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CITY OF OELWEIN, IOWA
REED BED AND EQUALIZATION BASIN IMPROVEMENTS

MAY 23, 2022



ISSUES TO ADDRESS

- Improve Reed Bed Performance/Expand Biosolids Storage Capacity
- Comply with Nutrient Reduction Requirements
 - Phosphorus Reduction
 - August 2024 Deadline
- Aging EQ Basin Liner

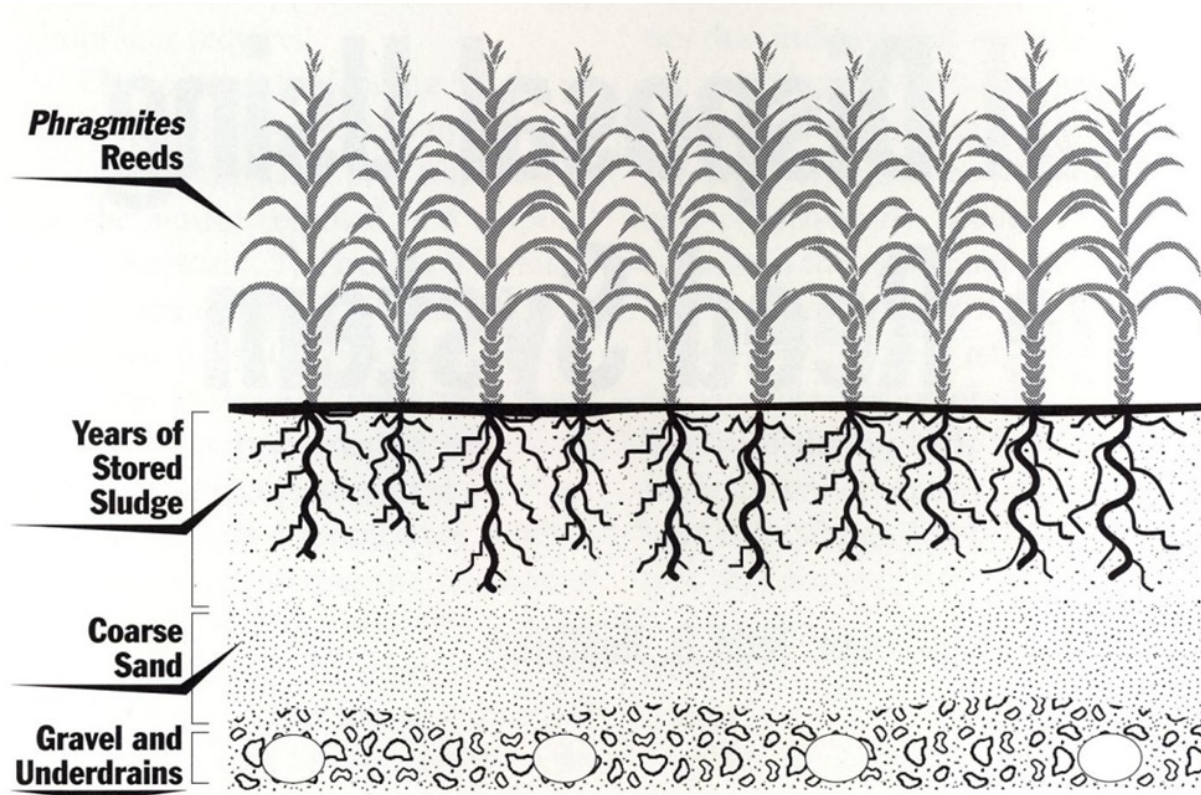


2020 SLUDGE STORAGE EVALUATION

- Three options evaluated:

	<u>Option 1</u> Construct Additional Reed Beds	<u>Option 2</u> New Liquid Storage & Existing Reed Beds	<u>Option 3</u> Do Nothing
Initial Construction Cost	\$1,034,000	\$2,047,000	\$89,000
Present Worth O&M Costs	\$600,000	\$1,647,000	\$1,503,000
Annual O&M Costs	\$40,300	\$110,700	\$101,000
Salvage Value	\$103,000	\$389,000	\$0
20 Yr. Net-Present Worth	\$1,531,000	\$3,305,000	\$1,592,000

REED BED CONSTRUCTION

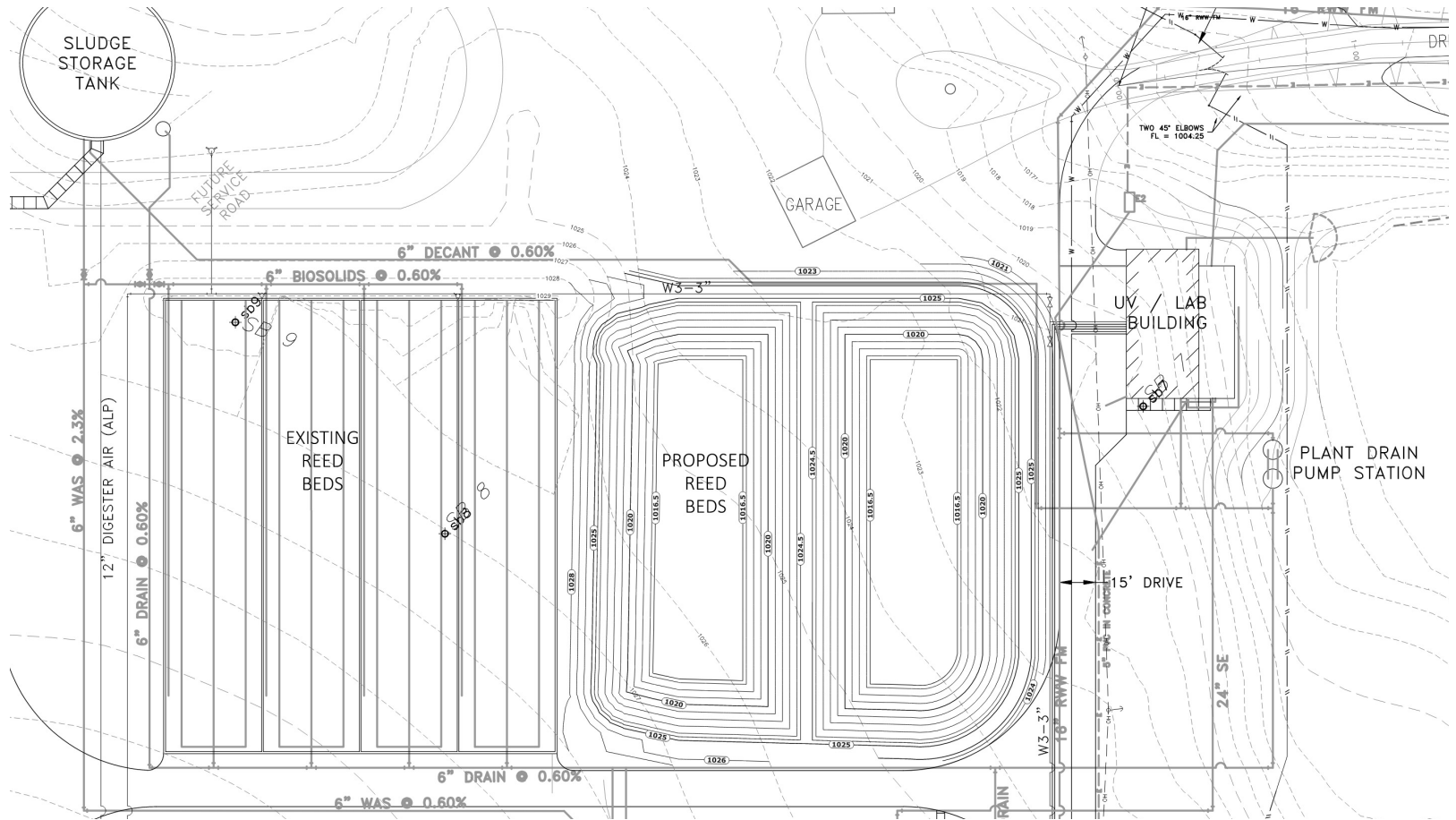


A cross-section of a reed bed showing the root system.

REED BED PERFORMANCE – BAD vs. GOOD



REED BED EXPANSION



POTENTIAL SLUDGE VOLUME REDUCTION

- 500,000 gallons of sludge @ 2.0% solids (2,083 wet tons, 41.7 dry tons)
- Dewater to 20% solids, 70% volatile organics and 30% non-volatile (208 wet tons, still 41.7 dry tons)
 - 12.5 tons non-volatile solids
 - 29.2 tons volatile solids
- At this stage, similar to filter press

POTENTIAL SLUDGE VOLUME REDUCTION

- Over 7-10 year treatment cycle, volatile organics reduced from 70% to 25% of total solids, still at 20% total solids
 - 12.5 tons of non-volatile solids
 - Now only 4.2 tons volatile solids
 - 16.7 dry tons, and 83.5 wet tons
- Rest for 90 days in summer – 48% solids (30-40% most likely)

POTENTIAL SLUDGE VOLUME REDUCTION

- With 90 day resting:
- Now only 34.8 wet tons remaining from original 2,083 wet tons @ 2% solids from aerobic digester
- Must be able to load other reed bed cells, temporary storage, or liquid land application

EQUALIZATION BASIN LINER REPLACEMENT



PROJECT SCHEDULE

- August 2022 – Begin Design of Improvements
- February 2023 – Final Design Complete/Submit to IDNR
- March 2023 – Receive Bids
- April 2023 – Begin Construction
- July 2024 – Construction Complete

QUESTIONS?





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