

Sites 1, 1A, 1B: County Road Brook Culverts, at 3 Locations Along Columbus Avenue

Site Assessment

An inspection of the largest culvert at County Road Brook and Columbus Avenue (Site 1) indicated a moderate amount of historical bank erosion at the downstream end of the culvert due to the undersized pipe (Photo 1-1), however banks quickly converge back to normal bankfull widths immediately downstream (Photo 1-2). Good vegetation buffers are present along the road, and no obvious signs of road sand exist in the channel bed. Crossings at 1A and 1B are smaller pipes (~12") with minimal to no erosion issues.

Proposed Improvements

None

Estimated Costs

N/A

Estimated Pollutant Load Reduction

N/A

Resource Considerations/Constraints

N/A



Photo 1-1



Photo 1-2

Site 2: Swale Along Burpee Hill Road

Site Assessment

An existing swale that runs along the southwestern edge of Burpee Hill Road between Green Lane and County Road, currently accepts stormwater runoff flows from Burpee Hill Road, and conveys additional impervious flows from Knights Hill Road. The swale banks show signs of low to moderate erosion.

Proposed Improvements

The swale is in fair condition but vegetation could be added to improve water quality treatment, or could be converted to a gravel wetland to improve treatment and storage of stormwater runoff.

Estimated Costs

\$10,000

Estimated Pollutant Load Reduction

0.51 lbs P/yr

Resource Considerations/Constraints

Positives

- Project located within town right-of-way
- Swale is directly connected to a tributary to County Road Brook

Negatives

- Will require regular maintenance
- Performance may be impacted by road sand applications



Photo 2-1



Photo 2-2

Sites 2A, 2B, 2C: Small Road-Stream Crossings at County Road, Near Highland Ridge

Site Assessment

An inspection of three small stream crossings (all ~12-18" diameter culverts) at County Road, north of Burpee Hill Road and adjacent to Highland Ridge, indicated little to no evidence of erosion, good buffer vegetation and no significant signs of runoff into each stream. No photos taken.

Proposed Improvements

None

Estimated Costs

N/A

Estimated Pollutant Load Reduction

N/A

Resource Considerations/Constraints

N/A

Site 3: Residential Property/Farm at Burpee Hill Road and Columbus Avenue (Plan Project #6)

Site Assessment

Following up on Site 6 identified in the 2016 Plan, the inspection team spoke with the resident regarding their horse, and the horses direct access to the portion of County Road Brook that runs through the farm field. The resident stated that the horse had been sold and will no longer be at the property. Regarding the stream, buffers exist along its length through the field, except near the road.

Proposed Improvements

None at this time. Confirm that the horse no longer resides at this property.

Estimated Costs

N/A

Estimated Pollutant Load Reduction

N/A

Resource Considerations/Constraints

N/A

Site 4: Residence Along Burpee Hill Road With Potential Septic System Near Stream

Site Assessment

What seemed to be a septic leach field mound system was observed within ~20 feet of a tributary to County Road Brook, at a residence along Burpee Hill Road (i.e. the neighbor of the horse farm at Site 3). There is concern about the potential for septic system leachate to migrate through surficial soils over time and into tributary surface water, leading to significant nutrient and bacteria loadings.

Proposed Improvements

None at this time. Confirm that the septic system actually exists at this location.

Estimated Costs

N/A

Estimated Pollutant Load Reduction

N/A

Resource Considerations/Constraints

N/A

Site 5: County Road Brook Tributary Culvert at Burpee Hill Road

Site Assessment

An inspection of this culvert indicated the culvert and headwalls are in good shape (Photo 5-1), but there is evidence of road runoff conveying sediment to the upstream end of the culvert, along both roadway approaches (Photo 5-2).

Proposed Improvements

Install check dams along both roadway approaches, on upstream side of culvert.

Estimated Costs

\$1,000

Estimated Pollutant Load Reduction

0.1 lb P/yr

Resource Considerations/Constraints

Positives

- Project located within town right-of-way
- Low cost and maintenance

Negatives

- None



Photo 5-1



Photo 5-2

Site 6: Burpee Hill Road Shoulder Erosion – Site 1

Site Assessment

Erosion was observed along the northern road shoulder swale at the top of the hill, and heading down hill (Photo 6-1), to the east. The eroded sediment seems to settle out at the hydrant (Photo 6-2), and is expected to not reach the stream during low to moderate storm events.

Proposed Improvements

Install check dams in the swale along the northern side of the road, going down hill to the east. Note that implementing suggestions for Site 5 would include implementation of these improvements as well.

Estimated Costs

\$500

Estimated Pollutant Load Reduction

0.1 lb P/yr

Resource Considerations/Constraints

Positives

- Project located within town right-of-way
- Low cost and maintenance

Negatives

- None



Photo 6-1



Photo 6-2

Sites 7, 7A: Culverts at Pine Hill Road

Site Assessment

The culvert at Site 7 conveys flow from another County Road Brook tributary running north to south, under Burpee Hill Road, while 7A conveys flow from the headwaters of County Road Brook, under Pine Hill Road. While no significant erosion or water quality problems were observed at either site, there is evidence of road runoff conveying sediment to the downstream end of the culvert at Site 7, along both roadway approaches (Photo 7-1). Road sand was also observed at the downstream end of the culvert at Site 7 (Photo 7-2).

Proposed Improvements

Install check dams along both roadway approaches, on the downstream side of the culvert at Site 7.

Estimated Costs

\$1,000

Estimated Pollutant Load Reduction

0.1 lb P/yr

Resource Considerations/Constraints

Positives

- Project located within town right-of-way
- Low cost and maintenance

Negatives

- None



Photo 7-1



Photo 7-2

Site 8: County Road Brook Culvert at Carter Road

Site Assessment

While no significant erosion or water quality problems were observed at the site, there is evidence of road runoff conveying sediment to the downstream end of the culvert on the right bank side, while looking downstream (Photo 8-1).

Proposed Improvements

Install check dams along right roadway approaches on the downstream side of the culvert at Site 8.

Estimated Costs

\$500

Estimated Pollutant Load Reduction

0.1 lb P/yr

Resource Considerations/Constraints

Positives

- Project located within town right-of-way
- Low cost and maintenance

Negatives

- None



Photo 8-1



Photo 8-2

Sites 9, 12: Manipulated Stream Along Gay Farm Road

Site Assessment

Inspection of Site 9 indicated significant manipulation of a drainage channel that runs through the backyard of a residential property (Photos 9-1 to 9-3). Evidence of vegetation removal and ditching of the channel with a small excavator or machine were observed. The channel is approximately 2-3' wide and 1-2' deep, and the bed and banks of the channel were left completely bare. There is high potential for a significant amount of sediment to be conveyed downstream during low, moderate and high storm events. Site 12 is the upstream end of this project.



Photo 9-1

Proposed Improvements

At a minimum, seed the channel bed and banks and install erosion control fabric, followed by additional plantings. Reshaping of the channel to mimic a natural stream cross section is also recommended.



Photo 9-2

Estimated Costs

\$6,000

Estimated Pollutant Load Reduction

1.35 lb P/yr

Resource Considerations/Constraints

Positives

- This is by far the most significant potential source of sediment and nutrient loadings found during this survey; implementation of this project would significantly reduce loadings
- Minimal maintenance should be required following implementation

Negatives

- Participation by the landowner is currently unknown



Photo 9-3

Site 10: Road Shoulder Erosion Along Gay Farm Road

Site Assessment

Minor shoulder erosion was observed along the northern side of the road, at the northern-most section of Gay Farm Road (Photo 10-1).

Proposed Improvements

None at this time.

Estimated Costs

N/A

Estimated Pollutant Load Reduction

N/A

Resource Considerations/Constraints

N/A



Photo 10-1

Site 11: Other Stream Along Gay Farm Road

Site Assessment

Minor erosion was observed at the culvert of another small stream tributary to County Road Brook, crossing Gay Farm Road along the western portion of the development (Photo 11-1). The stream banks quickly stabilize approximately 10' downstream of the culvert.

Proposed Improvements

None at this time.

Estimated Costs

N/A

Estimated Pollutant Load Reduction

N/A

Resource Considerations/Constraints

N/A



Photo 11-1

Site 13: Paved Swale Along Farwell Lane

Site Assessment

A paved swale was found along the eastern side of Farwell Lane, coming down the hill from its intersection with Burpee Hill Road (Photo 13-1). No signs of erosion were observed in the vicinity of the swale (Photo 13-2).

Proposed Improvements

None at this time.

Estimated Costs

N/A

Estimated Pollutant Load Reduction

N/A

Resource Considerations/Constraints

N/A



Photo 13-1



Photo 13-2

Site 13A: Road-Stream Crossing Along Farwell Lane

Site Assessment

An inspection was made of a road-stream crossing along the southern end of Farwell Lane. No signs of significant erosion or water quality issues were observed.

Proposed Improvements

None at this time.

Estimated Costs

N/A

Estimated Pollutant Load Reduction

N/A

Resource Considerations/Constraints

N/A

Site 14: Burpee Hill Road Shoulder Erosion – Site 2

Site Assessment

Erosion was observed along the northern road shoulder swale along Burpee Hill Road, northwest of Gay Farm Road (Photos 14-1 and 14-2).

Proposed Improvements

Install check dams along the northern side of the road at 3-4 locations in the vicinity of Gay Farm Road.

Estimated Costs

\$2,000

Estimated Pollutant Load Reduction

0.20 lb P/yr

Resource Considerations/Constraints

Positives

- Project located within town right-of-way
- Low cost and maintenance

Negatives

- None



Photo 14-1



Photo 14-2