

## **Lot A-2 Existing Conditions**

Lot A-2 consists of 3.1 acres of developed land along Pope Road opposite Spencer Brook Road within a residential district near the Concord town-line. In addition to an existing dwelling (#366) with its associated private well, private septic system and associated driveway and yard areas, this lot also contains many of the primary components and detached structures associated with the previous horse farm which was operated by the former owner at this site. This residential lot which is part of a proposed two-lot Residential Compound abuts private residential lots to the north which are served by a private way (Triangle Farm Lane) to the east. Pope Road is located to the south and the Town of Acton Conservation land is to the west.

Except for about 0.4± acres of woodland along the southwest property line, a majority of this lot has already been cleared, terraced and graded into clearly defined and maintained areas for use as paddocks, a riding ring, a stable area, barn area and existing dwelling location. Each stable and paddock area is defined by post and rail fencing with gates at access locations from either grass-lined paths or from interior gravel driveways. A gravel driveway primarily located on the abutting proposed Lot A-1 currently provides access from the main driveway near the dwelling to the barn and riding ring within the upper portion of this lot. The existing gravel access driveway in front of the dwelling is proposed to be replaced by the private way resulting in the elimination of the current access to the barn and riding ring.

**Site Topography** – This site has gently rolling terrain which is higher in elevation (Elev.=213.00) along the northern rear property line near the riding ring and stable area. Behind this rear property line is a wetland system and short section of intermittent stream (Bank Segment #1 @ Elev.=211.00) which drains onto this lot between the stable area and riding ring. Surface runoff from this wetland system is collected by two 6-inch pvc drainage conduits and conveyed under the interior gravel driveway past the barn to a defined rock-lined channel (Bank Segment #2 @ Elev.=202.00) along the edge of lawn within a landscape feature above the rear residential lawn. Additional drain lines from terraced areas above the dwelling are also directed into this Bank Segment.

Runoff from this low-impact landscaped storm water management area (Bank Segment #2) is then directed under the rear lawn associated with the dwelling within a second segment of drain conduit to a ditch where the existing foundation drain outlets to daylight (Bank Segment #3 @ Elev.=192.00). This ditch terminates at the post and rail fence between the rear yard area and lower paddock area which marks the end of Bank Segment #3 and also the point where the intermittent stream which is down-gradient of a resource area terminates. Runoff from this point on sheet flows into the open lower paddock area. Runoff from this paddock area behind the dwelling along with runoff from the front yard, access drive off Pope Road and front paddock area along the frontage of Pope Road sheet flow into a lower wetland system within the southern corner of this lot (Elev.=180.00±) prior to collection by the existing public drainage system within Pope Road which collects and conveys runoff under Pope Road within a culvert.

Lot A-2 frontage along Pope Road is also lined with a post and rail fence and mature trees. The existing soil absorption system is located within a maintained area within the front paddock area.

**Proposed Project** – The Applicant proposes to raze the existing residential dwelling with detached garage currently within the buffer zone and construct a new dwelling on Lot A-2 with garage attached which needs to be sited further back than the existing dwelling footprint in order to comply with the minimum front yard setback to the proposed private way. The proposed private way which will provide frontage for a second lot within a Residential Compound will replace the existing gravel access driveway currently serving the site from Pope Road. The proposed private way improvements and associated drainage system are not included as part of this notice of intent filing since they will be located outside of the buffer zone and riverfront area on-site.

The Buffer Zone work associated with the single family dwelling includes the construction of a paved interior driveway to replace the existing driveway access to the dwelling and also to the upper riding ring and barn area. Select tree removal and site grading within maintained areas and upgrade of applicable underground utilities serving the dwelling and out-buildings within Lot A-2 will occur.

Riverfront Area Work will occur within existing maintained areas consisting of enhancements to Bank Segment #3 along with the temporary disturbance of rear yard area for construction and to also install the expansion trenches for the soil absorption area.

Mitigation measures within the Buffer Zone, Riverfront Area and Bank Segments will be provided which will greatly improve upon and enhance the wildlife benefits on-site.

**Proposed Mitigation** – In response to feedback received during the ORAD process regarding previous alterations within the Bank, Riverfront Area and Buffer Zone. The applicant with the assistance of a Registered Landscape Architect has submitted a Landscape Plan which will replace, relocate and enhance the existing Bank associated with the intermittent stream with a Naturalized Drainage Way. This Bank enhancement, with its significant wildlife benefits, will provide 230% replication of this resource area while also increasing current setbacks from the dwelling features by 250%.

The Applicant will also relocate a portion of the lower paddock area fencing in order to protect the natural vegetation within the 50-foot buffer zone adjacent to the BVW within the Riverfront Area.

### **Resource Areas and the Buffer Zone:**

The resource areas on the site were confirmed by an Order of Resource Area Delineation, DEP File # 085-1075. The resource areas on this Lot are Bank associated with an intermittent stream down gradient from a resource area, Bordering Vegetated Wetland (BVW) and Riverfront Area (RA). A tributary to Spencer Brook (a perennial stream) is located to the southwest on the abutting town-land which flows along the opposite side of a town trail and under Pope Road within a separate culvert into Spencer Brook which is

located on the opposite side of Pope Road. Spencer Brook continues to flow away from this site in a southeasterly direction into the Town of Concord along Spencer Brook Road away from the site.

**Bank** - The Bank consists of three short segments which are not natural. They are man-made features altered by the previous owner within maintained areas of the rear yard near the dwelling and along the rear lot line. This resource area appears only to be significant to storm damage prevention associated with conveying runoff from an intermittent stream from the upper BVW in a direction determined by the previous owner to the lower paddock area on-site.

Bank Segments #1 and #2 are currently separated by two 6-inch diameter sections of pvc drain conduit (L=217'±) which conveys runoff from the rear property line at the stone wall thru the upper part of the site under an interior gravel driveway and walkway past the barn. Bank Segments #2 and #3 are currently separated by one drain conduit (L=95'±) consisting of 6-inch to 4-inch pieces of pipe which conveys runoff from a landscape area under the rear lawn area past the dwelling.

**Bank Segment #1** – A rip rap lined channel dug and shaped with machinery by the previous owner which begins off-site at the upper edge of BVW behind the rear stone wall and ends at two existing 6" pvc drain conduits installed by the previous owner.

**Bank Segment #2** – A hand dug stone lined channel (L=54'±) above the existing dwelling within a landscape feature in the rear yard adjacent to the lawn area shaped and lined with stones by the previous owner.

**Bank Segment #3** – An exposed un-vegetated soil channel (L=23'±) dug by hand by the previous owner which begins at the foundation drain outlet pipe from the existing dwelling and ends at the edge of post & rail fence which separates the rear yard area of the dwelling from the lower horse paddock area adjacent to town land.

It has been agreed upon during the ANRAD hearing process that the intermittent stream which originates from the upper BVW terminates at the end of Bank Segment #3 prior to the lower paddock area.

**Bordering Vegetated Wetland** – BVW exists in two locations on-site. The first location is along the rear lot line where wetland vegetation borders a segment of off-site Bank associated with an intermittent stream behind the stone wall (WF #B4-#B7) and a second area of BVW is located within the front southeast lot corner at Pope Road (WF #1-#6) within the Riverfront Area which is the lowest area of the site.

**Riverfront Area** – The Riverfront Area (49,758± s.f.) is associated with Spencer Brook located on the opposite side of a public trail and public street adjacent to this site. An undisturbed area of natural vegetation (17,611± s.f.) exists along the southwest stone wall and frontage along Pope Road. The remaining area within this resource area consists primarily of maintained open paddock areas between the existing dwelling and the adjacent conservation land to the southwest and Pope Road to the southeast. There is also an area of maintained rear yard consisting of lawn and landscaped areas (160'+) with

an existing foundation drain outlet and Bank Segment #3. The existing soil absorption system (133'+) is currently located within the maintained front paddock area along Pope Road.

**Buffer Zone (Local Bylaw)** – The buffer zone is the area of land measured horizontally outward from the BVW and Bank to a parallel line located 100 feet away. A majority of the existing dwelling, the entire barn and some of the accessory stables and sheds are within the buffer zone. All areas adjacent to the existing dwelling and paddock areas are maintained and consist of interior gravel driveways, walkways and lawn areas. Many pvc drainage conduits collect and convey runoff from the terraced areas above the existing dwelling to and from each Bank segment in order to convey runoff past the dwelling site within the buffer zone. Existing underground water lines and electrical services are also present between the structures. An on-site private well serves the dwelling along with the many water spigots located within the site.

### **Streamlined Natural Heritage Project Description**

The area of work is not located within an area of Estimated Habitat of Rare Wildlife as indicated on the most recent Estimated Habitat Map, Oct. 1, 2008.

### **Compliance with General Performance Standards for Bank 310 CMR 10.54(4):**

There are no requirements for the 1:1 replication of Bank. However the proposed mitigation and relocation of this resource far exceeds this ratio. The project complies with the General Performance Standards of 10.54(4) as follows:

- A) *Where the presumption set forth in 310 CMR 10.54(3) is not overcome, any proposed work on a Bank shall not impair the following:*
1. *the physical stability of the Bank;*  
Construction Details, proposed grading, vegetation and stones have been provided to ensure that the physical stability of the Bank, its shape and linear feet of Replication will result in improvements upon existing conditions.
  2. *the water carrying capacity of the existing channel within the Bank;*  
The cross-section detail of the Proposed Bank Replication will be greater in area than existing channel thus providing improved water carrying capacity above existing conditions.
  3. *ground water and surface water quality;*  
There will be an improvement to both the ground water and surface water quality due to the replacement of 230% of Bank with increased setbacks to the dwelling area and introduction of the proposed plantings shown on the Landscape Plan.
  4. *the capacity of the Bank to provide breeding habitat, escape cover and food for fisheries;*  
Because the stream is intermittent, the existing Bank segments currently do not provide benefits for fisheries.
  5. *the capacity of the Bank to provide important wildlife habitat functions. A project or projects on a single lot, for which Notice(s) of Intent is filed on or after November 1, 1987, that (cumulatively) alter(s) up to 10% or 50 feet*

*(whichever is less) of the length of the bank found to be significant to the protection of wildlife habitat, shall not be deemed to impair its capacity to provide important wildlife habitat functions. Additional alterations beyond the above threshold may be permitted if they will have no adverse effects on wildlife habitat, as determined by procedures contained in 310 CMR 10.60.* It has been determined during the ANRAD hearing process following multiple site visits and discussion that these Bank Segments were not found to have important wildlife habitat functions. Although the existing Bank segments to be altered will exceed greater than 50-feet in length, it will not be within any important wildlife habitat. A majority of the Bank is underground pipe which has no wildlife habitat. It is presumed that the proposed replication Bank and plantings within the Naturalized Drainage Way will have the potential to provide important wildlife habitat functions as mitigation. The existing Bank Segments #2 & #3 significantly lack any important wildlife habitat functions due to previous alteration, current physical condition and close proximity to the dwelling. The proposed relocation and plantings of shrubs and other undergrowth from the edge of the replicated Bank will provide important benefits such as food and shelter to a variety of wildlife than currently exists today so close to the edge of lawn and dwelling.

*(b) Notwithstanding the provisions of 310 CMR 10.54(4)(a), structures may be permitted in or on a Bank when required to prevent flood damage to facilities, buildings and roads constructed prior to the effective date of 310 CMR 10.51 through 10.60 or constructed pursuant to a Notice of Intent filed prior to the effective date of 310 CMR 10.51 through 10.60 (April 1, 1983), including the renovation or reconstruction (but not substantial enlargement) of such facilities, buildings and roads, provided that the following requirements are met: There are no protective structures proposed within the existing Bank only stone headwalls at the beginning and end of pipe segment 2B. The proposed dwelling is also located outside of the Bank areas to be altered.*

- 1. The proposed protective structure, renovation or reconstruction is designed and constructed using best practical measures so as to minimize adverse effects on the characteristics and functions of the resource area;*  
To the extent that this is applicable, the proposed Bank Segments only contain two small headwalls and will have no adverse effects on the resource area.
- 2. The applicant demonstrates that there is no reasonable method of protecting, renovating or rebuilding the facility in question other than the one proposed.*  
Not applicable to this project. There are no proposed structures within the Bank, therefore we are in compliance with this provision.

*B) Notwithstanding the provisions of 310 CMR 10.54(4)(a) or (b), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.59.*

The site does not contain any Estimated Habitats of Rare Wildlife as indicated on the Natural Heritage and Endangered Species Program Natural Heritage Atlas October 1, 2008.

### **Compliance with General Performance Standards for BVW 310 CMR 10.55(4):**

The project complies with the General Performance Standards of 10.55(4) since there will be no work within or alteration of this resource area.

#### **310 CMR 10.58 Riverfront Area**

##### **(2) Definitions, Critical Characteristics and Boundaries**

The mean-annual high water line of the perennial stream located off-site to the southwest within town-owned land was delineated in the field by David Crossman and the mean annual high water line of the stream on the opposite side of Pope Road to the South has been field located by our office. Both lines were reviewed and confirmed by the ORAD. The riverfront area is the area of land measured horizontally outward from the river to a parallel line located 200 feet away. The site features within this resource area are described above.

##### **(4) General Performance Standard**

*The work, with proposed mitigation, will have no significant adverse impact on the riverfront area to protect the interests identified in M.G.L. c. 131 § 40.*

It is our belief that the work associated with the Bank alteration of Segment #3 and construction of Segment #3A (941± s.f.) will provide significant improvements to storm damage prevention and wildlife habitat which currently are diminished within the existing Bank. The protection of the 50-foot buffer in the lower paddock along the BVW will also increase the area of natural vegetation within 100-feet of the stream. The rear yard area to be temporarily disturbed (2,523± s.f.) is currently lawn and landscape area which will be restored. The area to be temporarily disturbed for the soil absorption system expansion (2,654± s.f.) is currently maintained as open field and will be restored to the exact same conditions as presently exist. The existing soil absorption system will remain (133'± from the MAHWL) and the proposed expansion trenches will be sited further away.

##### **(a) Protection of Other Resource Areas.**

The work to be conducted within Bank will improve upon this resource area. Only Bank Segment #3 at a distance of 168'± from the MAHWL will be replicated by Bank Segment #3A at an equal distance (L=169'±) to the MAHWL. This resource area relocation will benefit from the proposed plantings and increased setbacks from daily on-site activities associated with the dwelling.

##### **(b) Protection of Rare Species.**

There are no specified habitat sites of rare wetland or upland, vertebrate or invertebrate species, as identified by the procedures established under 310 CMR10.59 or10.37.

## **Town of Acton Wetlands Protection Bylaw and Regulations:**

The dwelling, barn, stable, sheds, associated driveways, yard areas, paddocks and utilities associated with the former horse farm operated by the previous owner are currently located within maintained areas in the Buffer zone and are not in compliance with Section F8.3 of the Bylaw and Section 3.2 of the regulations relative to setbacks for activities and are therefore nonconforming per Section F8.3. A majority of the proposed work will be further away from the proposed Bank areas than the existing structures to the present locations of the Bank Segments. As a result the Commission per section F8.3 and Regulation 3.3 can permit new like activities and like- structures as close to the edge of wetlands if it finds that such activity and structure will not affect the interests protected by the Bylaw no more adversely than the pre-existing activity or structure.

### Pre-existing structures and like structures

Dwelling - The pre-existing dwelling and associated patio (36'± to Bank Segment #2) are currently nonconforming while the proposed dwelling with associated patio (88'+ to Bank Segment #3A) will be in compliance with the 75-foot setback to structures.

Access driveway to barn & riding ring - The pre-existing gravel driveway access to the barn and riding ring (37'± to Segment #2) is currently non-conforming. The proposed paved driveway access from the dwelling up to the barn and riding ring (60'± to both Segments #2A & #3A) is an allowable new like activity that will not be located closer to the edge of wetlands than existing non-conforming like structures. This portion is proposed to be paved to prevent erosion along the slope in order to protect this interest.

Bank Segments and pvc drain conduits – These items are wetland dependent structures which have a 0-foot setback. Both the pre-existing and proposed segments and pipe conduits are in compliance with the Bylaw and Regulations.

Maintained Areas – The existing lawn within the rear yard currently has a 0-foot setback to both Bank Segments #2 & #3 while the lawn area following construction will have a greater setback at 35'+ to Segment #3A due to its relocation to the lower paddock area. The riding ring area and stable currently have cleared areas also with a 0-foot setback to Bank Segment #1.

Re-establishment of 50-foot Buffer in lower paddock - The current activity associated with this lower paddock area will be reduced within the Buffer due to the relocation of the post & rail fence to allow natural vegetation regrowth.

Conclusion - It is our belief that the wildlife benefits to be provided by the Naturalized Drainage Way with plantings as shown on the Landscape Plan and increase in setbacks and in undisturbed natural vegetation in the riverfront area and Buffer zone will significantly enhance the current interests within this site as opposed to adversely affect them, thus allowing the Commission to proceed with the issuance of an Order of Conditions with Special Conditions specific to this project for like structures which will enhance the resource areas above pre-existing conditions.

Erosion and Sedimentation controls are proposed for the work within the resource areas on-site. The Applicant will remove any stock piled material and debris located within the Buffer Zone from the previous owner. There will be no adverse impacts or filling of the BVW on-site and the proposed Bank replication far exceeds the proposed alteration in regards to both linear feet and also in wildlife benefits.

Summary:

The project has been designed to meet the performance standards of the Wetland Protection Act, General Performance Standards for Bank and Riverfront Area, and the Town of Acton Wetlands Protection Bylaw. There is no proposed activity inside a wetland as defined by the Wetlands Protection Act, however there is activity proposed within the Bank and Buffer zone for a Bank, including filling the existing Banks. Proper Bank replication will replace all filled areas.

Lot A-2 Sequence of Construction:

- Install DEP File Number Sign and have approved plans and Order on site.
- Install Erosion and Siltation Controls prior to any like-activity.
- Prepare Bank Replication Area.
- Install proposed replacement pipes (Segment 2B).
- Install velocity check dams
- Cut and remove existing vegetation adjacent to dwelling on site.
- Stump and grub work area near dwelling.
- Strip top and sub soil and stockpile.
- Raze existing dwelling and construct proposed dwelling with utilities.
- Maintain all necessary sediment basins during construction process.
- Construct proposed driveway and grading.
- Install expansion trenches for soil absorption area.
- Loam and seed all disturbed areas within buffer zone and Riverfront Area.
- Install all plantings per Landscape Plan at appropriate time within growing season.
- Monitor Bank replication Area and installed plantings.