

# **TOWN OF ORLEANS**

- Town Map
- Chart of Site Characteristics
- Sites 1 to 7











# TOWN OF ORLEANS

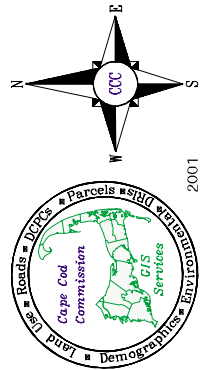
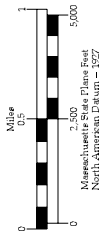
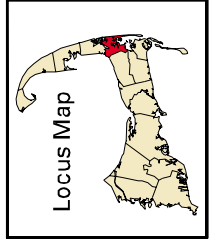
## Location of Selected Salt Marsh Restrictions

This map was produced by the Cape Cod Commission Geographic Information System office, with digital data from MassGIS and the Cape Cod Commission, 2001.

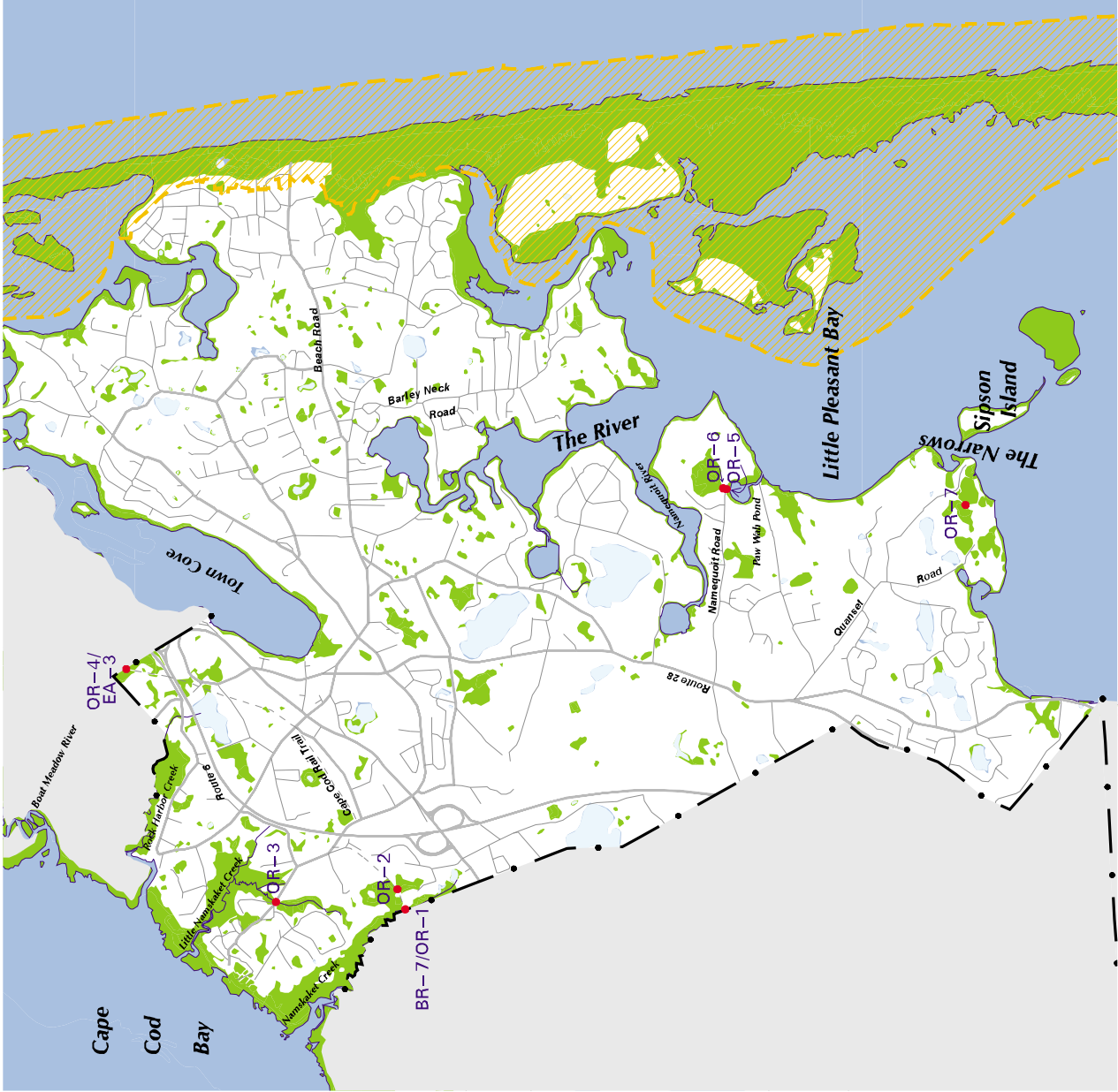
The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel level analysis.

This project was funded, in part, by the Executive Office of Environmental Affairs, Massachusetts Wetlands Restoration Program.

<span style="color: red;">●</span>	OR - 1 Restriction Site
	Wetland
	Ocean
	Pond or Lake
	CC National Seashore
	Local Road
	Major Route
	Bike Trail
	Stream



2001





## Town of Orleans –Site Characteristics

Site Number	Size of upstream affected area (salt marsh acres / total affected acres)	Is the upstream affected area contiguous to protected open space (ownership)?	Does this tidal channel support a shellfish resource area?	Is the channel or system part of an anadromous fish pathway?	Does the culvert/pipe support an engineered flood control structure?	Is the affected area or site within an ACEC boundary?	Does the affected area include Priority Habitat of Rare Species (PH) or Estimated Habitat of Rare Wildlife (WH)?	Are there any restricted sites upstream of this site (site number)?	Ownership of the site (public vs. private)
BR-7/ OR-1	1.12 / 6.94	YES (state)	YES	NO	NO	YES	YES (PH, WH)	NO	PUBLIC
OR-2	0.0 / 0.96	NO	YES	NO	NO	YES	YES (PH, WH)	NO	PUBLIC
OR-3	0.0 / 7.69	NO	YES	NO	NO	YES	YES (PH, WH)	NO	PUBLIC
OR-4/ EA-3	5.20 / 16.94	YES (private)	YES	NO	NO	YES	YES (PH, WH)	YES (EA-4)	PUBLIC
OR-5	0.0 / 10.03	YES (municipal, private)	YES	NO	NO	YES	YES (PH, WH)	YES (OR-6)	PRIVATE
OR-6	0.0 / 10.03	YES (municipal, private)	YES	NO	YES (stoplogs)	YES	YES (PH, WH)	NO	PRIVATE
OR-7	1.99 / 3.74	NO	NO	NO	NO	YES	NO	NO	PRIVATE



## BREWSTER/ORLEANS

### Cape Cod Rail Trail restriction of Namskaket Creek

Site BR-7/OR-1

#### Site Description

The Cape Cod Rail Trail bike path crosses the Namskaket Creek at the Brewster-Orleans town line causing a major tidal restriction. Access to the site is via the bike path only. One 1-foot pipe was found here, however there might be additional pipes that were not visible. This pipe is so egregiously undersized and the site degraded that tidal flow is effectively cut off from the upstream marsh area. This site is located within the boundaries of the Inner Cape Cod Bay Area of Critical Environmental Concern, owned and managed by the state Department of Environmental Management (DEM).

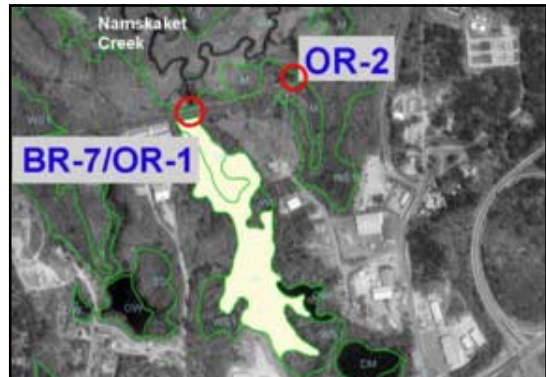
#### General Information

The site is in serious disrepair. The seaward pipe opening was obscured and buried under a pile of rocks. After some digging a 1-foot metal pipe was uncovered. Upstream of the bike path, water is flowing down into a hole below ground where the pipe is presumed to be – the pipe itself is not visible. The creek banks at the site are extremely eroded, with vegetation die off and major scouring pools scarring the upstream site. The width of Namskaket Creek varies between 6 and 10 feet both seaward and upstream of the Rail Trail. *Phragmites* dominates the upstream affected area. The restriction has persisted for so long that the upstream system has become mainly a freshwater marsh.

- Restriction width – 1 foot (estimated)
- Restriction length – 62 feet
- Upstream salt marsh – 1.12 acres

#### Comments

A joint restoration effort is underway by the Natural Resources Conservation Service (NRCS), DEM, Orleans and Brewster local officials, the state Wetlands Restoration Program, and MA Coastal Zone Management. At the time of this writing inventory and assessment, a needs assessment, and cost estimates for materials and services have been completed. The restoration project is currently in the permitting process and work is expected to begin in Fall 2002.



Upstream Affected Area (acres): SM – 1.12; M – 5.82.



An eroding retaining wall helps support the Cape Cod Rail Trail that is restricting tidal flow in Namskaket Creek – water is seen bubbling out from under a pile of rocks that covers the 1-foot pipe.



Phragmites and shrubs are seen taking over the once salt marsh upstream of the Rail Trail.

# ORLEANS

## Cape Cod Rail Trail restriction of Namskaket Creek

Site OR-2

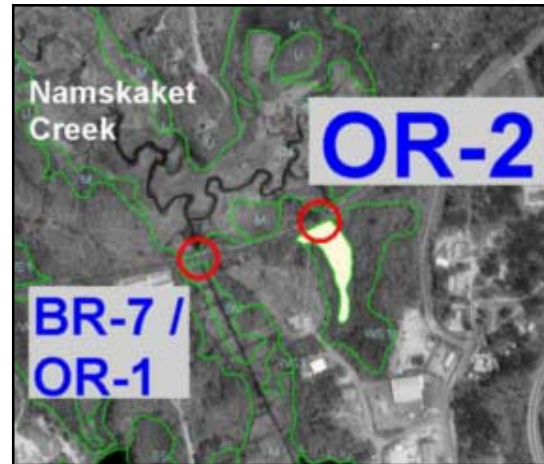
### Site Description

The Cape Cod Rail Trail bike path crosses the Namskaket Creek to the east of site BR-7/OR-1 on the Brewster-Orleans town line. Access to this site is via the bike path only. A 1-foot wooden-framed pipe crosses under the bike path. Flow through this deteriorated structure appeared to be minimal to none. This pipe is so egregiously undersized and the site degraded that tidal flow is effectively cut off from the upstream marsh area. This site is located within the boundaries of the Inner Cape Cod Bay Area of Critical Environmental Concern, owned and managed by the state Department of Environmental Management (DEM). Namskaket Creek supports abundant shellfish resources that are closed to shellfishing.

### General Information

The width of the seaward creek channel is approximately 5 feet, while the upstream creek is approximately 1 to 3 feet wide. The entire site is in serious disrepair. The seaward pipe opening was barely visible and covered by a stone block as well as other debris and mud. Upstream of the bike path the 1-foot opening is visible submerged in a stagnant pool and clogged by dead *Phragmites* reeds and muck. Visual indicators of a restriction are numerous including major seaward scouring and erosion and significant upstream scouring and erosion. *Phragmites* dominates both the seaward and upstream vegetation. This restriction has persisted for so long that the upstream affected area has become mainly a fresh-water marsh.

- Restriction width – 1 foot
- Restriction length – 45 feet
- Upstream salt marsh – 0 acres



Upstream Affected Area (acres): M – 0.96.



The berm of the bike trail is a severely eroded, slick mud bank. This stone slab marks the pipe's opening.



Reeds and high stagnant water block the upstream opening from view.

# ORLEANS

## Namskaket Road restriction of Little Namskaket Creek

Site OR-3

### Site Description

Little Namskaket Creek flows southeasterly from its mouth on the Cape Cod Bay. Namskaket Road crosses the creek via a 15-inch concrete pipe that is submerged at mean high tide. The pipe appears to be in poor condition – its seaward end is visibly broken and clogged. Large pieces of debris (old docks and floats) now rest on the eroded berm near the pipe. Little Namskaket Creek is within the Inner Cape Cod Bay Area of Critical Environmental Concern. While the creek does support extensive shellfish resources they are closed to shellfishing.

### General Information

The seaward creek channel is approximately 5 feet wide, narrowing upstream to approximately 2 to 5 feet wide. Visual indicators of a restriction include major scouring and erosion on the seaward side and minor scour and erosion upstream. *Phragmites* growth is significant both seaward and upstream of this restricted site.

- Restriction width – 15 inches
- Restriction length – 55 feet
- Upstream salt marsh – 0 acres



*Phragmites and shrubs are visible in the upstream area as seen from the upstream side of the pipe.*



*Upstream Affected Area (acres): SS – 5.0; M – 2.69.*



*Erosion scars the area near the pipe opening, which is blocked by this piece of dock and other debris.*

# ORLEANS/EASTHAM

## Cape Cod Rail Trail restriction of Boat Meadow River

Site OR-4/EA-3

### Site Description

Boat Meadow River runs in an easterly direction from its mouth on the Cape Cod Bay. Prior to reaching the Cape Cod Rail Trail, the river flows under Bridge Road, via a 57-foot unrestricted bridge (see site EA-a, Appendix B). Upstream of that Boat Meadow River is conveyed under the bike trail via a 36-inch concrete pipe. The pipe is in serious disrepair. The trail's side slope embankments are eroding and its paved surface is being undermined. Restricted site EA-4 lies upstream. Boat Meadow River is within the Inner Cape Cod Bay Area of Critical Environmental Concern. While the river does support extensive shellfish resources, they are closed to shellfishing.

### General Information

Seaward of this site the river channel is approximately 15 feet wide, narrowing to approximately 5 feet upstream. Visual indicators of a restriction are severe at this site including major scouring and erosion both seaward and upstream. Vegetation die off and ponded water are significant in the adjacent seaward marsh area. The vegetation changes noticeably from the seaward to upstream sides of the bike path with minor *Phragmites* growth seaward becoming significant on the fringes and in the rear of the upstream affected area. An exposed length of seaward pipe is broken off in several sections. The opening is jammed by large logs, pieces of docks, and other debris that have washed up the river and collected at this site.

- Restriction width – 36 inches
- Restriction length – 45 feet
- Upstream salt marsh – 5.20 acres

### Comments

An Environmental Notification Form (ENF) (EOEA file number 12421) for Cape Cod Rail Trail Safety Improvements was filed in January 2001, stating that the pipe is a tidal restriction reducing critical upstream habitat for fish and invertebrates and that the vegetative community suffers as well. Massachusetts Coastal Zone Management (MCZM) has examined this site as part of the US Environmental Protection Agency sponsored Salt Marsh Assessment Project. This project calls for replacement of the existing 36-inch pipe with a 6 by 4-foot precast concrete box culvert. Restoration work at this site has now been funded by the Massachusetts Wetlands Restoration Program's Corporate Wetlands Restoration Partnership, the National Fish and Wildlife Federation, the Department of Environmental Management and MCZM. At this time all permits have been approved and construction bids received.



Upstream Affected Area (acres): SM – 5.20;  
SS – 2.31; M – 9.43.



Debris marks the seaward opening of this culvert under the bike trail. Pieces of the pipe have broken off and lie in the deep scour pool in front of the opening.



Upstream of the bike trail the bank has eroded away from this 36-inch pipe. Scour and erosion scar the area.

# ORLEANS

## Restrictions of Paw Wah Pond by:

**Namequoit Road  
Site OR-5**

and

**Earthen Berm  
Site OR-6**



*Upstream Affected Area (acres): SS – 10.03.*

### Site Descriptions

Paw Wah Pond is located on the western shore of Little Pleasant Bay. This salt pond and its upstream wetland area are within the Pleasant Bay Area of Critical Environmental Concern. At the northeast corner of the pond, a 1-foot corrugated plastic pipe conveys flow under Namequoit Road (site OR-5). Approximately 70 feet upstream is site OR06, where flow passes under a dirt berm via an 8-inch clay pipe with an upstream structure for the placement of water-tight stoplogs. Upstream of these two restrictions lies 10.03 acres of shrub swamp. Site OR-5 appears to be in good condition and fairly new. Site OR-6, while apparently structurally sound, appears to be neglected and defunct. Paw Wah Pond supports shellfish resources that are conditionally open for shellfishing, however a semi-circular closure is always in effect around the direct discharge area of this pipe.

### General Information

A short, 3-foot channel conveys flow from Paw Wah Pond to site OR-5. Between sites OR-5 and OR-6 the 5-foot wide, 70-foot long channel is contained within steep, forested banks. Upstream of OR-6 the channel meanders off into the wetland area and is approximately 5 feet wide. Visual indicators of a restriction at site OR-5 include significant seaward scouring and minor erosion and minor upstream scouring with significant bank erosion. Indicators at site OR-6 include minor seaward scouring and significant erosion both seaward and upstream.



*This channel runs between sites OR-5 and OR-6, ending abruptly at the dirt berm where the 8-inch clay pipe is seen poking out at the bottom.*



*View of the seaward opening of site OR-5 – scour and erosion are present at this 12-inch opening.*

#### Site OR-5

- Restriction width – 1 foot
- Restriction length – 40 feet
- Upstream salt marsh – 0 acres

#### Site OR-6

- Restriction width – 8 inches
- Restriction length – 15 feet (estimate)
- Upstream salt marsh – 0 acres

### Comments

The upstream affected wetland area and some adjacent upland is owned by the Orleans Conservation Trust. This upstream area was historically used for cranberry farming and the berm and sluiceway are remnant of that. The area close to the culvert has reverted to shrub swamp, with old growth cedar taking hold toward the rear of the wetland area. The Trust hopes that partial restoration could occur, restoring some salt marsh area nearest to the culvert while preserving the cedar swamp.

# ORLEANS

## Cranberry Bog Berm restriction of creek off The Narrows

Site OR-7

### Site Description

Extending inland from The Narrows, which is a channel running between the mainland of South Orleans and Sipson Island, is a small, unnamed tidal creek that feeds approximately 13 acres of salt marsh. This creek and its associated wetland areas are within the Pleasant Bay Area of Critical Environmental Concern. The main creek forms two branches – one heading south and crossing under a dirt driveway (see Appendix B, site OR-e). One branch flows in a northwesterly direction under an old cranberry bog berm that segregates 1.99 acres of salt marsh. At this site a 1-foot clay pipe passes tidal flow under the berm. The pipe appeared to be in good condition and, although flow was observed, was partially blocked by some debris. This tidal creek does not support known shellfish resource areas or anadromous fish.

### General Information

Both the seaward and upstream channels are approximately 5 feet wide. Visual indicators of a restriction that scar the area seaward of the berm include a large, deep scour pool, major erosion, and minor *Phragmites* growth. Visual indicators of a restriction upstream of the berm include significant scouring and minor bank erosion. *Phragmites* growth is significant upstream of the berm.

- Restriction width – 1 foot
- Restriction length – 15 feet
- Upstream salt marsh – 1.99 acres

### Comments

This site and the upstream affected area are privately owned. The Orleans Conservation Trust is aware of its presence and would likely be able to assist in relationships with the private landowners in any remediation conversation. Cranberry bogs that once existed upstream of this berm are now defunct.



Upstream Affected Area (acres): SM – 1.99; SS – 1.75.



The seaward side of the berm is subject to severe scouring and erosion. The submerged 1-foot clay pipe is seen here during an outgoing, low tide cycle.



A significant amount of *Phragmites* growth is observed here upstream of the old cranberry bog berm. Salt marsh is visible in the distance.