Project Narrative
354 B Great Road / Skyline Drive

Project Description

The site is currently developed as an 18-hole golf course with driving range, family center, tennis courts, maintenance facility, and parking area. The proposed project consist of 174 total age-restricted units of housing, in a mix of single family detached dwellings (88 units), townhouse style duplexes (50 units) and garden style residences (36 units) to replace 9 of the existing golf holes, with 9 golf holes, family center, maintenance facility, etc to remain. With the construction of the 174 units, there shall be associated grading, roadways, drainage systems, and a portion of four units which fall with the 100' Buffer Zone of a Bordering Vegetated Wetland (BVW) and one wetland crossing over Nagog Brook.

Wetland Resources

The potential for regulated wetlands and related areas on the site was investigated in accordance with the Massachusetts Wetlands Protection Act (MGL Ch. 131 s. 40) and its associated regulations (310 CMR 10.00), the Rivers Protection Act (and amendment to the Wetlands Protection Act (WPA) under Chapter 258 of the Acts of 1996), and the Town of Acton Wetland Protection Bylaw. The Acton Conservation Commission issued an Order of Resource Area Delineation on May 11, 2001. An Order of Conditions was issued on March 20, 2002, and extended to April 9, 2008. The wetland resource areas on the site are presumed to be significant to the interest of the WPA, which include protection of public and private water supply, protection of groundwater supply, flood control, storm damage prevention, prevention of pollution, and protection of wildlife habitat. Additionally, the resource areas are significant to the interest of the local wetland bylaw, including those mentioned above and the following: erosion and sedimention control, water quality, water pollution control, surface water protection, fisheries, and freshwater shellfish.

Existing Site Conditions

The Site consists of 155.5 acres, of which approximately 21.2 acres are covered by wetlands. The site is currently developed as an 18-hole golf course with driving range, together with a 6,090 square foot "Family Center", adjacent tennis courts, a 10,200 square foot maintenance facility, and 320 parking spaces. The golf course and amenities were constructed under DEP File No. 85-778. There is a number of stormwater management Best Management Practices (BMP's) throughout the course. Surface waters on the site include Nagog Brook, associated tributaries and man-made irrigation ponds.

Streams

The site contains several intermittent streams. Stamski and McNary, Inc. calculated the drainage area to determine the status of the intermittent stream. The Acton Conservation Commission issued an Order of Resource Area Delineation on May 11, 2001, that confirmed all streams were intermittent on site with the exception of Will's Hole Brook. The Commission, through Tom Tidman, asked that we reevaluate the status of Nagog Brook in consideration of the new regulations. With Mr. Tidman as a witness, we

determined that Nagog Brook was not flowing at the proposed wetland crossing. A tributary to Nagog Brook slightly downstream of the crossing appeared to flow perennially from a point approximately 150 feet west of their confluence. The associated Riverfront Areas are shown on the plan.

Riverfront Area

There is approximately 1,337,091 square feet of riverfront area located on site. This riverfront area is defined by a 200' horizontal projection of the mean annual high water line of the perennial streams. There are two perennial streams located on site; Will's Hole Brook which flows from the north along the eastern property line and under the existing Skyline Drive and combines with Nagog Brook, and Nagog Brook which transitions from intermittent stream to perennial just south of the proposed wetland crossing and flow off site to the southeast.

Bordering Vegetated Wetlands

There is significant amount of Bordering Vegetated Wetland (BVW) running throughout the site. The BVW boundaries were field delineated by B & C Associates and confirmed by the Acton Conservation Commission in an Order of Resource Delineation dated: November 28, 2001 (attached).

Isolated Wetlands

There a few isolated wetlands located throughout the site. The isolated wetlands closest in proximity to work associated with this filing are: two isolated wetlands located adjacent to entrance of Skyline Drive from Great Road, and one isolated wetland located to the west of the existing driving range and south of Palmer Lane.

Vernal Pools (not certified)

There are six Vernal Pools (not certified) on site, with five being in close proximity to proposed work associated with this project. The Vernal Pools have an associated 100' Buffer Zone. The only work proposed within the 100' Buffer Zone is the modifying of the existing entrance to Great Road from Skyline drive to provide for a safer intersection. There is also an existing cart path within 100' of a vernal pool that shall be removed and returned to natural conditions.

Proposed Site Conditions

The proposed site will consist of 174 units of senior housing dispersed into 12-unit, 2-unit and single unit dwellings with an associated roadway system and a variety of stormwater BMP's. Out of the 174 units, 4 of the single unit dwellings are within the 100' Buffer Zone of a BVW, but outside of the 75 foot no build setback. A portion of two of the proposed roadways and a portion of a proposed parking area are within the 75-100' Buffer Zone of a BVW and one of the proposed roads crosses the BVW and Nagog Brook via an Omega bridge to provide for upland access. A replication area (9,820 s.f.) is proposed in the vicinity of this crossing which is greater in size than the proposed wetland fill area (3,470 s.f.). The proposed stormwater controls on site will make use of a multi-stage drainage system consisting of a combination of two or more of the following: street

sweeping, deep sump/ hooded catch basins, infiltration trenches, stormceptor, and stormwater basins. No new stormwater basins are proposed within 75 feet of a BVW. There are 4 existing stormwater basins, Basins 13, 20, 21 and 31, that have been expanded to help control and treat a larger volume of stormwater runoff prior to discharge, but in the expansion have not been located closer to BVW than current conditions. A majority of the treated runoff flow combines with Nagog Brook and exits to the east of the site. A small treated runoff combines with Will's Hole Brook, which eventually combines with Nagog Brook and exits the site to the east.

Buffer Zone

The Bordering Vegetated Wetland on site has a projected 100 foot Buffer Zone. The 6 potential vernal pools on site also project a 100 foot Buffer Zone.

The local wetland bylaw prohibits certain activities within the Buffer Zone as well as other setback areas. The existing Quail Ridge Country Club was approved under an earlier version of this Town Bylaw and any discrepancy will be discussed below. The following outlines the prohibition and the projects respective compliance:

Chapter F, Environmental Protection (Acton Wetland Bylaw) Section F8.3 Setbacks for Activities & Town of Acton Wetland Protection Bylaw Rules and Regulations, Section 3.2 Wetland Setbacks for New Activities

0-foot setback for wetland-dependent structures (drain outfalls, weirs, etc), fences, and structures necessary for upland access where reasonable alternative access is unavailable.

Quail Ridge Drive has one wetland crossing with an Omega bridge which falls under 0-foot setback for structures necessary for upland access where reasonable alternative access is unavailable. No reasonable alternative access to the upland located to the west of Nagog Brook and adjacent to Nagog Pond is available due to Nagog Brook which runs from the north, through the site and exits to the east. Additional there are several location on site when foundation drain outlets and stormwater drainage outlets are located in close proximity to BVW and fall under the 0-foot setback requirement for wetland-dependent structures.

50-foot setback of undisturbed natural vegetation

No grading is proposed within 50 feet of a BVW, except for access to the upland area as previously discussed. Location of grading within 50-100 feet of the BVW associated with the construction of the proposed project shall only take place in previously disturbed grass areas. Any clearing within 50 feet shall be within previously cleared area under the Quail Ridge Country Club approval.

75-foot no-build setback to the edge of driveways, roadways and structures.

The proposed location of units 29, 97, 108 and 114 are within the 100' Buffer Zone of a BVW and outside of the 75-foot no-build setback. The proposed setbacks of units 29, 97, 108 and 144 are 77', 89', 98' and 85' respectively, thereby conforming to the 75-foot setback criterion of no driveways, roadways, or

structures. Stormwater Basins 9, 10, 11, 12, 15, and 17 are located within the 100-foot Buffer Zone of a BVW and outside of the 75-foot no structures requirement. The existing structures of Quail Ridge Country Club were permitted under a 40-foot no build setback, not the current 75 foot setback.

Section 3.3 Wetland Setbacks for Existing Structures

No new activity shall be commenced and no new structure shall be located closer to the edge of a Wetland Resource Area than existing non-conforming like Activity or structures...

There are four existing basins that shall be expanded upon, Stormwater Basins 13, 20, 21 and 31. The expansion of these four basins shall be on the upland side of these existing structures, keeping the existing separation from the BVW the same. The uses shall also remain the same and thereby conforming to the Wetland Setback for Existing Structures.

Work within the Riverfront Area

The proposed work includes construction of roadway and Omega Bridge for upland access, as well as the construction of wetland dependant structures and the construction of a sidewalk along Skyline Drive. The wetland dependant structures consist of two stormwater detention basin (Basin 13 & Basin 15) and an infiltration trench to collect runoff from the existing barn housing the course's golf carts. Additionally work on existing stormwater basins 20 and 21 shall be completed.

There are approximately 1,337,091 square feet of riverfront area on site, with all of the approximately 43,531 square feet of alteration being located in previously altered areas due to the existing approved golf course. The proposed areas of alteration relate to approximately 3.3% of the total Riverfront Area on site, which is far below the 10% limit (CMR 10.58(2)(b)(vi). The majority of proposed impacted Riverfront Area will be due to the wetland crossing for upland access. This area presently contains golf boxes, fairway, temporary wetland crossing, and a permanent bridge crossing and cart path for golf carts; leaving the area extensively cleared.

Alternative Analysis of Riverfront Area

The site contains several intermittent streams and a significant amount of Bordering Vegetated Wetlands that restricted alternatives available for the proposed alteration within the Riverfront Area. There are two separate proposed activities within the Riverfront Area: the first being the wetland crossing of the proposed road and the second being site work within the Riverfront Area.

Alternative Analysis for Access to Uplands on the West Side of Nagog Brook Adjacent to Nagog Pond.

Alternative #1 – Access to Upland outside of the Riverfront Area

It was considered gaining access to the Uplands on the west side of Nagog Brook by connecting into the existing Hazelnut Street of the Acorn Park Development. The Concord Water department does currently have gated limited access running

onto the site from Hazelnut Street for access to their treatment facility located to the north of the site. In response to a Planning Board straw pole vote this access was reduced to emergency access only. The Planning Board was concerned for neighborhood safety and its opinion was that the neighboring streets were unsuitable and unable to handle proposed traffic that would be associated with this project.

Alternative #2 – Access to Upland through alternative on-site location
It was investigated whether access to the upland could be gained by alternative location within the site. Due to significant amounts of Bordering Vegetated Wetland access to the upland in any other location on site would result in extensively more disturbance within the 100' Buffer Zone of a BVW, the BVW itself and within the Riverfront. There are no other means of gaining access to a public street that would not significantly impact presently undisturbed woodland, Buffer Zones and/or Bordering Vegetated Wetlands.

Alternative #3 – Access to Upland through Wetland Crossing at Proposed Location
The proposed location was selected due to the limited amount of potential impact on the Riverfront Area, Buffer Zone, and Bordering Vegetated Wetlands, since the area has already been impacted by the construction of the golf course. The Area of the proposed Wetland Crossing presently contains golf boxes, fairway, temporary wetland crossing, and a permanent bridge wetland crossing and cart path for golf carts.

In consideration of public safety, the opinion of the Planning Board, the lack of other options for access to the upland in question and the degree to which the proposed area has already been altered, this was the most reasonable access available under the Bylaw and only one available to the applicant.

Alternative Analysis for Site Work within the Riverfront Area.

Alternative #1 – Keeping Work outside of the Riverfront Area
The work that is proposed within the Riverfront Area consists of drainage structures that are elevation and wetland dependant and the construction of a sidewalk along Skyline drive at the Planning Boards request. In trying to keep drainage structures outside of the Riverfront Area, the structures would become under sized and unable to maintain slope within the drainage system.

Alternative #2 – Proposed Location of Work within the Riverfront Area
The drainage structures current proposed locations allow for proper sizing and maintain proper slope throughout the drainage system. The proposed infiltration trench location is dependant upon the existing structure, which at the time of construction Nagog Brook was determined not to be perennial and therefore not within Riverfront Area. The proposed sidewalk along the existing Skyline Drive was added to the project at the Planning Boards request. As Will's Hole Brook flow underneath Skyline Drive, it is not possible to keep the proposed sidewalk outside of the Riverfront Area associated with Will's Hole Brook. Additional work within the Riverfront Area shall consist of improving upon un-authorized work under the current Order of Conditions. This alternative was selected since

alternative #1 would not provide for adequate drainage structures and placement of the sidewalk outside of the Riverfront Area was not possible.

Bordering Vegetated Wetland Crossing

Performance Standards as prescribed in 310 CMR 10.55(4)(b) for Bordering Vegetated Wetlands

The issuing authority may issue an Order of Conditions permitting work which results in the loss of up to 5000 square feet of Bordering Vegetated Wetland when said area is replaced in accordance with the following general conditions and any additional, specific conditions the issuing authority deems necessary to ensure that the replacement area will function in a manner similar to the area the will be lost:

1. *The surface of the replacement area to be created ("the replacement area") shall be equal to that of the area that will be lost ("the lost area");*
   The proposed replacement area is 9,820 square feet which is greater than the lost area which is 3,470 square feet associated with the proposed Quail Ridge Drive.
2. *The ground water and surface elevation of the replacement area shall be approximately equal to that of the lost area;*
   The proposed replacement area is to be located immediately down stream and to the east of the BVW to be lost. The lost area elevation ranges between elevation 175 and 184 and the replacement area elevations range between 174 and 183. The proposed replacement area has existing BVW to the west, south and east, making for an ideal location for replication.
3. *The overall horizontal configuration and location of the replacement area with respect to the bank shall be similar to that of the lost area;*
   The replacement area is approximately 20 feet down stream from the bank. The replication area has similar horizontal configuration as the lost area with dimension running east to west similar to those running north to south.
4. *The replacement area shall have unrestricted hydraulic connection to the same water body or waterway associated with the lost area;*
   The replacement area is proposed with an unrestricted hydraulic connection to the adjacent BVW with surrounds it on three sides. Notes on the wetland replication procedure require the removal of any earthen berm created between the replacement area and the BVW.
5. *The replacement area shall be located with the same general area of the water body or reach of the waterway as the lost area;*
   The replacement area is proposed within the same general area of the reach of intermittent stream Nagog Brook as the lost area.
6. *At least 75% of the surface of the replacement area shall be reestablished with indigenous wetland plant species within two growing seasons, and prior to said vegetative reestablishment any exposed soil in the replacement area shall be temporarily stabilized to prevent erosion in accordance with standard U.S. Soil Conservation Service methods;*

The Wetland Crossing and Replication Detail sheet of the plan set shows in detail a planting plan with specific plant list and locations. Construction Sequence and Procedure are also outlined on this sheet.

7. *The replacement area shall be provided in a manner which is consistent with all other General Performance Standards for each resource area in Part III of 310 CMR 10.00.*

The replacement area will not alter another resource area. The bed and bank of Nagog Brook shall be spanned with the use of an Omega Bridge.

Chapter F, Environmental Protection (Acton Wetland Bylaw) Section F9.1 Wetland Replacement

Wetlands or Vernal Pools that are altered shall in all instances be replaced by replacement wetlands of similar character. Replacement wetlands shall include, at minimum, equal area as the altered wetlands or vernal pool in a hydrologically connected location to the unaltered remainder of the wetlands or vernal pool.

The wetland replication area is designed with similar characteristics as the existing BVW. Planting in the replication area will range from Serviceberry to Pussy Willow to Arrowwood Viburnum. Also a 12" log is proposed in the replication area to further maintain existing wetland character. Elevation and slope of the replication area are in line with the altered area. The proposed replication area of 9,820 square feet is more than double the area of the altered area of 3,470 square feet while maintaining the hydrologic connection to the unaltered BVW.

Chapter F, Environmental Protection (Acton Wetland Bylaw) Section 9.2 Requirements for Wetlands Replacement

Projects involving the filling and/or permanent alteration of wetlands or vernal pools shall meet the following requirements:

(1) The proposed replacement area design must be submitted to the Commission for approval as part of the Notice of Intent.

Enclosed with this Notice of Intent is Wetland Crossing and Replication Details (sheet 38 of 43)

(2) The replacement area must be shown to duplicate sufficiently the functions of the wetland proposed to be altered.

The replacement area shall achieve the functions of the wetland to be altered in multiple ways. The proposed replication area, currently upland area, shall be blended into the BVW which surrounds it on the three sides, helping to achieve one continues BVW. The elevation and sloping of the replication area will be very similar to those of the proposed alteration area. The replication area shall be planted and landscaped with similar

plantings and wetland features of that of the altered area. The replication area will be constructed in a manner that is consistent with the performance standards set forth in 310 CMR 10.00, thereby preserving the interests of the Wetlands Protection Act and the Acton Wetland Bylaw. Greater detail of the construction methods and procedure are described on the attached Wetland Crossing and Replication Details.

(3) *The replacement area shall be constructed, to the extent possible, immediately after alteration of the existing wetland and during the same growing season.*

As outlined in the Construction Sequence for Wetland Crossing, the construction of the replication area and the alteration of the wetland for the crossing shall occur simultaneously.

(4) *If after three growing seasons, the Commission determines that the replacement area has not satisfactorily developed into a wetland or vernal pool, the applicant or owner may be required to summit new plans to successfully replicate the original altered wetland. No Certificate of Compliance shall be issued until the Commission has determined that a satisfactory replacement area has been completed.*

A comprehensive replication area plan has been developed to maximize the successful development of the new wetland. The Commissions ultimate authority over the Certificate of Compliance ensures that the replacement area will be completed in an acceptable manner.

Town of Acton Wetland Protection Bylaw Rules and Regulations, Section 4.1 Wetlands Replacement

Wetlands that are proposed to be Altered will in all instances require, at a minimum, equal Wetlands replacement, preferably hydrologically connected to the Wetlands proposed to be Altered. Replacement shall mean to put back in proper place, or to provide an equivalent to the satisfaction of the Commission.

The wetland replication area is designed with similar characteristics as the existing BVW. Planting in the replication area will range from Serviceberry to Pussy Willow to Arrowwood Viburnum. Also a 12" log is proposed in the replication area to further maintain existing wetland character. Elevation and slope of the replication area are in line with the altered area. The proposed replication area of 9,820 square feet is more than double the area of the altered area of 3,470 square feet while maintaining the hydrologic connection to the unaltered BVW.

Town of Acton Wetland Protection Bylaw Rules and Regulations, Section 4.2 Requirement

Projects involving Wetland Filling and/or permanent Alterations shall meet the requirements of 310 CMR, 10.60(3) and 10.55(4) and the following Requirements of the Commission:

(A) *The proposed Replacement area design must be submitted to the Commission for approval as part of the submittal of the project Notice of Intent. Applicants are advised to appear before the Commission for preliminary discussion, comments and review prior to submittal of the Replacement Plan with the Notice of Intent.*

A replacement area design was submitted as part of the Notice of Intent package. See attached Wetland Crossing and Replication Details (sheet 38 of 43).

(B) *The Replacement area must be shown to sufficiently duplicate the functions of the Wetland proposed to be Altered;*

A proposed Wetland Replication Plan has been designed and is attached, see Wetland Crossing and Replication Detail (sheet 38, of 43). As shown on this plan the replication area shall be planted with varying vegetation, as well as with a 12 inch log to further replicated natural wetland characteristics. The wetland area to be altered is located adjacent to the bank of Nagog Brook, a intermittent stream, and the replication area shall also be located adjacent to the bank of this brook. The replication area will be constructed in a manner that is consistent with the performance standards set forth in 310 CMR 10.00, thereby preserving the interests of the Wetlands Protection Act and the Acton Wetland Bylaw.

(C) *The Replacement area must be constructed, to the extent possible, immediately after Alteration of the existing Wetland and during the same growing season;*

The wetland crossing and wetland replication area construction will be done simultaneously as outlined in the Procedure for Construction of Wetland Replication Area and Construction Sequence for Wetland Crossing on the attached Wetland Crossing and replication Details.

(D) *The proposed Replacement area must be clearly flagged for the Commission site inspection before the Notice of Intent filing shall be considered complete, and said flagging shall be numerically coded and correspondingly shown on the Plans, according to Section 2.3(1)(B).*

Flagging with corresponding numbering has been shown on the plan and was previously delineated as part of the Order of Resource Area Delineation DEP file #85-761. The flagging in the areas of interest has been re-flagged as part of this filing.

(E) The Notice of Intent submittal for a Replacement area shall include a detailed of Replacement showing:

(i) *cross-section with indication of Groundwater level, soil profile and thickness of organic soil in the existing and proposed Wetland;*

Soil profiles for the hand dug tests pits in both the fill area as well as the replication area have been provided on the Wetland Crossing and Replication Details (sheet 38 of 43).

(ii) *plant species detail, including species found in the area to be Altered, and number, types and locations of species to be introduced into the Replacement Area;*

The attached Wetland Crossing and Replication Details (sheet 38 of 43) outlines planting species and location to be used in the replication area. Planting in the replication area will range from Serviceberry to Pussy Willow to Arrowwood Viburnum.

(iii) *detail of stabilization Plans for Replacement area Banks;*

The Procedure for the construction of the wetland replication area is prescribed on the Wetland Crossing and Replication Details plan, as well as a construction sequence for wetland crossing.

(iv) *Wildlife Habitat diversity plan.*

The existing wetland area to be filled is comprised of both temporary and permanent wetland crossings being used by the existing golf course. The proposed wetland replication area will, with the development of a dense understory, provide superior wildlife habitat diversity by providing good cover for small mammals and amphibians, support high numbers of insects for insect eating birds, and good cover and nest sites for birds.

(F) *Construction of the Replacement area shall follow all requirements as set forth in general Construction Standards and Restrictions, Section 3.*

The provisions of Section 3 have been taken into consideration throughout the design process, such as observation of setbacks, construction sequence and procedure for construction, erosion control, storage of fill, and handling of construction debris.

(G) *If, after three growing seasons, the Commission determines that the Replacement area has not satisfactorily developed into a Wetland the Applicant or owner may be required to submit new Plans to successfully Replace said Wetland. No Certificate of Compliance shall be issued until the Commission has determined that a satisfactory Replacement Area has been completed at the end of the three year period.*

A detailed Wetland Replication Plan has been developed to outline the successful construction of the Replacement area. The Commissions ultimate authority over the Certificate of Compliance ensures that the replacement area will be completed in an acceptable manner.