



TETRA TECH

December 22, 2011

Richard K. Sullivan Jr., Secretary
Executive Office of Energy & Environmental Affairs
Attn: MEPA Office
Nicholas C. Zavolas
100 Cambridge Street
Boston, MA 02114

RE: Supplemental Design Information
The Residences at Johnson Farm (the "Project")
189 Landham Road, Sudbury
EEA # 14818

Dear Secretary Sullivan:

The project team for The Residences at Johnson Farm, a proposed apartment rental community in Sudbury, respectfully submits this letter with supplemental information in response to a request for additional information we received from Nicholas Zavolas in an email on November 22nd; from MassDEP Northeast Regional Office in an ENF review letter dated November 29th; and comment letters to you from various agencies and organizations, including Sudbury Planning and Community Development, Sudbury Conservation Commission, Sudbury Valley Trustees and OARS for the Assabet Sudbury & Concord Rivers.

As you may be aware, the Project is currently undergoing local review by both the Sudbury Zoning Board of Appeals for a Comprehensive Permit under M.G.L. c. 40B and the Sudbury Conservation Commission for an Order of Conditions under the Wetlands Protection Act. Because of this concurrent review, it is not unusual that revisions have been, and continue to be, made to the Site Development Plans to address many of the issues raised thus far in the course of these reviews, which include minor changes to address many of the comments heard at the November 18th MEPA Scoping Meeting. However, fundamentally, the Project and its associated impacts have not substantially changed from the plans filed in connection with the ENF, and we do not expect these plans for the Project will materially change in the remainder of the permitting process. For ease of reference, each of the emails or letters is identified with an underlined heading and then pertinent comments that require a response or additional information are numbered and printed in italics; our specific responses follow in regular type.

Engineering and Architecture Services
One Grant Street
Framingham, MA 01701
Tel 508.903.2000 Fax 508.903.2001



Requested Information from Nicholas Zavalas, email dated November 22nd

1. Large scale project plans depicting entire project on one sheet including layout, grading & drainage, utilities and resource areas.

We have prepared and enclosed the large-scale project plan with the design information and resource areas as requested. As noted, we have made modifications to the Site Plan to reduce the environmental impact of the Project by relocating most of the non-limited project development impacts outside the Riverfront Area (RFA). Specifically, we have moved Building #10, Building #5, the management office building, parking areas and associated grading to minimize Project impacts to the RFA.

The following table summarizes those relevant modifications made to the Site Plan and the change in impacts to resource areas:

Resource Area Impacts	Previous Site Plan Dated 10/4/11	Modified Site Plan Dated 12/15/11	Change in Resource Area Impact
Bordering Vegetated Wetlands (BVW) Impact (*1)	10,485 S.F.	9,845 S.F. (perm) 4,109 S.F. (temp)	-640 S.F. (perm) +4,109 S.F. (temp) (21,400 S.F. area of wetlands replication)
Bank Impact	390 S.F.	390 S.F.	No Change
Land Under Water (LUW) Impact	156 S.F. + Pipe	156 S.F + Pipe	No Change
Riverfront Area (RFA) Impact (*2)	49,920 S.F. (9.4% of RFA on site)	27,827 S.F. (5.3% of RFA on site)	-22,093 S.F. (-4.1% of RFA on site)
Bordering Land Subject to Flooding (BLSF) Impact	80 S.F. located outside BVW	80 S.F. located outside BVW	No Change
Isolated Land Subject To Flooding (ILSF) Impact	0	0	No Change
Federal Isolated Vegetated Wetlands (IVW) Impact	4,740 S.F.	4,740 S.F.	No Change
Flood Storage Volume Calculations (*3)	-	4,292 C.F. total flood storage loss within BVW	16,292 C.F. total flood storage mitigation



Table Footnotes:

- (*1) Wetlands Replication Areas provided at greater than 2:1 ratio.
- (*2) Permanent RFA impacts include access driveway and related work, a portion of the Wastewater Treatment Plant within shrub thicket & the portion of the WWTP building in RFA minus existing impervious areas to be converted to meadow. Per 310 CMR 10.58(6)(h), wastewater treatment plants and their related structures are not included with the RFA impact area calculation. Per 310 CMR 10.58(4)(d)1, wetland replication, stormwater management, and floodplain mitigation areas are not included with the RFA impact area calculation.
- (*3) Flood Storage Mitigation Areas and volumes provided at almost a 4:1 area ratio, with incremental mitigation storage volume provided for each 1-foot increment of lost flood storage.

2. Describe proposed project construction phasing to avoid impacts (compaction) to proposed pervious surface/stormwater management BMP.

A document entitled, "Porous Asphalt Construction Phasing/Sequencing Plan and Installation Oversight" has been prepared by Dr. Robert Roseen, Director of the University of New Hampshire Stormwater Center. Dr. Roseen is a national leader in the development and testing of the porous pavement technology and conducts the well-known Porous Pavement Tour and workshop at UNH. He has been instrumental in providing quality assurance for several significant porous pavement projects installed successfully throughout New England, and he is an integral part of the design team on this project for The Residences at Johnson Farm. Dr. Roseen's role is to provide quality control for porous pavement design documents and construction specifications, inspection of asphalt mix batch production and construction oversight to ensure a successful installation for the Project. He has attended and presented at the Sudbury Conservation Commission and Zoning Board of Appeals public hearings, and will be involved in this Project through the final construction phase. The Construction Phasing/Sequencing Plan is enclosed with this submission.

In addition, enclosed is a letter to the Conservation Commission Chairman, dated November 7th, that provides supplemental porous pavement information, including key benefits to its use on this site; examples of Federal, State and Local agencies and conservation organizations recommending it as a recognized Low Impact Development (LID) design technique; examples of local and regional sites successfully using porous pavement; and proposed maintenance protocols to ensure its functionality and longevity.



3. Estimate total amount of additional fill to be brought in.

We have prepared a plan entitled "Estimated Site Earthworks Volume Plan" that depicts the proposed cut and fill depths throughout the site required for the development, and includes an "Estimated Earthworks Volume Calculation Table". The plan shows that the imported fill material volume is 28,100 C.Y. and that the estimated net volume of all material required, including porous pavement and building subbase, is 41,700 C.Y. Development grades will be raised on average by 3 to 5 feet to provide a suitable 2 1/2-foot depth of porous pavement layered media subbase section and more than the minimum requirement of 2 feet of separation to seasonal high groundwater elevations. As observed during the Scoping Meeting, the earthwork required for this Project is typical for developments in the area, including the recently constructed Brookside Place subdivision across Landham Road, where similar materials were moved on site to establish a suitable subbase.

4. Estimate BVW buffer impacts – include proposed grading & stormwater infrastructure.

An estimate of the area of proposed work within the 100-foot Buffer Zone to BVW or Bank is 6.3 acres of the total 17.3 acres of Buffer Zone on site, which includes areas of proposed grading and stormwater infrastructure.

5. Estimate impacts to Bordering Land Subject to Flooding (BLSF) for 100 yr. and 500 yr. events and proposed mitigation (show in site plan).

The 500 year floodplain is not a regulatory jurisdictional area within any state regulatory program of which we are aware; however effects of the proposed project, including mitigation, to the 500 year floodplain are described below.

The BLSF designation applies only to the portion of the 100 year floodplain located outside of the BVW. Areas of calculated flooding on the site are located almost exclusively within BVW, with the exception of a small (80 sf +/-) area within the grass cart path.

Mapped floodplain (100 year flood) exists on the site associated with the mapped FEMA floodplain located north of the existing cart path crossing (elev. 122) and also within a



local floodplain south of the existing crossing associated with the restriction in flow at the existing culvert crossing (determined by hydrologic analysis to be at elev. 124.1).

Mitigation for each area is proposed as follows:

- Displaced flood storage north of the crossing between elev. 121 and 122 is mitigated within the BVW replication area, which includes an area not currently subject to flooding to be excavated to elev. 121. This results in significantly greater than 1:1 incremental mitigation flood storage volume.
- Displaced flood storage from the local floodplain south of the existing and proposed crossing between elev. 121 and 124.1 will be mitigated through the excavation of a compensatory flood storage area of greater volume at each 1 foot increment than the proposed lost flood storage. This area is located immediately north of the existing and proposed crossing, but is hydraulically connected to the floodplain south of the crossing via an existing 24-inch diameter culvert.
- As noted above, the 500 year floodplain is not regulated. Nevertheless, we offer the following general information:
 - Based upon FEMA mapping, the 500 year floodplain generally follows approximately elevation 124, and extends onto the site from the north. Therefore, the area of potential interest relative to the 500 year floodplain is limited to the area below elevations 124. Note that all work below elevation 122 is addressed as part of the 100 year floodplain evaluation.
 - Proposed work on site within the vicinity of the 500 year floodplain below elevations 124 is limited to the proposed access road.
 - At the proposed wetland replication areas, substantial areas are proposed to be excavated from elevation 123 and 124, thereby providing additional incremental flood storage for the 500 year flood.

6. *Estimate impacts to Riverfront Area (RFA) – (show in site plan).*

Riverfront impacts associated with the Project are depicted on the modified Site Plan developed as a result of ongoing local review. Changes to the Site Plans show three of the proposed buildings, parking areas and associated grading to have been relocated to be outside the RFA, resulting in a significant reduction in proposed RFA impacts compared to the previous Site Plan. The updated “Resource Area Impacts” table on the Plan Cover Sheet identifies permanent RFA impacts area due to the construction of the limited project access drive as 27,827 S.F. (0.64 acres), which is 5.3% of the total RFA on the



property. This is a significant reduction from the 9.4% RFA impacts proposed with the previous plan.

ENF Review/Comment Letter, MassDEP Northeast Regional Office, November 29, 2011

Wetlands

1. In the analysis of alternative projects for the site, Option 7 is a 120 unit development in 10 buildings. This alternative only includes one stream crossing, which would reduce the wetlands impacts, while still providing the development described in the preferred alternative. It is unclear why this alternative was not described. Therefore, information will be required by MassDEP to understand whether this is a reasonable alternative.

Option 7 Clarification and Description:

The comment may have incorrectly identified the alternative described as "Option 7". For clarification, the Avalon Site Plan Option 7 alternative was originally designed to maximize site development and is not the alternative described in MassDEP's comment. It includes 198 units in (13) buildings and a community center. This alternative would include three additional wetland crossings and little or no protected open space upland. Because the preferred alternative was determined to reasonably meet the project purpose and was determined to be economically viable with less environmental impact and more open space preservation than this alternative, the Avalon Site Plan Option 7 alternative was dismissed. A copy of the Avalon Plan is enclosed with this submission.

Option 6 Clarification and Description:

Option 6 may be the alternative described in MassDEP's comments, as this alternative eliminates the intermittent stream crossing, but otherwise maintains the configuration of the preferred alternative (120 units in 10 buildings). This alternative was dismissed because this would eliminate the circular roadway around the buildings, which would create a very long dead end access road. Due to public safety concerns (this configuration would not provide fire/emergency apparatus adequate access and navigability on the site) this alternative was dismissed. Furthermore, in the preferred alternative, the intermittent stream crossing is proposed to span the channel with a three sided box culvert that fully complies with the Massachusetts Stream Crossing Standards. This will allow the natural stream channel to remain with no wetland fill proposed.



Wetlands Crossing

1. MassDEP will need additional information for the demonstration of practicable alternatives for the stream crossing in compliance with 401 Water Quality Certification requirements. The term "non-natural BVW" needs to be explained. The method and analysis for determining mean annual high water is needed to understand how bank-full limits of the stream were established.

"Non-Natural BVW": The proposed road crossing at the site has been designed to overlay an existing historically filled farm road crossing. The passable farm road (aka "cart path") includes a maintained 9 foot wide grass path and embankment which was historically filled more than 1 foot above the natural wetland elevation and under which lies a 24-inch diameter culvert that provides a hydraulic connection for the stream. Outside of this actively maintained farm road, there exist obvious additional filled areas that are not regularly mowed, and are dominated by European buckthorn (*Rhamnus frangula*). As noted on the site plans, the wetland delineation for the site includes substantial portions of the historically filled area. The areas were clearly filled to make the crossing passable by farm vehicles, but the fill was not of sufficient depth so as to raise the surface to a degree that wetland hydrology (as defined by MA Wetland Regulations and MADEP Policy) does not exist. These filled areas were thus included within the BVW delineation, but are identified as "non-natural BVW" due to their obvious difference in hydrology, soils, plant community, and resulting function.

Understanding of "how bank-full limits of the stream were established":

The Mean Annual High Water Line (MAHWL) of the stream was field delineated in accordance with 310 CMR 10.58(2)(a)(2), which states:

"2. Mean Annual High-Water Line of a river is the line that is apparent from visible markings or changes in the character of soils or vegetation due to the prolonged presence of water and that distinguishes between predominantly aquatic and predominantly terrestrial land. Field indicators of bankfull conditions shall be used to determine the mean annual high-water line. Bankfull field indicators include but are not limited to: changes in slope, changes in vegetation, stain lines, top of pointbars, changes in bank materials, or bank undercuts.

a. In most rivers, the first observable break in slope is coincident with bankfull conditions and the mean annual high-water line."

The stream on the site is confined within two nearly vertical Banks. As such, EcoTec delineated the first observable break in slope. These flags were subsequently evaluated



and reviewed for accuracy after the Abbreviated Notice of Resource Area Delineation (ANRAD) was filed and before the Order of Resource Area Delineation (ORAD) was issued by the Sudbury Conservation Commission.

2. MassDEP has reviewed the evaluation of BVW crossing alternatives and requests consideration of an open bottom box culvert or arch culvert to retain native stream bottom substrate. It will be necessary to demonstrate fully that the culverts' openings meet the stream crossing standards. More detail on the intermittent stream openness ratios will be needed. In addition, potential for downstream impacts as a result of enlarging the existing culvert must be evaluated.

“Consideration of an open bottom box culvert or an arch culvert to retain native stream bottom substrate:”

As suggested by MassDEP’s comment, the proposed project plans includes the use of open bottom box culverts at the crossings. It is important to note that the plans also propose the removal of the existing oval corrugated metal arch culvert (20 feet in length) and restoration of a natural substrate stream channel at that location prior to installation of the proposed open bottom box culvert.

“Stream crossing standards” and “potential for downstream impacts:”

As noted in the Department’s comment letter, at the perennial stream crossing, these two issues are related, and as acknowledged in the stream crossing standards, are sometimes in conflict. The applicant’s intent has been to meet the Stream Crossing Standards, although not necessarily required for culvert replacement. Based upon a detailed hydrological analysis, it has been determined that the existing culvert at the cart path embankment serves as a restriction to flow, such that water is theoretically impounded upstream (south) of the cart path embankment during the statistical 100 year storm. Therefore, replacing the existing culvert with a large box culvert, as proposed, without additional flow restriction would result in a theoretical increase in downstream flow during the 100 year storm event.

The Massachusetts Stream Crossing Standards for culvert replacement projects states that projects should meet the design guidelines for the general or optimal standards unless meeting the standards would create stream instability, create a flooding hazard that can’t otherwise be mitigated, or site constraints make it impossible to meet the standards. The Stream Crossing Standards state that when it is not possible to meet all of the standards, replacement crossings should be designed to avoid or mitigate the following problems: inlet drops, outlet drops, flow contraction that produces significant turbulence, tailwater armoring, tailwater scour pools, and physical barriers to fish and wildlife passage.



In order to prevent an increase in downstream flows, a structural device of some sort is required to mimic the restriction in flow created by the existing culvert (effectively to maintain the existing flow). Therefore, the applicant has proposed the use of an internal rectangular weir structure within the box culvert. At the location of the proposed weir, the culvert opening would also provide for the Stream Crossing Standards openness ratio but would be designed to maintain existing flows. No such structural device is required at the intermittent stream crossing, where there is minimal flow and no existing flow restriction.

For the two proposed crossings, an analysis of conformance to Stream Crossing Standards follows:

	Channel Span	Native Channel Maintained?	Meets Openness ratio?*
Stream Crossing Standard	1.2 times existing width	Yes	Yes: 0.82 ft. (0.25 meter)
Perennial Stream (not considering weir structure)	2 times channel width	Yes (restored at existing culvert)	Yes: 1.20 ft.
Perennial Stream (at weir structure)	Weir is 4 ft. wide, to match existing culvert (to be removed)	Yes	Yes: 0.82 ft.
Intermittent Stream	3 times channel width	Yes	Yes: 0.89 ft.

* Openness calculations (area of opening excludes channel):

$$\text{Openness (ft)} = [\text{area of opening (ft}^2\text{)}] / [\text{length(ft)}]$$

$$\text{Perennial Stream: } [4.2 \text{ ft} \times 12 \text{ ft}] / [42 \text{ ft}] = 1.2 \text{ ft}$$

$$\text{Weir Structure: } [2.2 \text{ ft} \times 12 \text{ ft} + 2 \text{ ft} \times 4 \text{ ft}] / [42 \text{ ft}] = 0.82 \text{ ft}$$

$$\text{Intermittent Stream: } [2.5 \text{ ft} \times 12 \text{ ft}] / [35 \text{ ft}] = 0.86 \text{ ft}$$

3. *MassDEP requests further consideration of the estimated costs for the bridge alternatives. Since significant fill material is being brought in to maintain an adequate separation to the seasonal high groundwater table beneath the site roadways for all stream crossing alternatives, if the estimated cost for the bridge approach fill is subtracted from the total cost for a bridge, would a span over the wetlands become a reasonable alternative?*



The Department suggests that the bridge approach work should be eliminated from the calculation because the Project will require this work regardless of what type of crossing is installed. Therefore, the estimated costs for the bridges were re-calculated to exclude the approach work.

The Massachusetts Department of Transportation ("MassDOT") uses a "rule of thumb" for determining rough estimates of bridge costs:

- Bridge cost:
 - up to 5,000 SF Area of Bridge: \$450/SF
 - 5,000 to 10,000 SF Area of Bridge: \$650/SF
- approach work = 10% of cost
- contingency = 35% of cost

Bridge Option 1: Total BVW & Inner Riparian span: 250-ft span x 40-ft width = 10,000 sf
Cost = \$650 x 10,000 SF = \$6.5M
+ \$0 approach work
+ \$2.3M contingency
\$8.8M = TOTAL BRIDGE COST (excluding approach work)

Bridge Option 2: 100-foot span: 100-foot span x 40-foot width = 4,000 SF
Cost = \$450 x 4,000 SF = \$1.8M
+ \$0 approach work
+ \$630,000 contingency
\$2.13M = TOTAL BRIDGE COST (excluding approach work)

Based upon this analysis, it can be confirmed that spanning the wetland with a bridge (either option) is prohibitively more expensive than the proposed use of the open-bottom box culverts with restoration, (even excluding the cost of the approach work) and therefore is not feasible for this proposed project.

Wetlands Mitigation

1. MassDEP will need further clarification on how the project would be designed to meet the performance standards for bank resource and replication for loss of bank resource, recognizing that the requirements for bank replication will depend on the stream crossing standards.



Project plans propose oversized (12-foot wide) open-bottom box culverts at both crossings, with removal of the existing 24-inch corrugated metal arch culvert at the cart path. As discussed above, a weir structure is proposed at the perennial stream crossing to prevent possible downstream flooding. With the exception of the existing culvert (to be removed and replaced by a natural material bank) all bank will be spanned. Bank performance standards are found at 310 CMR 10.54(4)(a) will be satisfied, as summarized briefly below:

1. stability will be maintained;
2. carrying capacity will be maintained (and limited to the flow through the existing culvert at the main crossing, to prevent downstream flooding impacts;
3. groundwater and surface water quality will be maintained by maintaining the structural integrity of the channel;
4. fisheries habitat, to the extent that it exists, will be improved with regard to fish passage, by the removal of the existing 24-inch corrugated metal arch culvert;
5. important bank wildlife habitat will be protected, as documented in the Detailed Wildlife Habitat Evaluation conducted in accordance with MADEP policy.

2. MassDEP will need the total cumulative impacts on BVW and IVW, along with soils information for determining the limits of the isolated wetland. Once determined, the requirements for BVW and IVW mitigation will need to be provided. The replication plan must follow MassDEP's Inland Wetland Replication Guidelines.

The BVW was delineated in accordance with the MADEP BVW delineation manual. The extent of BVW was reviewed through the ANRAD process, with an ORAD still in effect. The IVW was delineated in accordance with the 1987 US Army Corps of Engineers Wetland Delineation Manual.

Wetland Replication areas have been designed in accordance with the MADEP Wetland Replication Guidelines. Details are provided on the site plans and Wetland Replication Protocol.



Stormwater

1. Details on the construction sequencing of porous pavement need to be provided to demonstrate that the porous roadway will be constructed without compacting soils by the construction equipment. Parties responsible for maintenance of roadway must be identified.

Details on the construction sequencing of porous pavement was also requested by Mr. Zavolas, see our response under item #2 in that section on page 2 of this letter.

The party responsible for maintenance of the porous pavement areas is Robert E. Moss, Madison Place Sudbury LLC, 15 Brickyard Lane, Westborough, MA 01581, the applicant and intended owner/manager of the Project, as identified in the "Operation and Maintenance Plan", which was part of the original ENF submission and is enclosed with this submission.

2. The source controls, pollution prevention measures, and best management practices for this project should be designed to control runoff and avoid contributing to contamination in the watershed. Accordingly, the project's stormwater control plan should be consistent with the Town of Sudbury's Stormwater Plan under its MS4 NPDES General Permit.

Source controls, best management practices and pollution prevention measures have been developed for both construction term and long-term facilities operations.

Construction term best management practices for minimizing sediment laden discharges include structural sediment controls such as a stabilized construction entrance/exit, silt fence, and temporary sedimentation traps and swales. Non-structural construction term erosion control measures include temporary seeding, mulching, geotextile blankets, and other measures to cover the soil. Source controls and pollution prevention measures include managing soil stockpiles with perimeter controls and/or cover; dedicated equipment maintenance areas; good housekeeping measures for storage and use of construction materials. As required by the EPA for coverage under the Construction General Permit, all of the above-referenced practices are included in the Storm Water Pollution Prevention Plan, which is enclosed with this submission.

Operation term practices include operations and maintenance practices associated with the maintenance of the porous pavement, leaching catch basins, vegetated stormwater basins, snow plowing and storage and general maintenance of the property.



The Operations and Maintenance (O&M) Plan for the Project includes specific measures in terms of timing and inspection of the above referenced practices. The O&M Plan, enclosed with this submission, will be provided to the Owner who will be responsible for the execution of said practices. In addition, relevant portions of the O&M plan will be included in the rules and regulations and on the Project web page to be developed for the residents.

The stormwater control plan for the construction term meets the EPA criteria for construction term discharges; the post development storm drain system meets MassDEP Stormwater Standards.

3. The source control and pollution prevention plan for this project should specify that snow shall not be plowed toward the wetlands and that snow shall be managed in accordance with the MassDEP Snow Disposal Guidelines. The snow disposal plan should show the location on or off-site where snow will be plowed or disposed and commit to a schedule for parking lot sweeping to maintain the functional capacity of the porous pavement.

The Operations and Maintenance (O&M) Plan for the Project will include details regarding winter snow handling and disposal. A snow storage area is included on the plans and a location map will be added to the O&M Plan. The O&M plan will include the following information relative to the management of snow. Since sanding of the porous pavement is counter-productive, the opportunity for sediment laden snow melt reaching the resource areas on site is effectively eliminated (this, in part, explains the designation of porous pavement as a recognized LID technique). The location of snow storage was selected because it is an upland area, is located a minimum of 140 feet from the nearest wetland and a vegetated stormwater basin is located between the storage area and wetland providing an added filtration buffer. No snow storage will be allowed within 50 feet of a resource area.

The O&M plan will include the procedures for keeping the porous pavement clear of accumulated sediment and debris, which is critical to the long term effectiveness of the infiltration capacity. Vacuuming, in lieu of sweeping, is the required method for removal of sediment. The vacuuming frequency will be four times per year and is included in the O&M plan to be implemented by the on-site property management team.



Wastewater/Groundwater Discharge Permit

- 1. MassDEP must approve the project hydrogeological report before an application for a groundwater discharge permit can be submitted.*

The applicant acknowledges this procedural requirement, which will be followed during the required permitting process. The Hydrogeological Report is being finalized and will be submitted to MassDEP in the near future in connection with the GDP.

Greenhouse Gas Emissions

- 1. MassDEP encourages the proponent to take a step forward and integrate energy efficiencies into the entire project from the design stage and commit to an EnergyStar-rated or energy efficient equivalent development to achieve a reduction in energy use of 20-25 percent or more when compared with a development that meets the current Building Code standards.*

To increase building efficiencies the proponent is required to meet the more stringent Stretch Code of the current Massachusetts Building Code, which is more efficient than the current Building Code. The proponent is willing to evaluate measures such as ambient light with building and window orientation, optimizing window-to-wall ratios, high ceilings, interior or exterior light shelves with separate glazing for high and low visual transmittance, and "smart windows," which adjust to collect or block solar heat and light when needed and not needed. It is important to note that the Project is being developed pursuant to Massachusetts General Laws, Chapter 40B, as an affordable housing project and as such, increases in construction costs necessary to implement all of the energy efficient measures may not be economically feasible. However, as demonstrated in detail in the ENF, the proponent is willing to evaluate all energy efficient features and implement measures into the project design that are determined to be financially feasible and cost effective.

- 2. MassDEP requests that the proponent carefully reconsider installation of photovoltaic units (PV) and available financial incentives, such as Commonwealth Solar II, to eliminate or minimize economic barriers to installation of solar power.*

The proponent will re-evaluate the PV installation and available financial incentives and if financially feasible, such measures may be implemented in project design and construction. At a minimum, it is important to note that the buildings will be constructed



with roof structures that can accommodate PV, allowing such facilities to be installed at a later date depending on changes in energy costs and incentives, if not determined to be financially-feasible under current conditions.

3. MassDEP recommends that the proponent maintain current transit information for tenants in public areas, such as kiosks and the rental office. It would also be useful to provide manuals to educate the tenants on the importance of energy efficiency and the tenant behavior necessary to achieve it.

As indicated in the Environmental Notification Form (ENF), the proponent has committed to providing a webpage available to tenants dedicated to help facilitate and encourage ride-sharing and car-pooling and can also provide information and instructions on ways to reduce energy. The proponent will encourage use of this web page by providing this information at the office and other public areas.

4. The proponent should not overlook the role of building and maintenance staff in controlling energy efficiency in the proposed facilities by making a commitment to provide an allowance for maintenance staff training and for maintenance and replacement of essential systems.

The proponent, who manages many similar apartment rental communities in this area, understands the importance of hiring qualified and competent staff for implementing the maintenance required to ensure that equipment is performing at the maximum energy efficiencies. In addition, the proponent is committed to providing staff training and the education necessary for operating equipment and managing energy efficiencies to reduce energy consumption and operating costs for the facility.

Recycling

1. MassDEP encourages the project proponent to incorporate construction and demolition (C&D) waste recycling activities as a sustainable measure for the project. In addition, demolition activities must comply with both Solid Waste and Air Pollution Control regulations.

Construction and demolition waste debris will be collected on-site in roll-off containers and transported to a properly licensed solid waste disposal or recycling facility by Massachusetts licensed haulers. Demolition activities, which will comply with Solid



Waste and Air Pollution Control Regulations, are minimal and include only the existing wood-frame and stone foundation farmhouse, garage, shed and stable that are all located near Landham Road at the front, or eastern portion, of the site. There is little or no asphalt, brick or concrete (ABC) rubble associated with the construction or demolition of this project. The recycled building materials may include solid fill (e.g. masonry, concrete and asphalt), clean dimensional wood, stumps, cardboard, paper, gypsum (i.e. sheetrock), glass, carpet, plastics, shingles, ceiling tiles, and ferrous and non-ferrous metal including copper brass, aluminum, iron, steel, and wire.

Comment Letter, Sudbury Planning and Community Development, November 29, 2011

1. *Impacts to resources from the development have not been adequately discussed nor properly mitigated based on the application materials submitted to date:*
 - a. *The applicant has not submitted data on potential groundwater mounding effects due to wastewater leaching fields, stormwater recharge or building foundation construction.*

Similar to the response provided to the DEP comment under the Wastewater /Groundwater Discharge Permit heading, the Hydrogeological Report, including the wastewater mounding analysis, is being finalized and will be submitted to DEP as part of the Groundwater Discharge Permit process.

With respect to stormwater recharge or building foundation construction, there is no concern with potential mounding of groundwater because of the proposed site-wide use of porous pavement. The porous pavement system, unlike impervious pavement with conventional recharge systems in concentrated areas, replicates more closely the natural, pre-developed ability of a site to manage rainfall and reduce environmental site impacts. Because rainfall infiltrates through porous pavement at the point of precipitation, recharge occurs throughout the entire development footprint to mimic existing conditions; therefore, there is essentially no potential for groundwater mounding to occur due to recharge. Building foundation construction will not cause groundwater mounding.

- b. *The applicant has not provided a fail-safe provision if the proposed system of stormwater management fails to perform.*

Porous pavement, as with any stormwater BMP or transportation system, requires proper design, construction and maintenance to ensure functionality and longevity. Porous pavement parking lots have been monitored and analyzed in the field and laboratory at



the University of New Hampshire Stormwater Center (UNHSC) for several years. Dr. Robert Roseen, Director of UNHSC, is part of the Johnson Farm project team and is on board to provide quality assurance of porous pavement through the design, production and construction phases of the project. The project proponent is committed to taking all of the steps necessary to ensure that the porous pavement is properly designed, constructed and maintained based on professional engineering standards and criteria.

Similar to any Stormwater BMP or pavement surface, when scheduled periodic maintenance is no longer enough to provide proper performance as a stormwater or transportation system and the pavement's infiltrative capacities have become reduced, the failed porous asphalt will be removed and replaced. Based on UNHSC's testing, structural characteristics of porous asphalt indicate that it has a similar pavement life (approximately 15 to 20 years) as standard dense-mix bituminous pavement. Because the porous asphalt and top choker course protect the layered infiltration media subbase from sediment, it is not necessary to replace the subbase. Please refer to the Porous Pavement Phasing/Sequencing Plan; Drainage Operation and Maintenance Plan; and Supplemental Porous Pavement Information letter, enclosed with this submission, for more comprehensive porous pavement information.

- c. Documentation on construction sequencing, material stockpile areas and other mitigating features to ensure soils are not permanently debilitated during construction has not been provided.*

Please refer to the Porous Pavement Phasing/Sequencing Plan and the Stormwater Pollution Prevention Plan, enclosed with this submission.

- d. The applicant has not submitted data on the impact to the wetlands and vernal pools due to disturbance of the ground surface in close proximity to the wetlands (including grading into the wetlands in several areas).*

A Detailed Wetland Wildlife Habitat Evaluation (Appendix B) in compliance with the MA Wetland Regulations and MADEP Wildlife Habitat guidance was completed and submitted with the NOI. The Conservation Commission has requested additional information relative to the potential indirect effect of the project on wetland interests to wetlands located outside of the actual work footprint. The applicant has agreed to provide this analysis and is preparing this information for submittal.

Other than BVW impacts associated with the Limited Project proposed access driveway crossing, there is no proposed grading into the wetlands.



- e. The applicant has not submitted data on the project's impact on the watershed, wildlife habitats and conservation areas.*

A detailed watershed analysis has been conducted as part of the Site Plan modifications and revised drainage calculations and presented in a meeting to the satisfaction of the Sudbury Town Engineer and peer engineering consultant to the ZBA. The watershed drainage area and details will be formally submitted to the Town prior to the next Conservation Commission hearing in January.

As stated in the previous comment response, a Wildlife Habitat Evaluation was completed and submitted with the NOI.

- f. The applicant has not demonstrated how the development complies with the Commonwealth's Sustainable Development Principles and "Smart Growth" Guidelines.*

The proposed development meets many of the goals of the Sustainable Development Principles and Smart Growth Guidelines. The use of porous pavement is endorsed by the Massachusetts Smart Growth/Smart Energy Toolkit as a desired Low Impact Development (LID) design technique. There are several greenhouse gas emission reduction strategies proposed, including the use of energy-saving LED site lighting; Energy-Star appliances, electric vehicle charging stations; roof construction allowing future retrofit with PV photovoltaic panels; and resident access to a community website providing detailed information to help facilitate and encourage ride-sharing, car-pooling and public transit, and educate tenants on the importance of energy efficiency and reduction.

- g. The applicant has not provided a Phase One Environmental Site Assessment.*
- 2. The development alternatives discussed in the ENF do not meet several governing Town of Sudbury bylaws and regulations and do not provide the only alternatives for development of this property.*
 - a. Alternative Site: Parcels containing 8-9 contiguous acres of upland have not been explored.*

As noted in the Notice of Intent (NOI), at the time of the NOI filing, no parcels in town of over 6 acres were for sale.



- b. No Build: The proposed development site has been specifically identified by the Town of Sudbury as a parcel appropriate for acquisition as open space.*

It is our understanding that the Town has considered acquiring the parcel, had the opportunity to do so, but chose not to exercise that opportunity.

- c. Cul-de-sac with 7 (and 13) Residential Lots: Neither of these alternatives meet the Town of Sudbury subdivision regulation requiring a 360 foot separation between streets on the same side of the road (Stagecoach Lane). Additionally, no soil test data has been submitted indicating that the lots on the western side of the perennial stream are suitable for subsurface disposal of wastewater.*

We acknowledge that the subdivision alternative plans are conceptual in nature, and include a number of assumptions, as is the nature of such analyses. The two options noted were rejected for reasons other than those pointed out in the comment, which raises additional potential concerns which might be determinative on their own.

- d. Multi-Unit with No Wetland Impacts: The number of units in this alternative could be expanded significantly if limited porous pavement was proposed and units situated in the areas set aside for stormwater management.*

While it might be possible to add an additional building at the front of the site, a three (or even four) building project is not a “substantially equivalent economic alternative” under Wetlands Protection Act Riverfront alternatives analysis criteria. More generally, the long term economics of such an option cannot be simply scaled down in a linear fashion.

- e. Site Plan Option 7: Figure 6 was not provided in the ENF.*

Please refer to our previous response to MassDEP’s first comment under the Wetlands section in this letter.

- f. Other Alternatives: It may be feasible to construct a 60-unit development with conventional stormwater and a Title V compliant wastewater disposal system with potentially fewer impacts to the surface and groundwater resources on the site.*

As noted above, long-term project costs are not simply scalable, and a 60-unit project is not a substantially equivalent economic alternative. The site is designed with environmentally-friendly Low Impact Development (LID) techniques in conformance with MassDEP Stormwater Management Standards, providing a higher level of water quality treatment, far less stormwater runoff and significantly greater amounts of



groundwater recharge than a conventional stormwater system could ever provide. Similarly, the proposed WWTP will provide a considerably higher level of treatment and far cleaner effluent than a conventional septic system. The WWTP will be designed, permitted and operated under a MassDEP Groundwater Discharge Permit, and as such will not cause an adverse effect to the environment.

3. *The mitigation proposed by the applicant does not seem commensurate with the magnitude of the development and the potential impacts to the Town of Sudbury:*
 - a. *The proposed concrete box culverts have been identified by the Town's engineering consultants as potential problems for downstream abutters due to an increase in the size of the culvert.*

In a meeting with the Town's consultants, a solution was presented and favorably received to propose a flow-reducing weir structure within the open-bottom box culvert that would maintain the existing flow restriction to prevent increases in downstream discharges while meeting Stream Crossing Standards to the extent practicable. See related comment and response to the Conservation Commission under item 7. Stream Crossing Standards.

- b. *The proposed wetland replication area has been identified by the Town's wetland consultant as problematic.*

In a meeting with the Town's wetland consultant, a solution was presented to propose modifications to the wetlands replication area and add a second wetlands replication area that we believe would eliminate the concern. This has been incorporated into the modified Site Plan enclosed in this submission.

- c. *The Landham Road/Route 20 intersection will be impacted by this proposal. Some form of traffic mitigation should be included in the project.*

Traffic was presented at the December 13th ZBA hearing, and many traffic-related comments have been received from the ZBA, their traffic consultant and neighbors. We expect to satisfactorily work through the traffic issues with the Town through the ZBA process.

- d. *We are unable at this time to fully comprehend all the impacts from this development.*

No comment necessary.



4. *The scope of the EIR should include:*

a. *A revised plan with a roadway layout acceptable to the Sudbury Assistant Fire Chief.*

The proponent has met and will continue to work with the Sudbury Fire Chief to demonstrate that safe access and egress is provided.

b. *A revised development alternative that negates the need for a wastewater treatment plant and uses a mixture of conventional stormwater management and limited porous pavement around the site.*

Please refer to our previous response to comment 2.f. in this section.

c. *Identification and discussion regarding the vernal pools on the site and impacts from development to the associated groundwater levels and wildlife.*

Please refer to our responses to the Conservation Commission comments, numbers 3 and 4 in the next section of this letter.

d. *Further information on the impacts of this proposal to wildlife habitat, the watershed and conservation lands in the area.*

Please refer to our previous response to comment 1.e. in this section.

e. *Alternatives to the use of porous pavement in general.*

Previous responses to porous pavement comments have already addressed this issue; however, it is worth noting here that porous pavement as a highly desired Low Impact Development (LID) design technique is widely recognized for its significant environmental benefits at local, state and federal levels. It is endorsed by MassDEP as a recommended BMP for stormwater management (Volume 2, Chapter 2 of the Massachusetts Stormwater Handbook); by the Massachusetts Smart Growth/Smart Energy Toolkit and by the US EPA as a desirable Green Infrastructure/LID approach. The 2008 National Research Council report on Urban Stormwater Management identifies infiltration/filtration strategies including permeable pavements as central to watershed protection.

Additionally, numerous local environmental organizations recommend the use of porous pavement as a LID technique for sensitive environmental areas. For example, the



Charles River Watershed Association (CRWA) has focused a great deal of research on LID/BMPs and “is advocating communities and private developers to look for every opportunity to capture and treat stormwater prior to its entry into local surface waterways”. CRWA is building a database of information on techniques and methods used to manage stormwater. The first LID BMP techniques listed on their website are Permeable Pavement and Permeable Pavers. Similarly, the Sudbury Assabet & Concord River Stewardship Council “promotes the use of LID techniques in any new project proposals that may affect the river”, and states that “LID is an approach to environmentally friendly land use planning.”

Furthermore, Sudbury’s Stormwater Management Bylaw and Regulations “require the evaluation and implementation of LID practices”; Appendix D of the Bylaw lists porous pavements and rain gardens (proposed in the Johnson Farm design) among the strategies with beneficial stormwater management objectives. These objectives, specifically listed in Appendix D and incorporated into the Johnson Farm stormwater design, for rain gardens are “to remove suspended solids, metals and nutrients” and “reduce peak discharge rates and total runoff volume”; and for porous pavement are to “reduce stormwater runoff volume from paved surfaces”; “reduce peak discharge through infiltration”; and “reduce pollutant transport through direct infiltration”.

f. Further discussion on the construction, maintenance and operation of porous pavement roads, and the associated maintenance and operating costs, including necessary reserves.

Please refer to previous responses to many porous pavement comments in this letter relating to the construction, operation and maintenance of porous pavement.

Comment Letter, Sudbury Conservation Commission, November 9, 2011

The following information provides responses to comments contained in the November 9, 2011 letter from the Sudbury Conservation Commission concerning the ENF. The Conservation Commission does not provide numbered comments, so EcoTec has created headings under which comments are addressed.

In general, we object to the repeated assertions in the Commission’s letter to MEPA that the applicant’s technical representatives have been unethical in some fashion or other. This includes criticism regarding failure to provide all information requested on October 27, 2011 for the November 14th Commission hearing. We note that the Wetlands



Protection Act Notice of Intent for the Project was filed on approximately October 4, 2011. The public hearing for the Project was opened on October 27, 2011, continued to November 14, 2011, with a pending continued hearing scheduled for January 9, 2012. All parties acknowledged at the first hearing that several hearing nights will be required to review and discuss the NOI, and discussion at the November 14, 2011 hearing was to be restricted, at the Commission's request, to the issues of "Limited Project" status, Alternatives Analysis and porous pavement. Review comments from the Commission's wetland consultant (Fredric King, PE) were first received by the applicant at the second (11/14) hearing. The applicant continues to work with the Commission, and efforts to address all of the relevant comments by the Commission and others are ongoing. Several such issues are discussed below. The basis for our objection to other assertions of impropriety, as well as corrections to other misstatements in the Commission's letter, is included in the responses below.

1. Wetland Replication:

- a. We disagree with the Commission's consultant (Mr. King) that the proposed replication area would de-water the BVW to the west (we have discussed this matter with Mr. King and acknowledged to him that the provisions in the NOI Wetland Replication Protocol that address this concern could have been more prominent). We also note, contrary to the Commission's statement, that Mr. King's letter did not identify a radius of influence or particular size area of potential dewatering with which he is concerned. Nevertheless, current plans which are being finalized include a revised wetland replication plan, based upon additional field investigations, to address the concern. There are numerous potential locations for successful wetland replication on the site, and the applicant is flexible with regard to this issue.
- b. Alterations to the BVW adjacent to the proposed replication area will be limited to a slight increase in light penetration due to overstory removal in the replication area. This may in turn result in a modest increase in understory growth along the BVW margin. We do not consider this to be a negative impact, and in fact such a change would likely provide a slight increase in habitat cover in that location.

2. MEPA Jurisdiction:

- a. We do not agree with the Commission's assertions that the Project triggers mandatory EIR thresholds. These assertions are based on several incorrect statements, corrected as follows:
 - Floodway: not present; threshold = ENF;

- Riverfront: EIR Threshold = 10 acres;
- Bordering Land Subject To Flooding: EIR Threshold = 10 acres;
- Outstanding Resource Water: No fill proposed to ORW (see vernal pools, below); ORW fill threshold (1,000 sf) = ENF;

The Project's wetland impacts are well below all mandatory EIR thresholds.

3. Wetland Values and Functions, Including Wildlife Habitat:

- a. As the ENF notes, the MA Wetland Regulations contains presumptions of significance, and the applicant has made no attempt to overcome those presumptions.
- b. A Detailed Wetland Wildlife Habitat Evaluation (Appendix B) in compliance with the MA Wetland Regulations and MADEP Wildlife Habitat guidance was completed and submitted with the NOI. The Conservation Commission has requested additional information relative to the potential indirect effect of the Project on wetland interests to wetlands located outside of the actual work footprint. The applicant has agreed to provide this analysis and is preparing this information for submittal.

4. Vernal Pools:

- a. Massachusetts Wetlands Protection Regulations contain a rebuttable presumption that vernal pools exist only where pools have been certified by NHESP. As noted in the NOI, no certified vernal pools exist on the site. The ANRAD process included delineation, review, and verification of vernal pool boundaries under the local wetland bylaw (identified and delineated on the basis of hydrology only). The applicant has conservatively assumed that all such mapped vernal pools in fact function as vernal pools and observations of vernal pool fauna are being compiled.
- b. The vernal pools were not depicted on the original NOI plans because the NOI was filed under state regulations only, and vernal pools are not an Area Subject To Protection under 310 CMR 10.02(1). Vernal Pool boundaries were certified on the site in a December, 2009 Order of Resource Area Delineation. At the Commission's request, vernal pool boundaries are being added to the NOI plans for reference only, to further characterize the BVW within which the pools are located.
- c. With regard to allegations by the Commission that the applicant's representatives have withheld information, please note that a request for vernal pool fauna information was made at the 10/27/2011 hearing. The agenda for the following (11/14/2011) hearing was restricted by the Commission to include unrelated matters only. Therefore, the vernal pool



information was not submitted for the 11/14 hearing, but is being compiled as part of a larger submittal for the next (1/9/2012) hearing. The nature of the alleged “conflicting information” is not described, and no response is possible.

- d. The Commission’s assertion that applicant has “stalled” submission of vernal pool information to avoid vernal pool certification and Outstanding Resource Water (“ORW”) jurisdiction under the 401 Water Quality Certification is likewise without merit. As evidenced by the NOI and vernal pool boundaries established in the ORAD, no vernal pool fill is proposed, and thus potential certification of the delineated vernal pools is irrelevant. Similarly, no fill is proposed within vernal pool habitat (based upon ORAD delineations), as defined under MA Wetland Regulations at 310 CMR 10.04. The Commission incorrectly cites the ORW definition as including wetlands bordering vernal pools. The Water Quality Certification Regulations at 314 CMR 9.00 refer to 314 CMR 4.00 for the definition of ORW, which states:

“Wetlands. Wetlands bordering Class A Outstanding Resource Waters are designated Class A Outstanding Resource Waters. Vernal pools are designated Class B Outstanding Resource Waters. All wetlands bordering *other* Class B, SB or SA Outstanding Resource Waters are designated as Outstanding Resource Waters to the boundary of the defined area. All other wetlands are designated Class B, High Quality Waters for inland waters and Class SA, High Quality Waters for coastal and marine waters.”
[314 CMR 4.06(2) cited in its entirety, with emphasis added.]

5. Army Corps Jurisdiction: The ENF acknowledges Army Corps jurisdiction under Section 404 of the Clean Water Act. The applicant has chosen to conduct at least some level of local permitting in connection with the Project, where the most detailed level of review with the broadest set of considerations typically occurs, before filing with the Corps.
6. Bridges and 314 CMR 9.06: The Commission’s statement that “under 314 CMR 9.06 a bridge alternative does not take cost into account” is not correct. Those Regulations contain a presumption that bridging is feasible for proposed wetland fill in excess of 5,000 sf, but note that “These presumptions may be overcome upon a showing of credible evidence that based on site considerations, impact on the resource, *or cost considerations*, a span or other bridging technique is or is not practicable” [314 CMR 9.06(3)(e) - emphasis added].



7. Stream Crossing Standards: The applicant will meet Stream Crossing Standards to the extent practicable; given issues related to potential flooding (the Standards acknowledge that where restrictions to flow exist, culvert replacement to meet the Standards may not be possible due to potential flooding concerns). At the main crossing, maintenance of the existing flow restriction associated with the existing culvert may require a flow-reducing weir inside the oversized box culvert (which otherwise meets the standards). Stream crossing standards will be met at the smaller crossing will no existing flow restriction exists. Detailed information concerning the Standards will be provided, following preliminary review by the Commission's engineering and wetland consultant.
8. Floodplains: The Sudbury Town Engineer, as well as review engineers for the Conservation Commission and Zoning Board of Appeals are all reviewing the stormwater calculations and floodplain issues at the site. The matter is being thoroughly evaluated, and mitigation will be provided as necessary.

Sudbury Valley Trustees ("SVT") letter dated 11/28/2011 and OARS Letter dated 11/29/2011

Pertinent SVT and OARS comments not addressed above are addressed below:

1. Wildlife Corridor: The clustered design of the proposed development keeps the proposed site disturbance as close to the east and south lot lines as possible. Land to the east and south of the site is currently developed, such that there is no existing wildlife corridor in that direction. As proposed, the Project would maintain an undisturbed area at least 400 feet wide along the entire westerly lot line, bordering the SVT Lyons-Cutler Reservation. The undeveloped area that would remain undisturbed in the northern portion of the site is from 600 to 900 feet wide. The proposed Project layout does not fragment the existing wildlife corridor.
2. BioMap2 Core Habitat and Priority Habitat: SVT notes an "apparent contradiction" with regard to the presence of Core Habitat and the absence of Priority Habitat. We note that both designations are made by NHESP and easily referenced on existing mapping. We also note that Core Habitat comprises 24% of the state as is very broad in its designation, while Priority Habitat mapping is much more localized. To be clear, the Project site is not located within designated



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Priority Habitat and preserves approximately 26 acres of the 35 acre site as undisturbed open space.

3. Wetland Replication:

- a. The portions of the BVW that are proposed to be altered exist as shrub swamp and wet meadow because active human intervention (i.e. cutting of vegetation) has restricted the growth of woody vegetation. Note that the current USGS Topographic Map, based upon 1978 and 1981 aerial photography, depicts the entire project footprint, and the majority of the entire site as non-wooded. The shrub swamp and wet meadow areas are reverting to forest by natural succession, and the proposed planting plan is consistent with that process.
- b. Revised plans include a breakdown of proposed permanent and temporary wetland impacts.

4. Wastewater: As noted in the ENF, the proposed wastewater discharge is subsurface, and will be subject to a groundwater discharge permit from MassDEP.

We hope that this response to comments and supplemental information requested provides adequate information to address any questions and to satisfy the appropriate level of detail under MEPA regulations. Additional permit-specific detail will be provided with submission of state permit applications (401 WQC, Groundwater Discharge Permit and potentially in connection with a Superseding Order of Conditions) and the applicant is prepared to provide MassDEP any additional requested information in connection with those permit review processes. Finally, it is hereby noted that the MEPA office has requested that the Town of Sudbury post this supplemental information on their website and make plans available to the public at either the Planning Department office or the Goodnow Library.

Respectfully submitted by:
TetraTech Inc.

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Cc: Nancy Baker, DEP MEPA Review Coordinator
Debbie Dineen, Sudbury Conservation Coordinator
Jody Kablack, Sudbury Director of Planning and Community Development
Robert Moss, applicant
Peter Tamm, Esq., Goulston & Storrs
Steven Schwartz, Esq., Goulston & Storrs

Encl: Large-Scale Project Plan on one sheet;
Porous Pavement Phasing/Sequencing Plan
Supplemental Porous Pavement Informational letter
Estimated Site Earthworks Volume Plan
Alternatives Analysis Option 7 (Avalon Site Plan)
Alternatives Analysis Option 6 (one-crossing option)
Stormwater Pollution Prevention Plan
Drainage Operation and Maintenance Plan