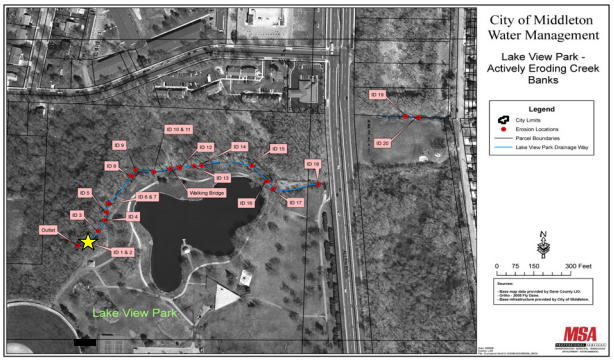
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 1
**Location:** Approximately 45' Downstream of Outlet
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight (lb/ft$^3$) | | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | RIGHT |
| Length (ft) | 90 |
| Height (ft) | 3 |
| Lateral Recession Rate (ft/yr)** | 0.2 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 2.4 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the LRR. Please refer to the table below for typical values.

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes U-shaped as opposed to V-shaped. |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be meandering. |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surface Water Quality Division - Nonpoint Source Unit. EQP 5841 (6/99).
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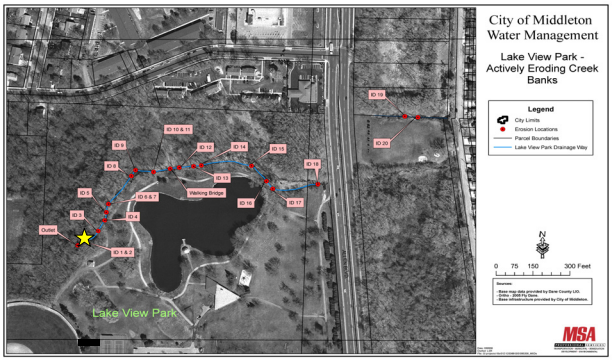
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 2
**Location:** Approximately 40' Downstream of Outlet
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight (lb/ft$^3$) | | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | LEFT |
| Length (ft) | 100 |
| Height (ft) | 3 |
| Lateral Recession Rate (ft/yr)** | 0.1 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 1.4 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
"Reproduced by Wisconsin NRCS. 2003. Streambank Erosion, printed in *Field Office Technical Guide*."

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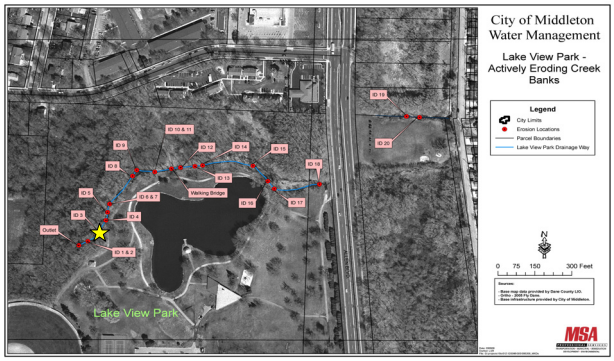
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 3
**Location:** Approximately 110' Downstream of Outlet
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight (lb/ft$^3$) | | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | LEFT |
| Length (ft) | 90 |
| Height (ft) | 3 |
| Lateral Recession Rate (ft/yr)** | 0.3 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 3.6 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
"Reproduced by Wisconsin NRCS. 2003. Streambank Erosion, printed in *Field Office Technical Guide*."

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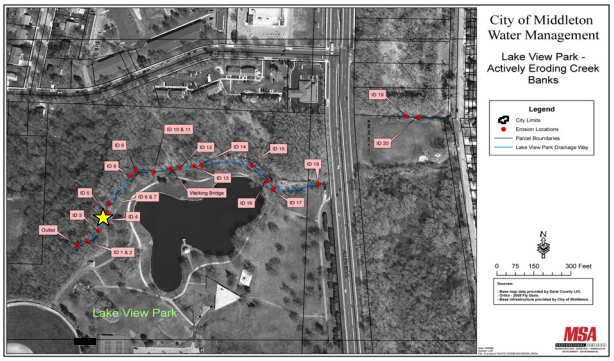
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 4
**Location:** Approximately 150' Downstream of Outlet
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight (lb/ft$^3$) | | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | ☒ | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | RIGHT |
| Length (ft) | 40 |
| Height (ft) | 3 |
| Lateral Recession Rate (ft/yr)** | 0.3 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 1.6 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
"Reproduced by Wisconsin NRCS. 2003. Streambank Erosion, printed in *Field Office Technical Guide*."

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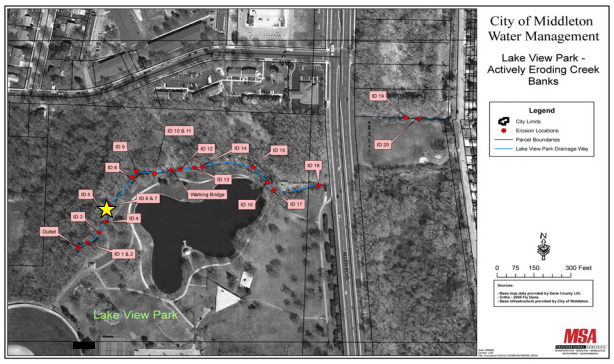
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 5
**Location:** Approximately 200' Downstream of Outlet
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight (lb/ft$^3$) | | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | LEFT |
| Length (ft) | 35 |
| Height (ft) | 3 |
| Lateral Recession Rate (ft/yr)** | 0.3 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 1.4 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
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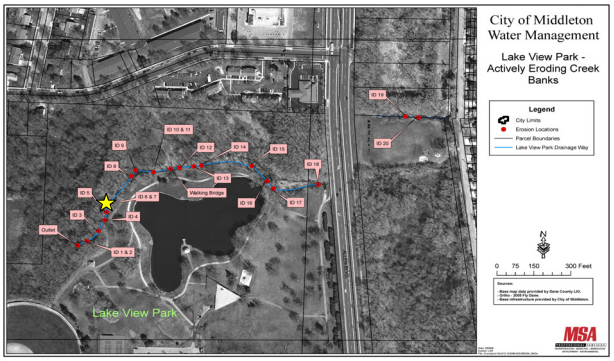
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 6
**Location:** Approximately 240' Downstream of Outlet
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight ($lb/ft^3$) | | Soil Texture | Unit Weight ($lb/ft^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | RIGHT |
| Length (ft) | 40 |
| Height (ft) | 3 |
| Lateral Recession Rate (ft/yr)** | 0.2 |
| Soil Unit Weight ($lb/ft^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 1.1 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
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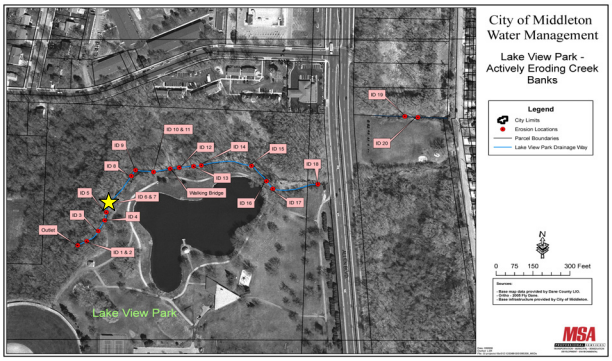
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 7
**Location:** Approximately 240' Downstream of Outlet
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight (lb/ft$^3$) | | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | LEFT |
| Length (ft) | 25 |
| Height (ft) | 3 |
| Lateral Recession Rate (ft/yr)** | 0.3 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 1.0 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
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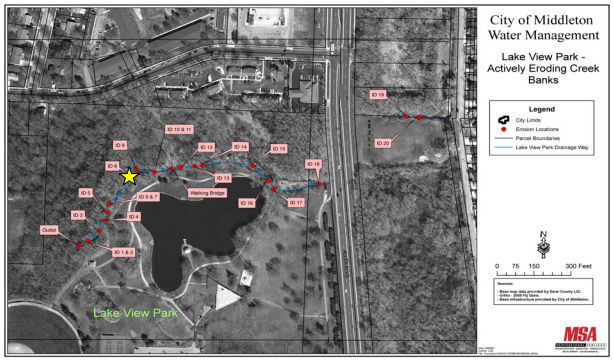
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 8
**Location:** Approximately 165' Upstream Walking Bridge
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight (lb/ft$^3$) | | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | LEFT |
| Length (ft) | 60 |
| Height (ft) | 5 |
| Lateral Recession Rate (ft/yr)** | 0.3 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 4.1 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
"Reproduced by Wisconsin NRCS. 2003. Streambank Erosion, printed in *Field Office Technical Guide* ."

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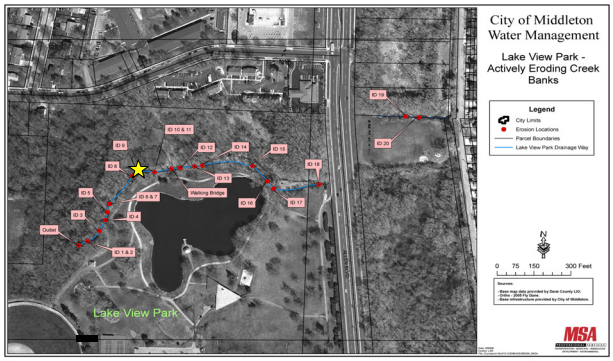
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 9
**Location:** Approximately 140' Upstream Walking Bridge
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight (lb/ft$^3$) | | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | RIGHT |
| Length (ft) | 80 |
| Height (ft) | 5 |
| Lateral Recession Rate (ft/yr)** | 0.5 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 9.0 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
"Reproduced by Wisconsin NRCS. 2003. Streambank Erosion, printed in *Field Office Technical Guide*."

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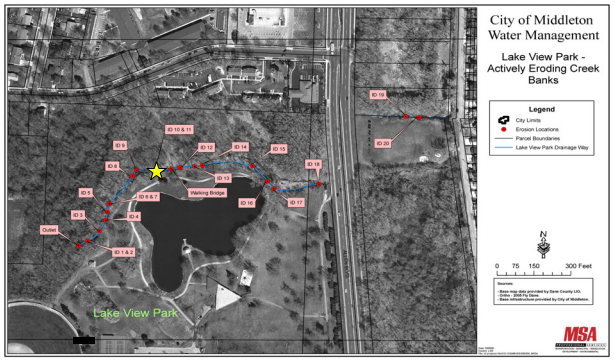
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 10
**Location:** Approximately 80 feet upstream of walking bridge
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight ($lb/ft^3$) | | Soil Texture | Unit Weight ($lb/ft^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | LEFT |
| Length (ft) | 125 |
| Height (ft) | 3 |
| Lateral Recession Rate (ft/yr)** | 0.1 |
| Soil Unit Weight ($lb/ft^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 1.7 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
"Reproduced by Wisconsin NRCS. 2003. Streambank Erosion, printed in *Field Office Technical Guide* ."

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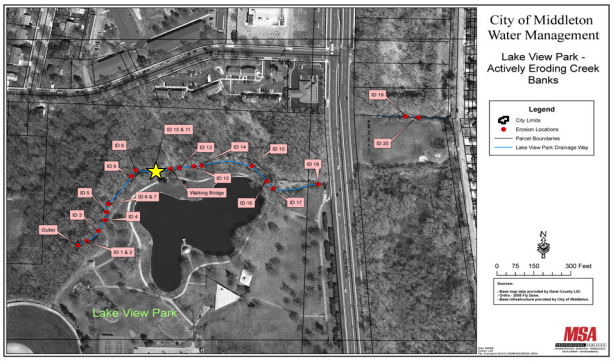
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 11
**Location:** Approximately 80 feet upstream of walking bridge
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight (lb/ft$^3$) | | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | RIGHT |
| Length (ft) | 125 |
| Height (ft) | 3 |
| Lateral Recession Rate (ft/yr)** | 0.1 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 1.7 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the LRR. Please refer to the table below for typical values.

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes U-shaped as opposed to V-shaped. |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be meandering. |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surface Water Quality Division - Nonpoint Source Unit. EQP 5841 (6/99).
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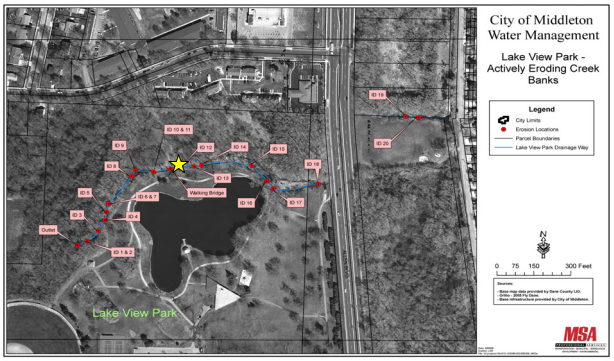
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 12
**Location:** Approximately 40' Downstream of Walking Bridge
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight ($lb/ft^3$) | | Soil Texture | Unit Weight ($lb/ft^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | LEFT |
| Length (ft) | 50 |
| Height (ft) | 4 |
| Lateral Recession Rate (ft/yr)** | 0.3 |
| Soil Unit Weight ($lb/ft^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 2.7 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
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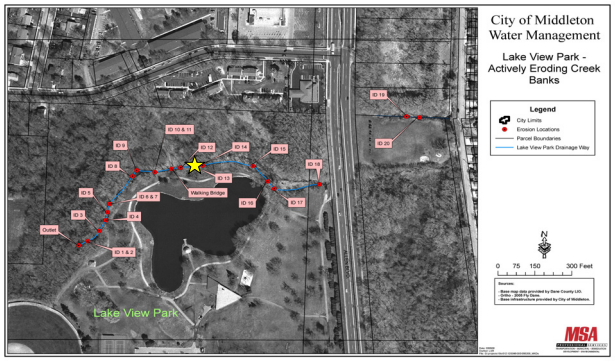
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 13
**Location:** Approximately 100' Downstream of Walking Bridge
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight (lb/ft$^3$) | | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | LEFT |
| Length (ft) | 165 |
| Height (ft) | 3 |
| Lateral Recession Rate (ft/yr)** | 0.06 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 1.3 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
"Reproduced by Wisconsin NRCS. 2003. Streambank Erosion, printed in *Field Office Technical Guide*."

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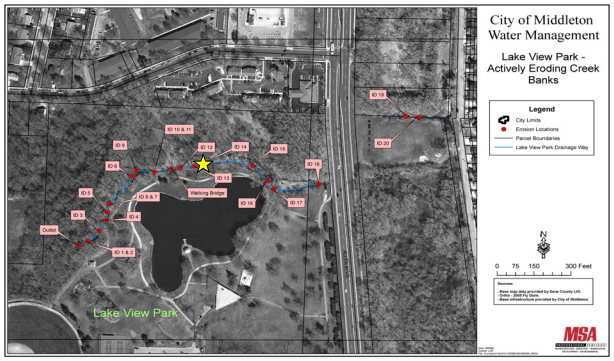
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 14
**Location:** Approximately 130' Downstream of Walking Bridge
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| Soil Texture | Unit Weight (lb/ft$^3$) | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|
| ☐ Gravel | 110 - 120 | ☐ Silt | 75-90 |
| ☐ Gravely Loam | 110 - 120 | ☐ Clay | 60-70 |
| ☐ Sand | 90 - 110 | ☒ Loam | 80-100 |
| ☐ Sandy Loam | 90 - 110 | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | RIGHT |
| Length (ft) | 165 |
| Height (ft) | 3 |
| Lateral Recession Rate (ft/yr)** | 0.06 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 1.3 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
"Reproduced by Wisconsin NRCS. 2003. Streambank Erosion, printed in *Field Office Technical Guide* ."

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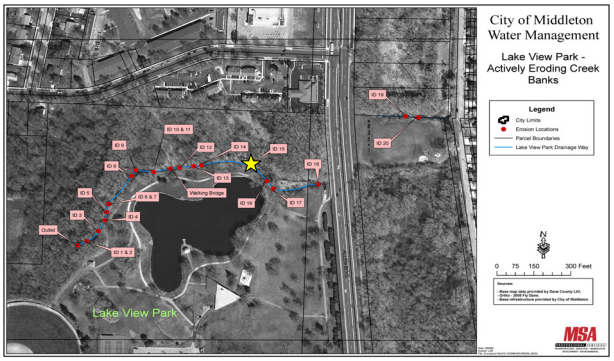
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 15
**Location:** Approximately 340' Downstream of Walking Bridge
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight (lb/ft$^3$) | | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | ☒ | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | RIGHT |
| Length (ft) | 30 |
| Height (ft) | 3 |
| Lateral Recession Rate (ft/yr)** | 0.1 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 0.4 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
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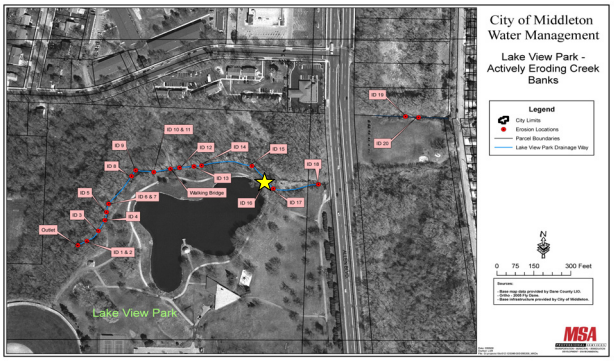
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 16
**Location:** Approximately 425' Downstream of Walking Bridge
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| Soil Texture | Unit Weight ($lb/ft^3$) | Soil Texture | Unit Weight ($lb/ft^3$) |
|---|---|---|---|
| ☐ Gravel | 110 - 120 | ☐ Silt | 75-90 |
| ☐ Gravely Loam | 110 - 120 | ☐ Clay | 60-70 |
| ☐ Sand | 90 - 110 | ☒ Loam | 80-100 |
| ☐ Sandy Loam | 90 - 110 | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | RIGHT |
| Length (ft) | 30 |
| Height (ft) | 3 |
| Lateral Recession Rate (ft/yr)** | 0.1 |
| Soil Unit Weight ($lb/ft^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 0.4 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
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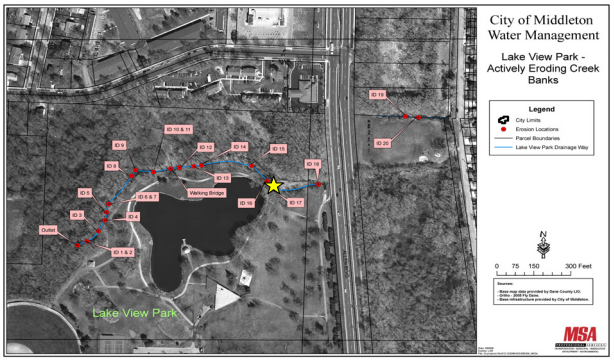
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 17
**Location:** Approximately 475' Downstream of Walking Bridge
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight (lb/ft$^3$) | | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | LEFT |
| Length (ft) | 40 |
| Height (ft) | 3 |
| Lateral Recession Rate (ft/yr)** | 0.1 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 0.5 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
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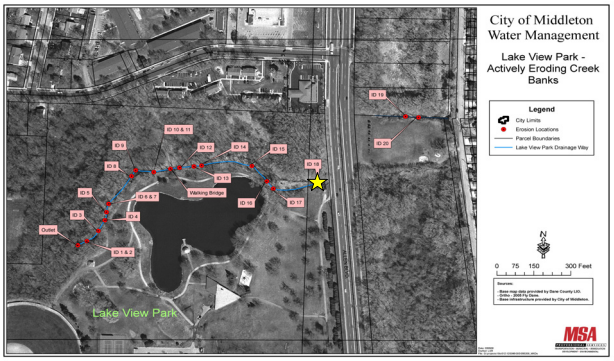
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 18
**Location:** Approximately 40' Upstream of Culvert under Allen Blvd.
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight (lb/ft$^3$) | | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | RIGHT |
| Length (ft) | 10 |
| Height (ft) | 2 |
| Lateral Recession Rate (ft/yr)** | 0.1 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 0.1 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
"Reproduced by Wisconsin NRCS. 2003. Streambank Erosion, printed in *Field Office Technical Guide* ."

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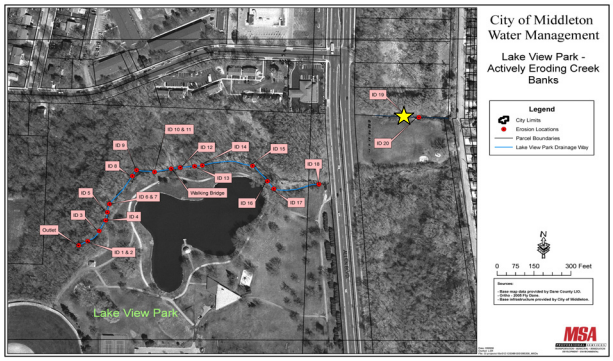
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 19
**Location:** Approximately 230' East of Allen Blvd.
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight (lb/ft$^3$) | | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | LEFT |
| Length (ft) | 20 |
| Height (ft) | 2 |
| Lateral Recession Rate (ft/yr)** | 0.1 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 0.2 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

**Source:** Steffen, L.J. 1982. Channel Erosion (personal communication), printed in "Pollutants Controlled Calculation and Documentation for Section 319 Watersheds Training Manual," June 1999 Revision; Michigan Department of Environmental Quality - Surfac
"Reproduced by Wisconsin NRCS. 2003. Streambank Erosion, printed in *Field Office Technical Guide*."

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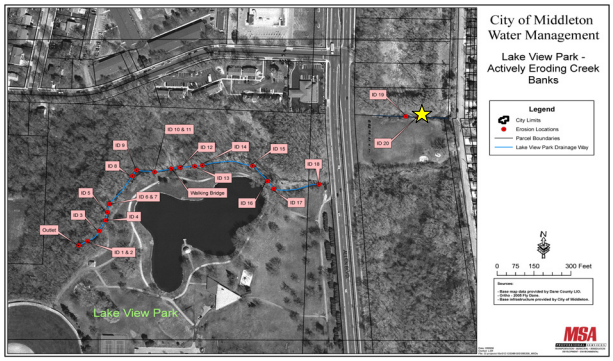
# Streambank Erosion Estimation

**City:** Middleton, WI
**Watercourse:** Lake View Park Drainage Swale
**Location ID Number:** 20
**Location:** Approximately 280' East of Allen Blvd.
**Date Sampled:** 5/1/2008

**Photo of Streambank Erosion**

**Location of Streambank Erosion**




**Soil Textural Class Information (Check One)**

| | Soil Texture | Unit Weight (lb/ft$^3$) | | Soil Texture | Unit Weight (lb/ft$^3$) |
|---|---|---|---|---|---|
| ☐ | Gravel | 110 - 120 | ☐ | Silt | 75-90 |
| ☐ | Gravely Loam | 110 - 120 | ☐ | Clay | 60-70 |
| ☐ | Sand | 90 - 110 | x | Loam | 80-100 |
| ☐ | Sandy Loam | 90 - 110 | | | |

**Streambank Characteristics**

| Parameter | |
|---|---|
| Stream Side (LEFT or Right)* | LEFT |
| Length (ft) | 30 |
| Height (ft) | 3 |
| Lateral Recession Rate (ft/yr)** | 0.1 |
| Soil Unit Weight (lb/ft$^3$) | 90 |
| Soil P Concentration (lb/lb soil) | |
| Stream Bank Erosion (tons/yr) | 0.4 |

*Stream Side is defined as the 'left' or 'right' side of the stream when facing in the direction of stream flow.
**Lateral Recession Rate (LRR) is the rate at which bank deterioration has taken place and is measured in feet per year. This rate may not be easily determined by direct measurement. Therefore best professional judgment may be required to estimate the

| LRR (ft/yr) | Category | Description |
|---|---|---|
| 0.01 - 0.05 | Slight | Some bare bank but active erosion not readily apparent. Some rills but no vegetative overhang. No exposed tree roots. |
| 0.06 - 0.2 | Moderate | Bank is predominantly bare with some rills and vegetative overhang. Some exposed tree roots but no slumps or slips. |
| 0.3 - 0.5 | Severe | Bank is bare with rills and severe vegetative overhang. Many exposed tree roots and some fallen tress and slumps or slips. Some changes in cultural features such as fence corners missing and realignment of roads or trails. Channel cross section becomes |
| 0.5+ | Very Severe | Bank is bare with gullies and severe vegetative overhang. Many fallen trees, drains and culverts eroding out and changes in cultural features as above. Massive slips or washouts common. Channel cross-section is U-Shaped and streamcourse or gully may be |

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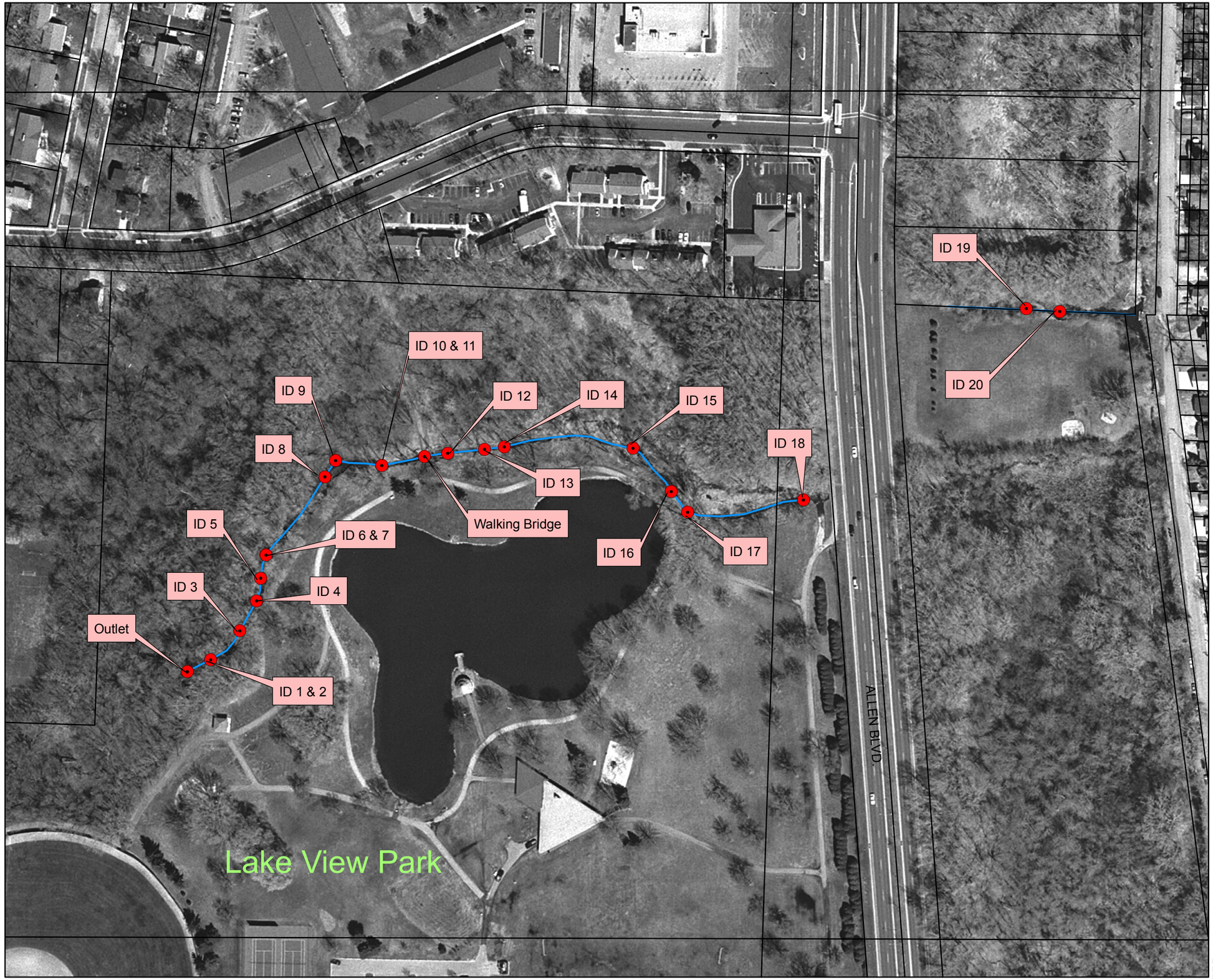
**Streambank Erosion Summary**
**LakeView Park Drainage Swale**
**May 1, 2008**

| Site ID | Erosion (tons/yr) |
|---|---|
| 1 | 2.4 |
| 2 | 1.4 |
| 3 | 3.6 |
| 4 | 1.6 |
| 5 | 1.4 |
| 6 | 1.1 |
| 7 | 1.0 |
| 8 | 4.1 |
| 9 | 9.0 |
| 10 | 1.7 |
| 11 | 1.7 |
| 12 | 2.7 |
| 13 | 1.3 |
| 14 | 1.3 |
| 15 | 0.4 |
| 16 | 0.4 |
| 17 | 0.5 |
| 18 | 0.1 |
| 19 | 0.2 |
| 20 | 0.4 |
| **Total** | **36 tons/per** |

# City of Middleton Water Management

## Lake View Park - Actively Eroding Creek Banks




**Legend**

- City Limits
- Erosion Locations
- Parcel Boundaries
- Lake View Park Drainage Way

N

0 75 150 300 Feet

**Sources:**

- **Base map data provided by Dane County LIO.**
- **Ortho - 2005 Fly Dane.**
- **Base infrastructure provided by City of Middleton.**

Date: 050508
Drafted: LSR
File: G:\projects\10s\012\120366\GIS\050208_MXDs

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