

May 11, 2020

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

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

Dear Planning Board and Conservation Commission Members, Ms. Gaffey, and Mr. Devlin:

BSC Group has completed its supplemental review of the responses prepared by the Applicant's project team for 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 our review of these responses and newly submitted plans and technical materials. 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 supplemental peer review, in addition to the documents utilized during our first peer review, BSC reviewed the following documents received on or after May 1, 2020:

- Modified Definitive Plan, Hillside Park, Melrose, MA, consisting of 11 sheets, prepared by Williams & Sparages, dated December 4, 2019, revised through March 11, 2020;

Engineers

Environmental
Scientists

Custom Software
Developers

Landscape
Architects

Planners

Surveyors



- Modified Definitive Planting Plan, Hillside Park, Melrose, MA, prepared by Williams & Sparages, dated February 20, 2020, revised through March 11, 2020;
- Stormwater Report, Hillside Park (0 Swains Pond Avenue), Melrose, MA, prepared by Williams & Sparages, dated December 4, 2019, revised through March 11, 2020 (Peer Review & DPW Comments);
- Hydraulic Analysis Report – Gutter Flow evaluations for Patrick’s Place, prepared by Williams & Sparages, included within Stormwater Report;
- Rough Outline of Construction Sequence, Hillside Park, Melrose, MA, prepared by Williams & Sparages, undated;
- Sketch Plan, Hillside Park & #87 Swains Pond Avenue, prepared by Williams & Sparages, dated February 19, 2020;
- Revised Narrative – Notice of Intent, DEP File #215-208, prepared by Williams & Sparages, dated March 12, 2020;
- Hydraulic Analysis – Sewer Velocity Calculations, Sewer Flow to SMH-5, prepared by Williams & Sparages, dated April 15, 2020;
- Sketch Plan in Melrose MA showing Site Distances at Hillside Park, prepared by Williams & Sparages, dated April 23, 2020;
- Letter BSC Group Peer Responses, prepared by Williams & Sparages, dated March 27, 2020
- Letter City of Melrose Department of Public Works Responses, dated March 27, 2020.

PROJECT SUMMARY

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. This project has undergone review from various City of Melrose staff, Boards and Commissions, with both the Melrose Planning Board and Conservation Commission having held public meetings on this definitive subdivision under the City’s Subdivision Control Regulations and under the MA Wetlands Protection Act (WPA). Various City staff, including the DPW/City Engineer, have issued review comments pertaining to the proposed project.

At the request of the City of Melrose, the BSC Group conducted a peer of the application, and issued our initial peer review letter on March 9, 2020.

During the following two months, the Applicant’s project team have prepared detailed responses, modified previous submittals, and provided additional



information relative to the Hillside Park Definitive Subdivision applications. This material was made available to the BSC Group on May 1, 2020.

Upon reviewing this information in response to previous comments, BSC offers the following supplemental review comments. To provide consistency, the comment numbers from our first review will be retained. Where a comment has been addressed to our satisfaction, BSC will simply note “Comment adequately addressed.” Where BSC has a response to the latest submittal, BSC will provide a copy of our original comment, the Applicant’s project team response, and any new comments. New comments will be noted separately where applicable.

PROJECT SUPPLEMENTAL REVIEW COMMENTS

BSC offers the Melrose Planning Board and Conservation Commission the following supplemental comments based on our review of the project and information provided to us on May 1, 2020 as detailed above.

I. General

1. *Comment adequately addressed.*
2. *Comment adequately addressed.*
3. *Comment adequately addressed.*
4. Original BSC Peer Review Comment 03/09/2020: *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.*

**Williams & Sparages Response Letter, dated March 27, 2020:
The plans have been revised to definitively show the proposed work in this area.**

BSC Response: To be consistent with the previous subdivision approval for Colucci Estates, it is BSC’s understanding the existing 12 diameter cast iron culvert pipe that runs under Maple Terrace between #1 and #2 Maple Terrace would be replaced by a 12” diameter Class V (high strength) reinforced concrete pipe, due to the shallow cover, approximately 1 foot vertical, over this culvert to the road surface at Maple Terrace. The Modified Definitive Topographic Details Hillside Park, Sheet 6 of 11, does show some information regarding the proposed work at this location. Sheet 6 referenced above does not indicate that the existing cast iron pipe will be removed, and shows the existing downstream headwall will be removed, the existing culvert pipe will be



extended by about 6 feet and a new headwall will be constructed at the southern edge and just inside of the Maple Terrace Right of Way. The shift of the headwall is required to widen the pavement width of Maple Terrace at this location to construct a sidewalk along the opposite side of Maple Terrace. Approximately 30 square feet of the existing stream channel will be impacted by this modification.

During the Planning Board hearing for this project held on May 4, 2020, Richard Williams of Williams and Sparages indicated the existing culvert would be replaced.

No other information is provided regarding the proposed work at the existing culvert under Maple Terrace. If the existing culvert is being replaced, this should be noted on the Definitive Plans. Information should be provided regarding what sedimentation and erosion control measures will be implemented to protect downstream areas prior to and during construction. The impact from the work proposed at this existing culvert serves a public purpose – improving pedestrian safety along Maple Terrace.

BSC suggests the work proposed at the existing Maple Terrace culvert be clarified on the Definitive Plans, with appropriate sedimentation and erosion controls specified to allow this work to be undertaken in a manner to minimize potential impacts to adjacent wetlands resource areas.

5. ***Comment adequately addressed. BSC reiterates its previous comment suggesting the Planning Board and/or Conservation Commission require that the applicant provide a 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. ***Comment adequately addressed.***
2. ***Comment adequately addressed.***
3. ***Comment adequately addressed.***
4. ***Original BSC Peer Review Comment 03/09/2020: 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:***



Williams & Sparages Response Letter, dated March 27, 2020:the Applicant is requesting a slope of 12% for Patrick's Place.

BSC stands corrected – slope requested is 12.0%.

- Original BSC Peer Review Comment 03/09/2020: *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.*

Williams & Sparages Response Letter, dated March 27, 2020:it is important to note that the design represents a substantial improvement over the existing vehicle access to the dwellings on Hillside Park which currently has slopes of up to 25% in some sections.

BSC Response: Comment understood. BSC will defer to the Planning Board on this matter.

- Original BSC Peer Review Comment 03/09/2020: *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.*

Williams & Sparages Response Letter, dated March 27, 2020: A Guardrail has been added along Patrick's Place opposite from Hillside Park.

BSC Response: The Definitive Plans show approximately 35' of guard rail have been added along the west side of Patrick's Place, south of its intersection with Hillside Park. BSC suggests the guard rail should be labelled on the Plan and a guard rail detail added to the Construction Details sheets.

- *Comment adequately addressed.*



- *Comment adequately addressed. BSC notes that proposed catch basins 12 and 13, located at the intersection of Maple Terrace and Patrick's Place, have been modified from single to double grate structures as requested by the City Engineer. These structures will decrease bypass downhill of them onto Maple Terrace.*
5. *Comment adequately addressed.*
 6. *Comment adequately addressed.*
 7. Original BSC Peer Review Comment 03/09/2020: *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.*

Williams & Sparages Response Letter, dated March 27, 2020: See attached sketch showing available site distances. There will be sufficient sight distance at the intersections. There is no portion of the site distance easement that is within the resource area.

BSC response: During the Planning Board hearing on May 4, 2020, the creation of an Open Space Easement within a portion of Lot 1 was discussed. As the Proposed Site Easement will also be located within this Open Space area, it is BSC's recommendation that a provision should be made within the Open Space Easement to allow for the undertaking of selective clearing of vegetation to maintain the site distance within the Site Distance Easement.
 8. *Comment adequately addressed, pending review of responses by City Engineer. See letter City of Melrose Department of Public Works Responses, dated March 27, 2020.*
 9. *Comment adequately addressed, pending review of responses by City Engineer. See letter City of Melrose Department of Public Works Responses, dated March 27, 2020.*
 10. Original BSC Peer Review Comment 03/09/2020: *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.*



Williams & Sparages Response Letter, dated March 27, 2020: No response from the Melrose Fire Department has been provided to the Applicant.

11. Original BSC Peer Review Comment 03/09/2020: *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 Maple Terrace, dust control, etc.

Williams & Sparages Response Letter, dated March 27, 2020: A detailed Stormwater Pollution Prevention plan will be provided in addition to the erosion and sedimentation control plan. This document will be prepared as part of the NPDES permit application. This document will be provided to the City of Melrose as has been done on other projects.

BSC response: BSC understands that the designing engineer is not responsible for the means and methods of the construction phase of any development project. However, it is customary to provide detailed



performance standards to be utilized during construction to achieve the levels of sedimentation and erosion controls as are mandated by State and local regulations as well as standard engineering practice. The Original Stormwater Report, dated December 4, 2019, contained very detailed sections containing valuable information concerning Construction Period and Long-Term operations and maintenance and pollution prevention plans. See Section 4.0, Long Term Operations and Maintenance Plan, Section 5.0, Long Term Pollution Prevention Plan, and Section 6.0, Construction Period Pollution Prevention Plan and Erosion and Sedimentation Controls. These Sections provide general procedures and performance standards, which do not address the special and unique circumstances that are associated with the currently proposed project.

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. At the very least, it is suggested that the draft Stormwater Pollution Prevention Plan be provided to the City for review by appropriate City staff and Departments prior to its submittal to the EPA under the NPDES permit program.

12. Original BSC Peer Review Comment 03/09/2020: *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.*

Williams & Sparages Response Letter, dated March 27, 2020: See attached construction schedule regarding timing of the placement of erosion controls.

BSC Response: see comments under BSC responses to Item 11 above and Item 13 below.

13. Original BSC Peer Review Comment 03/09/2020: *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.

Williams & Sparages Response Letter, dated March 27, 2020: See attached construction schedule regarding timing of the placement of erosion controls.

BSC Response: see comments under BSC response to Item 11 above.

It should be noted that the "Rough Outline of Construction Sequence" submitted provides a general outline for the major components of the anticipated construction program and related activities for the proposed subdivision. It also includes a reference the Applicant will set up a program for maintaining ongoing communications with the City and neighbors throughout the construction period. There are no specific time frames or durations given for any of these construction activities. As an example, Items 6, 8, 9, and 11 note blasting operations relative to sections of Patrick's Place. It is not clear if these operations include blasting for underground utilities within the roadway, as noted in Item 12. Item 16 relates to home construction, with the appropriate note "time for this item will be based upon market conditions." Will the home construction phase include any blasting or will the blasting for individual lots be done during one of the earlier construction sequences? Will additional blasting be required for the installation of the roof recharge systems to be provided for every residence?

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. Original BSC Peer Review Comment 03/09/2020: *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.*

**Williams & Sparages Response Letter, dated March 27, 2020:
It should be noted that the surface pond has been converted to a subsurface infiltration structure as shown on the revised plans.**

The test pit locations and designations were inadvertently shut off in the original submitted plans but are now shown on the revised plans. The soil test pit logs that were performed at or near the proposed infiltration structures were included at the end of the submitted Stormwater Report for your review.

BSC response: BSC acknowledges that the surface pond, designated Pond 1P, located at the intersection of Maple Terrace and Patrick's Place, has been converted to a subsurface infiltration system.

BSC notes that the southern portion of Pond 1P is enclosed within a 3:1 fill slope. The bottom of the infiltration system is set at elevation 80.0, and is located about 10' horizontally from the adjacent 3:1 slope. Test pit 19-7, taken within Pond 1P, hit bedrock at an elevation of 78. The bottom of the slope ties into the existing edge of pavement on Maple Terrace at an elevation of 75± approximately 22' horizontally from the bottom of the infiltration system. BSC's concern is that stormwater infiltrated through the bottom of Pond 1P will flow down to and along the bedrock at elevation 78, and then breakout along the adjacent slope and flow down towards Maple Terrace.

BSC recommends the Applicant's project team consider methods of preventing breakout of infiltrated stormwater from Pond 1P to avoid potential erosion to the adjacent slope and runoff onto Maple Terrace.

BSC has reviewed the test pit logs contained at the end of the Stormwater Report. While the test pit locations are now shown on the revised Definitive Subdivision Plans, it is not possible to read all the test



pit designations to determine which test pit log applies to the test pit location shown on the Topographic Detail Plans. On Sheet 5 of 11, Modified Definitive Topographic Details, Sheet 2 of 2, test pits 19-3, 19-4 and 19-5 appear to be identifiable. On Sheet 10 of 11, Modified Definitive Construction Details, Sheet 4 of 4, test pits 19-1 and 19-7 are identified. The seven test pit logs indicate bedrock was found between 14” to 102” below the existing ground surface. Estimated Seasonal High Groundwater, as evidenced by a redox layer, was found to be located between 33” to 56” in four test pits, with no indication of groundwater found in three test pits, one of which hit bedrock at 14” below the existing ground surface.

Based upon their locations on the revised Plans, four of the seven test pits were located within or near three of the proposed infiltration systems – the converted subsurface infiltration system at the intersection of Maple Terrace and Patrick’s Place, Pond 1P, the subsurface infiltration system within Patrick’s Place immediately upstream of the proposed culvert crossing, Pond 2P, subsurface infiltration system located behind the proposed residence on Lot 7, Pond 3P, and subsurface roof recharge system, 16, located within the open space area behind Lot 6.

The Pond Cross Sections for each of the four major subsurface infiltration systems are shown on Sheet 10 of 11, Modified Definitive Construction Details, Sheet 4 of 4. For two of these infiltration systems, Pond 1P and Pond 3P, information is provided using the test pits 19-1 and 19-7 to demonstrate these systems meet DEP Stormwater Standards to provide a minimum 2’ separation from the Estimated Seasonal High Groundwater (ESHGW) to the bottom of the system. No test pit information is provided near Pond 4P, located along the western portion of Lots 3 and 4.

Test pit 19-3 is located approximately 20’ from the upper end of subsurface infiltration pond 2P, which is located just upstream of the proposed culvert crossing. It is also located within one of the proposed typical subsurface roof recharge systems, designated as 4, for the proposed residence on Lot 8. The test pit log for Test Pit 19-3 indicated the Estimated Seasonal High Groundwater (ESHGW) was found to be 56” below the existing ground surface. Assuming the existing ground surface was at elevation 117, using the existing topography at this location, the elevation of the ESHGW at this test pit would be $117 - 4.7' (56'') = 112.3$. The MassDEP Stormwater Regulations would require a minimum 2’ separation from ESHGW to the bottom of any infiltration system. Near test pit 19-3, this would mean that the bottom of any subsurface infiltration pond would have to be at an elevation of $112.3 +$



2 = 114.3 or higher. The proposed bottom elevation of subsurface infiltration pond 2P, as shown on Profile Sheet 2 of 2, Sheet 2 of 11, and in a cross-section view on Sheet 10 of 11, Modified Definitive Construction Details, Sheet 4 of 4, is given as elevation 106.46. The proposed subsurface roof recharge system 4, as shown on Topographic Details Sheet 5 of 11, is given as elevation 111.0. Both systems, as currently shown, would not comply with the DEP mandated 2' separation from the ESHGW.

In a similar manner, the subsurface roof recharge system for the proposed residences on Lots 5 and 6, designated at 16 on Sheet 5 of 11, has a bottom of system elevation of 135.0. Test pit 19-4 is located directly adjacent to this recharge system. With an existing ground surface elevation of approximately 137, based upon the existing topography, and a depth to ESHGW of 37", the elevation of the ESHGW at this location would be $137.0 - 3.1' (37'') = 133.9$. The minimum elevation of the bottom of any subsurface recharge system per DEP regulations would need to be $133.9 + 2.0 = 135.9$.

It is possible to raise the proposed grades over the two subsurface roof recharge systems noted above by a foot or more. However, it would be difficult to do this for the subsurface infiltration pond 2P.

The point of the above series of evaluations is to note that it is critical to understand where the ESHGW and bedrock elevations are for the major subsurface recharge basins, namely Ponds 2P and 4P. These are major components of the proposed stormwater management system that will mitigate the impacts of the definitive subdivision.

The elevations and/or locations of the subsurface roof recharge systems can likely be adjusted to reflect the actual field conditions encountered, while needed for their final design, the ESHGW and bedrock elevations are not as critical with regards to the design prior to the construction of the proposed residences on each lot.

BSC recommends that prior to the start of any construction activities, the Applicant undertake additional test pits within the major subsurface recharge basins identified as Pond 2P and 4P, to determine the ESHGW and minimum elevation for the bottom of these recharge systems, based upon MassDEP requirements. Should these test pits indicate modifications to the proposed stormwater management system be required, these should be submitted to the appropriate City agencies and staff for modifications to pertinent project approvals. If no modifications are required, this additional test



pit information should be submitted for review by the appropriate City staff before commencement of construction.

- ii. *Comment adequately addressed subject to comments under item 14 i. above.*

For Comments iii. Through iv. See comments under item 14 i above.

- 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.*

**Williams & Sparages Response Letter, dated March 27, 2020:
Agreed, see prior responses.**

BSC Response: TSS removal calculations have been provided. As one component of the TSS removal treatment, Sediment and Oil Separators (See Sheet 8 of 11, Modified Construction Details, Sheet 2 of 4) are proposed to be used between the catch basins with hoods and deep sumps and the infiltration basins. These function as a “second catch basin” with a TSS removal rate of 25%. BSC would suggest that a hood be installed at the outlet end of these Sediment and Oil Separators to provide for additional protection for oil and other floatable materials that may pass from the catch basins into this Separator. Acknowledging a comment made by a member of the Planning Board at the public hearing held on May 4, 2020, while not a standard high TSS removal water quality unit, the Sediment and Oil Separators do provide additional TSS removal. As each of the major stormwater infiltration systems provide a high level of TSS removal (80%), the overall treatment system proposed does meet the overall goal of 85% TSS removal.

BSC would also recommend the Applicant’s project team consider utilizing an isolator row within each of the Cultec or equivalent subsurface infiltration systems. The isolator row consists of the inlet row of the infiltration system being wrapped in a geo-fabric material which captures any fine particulate matter that passes through the



stormwater pre-treatment components. The isolator row can then be periodically cleaned to remove the accumulated material, thus extending the operational life of the subsurface infiltration system.

vi. Comment adequately addressed. 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. Comment adequately addressed.

viii. Comment adequately addressed.

15. Comment adequately addressed

16. Original BSC Peer Review Comment 03/09/2020: *Notice of Intent Filing: 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.*

Williams & Sparages Response Letter, dated March 27, 2020: See revised narrative dated March 12, 2020.

17. Original BSC Peer Review Comment 03/09/2020: *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:

For items i. a., b., c, and ii, Comments adequately addressed.

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?

Williams & Sparages Response Letter, dated March 27, 2020: The New England Wetland Seed Mix is an appropriate seed mix for the proposed replication/enhancement area. We do not expect the replication area to be inundated with water. Based upon our test pits and observations of the area it is our opinion that soils will be saturated at or near the surface but



will not pond. The intermittent stream will continue to carry most of the water within its banks and serve as an emergency overflow for the proposed restoration/enhancement area.

BSC response: BSC acknowledges that the Applicant's project team has enlarged the proposed wetlands replication area from approximately 357 SF to approximately 802 SF. We believe this increase in replication area provides a much better mitigation for the existing wetland areas proposed to be filled.

There appears to be a discrepancy between the proposed grading of this area as shown Culvert Wetland Crossing Plan Detail on Sheet 5 of 11, and the grading shown Modified Definitive Planting Plan, Sheet 11 of 11.

On Sheet 5 of 11, the proposed grading within the wetlands replication area is shown with a contour having an elevation of 96. This is consistent with the elevation of the existing stream channel just downstream of the proposed culvert. However, it appears to tie into the existing 94 contour approximately 50' downstream of the culvert.

On Sheet 11 of 11, the grade on the plan view and Cross Section A-A, indicates the elevation within the proposed wetlands replication area is 94, beginning approximately 10' downstream of the culvert, and tying into the existing 94 contour about 50' downstream.

BSC has no issue with the wetland replication area tying into the existing 94 contour downstream. Based upon Section A-A, the bottom of the wetlands replication area nearest the culvert at elevation 94, will be two feet lower than the adjacent stream channel, approximately 12' to the north. BSC's concern relates to the potential for water within the stream channel to be diverted into the wetlands replication area due to its lower elevation. With the wetland replication area proposed to have relatively steep 2:1 slopes, there could be a potential for the slope nearest the stream to erode. This could result in inundation of the wetlands area, with impacts as noted in our original comments above.

BSC would suggest the Applicant's project team consider raising the upstream end of the proposed wetlands replication area to an elevation of 95, with side slopes of 4:1. This would allow for an elevation and slope across the wetlands replication area more consistent with the adjacent stream channel.



- 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.*

Williams & Sparages Response Letter, dated March 27, 2020:
The construction methodology on the planting plan has been modified to proposed to sow the seed prior to planting; however, we do not agree that the area should become stabilized with an herbaceous layer prior to planting.

BSC Response: Once the seed is sown, BSC recommends care be taken to minimize damage to the seed during the planting phase of the wetlands replication. Damaged areas shown be reseeded as soon as possible after planting is finished, and monitored by a certified wetlands scientist.

For Items v. through xii., Comments adequately addressed. BSC agrees with the Applicant's project team's suggestion that the Order of Conditions require the wetlands replication area be monitored by a certified wetlands scientist for two years after its construction, with written reports provided to the Commission regarding the status and health of the area.

We look forward to discussing this project with you further at the upcoming 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.

A handwritten signature in cursive script that reads "Frank DiPietro".

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