

## Stream Simulation Design Data Checklist

This is a guide and summary for design and review of a stream simulation road / stream crossing. Data is summarized to show design milestones, assumptions, and conclusions. This isn't necessarily all of the data required for a design.

A plan view sketch and a long profile should be attached to this design data form. See the design guide for background for all data and details recommended on sketches.

Project name and ID	
Stream	
Road, location	
ID Team members	
Date	

### Long Profile, Plan View Sketch

Provide long profile and plan view sketch on separate sheets.

Is there an existing Culvert(s)?    Y / N    Length \_\_\_\_\_    Size \_\_\_\_\_

**Characteristics of pre-project site**

Existing culvert perched?                      Y / N                      Height of perch \_\_\_\_\_

Downstream channel incised?                  Y / N                      Depth of incision \_\_\_\_\_

Evidence of incision \_\_\_\_\_

Upstream backwater deposition                  Y / N

Evidence and extent \_\_\_\_\_

Downstream segment slopes                      Average \_\_\_\_\_                      Range \_\_\_\_\_

Upstream segment slopes                          Average \_\_\_\_\_                          Range \_\_\_\_\_

## Proposed Project Profile and Alignment

### Show proposed project profile on long profile plot.

Proposed new channel within crossing. Slope \_\_\_\_\_ Length \_\_\_\_\_

Upstream channel within project Slope \_\_\_\_\_ Length \_\_\_\_\_

Downstream channel within project Slope \_\_\_\_\_ Length \_\_\_\_\_

### Channel elevations at ends of proposed culvert:

	Downstream end	Upstream end
At low potential profile		
At high potential profile		
At proposed constructed profile		

**Proposed culvert skew** Channel to culvert (parallel is 0 ) \_\_\_\_\_

Road to culvert (perpendicular is 90 ) \_\_\_\_\_

**Proposed alignment, transition changes** \_\_\_\_\_

\_\_\_\_\_

## Reference Reach

### Description of reference reach

Location of reference reach (e.g.; "150' upstream from crossing)

\_\_\_\_\_

Show location of reference reach on plan view sketch and profile.

Length of reference reach \_\_\_\_\_

Reference reach channel types (e.g.; 75% pool-riffle, 25% plane bed)

\_\_\_\_\_

Key bed features, function, and spacing (debris, steps, bends, etc)

\_\_\_\_\_

Bed mobility and how it was determined

\_\_\_\_\_

Key bank features and frequency

\_\_\_\_\_

\_\_\_\_\_

**Reference reach cross sections**

Cross section labels and locations			
Bankfull width			
Bankfull depth			
Floodprone width			
Depth to high water mark			

**Reference reach slope**

Average \_\_\_\_\_

Range \_\_\_\_\_

**Reference reach bed material**

	Particle size (inches or mm)	How was particle size determined?
D95		
D84		
D50		
D16		
D5		
Fines		

	Size (inches or mm)	Function	Spacing	dh	Permanence, mobility, condition
Debris and live wood					
Colluvium					
Bedrock					
Steps, clusters					

Function: Profile control, Roughness, Confinement, Bank stability

## Project Design

### Mobility / stability analysis

Purpose of mobility / stability analysis:

Floodplain contraction.

Widths, entrenchment ratio with culvert: \_\_\_\_\_

Culvert slope greater than reference reach.

Slopes, ratio (stream simulation / reference): \_\_\_\_\_

Culvert length greater than reference reach.

Lengths, ratio (stream simulation / reference): \_\_\_\_\_

### Design flows

Design Flows	Return period (years)	Flow (cfs or cms)	How was flow estimated, certainty
Floodplain contraction			
Stability of key features			
Flood capacity			
Headwater depth			

### Stream simulation bed material

	Particle size (inches or mm)	How was particle size determined? (what model, observations)
	D95	
	D84	
	D50	
	D16	
	D5	

Project \_\_\_\_\_

Project ID \_\_\_\_\_

Date \_\_\_\_\_

**Additional features if included in the design**

	Particle size (inches or mm)	Frequency, spacing	How identified, designed
Bands			
Banklines			
Key features			

**Proposed structure**

Description, dimensions \_\_\_\_\_

Span \_\_\_\_\_

Rise \_\_\_\_\_

Length \_\_\_\_\_

Slope \_\_\_\_\_

Culvert floor elevations

Upstream end \_\_\_\_\_

Downstream end \_\_\_\_\_

**Headwater depth (and how was it determined)?**

At flood capacity flow \_\_\_\_\_

At headwater depth flow \_\_\_\_\_

**Other special considerations, recommendations**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_