H A R T W R I G H T

June 26, 1989

Acton Conservation Commission
Town Hall
Acton, MA 01720

Re: Notice of Intent
The Tire Barn, Great Road, Acton, Ma.

Dear Chairperson and Commission Members;

On behalf of the applicant, The Tire Barn Inc., Hartwright, Inc. respectfully submits copies of the Notice of Intent and related material in compliance with the Massachusetts Wetlands Protection Act (310 CMR 10.00) for the above referenced project in Acton.

Included with the Notice of Intent are the following items:

- Filing fees
- Copies of the completed Notice of Intent with attachments
- Separately bound project site plans (Attachment E)

As required, two copies of the above submitted material have been forwarded to the DEQE Northeast District Region office.

We respectfully request that this Notice of Intent be placed on your meeting agenda as soon as possible. If you require any additional information or have any questions, please contact us at your convenience.

With regards,

Hartwright, Inc.

Thomas V. Ursch, ASLA
Principal

TVU/smb

Enclosures as noted

cc: Massachusetts DEQE
Spoondrift Realty Trust

NOTICE OF INTENT

Under

MASSACHUSETTS WETLANDS PROTECTION ACT

Great Road (2A)
Acton, Massachusetts

June 22, 1989

Prepared For:

The Tire Barn, Inc.
135 Great Road
Acton Massachusetts 01720

Prepared By:

IEP, Inc.
6 Maple St., Box 780
Northboro, MA 01532

Hartwright, Inc.
One River Road
Carlisle, MA 01741

Introduction

This Notice of Intent has been prepared by IEP, Inc., and Hartwright, Inc. for the Tire Barn, Inc. to be submitted to the Acton Conservation Commission pursuant to MGL Ch. 131, s.40, the Wetlands Protection Act and its Regulations (310 CMR 10.00).

The NOI describes activities proposed to be undertaken on a 1.2 acre parcel of land located on Great Road (2A) contiguous to the Littleton Town line in Acton (Figure 1). The project proposes to construct a four service bay retail/automotive service center with adjacent parking. Construction of this project proposes filling of approximately 4500 sf of Bordering Vegetated Wetland for customer parking. These activities are under the jurisdiction of the Conservation Commission through both the Wetlands Protection Act and the Town of Acton's Wetlands By-law.

The remainder of the NOI includes the completed application forms of 310 CMR 10.99, narratives providing detailed descriptions of existing resource areas and proposed activities, the hydrologic analysis, and the definitive site plans.

RECEIVED
JUN 26 1989
ACTON CONSERVATION COMMISSION

10.99: continued

Form 3

Commonwealth of Massachusetts

DEQE File No _____ (To be provided by DEQE)

City/Town _____

Applicant _____

Notice of Intent Under the Massachusetts Wetlands Protection Act, G.L. c. 131, §40 and Application for a Department of the Army Permit

Part I: General Information

1. Location: Street Address Great Rd. (Rt. 2A) on Acton/ Littleton Town Line, Acton, MA
   Lot Number _____

2. Project: Type Tire Barn Description Construction of a 4 bay retail/ automotive service center. The project requires alternation of 4,500 sq. ft. of bordering vegetated wetland for customer parking. A 4,500 sq. ft. wetland replication area is proposed.

3. Registry: County Middlesex Current Book 17726 & Page 288
   Certificate (If Registered Land) _____

4. Applicant The Tire Barn, Inc. Tel. (508) 263-1101
   Address 135 Great Road, Acton, MA

5. Property Owner Spoondrift Realty Trust Tel. (508) 263-1101
   Address 135 Great Road Acton, MA

6. Representative IEP, Inc. c/o Daniel Nicoski Tel. 393-8558
   Address 6 Maple St. Northboro, MA 01532

7. Have the Conservation Commission and the DEQE Regional Office each been sent, by certified mail or hand delivery, 2 copies of completed Notice of Intent, with supporting plans and documents?
   Yes ☒ No ☐

10.99: continued

8. Have all obtainable permits, variances and approvals required by local by-law been obtained?
Yes ☐ No ☑

Obtained:	Applied For:	Not Applied For:
	Site Plan Special Permit	

9. Is any portion of the site subject to a Wetlands Restriction Order pursuant to G.L. c. 131, §40A or G.L. c. 130, §105? Yes ☐ No ☒

10. List all plans and supporting documents submitted with this Notice of Intent.

Identifying Number/Letter	Title, Date
Attachment A	Description of Existing Resource Areas
Attachment B	Description of Proposed Activities
Attachment C	Sediment and Erosion Control Measures
Attachment D	Hydrologic Analysis
Attachment E	(detached) Definitive Plans

11. Check those resource areas within which work is proposed:

(a) ☒ Buffer Zone

(b) Inland:

- ☐ Bank*
- ☑ Bordering Vegetated Wetland*
- ☐ Land Under Water Body & Waterway*

Land Subject to Flooding,

- ☐ Bordering
- ☐ Isolated

(c) Coastal:

- ☐ Land Under the Ocean*
- ☐ Coastal Beach*
- ☐ Barrier Beach
- ☐ Rocky Intertidal Shore*
- ☐ Land Under Salt Pond*
- ☐ Fish Run*
- ☐ Designated Port Area*
- ☐ Coastal Dune
- ☐ Coastal Bank
- ☐ Salt Marsh*
- ☐ Land Containing Shellfish*

*Likely to involve U.S. Army Corps of Engineers concurrent jurisdiction. See General Instructions for Completing Notice of Intent.

10.99: continued

12. Is the wetland resource area to be altered by the proposed work located on the most recent Estimated Habitat Map (if any) of rare, "state-listed" vertebrate and invertebrate animal species occurrences provided to the conservation commission by the Natural Heritage and Endangered Species Program?

YES [ ] NO [X] Date printed on the Estimated Habitat Map issued
NO MAP AVAILABLE [ ] (if any) 1989 Edition

If yes, have you completed an Appendix A and a Notice of Intent and filed them, along with supporting documentation with the Natural Heritage and Endangered Species Program by certified mail or hand delivery, so that the Program shall have received Appendix A prior to the filing of this Notice of Intent?

YES [ ] NO [ ]

10.99: continued

Part II: Site Description

Indicate which of the following information has been provided (on a plan, in narrative description or calculations) to clearly, completely and accurately describe existing site conditions.

Identifying Number/Letter (of plan, narrative or calculations)	
	Natural Features:
A,C	Soils
A,C,D	Vegetation
1,C,D	Topography
N/A	Open water bodies (including ponds and lakes)
1,A,C,D	Flowing water bodies (including streams and rivers)
N/A	Public and private surface water and ground water supplies on or within 100 feet of site
A,C	Maximum annual ground water elevations with dates and location of test
D	Boundaries of resource areas checked under Part I, item 11 above
	Other
	Man-made Features:
D	Structures (such as buildings, piers, towers and headwalls)
A,C,D	Drainage and flood control facilities at the site and immediately off the site, including culverts and open channels (with inverts), dams and dikes
D	Subsurface sewage disposal systems
N/A	Underground utilities
D	Roadways and parking areas
D	Property boundaries, easements and rights-of-way
	Other

Part III: Work Description

Indicate which of the following information has been provided (on a plan, in narrative description or calculations) to clearly, completely and accurately describe work proposed within each of the resource areas checked in Part I, item 11 above.

Identifying Number/Letter (of plan, narrative or calculations)	
	Planview and Cross Section of:
D	Structures (such as buildings, piers, towers and headwalls)
B,C,D	Drainage and flood control facilities, including culverts and open channels (with inverts), dams and dikes
D	Subsurface sewage disposal systems & underground utilities
B,C,D	Filling, dredging and excavating, indicating volume and composition of material
N/A	Compensatory storage areas, where required in accordance with Part III, Section 10.57 (4) of the regulations
B,C,D	Wildlife habitat restoration or replication areas
	Other
	Point Source Discharge
N/A	Description of characteristics of discharge from point source (both closed and open channel), when point of discharge falls within resource area checked under Part I, item 11 above, as supported by standard engineering calculations, data and plans, including but not limited to the following:

10.99: continued

☐ Coastal ☐ Inland Resource Area Type:	Identifying number or letter of support documents

2. Clearly, completely and accurately describe, with reference to supporting plans and calculations where necessary:

   (a) all measures and designs to regulate work within the Buffer Zone so as to ensure that said work does not alter an area specified in Part I, Section 10.02(1) (a) of these regulations; or

   (b) if work in the Buffer Zone will alter such an area, all measures and designs proposed to meet the performance standards established for the adjacent resource area specified in Part II or Part III of these regulations.

☐ Coastal ☒ Inland Resource Area Type Bordered By 100-Foot Discretionary Zone: Buffer Zone to Bordering Vegetated Wetland	Identifying number or letter of support documents
Work is required within the buffer zone of the Bordering Vegetated Wetland during construction of the retail/automotive service center. Adjacent wetland resource areas will be protected through use of sediment and erosion control measures.	B,C,D

10.99: continued

1. Delineation of the drainage area contributing to the point of discharge;
2. Pre- and post-development peak run-off from the drainage area, at the point of discharge, for at least the 10-year and 100-year frequency storm;
3. Pre- and post-development rate of infiltration contributing to the resource area checked under Part I, item 11 above;
4. Estimated water quality characteristics of pre- and post-development run-off at the point of discharge.

Part IV: Mitigating Measures

1. Clearly, completely and accurately describe, with reference to supporting plans and calculations where necessary:
   (a) All measures and designs proposed to meet the performance standards set forth under each resource area specified in Part II or Part III of the regulations; or
   (b) why the presumptions set forth under each resource area specified in Part II or Part III of the regulations do not apply.

☐ Coastal ☒ Inland Resource Area Type: Bordering Vegetated Wetland	Identifying number or letter of support documents
Filling of 4,500 sq. ft. of Bordering Vegetated Wetland is proposed for construction of a retail/automotive service center. The discretionary loss of up to 5,000 sq. ft. of Bordering Vegetated Wetland is allowed and requested under 310 CMR 10.55 (4)(b) as well as under the Acton wetland by-laws. Wetland replication of 4,500 sq. ft. is proposed to be constructed adjacent to the area of disturbance.	B,C,D

☐ Coastal ☐ Inland Resource Area Type:	Identifying number or letter of support documents

10.99: continued

Part V: Additional Information for a Department of the Army Permit

1 COE Application No. _____ 2. _____
(to be provided by COE) (Name of waterway)

3. Names and addresses of property owners adjoining your property:

4. Document other project alternatives (i.e., other locations and/or construction methods, particularly those that would eliminate the discharge of dredged or fill material into waters or wetlands).

5. 8½" x 11" drawings in planview and cross-section, showing the resource area and the proposed activity within the resource area. Drawings must be to scale and should be clear enough for photocopying.

Certification is required from the Division of Water Pollution Control before the Federal permit can be issued. Certification may be obtained by contacting the Division of Water Pollution Control, 1 Winter Street, Boston, Massachusetts 02108.

Where the activity will take place within the area under the Massachusetts approved Coastal Zone Management Program, the applicant certifies that his proposed activity complies with and will be conducted in a manner that is consistent with the approved program.

Information provided will be used in evaluating the application for a permit and is made a matter of public record through issuance of a public notice. Disclosure of this information is voluntary, however, if necessary information is not provided, the application cannot be processed nor can a permit be issued.

I hereby certify under the pains and penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents and supporting data are true and complete, to the best of my knowledge.

X _____ 6/9/89
Signature of Applicant Date

IEP, Inc. / Daniel Ziniti 6/9/89
Signature of Applicant's Representative Date

NED FORM 100 (TEST)
1 MAY 82

"Exception to ENG Form 4346 approved by HQUSACE, 6 May 1982".

"This document contains a joint Department of the Army and State of Massachusetts application for a permit to obtain permission to perform activities in United States waters. The Office of Management and Budget (OMB) has approved those questions required by the US Army Corps of Engineers. OMB Number 0702-0036 and expiration date of 30 September 1983 applies". This statement will be set in 6 point type.

Proposed Replacement Area

The vegetative overstory in this area is dominated by red maple. The moderate shrub layer is codominated by black cherry saplings and European buckthorn with honeysuckle common throughout the area. White ash and red oak occur occasionally in the shrub layer as well. The sparse herbaceous cover consists mainly of lady fern, royal fern, and poison ivy.

Minor gradient changes occur in the northern portion of the site that produce changes in the soil profile as well. The soil log below is representative of profiles nearer the delineated wetland. Fill is also present throughout most of the upper portions of these soil profiles.

Depth (inches	Horizon	Description
0 -11.5	A	Black (10 YR 2/1) organic fine sandy loam with grayish brown (10 YR 5/2) streaks
11.5-18	B1	Brown (10 YR 4/3) sandy loam with black (10 YR 2/1) streaks
18-23+	B2	Yellowish brown (10 YR 5/4) sand

This soil profile indicates non-hydric upland conditions. The various soil profiles indicate a maximum high water level of approximately 12 inches. The average ground water level is probably at a depth of 19 inches. No ground water was detected in any of the borings to a maximum depth of 37 inches. Soils further upgradient within the proposed replacement area consist mainly of a dark yellowish brown (10 YR 4/4, 4/6) gravely sandy loam to a depth of two to three feet below a fill cover of approximately 13 plus inches. Given these soil conditions, and considering the hydrogeologic setting of the site, conditions are favorable for creating a seasonally-flooded wetland hydrologic regime by excavating down to the grades shown on the site plan.

Mitigation

The wetland replacement area has been designed to fully replace the area of Bordering Vegetated Wetland which will be lost by filling for parking adjacent to the proposed Tire Barn. The total area of replacement wetland proposed is 4500 sf equal to the 4500 sf which will be lost. The site plan identifies both proposed alteration and replacement areas.

A natural resource scientist with experience in wetland replacement will supervise and review all aspects of construction and planting of the replication area. The replacement area shall be excavated to subgrade before any excavation occurs in the wetlands to be disturbed. This will permit direct transfer of the existing wetland soils to the replication areas and also permit transplanting of wetland plants. The following points outline the sequence of steps that should be taken to establish a wetland plant community in the replacement area:

1. Contiguous, staked haybales shall be placed along the perimeter of work and the existing wetland. The haybales shall be installed before work begins and maintained in a working state until the replacement area is

1. Contiguous, staked haybales shall be placed along the perimeter of work and the existing wetland. The haybales shall be installed before work begins and maintained in a working state until the replacement area is completely stabilized and revegetated. Stakes shall be placed at the limit of construction to ensure that all work will occur in designated areas.

2. The replacement area shall be excavated and graded to an elevation approximately 10" below the final grades shown on the plan.

   Final grades in the replacement area shall be approximately equal to the grades of the adjacent Bordering Vegetated Wetland, as shown on the plan.

3. Hydric mineral soils from the top 10 inches of the adjacent wetland to be disturbed shall be backfilled into the replacement area to bring it to the final grade shown on the plan.

   The replacement area will be virtually flat across its surface. The final grading shall be done by hand and attempts shall be made to level the surface so that small, localized depressions will not result. A sharp rise will be created where the replacement area meets the upland. The slope of this rise will vary but in any event will not be steeper than 2:1.

4. A line of contiguous, staked haybales shall be placed between the replacement area and the adjacent uplands after final grading is completed. These haybales shall be maintained until the adjacent construction is complete and the upland soils are stabilized by the establishment of grass cover.

5. Immediately following final grading of the replication area, millet (Echinochloa sp.) seed will be sown to stabilize the substrate. Straw mulch shall be distributed over the area to minimize soil erosion until the grasses become established.

6. A sapling and shrub wetland community will be established in the replacement area. Individual wetland plants within the wetland area proposed to be altered will be selected and hand transplanted to the replication area. This may include red maple (Acer rubrum), highbush blueberry (Vaccinium corymbosum) and arrowwood (Viburnum recognitum) Additional saplings and shrubs shall be planted throughout the area as needed in a grid pattern with 6 foot spacing. Plants will consist of 3 foot high specimens of red maple, highbush blueberry and pepperbush (Clethra alnifolia). Planting and transplanting will take place in late fall or early spring. Individual shrubs that die during the first two growing seasons will be replace.

The Wetlands Protection Act Regulations state that "at least 75 percent of the surface of the replacement area shall be reestablished with indigenous wetland plant species within two growing seasons...": (310 CMR 10.55)(b)(6). The upper layers of mineral soils placed in the replication areas contain seeds, tubers

and other vegetative propagules that will speed revegetation of these areas. Sowing seeds and planting saplings and shrubs will further help to meet the General Performance Standards for work within Bordering Vegetated Wetlands. In order to insure the success of the established wetland community, a reputable firm will be retained to examine the area in each of the two growing seasons following construction.

Assessments concerning the adequacy of the replacement area to replace the functions of the filled wetland are tenuous. By establishing the conditions suitable to eventually develop similar wetland characteristics--at the same grade, in the same hydrogeologic setting and reach of the associated waterway, with the existing wetland soils, and using indigenous wetland vegetation--the potential to replace functions is maximized. These measures are consistent with the performance standards for wetland replacement listed at 10.55(4). All Acton wetland replication replacement requirements will be fully complied with. Given the disturbed status of the wetland proposed to be altered, particularly the presence of roughly 2 feet of fill, it is IEP's opinion that discretionary allowance of the 4500 sf of filling, along with the proposed replacement procedures, is reasonable and will adequately protect the interests of the Act.

WETLAND PLANT LIST

Site Location: Acton/Littleton Town line in Acton on Great Road (Route 2A)

Scientific Name	Common Name	Wetland Classification*
Acer rubrum	red maple	FAC
Aster sp.	aster	--
Athyrium filix-femina	lady fern	FAC
Betula populifolia	gray birch	FAC
Fraxinus americana	white ash	FACU
Lonicera tatarica	tartarian honeysuckle	OU
Onoclea sensibilis	sensitive fern	FACW
Osmunda cinnamomea	cinnamon fern	FACW
Osmunda regalis	royal fern	OBL
Phalaris arundinacea	reed canary grass	FACW
Pinus strobus	white pine	FACU
Prunus serotina	black cherry	NA
Quercus rubra	red oak	FACU
Rhamnus frangula	European buckthorn	FACU
Sphagnum sp.	sphagnum moss	- -
Toxicondendron radicans	poison ivy	FAC
Ulmus americana	American elm	FACW
Vaccinium corymbosum	highbush blueberry	FACW
Viburnum recognitum	arrowwood	FACW
Vitis sp.	grape	FAC

*Category	Symbol	Definition
OBLIGATE HYDROPHYTE	OBL	Nearly always occurs in wetlands (>99%)
FACULTATIVE WETLAND	FACW	Usually occurs in wetlands (66-99%)
FACULTATIVE	FAC	Commonly occurs in both wetlands and uplands (33%-66% in wetlands).
FACULTATIVE UPLAND	FACU	Usually occurs in uplands, but may occasionally occur in wetlands (<33%).
NOT APPLICABLE	NA	Conflicting review of classification.
	- -	Not defined to species level.

ATTACHMENT A

DESCRIPTION OF EXISTING WETLAND RESOURCE AREAS

Site Characteristics and Wetland Areas

The 1.2 acre site is located on Great Road (Route 2A) on the Littleton/Acton Town line in Acton, north of Nagog Pond. Much of this site is relatively flat lying, although a slight grade increase is present in the northern portion. The site is bounded to the southeast by pavement and to the northwest by agricultural fields.

Approximately one-third of the site nearest Great Road consists of compacted fill, a demolished building site, and an existing septic area. Runoff from the adjacent parking lot is received by an on-site 18" inch concrete pipe which connects to Great Road. This concrete pipe closely approximates the southern wetland boundary.

On site wetlands consist primarily of wooded and shrub swamp vegetation (Table 1). Previously delineated wetland boundaries were reviewed by IEP in December of 1988. After review the northern wetland boundary was reflagged in January of 1989. No changes were made to the southern wetland boundary delineation. The definitive site plan shows the boundary of Bordering Vegetated Wetland.

Hydric (wetland) soils on site are primarily poorly drained mineral soils with a fill cover present throughout a portion of the wetland. The only resource area, as defined in 310 CMR, 10.00, which is encompassed within the delineated wetland includes Bordering Vegetated Wetland. An intermittent ditch occurs just west of the site which the delineated vegetated wetland borders on; flow from this ditch is picked up in the 18" concrete pipe and passes under the southern portion of the site, eventually discharging to Nagog pond. The site is not within the Acton Flood Plain District boundaries as indicated on the Flood Insurance Study, Town of Acton, dated January 6, 1988. In addition, this site is not within an Aquifer Protection District as indicated on current maps, dated April 9, 1985.

Upland areas of the site are dominated by red maple (Acer rubrum). The moderate shrub layer consists of black cherry (Prunus serotina), honeysuckle (Lonicera sp.) and European buckthorn (Rhamnus frangula). Soils are somewhat poorly to well drained as the gradient increases. Fill is present throughout most of the upper portions of these soil profiles.

10.99: continued

12. Is the wetland resource area to be altered by the proposed work located on the most recent Estimated Habitat Map (if any) of rare, "state-listed" vertebrate and invertebrate animal species occurrences provided to the conservation commission by the Natural Heritage and Endangered Species Program?

YES [ ] NO [X] Date printed on the Estimated Habitat Map issued
NO MAP AVAILABLE [ ] (if any) 1989 Edition

If yes, have you completed an Appendix A and a Notice of Intent and filed them, along with supporting documentation with the Natural Heritage and Endangered Species Program by certified mail or hand delivery, so that the Program shall have received Appendix A prior to the filing of this Notice of Intent?

YES [ ] NO [ ]

WETLAND PLANT LIST

Table 1

Site Location: Acton/Littleton Town line in Acton on Great Road (Route 2A)

Scientific Name	Common Name	Wetland Classification*
Acer rubrum	red maple	FAC
Aster sp.	aster	--
Athyrium filix-femina	lady fern	FAC
Betula populifolia	gray birch	FAC
Fraxinus americana	white ash	FACU
Lonicera tatarica	tartarian honeysuckle	OU
Onoclea sensibilis	sensitive fern	FACW
Osmunda cinnamomea	cinnamon fern	FACW
Osmunda regalis	royal fern	OBL
Phalaris arundinacea	reed canary grass	FACW
Pinus strobus	white pine	FACU
Prunus serotina	black cherry	NA
Quercus rubra	red oak	FACU
Rhamnus frangula	European buckthorn	FACU
Sphagnum sp.	sphagnum moss	- -
Toxicondendron radicans	poison ivy	FAC
Ulmus americana	American elm	FACW
Vaccinium corymbosum	highbush blueberry	FACW
Viburnum recognitum	arrowwood	FACW
Vitis sp.	grape	FAC

*Category	Symbol	Definition
OBLIGATE HYDROPHYTE	OBL	Nearly always occurs in wetlands (>99%)
FACULTATIVE WETLAND	FACW	Usually occurs in wetlands (66-99%)
FACULTATIVE	FAC	Commonly occurs in both wetlands and uplands (33%-66% in wetlands).
FACULTATIVE UPLAND	FACU	Usually occurs in uplands, but may occasionally occur in wetlands (<33%).
NOT APPLICABLE	NA	Conflicting review of classification.
	- -	Not defined to species level.

Work Description and Applicable Wetland Regulations

The project proposes to construct a four service bay retail/automotive service center with adjacent parking. The specific activity which brings the project under the jurisdiction of the Acton Conservation Commission and DEQE is filling of Bordering Vegetated Wetland (BVW) to construct a parking lot which will result in the loss of 4500 sf of this resource area. No reasonable alternatives exist on this parcel to minimize the amount of wetland alteration, as illustrated on the site plans. The discretionary loss of up to 5,000 sf as a result of the configuration of the lot of BVW is requested under 310 CMR 10.54(4)(b) as well as the Acton Wetland Replication Requirements.

Proposed Alteration Area

Existing vegetation within the proposed altered portion of this site consists primarily of an overstory dominated by red maple (Acer rubrum). The moderate shrub/sapling layer is dominated by red maple and American elm saplings (Ulmus americana) as well as European buckthorn (Rhamnus frangula). Herbaceous cover is sparse except in the western fill area on the southern portion of the site. Aster (Aster sp.) and reed canary grass (Phalaris arundinacea) are each dominate in two distinct clusters in this area.

Soils on the parcel were examined utilizing a dutch type hand auger. Several borings were performed in both the wetland portion to be lost and the proposed replacement area. The purpose of these borings is to determine the subsurface soils as well as hydrology of these areas.

An apparent fill material was present throughout at least one-third of the western portion of wetland area to be lost. Depth of fill, in this area, is at least 17-19 inches. Due to the gravel content of the fill an accurate depth assessment was not possible with the hand auger. Representative soils, where attainable, in this portion of the site are given in the soil log below.

Depth (inches)	Horizon	Description
0-10	A	Black (10 YR 2/1) organic medium/fine sandy loam
10-14	B1	Grayish brown (10 YR S/2) fine gravely sand with organic black (10 YR 2/1) streaking
14-21+	B2	Dark grayish brown (10 YR 4/2) sand with faint black (10 YR 2/1) streaks

This soil profile indicates that the soil is hydric and may underlay much of the fill area. The maximum high groundwater level is determined from soils to be approximately 10 inches below the surface. The average ground water level is probably 14 inches below the surface, and may be lower in the fill areas. No groundwater was detected in any of the borings in this area to depth of 21 inches.

10.99: continued

☐ Coastal ☐ Inland Resource Area Type:	Identifying number or letter of support documents

2. Clearly, completely and accurately describe, with reference to supporting plans and calculations where necessary:

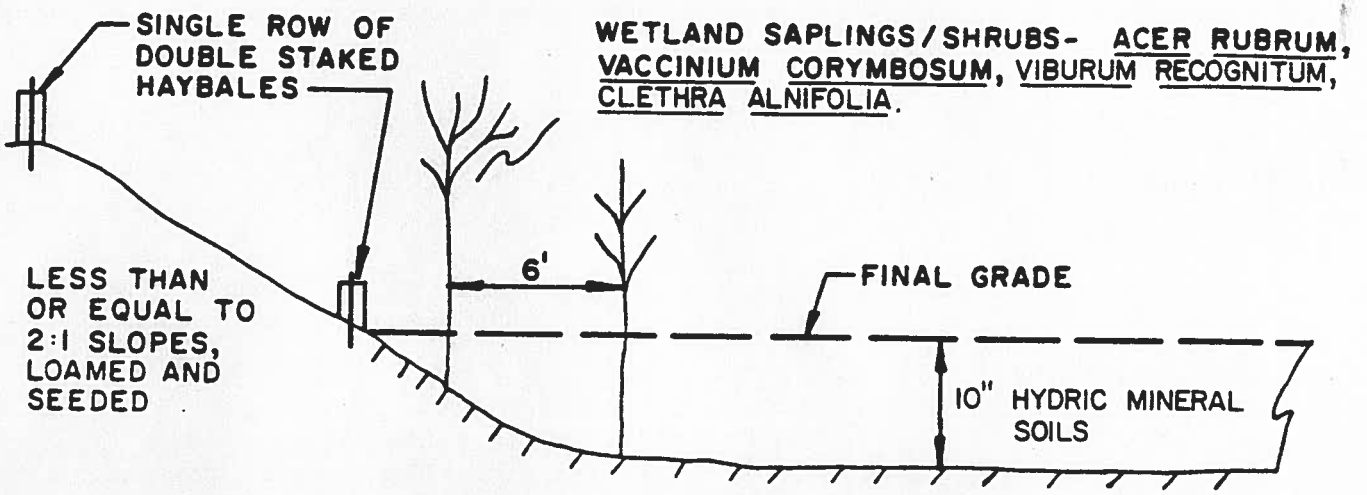
   (a) all measures and designs to regulate work within the Buffer Zone so as to ensure that said work does not alter an area specified in Part I, Section 10.02(1) (a) of these regulations; or

   (b) if work in the Buffer Zone will alter such an area, all measures and designs proposed to meet the performance standards established for the adjacent resource area specified in Part II or Part III of these regulations.

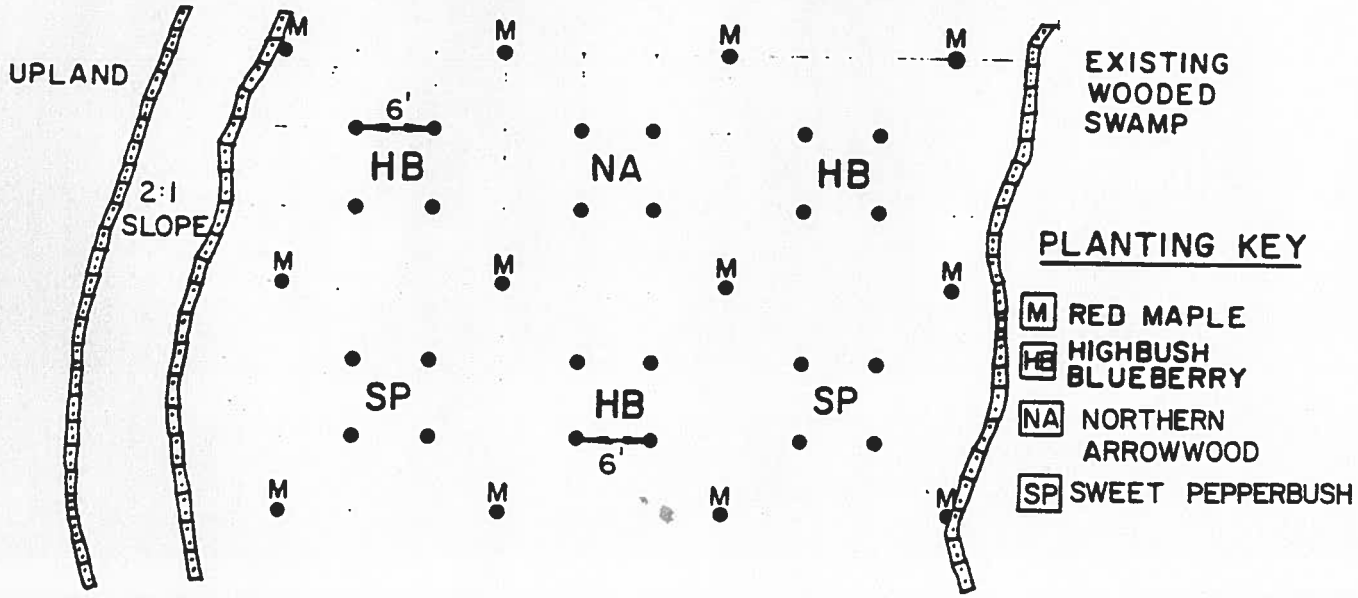
☐ Coastal ☒ Inland Resource Area Type Bordered By 100-Foot Discretionary Zone: Buffer Zone to Bordering Vegetated Wetland	Identifying number or letter of support documents
Work is required within the buffer zone of the Bordering Vegetated Wetland during construction of the retail/automotive service center. Adjacent wetland resource areas will be protected through use of sediment and erosion control measures.	B,C,D

PROPOSED REPLICATION AREA

CROSS SECTION



WETLAND SAPLING/SHRUB GRID PATTERN



SCALE N.T.S.	PROPOSED REPLICATION AREA	THE TIRE BARN ACTON, MA.	FIGURE 2 IEP inc

1. Contiguous, staked haybales shall be placed along the perimeter of work and the existing wetland. The haybales shall be installed before work begins and maintained in a working state until the replacement area is completely stabilized and revegetated. Stakes shall be placed at the limit of construction to ensure that all work will occur in designated areas.

2. The replacement area shall be excavated and graded to an elevation approximately 10" below the final grades shown on the plan.

   Final grades in the replacement area shall be approximately equal to the grades of the adjacent Bordering Vegetated Wetland, as shown on the plan.

3. Hydric mineral soils from the top 10 inches of the adjacent wetland to be disturbed shall be backfilled into the replacement area to bring it to the final grade shown on the plan.

   The replacement area will be virtually flat across its surface. The final grading shall be done by hand and attempts shall be made to level the surface so that small, localized depressions will not result. A sharp rise will be created where the replacement area meets the upland. The slope of this rise will vary but in any event will not be steeper than 2:1.

4. A line of contiguous, staked haybales shall be placed between the replacement area and the adjacent uplands after final grading is completed. These haybales shall be maintained until the adjacent construction is complete and the upland soils are stabilized by the establishment of grass cover.

5. Immediately following final grading of the replication area, millet (Echinochloa sp.) seed will be sown to stabilize the substrate. Straw mulch shall be distributed over the area to minimize soil erosion until the grasses become established.

6. A sapling and shrub wetland community will be established in the replacement area. Individual wetland plants within the wetland area proposed to be altered will be selected and hand transplanted to the replication area. This may include red maple (Acer rubrum), highbush blueberry (Vaccinium corymbosum) and arrowwood (Viburnum recognitum) Additional saplings and shrubs shall be planted throughout the area as needed in a grid pattern with 6 foot spacing. Plants will consist of 3 foot high specimens of red maple, highbush blueberry and pepperbush (Clethra alnifolia). Planting and transplanting will take place in late fall or early spring. Individual shrubs that die during the first two growing seasons will be replace.

The Wetlands Protection Act Regulations state that "at least 75 percent of the surface of the replacement area shall be reestablished with indigenous wetland plant species within two growing seasons...": (310 CMR 10.55)(b)(6). The upper layers of mineral soils placed in the replication areas contain seeds, tubers

and other vegetative propagules that will speed revegetation of these areas. Sowing seeds and planting saplings and shrubs will further help to meet the General Performance Standards for work within Bordering Vegetated Wetlands. In order to insure the success of the established wetland community, a reputable firm will be retained to examine the area in each of the two growing seasons following construction.

Assessments concerning the adequacy of the replacement area to replace the functions of the filled wetland are tenuous. By establishing the conditions suitable to eventually develop similar wetland characteristics--at the same grade, in the same hydrogeologic setting and reach of the associated waterway, with the existing wetland soils, and using indigenous wetland vegetation--the potential to replace functions is maximized. These measures are consistent with the performance standards for wetland replacement listed at 10.55(4). All Acton wetland replication replacement requirements will be fully complied with. Given the disturbed status of the wetland proposed to be altered, particularly the presence of roughly 2 feet of fill, it is IEP's opinion that discretionary allowance of the 4500 sf of filling, along with the proposed replacement procedures, is reasonable and will adequately protect the interests of the Act.

ATTACHMENT C

SEDIMENT AND EROSION CONTROL MEASURES AND BUFFER ZONE ACTIVITIES

Sediment and Erosion Control Measures

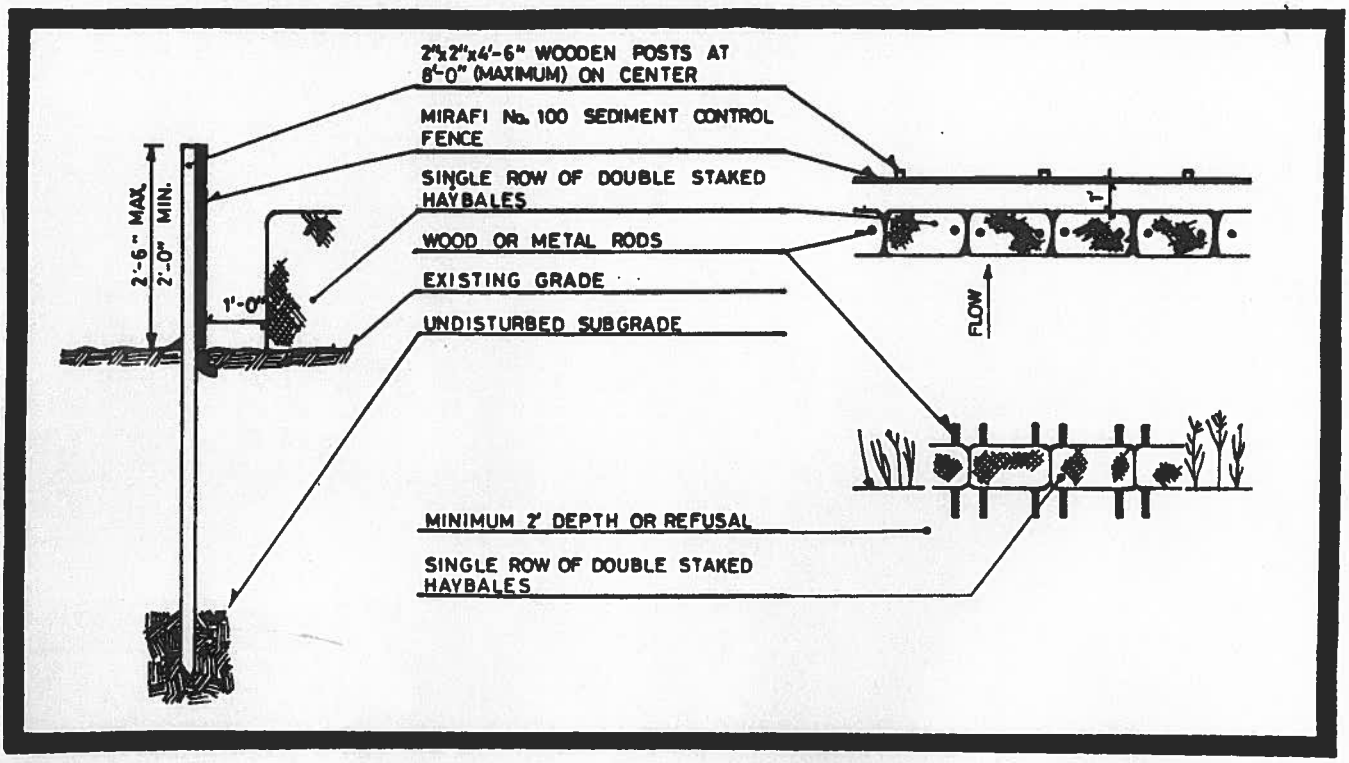
The erosion control line is proposed to consist of staked haybales and/or siltation fencing which will be properly secured and maintained. The following page (Figure 3) as well as Figure 2, provides a detail of these measures. The actual selection will be site-specific, depending upon proximity to and sensitivity of resource areas and the nature of the work. These measures will be maximized at critical locations such as slopes which will be created adjacent to the replacement area.

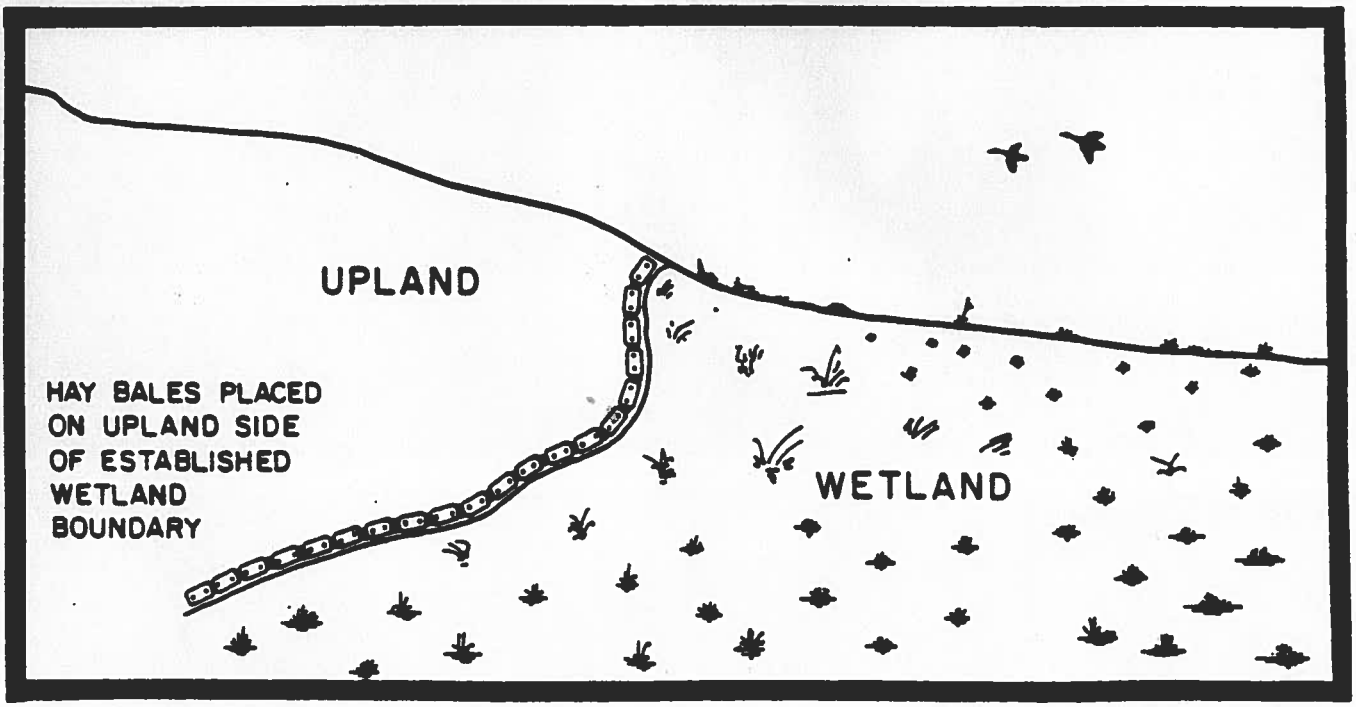
Buffer Zone Activities

In addition to the proposed filling of Bordering Vegetated Wetland for customer parking, work will be required within the buffer zone of the Bordering Vegetated wetland as well. As shown on the site plans, construction on the proposed retail/automotive service center is to occur in the buffer zone. Haybales will be placed along the erosion control line as indicated on the site plan to mitigate potential sedimentation, runoff and erosion inputs to the wetland.

FIGURE 3 - EROSION CONTROL

SILTATION FENCE WITH HAYBALES





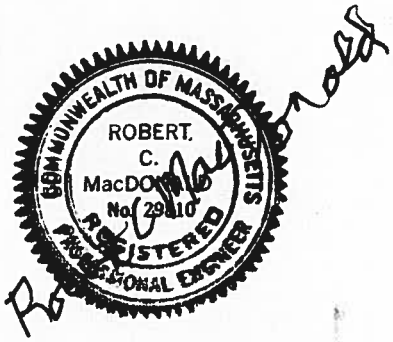
ATTACHMENT D

HYDROLOGIC ANALYSIS

STORM DRAINAGE ANALYSIS

The Tire Barn
Great Road (Route 2A)
Acton, Massachusetts

June 21, 1989



Introduction

Redevelopment proposed for the subject site, adjacent to Great Road, includes an auto service and retail sale building with accessory parking. Although a drainage study is not required by zoning (see Acton zoning by-law paragraph 10.4.3.1), the proponent has presented this analysis to display how on-site stormwater runoff will be collected and distributed.

Existing Conditions

Currently the site contains approximately 10,600 square feet of impervious area, remnant of the prior site use (restaurant and parking). Runoff predominantly sheets overland to on-site wetlands where it is retained and recharges groundwater supply. A small portion of site generated runoff is assumed to enter an existing headwall and 18" culvert on the western property line that primarily operates as a conduit through the site for off-site generated runoff. The 18" culvert carries stormwater from the western property line, under the site, and under Great Road to swales and additional culverts that eventually discharge to Nagog Pond. It is important to note that two (2) on-site catch basins do connect to the 18" culvert and that no gas/oil separation apparatus exists in the system.

Proposed Conditions

With the information stated above, an observation that has been made during preliminary studies is that ecological improvements can be made on-site with regard to stormwater drainage. More specifically, the elimination of on-site catch basins that presently add "untreated" runoff to the discharge at Nagog Pond and the elimination of "untreated" runoff that sheets to the wetlands. Both of these actions can significantly reduce the amounts of harmful pollutants such as trace metals, silt, oils, gasoline, and phosphorus that are discharged from the site. Since Nagog Pond is presently a valuable water supply for the Town of Concord, the improvements are seen as a two-fold benefit. The site design reflects an attempt to provide these benefits.

A summary of proposed improvements on-site is as follows:

- The site will be curbed, thus assisting in containing and directing on-site runoff to oil/gas separation facilities prior to discharge.

- Stormwater runoff from paved traffic areas on-site will be directed to the adjacent Nagog Park closed subsurface drainage system rather than to Nagog Pond. This system carries water away from Nagog Pond rather than to it.

- Building rooftop runoff will be contained as well and directed to the wetlands via a direct discharge pipe. This will allow for continued water supply and recharge in the wetlands while the quality of runoff will be improved. A significantly lower percentage of the pollutants described above are anticipated since they are more typical of parking and road surface runoffs.

- The on-site 18" stormwater piping system will undergo improvements and cleaning to ensure effective operation and cleaner discharge. As mentioned, no longer will runoff from the site enter the system directly, thus effectively reducing the potential for typical parking and road surface pollutants from entering Nagog Pond. The existing 18" piping will be removed on-site and rebuilt using watertight construction. The new drain manhole will be constructed watertight as well.

Hydrologically, overall an increase in impervious area of approximately 6,225 square feet will occur on-site. However, this will result in an increase of the peak rate of runoff from the developed portion of the site that is insignificant.

Design Criteria

Given that site runoff is now proposed for discharge to the Nagog Park collection system, the calculations herein will be an extension of a previous analysis performed for the development of Nagog Park. Information available for this as obtained from the Town of Acton Engineering Department consists of a report by Nolan Engineering Service, Acton, MA., entitled "Drainage Calculations (Addenda to site plan lot 107-A, Great Road at Nagog Park)", dated March 13, 1980 (see attached).

Calculations herein will also be performed using the following:

- Rational method - Q=CiA

- Design Year - 10 (The attached Nagog Park calculations design year). Note however that in calculating peak rates of runnoff for the site a quick check of the 25-year storm discharge is included to display the small difference between the 10- and 25-year storms.

- Runoff coefficients - 0.90 pavement and rooftops
  0.30 landscaped areas

- Time of concentration - overland method (see attached)