

Lake Champlain Basin Program Training Webinar

Lake George and NYSDEC Lake George Beach Day-Use Facility

June 29, 2017

Presented by Thomas Baird, P.E.



Beach Road and the NYSDEC Lake George Beach



Roadway & Parking Facility Previously Drained Directly to the Lake

Impaired Waterbody – Chlorides, Road Pollutants, Silt, Urban Runoff



Targeted Pollutants and Their Sources

Automobile By-Products Chlorides - Salt



Sediment



Vegetated Swales

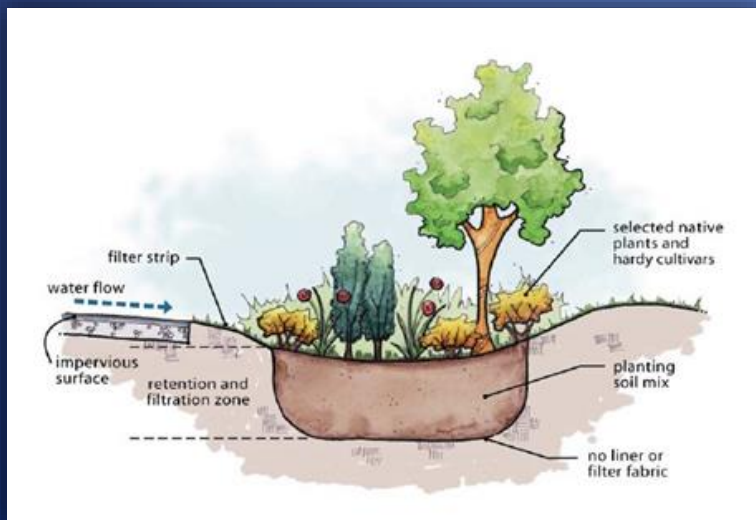
**Pre-Treatment
Helps Preserve Primary
System
Turf Lined or Planted**



Rain Gardens



Provide Filtration
Reduce Runoff Volumes
Aesthetically Pleasing



Stormwater Planters



Green Roofs



Maintenance





LAKE GEORGE
MILLION DOLLAR BEACH

DAY USE AREA

State of New York

 DEPARTMENT OF 
ENVIRONMENTAL CONSERVATION





Original Parking Facility
94% Impervious



New Facility
50% Impervious

Original Parking Facility



Original Parking Facility



Original Parking Facility





**After Stripping off the old pavements, the
Entire Parking Area was Raised 3' to 5'**















Before


After



After



Protection Walls, Buffers, Windbreaks

A photograph showing a concrete walkway that curves to the right. To the right of the walkway is a fence made of stone pillars and black metal pickets. In the background, there is a large, multi-story building with a brown roof, surrounded by trees and a forested hill under a clear blue sky. A bench is visible on the left side of the walkway.

Control Access to Beach
A “Sand Break”
Aesthetics
Limit Access to Lake (Snowmobiles)

Protection Walls, Buffers, Windbreaks



Protection Walls, Buffers, Windbreaks



Porous Asphalt
Protection



Stormwater Treatment

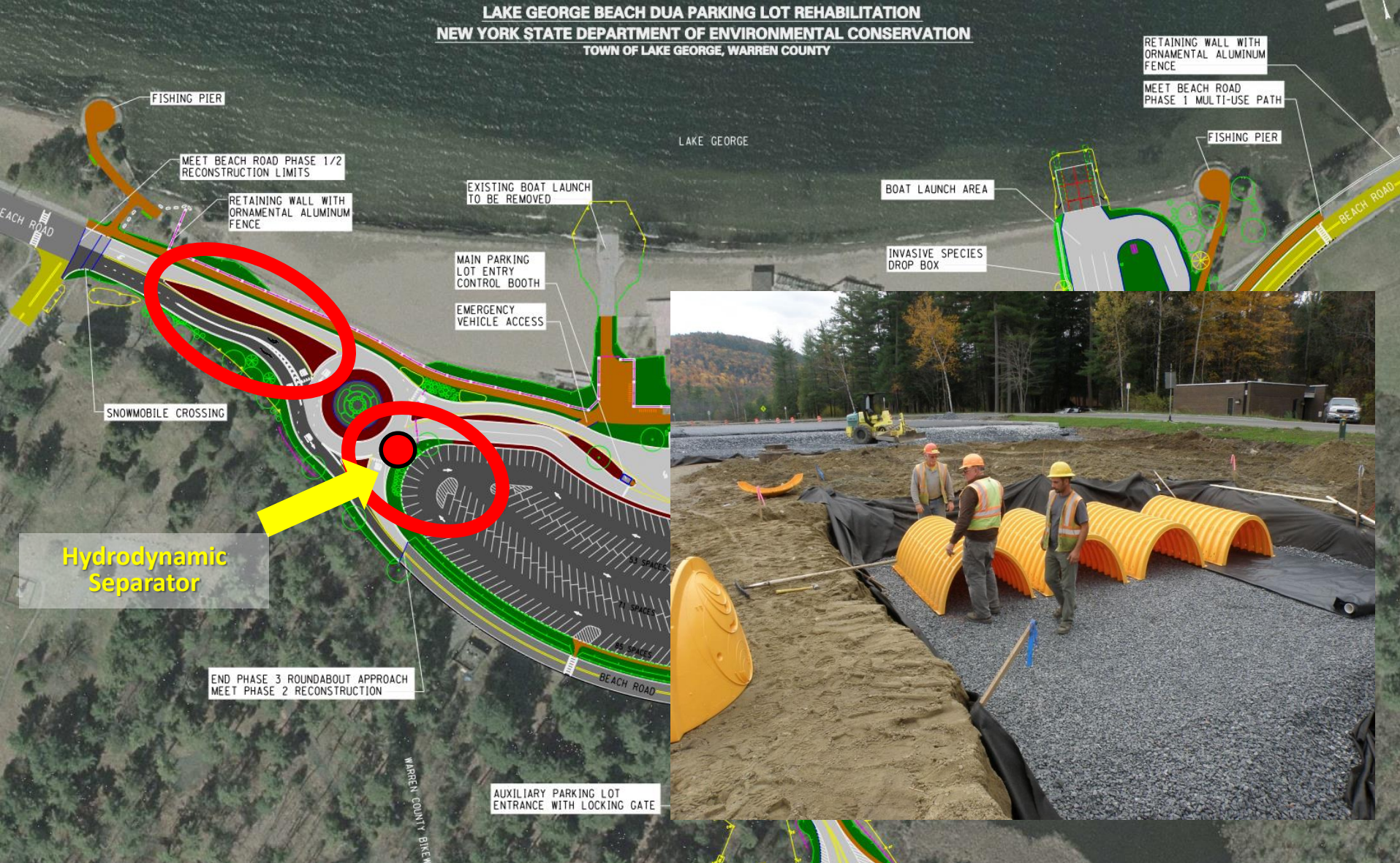
- Infiltration Chambers
- Rain Gardens
- Bio-retention
- Vegetated Infiltration Swales
- Porous Asphalt (3 Acres)
- Pre-cast Porous Concrete
- Hydro-dynamic Separator
- Underdrain Infiltration System

\$M Beach Lake George – October 2014

Drain from Impervious Areas to Linear Raingardens and Infiltration Chambers



LAKE GEORGE BEACH DUA PARKING LOT REHABILITATION
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
TOWN OF LAKE GEORGE, WARREN COUNTY

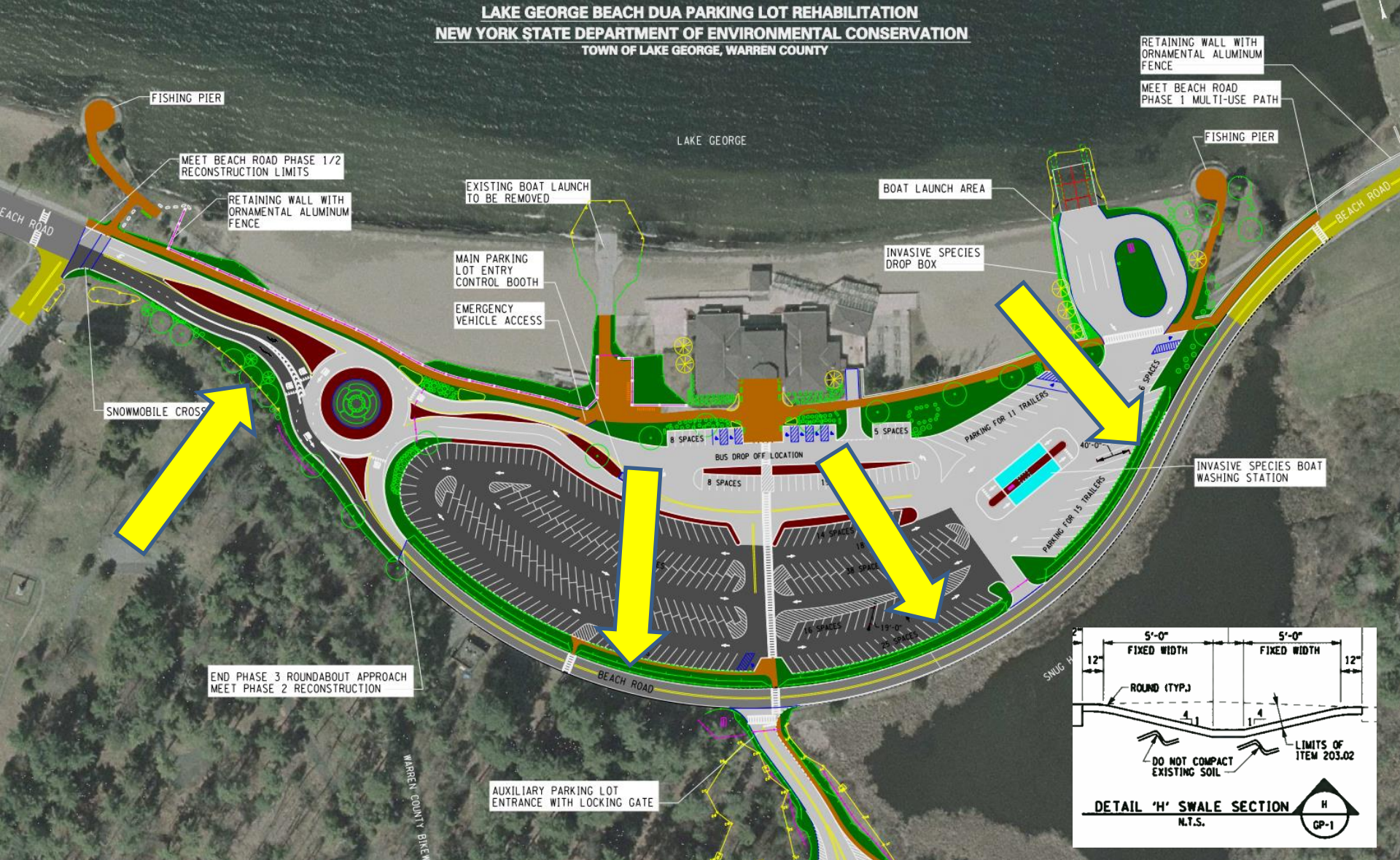


**Primary Treatment to
Underground Infiltration**




**Overflow goes to Reservoir
Layer Under Pavement**

LAKE GEORGE BEACH DUA PARKING LOT REHABILITATION
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
TOWN OF LAKE GEORGE, WARREN COUNTY



“Vegetated Infiltration Swale”

“Existing Soil” was placed
a year earlier – Sandy
Organic Mixture

A photograph of a construction site for a road. In the foreground, there is a wide, dark grey porous asphalt surface. To the left of the asphalt is a concrete curb and a dirt shoulder. A blue arrow points from the dirt shoulder towards the asphalt. Another blue arrow points from the asphalt towards the dirt shoulder. In the background, there are orange traffic barrels, a red truck, and a road sign with the number 15. The sky is overcast.

Backup Systems to Porous Asphalt

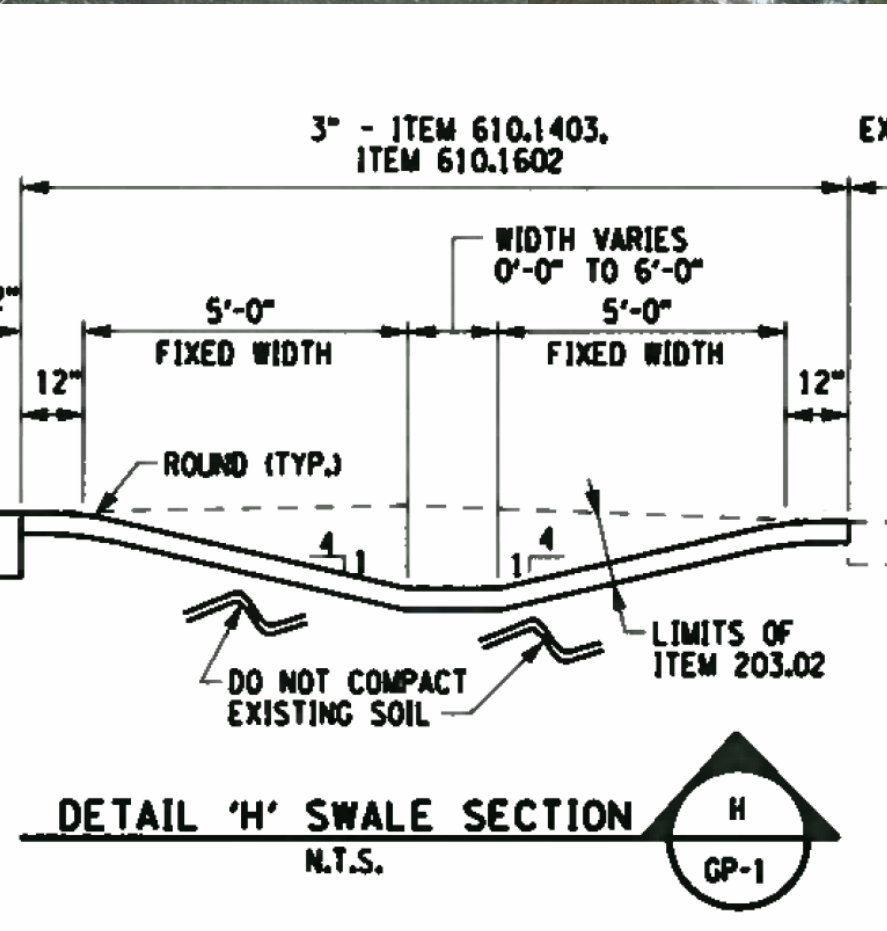
LAKE GEORGE BEACH DUA PARKING LOT REHABILITATION
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
TOWN OF LAKE GEORGE, WARREN COUNTY

RETAINING WALL WITH
ORNAMENTAL ALUMINUM
FENCE

MEET BEACH ROAD
PHASE 1 MULTI-USE PATH

FISHING PIER

MEET BEACH ROAD PHASE 1/2
RECONSTRUCTION LIMITS



LAKE GEORGE BEACH DUA PARKING LOT REHABILITATION
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
TOWN OF LAKE GEORGE, WARREN COUNTY

Labels on the plan include:
 FISHING PIER
 MEET BEACH ROAD PHASE 1/2 RECONSTRUCTION LIMITS
 RETAINING WALL WITH ORNAMENTAL ALUMINUM FENCE
 SNOWMOBILE CROSSING
 MAIN PARKING LOT ENTRY CONTROL BOOTH
 EMERGENCY VEHICLE ACCESS
 EXISTING BOAT LAUNCH TO BE REMOVED
 LAKE GEORGE
 BOAT LAUNCH AREA
 INVASIVE SPECIES DROP BOX
 BUS DROP OFF LOCATION
 8 SPACES
 19 SPACES
 14 SPACES
 18-0"
 20 SPACES
 16 SPACES
 19-0"
 25 SPACES
 23 SPACES
 21 SPACES
 20 SPACES
 BEACH ROAD
 TOWN OF LAKE GEORGE
 WARREN COUNTY
 FISHING PIER
 RETAINING WALL WITH ORNAMENTAL ALUMINUM FENCE
 MEET BEACH ROAD PHASE 1 MULTI-USE PATH
 INVASIVE SPECIES BOAT WASHING STATION
 TRAILERS
 40'-0"
 SNUG HARBOR
 HYDRODYNAMIC SEPARATOR (highlighted with a red circle and yellow arrow)

Hydrodynamic Separator



Coatings
No Paint or Powdercoating Chips



No Paint or Powdercoating Chips





OUT APPROACH
TRUCTION

WARREN COUNTY BIKEWAY

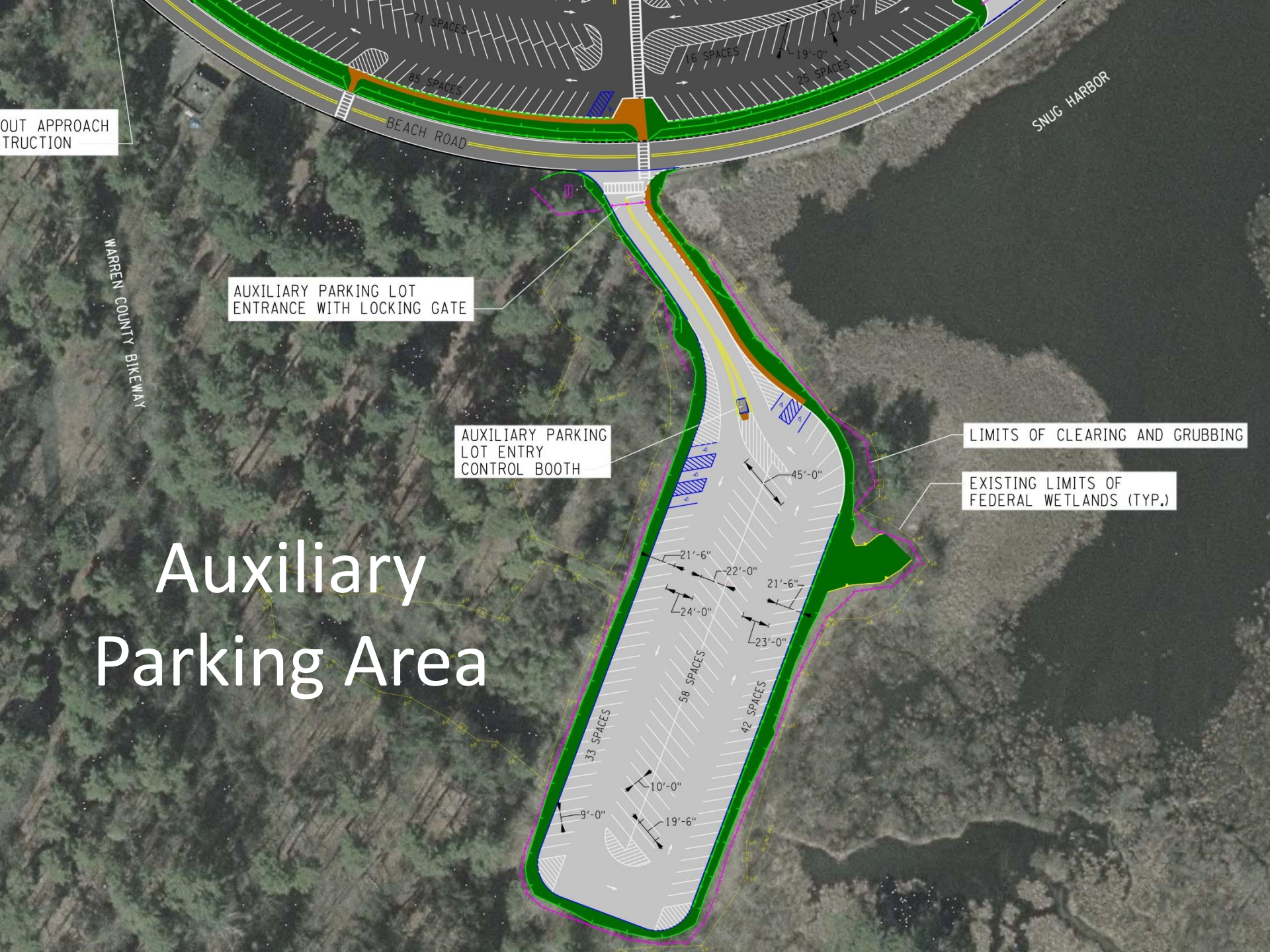
AUXILIARY PARKING LOT
ENTRANCE WITH LOCKING GATE

AUXILIARY PARKING
LOT ENTRY
CONTROL BOOTH

LIMITS OF CLEARING AND GRUBBING

EXISTING LIMITS OF
FEDERAL WETLANDS (TYP.)

Auxiliary Parking Area





Auxiliary Parking Area



Auxiliary Parking Area



NYSDEC Project Total Crushed Stone

15,000 CY Crushed Stone

405,000 CF

30.4 Million Pounds (40% Air Voids)

Compare to Conventional Subbase Material

At 45.6 M pounds (10% Air Voids)

Savings of 15 M pounds (7,600 Tons)

That's 380 truck loads

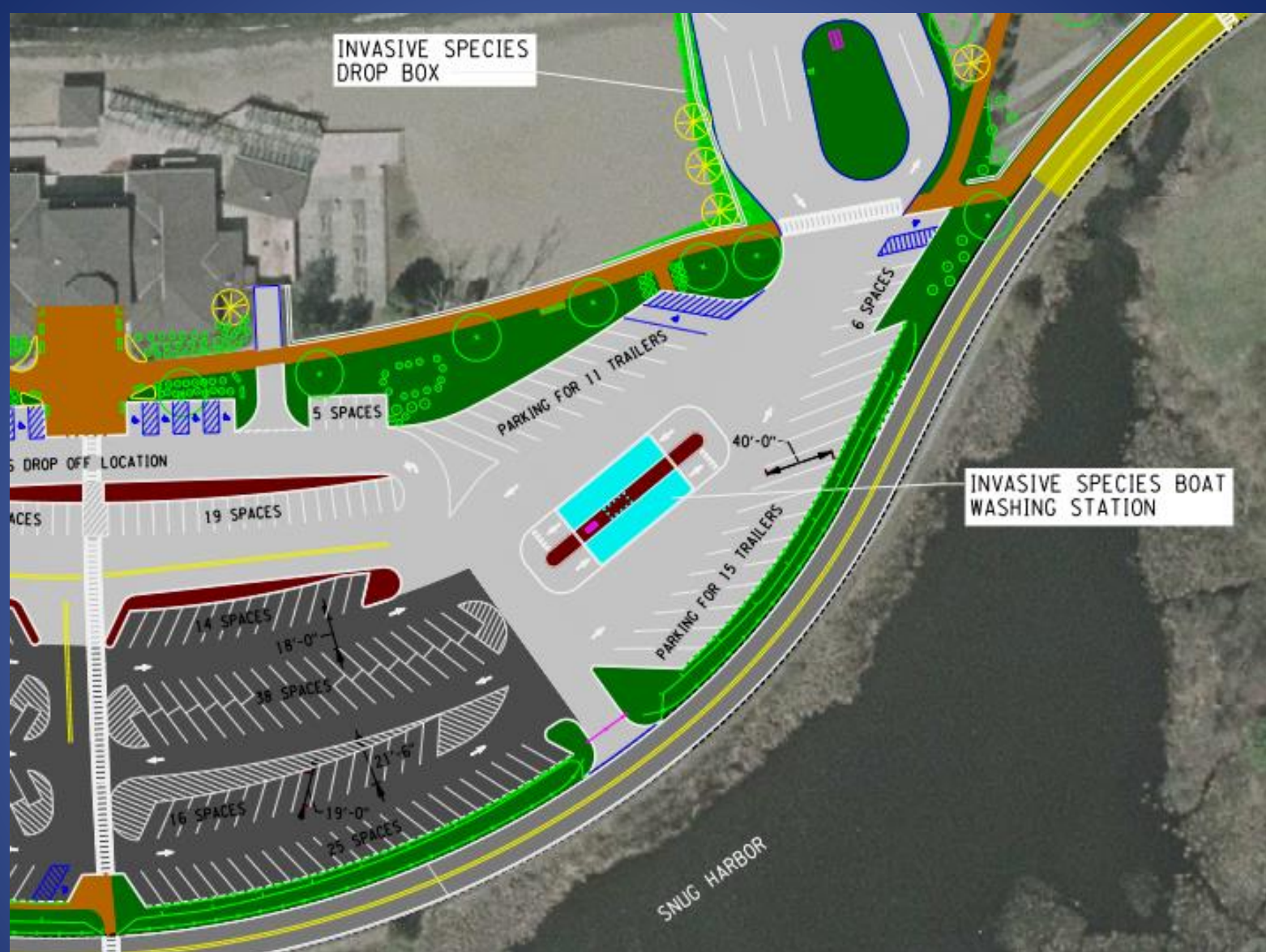
Savings in Trucking Fuel = 4,500 gal. of Diesel

Savings in Mining, Crushing, Handling

Auxiliary Parking Area With Vegetated Infiltration Swale

**Conventional Asphalt due to Leaf
and Pine Needle Litter**





Invasive Species Washing & Inspection Station

Invasive Species

Zebra Mussels



Also:

Chinese Mystery Snail
Spiny Water Flea

Courtesy Lake George Association

A34 STATE

Fighting a clam threat

Environmentalists trying to stop growth of polluting Asian mollusks

BY MARY ESCH
The Associated Press

ALBANY — Dive teams that spread underwater mats to smother invasive Asian clams in an Adirondack lake this spring are now sifting the sandy bottom of a lake in New York's Finger Lakes wine country to determine how widely the water-befouling mollusks have spread there.

An interim report released last week on a \$475,000 effort to eradicate Asian clams in Lake George said plastic mats spread on five acres of lake bottom have killed more than 97 percent of the clams. But it recommended additional work, such as suction harvesting, that could bring the cost to nearly \$1 million.

A plan also is being developed to eradicate a new 5-acre colony of Asian clams discovered last month in another bay of 32-mile-long Lake George, where the clear, cold water, sandy beaches and mountain scenery have long made it popular for vacations and second homes.

The Asian clam, *Corbicula fluminea*, is known as the "good luck clam" in its native Southeast Asia. The thumbnail-size clams multiply rapidly because of their ability to self-fertilize and release up to 2,000 juveniles a day during breeding seasons in May and August.

Infestations of the clams usually occur when someone dumps a bait bucket or aquarium into a body of water. The mollusk's excretions feed algal blooms and the sharp shells from dead clams wash up on beaches in large numbers.

In Lake Tahoe, where a \$1.4-million eradication effort was launched last summer, they have been blamed for algal blooms that have turned clear, blue bays a murky green.

Albany-based InnerSpace Scientific Diving, which is involved in the Lake George clam project, is now working to determine the extent of an infestation in Owasco Lake, about 25 miles southwest of Syracuse.

Divers plot their findings on a map, using GPS to pinpoint the location of clams. Populations also have been discovered in Cayuga and Seneca lakes.

In April, divers unrolled 825 50-foot-long plastic mats to cover the bottom of a five-acre bay of Lake George where the clams were discovered last fall.

Sandra Nierzwicki-Bauer, director of the Rensselaer Polytechnic Institute Darrin Fresh Water Institute on Lake George, said last week that more than 97 percent of clams were dead in areas where mats had been removed.

It is estimated that an additional \$200,000 to \$400,000 will be needed to finish work and pay for suctioning clams out of areas where mats can't be used.

The tiny clams multiply rapidly because they can self-fertilize.



In April, divers plastered the bottom of a 5-acre bay area of Lake George to kill the invasive clams.

Asian Clams

NYSDEC Lake George Beach Facility

Invasive Species Washing / Inspection Station



NYSDEC Lake George Beach Facility

Invasive Species Washing / Inspection Station

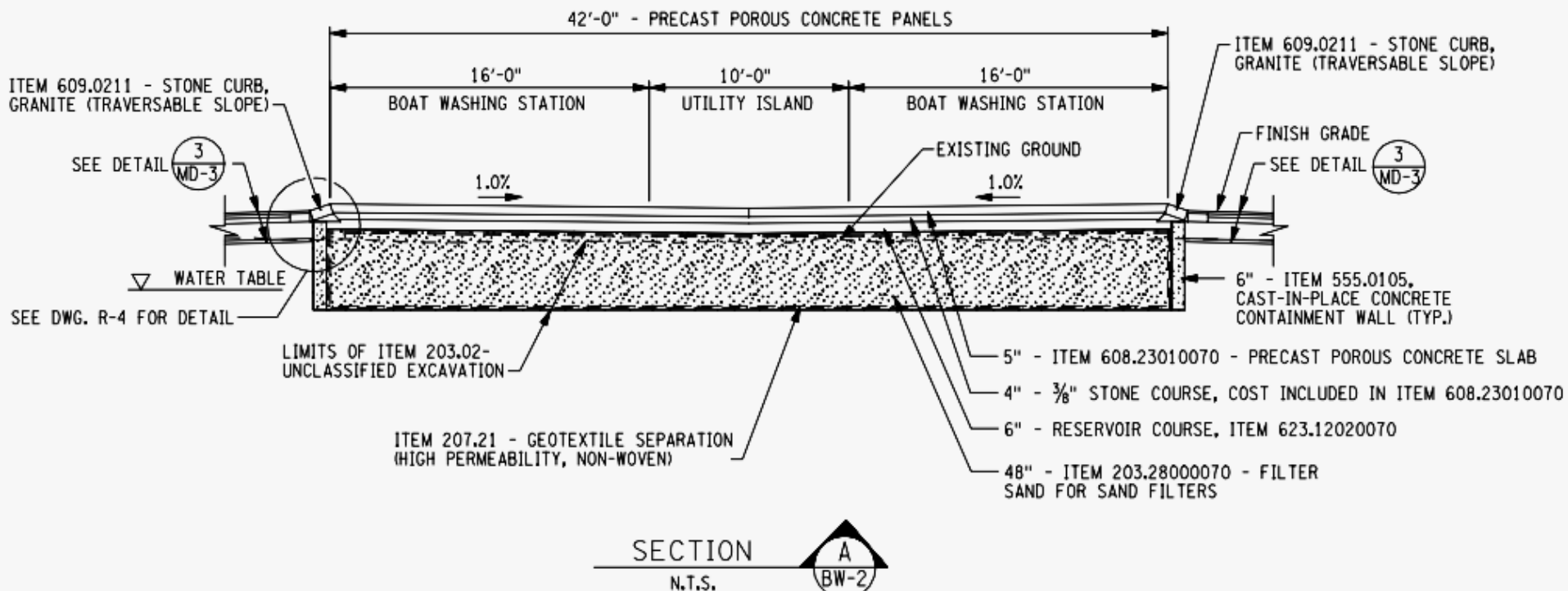


NYSDEC Lake George Beach Facility

Invasive Species Washing / Inspection Station



NYSDEC Lake George Beach Facility



NYSDEC Lake George Beach Facility



NYSDEC Lake George Beach Facility

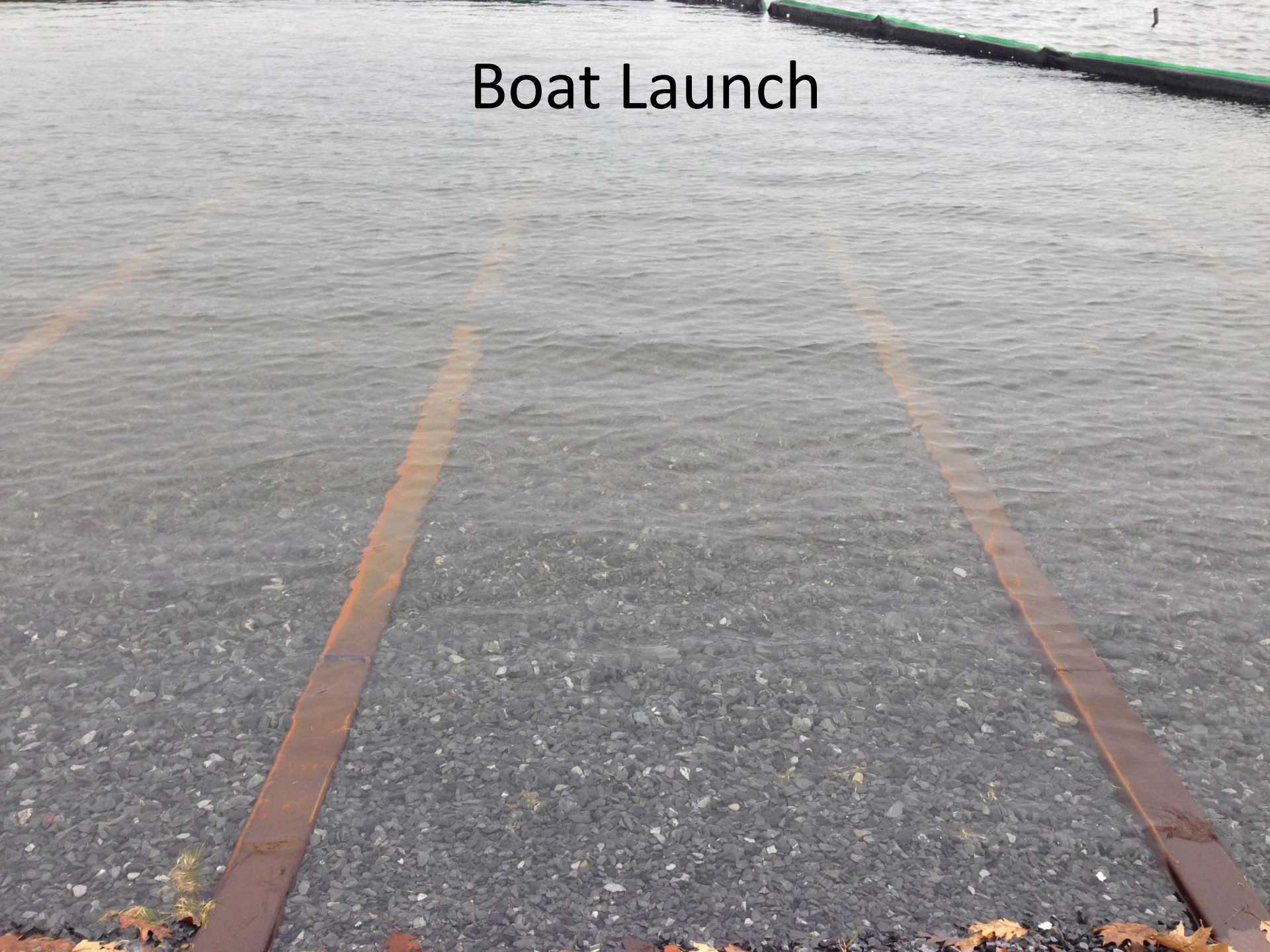


Stormcrete - Pre-Cast Porous Concrete

Boat Launch



Boat Launch



Boat Launch



Boat Launch



New Boat Launch



Old Boat Launch





Environmental Challenges

Historic and Cultural Resources

Impact Avoidance – Spanning the Resource

A spear Point displayed at New York State Museum where some of the dozens of findings are displayed with some dating back to approximately 8,000 B.C.

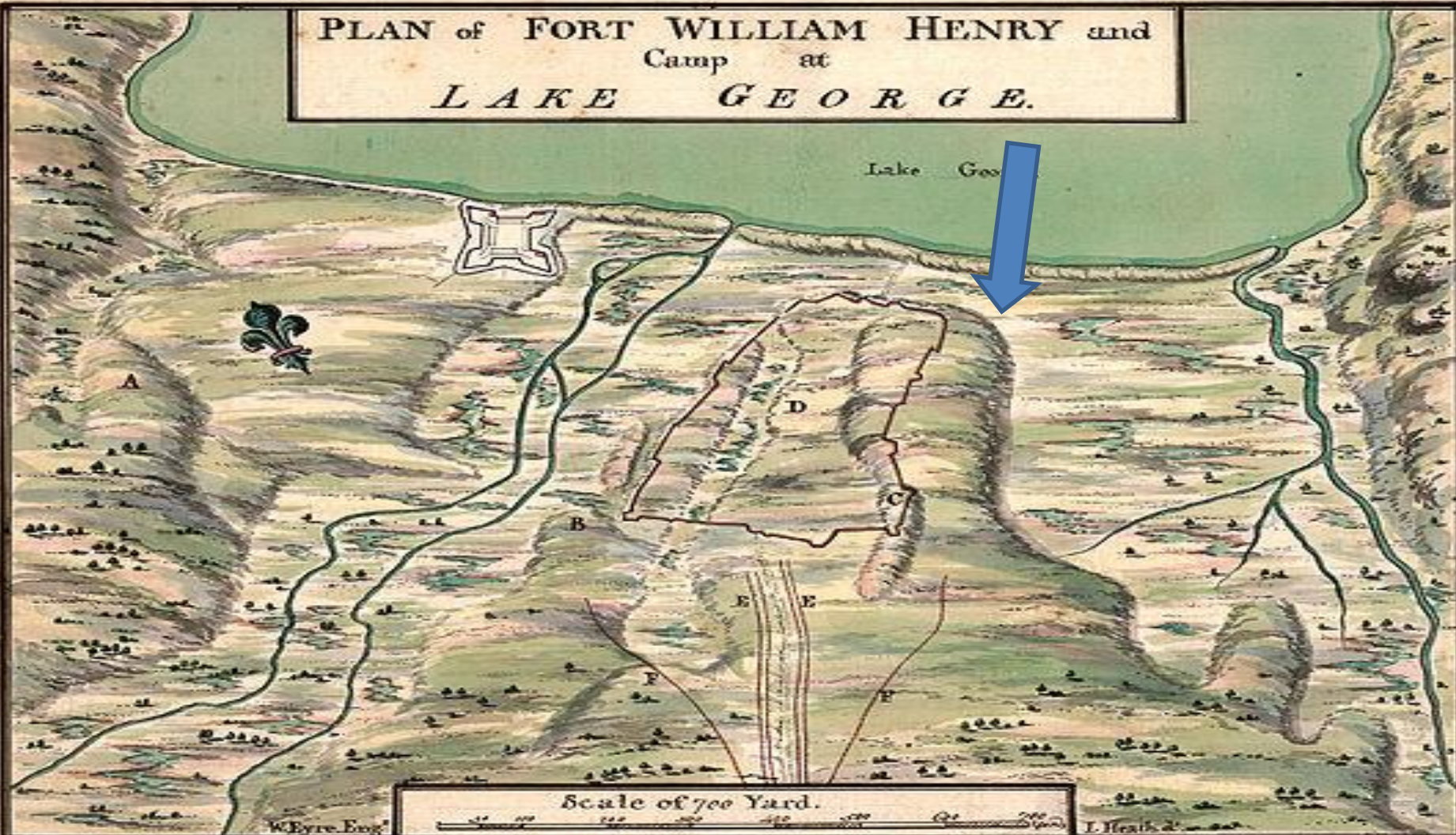
According to museum officials, this Spear Point artifact is estimated to be 8,000 years old.







PLAN of FORT WILLIAM HENRY and Camp at LAKE GEORGE.



This Fort is situated on a Plain, that is the land, and South that of it, from 200 to 300 Yards, of rising ground at (A) is the most convenient for an Enemy to attack it from, but this Distance is more than the last mentioned from the Mouth. The Ground that the Camp stands on, is not so high as that of the Garrison, except at (B & C) which is rather too far to do any great Mischief, besides a wide Swamp between those Places. The Lake Side, and that of the Camp, are pretty secure from any great Danger, & the Enemy will not find it an easy Matter to get Possession of this Ground at (A) is to the North West of it, they being obliged to approach this Eminence from the Southward by the Lake, on the East of the Mountain, not to cross the Swamp, & to the South without passing some Inconveniences (see) being exposed to Cannon fire of Fort.

This Ground here described is bounded to the N.W. and S.E. sides by high Mountains, and the Valley between is about 200 Yards broad. The Encampment at (D) has a Breastwork raised with Trees & Earth. (E.E.) The Columns of regular French Troops, and Canadians who attacked this Camp 8 September 1755. — E.F. The Route the Indians took to fall upon the Plankers during the Engagement. — This Fort is large enough to contain a Garrison of 100, or 500 Men, with convenient Barracks, two Magazines for Powder (each 1000) with a large Hospital of 5000 Strength, & Lodgings for 2500 Men, besides Storehouses for 2500 Barrels of Provisions.

Environmental Challenges

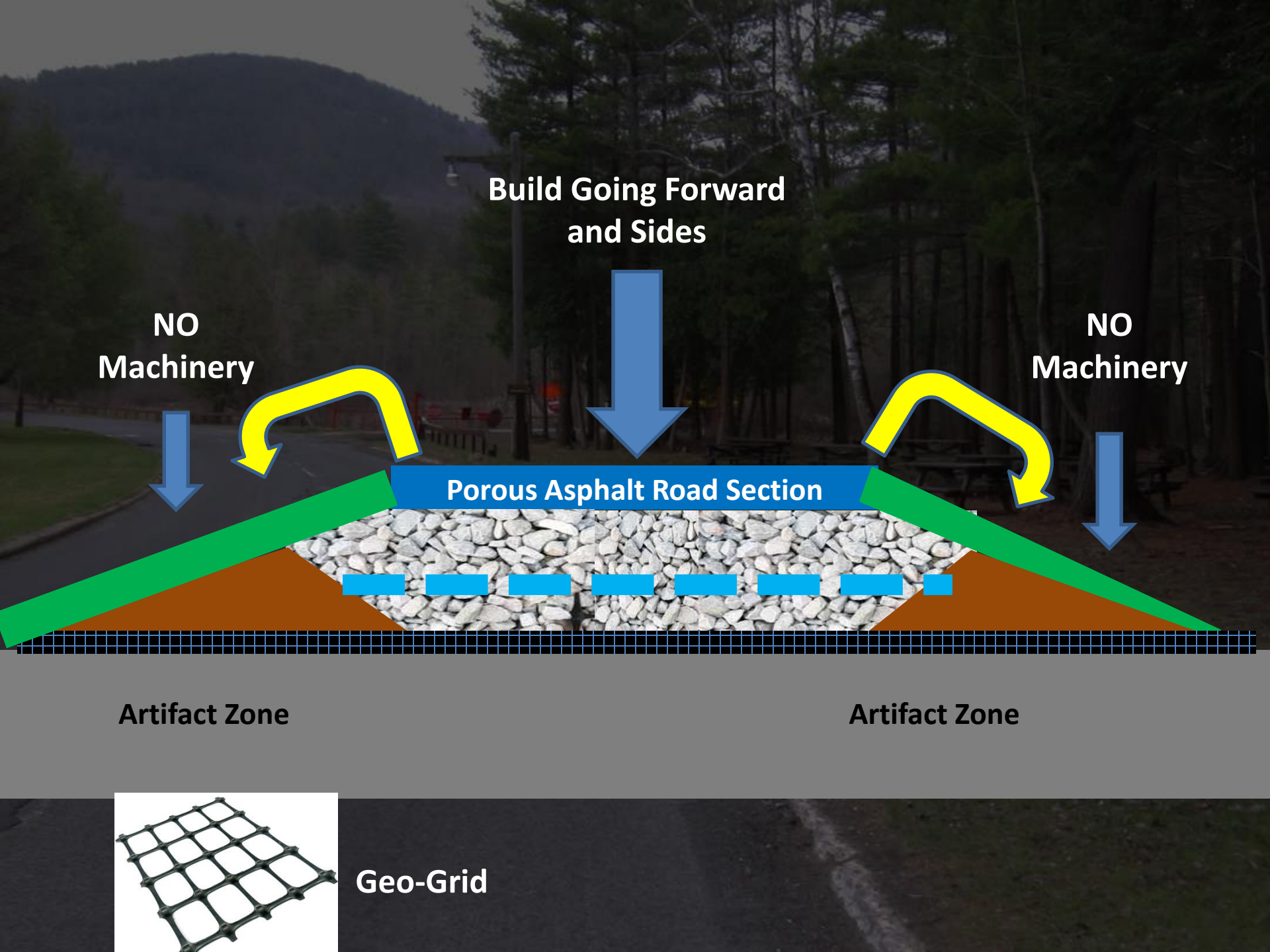
Historic and Cultural Resources

Impact Avoidance – Spanning the Resource

A photograph of a paved road curving through a wooded area. On the right side of the road, there are several wooden picnic tables and benches. The road is bordered by a grassy area and a line of trees. In the background, there are hills and more trees. The image is used as a background for a presentation slide.

Existing Road Section

Artifact Zone



**Build Going Forward
and Sides**

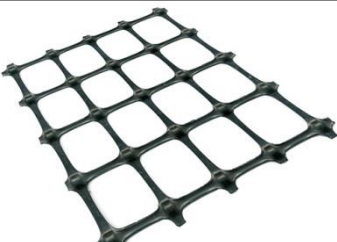
**NO
Machinery**

**NO
Machinery**

Porous Asphalt Road Section

Artifact Zone

Artifact Zone



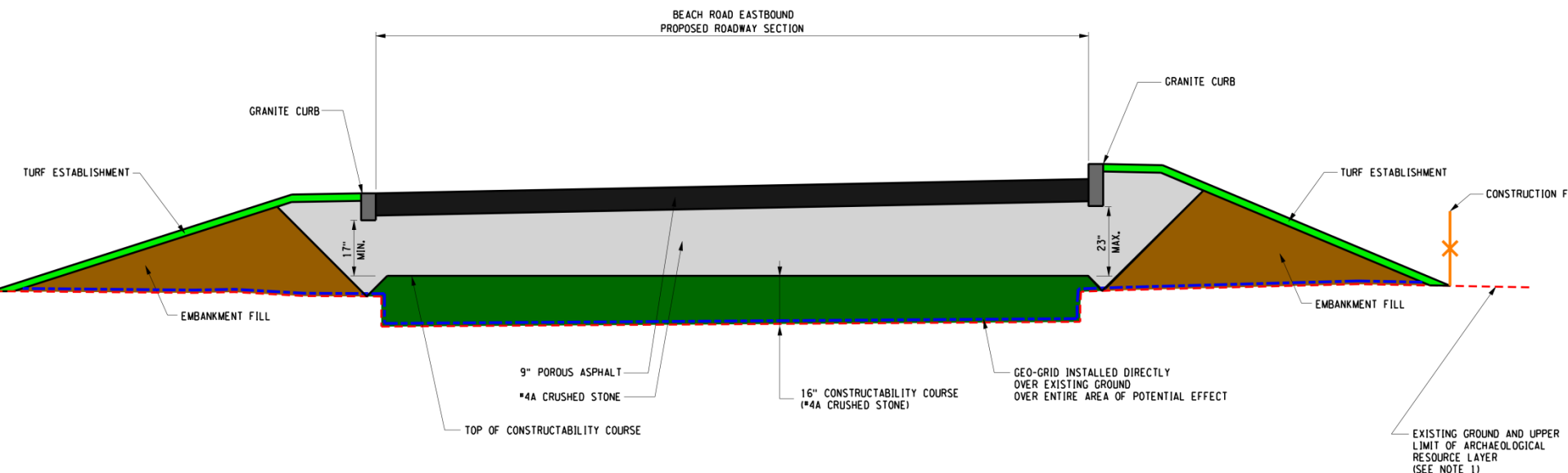
Geo-Grid

Environmental Challenges

Historic and Cultural Resources

Impact Avoidance – Spanning the Resource

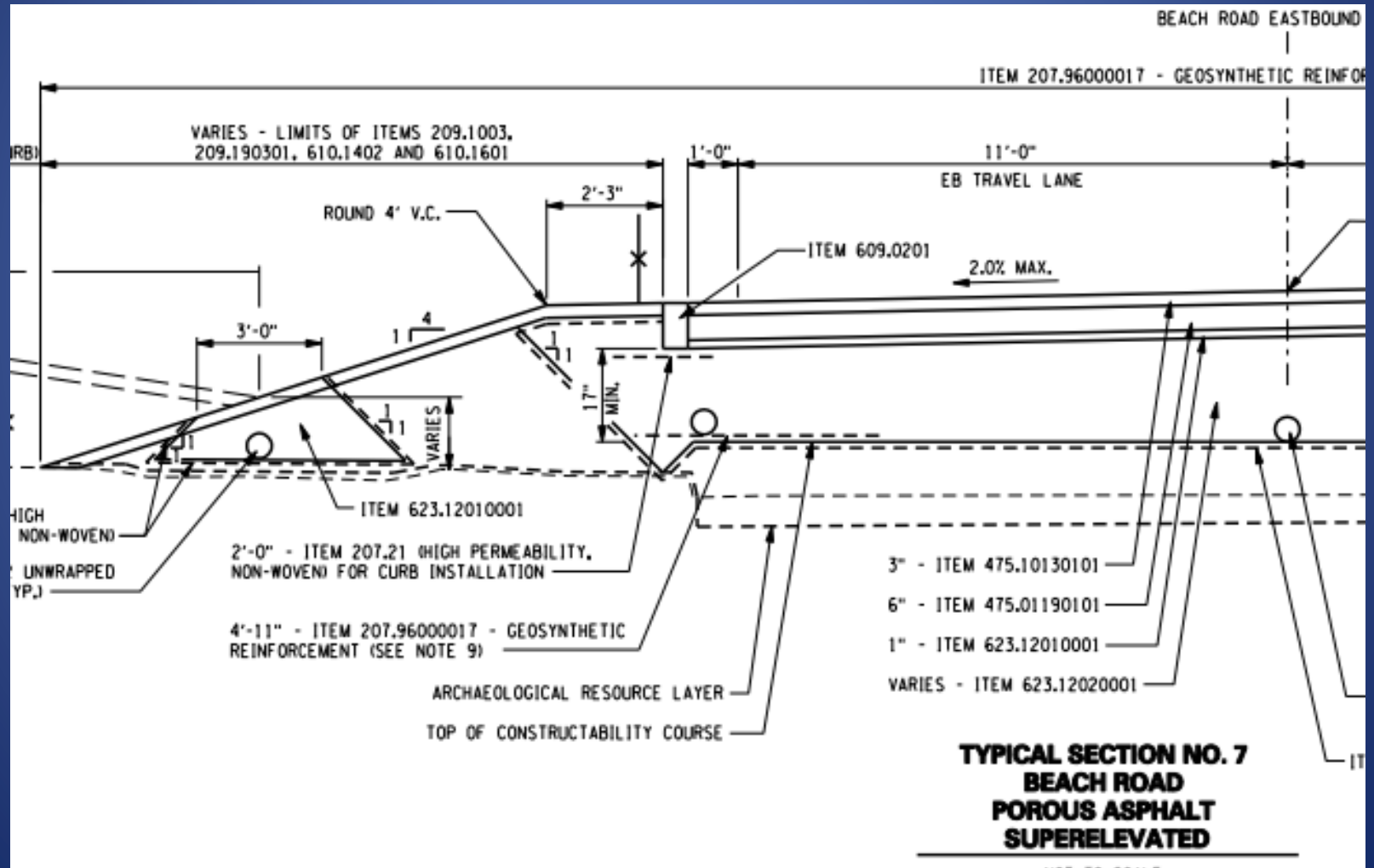
Federal Highway Administration – Section 106
SHPO, Native American Resources, NYS Museum



Environmental Challenges

Historic and Cultural Resources

Impact Avoidance – Spanning the Resource



Questions ?



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