

# Using Mitigation Sequencing Within A Landscape Context



**Mitigation That Works Forum  
June 17, 2008**

# Mitigation Sequencing

- Emphasizes avoidance first
- Then minimization
- And finally mitigation on-site

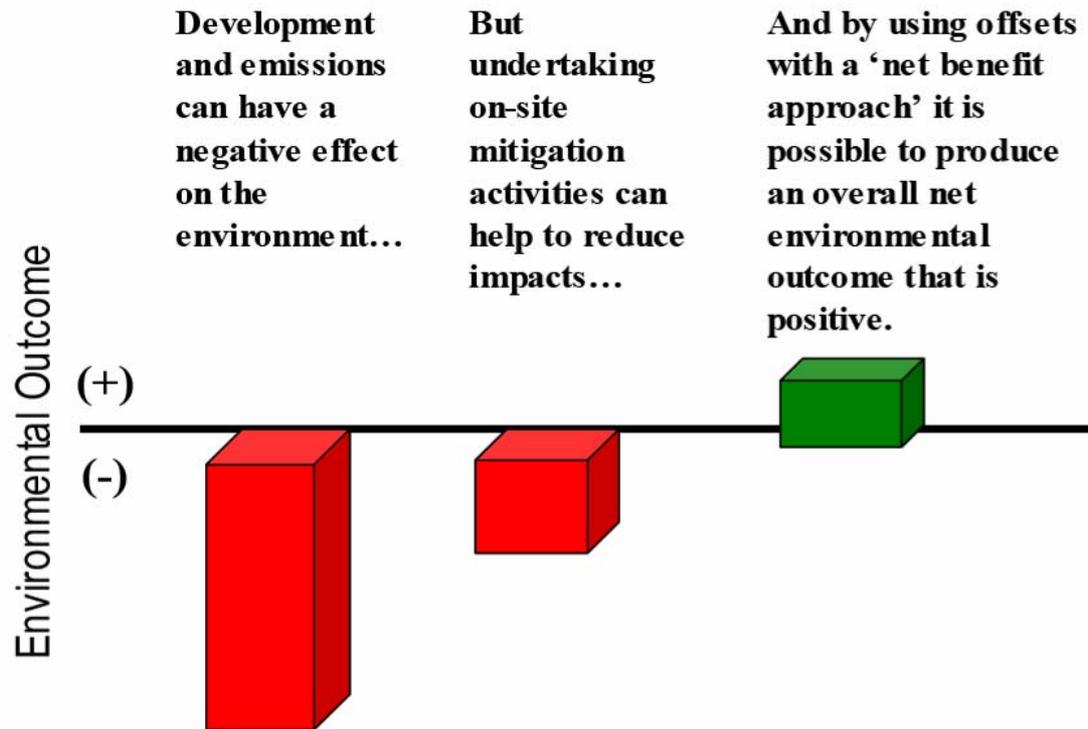
In many cases avoidance or mitigation on-site can result in a loss of functions.

# Why Mitigation Sequencing Is Not Working

- Avoidance can decrease functions of existing wetlands



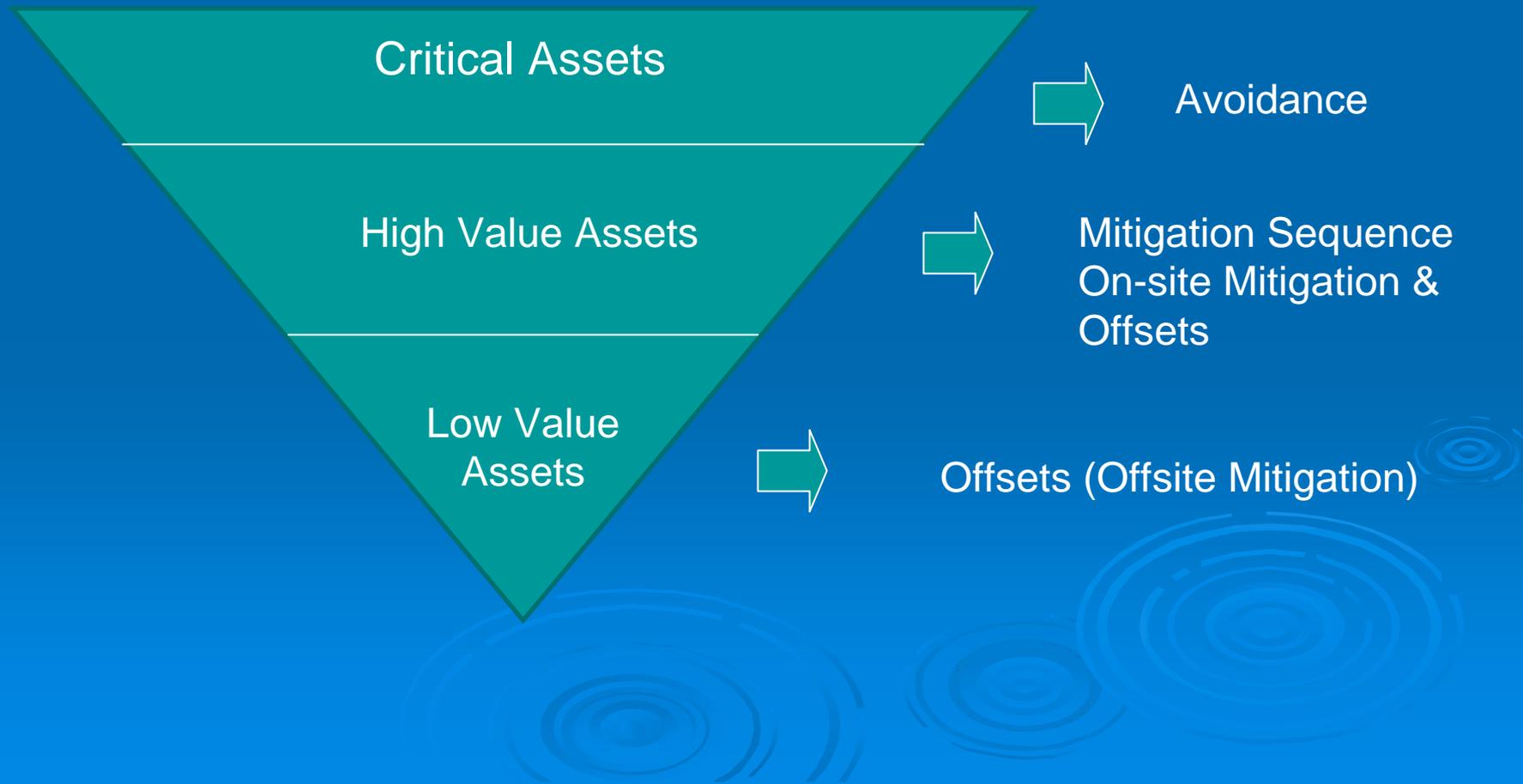
# How Other Countries Have Dealt With This Problem



**Figure 1:** The purpose of a 'net environmental benefit' goal is to achieve a positive environmental outcome from new development or emissions. Adapted from NSW EPA (2002).

# Mitigation Framework in Western Australia

## Inventory and Assess Environmental Assets



# Mitigation Framework in Western Australia

## Offset Package (Offsite Mitigation)

### Direct Offsets:

Restoration  
Rehabilitation & Re-establishment  
Acquisition

### Contributing Offsets

Protection  
Banking – credit trading  
Removal of Threats  
On-going Management

### Offsets must be:

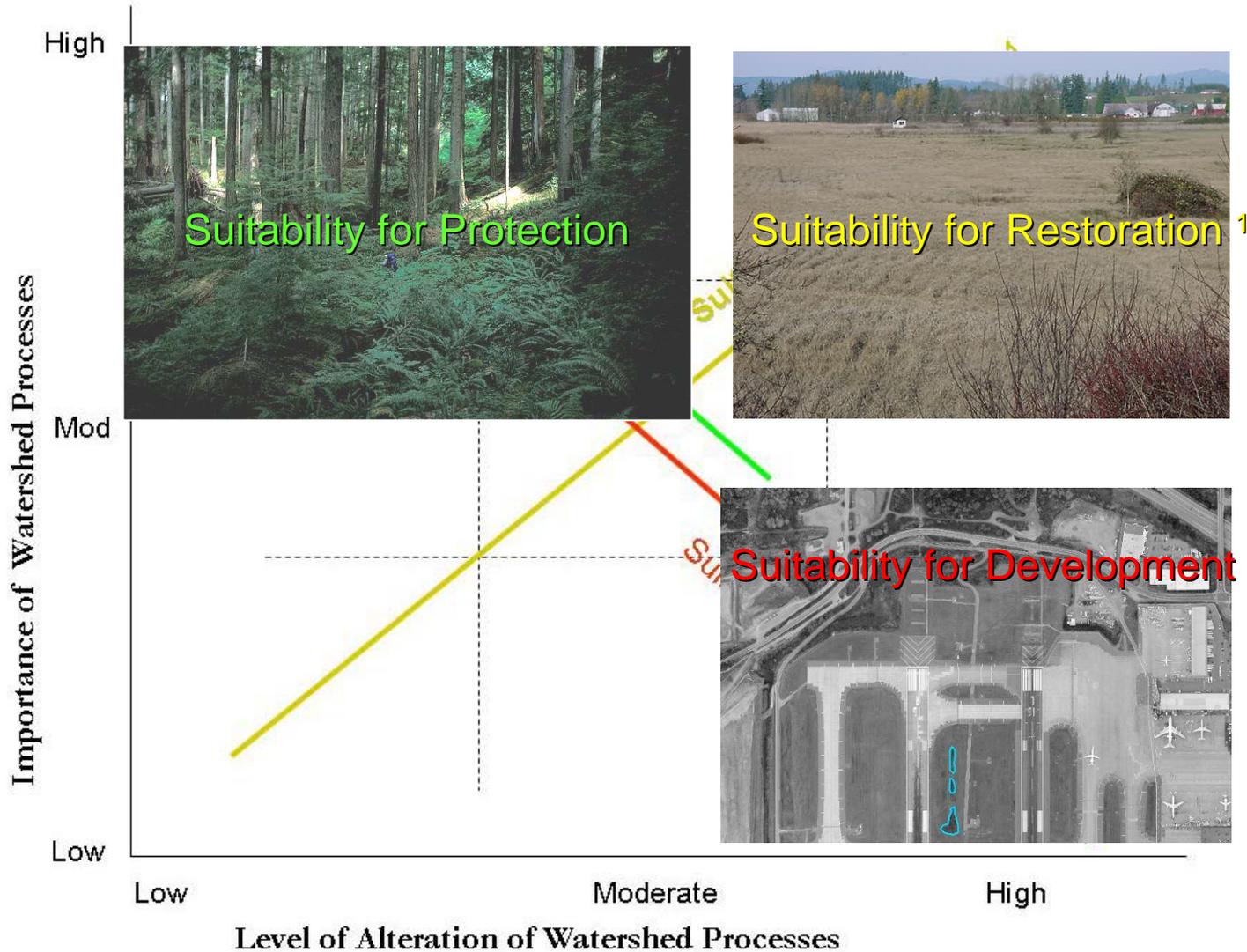
**Clearly defined,  
enforceable**

**Provide long lasting  
benefit**

**Developed through a  
robust assessment  
process**

# Watershed Characterization & Analysis

Setting Priorities for Protection & Restoration of Sub-basins at a Watershed Scale

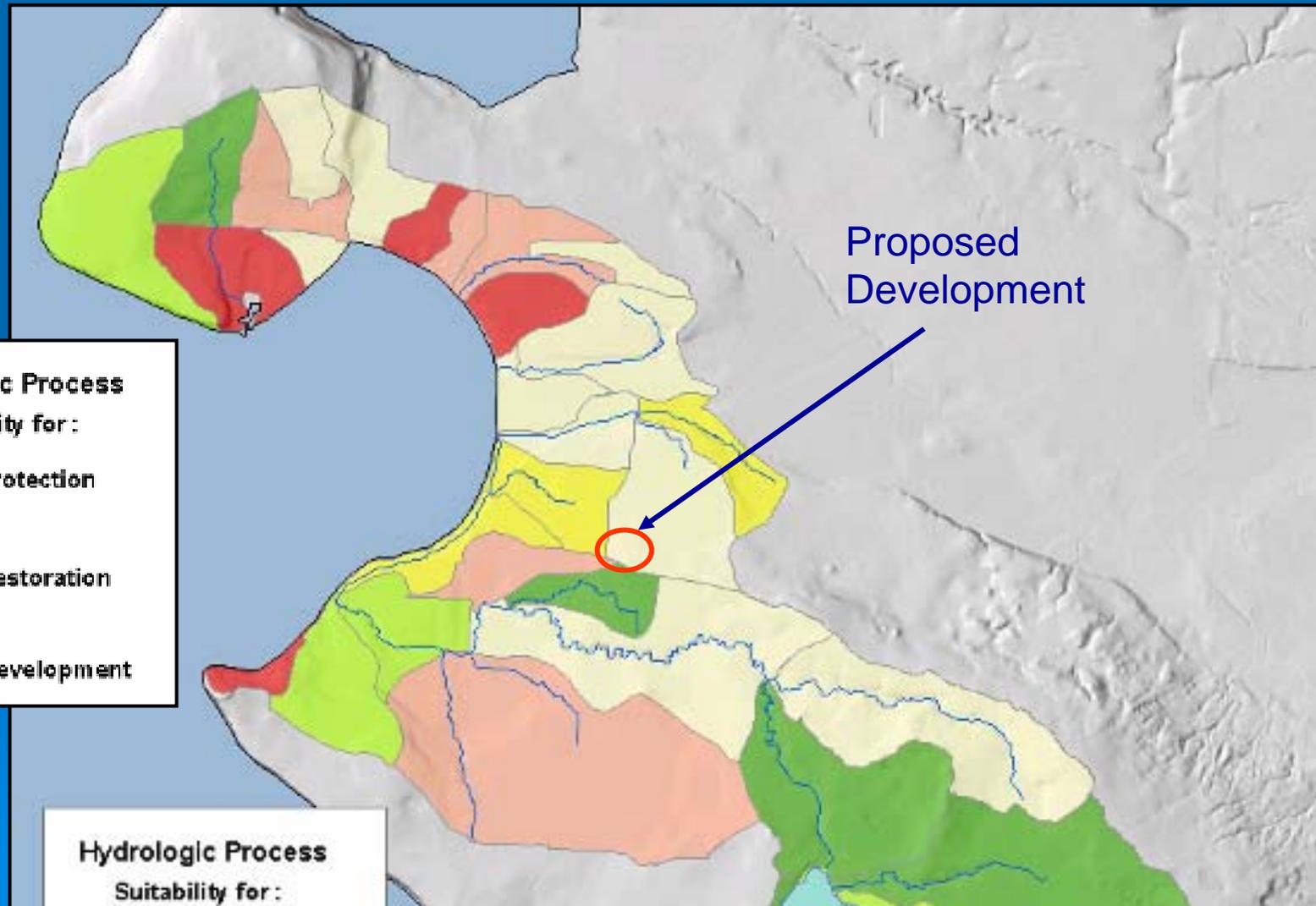


1 = restoration strategies are modified for urban areas

# Example of Applying Watershed Based Mitigation Approach in Birch Bay



# Location of Proposed Development Relative to Characterization Results



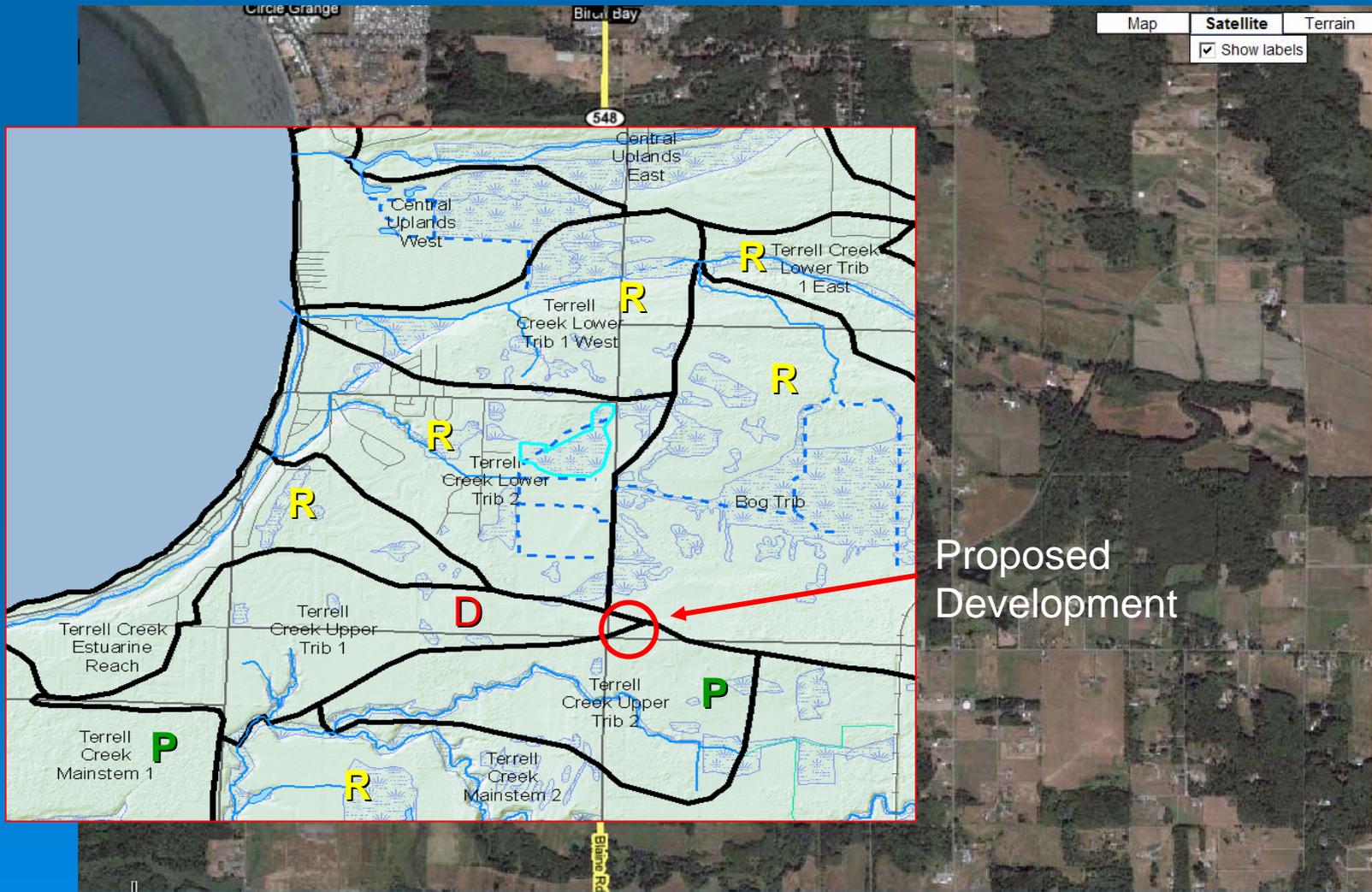
**Hydrologic Process Suitability for :**

- Protection
- Restoration
- Development

**Hydrologic Process Suitability for :**



# Wetlands Inventory & Characterization Results



# Surrounding Uses

Offset Area

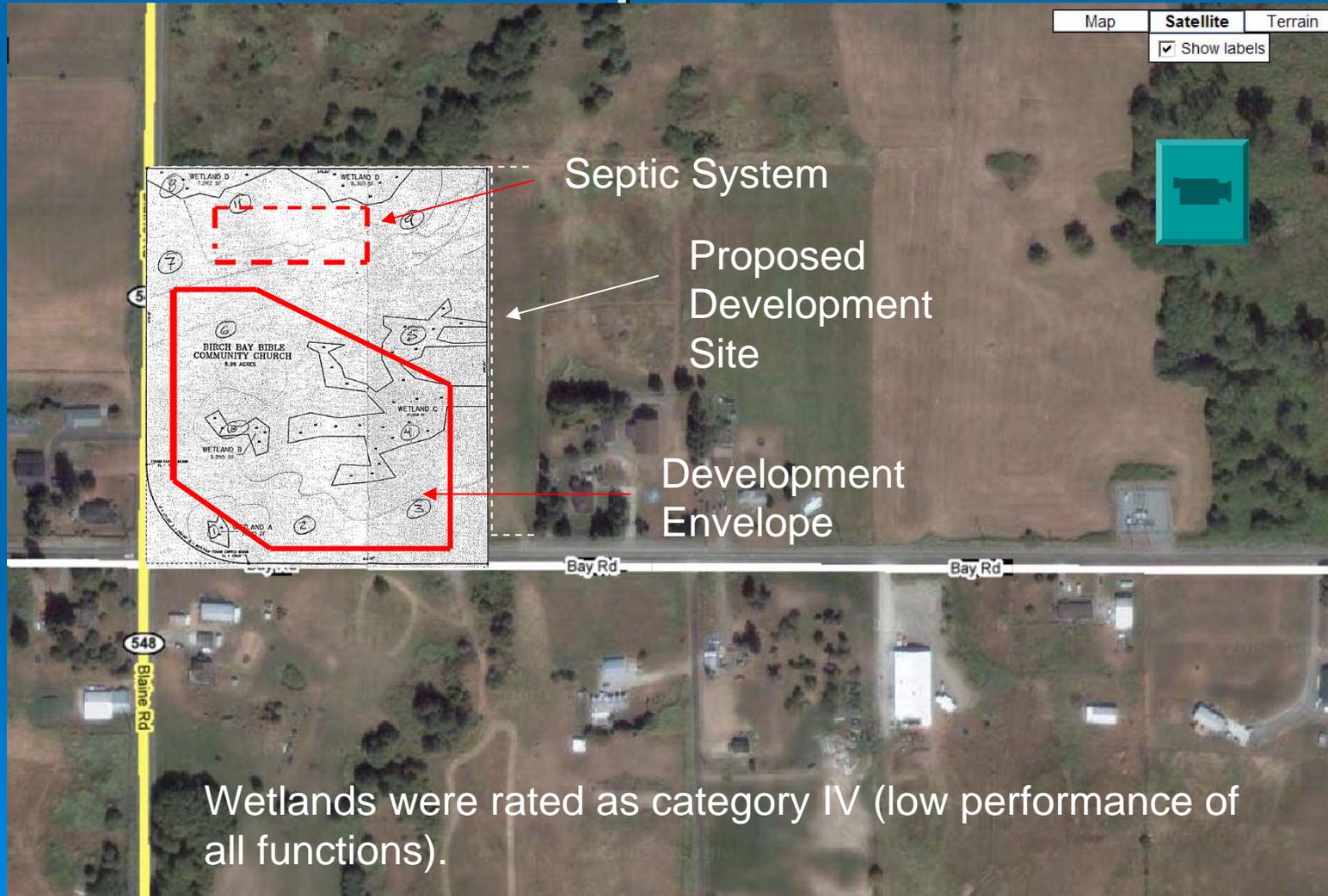


# Surrounding Uses



Latitude 48.9141 N  
Longitude 122.7250 W  
Altitude 82 feet  
100 yrd  
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# Site Conditions & Development Impacts



# Recommended Mitigation Based on Watershed Conditions and Analysis



# Information on Offsets

- [http://www.epa.wa.gov.au/docs/1863\\_PS9.pdf](http://www.epa.wa.gov.au/docs/1863_PS9.pdf)
- <http://www.environment.gov.au/epbc/publications/draft-environmental-offsets.html>
- <http://www.environment.gov.au/biodiversity/publications/series/paper10/pubs/elix.pdf>