Maryland Department of the Environment

Antidegradation Review Report Form

Alternatives Analysis – Minimization Alternatives

Purpose

This form is designed to help applicants assemble a complete Tier II Review report. This form specifically addresses calculating Tier II resource impacts, and evaluating alternatives that minimize water quality degradation from unavoidable impacts to Tier II watersheds and streams. This analysis is applicable to all areas of the **whole and complete project** within a Tier II watershed.

The Department will use this information to determine whether or not the applicant evaluated all reasonable alternatives to minimize water quality degradation. MDE may provide additional comments, conditions, or requirements, during the course of the review.

Fill in all that apply:

1. **Project Name:** _____
2. **County ESC Plan Identifier:** _____
3. **Nontidal Wetlands & Waterways Construction Tracking Number: 20206_ _ _ _**
4. **General Permit Number:** _____
5. **Other Application Type and Number:** _____

_____

Applicant Signature: _____ **Date Complete:** _____

Background

Code of Maryland Regulations (COMAR) 26.08.02.04-1 (G(3)) states that "If the Department determines that the alternatives that do not require direct discharge to a Tier II water body are not cost effective, the applicant shall: (a) Provide the Department with plans to configure or structure the discharge to minimize the use of the assimilative capacity of the water body".

To demonstrate that appropriate minimization practices have been considered and implemented, applicants must identify any minimization practices used when developing the project, calculate major Tier II resource impacts, consider alternatives for impacts, and adequately justify unavoidable impacts. Further water quality impact minimization such as mitigation or out-of-kind offsets may be required.

Additionally, applicants are required to coordinate with the County or appropriate approval authority when developing construction plans, and incorporate additional practices as indicated by the guidance provided in the *Construction Stormwater Antidegradation Checklist*. This checklist, as well as the other portions of the Tier II Review Report are required prior to receiving many permits and authorizations from MDE.

Instructions and Notes

1. Review all of the information in this document carefully. Prepare a report to address all of the analysis required by this document. Submit all Tier II analysis and documentation together.

2. Do not leave any response blank. Please mark "N/A" for any questions or sections that are not applicable until you reach the end of the document.

3. Provide sufficient supporting documentation for narratives.

4. The level of analysis necessary, and amount of documentation that may be needed to determine if impacts have been adequately addressed, is dependent upon project size, scope, and scale of relative impacts to Tier II resources. Please develop responses accordingly.

5. Reports/responses shall be submitted in electronic format, as well as paper. Full plans are not required unless requested over the course of the review.

6. Direct any questions regarding this form to Angel Valdez at angel.valdez@maryland.gov, or by phone at 410-537-3606.

Minimization Alternative Analysis Final Documentation Checklist

- ☐ Signature & Date MDE Tier II Alternatives Analysis – Minimization Alternative form (page 1)
- ☐ Resource Impact Analysis (**Complete the analysis for each Tier II watershed affected**)
  - ☐ Tier II Stream Buffer Impacts
    - Impact Calculation
    - Impact Minimization
    - Impact Mitigation
    - Impact Justification
    - Stream Buffer Exhibit
  - ☐ Forest Cover Impacts
    - Impact Calculation
    - Impact Minimization
    - Impact Mitigation
    - Impact Justification
    - Forest Cover Exhibit
  - ☐ Impervious Cover
    - Impact Calculation
    - Impact Minimization
    - Impact Mitigation
    - Impact Justification
    - Impervious Cover Exhibit
  - ☐ Mitigation & Other Potential Requirements
    - Plans
    - Signature & Date (Page 8)
- ☐ Construction Stormwater Antidegradation Checklist

Tier II Resource Impacts

Sufficient riparian buffers, ample watershed forest cover, and lower levels of impervious cover are essential to maintaining high quality waters. This project may permanently reduce riparian buffers and forest cover, or increase impervious cover within Tier II watersheds leading to a decrease in water quality. Depending upon project specific impacts, MDE may require monitoring, additional BMPs, expanded buffers in Table 1, and other studies prior to approval. This analysis is applicable to all areas of the **whole and complete project** within a Tier II watershed.

MDE will use the following information to determine **permanent** impacts to Tier II watershed resources. Complete the analysis for each Tier II watershed the proposed project may impact.

A. Tier II Stream Buffers

1. Instructions:
- **a. If no stream buffer impacts are proposed (within 100' of stream), mark this section N/A and proceed to Section B, Forest Cover.**
- **b. Insert the Tier II watershed name at the top of each box.**
- **c. "Impacted" stream segments are those disrupted by road crossings, other infrastructure, construction (ex. sewer lines), or otherwise buried**
- **d. Calculate buffer averages for 2(f) below on a stream segment-by-segment basis.**
- **e. Explain in detail alternatives considered, and any actions taken**

A. Tier II Stream Buffers - - Tier II Watershed: _____		
2. Calculation of Permanent Riparian Buffer Impacts to State Regulated Waters	**Linear Feet +/-**	
	LEFT Bank	**Right Bank**
a. Combined length of on-site stream segments:		
b. Combined length of EXISTING, pre-development, impacted stream segments:		
c. Combined length of PROPOSED, post-development, impacted stream segments:		
d. Total post-development impacted stream segments 2(b) + 2(c)=		
e. Total post-development unimpacted stream segments 2(a) - 2(d) =		
f. Combined length of streams, post-development, with an average 100' buffer, based on the value in 2(e):		
g. Potential Tier II Buffer Impacts 2(e) - 2(f) =		

A. Tier II Stream Buffers - - Tier II Watershed: _____

3. Buffer Impact Minimization:

Evaluate on-site alternatives for buffer impacts for segments identified in 2(g). Examples include minimizing ROW, narrowing paths, alternate routes for walkways, roads, crossings, etc. to avoid buffer impacts.

4. Buffer Impact Mitigation:

Mitigation or offsets can occur both on and off-site. On-site, the intent is to achieve a 100' average stream buffer width.

Per segment, locate areas where impacts to the 100' buffer are unavoidable. Include those impacts in the mitigation/offset alternatives analysis. Conditions under section D shall apply.

a) Evaluate on-site alternatives to identify areas where buffers could be expanded beyond the minimum 100' to offset areas of unavoidable buffer width constraints.
b) If there are no on-site areas, evaluate off-site areas, within the Tier II watershed, where buffers could be improved, expanded, or established.

5. Buffer Impact Justification:

If there are any remaining unavoidable impacts, provide narrative justification and supporting documentation for impacts. Reasons may include existing infrastructure, clearance necessary to comply with regulation, no alternative location for stormwater management, property boundary, etc.

6. Buffer Exhibit

Prepare a Tier II Buffer Exhibit for on-site streams. Dependent upon the number of segments, multiple sheets (8 ½" by 11") may be used. On an overview, label each segment (a, b, c…) and provide a tabular summary, per bank-segment (e.g., left bank of segment a), of average buffer width.

In addition to on-site streams, the exhibit shall display the following information:

- 100- foot riparian buffer. (symbolize with a line)
- Areas where the post-construction stream buffer are +/- 100 feet. (symbolize with shading, hatches, or dots, etc.)
- On-site areas where buffers could be maintained at a distance of greater than a 100' if there are unavoidable constraints in some locations. (symbolize with shading, hatches, or dots, etc.)

Table 1: Expanded Tier II Riparian Buffer

Adjusted Average Optimal Buffer Width Key (in Feet)				
	Slopes (%)			
Soils	0-5%	5-15%	15-25%	>25%
ab	100	130	160	190
c	120	150	180	210
d	140	170	200	230

B. Tier II Forest Cover

1. Instructions:

- **a. If there is no net forest cover loss within the impacted Tier II watershed, mark this section N/A and proceed to Section C, Impervious Cover.**
- **b. Insert the Tier II watershed name at the top of each box.**
- **c. "Potential Constraints" include forest loss due to ROW, property boundaries, regulatory requirements, etc.**
- **d. Explain in detail alternatives considered, and any actions taken**

B. Tier II Forest Cover - - Tier II Watershed: _____	
2. **Calculation of Permanent Forest Cover Impacts**	**Acres +/-**
a. Total on-site forest cover, EXISTING:	
b. Total on-site forest cover, POST-PROJECT:	
c. Total off-site reforestation or restoration, IN the Tier II Watershed listed above:	
d. Permanent forest loss due to potential constraints:	
e. Total forest cover retained in Tier II Watershed 2(b) + 2(c) =	
f. Total forest cover loss in Tier II Watershed 2(e) – 2(a) =	

B. Tier II Forest Cover - - Tier II Watershed: _____

3. Forest Cover Loss Minimization

If 2(d) is greater than 0, or if 2(f) is a negative value, evaluate on-site alternatives for forest cover impact minimization. Examples include minimizing ROW, alternate routes for roads, crossings, etc. to avoid forest cover impacts.

4. Forest Cover Loss Mitigation

To achieve no net negative impact as a result of the proposed activity, the applicant shall consider alternatives to mitigate impacts 'in-kind', for forest cover loss, to the maximum extent economically feasible. Provide additional information regarding the value in 2(c). Once those options are exhausted, applicants shall evaluate out-of-kind alternatives within the Tier II watershed that will help offset water quality impacts. These out-of-kind alternatives include impervious cover disconnection or retrofits, stream restoration, buffer enhancement, etc.

5. Forest Cover Loss Justification

If there are any remaining unavoidable impacts to forest cover, provide narrative justification and supporting documentation for impacts. Reasons may include existing infrastructure, clearance necessary to comply with regulation, no alternative location for stormwater management, property boundary, etc.

6. Forest Cover Exhibit

On an 8 ½" by 11" sheet(s), prepare an on-site Tier II Forest Cover Exhibit. Using varying symbology, show a basic site layout relative to 2(a), 2(b), and 2(d) above. Prepare a separate exhibit regarding any off-site reforestation, or out-of-kind mitigation opportunities in accordance with Section D.

C. Impervious Cover
1. Instructions: **a. If ESD is used to treat all new, on-site, post-construction stormwater, mark this section N/A and proceed to Section D, Mitigation and Other Potential Requirements.** **b. Insert the Tier II watershed name at the top of each box.** **c. Explain in detail alternatives considered, and any actions taken.**

C. Tier II Impervious Cover - - Tier II Watershed: _____	
2. Calculation of Impervious Cover Increase	**Acres +/-**
a. Total additional (new) impervious cover, POST-PROJECT:	
b. Total additional (new) impervious cover treated with ESD practices, POST PROJECT:	
c. Total impervious cover not treated with ESD practices, POST-PROJECT: *2(a) – 2(b) =*	

C. Tier II Impervious Cover - - Tier II Watershed: _____
3. Impervious Cover Minimization
If 2(c) is greater than 0, evaluate on-site alternatives for impervious cover impact minimization by identifying additional areas where ESD stormwater management practices can be utilized.
4. Impervious Cover Offsets
Add the area-acres of remaining unavoidable impervious cover increases (not treated with ESD) to the total targeted for mitigation under Section B(4). Increases such as these can be mitigated with forest cover restoration/afforestation, or through off-site mitigation alternatives such as impervious cover disconnection or retrofits, stream restoration, buffer enhancement, etc.
5. Impervious Cover Justification
If there is any remaining unavoidable addition of impervious surface acreage (not treated with ESD) and which is not offset, provide narrative justification and supporting documentation for impacts. Reasons may include existing infrastructure, clearance necessary to comply with regulation, no alternative location for stormwater management, property boundary, etc.
6. Impervious Cover Exhibit
On an 8 ½" by 11" sheet(s), prepare an on-site Tier II Impervious Cover Exhibit. Using varying symbology, show a basic site layout relative to 2(a), 2(b), and 2(c) above. Prepare a separate exhibit regarding any off-site reforestation, or out-of-kind mitigation opportunities in accordance with Section D.

D. Tier II Mitigation and Other Potential Requirements

1. If mitigation is necessary:

- **a. In-kind mitigation shall occur at a target ratio of 1:1.**
- **b. In order to satisfy the requirements of the Antidegradation Review, an applicant must demonstrate that they have conducted a robust alternatives analysis, <u>including mitigation</u> as a means for additional minimization of unavoidable impact to Tier II resources.**
- **c. MDE strongly recommends pre-application meetings.**
- **d. Regardless of application status, prepare preliminary analysis, including:**
  - **i. Preliminary site search for potential properties**
  - **ii. Basic exploration of out-of-kind possibilities, such as restoration, impervious cover retrofit or removal, etc.**
- **e. Mitigation is required for unavoidable net forest cover loss.**
- **f. The greater the net loss, the higher the restoration target.**

D. Tier II Mitigation and Other Potential Requirements

2. Mitigation Plan Components

a. <u>Statement of unavoidable impacts to Tier II waters</u>. This is total loss calculated in Section A (2)h, Section A(2)i, Section B (2)f, and Section C (2)c. Identify values specifically associates with stream buffers, forest cover, and impervious cover. Tabular totals shall be broken according to resource type and Tier II watershed impacted. The accompanying narrative shall include a summary of why impacts are considered unavoidable.

b. <u>Preferred mitigation alternatives analysis within the impacted Tier II watershed</u>. The order of mitigation alternatives is as follows:
   i. In-kind, on-site
   ii. In-kind, off-site
   iii. Out-of-kind, on-site
   iv. Out-of-kind, off-site

c. <u>Mitigation site alternative analysis</u>. Establish site search criteria. All locations must be located within the affected Tier II watershed identified for each unavoidable impact calculated in 2(a). Tabular totals shall include the amount of mitigation/offset selected alternatives achieve. Include maps of each mitigation property.

d. <u>Protection Mechanism</u>. Explain the plan proposed to ensure that all areas identified for mitigation shall be protected in perpetuity. Permittees shall be required to provide documentation in the form of covenants, landowner agreements, deed details, etc. as well as financial assurances. This shall be provided no more than 60 days after completion.

e. <u>Site Description</u>. Provide site address, name of property if known, map and parcel number, and centroid coordinates in latitude/longitude. Include maps of each mitigation property. Maps shall include natural resources (i.e. existing forest cover, streams, wetlands, etc.), roads, railways, and any other important identifying features. Maps shall include natural resources (i.e. existing forest cover, streams, wetlands, etc.), roads, railways, and any other important identifying features.

f. <u>Planting plan</u>: Reforestation shall incorporate optimum vegetation selection guidance provided in the *State Forest Conservation Technical Manual, 3rd edition, 1997 by Maryland Department of Natural Resources*.

D. Tier II Mitigation and Other Potential Requirements
2. Mitigation Plan Components, Continued
g. Monitoring Reports. Properties shall be monitored for a minimum of five years to ensure site success. Reports shall provide visuals of establishment progress, as well as narrative descriptions. Include any issues encountered, overcome, and potential changes that may be necessary to meet objectives.

D. Tier II Mitigation and Other Potential Requirements
3. Other Potential Requirements
a. pH Monitoring and Corrective Action Plan. Often associated with in-stream grout activities. b. Compaction Management Plan. Often associated with linear activities, such as pipelines. c. Water Quality Monitoring and Corrective Action Plan. Associated with projects with in-stream impacts. d. Biological Monitoring. Project requirement for complex projects with direct or significant impacts. e. Hydraulic Analysis. Projects may include direct or significant near-stream disturbances, such as grading, vegetative removal, watershed boundary changes, etc. f. Other requirements. To address unique impacts specific to the activity or site. g. Social and Economic Justification. Depending upon the scope of impacts to Tier II resources and streams, applicants may be required to provide additional documentation to justify the permitting of an activity that will degrade Tier II streams, on an socio-economic basis.

Applicant Signature: _____ Date: _____

Provide a hardcopy responses to:

Maryland Department of the Environment
Environmental Assessment and Standards Program
Antidegradation Implementation Coordinator
ATTN: Angel D. Valdez
1800 Washington Blvd
Baltimore, Maryland 21230

Provide an electronic response, by CD to the address above, or a way to download the response from secure cloud-based site, email: to Angel Valdez at angel.valdez@maryland.gov.