

Development Engineering Division

Sketch Plan Checklist

WATER AND SEWER PRELIMINARY CONSTRUCTION PLANS

It is to be signed by the appropriate design professional with the initial document submittal. Subsequent checklist submittals will be at the discretion of the Development Engineering Division. DPZ

I. SUBMISSION DOCUMENTS

- A. Certification Letter from Professional Engineer that the site is included in the Metropolitan District
- B. APFO Study w/Accident Analysis / Multimodal Transportation Study
- C. Sight Distance Analysis w/85th Percentile Speed Study
- D. Preliminary Sketch Plan Stormwater Management Corporation
- E. Environmental Concept Plan with supporting documentation (through ProjectDox)

II. SUBMISSION DOCUMENTS

- A. Standard title and signature blocks (ALL SHEETS)
 - 1. Owner/Developer name, address, and phone number
 - 2. Design Professional name, address, phone number, seal, signature, date
 - 3. Project name, zoning, tax map, election district, street address, parcel no.
 - 4. Permit, file reference numbers, water & sewer contract numbers, etc
- B. Vicinity map requirements (COVER SHEET)
 - 1. Scale 1" = 2000' north arrow shown
 - 2. ADC Map Coordinates
 - 3. Two (2) Howard County Geodetic Coordinates shown and labeled
 - 4. Site delineated
- C. Notes and Information (COVER SHEET)
 - 1. Howard County Standard General Notes for Sketch Plans
 - 2. Site Analysis Data Sheet
 - 3. Legend
 - 4. Sheet Index
 - 5. Design Professional's seal, signature and date
 - 6. Sheets numbered
- E. Topographic Information
 - 1. Onsite existing contours labeled (at no greater an interval than 5') (**Howard County GIS may be used**)
 - 2. Offsite topography shown within 200' of all property lines (**Howard County GIS may be used within 200'**)
 - 3. Existing features, trees, buildings, pavement, utilities, etc., within 200' shown and labeled where appropriate

F. Base Information on Sketch Plan

1. Existing Conditions
 - (a) Streets-existing rights of way, property lines, all easements, pavement width, and street names shown and dimensioned
 - (b) Existing Utilities – water and sewer, contract numbers, existing storm drains with size and material, phone, gas, electric and street lights
2. Proposed conditions
 - (a) Approximate lots show in solid line with lots numbered
 - (b) Approximate floodplain limits shown
 - (c) Approximate wetland limits shown with buffers

III. SKETCH PLAN (Design information included in Sketch Plan set)

A. Roads

1. Show proposed street alignments, right of way widths, pavement widths, horizontal curve radii, speed control devices, cul-de-sacs with radius
2. Show Tee or Y turnaround at terminus of the street
3. Identify deficient intersection spacing and provide justification
4. Provide public right-of-way to adjacent property where required
5. Provide a General Note that any road less than 24' in width will be marked as no parking on both sides. Additionally, any roadway 24' in width will be marked as no parking on one side.

B. Sight Distance Analysis at all intersections with existing roads in accordance with DMV III, (Intersection Sight Distance for Major Collectors and higher. Stopping Sight Distance for Minor Collectors and below) **(Provide in the Sketch Plan set)** Include the following:

1. 85th Percentile Speed Study
2. Intersections/Stopping Sight Distance Analysis (scale 1" – 5'V/50'H or larger)
3. Survey along line of sight (horizontal/vertical obstructions shown)
4. Design Manual Waiver (if necessary) for use of Stopping Sight Distance

IV. APFO STUDY

A. Provide an APFO Traffic Study in conformance with the DMV III requirements:

1. Include Multimodal Transportation Study per requirements of DMV III, Section 5.2.D.
2. Title Page to include:
 - (a) Job Name
 - (b) Owner
 - (c) Design Professional
 - (d) Date prepared
 - (e) Seal and Signature
3. Table of Contents to include:
 - (a) Sections listed
 - (b) Appendix listed
 - (c) Figures and tables listed

3. Narrative to include:
 - (a) Limits of study
 - (b) Trip generation source
 - (c) Vicinal developments included
 - (d) Proposed mitigation
 - (e) Accident analysis
4. Appendix to contain all computations, design charts and relevant data referenced
5. All page numbers referenced in the Table of Contents

V. STORMWATER MANAGEMENT

NOTE:

1. OTHER AGENCIES RESERVE THE RIGHT TO ENFORCE MORE STRINGENT CRITERIA AND SHOULD THEREFORE BE CONSULTED AS TO THEIR ADDITIONAL REQUIREMENTS. THE MORE RESTRICTIVE CRITERIA SHALL GOVERN
2. NUMBERS CONFORM TO FINAL PLAN/SDP PLAN REQUIREMENTS. ITEMS LISTED ARE ONLY THOSE REQUIRED FOR THIS SUBMISSION

A. Hydrology Submission

1. Existing Drainage Area Map
 - (a) Subj-areas shown per Design Manual, Volume I, requirements. Identify study points
 - (b) Subareas include offsite area draining through the property
 - (c) Time of Concentration Paths shown from the hydrologically most distant point in the subarea. Segments are shown as sheet flow (100' maximum length). Concentrated flow and channel flow. Each segment specifies type, length, and slope
 - (d) Existing Tc, RCN, Area (acres) specified for each sub-area
 - (e) Soil types and hydrologic soil groups shown on the map
2. Proposed Drainage Area Map
 - (a) Sub-areas shown per Design Manual, Volume I, requirements. Identify study points
 - (b) Subareas include offsite area draining through the property
 - (c) Time of Concentration Paths shown from the hydrologically most distant point in the subarea. Segments are shown a sheet flow (100' maximum length), concentrated flow and channel flow. Each segment specifies type, length and slope
 - (d) Proposed Tc, RCN, Area (acres) specified for each sub-area
 - (e) Soil types and hydrologic soil groups shown on the map
 - (f) Approximate rough grading contours (5' max. interval) on the map
 - (g) Identify by "clouding" or "shading" area of potential use of stormwater management credits as defined in the MDE SWM Design Manual, Vol I.

4. Hydrology Computations (TR-55 & TR-20 Methods Only)

- (a) Existing RCN (All cropland assumed to be meadow, developed land and other covers in good hydrologic condition only)
- (b) Onsite developed RCN shall be based on the zoning unless Disconnection of Rooftop Runoff or Sheet Flow to Buffer non-structural practices is used within the drainage area.
- (c) Time of concentration computations (sheet flow max. 100 ft.
- (d) Discharge computations
 - (1) 1-year storm managed
 - (2) 10-year storm managed (as required)
 - (3) 100-year storm managed (as required)
 - (4) Provide initial ESD sizing for WQv, Rev, Cpv, Qp and Qf
- (e) BMP Design Methodology

Final design computations considering credits for all proposed structural practices (include credit for non-structural practices):

- (1) Stormwater Management Pong
 - (i) P-1 micropool extended detention pong
 - (ii) P-2 wet pond
 - (iii) P-3 wet extended detention pond
 - (iv) P-4 multiple pond system
 - (v) P-5 pocket pond
- (2) Stormwater Wetlands
 - (i) W-1 shallow wetland
 - (ii) W-2 ED shallow wetland
 - (iii) W-3 pond/wetland system
 - (iv) W-4 pocket wetland
- (3) Infiltration Systems
 - (i) I-1 infiltration trench
 - (ii) I-2 infiltration basin
- (4) Stormwater filtering systems
 - (i) F-1 surface sand filter
 - (ii) F-2 underground sand filter
 - (iii) F-3 perimeter sand filter
 - (iv) F-4 organic filter
 - (v) F-5 pocket sand filter
 - (vi) F-6 bioretention

- (5) Open channel system
 - (i) O-1 dry swale
 - (ii) O-2 wet swale
- (6) Others (must be approved by MDE, DPZ/DED)
- (f) Storage Computations
 - (1) Forebay storage (363 cft. Over impervious surfaces) does not count toward the WQv storage requirement

B. Soils Investigation

- 1. Preliminary geotechnical report from Soil Survey Map (for feasibility) submitted by a design professional giving preliminary conclusions and recommendations based on Volume II of the Stormwater Design Manual, Appendix D.1.

C. N/A

D. Field investigation (Design professional must study the following in the field before starting design)

- 1. Drainage area
- 2. Time of Concentration Paths
- 3. Ground Cover
- 4. Downstream Hazards
- 5. Soil Investigation

E. Report Submission

- 1. Title Page
 - (a) Job Name
 - (b) Owner
 - (c) Design Professional
 - (d) Date Prepared
 - (e) Seal and Signature
- 2. Table of Contents
 - (a) Sections listed
 - (b) Appendix listed
 - (c) Figures & Tables listed
- 3. Narrative
 - (a) Introduction – gives overview of what is contained in report
 - (b) General site information (i.e. acreage, zoning, location, slopes, soils, vegetation, average conditions, variances, restrictions, etc)
 - (c) Impervious cover information
 - (d) Site Specific Information
 - (1) Justification for type of system used (Provide narrative in response to each of the Performance Standards defined in the MDE SWM Design Manual, Vol. I. Chapter 1)
 - (2) Methodology/analysis used for design (reference all assumptions)
 - (3) Water quality requirements/analysis

- (4) Quantity requirements/analysis
- (5) Provide name of watershed and stream use designations for all discharge permits (Verify need to provide Qp and Qf with DPZ/DED)
- (e) Conclusions and recommendations
- (f) Appendix (contains all computations, design charts and relevant data references. Number all sheets and provide list of included computations in the table of contents.

F. Plans submission – include all of the following on plans:

1. Stormwater Management Plan (1"=50' or less)

(a) General Items

- (1) Type and hazard classification of ESD/BMP facility labeled
- (2) Show floodplain, environmentally sensitive areas, wetlands, etc.
- (3) 15' no woody vegetation zoned delineated from toe of slope
- (4) 25' pong buffer from 100-year WSEL, top of cut or toe of fill to property lines
- (5) Outlet channel outside of stream or wetland buffers
- (6) Provide a summary table identifying the area in acres, the required and provided Rev, WQv, Cpv, Qp10 and Qp100 for each drainage area. In a narrative, below the table, summarize the type of facility(ies) used to achieve each of the above requirements in accordance with Chapter 4 of the MDE SWM Design Manual.
- (7) Add the following note to the plans:

“THE STORMWATER MANAGEMENT SYSTEM SHOWN ON THESE PLANS IS AN APPROXIMATION OF THE SIZE, SHAPE AND LOCATION. IT IS UNDERSTOOD THAT THIS SYSTEM HAS NOT BEEN DESIGNED AND THE ACTUAL DESIGN MAY CHANGE, ALTERING THE NUMBER OF UNITS ALLOCATED FOR THIS DEVELOPMENT.”

(b) Maintenance Items

- (1) Maintenance Access – from public right-of-way or publicly traveled road or a private road in a multifamily project:
 - (i) Indicate the ownership and maintenance responsibility of the facility (i.e. private, HOA or public)

Check the Help and Resources instructions accessible from the ProjectDox login screen for the Appropriate locations to upload all documentation including this checklist. Once you have completed your uploads, remember to complete your ProjectDox task.