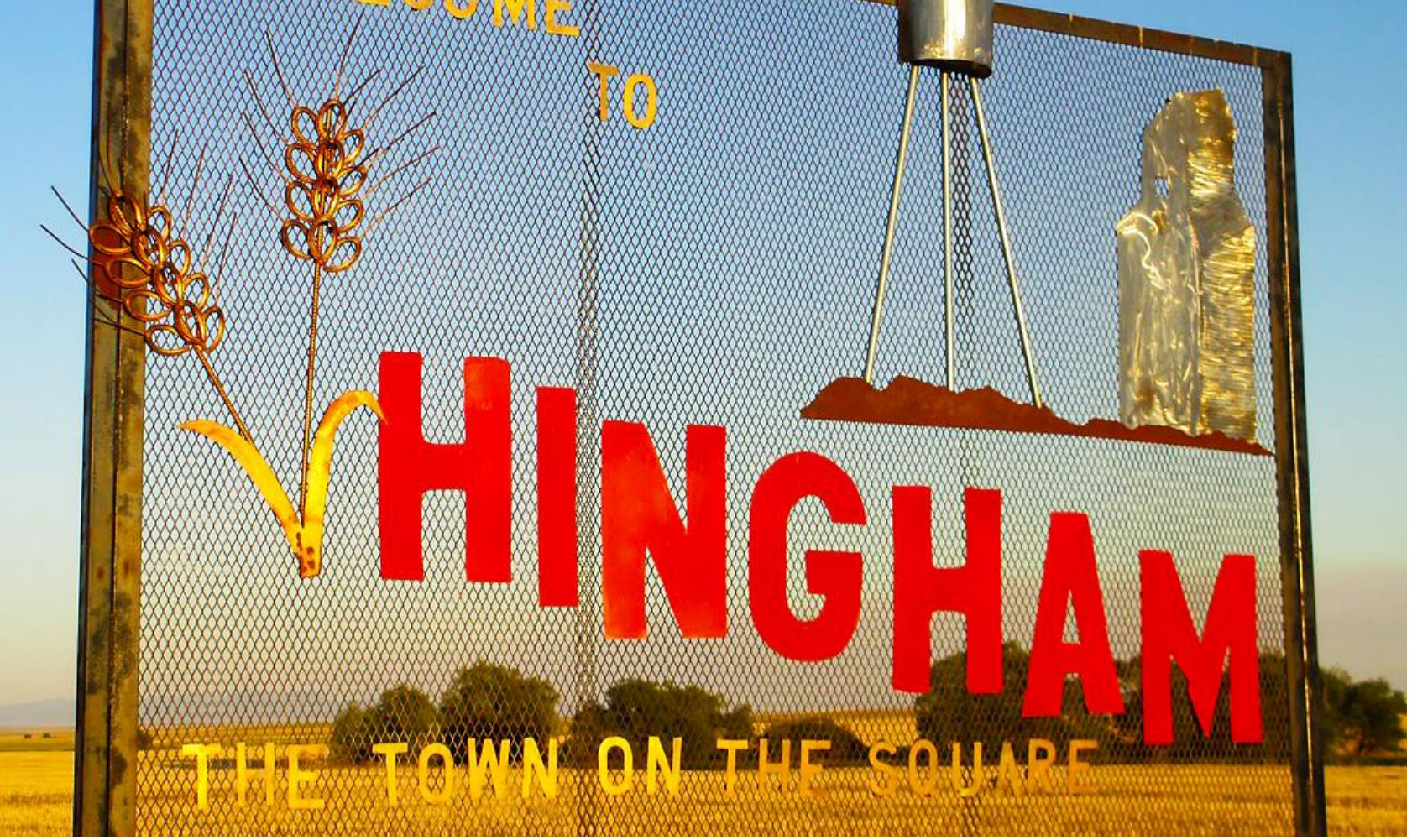


Town of Hingham Wastewater System Preliminary Engineering Report

Overview and Discussion on Preliminary Findings

Public Meeting #1 – March 8, 2022 @ 7:00 PM

Robert Peccia & Associates

Preliminary Engineering Report (PER)

- Analysis of current and future wastewater system demands and population.
- Review of the existing Hingham wastewater collection system and treatment system.
- Identify any regulatory concerns and areas where wastewater system improvements should be made.
- Develop alternatives to provide the community with reliable wastewater service and improve operations through the 20-year planning period.
- Complete a list of recommended improvements to the wastewater system and a potential funding strategy for implementation.

Projected Population and Wastewater Flows 2022-2042

Year	Estimated Service Population[1]	Average Wastewater Flow (gpcd)	Wastewater Flow Rate (gpd)	Peak Hour Wastewater Flow[2] (gpd)
2022	131	55	7,205	30,261
2042	131	58	7,600	31,920

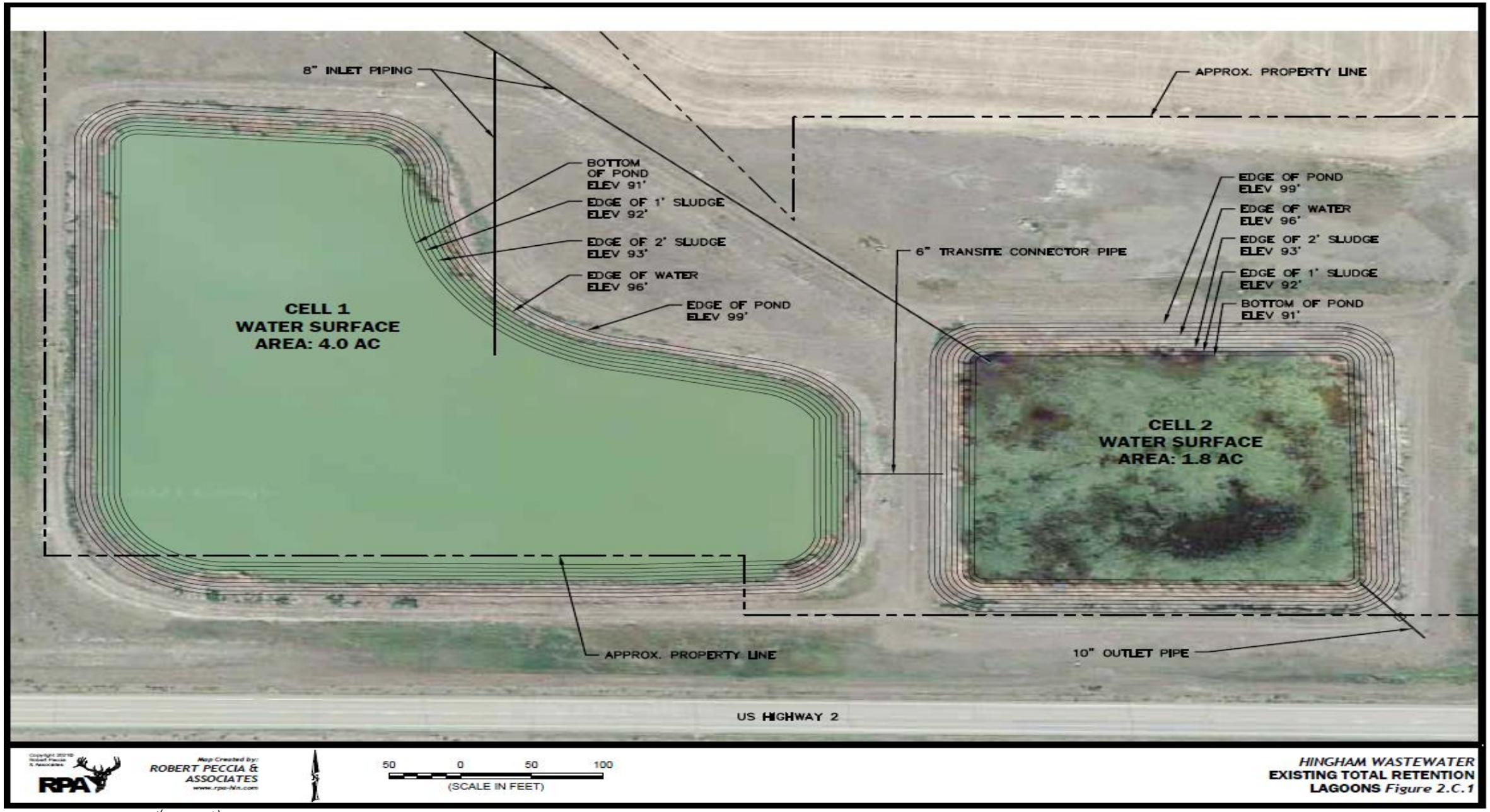
(1) Town assumed no annual increase in population in next 20 years.
(2) Using a peak factor of 4.2

History of Hingham Wastewater System

- Collection system originally constructed in 1954 with vitrified clay pipe.
- Two-cell clay lined total retention facultative lagoons built 1954 and 1963.
- Emergency repairs to replace Cell #1 inlet pipe in early 2021 due to corroded and plugged pipe.
- Collection mains cleaned and TV inspected by Pace in November 2021.
- Lagoons inspected by MDEQ in November 2021.
- Ongoing maintenance…

Existing Treatment Lagoons

- Two-cell clay lined total retention facultative lagoons.
- Inlet splitter box.
- 8-inch inlet piping, 6-inch connector pipe, 10-inch outfall pipe and structure.
- Total water surface areas between the 2-cells of 5.8-acres.
- Average of approximately 1.5 feet of sludge in both cells.



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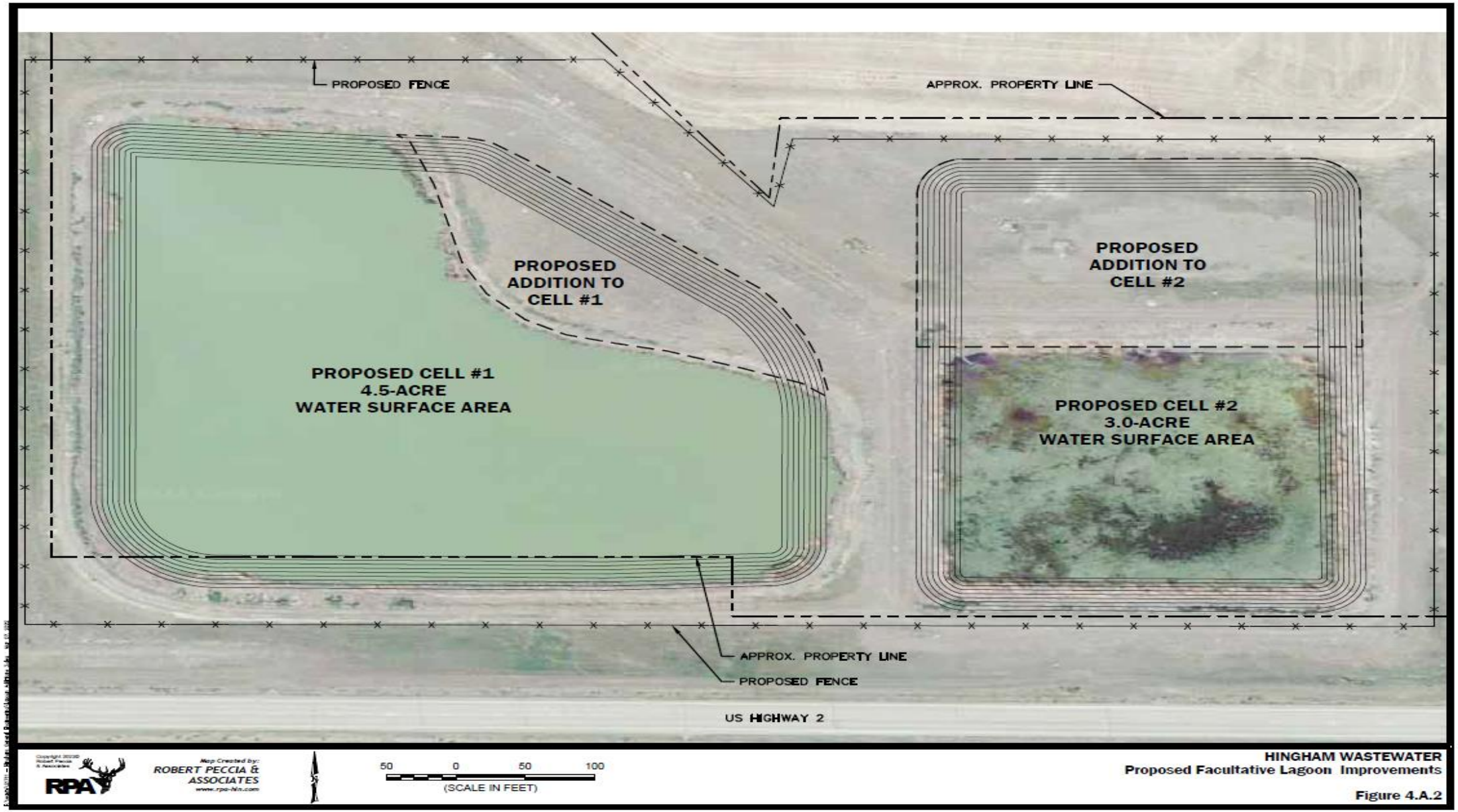
Existing Lagoons

Cell #1

Cell #2



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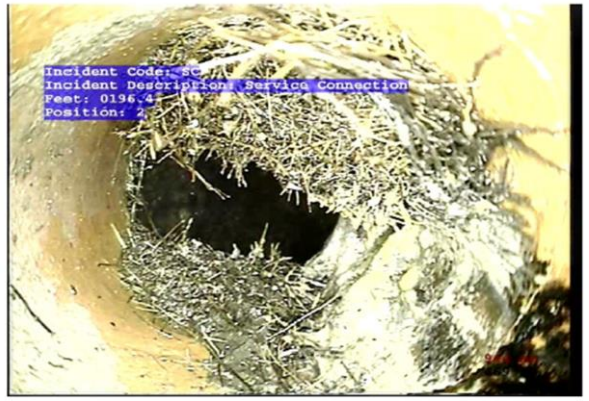
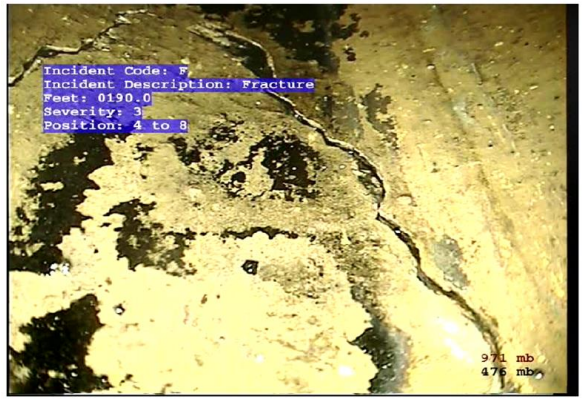
Existing Wastewater Collection System Components

- Gravity sewer mains mostly in alleys, some in roads. Approximately 13,000 LF of mains.
- Mostly old vitrified clay pipe, some sections of PVC, and asbestos cement mains. 8-inch dia.
- Approximately 45 concrete manholes.





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Concerns for Hingham Wastewater System

- Lagoons are undersized for current wastewater flows and population.
- Clay liners are cracked, damaged and leaking significantly.
- Little to no standing water in lagoons.
- 1.4’ of sludge build up in Cell #1 and 1.5’ in Cell #2 which takes up treatment volume.
- Lagoon inlet piping and outfall structures are corroded and leaking.
- Lagoon outfall structure and piping leak when water levels in Cell #2.
- Old clay mains are cracking, leak, have tree roots, calcium build up, and offset joints.
- Collection system has reached end of useful life and will need replaced in Phase 2.

Treatment System Alternatives Evaluated in the PER

- Alternative 1 - No Action.
- Alternative 2 – Upgrade facultative lagoons with land application by spray irrigation.
- Alternative 3 – Upgrade total retention facultative lagoons by resizing and lining with clay liner.
- Alternative 4 – Upgrade total retention facultative lagoons by resizing and lining with synthetic liner.

Collection System Alternatives Evaluated in the PER

- Alternative 1 – No Action
- Alternative 2 – Pipe Bursting
- Alternative 3 – Cured-In-Place-Pipe Lining (CIPP)
- Alternative 4 – Open Dig

Phase 1
Recommended Wastewater System Improvements

- Wastewater Treatment Alternative 4 – Upgrade Existing Lagoons $3,610,445
  - Upsize lagoons for adequate storage.
  - Line lagoons with synthetic liner.
  - Replace piping around lagoons.
  - Install influent flow measurement.
  - Remove/plug outfall structure and piping.
  - Wildlife fencing around the lagoons.

Phase 2
Recommended Wastewater System Improvements

- Collection System Alternative 3 – CIPP Lining all Mains - $1,033,200
  - Prioritize sewer mains based on TV inspection
  - Number of lines CIPP lined depends on funding available
  - Manhole lining
  - Some open-dig may be required at sections with:
    - Sags
    - Incorrect/reverse grades
    - Offset joints

Grant and Loan Funding Opportunities

- American Rescue Plan Act (ARPA) – Montana Department of Natural Resources and Conservation (DNRC)
  - Coronavirus pandemic aid for “investments in water and sewer infrastructure”
  - Local Fiscal Recovery Funds – US Treasury Department - $10,489 of $30,489
  - Minimum Allocation Grant Funds – Montana Legislature (HB 632) - $59,527
  - Competitive Grand Funds – Applications reviewed by DNRC, Infrastructure Advisory Commission, and approved by Governor (HB 632) – Applied $2,000,000
  - Hill County Local Fiscal Recovery Grant Funds - $350,000
  - Hill County Minimum Allocation Grant Funds - $150,000

Grant and Loan Funding Opportunities:

- MCEP Grant (Montana Coal Endowment Program) – Will Apply in May 2022.
  - Applications are ranked on 7 criteria including health and safety.
  - Up to $750,000 grant available. Raise rates $24.51 to target, apply for $500,000.
  - Highly competitive and funds are awarded through the Legislative process.
  - 2015-2019 ACS MHI = $43,571.
  - Must exceed MCEP “Target Rate” (2.3% of MHI = $83.51/mo for water+sewer).
  - Current combined residential average sewer and water rate = $59.00
  - MCEP requires a 50% match (loan, grants, local contribution).

Grant and Loan Funding Opportunities (cont.)

- DNRC RRGL Grant (Montana Department of Natural Resources & Conservation Renewable Resource Grant and Loan Program)
  - Program concentrates on preservation and enhancement of natural resources
  - Maximum $125,000 available
  - Highly competitive and funds are awarded through the Legislative process
  - No match required
  - Will apply in May 2022
  - Reapplied for $15,000 RRGL planning grant

Grant and Loan Funding Opportunities (cont.)

- MDEQ State Revolving Fund (SRF) Loans
  - Low-interest loans available (currently 2.5%) for 20 years
  - Possible loan forgiveness of 25% of loan amount up to $350,000
  - Hingham submitted a request to be included on SRF priority list
- USDA Rural Development (RD) Grant and Loan Program
  - Low-interest loans available (currently 2.125%) for 30 or 40 years
  - Grants are based on MHI: Hingham MHI = $43,571 < $47,757 limit
  - Town of Hingham currently does qualify for grant/loan funding through RD

Moderate Household Income (MHI) and Low to Moderate Income (LMI)

Median Household Income (MHI)	$43,571
Low to Moderate Income (LMI)	**31.82%**

- The Town of Hingham **<u>does not</u>** qualify for Community Development Block Grant (CDBG) because CDBG requires LMI greater than 51%

Preliminary Project Costs and Available Funding

Source	Available Funds
Preliminary Cost Estimate for Recommended Improvements	$3,610,445
MCEP Planning Grant	$15,000
Hingham ARPA Local Fiscal Funds	$10,489
Hingham ARPA Minimum Allocation Funds	$59,527
ARPA Competitive Grant Round 2	$2,000,000
Hill County ARPA Local Fiscal Funds	$350,000
Hill County ARPA Minimum Allocation Funds	$150,000
MCEP	$500,000
RRGL	$125,000
SRF Loan (rate increase of $24.51 per month)	$368,549
Local Cash – Wastewater Fund – Clean and TV sewer mains	$31,880

Next Steps and Project Scheduling

- Complete Draft PER
- Prepare Environmental Assessment (EA)
- Second Public Meeting – on PER, Grant Applications, and EA on April 28th, 2022
- Finalize PER
- Grant Applications are due in May 2022

QUESTIONS?