



PARTNERS IN
ENGINEERING, PLANNING &
ENVIRONMENTAL SERVICES

April 8, 2022

Town of Georgina
26557 Civic Centre Road, RR2
Keswick, ON
L4P 3G1

Attention: Shawn Nastke, MCIP, RPP
Director, Strategic Initiatives Department

Dear Mr. Nastke:

Re: Pefferlaw Dam
Spring 2022 Dam Inspection
D.M. Wills Associates Project No. 19-5381

Further to your request, Wills has completed our spring 2022 dam inspection of the Pefferlaw Dam. The inspection report form and a selection of the photographs taken during our site visit are enclosed for your review.

While the concrete sections of the dam and the steel truss bridge / operating deck remain in poor condition, there is only minor incremental deterioration when compared to November 2019 dam inspection. Based on the results of our inspection, we believe that the risk of operating the dam for the 2022 season would be similar to the risk of operating the dam for the past few years. The actual level of risk will be better understood upon completion of the updated dam safety review (expected June 2022).

The enclosed dam inspection report outlines our thoughts on next steps and provides an overview of the work that would be required as part of a dam rehabilitation, provided that the dam rehabilitation alternative is still considered viable after the completion of the Dam Safety Review (expected June 2022).

If you have any questions with respect to the above or enclosed, please do not hesitate to contact the undersigned.

Sincerely,

David Green, P.Eng.
Assistant Manager,
Water Resources Engineering

DG/jl

Enclosures: Dam Inspection Report Form and Photographs



D.M. Wills Associates Limited
150 Jameson Drive, Peterborough, Ontario, Canada K9J 0B9
P. 705.742.2297 F. 705.748.9944 E. wills@dmwills.com



Form B2

Dam Inspection Report



Date:	April 4, 2022
Name of Dam:	Pefferlaw Dam
Municipality:	Town of Georgina, Regional Municipality of York
Location:	Pefferlaw, Ontario
GPS Coordinates:	643765 m E, 4908276 m N, UTM Zone 17T
Inspected By:	David Green, P.Eng., Alex Payette, EIT, Nate Napper, EIT
Weather:	1°C, sun and cloud

1 – Earth Embankment

The embankment surface is well vegetated with grass and some small plants and shrubs. Minor settlement was noted in isolated areas.

As further described in Section 9, erosion was noted on the upstream left and right embankments at the normal summer water level and there was erosion noted behind the left and right downstream armour stone retaining walls.

There are a number of large trees growing on the embankment and immediately adjacent to the concrete structures. The root systems from these trees have the potential to cause damage to the concrete sections of the dam and encourage piping through the earth sections of the dam. Additionally, if one of the large trees were to fall and pull up the root ball, the ability of the earth embankment to retain the head pond may be compromised. A section of one of the large trees on the downstream right side of the dam has fallen and is resting on the abutment wall and spillway apron.

There is a portion of the right (east) embankment that is retained by the stone foundation wall of the former mill. The stone wall generally appears to be in fair condition.

2 – Concrete Structures (wingwalls, piers, deck, spillways, apron, etc.)

Upstream Left (West) Retaining Wall – The upstream left (west) retaining wall is generally in fair condition. There is medium scaling above the high water mark, revealing the large round aggregate used in the concrete. The wall is also spalling along the edge of the wall and top face.

Left (West) Dam Abutment – The left (west) dam abutment is generally in poor condition. There is a large spall measuring approximately 500 mm by 400 mm by 200 mm deep at the interface of the upstream face of the left (west) weir and the left (west) abutment. There are a number of smaller spalls near the base of the wall at the winter water level. There is some delaminated concrete near the flashboard gain.

There is a wide crack at a construction joint that extends across the height of the wall extending from the interface with the left (west) weir to the top of the wall. There are



two large spalls above the downstream crest of the weir along the wide crack measuring approximately 400 mm by 600 mm (exposed and corroded steel reinforcing, large round aggregate) and 450 mm by 700 mm. There is another spall at the base of the abutment (where it meets the apron) that measures approximately 600 mm by 200 mm.

Left (West) Bridge Abutment – The left (west) bridge abutment is generally in good condition. There is a spall around the bearing seat for the truss bridge (upstream side), exposing the bearing anchor and reducing the bearing area of the truss support.

Video from the underwater inspection showed severe scaling / concrete disintegration below the waterline, near the riverbed along the entire abutment.

Upstream Right (East) Retaining Wall – The upstream right (east) retaining wall generally appears to be in good condition.

Right (East) Dam Abutment – The right (east) abutment is in poor to very poor condition. There is evidence of patch repairs at this wall area. The majority of the wall surface is delaminated and there are several large spalls. There is some map cracking with efflorescence at the far downstream end of the wall, with a 300 mm by 1000 mm by 300 mm deep void. The entire face of the wall is exhibiting some level of concrete disintegration. There is a masonry wall perched on the downstream edge of the right (east) abutment that is in very poor condition.

Right (East) Bridge Abutment – The right (east) bridge abutment is generally in fair to good condition. There is medium scaling along the face of the abutment, and there is a wide crack in the precast concrete block that is supporting the cast in place abutment. The precast concrete blocks appear to show some movement on the upstream side.

Left (West) Weir – There is a large gap (25 mm) at the construction joint where the flat section of the weir crest meets the sloping section of the weir crest. There is also a wide crack located approximately 200 mm downstream of the construction joint. The crack runs almost the entire length of the weir crest and the area between the crack and the joint is delaminating. The flat section of the weir crest contains a number of square holes for the installation of the flashboard posts. There appears to be a construction joint approximately 60 mm below the downstream weir crest on the downstream face of the weir. The downstream face of the weir is in good condition, however, there is a 30 mm gap at the interface of the weir and the apron. Video from the underwater inspection did not identify any undercutting of the upstream side of the weir.

Left (West) Apron – The entire surface of the apron is severely eroded on the face (100%). There is a wide crack at the downstream left side of the apron. The cracked area is approximately 1600 mm by 2300 mm. The downstream edge of the apron is approximately 800 mm high. The edge of the apron wall is spalling in several areas exposing the aggregate. Closer to the sluiceway, the edge is disintegrating due to



the increased flow in this area. Video from the underwater inspection identified the possibility of some cracks with efflorescence and some minor spalls. There was also one location that appeared to show some minor undercutting of the apron. Adjacent to the sluiceway, the top face of the apron is wet. It is apparent that seepage is infiltrating under the weir wall and onto the top of the apron.

Right (East) Weir – The upstream face of the weir is generally in good condition with some bug holes. The weir crest is in good condition. The downstream face of the weir is in fair to good condition with honeycombing noted near the interface with the abutment (1.2 m²).

Right (East) Apron – There are some medium width cracks along the apron surface. The apron is undermined by approximately 750 to 1500 mm and it would appear as though the end of the apron has spalled off. Video from the underwater inspection appears to indicate that the undermining is restricted to the right side of the apron and does not extend to the sluiceway. The top of the apron is approximately 700 mm off the river bottom. A wide crack is present and runs diagonally from the north east corner back to the east pier. Adjacent to the sluiceway, the top face of the apron is wet. It is apparent that seepage is infiltrating under the weir wall and onto the face of the apron.

Pier 1 (West Pier) – The downstream face and top surface of the pier is in good condition. The upstream, west and east faces are also in good condition with some map cracking, cracks with efflorescence and pitting above the high water mark. Video of the underwater inspection did not indicate any undermining of the pier or significant concrete deterioration below the winter water level.

Pier 2 (East Pier) – The downstream face of the pier is in good condition with some cracking. The upstream, west and east faces are also in good condition with some scaling at the water line and minor map cracking with efflorescence above the high water mark. Video of the underwater inspection did not indicate any undermining of the pier or significant concrete deterioration below the winter water level.

Sluiceway and Apron – Due to the presence of fast flowing water, the sluiceway and the apron downstream of the sluiceway could not be fully inspected. Video from the underwater inspection indicated that there may be severe erosion of the concrete surface in this area (similar to the left (west) apron surface). A severe wide crack was observed that runs perpendicular to the flow along the whole width of the sluiceway.

3 – Wooden and Metal Structures (decks, gains, railings, conduits, etc.)

Truss Bridge – The east and west pedestrian spans are in fair condition, with coating failure and light corrosion throughout.

The operation span is in poor condition. The northwest, southwest, and southeast truss end posts have deformed/bowed out; however, the previous repairs appear to be holding.

**Dam Inspection Report**

The south face of the square HSS support of the operation span at the southwest support is deformed. This appears to have been in this condition for some time.

Deck Grating – The galvanized steel deck grating is supported by and secured to the truss bridge. The grating is in fair condition with some surface rust and damaged sections. A deck panel on the operation span has broken welds. Several deck panels have displaced or loose deck clips that should be replaced/re-attached.

Pier Nosings – The pier nosings appear to be galvanized steel are generally in fair to good condition with minor corrosion and section loss (<10%) below the high water mark.

Gain Liners – The gain liners are in fair condition with failure of the coating material, surface rusting and minor section loss below the high water mark.

Fall Arrest System – The fall arrest support posts appear to be galvanized steel, are mounted to the truss bridge and appear to be in good condition. The steel cable is secured at both ends and in the middle and appears to be in good condition. All connections for the cable appear to be secure.

Railings – The deck railings are formed as part of the truss bridge. Welded wire mesh has been added to the inside of the truss to cover the gaps between the truss sections. The railing on the dam deck is approximately 1070 mm high. The welded wire mesh is in good condition, however, as described above, the truss bridge is in poor condition.

Chain Link Fence – The chain link fencing on the dam wingwalls is in good condition and measures approximately 1220 mm high. The chain link fence between the park and the private property to the west is damaged (bent upper rail and disjointed connection at the end post).

4 – Gates and/or Stop Logs (identified looking downstream left to right)

Stoplogs – The dam is supplied with six (6) 11 in high by 8 in wide wooden stoplogs. Five (5) stoplogs are used for operation and one (1) spare remains on the deck. Five (5) stoplogs were stored on the deck at the time of the inspection (winter drawdown) and were chained and locked to the railing. Each stoplog end has a steel mounting bracket this is used to lift the logs. The steel mounting brackets show signs of surface rust and section loss while the wooden stoplogs show signs of deterioration. The stoplog gain cover is level with the remainder of the dam deck and is locked. The frame and grating show signs of surface rust but generally appear to be in fair condition.

Flashboards – The flashboards were not on site during the inspection. Based on information collected during Wills' November 2019 inspecting, it was understood that the flashboards were going to be replaced for the 2020 operating season. It is not clear if this replacement was completed.

**Dam Inspection Report**

5 – Water Level Gauge (reading and condition)

There is no water level or flow gauge located at the Pfefferlaw Dam site. Operators use the flow data from the “Pfefferlaw Brook Near Udora” (02EC018) Water Survey of Canada stream gauge to anticipate the need for operations at the dam.

6 – Winches (type and number)

The winches were not in site during the inspection. The following is based on Wills' inspection of the winches in November 2019:

The dam is equipped with two (2) Jeamar heavy duty hand winches. The winches are stored off site. Only one (1) of the two (2) winches was on site at the time of the dam inspection. The name plate on the winch provided was scratched and difficult to read; however, the operator indicated that the capacity of the winches is 2100 lbs.

The winch provided exhibited signs of damage/repair, surface rust and paint chipping; however the operator indicated that the winches were generally in good working order and that they are greased at the end of each year.

The winches are installed onto the dam for log operations and removed after log operations are complete. A J-shaped mounting plate/bracket bolted to the winch slides over a mounting bar that is installed into steel brackets on the truss that supports the deck. The mounting bars have end plates that would prevent them from moving horizontally and the weight of the stoplogs would prevent the mounting bar from moving vertically. The J-shaped mounting plate/bracket and the mounting bar have surface rust and chipping paint but are generally considered to be in fair condition.

7 – Valves (type and number)

This dam is not equipped with a valve.

8 – Boom (driftwood, chains, anchors)

This dam is not equipped with a debris or public safety boom.

9 – Erosion (upstream and downstream)

Erosion was noted on the upstream left and right sides of the earth embankment at what is expected to be the normal summer water level.

Erosion was noted on the downstream left and right sides behind the armour stone retaining walls. The area with the most significant erosion noted was downstream of the left wing wall where there was a large void under/behind the armour stone.



10 – Seepage or Leaks

It appears as though there is seepage between the weir wall sections and aprons on the left and right sides of the dam.

11 – Access Route

The main dam access is via an approximately 3 m wide gravel access road located on the west side of the Pefferlaw River. The access road is gated and locked to prevent entry by unauthorized vehicles; however, pedestrians are able to walk around the gate to access the park area surrounding the dam. The gravel surface of the access road is in poor condition with vegetation growth, rutting and pooling of water.

There is a secondary access on the east side of the Pefferlaw River. The access is gated and locked to prevent entry by unauthorized vehicles; however, pedestrians are able to walk around the gate to access the park area surrounding the dam. There is no formal access road to the dam as part of the secondary access.

12 – Safety Issues (public and operator)

Public Safety – There is no safety boom located upstream of the dam. The reservoir is used primarily by the private property owners surrounding the head pond for non-power boating. Access to the head pond by members of the public is possible through the park adjacent to the dam or from upstream in the Pefferlaw River.

There is expected to be significant public interaction with the deck of the structure due to its location within the park and the convenience for members of the public to cross the Pefferlaw River at this location. Access to the deck of the dam deck was restricted at the time of the inspection.

There are small (600 mm x 600 mm) “DANGER, Keep Out” signs on the fencing that blocks access to the dam deck from both sides of the river. The signs do not identify the hazards associated with accessing the dam deck and the Lake Simcoe Region Conservation Authority logo has been spray painted white.

Members of the public could climb the stoplogs that are stored on the deck of the dam. If they do, the railing in that area is not high enough to prevent them from falling.

Operator Safety – The dam is equipped with a fall arrest system; which is located above the overflow weir/flashboards. The fall arrest system does not cover dam operators during stoplog operations and during the November 2019 inspection the operators indicated that they tie off to the railing. The height an operator could fall from the deck to the downstream sill is just over 3.0 m, meaning that fall arrest is required when the stoplog gain covers are opened.

13 – Signage

There is standardized dam safety signage located on the upstream and downstream sides of the control structure. The signs read “DANGER, Keep Out, Swift Currents &

**Dam Inspection Report**

Undertow May Occur at Anytime", provide contact information for the dam owner and identify that 911 should be called in an emergency. Both signs are in good condition; however, the Lake Simcoe Region Conservation Authority logo has been spray painted white on the downstream facing public safety sign.

There is a "NO DIVING FROM BRIDGE, SHALLOW WATER" sign located on the upstream side of the dam to the left of Pier 1 (West Pier). The sign is in poor condition and appears to have been vandalized.

There are signs near the entrances to the park, near the gated access points, by the Town of Georgina indicating the rules for using the park area.

14 – Divestment and/or Decommissioning Opportunities

It is understood that the Lake Simcoe Region Conservation Authority is in the process of divesting this dam to the Town of Georgina.

15 – General Remarks

There is no target water level for the head pond, however operators do follow an operating plan for when to install/remove the stoplogs and flash boards (spring/fall operations). The dam is rarely operated outside of the spring/fall operating seasons.

There are the remnants of the fish ladder downstream of the overflow weir with some mounting brackets remaining on the pedestrian bridge truss.

A Public Safety Risk Assessment and a Public Safety Plan have not been prepared for this site; however, there is significant public interaction with the dam.

The latest Dam Safety Review (DSR) was completed by TSH in 2008 using the 1977 Lakes and Rivers Improvement Act Guidelines (MNR) as well as the Draft 1999 Ontario Dam Safety Guidelines (MNR). The DSR concluded that the Hazard Potential Classification (HPC) for the dam was Low; however, dam breach modelling was not undertaken as part of the analysis. Based on the HPC of Low an Inflow Design Flood (IDF) of the 100-year peak flow was selected. TSH indicated that the dam has adequate hydraulic capacity for the IDF. The structural stability assessment of the concrete gravity dam sections indicated that some sections do not meet the required factors of safety for some loading conditions.

16 – Recommendations

Following the completion of the Dam Safety Review and Public Safety Risk Assessment (expected June 2022), undertake the steps necessary to address the identified deficiencies. Alternatives that may be considered include Rehabilitation, Replacement (similar or modified configuration) and Removal.

In order for the Rehabilitation alternative to be considered viable, the existing structure must satisfy the requirements of the Lakes and Rivers Improvement Act Technical Bulletins (MNR, 2011) or be relatively easily modified to meet said



Dam Inspection Report



requirements. The Rehabilitation alternative would generally need to include the following elements:

- Rehabilitate the deteriorated concrete surfaces of the dam as identified in the dam inspection reports and concrete condition assessment.
- Implement measures to stop the seepage between the weir walls and aprons on the left and right sides of the dam.
- Replace the steel truss bridge and operating deck and incorporate adequate fall arrest measures for dam operators and railings for both the public and dam operators.
- Remove the trees from the earth embankments and from adjacent to concrete or masonry structures and remediate the voids left by the root systems.
- Repair the erosion on the upstream left (west) and right (east) sides of the earth embankment.
- Repair the erosion behind the downstream left (west) and right (east) armour stone retaining walls.
- Implement public safety measures as identified in the Public Safety Risk Assessment.
- Repair the chain link fence along the west property line.
- Implement other measures, as required, based on the outcome of the Dam Safety Review analyses.

The process to complete the Rehabilitation would generally include the following stages: Detailed Design, Permitting (LSRCA and NDMNRF), Tendering and Construction. If another alternative (i.e. Replacement or Removal) is to be considered then a Municipal Class Environmental Assessment may need to be completed prior to commencing the Detailed Design.





File Name: DJI_0766.JPG

Photo 1 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0781.JPG

Photo 2 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0782.JPG

Photo 3 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0787.JPG

Photo 4 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0779.JPG

Photo 5 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0793.JPG

Photo 6 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0794.JPG

Photo 7 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0795.JPG

Photo 8 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0800.JPG

Photo 9 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0796.JPG

Photo 10 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0797.JPG

Photo 11 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0798.JPG

Photo 12 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0803.JPG

Photo 13 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0802.JPG

Photo 14 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0804.JPG

Photo 15 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0805.JPG

Photo 16 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0806.JPG

Photo 17 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0807.JPG

Photo 18 - April 4, 2022
Pfefferlaw Dam



File Name: DJI_0808.JPG

Photo 19 - April 4, 2022
Pefferlaw Dam



File Name: DJI_0811.JPG

Photo 20 - April 4, 2022
Pefferlaw Dam



File Name: DJI_0817.JPG

Photo 21 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8938.JPG

Photo 22 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8936.JPG

Photo 23 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8939.JPG

Photo 24 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8937.JPG

Photo 25 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8985.JPG

Photo 26 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8987.JPG

Photo 27 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8941.JPG

Photo 28 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8942.JPG

Photo 29 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8945.JPG

Photo 30 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8944.JPG

Photo 31 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8943.JPG

Photo 32 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8949.JPG

Photo 33 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8948.JPG

Photo 34 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8950.JPG

Photo 35 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8952.JPG

Photo 36 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8954.JPG

Photo 37 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8960.JPG

Photo 38 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8979.JPG

Photo 39 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8980.JPG

Photo 40 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8958.JPG

Photo 41 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8959.JPG

Photo 42 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8946.JPG

Photo 43 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8963.JPG

Photo 44 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8965.JPG

Photo 45 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8964.JPG

Photo 46 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8971.JPG

Photo 47 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8967.JPG

Photo 48 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8975.JPG

Photo 49 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8993.JPG

Photo 50 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9001.JPG

Photo 51 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9052.JPG

Photo 52 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8994.JPG

Photo 53 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8996.JPG

Photo 54 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9002.JPG

Photo 55 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8999.JPG

Photo 56 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9015.JPG

Photo 57 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9007.JPG

Photo 58 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9009.JPG

Photo 59 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9008.JPG

Photo 60 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9003.JPG

Photo 61 - April 4, 2022
Pefferlaw Dam



File Name: DSCN8997.JPG

Photo 62 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9004.JPG

Photo 63 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9005.JPG

Photo 64 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9006.JPG

Photo 65 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9012.JPG

Photo 66 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9014.JPG

Photo 67 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9018.JPG

Photo 68 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9019.JPG

Photo 69 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9020.JPG

Photo 70 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9021.JPG

Photo 71 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9024.JPG

Photo 72 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9025.JPG

Photo 73 - April 4, 2022
Pepperlaw Dam



File Name: DSCN9026.JPG

Photo 74 - April 4, 2022
Pepperlaw Dam



File Name: DSCN9028.JPG

Photo 75 - April 4, 2022
Pepperlaw Dam



File Name: DSCN9029.JPG

Photo 76 - April 4, 2022
Pepperlaw Dam



File Name: DSCN9030.JPG

Photo 77 - April 4, 2022
Pepperlaw Dam



File Name: DSCN9033.JPG

Photo 78 - April 4, 2022
Pepperlaw Dam



File Name: DSCN9034.JPG

Photo 79 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9036.JPG

Photo 80 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9038.JPG

Photo 81 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9044.JPG

Photo 82 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9045.JPG

Photo 83 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9047.JPG

Photo 84 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9063.JPG

Photo 85 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9064.JPG

Photo 86 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9065.JPG

Photo 87 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9066.JPG

Photo 88 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9067.JPG

Photo 89 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9076.JPG

Photo 90 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9079.JPG

Photo 91 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9086.JPG

Photo 92 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9094.JPG

Photo 93 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9095.JPG

Photo 94 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9097.JPG

Photo 95 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9099.JPG

Photo 96 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9114.JPG

Photo 97 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9115.JPG

Photo 98 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9102.JPG

Photo 99 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9103.JPG

Photo 100 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9106.JPG

Photo 101 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9111.JPG

Photo 102 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9112.JPG

Photo 103 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9122.JPG

Photo 104 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9123.JPG

Photo 105 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9126.JPG

Photo 106 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9129.JPG

Photo 107 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9188.JPG

Photo 108 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9189.JPG

Photo 109 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9136.JPG

Photo 110 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9148.JPG

Photo 111 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9141.JPG

Photo 112 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9131.JPG

Photo 113 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9132.JPG

Photo 114 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9135.JPG

Photo 115 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9139.JPG

Photo 116 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9144.JPG

Photo 117 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9147.JPG

Photo 118 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9150.JPG

Photo 119 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9151.JPG

Photo 120 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9152.JPG

Photo 121 - April 4, 2022
Pfefferlaw Dam



File Name: DSCN9153.JPG

Photo 122 - April 4, 2022
Pfefferlaw Dam



File Name: DSCN9155.JPG

Photo 123 - April 4, 2022
Pfefferlaw Dam



File Name: DSCN9157.JPG

Photo 124 - April 4, 2022
Pfefferlaw Dam



File Name: DSCN9159.JPG

Photo 125 - April 4, 2022
Pfefferlaw Dam



File Name: DSCN9162.JPG

Photo 126 - April 4, 2022
Pfefferlaw Dam



File Name: DSCN9163.JPG

Photo 127 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9164.JPG

Photo 128 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9167.JPG

Photo 129 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9168.JPG

Photo 130 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9169.JPG

Photo 131 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9170.JPG

Photo 132 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9171.JPG

Photo 133 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9172.JPG

Photo 134 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9173.JPG

Photo 135 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9174.JPG

Photo 136 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9175.JPG

Photo 137 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9176.JPG

Photo 138 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9177.JPG

Photo 139 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9181.JPG

Photo 140 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9182.JPG

Photo 141 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9206.JPG

Photo 142 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9209.JPG

Photo 143 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9208.JPG

Photo 144 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9205.JPG

Photo 145 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9210.JPG

Photo 146 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9207.JPG

Photo 147 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9211.JPG

Photo 148 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9212.JPG

Photo 149 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9223.JPG

Photo 150 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9228.JPG

Photo 151 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9229.JPG

Photo 152 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9224.JPG

Photo 153 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9178.JPG

Photo 154 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9183.JPG

Photo 155 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9186.JPG

Photo 156 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9241.JPG

Photo 157 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9239.JPG

Photo 158 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9240.JPG

Photo 159 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9184.JPG

Photo 160 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9194.JPG

Photo 161 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9197.JPG

Photo 162 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9237.JPG

Photo 163 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9254.JPG

Photo 164 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9255.JPG

Photo 165 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9256.JPG

Photo 166 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9268.JPG

Photo 167 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9300.JPG

Photo 168 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9257.JPG

Photo 169 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9262.JPG

Photo 170 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9266.JPG

Photo 171 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9267.JPG

Photo 172 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9263.JPG

Photo 173 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9271.JPG

Photo 174 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9272.JPG

Photo 175 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9273.JPG

Photo 176 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9276.JPG

Photo 177 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9284.JPG

Photo 178 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9286.JPG

Photo 179 - April 4, 2022
Pefferlaw Dam



File Name: DSCN9287.JPG

Photo 180 - April 4, 2022
Pefferlaw Dam