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September 4, 2014

Mr. Lee Hartmann, AICP
Director of Planning and Development
Town of Plymouth
11 Lincoln Street
Plymouth, MA 02360

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BOARD OF APPEALS
PLYMOUTH, MA

Via: Email to: lhartmann@townhall.plymouth.ma.us,
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and First Class Mail

Reference: Supplemental Review
Gravel Removal Permit and Installation of a Solar Field
Off of Long Pond Road
Kingstown Corporation
Plymouth, Massachusetts
Project No. 2079.74

Dear Mr. Hartmann:

Beals and Thomas, Inc. (B+T) is pleased to assist the Town of Plymouth Department of Planning and Development with this supplemental review associated with the request for a gravel removal permit and installation of a solar energy field. We understand that the Applicant has requested a Special Permit from the Zoning Board of Appeals (the Board) for the removal of approximately 250,000 cubic yards (cy) of earth material pursuant to Section 205-40 D(1) and 205-18 (B4), F and G of the Plymouth Zoning Bylaw (the Bylaw).

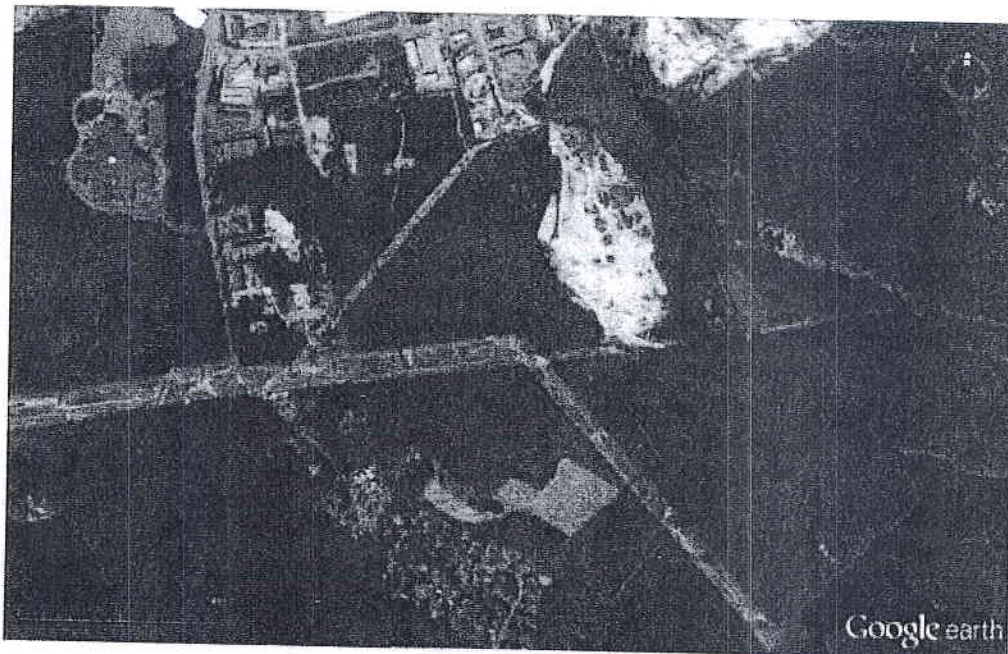
We previously issued a letter dated July 3, 2014 which presented the results of our review of the initial documentation submitted by the Applicant. As a consequence of our comments, the Applicant has provided supplemental documentation listed herein.

On August 22, 2014 and September 2, 2014, we received the following additional documentation, which served as the basis for our supplemental review:

- *Site Permitting Plans for a Special Permit for Sand and Gravel Removal*, plans revised August 18, 2014 on the cover sheet, endorsed by William Shaw, P.E. on the cover sheet on August 21, 2014 prepared by Associated Engineers of Plymouth, Inc.
- Response to Comments, prepared by William Shaw, P.E., Associated Engineers of Plymouth, Inc., dated August 21, 2014
- Drainage Calculations, dated August 21, 2014, endorsed by William Shaw, P.E. on August 27, 2014, prepared by Associated Engineers of Plymouth, Inc.

The proposed development is located on ±106 acres of land located off Long Pond Road and Camelot Drive (the Site). Approximately 250,000 cy are proposed to be excavated and the area subsequently developed for a solar energy facility. The area of excavation appears to be buffered from adjacent properties with the exception of the industrial sites within the Camelot Park, one of which is an existing gravel removal operation of the Applicant. Refer to the aerial photograph herein.

According to the Application materials, the Site is owned by the Inhabitants of Plymouth County (the County). Access to the Site from Camelot Drive, a public way, is proposed via the improvement of an existing cart path from the edge of the parking area of Kingstown Trucking. (the Applicant) to the Site. The access roadway is proposed to be improved to a 22 foot wide gravel surface with two foot shoulders. An existing NSTAR power line easement traverses the Site from northeast to southwest. The portion of the Site proposed for the removal of material is located in the Rural Residential zoning district and lies southeast of the power line easement. The land northwest of the power line is industrially zoned. The entire Site lies in Area 3 on the Plymouth Aquifer Protection Map. Lots that are located in a partially constructed subdivision (Caleb Drive and Kimball Way) lie to the west and lots on the existing Raffaele Road are located to the east. Vacant land is located across Camelot Drive.



Aerial photograph of the Site

We have reviewed the documentation submitted by the Applicant with respect to the requirements of the Bylaw; A Guide for the Design of Storm Drainage Facilities in the Town of Plymouth (the Guide); the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Handbook (the Handbook); and the Environmental Protection Agency (EPA) 2012 Construction General Permit (CGP).

Site Visit:

1. B+T representatives visited the Site on June 25, 2014 to gain familiarity with surrounding land use patterns and evaluate the existing conditions with regard to the proposed development. We have included photographs herein that were obtained during the visit to help illustrate the Site conditions and provide context for our comments.

Review Format:

In an effort to establish clarity for the Administrative Record, we have included the comments from our initial letter report dated July 3, 2014 followed by a summary of the Applicant's response in *italicized* font, followed by our current comment in **bold** font to establish the status of our original comment.

Site Plan Comments:

General Comments:

1. The Applicant should submit a list of requested waivers for Board review and the Administrative Record.

Applicant's Response: The site plan has been revised to provide 100 foot buffers leaving only the issue of start time. The petition will formally request a start time of 6:00 AM.

Current B+T Comment: We consider this comment to be adequately addressed. However, we defer to the Board for a determination on the suitability of the Applicant's requested start time for construction activity.

2. A more appropriate scale should be provided on future plans. A plan should also be included to show the entire limit of work on one sheet.

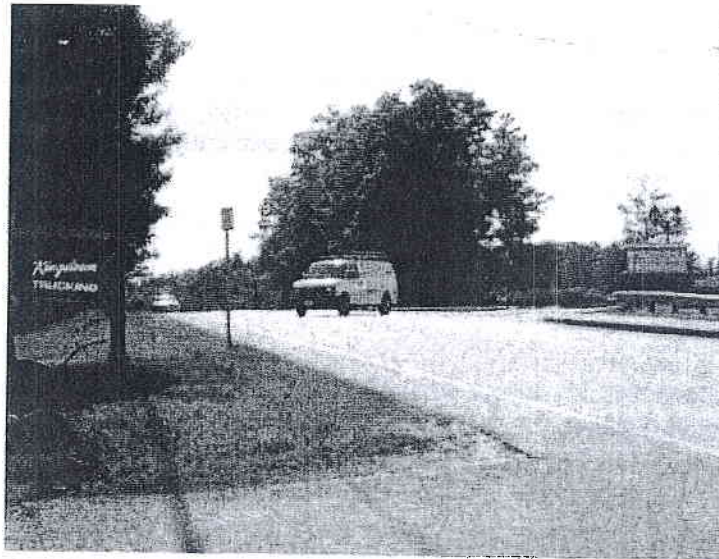
Applicant's Response: A 10th sheet has been added to the Site Permitting Plans at a forty scale showing the entire limit of work.

Current B+T Comment: We consider this comment to be adequately addressed by the addition of the 40-scale sheet.

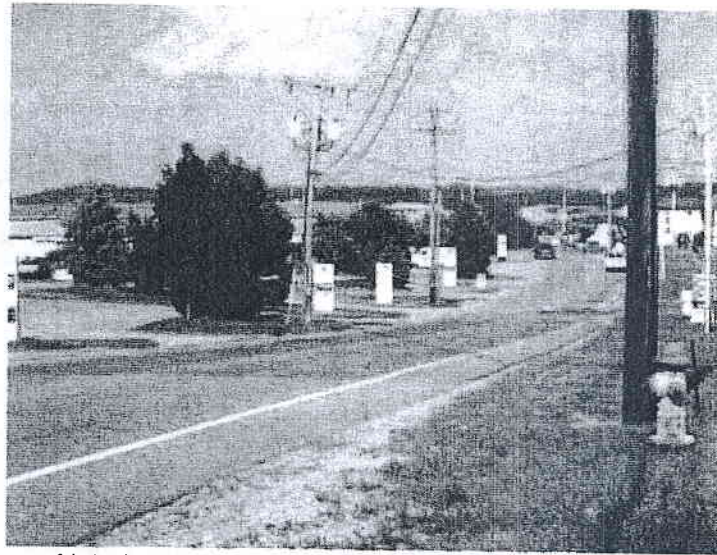
3. Documentation of both the stopping sight distance and the intersection sight distance should be provided by the Applicant. Appropriate signage may be required.

Applicant's Response: Intersection sight distances and stopping sight distances are in excess of 350 feet in both directions. The proposed access point to Camelot Drive is the existing drive to Kingstown Trucking. The majority of trucks hauling material from the proposed project will be from Kingstown Trucking and therefore the intersection and stopping maneuvers have been tested for a sufficient period to be acceptable.

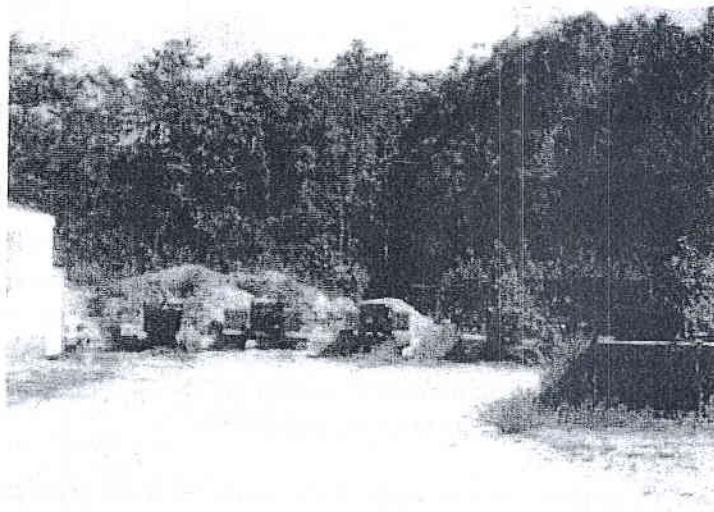
Current B+T Comment: We request the Applicant provide the required stopping and intersection sight distance for a basis of comparison (considering design speed, grade, etc.) to the 350+-feet provided as well as appropriate street signage be provided during the course of the earth removal operation.



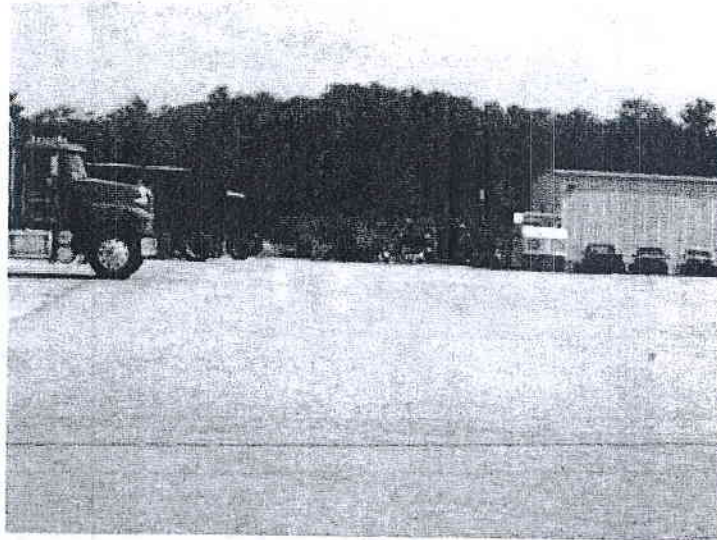
Sight line on Camelot Drive viewed toward the west and Shops at Five Way



Sight line on Camelot Drive viewed toward the east



Existing cart path off the edge of the existing parking area



Existing parking area at Kingstown Trucking

Earth Removal Comments:

1. The proposed earth excavation (cut) to achieve target grades of the removal operation ranges up to a maximum of 30 vertical feet. The Applicant should document the design basis for the proposed excavation grades to demonstrate the necessity for the amount of cut proposed.

Applicant's Response: The Zoning Bylaw allows, by special permit, a quarry in the RR Zone. Unlike determinations that a proposed project requires removal of material and the removal is the minimum volume required this zone allows the removal for a quarry use. Upon completion of the quarry operation a solar field is an appropriate end use. This is obviated by the solar field immediately to the east of his project and abutting (previously a quarry operated by the same petitioner).

Current B+T Comment: We consider this comment to be adequately addressed.

2. The plans should clearly show existing surface features, including trees and/or treeline.

Applicant's Response: Tree lines and surface features pertinent to the proposal have been added. The entire locus is a 106 acre parcel, nine and a half acres of which is dedicated to this proposal.

Current B+T Comment: The proposed treeline is provided on the 40-scale grading plan (indicating the proposed limit of clearing). Accordingly, we consider this comment to be adequately addressed.

3. The plans should indicate the limits of work (i.e. limit of clearing and/or grading).

Applicant's Response: The proposed limit of work has been noted.

Current B+T Comment: The proposed grading has been identified. Accordingly, we consider this comment to be adequately addressed.

4. An appropriate stabilized construction entrance should be provided to reduce the tracking of sediment onto abutting properties and/or public ways.

Applicant's Response: The paved surface through Kingstown Trucking is 250' long and will serve as the construction entrance.

Current B+T Comment: We consider this comment to be adequately addressed; however, the Applicant should still plan to implement measures to prevent the migration of sediment onto public ways during construction as necessary.

5. The side slope created for the construction of the access roadway is proposed to be 2:1. A detail for slope stabilization should be provided or the slope should be revised to 3:1.

Applicant's Response: The 2 to 1 slopes are temporary. The access to the solar field is likely to be from the existing field to the east. The future access has not been determined at this time.

Current B+T Comment: Although the access road is temporary, the Applicant has also indicated that the operation may be on-going for a period of up to four (4) years. The access roadway should be stabilized during this gravel removal period. Accordingly, we reiterate our original comment.

6. The County's rights as the owner of the property to access the Site over the land N/F Four Long Pond Road Realty Trust to construct the proposed solar facility should be documented for the Administrative Record.

Applicant's Response: The proposed solar field is in the very preliminary stages. (County energy audits, negotiations with a potential solar contractor and budgetary issue concerning tying to the grid [sic].

Current B+T Comment: The Applicant's response does not appear to address our initial comment to document the County's rights to access the property should the Applicant not advance the project.

7. A plan for preventing damage to Camelot Drive, a public way as well as the portion of Camelot Drive that remains private should be submitted. The Applicant is encouraged to coordinate with the Department of Public Works and the owner of the private portion of Camelot Drive to prepare the plan. A schedule for the removal of accumulated soil should also be prepared and submitted for the Administrative Record.

Applicant's Response: A bond is required for all gravel operations for protection of the roads before an approved zoning permit will be issued,

Current B+T Comment: Although a bond is required, the Applicant is encouraged to coordinate with the appropriate entities to maintain the roadway on an on-going basis.

8. The submission of a construction phasing plan is required to identify the progression of the removal operation. Appropriate details should be provided as to where and in what manner the excavated materials will be deposited or stored, as required by Section 205-18 G. (1) of the Bylaw.

Applicant's Response: The two phases have been shown on the forty scale plan. A bond is also required for loam and seed for a five acre area.

Current B+T Comment: The 40- scale plan includes a phase line delineating Phase 1 from Phase 2, but no additional details. Accordingly, we reiterate our original comment.

9. A gravel hauling schedule indicating the limitations on the time of day, days of the week and number of trucks per day, etc. should be submitted to the Board for review. Coordination of the schedule with Plymouth Community Intermediate School (PCIS) schedule should be required of the Applicant. Documentation of School Department approval of the schedule should be provided to the Board.

Applicant's Response: The school system is always notified as a condition of the bylaw and an early start time is proposed to avoid busing schedules.

Current B+T Comment: The Applicant has acknowledged that notification is to be provided to the School Department as a condition of approval. However, we reiterate our initial comment that a schedule be provided indicating limitations on the time of day, days of the week and the number of trucks per day consistent with the Zoning Bylaw.

Solar Facility Comments:

1. Additional information should be provided regarding the proposed solar facility. The approximate power output as well as the approximate location of the proposed equipment (i.e. inverter, equipment pads), connection to the power grid, utility poles, and fence/access gate(s) should be provided on the plans. The proposed installer, responsible party and ability of the project to connect to the grid should be documented for the Administrative Record.

Applicant's Response: Although the solar field is in its preliminary stages potential equipment locations have been shown, potential location of connection to the grid (may require update of the existing capacity), fence and gate locations will be defined as negotiations with the installer progress. The installer of the solar field to the east has been contacted and preliminary discussions have been initiated. It is important to note that proposed excavations will likely take four years and definitive agreements would be appropriate 6 months prior to completion of the quarry activity.

Current B+T Comment: We consider this comment to be adequately addressed.

2. Details of the proposed solar equipment should be included within the plan set.

Applicant's Response: The installer has some flexibility in the type of equipment used. Definitive installation plans are appropriate at the end of the quarry operation (four years from the start of work)

Current B+T Comment: We consider the Applicant's explanation to adequately address our comment.

3. The permanent means for providing emergency response equipment access to the solar site should be identified and approved by the Plymouth Fire Department. The plans should show the entire length of the access roadway, from the access node to the solar array.

Applicant's Response: Solar access will be appropriately addressed upon complete of quarry operation.

Current B+T Comment: We defer to the Board and the Plymouth Fire Department for final resolution of this comment.

4. The design intent appears to be to store stormwater runoff within the solar array where it will subsequently infiltrate. In the event of a failure to infiltrate, runoff will rise to an approximate stage elevation of 110 (2 feet above the proposed finished grade of the array) before discharging off-site. The Applicant should verify that the solar array, including bases and equipment, can be subject to localized ponding and potential submersion.

Applicant's Response: The plan has been revised to show a stormwater disposal area which has been sized for a 100 year storm and assuming poor soil conditions.

Current B+T Comment: The hydrologic model was revised to utilize Group B Soils, which are classified as soils having a moderate infiltration rate when thoroughly wet. The drainage system has been modified to include swales that convey runoff to a dedicated infiltration basin. Accordingly, we consider this comment to be adequately addressed.

Stormwater Management and Erosion Control:

1. The proposed Project will disturb more than one acre of land; therefore, the Applicant is required to develop a Stormwater Pollution Prevention Plan (SWPPP) and obtain coverage under the 2012 Construction General Permit (CGP) in compliance with the Environmental Protection Agency's National Pollutant Discharge Elimination System (NPDES) program. It is recommended that the Board of Appeals obtain a copy of the SWPPP for the Administrative Record, along with certification that this coverage has been obtained prior to construction. A Long-Term Operation and Maintenance (O-M) Plan should also be prepared and submitted for the Administrative Record. Neither document has been included in the filing.

Applicant's Response: A SWPPP and O-M will be completed as a condition of approval.

Current B+T Comment: We consider this comment to be adequately addressed provided a SWPPP, O+M plan and certification that CGP coverage has been obtained are provided to the Board prior to project commencement.

2. Consideration should be given to grading the array area to drain, overland, to a dedicated infiltration area outside of the solar array (possibly with an emergency overflow). The proposed solar racking system and installation methods are unclear. Proposed infiltration areas should be protected from disturbance and heavy machinery compaction during construction. There is the possibility for existing soils becoming compacted during construction, resulting in slower permeability (exfiltration) rates than the rate utilized for the design. Generally, infiltration areas should be clear of infrastructure that may hinder permeability rates.

Applicant's Response: The plan has been revised to show a dedicated infiltration area.

Current B+T Comment: Swales were added to the design at the western and eastern perimeter of the site and are routed to a dedicated infiltration basin at the southerly portion of the site. Although there is a cross section detail, the grading of the swales is not apparent on the site grading plan. Therefore, we request that the grading for the swales be included.

3. The Applicant should provide soil information for the Site to document that an appropriate exfiltration rate was used for the hydrologic model. Specifically, if there was any soil evaluation and testing in the field to substantiate the design (i.e. deep hole soil logs, permeability testing, etc.).

Applicant's Response: The infiltration area has been designed assuming a Rawls rate for B soils. The soils maps indicate A soils however recent issues concerning storm runoff in the general area indicate that a conservative approach is warranted.

Current B+T Comment: If a Rawls rate is to be utilized, we recommend a condition of approval to verify the soil texture via test pit prior to construction.

4. The Applicant should provide a delineation of the subcatchment area contributing stormwater runoff to the excavation area, consistent with the stormwater hydrology report, clearly depicting varying ground cover types. This plan shall also include the "time of concentration" flow path, to substantiate the stormwater design.

Applicant's Response: Sub catchment areas are shown on a supplemental plan contained in the drainage calculations.

Current B+T Comment: A supplemental drainage plan was provided. Accordingly, we consider this comment to be adequately addressed.

5. Consideration should be given to rounding the contours to minimize grading and unnecessary disturbance (especially at the southwestern and southeastern corners of the solar array).

Applicant's Response: Contours have been rounded as requested.

Current B+T Comment: We consider this comment to be adequately addressed.

6. To minimize possible sedimentation during construction, erosion control barriers shall be placed at the limit of work as opposed to the property line.

Applicant's Response: The hay bales near the property line allow maintenance without affecting the access road.

Current B+T Comment: The intent of our original comment was to minimize the distance from the disturbance to the erosion control barrier (i.e. limit the potential for sediment migration within the wooded area). We consider the Applicant's explanation to adequately address our comment.

7. A plan for the permanent stabilization of the Site is required by the Bylaw should include the proposed type of ground cover, shrubs and trees to be planted and other measures that will be used to stabilize the slopes. The plan proposes only the use of seed mix.

Applicant's Response: The seed mixture will provide initial stabilization. The slopes (located adjacent to forested areas) will mature with indigenous species as experienced in the general area.

Current B+T Comment: Although the slopes may develop natural vegetation over time, stabilization measures are required to allow for natural re-vegetation to occur. The plan should address a means for immediate stabilization of the slopes with materials other than seed mix. Accordingly, we do not consider this comment to be adequately addressed.

8. The proposed method of re-vegetating the disturbed area beneath the solar panels that will not interfere with their operation and maintenance should be noted on the plans. Also, the proposed vegetation shall be conducive to infiltration as designed.

Applicant's Response: The solar field will require some maintenance of the vegetation beneath the panels. Details of this are in the early stages.

Current B+T Comment: A note identifying an appropriate planting material to stabilize the area under the panels should be provided on the plans. Accordingly, we do not consider this comment to be adequately addressed.

9. A note indicating the requirements for the periodic sweeping of Camelot Drive and dust control measures should be provided on the site plans and in the O+M plan.

Applicant's Response: A standard condition of approval requires street sweeping. Camelot Drive serves as access to several excavation contractors within Camelot Park and mutual cooperation is anticipated.

Current B+T Comment: We defer to the Board to establish as a condition the regularity expected for street sweeping in conjunction with the SWPPP.

10. The proposed grading on Sheet 7 is not consistent with the grading on Sheet 8. The proposed 108 elevation contour appears to be missing on Sheet 7.

Applicant's Response: The plans have been revised to be consistent throughout.

Current B+T Comment: We consider this comment to be adequately addressed by the revised plans.

Mr. Lee Hartmann, AICP
Director of Planning and Development
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We request that the Applicant provide a narrative response and revise the site plans and drainage calculations as necessary to address the above noted items and to establish the Administrative Record.

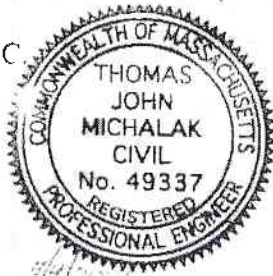
We appreciate the opportunity to assist the Town of Plymouth with the review of this Project. Please do not hesitate to contact our office with any questions.

Very truly yours,

BEALS AND THOMAS, INC.



Thomas J. Michalak, P.E.
Civil Engineer



David A. Johnson, AICP
Senior Planner

cc: William Shaw, P.E. (Via email: 29707@msn.com)

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