



MDEQ Beach Outfalls Challenge  
Design Submission Template

**Registered Teams must submit their Design Submissions in the provided template by 5:00 PM (CT) on March 31, 2017.** The completion and submission of the Design Submission is required of all teams to remain eligible in the Beach Outfalls Challenge.

The information provided in the Design Submission will be used by MDEQ and the Judges to determine if the applicant will continue to move forward in the Challenge as one of up to twelve (12) Semi-Finalists.

The proposed solution or design concept contained in the Design Submission must include a response to each question provided in the template. THE TEMPLATE RESPONSE FIELDS ARE LIMITED TO 3000 CHARACTERS. Additionally, the Design Submission must contain the following information **as specified**:

1. **Team Information**: as specified in Design Submission Template
2. **Images**: Design Submissions **must** include the following three (3) images of the proposed design implementation: top view, side view, front view; Teams may include up to two (2) additional drawings. Drawings may be hand drawn or computer generated, but they must be submitted as PDF files. All drawings must be clearly labeled and reference the question to which they apply.
3. **Technology Information Brochure**: An information brochure or other informational document may be submitted as an attachment to the Design Submission to better equip the judging panel with an understanding of the proposed technology to be used in the design.
4. **Supplemental Material**: **If claims are made regarding technical specifications or the results anticipated to be produced from the design, supplemental material must be included to support such claims.** For example, if a submission claims that certain technology may be used to reduce phosphorus by a certain percentage amount, this needs to be supported with data, peer reviewed articles or other academic material, or other similar information.

The focus of the Design Submission should be on the following criterion, with answers provided for the specific points contained in the template below:

1. Water Quality – 40%
2. Ecosystem Service Benefits – 25%
3. Logistics/Operations/Feasibility – 20%
4. Aesthetics – 15%



**Drawings and additional required/allowable attachments (see above) must be uploaded as PDF files to the Beach Outfalls Challenge website. All file names should include team name, topic of information contained and reference the question to which it applies.**

Please provide the information requested in the fields provided:

**TEAM INFORMATION:**

**Note: A team may consist of a company, educational institution, group of like-minded individuals or a single individual.**

Team Name:

Team Location:

Team Leader Name:

Description of Team (include team members and type of team (i.e. business, university, high school, independent group, individual)):



**NOTE: All response fields are limited to 3000 characters.**

**DESIGN SUBMISSION CONTENT:**

**1. Water Quality**

The Water Quality section of the submission accounts for 40% of the score.

A. Describe the physical, chemical, or biological processes that would result in an increase in water quality because of your solution.

B. Describe the life cycle/sustainability of your water quality improvement process.



C. There will be periods of zero flow through the outfalls and periods of high flow during storms through the outfalls. Describe how your water quality improvement process scales to variations in flow.

D. Describe the residence time associated with your water quality improvement process.



## 2. Ecosystem Service Benefits

The Ecosystem Service Benefits section of the submission accounts for 25% of the score. There are four categories of ecosystem services: Provisioning Services, Regulating Services, Cultural Services, and Supporting Services. For each service describe the scale of benefit. For example, how big of an area of habitat provision does the solution provide? 1 m<sup>2</sup> vs. 200 m<sup>2</sup>.

A. Describe any provisioning services your solution provides. A provisioning service is defined as a type of benefit to people that can be extracted from nature. For example, food (i.e., oysters, crabs, fish).

B. Describe any regulating services your solution provides. A regulating service is defined as the benefit provided by ecosystem processes that moderate natural phenomena. For example, water purification, carbon storage, pollination.



C. Describe any cultural services your solution provides. A cultural service is defined as a non-material benefit that contributes to the development and cultural advancement of people. For example, recreation.

D. Describe any supporting services your solution provides. A supporting service is defined as the benefit provided by creating or supporting natural underlying services. For example, nutrient cycling, photosynthesis, and secondary production.



**3. Logistics/Operations/Feasibility**

The Logistics/Operations/Feasibility section of the submission accounts for 20% of the score.

A. Describe how this solution impacts sediment transport.

B. Describe the Operations and Maintenance plan of sediment, nutrients, or other debris associated with this solution.



C. Describe the solution's impact on the following:

a. Infiltration of water into the beach;

b. Water flow within the culvert or pipe.





D. Describe the solution's impact on the integrity of the beach (erosion, deposition of sand and other materials). Address how the solution will be in compliance with Section 404 of the Clean Water Act and 33 USC 408.

E. Describe the estimated costs associated with 1) implementation and 2) operation of this solution.



#### **4. Aesthetics**

Describe how your solution enhances or does not degrade the aesthetics of the beach environment and/or stream environment. Teams are urged to include drawings/renderings of design to illustrate the aesthetic implementation. As stated above, the drawings/renderings must be uploaded, as a PDF file, to the challenge website and be clearly labeled, referencing the question to which they apply.