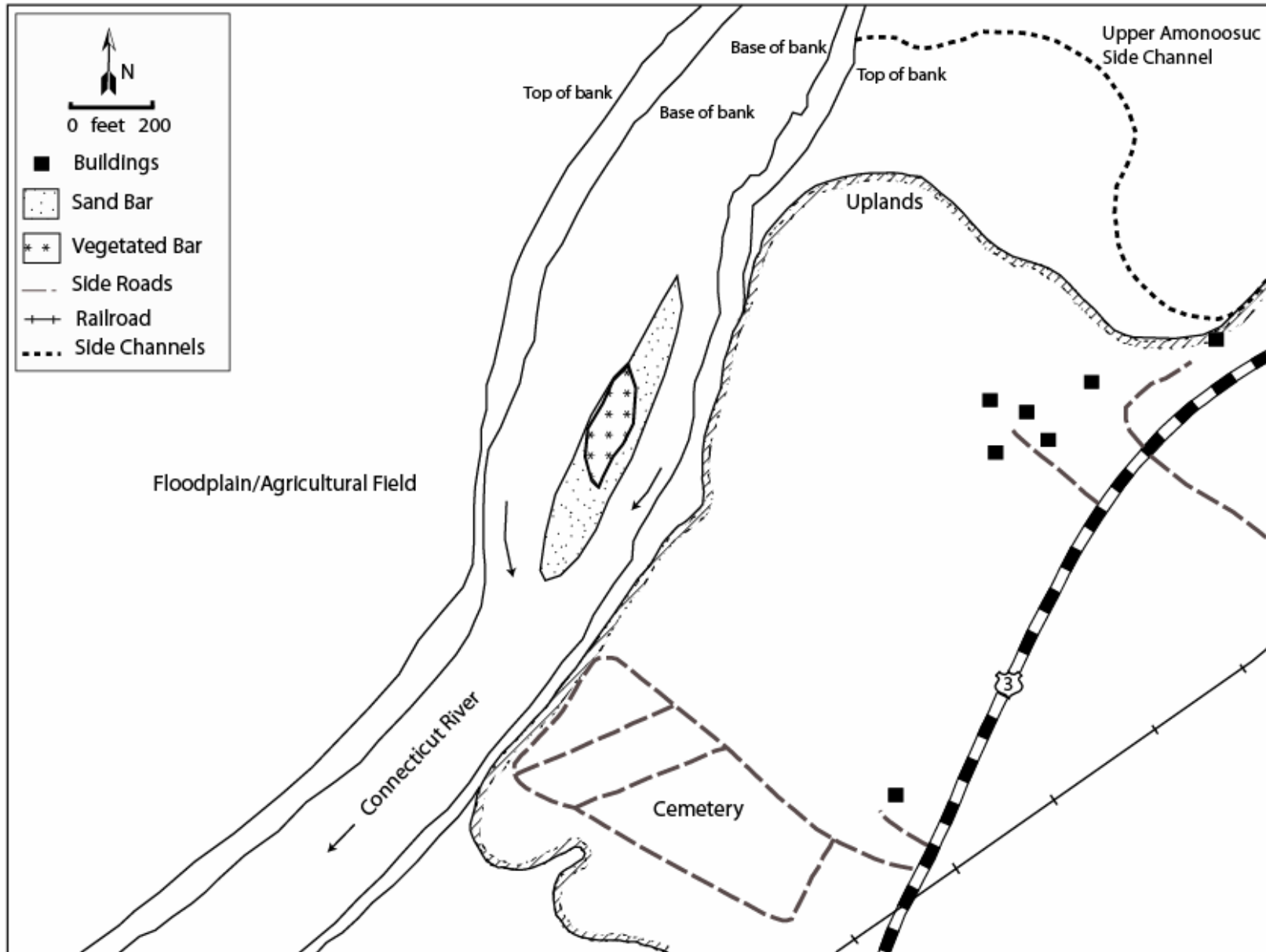


Northumberland Cemetery - Do Nothing



Do Nothing Option

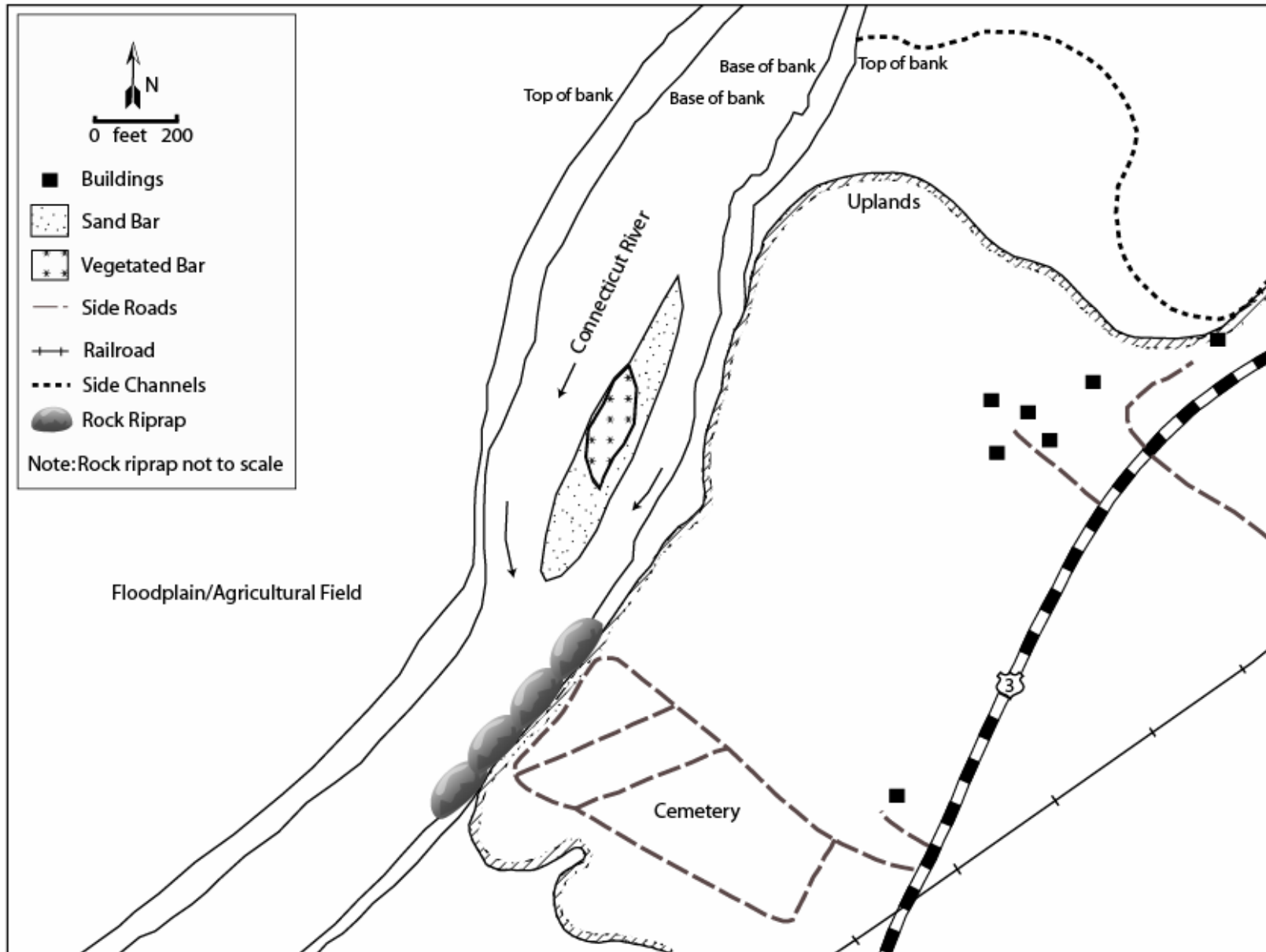
Pros:

- No investment
- Avoid complicated setting
- Erosion progressing slowly
- Removal of graves may be cheaper than other options

Cons:

- Does not address public concerns
- Instability remains
- No habitat improvement

Northumberland Cemetery - Rock Riprap



Rock Riprap Option

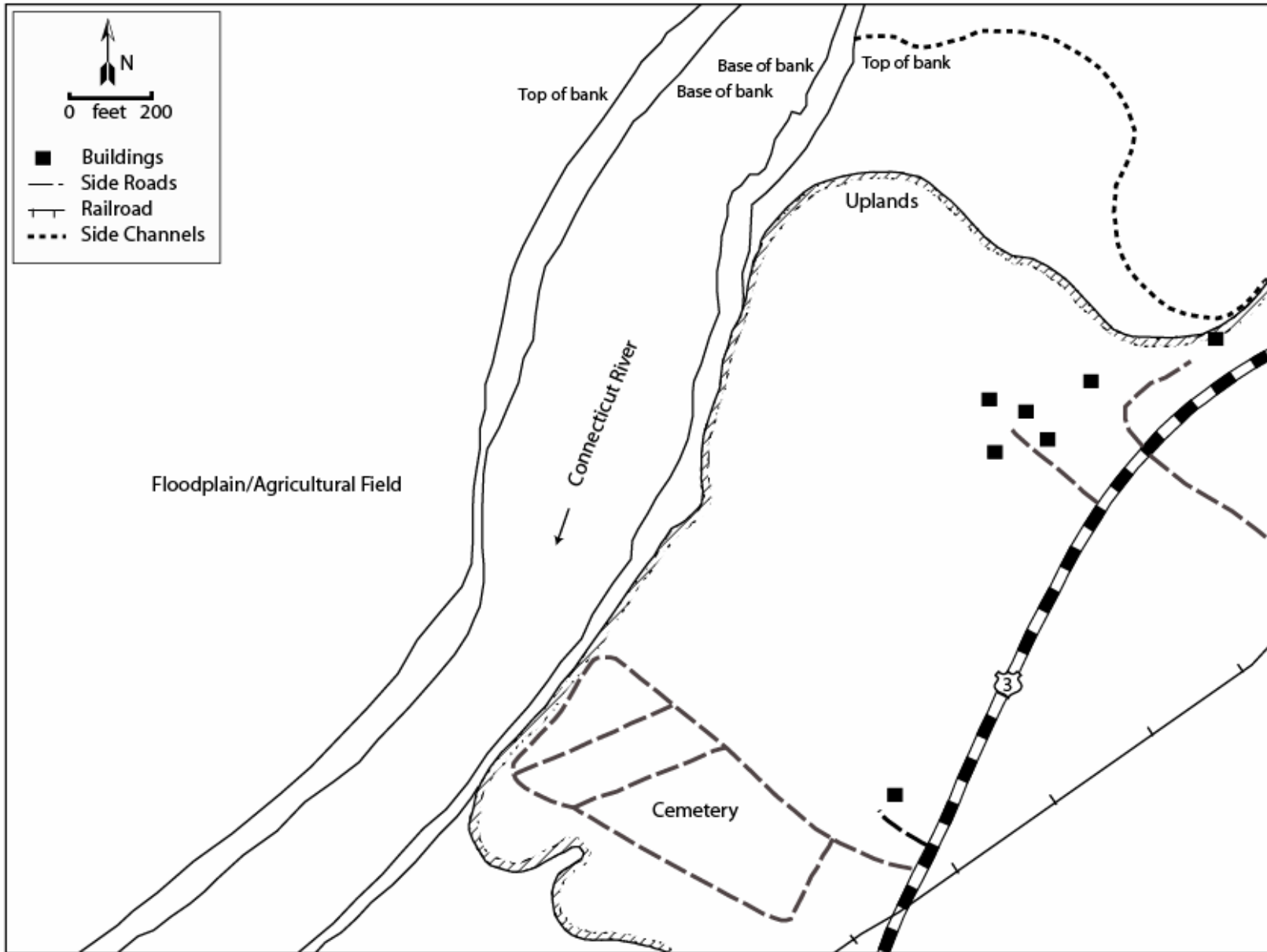
Pros:

- Stop erosion
- Ease public concerns
- Could be done in conjunction with plantings on upper slope

Cons:

- Short term success (<15 yrs)
- Potentially undermined
- Transfer instabilities downstream
- Degrades habitat
- Unnatural
- Expensive
- Permitting difficulties

Northumberland Cemetery - Remove Sand Bar



Remove Sand Bar Option

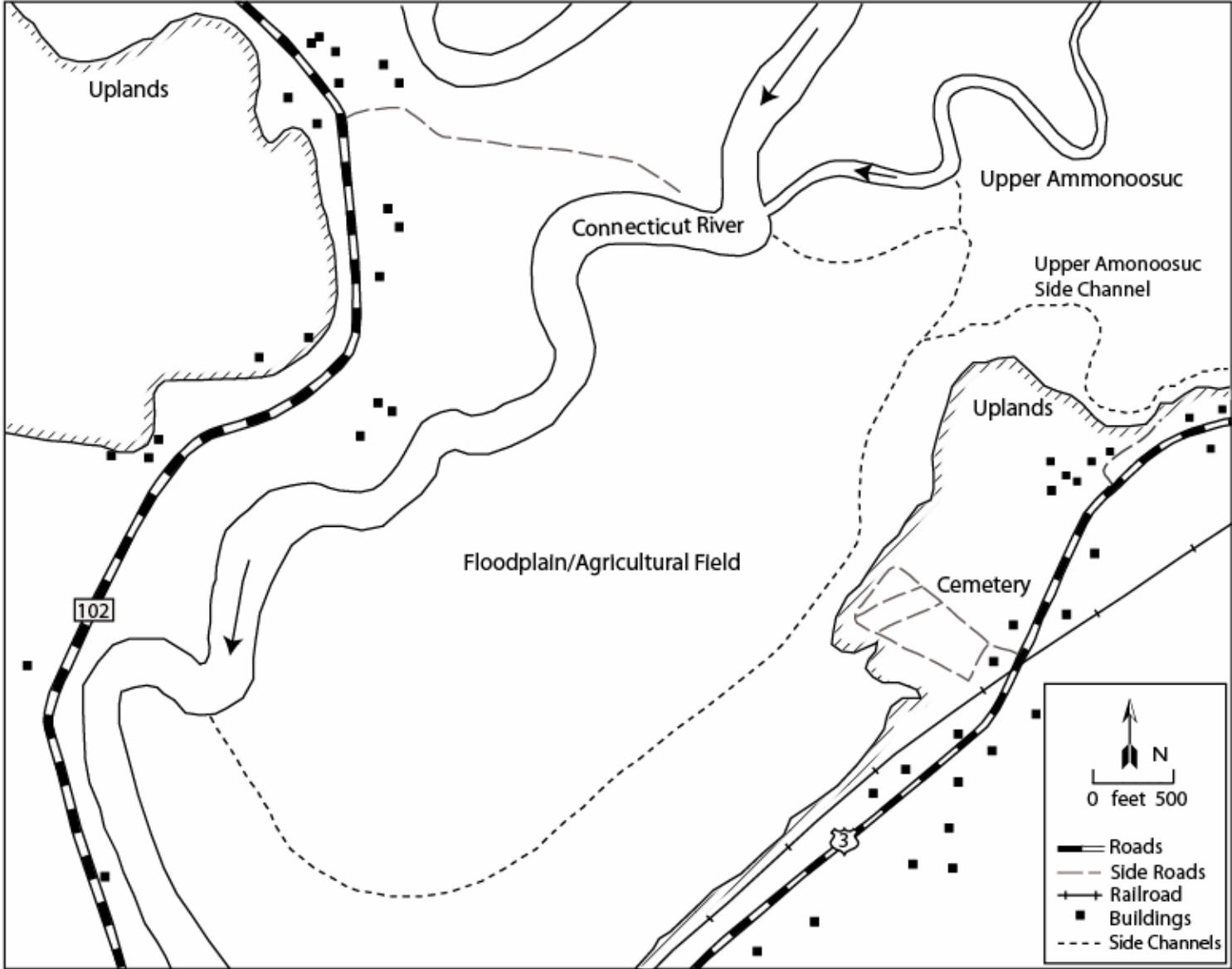
Pros:

- Less flow deflection into bank
- Initial low cost
- Sand resource

Cons:

- Short term success (<5 yrs)/Frequent need to redo
- Flow may still impact bank
- Shallower flows lead to degraded habitat
- Permitting difficulties
- Possible erosion downstream

Northumberland Cemetery - Channel Realignment



Channel Realignment Option

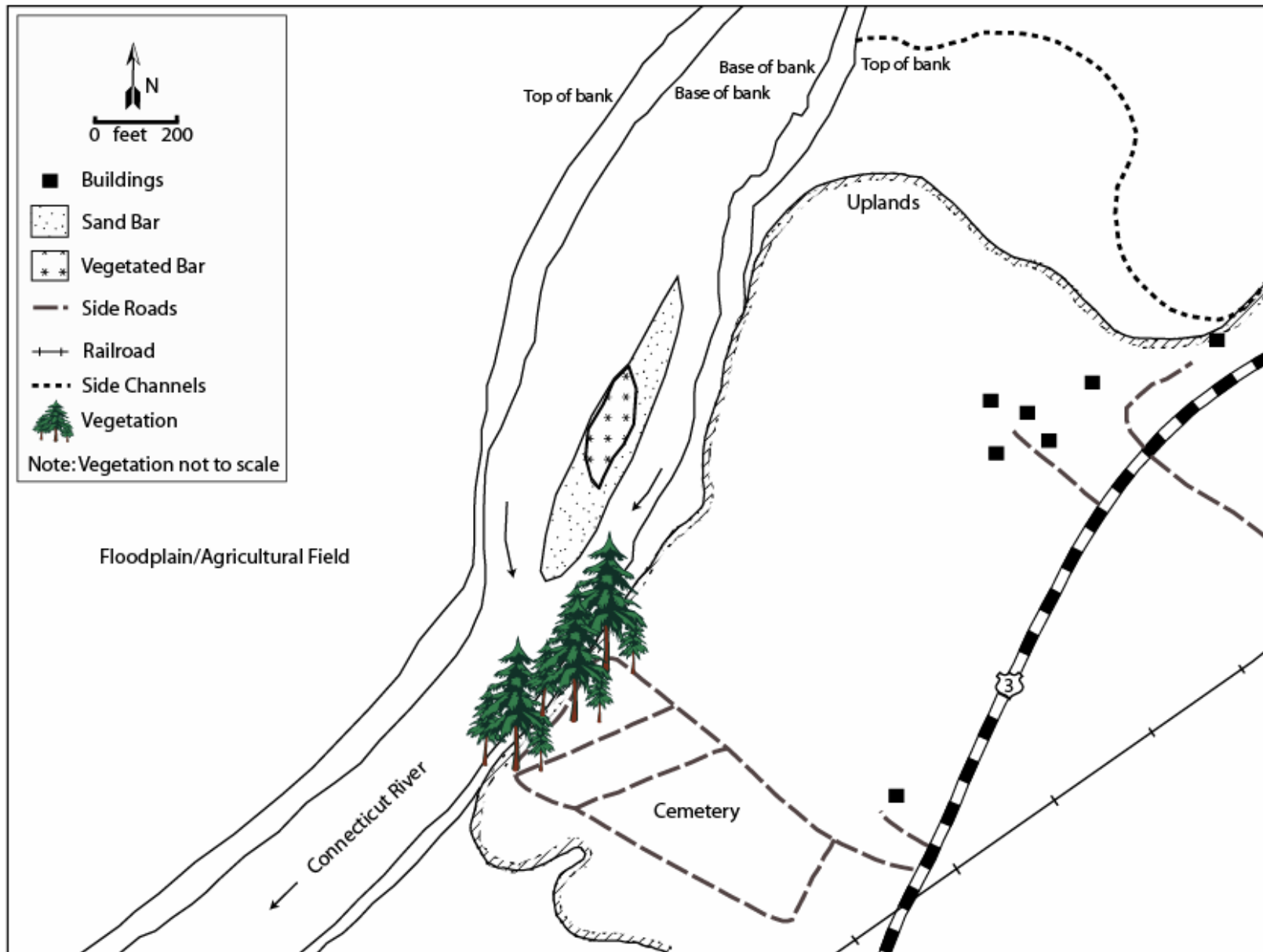
Pros:

- Relieve pressure on bank
- Channel returned to previous channel
- Increased channel sinuosity
- Potentially improved habitat

Cons:

- Possible unintended consequences
- Upstream and downstream adjustments likely
- Expensive
- Permitting difficulties
- Landowner permission needed

Northumberland Cemetery - Revegetate Slope



Revegetate Slope Option

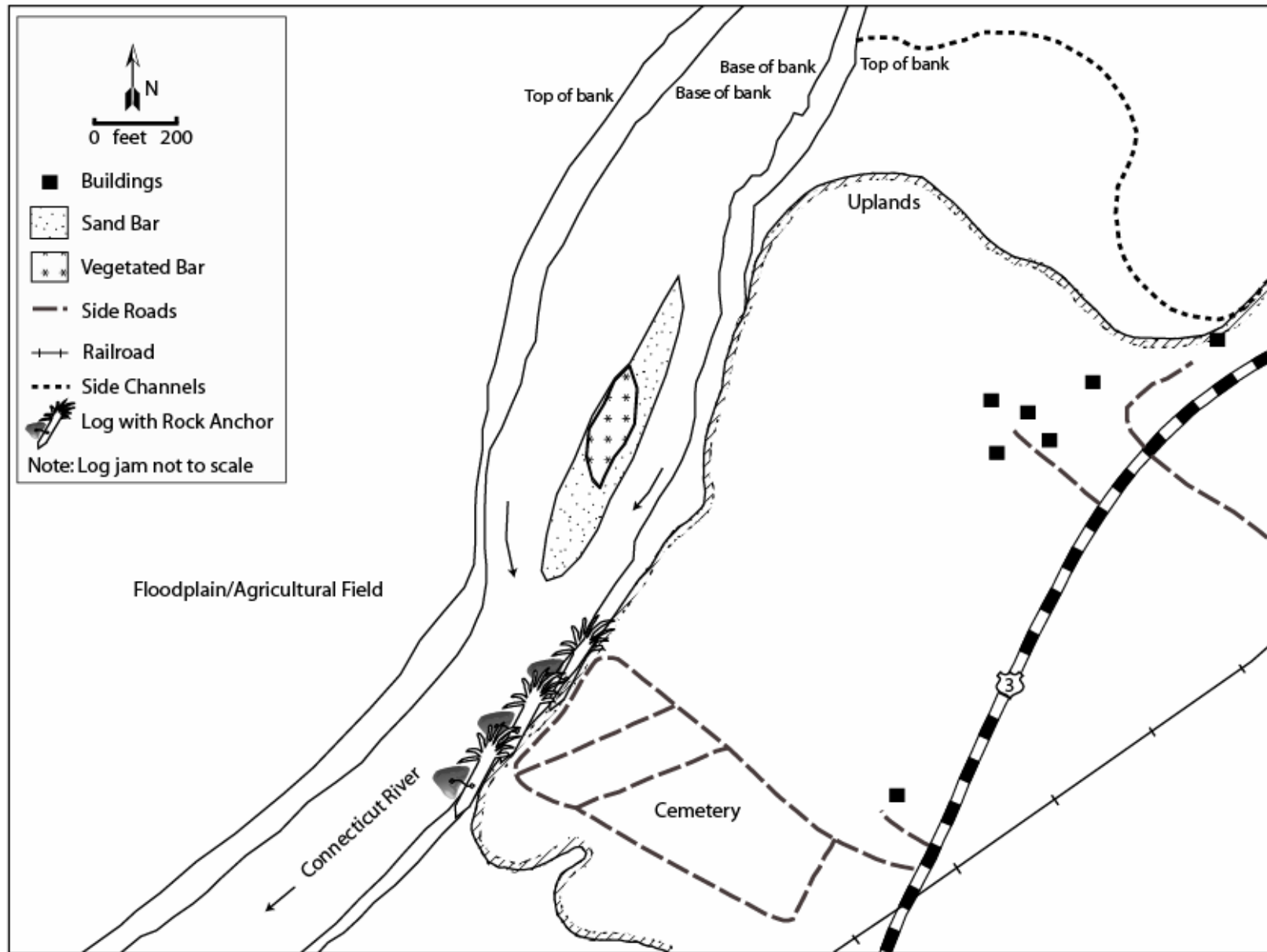
Pros:

- Slow rate of erosion
- Improve soil cohesiveness
- Improve habitat
- Ease public concerns
- Low cost

Cons:

- Several years before well established
- Does not stabilize base of slope
- High plant mortality

Northumberland Cemetery - Engineered Log Jam



Engineered Log Jam Option

Pros:

- Create cover habitat
- Stabilize base of bank
- Mimics natural process
- Demonstration value
- Compatible with revegetation option

Cons:

- Expensive
- Anchoring logs may be problematic
- Short term protection as logs decompose