MEMORIAL PARK
MUSKEGON COUNTY, MICHIGAN

PROJECT RESTORED WATER QUALITY, NATUARL RESOURCES AND SCENIC VIEWS
FOLLOWING THE ORIGINAL, HISTORIC 1934 LANDSCAPE ARCHITECTURE DESIGN

BELOW: VIEWS BEFORE RESTORATION – EXTERNAL AND INTERNAL VIEWS OF PARK

ABOVE LEFT: OVER TIME, RANDOM TREE & SHRUB PLANTINGS BLOCKED VIEWS FROM ROAD
ABOVE RIGHT: TALL, NON-NATIVE, INVASIVE CATTAILS PREVENTED VIEWS OF POND, ISLAND

**ABOVE: AFTER RESTORATION, 2018: NEW TREES, LOW GROWING PLANTS RESTORED
SCENIC VIEWS OF THE POND, ISLAND AND MONUMENTS**

BELOW: AFTER RESTORATION – FALL, 2018:

BELOW: EXTREMELY DEGRADED WATER QUALITY - BEFORE RESTORATION:

BEFORE RESTORATION   **AFTER RESTORATION - 2019**

DEAD AND SEVERELY DECLINING TREES - <u>BEFORE</u> RESTORATION:

AFTER RESTORATION:

POND SHORELINE - *SPRING 2019*
LOW GROWING PLANTS STILL DORMANT

POND SHORELINE - *SUMMER 2018*
LOW GROWING PLANTS NEWLY ESTABLISHED

BELOW: DURING RESTORATION – UNDERWATER SIDE SLOPES WILL NO LONGER ERODE

BELOW: RUSTED, FAILING SHEET PILE DAM REMOVED, PREVENTING POTENTIALLY CATASTROPHIC FAILURE AND IRREPARABLE PARK DAMAGE. REPLACED WITH BRIDGE

2019 – A HIGH-WATER TABLE PERIOD

WATER TABLE = SATURATED UNDERGROUND SOILS (GROUNDWATER).
THE WATER TABLE RISES AND FALLS IN SYNC WITH GREAT LAKES ELEVATIONS.
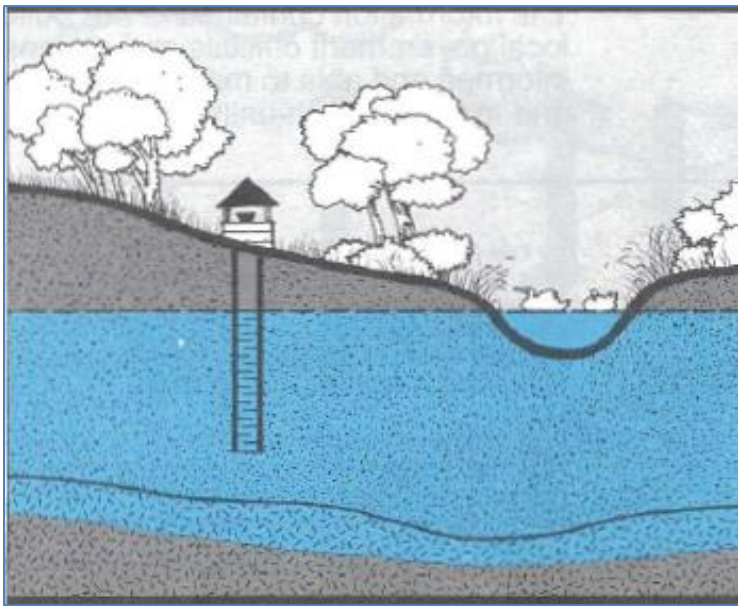THIS IS MOST NOTICEABLE DURING PERIODS OF HIGH PRECIPITION AND SNOW MELT.

HIGH WATER TABLE
Rain puddles dry up much more slowly during these periods, because the water table is close to or right at the surface of the ground. People often get water in their basements during these periods. Lawns in low lying areas remain soggy during these periods.
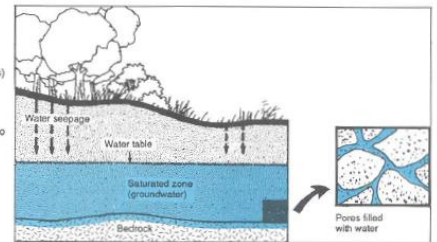
MUSKEGON RIVER
The Muskegon River levels rise and fall during and following rain storms.
This causes a more *temporary* wet condition, compared to those caused by high water table periods. Soon after a rainstorm ends, river levels go back to pre-storm conditions and surface puddles drain away relatively quickly. This generally happens over the course of a few days or less, depending on how long the rain storm lasts.

THE SATURATED ZONE

Rain and snowmelt that seeps into the ground continues downward under the force of gravity until it reaches a depth where water fills all of the openings (pores) in the soil or rock. This is called the saturated zone. The saturated zone typically includes numerous water-filled crevices in the upper layer of bedrock. Deeper bedrock layers may have few or no crevices where water can penetrate.

Water seepage

Water table

Saturated zone (groundwater)

Bedrock

Pores filled with water

THE WATER TABLE

The top of the saturated zone is called the water table. The water table rises and falls according to the season of the year and the amount of rain and snowmelt that occurs. It is typically higher in early Spring and lower in late Summer. Heavy rainfall or drought conditions may cause changes in the typical pattern, however.

Water table

High

Saturated zone (groundwater)

Bedrock

Water table

Low

Saturated zone (groundwater)

Bedrock