

# PICKEREL LAKE LEVEL CONTROL STRUCTURE PART 307 INSPECTION

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Dam Identification No.: 2553  
Hazard Potential: Low  
Section 4, T. 15 N. – R.09 W.  
Colfax and Grant Townships, Mecosta County, Michigan



Per Part 307, Act 451 of 1994  
PREPARED FOR:

*Mecosta County Drain Commissioner  
Jackie Fitzgerald  
14485 Northland Drive, Rm. 105  
Big Rapids, MI 49307*

[jfitzger@co.mecosta.mi.us](mailto:jfitzger@co.mecosta.mi.us)

PREPARED BY:

*Spicer Group, Inc.*

INSPECTED BY:

Joel G. Morgan, P.E. #62771  
Charles R. Smith, EIT

Date of Inspection: April 4, 2017  
Date of Report: April 2017

Project I.D. Number 124563SG2017

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**Appendix A**

*MDEQ Inventory of Dam*

**Appendix B**

*Photographs*



**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
LAND AND WATER MANAGEMENT DIVISION  
DAM INSPECTION REPORT**

This form is to be used for inspection reports required by Part 307, Inland Lake Levels, for those dams that do not meet the size criteria as defined by Part 315, Dam Safety, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Dams six (6) feet or more in height, as defined by Part 315, and impounding five (5) acres or more at the design flood elevation, must meet the inspection report format as outlined in Section 31518 of Part 315.

A person failing to comply, or falsely representing dam conditions, is guilty of misconduct in office.

DAM NAME <b>PICKEREL LAKE</b>		DAM ID <b>2553</b>	COUNTY <b>MECOSTA</b>
DATE OF INSPECTION 4/4/2017	NAME OF WATERBODY BURGESS LAKE	SECTION, TOWN, RANGE Sec. <u>4 &amp; 5</u> T. <u>15N</u> R. <u>9W</u>	LEVEL THIS DATE 950.15
DATE ELEVATION SET BY COURT June 24, 1971	LEGAL LEVEL 950' (4/2 - 10/31) 949' (11/1 - 4/1)	DRAWDOWN LEVEL	HIGH WATER MARK ELEVATION

**EARTH EMBANKMENTS** LEFT EMBANKMENT 200 FT. RIGHT EMBANKMENT 200 FT. TOTAL LENGTH 400 FT.  
(LOOKING DOWNSTREAM)

	UPSTREAM	CROWN	DOWNSTREAM
VEGETATIVE COVER	<b>GRASS</b>	<b>PAVED ROAD</b>	<b>GRASS, TREES AND BRUSH</b>
EROSION	<b>NONE VISIBLE</b>	<b>NONE VISIBLE</b>	<b>NONE VISIBLE</b>
SEEPAGE			<b>NONE VISIBLE</b>
SLIDES, SLUMPS & CRACKS	<b>NONE VISIBLE</b>	<b>NONE VISIBLE</b>	<b>NONE VISIBLE</b>
ANIMAL BURROWS	<b>NONE VISIBLE</b>	<b>NONE VISIBLE</b>	<b>NONE VISIBLE</b>
WAVE ACTION PROTECTION	<b>GRASS WETLAND</b>		<b>RIPRAP</b>
REMARKS*	<b>HEADWALL SEVERLY SPALLED – UP TO 13” DEEP IN SOME SPOTS</b>		<b>HEADWALL SPALLED AND LOSS OF CONCRETE AT RIGHT TOE AND BETWEEN CULVERTS</b>

**CONTROL STRUCTURE**

TYPE <b>LAKE LEVEL CONTROL STR.</b>	YEAR CONSTRUCTED <b>1970</b>	STRUCTURAL HEIGHT (top of dam elevation <u>12.1</u> minus stream invert)
LENGTH OF SPILLWAY <b>N/A</b>	FREEBOARD <b>9.41</b>	HYDRAULIC HEIGHT (design flood elevation <u>2.2</u> minus stream invert)
VERTICAL PIPE SIZE <b>72"</b>	HORIZONTAL PIPE SIZE <b>66"</b>	HEAD (normal headwater <u>1.15</u> minus normal tailwater)

**DESCRIBE CONDITION OF THE FOLLOWING ITEMS.**

<p>STOPLOG VALVES AND GATES (open and close to check condition): Check location of top stoplog in relation to top of riser pipe intake box or fixed crest, for leakage, and condition of stoplogs, valves and gates. <b>STOP LOGS ARE IN GOOD CONDITION – NO DETERIORATION OBSERVED.</b></p>
<p>OUTLET PIPE: Check for damage from ice, logs, vandalism; inside discharge pipe for settlement and/or joint separation; condition of pipe coating. <b>TWO GALVANIZED CMP CULVERTS (NO COATING OBSERVED). PORTION BELOW WATERLINE HAS SURFACE RUSTING – NO SECTION LOSS OBSERVED.</b></p>

**CONTROL STRUCTURE (continued)**

CONCRETE STRUCTURE: Check for erosion; location of cracking or spalling. If old or new; settlement; need for crack repairs. <b>UPSTREAM HEADWALL: Severe spalling, up to 13" deep in some locations, throughout.</b>  <b>DOWNSTREAM HEADWALL: Loss of concrete at right toe and in the center between culverts.</b>	
WALKWAY & RAILING: Check if in place or removed, condition, and if adequate protection provided.  N/A	TRASHRACK OR LOG BOOM: Check if operable.  N/A
EMERGENCY SPILLWAY: Size, type, and condition.  N/A	

**INLET & OUTLET CHANNELS**

	INLET	OUTLET
SIZE	40'	50'± through scour hole
EXISTING CONDITION	Good	Good
EROSION	NONE VISIBLE	NONE OBSERVED
DEBRIS & OBSTRUCTIONS	NONE VISIBLE	NONE VISIBLE
RIPRAP PROTECTION	SMALL FIELDSTONE HEADWALL ON RIGHT UPSTREAM SIDE	RIPRAP ON LEFT DOWNSTREAM CHANNEL BANK
REMARKS*		

**RECOMMENDATIONS**

List work needed, how to be done, by whom, estimated cost, source of funds, recommended completion date. If emergency, to what extent. ADDITIONAL COMMENTS.

**1 – Recommend to County Road Commission that upstream and downstream headwalls be rehabilitated or replaced.**  
**2 – Establish on site benchmark (hub or staff gage) to facilitate measurement of legal lake level.**

Inspection Ordered By: Jackie Fitzgerald  
Mecosta County Drain Commissioner County Delegated Agent

Joel G. Morgan, P.E.

INSPECTOR'S NAME (PRINTED)

*Joel G. Morgan*  
 SIGNATURE

62771  
 P.E. REGISTRATION NO.

ADDRESS  
 Spicer Group, Inc.  
 1400 Zeeb Dr.

CITY, STATE, ZIP CODE  
 St. Johns MI, 48879

TELEPHONE NUMBER  
 (989) 224-2355



Please submit this completed report and photographs of the dam, downstream channel, and deficiencies cited in the report to:  
 DAM SAFETY PROGRAM  
 LAND AND WATER MANAGEMENT DIVISION  
 MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
 PO BOX 30458  
 LANSING MI 48909-7958

\*NOTE: If space is inadequate for remarks, attach additional sheets as needed.

# APPENDIX A

## *MDEQ INVENTORY OF DAM*

Dam ID  National ID  County  County #   
 Dam Name  File  State   
 Popular Name  Plan   
 Pond Name  Quad   
 1/4 Section  Sec  Town  Range  DEQ District   
 City  Distance (mi)  Population

**Print Record**

**Additional Information** Requested Q 6/18/98 hmc. Talked with Sherry Samuel 6/18/98, Petition for legal lake level by County, Plans drawn by County Rd. Com. She agrees that the county owns it and is responsible for maintenance of the legal level. No assessment dist. Per HY-8 analysis, with Q100 = 280 cfs. Peak stage = 951.4, D/S ie = 947.0. Height per Part 315 therefore = 3.7 Feet.

2 plan files  Phase I (PL92-367) Inspection

**2 Inspection Reports**    **0 Emergency Action Plans**    **Correspondence (3 Files)**

EAP  EAP Last Updated  Jurisdiction   
 Hazard  Compliance Activity   
 Owner ID  Owner  Owner Type   
 Authority  Del. Authority

Inspection Date  Inspector   
 Report Date  Next Inspection Date   
 Report Received  Report Reply Date  Action Requested   
 Condition  Condition Detail

**Close Inventory**

Year Built  Type  Purpose

Top Of Dam To Streambed (ft)  Design Flood ElevationTo Streambed (ft)

Head {Headwater - Tailwater At Normal Flow (ft)}  Normal Freeboard (ft)

Pond Acres At Normal Flow  Max. Storage (ac-ft)  Normal Storage (ac-ft)

River  Watershed  Drainage Area (sq. mi)

Design Flood  Design Inflow Discharge (cfs)

Max. Spillway Capacity (cfs)  Design Outflow Discharge (cfs)

Spillway Control  Spillway Width (ft)  Crest Length (ft)

Permit No.  Repair Permit No.  Permit Expiration Date

DEQ/DNR Construction Approval  Property ID

Year Legal Lake Level Established  Winter Level (ft)  Summer Level (ft)

State Assessed  SCS/NRCS

Public Access  FERC No.  Latitude

Trout Stream  Installed Capacity (kw-hr)  Longitude

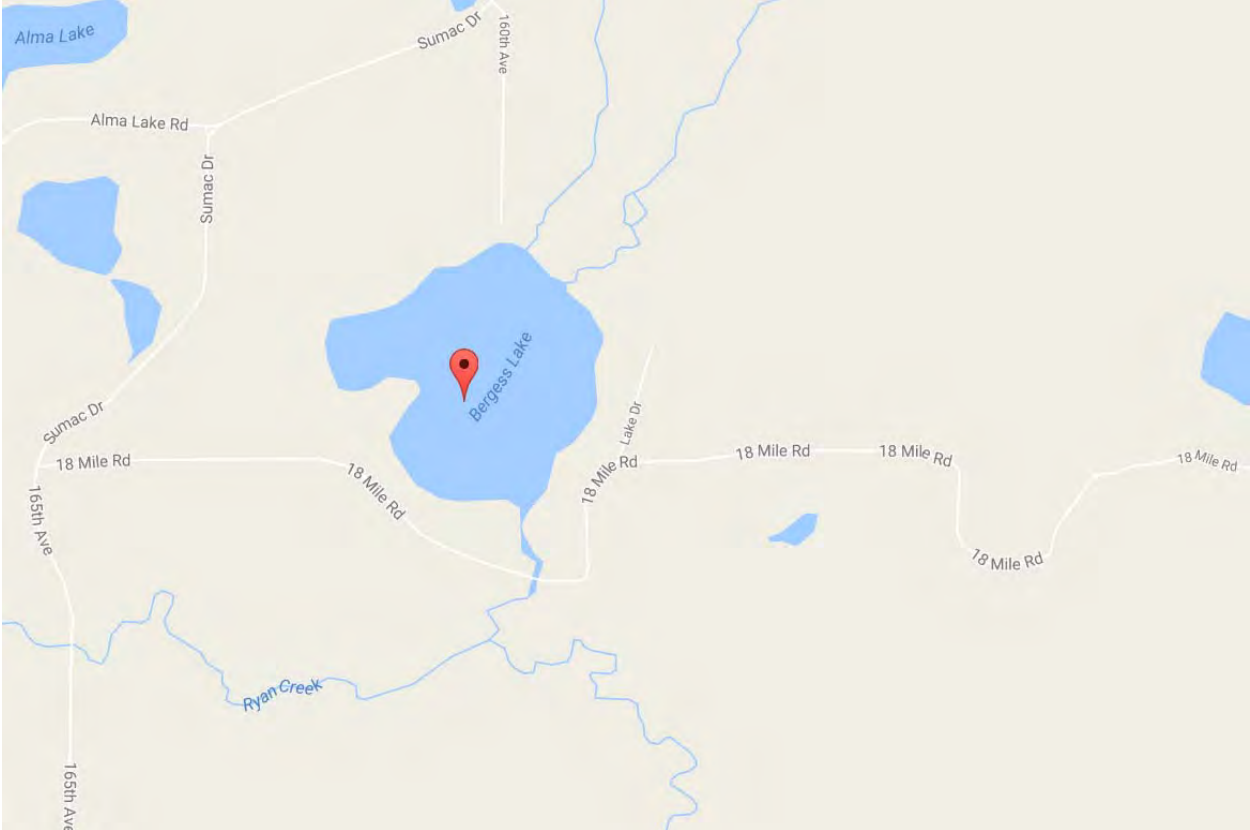
Lamprey Barrier  Regulatory Agency  [Locate in Bing Maps](#)

Fish Passage

Private on Federal

**ArcMap**

Pickerel (Bergess Lake) Dam, Mecosta County, Michigan



## Williams, June C.

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**From:** deq-wrd-qreq <deq-wrd-qreq@michigan.gov>  
**Sent:** Wednesday, April 26, 2017 5:10 PM  
**To:** Williams, June C.  
**Subject:** RE: flood or low flow discharge request (ContentID - 168812)

**Categories:** [Projects/Proj 2017/124547SG2017\_SecludedLakeDamInspection], CC OK

We have estimated the flood frequency discharges requested in your email of March 29, 2017 (Process No. 20170173), as follows:

Haymarsh Creek at Pickerel (Bergess Lake) Dam, Dam ID 2553, Section 4, T15N, R9W, Colfax Township, Mecosta County, has a total drainage area of 15.9 square miles and a contributing drainage area of 15.3 square miles. The design discharge for this dam is the 1% chance (100-year) flood. The 50%, 20%, 10%, 4%, 2%, 1%, 0.5%, and 0.2% chance peak flows are estimated to be 150 cubic feet per second (cfs), 210 cfs, 250 cfs, 310 cfs, 350 cfs, 390 cfs, 430 cfs, and 490 cfs, respectively. (Watershed Basin No. 22 Muskegon).

Please include a copy of this letter with your inspection report or any subsequent application for permit. These estimates should be confirmed by our office if an application is not submitted within one year. If you have any questions concerning the discharge estimates, please contact Ms. Susan Greiner, Hydrologic Studies and Dam Safety Unit, at 517-284-5579, or by email at: GreinerS@michigan.gov. If you have any questions concerning the hydraulics or the requirements for the dam safety inspection report, please contact Mr. Jim Pawloski of our Dam Safety Program at 989-370-1528, or by email at: PawloskiJ@michigan.gov.

Low flows will be provided in a separate email.

**From:** junew@spicergroup.com [mailto:junew@spicergroup.com]  
**Sent:** Wednesday, March 29, 2017 1:43 PM  
**To:** deq-wrd-qreq <deq-wrd-qreq@michigan.gov>  
**Subject:** flood or low flow discharge request (ContentID - 168812)

Requestor: June Williams  
Company: Spicer Group  
Address: 1400 Zeeb Drive  
City: St. Johns, Michigan  
Zip: 48879  
Phone: 989-224-2355  
Date: March 29,2017  
F50percent: Yes  
F20percent: Yes  
F10percent: Yes  
F4percent: Yes  
F2percent: Yes  
F1percent: Yes  
F0.5percent: Yes  
F0.2percent: Yes  
Monthly95: Yes  
Monthly50: Yes  
MonthlyMean: Yes  
90DayQ10: Yes  
Lowest95: Yes  
Lowest50: Yes  
HarmonicMean: Yes



FlowExceedanceCurve: Yes

ContactAgency: Other

ContactPerson:

Watercourse: Pickerel (Bergess Lake) Dam, Mecosta County

LocalName: Pickerel (Bergess Lake) Dam

CountyLocation: Mecosta

CityorTownship: Big Rapids

Section: 4

Town: 15N

Range: 09W

Location: Requesting a flood or low flow discharge for Pickerel (Bergess Lake) Dam ID No. 2553 for our Dam Inspection Report.

FFR1: Dam

**This reply is being sent via email only.**

We have estimated the low flow discharges requested in your email of March 29, 2017 (Process No.9206), as follows:

Haymarsh Creek At Pickerel (bergess Lake) Dam, NE ¼ of the NE ¼ of Section 04, T15N, R9W, Colfax Township, Mecosta County, has a drainage area of 16 square miles. The lowest 95% and 50% exceedance, the Harmonic Mean and 90-day once in 10-year flow (90Q10) are estimated to be 2.7 cubic feet per second (cfs), 2.8 cfs, 3.1 cfs, and 0 cfs, respectively. The 50% and 95% exceedance and mean monthly flows are:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
50%	2.8	2.8	2.9	3.2	3	3.2	3.1	3.1	2.9	2.9	2.9	2.9
95%	2.7	2.7	2.7	2.8	2.8	3	3	2.9	2.8	2.8	2.8	2.8
Mean	3	3	3.1	4.1	4.6	4	3.5	3.2	3.1	3.2	3.2	3.1

The attached excel file contains the flow exceedance curves. If you have any questions, please contact Mr. Marlio Lesmez, Water Resources Division, Hydrologic Studies Unit, at 517-284-5580, or by e-mail at: [lesmezm@michigan.gov](mailto:lesmezm@michigan.gov).

Sincerely,

Byron P. Lane, P.E., Supervisor  
Hydrologic Studies Unit  
Water Resources Division  
517-241-9862

MWL

cc: , MDEQ (P-21-NW)

Stat	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Ann
95%	2.8	2.8	2.8	2.7	2.7	2.7	2.8	2.8	3	3	2.9	2.8	2.8
90%	2.8	2.8	2.8	2.8	2.7	2.8	2.8	2.8	3	3	3	2.8	2.8
85%	2.8	2.8	2.8	2.8	2.8	2.8	2.9	2.8	3	3	3	2.8	2.8
80%	2.8	2.8	2.8	2.8	2.8	2.8	2.9	2.8	3.1	3	3	2.8	2.8
75%	2.8	2.8	2.8	2.8	2.8	2.8	3	2.9	3.1	3	3	2.8	2.8
70%	2.8	2.9	2.8	2.8	2.8	2.8	3	2.9	3.1	3.1	3	2.8	2.9
65%	2.9	2.9	2.8	2.8	2.8	2.8	3	2.9	3.1	3.1	3.1	2.8	2.9
60%	2.9	2.9	2.9	2.8	2.8	2.8	3.1	3	3.2	3.1	3.1	2.9	2.9
55%	2.9	2.9	2.9	2.8	2.8	2.9	3.1	3	3.2	3.1	3.1	2.9	3
50%	2.9	2.9	2.9	2.8	2.8	2.9	3.2	3	3.2	3.1	3.1	2.9	3
45%	3	3	2.9	2.9	2.8	2.9	3.2	3.1	3.2	3.2	3.1	2.9	3
40%	3	3	2.9	2.9	2.9	2.9	3.3	3.2	3.2	3.2	3.2	3	3.1
35%	3	3	3	2.9	2.9	3	3.4	3.4	3.3	3.2	3.2	3	3.1
30%	3	3	3	2.9	2.9	3	3.6	3.8	3.3	3.2	3.2	3	3.1
25%	3.1	3.1	3	3	2.9	3	3.7	4.2	3.5	3.3	3.2	3	3.2
20%	3.1	3.1	3	3	2.9	3.1	4	4.9	3.7	3.3	3.2	3.1	3.3
15%	3.2	3.2	3.1	3	3	3.2	4.5	5.8	4	3.5	3.3	3.2	3.5
10%	3.6	3.7	3.8	3.2	3.1	3.5	5.1	7.1	5.4	3.7	3.4	3.3	3.9
5%	4.2	4.2	3.9	3.9	3.8	4.2	7.2	9.1	6.9	4.3	3.5	3.8	4.7

# APPENDIX B

## *PHOTOGRAPHS*



Upstream embankment/road slope towards control structure



Upstream impoundment/channel



Left side upstream approach channel



Downstream channel



Riprap protection right toe of headwall  
Note crack across headwall in foreground



Crack in headwall and settlement behind headwall



Left side downstream channel



Downstream face of headwall for outlet culverts



Loss of concrete on right side and middle of downstream headwall



Right side of stop log bays



Right middle of stop log bays



Left middle of stop log bays



Left side of stop log bays



Spalling and loss of concrete on upstream headwall



Spalling and loss of concrete on upstream headwall



Spalling and loss of concrete on upstream headwall





Zoom in photo of wooden stop logs

