



Ann Arbor Water Treatment Plant

Lime Residuals Removal Project

Introductions

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Tetra Tech
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Water treatment

- Consists of numerous processes to purify the raw water
- Softening is the process to remove dissolved minerals
- Softening makes water more compatible with washing and protects plumbing



What are lime residuals?

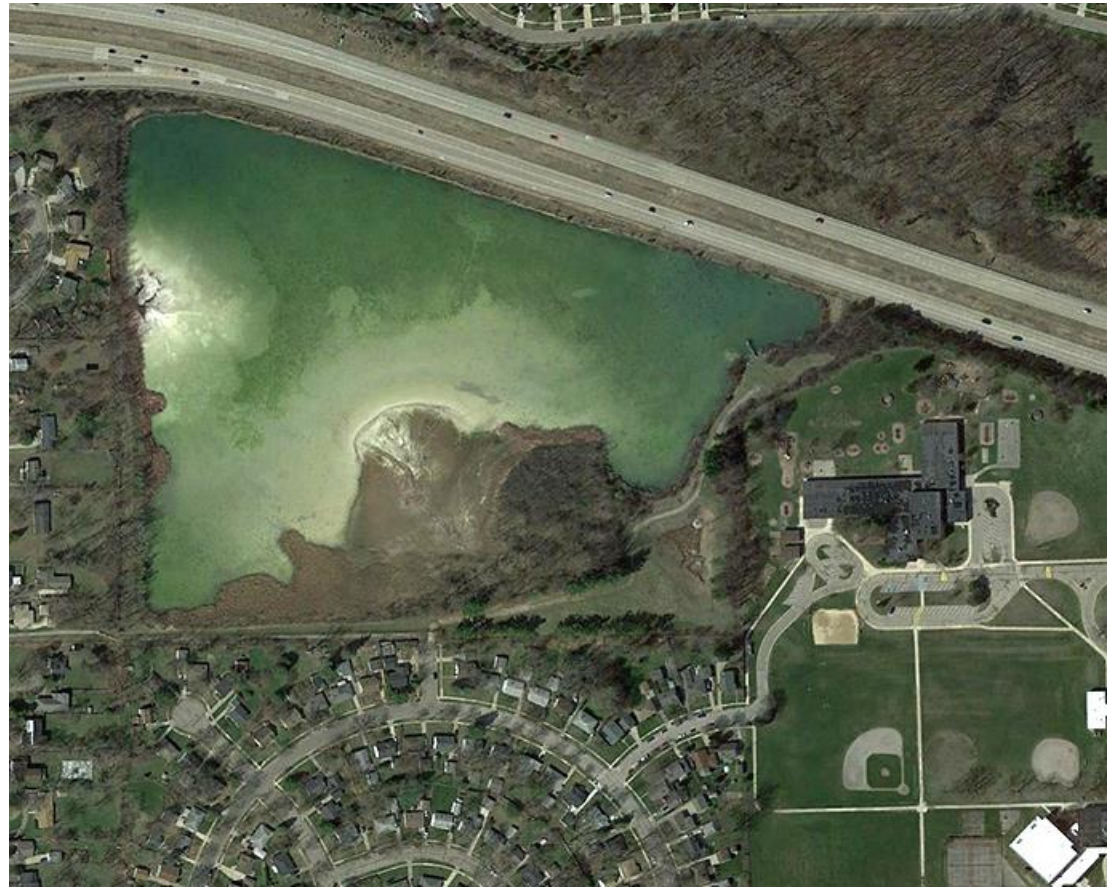
- Byproducts of the process to soften drinking water
- Residuals consist of minerals in the water (primarily calcium and magnesium) and lime (calcium oxide)
- Beneficial reuse – is applied as an agricultural product for amending soil to grow crops.

Sold at
local
hardware
stores



How does the City manage residuals?

- Most are captured at the WTP and hauled off-site for use on agricultural land
- During maintenance activities and in emergencies, some are piped to the holding pond west of Wines Elementary School
- Holding pond is man-made and has been in use since the early 1900s



Why must this material be removed?

- Pond is nearly full of residuals
- Storage space in pond is needed
- Prevent residuals from reaching Newport Creek (MDEQ violation)
- Removal is budgeted within the City's Capital Improvement Plan
- Managing residuals is a critical activity of operating a water treatment plant

State of Michigan

- Lagoon is regulated by the MDEQ
- City holds a permit to operate the lagoon.
- City monitors the lagoon regularly and must meet all permit requirements
- Removal of these residuals from the lagoon is a standard procedure



Trumpeter Swan

- Confirmed sightings of mating trumpeter swans at the lagoon
- Young newborn; one cygnet
- Protected threatened species
- Prohibited from working during the nesting and fledging period of April – September



Project goals

- Retain contractor
- Excavate accumulated material in holding pond to increase storage for maintenance activities and emergencies
- Conduct work with least impact to neighborhood, schools, residents, and environment
- Conduct work in safest manner possible
- Protect the trumpeter swan

Construction Process

- Contractor will mobilize to lagoon site and make preparations for locating equipment, stockpile areas and temporary facilities.
- Material removed from the lagoon using a dredge
- Mobile filter presses used to dewater material
- Material loaded into trucks and hauled off-site



Dredging

- Extent of material and location of usable capacity will necessitate hydraulic dredging
- Material is dredged in a slurry and pumped to a temporary holding tank before being fed to the presses



Dewatering with Filter Presses

- Mobile filter presses, each roughly the size of a semi trailer
- Anticipate multiple presses to achieve removal volume
- Dewater residuals from 10-20% solids to 60-65% solids for transporting



Trucking details

- Exact trucking specifics will vary by contractor
- Expect approximately 6 trucks per hour moving material off-site
- Truck beds will be equipped with a liner to prevent spread of material
- Trucking will adhere to the established trucking route



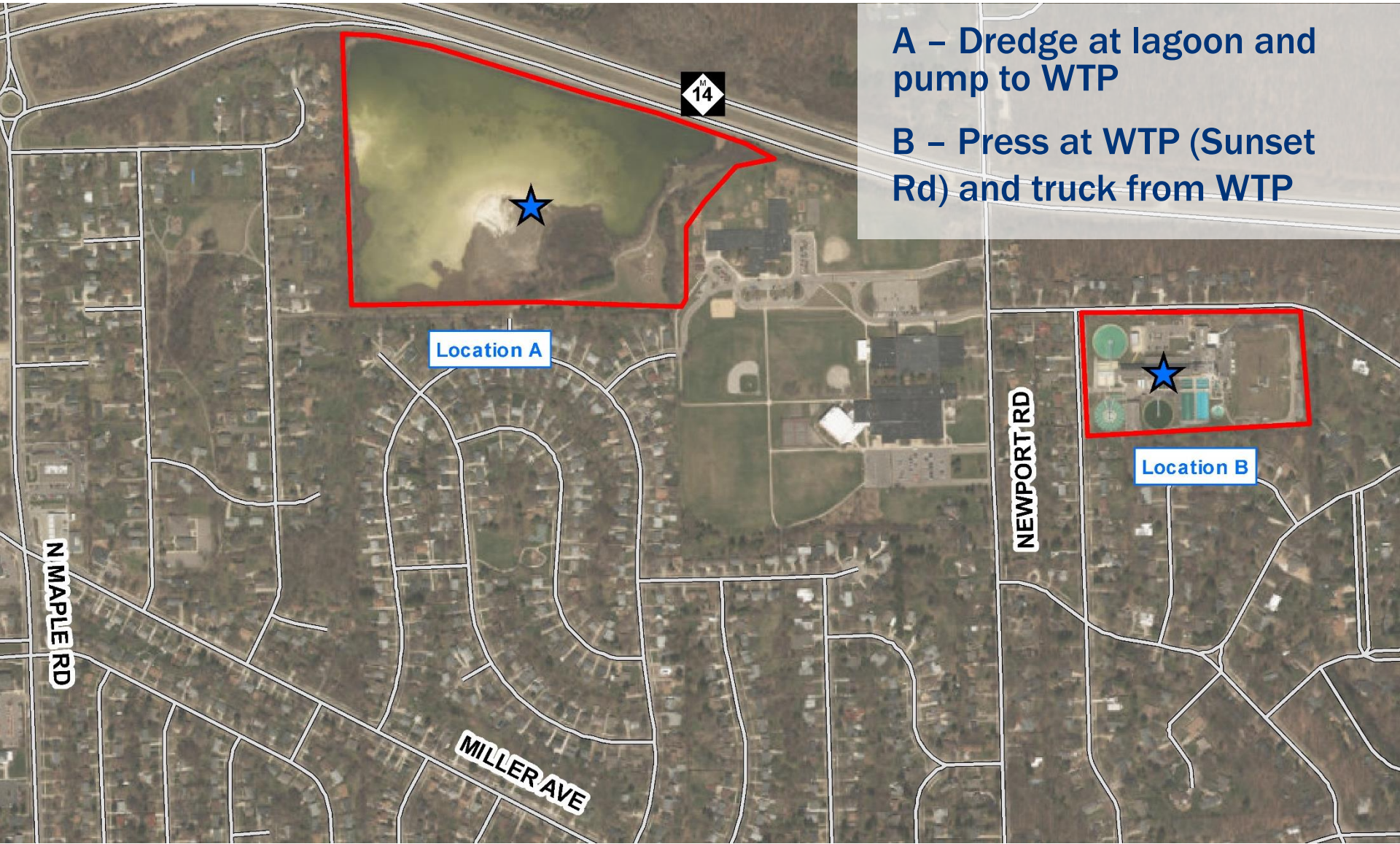
Anticipated Trucking Route

City has established roads for trucking including:

- Sunset Rd
- Newport Rd
- Miller Ave
- Maple Rd



Current Plan



A – Dredge at lagoon and pump to WTP

B – Press at WTP (Sunset Rd) and truck from WTP

Anticipated Schedule

- Preliminary project work (no sustained trucking)
- Contractor uses dredges at the lagoon to remove the lime and presses the material at the WTP
- Contractor trucks dewatered material
- Restoration work (no sustained trucking)



**JUN/JUL
2019**

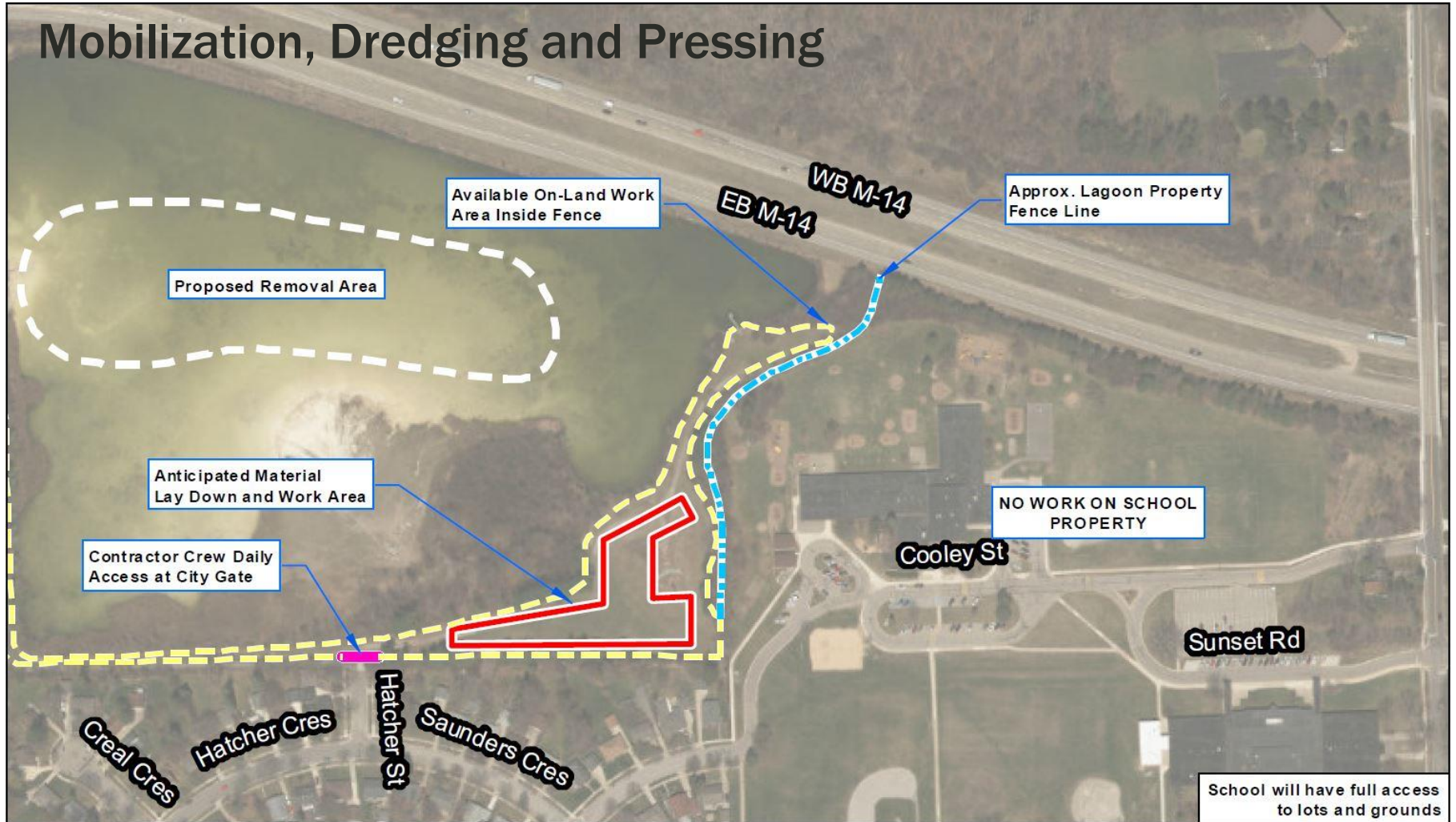
**SEPT/DEC
2019**

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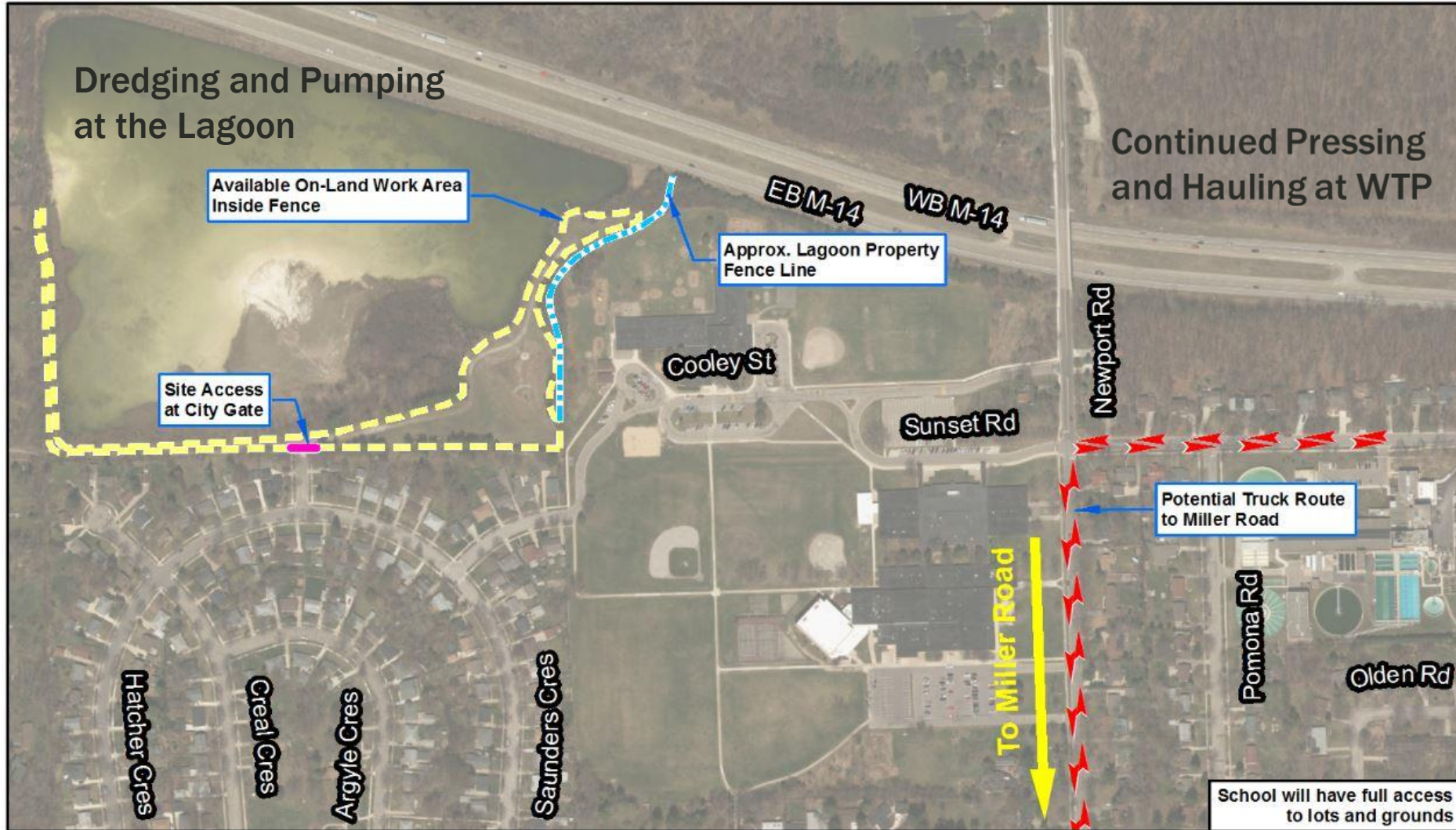
**Spring
2020**

Sep/Oct through December 2019 Activities

Mobilization, Dredging and Pressing

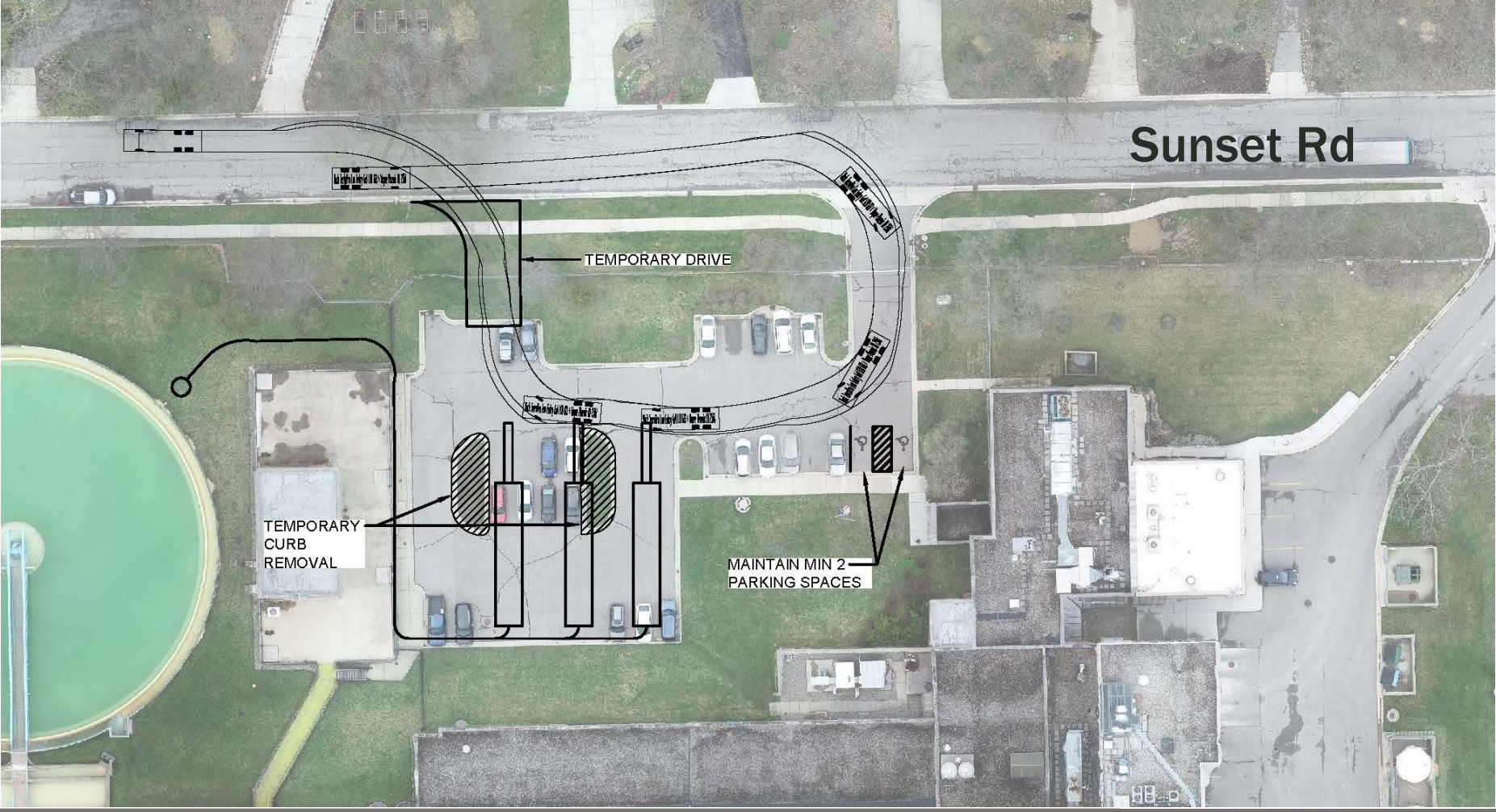


September through December 2019 Activities



September through December 2019 Activities

Conceptual WTP Site Plan



Potential Impact	Evaluation / Response
Trumpeter Swan	Nest will be protected – work zone will not impact the nest or nesting/fledgling period
Noise from press	Less than highway noise Only within window of 7:30 am to 8:00 pm Adhere to working hours per City ordinances
Noise from Trucking	Estimated at up to 6 trucks per hour
Traffic	Traffic control will be used (barricades, flagmen if needed, signage, electronic speed sign, safety fencing)
Spills	Material is not hazardous. Contractor required to prevent spills
Downstream water quality	Capture suspended solids before release
Odor	None anticipated
Restricted Parking	Only near WTP entrance and temporary truck drive

Project benefits

- Address critical part of treatment system
- Keeps Ann Arbor WTP operational
- Restores ability to meet MDEQ permit requirements
- Will assist in preventing accidental discharges to Newport creek

Further Project Updates

- See City webpage at: <https://www.a2gov.org/limeremoval>

An aerial photograph showing a residential neighborhood with a large pond and a highway. The pond is in the upper left, and the highway is in the upper right. The residential area is in the lower left and center. A large blue rectangle is overlaid on the left side of the image, containing the word "QUESTIONS?" in white, bold, sans-serif font.

QUESTIONS?