



October 29, 2010

Mr. John P. Hansen Jr., AICP  
Town Planner  
Seekonk Town Hall  
100 Peck Street  
Seekonk, MA 02771

**RE: Drainage Review of 1475 Newman Avenue  
Map 29 Lots 1 & 2  
Seekonk, Massachusetts  
DE Project #: 1631-006**

Dear Mr. Hansen:

This letter serves as the drainage review for the proposed redevelopment of an existing Stop & Shop and attached CVS Pharmacy site located at 1475 Newman Avenue (Route 152), Seekonk, MA, Map 29 Lots 1 and 2. The proposed site will include a stand-alone CVS building, a proposed stand alone retail building, a proposed addition to the in-line CVS for retail use and a proposed addition to the Stop & Shop space.

Per our contract, the DiPrete Engineering (DE) scope of work includes a site visit to document the existing site and surrounding areas and an engineering review of the drainage design and hydrologic report with respect to applicable local and state regulations. The drainage review focused on the development of the site within Seekonk's Aquifer Protection District as outlined in Section 9.4 of Seekonk's Zoning Ordinance.

DiPrete Engineering has not reviewed site lighting, landscaping, Title V or water design. The submission has also not been reviewed with respect to the "Rules and Regulations Governing the Subdivision of Land in Seekonk, Massachusetts," or the Town of Seekonk's Zoning Bylaw (with exception to Section 9.4). A Sewage Disposal System Design meeting Title V standards should be submitted to the Board of Health for review and approval. Work is proposed within a wetland buffer and an approval from the Conservation Commission will be required. DiPrete Engineering has assumed that the water authority will review and comment on the proposed water design.

Please note that many of the comments outlined in this letter can be addressed throughout the course of the project and many of the comments do not necessarily apply solely to the Special Use Permit phase of the project.

**Section I: Documents Reviewed by DE**

- Plans:
  - Site Plan Documents for Mark Investments, Map 29 Lots 1 & 2, 1475 Newman Avenue, Town of Seekonk, Bristol County, Massachusetts, Sheets 1 through 15 of 15, prepared by Bohler Engineering, dated 09/01/10.
  - ALTA/ACSM Land Title Survey, Lots 1 & 2, Map 29, 1475 Newman Avenue, Town of Seekonk, County Of Bristol, Commonwealth Of Massachusetts, Sheets 1 and 2 of 2, prepared by Control Point Associates, Inc., dated 6-9-10.

- Stormwater Drainage Report for Mark Investments, Assessor's Map 29, Lots 1 & 2, 12475 Newman Ave (a.k.a. Route 152), Town of Seekonk, Massachusetts, Bristol County, prepared by Bohler Engineering, dated August 27, 2010.

#### **Site Walk Observations (Conducted 10/27/10)**

1. No drainage structures located on the existing site.
  - a. Portion of front parking area drains to existing retention basin located adjacent to the existing CVS.
  - b. Portion of front parking area drains uncontrolled to Newman Avenue.
  - c. Portion of side parking area appears to drain to the wetland area located at the rear of the Stop & Shop building.
2. Existing retention basin at the rear of the Stop & Shop building is located in the woods and is overgrown. It is unclear if the parking lot runoff reaches the retention pond or flows directly into the wetland area.
3. The existing parking lot does not include landscaped islands.
4. The existing building gutters discharge to the pavement.
5. Drainage structures are present in Newman Avenue adjacent to the site.
6. Two parallel lines of concrete curbing approximately five feet apart were observed in the wooded area where Spec Retail B is proposed. The curbing runs perpendicular to Newman Avenue from approximately Newman Avenue towards the Stop & Shop side parking area.

#### **Drainage Comments**

1. Proposed watershed P-2 has been assigned a CN of 43 which represents a woods/grass mix. It appears that the majority of the P-2 will be grassed and DE recommends that the applicant adjust the CN to reflect the increase in grass area from pre to post development conditions.
2. Proposed watershed P-5 has been assigned a CN of 43 which represents a woods/grass mix. It appears that the majority of the P-5 will be grassed. Based on the proposed grading it looks like some of the P-5 watershed which is proposed to be cleared could remain wooded. DE recommends that the applicant either adjust the CN to reflect the increase in grass area from pre to post development conditions or preserve as much of the wooded area as possible.
3. The portion of the E-4 and P-4 watersheds which represents the pervious area flowing to the wetland is represented by a time of concentration of 6 minutes. DE suggests that a longer time of concentration could be associated with these watersheds.
4. DE recommends that the applicant provide a narrative regarding the Proposed Retention Basin 1 and what the potential impacts to the surrounding areas will be, especially to the residential homes to the east of the basin, should the basin overtop.
5. It appears that the limit of work will need to be expanded to allow for the grading to be as shown in the area of Proposed Retention Basin 1. Specifically, the existing 83 contour is proposed to be moved to the western side of Proposed Basin 1 and connects into the existing 83 contour to the north and south of the basin. In order for this to work the limit of work will need to be expanded to be inclusive of the existing 83 contour.
6. In the HydroCAD model, proposed Retention Basin 2 has a bottom area of 2,982 SF. Based on the proposed grading, the bottom area of Proposed Retention Basin 2 is approximately 2,150 SF. DE recommends that the applicant verify the contour areas associated with Retention Basin 2 and adjust the HydroCAD model as necessary.

7. The sediment forebay on the southern side of proposed Retention Basin 2 has both an overflow to the retention basin as well an emergency spillway. The elevation of the stone check dam which goes to the retention basin is at an elevation of 83.2 while the emergency spillway is shown with an elevation of 83.05. DE recommends that the applicant provide a detail of the sediment forebay to show how stormwater will be directed to the retention basin before overtopping the emergency spillway if the basins capacity is exceeded.
8. In general DE recommends that the applicant provide details of the proposed retention basins and sediment forebays.
9. DE recommends that the applicant provide a discussion of the sediment forebays and how they will be dewatered following a storm event. With the buildup of sediment in the bottom of the forebay infiltration will likely be limited. It appears that it may be intended for stormwater to filter through to stone check dams. DE requests that a detail of the stone check dams be provided by the applicant.
10. It appears that the proposed spot grades to the southwest of proposed Retention Basin 2 are intended to direct any potential flow from the emergency spillway away from adjacent nursery and towards the wetland area and existing retention pond located in the southeastern corner of the site. DE recommends that notation be added for the contractor to ensure positive drainage away from the nursery and to notify the design engineer if actual site conditions vary
11. The proposed drainage network is shown with catch basin to catch basin flow. As part of the TSS Removal Calculations credit is taken for 25 percent removal of TSS by deep sump and hooded catch basins. According to the Massachusetts Stormwater Manual, in order for this credit to be taken, the proposed catch basins need to be in an offline configuration. DE recommends that the applicant revise the drainage network design to take the proposed catch basins offline.
12. The Massachusetts Stormwater Manual recommends that the area tributary to an individual catch basin not exceed  $\frac{1}{4}$  acre. According to the Inlet Area Map provided in the Stormwater Drainage Report a number of the catch basins have tributary areas in excess of  $\frac{1}{4}$  acre. DE recommends that the applicant provide calculations to show that the catch basin inlet grates can handle the stormwater runoff flowing to them.
13. The drainage piping has been sized based on gravity flow. It appears that as designed the drainage network will be subject to tail-water where they discharge into the proposed sediment forebays. This will have an effect on the capacity of the drainage network. DE recommends that the applicant provide an analysis to show that the system as designed will be able to adequately convey stormwater runoff for at least the 25 Year design storm to the proposed retention basins.
14. Stone filter strips are shown adjacent to proposed Retention Basin 2 to allow for stormwater runoff from the rear and sides of Proposed Spec Retail B to sheet off of the parking lot and into the retention basin. DE recommends that a detail of the stone filter strip be provided.
15. DE recommends that the applicant provide sizing calculations for the proposed sediment forebays.
16. DE recommends that the applicant provide sizing calculations associated with the proposed oil grit separator.

### **Zone II Wellhead Protection Area**

The site is located in a Zone II Wellhead Protection which has been noted in the Stormwater Drainage Report. The applicant has addressed the Stormwater Management Standards as detailed in the Massachusetts Stormwater Manual including Standard 6 which relates to stormwater discharges within Zone I's, Zone II's and Interim Wellhead Protection Areas. Pretreatment is provided with the used of deep

sump catch basins, an oil grit separator, sediment forebays and filter strips. Following pretreatment the majority of stormwater onsite is infiltrated in infiltration basins.

Under post development conditions a portion of the stormwater runoff from the site flows uncontrolled to Newman Avenue where it flows into the state drainage network. The amount of stormwater flowing uncontrolled to Newman Avenue has been reduced from what exists today by directing some of the stormwater to an onsite retention basin. Additionally some of the stormwater still flowing to Newman Avenue is being collected in the drainage network and is being routed through an oil and grit pretreatment device prior to being discharged to the state drainage system.

A portion of the existing paved areas associated with the rear and side pavement areas of the existing Stop & Shop appear to flow uncontrolled into the wetland area at the rear of the Stop and Shop Building. An existing retention basin is shown on the existing conditions plans adjacent to the wetland area but is unclear how much if any of the parking lot runoff reaches the retention basin. Also the retention basin is overgrown and does not appear to have been maintained in some time. DE recommends that that applicant analyze the feasibility of maintaining this retention basin and directing stormwater runoff to the basin rather than the wetland area. It may be possible to incorporate a sediment forebay to pre-treat stormwater before it flows into the retention basin which would enhance the overall water quality treatment for this existing paved area.

#### **Section 9.4 Groundwater Aquifer Protection District**

The site is located in the extreme northern portion of Seekonk's Groundwater Protection District. As a Commercial Site and with more than 20% Imperviousness of the site, a Special Use Permit is being required for the site improvements. Section 9.4.5 lists the considerations that must be made before a Special Use Permit is granted. These considerations are as follows.

1. Is in harmony with the purpose and intent of this By-Law and will promote the purposes of this district;
2. Is appropriate to the natural topography, soils and other characteristics of the site to be developed;
3. Will not have, during construction and after, an adverse environmental impact on an aquifer or its recharge area;
4. Will not adversely affect an existing water supply.

Regarding numbers 3 and 4 above DiPrete Engineering feels that the proposed drainage design provides increased water quality treatment of stormwater runoff from the site over what exists onsite today. Based on the information provided by the applicant it does not appear that the proposed development will have an adverse impact on the environment, aquifer or recharge area and will not adversely affect an existing water supply.

#### **Closing**

A number of the comments raised are associated with DE's review of the drainage design from a construction perspective and would not need to be addressed as part of the Special Use Permit review.

As part of the review DiPrete Engineering has performed a site walk to inspect the existing site conditions. Specifically the inspection included the proposed site entrance, drainage discharge point(s), limit of work

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and abutting properties. Site photos and descriptions have been included with this letter for your reference.

DiPrete Engineering is available to review or discuss any of our recommendations/suggestions with the Town or the Applicant as the Town deems appropriate. We look forward to working with the Applicant and the Town on this project.

Sincerely,

DiPrete Engineering Associates, Inc.



Jason P. Clough, PE  
Senior Project Engineer



Nicole Reilly, PE, LEED AP  
Project Manager

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## Site Photos



**Figure 1: Newman Avenue looking north. Note existing drainage structure.**



**Figure 2: Wooded area near proposed Spec Retail B. Note existing concrete curbing observed which runs from Newman Avenue towards Stop & Shop Building.**

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**Figure 3: Gravel Area associated with proposed CVS Building.**



**Figure 4: Existing properties to the north of the proposed CVS.**

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**Figure 5: Existing Retention Basin 1.**



**Figure 6: Stop & Shop side parking area and existing SDS.**

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**Figure 7: Wetland area (back ground) to south of existing Stop & Shop.**



**Figure 8: Wetland area to south of existing Stop & Shop.**

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**Figure 9: Existing Retention Basin 2.**



**Figure 10: Rear of Stop & Shop looking to the northeast.**

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