

1917  2017

**Cleveland
Metroparks**

**100
YEARS**

Hinckley Lake Dam

June 15, 2017



Hinckley Dam - by Cleveland News 1939



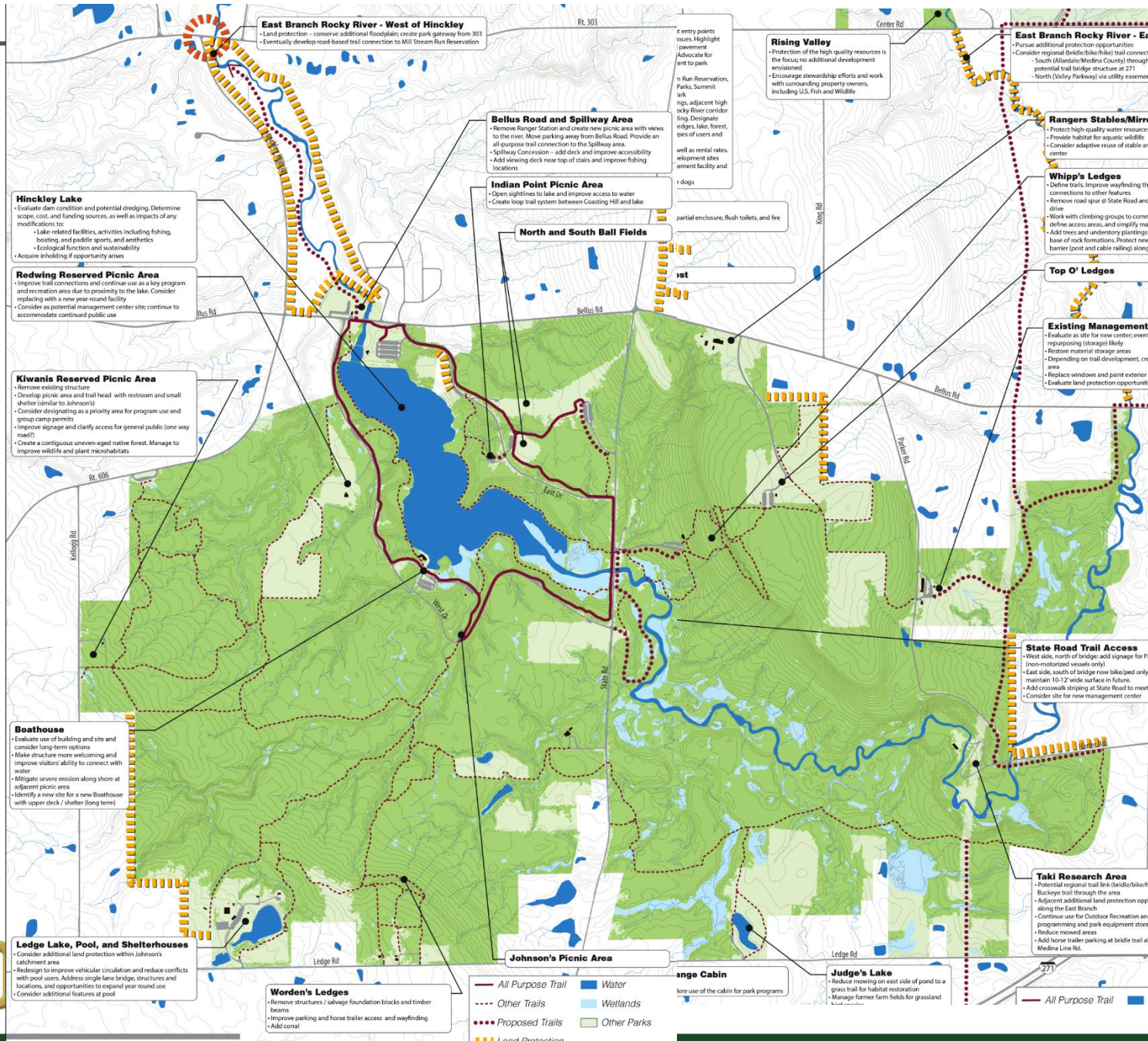
Dam and spillway Hinckley Lake



Aug '39 Beach at Hinckley Lake Looking North from Dam Neg 724



Position film in Neg File # 70 A View across Hinckley Lake.



East Branch Rocky River - West of Hinckley

- Land protection - conserve additional floodplains, create park gateway from 303
- Eventually develop road-based trail connection to Mill Stream Run Reservation

Rising Valley

- Protection of the high quality resources is the focus; no additional development envisioned
- Encourage stewardship efforts and work with surrounding property owners, including U.S. Fish and Wildlife

East Branch Rocky River - East

- Pursue additional protection opportunities
- Consider regional (bridle/bike/hike) trail connections
- South (Allan/Levee/Medina County) through potential trail bridge structure at 277
- North (Valley Parkway) via utility easement

Hinckley Lake

- Evaluate dam condition and potential dredging. Determine scope, cost, and funding sources, as well as impacts of any modifications to:
 - Lake-related facilities, activities including fishing, boating, and paddle sports, and aesthetics
 - Ecological function and sustainability
- Acquire landholding if opportunity arises

Redwing Reserved Picnic Area

- Improve trail connections and continue use as a key program and recreation area due to proximity to the lake. Consider replacing with a new year-round facility
- Consider as potential management center site; continue to accommodate continued public use

Kiwans Reserved Picnic Area

- Remove existing structure
- Develop picnic area and trail head with restroom and small shelter (similar to Johnson's)
- Consider designating as a priority area for program use and group camp permits
- Improve signage and clarify access for general public (one way road?)
- Create a contiguous uneven-aged native forest. Manage to improve wildlife and plant microhabitats

Boathouse

- Evaluate use of building and site and consider long-term options
- Make structure more welcoming and improve visitors' ability to connect with water
- Mitigate severe erosion along shore at adjacent picnic area
- Identify a new site for a new Boathouse with upper deck / shelter (long term)

Ledge Lake, Pool, and Shelterhouses

- Consider additional land protection within Johnson's catchment area
- Redesign to improve vehicular circulation and reduce conflicts with pool users. Address single lane bridge, structures and locations, and opportunities to expand year-round use
- Consider additional features at pool

Bellus Road and Spillway Area

- Remove Ranger Station and create new picnic area with views to the river. Move parking away from Bellus Road. Provide an all-purpose trail connection to the Spillway area.
- Spillway Concession - add deck and improve accessibility
- Add viewing deck near top of stairs and improve fishing location

Indian Point Picnic Area

- Open sightlines to lake and improve access to water
- Create loop trail system between Coasting Hill and lake

North and South Ball Fields

Johnson's Picnic Area

Worden's Ledges

- Remove structures / salvage foundation blocks and timber beams
- Improve parking and horse trailer access and wayfinding
- Add coral

- All Purpose Trail
- Water
- Other Trails
- Wetlands
- Proposed Trails
- Other Parks
- Land Protection





HINCKLEY



R.R. Hinckley - 1917

EL. 159 top of
" 154 "



HINCKLEY LAKE - VALVE CLOSED - WATER 10 FT. BELOW SPILLWAY - 7-25-27-^{Neg 1A}

HINCKLEY DAME LAKE

270 NEG



Lake Depths*

Less than 2ft

16ft

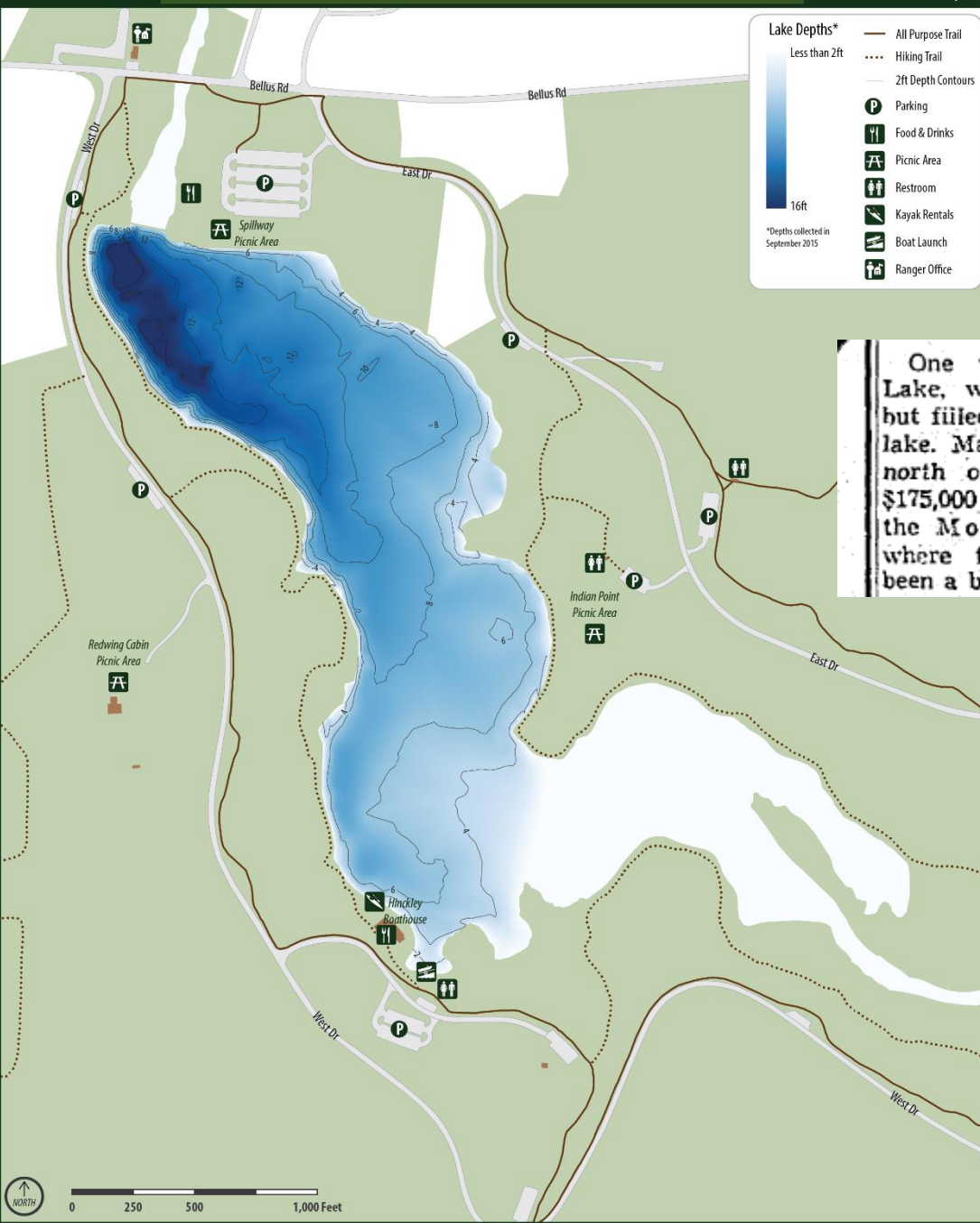
*Depths collected in September 2015

- All Purpose Trail
- ... Hiking Trail
- 2ft Depth Contours
- P Parking
- 🍴 Food & Drinks
- 🏡 Picnic Area
- 🚻 Restroom
- 🚣 Kayak Rentals
- 🚤 Boat Launch
- 👤 Ranger Office





Hinckley Lake



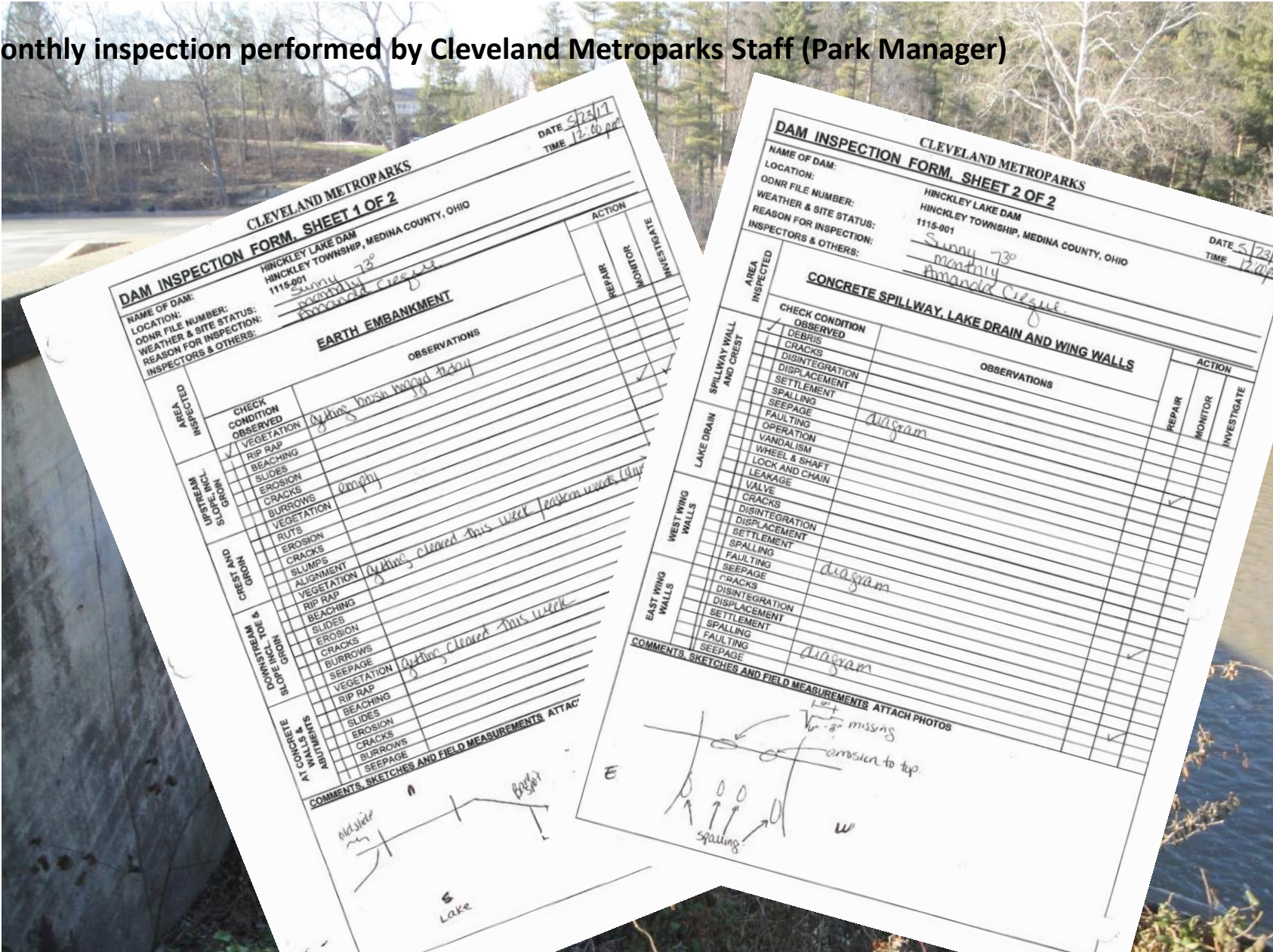
One will dredge Hinckley Lake, where siltation has all but filled the upper half of the lake. Many miles downstream, north of Lorain Road, a \$175,000 bridge will eliminate the Morley Ford crossing, where frequent flooding has been a bottleneck for years.

Hinckley Lake Dam – Inspections



Hinckley Lake Dam – Inspections

- Monthly inspection performed by Cleveland Metroparks Staff (Park Manager)



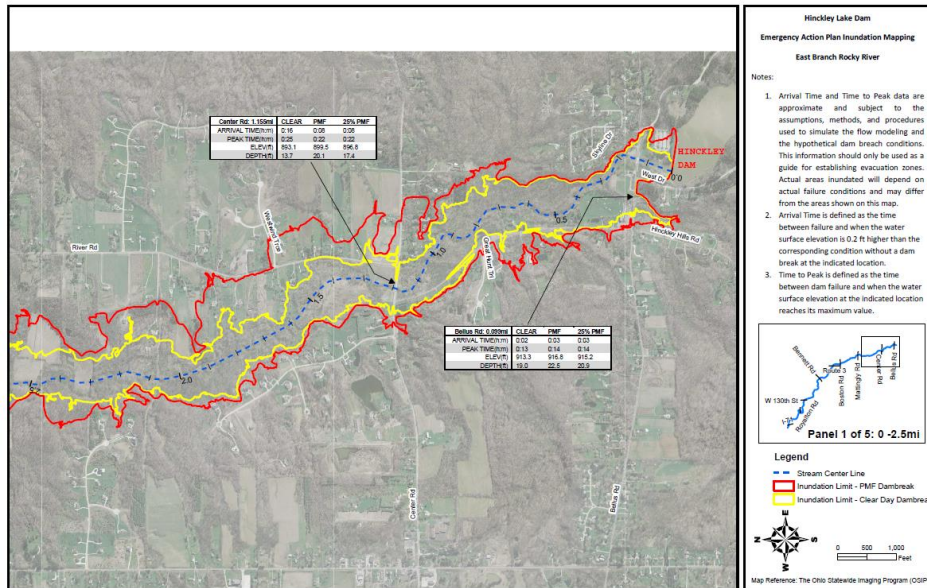
Hinckley Lake Dam – Inspections

- Monthly inspection performed by Cleveland Metroparks
- Emergency Action Plan – Annual Updates

EMERGENCY ACTION PLAN HINCKLEY LAKE DAM

OHIO DEPARTMENT OF NATURAL RESOURCES FILE NO. 1115-001

HINCKLEY TOWNSHIP, MEDINA COUNTY, OHIO



Owner:



Hinckley Reservation
2191 Parker Road
Hinckley, Ohio 44233
330-278-4544

Cleveland Metroparks Administration
4101 Fulton Parkway
Cleveland, Ohio 44144
216-635-3200

Issue Date:

March 17, 2011

Hinckley Lake Dam – Inspections

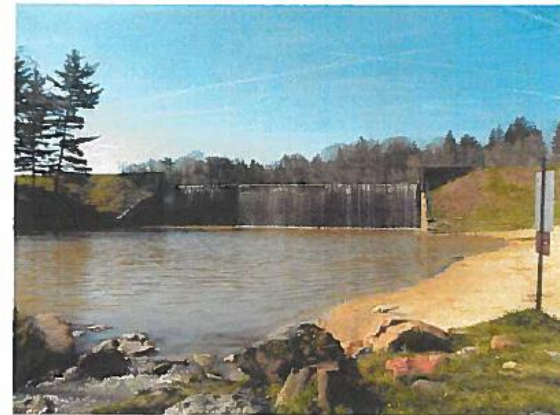
- Monthly inspection performed by Cleveland M
- Emergency Action Plan – Annual Updates
- **ODNR Field Inspection – Every 5 Years**



DAM SAFETY INSPECTION REPORT

Hinckley Lake Dam
File Number: 1115-001
Class I

Medina County, Hinckley Township
Inspection Date: May 6, 2014



In accordance with Ohio Revised Code Section 1521.062, the owners of dams must monitor, maintain, and operate their dams safely. Negligence of owners in fulfilling these responsibilities can lead to the development of extremely hazardous conditions to downstream residents and properties. In the event of a dam failure, owners can be subject to liability claims.

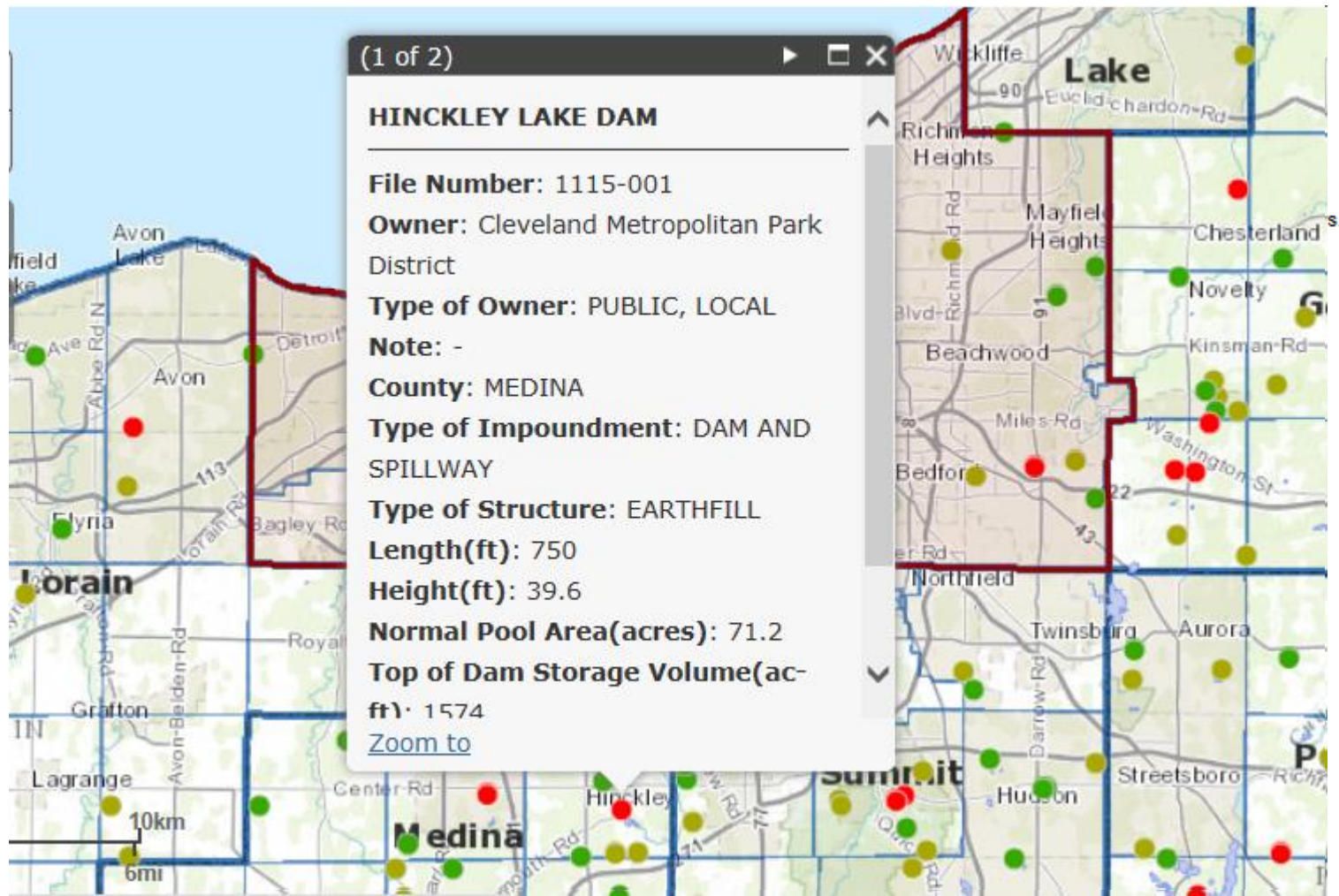
The Chief of the Division of Soil & Water Resources has the responsibility to ensure that human life, health, and property are protected from the failure of dams. Conducting periodic safety inspections and working with dam owners to maintain and improve the overall condition of Ohio dams are vital aspects of achieving this purpose.

Representatives of the Chief conducted this inspection to evaluate the condition of the dam and its appurtenances under authority of Ohio Revised Code Section 1521.062. In accordance with Ohio Administrative Code Rule 1501:21-21-03, the owners of dams must implement all remedial measures listed in the enclosed report.

Division of Soil & Water Resources • 2045 Morse Road, Bldg. B-2 • Columbus, Ohio 43229-6693

July 2010, the Ohio Department of Natural Resources, Division of Water, was merged with the Division of Soil & Water Conservation to become the Division of Soil & Water Resources.

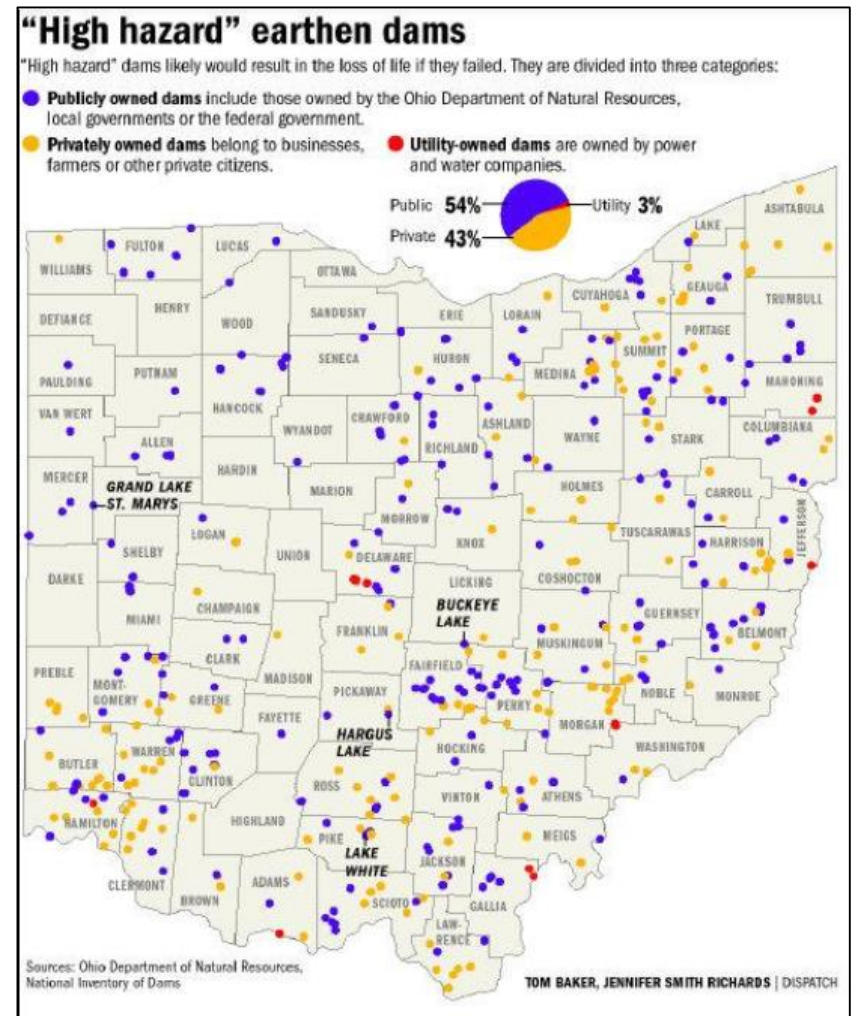
Hinckley Lake Dam – ODNR Database



Hinckley Lake Dam vs. Ohio Dams

- 4,500 Dams in Ohio
- 1,500 High Hazard Dams (Class I)
- ODNR Maintains 179 Dams – 56 Are High Hazard
 - Deficiencies are common
 - Lack of Emergency Action Plan
 - Passing of PMF
 - Erosion / Vegetation / Piping
- High Profile Dams
 - Buckeye Lake
 - Grand Lake St. Mary's

*Source – Columbus Dispatch Articles –
May 31, 2015 and June 2, 2015



Hinckley Lake Dam – Inspections

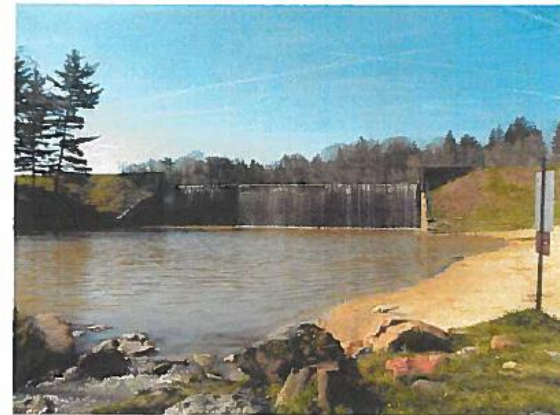
- Monthly inspection performed by Cleveland M
- Emergency Action Plan – Annual Updates
- **ODNR Field Inspection – Every 5 Years**



DAM SAFETY INSPECTION REPORT

Hinckley Lake Dam
File Number: 1115-001
Class I

Medina County, Hinckley Township
Inspection Date: May 6, 2014



In accordance with Ohio Revised Code Section 1521.062, the owners of dams must monitor, maintain, and operate their dams safely. Negligence of owners in fulfilling these responsibilities can lead to the development of extremely hazardous conditions to downstream residents and properties. In the event of a dam failure, owners can be subject to liability claims.

The Chief of the Division of Soil & Water Resources has the responsibility to ensure that human life, health, and property are protected from the failure of dams. Conducting periodic safety inspections and working with dam owners to maintain and improve the overall condition of Ohio dams are vital aspects of achieving this purpose.

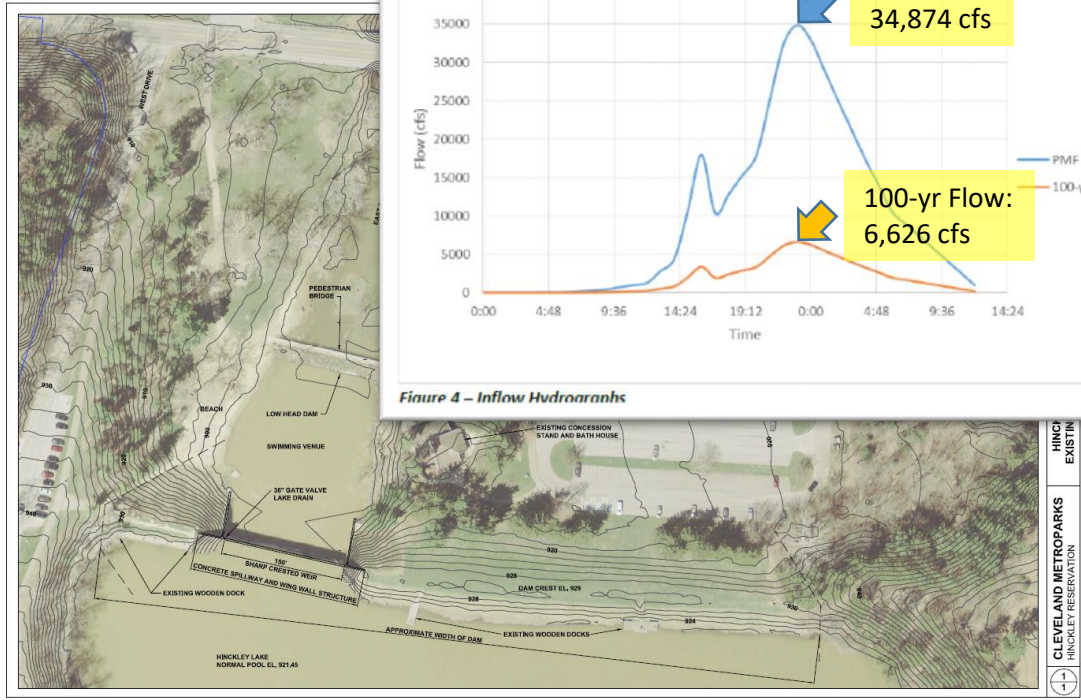
Representatives of the Chief conducted this inspection to evaluate the condition of the dam and its appurtenances under authority of Ohio Revised Code Section 1521.062. In accordance with Ohio Administrative Code Rule 1501:21-21-03, the owners of dams must implement all remedial measures listed in the enclosed report.

Division of Soil & Water Resources - 2045 Morse Road, Bldg. B-2 - Columbus, Ohio 43229-6693

July 2010, the Ohio Department of Natural Resources, Division of Water, was merged with the Division of Soil & Water Conservation to become the Division of Soil & Water Resources.

Hinckley Lake Dam – Principal Spillway Modification & Hydraulic Concept Study

- Modelled the Probable Maximum Flood (PMF)
- Explore Development Several Scenarios
- Develop Cost Estimates



Hinckley Lake Dam

ODNR FILE NO. 1115-001

Principal Spillway Modification
Hydrologic & Hydraulic Concept Study

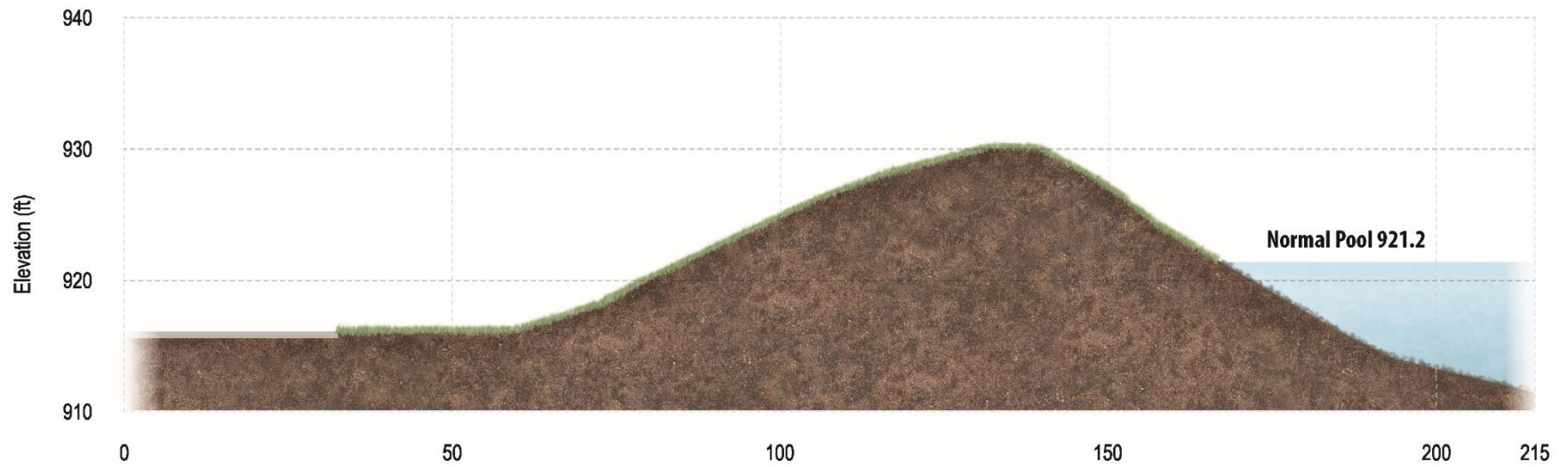
Prepared For:
Cleveland Metroparks

March 2017



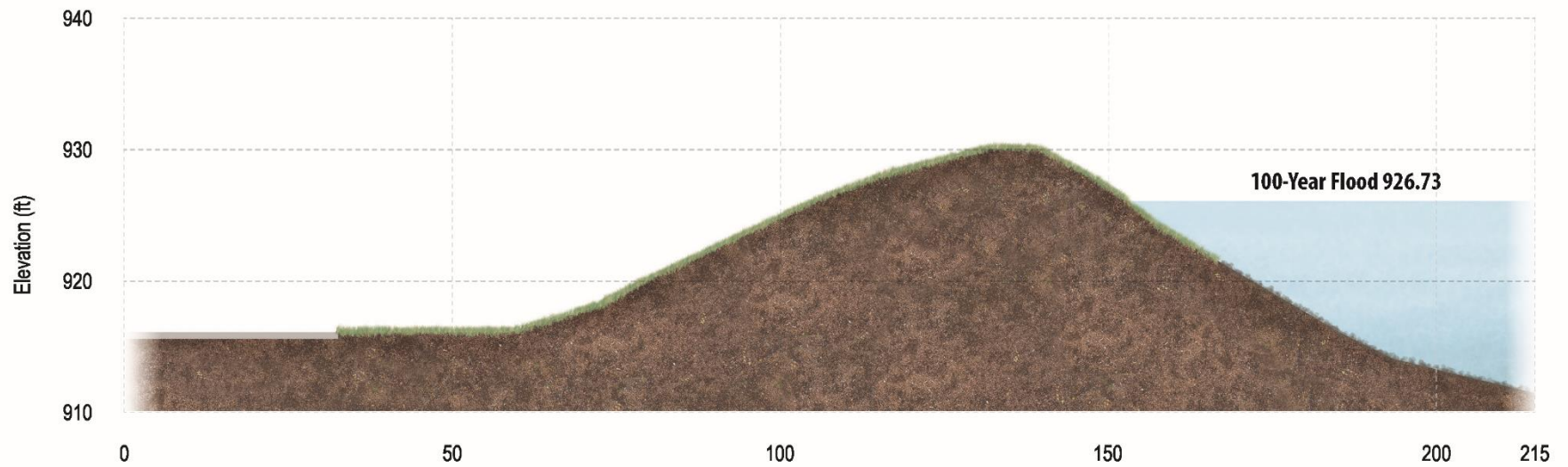
520 S. Main St., Suite 2531
Akron, Ohio 44311
GPD Job #2016336.00

Hinckley Lake Dam – Concept Study



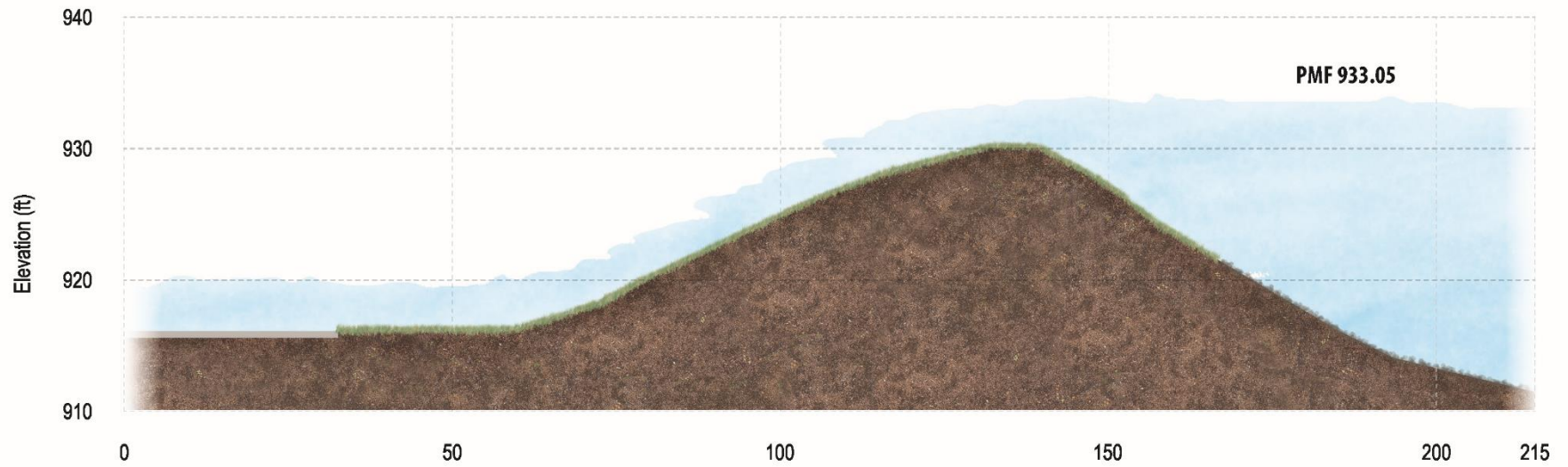
TYPICAL SECTION A - A
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 10'

Hinckley Lake Dam – Concept Study



TYPICAL SECTION A - A
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 10'

Hinckley Lake Dam – Concept Study



TYPICAL SECTION A - A
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 10'

Hinckley Lake Dam – Concept Study

Table 3 – Hydraulic Analysis Summary

Hydraulic Scenario Option		Spillway Parameters				PMF Event		100-yr Event	
		Req'd Top of Dam	Normal Pool	Principal Spillway Length	Spillway Opening Width	Lake Elevation	Peak Flow	Lake Elevation	Peak Flow
		(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(ft)	(cfs)
-	Existing Condition	930.00	921.20	150	150	933.05	34,508	926.73	6285
1	8-Cycle Labyrinth Two Stage	933.40 ^a	918.70	766	185	929.84	34,526	924.41	6300 ^d
2	8-Cycle Labyrinth Single Stage	931.50 ^a	921.20	766	185	927.88	34,461	923.09	6565 ^b
3	7-Cycle Labyrinth Two Stage	934.10 ^a	918.70	671	162	930.54	34,260	924.47	6292 ^d
4	7-Cycle Labyrinth Single Stage	931.40 ^a	920.2	671	162	927.80	34,377	922.30	6567 ^b
5	7-Cycle Single Stage	930.40 ^a	919.20	671	162	926.80	34,381	921.30	6583 ^b
6-1	Replace in Kind	930.00	921.20	150	150	933.05	34,508	926.73	6285
6-2	Replace in Kind	930.00	920.20	150	150	932.75	34,498	925.76	6346 ^c
6-3	Replace in Kind	930.00	919.20	150	150	932.42	34,484	924.77	6360 ^c

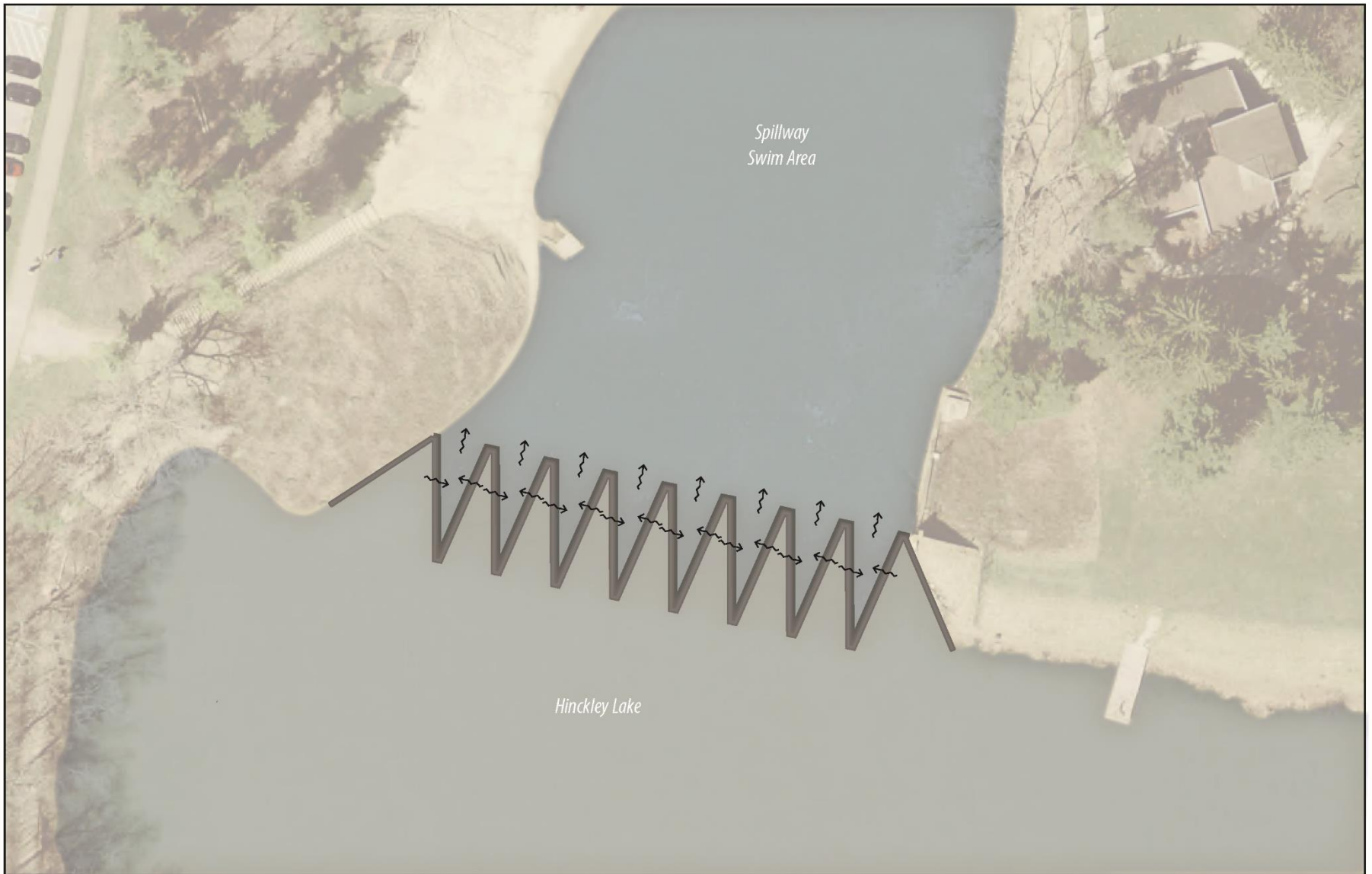
Hinckley Lake Dam – Concept Study





Hinckley Reservation
Existing Conditions: Dam and Spillway

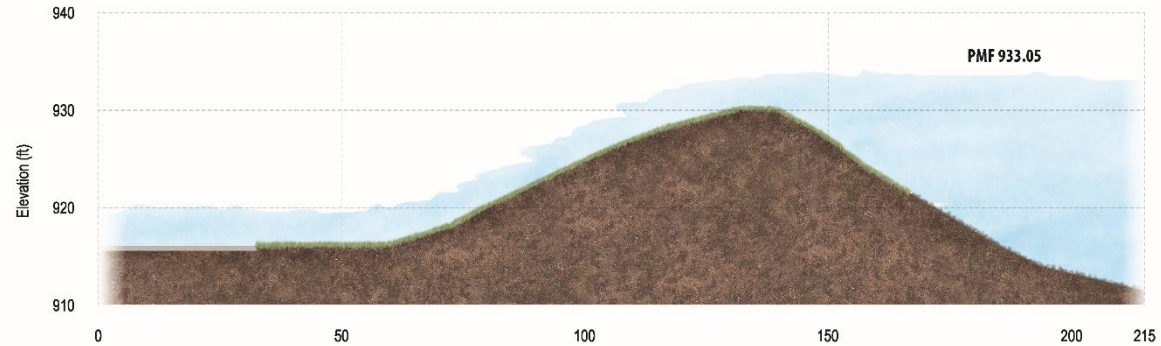




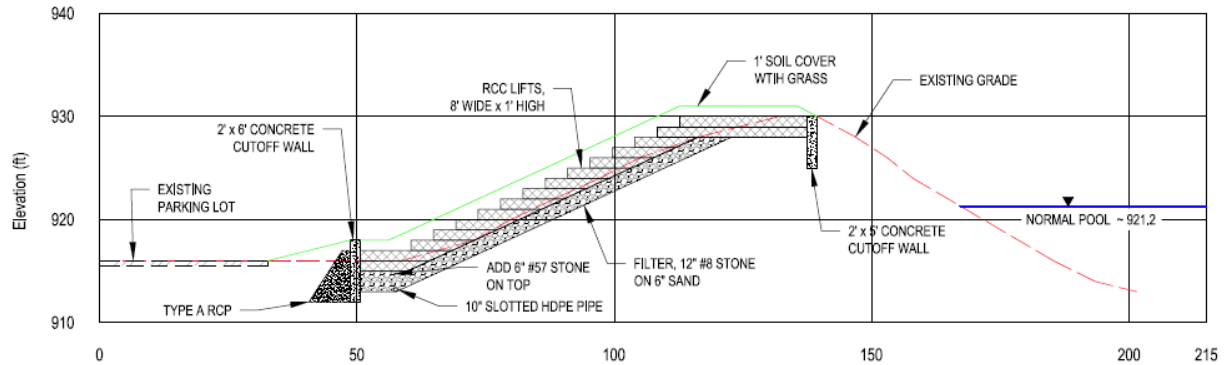
Hinckley Reservation
Labyrinth Weir Concept



Hinckley Lake Dam – Embankment Armoring – Roller Compacted Concrete



TYPICAL SECTION A - A
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 10'



TYPICAL SECTION A - A
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 10'

Hinckley Lake Dam – Potential Costs of Dam Improvements

Option	Amount of Lake Level Lowering	Significant Modifications to Swimming Area	Two Stage Weir	Increase Earthen Embankment	Increased Dredge at Dam Face	Roller Compacted Concrete	Opinion of Probable Cost Option
1	2.5'	X	X	X	X		\$11,073,460
2	0'	X		X	X		-
3	2.5'		X	X	X		-
4	1'			X	X		-
5	2'			**	X		\$8,765,167
6-1	0'					X	\$6,846,983
7-1	0'					X	\$5,783,700

Costs do not include related lake lowering costs or dredging

*This table is based on a wave run-up of 3.6 ft for the labyrinth weir options.

**The increase is minimal, 0.5 ft., and may be waived by ODNR

Hinckley Lake Dam – Ohio Water Development Authority

- Ohio Water Development Authority – Dam Safety Loan Program



- Low Interest Loans
 - Planning
 - Construction
 - Flexible Terms



Photo: Rhulin Construction

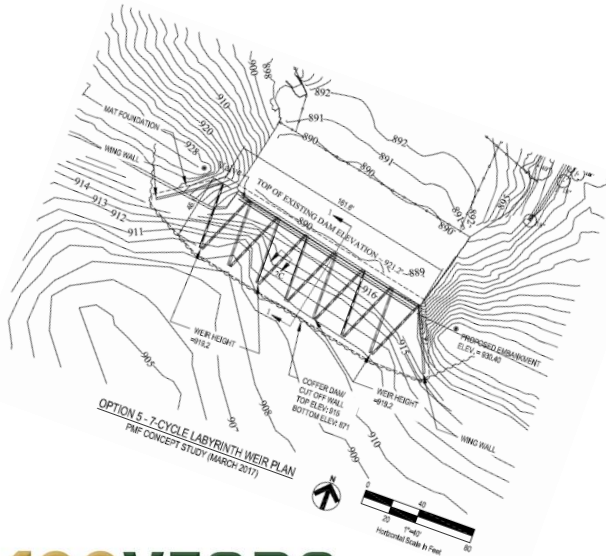


Photo: Mark Haynes Construction

Hinckley Lake Dam – Next Steps

- Insurance Coverage
- Engineering
 - Develop Preferred Alternative
- Construction Manager (at Risk)
 - Perform cost estimates
 - Develop project timeline and sequencing
 - Determine dredging methods, practices and costs





**Cleveland
Metroparks**

**100
YEARS**

Hinckley Lake Dam

June 15, 2017