc. Station, offset, elevation and 25' interval elevation data for proposed curb, and/or curb and gutter left and right of the construction centerline/baseline shall be provided where appropriate.
- C. Raised Median Profiles: Where raised medians are included in the design, the Engineer shall provide proposed top of median or median curb both left and right of the construction centerline/baseline at a minimum of every 25'. At all critical points such as PC's, PT's, PRC's, PCC's, angle breaks, etc., station, offset and elevation data shall be provided. In lieu of showing data on the profile sheet, the Engineer may incorporate this data on a separate design detail sheet.
- D. Curb Return Profiles: Where intersection curb returns are included in the design, the Engineer shall provide curb return profiles at the same scale as the Construction Centerline/Baseline profile. Proposed top of curb/curb and gutter data (station, offset, elevation) and 25' interval elevations shall be shown as noted for curb, curb and gutter profiles.

4. Storm Drainage and Stormwater Management Design:

- A. Storm drainage and stormwater management designs shall be prepared in accordance with accepted local, state and federal design criteria, standards, guidelines, and regulations in force at the time the design contract is approved and notice to proceed is issued to the Engineer. Should design criteria, standards, guidelines, and/or regulations be revised during the course of project design, the Engineer shall consult with the County PM regarding implementation or incorporation of the revisions into the plans. However, in general, new design criteria and directives issued by VDOT, shall be implemented in accordance with the effective dates and phase in requirements noted in the VDOT directive(s).
- B. Presentation of storm drainage and stormwater management designs shall be in accordance with VDOT standards, forms and formats and as noted herein. A Drainage and Stormwater Management Report including table of contents, design criteria, and complete design calculations shall be prepared depicting pre- and post-development storm drainage conditions, adequacy of all outfalls, stormwater management assessment and design calculations to include storm sewer, open channel, and/or culvert hydraulic computations. The Engineer shall prepare the report utilizing

VDOT standard design forms and formats. In general, the report will include the following:

- Table of Contents
- Purpose
- Project Description
- Design Criteria
- Outfall Adequacy Analysis including an Executive Summary
- Stormwater Management Assessment including Executive Summary
- Storm Drainage Design including hydrology, approach, and computations
- Appendices include maps, exhibits and supporting documentation

The Engineer shall provide a stick diagram indicating the connectivity of all new and existing storm drainage elements as they relate to the hydraulic design computations. The stick diagram shall be included in the report.

- C. In addition to standard VDOT practice, the Engineer shall develop the Stormwater Management plan in accordance with the latest Fairfax County Stormwater Management Ordinance for review and approval. See the current Fairfax County Stormwater Management Plan Completeness Checklist (EXHIBIT D) and Stormwater Information Sheet (EXHIBIT E). The Stormwater Management Plan Completeness Checklist shall be completed and signed by a Professional Engineer licensed in the state of Virginia and shall be included in the Storm Drainage and Stormwater Management Report.
- D. The County requires station and offset data be provided for all storm drainage structures. Station and offset data shall be shown to the face of curb of the center of the base of each structure and face of each headwall or end section or the center of yard inlets. The Engineer shall pay particular attention to the type of structure to be utilized, any modifications required to standard design details, etc. This data shall be included in the Storm Drainage and Stormwater Management Report.
- E. The type(s) of storm drainage pipe permitted on a project, and how they are depicted on the plans depends on the source of funding utilized. The Engineer shall consult with the County PM to establish the project funding source and shall prepare storm drainage designs in accordance with the following:
1. County Funded Projects: On projects funded wholly by the County, all new storm drainage pipes shall be reinforced concrete pipe, minimum Class III (RCP-CLIII). Existing non-RCP pipes may be extended utilizing the same material(s) as the existing pipe. All pipes shown on plans, profiles, computations, descriptions, estimates, etc. shall be labeled as “RCP-CLIII” or other class or type as appropriate

(example: 15" RCP-CLIII Req'd, or 18" CMP Req'd). The VDOT "Allowable Pipe Type" standard detail sheet shall not be incorporated into the plan assembly. Minor structure excavation or other excavation or bedding requirements for storm drainage designs shall be included with the Drainage Description Data, in accordance with VDOT standards and practices.

2. State and/or Federally Funded Projects: On projects wholly or partially funded with state and/or federal funds, storm drainage designs, descriptions, plans, profiles, computations, etc. shall be labeled in accordance with VDOT standards and formats without regard to type of pipe (example: 15" SD Pipe Req'd"), except where special designs are required. The VDOT "Allowable Pipe Type" standard detail sheets shall be included in the plan assembly. Minor structure excavation or other excavation or bedding requirements for storm drainage designs shall be shown in accordance with VDOT standards and practices.

- F. All storm drainage inlets and appurtenances shall be depicted and labeled on plans, profiles and details in accordance with VDOT standard formats, and as noted above.
- G. Where appropriate or required the Engineer shall utilize County standard drainage design structures such as yard inlets, open throat inlets, etc. as included in the PFM. County standard drainage items such as Yard Inlets are NOT permitted in VDOT rights-of-way. The Engineer shall include standard details of PFM drainage structures in the plan assembly as appropriate.

5. Construction Quantity Take-offs and Estimates:

The Engineer shall prepare quantity take-offs at each phase and plan submission during project development. Detailed estimates of construction quantities shall be developed utilizing VDOT standard item codes, units of measure, etc. OR a cost estimating format provided by the County. All data used in the development of construction quantity estimates, including supporting calculations shall be provided to the County at each phase and/or plan submission of project development. All supporting calculations submitted to the County shall be checked and verified by the Engineer of Record.

Note: The County is in the process of developing a detailed item code listing and description for use in developing construction quantity take-offs and cost estimates. While in development, the Engineer shall utilize standard VDOT item codes, descriptions, measurement and payment, etc. until otherwise directed by the County.

6. CADD Standards:

- A. Project designs shall be developed utilizing Computer Aided Design software approved for use by the County. Currently approved software includes AutoCAD and Microstation. However, all field surveys shall be compiled utilizing AutoCAD compatible software unless otherwise approved in writing by the County. (See Survey Phase for detailed requirements)
- B. Engineers utilizing Microstation software for design development shall produce plans, details, and designs in accordance with the VDOT CADD Standards Manual. However, all final design files shall be converted to AutoCAD format as described in the Final Design Phase.

Note: The County Survey Branch typically performs construction stakeout services on all county projects, regardless of funding source. Therefore, all final design files shall be provided in a compatible format with the current AutoCAD software utilized by the Survey Branch. The Engineer shall coordinate with the County Survey Branch prior to initiating design development to ensure final design files, formats and structures will be compatible.

- C. Engineers utilizing AutoCAD software for design development shall produce designs, plans, and details in accordance with the County DPWES Survey Branch standards and practices. (See Survey Phase for detailed requirements). Current standards and practices established by the Survey Branch are detailed further in this document, however, they cover “existing condition” surveys and do not stipulate “proposed” design element development and presentation requirements such as color, style, layer naming, etc. Proposed design elements should be developed and presented in a format, style, etc. that either mirrors “existing condition” survey elements or the Engineer may mirror the VDOT CADD standards manual in developing AutoCAD design files.
- D. Provide one copy of the plans on computer disk(s) in AutoCAD 2013 (Civil 3D) compatible and Microstation (if utilized) formats unless otherwise directed by the County.

PART II- PROJECT DEVELOPMENT PHASES

The surveying and engineering services to be provided to Fairfax County, “County,” by the Consulting Engineer, “Engineer,” shall comprise the following phases of work; and shall be prepared and signed, sealed, and dated by the individual(s) in responsible charge in accordance with the current Board of Architects, Professional Engineers, Landscapers, Certified Interior Designers and Landscape Architects (APELSCIDLA) Regulation and all applicable provisions of the Code of Virginia.

- Scope & Fee Development Phase
- Survey Phase
- Preliminary Design Phase (25-30%)
- Intermediate Design Phase (50-60%)
- Pre-Final Design Phase (75-90%)
- Final Design Phase (100%)

1. **Scope & Fee Development Phase**

The Scope & Fee Development Phase of a project includes, but is not limited to the following:

- A. Review of previous studies, reports, and other documents pertinent to the project.
- B. Review of County or Consultant prepared scoping documents and information.
- C. Meeting(s) with County Project Manager to discuss scope of work, Engineering Proposal Document requirements, Consultant fee proposal preparation, known design issues and constraints, history of the project, funding limitations and other items deemed relevant to development of a complete scope of work resulting in designs meeting the intent of the project and suitable for construction.
- D. Field/site visit to acquaint the Engineer and County staff to existing project conditions.

Following completion of the initial scoping meeting, site visit and review of available documentation, the Engineer shall prepare a detailed Scope of Work and Fee Proposal in accordance with this Engineering Proposal Document and directions provided by the County. The Engineer, in consultation with the County Project Manager shall set a firm date for submittal of the Scope of Work and Fee Proposal. All subsequent revisions to the Scope of Work and Fee Proposal shall be submitted by a date mutually agreed upon.

Upon approval of a final Scope of Work and Fee Proposal, the Engineer shall be issued a written Notice to Proceed. The Engineer shall not begin any work until a written Notice to Proceed is received from the County.

The Engineer shall not be allowed any compensation for work performed during the Scope & Fee Development Phase of the project, unless otherwise approved by the County. In general, all work during this phase is deemed incidental to project development.

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2. **Survey Phase**
Special Requirements

Prior to preparing the cost proposal, a meeting shall be conducted with the County Surveyor to discuss the survey requirements, available information, special requirements, and the type and format of the survey information to be provided to the County. The Engineer shall prepare written minutes of this meeting to clearly define all agreements and understandings related to the survey phase, as coordinated with the County. A copy of these meeting minutes shall be included in the cost proposal that is submitted to the County.

- A. An initial letter notifying all area residents of the survey will be sent by the County prior to the start of the field work. The survey crew will make a special effort to advise the property owners of their presence prior to entering upon a property to perform the survey work. This notification procedure should be especially adhered to on all property that will require the cutting or trimming of trees, brush, undergrowth, etc. Notification can be accomplished by telephone or by the survey personnel directly informing each resident. The Engineer is responsible for any damages to private property by the survey crew.
- B. Assemble and review all available data from existing records relative to utilities, properties, topography, streets, and land use, which may affect the engineering design of the project.
- C. Make field surveys of existing conditions. The surveys shall provide all data that may be required for the preparation of the final plans, construction contract drawings and record plats. The surveys shall include but not be limited to the following information:
 - 1. A field referenced traverse with stations referenced and identified (note object used as a traverse station; Iron Pipe, Rebar and Cap, P.K., spike, etc.), including computations and coordinate tables, with a maximum error of closure of 1 part in 35,000. For surveys conducted using global positioning systems, the maximum permissible positional uncertainty based on the 95% confidence level of any independent property monument shall not exceed the positional tolerance of 0.07 feet (or 20mm + 50ppm). The Virginia State Plane Coordinate System, North Zone, (NAD 83 and NGVD 29) shall be utilized. The traverse symbols and the coordinate table shall be shown on the deliverable hard copy. The Engineer's Surveyor should contact the Land Survey Branch, Utilities Design and Construction Division, at 703-324-5111, to determine the survey control available. In some cases, the County will permit a deviation from the Virginia State Plane Coordinate System, North Zone, per ordinance requirements. However, any such deviation from the utilization of the Virginia State Plane Coordinate System, North Zone requirements shall be resolved

and documented, in writing, to the County by the Engineer prior to submitting the proposal.

2. Unless otherwise specified, topography is to be 1" = 25 ft, with a 2 ft contour interval for all projects with the exception of sanitary sewer projects where the topography shall be 1"=50', with a 2 ft contour interval.
3. Sufficient property corner ties shall be made to permit 1) accurate computation of all property lines on, adjacent to, and departing from the entire area of the survey; 2) the preparation of all plats of easement, right-of-way or acquisition as required; and 3) the accurate (re)establishment of these lines in the field.
4. A "Cadastral Base Hard Copy" of the boundary and property computations signed, sealed, and dated by the Land Surveyor in responsible charge shall be provided. Apparent voids or overlaps in deeds shall be noted and shown. All deeds, with any misclosures noted, shall be labeled with Deed Book and Page and/or Subdivision designation on the hard copy. All monumentation found shall be shown on the hardcopy, along with the land surveyor's determinations of monuments held and the distance and direction of field to deed deltas (or double off set distances) for every other monument in the survey. Any monuments, which are not honored by the land surveyor, shall be shown as "NOT HELD" and the cause for this determination shall be noted on the face of the hard copy. At corners where the field search failed to uncover the monument, place the notation "LFNF" to signify looked for, not found. The traverse symbols and table plus monument symbols, and the coordinate table of found monuments shall be shown on the deliverable hard copy. The purpose of this information is to allow the Engineer or County to set or reset property corners without further surveying required in areas disturbed during construction.
5. A bound copy of all deed research, including instruments and plats, of the recorded land records used to determine the limits of property, existing easements and rights-of-way.
6. A bound copy of the survey field book and notes.
7. A series of referenced elevation benchmarks with a maximum distance of 300 feet apart, minimum second order level results on NGVD 1929 datum (Vertical Control Benchmarks are available from the County Surveyor's office or may be obtained by GPS survey and reported on NGVD 1929 datum).
8. Strip topography to be run for the entire length of the project area as follows:

- a. Minimum width of 150 ft or twice the proposed right-of-way width, whichever is greater, or generally from face of house to face of house for road or community improvement projects.
- b. Minimum width of 100 ft on sanitary sewer, storm sewer, and storm sewer outfalls.
- c. Additional topography as required to complete the project.
- d. If traffic signals are involved, the entire intersection must be included.
- e. Minimum width of 50 ft for sidewalk and trail projects. At locations along an existing road, this width shall extend from existing edge of pavement, except at intersections where the entire intersection must be included to a distance at least 25 ft beyond curb returns.

The following is to be included for all projects:

- f. As-built of gravity utilities (storm and sanitary) shall include complete information for all structures within the survey area and one structure beyond in each direction. Inspection shall be made for any gravity utilities, which may cross the survey area without a structure within the area. For this case, include as-built for one structure outside the survey area in both directions.
- g. The horizontal and vertical location of underground sanitary sewer, sanitary systems, drain fields, storm drainage, etc., shall be located by the field survey.
- h. Visible evidence of septic systems shall be located and identified during the survey. Septic field, holding tank, and distribution box locations must be checked from available records provided by Fairfax County and field located.
- i. All surface evidence of utilities and/or rights and interests of others on or through the subject property and within 10' of the limit of the survey area including but not limited to: poles, cables, down guys, switches, transformers, relays pedestals, gas and water valves, hydrants, etc..
- j. Where an area is totally wooded, or there are large groups of trees forming a continuous canopy, the tree trunk line and drip line need to be clearly shown and labeled. Individual trees within a totally wooded area or within a large group of trees are not required to be individually shown on the improvement plan unless a particular tree is of significant size or possesses some other outstanding feature.

- k. If there are individual trees standing apart from the wooded area, or from any large group of trees, then any such freestanding individual trees and any caliper planted landscape trees will be shown on the improvement plan. All trees identified are to be accurately located on the plans and shall be labeled as to size, type, and diameter of drip line. Any standing trees 4” dbh or larger shall be located and identified on the survey.
 - l. Individual shrubbery shall be shown with size and type in developed areas. Shrubby lines shall be shown and type indicated inside the outline area.
 - m. All improvements to the real property inside the scope of the survey shall be located and identified, including but not limited to signs, fences, mailboxes, other structures and roof drains appurtenant to the structures and landscaped areas within the limits of topography should be shown and identified.
 - n. Marked gravesites and any visible evidences of unmarked gravesites shall be located and labeled.
 - o. Wetland delineations may be required to be located as a part of the scope of survey. In cases when this will be required the County will advise that such service is required.
 - p. Pavement markings to include lane markings, stop bars, and cross walks and parking stripes. Individual width of stripes is not required, only the centerline of the stripes. Locations of turn arrows or text messages in the pavement are also required.
 - q. All residences. First floor and/or basement elevations to be provided for sanitary sewer improvement projects.
 - r. Visible evidence of sprinkler (irrigation) systems shall be located and identified during the survey.
9. Underground utilities consisting of, but not limited to, conduits, water, telephone, electric, gas, oil, cable t.v., fiber optics, etc., shall be compiled into a standalone AutoCAD file based on the County prototype by the County’s Underground Utility Locating and Designating consultant. This AutoCAD file must be prepared on the County prototype and have proper units to be suitable to directly reference into the Survey files for projects being administered by the Transportation Design Division (TDD), the Engineer shall contact the TDD assigned Utility Engineer, at 703-877-5600, to coordinate the location of underground utilities. For all other projects, the Engineer shall coordinate with the assigned Project Manager at 703-877-5600.

All utility pole identification numbers shall be recorded and indicated adjacent to the located pole.

The vertical location of underground utilities, including underground conduits, sanitary sewer, sanitary systems, drain fields, storm drainage, etc., will be determined by any method other than boring and excavation. Horizontal location of utilities from available records and plans shall only be used to verify field locations. The County is to act as the liaison to the utility companies for the Engineer during field location of the utilities. Location of utilities as described above is the responsibility of the County.

10. Perform all office work required to plot the above information and prepare the base map(s) needed for the base design drawings. Prepare electronic plan base sheet(s) showing the topography, property lines, utilities, right-of-way, easements, and horizontal and vertical control information. The horizontal and vertical control will include, but will not be limited to, the following:

- a. Horizontal

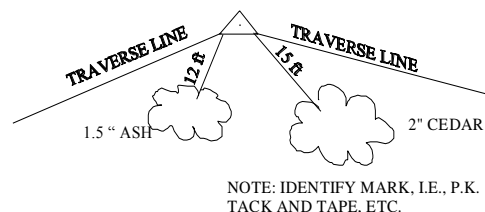
Plot the traverse on the base sheet, and survey data sheet, with bearings and distances shown.

Tie traverse stations to centerline of proposed construction or control stations with bearings and distances (sidewalk and trail projects may be set up with a baseline tied to the traverse and offset distances provided from the baseline). This information can be shown on the survey data sheet in order to clarify the plans.

Show coordinates of traverse stations, control stations, and all property corners located adjacent to the route of proposed construction on the base sheet.

Reference traverse stations on base sheet, i.e., designation of object used as a traverse station; Iron Pipe, P.K., Rebar, spike, etc.

Tie traverse stations to a minimum of two permanent reference marks.



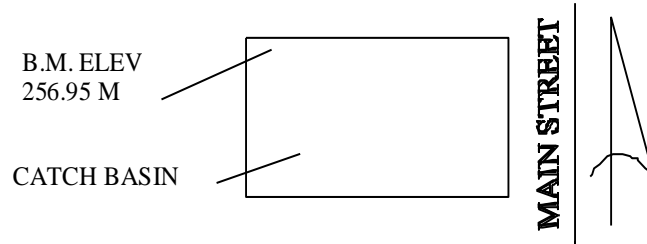
b. Vertical

(1) Describe B.M. on base sheet

B.M. # Elev. = 256.95

Chiseled "X" on top of curb-inlet west side of Main Street

(2) Plot at least two B.M. on each base sheet at proper locations,
i.e.



11. The use of aerial photography for design survey may be used upon written request and permission by the County.

For projects using photogrammetry as one of the methods to complete the survey, include contact prints of aerial photography and one color rectified orthophotograph of the site mounted for public display. Scale and limits to be agreed upon by both the Engineer and the County.

12. The survey crew shall avoid setting traverse and control points within the proposed construction area, or any other area that will be disturbed or inaccessible during construction. All efforts shall be made to locate benchmarks and traverse stations in the right-of-way to minimize property disturbance.

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3. Preliminary Design Phase (25-30%)

Note: For small projects, the Preliminary Design Phase may be omitted and project plans may proceed directly to the Intermediate Design Phase. The Engineer shall consult with the County Project Manager during the Project Scope & Fee Development Phase to determine if Preliminary Design will be required.

- A. The Preliminary Design Phase begins upon completion of the Survey Phase. The Preliminary Design Phase intent is to develop designs and plans depicting the project based upon the initial scope of work, while adhering to current design standards, known design constraints and other issues which may impact design elements. The Engineer shall develop preliminary designs and computations and prepare preliminary plans and/or graphics showing the extent and scope of the project in detail suitable for use in community meetings. The preliminary design will be of sufficient detail to reasonably ensure the future construction of the project, as well as, identifying any required design waivers or design exceptions that may be needed.
- B. Prepare an estimate of the construction quantities based on either the VDOT Standard Item Codes and units of measure or a cost-estimating format provided by the County.
- C. Determine the limits of property, existing easements and rights of way by a detailed review of the recorded land records. A determination is to be made on the need for additional rights of way or easements required for the construction of the project, along with advising the County of such requirements.
- D. Attend all meetings and conferences with the County and participate in citizens' meetings. Meeting minutes of all such meetings are to be forwarded to the County within five working days.
- E. All road projects will meet all current Virginia Department of Transportation (VDOT) design criteria and subsequent updated VDOT criteria throughout the term of the contract unless otherwise specified in writing by the County.
- F. Identify potential design issues, which may require preparation of design waivers, or exceptions, which will require VDOT review and approval in order for design to proceed.
- G. Additional graphics, plans, details, which may be needed to support Local, State or Federal Environmental Review Process, as required. Engineer shall coordinate with County PM.
- H. Typically, subsurface utility designation shall be provided to the Engineer by Fairfax County. The Engineer shall provide survey data in electronic format to the County for use in procuring the subsurface utility

information. The County shall provide the subsurface utility data to the Engineer in electronic format and the Engineer shall incorporate this data into the preliminary plans. In some cases, the Engineer will be required to obtain the subsurface utility data. The Engineer shall coordinate with the County PM to determine whether this service will be included in the Engineer's scope of work.

- I. The preliminary (25%-30%) plan submission should include, at a minimum, the following items:

GENERAL

- _____ Standard Fairfax County Dept. of Transportation or VDOT cover sheet, as appropriate with vicinity map.
- _____ Cover sheet with key to plan sheets and design criteria to be indicated.
- _____ Street name, route number, and functional classifications.
- _____ Standard County General Notes Sheets or VDOT Copied Notes sheets as appropriate
- _____ Scale 1" = 25' horizontal; 1" = 5' vertical on plan and profile sheet.
- _____ North arrow on each sheet; note grid north, true, magnetic, etc.
- _____ Minimum lettering size shall be 0.1".
- _____ Horizontal location of all aerial utilities.
- _____ Location of existing utility easements.
- _____ Benchmark elevations on each plan sheet.
- _____ Traverse stations. (Include survey traverse on survey alignment data sheet with table of coordinates, elevations and descriptions of all traverse points)
- _____ Sanitary sewer, house lateral locations and septic field locations.
- _____ Typical sections, super elevation.
- _____ Tax map grid numbers shown on each sheet.
- _____ House numbers, subdivision names, Lot Numbers, Tax Map number
- _____ Face of curb and/or edge of pavement designation for both existing and proposed features.
- _____ Note on the typical section the point being used as grade in profiles.
- _____ Centerline station every 100', street intersections, super elevation length & rate, PT, PC, PRC, PCC, PVT, PVC, PVI, with elevations.
- _____ Project limits shown with station identification, existing and proposed right of way, with estimated limits of grading.
- _____ Centerline curve data.
- _____ Pedestrian facilities.
- _____ Profiles of existing street connections.
- _____ Profiles of critical driveways. Profiles to be 1"=10' H, 1"=2' V unless noted otherwise in writing by the County.

- _____ Lane direction arrows.
- _____ Proper length of vertical curve shown in profile, show "K" values.
- _____ Properly label existing and proposed rights of way and easements.

DRAINAGE

- _____ Preliminary Outfall analysis for each outfall with watershed information.
- _____ Preliminary Stormwater Management/BMP facilities, location, and easements.
- _____ Preliminary Design-year and 100-year WS Elevations for major drainage structures and stream crossings.
- _____ Preliminary storm drainage system layout including inlets, pipes, manholes, etc. with preliminary sizes indicated.
- _____ All natural drainage divides honored.
- _____ Location of all streams and swales shown in plan view.
- _____ End sections or end walls provided at terminus of system.
- _____ WS Elevation for design year and 100 year on profile at major stream crossing.
- _____ Driveway culverts shown where appropriate.
- _____ Existing and proposed drainage easements.
- _____ Flow arrows for all storm pipes (existing and proposed) and culverts.

UTILITIES

All existing utilities shown in plan:

- Electric; show poles with identification numbers, underground facilities.
- Telephone; show poles with identification numbers, underground facilities.
- Gas; show type and size information.
- Waterlines; show type and size information.
- Cable television facilities, aerial and underground.
- Transmission pipelines, type and size.
- Sanitary sewers; show size, top and invert elevations, and laterals.
- Existing streetlights.

CROSS-SECTIONS

- _____ All critical sections should be drawn.
- _____ Show existing and proposed right of way, construction centerline, and proposed easements.
- _____ Show buildings, structures, fence lines, signs or other man-made objects within 25' of proposed grading.

The Engineer shall provide an advance copy of the preliminary plans to the County PM at least two weeks prior to the scheduled Preliminary Plan submittal date. The County shall review the advance plans and provide comments to the Engineer for incorporation into the preliminary plans prior to the official submittal. Following consultation with the County PM, the Engineer shall submit the required number of full size, half size and/or electronic plans to the County for distribution to all reviewing agencies

- J. The Engineer shall attend the Preliminary Plan Review meeting as necessary and upon receipt of all plan review comments from the County and other reviewing agencies, shall incorporate the required revisions into the plan assembly in sufficient detail to proceed to Value Engineering, if applicable.

- K. Value Engineering (VE):

All projects with an estimated construction value equal to or greater than ~~\$5,000,000~~\$2,000,000 shall be subject to a VE review.

1. In addition to providing plans, drawings, sketches and other details to the VE Team as requested by the County, the Engineer shall prepare and provide a presentation to the Team on the first day of the VE Conference. The briefing shall include a detailed overview and description of the project, design details, challenges, assumptions and other data that were utilized in developing the preliminary plans.
2. The Engineer shall provide preliminary cost estimates for Right-of-Way and Construction
3. The Engineer shall attend the final day of the VE Conference to review the preliminary VE Team suggestions and recommendations.

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4. Intermediate Design Phase (50%-60%)

The Intermediate Design Phase begins upon completion of the Preliminary Design Phase, receipt of all reviewing agency comments on the preliminary plans and, if applicable, conclusion of the VE Conference and approval of VE recommendation(s).

- A. Intermediate design will not be initiated without written authorization by the County.
- B. Develop 50 - 60 percent intermediate design plans and computations and prepare drawings and/or graphics showing the extent and scope of the project in detail suitable for use in the Design Field Inspection and Utility Field Inspection. The intermediate design will be of sufficient detail to reasonably ensure the future construction of the project as well as the acquisition of all rights of way and easements.
 - 1. The County, or its designated agent(s), may obtain the detailed horizontal and vertical location, via the use of test holes, of all underground utilities that cross the proposed facilities that are being designed by the Engineer. The Engineer shall cooperate with the County or its designated agent(s) in providing any information that is required to dig the test holes. In addition, the Engineer, if providing survey services, shall provide the required centerline stakeout data in the area(s) of the test holes for use by the designated agent. The locating contractor will then provide the precise location (Station and Offset) of the test hole(s) to the County for distribution to the Engineer and the utility companies.
 - 2. Upon receipt of the test-hole data, the engineer shall evaluate and advise the County of the extent of utility conflicts. The Engineer shall then redesign the proposed facilities at the direction of the County in order to minimize any conflicts.
 - 3. A street lighting plan, if required, may be prepared by the County or the Engineer using the intermediate plans, as coordinated with the County PM.
- C. Geotechnical Investigation and Analysis: The Engineer shall coordinate all geotechnical investigations with the County PM as appropriate. Upon completion of geotechnical field investigations, the Engineer shall integrate geotechnical recommendations into the project design as appropriate.
 - 1. Prior to submitting a proposal for this project, the Engineer shall field review the project site along with any available soil information to determine the extent of the geotechnical investigation required to design and/or construct the proposed improvements. The cost to

perform the geotechnical investigation should be included as part of the proposal. A copy of the detailed scope and approach for the geotechnical investigation shall be included as an attachment to the proposal.

2. If the Engineer determines that a geotechnical investigation of the project site is not required, any associated costs shall be deleted and indicated accordingly in the proposal.
3. Perform, or cause to be performed, the required geotechnical investigation necessary to determine the required pavement section and for the design of any retaining walls, culverts, large pipe, or critical structures anticipated on the project. The Engineer shall coordinate all geotechnical investigations with the County PM, as appropriate. No fieldwork shall commence without written authorization from the County. Upon completion of geotechnical field investigations, the Engineer shall develop a report of Geotechnical Exploration and Proposed Recommendations.
4. This Geotechnical report should include the following basic information:
 - a. Site location plan.
 - b. Boring location plan, and table.
 - c. Boring records that identify a visual soil description and penetration in blows per foot.
 - d. Laboratory testing:
 - Soil classification
 - Percent finer than 200 sieve
 - Percent natural moisture
 - Atterburg Limits
 - Compaction test for optimum moisture, percent
 - CBR test results, Virginia Highway Council VTM 8
 - Core samples of existing pavement including photo documentation and description of all core samples per VDOT requirements
5. Borings shall be spaced at 200 - 400 ft. intervals. When borings indicate poor material and the probability of an undercut situation during construction exists, the County shall be notified immediately for direction concerning additional boring locations.
6. The geotechnical reports shall define and include recommendations concerning, but not limited to, the following:

- Limits of undercut
- Placement of underdrains
- Use and placement of Geotextile Fabric
- Analysis of the most economical pavement section
- Use of soil cement, lime, or other soil stabilization materials
- Presence and treatment of naturally occurring asbestos
- Foundation recommendations for retaining walls or other structures including bridges, culverts, underpasses, etc.

D. The Engineer shall develop approximately 50%- 60% complete Intermediate Plans and computations. Prepare drawings and/or graphics showing the extent and scope of the project in detail suitable for use at the Public Hearing (PH) or Citizens Information Meeting (CIM). The Intermediate Plans will be of sufficient detail to reasonably ensure the future construction of the project as well as defining the land acquisition needs of the project (rights of way and easements) including utility coordination. The Engineer should utilize VDOT LD-436 Checklist as a general guide. Plans shall be developed at a minimum as detailed below:

1. Prepare cross-sections at 25' intervals for the length of the improvements. 1. All cross-sections shall be plotted at a scale of 1" = 10' horizontal and 1" = 5' vertical, unless otherwise approved by Fairfax County. Cross sections shall include the "pavement box" based upon the preliminary pavement design.
2. The intermediate (50%-60% percent) Plans submission should include, at a minimum, the following items in addition to those items shown in preliminary design:

GENERAL

- _____ Driveway entrance types, CG-9D, CG-11, etc., with width and centerline station noted and type of surface material noted.
- _____ Driveway profiles. (1" = 10' Horizontal, 1"=2' vertical unless otherwise approved in writing by the County).
- _____ Curb cut ramps (CG-12) as required with station and offset to critical points and sufficient details including necessary dimensions, elevations and slopes to ensure proper construction layout and adequate drainage. A minimum of three elevations along the flow line are required.
- _____ Guardrail where required with appropriate end treatments with station and off set at beginning and end.
- _____ Proposed grade, with computed elevations every 25 ft. along centerline/PGL, and every 25' along proposed top of curb (left and right), and proposed top of median curb (left and right) and all critical points along curb lines (PC, PT, angle points, etc.) where applicable.

- _____ Details indicating station, offset, and elevations at all critical points (PC, PT, angle points, etc.) for all proposed islands.
- _____ Proper horizontal, vertical and stopping sight distance provided.
- _____ Locations of septic fields and wells.
- _____ Curve super elevation, maximum rate, transition lengths and stations.
- _____ Utility pole location table.
- _____ Signing and pavement marking plan.
- _____ Limits of grading.
- _____ Limits of cut and fill.
- _____ Intersection sight distance lines.
- _____ Intersection grading plan showing transitional slope.
- _____ Erosion and sediment control plans.
- _____ Erosion and sediment control standard details.
- _____ VDOT Insertable sheet details.
- _____ Preliminary Traffic Signal Design sheets with new poles and equipment including clearance intervals, if applicable.
- _____ Preliminary Traffic Management Plan and details including Preliminary Sequence of Construction Plans and details, if applicable.

DRAINAGE

- _____ Site maps showing drainage divides for outfall, SWM facilities, inlets, on-site and off-site drainage with contributing areas for each inlet.
- _____ All natural drainage divides honored.
- _____ Ditch typical section including lining type.
- _____ Limits of existing and proposed floodplains and easements.
- _____ Prepare Fairfax County DPWES Stormwater Management Plan Completeness Checklist.
- _____ Drainage and Stormwater Management Report including narratives and executive summary(s)
- _____ Outfall analysis and narrative for each outfall.
- _____ Stormwater Management facilities design and computations.
- _____ Storm sewer plan and profile.
- _____ Storm sewer system descriptions (inlets, pipes, manholes, etc.) in VDOT standard format.
- _____ Storm sewer profile, with the following required information:
 - Profile of existing ground at construction centerline.
 - Profile of finished grade at construction centerline.
 - Percent grade shown on all storm sewers.
 - Depict undercut (if applicable)
 - Size and type of proposed pipes and structures.
 - Specify top, invert, elevations, and height and throat length for all proposed structures as appropriate. For Manholes, specify vertical feet of structure and type of frame and cover required.

- Show all existing stream crossings. Depict water surface elevations for design-year and 100-year storm events for major stream crossings on roadway profile.
- Specify type, structure number per VDOT format.
- Hydraulic Grade Line.

_____ Invert elevations for culvert inlet and outlet shown in profile.
_____ Provide size and type of proposed driveway culverts.
_____ Hydraulic grade line on any surcharged systems.
_____ End sections or end walls provided at terminus of system.
_____ Typical section of drainage way provided for all outfall improvements.
_____ Ditches shown in profile and stationing provided in plan and profile.
_____ Profile of streams that parallel or cross proposed improvements.

SURVEY

_____ Survey sheet provided showing overall layout of traverse, road centerline data, properties, and proposed improvements.
_____ Traverse stations shown graphically and in table form with coordinates.
_____ Traverse references provided.
_____ Coordinate list with point locations noted.
_____ Benchmark elevations provided on each plan sheet.
_____ Construction centerline or alignment of proposed improvements with station information.
_____ Sufficient information shown to stake the project in the field; i.e. station and offset, dimensions, coordinates.

ENVIRONMENTAL/PERMITTING

_____ Wetlands and impacted areas delineated, as applicable.
_____ Wetland mitigation, if required.
_____ Stream Impact and Restoration plan, as applicable.

CROSS-SECTIONS

_____ All required cross-sections should be developed.
_____ Show existing and proposed rights of way, construction centerline, and easements.
_____ Show buildings, structures, fence lines, signs or other man-made objects within 25' of proposed grading.

- E. Prepare an estimate of the construction quantities based on either the VDOT Standard Item Codes and units of measure or a cost-estimating format provided by the County.

- F. The Engineer shall submit an advance copy of the intermediate plans to the County PM for review and comment at least two weeks in advance of the scheduled intermediate plan submittal date. The Engineer shall incorporate any comments received from the review of the advance intermediate plans and submit the required number of full size, half size, and electronic sets of plans for review and comment by all agencies, as directed by the County.
- G. Engineer shall prepare presentation materials, plans, drawings, sketches, displays and other materials as directed by the County for use in the PH and/or CIM. Engineer shall attend the Public Hearing and/or CIM and be prepared to make a formal presentation to the Public if so directed by the County. Engineer should coordinate PH and CIM requirements with the County PM during development of the Scope of Work.
1. Additional services during and/or after the Public Meeting/CIM may include:
- Compilation and Preparation of PH/CIM meeting minutes
 - Preparation of Brochures, Project Comment Forms, etc.
 - Providing and compiling attendance/sign-in sheets
 - Compiling contact/email information data
 - Summarizing comments received
 - Providing detailed responses to comments received

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5. **Pre-Final Design Phase (75-90%)**

The Pre-Final Design Phase commences upon completion of the Public Hearing and/or CIM, resolution of comments/issues raised at the public meeting and/or CIM, and receipt of all comments concerning the Intermediate Plans from reviewing agencies. This phase of plan development includes preparation and submittal of Final Right-of-Way Acquisition (RW) Plans, and Plats.

- A. The County shall provide the Engineer with all comments from reviewing agencies pertaining to the Intermediate Phase of plan development and provide direction to the Engineer for incorporation of said comments into the plans.
- B. The Engineer should utilize VDOT LD-436 Checklist as a general guide. Plans shall be developed at a minimum as detailed below. The pre-final plan submission shall include all items listed in the preliminary and intermediate submissions, in addition to the following items:

GENERAL

- _____ Each sheet numbered/Sheet references required for larger projects
- _____ Station, offset and elevation for curb return PC and PT and tie in to existing curb.
- _____ Curb return profiles.
- _____ Proposed grade with elevations computed every 25 ft. Identify station and elevation of all low and high points.
- _____ Proposed right-of-way, permanent and temporary easements. (See Plat Standards for detailed easement listing).
- _____ Right of Way Data Sheet.
- _____ Super elevation Table.
- _____ Retaining Wall Plan/Layout view and profile showing bottom of footing elevation(s), top of wall elevation, location of all construction/expansion joints, etc., (if applicable).

DRAINAGE

- _____ Drainage and Stormwater Management Report
- _____ Analysis of all drainage outfalls; i.e. capacity, erosion, velocity, any required erosion control linings, and outfall stability analyses, etc.
- _____ Computations for all existing and proposed structures, pipes, culverts.
- _____ Storm sewer profiles with the following required information:
 - Specify bedding material if different from standard.
 - Specify compaction requirements for storm sewer to be placed on fill.
 - Specify type, structure number, station, and offset for all proposed structures.
 - Pipe type, size, and grade.

- All inverts, throat and top elevations for inlets.
- Utility Test hole information, as provided by the County.
- _____ Details provided for modified or special design structures.
- _____ Special pipe provided for unusual loading conditions.
- _____ Appropriate erosion control protection provided.
- _____ Ditch grades shown in profile and stationing provided in plan and profile.
- _____ Transition details of ditches to inlets and culverts provided.
- _____ Complete culvert design computations provided; i.e. inlet control, outlet control, freeboard, etc.
- _____ Station and offset provided for culvert stake out.
- _____ Provide size and type of proposed driveway culverts.
- _____ Stormwater management facilities.
- _____ Approved VDOT Traffic Signalization Plans and Details (if applicable).
- _____ Approved VDOT Traffic Maintenance Plan and Details (if applicable).
- _____ Approved Pavement Marking and Signage Plans and Details (if applicable).

UTILITIES

- _____ Location and type of proposed streetlights (if applicable).
- _____ Test-hole data sheet.
- _____ Fairfax Water Relocation Plans (if applicable).

SURVEY

See requirements as specified in *Part II, Section 4 Intermediate Design Phase, under SURVEY*.

CROSS-SECTIONS

- _____ Proposed pavement section with sub-grade (blocked)
- _____ All structures including temporary layback for wall construction
- _____ Undercut limits, blocked
- _____ Cross slopes in Transition & Superelevation areas

- C. The Engineer shall submit an advance copy of the pre-final plans to the County PM for review and comment at least two weeks prior to the scheduled pre-final plans submittal date. The Engineer shall incorporate all comments received from the County on the advance plans into the pre-final plan submittal package.
- D. Attend all conferences and briefings with the County. Meeting minutes of all meetings are to be forwarded to the County within five working days.

- E. Prepare a profile for all intersecting streets, driveways, and entrances connecting to the project.
- F. Prepare all necessary permit applications and supporting documents for acquisition of permits required by the Virginia Marine Resource Commission, the Army Corps of Engineers and all other regulatory agencies. Application will be made by the County.
- G. On Federal and/or State funded Locally Administered projects, the Engineer shall include appropriate signature blocks on the Title Sheet for RW Authorization approval by VDOT personnel. Additional information to be provided with the RW Authorization package include:
 - 1. The RW package shall include the RW Data Sheet and Revision Data Sheet.
 - 2. Updated estimate of construction quantities AND an Estimated Cost of Construction, per guidelines presented in item H. below.
- H. The Engineer shall provide an updated estimate of construction quantities utilizing VDOT standard pay item codes and units of measure, or in a format as directed by the County. Engineer shall also provide an Estimated Cost of Construction based upon the Final RW Plans. Updated estimate of construction quantities and estimated cost of construction shall be included with the pre-final plan submittal package.
- I. Prepare an individual record plat for each affected property, including all proposed land rights required for the construction of the project. The submission schedule for project plats will be independent of the Final RW Plans. Include all existing easements of record on the individual record plat. Plats shall be prepared in accordance with the current Department of Public Works and Environmental Services, Utilities Design & Construction Division, Land Survey Branch, Plat Standards as follows:

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Fairfax County, Virginia
Department of Public Works and Environmental Services,
Utilities Design and Construction Division
Land Survey Branch

PLAT STANDARDS
Revised June 2014
Required Minimum Information

Typical examples for the title block information for Subdivision (Lots), Acreage (Parcels), and Condominiums, respectively, as follows:

Plat Showing Dedication for
Public Street Purposes & Easements
(include easement type, list permanent easements first)

Through Lot 221
POLO FIELDS, Section 3A
D.B. 1234, PG. 999

Property (or Lands) Being in the Name of
JOHN W. SMITH and MARY H. SMITH
D.B. 1375, P.G. 1234

Sully District, Fairfax County

Scale: 1"=25' Date: 9/3/09 Drawn By: J. Doe Sheet 1 of 1

Plat Showing Dedication for
Public Street Purposes & Easements
(include easement type, list permanent easements first)

Through the Property (or Lands) of
JOHN W. SMITH and MARY H. SMITH
D.B. 1375, PG. 1234

Sully District, Fairfax County

Scale: 1"=25' Date: 9/3/09 Drawn By: J. Doe Sheet 1 of 1

Plat Showing Dedication for
Public Street Purposes & Easements
(include easement type, list permanent easements first)

Through the Property Being
THE HAPPY HILLS CONDOMINIUM
AS DECLARED AND RECORDED AT
D.B. 1925, PG. 1744
Sully District, Fairfax County

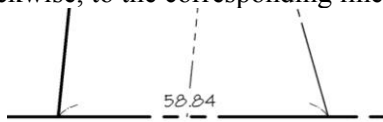
Scale: 1"=25' Date: 9/3/09 Drawn By: J. Doe Sheet 1 of 1

These PLAT STANDARDS represent general best practices and minimums required for successful completion of platting and recordation. Variances may be necessary as required by specific projects and circumstances. These variances are professional determinations and are the responsibility of the Licensed Land Surveyor sealing the plat. All plats must meet the Standards for Plats issued by The Library of Virginia as current at the date of seal on the plat. All plats are to be sealed and signed as required by the Code of Virginia.

Required Minimum Information

































1. Show in title block, the current owner, deed book (or liber) and page of acquisition, and the subject property, whether subject is a subdivision or acreage. For a subdivision lot, list the deed book and page where the subdivision lot was created (first page of record document) in the title block.
2. Prepare plats using the record deed as the base for the property. Lot line distances match the record information, though the bearings may be rotated to fit a common project north orientation such as NAD83, VCS83, North Zone, North.
3. Include name and address of Land Surveyor or registered business.
4. Original plats will be the same scale as project plans, when appropriate. Allowable plat size requirements (see #26) and avoidance of easement breaks (see #30) may result in different scales.
5. Include the subject parcel or lot number within the body of the plat.
6. Separate plats should be prepared for each affected property, with exceptions as agreed upon by Land Survey Branch, Land Acquisition Division, and the Office of the County Attorney. In instances where the same owner owns several properties, one plat is acceptable provided the area tabulation is broken down to show the square footage of the land rights required on each property.
7. Identify adjacent properties by subdivision name and lot number with deed book and page of subdivision recordation, or for parcels not in a subdivision “N/F Owner’s Name” with deed book and page of acquisition. Adjacent properties identification may include the Tax ID number as supplemental information.
8. Label names of roads with route numbers and right-of-way widths, railroads, and other abutting rights of way.
9. Show distance from a corner of the subject property to the nearest intersection.
10. On road projects with available construction alignments of design, such as centerline or construction baseline, show one reference tie (distance from property line to the centerline of construction) and bearing of centerline or construction baseline. The reference tie must have a station on the centerline or baseline.
11. On plats involving street dedications, label the area to be dedicated as follows: “Hereby Dedicated for Public Street Purposes.” A notation stating merely “Dedicated for Public Street Purposes” or “To Be Dedicated to Public Street Purposes” is not acceptable. The title in the title block and in the area tabulation shall be “Dedication for Public Street Purposes”.

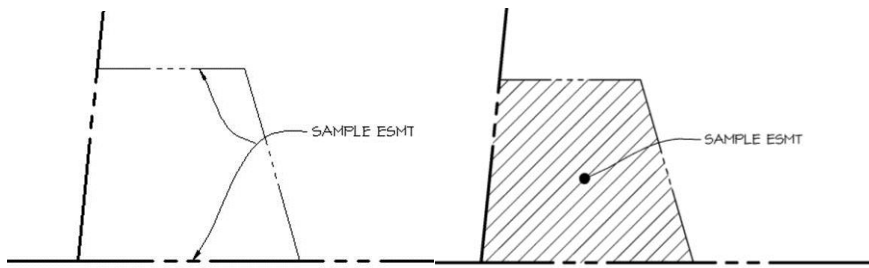
12. Identify all existing easements on a property with deed book and page number. If the existing easement is adjacent to the proposed easement/dedication and is relevant, i.e., existing sanitary sewer easement adjacent to a proposed sanitary sewer easement, include all bearings and distances (if available from existing information and doing so will not create overlap/gap situations).
13. Indicate bearings and distances of all property and easement/dedication lines to the nearest ten seconds (as minimum precision, on a clockwise rotation). Label bearings for easement boundaries; labels on easement centerline are optional. However, for a simple consistent width easement, bearings for an easement centerline in lieu of an easement boundary may be used. In this case, the centerline must be tied to the property or to existing easement; widths and relationship to the centerline must be clearly shown.
14. Indicate distances of all property and easement/dedication lines to the nearest 0.01 feet. Distances for an easement centerline in lieu of an easement boundary may be used when the centerline defines the easement.
15. Display boundary line and easement line annotation with bearings running clockwise. Where possible ambiguity or space constraints necessitate, attach annotation and/or tag labels, running clockwise, to the corresponding lines or curves by crow's feet.



16. List all curve data, other than for “ties” in call-out and table format including curve number, radius, delta, arc length, tangent, chord, and chord bearing. Arc and Radius is acceptable for ties only. It is also acceptable to use call-out and curve table format for ties at preparer’s discretion.
17. Compute easement and/or dedication areas to be acquired to nearest square foot and show in tabular format. If the plat has more than one sheet, the total area to be acquired may be shown only on one sheet, typically, the first sheet, or for clarity the full tabulation may be repeated on each sheet. If the plat for one lot has two individual (physically separate) easements conveying identical land rights (i.e.: two separate sanitary sewer easements), the area tabulation shall include the areas associated with each individual easement as well as the total easement area.
18. Include a page number on each sheet (for example, Sheet 1 of 2).
19. Reference (tie) all easements/dedications to a property corner for field stakeout.
20. Note north arrow with source of meridian. If using Virginia State Coordinate System Grid North, provide pairs of state plane coordinates on two corners of subject property.
21. Show project name and number above the title block. Note tax map reference directly above the project name and number. Additionally, tax map number may be shown in the subject parcel in the body of the plat.
22. For plats compiled from existing deed information, shall contain the following statement: “The information shown on this plat was compiled from existing land records and does not represent the results of an actual field run boundary survey”.

23. If the plat is prepared without the benefit of a title report, include the following statement: “This plat was prepared without the benefit of a title report; therefore not all encumbrances to the property are necessarily shown hereon.”
24. Plats shall contain the following statement “All previously recorded rights-of way, easements, or other interests of the county shall remain in full force and effect unless otherwise specifically shown hereon.”
25. Plats shall contain the following statement “ The land shown on this plat is now held as noted in the title block hereon and recorded among the land records of Fairfax County; all easements and dedications for public street purposes are within the bounds of the original tract, as described and recorded therein. (alternative: and shown on this plat)
26. Plat sizes: Allowable sizes are 8-1/2”x 11”, 8-1/2” x 14”, 11” x 17”, or 18” x 24”. On plats greater than 8-1/2” x 11”, include centering marks and 8-1/2”sheet “tic” marks as per the Library of Virginia Standards for Plats. These centering marks are used during scanning/filming process.
27. Minimum lettering size: 0.1”; Maximum lettering size: 0.5” Minimum line weight: 0.013”; Maximum line weight: 0.05”. A minimum of 1/4” margin outside the borderline required on all sides. All plats must meet the Library of Virginia Standards for Plats current at the date of seal on the plat.
28. Standard line styles are:

Existing Property Line							
Existing Easement							
Dedication							
Permanent Easement							
Temporary Easement							
29. Prepare all plats for recordation as original live signed, and drafted with ink on Mylar. Mylar sepias (copies) are not acceptable. Paper originals are not acceptable.
30. Generally, breaks in proposed easements are not acceptable. In special cases, match lines may be used when over-sized plats will not fit on one sheet; however, easement line breaks using the short break symbol () are not permitted under any circumstance. Breaks in property lines using the symbol are permitted provided the break is not along an easement boundary or within the easement area.
31. Seal and sign all plats as required by the Code of Virginia.
32. No plat shall be revised after the initial sealing, except by consent and action of the professional whose seal is affixed thereto. Dates on the face of plat inside the professional’s seal shall constitute the final revision date.
33. Use dual leader lines to label the extents of an easement or dedication area. The use of single leader lines is not acceptable, except when using a ball leader with hatched areas.



34. The agreements listed below are the ones frequently used by the Department of Public Works and Environmental Services when acquiring land rights for County projects. There may be specialized agreement titles not listed herein. In case of a private design firm contract, County staff will coordinate with the surveyor or engineer to determine the correct easement titles required on the plans. Ensure that the platted land rights are properly labeled using the approved titles below.

ACCESS EASEMENT

ANCILLARY/PUBLIC UTILITY EASEMENT. *[“Ancillary” Easements are sometimes used to provide additional area, adjoining existing roadways, to accommodate the relocation of County easements, as necessitated by roadway modifications.]*

BUS STOP FACILITIES EASEMENT

CONSERVATION EASEMENT

DEED OF DEDICATION AND CONVEYANCE

DETENTION POND AND STORM DRAINAGE EASEMENT

FAIRFAX COUNTY WATER AUTHORITY DEED OF EASEMENT

FLOOD PLAIN AND STORM DRAINAGE EASEMENT

GRADING AGREEMENT AND TEMPORARY CONSTRUCTION EASEMENT

INGRESS-EGRESS [*or* Ingress-Egress/Public Access *or* Public Access] EASEMENT

LANDSCAPE EASEMENT

MAINTENANCE ACCESS EASEMENT AGREEMENT

PERPETUAL STREET EASEMENT

PUBLIC ACCESS EASEMENT

QUITCLAIM DEED (A)

REFORESTATION EASEMENT

RESOLUTION

RESTRICTIVE PLANTING EASEMENT

RETAINING WALL EASEMENT

SANITARY SEWER FORCE LATERAL EASEMENT

SANITARY SEWER LATERAL EASEMENT

SANITARY SEWER EASEMENT

SIDEWALK EASEMENT

SIGHT DISTANCE EASEMENT

SLOPE EASEMENT AGREEMENT

STORM DRAINAGE EASEMENT *

STORM SEWER EASEMENT

TEMPORARY ACCESS EASEMENT

TEMPORARY CONSTRUCTION ACCESS EASEMENT

TEMPORARY TURNAROUND RIGHT-OF-WAY EASEMENT

(for the purpose of constructing and maintaining, a road...)

TRAFFIC SIGNAL EQUIPMENT EASEMENT

TRAIL EASEMENT

VEGETATED BUFFER EASEMENT

- * This is used for open and closed storm water systems and is the preferred title.

Suggested number of copies for plats:

One (1) original sealed signed Mylar plat for each recordation

For each recordation of the plat, two (2) copies

Example, plat with Dedication for Public Street Purposes and a Storm Drainage Easement = two (2) recordations from a single plat = two (2) live signed, sealed originals, plus four (4) copies.

(Remainder of page intentionally left blank)

6. Final Design Phase (100%)

- A. No work will be initiated on final design until written authorization is received from the County.
- B. Develop complete final design plans and computations, and prepare final contract drawings showing all proposed construction in sufficient detail to ensure:
 - 1. The granting of all necessary approvals and permits by all regulatory agencies.
 - 2. The proper execution of the work by a construction contractor.
- C. Unless otherwise directed by the County, prepare and reference any special provisions on the plans only. Contract documents will be prepared by the County.
- D. Prepare a final quantity takeoff of construction. The Engineer shall provide an updated estimate of construction quantities utilizing VDOT standard pay item codes and units of measure, or in a format as directed by the County. Prepare and provide bound copy of all backup computations/calculations for all quantities. Where phased construction is required, quantities shall be developed to account for items such as earthwork, temporary storm drainage and maintenance of traffic where final net quantity will or can be affected by construction phasing or sequencing.
- E. Final design plans shall include standard FCDOT or VDOT (as applicable) cover sheet with vicinity map, general note sheets with erosion/sedimentation control plans and narrative, design computations, along with plan/profile and detail sheets. All sheets, except the cover sheet, shall have Fairfax County title block and Engineer's title block.
- F. All Final plans and technical reports shall be signed and sealed by a Professional Engineer registered in the state of Virginia. The Engineer shall utilize VDOT I&IM 243 and the latest revision thereto as a guide for the signing and sealing of plans and reports.
- H. All sheets are to be STANDARD 24-inch by 36-inch size drawings. Any sheets other than this size will not be accepted by Fairfax County, unless otherwise approved in writing by the County.
- I. One copy of the plans on computer disk(s) in both AutoCAD 2013 compatible and/or Microstation formats shall be provided, as coordinated with County PM. Provide one copy of all plan sheets in TIFF or PDF format.
- J. Prepare a red-lined composite plat for submission to VDOT for street acceptance package if applicable.

- K. The final plan submission shall include all items listed in previous phases in addition to the following items:

- _____ Plan sheets/drawings, including Cover Sheet and Cross Sections to be sealed, signed and dated by Virginia Professional Engineer.
- _____ Approved Design Waivers and/or Design Exceptions noted on cover sheet.
- _____ Approved Fairfax County Stormwater Management Plan.
- _____ VDOT H&HA Report with Computations to be sealed, signed and dated by Virginia Professional Engineer.
- _____ VDOT Approved Traffic Signalization Plans and Details (if applicable).
- _____ VDOT Approved Transportation Management Plan and Details (if applicable).
- _____ VDOT Approved Pavement Marking and Signage Plan and Details (if applicable).
- _____ Final street light design plans, if applicable.
- _____ Final Fairfax Water Relocations Plans with Quantity Summary sheets.

(Remainder of page intentionally left blank)

7. Materials to be Transmitted to Fairfax County Include:

- A. A monthly progress report briefly describing the work accomplished is to be submitted with all invoices.
- B. The following sets of plans are suggested for each submission plus one additional advance set of plans on each submission. Actual numbers of plans sets to be coordinated with the County PM at each phase of the project.

Preliminary Submission sets	<u>35</u>
Intermediate Submission sets	<u>35</u>
Utility Field Inspection sets	<u>35</u>
Pre-Final sets	<u>35</u>
Final Submission sets	<u>35</u>
Permit Submission sets	<u>10</u>
- C. Original mylars of record plats sealed, signed, and dated by land surveyor licensed in the State of Virginia.
- D. Original mylar cover sheets, sealed, signed and dated, by Professional Engineer in the State of Virginia, as coordinated with the County PM
- E. An electronic seal, signature and date are permitted to be used in lieu of an original seal, signature and date when the following criteria, and all other requirements of this section are met:
 - 1. It is a unique identification of the professional;
 - 2. It is verifiable; and
 - 3. It is under the professional's direct control.
- F. Original mylars of plans, if requested by the County, shall be signed, sealed, and dated by an engineer registered in the State of Virginia.
- G. Computer disk(s), or other digital storage media approved by Fairfax County, containing the final plan drawing files(s) and/or record plats (AutoCAD 2013 or approved compatible format). Drawing files must be accompanied by all associated special fonts not supplied with AutoCAD 2013 and any cross-referenced (XREF) files used to produce the final plan drawings. Include a README file containing a schedule of the XREF drawings and the proper linkages. Include a layer schedule and any conversions necessary to use the files appropriately.
- H. Computer disc(s) with one complete set of plan sheets in either TIFF or PDF format.
- I. Two clean copies of any required special provisions.

- J. One copy of the final Engineer's construction quantity takeoff including a bound copy of all backup and supporting computations/calculations used to determine the final construction quantities.
- K. One bound and referenced copy of all design calculations, assumptions, etc.
- L. One copy of all survey information, data, computations, files, and plats as identified in Section II Survey Phase.

8. Materials to be Transmitted by Fairfax County Include:

- A. 1"=200' five-foot contour topographic map(s), property identification map(s), and available aerial photography maps.
- B. Available plans and information on any sanitary sewer, house laterals, septic fields, wells, storm sewer, walkway, or road project(s) in the area.
- C. AutoCAD files of the Fairfax County standard cover sheet, and general notes sheets.
- D. Standard Fairfax County Department of Public Works and Environmental Services plat template in AutoCAD format and Uniform Plat standards.
- E. List of property owners by tax map number with deed book and page.
- F. Set of standard plan sheets.
- I. Copy of pertinent proffer information.
- J. Designation of existing utility facilities within the project area.
- K. Test hole information, as required, to accurately determine the horizontal and vertical location of existing utilities in the project area that may potentially be in conflict with the proposed improvements.

9. Engineering Services During Construction

Unless specifically requested by the County, engineering services during construction are not required in this proposal.

PART III – ADMINISTRATIVE INFORMATION

1. Administrative Information to be Included in the Proposal:

- A. The total estimated engineering cost for each phase and the total project, along with an hourly rate fee schedule, must be included for the different job classifications that will be assigned to the project. Individual employee salaries are not required. A summary, by task, of the staff-hours projected for each job classification to be assigned to the project shall also be included along with a statement that the fee schedule shall remain valid for the length of the contract. In addition, include a proposed sheet listing. State in the proposal that the total estimated engineering cost will not be exceeded without prior written authorization from the County. Increases or decreases in the scope of the project may result in an adjustment to the approved fee. Authorization to increase the approved fee will not be considered unless it can be clearly established that actual work is required beyond the currently approved scope of work. The work associated with the total project shall be divided into various project tasks, along with the estimated cost for each task identified.
- B. A time schedule in bar graph form from the notice to proceed to completion of the various tasks must be outlined in the proposal, as well as a statement requiring that your firm obtain written approval from the County prior to proceeding into the Intermediate and Final Design phases. A statement establishing the length of the contract shall also be specified in the proposal.
- C. In addition to the material specified above, the Consultant Total Price Summary shall be completed and attached to the proposal. A copy of the Consultant Total Price Summary along with instructions for completing this form is attached to this Engineering Proposal Document.
- D. Proposal shall include “Sheet Summary” listing the estimated number and type of plan sheets required.
- E. Members of staff who will be assigned to this project and their job classification. Personnel substitutions of key personnel will not be made without prior written approval of the County.
- F. Qualifications of any engineering firm that will perform work on the project on a subcontract basis, i.e., surveying, geotechnical, etc. Fairfax County approval of all subcontractors is required, along with the scope of work to be performed on this project. The written subcontract arrangement, a copy of which shall be included in the cost proposal, shall include a statement that the engineering firm or subconsultant agrees to and will comply with the provisions contained in PART IV, Item D., Subletting of Contract or Contract Funds.
- G. A description of your proposed approach and methods of operation for accomplishing this work.

- H. Include a statement that all work on the project shall be performed in accordance with the provisions in this document unless otherwise noted.
- I. Indicate an estimated maximum number of plats that will be required and the fee per plat. Include a statement that the final fee for this task will be adjusted based on the actual number of plats but not to exceed the estimated maximum, if applicable
- J. Indicate the lump sum fee for preparation of the photo rendering.
- K. Include for the Engineer and all sub-consultants a list of primary and secondary personnel that can be contacted, if necessary, after normal business hours to address possible emergency situations that could occur on the project. The contact information should include telephone numbers (normal telephones and cell phones), pagers, etc.
- L. Please include the following signature block on the last page of the proposal following your signature and a description of the fee proposal summary, unless otherwise directed by the County:

APPROVED:

Contracting Officer, Title
Fairfax County Department of Transportation

Date

For Task Orders under a Basic Ordering Agreement, ~~The~~ the Contracting Officer shall be determined per the delegation matrix below or as coordinated with the County PM.

<i>Fee < 50k</i>	<i>Section Chiefs</i>
<i>50K ≥ Fee < 100k</i>	<i>Division Chief</i>
<i>Fee ≥ 100K</i>	<i>DOT Director or delegated authority</i>

- M. Provide a certified accounting and justification of all overhead rates. This may be in the form of a certified audit by a CPA or an audit by a Federal or State agency.
- N. Profit is to be clearly stated by the consultant on the proposal.
- O. Unless otherwise noted, the original and three (3) copies of the proposal shall be submitted to Fairfax County Department of Transportation. Original signatures must appear on all copies of the proposal submitted.

2. **Payment**

A. The standard method of payment shall be lump sum with monthly billings based upon estimated percent complete on each task. For Cost-Plus-Fixed-Fee, or Fixed Billable Rate contracts, billings shall include a detailed breakdown of actual costs incurred. The percent fee earned for each billing period shall be based upon the ratio of actual costs through the billing period divided by the estimated total costs included in the approved contract. Progress reports must be submitted with each payment request stating work completed and the status of the various project tasks. Payment requests shall correspond directly with the project tasks as outlined in the proposal. Some scoped tasks agreed during the Scope and Fee Development phase may not be required during the design process and the lump sum amount for these tasks will not be billed. The total authorized contract amount will decrease accordingly. The following provisions shall be applicable to these payments:

1. Progress payments shall be made up to 95 percent of the total contract lump sum amount.
2. The remaining five percent of the total lump sum amount will be paid following final acceptance of the completed design package by the Fairfax County Department of Transportation.
3. At such time that either the payment request or the actual work completed reaches 50 percent of the total amount, the Engineer and the County shall meet to review the project status and projected completion schedule. The County reserves the right to meet with the Engineer at any point in the design to review the project status.
4. The following statement is to be included on all invoices:

"I certify that the amount of this invoice is just and correct, and in accordance with the terms of the contract, and that payment thereof has not been previously received."

Signature:

Date:

PART IV – TERMS AND CONDITIONS

1. **Terms and Conditions**

The following terms and conditions are included as part of the proposal:

A. **Termination for Default:** The County, without prejudice to any other rights or remedy it may have, may give seven (7) days' notice to the Engineer to terminate the employment of the Engineer and its right to proceed as to the entire surveying and engineering services, "Work" as to any portion thereof, and the County may take possession of the Work and complete the Work by contract or otherwise as the County may deem expedient if, in the opinion of the County:

1. The insolvency, bankruptcy or financial condition of the Engineer will hinder or impede the Engineer's fulfillment of all contractual obligations, including completion within the Contract time; and/or
2. The Engineer refuses to staff the Work with the proper number and expertise of design professionals or support staff; and/or
3. The Engineer refuses or fails to prosecute the Work or any part thereof with such diligence to insure its completion within the time frame allowed by the project schedule, or fails to complete the work within said period; and/or
4. The Engineer fails or refuses to regard laws, permits, ordinances, resolutions or the instructions of the County, or otherwise be in material breach of this Contract; and/or
5. The Engineer is in violation of any material provision of this agreement.

Such notice of termination shall be issued after notification to the Engineer that termination is being considered and the specific reasons for such termination, and after affording the Engineer a reasonable time to correct such reasons that are cited. Upon such termination, all finished or unfinished documents, data, studies, surveys, drawings, maps, models and reports prepared by the Engineer under this contract shall, at the option of County, become its property for its use as it requires and shall be delivered to the County upon request.

If the County so terminates the employment of the Engineer, the Engineer shall be entitled to receive payment for the amount of the work completed.

B. **Termination for Convenience:** The performance of work under this Contract may be terminated by the County in whole or in part whenever the County shall determine that such termination is in its best interest. Any such termination shall be affected by delivery to the Engineer of a Notice of Termination specifying the extent to which performance of the work under the Contract is terminated, and the

date upon which such termination becomes effective. After receipt of a Notice of Termination, the Engineer shall submit to the County its termination claim in a prompt manner, but in no event later than three (3) months from the effective date of termination or it shall be deemed waived. The Engineer's sole and exclusive remedy upon termination under this section shall be to receive payment of: (a) the pro rata share of the total fee earned to the date of termination; and (b) any bona fide expense of terminating the agreement of any consultant; and (c) any out-of-pocket expenses or other costs necessary to close out this contract, provided that such costs are approved in advance in writing by the County. In no event shall the Engineer be entitled to lost profits or consequential damages. In the event that termination for default is found to have been improper, such termination shall automatically be converted to a termination for convenience as the Engineer's sole and exclusive remedy.

In the event of such Termination for Convenience and where County requests copies of Engineer's uncompleted and unstamped works, it is with the understanding that such documentation and work (collectively Documentation) are in various stages of completion. County further understands that the Documentation has not been reviewed under Engineer's QA/QC programs and must be reviewed in detail by appropriate and qualified engineers before any reliance is given thereto. In addition, such documentation is released as is with no representations, warranties, guarantees of fitness for any particular purpose whatsoever and that use and/or modification of such Documentation on this or any other project is at County's sole risk.

- C. **Criminal Background Information:** Fairfax County reserves the right to conduct a Criminal Background Information Investigation on any employee that is working on this project for the Engineer or sub-consultant(s). Fairfax County may require that any employee working on this project for the Engineer or sub-consultant(s) be removed from the project team for reasons that may include the results of the Criminal Background Investigation. The Criminal Background Investigation may require fingerprinting of employees. The Criminal Background Investigation requirement shall be exercised at the sole discretion of Fairfax County.
- D. **Subletting of Contract or Contract Funds:** The Engineer shall not assign, transfer, convey, sublet, or otherwise dispose of this contract or of his right, title, or interest therein, or of the power to execute such contract, to any other person, firm, or corporation, without the previous written consent of the County. In no case shall such consent relieve the Engineer from his obligations or change the terms of the contract.
- E. **Safeguarding of Information:** Any materials given to or prepared by the Engineer under this contract shall not be sold or otherwise made available to any individual or organization without prior approval of the County.

The preceding restriction shall not apply to information which is in the public domain, was previously known to Engineer, and was acquired by Engineer from others who have no confidential relationship to county with respect to same or which, through no fault of Engineer, come into the public domain. Engineer shall not be restricted in any way from releasing information, including proprietary information, in response to a subpoena, court order, or other legal process. Engineer shall not be required to resist such subpoena, court order, or legal process, but shall promptly notify County in writing of the demand for information before Engineer responds to such demand. County may, at its sole discretion, seek to quash such demand.

- F. **Auditing:** In progress and post auditing may be performed by the appropriate agency of the County or its agent. Post auditing, if any, shall be completed within 3 years of completion of this contract.
- G. **Nondiscrimination:** During the performance of this contract, the Engineer agrees to the following:
1. The Engineer will not discriminate against any employee or applicant for employment because of race, religion, color, disabilities, sex, national origin, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Engineer. The Engineer agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
 2. The Engineer, in all solicitations or advertisements for employees placed by or on behalf of the Engineer, will state that such Engineer is an equal opportunity employer.
 3. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this provision.
 4. The Engineer will include the provisions of paragraphs 1, 2, and 3 above in every subcontract or purchase order so that the provisions will be binding upon every subcontractor or vendor.
- H. **Conflict of Interest:** Each Engineer shall certify, upon signing a proposal, that to the best of his or her knowledge no Fairfax County official or employee having official responsibility for the procurement transaction, or member of his or her immediate family, has received or will receive any financial benefit of more than nominal or minimal value relating to the award of this contract. If such a benefit has been received or will be received, this fact shall be disclosed with the bid or proposal or as soon thereafter as it appears that such a benefit will be received. Failure to disclose the information prescribed above may result in suspension or

debarment, or rescission of the contract made, or could affect payment pursuant to the terms of the contract.

Whenever there is reason to believe that a financial benefit of the sort described in the prior paragraph has been or will be received in connection with a proposal or contract, and that the contractor has failed to disclose such benefit or has inadequately disclosed it, the County Executive, as a prerequisite to payment pursuant to the contract, or at any other time, may require the contractor to furnish, under oath, answers to any interrogatories related to such possible benefit.

I. Prohibition of Contingent Fees: The Engineer shall include the following statement in the proposal:

1. We certify that we have not employed any company or person other than a bona fide employee working for us to secure this agreement and we have not paid or agreed to pay any person, company or corporation, individual or firm other than a bona fide employee working solely for us any favor, commission, percentage, gift or any other consideration contingent upon or resulting from the award of making this or any other agreement. It is our understanding that in the event of a breach or violation of the provision, the County shall have the right to terminate this or any other agreement with our firm or individual without liability and at its discretion, to deduct from the contract price or otherwise recover, the full amount of such fee, commission, percentage, gift or consideration.

Immigration Reform and Control Act of 1986:

By signing this bid or proposal, the bidder/offerer certifies that it does not and will not during the performance of this contract violate the provisions of the Federal Immigration Reform and Control Act of 1986, which prohibits employment of illegal aliens.

- J.** The Engineer shall indemnify, keep and save harmless the County, its agents, officials, employees and volunteers against claims of injuries, death, damage to property, patent claims, suits, liabilities, judgments, cost and expenses which may otherwise accrue against the County in consequence of the granting of a contract or which may otherwise result therefrom, if caused by any errors, omissions, or negligent acts of the Engineer or his or her employees or their agents, or that of subconsultants or his or her employees or their agents, if any; and the Engineer shall, at his or her own expense, appear, defend and pay all charges of attorneys and all costs and other expenses including cost of investigation arising therefrom or incurred in connection therewith; and if any judgment shall be rendered against the County in any such action, the Engineer shall, at his or her own expense, satisfy and discharge the same. Engineer expressly understands and agrees that any performance bond or insurance protection required by this contract, or

otherwise provided by the Engineer, shall in no way limit the responsibility to indemnify, keep and save harmless and defend the County as herein provided.

- K. The execution of this contract by the Engineer shall obligate the Engineer to comply with the foregoing indemnification provisions.
- L. Payment of costs and expenses shall be payable only to the extent that the County prevails in the dispute which gave rise to costs and expenses incurred.
- M. Fairfax County Department of Transportation shall decide on all matters of contract dispute.
- N. Any dispute concerning a question of fact which is not disposed of by the project engineer's determination shall be decided by the Director, FCDOT, who shall reduce his decision to writing and mail or otherwise forward a copy thereof to the engineer within thirty (30) days. The decision of the Director shall be final and conclusive unless the engineer files a claim with the Fairfax County Board of Supervisors pursuant to VA Code. Following the decision of the Board on the claim, the Engineer may institute legal action in the Circuit Court of Fairfax County.
- O. The Engineer will comply with the provisions for insurance requirements as outlined in Appendix 1. The County will specify the estimated value of construction.
- P. **Design Contract Compensation:** The Engineer will comply with the design contract compensation procedures as outlined in Appendix 2.
- Q. **Ownership, Use of Documents, and Copyrights:** Subsequent to making the final payment to the Engineer for all specified contractual financial compensation, Fairfax County shall retain complete and sole ownership of all "documents" prepared by the Engineer. Documents shall include, but are not limited to, data, surveys, studies, drawings, plans, specifications, special provisions, maps, models, and reports prepared by the Engineer, whether or not sealed by the Engineer or his agent. Ownership of the documents shall convey to the County any and all copyrights in the documents and the right to use the documents as the County deems necessary. This provision shall also be applicable to any engineering firm or subconsultant who performs work on the project on a subcontract basis to the Engineer (see PART IV, Item D).

For projects involving the use of Federal and State funds, the Engineer expressly acknowledges and agrees that the County shall have the right to transfer the ownership of all "documents" prepared by the Engineer to a third party governmental agency. Such a transfer of ownership will include the conveyance of all rights to use the documents as stipulated in this section. The transfer of ownership and copyrights for the documents to a third party governmental agency (as well as the County) shall in no way relieve the Engineer of their responsibility

for their professional services as specified in Appendix 1, Insurance Requirements.

- R. Notwithstanding anything to the contrary all such drawings, plans, maps, photographs, data, and copies have been prepared for the exclusive use of County and are intended for use as an integrated set for this particular project and are not suited for partial use on this project or for use in whole or in part on any other project. Modification or use of said documents on this or any other project without Engineer's prior express written consent shall be at County's sole risk. The Engineer agrees that the contract with the County shall be governed by the statutes and regulations of the Commonwealth of Virginia, including, but not limited to VA Code Ann. Section 54.1-404 ("Regulations; code of professional practice and conduct") and Title 18 VAC 10-20-740 ("professional responsibility").
- S. **Purchase of Building Materials:** The purchase of building materials, etc., from an Architect or Engineer is prohibited. The following provisions are applicable to this requirement:
1. No building material, supplies, or equipment from any building or structure constructed by or for the County shall be sold or purchased from any person employed as an independent contractor by the County to furnish architectural or engineering services, but not construction, for such building or structure; or from any partnership, association or corporation in which such architect or engineer has a personal interest as defined in Section 2.1-639.2 of the Code of Virginia.
 2. No building material, supplies, or equipment for any building or structure constructed by or for the County shall be sold or purchased from any person that has provided or currently providing design services specifying a sole source of material, supplies, or equipment to be used in such building or structure to the independent contractor employed by the County to furnish architectural or engineering services in which such person has a personal interest as defined in Section 2.1-639.2 of the Code of Virginia.
- T. **Drug Free Workplace:** During the performance of a contract, the Engineer agrees to (i) provide a drug-free workplace for the Engineer's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Engineer's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Engineer that the Engineer maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor. For the

purposes of this section, “drug-free workplace” means a site for the performance of work done in conjunction with a specific contract awarded to an Engineer, the employees of who are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

- U. **County Living Wage:** Fairfax County is committed to paying a living wage to all qualified County employees and encourages contractors and subcontractors involved in all County programs, services and activities to pay a living wage to their employees.
- V. **Force Majeure:** The respective duties and obligations of the parts hereunder (except the Owner's obligation to pay the Engineer such sums as may become due from time to time for services rendered by it) shall be suspended while and so long as performance thereto is prevented or impeded by strikes, disturbances, riots, fire, severe weather, government action, war acts, acts of God, acts of the Owner, or any other cause similar or dissimilar to the foregoing which are beyond the reasonable control of the party from whom the affected performance was due.
- W. **Asbestos or Hazardous Substances:** If the Engineer encounters hazardous substances in any form at the site, or reasonably believes that hazardous substances are present, the Engineer will stop his work in the affected portions of the Project and notify the Owner for authorization to conduct testing to determine the extent of the problem and recommend the necessary remedial measures to be implemented.

If the Engineer encounters asbestos at the site, or reasonably suspects asbestos is present, the Engineer will stop his work in the affected portions of the Project and notify the Owner for authorization to manage testing to determine the extent of the problem and the asbestos assessment activities using a qualified subcontractor.

The scope of work and costs associated with testing, evaluation and remedial measures associated with asbestos and/or hazardous material remediation are not included in the payment/compensation procedures of this document, the term of the agreement and the Engineer's compensation shall be adjusted equitably to accommodate such testing, evaluation and remedial measures.

- X. **Engineer's Personnel at Project Site:** The presence of the Engineer's personnel at a project site, whether as on-site representatives or otherwise, does not make the Engineer or the Engineer's personnel in any way responsible for those duties that belong to the Owner and/or other entities. The Engineer is completely responsible for their employees in connection with their work or for any health or safety precautions and for inspecting or correcting the health or safety deficiencies of the Engineer's own personnel. This includes, but is not limited to, the provision of the necessary personal protection equipment (hard hats, work shoes, safety vests, etc.), and training (confined spaces, open trench safety, etc.) for on-site safety as required or recommended by the Occupational Safety and

Health Administration. The Engineer assumes all responsibility and liability for any injuries incurred by their employees on or off the Project site. The presence of the Engineer's personnel at a project site is for the purpose of determining the integrity of the design provided to the County and is acceptable and in accordance with current design and safety standards.

- Y. **Safety Provision:** All work performed under the contract by the Engineer and all subconsultants will conform to this section and adhere to the current Occupational Safety and Health Administration (OSHA) and Virginia Occupational Safety and Health Administration (VOSH) Standards. The Engineer shall ensure that all personnel performing work in or adjacent to, locations subject to vehicular traffic receive appropriate training, including periodic update refresher courses, and comply with all current requirements for “Work Zone Training (WRZ) and “Work Zone Traffic Control (WZTC).”

The Engineer agrees to incorporate an ongoing work safety program for all new and existing employees working on this contract. All personnel with the limits of Fairfax County contract work are required to wear appropriate clothing and Personal Protective Equipment (PPE) including but not limited to hard hats, safety shoes, high visibility vests and eye protection as appropriate. The Engineer agrees to notify Fairfax County in writing within five working days of receipt of any safety violation involving work on the County’s project.

- Z. **Goods and Services Provided to Fairfax County:** The Engineer agrees that the goods and/or services provided to Fairfax County pursuant to this contract are for the benefit of Fairfax County and that Engineer shall not undertake any actions or efforts stemming from or related to the contract that shall inure to the detriment of Fairfax County. Any information provided to the Engineer for the performance of this contract shall not be used for any other purpose without the written consent of Fairfax County.

2. **For Housing and Community Development Projects, the Following Supplemental Terms and Conditions are Applicable and Shall be Adhered to:**

- A. **Equal Employment Opportunity:** During the performance of the contract, the Consultant agrees to comply fully with Title VI of the Civil Rights Act of 1964 (PL88 352); Title VIII of the Civil Rights Act of 1968 (PL90 284); Section 109 of the Housing and Community Development Act of 1974; Chapter 11, Human Rights, of the Code of the County of Fairfax, Virginia, and all other federal civil rights and equal opportunity regulations.
- B. **Audit:** The Consultant shall maintain adequate records in such a manner that they may be audited within five years of completion of the study. A simple ledger sheet showing disbursement by line item is preferred.
- C. **Federal Community Development Block Grants:** In accordance with the Federal Community Development Block Grant regulations:

- 1 No employee, officer or agent of Fairfax County shall participate in selection or in the award or administration of a contract supported by Federal funds if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when:
 - a. The employee, officer, or agent;
 - b. Any member of his immediate family;
 - c. His or her partner; or
 - d. Any organization which employs, or is about to employ, any of the above, has a financial or other interest in the firm selected for award.

NOTE: The provisions contained in this Engineering Proposal Document, and any modifications indicated in the letter requesting the proposal are not to be retyped as part of your proposal. However, the Engineering Proposal Document, and the accompanying letter requesting the proposal, must be referenced in, and included as, an attachment to your proposal.

APPENDIX 1 INSURANCE REQUIREMENTS

- A. The Engineer shall be responsible for their professional services.

The Engineer assumes all risk of damage or injury to its property or persons employed by the firm or in connection with the work contracted for, and of all damage or injury to any person or property, resulting from the Engineer's errors, omissions, or negligent act(s).

- B. The Engineer shall, during the continuance of all work under the Contract, provide the following (Note: Item B.3 - B.8 shall apply to both engineering design & engineering study contracts):

1. Engineering Design Contracts:

- a. Maintain statutory Workers' Commercial and Employer's Liability insurance in limits of not less than \$100,000 to protect the Engineer from liability or damages for any injuries (including death and disability) of its employees, including liability or damage, which may arise by virtue of statute or law in force within the Commonwealth of Virginia.
- b. The Engineer agrees to maintain Commercial General Liability insurance to protect the Engineer, and the interest of the County, its officers and employees against any and all injuries to third parties, including bodily injury and personal injury. The General Liability insurance shall also include the Broad Form Property Damage endorsement, in addition to coverage for explosion, collapse, and underground hazards, where required. Completed operations liability endorsement shall continue in force for three years following completion of the construction of the project. The limits of the Commercial General Liability insurance shall be as follows:

Contracts under \$1,000,000 in construction value	\$500,000 per occurrence/aggregate
Contracts over \$1,000,000 in construction value	\$1,000,000 per occurrence/aggregate

- c. The Engineer agrees to maintain owned, non-owned, and hired Automobile Liability insurance including property damage, covering all owned, non-owned, borrowed, leased, or rented vehicles operated by the Engineer. In addition, all mobile equipment used by the Engineer in connection with the contracted work, will be insured under either a standard Automobile Liability policy, or a Comprehensive General Liability policy. The Garage Keeper's Liability coverage shall also be

maintained where appropriate. The limits of the Automobile Liability insurance shall be as follows:

Contracts under \$1,000,000 in construction value	\$500,000 per occurrence/aggregate
Contracts over \$1,000,000 in construction value	\$1,000,000 per occurrence/aggregate

- d. The Engineering firm agrees to maintain Professional Liability insurance in the limits of \$500,000 per occurrence/aggregate per year unless otherwise specified by the County (see attached Matrix for E&O Coverage for contracts with a construction value of \$1,000,000 or more). This coverage shall continue in force for three years following completion of construction of the project. In the event that the coverage in effect upon execution of this contract is terminated for any reason prior to the third year after completion of construction of the project, the Engineer agrees to initiate new coverage equivalent to \$500,000 per occurrence/aggregate per year. Any such new coverage will contain a provision which provides Prior Acts coverage to protect the Engineer from claims caused by errors, omissions, or negligent acts which occurred during the time frame the Engineers' liability was covered by the former insurance carrier.
- e. The Engineering firm agrees to accept liability for and bear the costs of change orders to the construction contract caused by errors and omissions whose cumulative cost to the County exceeds two percent of the construction value. Cost of omissions will be limited to costs in excess of the bid amount had the omitted item been included in the bid.

2. Engineering Study Contracts

- a. Maintain statutory Workers' Compensation and Employer's Liability insurance in limits of not less than \$100,000 to protect the Engineer from liability or damages for any injuries (including death and disability) of its employees, including liability or damage which may arise by virtue of statute or law in force within the Commonwealth of Virginia.
- b. The Engineer agrees to maintain Commercial General Liability insurance to protect the Engineer and the interest of the County, its officers and employees against any and all injuries to third parties, including bodily injury and personal injury. The General Liability insurance shall also include the Broad Form Property Damage endorsement, in addition to coverage for explosion, collapse, and underground hazards, where required. The limits of the Commercial General Liability insurance shall be \$500,000 per occurrence/aggregate.

- c. The Engineer agrees to maintain owned, non-owned, and hired Automobile Liability Insurance including property damage, covering all owned, non-owned, borrowed, leased, or rented vehicles operated by the Engineer. In addition, all mobile equipment used by the Engineer in connection with the contracted work will be insured under either a standard Automobile Liability policy or a Commercial General Liability policy. The limits of the automobile Liability insurance shall be \$500,000 per occurrence/aggregate.
- d. The Engineering firm agrees to maintain Professional Liability Insurance in the limits of \$200,000 per occurrence/aggregate per year. In the event that the coverage in effect upon execution of this contract is terminated for any reason prior to the third year after completion of this contract, the Engineer agrees to initiate new coverage equivalent to \$200,000 per occurrence/aggregate per year.
- e. Any such new coverage will contain a provision, which provides Prior Acts coverage to protect the Engineer from claims caused by errors, omissions, or negligent acts which occurred during the time frame the Engineers' liability was covered by the former insurance carrier.

3. Liability Insurance "Claims Made" basis:

If the liability insurance purchased by the contractor has been issued on a "claims made" basis, the Engineer must comply with the following additional conditions. The limits of liability and the extensions to be included as described previously in these provisions, remain the same. The Engineer must either:

- a. Agree to provide certificates of insurance evidencing the above coverage for a period of two years after final payment for the professional service contract. This certificate shall evidence a "retroactive date" no later than the beginning of the contractor's or sub contractor's work under this contract, or
 - b. Purchase the extended reporting period endorsement for the policy or policies in force during the term of this contract and evidence the purchase of this extended reporting period endorsement by means of a certificate of insurance or a copy of the endorsement itself.
4. Liability insurance may be arranged by General Liability and Automobile Liability policies for the full limits required, or by a combination of underlying Liability policies for lesser limits with the remaining limits provided by an Excess or Umbrella Liability policy.

- a. The Engineer agrees to provide insurance issued by companies admitted with the Commonwealth of Virginia, with the Best's Key Rating of at least A: VI.
 - b. European markets including those based in London, and the domestic surplus lines markets that operate on a non-admitted basis are exempt from this requirement provided that the contractor's broker can provide financial data to establish that a market is equal to or exceeds the Financial Strength's associated with A.M. Best's rating of A: VI or better.
 - c. Hold Harmless and Indemnification: Shall be provided as set forth in the Terms and Conditions.
5. The Engineer will provide an original, signed Certificate of Insurance and such endorsements as prescribed herein.
6. The Engineer will secure and maintain all insurance certificates of its sub-consultants which shall be made available to the County on demand.
7. The Engineer will provide on demand certified copies of all insurance policies related to the Contract within ten business days of demand by the County. These certified copies will be sent to the County from the Engineer's insurance agent or representative.
- C. No change, cancellation, or non-renewal shall be made in any insurance coverage without a 45 day written notice to the County. The Engineer shall furnish a new certificate prior to any change or cancellation date. The failure of the Engineer to deliver a new and valid certificate will result in suspension of all payments until the new certificate is furnished.
- D. Compliance by the Engineer and all sub-consultants with the foregoing requirements as to carrying insurance shall not relieve the engineer and all subcontractors of their liabilities provisions of the Contract.
- E. Contractual and other Liability insurance provided under this Contract shall not contain a supervision, inspection or engineering services exclusion that would preclude the County from supervising and/or inspecting the project as to the end result.
- F. Nothing contained in the specifications shall be construed as creating any contractual relationship between any sub-consultants and the County. The Engineer shall be as fully responsible to the County for the acts and omissions of the sub-consultants and of persons employed by them as it is for acts and omissions of person directly employed by it.
- G. Precaution shall be exercised at all times for the protection of persons (including employees) and property under their control.

- H. The Engineer and all sub-consultants are to comply with the Occupational Safety and Health Act of 1970, Public Law 91 956, as it may apply to this Contract.
- I. The County, its employees and officers shall be named as an "additional insured" on the Automobile and General Liability policies and it shall be stated on the Insurance Certificate with the provision that this coverage "is primary to all other coverage the County may possess."
- J. If an "ACORD" Insurance Certificate form is used by the engineer's insurance agent, the words, "endeavor to" and "... but failure to mail such notice shall impose no obligation or liability of any kind upon the company" in the "Cancellation" paragraph of the form shall be deleted or crossed out.

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ENGINEERING PROPOSAL DOCUMENT

MATRIX FOR E&O COVERAGES

Construction Value	High Risk*	Medium Risk**	Low Risk***
Over \$10M Value (CV)	10% of Constr. Value (CV)	7 1/2% of Constr. Value (CV)	5% of Constr. Value (CV)
\$5M \$10M	10% of CV	7 1/2% of CV	5% of CV
\$1M \$5M	10% of CV or \$200,000 which ever greater	7 1/2% of CV or \$200,000 which ever greater	5% of CV or \$200,000 which ever greater
\$100,000 \$1M	\$500,000	\$500,000	\$500,000
Less than \$100,000	\$200,000	\$200,000	\$200,000

* High Risk: Bridges, parking garages (3 or more levels), office buildings (3 or more levels), structures requiring extensive geotechnical analysis and foundation design, large special use facilities such a recreational facilities with a pool, wastewater treatment plant systems, wastewater and stormwater pump stations, dams.

** Medium Risk: Road Projects, local jails, large office use facilities or less than three levels, medium public use facilities such as libraries, medium special use facilities such as police and fire and rescue stations, storm and sanitary sewers, stormwater detention systems, rehabilitation of facilities involving HVAC, mechanical and electrical systems.

*** Low Risk: Residential projects, low public use facilities such as wildlife reserves, channel improvements, rip rap stabilization, trails, small culvert systems, sidewalks.

APPENDIX 2
FAIRFAX COUNTY
DEPARTMENT OF PUBLIC WORKS AND ENVIRONMENTAL SERVICES
AND FAIRFAX COUNTY DEPARTMENT OF TRANSPORTATION
DESIGN CONTRACT COMPENSATION PROCEDURES
Effective: April 1, 2015

A. General: Compensation for design contracts will be quantified and negotiated in terms of component costs and documented on the attached Consultant Total Price Summary sheet (Exhibit A). Compensation for Design contracts may be negotiated and computed on a Lump Sum, Cost-Plus-Fixed-Fee, or Fixed Billable Rate Not-to-Exceed basis. The preferred method is Lump Sum. In some cases, multiple methods may be utilized to cover work under a specific project or a specific task order under a Basic Ordering Agreement contract. In some instances, it may be difficult to estimate the amount of effort needed to complete specific or unique tasks or even if a specific task will be necessary or required. In these instances, it is recommended that known quantifiable basic services be negotiated on a lump sum basis and indeterminate or unique tasks be negotiated on a lump sum per each or fixed-billable rate not-to-exceed basis as deemed appropriate by the DPWES/FCDOT Project Manager (See Allowances, paragraph B.4.). The Contracting Officer must approve in writing the use of any Cost-Plus-Fixed-Fee contract prior to the start of negotiations. The use of Fixed Billable Rate Not-to-Exceed should be generally limited to portions of work within a Lump Sum contract that are difficult to define or scope at the time of negotiations.

B. A Summary of Negotiations prepared by the Department of Public Works and Environmental Services (DPWES) and/or Department of Transportation (FCDOT) Project Manager will accompany this form. The following procedures describe individual component costs and how each is to be handled and documented by the contract negotiator:

1. Direct Labor - Block 1

a. Notice of Labor Classification Schedule/Certified Wage Rates
After A/E selection, but prior to the start of negotiations, the A/E and its subconsultants must provide a Notice of Labor Classification Schedule showing their labor classifications and the average hourly rates which may be paid for each classification or specialty area expected to work on the project. Such notice will be provided and signed by an officer of the prime A/E and each subconsultant (Exhibit B) having contract signature authority. Typically, this schedule will not disclose employee names with the exception of key project staff (project principal, project manager, specialized technical experts, etc.). Average hourly wage rates may be used for broad labor categories (general engineer, technicians, etc.) however, actual wage rates should be used to the extent practicable for key project specific staff. The prime and each subconsultant shall document all personnel by classification and/or specialty and shall not show the same personnel under multiple classifications and/or specialty areas unless otherwise approved by DPWES/FCDOT.

b. Direct Labor costs are defined as actual salaries and wages paid principals and employees for time directly chargeable to the project. Direct Labor costs do not include fringe benefits such as social security contributions, unemployment, excise and payroll taxes, workmen's compensation, health and retirement benefits, sick leave, vacation, holiday pay, etc.

c. Estimated person-hours by task and/or sub-task and for each classification and/or specialty will be negotiated based on the scope of work and clarifications to the scope of work which typically occur during the early part of negotiations. Highlights of this negotiation will be documented in the Summary of Negotiation as part of the Fee Evaluation Form or in a separate memorandum. The Summary of Negotiation should include the A/E's initial person-hours proposed along with any significant clarifications and/or modifications to the scope of work, and final number of person-hours per labor classification.

d. Include in Block 1 the total estimated person hours, by classification/specialty area. In addition, estimated person hours by classification shall be provided on separate sheets detailing the effort required to complete individual tasks and/or sub-tasks required to complete the project in accordance with the scope of work.

e. Escalation/Salary Increases:

1) Basic Ordering Agreements (BOA)

a. Salary Escalation is typically not permitted on Task Order assignments under BOA contracts. All Task Orders negotiated and initiated during a given contract calendar year shall utilize the approved average salary rate(s) for each classification for the given contract calendar year for the duration of the Task Order. In cases where the task order will be executed over a multi-year duration, wage escalation may be considered if documented within the original task order proposal. Salary escalation may also be considered if a Task Order is formally amended a year or more after the original authorization, in which case Direct Labor costs shall be calculated using the average contract year wage rates per the most recent contract renewal. Any salary increases considered should be in keeping with industry averages and are subject to negotiation. Any salary escalation included must be documented in the Record of Negotiations.

b. Salary Escalation will be permitted under BOA's at each annual renewal. At each annual renewal, the prime and all subconsultants shall resubmit a certified Notice of Labor Classification Schedule as noted in paragraph B.1.a., above. The rate of salary escalation will be reviewed by the DPWES/FCDOT Project Manager and is subject to negotiation. Annual renewal salary increases should be in keeping with industry averages, and are subject to negotiation.

Any salary escalation included must be documented in the Record of Negotiations.

2) Standalone Projects

- a. Total salary escalation, if allowed by DPWES/FCDOT, shall be documented in Block 1.A. Yearly escalation rates for VDOT/Federally funded projects shall be computed utilizing VDOT approved yearly escalation rates at the time of contract negotiation. For VDOT or Federally funded projects (including Locally Administered Projects (LAP's)), the DPWES/FCDOT Project Manager shall review any proposed escalation rates for conformance with current VDOT policy prior to beginning contract negotiations. The prime and each subconsultant shall provide a breakdown of estimated person hour utilization for each contract calendar year, by task and/or sub-task and by labor classification and provide supporting computations of the resulting direct labor escalation costs. Any salary escalation included must be documented in the Summary of Negotiations.

2. Indirect Costs (Overhead) - Block 2

- a. After selection, but prior to the start of negotiations, the A/E and its subconsultants (required for all subcontracts greater than \$20,000 in value) shall provide an audit of their overhead expenses covering the most recent 12-month period and a resultant overhead rate. The DPWES/FCDOT Project Manager should request overhead information from the A/E that was prepared and audited in accordance with Federal Acquisition Regulations (FAR Part 31), if available. Ideally, this audit will have been prepared by a federal, state, or local government agency. Acceptability of this overhead rate will be documented in the Summary of Negotiations. FCDOT will accept the latest VDOT approved audited overhead rate letter as documentation to satisfy this requirement. In the absence of such an audit, the A/E and its subconsultants or their Certified Public Accountant (CPA) firm must prepare and submit "provisional" overhead expenses covering the last 12 month business year. A non-binding overhead rate will be derived by the A/E or the CPA as a ratio of overhead expenses to direct labor. The provisional overhead rate and the overhead expenses upon which the rate is developed will be prepared in accordance with generally accepted accounting principles and practices. An officer of the prime A/E firm and each subconsultant preparing such data will certify that the overhead information is complete, current, and accurate as of the date submitted. Overhead data and rates prepared by a CPA will be supported by a standard CPA certification. The contract negotiator will advise the A/E that the provisional overhead rate is subject to County audit and adjustment and that this stipulation is a part of the contract. If the certified overhead expenses are determined by the County not to have been complete, current, and accurate as of the date certified, then the A/E is liable for recoupment by the County up to three years after completion of the design contract. When contracts and/or task orders are expected to exceed \$100,000 in value, the contract

negotiator should transmit the A/E's overhead data to Office of Internal Audit for review, especially in cases where a non-audited rate has been submitted. That office will validate allowable expenses via either audit or clarification of questionable expenses.

b. Overhead expenses shall include fringe benefits, indirect salaries and wages, plus general and administrative expenses. Since overhead expenses are based on historical data, indirect salaries which are identified as an overhead expense must be scrutinized to assure no duplication with direct labor costs proposed by the A/E in the contract being negotiated. For example, if indirect salary costs are identified as overhead for the past 12 months business year and the A/E also proposes direct costs involving secretarial, administrative, principal time, etc., in the contract being negotiated, then a possible duplication exists. The negotiator must eliminate such duplication and document same in the Summary of Negotiation. Whenever possible, indirect salaries such as secretarial and administrative should be eliminated or minimized as an overhead expense and the projected cost of such labor should be identified in Block One as a Direct Labor Cost.

c. Overhead expenses shall not include the following disallowable costs: Bad debts, contingencies (unless actually expended during the past 12 months business year, and if so, the specific expenditure(s) must be identified), donations, entertainment, fines and penalties, interest expense, marketing and promotion, legislative lobbying costs, defense of fraud, alcoholic beverages, and dividend distribution to employees. However, bonuses are generally allowed (contact Internal Audit to verify the acceptability of specific bonuses). Indirect salaries must be salaries paid only to active employees and principals. During negotiations, the A/E will be advised of the above disallowables.

d. For County/Locally Funded projects, including most task orders under BOA contracts, it should be noted that when the allowable overhead rate is so high that the compensation factor (multiplier) exceeds 3.00, such rate typically should not be utilized. For example, given an allowable overhead rate of 1.80 and a profit of 10%, yields a compensation factor of 3.08 as follows:

Direct Labor	1.00
Overhead	<u>+1.80</u>
	2.80
Profit	X <u>.10%</u>
	.28
	<u>+2.80</u> (Direct Labor + Overhead)
	3.08 (Direct Labor + Overhead + Profit)

In this example, the compensation factor is 3.08; overhead and/or profit can be negotiated at the discretion of the contract negotiator to reduce the compensation factor to 3.00. Based upon the above example and utilizing a 10% profit, the maximum allowable overhead rate would be 172.73%.

e. For federally funded projects, the actual FAR audited overhead rate shall be utilized to compute the indirect costs even if the rate is in excess of 172.73%. However, if the overhead rate and profit is such that it results in an overall compensation factor in excess of 3.00, then the profit or fixed-fee portion of the contract shall be adjusted as noted paragraph 3.b.

f. The estimated cost of overhead will be developed by multiplying the single overhead rate by the total estimated cost of Direct Labor in Block One. Acceptability of A/E's overhead rate and/or efforts expended by the contract negotiator and/or the County Auditor to validate the overhead rate will be documented in the Summary of Negotiations.

3. Profit/Fixed-Fee - Block 3

a. The profit or Fixed-Fee for A/E contracts, including all subconsultants, shall be no more than 10% unless the consultant tasks are of unusual difficulty or have a high degree of risk. Profit above 10% requires approval by the Director of FCDOT or the Deputy Director of DPWES (Contracting Officer).

b. On federally funded projects, including Locally Administered Projects (LAP's), the profit or fixed-fee portion of the contract shall be computed based upon a maximum overhead rate of 156%. This maximum rate may change over time but in no case shall exceed the rates established under VDOT approved contract compensation policies and procedures. During negotiations, the FCDOT/DPWES Project Manager should coordinate with VDOT staff to determine the allowable overhead rate to be utilized to calculate profit and/or fixed-fee.

c. All provisions related to Profit/Fixed-Fee computation shall also apply to all subconsultant contracts.

4. Allowances – Block 4

a. When it is difficult to estimate the amount of effort required to complete a specific task or sub-task, or to determine if a specific task will be required, it is advisable to establish an estimated cost to complete the task separate from the basic services. The costs associated with these tasks are deemed Allowances and shall only be utilized upon written authorization of the DPWES/FCDOT Project Manager. Fee computations for Allowances can be negotiated on a Lump Sum, Cost-Plus-Fixed-Fee and/or Fixed Billable Rate Not-to-Exceed Basis. Some common examples of tasks that may be set up in this manner and the typical method of fee computation include:

- i. Project Plats – Lump Sum per each plat
- ii. Meetings - Lump Sum per each

- iii. Citizen Information Meetings (CIM)/Public Hearings – Lump Sum per each, Fixed Billable Rate Not-to Exceed
- iv. Retaining Wall Design (VDOT Standard or Specialized) – Lump Sum, Fixed Billable Rate Not-to Exceed

b. The determination of which tasks shall be deemed Allowance items and the manner in which the costs are computed shall be agreed upon by the DPWES/FCDOT Project Manager and the consultant during negotiations and noted in the Summary of Negotiations. A separate Consultant Fee computation form and/or a detailed breakdown of the estimated person-hours by classification, indirect costs, and other direct costs shall be developed by the consultant for each task determined to be an Allowance.

c. The total estimated cost for each Allowance item shall be identified on the Consultant Total Price Summary in Block 4. Supporting computations for each Allowance item shall be attached. Where reasonable and as agreed during negotiations, each Allowance item and associated costs may be rounded off.

5. Facilities Cost of Capital (FCC): Block 4a

a. Fairfax County does not pay FCC on projects that are wholly funded by the County. FCC cost will not be allowed and said costs shall not be included in the Consultant Price Summary computations for these projects.

b. For LAP and other federally funded projects, FCC cost will be allowed in the Consultant Price Summary computation provided an approved FCC rate is included in the annual FAR audited overhead letter from VDOT. In the absence of a VDOT approved FCC rate, then FCC costs will not be allowed and costs shall not be included in the Consultant Price Summary computations.

6. Other Direct Costs - Block 5

a. Travel: The costs of travel and transportation (County mileage rates) will be entered in Blocks 5a (1) and (2). These items will be broken down into separate costs and rates associated with each item (i.e., mileage rates, airfare cost, vehicle rental fees, lodging and/or meal rates, County per diem, etc.). Lodging and/or meal rates shall be consistent with the County's current Travel Policy in effect at the time of negotiations.

b. Equipment, Materials, & Supplies: Block 5b - Typically, these items involve reproduction costs, computer time-sharing, computer hardware and/or software if purchased specifically for the project, and any other items purchased exclusively to complete the project. If computer time (per hour cost) is included as a Direct Cost, the consultant shall have the means to document computer usage on a per project/task order basis and said usage costs shall not be included in the FAR audited overhead computation rate.

- c. Subcontracts: Block 5c - All subcontracts will be identified in Block 5c to include the total cost for each. A separate Price Summary Sheet will be documented and attached for each subcontract with a cost greater than \$20,000.
- d. Other: Block 5d - Any other direct costs not listed in Paragraphs 5a, b, or c shall be identified in this block.

7. Contingency: Block 6

- a. On all contracts and task orders, unless otherwise directed by Fairfax County, the consultant shall include a 10% contingency to cover any unanticipated increases or changes in scope of work that may arise as the project progresses. Contingency costs shall be computed by adding all Direct Costs (Labor), Indirect Costs (Overhead), and Allowances (if any), rounding the total to the nearest \$100 or as directed by Fairfax County (see paragraph 8), and then multiplying the sum by 10%. Other Direct Costs (printing, travel, etc.), FCC, and subconsultant costs shall NOT be included in the computation of Contingency costs.
- b. Subconsultants (fee greater than \$20,000) shall prepare their own Price Summary sheet and may include allowable Contingency in their fee computation. Subconsultant costs, including associated contingency, shall be shown on the Prime's Price Summary sheet in Block 5c.
- c. Any contingency amounts shall only be released/spent/utilized upon written authorization of Fairfax County. Contingency funds may be released in whole or in part at various stages of project execution.

8. Total Price - Block 7 is the summation of Blocks 1, 2, 3, 4, 4a, 5a, b, c, d and 6.

- a. Rounding of Contract Values
 - i. It is the policy of Fairfax County to round off Contingency costs and all Total Contract prices. After summation of all costs in Blocks 1, 2, 3, 4, 4a, 5a, b, c, d, the consultant shall round this sub-total amount up to the nearest \$100 or as directed by the Fairfax County and then add the Contingency shown in Block 6. Enter the rounded value in Block 7a.

C. The certification and audit clauses shown at Exhibit C must be incorporated into each contract. These clauses are in addition to the certified Notice of Labor Classification and overhead data which the A/E provides prior to the start of contract negotiations.

D. Component costs for AIA contracts will be quantified and documented as described above on both the attached Price Summary Sheet and the Summary of Negotiation. Billable rates for use in AIA contracts may be derived from these component costs; however, the methodology used shall be documented in the Summary of Negotiation.

E. The Summary of Negotiation will be signed by the contract negotiator and approved by the appropriate Section Chief, Division Chief, and Director.

(Remainder of page intentionally left blank)

FCDOT Engineering Proposal Document for Transportation Design Projects
EXHIBIT A – CONSULTANT TOTAL PRICE SUMMARY

EXHIBIT - A
CONSULTANT TOTAL PRICE SUMMARY

1. DIRECT LABOR (Specify labor categories)	Estimated HOURS	HOURLY RATE	ESTIMATED COST	TOTALS
DIRECT LABOR SUB-TOTAL				\$
A. Escalation (provide supporting documentation/calculations)				\$
DIRECT LABOR TOTAL				\$
2. INDIRECT COSTS (SPECIFY INDIRECT COST POOLS)	RATE	X BASE =	ESTIMATED COST	
	\$		\$	
DIRECT COST TOTAL				\$
3. PROFIT (BLOCKS 1 & 2) X %				\$
4. ALLOWANCES				
a. Facilities Cost Of Capital (FCC)				
b.				
5. OTHER DIRECT COSTS				
a. TRAVEL (check current County Travel Policy)			ESTIMATED COST	
(1) TRANSPORTATION			\$	
(2) PER DIEM			\$	
TRAVEL SUBTOTAL			\$	
b. EQUIPMENT, MATERIALS, SUPPLIES (Specify categories)	QTY	COST	ESTIMATED COST	
		\$	\$	
EQUIPMENT SUBTOTAL			\$	
c. SUBCONTRACTS			ESTIMATED COST	
SUBCONTRACTS SUBTOTAL				
d. OTHER (Specify categories)			ESTIMATED COST	
			\$	
OTHER SUBTOTALS			\$	
OTHER DIRECT COSTS TOTAL				\$
6. CONTINGENCY				
TOTAL PRICE				\$

FCDOT Engineering Proposal Document for Transportation Design Projects
EXHIBIT A-1 – SUBCONSULTANT TOTAL PRICE SUMMARY

EXHIBIT – A-1
SUBCONSULTANT TOTAL PRICE SUMMARY

1. DIRECT LABOR (Specify labor categories)	Estimated HOURS	HOURLY RATE	ESTIMATED COST	TOTALS
DIRECT LABOR SUB-TOTAL				\$
A. Escalation (provide supporting documentation/calculations)				\$
DIRECT LABOR TOTAL				\$
2. INDIRECT COSTS (SPECIFY INDIRECT COST POOLS)	RATE	X BASE =	ESTIMATED COST	
	\$		\$	
DIRECT COST TOTAL				\$
3. PROFIT (BLOCKS 1 & 2) X %				\$
4. ALLOWANCES				
a. Facilities Cost Of Capital (FCC)				
b.				
5. OTHER DIRECT COSTS				
a. TRAVEL (check current County Travel Policy)			ESTIMATED COST	
(1) TRANSPORTATION			\$	
(2) PER DIEM			\$	
TRAVEL SUBTOTAL			\$	
b. EQUIPMENT, MATERIALS, SUPPLIES (Specify categories)	QTY	COST	ESTIMATED COST	
		\$	\$	
EQUIPMENT SUBTOTAL			\$	
c. SUBCONTRACTS			ESTIMATED COST	
SUBCONTRACTS SUBTOTAL				
d. OTHER (Specify categories)			ESTIMATED COST	
			\$	
OTHER SUBTOTALS			\$	
OTHER DIRECT COSTS TOTAL				\$
6. CONTINGENCY				
TOTAL PRICE				\$

EXHIBIT B (EXAMPLE)
NOTICE OF LABOR CLASSIFICATION SCHEDULE/CERTIFIED WAGE RATES

<u>Classification</u>	<u>Average of Rates</u>
Principal	_____
Senior Associate	_____
Associate	_____
Project Manager	_____
Civil Engineer	_____
Drafter	_____

I _____, Vice President of _____ certify that the above wage rates are complete, current, and accurate as of the date submitted.

<u>Proposal Hourly Rates</u>	
Principal	_____
Senior Associate	_____
Associate	_____
Project Manager	_____
Civil Engineer	_____
Drafter	_____

EXHIBIT C

CERTIFICATION:

The Architect/Engineer certifies that the cost and pricing data submitted to Fairfax County for the purpose of establishing equitable costs and fees under this contract are complete, current, and accurate as of the date of such submittal. If this cost and pricing data is determined by Fairfax County at some future date not to have been complete, current, and accurate as of the date above, the contract price may be subject to adjustment and/or recoupment as determined by Fairfax County.

AUDITING:

In-progress and post-auditing may be performed by the appropriate agency of the County of its agent. Post-auditing, if any, shall be completed within three years of final payment.

EXHIBIT D

STORMWATER MANAGEMENT PLAN COMPLETENESS CHECKLIST

Per the Fairfax County Stormwater Management Ordinance (SWMO) §124-2-9.A.1, the applicant shall be notified within 15 calendar days of whether the stormwater management (SWM) plan is deemed complete. This checklist is used to determine whether the SWM plan is complete and is accepted for review. Compliance with these listed items does not ensure plan approval.

☐ **This project is exempt from the SWMO**

Specify the subsection of §124-1-7 as justification for exemption:-

Project Name: _____

Submission Date: _____

Plan Number: _____

Magisterial

District: _____

Submitting Firm & Address:

Project Coordinator: _____ **Email:** _____ **Phone:** _____

Line	Description Outfall Analysis with Narrative to include:	Code Reference	Sheet No.	Yes	N/A
1	<ul style="list-style-type: none"> Descriptions at each outfall from the site the type and location of stormwater discharges of both concentrated flows and non-concentrated flows 	§124-2-7.B.1 PFM §6-0204.1			
2	<ul style="list-style-type: none"> Descriptions of downstream receiving water bodies, storm drainage facilities, and areas to which sheet flow is being discharged including an assessment of the condition of these features 	§124-2-7.B.1 PFM §6-0204.1A			
3	<ul style="list-style-type: none"> Descriptions and sketches of the major elements of each outfall drainage system, including any discharges of non-concentrated surface waters from the development site 	PFM §6-0204.1A			
4	<ul style="list-style-type: none"> Predevelopment and post development drainage area maps for each outfall location 	§124-2-7.B.1			
5	<ul style="list-style-type: none"> Downstream review, divided into reaches, as required by PFM §6-0203 	PFM §6-0204.1B			
6	<ul style="list-style-type: none"> Descriptions of the existing surrounding topography, soil types, embankments, vegetation, structures, abutting properties, etc. which may be impacted by drainage 	PFM §6-0204.1B(1)			
7	<ul style="list-style-type: none"> Provide sufficient cross section information, associated graphs, and computations to support the assertion of channel adequacy in accordance with PFM §6-0203.3 	PFM §6-0204.1B(2)			
8	<ul style="list-style-type: none"> For inadequate downstream facilities and where the 	PFM			

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FCDOT Engineering Proposal Document for Transportation Design Projects
EXHIBIT D – STORMWATER MANAGEMENT PLAN COMPLETENESS CHECKLIST

	detention method is used, provide sufficient information to establish the existence of a defined channel or man-made drainage facility and demonstrate at least the minimum required improvement, as described in PFM §6-0203.4A(1)	§6-0204.1B(3)			
9	<ul style="list-style-type: none"> Provide sufficient information to demonstrate that the prevention of flooding of existing dwellings, or buildings constructed under an approved building permit, by the 100 year storm event or that any existing flooding conditions will not be aggravated by drainage from the development site and an improvement is made in accordance with PFM §6-0203.5 	PFM §6-0204.1B(4)			
10	<ul style="list-style-type: none"> Written opinion, certified, signed, and sealed by the submitting licensed professional as to the adequacy of the downstream system 	PFM §6-0204.1B(5)			
11	Contact information, including name, address, telephone number, email address of property owner, and tax map number of the properties affected by the plan	§124-2-7.B.2			
12	Narratives describing pre and post development stormwater conditions and any proffers or conditions relating to stormwater management	§124-2-7.B.3			

Line	Description Stormwater Facility Narrative to include:	Code Reference	Sheet No.	Yes	N/A
13	<ul style="list-style-type: none"> General description of all proposed stormwater management facilities 	§124-2-7.B.4			
14	<ul style="list-style-type: none"> Information on the proposed stormwater management facilities including type of facility, location, geographic coordinates, acres treated, and surface waters into which the facilities will discharge 	§124-2-7.B.5			
15	<ul style="list-style-type: none"> General description of the surface waters / outfalls into which the SWM facilities will discharge 	§124-2-7.B.4			
16	<ul style="list-style-type: none"> Mechanism through which the facilities will be operated and maintained after construction 	§124-2-7.B.4 PFM §6-0402-.8G			
17	Stormwater information on cover sheet filled in	§124-2-7.B.5			

Line	Description Hydraulic and Hydrologic Computations to include:	Code Reference	Sheet No.	Yes	N/A
18	<ul style="list-style-type: none"> Pre and post development runoff computations 	§124-2-7.B.6			
19	<ul style="list-style-type: none"> Inlet computations 	PFM §6-0905			
20	<ul style="list-style-type: none"> Storm drain computations 	PFM §6-1110			
21	<ul style="list-style-type: none"> Open channel computations 	PFM §6-1008			

FCDOT Engineering Proposal Document for Transportation Design Projects
EXHIBIT D – STORMWATER MANAGEMENT PLAN COMPLETENESS CHECKLIST

Line	Description Stormwater Quality and Quantity Compliance Computations (§124-2-7.B.7)	Code Reference	Sheet No.	Yes	N/A
22	<ul style="list-style-type: none"> Water Quality computations 	SWMO Article 4 or Article 5 as applicable PFM §6-0402.8			
23	<ul style="list-style-type: none"> Channel protection computations 	SWMO Article 4 or Article 5 as applicable			
24	<ul style="list-style-type: none"> Flood protection computations 	SWMO Article 4 or Article 5 as applicable			
25	<ul style="list-style-type: none"> Detention computations 	§124-4.4.D			

Line	Description Map of the site showing the following: (§124-2-7.B.8)	Code Reference	Sheet No.	Yes	N/A
26	<ul style="list-style-type: none"> All contributing drainage areas shown 	§124-2-7.B.8.a			
27	<ul style="list-style-type: none"> Existing streams, ponds, culverts, ditches, wetlands, water bodies, RPAs and floodplains 	§124-2-7.B.8.b			
28	<ul style="list-style-type: none"> Soil types and vegetative cover 	§124-2-7.B.8.c			
29	<ul style="list-style-type: none"> Existing land use, existing structure and roads, utilities & easement locations 	§124-2-7.B.8.d			
30	<ul style="list-style-type: none"> Sufficient offsite topography to assess the impacts of stormwater discharges from the site on these parcels, including impacts to downstream structures 	§124-2-7.B.8.e			
31	<ul style="list-style-type: none"> Limits of clearing and grading 	§124-2-7.B.8.f PFM §2-203.1C			
32	<ul style="list-style-type: none"> Proposed on-site drainage patterns 	§124-2-7.B.8.f			
33	<ul style="list-style-type: none"> Proposed buildings, roads, parking areas, utilities, and stormwater management facilities 	§124-2-7.B.8.g			
34	<ul style="list-style-type: none"> Proposed land use with a tabulation of the percentage of surface area to be adapted to various uses, including but not limited to planned location of utilities, roads, and easements 	§124-2-7.B.8.h			
35	Offsite compliance options utilized? (N/A if BMPs are met onsite). Letter of availability from offsite provider when offsite BMPs are used for water quality compliance	§124-2-7.B.9			

Comments:

Note: This checklist must be signed and sealed by the licensed professional preparing the plan and submitting with the plan. Each checklist item must be adequately addressed in the plan for the plan to be deemed complete and acceptable for review.

Professional Sign and Seal:




EXHIBIT E

STORMWATER INFORMATION

HIGH DENSITY POLYETHYLENE (HDPE) USED ON THIS PROJECT YES ☐ NO ☐

THE PLAN MEETS: TIME LIMITS ON APPLICABILITY OF APPROVED DESIGN CRITERIA ☐

SWM FACILITIES (PROPOSED ONLY)

THE PLAN MEETS THE GRANDFATHERING CRITERIA ☐

FACILITY ID NO.	FACILITY TYPE	PURPOSE	AREA TREATED (ACRES)	LATITUDE (DECIMAL DEGREE)	LONGITUDE (DECIMAL DEGREE)	WATERSHED	RECEIVING WATERS	MAINTENANCE AGREEMENT Y/N	VAHU6 CODE	LENGTH/ AREA OF FACILITY	UNIT (FT/ SF)	NO. OF BLDG. SERVED (FOR ROOFTOP DISCONNECT)

VPDES REQUIRED YES ☐ NO ☐

VPDES PERMIT NO. (IF TIME LIMITS):

COUNTY STORMWATER PERMIT REQUIRED YES ☐ NO ☐

SWM FACILITIES DESIGNED USING: TECHNICAL CRITERIA 4 (NEW) ☐

TECHNICAL CRITERIA 5 (OLD) ☐

DISTURBED AREA (DA) WITHIN WATERSHED(S):

WATERSHED 1 DA= (ACRES)

WATERSHED 2 DA= (ACRES)

TOTAL DISTURBED AREA= (ACRES)