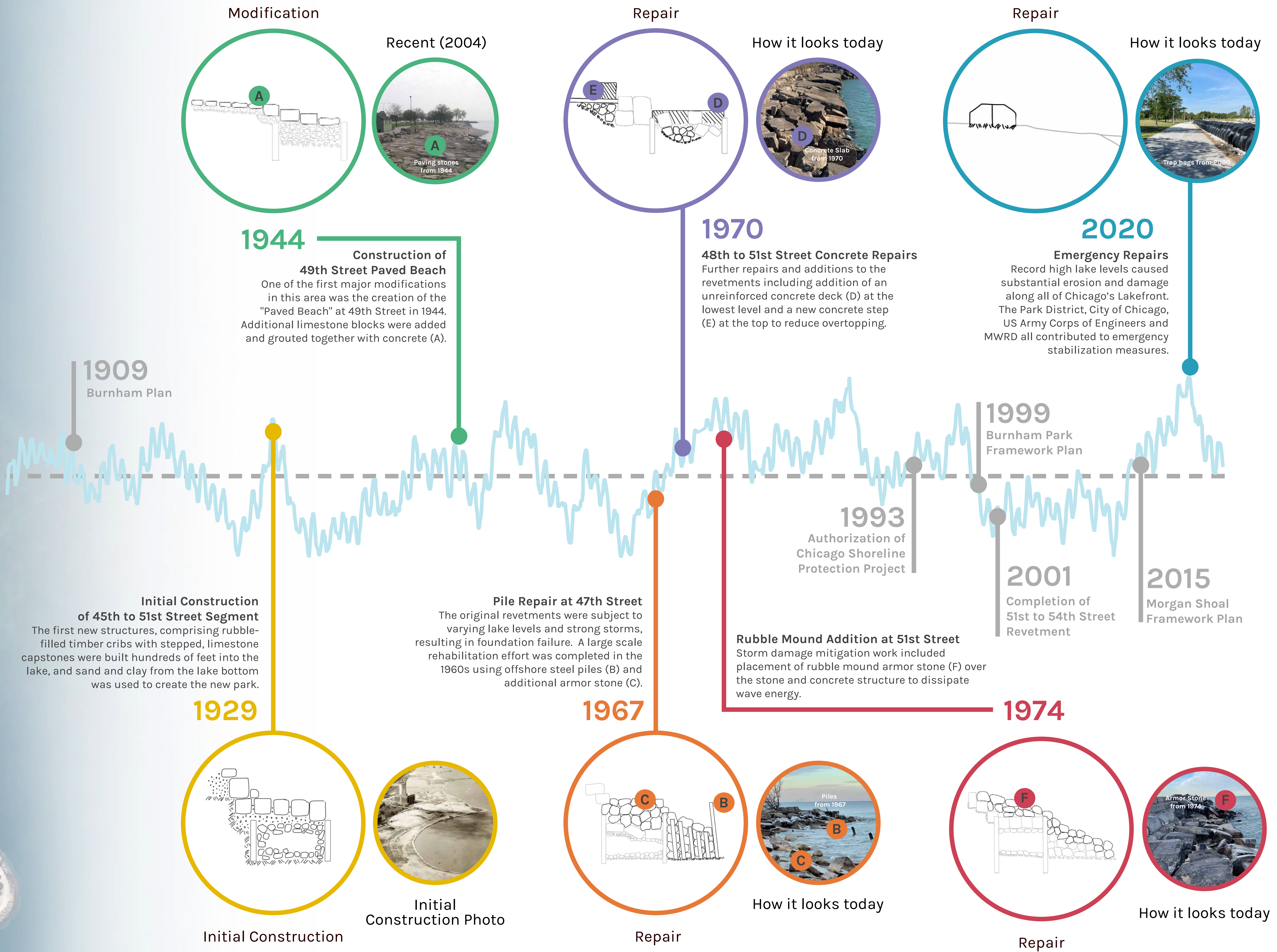


# 1. MORGAN SHOAL SHORELINE HISTORY

Lake Michigan Water Levels Over Time  
(Dashed line is long-term average)



1909  
Burnham Plan

1944

**Construction of 49th Street Paved Beach**

One of the first major modifications in this area was the creation of the "Paved Beach" at 49th Street in 1944. Additional limestone blocks were added and grouted together with concrete (A).

1970

**48th to 51st Street Concrete Repairs**

Further repairs and additions to the revetments including addition of an unreinforced concrete deck (D) at the lowest level and a new concrete step (E) at the top to reduce overtopping.

2020

**Emergency Repairs**

Record high lake levels caused substantial erosion and damage along all of Chicago's Lakefront. The Park District, City of Chicago, US Army Corps of Engineers and MWRD all contributed to emergency stabilization measures.

**Initial Construction of 45th to 51st Street Segment**

The first new structures, comprising rubble-filled timber cribs with stepped, limestone capstones were built hundreds of feet into the lake, and sand and clay from the lake bottom was used to create the new park.

**Pile Repair at 47th Street**

The original revetments were subject to varying lake levels and strong storms, resulting in foundation failure. A large scale rehabilitation effort was completed in the 1960s using offshore steel piles (B) and additional armor stone (C).

1993  
Authorization of Chicago Shoreline Protection Project

1999  
Burnham Park Framework Plan

2001  
Completion of 51st to 54th Street Revetment

2015  
Morgan Shoal Framework Plan

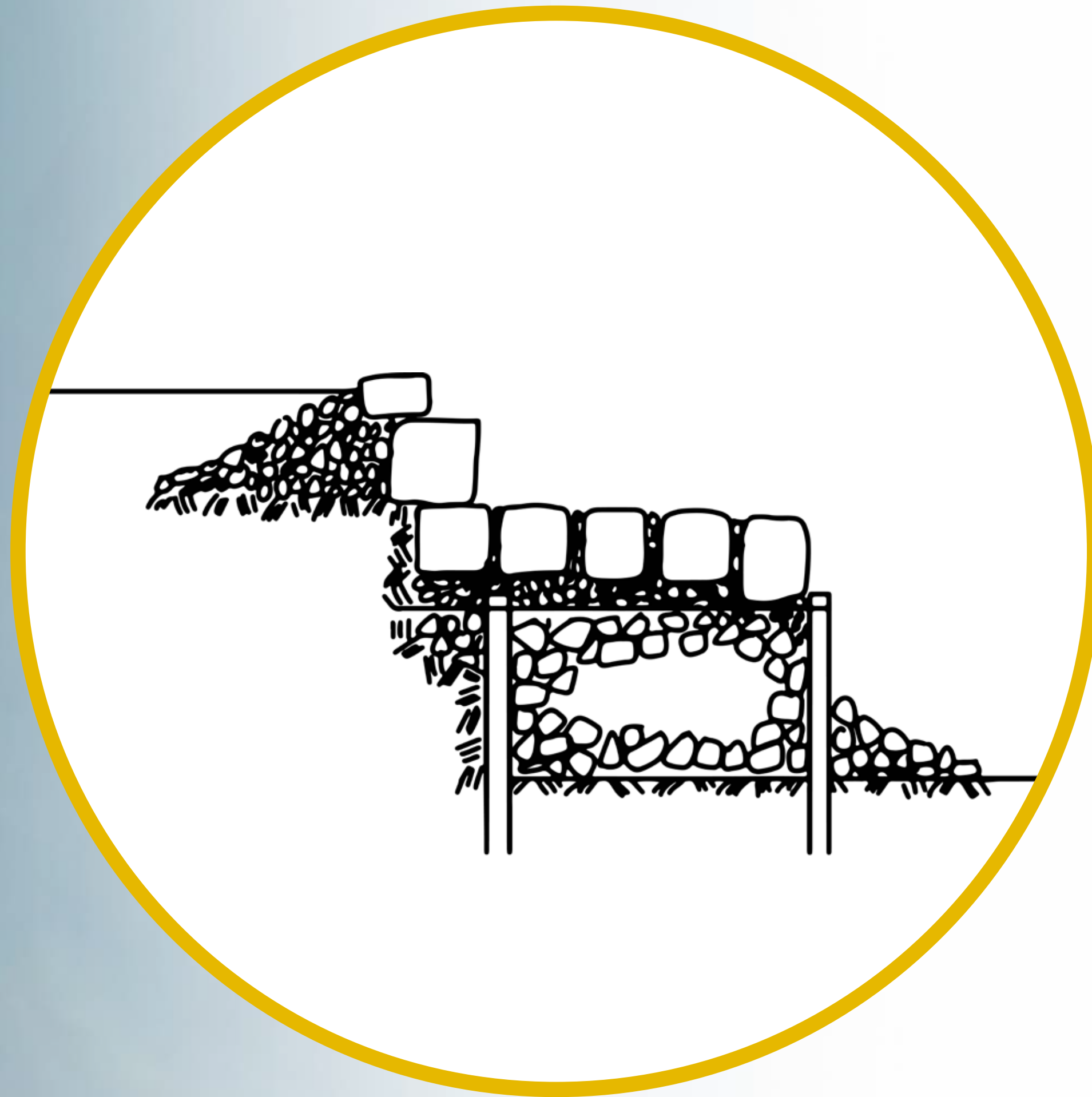
**Rubble Mound Addition at 51st Street**  
Storm damage mitigation work included placement of rubble mound armor stone (F) over the stone and concrete structure to dissipate wave energy.

\* Sketches are modified from Chicago Park District archive engineering drawings.

# 2. EXAMPLE SHORE PROTECTION SYSTEMS

## Original Construction

Timber Crib and Stepped Stone

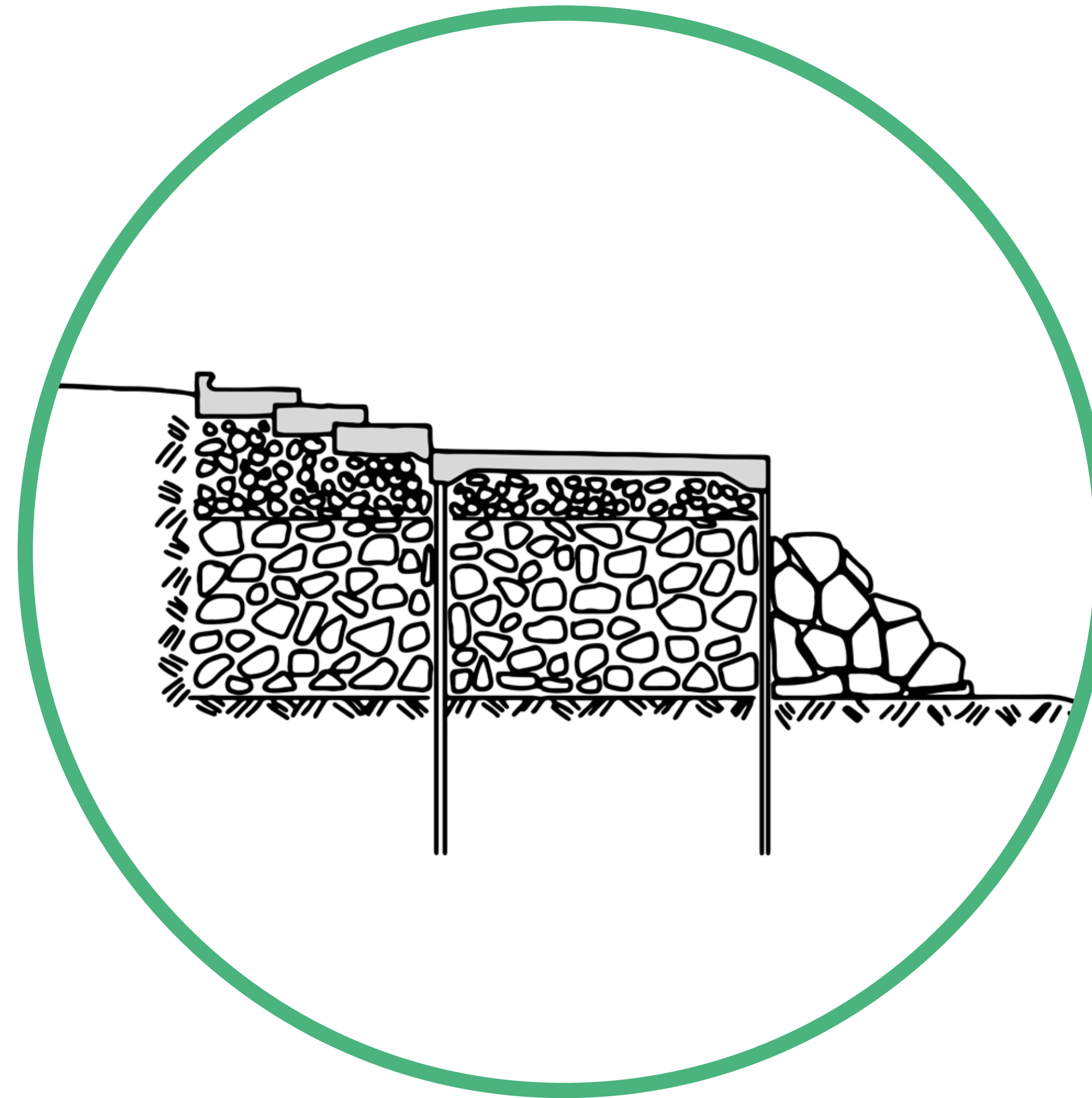


50th Street

- Used for original (pre-1940s) construction of most of Chicago's revetments.
- Limestone is a durable material.
- Promenade level typically about 12 to 15 feet wide.
- Timber piling is subject to rot and deterioration, especially when lake levels drop.
- Surface is walkable unless foundation is undermined, and/or stones are displaced.
- Used for 45th Street to 51st Street area repaired, augmented, and rehabilitated several times.

## Proposed Construction

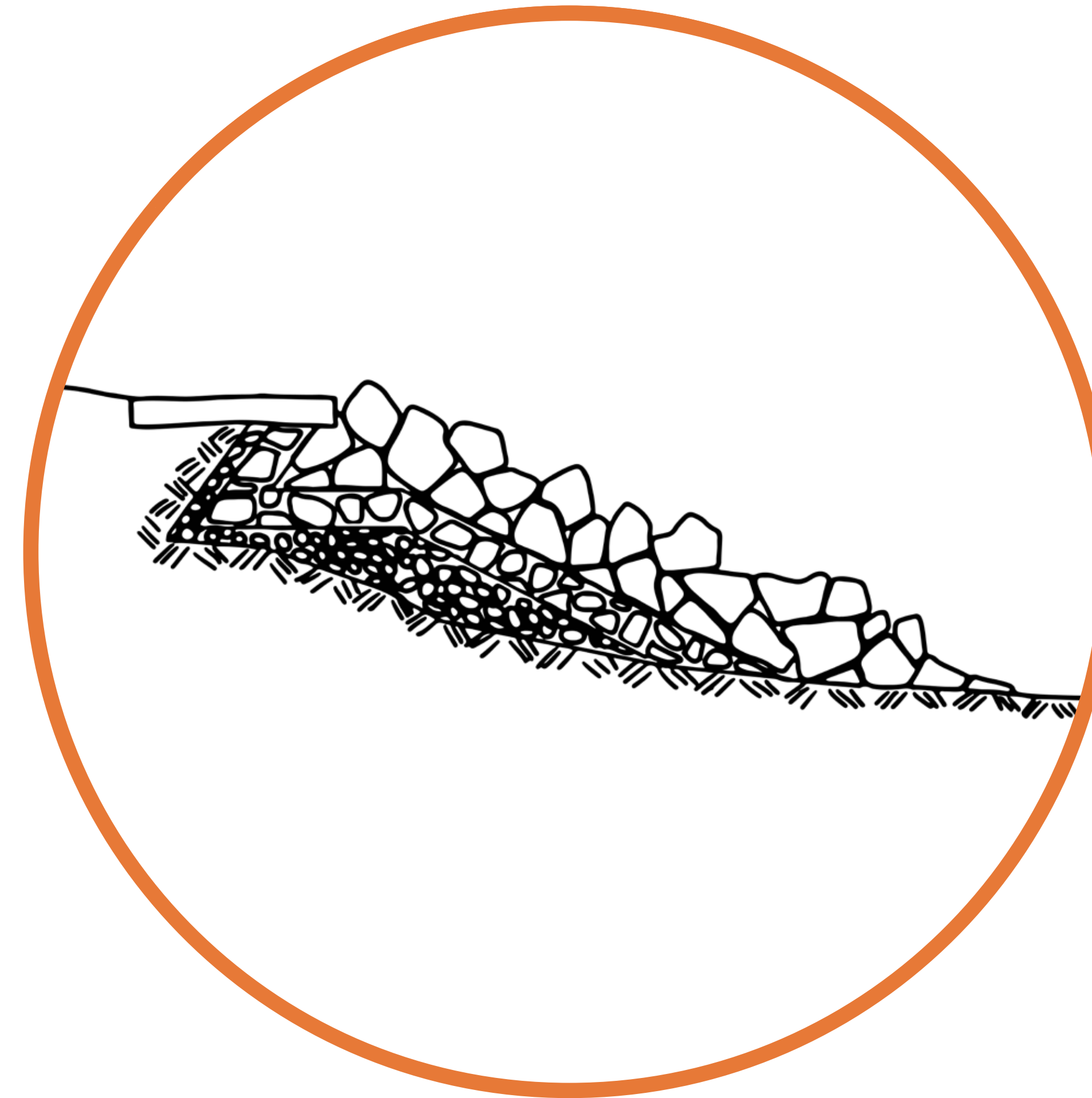
Sheet Pile and Stepped Concrete



53rd Street

- Used for more recent construction in 1950s and 1960s, as well as for most of the recent lakefront rehabilitation.
- Concrete and steel are durable materials.
- Promenade level typically about 25 feet wide.
- Surface is walkable and ADA-compliant.
- Not technically feasible where bedrock is close to the surface.

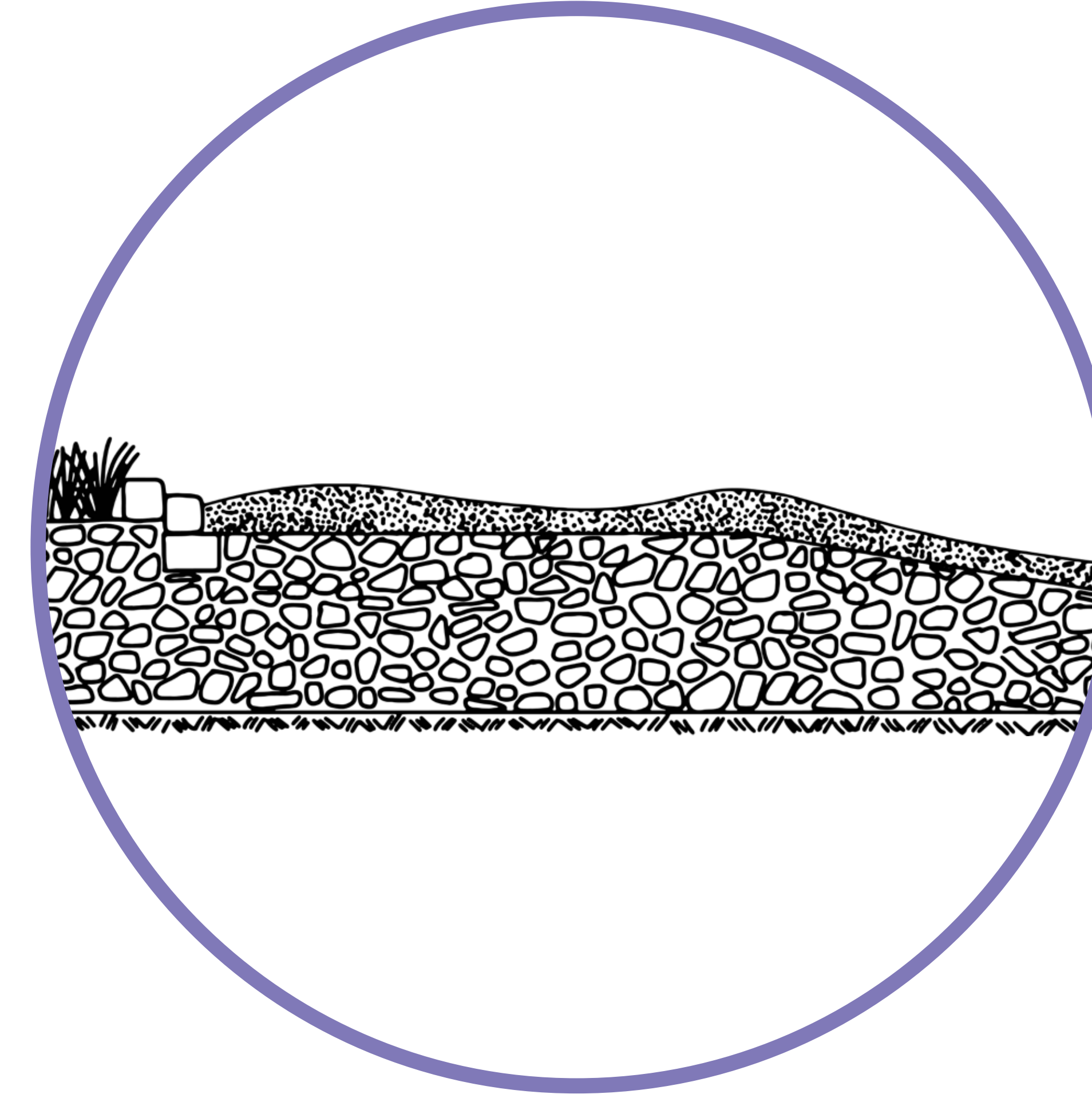
Armor Stone



Lincoln Park (Irving Park Road - Montrose Avenue)

- Not as commonly used along Chicago lakefront.
- Armor stone size depends on wave exposure.
- Structure width depends on lakebed depth.
- Surface is not walkable.
- Upper levels away from breaking waves can incorporate salvaged stone.
- Feasible regardless of bedrock conditions.

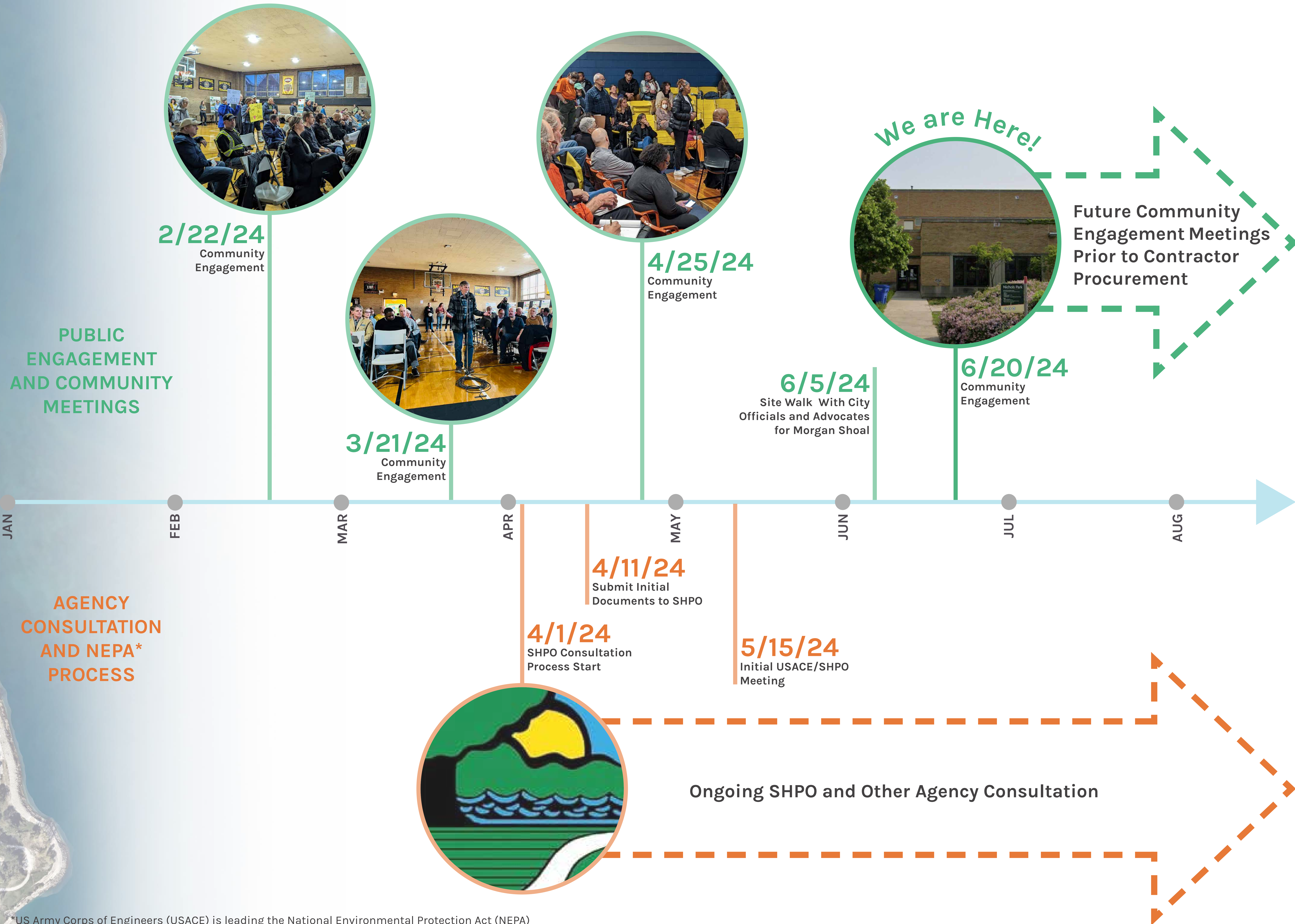
Dynamic Revetment



Keweenaw Peninsula, Lake Superior

- Not a static structure - will be re-shaped by waves and currents.
- Much flatter and wider than typical armor stone revetment.
- Surface is uneven, but walkable.
- Feasible only in sheltered and relatively shallow locations.

# 3. 2024 PUBLIC ENGAGEMENT AND CONSULTATION



\*US Army Corps of Engineers (USACE) is leading the National Environmental Protection Act (NEPA) review. Illinois State Historic Preservation Office (SHPO) is one of the consultation agencies.

# 4. DESIGN CHANGES INSPIRED BY PUBLIC COMMENTS



**1** EXPAND PROPOSED NATURAL AREAS AT 47TH STREET



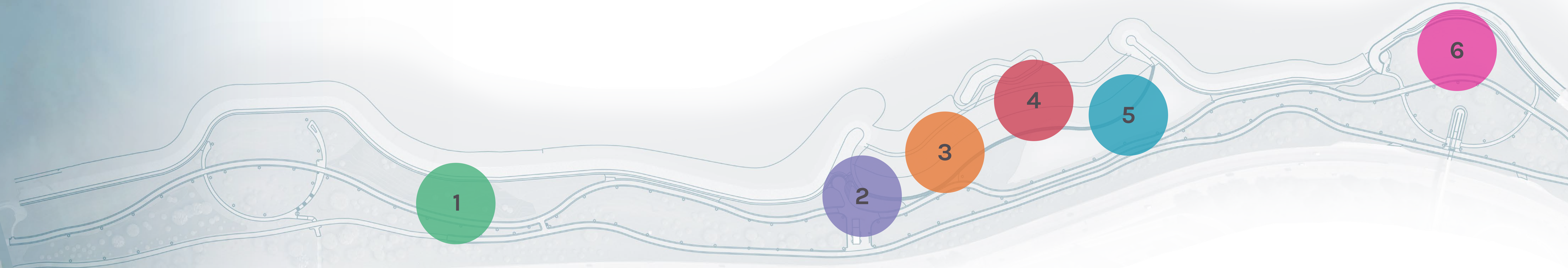
USE ONLY ROUNDED STONE AT PEBBLE BEACH **3**



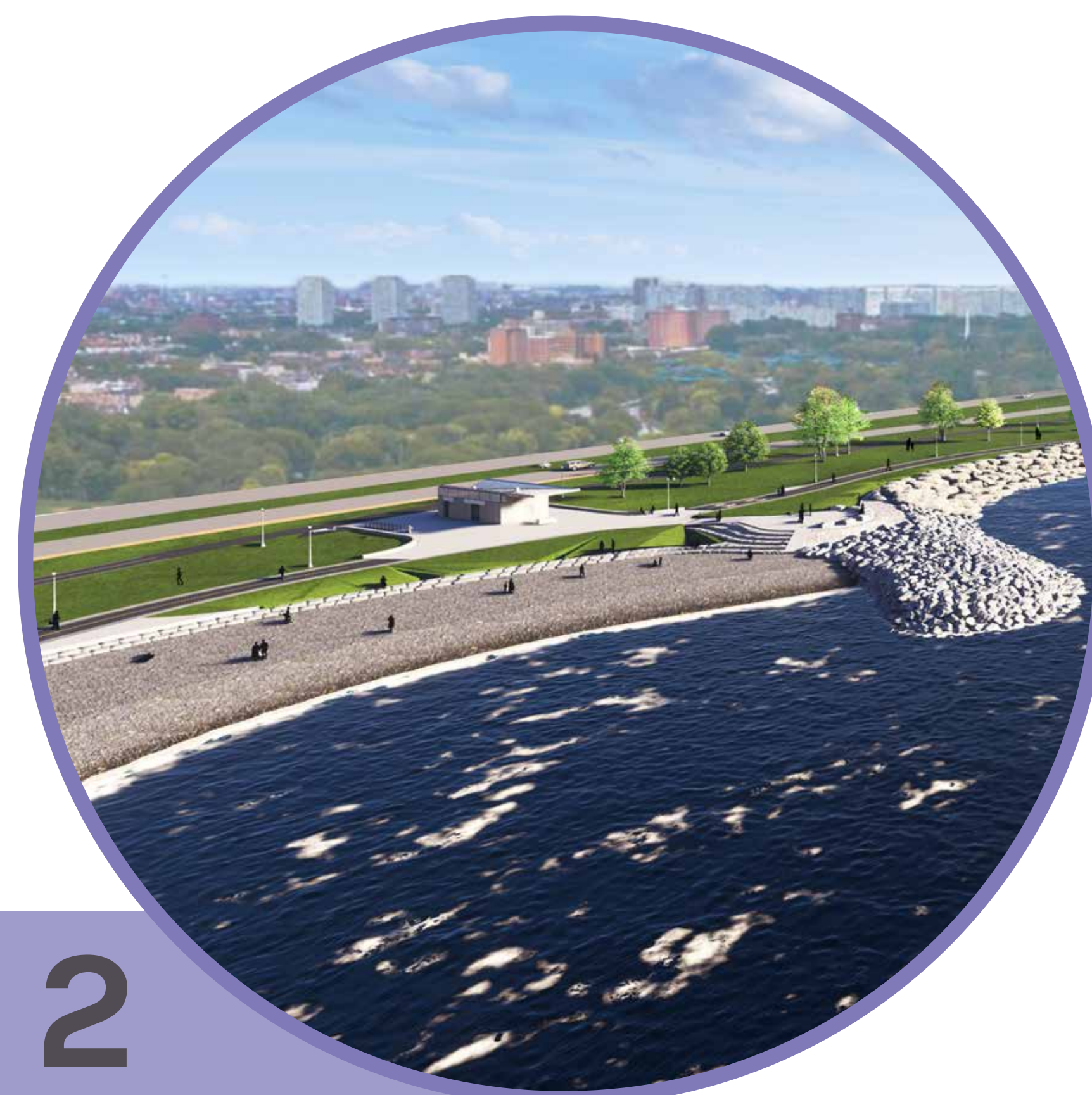
**4** ADD SALVAGED LIMESTONE BLOCKS AT PEBBLE BEACH



INCLUDE NATURAL AREAS AT 51ST STREET **6**



ADDITION OF BENCHES AND MORE BICYCLE RACKS



ADD ADA ACCESS TO PEBBLE BEACH **2**



**5** INCREASE HEIGHT OF STEPPED REVETMENT AT PEBBLE BEACH



SALVAGE AND PRESERVE MORE CARVED LIMESTONE

# 5. MATERIAL REUSE



## North End Limestone Blocks

**Existing:** Very large (10 tons) quarried limestone blocks placed as temporary protection during earlier 43rd to 45th Street Project (2012).

**Proposed:** Limestone blocks will be salvaged and used to create uniform edge condition along new armor stone revetment adjacent to restored park.



## Broken Concrete/Rubble

**Existing:** Varied sizes and material types, including stone, concrete, and other construction materials.

**Proposed:** Solid fragments can be used as fill under the proposed new permanent structures to reduce the need for importing new material.



## Sand From Trapbags:

**Existing:** Temporary "TrapBags" placed in 2020 to protect parkland from erosion are filled with "bird's eye" sand.

**Proposed:** Clean sand from the TrapBags can be salvaged and used as fill or to add to the dynamic revetment to reduce the need for importing new material.



## Carved Limestone:

**Existing:** Limestone blocks from the original 1920s/30s construction or later additions (e.g. 1940s "Paved Beach") are decorated with carvings and inscriptions from prior lakefront users.

**Proposed:** Blocks with culturally significant carvings will be re-purposed as seating, and also spread through the park.



## Pebbles:

**Existing:** Wave-rounded stone and concrete remnants from deteriorated revetments and other eroded parkland.

**Proposed:** Pebbles will be salvaged and reused within the upper layer of the new dynamic revetment.



## Small/Irregular Limestone Pieces:

**Existing:** Remnants of previous revetment structure that have either broken up and/or been dislodged and shaped by the waves.

**Proposed:** Not suitable to reuse in the stepped revetment at the back of the dynamic revetment, but can be placed on the new, expanded pebble beach as seating.



## Large Concrete Blocks

**Existing:** Temporary concrete blocks, mostly placed in 2020 to provide emergency flood protection so lakefront trail and other amenities could remain open.

**Proposed:** Preferred usage is buried as a foundation for the salvaged limestone stepped revetment.



## Large Limestone Blocks

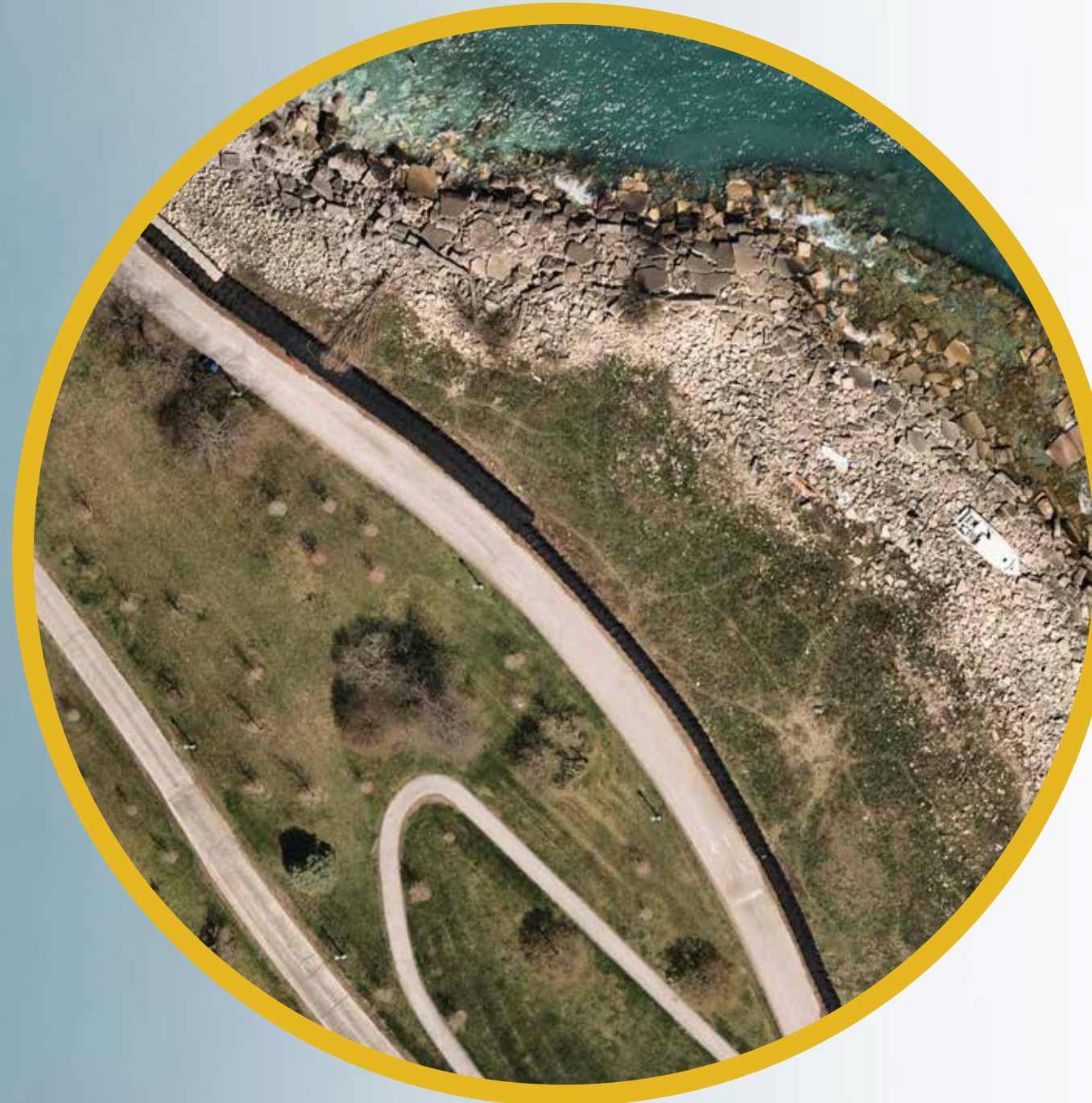
**Existing:** Intact limestone blocks from the original 1920s/30s construction.

**Proposed:** Salvage intact and use to create stepped revetment at back of expanded pebble beach, and along the park side of the concrete ADA transition structure.

# 6. PARK LANDSCAPING MATERIALS

Existing

Proposed

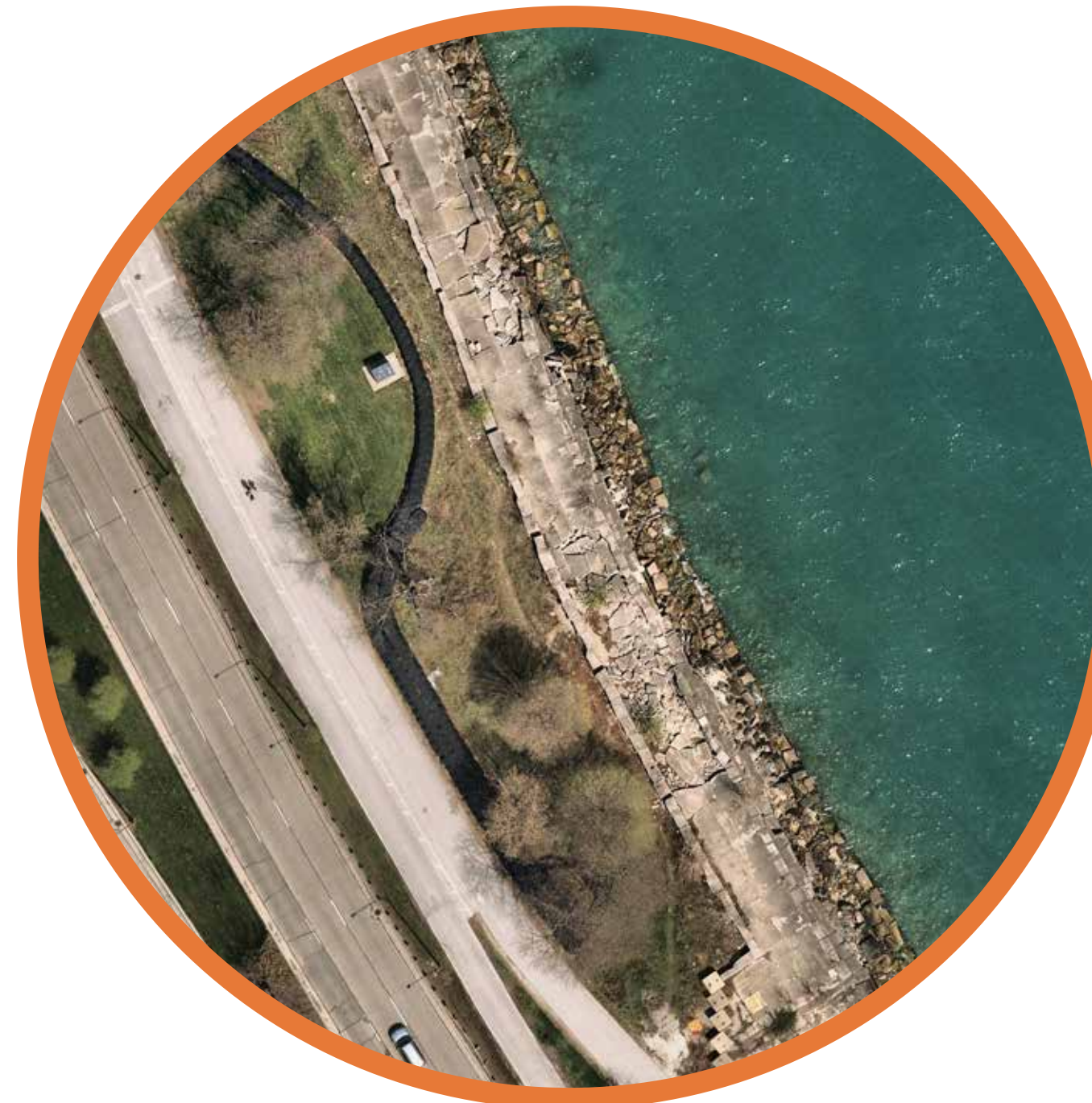


## 1 North of 47th Street

Savanna: Preserve and augment existing trees with additional native trees such as Bur Oak, and Chinkapin Oak. Add understory layer of shrubs such as Chokeberry, Witch Hazel, Sumac and Arrowwood. Wide range of perennials and grasses at ground plane. Layered vegetation is a particularly beneficial habitat for migratory birds.

Existing

Proposed



## 3 48th Street

"Arboretum Landscape": Preserve mature trees, augment with new shade trees, and restore parkland with turf grass. Use salt-tolerant varieties adjacent to DuSable Lake Shore Drive.

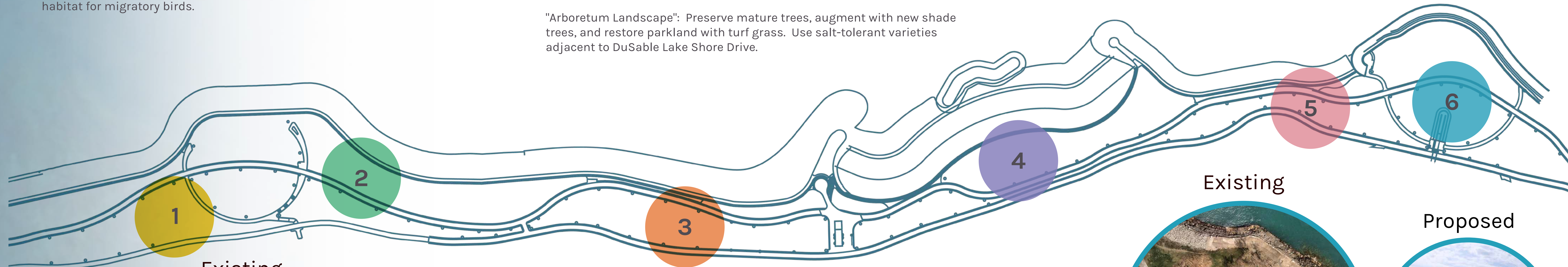
Existing

Proposed



## 5 50th Street

Due to narrow land posing planting challenges, preservation of existing mature trees that are currently between bike and pedestrian path will occur. Augment this area with new shade trees. Use salt-tolerant varieties adjacent to DuSable Lake Shore Drive.



Existing

Proposed



## 2 South of 47th Street

Prairie: Area is currently heavily eroded and covered in rubble / concrete debris. Predominant plantings will be perennials and grasses such as Milkweed, Wild Indigo, Sunflower, Horse Mint, Compass Plant, Aster, Prairie Dropseed, and Little Bluestem. Occasional shrubs and trees such as Dogwood and Bur Oak.

Existing

Proposed



## 4 49th Street

Dune: Almost zero existing vegetation at this location. Create new dune habitat to replicate original Chicago lakefront ecosystem with predominantly American Beach Grass with other perennials and grasses such as Prairie Onion, Canada Wild Rye, Porcupine Grass, Wild Strawberry, Blazing Star, and June Grass.

Existing

Proposed



## 6 51st Street

Preserve existing mature trees in the vicinity of the 51st Street Bridge landing. Restore the disturbed area with a mix of lawn, trees and native plantings. Native oaks planted in this area will support over 534 different species of native butterflies and pollinators. Blend with adjacent area to the south to remain. Plant low areas with wet-tolerant species. Turf lawn will allow for different forms of recreation by the water.