

March 9, 2020

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City of Melrose Planning Board
City of Melrose Conservation Commission
Attn: Ms. Denise M. Gaffey
Director and City Planner
Office of Planning and Community Development
Melrose City Hall
562 Main Street
Melrose, Massachusetts 02176

www.bscgroup.com

**RE: Peer Review
Hillside Park, 0 Swains Pond Avenue
Definitive Subdivision Plan and Notice of Intent**

Dear Planning Board and Conservation Commission Members and Ms. Gaffey:

BSC Group has completed its review of the Definitive Subdivision Plan and Notice of Intent (NOI) for the proposed Hillside Park, 0 Swains Pond Avenue definitive subdivision located in Melrose, Massachusetts. This letter report summarizes our findings and presents comments and questions that we have formed as a result of the review. This review encompasses the Project's compliance with the City of Melrose Wetlands Ordinance, the Rules and Regulations Governing the Subdivision of Land in Melrose, Massachusetts (Subdivision Rules), the Massachusetts Wetlands Protection Act M.G.L. Ch. 131, the Massachusetts River and Stream Crossing Standards, and enacting regulations 310CMR 10.00 (the WPA), the Massachusetts Department of Environmental Protection's (DEP) Massachusetts Stormwater Handbook (Stormwater Handbook), and general engineering design and best development practices.

**BASIS OF CURRENT REVIEW - AVAILABLE PERMITTING DOCUMENTS
- HILLSIDE PARK, 0 SWAINS POND AVENUE DEFINITIVE
SUBDIVISION:**

For this peer review, BSC reviewed the following documents:

- Modified Definitive Plan, Hillside Park, Melrose, MA, consisting of 7 sheets, prepared by Williams & Sparages, dated December 4, 2019;
- Revised Watershed and Soils Map, Hillside Park, Melrose MA, prepared by Williams & Sparages, dated December 4, 2019, revised February 20, 2020;



- Notice of Intent, 0 Swains Pond Avenue (Parcels 63-0-36 & 63-0-36A), Melrose, MA, prepared by Williams & Sparages, dated January 13, 2020;
- Proposed Planting Plan, Hillside Park, Melrose, MA, prepared by Williams & Sparages, undated;
- Stormwater Report, Hillside Park (0 Swains Pond Avenue), Melrose, MA, prepared by Williams & Sparages, dated December 4, 2019;
- Stormwater Report, (Addendum for Pond 1P), Hillside Park (0 Swains Pond Avenue), Melrose, MA, prepared by Williams & Sparages, dated December 4, 2019, revised February 20, 2020;
- Proposed Conditions Revised, Stormwater Calculations, prepared by Williams & Sparages, dated February 20, 2020;
- Memorandum 0 Swains Pond Road, Melrose MA, Colucci Estates, prepared by James A. Mitchell, Esq., dated January 16, 2020;
- Narrative describing changes requested to Colucci Estates, no author noted, undated;
- Memorandum, Staff Report for the Modified Definitive Plan, 0 Swains Pond Road, prepared by Denise Gaffey, Director/City Planner, dated January 27, 2020;
- Notice of Meeting, City of Melrose, Massachusetts, Definitive Subdivision, 0 Swains Pond Avenue.

PROJECT DESCRIPTION

The project involves the construction of a 712-foot subdivision road, to be named Patrick's Place ending in a cul-de-sac, off Maple Terrace, that would include 9 single family house lots, and a new 300-foot reconstruction of a portion of Hillside Park. Both proposed roads would have a pavement width of 24 feet. The existing site is wooded open space with significant changes in grade across the site, having an total elevation change of 110 feet vertically and with large areas of exposed ledge and/or shallow to depth bedrock. There will be extensive ledge removal and blasting required for this development. A section of the staff report referenced above notes "Blasting is likely to take approximately six months because a little bit is done each day." The site is zoned "A Suburban Residence" (SR-A) and the single-family house subdivision is an allowed use under Zoning. The subdivision proposes to connect to existing water and sewer mains in Maple Terrace and includes a multi-component stormwater management system including a stream crossing, wetland replacement, a surface detention basin, a proposed infiltration pond, and two underground infiltration/detention areas. Wetlands resources areas for this site have been previously confirmed through the issuance of an Order of Resource Area Determination (ORAD) by the Melrose Conservation Commission. A stream crosses the site, with bordering vegetated wetland (BVW) located adjacent to the site with its buffer zone extending over a portion of the proposed work. The project also requires an Order of Conditions (OoC) under the WPA and has filed a NOI with the Melrose Conservation Commission.



A detailed review of this project's history is provided in the documents referenced above – see:

- Memorandum 0 Swains Pond Road, Melrose MA, Colucci Estates, prepared by James A. Mitchell, Esq., dated January 16, 2020;
- Narrative describing changes requested to Colucci Estates, no author noted, undated;
- Memorandum, Staff Report for the Modified Definitive Plan, 0 Swains Pond Road, prepared by Denise Gaffey, Director/City Planner, dated January 27, 2020;

These memoranda and reports indicated there has been a court appeal of the original proposed subdivision, named Colucci Estates, originally approved by the Melrose Planning Board in 1998, over an extended period, which has only recently been resolved. This appeal, and the subdivision zoning freeze which is a part of this process, has allowed the current proposed development the benefit of the use of Zoning and Subdivision regulations dating back to 1998.

PROJECT REVIEW COMMENTS

BSC offers the Melrose Planning Board and Conservation Commission the following comments based on our review of the project and information detailed above.

I. General

1. While BSC's review of the application materials is focused on the project's compliance with the Project's compliance with the City of Melrose Wetlands Ordinance, the Rules and Regulations Governing the Subdivision of Land in Melrose, Massachusetts (Subdivision Rules), the Massachusetts Wetlands Protection Act M.G.L. Ch. 131, the Massachusetts River and Stream Crossing Standards, and enacting regulations 310CMR 10.00 (the WPA), the Massachusetts Department of Environmental Protection's (DEP) Massachusetts Stormwater Handbook (Stormwater Handbook), and general engineering design and best development practices, it is understood that a number of waivers from the Subdivision Design Standards have been requested by the Applicant.

The staff report, dated January 27, 2020, referenced above, discusses these requested waivers in detail.

2. BSC understands that other Town agencies, staff and officials are in the process of providing their review comments and input to the Planning Board and Conservation Commission for this project.



3. BSC staff conducted a site visit of the project area on February 4, 2020. This visit included a review of the general project area, a detailed reconnaissance of the project site, including the proposed stream crossing, the proposed routes of Hillside Park and Patrick Drive, and the locations of the major drainage infiltration areas and detention pond.
4. The Modified Definitive Plan, Sheet 2 of 7, notes “Proposed Drainage as Shown on Definitive Subdivision Colucci Estate Roadway and Utility Plan,” revised through 10-10-1998. This note refers to proposed drainage improvements, including the replacement of an existing 12” cast iron pipe under Maple Terrace with a 12” Class V (high strength) reinforced concrete pipe, as well as the installation of two catch basins and drainage pipe within Maple Terrace, which are required to be constructed as part of the currently proposed subdivision. The proposed Detention Pond 1P will discharge into this drainage system. These drainage improvements will impact not only access through this area for existing residents, but also the existing stream and the bordering vegetated wetland resources areas associated with it. No information is provided in either the NOI or Definitive Subdivision submission regarding these drainage improvements.

BSC would recommend the Planning Board and Conservation Commission request the applicant and his project team clarify this issue and address, quantify and mitigate the impacts of the proposed drainage improvements required to be undertaken on maple Terrace.

5. As the proposed development will disturb more than 1 acre of land, the project will be subject to a EPA NPDES Permit. This will require the preparation of a Stormwater Pollution Prevention Plan (SWPPP) and the filing for a federal permit. While Section 6 of the Stormwater report follows the format for a SWPPP, this filing is not noted within the Definitive Subdivision application.

It is suggested that the Planning Board and/or Conservation Commission require that the applicant provide s copy of the SWPPP and EPA application to the Board and Commission staff prior to the commencement of any construction activities on the site.

II. Review of the Definitive Subdivision Plan

1. As has been previously noted, the Applicant is requesting waivers from various sections of the Subdivision Rules to allow for the construction and development of this project BSC defers to the judgement of the Board regarding these waivers. Where appropriate, BSC will provide comments on specific requested waivers below.



2. The Applicant is requesting a waiver from Section VI.B.3. of the Subdivision Rules to allow a 24-foot roadway pavement width in lieu of the required 32-feet. While BSC defers to the judgement of the Board regarding this waiver, it should be noted that a 24-foot pavement width is in line with typical dimensions for similar low speed, residential roads currently being constructed throughout Massachusetts. This pavement width is also in line with current stormwater management goals of reducing impervious surfaces.
3. The Applicant is requesting a waiver from the typical cross section that requires sidewalk on both sides of the road to allow sidewalk on only one side of the road. While BSC defers to the judgment of the Board regarding this waiver, it should be noted that sidewalk on only one side of a low speed, residential road is common practice.
4. The Applicant is requesting a waiver from the maximum slope allowed for a subdivision roadway of 10% under the Subdivision Regulation to 12.5% for Patrick's Place and 14.5% for Hillside Park. While the Staff comments in their memorandum of January 27, 2020 seem to support this waiver, and having visited the project site, BSC understands the need for such steep slopes, BSC notes the following concerns:
 - Roadway slopes this steep could result in dangerous stopping conditions during the winter or rainfall. I observed several blue barrels containing salt along the existing steep sections of Hillside Park during my site visit.
 - Approaching their proposed intersection, Patrick's Place has a slope of 12.5% including across its intersection with Hillside Park, while Hillside Park has a slope of 14.5%. The Profile of Hillside Park shows a 25-foot wide leveling area as that road approaches Patrick's Place. This leveling area is an absolute minimum, with the standard length of a typical leveling area being at least the first 50-feet from the intersection. Acknowledging the increase in either the proposed road grade or required excavation, to provide an expanded leveling area on Hillside Park, and the 8- to 10-foot vertical grade drop on the opposite side of Patrick's Way from its intersection with Hillside Park, additional safety measures, such as guard rail, should be considered by the applicant at this location.
 - As Patrick's Place will be a Private Way, who will be responsible for the maintenance and snow removal operations associated with this new subdivision road?
 - The steep road grades will result in stormwater runoff, collected in the gutters against the proposed roadway vertical granite curbing along each side of the roadway, to flow at high velocities. The applicant is proposing to use high inlet capacity Cascade catch basin grates, and double grates perpendicular to the direction of flow at nearly all the proposed catch basins on Patrick's Place. This is standard engineering practice. The concern BSC has relates to how much of the stormwater flow in the gutter will bypass or flow passed these catch basins, and potentially flow onto Patrick's Place intersection with and down Maple Terrace. The proposed drainage improvements on Maple Terrace (see General comment 4 above), consist of single grate catch basins.

BSC would recommend the applicant's engineer evaluate the potential stormwater bypass from the proposed road storm drainage system, and provide these bypass calculations for review. It is also suggested the applicant's engineer review the drainage improvements design for the Maple Terrace, and consider using double grate, high inlet



capacity catch basins at its intersection with Patrick's Place, consistent with those used on the new road.

5. While it appears that the project most likely meets the maximum coverage (35%) and minimum open space (50%) requirements of the Table of Dimensional and Density Regulations in Zoning, the Applicant should provide the proposed coverage and open space for the project.
6. The Applicant should verify that the proposed houses will comply with the maximum height (feet) and maximum stories as required on the Table of Dimensional and Density Regulations in Zoning.
7. The Applicant should provide intersection sight distance measurements for the intersections of Patrick's Place and Hillside Park and at Patrick's Place intersection with Maple Terrace, and a plan showing intersection sight lines to confirm that adequate site distances are provided. The subdivision plan notes "sight distance easement" on Patrick's Place at its intersection with Hillside Path. The specifics of what these easements will allow, likely vegetation clearing to provide a safe and adequate sight distance for vehicles approaching this intersection, should be reviewed by the appropriate Town staff to insure there will be no unnecessary removal of vegetation, especially as a portion of this area is within wetlands resource areas.
8. The Applicant should provide an update on discussions with the Public Works Department regarding the capacity of the sewer main in Maple Terrace to handle the additional flows from the proposed subdivision.
9. The Applicant should provide an update on discussions with the Public Works Department regarding the water capacity in the existing main in Maple Terrace. With an approximate 70-foot increase in elevation on the subdivision road and to the proposed residences from the existing water main at Maple Terrace, the Applicant should verify that sufficient water flow rates and pressure are available for domestic water service and firefighting use at the top of Patrick's Place.
10. Has the Melrose Fire Department reviewed the proposed subdivision and, if so, have they provided any input on hydrant location or other items affecting emergency response? Currently two fire hydrants are shown on the Definitive Plan.
11. Sedimentation and Erosion Controls: As noted above, the project site is steep, which increases the potential for sedimentation and erosion control issues during construction. **Perimeter** erosion and sedimentation controls are shown on the Subdivisions Plans and details for straw wattles and siltation fencing are shown on the Plans. A very brief statement is contained in the narrative section of the Notice of Intent regarding the sedimentation and erosion control measures to be adopted during this project. A very general set of performance standards for sedimentation and erosion control is provided in Section 4 of the Stormwater Report. Construction Period Pollution Prevention Plan & Erosion and Sedimentation Control performance standards are contained within Section 6, pages 49 through 76 of the Stormwater Report. No proposed sedimentation and erosion controls are shown along the existing stream or wetlands on the site.

With the extensive blasting and associated earth moving required for this project, and to protect the stream and BVW areas within the interior of the proposed development, a more detailed program for the implementation of sedimentation and erosion controls is needed for this project. This program should include information on construction phasing, following up



on the staff comment noting blasting will be undertaken a lit bit at a time, temporary sedimentation control measures such as temporary basins or swales to control and direct runoff throughout construction, and internal perimeter sedimentation and erosion barriers along both sides of the stream and BVW areas, etc.

While these may be contained within the SWPPP to be prepared for this project, it would be helpful for this application to include additional information and details regarding the construction period sedimentation and erosion controls measures to be implemented. These could include performance standards relating to temporary sedimentation basins, construction vehicle entrances, offsite measures such as silt sacks within the existing catch basins on West Plain Street immediately in front of the property, dust control, etc.

BSC recommends that Boards consider requesting more detailed information from the applicant pertaining to sedimentation and erosion controls to be implemented prior to and during construction.

12. Construction Management and Scheduling information: Aspects of this item have been mentioned under several of the comments above. As this proposed development will impact, at least on a temporary basis, access to portions of Maple Terrace and Hillside Park, and with construction activities continuing for an extended period, it will critical for the applicant to provide preliminary information regarding the management and scheduling of construction activities. Understanding this information would be preliminary in nature, a mechanism to provide periodic updates to the applicable Town staff and agencies would be important.

BSC recommends that Board and/or Commission consider requesting more detailed information from the applicant pertaining to sedimentation and erosion controls to be implemented prior to and during construction.

13. Blasting and Rock/Earth Removal: The project will require extensive blasting and rock/earth removal. In the materials available for BSC to review, there is no information pertaining to the amount of blasting and rock/earth removal to be undertaken for this development. The proposed Grading Plans and Profiles indicate proposed grade changes for the subdivision roadway requiring over 30 feet of cut in some locations. During the site visit, I observed such a cut at Patrick's Road Station 4+30.

Not only will blasting potentially impact the surrounding area, but dust control will need to be addressed, loading of materials onto trucks, as well as truck traffic removing the excavated materials from the site.

BSC recommends that Board and/or Commission consider requesting more detailed information from the applicant pertaining to the quantity of blasting and rock/earth removal schedule, and details for blasting and rock/earth removal to be implemented prior to and during construction.



14. Stormwater Management: The applications to the Planning Board and Conservation Commission provide detailed Stormwater evaluations for the pre-development and post-development site conditions. These calculations are provided within the Stormwater Report. In general, these stormwater calculations follow the regulatory requirements of the MA DEP and City of Melrose. Overall these appear to meet the regulatory standards.

BSC has concerns regarding some aspects of these calculations as follows:

- i. The proposed stormwater management system relies upon two infiltration systems, an infiltration pond, and a surface detention system to mitigate increases in peak flows. No information, such as test pits or borings, is provided as to the ability of these structures to infiltrate a portion of the anticipated stormwater inflow. No details of these structures are provided, and the relationship of the bottom of these structures to ledge or the estimated seasonal high ground water is provided. The effectiveness of these structures in attenuating stormwater peak flows cannot be confirmed.
- ii. On several lots, see Lots 1, 3, 5, 6 and 7, there appears to be structures that may take runoff from the proposed residences and recharge it into the ground. These are not labeled as such, and no details of these possible infiltration structures are provided.
- iii. It is standard practice to perform test pit excavations in areas where infiltration structures or detention basins are to be located to determine the materials within and under these structures, as well as the depth to the estimated seasonal high ground water. No test pit or onsite soils investigation information is included within these applications. With the predominance of ledge across this site, this information is critical to insure the proper operation of these structures.
- iv. Mass DEP Stormwater Standard 3, Stormwater Recharge, requires, where practicable, the recharge of stormwater runoff depending upon the onsite hydrologic soils classification. The stormwater recharge calculations contained in the Stormwater Report, Section 2, pages through 14, determine the volume of runoff to be recharged and how long this volume will take to be infiltrated. Please see comments 14. i through iii above, regarding information needed to confirm the infiltration capacity of the recharge structures.
- v. MassDEP Stormwater Standard 4, Water Quality, depends upon the proposed removal of Total Suspended Solids (TSS) transported within stormwater runoff. The TSS removal treatment train consists of routing stormwater runoff from the proposed subdivision road into a deep sump catch basin with an oil/gas hood, then into the infiltration basins, infiltration pond, and the surface detention basin. The minimum TSS removal Standard per MA DEP standards is 80%. The calculations for TSS removal contained in the Stormwater Report, Section 2, pages 15 through 22, indicate compliance with this standard for some drainage areas within the development. However, these TSS removal rates are based upon these structures acting like an infiltration basin. Please see comments 14. i through iii above. If these structures cannot function as an infiltration basin, the required TSS removal standard cannot be met.
- vi. Post Construction Stormwater Management System Operation and Maintenance: Section 4 Long Term Operation & Maintenance Plan, pages 35 to 48 provide general performance standards for conducting the post construction O&M of the Stormwater Management System. On page 46, under item 2.0 Ownership and Maintenance



responsibilities, it notes “After project completion and street acceptance, 0 Swains Pond Avenue realty trust shall assume full responsibility and maintenance of the stormwater management system as well as the long-term pollution prevention plan outlined below. The exception would be if a legal agreement is made with another party to perform such duties for the owner (s).” It is suggested that appropriate agencies or staff of the City of Melrose be made aware and notified of the specific legal agreements regarding O& M and long-term pollution prevention to be made for this project should these occur.

- vii. BSC would recommend the Boards require the ongoing maintenance records be required to be submitted to the appropriate Town Board or agency at least on an annual basis.
 - viii. It is BSC’s experience that heavy equipment driving over the installed infiltration basins can cause structural damage to the chambers and potentially impact their ability to function. It is recommended that language be added to the O&M Section prohibiting heavy equipment from operating over the recharge basins after their installation.
15. Compliance with Massachusetts River and Stream Crossing Standards: The construction of Patrick’s Place will the installation of a stream crossing culvert. The proposed culvert will consist of a 3-sided pre-cast concrete structure, with a width of 10 feet and a minimum height of at least 4 feet. The culvert structure will be embedded below frost depth, and will have a natural channel bottom. Based upon a review of the Massachusetts River and Stream Crossing Standards, if this proposed culvert is constructed in accordance with the design information and details as contained on Sheet 5 of 7 of the Modified Definitive Plans, it would be compliant with the MA standards.
16. Notice of Intent Filing: BSC has reviewed the Notice of Intent submittal and found it to be generally in compliance with the applicable standards for this submittal. The submittal provides a brief narrative regarding the project, wetlands impacts and restoration, sedimentation and erosion controls, and completed MA DEP submittal forms.

Please see BSC’s detailed comments regarding the Wetlands Impacts and Replication, Item 17. Below, and our previous comments on Sedimentation and Erosion Controls, Item 11 and Stormwater management, Item 14 above.

17. Wetlands Impacts and Replication: The NOI narrative form states that the replication area follows the MA Inland Wetland Replication Guidelines (see attached for reference). These guidelines specify that a narrative description and plan should be assembled that describes the replication project, the soils, the hydrology, and the plants used.

BSC requests the applicant and their consultants provide the following information:

- i. Is there a wetland restoration narrative that describes the proposed project in more detail? Information in a narrative should include:
 - a. Wetland cover types of existing and proposed wetlands?



- b. Hydrology and analysis of existing and proposed wetland areas? – determined from test pits and long term seasonal observations
- c. Soils analysis of the existing wetland and proposed replication areas? – classified by digging test pits to determine soil profiles/descriptions/details
 - ii. In the notes of the proposed plan, it is stated that planting will occur in the replication area once hydrology is achieved. The required hydrology should be determined in advance, and the depth to achieve the required hydrology should be stated on the plan and shown with a cross-section detail.
 - iii. Planting of NE wet mix is not ideal for inundated wetlands – the seed won't germinate if planted when standing water/inundation will be present in the restoration area. Is the proposed wetland going to be inundated during the growing season and when they plan to install the seed?
 - iv. The replication plan states that seeding will occur after planting. It would be better to sow the seed mix first prior to digging holes and installing container plants. It is better to plant seed first and allow to become established. Soil stabilization is better when seed mix is planted first over the entire area. It is also more difficult to seed around taller woody plants, plugs, and other potted plants that were previously installed, and there is increased risk of accidental damage to these plantings when trying to sow seed around them.
 - v. What plant species were growing in the existing wetland? The proposed planting plan should, at a minimum, mimic what is found in the existing wetland feature, to the greatest extent practicable. This could include the consideration of translocating an intact soil profile in the vicinity of the replication area. The use of such soils, if suitable and free of invasive species, increases the likelihood of success, reduces likelihood of invasive species establishment, protects and preserves soil function, ensures vegetation species are the same as in the impact area and can possibly save the applicant money as they minimize the need to purchase soil and nursery stock, and avoid transportation and planting costs.
 - vi. Planting density of sensitive fern and clethra alnifolia could be higher – what was used to determine the proposed planting density and number of plants? What rationale was used for incorporating these species as container plants and nothing else?
 - vii. Hydric soils from the impacted wetland area should be placed and used in the replication area if hydric soils quantities in the replication area are less than desirable – leaf litter should only be a supplement to the addition of A/B hydric soil horizons. The project plan specifies the use of leaf litter as a soil amendment but there is no discussion/description of the existing soils. Soil amendments may not be required in the replication area if there are hydric soils already present.
 - a. How much hydric soil would need to be added to the replication area?
 - viii. What is the proposed planting schedule? What season will planting occur?
 - ix. What nursery will plants be ordered from?
 - x. Does the applicant have a watering plan for the replication area over the first year after its planted or until it is stabilized?



- xi. BSC notes a concern regarding the “temporary disturbance” of 115 o 127 SF BVW, depending upon which document you read. There does not appear to be any specifics regarding this mitigation in the submittal other than a vague reference to putting it back the way it was. BSC would recommend the Board and/or Commission request the applicant provide information relating to the mitigation of the temporary disturbed wetlands as noted under items i. through ix. above.
- xii. BSC suggests applicant be required to have these wetlands mitigation areas reviewed by a wetland scientist upon approval by the Commission. The Commission may want to require having an initial report after planting is complete submitted to the Con Com followed by inspection and report for 2 growing seasons, with 2 reports per year, one at the beginning and end of each growing season.

We look forward to discussing this project with you further at the public hearings on the project. Please feel free to contact me at (617) 896-4471 or fdipietro@bscgroup.com should you have any questions on the information in this report.

BSC Group welcomes the opportunity to provide our services to the City of Melrose.

Sincerely,

BSC GROUP, INC.

Frank DiPietro, P.E.
Senior Associate, Senior Project Manager

Attachments – Massachusetts Inland Wetlands Replication Guidelines

