



Stormwater Division
Department of Public Works
800 Rabbitt Road
Gaithersburg, Maryland 20878

SEDIMENT AND EROSION CONTROL CHECKLIST

| | | | |
|--|--------------------|--------------------------|---------------|
| Project Name: | Lakeforest Gateway | SEC Plan Number: | SEC-9940-2024 |
| Project Address: | Lakeforest Drive | SEC Plan Level*: | Preliminary |
| *(Concept, Prelim, Final, or a combination per Ch.8) | | | |
| Engineer Contact: | Jason Evans, P.E. | Reviewer Contact: | Brian Noll |
| Engineer Company: | VIKA MD, LLC | SWM Plan Number: | SWM-9941-2024 |

Reviewer Markup Legend:

- √ Completed Satisfactorily.
- INC. Incomplete or Incorrect
- N/A Not Applicable
- ? Not enough info provided.

Submittal Date: _____

Review Date: _____

Reviewer Initials: _____

10/7/2024

BSN

General Information:

This checklist has been developed to provide specific instruction to engineers and to serve only as a supplement to the City's Chapter 8 Code. The initial checklist shall be completed by the City's plan reviewer. **All submissions must fully address the City's Chapter 8 Code addressing Sediment Erosion Control and Stormwater Management for approval and compliance.**

This checklist shall be utilized in the review of the Concept, Preliminary and Final Erosion and Sediment Control Plans. Applicable items shall be provided in the level of detail needed in the first submittal. All comments are expected to be addressed in the immediately following subsequent submission. Failure to do so may result in less than a full review.

Plan Submission Process:

The Initial Submission shall be made to: 31 S Summit Ave, Gaithersburg, MD 20877 for initial processing and fee acceptance. For all initial submissions (including application and fee), **two (2) full hard copies** of plans and supporting materials are required along with **one (1) digital (pdf) copy** of all materials.

Subsequent Submissions shall be made to: 800 Rabbitt Rd, Gaithersburg, MD 20878 for review and comments. For all subsequent submissions, **two (2) full hard copies** of plans and supporting materials are required along with **one (1) full size color copy of recent review comments**. **One (1) digital (pdf) copy** of all materials is also required.

Final Submissions shall be made to: 800 Rabbitt Rd, Gaithersburg, MD 20878 for review and approval. For final submission, **one (1) full hard copy** of plans and supporting materials are required along with **one (1) digital (pdf) copy** of all documents (pdf). Plan reviewers, at their discretion, may allow for the approval submission to be via electronic submission.

Note to the Applicant / Engineer:

Your submission for Erosion and Sediment Control Plan has been reviewed. The review was made per the following checklist. If you do not address a checklist item and/or comments on the plan sheets, explain your reasoning in your transmittal letter.

The Review Checklist begins on the next page.

Sediment and Erosion Control Checklist

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PART 1: PRE-REVIEW REQUIRED SUPPORTING INFORMATION

| | | | |
|---|-----|-----|---|
| ✓ | ___ | ___ | Transmittal which specifically explains the purpose of submission (i.e. what plan type, plan level, and associated plan tracking numbers). |
| INC | ___ | ___ | <p>Safe Conveyance / Adequate Outfall Analyses and Supporting documentation: Storm drain area maps and plans with supporting computational analysis which shows that runoff can be safely conveyed off-site. The City enforces the County’s analysis method, MCDOT Drainage Design Criteria, revised June 10, 2014.</p> <p>Downstream Facility Impacts for Developments that are within the drainage area of a previously approved and installed downstream facility: For downstream regional ponds, the applicant must be aware of the downstream pond and be able to demonstrate no adverse impacts to said pond. This is typically done via the Safe Conveyance / Adequate Outfall Analysis.</p> |
| <p>Please provide analysis to show downstream storm drains have adequate capacity. separate SD analysis plans submitted for review</p> | | | |
| N/A | ___ | ___ | |
| INC | ___ | ___ | <p>Record Plat: One (1) Copy of Recorded Plat, if completed. If not completed, current drafted plat is acceptable.</p> |
| ✓ | ___ | ___ | <p>NRI/FSD: One (1) Copy of Approved NRI/FSD. <u>Note: NRI/FSD must identify steep slopes and soils. Soil Identification to include the name, symbol, and hydrologic group information.</u></p> |
| N/A | ___ | ___ | <p>Wetlands Permit Number: The permit number for tracking purposes.</p> |
| N/A | ___ | ___ | <p>Floodplain Variance: submitted documentation for Floodplain Variance, if applicable. Plan may be approved, but permit will not be issued until variance is approved.</p> |
| N/A | ___ | ___ | <p>USACE Permit (State Waterway Construction Permit) Number: for tracking purposes, the permit is either a Chesapeake Bay TMDL Permit or USACE NW27 (National Watershed Permit Number 27).</p> |
| INC | ___ | ___ | <p>On-Site Storm Drain System: Must be designed to public ROW standards (materials, minimum slopes) if the system is conveying off-site public system’s runoff.</p> |
| <p>Please provide drainage analysis.</p> | | | |
| INC | ___ | ___ | <p>Site Plan (Sketch, Development, and Final Site Plans): Submitted SEC/SWM Plans must conform to submitted entitlement plans. Applicant to include copies of Site Plans to demonstrate conformance.</p> |
| <p>separate SD analysis plans submitted for review</p> | | | |

PART 2: OVERALL ENGINEERING PLAN REQUIREMENTS

| | | | |
|--------------------------------|-----|-----|--|
| INC | ___ | ___ | <p>Titleblock: Project Name, Address, Legal Subdivision (with lots/blocks and/or other appropriate legal references, election district) 101 Lakeforest Blvd added. No plat prepared yet</p> |
| <p>Please provide address.</p> | | | |
| ✓ | ___ | ___ | <p>Sheet Numbering: Sediment Control Plans are separate from Stormwater Management Plans per City Code, All sheets shall be numbered as a single plan set (must have SC-X of X, or SEC-X of X / SWM X of X). SEC/SWM Plans are not allowed to be a part of the greater construction set where no coversheets or overall plan numbers, C-XXX are applied). Typically, applicants use two sheets numbers: 1) the Plan Number, C-XXX and 2) the sheet number, SEC-X of X / SWM-X of X.</p> |
| ✓ | ___ | ___ | <p>Signature / Seal of Licensed Professional: All sheets are to be signed and sealed by a registered professional, i.e. P.E. for design plans and R.L.A. for Landscape.</p> |
| N/A | ___ | ___ | <p>Match Lines: Must clearly identify corresponding sheet to sheet.</p> |
| N/A | ___ | ___ | <p>Overall Plan / Composite Sheet / Key map: An Overall Plan is required which identifies SEC measures across large distances for large tracts of lands and larger than typical scales.</p> |

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___ ___ **Approval Block with Plan Number Included:** The bottom right of each plan sheet, approximately 3" by 5" of space must be included to accommodate the City's Approval block. The approval block must note the associated Plan Number.

INC ___ ___ **Off-Site Grading:** Requires permission from adjacent property owner prior to plan approval (letter of permission on plan or temporary or permanent grading easement document submitted with the liber/folio referenced on the plan).

Please provide letters from offsite properties that are impacted.

There are three existing lots all owned by the developer. All other off-site work is planned to be in the public rights of ways.

PART 3: PLAN SPECIFIC REQUIREMENTS

COVER SHEET

___ ___ **Owner / Permit Applicant Name (individual and company), Address, Email Address, and Phone number.**

___ ___ Civil Engineer Name (individual and company), Address, Email Address, and Phone Number.

INC ___ ___ **Certifications:**

- Cut and Fill We will add when this goes to final
- Design Certification
- INC** Owners Certification
- INC** Maintenance on Private Lands

Owner's Certification and Maintenance on Private Lands can be signed at Final Design.

___ ___ Vicinity Map with Site Identified (approximate outline of site and label); 1"=2000' minimum scale.

___ ___ Required Permits Table: The Applicant / Engineer must note all required permits involved with the development including the City's permits.

PLAN VIEW SHEETS

___ ___ Scale such that readability of measures and improvements are ensured. Typical scales are 1" = 20' and 1" = 30'. Any non-typical scale must be discussed with plan reviewers prior to submission.

___ ___ Property lines (site boundaries and adjacent properties) with Owner / Legal Description and mailing addresses for Site and immediately adjacent and confronting properties.


? ___ ___ **Fill Areas:** Identify any areas of large amounts of structural fill. Rule of thumb: fill of 2' or more. existing address is 101 lakeforest and will be added to the plan titleblock

Please provide site address.

INC ___ ___ **Limit of Disturbance per phase, along with identification of amount of disturbance, in acres and square feet.** Note: The area must not exceed the maximum grading unit defined by the City's Chapter 8 Code (i.e. 20 acres).

INC ___ ___ **Topography:** Existing and proposed contours (2' contour intervals maximum) along with spot elevations as needed to identify drainage patterns. Note: For project with phased grading, interim contours or spot shots must be included and must demonstrate changes in drainage divides to sediment control measures.

Please provide interim grading for excavation.

INC  ___ ___ Existing and Proposed Improvements (buildings, streets, utilities, stormwater facilities, etc.) 2 plan views now. one with existing and excavation limits and one with proposed work

N/A ___ ___ Natural Resources to be protected must be delineated (aka the buildable envelope must be shown).

N/A ___ ___ Designated Wetlands with associated 25' buffers.

N/A ___ ___ Composite Tax Map and Tabulated Information (if applicable): Information regarding acreage and tax account information for all parcels included as part of the development plan.

INC ___ ___ **Soil Boundaries and Identification:** On-Site Soils must be identified. Soil boundaries and Hydrologic group must be included on plan (i.e. name, symbol, and Hydrologic Group).

See comments on plans.

General note #1 states all soils are 'D'

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| | | | |
|-----|-----|-----|---|
| N/A | ___ | ___ | Floodplain, Stream Valley Buffer (SVB), and BRL Impacts: These items must be clearly shown and identified on the plan (as applicable to the property) along with any proposed grading or other improvements in these extents. |
| ✓ | ___ | ___ | Plan Legend: must include sediment control, soils, Floodplain, SVB, BRL, and temporary storm drain symbology. |
| INC | ___ | ___ | Sediment Control Device Labels & Identification: All devices from traps to inlet protection must be identified. <u>Note: Earth Dike for off-site diversion of runoff must have A-Channel treatment at a minimum.</u> Plans and comment responses updated for review |
| INC | ___ | ___ | Sediment Control Measures and Temporary Storm Drain Infrastructure: Delineate all needed sediment control measures and temporary storm drain infrastructure per phase, including all devices, <u>associated drainage boundaries</u> and any applicable design requirements (for example, preceding slopes for silt fence and super silt fence). Plans and comment responses updated for review |
| INC | ___ | ___ | Sediment Control Drainage Areas and Divides: Existing and Proposed divides must be delineated for entire site (off-site and on-site) and applied to SEC measures (see checklist item above). <u>Note: Label drainage areas with identifying information.</u> Additional sheet added for existing and proposed conditions to be separated and better define DA in each phase of construction. |
| N/A | ___ | ___ | Sediment Trap(s): <ul style="list-style-type: none"> <input type="checkbox"/> Type of Trap (ST-I, ST-III, ST-IV) <input type="checkbox"/> Drainage Divides <input type="checkbox"/> Drainage Area to Trap <input type="checkbox"/> Location of Trap <input type="checkbox"/> Grading of Trap <input type="checkbox"/> Fencing <input type="checkbox"/> Inflow Points and associated protections <input type="checkbox"/> Outlet Protection (maximizing flow length from inflow points) <input type="checkbox"/> Dewatering Devices (if applicable) <input type="checkbox"/> Baffles (if applicable) <input type="checkbox"/> Design Table (Information Sheet) must include: Drainage area, storage required, storage provided, weir crest elevation, storage depth, top storage dimensions, bottom dimensions, cleanout elevation, channel depth of flow, maximum side slopes with specifying cut and / or fill, bottom elevation, embankment elevation, and riser and barrel dimensions for trap type ST-I. |
| N/A | ___ | ___ | Sediment Basin(s): <ul style="list-style-type: none"> <input type="checkbox"/> Shall not be located within 20' of building foundations. <input type="checkbox"/> Basin Design and Construction information as required by Maryland State Standards and specifications; Low Hazard Class must be assured. <input type="checkbox"/> Barrel Outfall Cross-Section <input type="checkbox"/> MCDEP / CMP Band and dewatering device detail <input type="checkbox"/> Inflow Protection <input type="checkbox"/> Safety Fence <input type="checkbox"/> Baffles (if needed by design) <input type="checkbox"/> Construction Access must be delineated <input type="checkbox"/> Stockpiling location <input type="checkbox"/> Sediment Control during basin installation. <ul style="list-style-type: none"> o Note: Initial disturbance for installation must be limited to installation of principle spillway. <input type="checkbox"/> Base Flow must be indicated and requires clean water diversion. <input type="checkbox"/> If No Base Flow, design requires diversion dikes above the disturbed area. Dikes must include, at a minimum, A-2 channel treatment. |
| INC | ___ | ___ | Individual Phase Sequence of Construction (if applicable): The applicant / engineer may utilize individual phases of sequence of construction shown on each plan view phase. Sequence updated per plan comments. Additional sheet added to separate existing/demo/sheeting and shoring with proposed construction |

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| | | | |
|-----|-----|-----|--|
| N/A | ___ | ___ | Tree Lines (existing and proposed), Tree Save measures, and Tree Protection measures must be delineated. <u>Note construction details may remain on their prospective plans; the SEC must only delineate the extents of the measures.</u> |
| INC | ___ | ___ | Adjacent Property Protection for excavations near site boundaries, i.e. sheeting and shoring, etc. <u>Sheeting and shoring shown on plans but not at final design level yet</u> |
| INC | ___ | ___ | Proposed Stormwater Management Facilities <u>Micro bios located on plan</u> |
| INC | ___ | ___ | Utilities: Existing and Proposed <u>Added another sheet to better show existing and proposed site and utilities</u> |
| INC | ___ | ___ | Storm Drain Tie-Ins: Drainage conveyance system must be delineated and include topography and profile for 100' downstream of each outfall. Identification must include: Dimensions, Q_{10} , V_{10} , S_{MIN} , and/or rip-rap classification or stone classification (MDSHA Classification is acceptable for stone) and D_{50} if applicable. <u>SD plans and comps provided for review</u> |
| N/A | ___ | ___ | At-Grade Outfalls: must release runoff into an existing system which is adequate to receive. <ul style="list-style-type: none"> <input type="checkbox"/> Plan view must include adequacy notes/notations along with proposed tie-in channel dimensions, slopes (less than 2% is preferred), rip-rap design (length, width, and slope), Q_{10}, V_{10}, D_{50}, and rip-rap classification. <input type="checkbox"/> Cross-Section must include detailing shape conforming to receiving channel, outfall dimensions, Q_{10}, V_{10}, D_{50}, and rip-rap classification, embedded depth ($2.0 \times D_{50}$) and filter cloth underneath. |

PART 4: SEQUENCE OF CONSTRUCTION, PROFILES, SCHEDULES, NOTES, AND DETAILS REQUIREMENTS

| | | | |
|--|-----|-----|--|
| INC | ___ | ___ | Sequence of Construction: Must include City callouts, temporary storm drain diversion, phasing (as applicable), installation and removal of sediment controls, construction of stormwater management facilities, installation of site improvements, inspector sign-offs, and as-built plan process. <u>Note: The sequence may be broken out into different phases and added to individual plan sheets.</u> |
| <div style="border: 1px solid blue; padding: 2px; width: fit-content;"> <p>Sequence updated per plan comments. Additional sheet added to separate existing/demo/sheeting and shoring with proposed construction</p> </div> <p>See comments on plans.</p> | | | |
| N/A | ___ | ___ | Trap Profiles: Outfall parameters, trap parameters (wet storage, dry storage, weir crest, dewatering devices, water surface elevations, etc.). For ST-I traps, pipe profile must include tie-in to downstream storm drain structure. Storm Drain structure must include interim and future inverts/elevations. |
| N/A | ___ | ___ | Basin Profiles: Outfall parameters, routing parameters (water surface elevations, etc.), tie-into existing conditions. |
| N/A | ___ | ___ | Temporary Storm Drain Profiles: must show interim conditions as well as future conditions, along with inverts and applicable details. |
| ✓ | ___ | ___ | Sediment Control Details: Utilize standard MDE details. If project requires modification to standard detail (for example, filter log on pavement), the applicant / engineer must use the standard detail with markings to modify, the detail title must be marked "modified" on the detail sheet. For non-MDE sediment control measures such as at-grade curb inlet filtering, a typical detail with the acknowledgement of "or equivalent" is acceptable. |

Note: The State of Maryland Department of Environment requires that all projects utilizing concrete construction must include the Concrete washout detail. The City prefers that the washout location be delineated on the plan, but it is not required.

Sediment and Erosion Control Checklist

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PART 5: DEDICATED DRAINAGE AREA MAP FOR SAFE CONVEYANCE DEMONSTRATION

INC

See comments on plans.

Additional sheet added for existing and proposed conditions to be separated and better define DA in each phase of construction.

Dedicated Drainage Area Map may be used to demonstrate safe conveyance:

- Comparison of existing versus proposed conditions including drainage divides and existing/interim/proposed grading and improvements.
- Analysis table and summary of existing versus proposed for the 10-YR storm event (or larger, if applicable).
- Sediment Control Measures with summary information (the applicant / engineer does not have to include all necessary design parameter information because it is located on individual sheets). For example, traps may include type designation and basic sizing and discharge information.
- For existing Channel Tie-Ins: The plan must show a minimum of 200 linear feet downstream or next conveyance system.
- For At-Grade tie-ins: The Plan must show a minimum of 50 linear feet past tie-in point with topographic information.
- For Storm Drain Tie-Ins: The City follows the County standard for analysis of three consecutive runs of storm drain pipe downstream of tie-in point.

PART 6: ADDITIONAL COMMENTS

Please provide a separate DEMO ESC Plan.

Additional sheet added to separate existing/demo/sheeting and shoring with proposed construction

Please show 2 phases. Existing phase is the only phase shown.



Stormwater Division
 Department of Public Works
 800 Rabbitt Road
 Gaithersburg, Maryland 20878

SWM PRELIMINARY PLAN REVIEW CHECKLIST

| | | | |
|---|--------------------|--------------------------|---------------|
| Project Name: | Lakeforest Gateway | SWM Plan Number: | SWM-9941-2024 |
| Project Address: | Lakeforest Drive | SWM Plan Level*: | Preliminary |
| *(Prelim, or a combination Concept/Prelim per Ch.8) | | | |
| Engineer Contact: | Jason Evans, P.E. | Reviewer Contact: | Brian Noll |
| Engineer Company: | VIKA MD, LLC | SEC Plan Number: | SEC-9940-2024 |

| | | | |
|--------------------------------|------------------------|---------------------|---------------------------|
| Reviewer Markup Legend: | Submittal Date: | Review Date: | Reviewer Initials: |
| √ Completed Satisfactorily. | _____ | 10/7/2024 | BSN |
| INC. Incomplete or Incorrect | _____ | _____ | _____ |
| N/A Not Applicable | _____ | _____ | _____ |
| ? Not enough info provided. | _____ | _____ | _____ |

General Information:

This checklist has been developed to provide specific instruction to engineers and to serve only as a supplement to the City's Chapter 8 Code. The initial checklist shall be completed by the City's plan reviewer. **All submissions must fully address the City's Chapter 8 Code addressing Sediment Erosion Control and Stormwater Management for approval and compliance.**

This checklist shall be utilized in the review of the Preliminary Management Plan. Applicable items shall be provided in the level of detail needed in the first submittal. All comments are expected to be addressed in the immediately following subsequent submission. Failure to do so may result in less than a full review.

Plan Submission Process:

The Initial Submission shall be made to: 31 S Summit Ave, Gaithersburg, MD 20877 for initial processing and fee acceptance. For all initial submissions (including application and fee), **two (2) full hard copies** of plans and supporting materials are required along with **one (1) digital (pdf) copy** of all materials.

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Note to the Applicant / Engineer:

Your submission for Stormwater Management Plan has been reviewed. The review was made per the following checklist. If you do not address a checklist item and/or comments on the plan sheets, explain your reasoning in your transmittal letter.

Typical Abbreviations contained within: ESD_v is Environmental Site Design Volume as defined by MDE SWM Ch.5; 10-YR is the storm event with a 10% probability of occurrence; and WSEL is Water Surface Elevation.

The Review Checklist begins on the next page.

SWM Preliminary Plan Review Checklist

PART 1 - PRE-REVIEW: REQUIRED PLAN PACKAGE AND SUPPORTING DOCUMENTATION

| | | | |
|---|-----|-----|--|
| ✓ | ___ | ___ | Transmittal: Specifically explains the purpose of submission (i.e. what plan type and associated plan (SEC, SDP, FSP, AFP, etc.) with tracking numbers. |
| INC | ___ | ___ | Safe Conveyance / Adequate Outfall Analyses and Supporting documentation: Storm drain area maps and plans with supporting computational analysis which shows that runoff can be safely conveyed off-site. The City enforces the County's analysis method, MCDOT Drainage Design Criteria, revised June 10, 2014. |
| <p>Please provide analysis to show downstream storm drains have adequate capacity.</p> <p>separate SD analysis plans submitted for review</p> | | | Downstream Facility Impacts for Developments that are within the drainage area of a previously approved and installed downstream facility: For downstream regional ponds, the applicant must be aware of the downstream pond and be able to demonstrate no adverse impacts to said pond. This is typically done via the Safe Conveyance / Adequate Outfall Analysis. |
| N/A | ___ | ___ | |
| ✓ | ___ | ___ | Stormwater Management Report: Narrative of project with establishment of site imperviousness, redevelopment criteria (if applicable), computational analysis of stormwater requirements, breadth and scope of proposed stormwater management according to City Code and State regulations, include necessary appendices of vicinity map and soils hydrologic information. |
| N/A | ___ | ___ | Geotechnical Report: Infiltration testing and boring reports. |

PART 2 – STORMWATER MANAGEMENT REPORT REQUIREMENTS

| | | | |
|-----|-----|-----|---|
| ✓ | ___ | ___ | Stormwater Narrative: Includes basic background of site and proposed development, must mention if the site is redevelopment (with justification), the proposed stormwater management facilities intended to be used, achievement of ESD and / or supplementation with structural facilities (i.e. design per MDE Ch. 3 facilities) along with mentioning of any waiver requests. |
| ✓ | ___ | ___ | Stormwater Requirements: Computational analysis of site's stormwater management requirements. This must include the discussion of Site Boundary versus LOD volumetric requirements, redevelopment criteria (if applicable), required stormwater management volumes. Refer to Stormwater Management Summary Table below for additional detail. |
| ✓ | ___ | ___ | Stormwater Implementation: Computational analysis for provided stormwater with computations for each facility per state design methodology. |
| N/A | ___ | ___ | Infiltration Practices must demonstrate maximum depth allowed via computations. |
| ✓ | ___ | ___ | ESD Alternatives Not Used: The report must include an analysis of the application of other ESD facilities in Ch.5 of MDE and why those facilities were not used. Excessive Cost is not acceptable. |

SWM Preliminary Plan Review Checklist

PART 3 – OVERALL PLAN INFORMATION

| | | | |
|-----|---|---|---|
| ✓ | — | — | <p>Overall Plan which shows locations and identifies stormwater facilities.</p> <p><u>Note: This plan must show the proposed stormwater facilities clearly.</u></p> |
| ✓ | — | — | <p>Stormwater Management Summary Table: Identifies stormwater requires and demonstrates how the facilities provide the necessary requirement.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Total Site Area <input type="checkbox"/> Project Site Area (defined by property or LOD) <input type="checkbox"/> Disturbed Area (maximum extent, not phased) <input type="checkbox"/> Existing Impervious Area for Site <input type="checkbox"/> Proposed Impervious Area for Site <input type="checkbox"/> Existing Impervious Area for Project Site <input type="checkbox"/> Proposed Impervious Area for Project Site <input type="checkbox"/> ESD_v Required <input type="checkbox"/> Target PE <input type="checkbox"/> ESD_v Provided categorized by facility type (or individual facilities) <input type="checkbox"/> PE achieved <input type="checkbox"/> MDE Ch.2 Tabulations (WQ_v, CP_v, Rev, etc.) if applicable to project. |
| ✓ | — | — | <p>Scale: The applicant / engineer should use their best judgement as the plan view should be reasonably readable, i.e. proposed buildings versus roads and stormwater facilities should be evident. This is a project by project requirement. However, the reviewer should be able to identify the facility the plan view in conjunction with a stormwater label. Typical scales are 1"=20' or 1"=30'.</p> |
| N/A | — | — | <p>Soil Boring Locations (both site borings and infiltration test locations).</p> |
| ✓ | — | — | <p>Overall Drainage Area Map may be a separate plan, but must show all facilities with associated drainage divides and areas including off-site and on-site for the site and adjacent areas (adjacent areas only applicable to the development). Please refer to the safe conveyance section in part 1 for more information.</p> |
| ✓ | — | — | <p>Preliminary Maintenance Access: Preliminary Plan shall be adequate to demonstrate clear access path to a public right-of-way for each facility (minimum 12-foot wide, justification if less than 12' must be reviewed/accepted by reviewer).</p> |

PART 4 – STORMWATER PLANS AND DETAILS – ESD FACILITIES

| | | | |
|-----|---|---|--|
| ? | — | — | <p>Soil Boring Locations (if applicable). <i>See comment below in Part 5.</i></p> |
| ✓ | — | — | <p>Drainage Areas do not exceed maximum allowed as set in Ch.5 of MDE SWM Manual.</p> |
| ✓ | — | — | <p>Void Ratio: 40% voids (n=0.40) are allowed in ESD facilities except pervious paving, which utilizes a 30% ratio (n=0.30).</p> |
| N/A | — | — | <p>Facilities which infiltrate must be located a minimum of 10' away from buildings, 50' away from water supply wells, 100' away from unconfined water supply wells, and 25 feet from septic systems.</p> |
| INC | — | — | <p>Facility Bottoms are clearly delineated. <i>Please clearly depict open bottom MBF vs. closed-bottom.</i></p> |

only closed-bottom facilities being proposed so the detail on PSWM sheet 2 has been updated accordingly.

SWM Preliminary Plan Review Checklist

| | | | |
|-----|-----|-----|--|
| ✓ | ___ | ___ | Topography as needed to delineate facility, i.e. embankments, contours for concrete flumes, etc. |
| ✓ | ___ | ___ | Safe Placement of facilities is demonstrated through planview and/or details as necessary to establish conformance with City guidelines. |
| N/A | ___ | ___ | Infiltration Rates: Use 3-inches/hour maximum infiltration rate for computations regardless of actual percolation rates. For rates which are exceedingly high (>10-inches/hour) investigate the use of alternate filtration practice including justification. |
| ___ | ___ | ___ | |
| ___ | ___ | ___ | |
| ___ | ___ | ___ | |
| ___ | ___ | ___ | |

PART 5 – GEOTECHINICAL INVESTIGATION REQUIREMENTS If MBFs have open bottoms, the information with question marks below will be required.
If all are planter boxes with concrete bottoms, no geotechnical information is required.

| | | | | |
|-----|-----|-----|---|--|
| ? | ___ | ___ | Geotechnical Report including site specific recommendations. | only closed-bottom facilities being proposed so the detail on PSWM sheet 2 has been updated accordingly. |
| ✓ | ___ | ___ | USDA Textural Classification for various layers with depths. | |
| ? | ___ | ___ | Minimum Boring Locations using a minimum of 4 feet below proposed bottom of facility and for infiltration at least once every 50 linear feet. | |
| ? | ___ | ___ | Season High Groundwater Elevation and Bedrock elevation (if encountered) must be a minimum of 4 below the bottom of the facility. | |
| N/A | ___ | ___ | Percolation Tests for borings in and / or near proposed facilities. | |

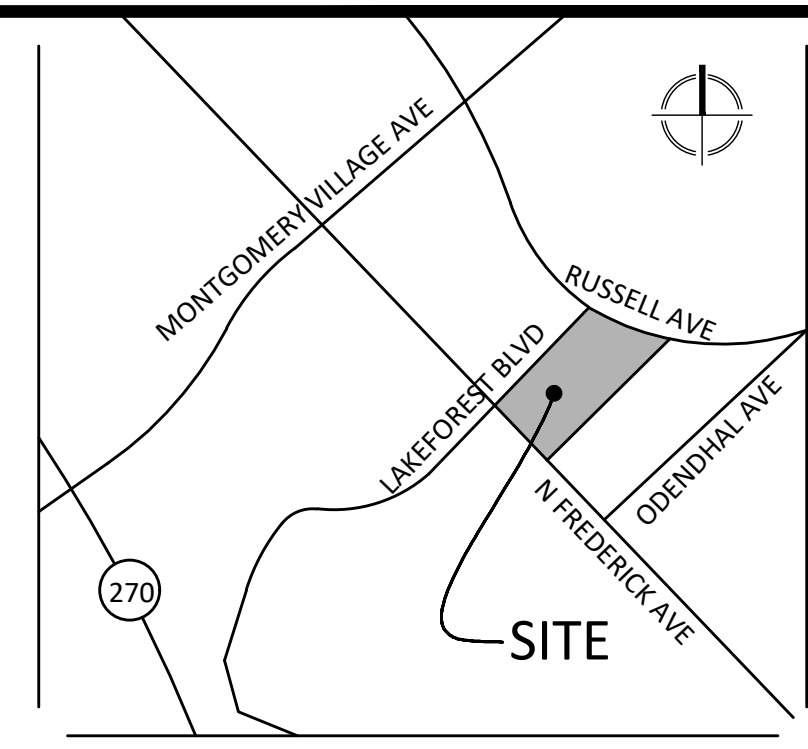
PART 6 – STORMWATER PROFILES AND SECTIONS

| | | | | |
|-----|-----|-----|--|---|
| INC | ___ | ___ | Typical Storm Profile with grades (ex. & prop.), stations, inverts, pipe size, rim elevations, and utility crossings. Please provide the final plumbing and roof drain layout to planter box MBFs at Final Design. | Understood, Arch and MEP design is not completed yet. thanks, |
| ? | ___ | ___ | Embankment widths and side slopes (3:1 maximum allowed) See Additional Comment below. | |
| ✓ | ___ | ___ | Typical cross-sections through stormwater facilities for each unique type of facility demonstrating conformance to City of Gaithersburg standards. | |
| ✓ | ___ | ___ | Typical details as needed to support unique design elements of the SWM Concept. | |

ADDITIONAL COMMENTS

Please clearly label if the MBFs are open at the bottom or planter boxes. Additional grading might be required for embankments.

only closed-bottom facilities being proposed so the detail on PSWM sheet 2 has been updated accordingly.



VKA
 VIKI MARYLAND, LLC
 20251 Century Blvd., Suite 400
 Germantown, MD 20874
 301.916.4100 | vika.com
 Our Site Set on the Future.

PREPARED FOR:
 417 DEVELOPMENT LLC
 6000 EXECUTIVE BOULEVARD
 SUITE 400
 NORTH BETHESDA, MD 20852
 301.770.5930
 CONTACT: BRIAN R. LANG

DESIGN CONSULTANTS
 ATTORNEY
 MILES & STOCKBRIDGE
 11 N. WASHINGTON STREET
 SUITE 700
 ROCKVILLE, MD, 20850
 301.762.1600
 CONTACT: CASEY L. CIRMER

ARCHITECT
 WDG ARCHITECTURE
 1035 CONNECTICUT AVENUE
 SUITE 300
 WASHINGTON DC, 20006
 202.857.8300
 CONTACT: SITI ABDUL RAMAN

TRAFFIC CONSULTANT
 WELLS + ASSOCIATES
 7200 WISCONSIN AVENUE
 SUITE 500
 BETHESDA, MD, 20814
 410.351.7340
 CONTACT: NANCY RANDALL

PLANNER, CIVIL ENGINEER
 VIKI MARYLAND, LLC
 20251 CENTURY BOULEVARD
 SUITE 400
 GERMANTOWN, MD, 20874
 301.916.4100
 CONTACT: IAN P. DUKE

AND CITY OF GAITHERSBURG
 added

- PRELIMINARY SEQUENCE OF CONSTRUCTION:**
1. PRIOR TO INSTALLING SEDIMENT CONTROL MEASURES, OR GRADING, A PRECONSTRUCTION MEETING MUST BE CONDUCTED ON-SITE WITH THE CITY OF GAITHERSBURG SEDIMENT CONTROL INSPECTOR 301-258-6330 (48 HOURS NOTICE), THE OWNERS' REPRESENTATIVE, AND THE SITE ENGINEER.
 2. THE LIMITS OF DISTURBANCE MUST BE FIELD MARKED PRIOR TO INSTALLATION OF SEDIMENT CONTROL MEASURES, CONSTRUCTION, OR OTHER LAND DISTURBING ACTIVITIES.
 3. THE PERMITEE MUST OBTAIN WRITTEN APPROVAL FROM THE M-NCPPC INSPECTOR, CERTIFYING THAT THE LIMITS OF DISTURBANCE AND TREE PROTECTION MEASURES ARE CORRECTLY MARKED AND INSTALLED PRIOR TO COMMENCEMENT OF ANY CLEARING.
 4. INSTALL STABILIZED CONSTRUCTION ENTRANCE SUPER SILT FENCE, SILT FENCE ON PAVEMENT PROTECTION TYPE B, SEDIMENT CONTROL DEVICE STABILIZED. SEDIMENT CONTROL DEVICES TO:
 - PLEASE PROVIDE A SEPARATE DEMO PLAN THAT INCLUDES INTERIM GRADING FOR EQUIPMENT TO EXCAVATE THE SITE.
 - ADDED A SHEET TO SEPARATE A PHASE 1 (EXISTING/DEMOL) AND PHASE 2 (PROPOSED)
 5. DEMOLITION OF EXISTING BUILDINGS AND PAVEMENT WITHIN THE PROJECT SITE LOD.
 6. ONCE PAVEMENT HAS BEEN DEMOLISHED EXCAVATION AND REMOVAL OF EXISTING STORM DRAIN, MAY TAKE PLACE.
- EXISTING CONDITIONS/ DEMOLITION**
7. ONCE WSSC PERMITS HAVE BEEN OBTAINED, PROPOSED WATER AND SEWER CONSTRUCTION MAY BEGIN. INSTALLATION OF DRY UTILITIES MAY BEGIN.
 8. INSTALLATION OF REMAINING ON-SITE STORM DRAIN MAY COMPLETED CONCURRENTLY. ONCE PROPOSED STORM DRAIN INLETS ARE CONSTRUCTED, PROPOSED CURB INLET PROTECTION, AT GRADE INLET PROTECTION, OR STANDARD INLET PROTECTION TYPE B SHALL BE INSTALLED AS INDICATED ON THE PLAN.
 9. INSTALLATION OF CURB AND GUTTER AND BASE PAVING OF PARKING LOT MAY BEGIN. INSTALLATION OF SIDEWALKS AND CONNECTION TO SHARED USE PATH MAY BEGIN. SHARED USE PATH SHALL BE RESTORED IN KIND AFTER NEW SIDEWALK CONNECTION IS MADE.
 10. BEGIN CONSTRUCTION OF MAIN BUILDINGS.
 11. INSPECTOR MAY REQUIRE PLACEMENT OF ADDITIONAL SEDIMENT CONTROL MEASURES ON THE SITE AS DEEMED NECESSARY.
 12. AS PROPOSED GRADES ARE ACHIEVED, PERMANENTLY STABILIZE DISTURBED AREAS. INSTALLATION OF SIDEWALKS AND HARDSCAPE FEATURES MAY BEGIN.
 13. TEMPORARILY BLOCK CURB CUTS TO MICRO BIORETENTION FACILITIES TO PROTECT BIOFILTRATION AREAS FROM SEDIMENT-LADEN RUNOFF.
 14. INSTALLATION OF MICRO-BIORETENTION DEVICES MAY BEGIN WITH WRITTEN PERMISSION FROM THE CITY OF GAITHERSBURG INSPECTOR. CONTRACTOR TO NOTIFY VIKI AND INSPECTOR PRIOR TO SAID INSTALLATION.
 - a. EXCAVATE FOR CONSTRUCTION. DO NOT EXCAVATE BELOW BOTTOM OF EACH FACILITY.
 - b. INSTALL STONE.
 - c. INSTALL SAND, 6" PERFORATED PVC UNDERDRAINS, CLEANOUT/OBSERVATION WELLS, AND PLANTING MEDIA.
 - d. PLACE FILTER FABRIC ON TOP OF INSTALLED MEDIA.
 - e. FINALIZE GRADE.
 - f. ONCE CITY OF GAITHERSBURG INSPECTOR PROVIDES WRITTEN NOTIFICATION THAT DRAINAGE AREA TO EACH MICRO-BIORETENTION IS SUFFICIENTLY STABILIZED, REMOVE FILTER FABRIC. REPLACE ANY PLANTING MEDIA THAT HAS BECOME FOULED BY SEDIMENT.
 - g. INSTALL MULCH AND LANDSCAPING.
 - h. OBTAIN FINAL INSPECTION AND SUBMIT AS-BUILT PLANS TO CITY OF GAITHERSBURG FOR APPROVAL.
 20. ONCE THE DRAINAGE AREAS ARE STABILIZED, THE STORM DRAIN SYSTEM MUST BE FLUSHED, TEMPORARY PIPES REMOVED, AND ANY PERMANENT PIPES UNBLOCKED OR CONSTRUCTED.
 21. REMOVE STABILIZED CONSTRUCTION ENTRANCE. ANY PAVEMENT REMOVAL TO INSTALL ESC MEASURES SHALL BE REPLACED IN KIND.
 22. UPON COMPLETION OF WORK, THE PERMITEE MUST OBTAIN APPROVAL FROM CITY OF GAITHERSBURG INSPECTOR PRIOR TO REMOVAL OF ANY REMAINING SEDIMENT CONTROL MEASURES.

All upstream areas to ESD facilities must be stabilized prior to their construction.

language added to #14

language added to #20

Gateway Lakeforest
 9TH ELECTION DISTRICT
 MONTGOMERY COUNTY,
 MARYLAND
 SSC GRID: 224NW10
 TAX MAP:

PRELIMINARY SEDIMENT & EROSION CONTROL PLAN

PROFESSIONAL SEAL

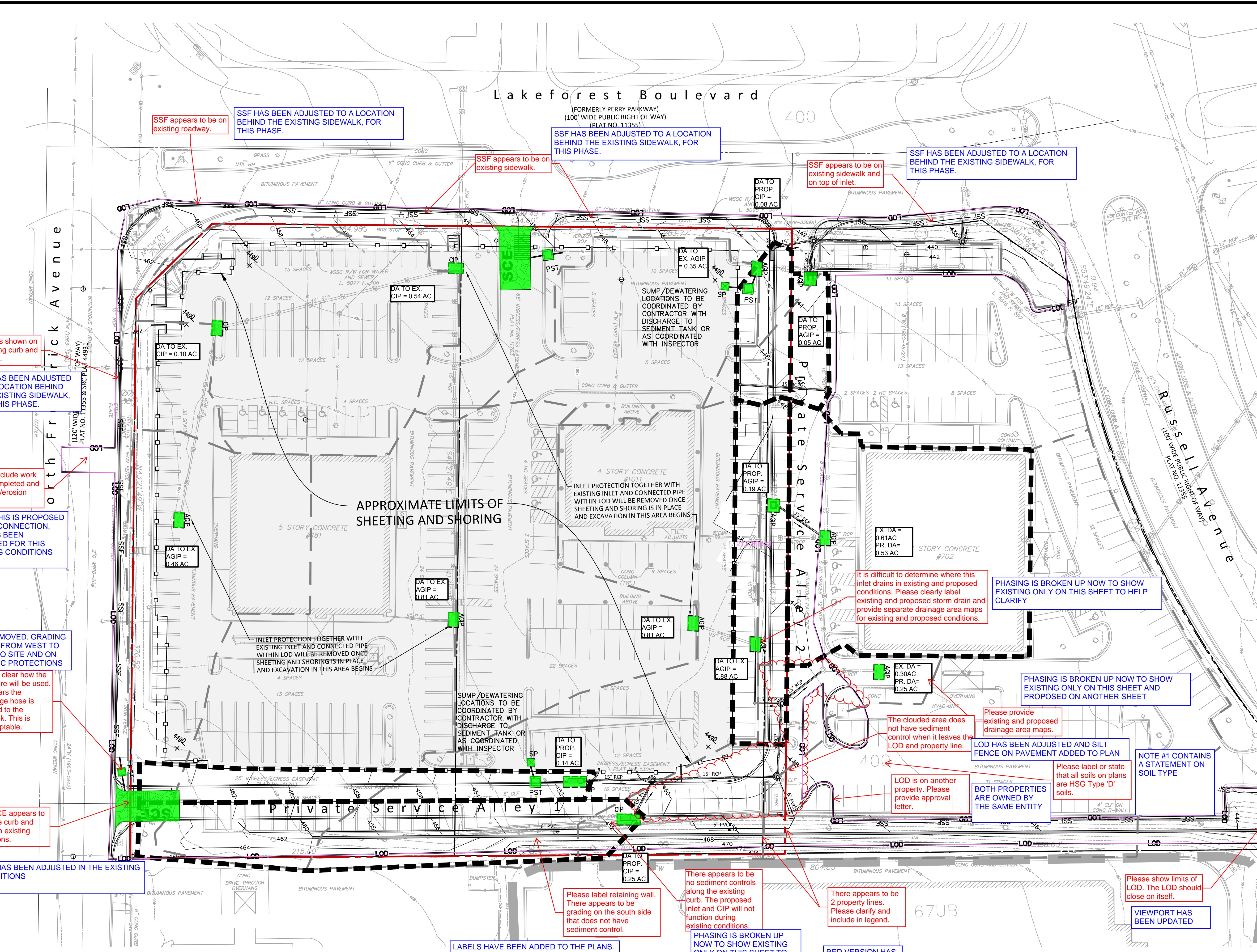
HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A QUALIFIED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 JOSHUA J. LANG, LICENSE NO. 15888
 EXPIRES DATE: JANUARY 16, 2025

THE INFORMATION, DESIGN AND CONTENT OF THESE DRAWINGS OR DOCUMENTS ARE PROPRIETARY TO VIKI MARYLAND, LLC AND CONSTITUTE ITS PROPRIETARY INTELLECTUAL PROPERTY. THESE DRAWINGS AND/OR COPIES, DIGITALLY CONVERTED, MODIFIED OR USED FOR ANY PURPOSE, IN ANY FORMAT, WITHOUT PRIOR WRITTEN AUTHORIZATION FROM VIKI MARYLAND, LLC, VIOLATION MAY RESULT IN PROSECUTION. ONLY APPROVED, SIGNED AND SEALED PLANS OR DRAWINGS MAY BE UTILIZED FOR CONSTRUCTION PURPOSES.

© 2025 VIKI MARYLAND, LLC
 DRAWN BY: AD
 DESIGNED BY: ID
 DATE ISSUED: 7/16/2024
 VIKI PROJECT: VM50089
 DRAWING NO.:
 SHEET NO.: PSEC-2

CITY OF GAITHERSBURG
 DEPARTMENT OF PUBLIC WORKS
SEDIMENT EROSION CONTROL

APPLICATION NO. SEC-9619-2023
 CONCEPT PLAN
 PRELIMINARY PLAN
 APPROVAL DATE: -
 BY: -



SSF appears to be on existing roadway.
 SSF HAS BEEN ADJUSTED TO A LOCATION BEHIND THE EXISTING SIDEWALK, FOR THIS PHASE.

SSF HAS BEEN ADJUSTED TO A LOCATION BEHIND THE EXISTING SIDEWALK, FOR THIS PHASE.

SSF appears to be on existing sidewalk and on top of inlet.
 SSF HAS BEEN ADJUSTED TO A LOCATION BEHIND THE EXISTING SIDEWALK, FOR THIS PHASE.

SSF is shown on existing curb and gutter.

SSF HAS BEEN ADJUSTED TO A LOCATION BEHIND THE EXISTING SIDEWALK, FOR THIS PHASE.

Please include work being completed and sediment/erosion controls.

SINCE THIS IS PROPOSED WATER CONNECTION, LOD HAS BEEN ADJUSTED FOR THIS EXISTING CONDITIONS PHASE

PST REMOVED. GRADING FLOWS FROM WEST TO EAST. TO SITE AND ON SITE SEC PROTECTIONS

It is not clear how the PST here will be used. It appears the discharge hose is directed to the sidewalk. This is unacceptable.

This SCE appears to straddle curb and gutter in existing conditions.

SCE HAS BEEN ADJUSTED IN THE EXISTING CONDITIONS

APPROXIMATE LIMITS OF SHEETING AND SHORING

INLET PROTECTION TOGETHER WITH EXISTING INLET AND CONNECTED PIPE WITHIN LOD WILL BE REMOVED ONCE SHEETING AND SHORING IS IN PLACE AND EXCAVATION IN THIS AREA BEGINS

INLET PROTECTION TOGETHER WITH EXISTING INLET AND CONNECTED PIPE WITHIN LOD WILL BE REMOVED ONCE SHEETING AND SHORING IS IN PLACE AND EXCAVATION IN THIS AREA BEGINS

SUMP/DEWATERING LOCATIONS TO BE COORDINATED BY CONTRACTOR WITH DISCHARGE TO SEDIMENT TANK OR AS COORDINATED WITH INSPECTOR

There appears to be no sediment controls along the existing curb. The proposed inlet and CIP will not function during existing conditions.

PHASING IS BROKEN UP NOW TO SHOW EXISTING ONLY ON THIS SHEET TO HELP CLARIFY

RED VERSION HAS BEEN UPDATED TO MATCH NEW PROPERTY LINE

It is difficult to determine where this inlet drains in existing and proposed conditions. Please clearly label existing and proposed storm drain and provide separate drainage area maps for existing and proposed conditions.

PHASING IS BROKEN UP NOW TO SHOW EXISTING ONLY ON THIS SHEET TO HELP CLARIFY

PHASING IS BROKEN UP NOW TO SHOW EXISTING ONLY ON THIS SHEET AND PROPOSED ON ANOTHER SHEET

The clouded area does not have sediment control when it leaves the LOD and property line.

LOD HAS BEEN ADJUSTED AND SILT FENCE ON PAVEMENT ADDED TO PLAN

PLEASE LABEL OR STATE THAT ALL SOILS ON PLANS ARE HSG Type 'D' soils.

BOTH PROPERTIES ARE OWNED BY THE SAME ENTITY

LOD is on another property. Please provide approval letter.

VIEWPORT HAS BEEN UPDATED

Please show limits of LOD. The LOD should close on itself.

VIEWPORT HAS BEEN UPDATED

LABELS HAVE BEEN ADDED TO THE PLANS, ONE FOR THE EXISTING RETAINING WALL AND ONE ON THE PROPOSED WALL SHOWN ON THE NEXT PHASE.

PHASING IS BROKEN UP NOW TO SHOW EXISTING ONLY ON THIS SHEET TO HELP CLARIFY

LEGEND

- LIMITS OF DISTURBANCE — LOD —
- SILT FENCE ON PAVEMENT — SFOP — SFOP —
- SHEETING AND SHORING — — — — —
- SUPER SILT FENCE — SSF — SSF —
- CURB INLET PROTECTION — CIP —
- AT GRADE INLET PROTECTION — AGIP —
- FENCING — x x x x x —
- STABILIZED CONSTRUCTION ENTRANCE W/ WASH RACK — SCE —
- PORTABLE SEDIMENT TANK — PST —
- SUMP PUMP — SP —
- SOIL BOUNDARY — — — — — 400
- EX. DIVIDES — — — — —
- PROP. DIVIDES — — — — —

GENERAL NOTES:

1. ALL SOILS ARE HSG "D" SOILS.
2. ADDITIONAL SEDIMENT CONTROL MEASURES MAY BE REQUIRED AS WORK PROGRESSES.
3. STABILIZED CONSTRUCTION ENTRANCES MAY BE MOVED WITH INSPECTOR'S PERMISSION.
4. CONTRACTOR SHALL INSTALL SAFETY FENCE AROUND SITE WITHIN THE LIMITS OF DISTURBANCE.

NOT FOR CONSTRUCTION

"FOR LOCATION OF UTILITIES CALL 8-1-1 or 1-800-257-7777 OR LOG ON TO www.call811.com or http://www.missutility.net 48 HOURS IN ADVANCE OF ANY WORK IN THIS VICINITY"
 The vendor must notify all public utility companies with underground facilities in the area of proposed excavation and have those facilities located by the utility companies prior to commencing excavation. The contractor is responsible for compliance with requirements of Chapter 36A of the Montgomery County Code.



GATEWAY LAKEFOREST

STORM DRAIN CALCULATION

VIKA #VM50089
December 2024

Prepared for: 417 Development LLC
6000 Executive Blvd
Suite 400
North Bethesda, MD 20852
Attn: Brian Lang
(301) 770-5930

Prepared By: VIKA Maryland, LLC
20251 Century Boulevard
Suite 400
Germantown, MD 20874
Attn: Jason Evans
(301) 916 – 4100

VIKA Maryland, LLC

20251 Century Boulevard, Suite 400 * Germantown, Maryland 20874 * 301.916.4100 Fax 301.916.2262
Tysons, VA * Germantown, MD * Washington, DC

www.vika.com

EXISTING STORM DRAIN COMPUTATIONS

Project Name: Gateway Lakefest
 Project No.: VM50089-C
 Date: December 17, 2024

Computed: CW
 Checked: JE
 INPUT
 USER VERIFIED



10YR. STORM DRAIN COMPUTATION (EXISTING)

| FROM | TO | INC. AREA ACRES | TOTAL AREA ACRES | C | A*C | ACUM. A*C | Tc MIN-SEC | I 10 YR IN/HR | Q ₁₀ CFS | MIN SLOPE % | ACT SLOPE % | n | PIPE SIZE IN | F.F. VEL FPS | ACT VEL FPS | LENGTH FEET | TIME IN PIPE MIN | Q CAPACITY CFS |
|----------------|------|-----------------|------------------|------|------|-----------|------------|---------------|---------------------|-------------|-------------|-------|--------------|--------------|-------------|-------------|------------------|----------------|
| STUDY POINT #1 | | | | | | | | | | | | | | | | | | |
| I-25 | I-24 | 0.46 | 0.46 | 0.85 | 0.39 | 0.39 | 5.00 | 7.07 | 2.8 | 0.60 | 0.87 | 0.013 | 12 | 4.23 | 4.6 | 127 | 0.46 | 3.32 |
| I-24 | I-23 | 0.09 | 0.55 | 0.83 | 0.07 | 0.47 | 5.46 | 6.93 | 3.2 | 0.25 | 1.27 | 0.013 | 15 | 5.93 | 5.7 | 158 | 0.46 | 7.28 |
| I-26 | I-23 | 0.81 | 0.81 | 0.85 | 0.69 | 0.69 | 5.00 | 7.07 | 4.9 | 0.57 | 2.75 | 0.013 | 15 | 8.73 | 8.5 | 228 | 0.45 | 10.71 |
| I-23 | I-22 | 0.55 | 1.91 | 0.75 | 0.41 | 1.57 | 5.92 | 6.81 | 10.7 | 1.03 | 1.92 | 0.013 | 18 | 8.24 | 8.9 | 32 | 0.06 | 14.56 |
| I-22 | I-21 | 0.23 | 2.14 | 0.84 | 0.19 | 1.76 | 5.98 | 6.79 | 11.9 | 0.57 | | 0.013 | 21 | 0.00 | 5.0 | 78 | 0.26 | 0.00 |
| STUDY POINT #2 | | | | | | | | | | | | | | | | | | |
| I-20 | I-19 | 0.47 | 0.47 | 0.86 | 0.40 | 0.40 | 5.00 | 7.07 | 2.9 | 0.20 | 3.24 | 0.013 | 15 | 9.48 | 7.7 | 41 | 0.09 | 11.63 |
| I-19 | D-18 | 0.87 | 1.34 | 0.83 | 0.72 | 1.13 | 5.09 | 7.04 | 7.9 | 1.51 | 2.21 | 0.013 | 15 | 7.83 | 8.7 | 65 | 0.12 | 9.60 |
| D-18 | I-15 | | 1.34 | | 0.00 | 1.13 | 5.21 | 7.00 | 7.9 | 0.57 | 2.71 | 0.013 | 18 | 9.79 | 9.6 | 45 | 0.08 | 17.29 |
| I-17 | D-16 | 0.28 | 0.28 | 0.69 | 0.19 | 0.19 | 7.00 | 6.52 | 1.3 | 0.13 | 1.79 | 0.013 | 12 | 6.07 | 5.0 | 34 | 0.11 | 4.77 |
| D-16 | I-15 | | 0.28 | | 0.00 | 0.19 | 7.11 | 6.50 | 1.3 | 0.13 | 2.12 | 0.013 | 12 | 6.60 | 5.3 | 85 | 0.27 | 5.19 |
| I-15 | D-13 | 0.61 | 2.23 | 0.89 | 0.54 | 1.86 | 7.38 | 6.43 | 12.0 | 1.30 | 1.59 | 0.013 | 18 | 7.50 | 8.5 | 174 | 0.34 | 13.25 |
| I-14 | D-13 | 0.34 | 0.34 | 0.88 | 0.30 | 0.30 | 5.00 | 7.07 | 2.1 | 0.04 | 2.23 | 0.013 | 18 | 8.88 | 6.0 | 45 | 0.13 | 15.69 |
| D-13 | D-12 | | 2.57 | | 0.00 | 2.16 | 7.72 | 6.35 | 13.7 | 0.75 | 1.19 | 0.013 | 21 | 7.19 | 8.0 | 84 | 0.18 | 17.28 |
| D-12 | I-11 | | 2.57 | | 0.00 | 2.16 | 7.90 | 6.31 | 13.7 | 0.75 | 6.97 | 0.013 | 21 | 17.39 | 15.5 | 29 | 0.03 | 41.83 |
| I-11 | | 0.67 | 3.24 | 0.75 | 0.50 | 2.66 | 7.93 | 6.30 | 16.8 | 1.12 | | 0.013 | 21 | 0.00 | 7.0 | | 0.00 | 0.00 |
| STUDY POINT #3 | | | | | | | | | | | | | | | | | | |
| I-4 | I-3 | 0.55 | 0.55 | 0.84 | 0.46 | 0.46 | 5.00 | 7.07 | 3.3 | 0.26 | 4.29 | 0.013 | 15 | 10.90 | 9.0 | 10 | 0.02 | 13.38 |
| STUDY POINT #4 | | | | | | | | | | | | | | | | | | |
| I-7 | I-6 | 0.98 | 0.98 | 0.74 | 0.73 | 0.73 | 7.00 | 6.52 | 4.7 | 0.54 | 4.79 | 0.013 | 15 | 11.52 | 10.2 | 14 | 0.02 | 14.14 |

PROPOSED STORM DRAIN COMPUTATIONS

Project Name: Gateway Lakeforest
 Project No.: VM50089C
 Date: December 17, 2024

Computed: CW
 Checked: JE
 INPUT
 USER VERIFIED



10YR. STORM DRAIN COMPUTATION (PROPOSED)

| FROM | TO | INC. AREA ACRES | TOTAL AREA ACRES | C | A*C | ACUM. A*C | Tc MIN-SEC | I 10 YR IN/HR | Q10 CFS | MIN SLOPE % | ACT SLOPE % | n | PIPE SIZE IN | F.F. VEL FPS | ACT VEL FPS | LENGTH FEET | TIME IN PIPE MIN | Q CAPACITY CFS |
|----------------|------|-----------------|------------------|------|------|-----------|------------|---------------|---------|-------------|-------------|-------|--------------|--------------|-------------|-------------|------------------|----------------|
| STUDY POINT #1 | | | | | | | | | | | | | | | | | | |
| 300 | I-22 | 1.45 | 1.45 | 0.90 | 1.31 | 1.31 | 5.00 | 7.07 | 9.2 | 0.66 | 1.00 | 0.012 | 18 | 6.44 | 7.1 | 22 | 0.05 | 11.38 |
| I-22 | I-21 | 0.34 | 1.79 | 0.72 | 0.24 | 1.55 | 5.05 | 7.05 | 10.9 | 0.48 | | 0.013 | 21 | 0.00 | 4.5 | 79 | 0.29 | 0.00 |
| STUDY POINT #2 | | | | | | | | | | | | | | | | | | |
| RD-4 | 209 | 0.92 | 0.92 | 0.90 | 0.83 | 0.83 | 5.00 | 7.07 | 10.9 | 2.44 | 2.00 | 0.012 | 15 | 8.06 | 8.9 | 10 | 0.02 | 9.90 |
| 209 | 207 | 0.17 | 1.09 | 0.62 | 0.11 | 0.93 | 5.02 | 7.06 | 6.6 | 0.89 | 2.00 | 0.012 | 15 | 8.06 | 8.6 | 42 | 0.08 | 9.90 |
| 208 | 207 | 0.27 | 0.54 | 0.56 | 0.15 | 0.15 | 10.00 | 5.85 | 6.6 | 0.89 | 2.00 | 0.012 | 15 | 8.06 | 8.6 | 24 | 0.05 | 9.90 |
| MBF-2 | 205 | 0.44 | 0.44 | 0.90 | 0.40 | 0.40 | 5.00 | 7.07 | 6.6 | 0.89 | 2.00 | 0.012 | 15 | 8.06 | 8.6 | 10 | 0.02 | 9.90 |
| MBF-1 | 203A | 0.16 | 0.16 | 0.90 | 0.14 | 0.14 | 5.00 | 7.07 | 1.0 | 0.02 | 2.00 | 0.012 | 15 | 8.06 | 5.0 | 30 | 0.10 | 9.90 |
| 207 | 206 | | 1.63 | | 0.00 | 1.08 | 10.05 | 5.84 | 6.6 | 0.89 | 2.00 | 0.012 | 15 | 8.06 | 8.6 | 78 | 0.15 | 9.90 |
| 206 | 205 | | 1.63 | | 0.00 | 1.08 | 10.20 | 5.81 | 6.6 | 0.89 | 2.00 | 0.012 | 15 | 8.06 | 8.6 | 44 | 0.08 | 9.90 |
| 205 | 16 | | 2.07 | | 0.00 | 1.48 | 10.28 | 5.80 | 8.6 | 0.57 | 2.00 | 0.012 | 18 | 9.11 | 9.2 | 31 | 0.06 | 16.09 |
| 17 | 16 | 0.27 | 0.27 | 0.68 | 0.18 | 0.18 | 7.00 | 6.52 | 1.2 | 0.01 | 2.00 | 0.012 | 18 | 9.11 | 5.2 | 34 | 0.11 | 16.09 |
| 16 | 15 | | 2.34 | | 0.00 | 1.66 | 10.34 | 5.79 | 9.6 | 0.72 | 2.00 | 0.012 | 18 | 9.11 | 9.5 | 85 | 0.15 | 16.09 |
| 204 | 15 | 0.12 | 0.12 | 0.73 | 0.09 | 0.09 | 7.00 | 6.52 | 0.6 | 0.00 | 2.00 | 0.012 | 18 | 9.11 | 4.3 | 30 | 0.12 | 16.09 |
| 15 | 203A | 0.51 | 2.97 | 0.89 | 0.45 | 2.21 | 10.49 | 5.76 | 12.7 | 1.24 | 2.00 | 0.012 | 18 | 9.11 | 10.1 | 94 | 0.15 | 16.09 |
| 203A | 13 | | 3.13 | | 0.00 | 2.35 | 10.64 | 5.73 | 13.5 | 0.61 | 2.00 | 0.012 | 21 | 10.09 | 10.3 | 70 | 0.11 | 24.28 |
| 13 | 12 | | 3.13 | | 0.00 | 2.35 | 10.64 | 5.73 | 13.5 | 1.19 | 1.19 | 0.012 | 21 | 7.79 | 8.4 | 85 | 0.17 | 18.73 |
| 12 | 200 | | 3.13 | | 0.00 | 2.35 | 10.75 | 5.71 | 13.4 | 0.61 | 1.19 | 0.012 | 21 | 7.79 | 8.4 | 14 | 0.03 | 18.73 |
| 203 | 201 | 0.05 | 0.05 | 0.90 | 0.05 | 0.05 | 5.00 | 7.07 | 13.5 | 3.70 | 2.00 | 0.012 | 15 | 8.06 | 11.0 | 21 | 0.03 | 9.90 |
| 202 | 201 | 0.09 | 0.09 | 0.68 | 0.06 | 0.06 | 7.00 | 6.52 | 0.4 | 0.00 | 2.00 | 0.012 | 21 | 10.09 | 3.3 | 23 | 0.12 | 24.28 |
| 201 | 200 | | 0.14 | | 0.00 | 0.11 | 7.12 | 6.49 | 0.7 | 0.00 | 2.00 | 0.012 | 21 | 10.09 | 4.1 | 93 | 0.37 | 24.28 |
| 200 | I-11 | | 3.27 | | 0.00 | 2.46 | 7.49 | 6.40 | 15.7 | 0.84 | 2.00 | 0.012 | 21 | 10.09 | 10.7 | 11 | 0.02 | 24.28 |
| STUDY POINT #3 | | | | | | | | | | | | | | | | | | |
| I-4 | I-3 | 0.42 | 0.42 | 0.84 | 0.35 | 0.35 | 5.00 | 7.07 | 2.5 | 0.15 | 4.29 | 0.013 | 15 | 10.90 | 8.2 | 10 | 0.02 | 13.38 |
| STUDY POINT #4 | | | | | | | | | | | | | | | | | | |
| I-7 | I-6 | 0.98 | 0.98 | 0.74 | 0.73 | 0.73 | 7.00 | 6.52 | 4.7 | 0.54 | 4.79 | 0.013 | 15 | 11.52 | 10.2 | 14 | 0.02 | 14.14 |

STUDY POINT ANALYSIS



| | | | |
|----------------------|---------------------|---------------------|--------|
| Project Name: | 101 Lakeforest Blvd | Computed By: | JAE |
| Project No.: | 50089C | Checked By: | JAE |
| Date: | 12/16/24 | Sheet No.: | 1/1/00 |
| County: | Montgomery | | |

STUDY POINT ANALYSIS

| STUDY POINT | EXISTING 10YR | PROPOSED 10 YR |
|-------------|---------------|----------------|
| 1 | 11.9 CFS | 10.9 CFS |
| 2 | 16.8 CFS | 15.7 CFS |
| 3 | 3.3 CFS | 2.5 CFS |
| 4 | 4.7 CFS | 4.7 CFS |