

SURROUNDINGS

Ironworks Conservation Area is approximately 12 acres in size, located on the Town River in a residential neighborhood within walking distance of downtown Bridgewater. Access to this site is on High Street east of Main Street; parking will be sited as part of this project. Residential development is close by on the north, east, and west; commercial development is along Main Street through the woods to the south. The town's highway department is planning to build new highway barns on the cleared, eastern portion of the property beginning in the summer of 1999. The commuter rail borders the property on the eastern edge. A 30-foot town sewer easement runs through the site from north to south.

PAST, CURRENT, and FUTURE USE

Established in 1691 on the Town River, this historical site was one of the first ironworks in the state of Massachusetts. Over the course of its nearly three hundred year history, it produced not only iron but ammunition and iron siding for ships during the civil war; by 1860, this plant was the second largest iron producer in the United States.

This site has been abandoned since 1980 and was recently given as a gift to Bridgewater for use as a conservation area. There is no current use on this site today.

Future plans for the use of this site are somewhat at odds; conservation, history, and passive recreation will need to coexist with the traffic and heavy machinery of the Highway Department. Plans to construct new highway barns on this site will drastically change the character, scale, and atmosphere of this historic site. The abandoned stone and slate foundry building could be revitalized as a community center or museum but it will be standing only 40-50 feet away from the new Highway Department buildings.

Future use of Ironworks as a passive recreation area is supported by the slope, drainage, and soil conditions on this site. There is wonderful potential for walking trails, picnic and seating areas along the river, limited river access, and a canoe put-in. An existing fish ladder on the dam abutting this site is used by herring to return to Lake Nippenicket for spawning each spring, therefore this will be a site where a fish run can be observed as well.

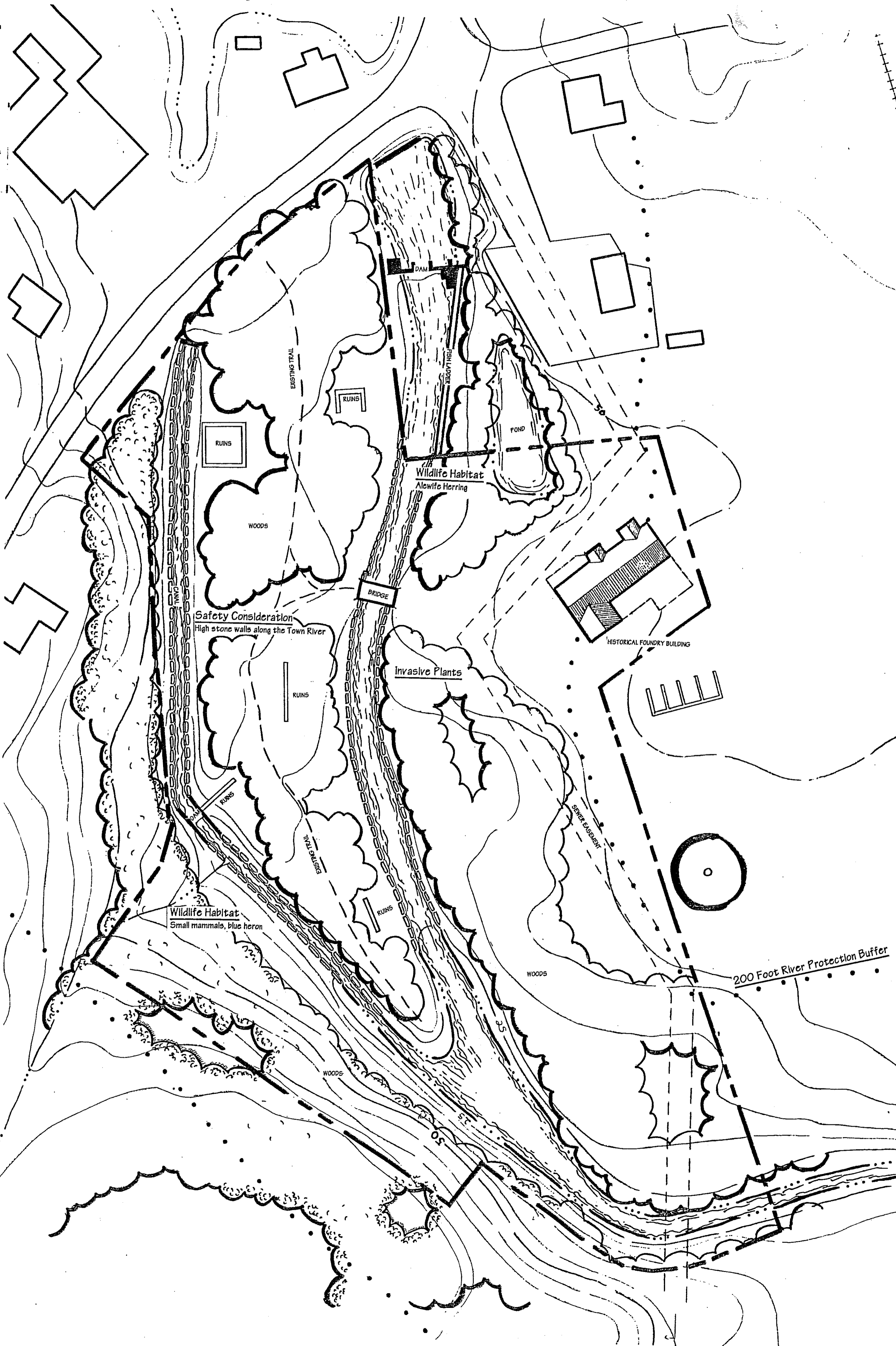
EXISTING NATURAL CONDITIONS

Ironworks Conservation Area is a dry site that gently descends toward the Town River. Where stone walls do not line the river, the banks are steep. Soils are sand and gravel except on the flat eastern portion of the site where soils are considered man-made due to the industry that took place on the site. Topography shows a gentle slope down to the river along the existing sewer easement which will provide comfortable river access for a canoe put-in point.

Buildings once covered the site and the entire parcel was cleared of vegetation. Over the last 30 years, forest, shrub, and herbaceous layers of vegetation have reestablished themselves. The ruins of old buildings remain amongst a recovering forest of sycamore, red maple, white pine, white ash, black locust, and red oak. On the floor of this forest, native New England plants such as Canada mayflower, violets, jewelweed, and a variety of ferns are helping to replenish the organic layer of this once bare site. However, there is a significant invasive vegetation population on site which is beginning to crowd out the native plants that are that are trying to take root; the invasives doing the most damage today are Asian Bittersweet and multiflora rose.

On this site, the Town River has been channeled into two dammed and stone-lined canals. The largest dam on this site, which is currently in private ownership, is in need of some repair. The fish ladder attached to this dam serves to aid the alewife herring in their migration back to the headwaters of the Town River: Lake Nippenicket.

Most of the site falls within the 200 foot river protection buffer zone mandated by the MA Rivers Protection Act. This buffer zone is intended to prevent pollution and destruction of riverways and therefore prohibits heavy construction or disturbance; trail construction is allowed as a limited project. The siting and construction of the new highway barns on this site's eastern edge must be done in deference to the 200 foot buffer zone to maintain the health of the Town River on this conservation area.



ECOLOGICAL CONCERNS and MANAGEMENT SUGGESTIONS

Because Ironworks Conservation Area was once heavily used as an industrial site, the concerns here are set out in terms of recovery and restoration. This site has wonderful potential to become an example of allowing natural resources to recover and to resume their process of supporting a healthy ecosystem.

One aspect of restoration on this site involves the vegetation. Much of the maintenance for this site will be removing the invasive exotic plants which thrive in disturbed areas such as abandoned property. Two main culprits are Asian bittersweet, which is literally pulling trees to the ground, and multiflora rose, which is crowding out other shrub layers that would naturally establish themselves on this site. Again, as an example of encouraging a healthy ecosystem, the first management step toward making this site usable will be to begin removing the invasive exotic plants so that native vegetation can thrive.

A riverway is not an ideal location for highway barns. The potential for contamination of the waterway with salt, oil, and chemicals is quite high; any mechanical accident could pollute the Town River. For this reason, Ironworks will be (whether or not it is intentional) a demonstration of Bridgewater's policy on respect for the river and water quality. It is extremely important that efforts be made to adhere to the 200 foot river protection buffer at a minimum for the sake of the quality of the Town River. As positive reinforcement and "PR", the importance of this river buffer zone could be emphasized on site with signs to indicate where the buffer zone begins.

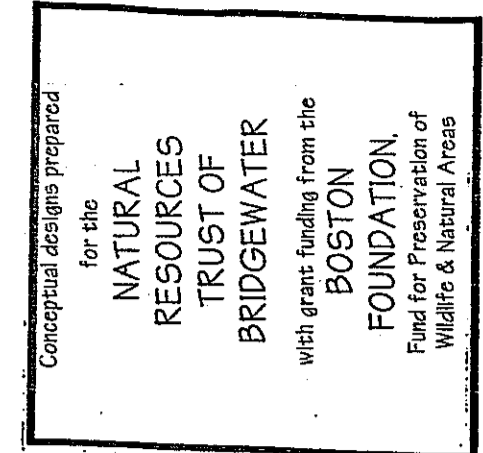
As the forest returns to this site, so will the wildlife; there is already evidence of that happening. One population that depends on the Town River and the Ironworks site are the alewife herring returning to Lake Nippenicket to spawn each spring. The fish ladder on the privately-owned dam provides the only passage over the dam at Ironworks and should be maintained to aid in the herring migration.

The pond on the eastern portion of the property once extended under the foundry for cooling. Today, it is a retention basin for runoff from the parking lot at the 490's. The bank below the pond is eroding away and sediment and polluted runoff from the parking lot above is flowing directly into the Town River. Repairing the bank below the pond and planting wetland plants around the pond will help filter the runoff before it drains into the Town River.

SUMMARY

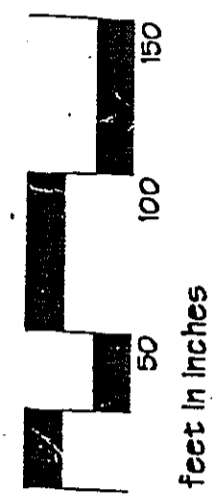
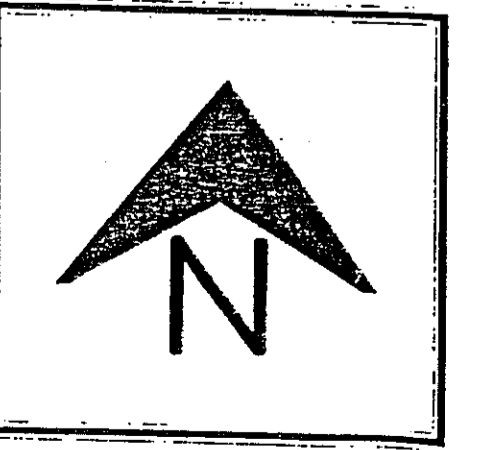
Ironworks Conservation Area is approximately 12 acres in size, located on the Town River in a residential neighborhood within walking distance of downtown Bridgewater. It is a dry site that gently descends toward the Town River. Where the banks of the river are not walled, the slopes of the banks are steep. Over the last 20-30 years, forest, shrub, and herbaceous layers of vegetation have reestablished themselves; however, invasive exotic plants are out-competing native vegetation in some areas. Walking trails, picnic and seating areas along the river, limited river access, and a canoe put-in are all possible uses for this site.

Because Ironworks was once heavily used as an industrial site, the concerns here are set out in terms of recovery and restoration. This site has wonderful potential to become an example of allowing natural resources to recover and to resume their processes thereby supporting a healthy ecosystem. Future plans for the use of this site are somewhat at odds; conservation, history, and passive recreation will need to coexist with the traffic and heavy machinery of the highway department. The siting and construction of the new highway barns on this site's eastern edge must be done in deference to the 200 foot river protection buffer zone to maintain the health of the Town River on this conservation area.

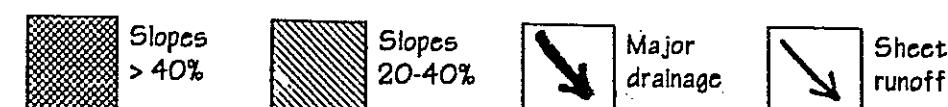
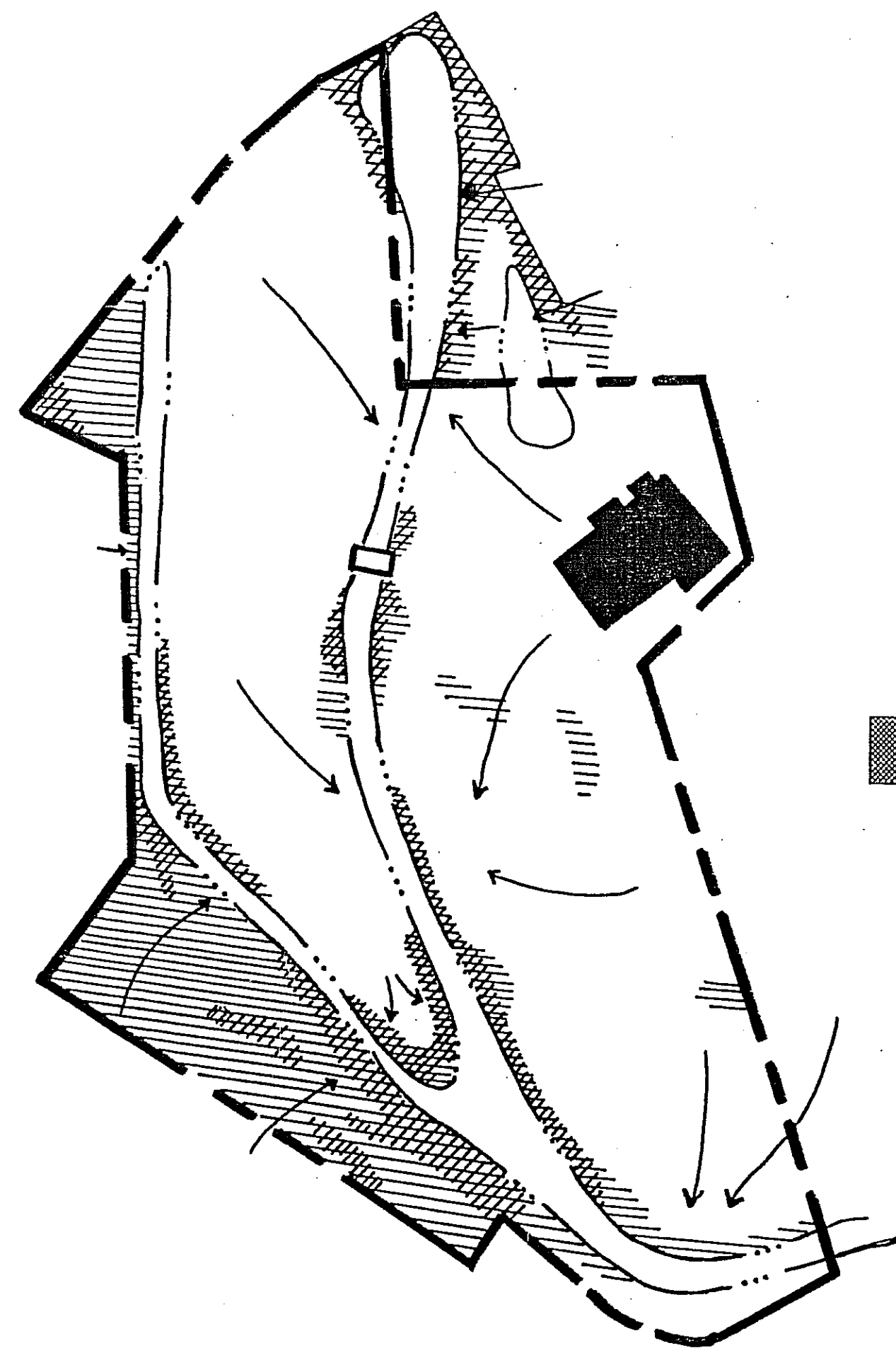


EXISTING CONDITIONS - IRONWORKS CONSERVATION AREA
BRIDGEWATER CONSERVATION SYSTEM
Bridgewater, Massachusetts

conway school of landscape design
chagnon, leal & darrow June 1999



SLOPE & DRAINAGE ANALYSIS



SUMMARY

The Ironworks Conservation Area is an abandoned industrial site and as a result, half of the soil on site is man-made fill. The soils surveyed on this gently sloping site are sand and gravel which are well drained and suitable for trails. The steep slopes to the west of the canal are Merrimac soil and are stable as a steep slope; vegetation plays a key role in stabilizing the bank and should be allowed to grow densely.

DESIGN DIRECTIVES

Trails can be placed safely on the flat area of the east bank of the Town River and anywhere on the peninsula. Soils support a canoe put-in without significant concern regarding erosion, however, the most suitable slope for carrying a canoe to a launch exists on the sewer easement on the east side of the site. The pond on this site should be modified to be a retention basin to mitigate runoff from the 49er's Club above the pond before it runs into the Town River.

SLOPE CONSIDERATIONS

Most of this site has been altered over the years resulting in a flat site conducive to hiking and walking even though in some cases the soils would naturally hold a steeper slope than exists on this site. Steep slopes to west of the canal not suitable for walking. The southern tip of the peninsula leading to the river is sloping at greater than 40% and is not suitable for a canoe launch. A gradual 3-10% slope along the sewer easement to the Town River is suitable for a canoe launch. There are also slopes of greater than 40% along eastern bank of the Town River and north of the pond near the stone building; these areas are too steep to be suitable for use.

DRAINAGE CONSIDERATIONS

Water drains evenly across the Ironworks site into the Town River. Two depressions along the eastern edge of the river collect water. There is considerable pooling and erosion caused by runoff from the parking lot on the abutting Flaherty property above the pond (which once ran the length of the eastern side of the site). This pond area is dangerous and slippery and should be avoided. Additionally, the runoff should be filtered before it is allowed to run into the Town River; a wetland planting and retention basin would help mitigate pollution and sediment currently running directly into the river.

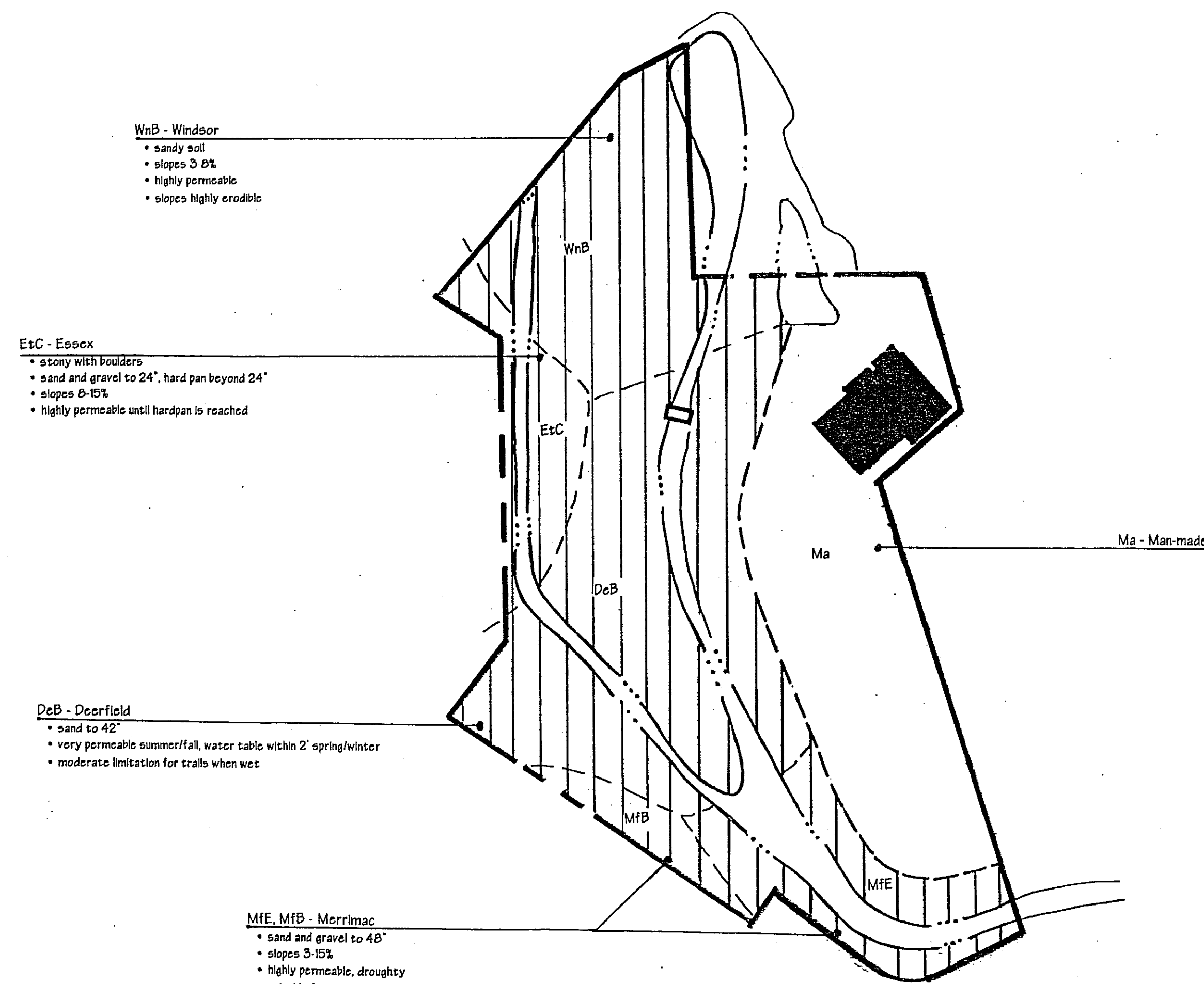
RIVER BANK CONSIDERATIONS

The river banks on this site are mostly reinforced with stone walls from previous industrial uses. Merrimac soils are unstable as a bank and may erode easily, therefore vegetation is key to stabilizing those banks and recreational access should be limited to prevent erosion.

TRAIL CONSIDERATIONS

All the soils on this site are satisfactory for trails as they are dry, sandy, and have stable slopes.

SOILS ANALYSIS

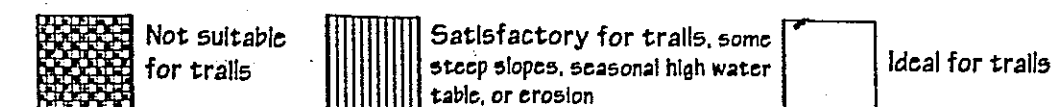


WnB - Windsor
 • sandy soil
 • slopes 3-8%
 • highly permeable
 • slopes highly erodible

Etc - Essex
 • stony with boulders
 • sand and gravel to 24", hard pan beyond 24"
 • slopes 8-15%
 • highly permeable until hardpan is reached

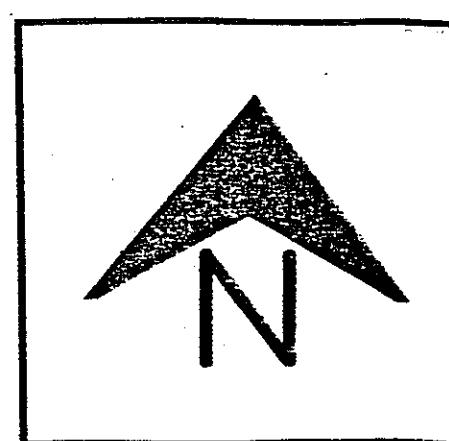
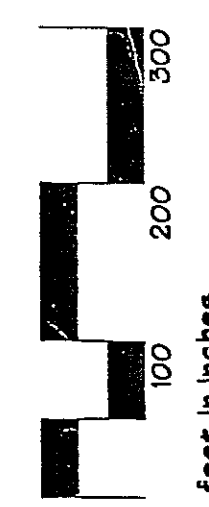
DeB - Deerfield
 • sand to 42"
 • very permeable summer/fall, water table within 2' spring/winter
 • moderate limitation for trails when wet

MFB, MFE - Merrimac
 • sand and gravel to 48"
 • slopes 3-15%
 • highly permeable, droughty
 • suitable for trails



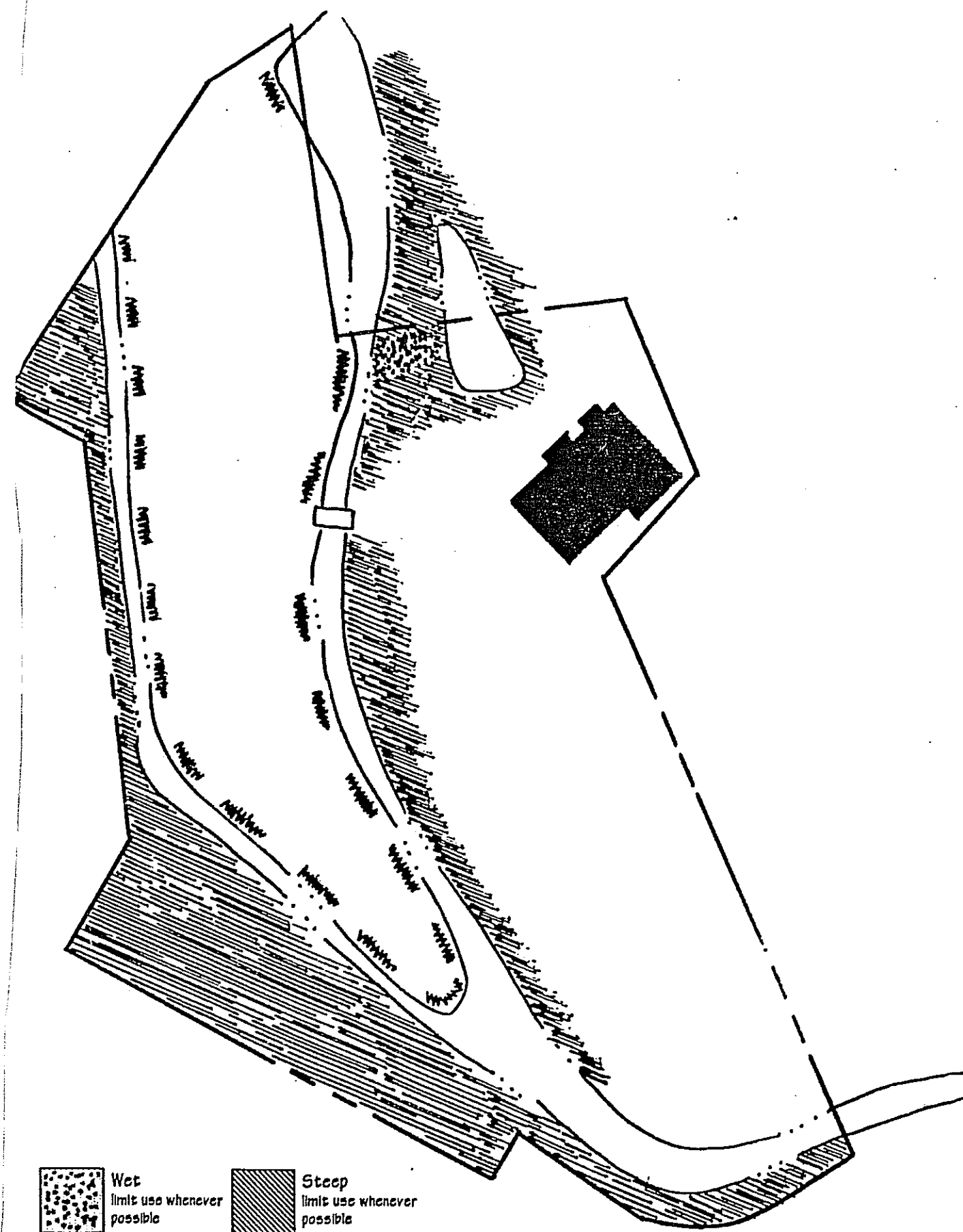
Conceptual designs prepared for the
NATURAL RESOURCES TRUST OF BRIDGEWATER
 with grant funding from the
BOSTON FOUNDATION
 Fund for Preservation of Wildlife & Natural Areas

ANALYSIS - IRONWORKS CONSERVATION AREA
 BRIDGEWATER CONSERVATION SYSTEM
 Bridgewater, Massachusetts
 Conway school of landscape design
 Chagnon, Neal & Darrow June 1999



ZONES APPROPRIATE FOR USE

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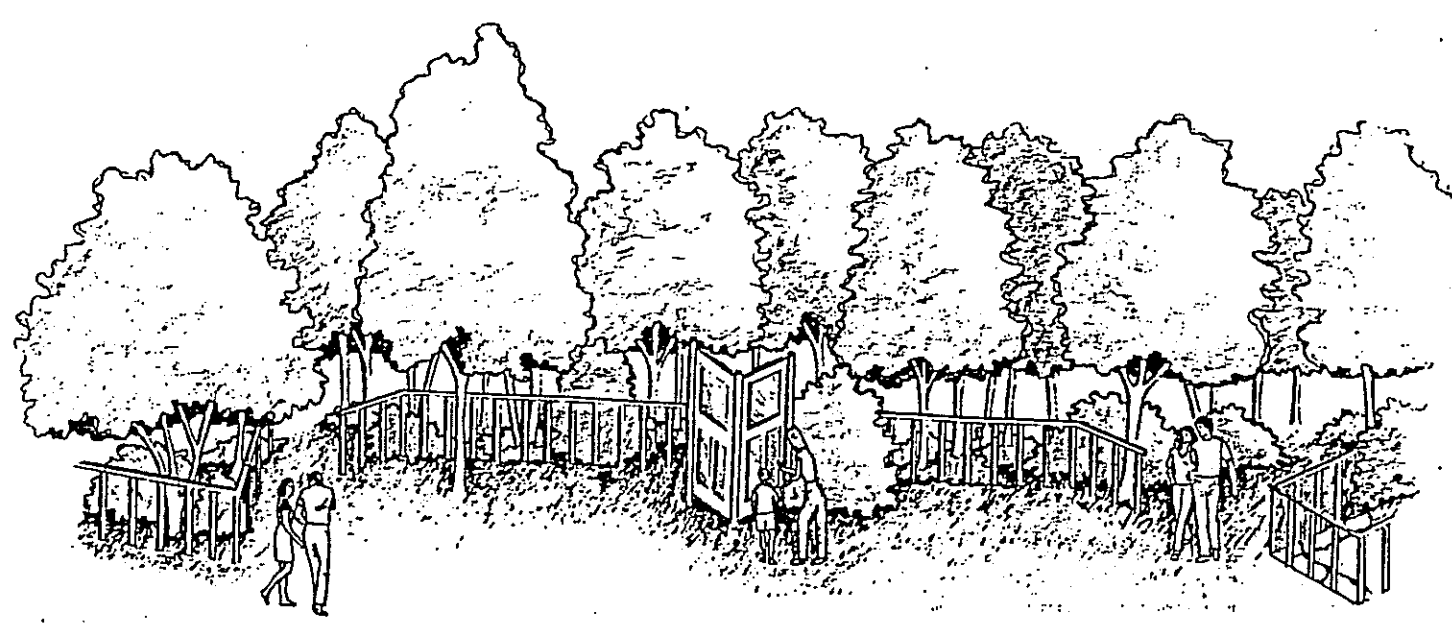
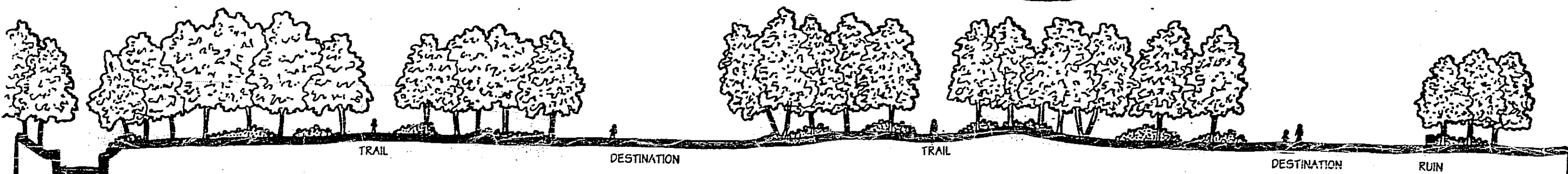
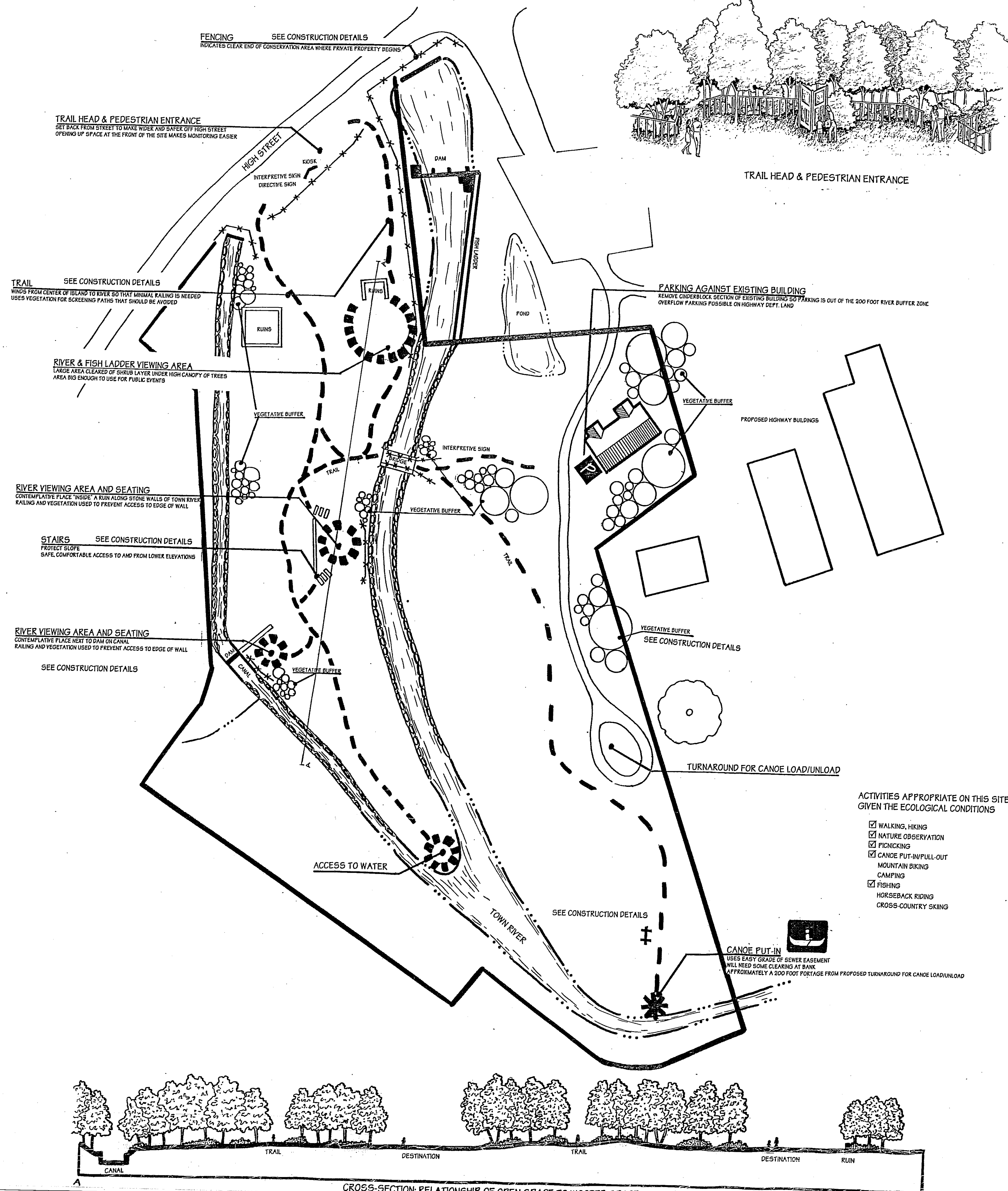


REPEATABLE DETAILS USED

PROJECT AIM

	Resource Protection	Visitor Access	Visitor Education
Canoe Put-in/Pull-Out	*	*	*
Designated Destination	*	*	*
Designated Entrance	*	*	*
Parking	*	*	
Boardwalk			*
Bollards	*	*	*
Designated Trail	*	*	*
Directive Signs	*	*	*
Interpretive Signs	*	*	*
Kiosk	*	*	*
Railings/Fencing		*	
River Dock			
Specified Trail Material			
Stairs	*	*	
Vegetative Buffers	*	*	*

CONSTRUCTION DETAILS

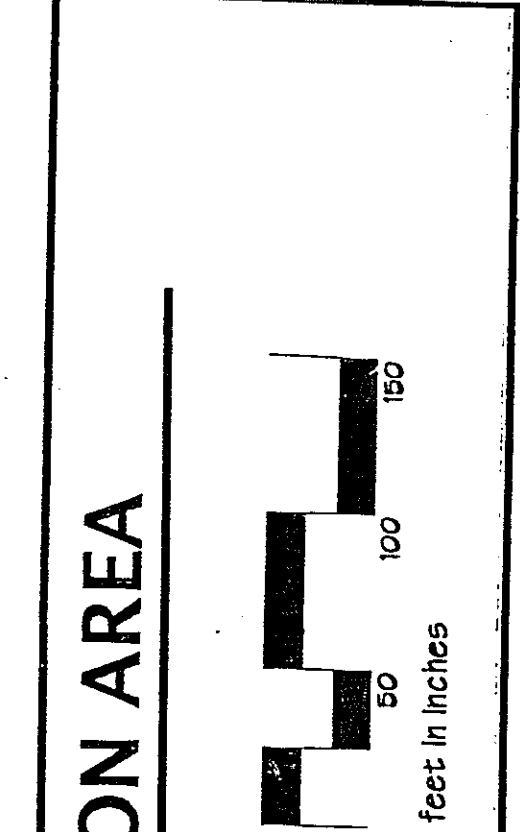


TRAIL HEAD & PEDESTRIAN ENTRANCE

ACTIVITIES APPROPRIATE ON THIS SITE GIVEN THE ECOLOGICAL CONDITIONS

- WALKING, HIKING
- NATURE OBSERVATION
- PICNICKING
- CANOE PUT-IN/PULL-OUT
- MOUNTAIN BIKING
- CAMPING
- FISHING
- HORSEBACK RIDING
- CROSS-COUNTRY SKIING

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