



Owner: Gretta & Matt Fruhan
Address: 81 Arnold Rd.
Applicant: D. Michael Collins Architect

July 28, 2020

Dear Wellesley Planning Board Members,

Subsequent to the Planning Board meeting of July 6th and the Historic Commission meeting of July 13th we have revised the design as requested, made a series of minor adjustments to the drawings, included items that were either missing from the initial submission or not clear in how they were represented. This letter provides a brief summary of the updates that have been completed in consideration of the recommendations from the various Boards.

The roof overhang was reduced from 14" to only 10" thereby raising the soffit slightly to accomplish the requested increase of space above the second floor windows (the frieze board) from 6" to 9".

The Shutter size was increased in width by 3" so they would appear to cover the window if they were to be closed.

The second floor windows on the front portion of the north and south elevations were adjusted so as to align vertically with windows below.

The garage and mudroom volume was adjusted and shifted (easterly) and the face of the garage is now set back 2'-4" from the face of the main house making the structure secondary to the main house.

The photometric plan was produced by a consultant from Progress Lighting Company and included in the submission.

Marquis Tree Service restated their assessment of 4 trees within the tree yard. Its letter is included. Jillson Engineering has submitted the completed The Storm Water Management Plan, submitted to Wellesley Engineering Department and included here. Jillson Engineering also submitted a memo dated 7/23/20 detailing the updates and response to the Town Engineers comments.

The Construction Management Plan dated July 22, 2020 is also submitted and is included here along with the previously submitted Construction Management Plan narrative. The July 22, 2020 Plan includes the requested approximate cut and fill calculations.

The tree protection details were added to the Landscape Plans.

Regards,

Michael Collins



**Town of Wellesley
Planning Department**
Lower Level - Town Hall
525 Washington Street
Wellesley, MA
781-431-1019 x2232

**Wellesley Planning
Board
LARGE HOUSE
REVIEW APPLICATION**

Applicant, please complete this form and include it with your application for Large House Review. Please read the LHR Rules and Regulations and consult with Planning Department for application requirements.

Application Information:

Property Address: 81 Arnold Road

Area District: 20,000 Project type (check one): New House Addition

Proposed TLAG (sq. ft.): New House: 9,308

Addition: Existing: _____ Proposed: _____ % Increase: _____

Property Owner Name: Matthew Fruhan

Owner Mailing Address: _____

Email Address: David@swhlawoffice.com (agent) Phone: 781-237-8180 (Agent)

Applicant Name: Matthew Fruhan

Applicant Mailing Address: _____

Email Address: David@swhlawoffice.com (agent) Phone: 781-237-8180 (Agent)

Fee: \$3000 New House: \$2,000 for TLAG less than 5,900 sq. ft.; \$3,000 for TLAG of 5,900 sq. ft. or greater. Additions: total TLAG less than 5,900 sq. ft., % TLAG increase x \$2,000, not to exceed \$2,000; total TLAG of 5,900 sq. ft. or greater, % TLAG increase x \$3,000, not to exceed \$3,000.

Application Authorization:

I give permission for Planning Department Staff to enter upon my land for purposes related to this application during regular business hours:

Signature of Property Owner: *Matthew Fruhan* Date: 5/13/20

For Town Use Only

Submission Date: _____ Case Number: LHR- _____

Action Required By: _____ DRB Review Date(s): _____

Planning Board Review Date(s): _____ Planning Board Action: _____

LARGE HOUSE REVIEW - TLAG AFFIDAVIT

Property Address: 81 Arnold Road
Applicant Name: Matthew Fruhan

CHECK ONE:

For New Single Family Dwelling (including accessory structure(s)):

Proposed TLAG (a+b+c+d+e+f from calculations below) = 9,308

For Additions to Single Family Dwellings/Accessory Structures:

TLAG of Existing Dwelling/Accessory Structures (subtract any areas to be removed):	
TLAG of Proposed Addition(s):	
Proposed Total TLAG of Existing Dwelling/Accessory Structures plus Addition(s):	
% Increase of TLAG: $\frac{\text{Total TLAG} - \text{Existing TLAG}}{\text{Existing TLAG}} \times 100 =$	

BASEMENT TLAG CALCULATION - refer to Basements on pages 4 and 5

Basement Area 1

Height of basement wall: 10'; Average height of basement wall above grade: 1.3'

% of basement wall above grade: 13%; If 25% or greater a portion counts as TLAG

Entire basement area (sq. ft.): 3,427 S.F.; Basement area that counts toward TLAG (sq. ft.): 0 SQ.FT.
(a)

Basement Area 2(if applicable; if basement-ceiling heights are not the same height in different portions of the basement, please calculate those sections separately.)

Height of basement wall: _____; Average height of basement wall above grade: _____

% of basement wall above grade: _____; If 25% or greater a portion counts as TLAG

Entire basement area (sq. ft.): _____; Basement area that counts toward TLAG (sq. ft.): 0
(a)

ABOVE-GRADE TLAG CALCULATION - refer to Above-Grade Floors on page 3

First floor area (sq. ft.) 4,788 Second floor area (sq. ft.) 3,220
(b) (c)

ATTIC TLAG CALCULATION - refer to Attics on page 3

Attic area (sq. ft.): 1,300
(d)

ACCESSORY STRUCTURE TLAG CALCULATION

Number of detached accessory structures greater than 100 sq. ft. in area: 0

First floor area (sq. ft.) 0 Second floor area (sq. ft.) 0
(e) (f)

CONSTRUCTION MANAGEMENT PLAN NARRATIVE

GENERAL INFORMATION

Intent

The purpose of this Construction Management Plan (CMP) is to identify the impacts resulting from the proposed construction activity at 81 Arnold Road and provide solutions that lessen the effect on the surrounding neighborhood and to augment the information contained within the Construction Management/Operation & Maintenance Plan that is included within the Storm Water Management Analysis.

Project Description

The project at 81 Arnold Road will consist of the construction of a new house with attached garage. The project will also include removal of seven hazardous trees and re-landscaping the lot to include extensive additional plantings. An existing asphalt driveway will be removed and a new asphalt paved driveway installed.

Project Team

Owner: Greta and Matthew Fruhan

Contacts: Michael Collins, Brian Morgan, architects. 508-651-7099

mike@dmcharch.com; brian@dmcharch.com

Builder: TBD

SITE OPERATIONS

Site Maintenance

Sedimentation barrier installation (staked hay waddle) will be installed before any construction activities are initiated on site to prevent runoff into any catch basins. Erosion control devices will be inspected on a daily basis and supplemented/repared as necessary. These measures will be kept in place for the duration of the construction period.

A construction dumpster will be kept on-site starting during the framing of the house and running through near-completion. We will ensure that materials in this dumpster are kept organized and packed neatly to reduce plastics and other materials from blowing in the wind. The site will be picked-up daily to also reduce wind-blown trash.

A prefabricated concrete wash out unit is to be installed along the southern border, as noted on the Construction Management Plan dated July 22, 2020.

Construction Hours

Construction activities will take place primarily between the hours of 7:00 AM and 5:00 PM; Monday through Friday and from 8:00 AM to 4:00 PM on Saturdays. From time to time, some activities after these hours may be anticipated. At all times, we will comply with the Town of Wellesley noise ordinance. Police details will be utilized as required.

Deliveries

Material deliveries will be unloaded on site whenever possible. Deliveries requiring larger trucks that cannot be pulled onto the job site will be scheduled to avoid higher traffic times and school bus pickup/drop-off schedules. Again, police details will be utilized as required.

Truck Traffic

Construction vehicle traffic will use Cliff Road to Lowell Road to Arnold Road. All commercial truck drivers will be advised that commercial trucking is prohibited on Rt. 16 between Rt. 9 and Rt. 128. This traffic plan is subject to further modification by the Wellesley Police Department.

COMMUNICATION

The applicant is committed to open and frequent communication with the Town of Wellesley, its governmental boards and departments and most especially, the surrounding neighborhood.

Neighbors, other citizens and town officials are invited to call us with any questions or concerns at any time and expect prompt response.

A yard sign with contact telephone number and website will be placed in a visible location at the beginning of the project

SUMMARY

We are committed to building our modest addition with architectural appeal that will be a benefit to the neighborhood. We are equally committed to conducting ourselves during this process in a professional, open and honest manner that is respectful to our neighbors and fellow townspeople at all times.

Memo

To: Atty. David Himmelberger, Mike Collins

From: Kevin O'Leary

Cc: Matt Fruhan, Brian Morgan, Kim Turner

Date: 7/23/20

Re: 81 Arnold Road - Large House Review (LHR) - Engineering Response

This doc is created to provide responses to LHR 6/22/20 letter from George Saraceno to Planning Director Don McCauley. Beginning on page 2 of Saraceno's letter;

GENERAL

1. Various plans provided state that the elevations shown refer to the N.A.V.D. of 1988. The plan elevations must be shown on the Town of Wellesley benchmark system. Revise the plans to show accordingly and state that the plans are on the Town of Wellesley datum.
 - Contours & grade elevations on the revised plans remain on the N.A.V.D. of 1988 vertical datum per discussions with Saraceno & McCauley & 7/14/20 e-mail authorization from Don McCauley. Upon project completion, the required as-built engineering & survey plans will be prepared based on Wellesley town datum. Plan notes have also been added to state same.
2. The CMP should include a route map for trucking and material movement into and from the site. The route map must be reviewed and approved by the Wellesley Police Department. We recommend that the engineer present an approximation for the amount of ledge removal required for the project.
 - A Construction Management Plan (CMP) has been prepared & is provided with the packet of revised Jillson Co. plans. Access to & from the project is indicated on the CMP as well as temporary construction parking & material stockpiling areas. A Ledge Removal figure of 1600 cubic yards has been estimated & is listed on the CMP.
3. Provide cut and fill calculations for the project.
 - An itemization of the project Cut & Fill quantities is provided on the CMP.
4. The Site Development Plan shows, additional trees to be removed, which are separate from the Tree Removal Plan mentioned above. The Tree Removal Plan should show and include in the table the total list of trees to be removed.

- The existing trees and trees to be removed have been taken off of the Site Development Plan. See last revised Tree Removal Plan prepared by Landscape Architect for updated tree removal information.
5. The plans should show the proposed utilities connections for the water, sewer, electric, gas and telephone or cable lines. Details for the sewer and water lines must be included on the Details Sheet. We recommend using the Town of Wellesley standard details.
 - The proposed utility information has been added to the Site Development Plan & Detail Sheet.
 6. The Site Development Plan should include a note and show the limits of milling and paving the utility trenches on Arnold Road, curb to curb. The limits of the milling and paving must be discussed with the Town of Wellesley Street Permit Inspector.
 - Wellesley's Street Permit Inspector was contacted for brief project discussion. The Site Development Plan & Detail Sheet have been revised to show proposed utility connections & construction details & specifications along with depicting limits of milling and paving in the street.
 7. Provide a copy of the Sediment and Erosion Control Plan, including material storage, location of a temporary perimeter fence, concrete washout area and onsite parking.
 - On the Construction Management Plan (CMP) Sedimentation & Erosion Control Barrier locations have been provided. An Erosion Control Barrier detail specifying "FilterMitt" has also been provided on the Detail Sheet. Material stockpile locations perimeter fencing to follow "Limit of Work" line, as delineated, concrete wash-out area & onsite parking are all specified on the CMP.

DRAINAGE

1. We recommend that the designer provide a table in the Stormwater Report that shows the pre versus post development peak stormwater runoff rate and volume for each storm event analyzed. The post development stormwater peak runoff rates and volumes must be less than the pre-development stormwater peak runoff rate and volume for each design storm. We suggest using a single design point to show the comparison of the pre-development versus post-development conditions for the entire lot.
 - The "Summary of Stormwater Flows" table in the Stormwater Report has been revised to include Pre & Post Development peak runoff rates and volumes for each design storm. The table & entire report is based on a single design point & shows a decrease for all storm events analyzed.
2. The proposed drainage structures should be labeled on the Site Development Plan. Each Structure should include an invert in and invert out elevation with the labeled structure.
 - All proposed drainage structures on the Site Development Plan have been labeled in plan view. Invert & rim elevations for same is also provided.
3. How is the stormwater roof runoff mitigated for the site as the plans only show area drains?

- Gutters & down-spouts are proposed on all sides of the house. Runoff from the roof will be piped to the Cul-Tec recharge basin labeled as “Proposed Drainage System UC#1” depicted on the Site Development Plan.
4. Does the foundation and basement require a drainage system such as a perimeter drain or a French drain? The plans should show proposed drainage for the foundation and or basement if necessary.
 - Although not shown on the Site Development Plan, a foundation perimeter drain typically constructed adjacent to the foundation footings will be constructed. The perimeter drain will pick-up & convey any intercepted water to a sump basin either inside or outside the basement area. A sump-pump in the collection basin will pipe the sump water to a rear yard dry-well. The Site Development Plan has been revised to include the sump pump discharge pipe & terminate it in a dedicated leaching dry-well. A detail for same has been added to the Detail Sheet.
 5. The O&M Plan should simply state in bold letters that the owner must submit annually to the Town Engineer a copy of the O&M logs for the onsite stormwater drainage system.
 - The “Operation & Maintenance Plan Proposed Drainage System – Post Construction section of the Stormwater Report has been revised in the “Records” paragraph to include a “bold” note reading; **"The owner must submit the form entitled "INSPECTION SCHEDULE AND EVALUATION CHECKLIST – POST CONSTRUCTION PHASE" to the Town Engineer annually after inspection of the onsite stormwater drainage system"**. Additionally, the following note was placed on the O & M Plan checklist below the title of the “Inspection Schedule and Evaluation Checklist - Post Construction Phase”; **"The Owner must submit this form annually to the Town Engineer after inspection of the onsite stormwater drainage system."**
 6. Provide a copy of the signed Illicit Discharges Prohibited statement as required by the MADEP Checklist for Stormwater Report.
 - The Illicit Discharge Statement has been signed by the project proponent & owner & is included in the supplemental revised Stormwater Report.

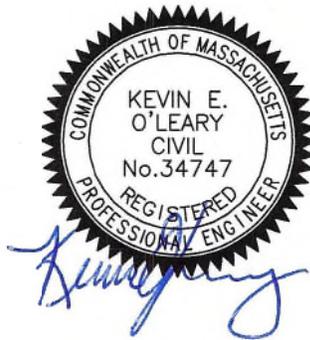
The following plans & docs are attached;

- "Supplemental Stormwater Report Requested Data" dated 7/22/20 (6 pgs.)
- "81 Arnold Road Site Development Plan" sheet 1 of 2 dated 5/18/20 last revised 7/22/20
- "81 Arnold Road Detail Sheet" sheet 2 of 2 dated 5/18/20 last revised 7/22/20
- "81 Arnold Road Construction Management Plan" dated 7/22/20
- "81 Arnold Road Plot Plan" dated 5/18/20 last revised 7/22/20

The Jillson Company, Inc.
32 Fremont Street, Suite 200
Needham, MA 02494
(781) 400-5946

SUPPLEMENTAL STORMWATER REPORT
REQUESTED DATA

Large House Review
81 Arnold Road
Wellesley, MA



Matt Fruhan
81 Arnold Road
Wellesley, MA 02481

July 22, 2020

The following table summarizes runoff for the Pre and Post-Development conditions.

SUMMARY OF STORMWATER FLOWS

Design Storm	Existing Conditions		Proposed Conditions		Reduction Percentage	
	(cfs)	(ft ³)	(cfs)	(ft ³)	(cfs)	(ft ³)
2 Year	0.02	538	0.02	373	0.0%	30.7%
5 Year	0.14	1,374	0.09	1,082	35.7%	21.3%
10 Year	0.27	2,055	0.17	1,665	37.0%	19.0%
25 Year	0.61	3,539	0.41	2,948	32.8%	16.7%
100 Year	1.38	6,391	1.02	5,457	26.1%	14.6%

As listed above, the summary tables demonstrate the proposed conditions will either mirror or reduce the peak rate and volume of runoff for any storm event. The effects of the proposed development will be offset as SA2A is routed to the underground chamber system UC#1 and is fully infiltrated for the 100 year storm.

Mass DEP - Checklist for Stormwater Report

STANDARD 10. ILLICIT DISCHARGES PROHIBITED

There are no existing illicit discharges on site. All illicit discharges to the stormwater management system are prohibited.

Illicit Discharge Statement

This statement is intended to meet Standard #10 of the Stormwater Management requirements

Illicit discharges to the stormwater management system are discharges that are not entirely comprised of stormwater.

Except for the potential for deliberate criminal act of discharge by an unauthorized entity for which the property owner has no control, there are to be no illicit discharges into the stormwater system.

Matt Fruhan

Matt Fruhan

Subsurface Structures

Responsibility for maintenance: Owner

After construction, the subsurface structures shall be inspected for proper function and stabilization after every major storm event until the lot is completely developed and stabilized. Inspect each subsurface structure at least twice per year or if lack of performance is observed and perform necessary corrective measures to maintain infiltration capacity; as required by the Stormwater Management Policy.

Lawn Fertilization

Lawn fertilizer shall be slow release and limited to 3 lbs per 1000 s.f. per year.

Snow Management

Snow shall be collected and stored adjacent to the road and driveway as shown on the plans. The party responsible for snow plowing is the party listed at the beginning of the Operation and Maintenance Plan.

Records

Records of inspection and maintenance shall be kept up to date and available for review and inspection by the Town's official. **The owner must submit the form entitled "INSPECTION SCHEDULE AND EVALUATION CHECKLIST – POST CONSTRUCTION PHASE" to the Town Engineer annually after inspection of the onsite stormwater drainage system.**

Estimated Annual Budget

TOTAL: \$800 - \$1,500

This estimated O&M ANNUAL BUDGET has been formulated by the Declarant. It does not include items that are unknown or unlikely to occur. Actual annual costs to comply with the Approved O&M Plan requirements will be determined annually.

STORMWATER MANAGEMENT
BEST MANAGEMENT PRACTICES

INSPECTION SCHEDULE AND EVALUATION CHECKLIST – POST CONSTRUCTION PHASE

The owner must submit this form annually to the Town Engineer after inspection of the onsite stormwater drainage system.

PROJECT LOCATION: 81 Arnold Road –Wellesley MA
Revision: 06/11/20

Latest

Best Management Practice	Inspection Frequency (1)	Date Inspected	Inspector	Minimum Maintenance and Key Items to Check	Cleaning/Repair Needed yes/no List items	Date of Cleaning/Repair	Performed By	Water Level in Detention System
Deep Sump Catch Basins	Four times per year							
Subsurface Infiltration System(s)	Twice per year							

(1) Refer to the Massachusetts Stormwater Management, Volume Two: Stormwater Technical Handbook for recommendations regarding frequency for inspection and maintenance of specific BMPs.

Stormwater Control Manager:

Stamp



MARQUIS TREE SERVICE INC.,
10 Republic Road, N. Billerica, MA 01862
Tel: 781-860-9618 978-657-5633 781-272-6662

July 20, 2020

Town of Wellesley
Tree Protection Plan

To Natural Resource Commission:

Matthew Fruhan, of 81 Arnold Road, Wellesley, Ma. is Seeking permission from the board to remove 3 trees at 81 Arnold Road, Wellesley, Ma. that are within the 20 foot "tree yard". The trees are plotted on the plan #L-0.3, supplied by KD Turner Design, Landscape Architect, 27 High Street, Newburyport, Ma. and are known as tree #2, #23, #32, and #37.

A visual level 2 assessment was performed on these trees and the recommendation for removal of these trees is based on the current health and/or structural stability of the trees.

- **Tree #2 *Quercus rubra* (Red Oak)** This tree failed during a wind storm and has been removed for safety reasons.
- **Tree #23 *Acer rubrum* (Red Maple)** This tree is dead. Recommend removal.
- **Tree #32 *Quercus rubra* (Red Oak)** This tree is in fair to poor health and fair to poor structural condition. This tree is very large and leans heavily to one side there is a large cavity on the trunk. Recommend Removal.
- **Tree #37 *Quercus rubra* (Red Oak)** This tree is in fair to good health and fair to poor structural condition. This triple leader oak tree has included bark between the leaders and signs of unidentified mushrooms growing on the trunk flare. Recommend removal.

If you have any questions, please feel free to call me at 978-877-8755

Respectfully,

MARQUIS TREE SERVICE, INC

Jay Webster
Arborist
ISA #NE-6330BUT



MARQUIS TREE SERVICE INC.,
10 Republic Road, N. Billerica, MA 01862
Tel: 781-860-9618 978-657-5633 781-272-6662

July 20, 2020

Town of Wellesley
Tree Protection Plan

To Natural Resource Commission:

I have been hired by Matthew Fruhan to provide a tree maintenance plan for the trees at 81 Arnold Road, Wellesley, Ma. as required by Rules and Regulations, Town of Wellsley, Section XVIIE, Tree preservation and Protection. The trees are plotted on the plan #L-0.3, supplied by KDTurner Design, Landscape Architect, 27 High Street, Newburyport, Ma. and are known as tree #1, #8, #10, #18.

- Tree #1 *Quercus rubra* (Red Oak)
 - ◇ DBH: 28 inch
 - ◇ Proposed: Retain tree
 - ◇ CRZ: 42 feet
 - ◇ Prior to construction the tree will be pruned to remove dead wood 1 inch in diameter and larger to a height of 65 feet. This tree will be minimally impacted by construction. A barrier will be erected at the limit of work to protect the tree. The tree will be pruned in accordance with the specifications in this report.
- Tree #8 *Quercus rubra* (Red Oak)
 - ◇ DBH: 26 inch
 - ◇ Proposed: Retain tree
 - ◇ CRZ: 39 feet
 - ◇ Prior to construction the tree will be pruned to remove dead wood 1 inch in diameter and larger to a height of 65 feet. This tree will be minimally impacted by construction. A barrier will be erected at the limit of work to protect the tree. The tree will be pruned in accordance with the specifications in this report.
- Tree #10 *Quercus rubra* (Red Oak)
 - ◇ DBH: 30 inch
 - ◇ Proposed: Retain tree
 - ◇ CRZ: 45 feet
 - ◇ Prior to construction the tree will be pruned to remove dead wood 1 inch in diameter and larger to a height of 65 feet. A tree support system will be Installed between the 2 main leaders of the tree and reduction cuts will be made where necessary. On the side of the tree where construction activities will encroach on the CRZ, Roots will be exposed with an air spade and cleanly cut under the supervision of a certified arborist at the defined edge of planned work. All exposed roots will be kept moist during the period of exposer and then maintained at a reasonable moisture during the duration

of construction to minimize desiccation. The barrier will be erected and inspected by an arborist prior to commencement of work. Arborist to oversee all pruning, tree support system installation, and irrigation.

- Tree #18 Elm (Ulmus)
 - ◇ DBH: 33 inch
 - ◇ Proposed: Retain tree
 - ◇ CRZ: 50 feet
 - ◇ Prior to construction the tree will be pruned to remove dead wood 1 inch in diameter and larger to a height of 65 feet. This tree will be minimally impacted by construction. A barrier will be erected at the limit of work to protect the tree. The tree will be pruned in accordance with the specifications in this report.

If you have any questions, please feel free to call me at 978-877-8755

Respectfully,

MARQUIS TREE SERVICE, INC

Jay Webster
Arborist
ISA #NE-6330BUT

Tree Protection Specification

81 Arnold Road

- Pre-construction:

- ⇒ It is the General Contractors responsibility to ensure that each contractor working on the site understands and complies with the tree protection plan.
- ⇒ Tree Pruning - All Significant trees in the tree yard setback listed on this plan shall be pruned in accordance with the ANSI A300 Pruning standard by a qualified Arborist. Diseased, crossing, weak and dead wood 1 inch and larger in diameter to a height of 65 feet shall be removed from the tree. Stubs will be removed cutting outside any reaction wood (wound wood) that has formed around the branch.
- ⇒ Root Pruning - If excavation is requires within the tree protection zone a qualified arborist shall expose all roots along the limit of work utilizing an Air - Spade. Roots shall be cut with appropriate pruning tool. All exposed roots shall be kept moist while exposed. Once cut all roots shall be covered with soil and supplemental water added to minimize desiccation.
- ⇒ Designate Jobsite material storage - Prior to the commencement of work consultants shall designate an acceptable location for the deposit and storage of spoils and other job site materials. No materials of any kind will be permitted within tree protection zones.
- ⇒ Designate Jobsite parking - Prior to the commencement of work consultants shall designate an acceptable location for parking of workers and contractors vehicles, trucks, and equipment. No vehicles are to be permitted within the tree protection zones for any reason.
- ⇒ Designate Cement Rinsing area - Prior to the commencement of work consultants shall designate an acceptable location for the rinsing and washing of jobsite equipment and materials like.
- ⇒ Tree Protection Fencing - A physical barrier shall be installed according to the specifications of the tree protection plan to minimize damage to significant trees within the tree protection zone. The fencing shall be maintained for the duration of the project. All fencing shall be inspected by the town planner prior to commencement of construction.
- ⇒ Sediment and erosion control - Sediment control shall be installed to prevent siltation and/or erosion within tree protection zone.
- ⇒ Root Protection - If access is needed for work or material storage within the outer 50% of the critical root zone, additional root zone protection shall be required. Root protection measures shall remain in place for the duration of the project. Acceptable root zone protection shall include:
 - a. 9 - 12 inches of evenly dispersed woodchips over the area of the CRZ.
 - b. 4 - 6 inches of evenly dispersed wood chips over the area of the CRZ and 3/4 inch minimum thickness plywood, commercial logging or road mats evenly laid on top of the wood chips.

- During Construction:

- ⇒ Monitoring of CRZ Moisture levels: All trees shall be irrigated on a schedule to be determined by the consultant during construction. Any cut or exposed roots shall be kept moist for the duration of exposure.
- ⇒ Root Protection - Any grading, construction, demolition, or other work that will encounter tree roots shall be monitored by a certified arborist.

- Post-construction:

- ⇒ Soil Aeration: An air-spade shall be used by a certified arborist to incorporate 2 inches of compost to a depth of 6-8 inches within the critical root zone of trees that have been significantly impacted by construction.
- ⇒ Irrigation: Supplemental irrigation shall be applied to any tree that suffered root loss during construction. The amount of water applied must be appropriate to the circumstances and the needs of the specific tree in question.
- ⇒ Mulching: A 4-6 inch layer of organic mulch will be spread under the canopy of trees within the tree protection zone where acceptable.
- ⇒ Fertilization: In cases where soil and tissue samples have determined there is a nutrient deficiency the soil PH shall be checked and corrected if necessary and fertilizer shall be added at an appropriate rate to correct the deficiency.

Fruhan Residence Tree Removal and Replacement Table

Protected Trees to be Removed

Site Key	Tree Species	Note	DBH
T2	Red Oak, triple leader (Decid)	Failed during 3/17 storm, removed	24"
T23	Red Maple (Decid)	Dead	18"
T24	Pine (Conif)	Remove to improve health of neighboring Oak	18"
T26	Pine (Conif)	Remove to improve health of neighboring Oak	12"
T27	Pine (Conif)	Remove to improve health of neighboring Oak	16"
T28	Pine (Conif)	Remove to improve health of neighboring Oak	14"
T32	Red Oak (Decid)	Advised to be removed, poor structure	32"
T37	Red Oak, triple leader (Decid)	Advised to be remove, poor structure	16"

Replacement Trees

Qty	Tree Species	Note	size
1	Red Maple	Deciduous overstory	4" cal.
1	Redbud	Deciduous understory	2.5" cal.
3	Dogwood	Deciduous understory	2.5" cal.
3	White Fir	Evergreen overstory	12' ht.
5	Norway Spruce	Evergreen overstory	14' ht.
5	American Holly	Evergreen understory	8' ht.
12	Arborvitae	Evergreen understory	10' ht.