Name: _____ Date: _____

Evaluating Solutions to Protect Communities from Tsunamis

Part 1. Defining the Problem and Goal of a Solution

Problem: What is the problem we are trying to solve?

Goal: What do we need the solution to do?

Part 2. Identify the criteria for an effective solution.

What does our design solution have to be able to do to protect the community from a tsunami?

Criteria	What science ideas are important for us to consider with this criteria?

Part 3. Evaluating design solutions against the criteria.

The video you will watch was created by a company called JBA Group, a group of engineers and scientists focused on studying natural hazards in the Pacific region.

This is a quote from the JBA Group website: "We started our office in early 2016 with a clear focus; to increase community resilience to natural disasters...we want to study it, understand it, plan for it and propose ways to minimize impacts."

In the video, a coastal engineer, Daniel Rodger, explains how they test different design solutions to protect communities from large waves.

Design Solution	Notes from the Video	Rank Performance
Beach		
Seawall		
Levee or sea dike		
Recurved wall		
Rock armor		
Submerged breakwater		
Mangrove forest		

Part 4. What else do we need to consider before making a decision for Ryoishi?
Consider these questions:

1. What is important to Ryoishi? Does the solution fit with the economy and culture of the residents?
2. Does the design solution negatively impact one group of people over another?
3. Does the design solution pose any safety risks or negative impacts to the environment?
4. How affordable is it? Is it easy to build and maintain?

Let's define the constraints we have on our choices. Constraints are things that might limit which solutions are possible for the community.

Constraints	Why would this be an important consideration?