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Jenny Raitt, Director
Department of Planning and Community Development
Town of Arlington
50 Pleasant Street
Arlington, Massachusetts 02476

RE: Response to BETA Civil / Wetland Peer Review
Dated June 25, 2021
Thorndike Place Comprehensive Permit Application

Dear Ms. Raitt:

On behalf of the Applicant, Arlington Land Realty LLC, BSC Group, Inc. (BSC) is pleased to provide the following responses to peer review for the Thorndike Place residential project on Dorothy Road in Arlington, Massachusetts.

This letter responds to comments provided by BETA Group, Inc. (BETA) in a letter to you dated June 25, 2021. Due to the significant revision to the site plan (senior living and duplex townhomes). BETA provided new comments 1 – 14 related to the June 8, 2021 submission materials. BETA also included previous comments and responses for reference, however, BETA did not include BSC's February 16, 2021 or March 10, 2021 responses. BSC's February 16, 2021 or March 10, 2021 responses are provided again for reference.

The section headings and comment numbers below correspond to the comments from BETA. For clarity, we have repeated original comments in standard text and provided our responses to the June 25, 2021 comments and the previously submitted February 16, 2021 and March 10, 2021 responses in italics

PROPOSED PROJECT

The proposed project, as revised, includes the construction of a 124-unit 4-story senior living building and six (6) duplex townhouse buildings (12 units) located along Dorothy Road. Also included are associated access driveways, parking areas, utilities, infrastructure, and stormwater management system.

June 8, 2021 Revised Submission

1. The Applicant has submitted select plans including Layout and Materials Plan and Grading & Drainage Plan in support of the latest revisions.

Recommendation: A full set of plans should be submitted to the Board reflecting the proposed revisions.

BSC Response: Revised Layout & Materials, Grading & Drainage and Utility Plans (C-103, C-105 and C-106) are included with this response. In addition, a revised Potential Conservation Parcel and Vehicle Turning Exhibits are attached. A complete set of plans and stormwater report will be submitted by August 24, 2021.

2. Access to the front of the proposed senior living building is provided by an approximately 200-foot long driveway with a cul-de-sac turn around. The proposed building extends about 215 feet



beyond the end of the driveway. It is not clear how the fire department will access the entire front of the building for firefighting purposes.

Recommendation: The Applicant should confirm with the fire chief that the site as proposed will provide adequate access for firefighting. The chief's confirmation should be provided to the Board in writing.

BSC Response: Feedback was provided by the Fire Chief where he indicated that if the proposed project can accommodate the size of the ladder truck for emergency access and the project meets State Fire Code requirements, then at this juncture there is not any further review required. The Fire Department will review final plans and construction documents as part of the regular interdepartmental review that would occur once the project is in a permitting phase (building permit). BSC has confirmed that the Arlington Fire Department ladder truck can navigate the west, south and east sides of the site via the main driveway and emergency vehicle access drive. Additionally, the ladder truck can access the driveway to the senior living building and exit using the driveway as a hammerhead turnaround. Truck turning exhibits are attached to this letter. The site and building will meet the State Fire Code and provide a compliant route for emergency vehicles to access the building.

3. A portion of the perimeter emergency access road is shared with the proposed driveway access for Townhouse 6 (easterly building). Parking must be prohibited along this portion of the emergency access to ensure that it remains clear for emergency vehicles.

Recommendation: The Applicant should include appropriate signage and pavement markings to restrict parking.

BSC Response: Signage and pavement markings restricting parking on the emergency vehicle access drive adjacent to the easterly duplex will be provided.

4. It appears that there is an existing utility pole located in the proposed driveway for Townhouse units 3 & 4 that will require relocation.

Recommendation: The new pole location should be shown on the plans and coordinated with the utility company.

BSC Response: The existing utility pole conflict with the proposed driveway location is noted on the Layout & Materials Plan (C-103) and is noted that the relocation of the pole is to be coordinated with the utility company.

5. The proposed project as revised results in filling within the existing 100-year floodplain. Two areas of compensatory flood storage are proposed south of the senior living building. The areas as proposed appear to provide a compensation ration of 2:1 which meets the Town's requirements. Both areas appear to be partially within the 100-foot AURA but outside the 25-foot No Disturb Zone.

Recommendation: The Applicant should confirm that the Conservation Commission is satisfied with the compensatory storage areas as proposed.

BSC Response: The proposed compensatory flood storage areas provide the required 2:1 storage volume. Additionally, the proposed compensatory storage areas are in areas that have been previously disturbed by the prior homeless encampment and are overrun with invasive species. BETA has provided the following comments that support the proposed location of the compensatory storage areas with recommendations for revegetation:

"BETA's wildlife biologist reviewed the revised plans to evaluate the impacts of the newly proposed compensatory flood storage areas. These areas both located south/



southeast of the main building in a heavily wooded area on the site. Currently these regions are densely vegetated and upslope of isolated wetland WF-D series. This serves as a water filtration system to the downstream wetlands as well as preventing erosion by holding on to sediment and slowing stormwater. However, the vegetation is mostly invasive species and an abundance of dead trees. While the dense vegetation and standing deadwood provides good nesting habitat, this feature exists in other areas of the property.

Constructing these compensatory flood storage areas will most likely involve clearing any existing vegetation and re-grading the area creating the opportunity to replant and seed the area with native species to add productivity the remaining area. Dense shrubs such as high bush blueberry can provide dense cover and food sources for wildlife for example. Pollinator species should also be considered to replace what will be lost in the surrounding area during clearing. This will also be an important feature for retaining water and nutrients in these areas and prevent standing water which is a breeding ground for insects.”

Stormwater Management

The Stormwater Management design for the site is similar to the previous design. Runoff will be collected in a series of catch basins and trench drains and directed to subsurface infiltration systems. A single large infiltration system is proposed for the senior living building and driveways. Separate small infiltration systems are proposed for the Townhouse driveways. A portion of the roof of the senior living building will be used to detain stormwater. A small raingarden is proposed at the easterly side of the site.

6. Each discharge to the large infiltration system (IFN-1) is treated by a water quality unit and/or deep sump catch basing to remove total suspended solids before the runoff is infiltrated. This is consistent with the guidance in the Massachusetts Stormwater Policy. However, the trench drain/infiltration systems for the townhouse units do not provide water quality treatment. These systems service a small area. However, accumulation of sediment over time will reduce the effectiveness of infiltration.

Recommendation: The Applicant should consider providing a sump between the driveway trench drains and infiltration systems to allow removal of some total sediment solids.

BSC Response: A 30” diameter drain manhole with a 2’ sump and hood has been added between each trench drain and infiltration system and is shown on the Grading and Drainage Plan (C-105).

7. The location of floor drains and connection to the sanitary sewer system should be shown to ensure that they do not conflict with other subsurface utilities.

Recommendation: Show garage floor drain connections on the plans.

BSC Response: Location of the oil/water separator and sump pump is shown on the Utility Plan (C-106).

8. The top elevations for infiltration systems INF-5 and INF-6 appear to the finish grade of the driveways.

Recommendation: The Applicant should consider if these systems need to be lowered to accommodate the driveway construction.

BSC Response: Elevations of each system have been revised accordingly.



Stormwater Report

9. In general, the revised stormwater analysis appropriately models the new design. NOAA 14+ rainfall data has been used in the analysis. Overall post development peak runoff rates for the site are mitigated to be equal to or lower than predevelopment peak runoff rates.

BSC Response: No response required.

10. Stormwater Management Standards 1 -10 appear to be satisfied.

BSC Response: No response required.

11. As previously noted, the analysis indicates that post development runoff rates for the entire site are mitigated. However, the analysis also indicates that post development runoff rates towards Dorothy Road are higher than predevelopment runoff rates for the 100-year storm. Predevelopment Subcatchment 2S (flow to street) shows a runoff rate of 1.3 CFS. Post development Subcatchment 7S (flow to street) shows a runoff rate of 1.9 cfs.

Recommendation: Given the sensitivity of flooding issues on Dorothy Road, the post development runoff rate flowing towards Dorothy Road should not exceed predevelopment rates for any storm. Mitigation of the post development runoff should be provided.

BSC Response: The area in front of the duplex townhouses has been regraded to direct more of each driveway and lawn to the trench drains and infiltration systems. This results in peak flow rates to Dorothy Road that do not exceed existing conditions for all storm events analyzed.

12. The top elevation for the proposed rain garden (Pond 3P) is shown as elevation 7.0' in the analysis. The 100-year water service elevation is calculated to be 6.39'. The Grading and Drainage Plan indicated the top elevation as 6.3 indicating the rain garden would overtop in the 100-year storm.

Recommendation: The plans and analysis should be coordinated to accurately reflect the proposed condition.

BSC Response: To more accurately reflect the grading around the rain garden, the 7' elevation has been removed from the HydroCAD with the top of basin elevation set at 6.5 as shown on the Grading Plan. There is a broad crested weir at elevation 6.3 on the west side of the rain garden, which is both modeled in the HydroCAD and shown on the Grading Plan.

13. The bottom elevation of infiltration system INF-1 is proposed to be elevation 6.0'. Groundwater elevation appears to be approximately elevation 3.0'. As noted in previous comments, due to the variation in groundwater at various test pits, BETA recommends that additional test pits be conducted in the infiltration areas during the groundwater season.

Recommendation: Conduct additional test pits to confirm groundwater elevation.

BSC Response: The Applicant will perform additional test pits to confirm seasonal high groundwater prior to application for a building permit. The test pits will be coordinated with the geotechnical investigation for the building and will be conducted during seasonal high groundwater conditions which will be confirmed by monitoring nearby USGS wells.

14. Groundwater mounding calculations are provided for infiltration system INF-1 since the bottom of the system is less than 4 feet above the anticipated groundwater table. The analysis indicates that the lateral extent of the ground water mound will extend to the foundations of four townhouse units as well as the foundation of the senior living building. The mounding is a localized effect and should not impact overall groundwater elevations in the area. However, it should be considered in the design of the building foundations.



BSC Response: Comment is noted and the infiltration system impacts will be considered in the foundation design of the townhouses, garages/carports and the senior living building.

Previous Comments and Responses Provided for Reference

2015 Comprehensive Permit Application

A Comprehensive Permit Application was originally submitted for the proposed Thorndike Place project by the Applicant in 2015. Nover-Armstrong Associates (N-A) conducted a detailed peer review of the application package and issued a peer review letter dated August 10, 2015. Their review letter contained eighteen (18) comments regarding the site plans and application package. The following comments from the 2015 N-A review letter related to civil/site design remain applicable:

15. Eight boring locations are shown on the Existing Conditions Plan C-1 with surface elevations and depths to groundwater noted. Dated and detailed boring logs are not provided on the plans or in the Application making it difficult to evaluate whether the depth of the groundwater observed represents the seasonal high groundwater elevation. The depth to groundwater is presumed to have been measured the day the borings were advanced and may not represent the actual high ground water elevation.
16. Excavated test holes witnessed by a MassDEP Soil Evaluator are necessary to definitively identify the Site's soil types and whether the conceptual project design is generally appropriate for the Site. Boring logs document encountered type soils on the Project Site which help evaluate what types of BMPs would be feasible for the stormwater management system.

Recommendation: The results of any soil borings or test pits done on the project site should be submitted for review. Determination of the seasonal high groundwater elevation is necessary to confirm that the proposed stormwater BMPs are suitable as shown.

BETA 1: Data for three test pits has been provided. Groundwater elevations are shown as varying from -0.5' to 3.0'. The infiltration system designs reflect these groundwater elevations. Two feet of separation to groundwater is provided for Infiltration basin 1. Infiltration Basin 3 should be raised 0.2 feet to provide a full 2-foot separation. Given the variation in groundwater elevation indicated by the test pits, it is suggested that groundwater be confirmed prior to construction. This should be done during seasonal high groundwater conditions.

3/10 BSC Response: In the BSC 1/21/2021 response to the Town Engineer's comments, the Applicant has proposed, as a condition of the Comprehensive Permit, to perform confirmatory on-site testing for groundwater levels during March and/or April 2021 during the expected seasonal high groundwater period. Any modifications to the drainage system design required as a result of new groundwater information will be incorporated into final site plans for review by the Town prior to issuance of building permit.

2020 Comprehensive Permit Application

SITE PLANS

New Comment 1. The Applicant has submitted select plans in response to previous comments. A full set of plans should be submitted to the Board reflecting all changes since the November 2020 submission.

New Comment 2. Based on discussions at the February 4, 2021 working session meeting it appears that the project design may be revised that include.

- Modifications to the building roof line along Dorothy Road and Littlejohn Street.
- Modification to the proposed surface parking on the west side to reduce the overall footprint.



Recommendation: Revised plans and calculations should be submitted to reflect these changes.

3/10 BSC Response: The proposed building and site modifications presented at the February 4, 2021 working session and the February 16, 2021 public hearing along with any other minor modifications in response to further review and comment will be incorporated into the final site plans submitted for review for consistency with the Board's decision or will be coordinated with the appropriate Town Department prior to submission for building permit. The Layout & Materials Plan, Sheet C-103, revised 3/11/21, depicts the proposed changes to the site plan as discussed at the February 4, 2021 working session and as presented at the February 16, 2021 public hearing is provided as an attachment to this letter.

New Comment 3. The stormwater design for the trench drain at the drop-off area in front of the building (Subcatchment 4S) assumes that no runoff bypasses the drain and enters Dorothy Road. The calculated runoff for the 100-year storm is 1.3 cfs.

Recommendation: Calculations should be provided to confirm that the proposed trench drain grate has the capacity to accept this runoff without bypass to Dorothy Road. Alternatively, consideration could be given to revising the driveway grading so that it does not flow to Dorothy Road.

3/10 BSC Response: The proposed trench drain at the courtyard parking area is approximately 70-feet long with a 12-inch grate. The tributary drainage area is only 6,330 square feet (0.15 acres). The inlet capacity of the trench drain is more than adequate to handle the limited runoff from this small area. Final design and sizing calculations will be included with the final site plans submitted for review for consistency with the Board's decision prior to submission for building permit.

1. The proposed erosion control barrier is shown on the Site Preparation plan only.

Recommendation: The applicant should also show the erosion control barrier on the Layout, Grading and Utility Plans.

Applicant's Response 1/21/2021: Response: The erosion control barriers have been added to the Layout, Grading, and Utility Plans. The revised Grading & Drainage Plans are enclosed. The other plans will be submitted under separate cover.

BETA 1: Propose Erosion Controls have been shown on the January 21, 2021 Grading and Drainage Plans.

Recommendation: A complete plan set should be submitted to confirm that this is followed through on all relevant plan sheets. Also, additional erosion controls should be shown for the proposed compensatory flood storage. It is understood that the proposed compensatory storage will be revised to avoid the 25 foot No Disturb Zone of the adjacent wetland.

3/10 BSC Response: Erosion controls, including for the proposed compensatory flood storage area will be shown on the final site plans submitted for review for consistency with the Board's decision prior to submission for building permit.

2. A 15-ft wide pervious paver emergency access drive is shown looping around the rear of the main site building.

Recommendation: The Applicant should confirm that the access drive can accommodate an emergency vehicle (fire truck) turning around the southeast corner of the site building.

BETA 1: No response received



2/16 BSC Response: A truck turning exhibit has been prepared showing the emergency vehicle route, a copy of which is enclosed herein. The turning radius specifications were provided by the Arlington Fire Department.

3. Existing Conditions Plan - The applicant should add a professional surveyor's stamp.

Recommendation: Provide Existing Conditions Plan stamped by a MA Professional Land Surveyor.

BETA 1: No response received

2/16 BSC Response: The Existing Conditions Plan will be stamped by a professional land surveyor and will be included in the final site plans submitted for review for consistency with the Board's decision.

4. General – The applicant proposes to provide stormwater detention/retention on the building roof. The applicant should provide design plans/calcs of the proposed building roof (when developed) for review by an architect and/or structural engineer.

Applicant's Response 1/21/2021: Runoff calculations have been revised to include discharge from the roof detention system in all storms analyzed. This overflow will be at a controlled rate and will flow into the underground infiltration system in the parking lot west of the building. The detailed design of the rooftop detention will be provided as the architectural and plumbing construction plans are developed. In addition, approximately 9,000 square feet of the southeast corner of the building roof will discharge directly to the surface through a roof drain. Please see the enclosed, revised Stormwater Report for additional information and calculations.

BETA 1: The drainage calculations have been revised to include discharge from the roof detention system based on a 4" grate and an 18" diameter connection to Infiltration Basin 1. The calculations indicate a storage depth of 6" – 7" during the 100-year storm.

Recommendation: Additional detail should be provided to confirm the outlet configuration and actual available storage on the roof. Also, maintenance of the outlet needs to be addressed. A single outlet for the roof runoff increases the potential for clogging and failure of the system. The Applicant should also confirm if potential changes to the roofline along Dorothy Road and Littlejohn Street will impact the available roof storage volume.

3/10 BSC Response: As previously stated, the detailed design of the rooftop detention will be provided as the architectural and plumbing construction plans are developed. The detailed design will address the maintenance of the outlet control structure. The architectural design will also include scuppers or downspouts that will operate as an emergency overflow in the event the outlet control structure is clogged during a storm event. Lastly, the proposed changes to the roofline of the building wings fronting on Dorothy Road do not impact the available roof storage volume. The Stormwater Report indicates that 38,000 square feet of the roof area was providing detention. The 38,000 square feet is provided on the 4-story portion of the building.

BETA 6/25: Calculations have been provided for sizing rip-rap outlet protection at the SE roof discharge and the overflow from Infiltration basin 1. The calculations are acceptable.

Recommendation: The dimensions of the aprons should be labeled on the plans and a detail provided.

BSC Response: Rip-rap outlet sizing calculations are being added to the updated Stormwater Report to be submitted under separate cover. Sizing of rip-rap aprons has been added to the Grading and Drainage Plan.



5. The applicant proposed a subsurface “Stormtrap” infiltration chamber system on the west side of the project site. The proposed system is located directly on top of an existing 14-inch sewer line. This presents a potential issue regarding accessing the existing sewer line for future maintenance or repair requirements.

Recommendation: The Applicant should confirm with the Arlington Public Works and/or Sewer Department that the proposed location of the infiltration system is acceptable.

Applicant’s 1/21/2021 Response: The system in question has been relocated south of the sewer line to allow Town access should it be needed. Please refer to the enclosed revised Grading & Drainage Plan.

BETA 1: The proposed subsurface infiltration system has been redesigned to avoid the existing sanitary sewer line. Groundwater mounding analysis indicates that the ground water mound will extend beyond the sewer line. However, based on test pit data the sewer is currently below the groundwater table so this should not have a negative impact. Comment resolved.

6. Grading and Drainage Plan – The proposed 15-inch drain pipe from OCS-1 to FES-1 has minimal cover.

Recommendation: The applicant should revise the proposed grading in this area to provide adequate cover over the proposed drain.

Applicant’s 1/21/2021 response: This pipe has been reduced in size to 12-inch HDPE and the grading as proposed provides sufficient cover. Please see the enclosed revised Grading & Drainage Plan.

BETA 1: The system has been redesigned and the pipe as proposed has adequate cover. Comment resolved.

7. Grading and Drainage Plan – The applicant proposes an entrance door to the garage level on the east side of the building, the proposed finished grade elevation is 2.83. The seasonal high groundwater elevation of the site development area is presumed to be around elev. 3.0 based on past soil borings.

Recommendation: The applicant should confirm the seasonal high groundwater elevation in this area and provide appropriate mitigative measures if necessary, to prevent surface water from entering the garage through the doorway.

BETA 1: No response received. However additional test pit data was submitted indicating groundwater elevations at 0.2 feet in the vicinity of the garage opening. As previously noted, groundwater elevations should be confirmed prior to construction.

2/16 BSC Response: The project architect is reviewing options to raise the elevation of the garage entrance door on the east side of the building above the seasonal high groundwater elevation. The change in elevation will be accomplished with an internal ramp. Additionally, test pits conducted on the site demonstrate groundwater to be at El. = 3.0. The applicant has proposed as a condition of the Comprehensive Permit to perform confirmatory on-site testing for groundwater levels during March and/or April 2021 during the expected seasonal high groundwater period.

3/10 BSC Response: In addition to the mitigative measures described above, the project architect is reviewing and additional option to enclose the exterior portion of the ramp along the east wall of the building and providing the entrance door at approximately elevation 7.0.

8. Areas for trash collection and snow storage are not identified on the site plan.

Recommendation: The Applicant should identify potential areas for trash collection and snow storage on the site plan to confirm that these will not conflict with other site elements.

BETA 1: No response received.



2/16 BSC Response: The proposed location of the trash room in the basement level is shown on Sheet C-104 of the site plans and the Garage Plan in the architectural drawings. All trash and recycling facilities are located on the garage level. Building management staff will wheel out trash and recycling on trash/recycling days to a location on the south side of the garage vehicular ramp where it will be removed by waste haulers.

Snow storage for the surface parking lot and primary access drive will be provided off the pavement on the west side of the parking lot. Snow storage for the courtyard entrance will be provided off pavement within landscape areas and to the east and west of the courtyard between the building and back of sidewalk. Any excess snow will be removed and properly disposed of offsite.

The trash/recycling collection areas and designated snow storage areas will be depicted in the final site plans submitted for review for consistency with the Board's decision.

9. Civil and Landscape Details (sheet 1) – The applicant has provided a Silt fence with Haybales erosion control barrier detail.

Recommendation: The applicant should utilize an 18-inch diameter compost filled silt sock with silt fence in lieu of staked haybales for erosion control measures.

Applicant's 1/21/2021 Response: The perimeter erosion controls have been revised as recommended and are shown on the enclosed revised Site Preparation Plan and Grading & Drainage Plan. A detail of the 18-inch diameter compost-filled silt sock with silt fence has been added to the enclosed Civil and Landscape Details (Sheet C-200).

BETA 1: Revisions are acceptable. Comment resolved.

10. The applicant should provide a detail of the proposed Outlet Control Structures #1 and #2. Also, the applicant should review OCS-2 as it appears that the structure is too shallow to be constructed as shown.

Applicant's 1/21/2021 Response: The revised stormwater management system only includes one outlet control structure (OCS, previously designated at OCS-2), as shown on the revised Grading & Drainage Plan. This structure is a 6-foot diameter manhole with an outlet pipe higher than the inlet pipe. A detail has been added to the enclosed Civil & Landscape Details Sheet C-203.

BETA 1: The drainage system design has been revised. A detail of OCS-1 is provided. It is suggested that the detail on Sheet C-203 be revised to more accurately depict that the invert of the 12" outlet pipe is at the top of the 30" inlet. The function of OCS-1 is not clear as the drainage calculations show no discharge from infiltration basin 3 during the 100-year storm.

3/10 BSC Response: The detail shown on Sheet C-203 will be revised to accurately show the invert of the 12" outlet pipe at the top of the 30" inlet. The revision will be incorporated in the final site plans submitted for review for consistency with the Board's decision. The function of OCS is to provide an emergency overflow for the underground detention system draining the garage ramp.

11. Recommend the applicant adjust the location of the proposed pedestrian ramp on the west side of the site building so that it is located within the proposed crosswalk crossing the site access drive.

BETA 1: No response received

2/16 BSC Response: BSC concurs with this recommendation. The location of the proposed pedestrian ramp on the west side of the building will be relocated to align with the proposed crosswalk crossing the site access drive and will be depicted in the final site plans submitted for review for consistency with the Board's decision.



12. Recommend the applicant confirm that any footing of the proposed retaining wall near the driveway garage entrance will not conflict with the existing drainage pipe located in the same area.

Applicant's 1/21/2021 Response: The garage ramp retaining wall and associated grading have been revised to eliminate any potential conflict with the existing drainage pipe and is shown on the revised Grading & Drainage Plan.

BETA 1: The retaining wall has been shortened to avoid impacting the existing drain. To accomplish this the slope of the driveway has been increased from about 5% to about 8%. No further comment.

FLOOD PLAIN

13. A portion of the proposed project design requires filling within the 100-year flood plain. Compensatory storage is required on a 1:1 (per foot) basis by the Mass Wetlands Protection Act (310 CMR 10.57) and on a 2:1 basis by the Arlington Wetlands Bylaw.

The applicant has provided compensatory flood plain storage calculations in the stormwater report (Sec. 2.12) and has designated an upland area on the site plan southeast of the proposed building for compensatory storage. In addition, the southeast courtyard area is labeled "Open Space / Flood Storage".

BETA's wildlife biologist reviewed the revised plans to evaluate the impacts of the newly proposed compensatory flood storage areas. These areas both located south/ southeast of the main building in a heavily wooded area on the site. Currently these regions are densely vegetated and upslope of isolated wetland WF-D series. This serves as a water filtration system to the downstream wetlands as well as preventing erosion by holding on to sediment and slowing stormwater. However, the vegetation is mostly invasive species and an abundance of dead trees. While the dense vegetation and standing deadwood provides good nesting habitat, this feature exists in other areas of the property.

Constructing these compensatory flood storage areas will most likely involve clearing any existing vegetation and re-grading the area creating the opportunity to replant and seed the area with native species to add productivity to the remaining area. Dense shrubs such as high bush blueberry can provide dense cover and food sources for wildlife for example. Pollinator species should also be considered to replace what will be lost in the surrounding area during clearing. This will also be an important feature for retaining water and nutrients in these areas and prevent standing water which is a breeding ground for insects.

Recommendation: The Applicant should provide a plan graphic showing the existing flood plain area being altered by the proposed building / site development, currently the building hatch is obscuring the flood plain limits. The proposed compensatory flood storage volume calculations and designated flood storage volume area appear consistent.

BETA 1: No response received. We understand that the compensatory flood plain storage will be revised to avoid impact to the 25 foot No Disturb zone of the adjacent wetland.

2/16 BSC Response: A floodplain impacts and compensatory storage exhibit was previously submitted. A revised floodplain impacts and compensatory storage exhibit considering the Isolated Vegetated Wetlands (IVW) and AURA is attached. The proposed compensatory storage areas located within the AURA to BVW or IVW have been located, where possible, within the outer 50 feet of the AURA. This work is also considered a temporary disturbance area and once the compensatory storage work is complete, it will return to its natural function as AURA and Land Subject to Flooding.

BSC Response: We believe that the locations proposed for compensatory storage provide an opportunity to improve the overall site and help protect nearby resource areas. Please see or response



to Comment 5 at the start of this response as well as our previous response to this comment for more detail.

STORMWATER MANAGEMENT

14. The Applicant should provide onsite soil exploration / test pit data for review, specifically within the footprints of the two proposed subsurface infiltration chambersystems. The test pit data is required at a minimum to determine the seasonal high groundwater elevations within the project limits.

Applicant's 1/21/2021 Response: In November 2020, BSC performed three soil test pits on site. The results of these test pits confirmed the soils mapping and previously performed borings with regard to seasonal high groundwater. Locations of the test pits are shown on the enclosed revised Grading & Drainage Plan. Test pit logs are included in Appendix D and more detailed information is provided in Section 1.02 of the revised Stormwater Report.

BETA 1: Data for three test pits has been provided. Groundwater elevations are shown as varying from -0.5' to 3.0'. The infiltration system designs reflect these groundwater elevations. Two feet of separation to groundwater is provided for Infiltration basin 1. Infiltration Basin 3 should be raised 0.2 feet to provide a full 2-foot separation. Given the variation in groundwater elevation indicated by the test pits, it is suggested that groundwater be confirmed prior to construction. This should be done during seasonal high groundwater conditions.

3/10 BSC Response: In the BSC 1/21/2021 response to the Town Engineer's comments, the Applicant has proposed, as a condition of the Comprehensive Permit, to perform confirmatory on-site testing for groundwater levels during March and/or April 2021 during the expected seasonal high groundwater period. Any modifications to the drainage system design required as a result of new groundwater information will be incorporated into final site plans for review by the Town prior to issuance of building permit.

15. The proposed site building roof will be designed to provide stormwater detention, with a roof drain connection to the proposed subsurface infiltration chamber system #1 located west of the building. The HydroCAD model included with the Stormwater Report shows zero runoff leaving the roof area for all storms up to and including the 100-year design storm. Discussions with the applicant indicate the disposition of this retained stormwater has not yet been finalized. Until the disposition of the retained rooftop stormwater is known, its effects on the proposed stormwater BMPs cannot be evaluated.

Applicant's 1/21/2021 Response: Runoff calculations have been revised to include discharge from the roof detention system in all storms analyzed. This overflow will be at a controlled rate and will flow into the underground infiltration system in the parking lot west of the building. The detailed design of the rooftop detention will be provided as the architectural and plumbing construction plans are developed. In addition, approximately 9,000 square feet of the southeast corner of the building roof will discharge directly to the surface through roof a roof drain. Please see the enclosed, revised Stormwater Report for additional information and calculations.

BETA 1: See response to Comment 4. Additional information should be provided as the architectural plans are developed to confirm that the roof detention will function as shown in the calculations.

3/10 BSC Response: See 3/10 BSC Response to Comment 4 above.

16. The proposed infiltration chamber system #1 receives stormwater from a proposed CB located between the site access drive and proposed parking area west of the site building. The rim elevation of this CB is 8.0. The results of the HydroCAD model indicate that the 50-yr flood elevation within the infiltration



system is elev. 8.28. This flood elevation will cause stormwater to surcharge out of the CB grate and overflow down the access driveway to the lower garage level.

Recommendation: The Applicant should reevaluate the proposed infiltration chamber system #1 to provide adequate stormwater capacity so that there is no onsite surface surcharge for any of the proposed design storms.

Applicant's 1/21/2021 Response: The infiltration system has been revised, both in footprint and storage volume and the area around the catch basin regraded (rim elevation 8.84) so that no surcharge will occur. Please refer to the enclosed revised Grading & Drainage Plan.

BETA 1: The proposed grading has been revised on the 1/21/2021 Grading & Drainage plan so that the CB rim is above the 100-year water surface elevation in infiltration basin 1. Comment resolved.

17. The proposed infiltration chamber system #2 located near the southwest corner of the site building receives stormwater from a proposed trench drain located across the access driveway to the lower garage level. The rim elevation of the proposed trench drain is 4.1. The results of the HydroCAD model indicate that the 2-yr flood elevation within the infiltration chamber system is elev. 8.40. This is not possible. The applicant is currently reevaluating the design of Infiltration Chamber System #2.

Applicant's 1/21/2021 response: he proposed system has been resized and the area around the trench drain regraded so that no surcharge will occur.

BETA 1: The rim elevation of the driveway trench drain has been revised to be 0.18 feet above the 100-year water surface elevation in Infiltration basin 3 to avoid surcharging to the driveway surface. However, the infiltration basin bottom should be raised 0.2 feet to provide the required 2-foot separation to groundwater. This may require adjustment of the trench drain rim elevation.

3/10 BSC Response: as stated in the response to Comment 14 above, the Applicant has proposed, as a condition of the Comprehensive Permit, to perform confirmatory on-site testing for groundwater levels during March and/or April 2021 during the expected seasonal high groundwater period. Any modifications to the drainage system design required as a result of new groundwater information, including raising the bottom elevation of infiltration areas, will be incorporated into final site plans for review by the Town prior to issuance of building permit.

18. The applicant should provide groundwater mounding calculations as the two proposed infiltration chamber systems are designed to provide peak rate mitigation and appear to be within 4-ft of estimated seasonal high groundwater.

Applicant's 1/21/2021 Response: A groundwater mounding analysis of the underground recharge system has been performed and is included in Section 6.05 of the Stormwater Report. The analysis shows that the groundwater mound is less than the provided separation to groundwater.

BETA 1: A mounding analysis has been provided for Infiltration Basin 1. The mounding analysis adequately represents anticipated conditions. The expected vertical extent of the mound will be below the bottom elevation of the basin. The expected horizontal extent of the mound dissipates before it reaches any adjacent existing foundations.

19. The HydroCAD model included in the stormwater report analyzes the proposed stormwater BMPs over a 24-hr time period.

Recommendation: The applicant should increase the analysis time period to 72 hours to allow the BMPs to demonstrate their drain down capacity after the storm event concludes.



Applicant's 1/21/2021 Response: The analysis time period has been extended to 72- hours as requested. In addition, a drawdown calculation in accordance with Volume 3, Chapter 1 of the Massachusetts Stormwater Handbook has been performed demonstrating that the infiltration system will drain within 72-hours. This information is included in Section 6.02 of the accompanying Stormwater Report.

BETA 1: The drawdown calculations have been provided and are acceptable. Comment resolved.

20. MassDEP Stormwater Standard #10 – The applicant should provide a signed Illicit Discharge Compliance statement.

Applicant's 1/21/2021 Response: An illicit discharge compliance statement has been included in Section 6.06 of the Stormwater Report and will be signed by the Applicant prior to issuance of permits.

BETA 1: The Illicit Discharge Statement has been provided. Comment resolved.

UTILITIES

21. The applicant proposes some drain manholes (DMH-2, 3) requiring shallow installations. For these applications the applicant should confirm the frame/cover height (standard 8-in, shallow 4-in) and that adequate cover exists over the inlet/outlet pipes for constructability.

BETA 1: No response received

2/16 BSC Response: DMH-2 and 3 have been eliminated in the revised stormwater management system design as submitted to the Board and The BETA Group on January 25, 2021.

22. The Utility Plans show the proposed utility services from the project site to the existing municipal/gas/electric utilities in Dorothy Road.

Recommendation: We recommend the Applicant coordinate with the Arlington Public Works Department and local utility companies regarding all proposed site utility connections to the public utilities in Dorothy Road to confirm compliance with applicable construction standards.

BETA 1: No response received.

2/16 BSC Response: A detailed plan review and comments was provided by the Town Engineer. Responses to those comments are provided below.

23. The existing survey shows an existing drain line in Dorothy Road that runs in front of the project site. The Utility Plan shows three proposed sewer service lines from the building to the existing municipal sewer in Dorothy Road that cross the drain line.

Recommendation: The Applicant should confirm the proposed sewer services as shown do not conflict with the existing drain line.

BETA 1: No response received.

2/16 BSC Response: The existing sewer line that runs within the easement across the property frontage on Dorothy Road has an invert of approximately elevation = 1.7 to 1.2. The proposed building sewer laterals have invert elevations = 5.22 to 4.33; providing a minimum of 1 foot separation where crossing the existing sewer.

CONSTRUCTION

New Comment 1. It is suggested that prior to construction, the Applicant prepare a Construction Management Plan (CMP) for review and approval by the Board. The CMP will provide documentation of various construction related activities. The CMP should include:

- Project Description and outline of primary construction tasks



- Project Schedule including hours of operation, duration of primary construction tasks and estimated completion date
- Project logistics including staging areas, truck routes, laydown areas, contractor parking and traffic management
- Site Management including noise mitigation, dust control and security
- Public Safety and Coordination including contact information and site inspections

3/10 BSC Response: A Construction Management Plan (CMP), containing the information above, will be prepared by the General Contractor and submitted to appropriate Town staff prior to issuance of building permit.

New Comment 2. The Long Term Pollution Prevention & Operations and Maintenance Plan should include requirements for inspection and cleaning of trench drains and the roof stormwater outlet to ensure these are functional prior to significant rain events.

3/10 BSC Response: The Long-Term Pollution Prevention & Operation and Maintenance Plan will be updated to include requirements for the inspection and cleaning of the trench drains and roof detention outlet control structure. The inspection and cleaning requirements will be included in the revised Stormwater Report to be included with the final site plans submitted for review for consistency with the Board's decision prior to submission for building permit.

New Comment 3. The Long Term Pollution Prevention & Operations and Maintenance Plan should include provisions for maintenance and cleaning of compensatory flood storage areas to ensure these remain functional.

3/10 BSC Response: It is not appropriate for the maintenance and cleaning of the compensatory flood storage areas to be included in the Long-Term Pollution Prevent & Operation and Maintenance Plan. Requirements for the compensatory flood storage areas will be addressed in the recommended conditions provided by BETA and the Arlington Conservation Commission.

24. Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan –Section 3.10.4 Equipment/Vehicle Maintenance and Fueling Areas:

Recommendation: BETA recommends adding a provision prohibiting refueling of vehicles or equipment within 100-feet of any onsite resource area.

Applicant's 1/21/2021 Response: A prohibition on refueling and maintenance has been added in Section 3.10.5 of the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan as recommended.

BETA 1: Information provided. Comment resolved.

25. Recommend the applicant add a provision to the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan that “Dorothy Road shall be swept clean on a daily basis of any soils tracked onto it from the project site”.

Applicant's 1/21/2021 response: A daily sweeping requirement has been added in Section 3.10.1 of the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan as recommended.

BETA 1: Information provided. Comment resolved.

26. As part of a Construction Management Plan the applicant should develop a map of approved haul routes for trucks traveling to/from the project site during construction as the immediate site vicinity is comprised of narrow residential streets.



Jenny Raitt, Director

August 3, 2021

Page 15

3/10 BSC Response: As provided in the 1/25/2021 BSC response to BETA Traffic Impact Assessment comments, the Construction Management Plan will include a Construction Traffic Management Plan that will include construction vehicle access routes, hours of construction and temporary parking restrictions. The Construction Traffic Management Plan will be prepared by the General Contractor and submitted to appropriate Town staff prior to issuance of building permit.

RESOURCE AREAS

3/10 BSC Response: BETA has provided recommended conditions related to compensatory flood storage mitigation, vegetation replacement, invasive species management, and no work within the 25-foot No Disturb Zone. The proposed conditions are consistent with conditions proposed by the Arlington Conservation Commission (ACC). The Applicant's responses to the ACC proposed conditions will be provided under separate cover and are not included here.

We believe these responses fully address all outstanding BETA Civil and Wetland Peer Review comments. Should you have any questions on this information, please do not hesitate to reach out to me at (617) 896-4386 or drinaldi@bscgrop.com.

Sincerely,
BSC Group, Inc.

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Attachments: Layout & Materials Plan, Sheet C-103
 Grading & Drainage Plan, Sheet C-105
 Utility Plan, Sheet C-106
 Potential Conservation Parcel Exhibit
 Vehicle Turning Exhibits