Sherwood Lake Club
Dam & Spillway Rehabilitation

Membership Meeting Presentation

01/11/2023 and 01/12/2023

Sherwood
LAKE CLUB

Historical Timeline

Fall, 2016 – DWR first noticed SLC of deficiencies with dam

Sept. 1, 2020 - KWO applies for FEMA Grant to fund preliminary engineering

FEMA Awards Grant $ to KWO for Lake Sherwood project

FEMA Grant $ Funded to KWO

January 28, 2022 - KWO sends draft Cost-Share agreement to SLC Board

March 7, 2022 – SLC Board returns executed agreement to KWO

March 8, 2022, KWO returns fully executed agreement to SLC Board

August 31, 2022 – KWO and BG Consultants Final Contract Executed

Sept 1, 2022-Dec. 16 – BG Completes field work and preliminary design

Dec. 16, 2022 – BG Consultants, KWO & SLC Board Member meet to run through Options

Dec. 27, 2022 – BG Consultants present findings and options to SLC Board

Dec. 29, 2022, Jan 1, 2023 & Jan 5, 2023 – SLC Board notices Membership of meeting through email communications

Sherwood
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Engineering Findings, Options & Estimate of Probable Cost

Sherwood
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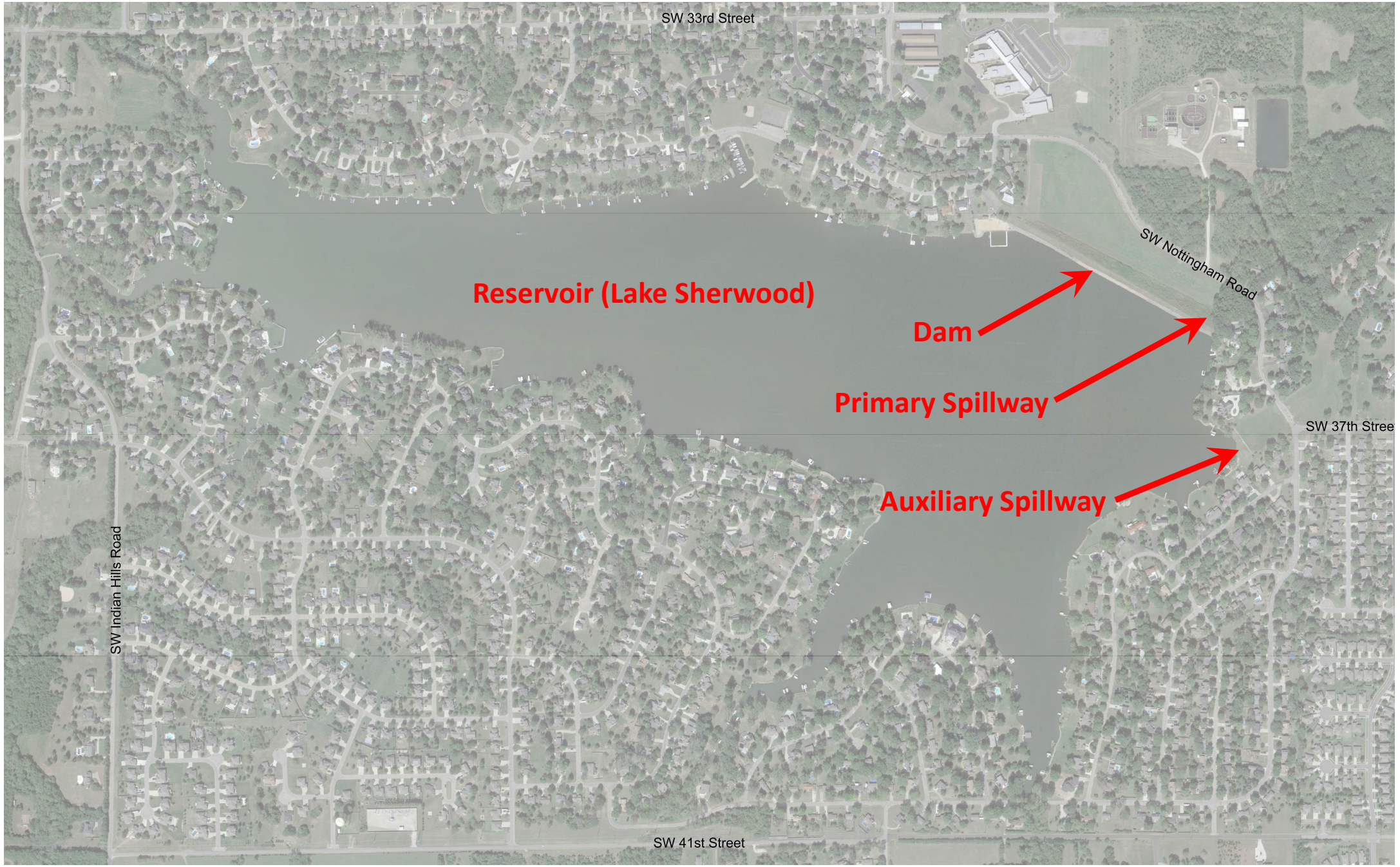
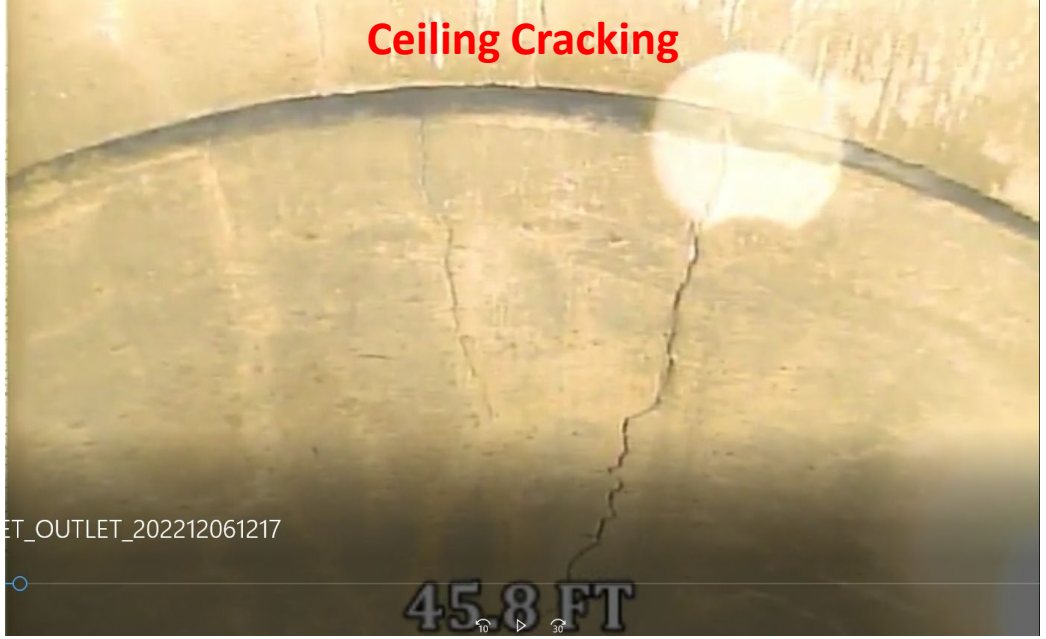
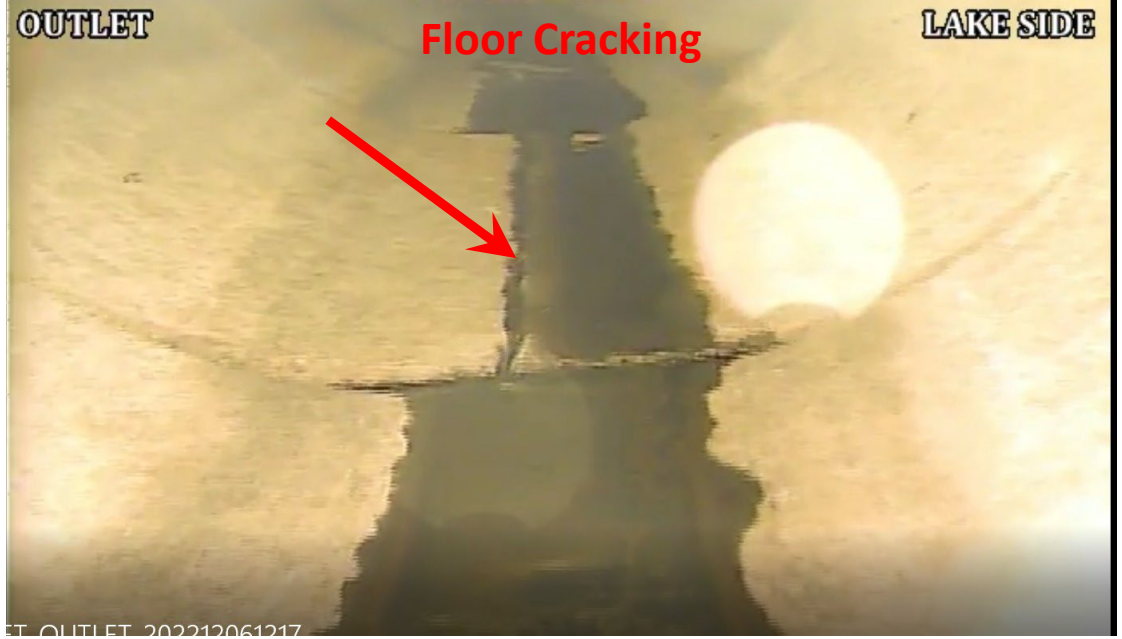
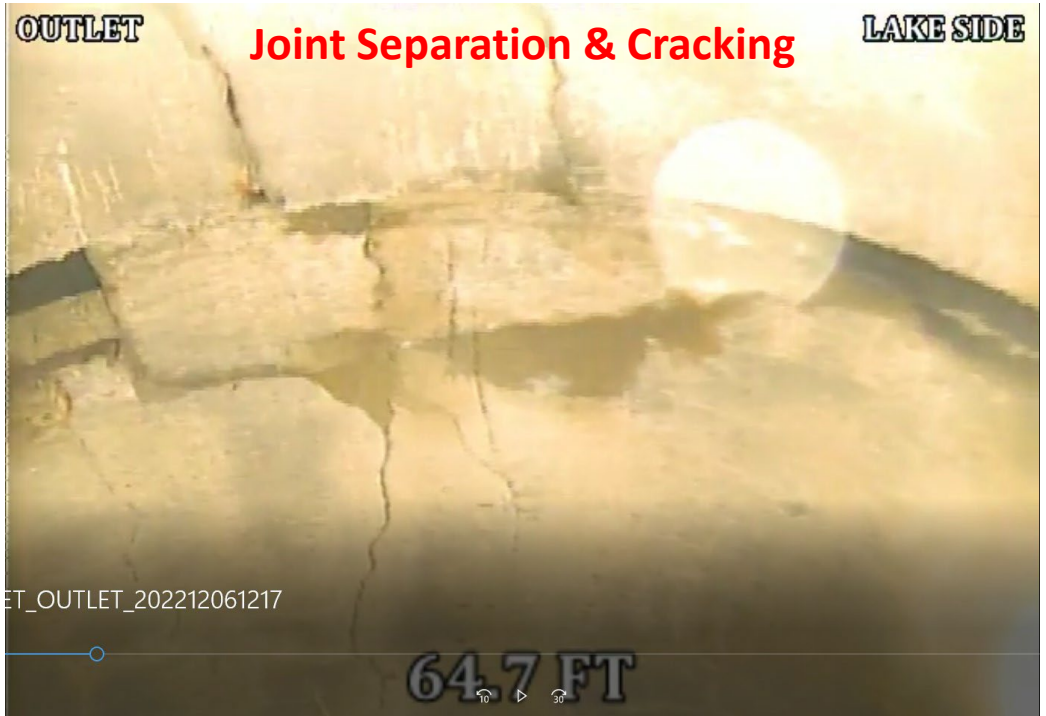

SW 33rd Street
SW Nottingham Road
Reservoir (Lake Sherwood)
Dam
Primary Spillway
SW 37th Stree
Auxiliary Spillway
SW Indian Hills Road
SW 41st Street
North


Ceiling Cracking
T_OUTLET_202212061217
45.8 FT


OUTLET
Floor Cracking
LAKE SIDE


OUTLET
Joint Separation & Cracking
LAKE SIDE
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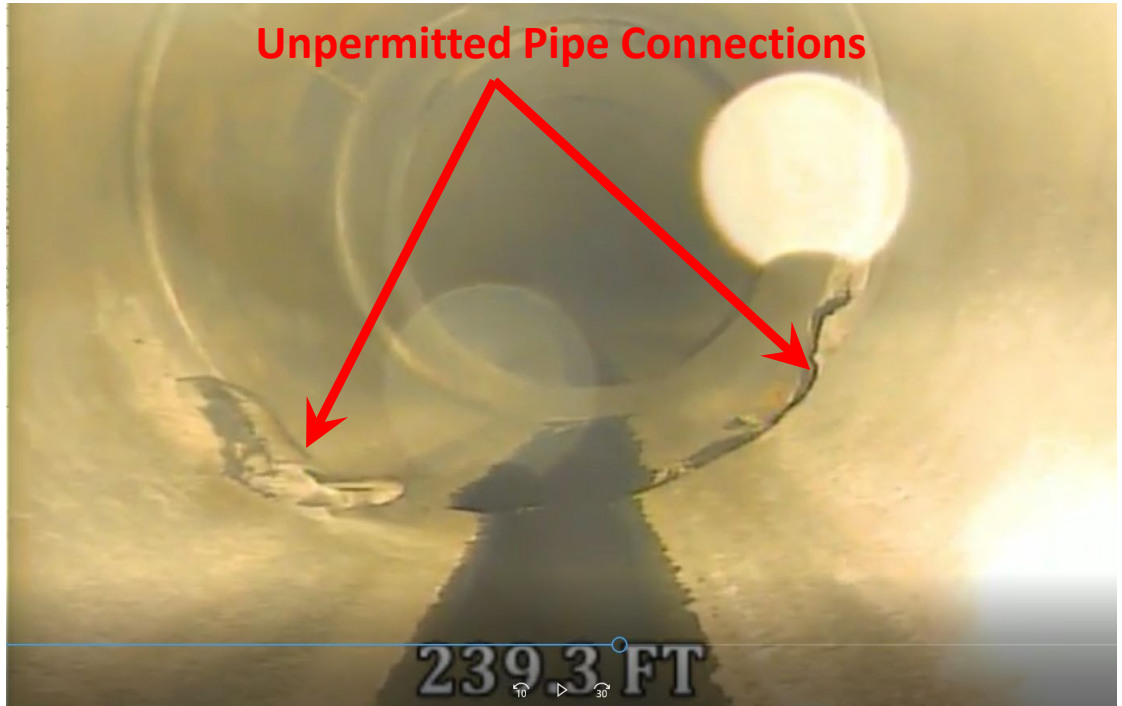
64.7 FT


Unpermitted Pipe Connections
239.3 FT

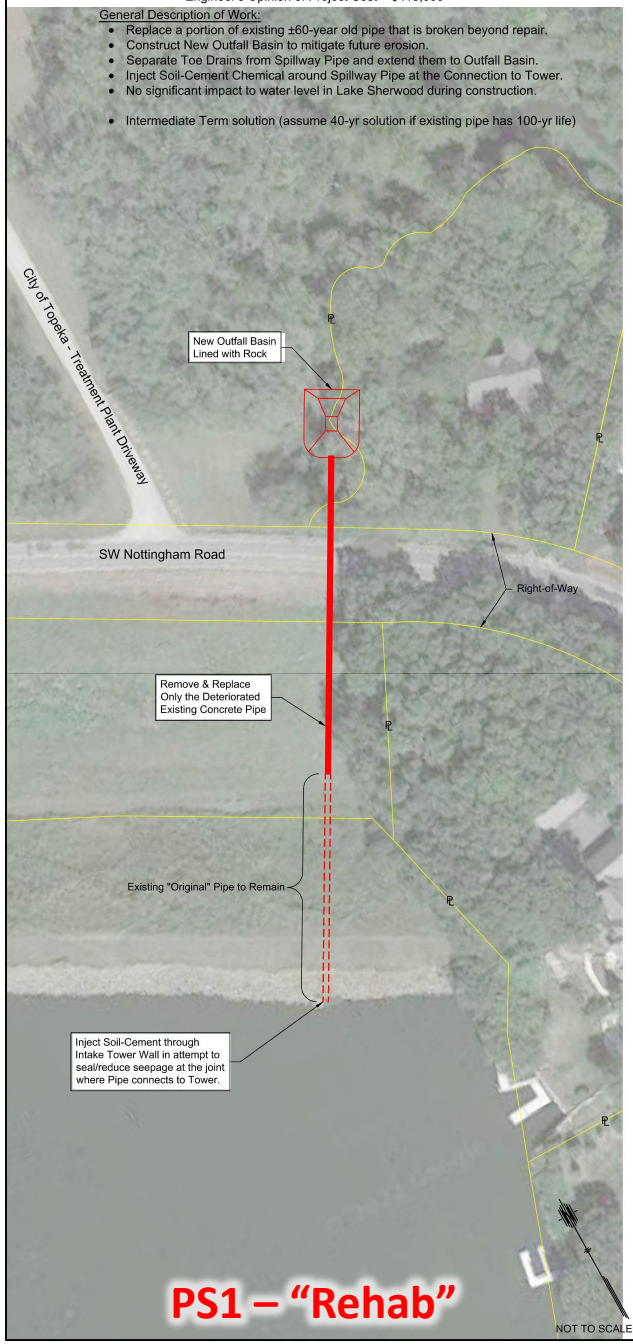
Spillway Pipe – to – Intake Tower Connection

Option PS1 - Rehabilitate Existing Primary Spillway

Engineer's Opinion of Project Cost = $415,000

General Description of Work:

- Replace a portion of existing ±60-year old pipe that is broken beyond repair.
- Construct New Outfall Basin to mitigate future erosion.
- Separate Toe Drains from Spillway Pipe and extend them to Outfall Basin.
- Inject Soil-Cement Chemical around Spillway Pipe at the Connection to Tower.
- No significant impact to water level in Lake Sherwood during construction.
- Intermediate Term solution (assume 40-yr solution if existing pipe has 100-yr life)



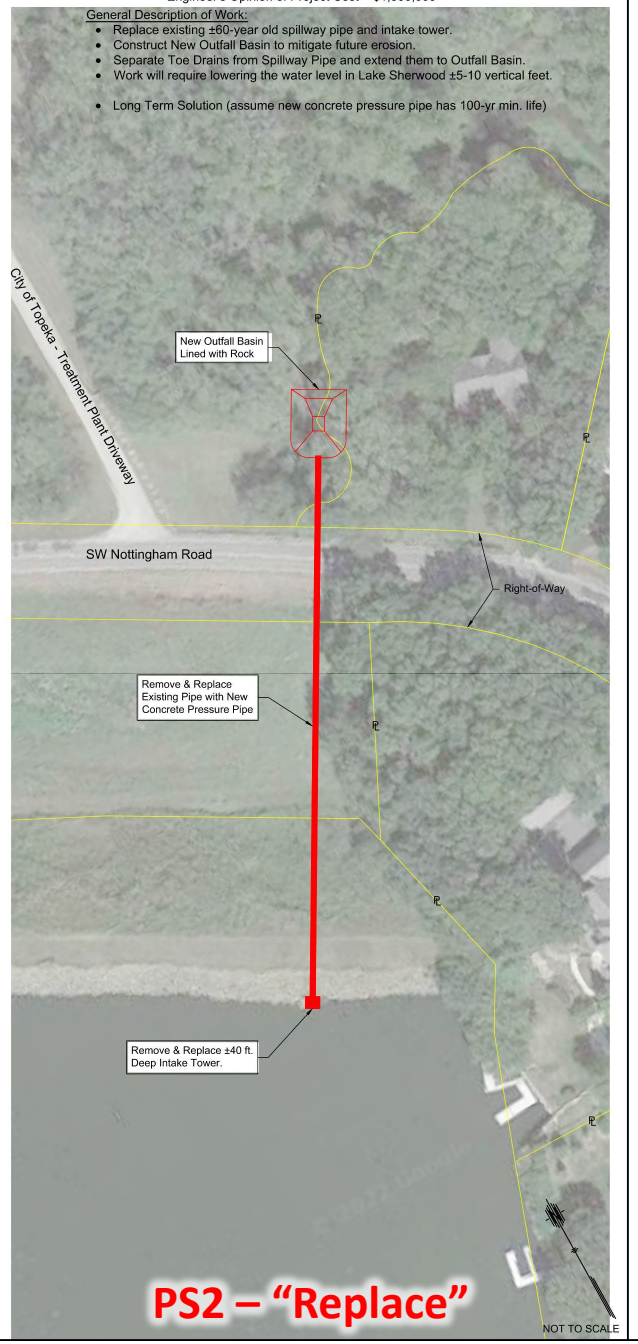
PS1 – "Rehab"

Option PS2 - Replace Existing Primary Spillway

Engineer's Opinion of Project Cost = $1,300,000

General Description of Work:

- Replace existing ±60-year old spillway pipe and intake tower.
- Construct New Outfall Basin to mitigate future erosion.
- Separate Toe Drains from Spillway Pipe and extend them to Outfall Basin.
- Work will require lowering the water level in Lake Sherwood ±5-10 vertical feet.
- Long Term Solution (assume new concrete pressure pipe has 100-yr min. life)



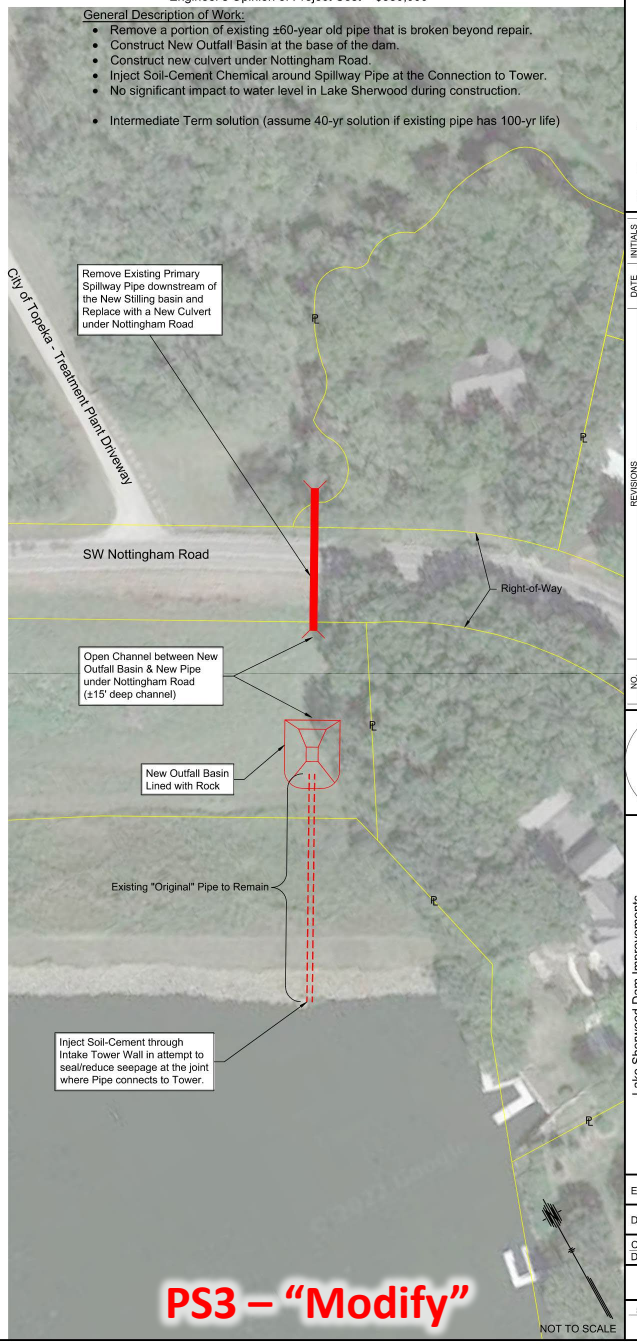
PS2 – "Replace"

Option PS3 - Modify Length of Primary Spillway

Engineer's Opinion of Project Cost = $380,000

General Description of Work:

- Remove a portion of existing ±60-year old pipe that is broken beyond repair.
- Construct New Outfall Basin at the base of the dam.
- Construct new culvert under Nottingham Road.
- Inject Soil-Cement Chemical around Spillway Pipe at the Connection to Tower.
- No significant impact to water level in Lake Sherwood during construction.
- Intermediate Term solution (assume 40-yr solution if existing pipe has 100-yr life)



PS3 – "Modify"

Plans Prepared by:
BG CONSULTANTS
ENGINEERS · ARCHITECTS · SURVEYORS

NO.	REVISIONS	DATE	INITIALS

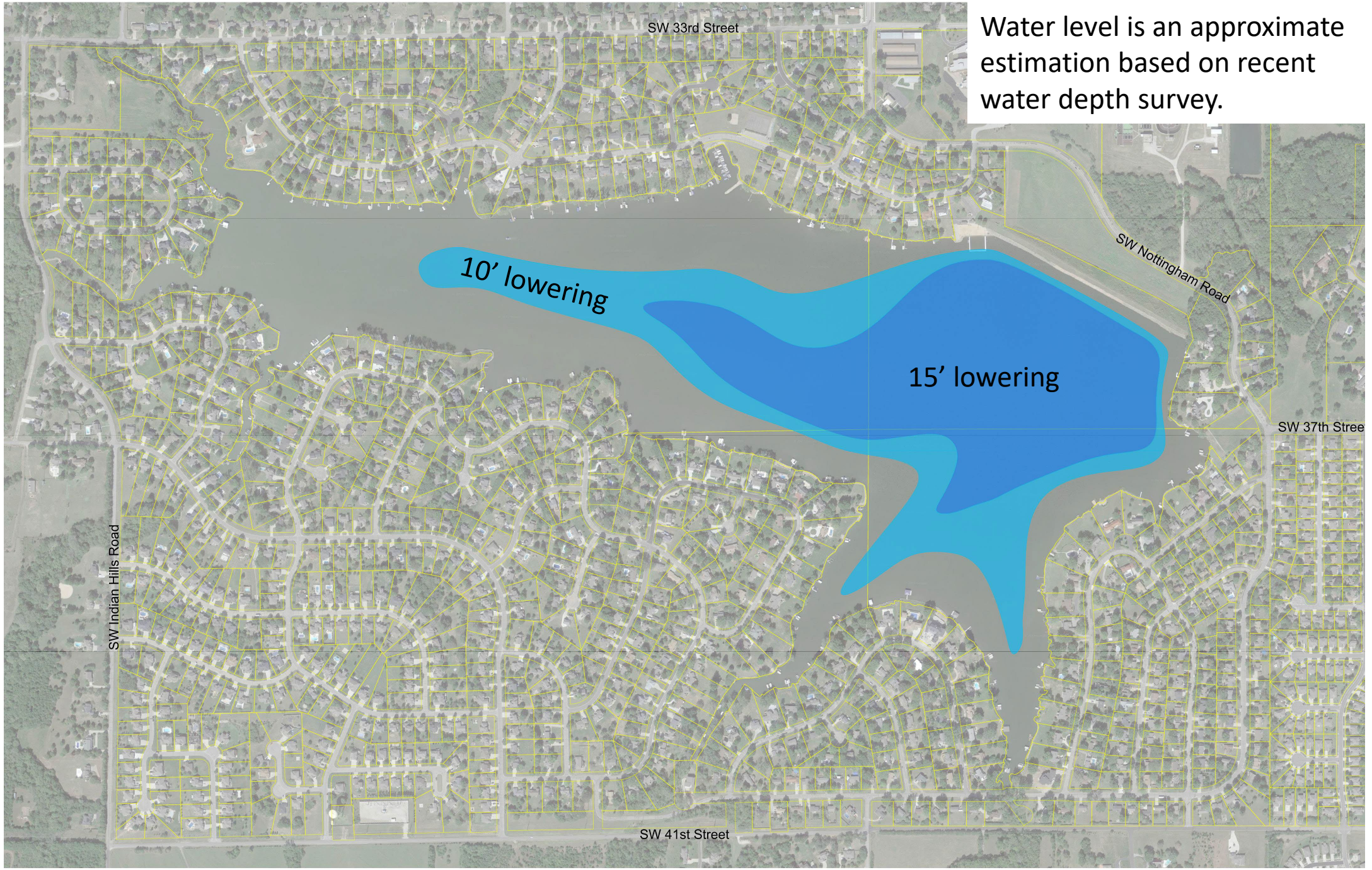
SEAL LOCATION
PLANS SHALL NOT BE USED FOR CONSTRUCTION IF THIS SHEET IS NOT SEALED

Lake Sherwood Dam Improvements
Sherwood Club

"This Project is funded wholly by the State of Kansas Water Plan Fund"

PRIMARY SPILLWAY IMPROVEMENT OPTIONS

Engineer:	JH
Drafter:	CM
Check:	JH
Date:	01-09-2023
BG Project No.	22-1335L
Sht. No.	2
Total Shts.	2


Water level is an approximate estimation based on recent water depth survey.
SW 33rd Street
SW Nottingham Road
10’ lowering
15’ lowering
SW 37th Stree
SW Indian Hills Road
SW 41st Street
North

Option AS1: Engineer's Opinion of Project Cost = $500,000

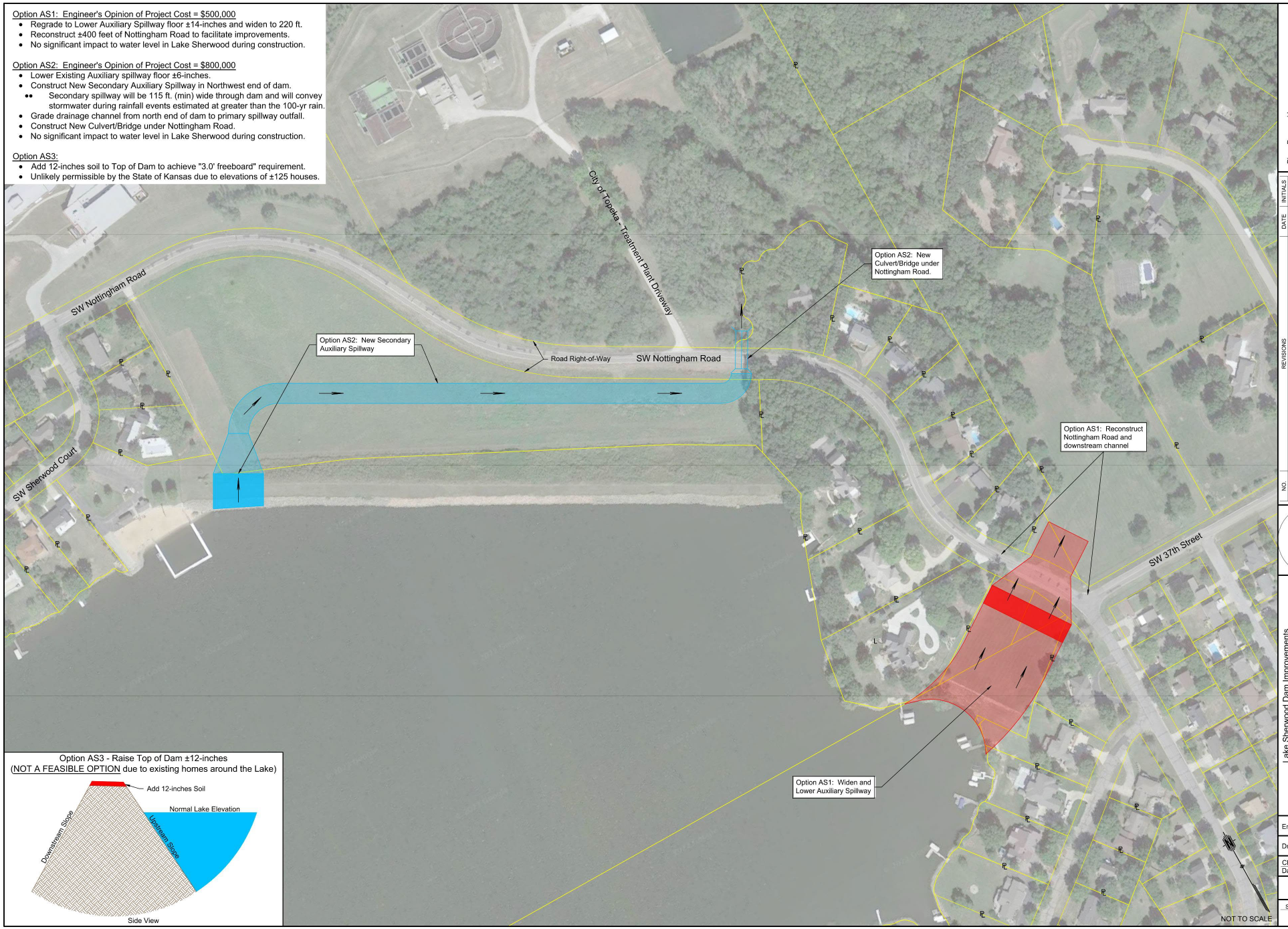
- Regrade to Lower Auxiliary Spillway floor ±14-inches and widen to 220 ft.
- Reconstruct ±400 feet of Nottingham Road to facilitate improvements.
- No significant impact to water level in Lake Sherwood during construction.

Option AS2: Engineer's Opinion of Project Cost = $800,000

- Lower Existing Auxiliary spillway floor ±6-inches.
- Construct New Secondary Auxiliary Spillway in Northwest end of dam.
  - Secondary spillway will be 115 ft. (min) wide through dam and will convey stormwater during rainfall events estimated at greater than the 100-yr rain.
- Grade drainage channel from north end of dam to primary spillway outfall.
- Construct New Culvert/Bridge under Nottingham Road.
- No significant impact to water level in Lake Sherwood during construction.

Option AS3:

- Add 12-inches soil to Top of Dam to achieve "3.0' freeboard" requirement.
- Unlikely permissible by the State of Kansas due to elevations of ±125 houses.



Option AS3 - Raise Top of Dam ±12-inches
(NOT A FEASIBLE OPTION due to existing homes around the Lake)

Plans Prepared by:
BG CONSULTANTS
ENGINEERS · ARCHITECTS · SURVEYORS

NO.	REVISIONS	DATE	INITIALS

SEAL LOCATION
PLANS SHALL NOT BE USED FOR CONSTRUCTION IF THIS SHEET IS NOT SEALED

Lake Sherwood Dam Improvements
Sherwood Club
"This Project is funded wholly by the State of Kansas Water Plan Fund"

AUXILIARY SPILLWAY IMPROVEMENT OPTIONS

Engineer:	JH
Drafter:	CM
Check:	JH
Date:	01-09-2023
BG Project No.	22-1335L
Sht. No.	1
Total Shts.	2

SLC Board Options Eliminated

PS3

1. Created approx. 12’ deep open trench between dam and pipe under Nottingham.
2. Cost estimated at $35k less than PS1. Minimal cost savings don’t justify the dramatic change to the current landscape below the dam

AS2:

1. Cuts into the dam instead, creating additional risks for damage during flooding.
2. Affects “usability” of the dam for SLC events (i.e. fireworks display)
3. Requires additional fill materials to create a gentle outfall on north side of the dam.
4. Additional cost isn’t offset by benefit

AS3

1. Raise the dam top height 12” will cause additional 125 properties to be within the floodplain.
2. DWR will be hesitant to approve plans that place additional homes in the floodplain

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SLC Board Pros/Cons
Primary Spillway Option 1

PROS :	CONS:
1. Lower total cost: **$415,000** vs $1,300,000 2. Less invasive process: rehabilitation of primary spillway pipe with no requirement for digging through the dam. 3. Resolves problems and meets state requirements for potentially 20, possibly 40 years. 4. Does not require lowering the lake water level. 5. No extensive impact on lake use. 6. Provides intermediate solution that enables preparation for future total replacement.	1. Potentially decreased life expectancy from PS2: 20 – 40 years vs. 100 years. 2. Good remedy, but not ultimate remedy: Pipe will not be dug up, so it is impossible to see outside pipe condition. However, Engineers do not see major problems with interior of pipe. 3. Pushes full primary spillway replacement to a future date.

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SLC Board Pros/Cons
Primary Spillway Option 2

PROS :	CONS:
1. Provides total solution for spillway pipe: new pipe replacement lasting potentially up to 100 years. 2. FEMA funds are available now and may pay up to 65% of the project. These funds may or may not be available in the future. 3. With lowered lake elevation, excavation of lake shorelines and coves can occur to remove run-off sand, dirt, and debris – alleviating necessity of dredging lake.	1. More expensive remedy: $1,300,000 2. Requires draining the lake, lowering the lake level by up to 15 feet, digging through the dam (approx. 40+ feet down') to expose and replace the primary spillway tower and pipe. 3. Lake will not be available for boating use for from 1 (best case) to 3 years (worst case), depending on rainfall to refill. 4. Additional problems could come to light once digging begins, or additional problems could be inadvertently caused by new work.

Sherwood
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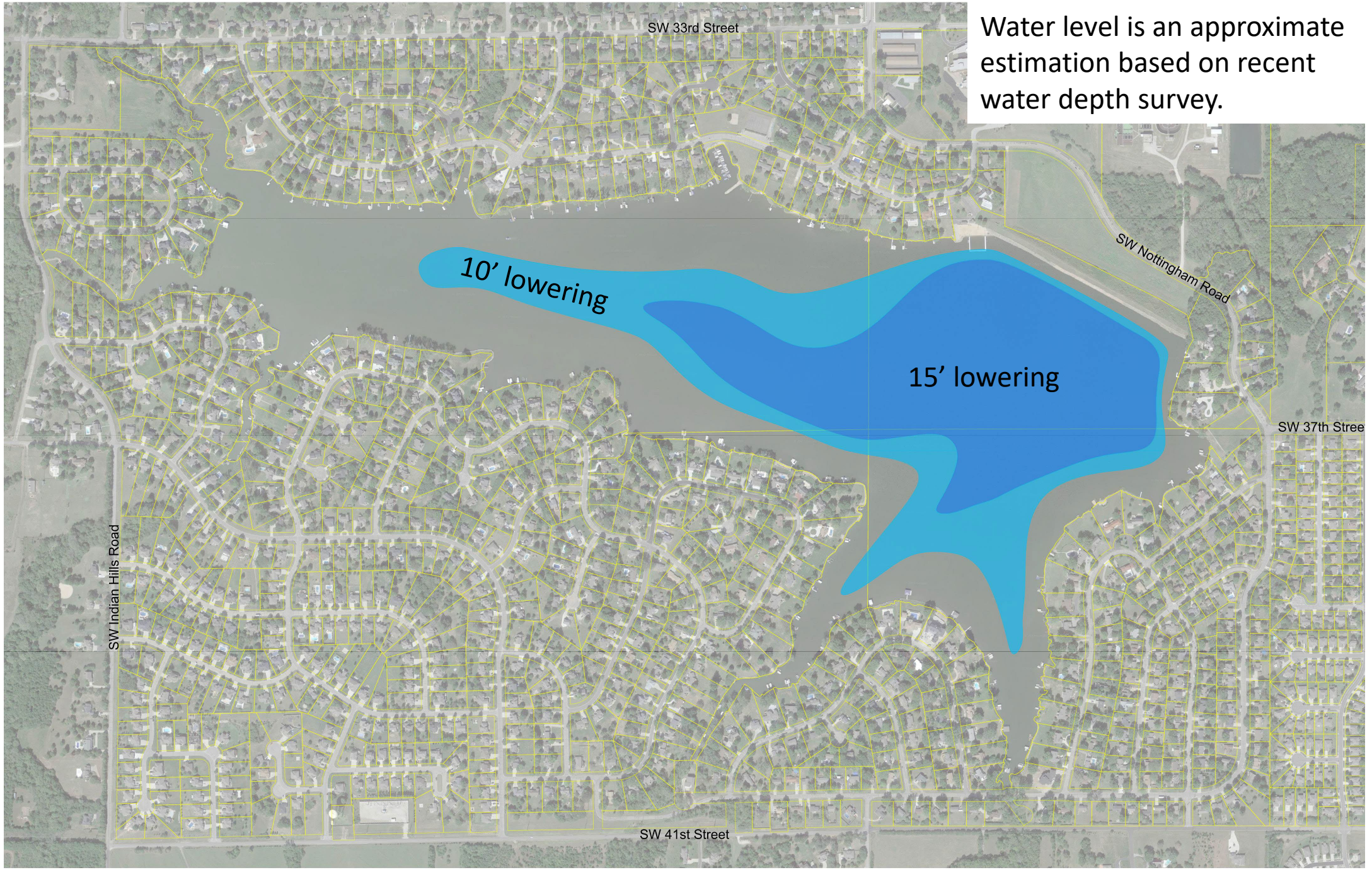
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SW Nottingham Road
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North

SLC Board Cost Scenario

PS1 + AS1+3 DOCK RECONFIGURATION

Total Estimated Cost: $415,000+$350,000+$150,000 = $915,000

Anticipated Cost Share (FEMA Grant): 65% FEMA Grant/35% SLC

FEMA Grant (65%): $594,750

SLC (35%): $320,250

SLC Payment: SLC Cash Available: $200,000

Total Assessment: $120,250

	Per A Member	Per B Member
All A & B Members Assessed Equally	$390	$390
80% A Members, 20% B Members	$540	$185
100% A Members, 0% B members	$676	$0

No Cost Share (Worst Case):	Per A Member	Per B Member
All A & B Members Assessed Equally	$2,321	$2,321
80% A Members, 20% B Members	$3,213	$1,100
100% A Members, 0% B members	$4,017	$0

Sherwood LAKE CLUB

SLC Board Cost Scenario

PS2 + AS1+3 DOCK RECONFIGURATION

Total Estimated Cost: $1,300,000+$350,000+$150,000 = $1,800,000

Anticipated Cost Share (FEMA Grant): 65% FEMA Grant/35% SLC

FEMA Grant (65%): $1,170,000

SLC (35%): $630,000

SLC Payment: SLC Cash Available: $200,000

Total Assessment: $430,000

	Per A Member	Per B Member
All A & B Members Assessed Equally	$1,396	$1,396
80% A Members, 20% B Members	$1,933	$662
100% A Members, 0% B members	$2,416	$0

No Cost Share (Worst Case):	Per A Member	Per B Member
All A & B Members Assessed Equally	$5,195	$5,195
80% A Members, 20% B Members	$7,191	$2,462
100% A Members, 0% B members	$8,989	$0

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SLC Board Recommendation

PS1 + AS1

Option PS1 - Rehabilitate Existing Primary Spillway

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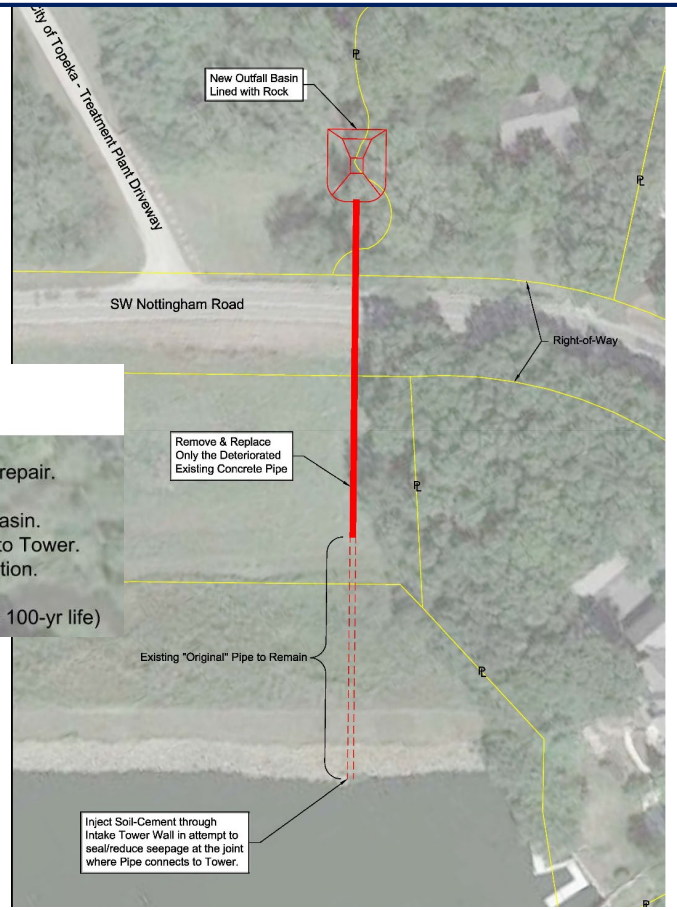

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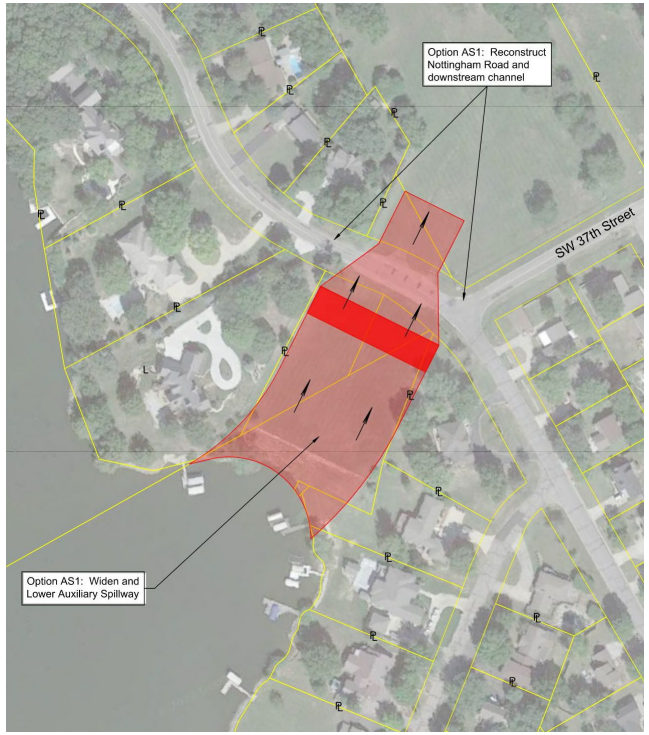

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SLC Funding Options

1. Currently awarded $63,421 for construction by FEMA 2020 grant (must be used by end of 2023 or lost)
2. KWO application for 2022-2023 grant funding could provide up to 65% of construction cost (unknown until awarded)
3. Balance of cost to be paid by SLC Membership through assessment

    * Will include “A” AND “B” membership in assessment at different rates established by board

4. SLC portion due to KWO prior to first contract for construction

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Timeline Looking Ahead

Wednesday, Jan. 11, 2023 & Thursday, Jan. 12, 2023 – Membership Meetings

January 17, 2023 – Board Special Meeting to Decide Direction

Late January/Early February 2023 – Engineering Preliminary Check Submittal to KWO, DWR & SNCO

March 1, 2023 – Final Check Submittal to KWO, DWR & SNCO

March 14, 2023 - FEMA Deadline for Funding

Spring 2023 – KWO applies for FEMA Construction Grant

Summer 2023 – DWR Permits Construction

Summer/Fall 2023 – Lake Sherwood Receives Bids for Project

September 2023 – FEMA announces Construction Grant

Late September 2023, SLC assessment to Membership

Fall/Winter 2023 – BEGIN Construction

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Thank you for your attendance and input. This definitely affects us all and we want to do what is most favorable for the lake club membership we represent.

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Questions and Answers

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