

City of Oak Harbor Clean Water Facility

*The success of the Oak Harbor
Clean Water Facility was built on
strong partnerships.*

Thank you to our funding partners



Department of Commerce
Innovation is in our nature.



**DEPARTMENT OF
ECOLOGY**
State of Washington



**This facility is a tribute to the
community who participated in its
siting, design, and construction**



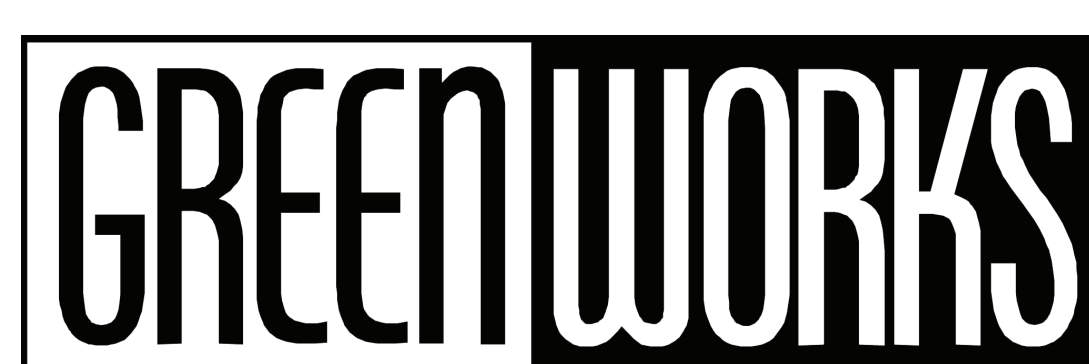
Our 24,000 residents
and ratepayers that use
the new facility

Over 1,000 community members
attended events, shared thoughts,
and stayed informed

**In appreciation of the expertise from
our dedicated project team**



mwa architects



enviroissues

and the over 175 subcontractors and local
companies that contributed to the project



City of Oak Harbor Clean Water Facility

Constructing the Clean Water Facility



2015 Construction Begins

● June 2015 – Early work on a new outfall on City Beach St



November 2015 –
Breaking ground on the new
Clean Water Facility



2016 Building the Foundation

● January 2016 – Excavation, foundation, and utility work

● May 2016 – Students from Oak Harbor High School create an art installation at site and the 165-foot tall tower crane is installed

● August 2016 – Lower levels begin taking shape

● November 2016 – Demolition of old wastewater treatment plant



2017 Coming Out of the Ground with Bricks & Mortar

● January 2017 – Roofs continue to take shape

● February 2017 – Above ground construction on most buildings start

● April 2017 – Equipment arrives on-site and interior work begins



2018 Electrical & Mechanical Equipment Installation, & Finishing Touches

● January 2018 – Equipment installation and electrical wiring continues

● April 2018 – Structures are complete

● June 2018 – Power to the site is turned on

● September 2018 – Testing for facility startup begins

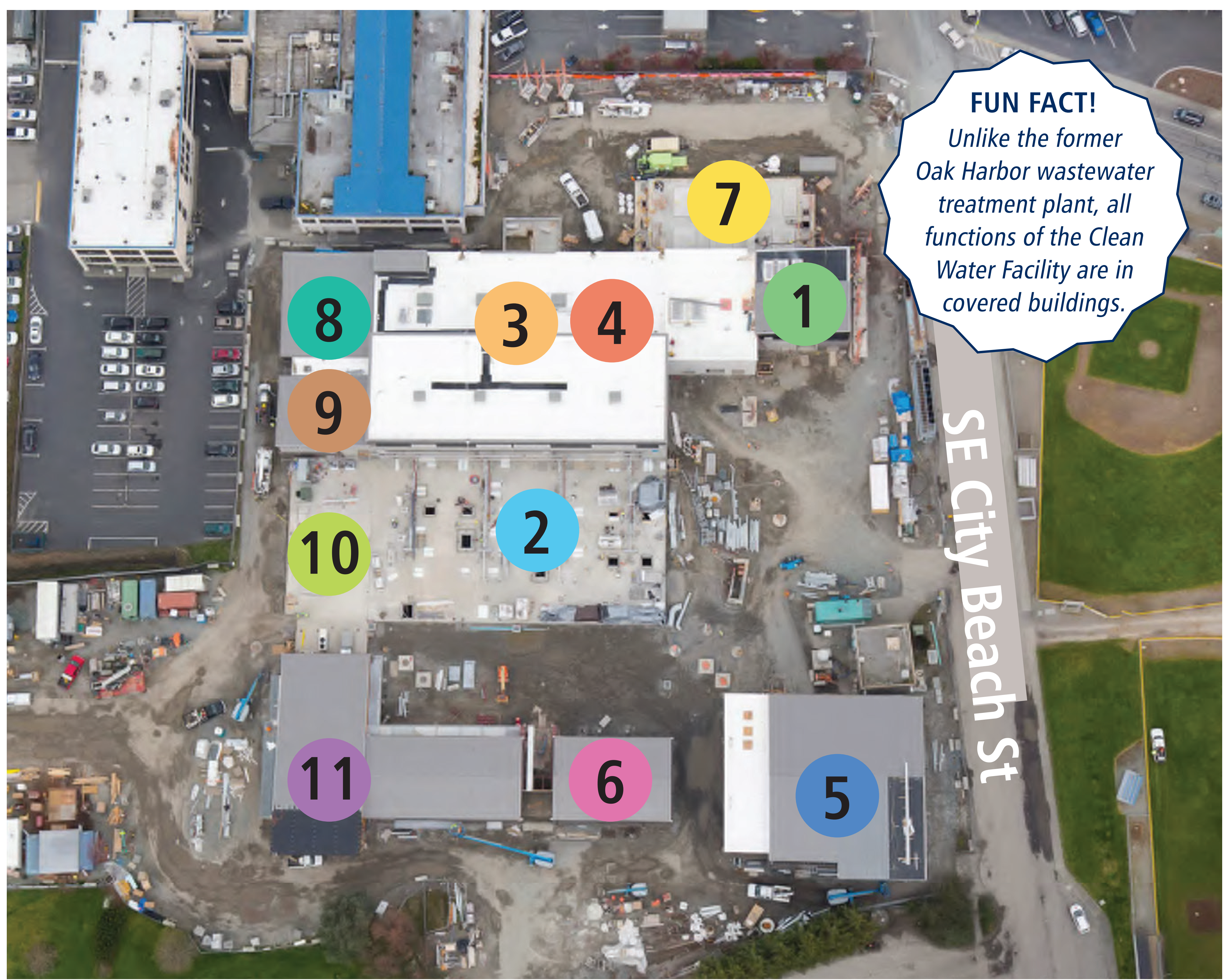
● October 2018 – Whidbey Island Bank building is demolished



NOVEMBER 2018 Construction is Complete & Operations Begin!

City of Oak Harbor Clean Water Facility

Treatment technology for the future



1 Headworks building

- Wastewater enters the facility through pipes under SE City Beach St and passes through an initial screen, which removes heavy material.
- Next, wastewater enters the vortex grit chamber and is swirled around. This helps grit (similar to sand) settle to the bottom of the chamber for easier removal.
- Wastewater passes through a fine screen, which filters out any sediment that passed through the initial coarse screen and the vortex grit chamber.

2 Aeration basins/Waste activated sludge storage

Air is mixed with the wastewater, stimulating the growth of microorganisms that consume part of the waste. The wastewater sits in large tanks, called aeration basins, for three to six hours while the microorganisms chow down.

3 Secondary treatment building

Wastewater passes through the membrane bioreactor to separate microscopic solids from liquids.

FUN FACT!

The membrane's pores are smaller than one micrometer (0.001 millimeter!), which is thinner than a human hair.

4 UV treatment

Liquid gets its tan on and flows through a pipe with UV lamps throughout the interior. The UV light kills microorganisms in the liquid by damaging their DNA. The treated water travels through the outfall pipe into Oak Harbor Bay.

5 Solids building

After being separated from liquid wastewater via the membrane bioreactor in the secondary treatment building, solid waste is dried in a solids dryer. The waste travels across a belt while hot air flows over it, drying the waste as it travels through the unit.

COOL FEATURE!

Dried solids are great fertilizers for golf courses, farms, community gardens, and other locations.

6 Maintenance building

Equipment stored here helps make sure the machinery in the Clean Water Facility stays in tip-top shape.

7 Odor control

Air pumped from other buildings is "scrubbed" by biological materials that absorb odors. Then, air is "polished" by activated carbon (fancy charcoal) to absorb any remaining odors before the treated air is released.

COOL FEATURE!

Odor control technology helps to make sure you won't be able to smell the facility.

8 Aeration blower building

Blowers pump air into the aeration basins to stimulate the waste-eating microorganisms.

FUN FACT!

Air blown into the aeration basins must be kept above freezing and below 86 degrees. Any colder and microorganisms die any warmer and too many microorganisms grow.

9 Electrical building

Treating the City's wastewater requires consistent electric power. Equipment housed in this building monitors and maintains the facility's electricity.

10 Emergency generator area

Wastewater doesn't stop flowing when the power's out! This building's name says it all – the emergency generator will provide back-up and emergency support in case of an outage.

11 Administration building

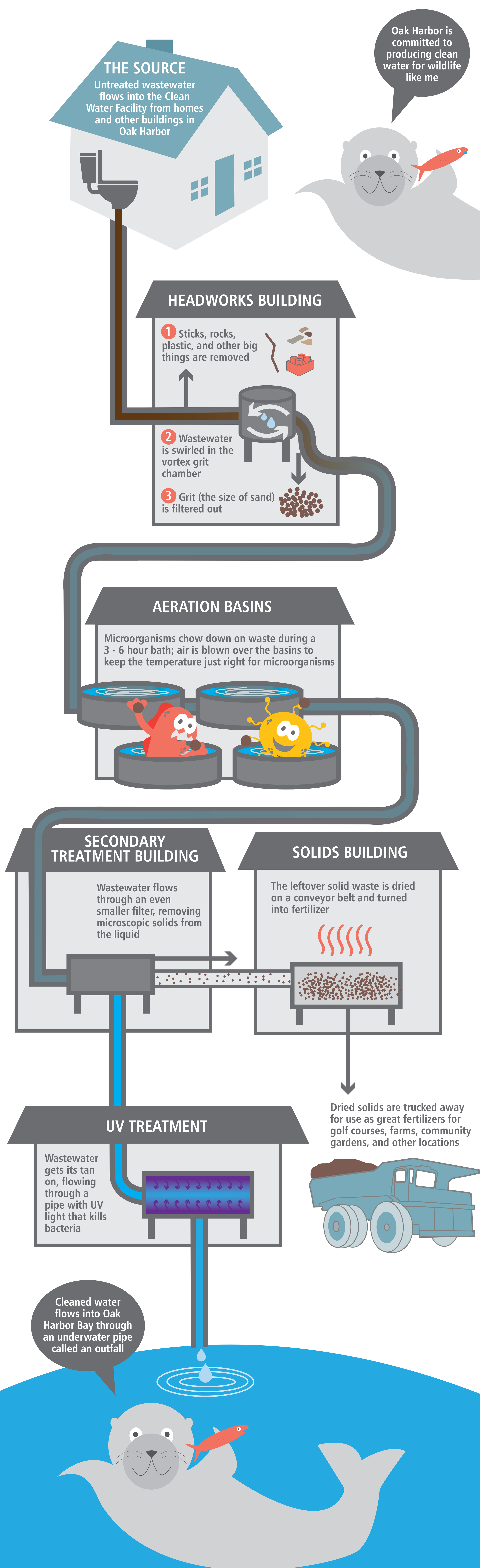
Keeping Oak Harbor's wastewater flowing takes a lot of work. Facility staff monitor quality in the lab and maintain system functions via a control network.

COOL FEATURE!

The administration building also includes an interpretive center, a multi-purpose space for City functions where you will be able to learn more about the City and facility.

City of Oak Harbor Clean Water Facility Project

How our new facility works



City of Oak Harbor Clean Water Facility Project

How wastewater flows

1 24,000 PEOPLE

Roughly 24,000 people in Oak Harbor are served by the City's wastewater system. **That's a lot of people!**

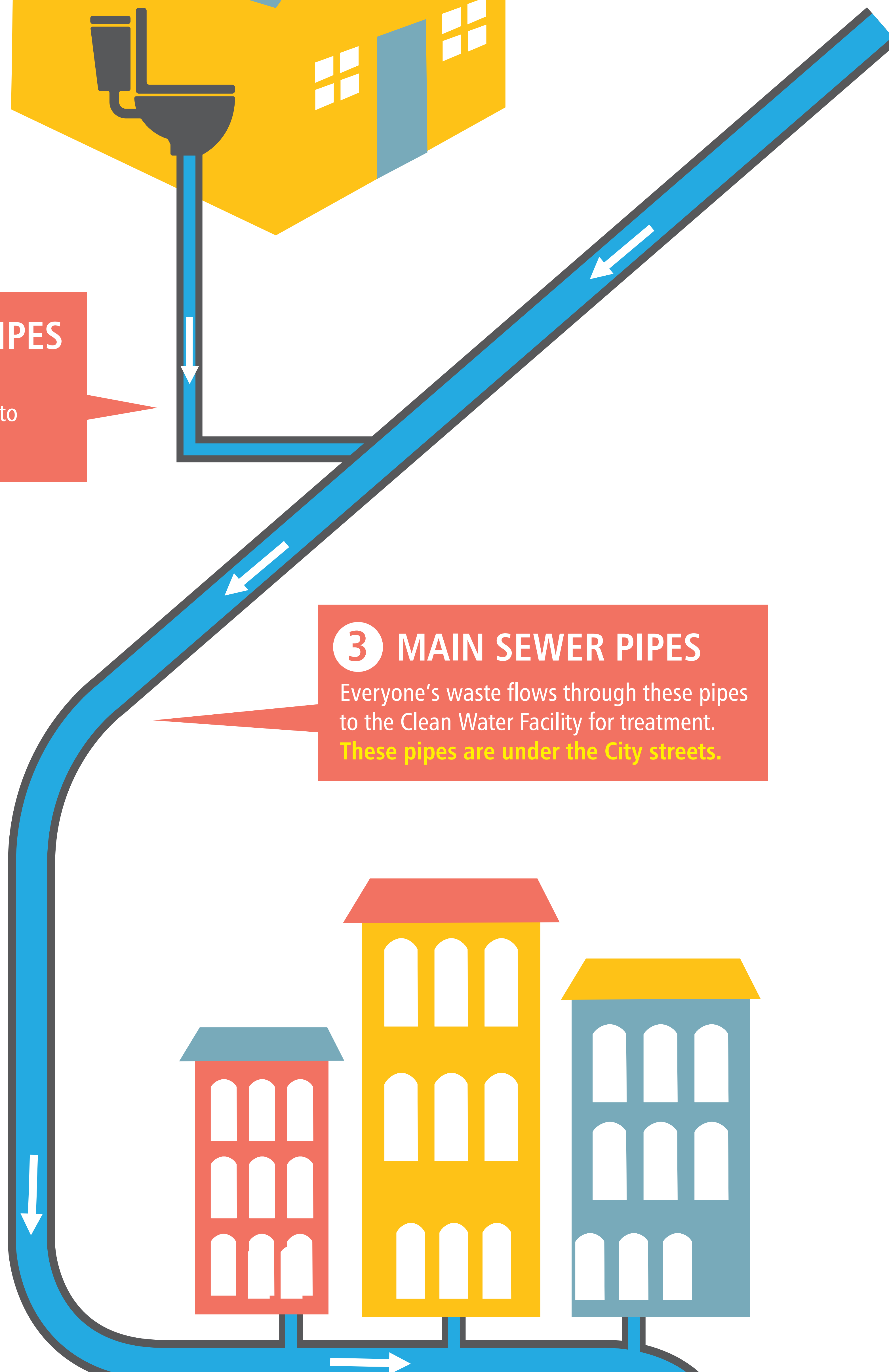


2 SIDE SEWER PIPES

Small pipes carry water from your toilet, shower, and sinks to larger pipes in the streets.

3 MAIN SEWER PIPES

Everyone's waste flows through these pipes to the Clean Water Facility for treatment. **These pipes are under the City streets.**



4 TREATMENT FACILITY

Cleans and treats water to make it safe for the environment and wildlife.



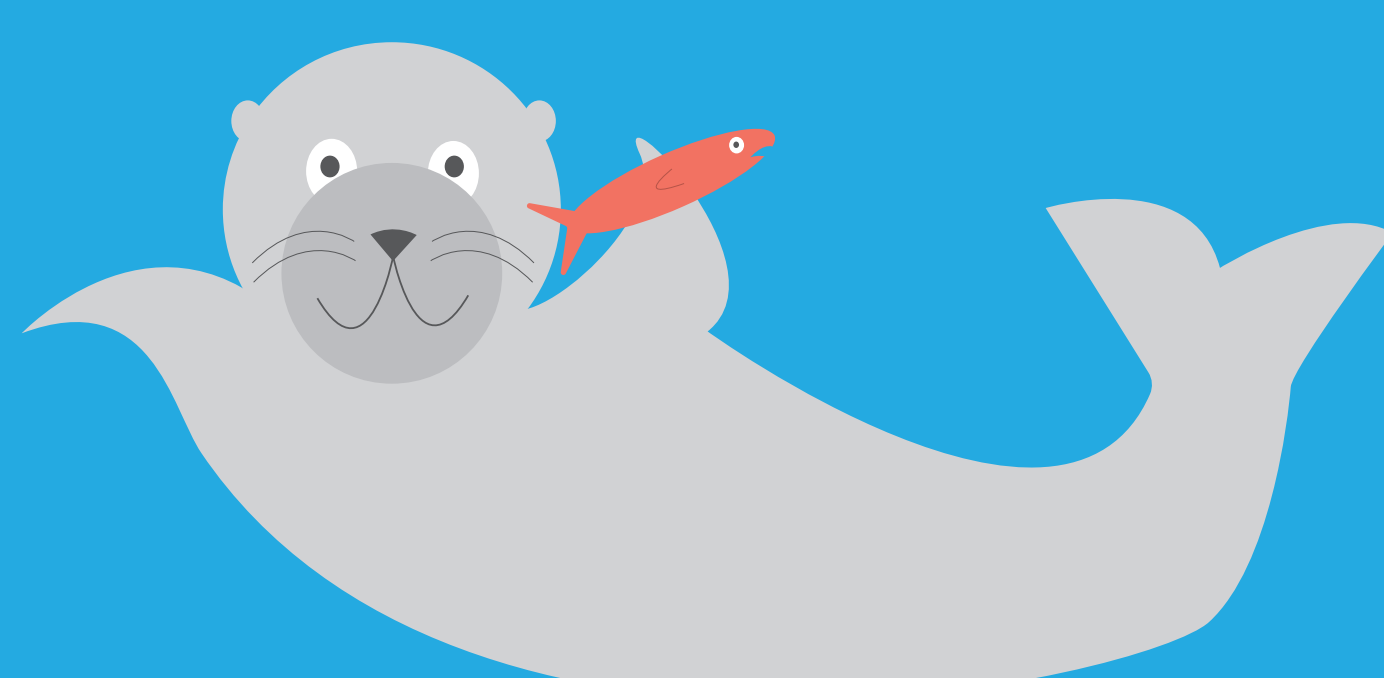
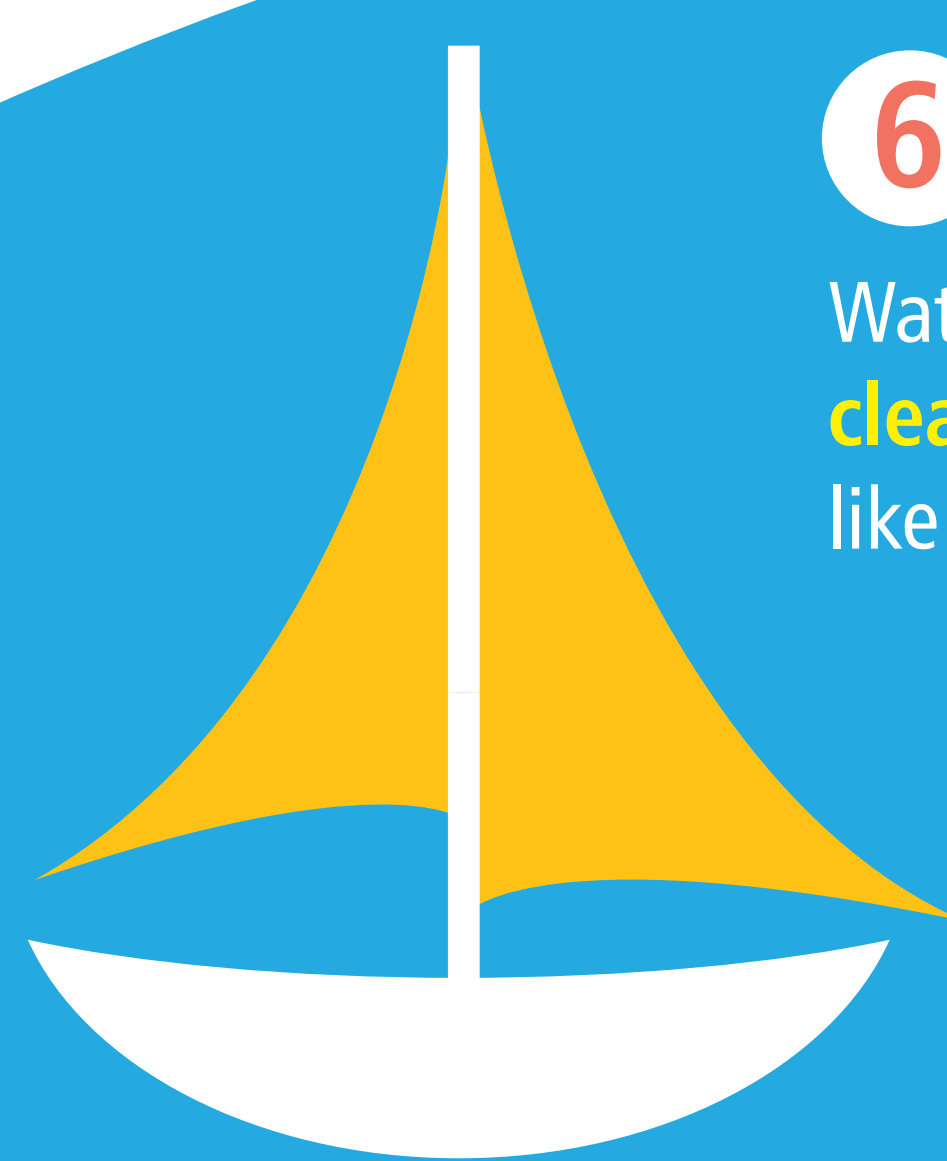
5 OUTFALL

Clean, treated water flows from the facility into the bay through a pipe called an outfall.



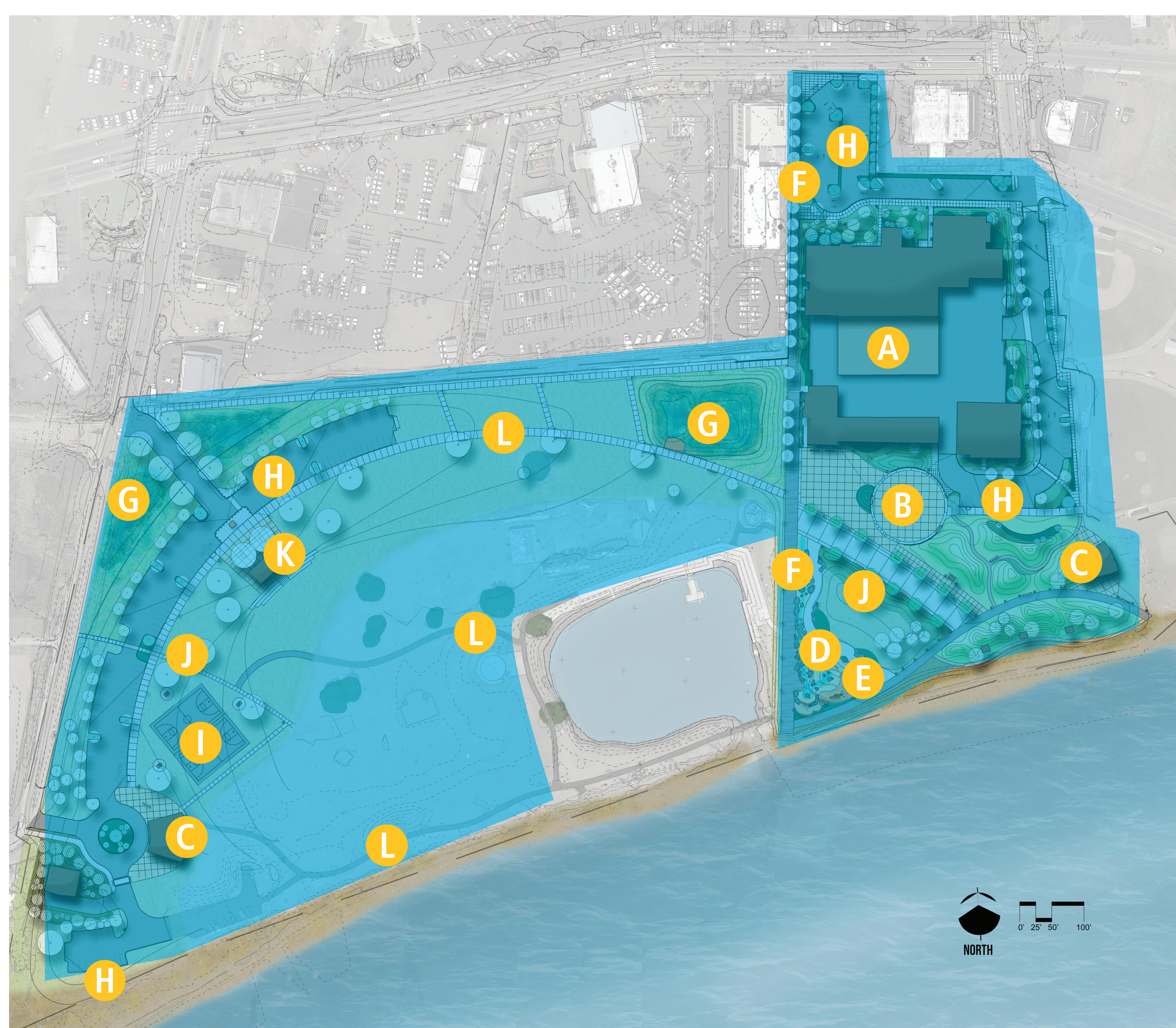
6 BAY

Water from the facility is **clean and safe for wildlife**, like fish, birds, seals, and more!



City of Oak Harbor Clean Water Facility

Improvements coming to Windjammer Park



- | | | |
|-------------------------------|---------------------------|---------------------------------------|
| A Clean Water Facility | E Nature play area | I Basketball/pickleball courts |
| B Public plaza | F Promenade | J Restrooms |
| C Kitchens | G Wetland area | K Gateway pavilion |
| D Splash park | H Parking areas | L Walking paths |

