Rec'd 3/25/2020

KENNEBUNKPORT ZONING BOARD OF APPEALS
Administrative Appeal Application

Name of Applicant: Randy Slager Phone: (786) 423-3288

Mailing Address: P.O. Box 190479 (street) Miami Beach (city) FL (state) 33119 (zip)

Owner of Record: Lori Bell & John Scannell Phone: (917)797-6770

Location Address: 200 Ocean Avenue (street) Kennebunkport (city) ME (state) (zip)

Location of Site: Map 7 Block 12 Lot 5 Zone: CA Area of Property: 0.44

Shoreland: _____ Resource Protection: _____

Reason for Appeal: Lifting of Suspension of Permits without all corrective measures ordered being taken:

(1) Resubmitted plot plan does not show demonstrate no increase in lot coverage. (2) Wall section A11 not built per submitted plans, and not to code. (3) Construction of rock walls A2 and AI appears haphazard, and not to code. (4) Unauthorized and unlawful work, including patio structure must be corrected. See Addendum for details as to 1-4.

Please Attach:

1. Site Plan containing date required under Article 7 of the Kennebunkport Land Use Ordinance. It should show dimensions and shape of the lot, size and locations of existing buildings, locations and dimensions of proposed buildings, or alterations, and any natural or topographic peculiarities of the lot in question.

2. Copies of any official decisions or required permits (note pending applications) of federal, State or local agencies regarding use of this property.

3. Names and addresses of all abutters of properties within 200 feet of owner's property.

4. Demonstration of right, title and interest in the property.

Please Note:

1. All applications must be filed in accordance with procedure prescribed in Article 9 of the Kennebunkport Land Use Ordinance.

2. All applications must conform to the Kennebunkport Land Use Ordinance and all applicable local, State and federal ordinances.

3. Appeals Board approval is required before any building permits shall be issued.

4. Fee must accompany application.

An Administrative Appeal: Relief from the decision, or lack of decision, of the Code Enforcement Officer or Planning Board in regard to an application for a permit. The undersigned believes that (check one):

☐ An error was made in denial of the permit

☐ The denial of the permit was based on a misinterpretation of Article _____ of the Kennebunkport Land Use Ordinance

☐ There has been a failure to approve or deny the permit within a reasonable period of time

☑ Other Order Lifting Suspension of Permits (2/28/20) was in error. Reversal required

See, Reasons for Appeal stated above, and as detailed in Narrative Addendum submitted.

To the best of my knowledge, all information submitted on this application is correct.

Signed: David A. Lourie for Randy Slager Date: 3/23/2020

Printed Name: David A. Lourie, Agent for Randy Slager

Application Fee: $ 40.00 Postage & JT Fee: $ 154/40 Date Received: 4/8/2020 By:

pd 3/30/2020 ck# 16583 D. Lourie, Esq

ck# 16586 D. Lourie, Esq

Narrative Addendum to Slager ZBA Appeal dated 3/23/2020

Introduction

This appeal is the second appeal to the Kennebunkport Zoning Board of Appeals ("Board") filed on behalf of Randy Slager ("Appellant" or "Mr. Slager") regarding the Kennebunkport Code Enforcement Officer's ("CEO") action lifting the suspension of Lori Bell's ("Ms. Bell") building permit #18-418, and land use permit #18-419. Mr. Slager's first appeal was filed on December 27, 2019 ("First Appeal").[1] The appeal we are bringing to the Board now challenges the CEO's decision of February 28, 2020 to lift the suspension of Ms. Bell's building and land use permits. The suspension of Ms. Bell's building and land use permits was imposed by a letter from former assistant CEO Matt Philbrick to Lori Bell dated July 17, 2019[2] (the "Suspension Order") and was based upon assistant CEO Philbrick's site visit of the Bell property conducted on July 5, 2019. With the understanding that the Board will hear both this appeal and the First Appeal together, I will incorporate with this appeal those exhibits filed with the First Appeal.

The Suspension Order found that Ms. Bell's construction on her property was in violation of her building and land use permits as follows:

> "-Increasing lot coverage from a grandfathered 44% with additional nonvegetative surfaces not on plan…

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[1] The CEO's December 3, 2019 action lifting the Suspension Order on Ms. Bell's building permit #18-418, and land use permit #18-419 was appealed to the ZBA on the basis that the CEO's lifting of the suspension order does not meet the certification requirements of Kennebunkport Land Use §11.5.C. Appellant and the ZBA Chair agreed that the CEO would be given an opportunity to correct his failure to state required findings, and that the required hearing deadline would be extended. Appellant has requested that the two appeals be heard and decided by the Board together to avoid any possible waiver or collateral estoppel effect of a withdrawal.

[2] A copy of the Suspension Order is attached as Exhibit A to the First Appeal, incorporated with this appeal as stated herein.

Work being conducted may endanger the welfare of the community: Reference KPT LUO Article 11.5 section A sub-section 3

- Wall section A11 was not constructed as per submitted plan.
- Wall section A2 and Al do not match submitted engineered drawings dimensions."

Wall section A11 ("A11"[3]) is presently a concrete masonry unit ("CMU") wall extending in a north/south direction along the Slager-Bell property line and sits only seven feet from Mr. Slager's home. Wall A11 was apparently built with no written structural designs, although it is far in excess of the 4' maximum requiring such design. Wall A11 is a retaining wall supporting an expanded raised patio structure constructed by Ms. Bell. The expanded raised patio structure is not depicted on the plans submitted by Ms. Bell, nor approved by the CEO, nor is it in conformance with Kennebunkport's building code or land use ordinances.

Wall sections A1 and A2 ("A1" and "A2) are rubble rock walls constructed approximately four feet from Ocean Avenue at their closest point and adjacent to Ocean Avenue (a heavily trafficked public road curves around the Bell property.) Walls A1 and A2 are of dubious stability, due to an absence of internal construction designs, as well as apparent poor contractor execution as shown on photographs depicting placement of longer stones in a haphazard manner (along rather than across the wall.) The poor construction and doubtful stability of walls A11, A1, and A2 are discussed in detail below.

The Suspension Order required Ms. Bell to take the corrective actions within 14 days of receipt as follows:

"Corrective actions will be:

1. A resubmission of a new plot plan containing an updated lot coverage break down for review.
2. Verification by licensed professional engineer confirming wall sections A1 and A2 match submitted drawings.

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[3] The descriptions of walls as A11 here, and as A1 and A2 below, make reference to the "Site Plan" prepared by Joshua Tompkins Landscape Architecture LLC, dated 10/28/19.

3. Wall section A11 needs to be reviewed structurally for potential failure due to the amount of uneven back fill.

After 14 days if no corrective action is taken, a formal revocation of permits letter will be sent."[4]

The CEO's letter to Ms. Bell dated February 28, 2020 recites Ms. Bell's submissions for corrective actions as follows:

To address #1, Ms. Bell submitted a boundary survey/plot plan revision #6 revised as of 11/5/2019 produced by Livingston-Hughes. The CEO erroneously relied upon revision #6, despite obvious defects discussed below.

To address #2, the CEO relied upon an alternate design for walls A1 and A2, dated April 23, 2019, drawn by Matthew Miller, P.E. of M2 Structural Engineering. Though the CEO accepted the Matthew Miller design dated April 23, 2019, the CEO never identifies this as receipt of "[v]erification by licensed professional engineer confirming wall sections A1 and A2 match submitted drawings", as required by the Suspension Order, probably because it does not contain such verification. Therefore, the Suspension Order was not complied with as to #2.

To address #3, the CEO relied upon letters dated September 24, 2019 and February 5, 2020, written Thad Gabryszewski, P.E., of Lincoln Haney Engineering Associates, Inc.

Most of the CEO's February 28, 2020 letter to Ms. Bell lifting the Suspension Order consists of merely reciting the exchange between Ms. Bell and Mr. Slager's engineers (David Price of Price Structural Engineers, Inc. for Mr. Slager and Thad Gabryszewski of Lincoln Haney Engineering Associates, Inc. for Ms. Bell) concerning the stability of walls A11, A1, and A2, and does not reach any conclusions. The CEO's February 28, 2020 letter makes little effort to certify Ms. Bell's compliance with the corrective actions required by the Suspension Order

[4] The Suspension Order did not state that compliance with the 14-day corrective actions would be sufficient to correct all unauthorized construction, or bring the Bell property into compliance with Ms. Bell's permits or Town ordinances.

and the letter fails entirely to address that egregious departures by Ms. Bell's construction from her approved permits and plans identified in the Suspension Order (recited on page 1-2 above).

Analysis

This appeal challenges the CEO's decision to lift the Suspension Order on Ms. Bell's permits for the following reasons:

1. The CEO cannot lift the Suspension Order until all land use and building code violations are corrected.

2. The CEO's new findings are inadequate.

1. The Suspension Order Cannot Be Lifted Until All Land Use and Building Code Violations Are Corrected.

As set forth in this appeal on pages 1-2, the Suspension Order cited Ms. Bell for the for the following violations based on her as-built construction:

a. "additional nonvegetative surfaces not on plan";

b. "Wall section A11 was not constructed as per submitted plan"; and

c. "Wall section A2 and Al do not match submitted engineered drawings dimensions."

Ms. Bell's failure to correct these specific violations, among others, is discussed below.

a. CEO Finding #1: Lot Coverage[5] - "Additional Nonvegetative Surfaces Not On Plan"

The Suspension Order's finding concerning additional nonvegetative surfaces not on the submitted plan cast doubt on Ms. Bell's compliance with lot coverage maximums. Among the corrective actions to be taken within 14-days was the resubmission of a new plot plan containing an updated lot coverage break down for the CEO's review. The Livingston-Hughes plan revised

[5] Lot Coverage: The percentage of the lot covered by structures. Within the Shoreland Zone, lot coverage shall include driveways, parking lots, and other non-vegetated surfaces.

as of 11/5/2019 ("Resubmitted Plot Plan") submitted by Ms. Bell to address the requirement for corrective action purports to provide an updated lot coverage breakdown. Ms. Bell claims grandfathered lot coverage at 44% nonvegetative surface.

The CEO, who has been on the site, must have been aware that the small area depicted as "replacement patio" on the Resubmitted Plot plan does not correctly represent the nonvegetative surface area of the expanded raised patio structure as it currently exists. The area shown on the Resubmitted Plot Plan *as vegetated area* is currently all gravel and/or concrete, as shown on photographs submitted herewith taken from Mr. Slager's 2nd floor bedroom window. The nonvegetative surface calculations on the Resubmitted Plot Plan do not reflect the increased impervious lot coverage attributable to the expanded raised patio area. Perhaps the CEO excused this discrepancy because the Tompkins plan called for planters to be located on top of the gravel patio structure, relying on a bogus claim that Bell can deduct those portions of the top layer of the new structure on which planters are to be placed.[6] The Resubmitted Plot Plan also fails account for the increased nonvegetative surface areas occupied by walls A1 and A2. The CEO erred in accepting the Resubmitted Plot Plan as adequately complying with the corrective actions required by the Suspension Order because the as-built construction clearly does not match what is shown on the plan thereby making the nonvegetative surface calculations incorrect.

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[6] The definition of Lot Coverage includes: "**The percentage of the lot covered by structures.** Within the Shoreland Zone, lot coverage shall include driveways, parking lots, and other non-vegetated surfaces." The area of the structure must be included in its entirety as *lot coverage,* the Shoreland zoning requirement to include all nonvegetated surfaces was intended to impose a stricter standard covering additional areas, not a less strict standard allowing deduction for vegetation in planters placed on a structure otherwise required to be included in its entirety. *See*, § 1.5 Conflict with Other Ordinances In general, this Ordinance is complementary to other town ordinances affecting the use, height, area and location of buildings and the use of land, but whenever a provision of this Ordinance conflicts with, or is inconsistent with another provision of this Ordinance, or other town ordinances, or **where there is a conflict between this Ordinance and any other federal, state or local rule, regulation, ordinance, statute or other restriction, the more restrictive provision shall control**.

Moreover, the Resubmitted Plot Plan accepted by the CEO does not meet the resubmission requirement of "an updated lot coverage break down for review" mandated by the Suspension Order. It omits dimensional figures and calculations of coverage from the plot plan itself, thereby obscuring the actual calculations of lot coverage recited on the tables. The CEO's letter of February 28, 2020 does not explain how the CEO was able to rely on the Resubmitted Plot Plan to determine current nonvegetative surface coverage, for which a variance appeal as to lot coverage is required. (*See,* Ordinance § 8.3.[7]) (In fact, the new gravel structure as-built, is a nonconforming structure as to lot coverage, height for a patio, and setback as both a patio and a structure, for which a variance is required!)

The CEO's lifting of the Suspension Order was in error as Ms. Bell's as-built construction does not comply with the Resubmitted Plot Plan, violates the nonvegetative lot coverage limits and the Resubmitted Plot Plan is not in accordance with the corrective action required by the Suspension Order.

b. CEO Finding #2: "Wall section A11 was not constructed as per submitted plan"

Ms. Bell's application for a building and land use permit misrepresented the entire project. She claimed she would be rebuilding or replacing existing free standing stone walls without disclosing that the existing free standing stone walls would be replaced with entirely different

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[7] §8.3 *Expansion of Non-Conforming Structures.* A. Within any Zoning District, a non-conforming structure shall not be changed, extended or enlarged in any manner except as provided in this subsection, after obtaining a permit from the reviewing authority specified by this Ordinance.
1. A structure which is non-conforming due to lot coverage, height or setback requirements may be reconstructed, expanded or enlarged, provided the expansion, enlargement, or reconstruction is in accordance with the requirements in subsection B below. In no case shall a structure be enlarged, expanded or reconstructed so as to increase its non-conformity.
2. Any enlargement, expansion or reconstruction of a non-conforming structure which enlargement, expansion or reconstruction will be located between the lot lines and the setback lines (including setback from lot lines or high water or similar lines) or will not meet the lot coverage or height requirements of this Ordinance, and which cannot meet the requirements of subsection B below, shall not be permitted unless a variance is obtained in accordance with the requirements of Article 9.2. In no case shall a structure be enlarged, expanded or reconstructed so as to increase its nonconformity.

types of walls. In the case of wall A11, the "replacement" wall is now a retaining wall consisting of concrete masonry units (CMU), supporting an unauthorized and unlawful expanded raised patio structure. The expanded elevated patio structure is not shown on Ms. Bell's application or the as-built plan. Only a small "replacement patio"[8] is shown on the plan. The raised "replacement patio" structure does not meet the limitations on patios per the Town ordinance,[9] is a structure under the ordinance[10], and is in violation of Town setback requirements.

Moreover, portions of Wall A11 are seven (7) feet tall in places. The CEO and former assistant CEO apparently accepted Bell's argument that boundary walls are not subject to the 15-foot boundary lie setback. However, it is now apparent that this is a retaining wall within the Shoreland Zone, and the CEO needs to recognize that as a retaining wall, Wall A11 is governed by § 4.17 (Shoreland Structures and Setbacks.) Sub-§ A.8 states that "Retaining walls that are not necessary for erosion control shall meet the structure setback requirement, except for low retaining walls and associated fill provided all of the following conditions are met: d. **The total height of the wall(s), in the aggregate, is no more than twenty-four (24) inches;**" As Wall A11, which is a now a retaining wall constructed in Shoreland (to support the illegal patio, rather than "necessary for erosion control", it is an unlawful structure under the Shoreland ordinance, even if otherwise exempt from setback as a boundary wall. See, § 1.5 (Conflict with Other

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[8] Neither the Application nor the resubmitted plan show the increase in elevation by many feet made to the area of the "replacement patio", as it approaches wall A11 just below the Slager 2nd floor bedroom window, although the ordinance definition of patio limits the elevation of new patios to no more than three (3) inches above the original ground level.

[9] Patio: A floored structure without any walls or roof that does not extend more than three (3) inches above the original ground level. A patio shall be considered to be a structure and shall be subject to setback requirements.

[10] Structure: Anything built for the support, shelter or enclosure of persons, animals, goods or property of any kind together with anything constructed or erected with a fixed location above, below or upon the surface of the ground or water. Not all structures are subject to setback requirements. See Article 6.1 for exemptions.

Ordinances) "[w]henever a provision of this Ordinance conflicts with, or is inconsistent with another provision of this Ordinance, or other town ordinances, …., the more restrictive provision shall control. Although the Suspension Order did not expressly note the apparent violation of §4.17, the Assistant CEO may have well have considered it.

With the possible exception of the violation of the height limitation in § 4.17, each of the foregoing ordinance violations was called to the attention of the CEO, who has not only failed to require correction measures (as required by his assigned duty under the Ordinance), but completely escaped his attention in his February 28, 2020 letter lifting the Suspension Order despite the many violations detailed herein.

In addition to the CEO's toleration of numerous permit and ordinance violations, wall A11 and the raised patio structure it supports were constructed in violation of Kennebunkport Building Code. The CMU wall was constructed with review and approval of its written internal structural design, in violation of the Town's adoption of the International Resident Code ("IRC") 2015 (its building code through the Town's adoption of MUBEC.[11])

IRC 2015§ 404.4 requires that all retaining walls supporting more than the 48" of backfill must be designed in accordance with accepted engineering practice.[12] Price Structural Engineers, Inc. ("PSE"), structural engineers retained by Mr. Slager, advised the CEO of the applicability of IRC Section 404.4 "Retaining Walls" in its submission of February 19, 2020. Nevertheless, the CEO's letter of February 28, 2020 does not consider PSE's submissions, nor

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[11] See, § 6.18 Maine Uniform Building and Energy Code. A. The Town of Kennebunkport adopts and enforces the Maine Uniform Building and Energy Code ("MUBEC"), as authorized by Title 10 M.R.S.A., § 9724 (1-A).

[12] IRC 2015 §R404.4

the requirements of the IRC design requirement in deciding to lift the Suspension Order on the basis the opinion of Bell's engineer that the design of Wall A11 *may be adequate*!

The job of the CEO to review plans and issue permits requires that he be knowledgeable of, and enforce applicable codes. The CEO's decision to lift the Suspension Order shows that that the CEO was either still not aware of the IRC requirement that walls over 4' high must to be constructed in accordance with detailed plans showing the interior design of those walls, (although this requirement appears on p.11 of the February 19, 2020 PSE submissions), or intentionally overlooked this departure from the requirements of IRC 2015 Section 404.4. (Such required plans for wall A11 do not exist. Lincoln Haney Engineering Associates, Inc. in their letter to the CEO of February 5, 2019 concede that "Complete documentation of the wall's construction is not available.") The CEO imprudently relies entirely on the Lincoln Haney Engineering Associates Inc. submissions of January 23, 2020 and February 5, 2020, which merely *assume* that wall A11 was designed in accordance with accepted engineering practice *in the absence of required documentation*, and ignores completely PSE's opinion that such assumptions and conclusions are not warranted!

The CEO's February 28, 2020 Decision states that *Wall A11 was designed by Joshua Tomkins (sic), a landscape architect, not a professional engineer.*[13] At no time in this process has Ms. Bell produced any evidence that A11's interior wall design was ever reviewed and certified by a professional engineer, as being in accordance with accepted engineering practice.

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[13] Design of a CMU retaining wall is not something unlawful, but a professional engineer should be reviewing the plans for such a wall, and there is no evidence that such review occurred. Design of an over 4' high CMU retaining wall requires that appropriate design forces be calculated. This CMU wall is 7' high and the internal detail is missing, making it impossible to verify. Assuming the design followed accepted engineering practice –there are many variables that can affect stability. The steel reinforcement bars come in different strength grades; the blocks come in different strengths, even the mortar used is available in different grades, all affecting stability. Even the placement of the rebar in the grout cavities is important, as the weakest link in this complex wall system can lead to failure.

it relies on mere observation and speculation. Mr. **Gabryszewski was unable to either document, nor verify the internal structure of Wall A11, other than by "a review of photographic evidence."**[15] Yet, the CEO concluded that "Mr. Gabryszewski describes a structural design analysis and affirms despite the lack of documented reinforcement *that the wall appears to be adequately constructed.*" That Wall A11 "appears to be adequately constructed" provides little comfort to Mr. Slager, and the CEO's reliance erred in relying upon it in lifting the suspension, as it has no value as a professional engineering opinion. (Moreover, Mr. Gabryszewski's opinion that the undocumented wall *appears to be adequately constructed* was is irrelevant to the issue raised in the Suspension Order, which was that the construction of the A11 wall was not in accordance with the submitted plans[16] The Suspension Order cannot be lifted without that correction!)

c. CEO Finding #3. "Wall section A2 and Al do not match submitted engineered drawings dimensions"

Notwithstanding the findings of the CEO as to wall sections A1 and A2, the public safety remains in doubt due to the dubious construction of walls A1 and A2 and their proximity to Ocean Avenue. PSE believes walls A1 and A2 are likely to collapse into Ocean Avenue at some future date, long before their 50-year life if designed and constructed per applicable code. PSE's

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[15] Precisely which photographs Mr. Gabryszewski relied upon for his opinion that this wall is pinned to ledge is not documented. PSE's review of photographs taken during construction of the footings (included in PSE's submissions dated February 19, 2020) led PSE to the conclusion that wall A11 is not pinned to ledge. *See,* PSE Letter dated February 19, 2020 p.8 photograph labelled *"Forms in place for footing for block wall. Scheduled to be poured next week. The purpose of these walls is to gain valuable space above for the fire pit gathering area."* A copy of that PSE opinion is included in the CEO's Decision Addendum.

[16] The comments made by Mr. Gabryszewski were not engineering conclusions. His observation that the Wall A11 *may be be adequate* des not bring Wall A11 either into conformity with the submitted plans, and therefore does not satisfy the corrective action required by the Suspension Order. Since Mr. Gabryszewski's limited observations were gratuitous and immaterial the CEO erred in relying upon them.

belief is not only due to an inability to review their interior design (as there are no interior design plans available), but based on construction photographs establishing that construction was not completed in accordance with accepted engineering practice.

In making findings as to walls A1 and A2, it is evident that the CEO was overwhelmed by contradictory evidence, a lack of design plans, and an unwillingness to actually inspect the interior construction the subject walls. To solve his dilemma and eliminate the need to require further work by his office (which work would have been authorized by ordinance and building code), the CEO fell back on the opinion of Ms. Bell's expert, Mr. Gabryszewski, whose work was highly speculative in the absence of any internal design information. In merely relying upon Mr. Gabryszewski's limited after-the-fact observations, unsupported by required documentation, the CEO abdicated his responsibility for the safety of passersby on Ocean Avenue, and acted as if he were merely approving plans for a structure not yet built, rather than evaluating an undocumented structure in light of expert opinion that retaining walls already constructed were neither designed nor constructed in compliance with Kennebunkport Building Code. Such conduct would be improper. Where the CEO disregards expert opinion that these walls constitute a likely danger to the public the conduct is irresponsible.

Appellant requests the Board grant the appeal, and in remanding to the CEO strongly suggest that the CEO exercise his inspection powers to determine whether the interior design and internal structure of walls A1 and A2 comply with accepted engineering practice so as to ensure the well being of the general public.

2. The CEO's New Findings are Inadequate to Support Lifting of the Suspension

The CEO's Decision to lift the Suspension Order states: "the Code Office has documented: 1. The reason for the suspension; 2. Documented all corrective evidence and measures taken.; 3. Has continued to give reasonable and adequate time to the property owner to resolve the reasons for the suspension.; 4. Has not assigned any applicable penalties, therefore none are required to be paid."

The CEO's findings pay only lip service to Ordinance requirements for lifting a suspension. The CEO has not adequately documented either the reason for the suspension, nor the corrective evidence and measures ordered to be taken to bring the Bell property into compliance with her permits and applicable code. The "reasons for suspension" that the CEO was required to consider are those in CEO Matt Philbrick's July 5, 2019 inspection of Ms. Bell's property, which revealed that (among other things) Wall A11 was not constructed in accordance with Ms. Bell's application and permits. Those reasons still are valid, and must be corrected before the Suspension can be lifted.

Conclusions

The evidence before this Board on appeal demonstrates that the corrective measures prescribed in the Suspension Order have not been complied with:

1. Resubmitted plot plan does not adequately show updated lot coverage.
    a. The Resubmitted Plot Plan does not depict *on the plan itself* area borders and dimensions, with comprehensible updated lot coverage break down for review;
    b. Calculation of lot area coverage does not appear to include the entire area of all structures on the lot, and in the Shoreland area, where Ms. Bell appears to

improperly exclude areas of gravel structure where planters may be located in future from lot area coverage, which appears to exceed the 44% limitation on nonvegetative surface coverage

2. Ms. Bell failed to demonstrate that Wall A11 was constructed per submitted plan per the Suspension Order.

The Board should make the following additional findings which are also predicate corrections , before the CEO can lift the suspension and/or grant a certificate of occupancy for the use and occupancy of the patio after all work is brought within the approved application, permits, and ordinance.

1. The patio replacement structure exceeds the height, and setback limitations of the ordinance, as well as the lot coverage requirement identified in the July 2019 Suspension Order. Ms. Bell must obtain variances from these requirement by a date certain or it must be removed. The CEO should issue further orders specifying corrective measures and deadlines.
2. Neither the retaining wall along the Slager property line, nor the retaining walls along Ocean Avenue have been shown to have been designed and/or constructed to code, and/or as depicted on approved plans. The CEO should issue further orders specifying corrective measures and deadlines.

Based on the foregoing, the Board must take the following actions:

1. The CEO's decision to lift the Suspension Order made by the CEO's letter to Ms. Bell dated February 28, 2020 is reversed.

2. The CEO is directed to issue further orders requiring corrective measures to bring Ms. Bell's construction into compliance with approved plans, permits and all applicable codes and ordinances within specified dates.

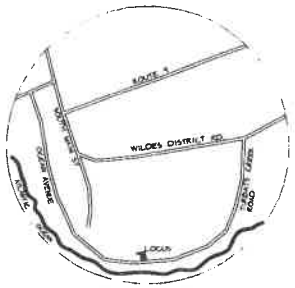
Dated: 3/23/2020

Respectfully submitted,

David A. Lourie,
Alan R. Atkins,
Fulton S. Rice,
Attorneys for Randy Slager

Attachments:
CEO Decision Lifting Suspension February 28, 2020
Resubmitted Plot Plan
Tompkins Landscape Plan
Photographic Views of Bell's "Replacement Patio" from Slager 2nd floor bedroom window

LOCATION SKETCH



(NOT TO SCALE)

CURRENT COVERAGE CHARTS

OUTSIDE SHORELAND ZONE		INSIDE SHORELAND ZONE	
HOUSE	2,793 SQFT	HOUSE	459 SQFT
POOL	532 SQFT	DECK	245 SQFT
DECK	189 SQFT	PATIOS	261 SQFT
PATIO	1513 SQFT	WALLS	1018 SQFT
TOTAL	5027 SQFT	STAIRS	296 SQFT
LOT	11,531 SQFT	BRIDGE	84 SQFT
COVERAGE	43.5%	WALKWAYS	87 SQFT
		MISC.	43 SQFT
		WATERFALL	0 SQFT
		FLAG STONES	0 SQFT
		DRIVEWAY	37 SQFT
		WALL REMAINS	70 SQFT
		FIRE PIT/PATIO	115 SQFT
		TOTAL	3715 SQFT
		LOT	8,924 SQFT
		COVERAGE	30.4%

PRE-EXISTING COVERAGE CHARTS

OUTSIDE SHORELAND ZONE		INSIDE SHORELAND ZONE	
HOUSE	2,793 SQFT	HOUSE	459 SQFT
POOL	532 SQFT	DECK	436 SQFT
DECK	905 SQFT	PATIOS	391 SQFT
PATIO	842 SQFT	WALLS	509 SQFT
TOTAL	5,072 SQFT	STAIRS	186 SQFT
LOT	11,531 SQFT	BRIDGE	84 SQFT
COVERAGE	44.0%	WALKWAYS	171 SQFT
		MISC.	73 SQFT
		WATERFALL	223 SQFT
		FLAG STONES	62 SQFT
		DRIVEWAY	37 SQFT
		WALL REMAINS	70 SQFT
		TOTAL	2,725 SQFT
		LOT	8,924 SQFT
		COVERAGE	30.5%

REVISION NO	DATE	REVISION PURPOSE
1	4/19/2018	AMEND COVERAGE CHART / CALCULATIONS
2	8/2/2019	SHOW CURRENT COVERAGE. CONSTRUCTION IN PROGRESS
3	8/19/2019	REVISE PRE-EXISTING PER CEO DETERMINATION REVISE CURRENT COVERAGE
4	10/30/2019	ADD FIRE PIT/PATIO COMBO
5	11/04/2019	MOVE FIRE PIT/PATIO COMBO
6	11/05/2019	REVISE PATIO

LOCUS DEED REFERENCE

YORK COUNTY REGISTRY OF DEEDS (YCRD)
BOOK: 17372 PAGE: 727

PLAN REFERENCES

1. PLAN OF IMPROVEMENTS OF 196 OCEAN AVENUE, KENNEBUNKPORT, MAINE, FOR RECORD OWNER: RANDY J SLAGER AND SYBIL K. BAIRD, PERFORMED BY SEBAGO TECHNICS, DATED 08-03-18, UNRECORDED
2. STANDARD BOUNDARY SURVEY AND SITE PLAN, 196 OCEAN AVENUE, KENNEBUNKPORT, MAINE, OWNED BY DANIEL C AND NANCY K NELSON, PERFORMED BY LOWER VILLAGE SURVEY COMPANY, DATED OCTOBER 10, 2006, UNRECORDED
3. BOUNDARY PLAN OF MARC D AND KRISTINE K GRANETZ, 5 ATLANTIC AVENUE, KENNEBUNKPORT, MAINE PREPARED BY SEBAGO TECHNICS DATED 2011, UNRECORDED

NOTES

1. SPOT ELEVATIONS SHOWN REFLECT THE NAVD 1988 DATUM
2. THE ELEVATION OF THE FIRST FINISHED FLOOR IS 46.1
3. THE ELEVATION OF THE GARAGE SLAB IS 45.0

LEGEND

N/F - NOW OR FORMERLY
TM - TAX MAP
IPF - IRON PIPE FOUND
CIRS - CAPPED IRON ROD SET
CIRF - CAPPED IRON ROD FOUND
———— - FENCING

GRAPHIC SCALE: 1" = 20'
0 10 20 40 60 80

BOUNDARY SURVEY OF LAND AT
200 OCEAN AVENUE
KENNEBUNKPORT, MAINE

PREPARED FOR
OWNER OF RECORD

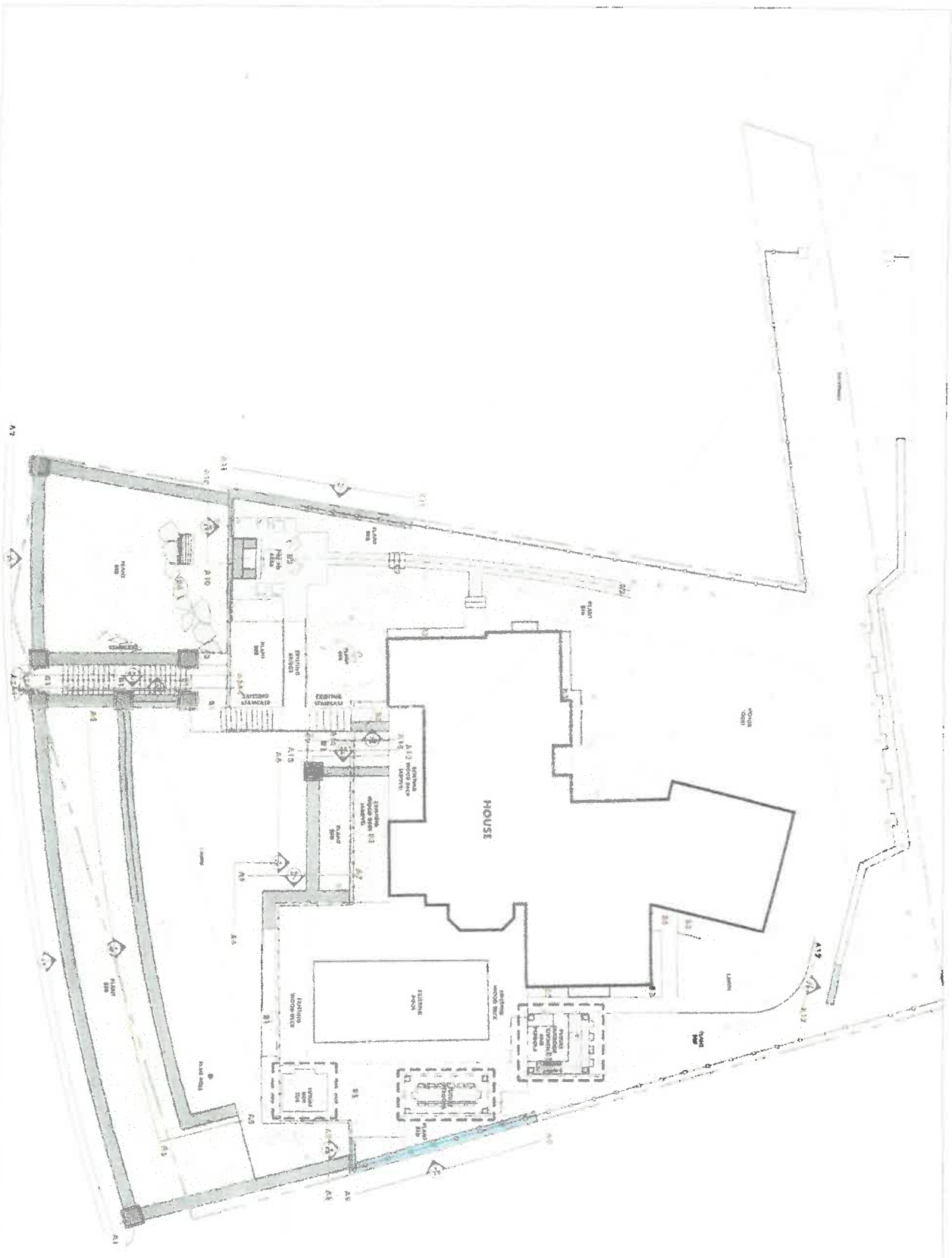
LORI BELL

MAILING ADDRESS: 56 VAN RENSSELAER AVENUE
STAMFORD, CONNECTICUT 06902

BY
LIVINGSTON-HUGHES
PROFESSIONAL LAND SURVEYING CORPORATION
88 GUINEA ROAD, KENNEBUNKPORT, MAINE 04046

STATE OF MAINE
DAVID L. HUGHES
2234
REGISTERED PROFESSIONAL LAND SURVEYOR

REVISION NO	DAVID LJ HUGHES	PLS# 2234	DATE: 9-27-2019	DRAWN: JDT	CHECK: DLH	FIELD BOOK: 401-15	PROJECT #: 056
6							



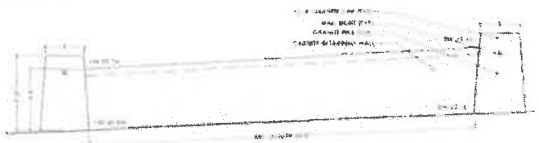
SITE PLAN

200 Ocean Avenue, Kennebunkport, Maine

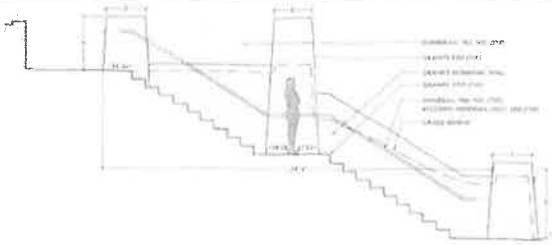
Scale: 1" =1'-0" (original drawing size)
Original Drawing Size: 24" x 36"

Original Issue: 4/23/18, Master Plan - For Permit Design
Revision Issue: 10/29/18, Site Plan - For Permit

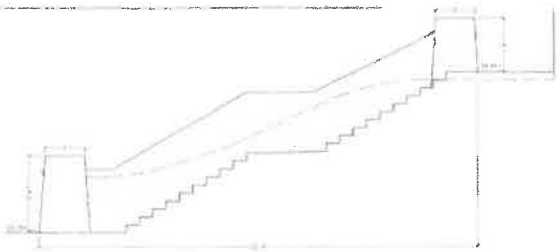
1 WALL ELEVATION A1
SCALE 1/4" = 1'-0"



2 WALL ELEVATION A2
SCALE 1/4" = 1'-0"



3 WALL ELEVATION A3
SCALE 1/4" = 1'-0"

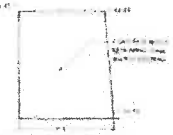


4 WALL ELEVATION A4
SCALE 1/4" = 1'-0"

5 WALL ELEVATION A5
SCALE 1/4" = 1'-0"

6 WALL ELEVATION A6
SCALE 1/4" = 1'-0"

7 WALL ELEVATION A7
SCALE 1/4" = 1'-0"



8 WALL ELEVATION A8
SCALE 1/4" = 1'-0"

9 WALL ELEVATION A9
SCALE 1/4" = 1'-0"

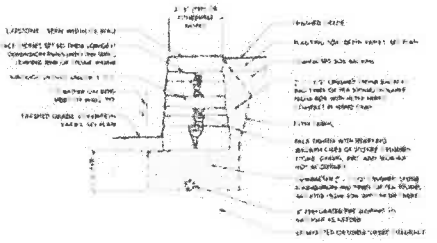
10 WALL ELEVATION A10
SCALE 1/4" = 1'-0"

11 WALL ELEVATION A11
SCALE 1/4" = 1'-0"

12 WALL ELEVATION A12
SCALE 1/4" = 1'-0"

13 WALL ELEVATION A13
SCALE 1/4" = 1'-0"

14 WALL ELEVATION A14
SCALE 1/4" = 1'-0"



15 TYPICAL DRY - STACKED WALL DETAIL
SCALE 1 1/2" = 1'-0"

OCEANA COMMUNITY LEARNING ARCHITECTURE, LLC.
14 Maine Street
Brunswick, Maine 04011

Scale: AS SHOWN (original drawing size)
Original Drawing Size: 24" x 36"

Original Issue: 9/26/18 - For Pricing
Revision Issue: 10/29/18 - For Permit

WALL ELEVATIONS

200 Ocean Avenue, Kennebunkport, Maine

L-4.0

Appellant requests the Board take official notice that A11 was not designed in accordance with accepted engineering practice where its interior composition was neither designed nor reviewed by a professional engineer. Since the wall A11 was not designed by a professional engineer nor were any plans for wall A11 approved by a professional engineer, the CEO had no basis to conclude that wall A11 is constructed in accordance with accepted engineering practice.

The 4th page of CEO's Decision letter dated February 28, 2020 provides a chronology of submissions as to wall A11. According to the CEO's chronology, Terrapin constructed Wall A11 in January and February of 2019.[14] The Suspension Order noted that Wall A11 as-built differed from the submitted plan which called for the A11 wall *to be a dry stack granite wall with the 7' portions being 6" concrete stem wall with flagging veneer.* The Order notes that instead, Wall *A11 is 8" block CMU with flagging veneer.* The CEO's lifting of the Suspension Order fails to provide a basis for lifting the suspension, where it entirely fails to address the fact that A11 as-built is entirely different from what is shown on plans submitted to and approved by the Town, which contained @ #15 a "TYPICAL DRY-STACKED WALL DETAIL" in accordance with IRC §404, while there is no comparable detail for the CMU wall actually built in violation of that requirement!

The CEO's reliance upon after-the fact engineering reports in his February 28, 2020 Decision as to wall A11 was misplaced. Each report's value is limited by its terms. Matthew Miller stated when reviewing wall A11: "Presence of crushed stone backfill of the wall limited our review to the front face of the wall." Thad Gabryszewski, P.E.'s September 24, 2019 report upon which the CEO principally relied in lifting the suspension is even more problematic in that

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[14] Though the CEO's letter states that wall A11's construction occurred in January/February of 2018, his statement that photographic evidence was provided as of 1/11/2019 and the issuance of the Ms. Bell's permits on 12/4/2018 necessitates a conclusion that 2018 was a typographical error.

fireplace marked

TOWN OF KENNEBUNKPORT, MAINE
~ INCORPORATED 1653 ~

February 28th, 2020
Via Email & Certified USPS

Lori Bell & John Scannell
188 Van Rensselaer Avenue
Stamford, CT 06902

RE: 200 Ocean Avenue, Map 7, Block 12, Lot 5 – Suspension of Permits

Dear Lori & John:

This letter is a follow up to the suspension of Permits #18-418, #18-419 issued 12/04/2018. Specific corrective actions requested were:

1. A resubmission of a new plot plan containing an updated lot coverage break down for review.
2. Verification by licensed professional engineer confirming wall sections A1 and A2 match submitted drawings.
3. Wall section A11 needs to be reviewed structurally for potential failure due to the amount of uneven back fill.

#1 has been addressed by the submission of boundary survey/plot plan revision #6 dated 11/05/2019 produced by Livingston Hughes. The concern regarding exceedance of pre-existing lot coverage has been addressed on this plan by showing that the pre and proposed coverages do not create an increased non-conformity, however be aware that the expectation is that all areas on the property not identified as coverage are expected to be vegetated areas as indicated on the original plan submission.

Due to the significant amount of information that has been provided and debated between multiple engineers I have provided a timeline of the applicable engineering documents, site visits, conversations, etc. related to the two separate but distinct wall locations. The notes included here are in many cases summaries and or highlights of the referenced documents. If a document is not referenced here it should not be interpreted that we did not consider it. All documents referenced are included as attachments.

#2 Wall Sections A1/A2 Rubble retaining Wall

A1/A2 Rubble Retaining Wall	
January/February 2018	Terrapin Constructing walls per Aaron Jones PE design
Early March 2019	Terrapin no longer contractor of record

Mid-March 2019	Maineway removes Terrapins work
Late March 2019	Maineway begins construction of different design rubble walls
April 3rd2019	Aaron Jones PE visits site per CEO request, follow up with letter stating wall being constructed is not per their design.
Mid-April 2019	CEO Office requests new design
April 22nd 2019	Matthew Miller PE provides new design for Rubble retaining wall
July 30th 2019	Matthew Miller PE visits site notes observations, "…width of the wall at the base could not be verified. Measurements for the width at the top of the wall and retaining height of the walls were taken and were consistent with the structural design provided by our office."
August 19th 2019	David Douglass, Licensed Architect hired by abutter Randy Slager notes, " Rubble retaining walls are uneven and undulate across the top and face. Tight joints that retain the compacted core of a rubble wall are critical. Installed wall joints are wide with poorly fitted stone joints in most locations. The loose compacted material at the core of the wall can be seen filtering out in dozens of locations. Loss of the walls interior or fines which will be accelerated during heavy rain events will destabilize the wall over time and will pollute the shoreland zone with silt."
December 17th 2019	David Price, PE of Price Structural Engineers, Inc. who has been retained by aggrieved party Randy Slager responds with the Price Report (Summary) No photos or evidence showing Bonder units or Through-stones per Detail 15/L-4.0 of Aaron Jones design, Walls declared "highly unstable" missing bonder units declared as an "extreme" violation of IRC 2015 Sect. 606.13.3.2 due to corresponding loss of wall stability. Suggests destructive analysis be performed to determine accurate construction, as well as a reduction in wall height to no more than 3 feet above existing grade.
Week of January 13th 2020	CEO Office Reviews Price Report
January 14th 2020	Site Visit with Michael Claus PE, Director of Public Works to review public safety concerns. No safety concerns were expressed.
January 20th 2020	CEO Office secures third party Structural Engineer Geoff Aleva PE to assist in review of documents, site and provide feedback to CEO
January 27th 2020	CEO office visit with Geoff Aleva PE followed up with a site visit.
January 30th 2020	Geoff Aleva PE provides feedback on draft letter to Lori Bell requesting more information.
January 31st 2020	CEO office requests more detail regarding rubble walls including response to Price Report.

February 5th 2020	Thad Gabryszewski, PE of Lincoln Haney Engineering Associates, Inc responds to Price report. and CEO letter of January 31st 2020. Gabryszewski Report (Summary) Cites photographic evidence provided by Tony Aceto during construction documenting "stone backfill, two wythes of stone, and course of stone connecting front and rear wythes." A February 3rd, 2019 phone call with Matthew Miller indicated that the rubble walls were designed as mass walls meaning that they resist soil pressure by their weight and size. Mr. Miller confirmed two site visits which included observation of wall construction. This report states, "Based on the stamped design of Mr. Miller, his stamped Memorandum, and the photos provided by Mr. Aceto, Wall Sections A1 and A2 are constructed in accordance with Mr. Miller's design."
February 14th 2020	CEO Phone conference with Matthew Miller PE. Mr. Miller was forwarded the February 5th, 2020 Gabryszewski report for his review. After his review Mr. Miller responded via email with the following statement, "I have read through the report prepared by Thad at Lincoln Haney Engineering Associates. The report does a good job in summarizing my understanding of the sequence of events for the referenced project. I am in agreement with the conclusions Thad has made regarding the rubble walls."
February 19th 2020	David Price PE responds to recent letters (Summary) Repeats concern if walls were to collapse during a freezing rain or dense fog results would be "catastrophic". Notes lack of a drawn cross section detail of rubble wall, cites in detail original Structural Integrity design, cites and provides an extensive review of IRC 2015 Section R606 which relates to wall construction standards. Emphasizes that the walls in place were not constructed per Structural Integrity's design.
February 23rd 2020	Geoff Aleva PE review of Price report February 19th, 2020. A significant conclusion stated here points out that Mr. Price erroneously applies the foundation wall standards of the residential building code which are meant to apply to the foundation of a single-family dwelling vs. a retaining wall. (Summary)" …The stretcher and "bonder" information presented in the latest Price report is typically for masonry walls that support a vertical load and not a retaining wall. The retaining wall section of the IRC really applies here. The installed walls are much more robust, the "stretcher" courses are hard to determine in the field with the wall completed. If Bell is willing, this issue for this wall could potentially be put to rest if limited excavation is completed behind these walls to determine the stone and overall width. That being said, there are two engineers hired by Bell that indicate confidence in the wall."

#2 Upon review of all the information listed in this timeline, I have found that the Code Office received an alternate design for walls A1 and A2 drawn and by Matthew Miller PE of M2 Structural Engineering on April 23rd, 2019. Mr. Miller's submission is being treated as a replacement submission for the design document provided by Aaron Jones PE of Structural Integrity Consulting Engineers Inc.
In addition to Mr. Miller's testimony both written and verbal the Code Office is reasonable relying on the professional opinions of Thad Gabryszewski, PE of Lincoln Haney Engineering Associates, Inc, Michael Claus, in his role as director of public works, Geoff Aleva PE of Civil Consultants in his role of advising the Code office, as well as the combined professional experience and observations of three certified Code Enforcement Officers employed by the Town of Kennebunkport.

#3 Wall Section A11 CMU Retaining Wall with Stone Veneer

CMU Retaining Wall	
January/February 2018	Terrapin constructs retaining wall (A11) Wall not constructed per submitted plan, submitted plan called out as a dry stack granite with the 7' portions being 6" concrete stem wall with flagging veneer. Wall construction instead is 8" block CMU with flagging veneer. Photographic evidence provided indicates footings on ledge, as well as the presence of rebar within CMU cores. Crushed stone backfill also installed by Terrapin. Photographic evidence provided indicates original design professional Joshua Tomkins (1/11/2019) was observing and reporting construction progress to property owner.
Early March 2019	Terrapin no longer contractor of record
July 30th 2019	Matthew Miller PE notes: (Summary) "Presence of crushed stone backfill of the wall limited our review to the front face of the wall. We did not observe indications of wall movement, either sliding or rotation, nor were deficiencies noted during our visit."
August 19th 2019	David Douglass, Licensed Architect hired by abutter Randy Slager observes: (Summary) Notes a lack of drawings or inspections on CMU wall, comments on the lack of preventative preservative coating (paint) on steel masonry support angles, incomplete nature of bluestone caps. Questions quality of work and recommends destructive forensic structural evaluation.
September 24th 2019	Owens McCullough PE of Sebago Technics reports from a field inspection. Notes, " The wall is in excellent condition with no observations of instability or distress and has been in place for approximately 7 months."

September 24th 2019	Thad Gabryszewski, PE of Lincoln/Haney Engineering Associates, Inc. documents a review of photographic evidence noting that (summary) " wall is composed of reinforced concrete masonry units (CMU) stone facing with a concrete footing. The footing is pinned to ledge using two rows of reinforcing dowels and we understand that each CMU is reinforced and routed solid. The wall is backfilled with crushed stone and has a perimeter drain at its base. The foundation bears on ledge and so is adequately protected against frost heave." Mr. Gabryszewski describes a structural design analysis and affirms despite the lack of documented reinforcement that the wall appears to be adequately constructed. Recommends observation of the wall over the next couple of years for sign of distress if doubts persist.
December 17th, 2019	David Price, PE of Price Structural Engineers, Inc. who has been retained by aggrieved party Randy Slager respond with the Price Report (Summary) Performed steel probing on Mr. Slagers property in proximity of CMU wall to test for the presence of ledge. Mr. Slager has stated that he did not observe the presence of ledge when the footings for the CMU wall were being constructed. Photographic evidence reviewed as well. Price notes the lack of a written design of the CMU wall, no independent analysis of the ledge leading to concerns over potential frost heave. Price analysis of CMU wall indicates, "compression stress in the CMU appears to exceed the allowable masonry compression stress beyond acceptable limits." Price further suggests that if the wall is not adequately secured to ledge it will likely need to be demolished and rebuilt.
Week of January 13th 2020	CEO Office Reviews Price Report
January 20th 2020	CEO Office secures third party Structural Engineer Geoff Aleva PE to assist in review of documents, site and provide feedback to CEO
January 27th 2020	CEO office visit with Geoff Aleva PE followed up with a site visit.
January 30th 2020	Geoff Aleva PE provides feedback on draft letter to Lori Bell requesting more information.
January 31st 2020	CEO office requests more detail regarding CMU wall specific to the design as well as addressing questions regarding frost protection.

February 5th 2020	Thad Gabryszewski, PE of Lincoln Haney Engineering Associates, Inc responds to Price report. and CEO letter of January 31st,2020. Gabryszewski Report (Summary) Mr. Gabryszewski provides a written description of the construction of the CMU wall based on photographic evidence. He provides a written description of the current conditions which includes the presence of a pre-existing retaining wall. In addition, he has provided evidence of the presence of ledge directly adjacent to the footings of the CMU wall in 3 separate locations. He cites evidence that three independent engineering firms "attest that Wall Section A11 is performing well." He concludes with "...we can only conclude that Wall Section A11 is adequately constructed to safely resist its retained backfill because of the items noted above, and because the wall has successfully retained its backfill for over a year, through frost seasons, with no signs of distress."
February 24th 2020	Conversations with Mike Corsie of Terrapin Landscaping. Confirmed that ledge was present under footings throughout, and that pins as shown in footing forms were drilled into ledge.

#3 Upon review of all the information listed in this timeline, I have found that the Code Office received an alternate written description for wall A11 documented by Thad Gabryszewski, PE of Lincoln Haney Engineering Associates, Inc, in his letter of September 24th, 2019. Mr. Gabryszewski' s submission is being treated as an as-built construction update, updating the information originally supplied with permit drawings submitted by Joshua Tomkins.
Mr. Gabryszewski' s follow up documentation on February 5th, 2020 reasonably addresses the concerns raised regarding fill placement. Further site review and photographic evidence supplied by Mr. Gabryszewski supplements the already existing evidence confirming the presence of ledge beneath the wall footings. This reasonably confirms that additional frost protection is not needed.

Careful review has been given to all documents that have been submitted to the Code Office regarding this project, with emphasis given to evidence supplied regarding the 3 issues raised in the initial suspension letter.
Consideration was given to all the professional opinions given representing both sides of this issue. The Code Office also relied on professional advisement from a third party engineer, previous observations of work performed by contractors known to the Code office, numerous site visits, as well as the combined professional experience and observations of three certified Code Enforcement Officers employed by the Town of Kennebunkport.

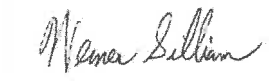
Therefore, as allowed under the Maine Uniform Building Code, the Code Office accepts the documents supplied by the above referenced engineers as alternatives and exceptions to specific code requirements documented within engineering documents and statements under the recognition of *2015 IRC section.R104.11 Alternative materials, design and methods of construction and equipment.* In addition, we are recognizing the above-mentioned engineers as suppliers of expert opinion as deemed necessary to report upon unusual technical issues that have arisen. This authority is recognized under *2015 IRC section R104.4 Inspections.*

Under Article 11.5 of the Kennebunkport Land Use Ordinance Suspension and Revocation of Permits the Code Office has documented the following:

1. The reason for the suspension.
2. Documented all corrective evidence and measures taken.
3. Has continued to give reasonable and adequate time to the property owner to resolve the reasons for the suspension.
4. Has not assigned any applicable penalties, therefore none are required to be paid.

The suspension of Permits #18-418 and #18-419 is hereby lifted. You may continue with the work as previously permitted according to your previous approvals as modified and superseded by your supplemental submissions.

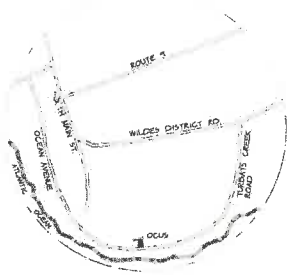
Sincerely,



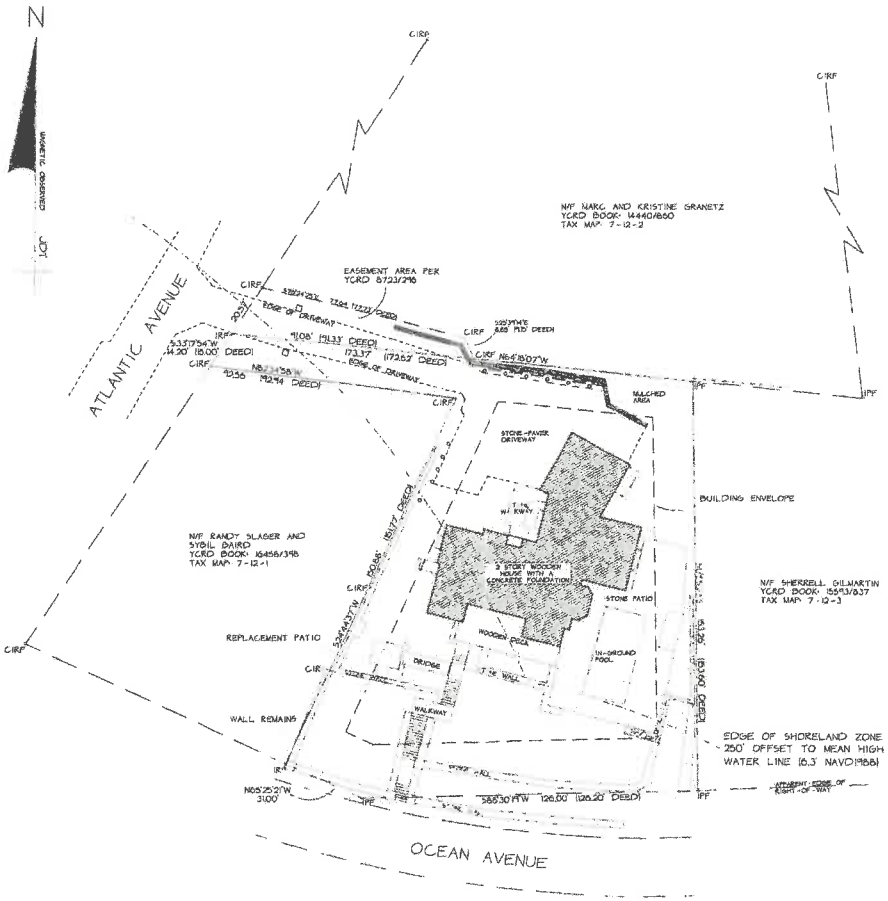
Werner Gilliam, CFM
Director of Planning and Development
Town of Kennebunkport
Enclosures/Attachments

CC: Amy Tchao, Town Attorney
Laurie Smith, Town Manager
Paul Cadigan, Chair Zoning Board of Appeals
Randy Slager, 196 Ocean Avenue
Alan Atkins, Attorney for Randy Slager
David Lourie, Attorney for Randy Slager
Dan Rosenthal, Attorney for Lori Bell and John Scannell

LOCATION SKETCH



(NOT TO SCALE)



LOCUS DEED REFERENCE

YORK COUNTY REGISTRY OF DEEDS (YCRD)
BOOK: 17372 PAGE: 727

PLAN REFERENCES

1. PLAN OF IMPROVEMENTS OF 198 OCEAN AVENUE, KENNEBUNKPORT, MAINE, FOR RECORD OWNER: RANDY J. SLAGER AND SYBIL K. BAIRD, PERFORMED BY SEBAGO TECHNICS, DATED 08-03-15, UNRECORDED

2. STANDARD BOUNDARY SURVEY AND SITE PLAN, 198 OCEAN AVENUE, KENNEBUNKPORT, MAINE, OWNED BY DANIEL C. AND NANCY K. NELSON, PERFORMED BY LOWER VILLAGE SURVEY COMPANY, DATED OCTOBER 10, 2006, UNRECORDED.

3. BOUNDARY PLAN OF MARC D. AND KRISTINE K. GRANETZ, 5 ATLANTIC AVENUE, KENNEBUNKPORT, MAINE, PREPARED BY SEBAGO TECHNICS, DATED 2011, UNRECORDED.

NOTES

1. SPOT ELEVATIONS SHOWN REFLECT THE NAVD 1988 DATUM

2. THE ELEVATION OF THE FIRST FINISHED FLOOR IS 46.1'

3. THE ELEVATION OF THE GARAGE SLAB IS 45.0'

LEGEND

N/F - NOW OR FORMERLY
TM - TAX MAP
IPF - IRON PIPE FOUND
CIRS - CAPPED IRON ROD SET
CIRF - CAPPED IRON ROD FOUND
- FENCING

CURRENT COVERAGE CHARTS

OUTSIDE SHORELAND ZONE			INSIDE SHORELAND ZONE		
HOUSE	2,793	SQ.FT.	HOUSE	459	SQ.FT.
POOL	532	SQ.FT.	DECK	245	SQ.FT.
DECK	189	SQ.FT.	PATIOS	261	SQ.FT.
PATIO	1513	SQ.FT.	WALLS	1018	SQ.FT.
TOTAL	5027	SQ.FT.	STAIRS	296	SQ.FT.
LOT	11,531	SQ.FT.	BRIDGE	84	SQ.FT.
COVERAGE	43.5%		WALKWAYS	87	SQ.FT.
			MISC.	43	SQ.FT.
			WATERFALL	0	SQ.FT.
			FLAG STONES	0	SQ.FT.
			DRIVEWAY	37	SQ.FT.
			WALL REMAINS	70	SQ.FT.
			FIRE PIT/PATIO	115	SQ.FT.
			TOTAL	2215	SQ.FT.
			LOT	8,924	SQ.FT.
			COVERAGE	30.4%	

PRE-EXISTING COVERAGE CHARTS

OUTSIDE SHORELAND ZONE			INSIDE SHORELAND ZONE		
HOUSE	2,793	SQ.FT.	HOUSE	459	SQ.FT.
POOL	532	SQ.FT.	DECK	436	SQ.FT.
DECK	905	SQ.FT.	PATIOS	391	SQ.FT.
PATIO	842	SQ.FT.	WALLS	509	SQ.FT.
TOTAL	5,072	SQ.FT.	STAIRS	188	SQ.FT.
LOT	11,531	SQ.FT.	BRIDGE	84	SQ.FT.
COVERAGE	44.0%		WALKWAYS	171	SQ.FT.
			MISC.	73	SQ.FT.
			WATERFALL	223	SQ.FT.
			FLAG STONES	62	SQ.FT.
			DRIVEWAY	37	SQ.FT.
			WALL REMAINS	70	SQ.FT.
			TOTAL	2,725	SQ.FT.
			LOT	8,924	SQ.FT.
			COVERAGE	30.5%	

REVISION NO.	DATE	REVISION PURPOSE
1	4/19/2018	AMEND COVERAGE CHART / CALCULATIONS
2	8/2/2019	SHOW CURRENT COVERAGE, CONSTRUCTION IN PROGRESS
3	8/19/2019	REVISE PRE-EXISTING, PER CEO DETERMINATION REVISE CURRENT COVERAGE
4	10/30/2019	ADD FIRE PIT/PATIO COMBO
5	11/04/2019	MOVE FIRE PIT/PATIO COMBO
6	11/05/2019	REVISE PATIO

GRAPHIC SCALE: 1" = 20'
0 10 20 40 60 80

STATE OF MAINE
DAVID L.J. HUGHES
2234
SURVEYOR

REVISION NO. 6
DAVID L.J. HUGHES PLS# 2234

BOUNDARY SURVEY OF LAND AT
200 OCEAN AVENUE
KENNEBUNKPORT, MAINE

PREPARED FOR
OWNER OF RECORD

LORI BELL

MAILING ADDRESS: 155 VAN RENSSELAER AVENUE
STAMFORD, CONNECTICUT, 06902

BY
LIVINGSTON-HUGHES
PROFESSIONAL LAND SURVEYING CORPORATION
88 GUINEA ROAD, KENNEBUNKPORT, MAINE 04046

SCALE: 1" = 20'	DRAWN: JCH	CHECK: DLJH	FIELD BOOK: 161-15	PROJECT: 17-058

Structural Integrity
Consulting Engineers, Inc.

DRY-LAID RETAINING WALL CALCULATIONS

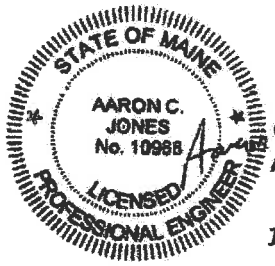
Prepared for:

Joshua Tompkins Landscape Architecture LLC
Yarmouth, Maine

S.I., Inc. Job # 18-0204

Bell Residence
Kennebunkport, ME

The walls shown on the Site Plan and L-4.0 Wall Elevations drawings, dated 10/29/18, are adequate for retainage based on the calculations provided.



11/20/2018

p. 207-774-4614 | f. 866-793-7835 | 46 Forest Ave. Portland, ME, 04101 | www.structuralinteg.com

Structural Integrity
Consulting Engineers, Inc.
4 Oak Street, Portland, ME 04101 | p. 207.774.4611 | f. 866.293.7835

Date: 11/20/16 Page: 1 of 4
By: JMS Chkd by:
Project: RETAINING WALLS
Job #: 16-0204

ASSUMED FRICTION ANGLE ϕ = 35°
ASSUMED PASSIVE EARTH PRESSURE = 45 pcf
ASSUMED PASSIVE EARTH PRESSURE = 450 pcf

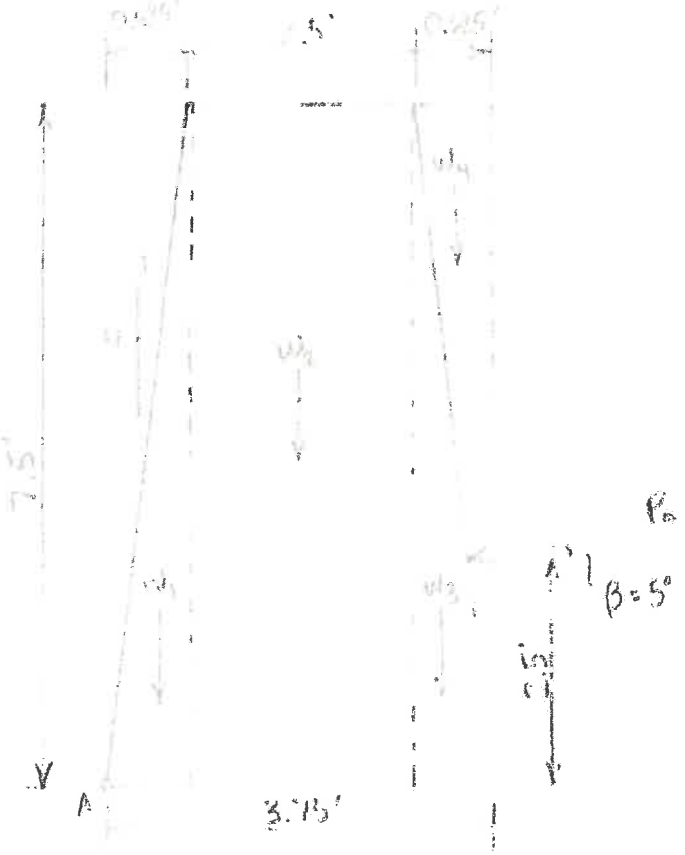
$\gamma_{concrete}$ = 170 pcf

ASSUME 30% VOIDS IN WALL

γ_{wall} = 170 · 0.7 = 119 pcf

$\gamma_{backfill}$ = 100 pcf (3/4" CRUSHED STONE)

WORST CASE WALL: (BASED ON ELEVATION A9, SHEET L-4.0)



Structural Integrity
Consulting Engineers, Inc.
77 Oak Street, Portland, ME 04101 | p. 207 774 4614 | f. 866 793 7835

Date: 11/20/18 Page: 2 of 4
By: JMS Checked by:
Project: Retaining Wall
Job #: 18-070H

CALCULATING VERTICAL FORCES: (PER 1' LENGTH OF WALL)

		X_A	M_A
W_1 = .625' · 1.5' · .5 · 119 pcf	= 279 lb	0.42'	117.2
W_2 = 1.5 · 7.5 · 119	= 2731 lb	1.88'	4104.3
W_3 = .625 · 1.5 · .5 · 119	= 279 lb	3.33'	929.1
W_4 = .625 · 1.5 · .5 · 100	= 234 lb	3.54'	828.4
	$\sum V$ = 3523 lb ↓		6058 lb-ft ↻

ACTIVE EARTH FORCE, P_a:

$$P_a = \frac{1}{2}\gamma_1 H^2 K_a = \frac{\gamma H^2}{2}\cos\beta\left(\frac{\cos\beta + (\cos^2\beta - \cos^2\phi)^{1/2}}{\cos\beta + (\cos^2\beta - \cos^2\phi)^{1/2}}\right)$$

$$P_a = \frac{100 \cdot 11.5^2}{2}\cos 5\left(\frac{\cos 5 + (\cos^2 5 - \cos^2 35)^{1/2}}{\cos 5 + (\cos^2 5 - \cos^2 35)^{1/2}}\right)$$

$$P_a = 6612.5 \cdot .298\left(\frac{.996 + .053}{.996 + .053}\right) = 1969.9 \text{ lb} \quad \text{or} \quad \begin{matrix}1969.9 \\ 1646\end{matrix} \quad \downarrow 16°$$

OVERTURNING MOMENT, M_o:

$$M_o = P_{ax} y_a + P_{ay} x_a = (1646 \text{ lb} \cdot 2.5') + (1915 \text{ lb} \cdot 3.5')$$

$$M_o = 11680.5 \text{ lb-ft} \ \circlearrowright$$

$$FS_{overturning} = \frac{6058 \text{ lb-ft} + 2341.5 \text{ lb-ft}}{11680.5 \text{ lb-ft}} = 1.29$$

Structural Integrity
Consulting Engineers, Inc.
Oak Street, Portland, ME 04101 | p. 207.774.4614 | f. 866.793.7835

Date: [illegible] Page: 2 of [illegible]

Chkd by:

Job [illegible]

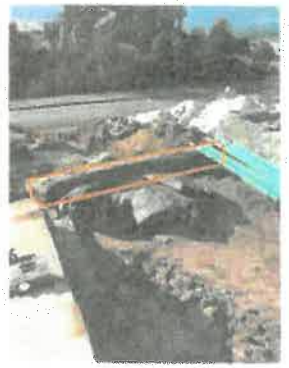
Structural Integrity
Consulting Engineers, Inc.

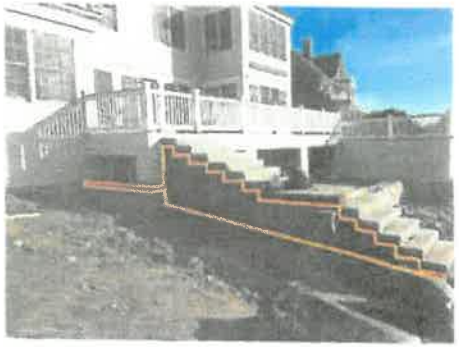
77 Oak Street, Portland, ME 04101 | p. 207-774-4614 | f. 866-793-7835

SHEAR @ THROUGH STONE

μ = .6 (CONCRETE TO [illegible])

$\therefore$ 1.5 [illegible] : 1 [illegible] = 2.69





wall veneer area

Bell Residence
Kennebunkport, Maine

Scale: nts
Original Drawing Size: 11" x 17"

Date: 1/15/19
Issued for: Lori Review

JOSHUA TOMPKINS LANDSCAPE ARCHITECTURE LLC
36 MARINA ROAD
YARMOUTH, MAINE 04096 U.S.A.

207 805 4374
JT@JOSHUA-TOMPKINS.COM
WWW.JOSHUA-TOMPKINS.COM

From: [redacted]
To: [redacted]
Subject: Fwd: Design review meeting
Date: Tuesday, January 22, 2019 8:45:38 AM

Josh

PLA, MAINE #4107

JOSHUA TOMPKINS LANDSCAPE ARCHITECTURE LLC
36 MARINA ROAD
YARMOUTH, MAINE 04096 U S A

207 805 4376

IT@JOSHUA-TOMPKINS COM

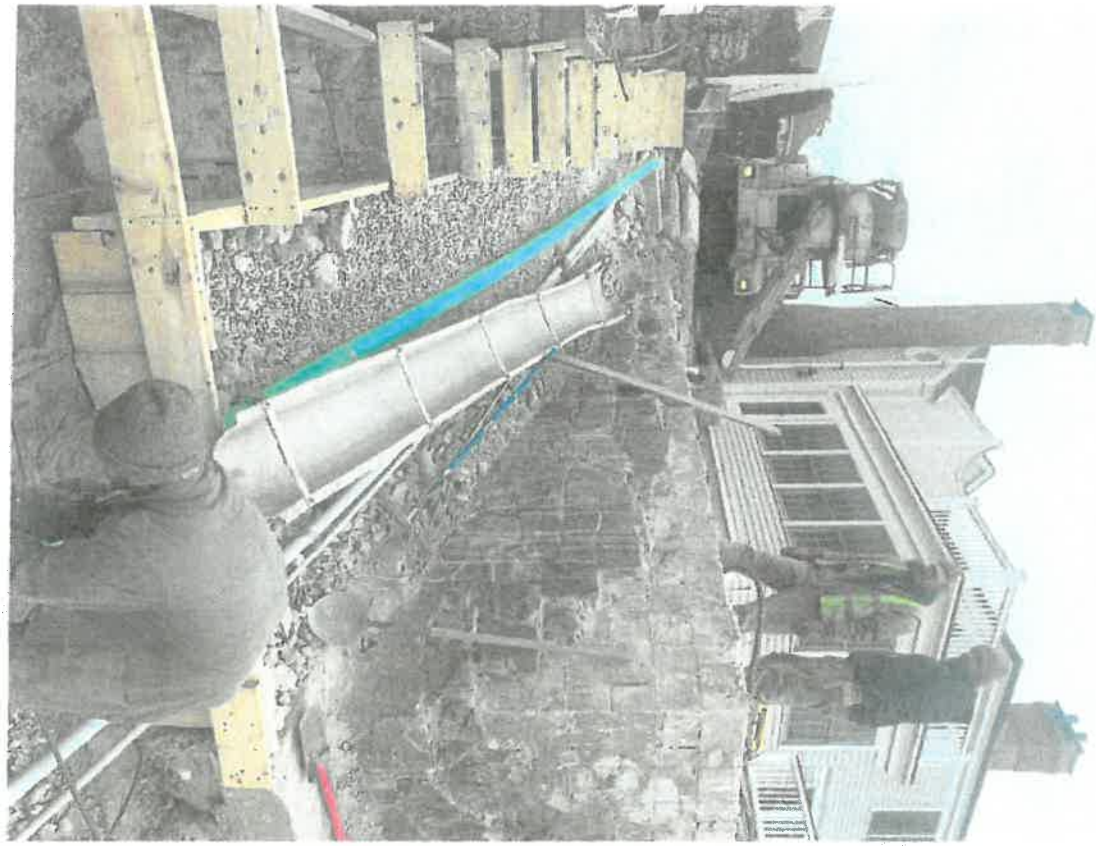
Begin forwarded message:

From: Josh Tompkins <[redacted]>
Subject: Design review meeting
Date: January 18, 2019 at 2:26:25 PM EST
To: Lori Bell <[redacted]>

Lori,

What is your availability on the 24th or 25th for a Design Review virtual meeting?

See construction progress photos below:



Best,

Josh

PLA. MAINE 44107

JOSHUA TOMPKINS LANDSCAPE ARCHITECTURE, LLC
36 KARINA ROAD
YARMOUTH, MAINE 04096 U.S.A.

207 405 4374

JT@JOSHUA-TOMPKINS.COM

DEERE

HITACHI

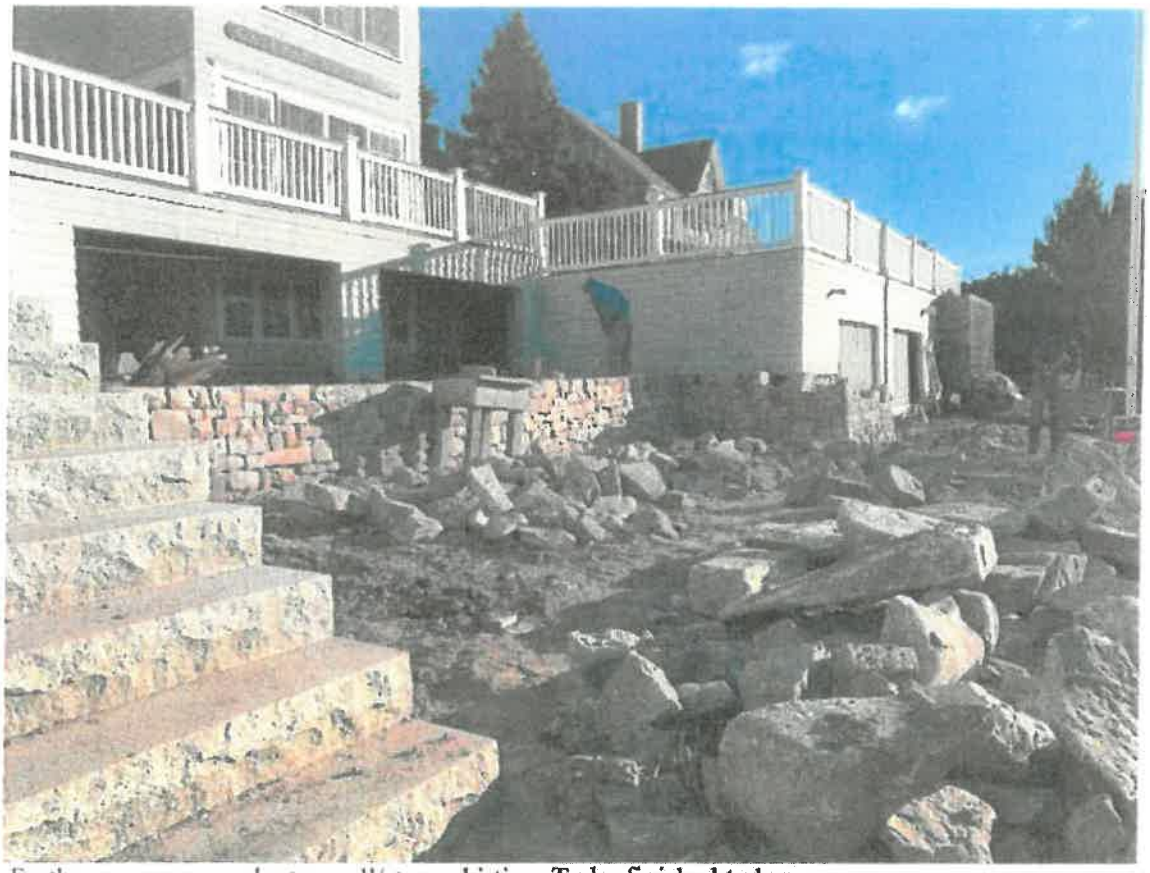
HITACHI

Existing stairs to Ocean Ave were removed and base was excavated for new footing. New stair system construction will begin next week. Existing wall between level 1 from level 2 has been removed. New wall adjacent to lawn has been measured out and the grades have be established for masons to start on wall next week.

Top of planter wall. To the left will be low shrub planting. To the right will be lawn.

New block wall installed along property line to gain more valuable poolside terrace space. Granite poolside terrace to be installed between wall and pool deck.

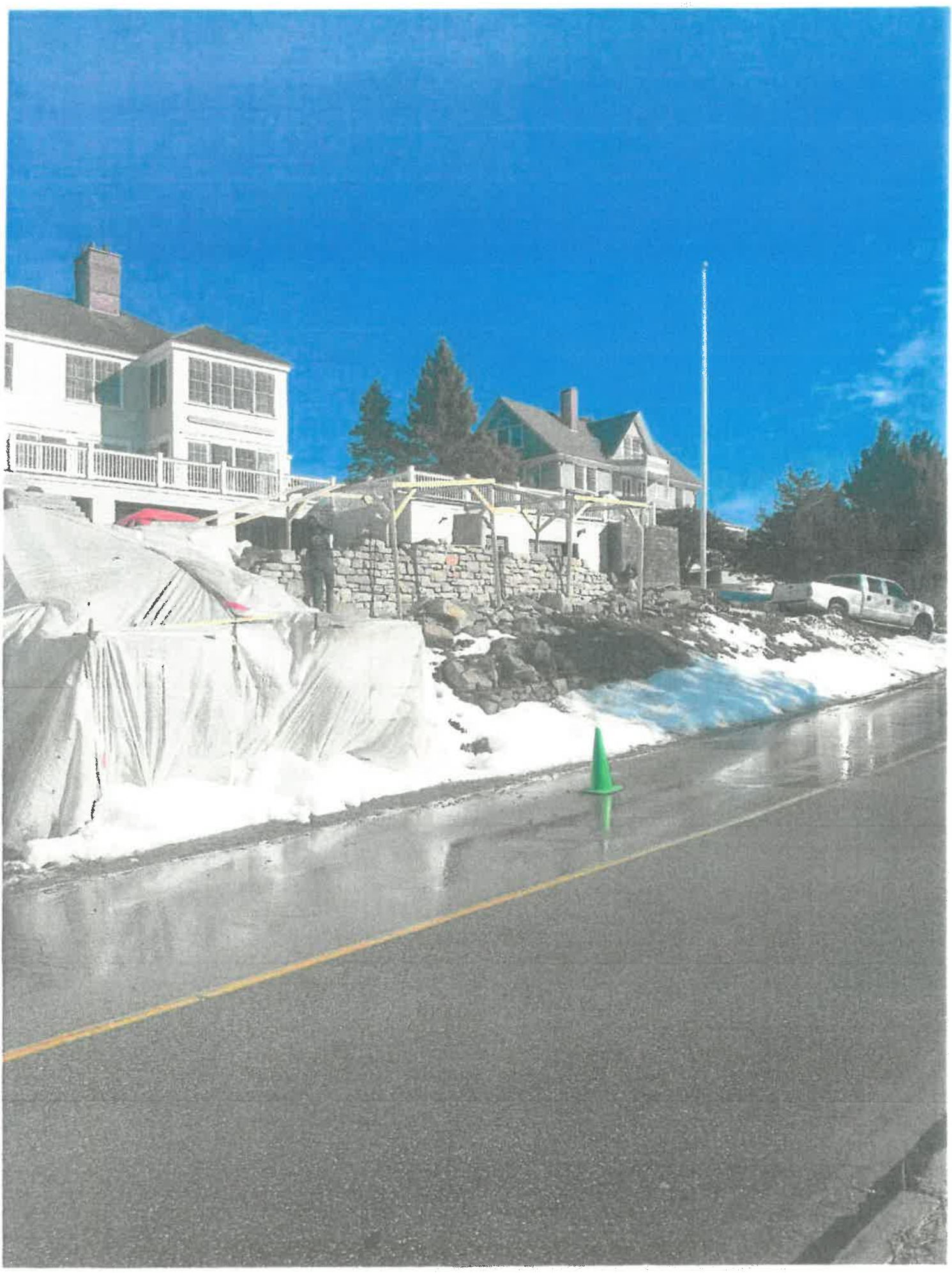
View from neighbor property. New block wall installed to gain more valuable poolside terrace space above.



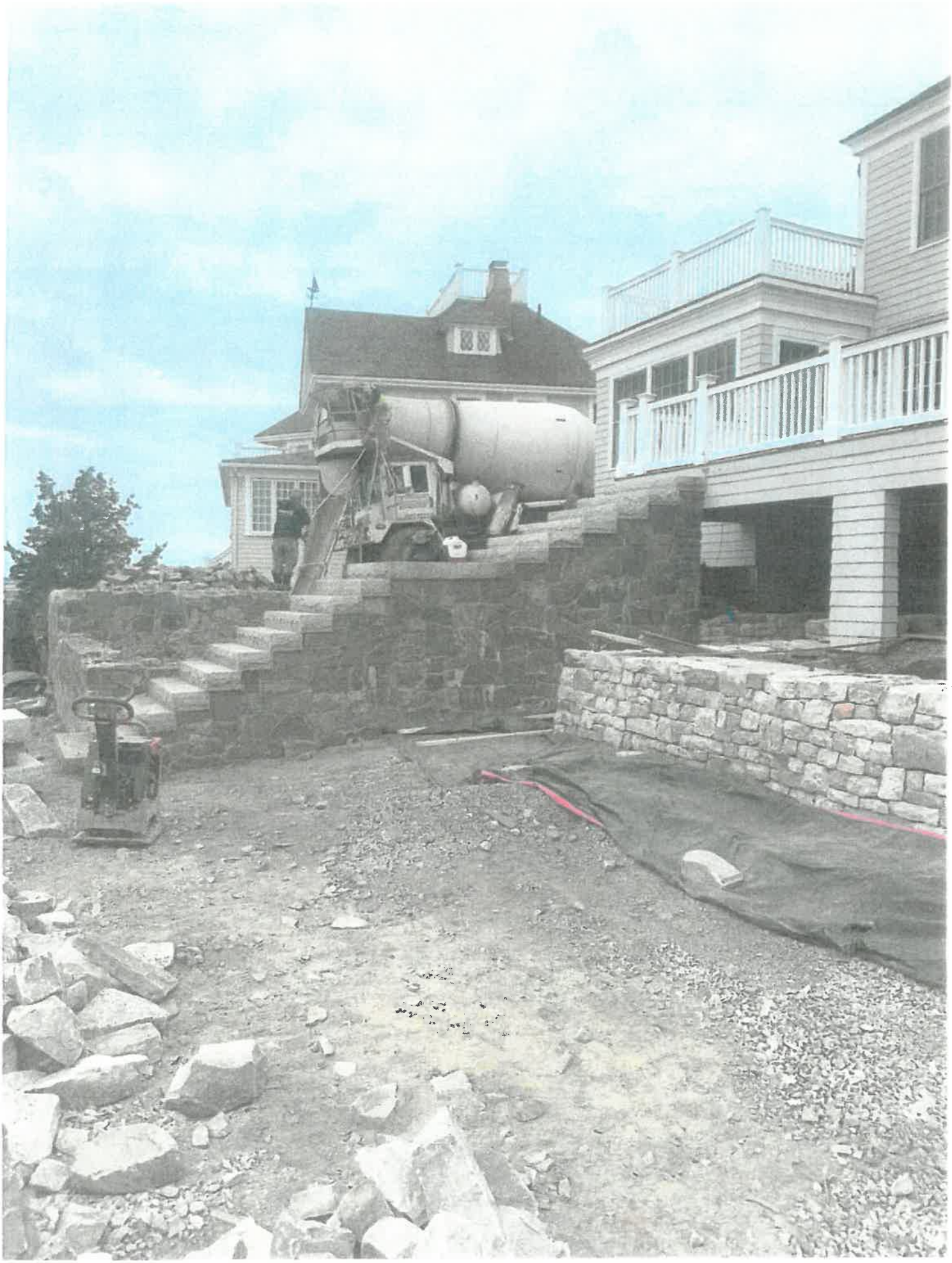
Further progress on planter wall/stone skirting. To be finished today.

Character of planter wall

Planter wall/stone skirting in progress. Shingle rot removed and black bituthene water shield installed.




APPROXIMATE O
WALL LOCATION



Werner Gilliam

From: mike@terrapinlandscapes.com
Sent: Thursday, March 21, 2019 12:43 PM
To: Werner Gilliam
Cc: Josh Tompkins
Subject: Werner, 200 Ocean Ave Project

Werner,

The purpose of this email is to inform you that my firm, Terrapin Landscapes, is no longer involved in the landscape construction project for Lori Bell, 200 Ocean Ave, Kennebunkport. Permits were approved for this project by ME DEP, and Kennebunkport CEO using my Erosion Control Certification #. I would like it to be noted that as of 2/15/19, Terrapin Landscapes has not been responsible for maintaining erosion control measures at this job site.

Mike Claus of the Kennebunkport Highway Dept. requested the placement of a "Construction Site Ahead" sign, as well as traffic cones along Ocean Ave. as a condition of our KPT Land Use permit approval. As of 2/15/19, Terrapin Landscapes has not been responsible for traffic safety measures.

The retaining wall system design by Joshua Tompkins, PLA, MAINE #4107 was approved and stamped by a structural engineer. These walls were to be built by stone masons that were trained and certified by the DSWA, under the supervision of myself and Joshua Tompkins. As of 2/15/19 Joshua Tompkins is no longer the acting Landscape Architect or Construction Supervisor, and the Certified Stone Masons employed by Terrapin Landscapes are not building the walls. In fact, portions of the retaining walls built by Terrapin Landscapes, specifically the wall at the Ocean Ave level, have since been demolished by another contractor. The integrated granite stair system installed by Terrapin has also been removed.

I will be sending pictures of the work that was completed by my firm and I would like copies of them to be added to the file for this property along with a copy of this email. If you have any questions or concerns, please feel free to contact me. Thank you for your attention to this matter.

Sincerely,

Mike Corsie
207.251.0558
terrapinlandscapes.com

FAX COVER SHEET

TO	
COMPANY	
FAX NUMBER	12079678470
FROM	Lori Bell
DATE	2019-03-29 12:50:04 GMT
RE	Attn: Matt Philbrick 200 Ocean Ave Kennebunkport

COVER MESSAGE

Thank you

Lori Bell
Bell Associates Consultants, INC.
79 E Putnam Ave
Greenwich, CT 06830
203-707-1335 Direct
203-707-1330 Main
917-797-6770 Cell
203-621-3344 Fax
www.bellassoc.com
Click here to upload files.

200 Ocean Ave

Town of Kennebunkport

Permit and Land Use

RE: Permit # 18-418

As follow up to our discussion. Please be advise that Terrapin Landscaping is no longer the contractor on the project at 200 Ocean Ave Kennebunkport, Maine. The new contractor is Maineway Landscaping, Tony Aceto. Joshua Tompkins is no longer the landscape architect on the project.

Please advise if I need to do anything further with the permits. Feel free to contact me if you have any questions at 917 797 6770.

Thank you,

Lori Bell

Structural Integrity
Consulting Engineers, Inc.

April 3, 2019

Mr. Matt Philbrick
Code Enforcement Officer
Town of Kennebunkport, Maine
6 Elm Street
Kennebunkport, Maine 04046

Reference:
New Dry-Laid Stone Retaining Walls along Ocean Ave at the Bell Residence
200 Ocean Ave
Kennebunkport, ME

Dear Matt,

As requested, I am writing this memo regarding our structural review for the construction of the walls along Ocean Ave at the above referenced residence. This memo is in response to your request that I review the construction of the walls being built along the town road on Wednesday March 27th, 2019. Architectural and proximity/locational conditions are not included in this report. No warranty expressed or implied, as to the condition of the structure, is intended.

The walls along the road are shown on Sheet L-4.0, Wall Elevations, specifically views, A1 and A2. The construction of the walls as stated on our calculation set;

"The walls shown on the Site Plan and L-4.0 Wall Elevations drawings, dated 10/29/18, are adequate for retainage based on the calculations provided."

was based on typical detail 15 on sheet L-4.0. When I observed the conditions on site, I found several items that did not match the typical detail on sheet L-4.0. I have attached a marked up copy of the detail to show the items the do not match and the following photos of the in-place wall built with the noted inconsistencies. It appears evident that the current construction to the walls does not match the intent of the typical detail for their construction

Do not hesitate to call with any question, comments, or if I can be of further assistance.

Sincerely,

Aaron C. Jones, P.E.,
President

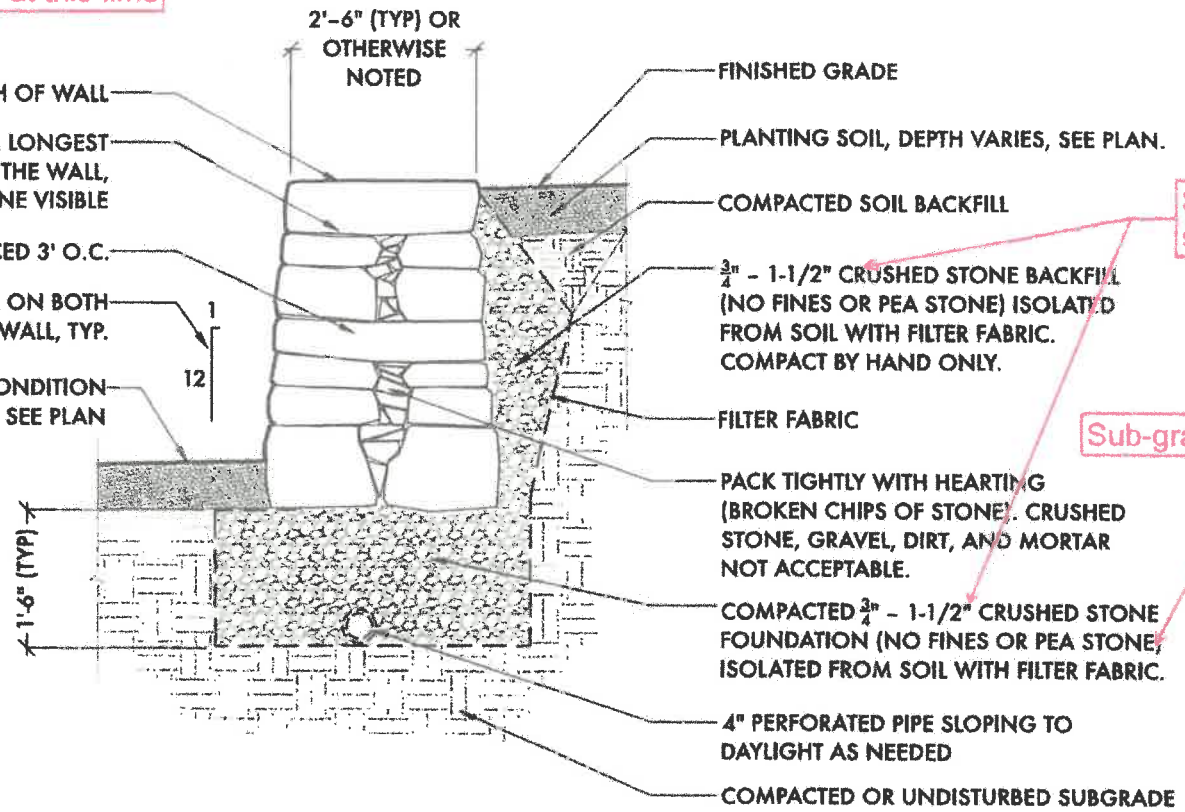
STATE OF MAINE
AARON C. JONES
No. 10968
LICENSED PROFESSIONAL ENGINEER
04/03/2019

p. 207-774-4614 | f. 866-793-7835 | 46 Forest Ave, Portland, ME, 04101 | www.structuralinteg.com

Items Not Per Detail

Most stones set with their shortest dimension set into wall

No full capstones installed at this time



Small 3/8" to 3/4" stone used

Sub-grade not visible

Batter not seen on front of wall, most of back wall appeared to have variable geometry

15 TYPICAL DRY-STACKED WALL DETAIL

SCALE: 1/2" = 1'-0

WALL ELEVATION

200 Ocean Avenue, Kennebunkport, Maine

L-4.0

Structural Integrity
Consulting Engineers, Inc.

p. 207-774-4614 | f. 866-793-7835 | 46 Forest Ave, Portland, ME, 04101 | www.structuralinteg.com

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Structural Integrity
Consulting Engineers, Inc.

DRY-LAID RETAINING WALL CALCULATIONS

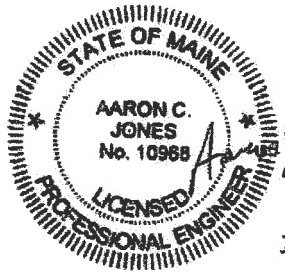
Prepared for:

Joshua Tompkins Landscape Architecture LLC
Yarmouth, Maine

S.I., Inc. Job # 18-0204

Bell Residence
Kennebunkport, ME

The walls shown on the Site Plan and L-4.0 Wall Elevations drawings, dated 10/29/18, are adequate for retainage based on the calculations provided.



11/20/2018

p. 207-774-4614 | f. 866-793-7835 | 46 Forest Ave. Portland, ME, 04101 | www.structuralinteg.com

Structural Integrity
Consulting Engineers, Inc.
77 Oak Street, Portland, ME 04101 | p. 207 [illegible] 4611 | f. 866 793 7835

Date: 11/20/19 Page: 1 of [illegible]
By: JMS Chkd by:
Project: BELL [illegible] WALLS
Job # 19-0209[illegible]

ASSUMED FRICTION ANGLE $\phi = 35°$
ASSUMED ACTIVE EARTH PRESSURE = 45 pcf
ASSUMED PASSIVE EARTH PRESSURE = 400 pcf

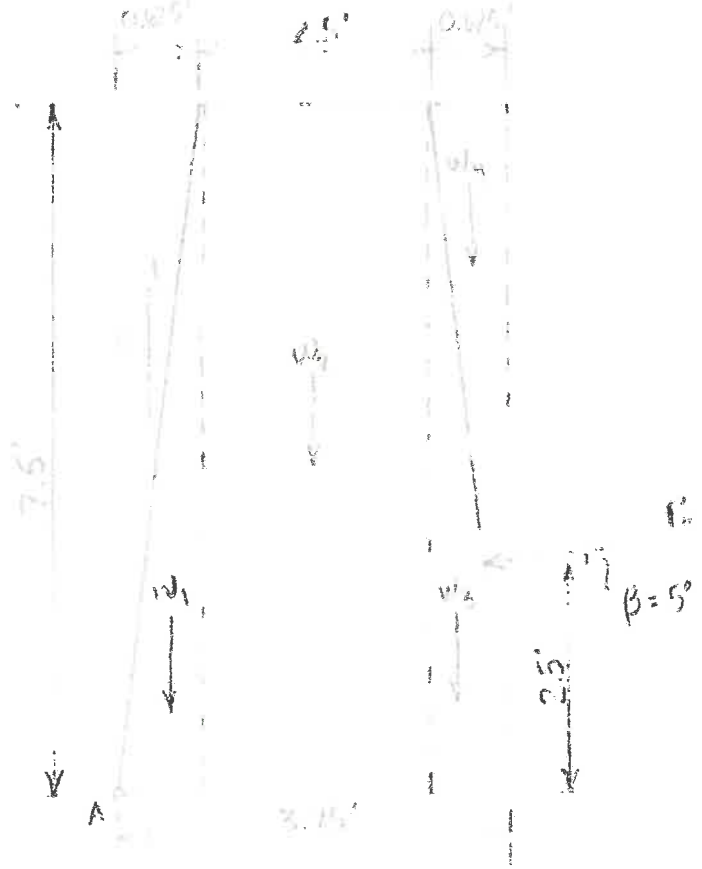
$\gamma_{granite} = 170$ pcf

ASSUME 30% VOIDS IN WALL

$\gamma_{wall} = 170 \cdot 0.7 = 119$ pcf

$\gamma_{backfill} = 100$ pcf (¾" CRUSHED STONE)

WORST CASE WALL: (BASED ON ELEVATION A9, SHEET L-400)



Structural Integrity
Consulting Engineers Inc
77 Oak Street, Portland, ME 04101 | p. 207 774-4614 | f. 866 793 7835

Date: 11/20/18 Page: 2 of 4
By: JMS Chkd by:
Project: BELL RESIDENCE WALLS
Job #: 18-0204

CALCULATING RESISTING MOMENT: (BASED ON 1 FT. WALL SECTION)

		X_A	M_A
$W_1 = .625' \cdot 1.5' \cdot .5 \cdot 119$ pcf	= 279 lb	0.42'	117.2
$W_2 = 2.5 \cdot 7.5 \cdot 119$	= 2231 lb	1.88'	4194.3
$W_3 = .625 \cdot 7.5 \cdot .5 \cdot 119$	= 279 lb	2.92'	814.7
$W_4 = .625 \cdot 7.5 \cdot .5 \cdot 100$	= 234 lb	3.54'	828.4
	$\Sigma V = 3023$ lb ↓		6054.6 lb ft ↘

ACTIVE EARTH FORCE, P_a:

$$P_a = \frac{1}{2}\gamma_{fill} H^2 K_a = \frac{\gamma_{fill} H^2}{2} \cos\beta \left(\frac{\cos\beta - (\cos^2\beta - \cos^2\phi)^{1/2}}{\cos\beta + (\cos^2\beta - \cos^2\phi)^{1/2}} \right)$$

$$P_a = \frac{100 \cdot 7.5^2}{2} \cos 5 \left(\frac{\cos 5 - (\cos^2 5 - \cos^2 35)^{1/2}}{\cos 5 + (\cos^2 5 - \cos^2 35)^{1/2}} \right)$$

$$P_a = 2812.5 \cdot .996 \left(\frac{.996 - .561}{.996 + .561} \right) = 468.9 \text{ lb} \quad \leq \frac{768.9}{.166} \downarrow 167$$

OVERTURNING MOMENT, M_o:

$$M_o = P_{ax} y_A + P_{ay} x_A = (\text{1915 lb} \cdot .5') + (\text{2345 lb} \cdot 3.5')$$

$$M_o = 1680.5 \text{ lb-ft}$$

$$FS_{overturning} = \frac{6054.6 \text{ lb-ft} + 391.5 \text{ lb-ft}}{1680.5 \text{ lb-ft}} = 3.29$$

Structural Integrity
Consulting Engineers, PC
77 Oak Street, Portland, ME 04101 | p. 207.774.4614 | f. 866.791.7835

Date: 3/20/18 Page: 2 of 4
By: [illegible] Chkd by:
Project: [illegible]
Job #: [illegible]

CHECK BEARING

CHECK SLIDING:

Structural Integrity
Consulting Engineers, Inc
77 Oak Street, Portland, ME 04101 | p. 207 774-4614 | f. 866-793 7835

Date: 11/20/18 Page: 4 of 4
By: JMC Chkd by: _____
Project: [illegible]
Job #: 16-0204

SHEAR @ THROUGH STONE:

M = [illegible]

$\therefore FS_{shear} = FS_{sliding} = 2.69$

August 19, 2019

Alan R. Atkins & Associates
100 Commercial Street, Suite 305
Portland, ME 04101
On behalf of:
Randy Slager
196 Ocean Ave
Kennebunkport, Maine

Re: *200 Ocean Ave Response to Structural Engineer's Letter Dated July 30, 2019*

Dear Alan,
At your request, Envelope Architecture & Consulting has read and reviewed the letter written to Tony Aceto of Maineway Landscaping and Excavation, about the existing structural walls as built on the property of 200 Ocean Ave., by Mr. Matt Miller. Mr. Miller's letter raises a number of questions for us.

In the first paragraph, Mr. Miller refers to the walls as retaining wall. Currently we have not seen drawings, details and calculations that represent all of the retaining walls for earth and retaining walls for occupiable space as built on the property. In particular the occupiable space directly adjacent to Mr. Slager's home that incorporates a retaining wall is of great concern for his safety. Mr. Miller refers to this wall as the "upper wall" in his letter.

In paragraph number two, the wall that retains occupiable space and earth that is most critical cannot be verified as structurally sound by Mr. Miller as he states, *"Prior to our visit the upper wall had been backfilled… therefore the width of the wall could not be verified."* Additionally, if Mr. Miller cannot verify width due to obstruction by backfill, he cannot verify construction components, design, reinforcing, assembly procedures and other critical aspects that make this wall safe for the neighbors and property owner. In the same respect following in paragraph three, all Mr. Miller was able to verify was height and top of wall dimensions which is in no way a comprehensive assurance these walls are built as designed and safe.

The last paragraph continues with unknowns; Mr. Miller goes on to elaborate on all of the unknowns about these walls and why verification of construction conformance and safety has not been determined. No, destructive investigation has been done, no third-party analysis of any of the walls have been done by Mr. Miller or any other engineer and no inspections were done during construction.

While onsite David Douglass, AIA, BECxP, noted a number of concerns.

1. The upper wall stone veneer is sitting on steel angles and not on a concrete shelf. While masonry supporting angles are common as part of masonry construction, they are less common as part of retaining walls. Steel must be preventative preservative coated to resist corrosion which will lead to failures. Steel angles must be engineered to size for support and attachment. Attachment methods must be engineered, precise and accurately installed. We noted the angles installed are already corroded. Additionally, bluestone caps have been set on these walls. They are not bedded in mortar properly as light can be seen through the wall under the caps. Where the caps are in question, we have questions about the placement of the rest of the masonry.

2. Rubble retaining walls are uneven and undulate across the top and face. Tight joints that retain the compacted core of a rubble wall are critical. Installed wall joints are wide with poorly fitted stone joints in most locations. The loose compacted material at the core of the wall can be seen filtering out in dozens of locations. Loss of the wall's interior or fines, which will be accelerated during heavy rain events, will destabilize the wall over time and will pollute the shoreland zone with silt.

3. All of the masonry work performed on the job appears to done poorly and in a haphazard way. Where a visually appealing professional aesthetic has been compromised, we have no doubt the integrity of the walls is compromised as well.

Envelope Architecture & Consulting recommends that a third party destructive forensic structural evaluation be done on all walls as soon as possible for the safety of the neighbor, home owner and general public. This is the only way to ensure what has been built is adequate to maintain health safety and welfare.

Warmest Regards,

David Douglass AIA, BECxP – Principal
Envelope Architecture & Consulting – ME, NH, MA Licensed Architect

ENVELOPE ARCHITECTURE & CONSU
101 WHITES BRIDGE ROAD, WINDHAM, MAINE 04062
207-807-6661

200 Ocean ~~226~~ A

M² STRUCTURAL ENGINEERING, P.C.

23 Thornbury Way
Windham, ME 04062
(207) 892-0983

MEMORANDUM

Date: July 30, 2019

To: Tony Aceto
Maineway Landscaping and Excavating
1021 Portland Road
Saco, ME 04072

From: Matthew J. Miller, P.E.

Re: 200 Ocean Avenue, Kennebunkport, ME

At your request, M² Structural Engineering visited the project site at 200 Ocean Avenue in Kennebunkport, ME in Monday July 29, 2019 to review the construction of the rubble retaining walls.

Prior to our visit the upper wall had been backfilled and the lower wall partially backfilled therefore the width of the wall at the base could not be verified.

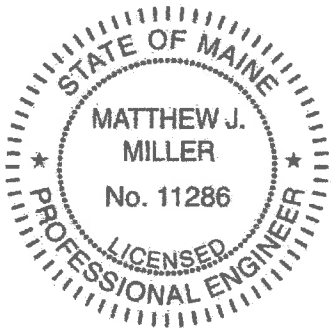
Measurements for the width at the top of the wall and retained height of the walls were taken and were consistent with the structural design provided by our office.

While on site we also provided a visual inspection of the retaining wall located on the west side of the property as requested. Our inspection was limited to visual observations of the completed wall and did not include any selective demolition to verify the wall construction. We understand that this wall was designed by another engineer and constructed by a previous contractor. M² Structural Engineering did not provide a structural analysis of the wall, nor were on site during the construction of the wall. Presence of crushed stone backfill of the wall limited our review to the front face of the wall. We did not observe indications of wall movement, either sliding or rotation, nor were deficiencies noted during our visit.

If you have any questions regarding this memo, please do not hesitate to contact me.

Regards,
M² Structural Engineering, P.C.

Matthew J. Miller, P.E.



7-12-5

Rubble Retaining Wall

200 Ocean Avenue

Kennebunkport, Maine

April 22, 2019

Prepared for:

Maineway Landscaping and Excavating

1021 Portland Road

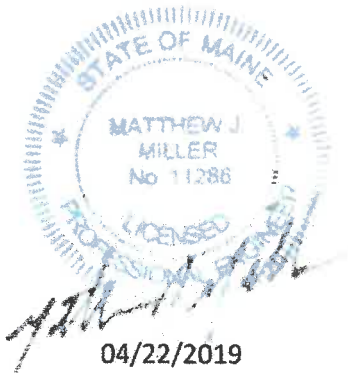
Saco, ME 04072

Prepared by:

M² Structural Engineering, P.C.

23 Thornbury Way

Windham, ME 04062



04/22/2019

M²SE Project No.: 19040

M² STRUCTURAL ENGINEERING, P.C.

23 Thornbury Way
Windham, ME 04062
(207) 892-0983
www.m2se.com

PROJECT

PROJECT #

CALCULATED BY DATE

CHECKED BY DATE

SHEET OF

M2 STRUCTURAL ENGINEERING, P.C.
23 Thornbury Way
Windham, ME 04062
(207) 892-0983
www.m2se.com

PROJECT
PROJECT #
CALCULATED BY DATE
CHECKED BY DATE
SHEET OF

M2 STRUCTURAL ENGINEERING, P.C.
23 Thornbury Way
Windham, ME 04062
(207) 892-0983
www.m2se.com

PROJECT
PROJECT #
CALCULATED BY MJ DATE
CHECKED BY DATE
SHEET 13 OF

M2 STRUCTURAL ENGINEERING, P.C.
23 Thornbury Way
Windham, ME 04062
(207) 892-0983
www.m2se.com

PROJECT
PROJECT #
CALCULATED BY DATE
CHECKED BY DATE
SHEET 4 OF 4

End of Submittal

SEBAGO
TECHNICS

September 24, 2019
19457

Mr. Tony Aceto
Maineway Landscaping and Excavating
1021 Portland Road
Saco, ME 04072

Retaining Wall Evaluation
200 Ocean Point Road, Kennebunkport, Maine

Dear Mr. Aceto:

Sebago Technics, Inc has been retained by Maineway Landscaping to review a section of masonry block retaining wall with stone facing installed at 200 Ocean Point Road in Kennebunkport, Maine. The wall section under consideration is located generally along the westerly property line of the property. On Wednesday, September 18, 2019, Owens McCullough, P.E. of Sebago Technics, Inc. conducted a field inspection of the wall and collected the attached photographs. The wall is in excellent condition with no observations of instability or distress and has been in place for approximately 7 months.

Sebago Technics, Inc. has also engaged Lincoln/Haney Structural Engineering Associates to evaluate the structural integrity of the wall. Attached is structural assessment letter dated, September 24, 2019 prepared by Thad Gabryszewski, P.E, S.E. of Lincoln/Haney Engineering Associates, Inc.

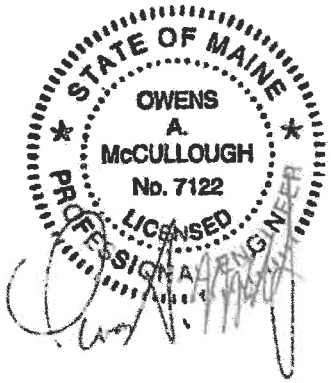
Should you have any questions or need additional information, please contact me.

Sincerely,

SEBAGO TECHNICS, INC.

Owens A. McCullough, P.E., LEED-AP
Sr. Vice President of Strategy and Client Development

OAM:oam
Att. Photos – 9-18-19
E-mail with Photos provided by Aceto Construction
Lincoln/Haney Structural Engineering Associates, Inc Letter



Lincoln/Haney Engineering Associates, Inc.
Structural Engineering Consultants

Michael A. Cunningham, P.E., LEED AP
Thad Gabryszewski, P.E., S.E.

September 24, 2019

Owens McCullough, P.E., LEED A.P
Sebago Technics, Inc.
75 John Roberts Rd Ste 4A,
South Portland, ME 04106

Subject: Structural Assessment of Retaining Wall
200 Ocean Avenue, Kennebunkport, ME

Dear Owens:

We have reviewed available documentation regarding the fire pit retaining wall constructed at the above noted residence. The wall ranges in height from four to seven feet, is composed of reinforced concrete masonry units (CMU), stone facing, with a concrete footing. The footing is pinned to ledge using two rows of reinforcing dowels, and we understand that each CMU cell is reinforced and grouted solid. The wall is backfilled with crushed stone and has a perimeter drain at its base. The foundation bears on ledge and so is adequately protected against frost heave.

Our analysis indicates that the wall has adequate capacity to retain seven feet of crushed stone, assuming 60 psf active soil pressure (consistent with crushed stone backfill), #4 reinforcing bars centered in each cell, and the wall reinforcing bars and ledge pins are properly developed into the retaining wall footing.

The completed wall has retained soil for over seven months, including over the course of a winter. The wall is performing well and does not show signs of distress. Documentation of the wall's reinforcement is not complete, however based on its performance the wall appears to be adequately constructed. If doubts persist, we recommend monitoring the wall regularly for signs of distress over the next few years. If distress such as cracking or leaning occurs, we recommend re-evaluating the wall at that time.

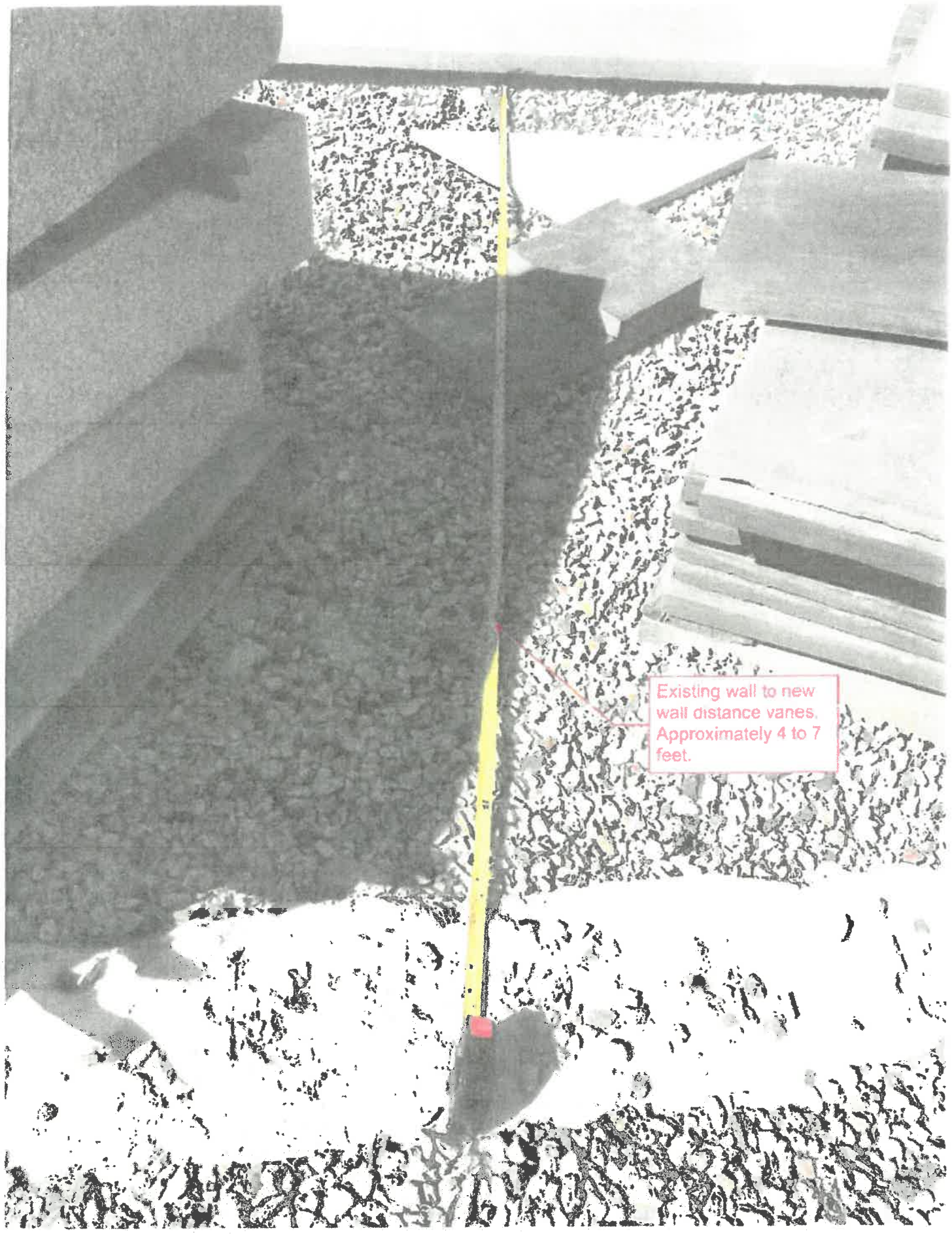
We hope this letter addresses your needs at this time. Should you have any questions regarding this letter, or need help with any other matter, please contact us at your earliest convenience.

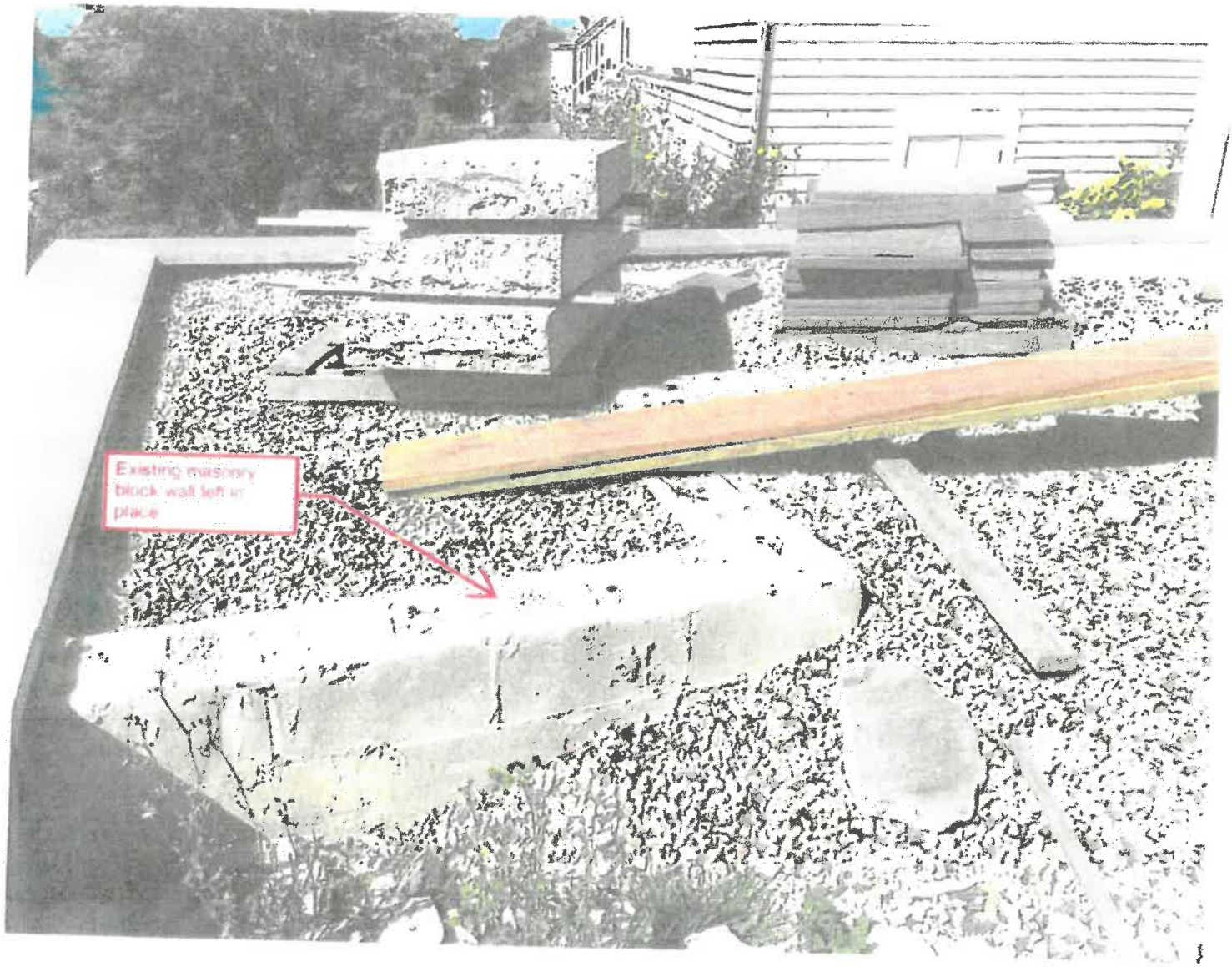
Sincerely,

Lincoln/Haney Engineering Associates, Inc.

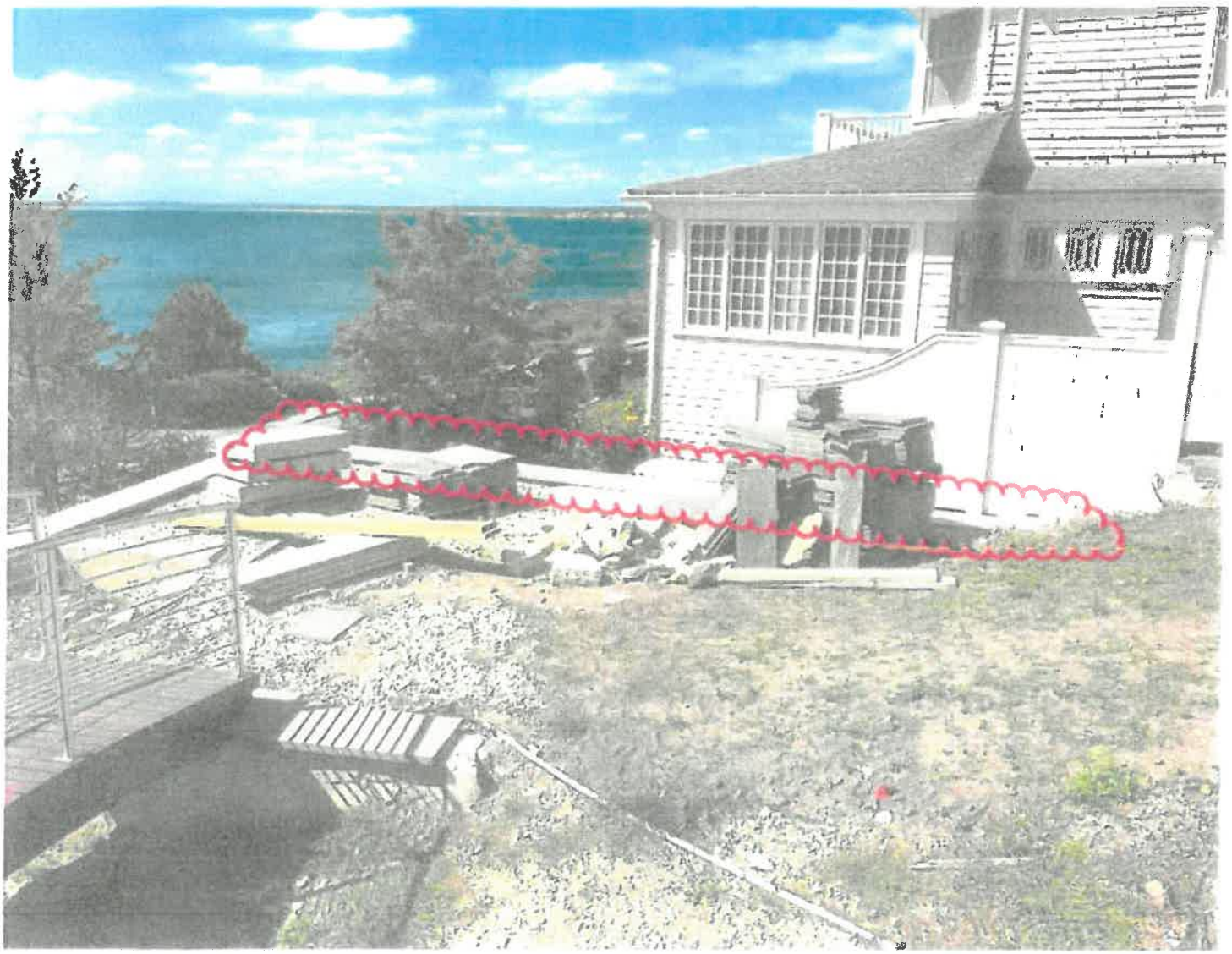
Thad Gabryszewski, P.E., SE
Senior Structural Engineer

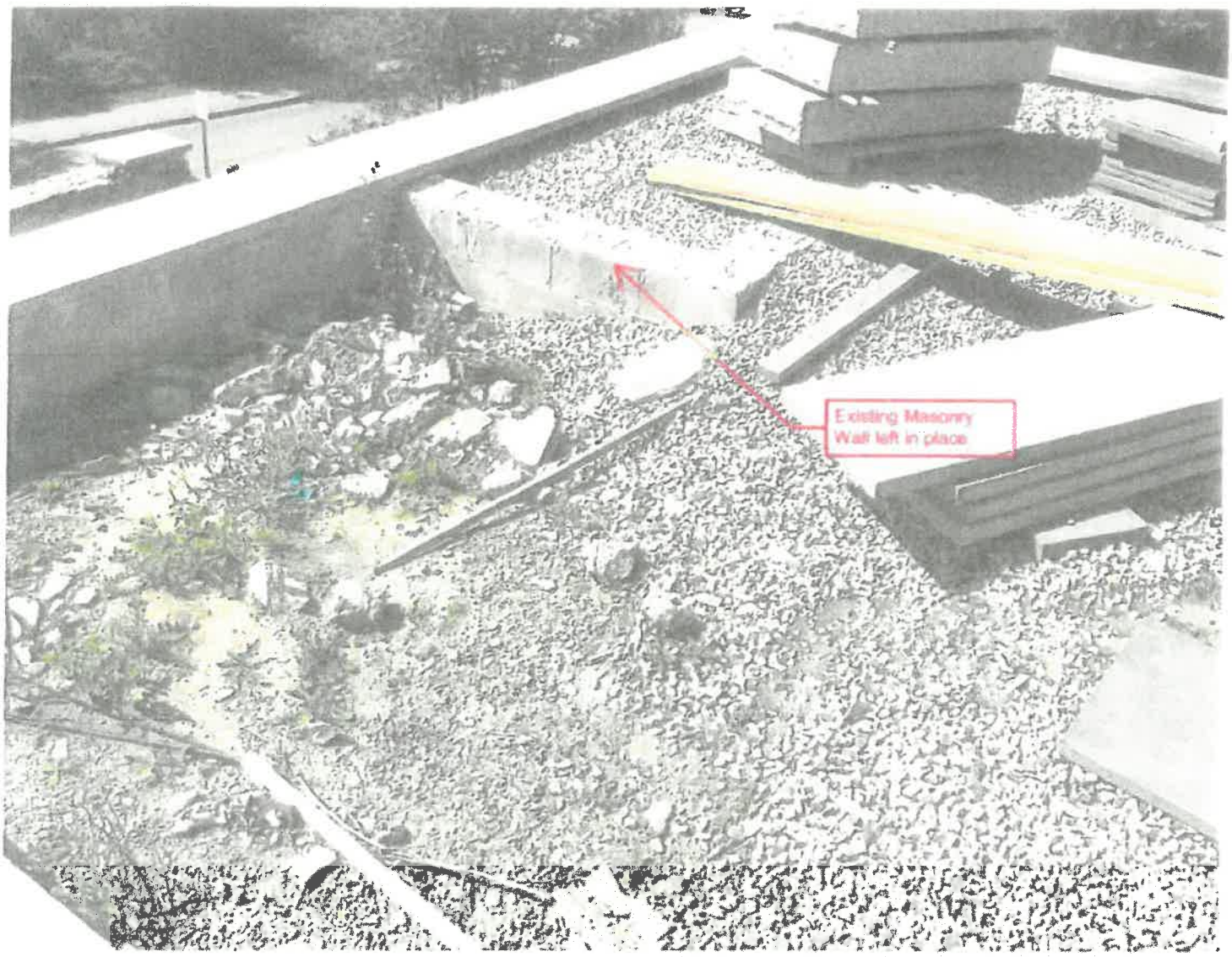
14 Maine Street, Suite 306A, Brunswick, Maine 04011
(207) 729-1061 Fax (207) 729-2941

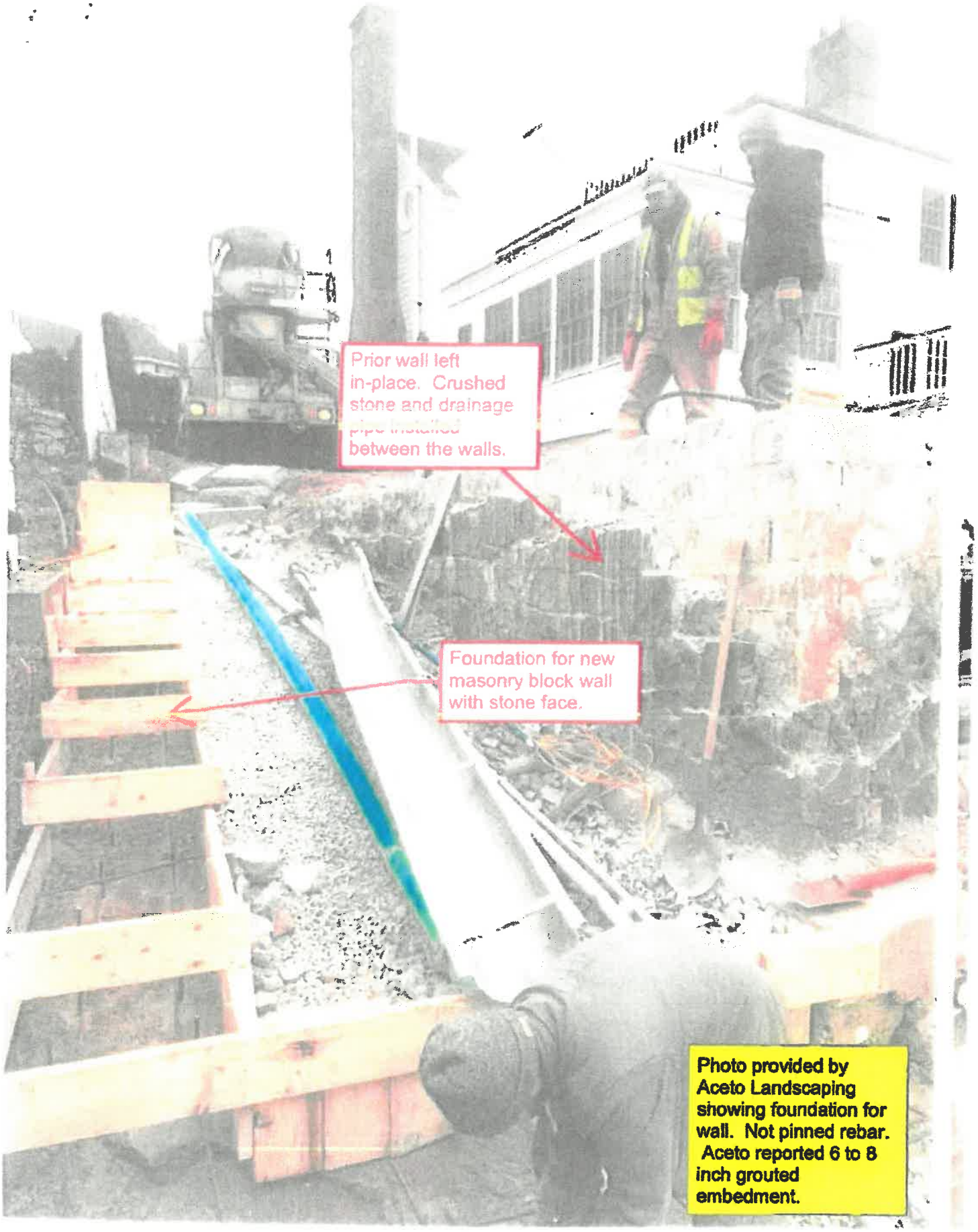

Existing wall to new wall distance vanes. Approximately 4 to 7 feet.


Existing masonry block wall left in place


Stepped concrete
footing along wall




Existing Masonry
Wall left in place


Prior wall left in-place. Crushed stone and drainage pipe installed between the walls.
Foundation for new masonry block wall with stone face.
Photo provided by Aceto Landscaping showing foundation for wall. Not pinned rebar. Aceto reported 6 to 8 inch grouted embedment.

From:
To:
Subject: Fwd: Design review meeting
Date: Tuesday, January 22, 2019 8:45:38 AM

Josh

PLA, MAINE #4107

JOSHUA TOMPKINS LANDSCAPE ARCHITECTURE LLC
36 MARINA ROAD
YARMOUTH, MAINE 04096 U.S.A.

207 865 4374

IT@JOSHUA-TOMPKINS.COM

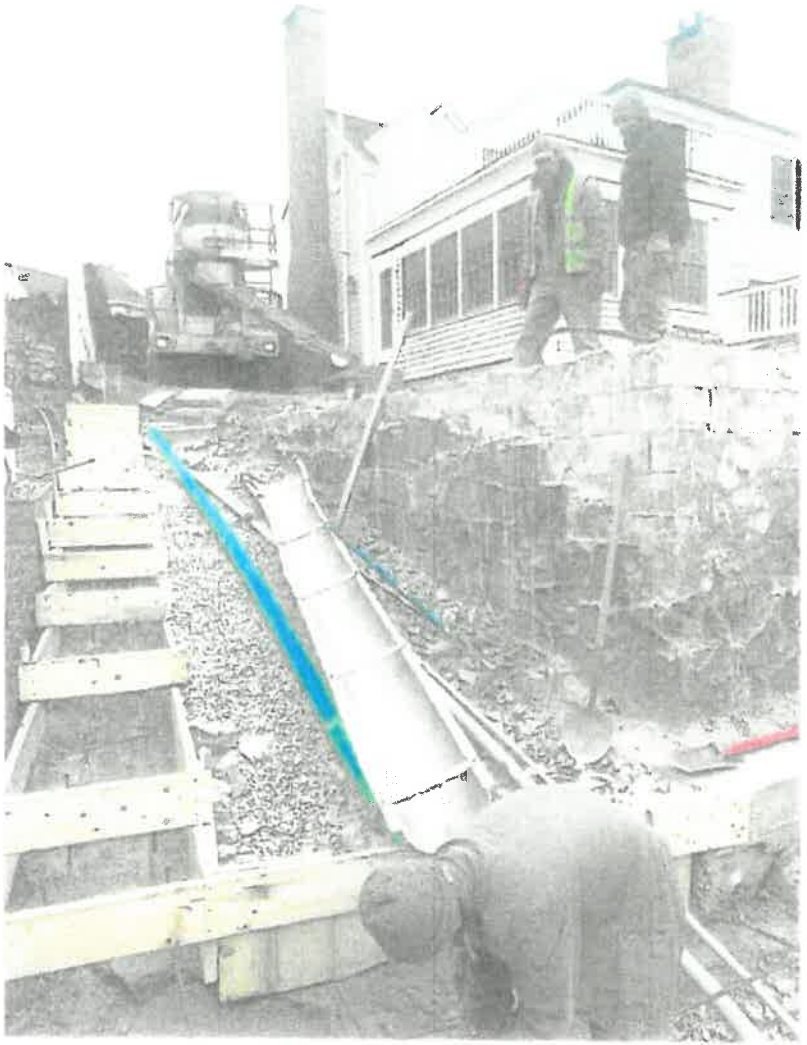
Begin forwarded message:

From: Josh Tompkins < **>**
Subject: Design review meeting
Date: January 18, 2019 at 2:26:25 PM EST
To: Lori Bell < **>**

Lori,

What is your availability on the 24th or 25th for a Design Review virtual meeting?

See construction progress photos below:



Best,

Josh

PLA, MAINE 94102

JOSHUA TOMPKINS LANDSCAPE ARCHITECTURE LLC
35 MARINA ROAD
YARMOUTH, MAINE 04096 U S A

207 805 4274

JT@JOSHUA-TOMPKINS.COM

ALAN R. ATKINS & ASSOCIATES LLC

Alan R. Atkins, Esq.
aratkins@aratkinslaw.com

Fulton S. Rice, Esq.
fsrice@aratkinslaw.com

December 18, 2019

Via FedEx
Werner Gilliam
Director of Planning and Development & Code Enforcement Officer
6 Elm St.
P.O. Box 566
Kennebunkport, ME 04046

Re: 200 Ocean Avenue

Werner,

I am writing to express our concerns about your December 3, 2019 e-mail to Lori Bell (copy enclosed for reference). Your e-mail removes the suspension which the Town imposed on Ms. Bell's building permit (#18-418) and land use permit (#18-419) by letter dated July 17, 2019, although your e-mail does not comply with the requirement for findings as required by the Kennebunkport land use ordinance ("Ordinance") section 11.5(C) for lifting a suspension. Perhaps you can account for the omission of those findings when you deal with our request for reconsideration below.

A lawsuit has been brought by Mr. Slager against Ms. Bell and Mr. Scannell challenging Ms. Bell's construction of a raised patio and retaining walls covered by the above-referenced permits. To support the allegations of his complaint, Mr. Slager has engaged a licensed structural engineer, David Price, President of Price Structural Engineering, Inc., to examine the construction in question. Based on his inspection and initial testing, Mr. Price issued a report dated December 17, 2019 ("Price Report"), a copy of which is enclosed for your review.

The Price Report concludes that Ms. Bell's construction does not match plans submitted to your office as part of her permit application, and that Ms. Bell's construction does not comply with applicable codes, making the construction of the retaining walls and patio structure unsafe. Of further concern, the Price Report concludes that the rubble stone retaining walls constructed along Ocean Avenue are highly unstable at the present time, representing a danger to passing traffic in the event of collapse. The Price Report also raises serious questions about the accuracy of statements made by Ms. Bell, her agents and contractors to your office.

Under the Ordinance, the Code Enforcement Officer has the authority to conduct on-site inspections to ensure compliance with applicable laws and the Maine Uniform Building and Energy Code. Ordinance §11.1(D), 11.9(C), 6.18. In consideration of the findings of the Price Report, the Ordinance requires you as CEO to initiate or facilitate an inspection of Ms. Bell's construction by an expert in order to ensure public safety. Such an inspection would be best conducted before the ground freezes.

Based on the foregoing, I am asking that you reconsider your decision to remove the suspension of Ms. Bell's permits, and that you reinstate the suspension with new conditions or orders reflecting the concerns set forth in the Price Report. Given these concerns, prudence and caution dictate the Town reinstate the suspension of Ms. Bell's permits pending further investigation. If you agree that our concerns and the Price Report warrant further investigation by the Town, we would be willing to arrange a meeting with you and Mr. Price and/or for Mr. Price to accompany you on a physical inspection of the Bell property.

We did not receive a copy of your December 3, 2019 e-mail to Ms. Bell from you. We only obtained it fortuitously by visiting your office in person to examine the Town's file on this matter. Under the Town's Ordinance, Mr. Slager is subject to deadlines in which to take action with regard to any order, requirement, decision, or determination made by, or the failure to act by, your office. So as not to prejudice and thereby deny Mr. Slager his rights of appeal, I request that you copy me on e-mail exchanges and on any future correspondence between the Town and Ms. Bell and/or her agents.

Thank you for your careful consideration of this matter. Please do not hesitate to contact me if you have any questions. I look forward to hearing from you.

Very Truly Yours,

Alan Atkins

Enclosures

CC: Randy Slager (via e-mail, w/o enc.)
Amy Tchao, Esq. (w/o enc.)
Tim Murphy, Esq. (w/o enc.)

Lisa Harmon

From:	Werner Gilliam
Sent:	Tuesday, December 03, 2019 12:08 PM
To:	Lori Bell
Cc:	Lisa Harmon; Andrew Welch; Greg Reid
Subject:	200 Ocean Avenue

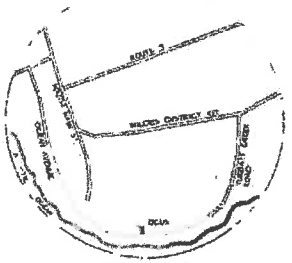
Lori,

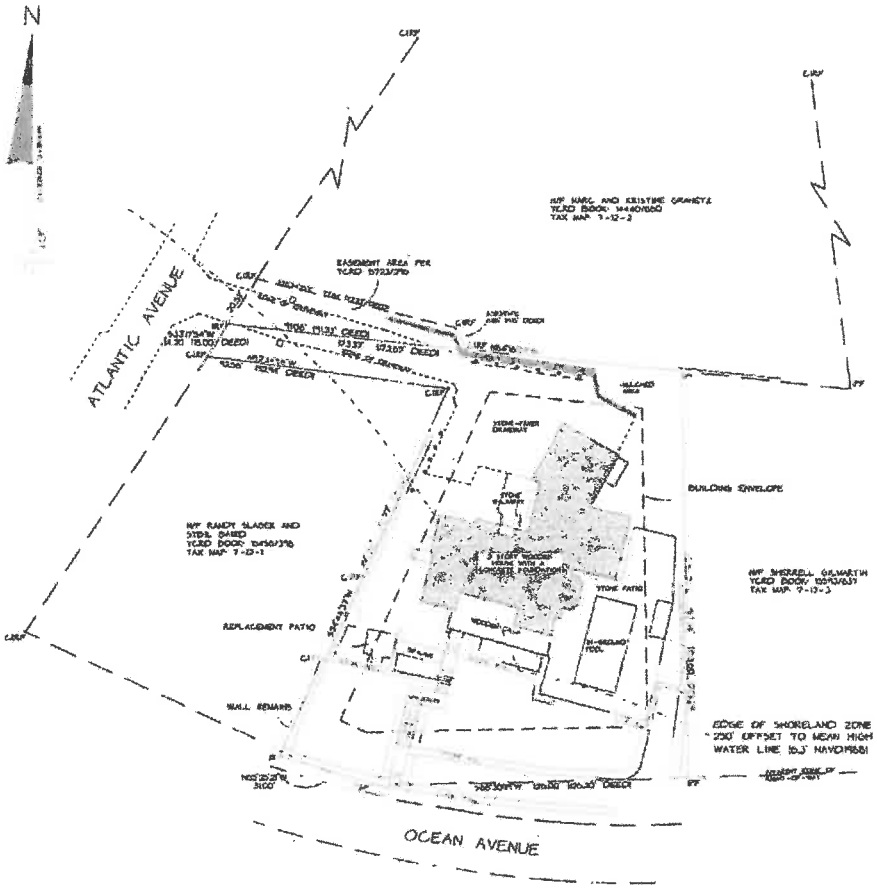
Thanks for the updated survey you recently provided me with a revision date of 11/05/19. I have no issues with you continuing your project based on the revisions contained in this plan. Please provide me with a full size print for our records.

Werner

Werner Gilliam, CFM
Director of Planning and Development
Town of Kennebunkport
(207)967-1604
wgilliam@kennebunkportme.gov

LOCATION SKETCH





CURRENT COVERAGE CHARTS

OUTSIDE SHORELAND ZONE		INSIDE SHORELAND ZONE	
HOUSE	2,793 SQ.FT.	HOUSE	459 SQ.FT.
POOL	532 SQ.FT.	DECK	240 SQ.FT.
DECK	184 SQ.FT.	PATIOS	281 SQ.FT.
PATIO	153 SQ.FT.	WALLS	1018 SQ.FT.
STAIRS	5027 SQ.FT.	STAIRS	216 SQ.FT.
BRIDGE	84 SQ.FT.	BRIDGE	84 SQ.FT.
LOT	8531 SQ.FT.	WALKWAYS	87 SQ.FT.
COVERAGE	43.52	MISC.	43 SQ.FT.
		WATERFALL	0 SQ.FT.
		FLAG STONES	0 SQ.FT.
		DRIVEWAY	37 SQ.FT.
		WALL REMAINS	70 SQ.FT.
		FIRE PIT/PATIO	115 SQ.FT.
		TOTAL	2715 SQ.FT.
		LOT	6,924 SQ.FT.
		COVERAGE	30.42

PRE-EXISTING COVERAGE CHARTS

OUTSIDE SHORELAND ZONE		INSIDE SHORELAND ZONE	
HOUSE	2,793 SQ.FT.	HOUSE	459 SQ.FT.
POOL	532 SQ.FT.	DECK	436 SQ.FT.
DECK	705 SQ.FT.	PATIOS	391 SQ.FT.
PATIO	642 SQ.FT.	WALLS	809 SQ.FT.
TOTAL	5,072 SQ.FT.	STAIRS	158 SQ.FT.
LOT	8531 SQ.FT.	BRIDGE	84 SQ.FT.
COVERAGE	44.01	WALKWAYS	171 SQ.FT.
		MISC.	73 SQ.FT.
		WATERFALL	223 SQ.FT.
		FLAG STONES	69 SQ.FT.
		DRIVEWAY	37 SQ.FT.
		WALL REMAINS	70 SQ.FT.
		TOTAL	2,775 SQ.FT.
		LOT	6,924 SQ.FT.
		COVERAGE	30.52

REVISION NO.	DATE	REVISION PURPOSE
1	4/19/2018	AMEND COVERAGE CHART / CALCULATIONS
2	8/2/2019	SHOW CURRENT COVERAGE, CONSTRUCTION IN PROGRESS
3	8/19/2019	REVISE PRE-EXISTING PER GEO DETERMINATION REVISE CURRENT COVERAGE
4	10/30/2019	ADD FIRE PIT/PATIO COMBO
5	11/04/2019	MOVE FIRE PIT/PATIO COMBO
6	11/05/2019	REVISE PATIO

LOCUS DEED REFERENCE

YORK COUNTY REGISTRY OF DEEDS (YCRD)
BOOK 17372 PAGE 739

PLAN REFERENCES

1. PLAN OF IMPROVEMENTS OF 190 OCEAN AVENUE, KENNEBUNKPORT, MAINE, FOR RECORD OWNER RANDY J. SLADER AND SYDIL K. BAIRD, PERFORMED BY SEDAGO TECHNICS, DATED 06-03-15, UNRECORDED.
2. STANDARD BOUNDARY SURVEY AND SITE PLAN, 190 OCEAN AVENUE, KENNEBUNKPORT, MAINE, OWNED BY DANIEL C. AND NANCY K. NELSON, PERFORMED BY LOWER VILLAGE SURVEY COMPANY, DATED OCTOBER 10, 2006, UNRECORDED.
3. BOUNDARY PLAN OF MARC D. AND KRISTINE K. GRANETZ, 5 ATLANTIC AVENUE, KENNEBUNKPORT, MAINE, PREPARED BY SEDAGO TECHNICS, DATED 2011, UNRECORDED.

NOTES

1. SPOT ELEVATIONS SHOWN REFLECT THE NAVD 1988 DATUM.
2. THE ELEVATION OF THE FIRST FINISHED FLOOR IS 45.1'
3. THE ELEVATION OF THE GARAGE SLAB IS 45.0'

LEGEND

N/F	- NOW OR FORMERLY
TM	- TAX MAP
IPF	- IRON PIPE FOUND
CIRS	- CAPPED IRON ROD SET
CIRF	- CAPPED IRON ROD FOUND
———	FENCING

BOUNDARY SURVEY OF LAND AT
200 OCEAN AVENUE
KENNEBUNKPORT, MAINE

PREPARED FOR
OWNER OF RECORD

LORI BELL

MAILING ADDRESS: 88 VAN RENSSELAER AVENUE
PROVIDENCE, CONNECTICUT, 02903

BY
LIVINGSTON-HUGHES
PROFESSIONAL LAND SURVEYING CORPORATION
86 GUINEA ROAD, KENNEBUNKPORT, MAINE 04046

STATE OF MAINE
DAVID L. HUGHES
2001
LICENSED
PROFESSIONAL
LAND SURVEYOR

STRUCTURAL REVIEW

of

EXISTING RETAINING WALLS

200 Ocean Avenue
Kennebunkport, Maine 04046

PSE Project No. 132-19
Pages: 1 – 47

Prepared for:
Randy Slager
Owner
196 Ocean Avenue
Kennebunkport, Maine 04046

Prepared by:
David A. Price, P.E.
President
Price Structural Engineers, Inc.
75 Farms Edge Road
North Yarmouth, ME 04097
Tel: (207) 846-0099

Site Visit #1: November 6, 2019
Site Visit #2: November 11, 2019

Date: December 17, 2019

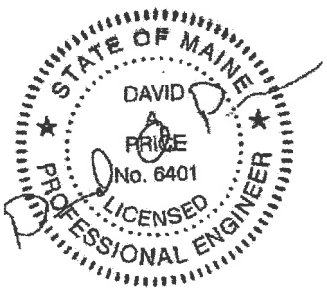


TABLE OF CONTENTS

SECTION	PAGE
A. Introduction	3
B. Reported Information	4
C. PSE site Visit Observations	8
D. Testing at Wall A-11	10
E. Features of "As-Built" Walls	13
F. Illustrations – Plan and Sections	20
G. Discussion	23
H. Engineering Analysis and Review	26
I. Conclusions	29
J. Scope of Structural Review & Limitations	31
K. Calculations	32

A. INTRODUCTION

On behalf of Randy Slager and at his request, David Price, a licensed engineer from Price Structural Engineers, Inc. ("PSE"), performed a visual review of specific exterior construction materials recently installed at the residential property located at 200 Ocean Avenue in Kennebunkport. Mr. Slager's residence (196 Ocean Avenue) is located on the west side of the 200 Ocean Avenue lot and the two properties share a common property line.

Mr. Slager expressed concern regarding what he felt was poor quality construction taking place at his neighbor's property and whether construction deficiencies could eventually cause severe problems at a future time. Specifically, he expressed the following,

1. His primary concern pertained to the new elevated patio expansion structure which is located within inches of his property line and is 7' above the existing ground at some locations, A wall at the west end of the structure is constructed of concrete masonry units ("CMU") and is referred to as the "A-11" wall on the 10/29/19 Joshua Tompkins Site Plan design documents issued for this project.
2. His other concern pertained to the structural integrity of the two rubble stone walls located close to Ocean Avenue, which serves as the main access road for this area. These walls are currently referred to as the "A-1" and "A-2" walls on the 10/29/19 Joshua Tompkins Site Plan issued for this project.

During the review, two site visits were performed by PSE as further described below.

Site Visit #1:
Individuals present during the 11/6/19 site visit included Fulton Rice, Esq. (Alan Atkins Associates), Randy Slager (home owner) and David Price, P.E. (PSE). The purpose of the initial site visit was to:

1. Discuss Randy Slager's concerns.
2. Observe the elevated patio expansion structure at 200 Ocean Avenue from a position located inside the 196 Ocean Avenue lot lines.
3. Observe the rubble stone walls near the road at 200 Ocean Avenue from Ocean Avenue or from inside the 196 Ocean Avenue lot lines.

Site Visit #2:
Individuals present during the 11/11/19 site visit included Randy Slager (home owner) and David Price, P.E. The purpose of the second site visit was to:

1. Perform a ledge depth probe test near the CMU retaining wall adjacent to the common property line between 200 and 196 Ocean Avenue.
2. Obtain top of wall photos and an approximate height measurement at the southwest rubble stone wall (wall A-2) near the road at 200 Ocean Avenue.

The opinions expressed within this report are based on the following:

1. Project documents available at the Kennebunkport town office including but not limited to copies of emails, engineering reports, letters, and photographs.
2. Discussions with Mr. Slager.
3. Site visits performed by PSE on 11/6/19 and 11/11/19. Because the structural components to be reviewed were not on Mr. Slager's property, direct measurements of these components by PSE were not possible. Instead, approximate measurements were obtained from approved positions previously described.

The owner of the 200 Ocean Avenue lot was reported to be Ms. Lori Bell. It is PSE's understanding that Ms. Bell either directly or indirectly retained the services of the following design professionals during the course of her construction project:

1. Joshua Tompkins Landscape Architecture LLC ("JTLA") – stone design drawings.
2. Structural Integrity Consulting Engineers, Inc. ("SICEI") – stone wall engineering.
3. M² Structural Engineering, P.C. ("M²SE") – stone wall engineering.
4. Lincoln/Haney Engineering Associates, Inc. ("L/HEA") – CMU wall review.

For purposes of this report, referenced items (north, south, east and west) are based on the assumption that the front of both residences (side facing Ocean Avenue) faces **south.**

B. REPORTED INFORMATION

1. Informal Interview with Randy Slager

   David Price conducted an informal interview with the homeowner at 196 Ocean Avenue, Randy Slager, regarding background information pertaining to the structures and the observed distress. The reported information is the homeowner's account and not necessarily PSE's opinions or observations.

   Mr. Slager reported the following:

   a. He received an email from Lori (his next door neighbor) that said she was going to replace the current fence with a new one and do landscaping and repairs. The email she sent in December 2018 said she would be "putting up new perimeter fencing for the entire property" and that, "it will be very similar to what was up before."
   b. The email said nothing about building a 7-foot high masonry wall immediately adjacent to his property line.
   c. He relied on that email and trusted her which was why he did not notify the town earlier about the construction when it started.
   d. His situation is that he spends the winter at his Florida residence, normally from middle of October to middle of May.
   e. Lori purposely waited until after he left for the winter to give him notice about her changes in construction at the property line.
   f. He had hoped to visit in December 2018 but had major rotor cuff (shoulder) surgery in late November.
   g. During mid-winter (2018-2019) his alarm company called to report the house was losing heat so he took the late night flight back to his Maine residence. The plumber was able to get the furnace running again but said it needed replacing.
   h. He observed the footing on the property line (for the wall) adjacent to his house and the footing was definitely not bearing on ledge. It was bearing on other materials, similar to dirt or gravel.
   i. He does not have a mailbox at the house.
   j. In April, he came to Maine for five days to have the furnace and generator replaced. During that week, he found an unaddressed envelope on the ground with a "dear neighbor" letter inside. It had been exposed to the winter weather
   k. That particular winter was especially difficult for him because he was recovering from shoulder surgery.
   l. He could not respond to correspondence due to his medical problems. Also in the spring, a family member was diagnosed with cancer and had limited time to live.
   m. He came back to Maine to replace the furnace. During that time he noticed no steel rebar in the patio construction materials and observed the wall was not reinforced; he felt he should have seen evidence of it.

n. He did not see any continuous "bond beams" (term used by Mr. Slager) being installed at the masonry wall.
o. He returned to Maine after the memorial services June 8th.
p. He was also concerned about what he felt was poor construction at the rock walls close to Ocean Avenue. He heard that one of the workmen who assisted in the assembly of those walls said the walls were poorly constructed and were not as good as most of the other walls he had experience with.
q. He is also annoyed by the new white fences Ms. Bell had constructed on the property line. The white fence is flimsy and poorly connected. It is especially annoying during windstorms because the fence crosses his property line as it flops back and forth.
r. Photos provided by Mr. Slager:

CMU wall: southwest corner drain outlet

Dislodged fasteners at white fence post

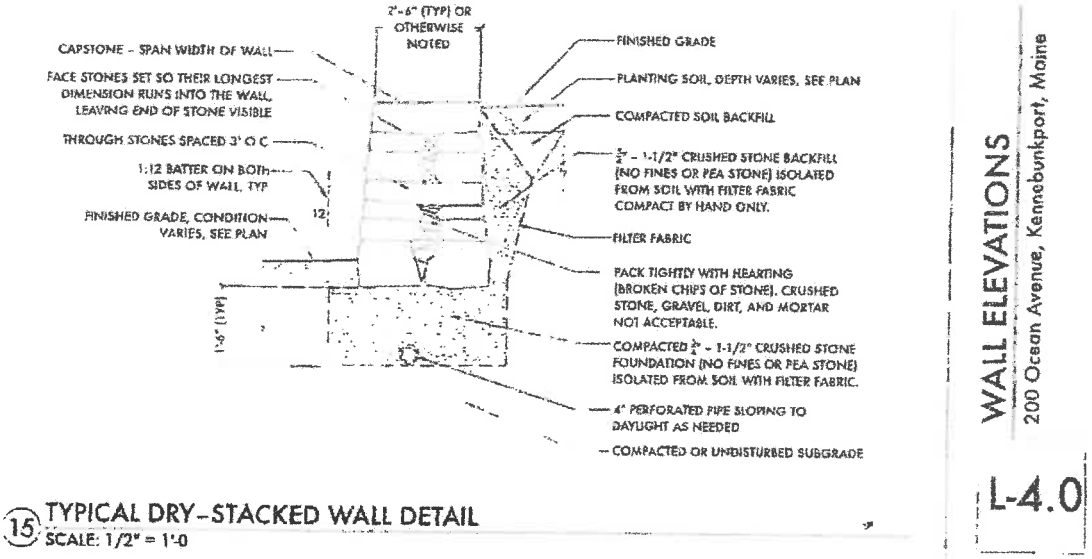
2. Selected Excerpts from JTLA – "Permit Drawings" (specified construction documents)

New exterior walls were specified to be constructed in accordance with the "Typical Dry-Stacked Wall Detail" at Detail number 15 on Drawing L-4.0 (below).
PSE Note: Underlines added by PSE for emphasis.

Items specified by JTLA on this detail included:

- "Capstone – Span width of wall", typical full length of wall
- "Face stones set so their longest dimension runs into the wall, leaving end of stone visible"
- "Through stones* spaced at 3'0" on center"
- "1:12 batter on both sides of wall, typ.", slope at each side for added stability
- "¾" – 1 ½" crushed stone backfill (no fines or pea stone)"
- "¾" – 1 ½" crushed stone foundation (no fines or pea stone)"

* "Through stones", as depicted on Detail 15 / L-4.0, are stones extending the full width of the wall with each end of the stone extending to the outside face of the wall. "Through stones" are the same as "capstones" except that the through-stones are located at the mid-height of the wall instead of at the top.



3. Selected Excerpts from SICEI letter - Structural Review of new Dry-Laid Stone Retaining Walls along Ocean Ave.at the Bell Residence (dated 4/3/19)
PSE Note: Underlines added by PSE for emphasis.

Items stated by SICEI in this letter included:

a. "... our calculation set was based on typical detail 15 on sheet L-4.0."
b. "It appears evident that the current construction to the walls does not match the intent of the typical detail for their construction."
   - "Most stones set with their shortest dimension set into the wall"
   - "No full capstones installed at this time"
   - "Batter not seen on front of wall, most of back wall appeared to have variable geometry"
   - "Small 3/8" to 3/4" stone used"
   - "Sub-grade not visible"

4. Selected Excerpts from M²SE
   a. On 4/22/19, M²SE performed an analysis of the rubble stone walls adjacent to Ocean Avenue. The analysis was for stone walls limited to a maximum height of 5'-0" tall. The width was specified as 2'-4".
   b. On 7/10/19, M²SE was requested to perform a site visit and review these walls after they were constructed. The following is a selected statement from that review letter:
      - "Measurements for the width at the top of the wall and retained height of the walls were taken and were consistent with the structural design provided by our office."

c. Selected Excerpts from L/HEA - Structural Assessment of Retaining Wall (dated 9/24/19)

PSE Note: When performing an initial structural analysis of an assembly that has already been constructed, the engineer may have no option other than to rely on construction information provided by the contractor (Aceto) for items that cannot be seen since typically an invasive investigation is not permitted.
Underlines added by PSE for emphasis.

Items stated by L/HEA in this letter included:

   a. "The completed wall has retained soil for over 7 months"
   b. "The footing is pinned to ledge using two rows of reinforcing dowels"
   c. A photo caption states that the pin is "rebar" and that, "Aceto reported 6 to 8 inch grouted embedment."
   d. "We understand that each CMU cell is reinforced and grouted solid"
   e. "The foundation bears on ledge and so is adequately protected against frost heave."
   f. "...the wall has adequate capacity to retain seven feet of crushed stone assuming:
      - 60 psf active soil pressure (consistent with crushed stone backfill);
      - #4 bars centered in each cell;
      - The wall reinforcing bars and ledge pins are adequately developed into the retaining wall footing"
   g. "Documentation of reinforcement is not complete."

C. PSE SITE VISIT OBSERVATIONS

In addition to observations indicated below, please refer to section "L" (near the end of this report) for additional photos.
During the site visit, PSE made the following observations at the building exterior:

1. Observations at CMU Wall A-11 (located at west side of elevated patio expansion structure):
   a. Wall A-11 extended in the north / south direction.
   b. All observations were taken from a position that was west of the property line between the 200 and 196 Ocean Avenue lots and therefore any measurements of the wall should be considered as approximate.
   c. The embedded CMU wall could not be viewed directly because it was covered by a mortared stone veneer on the west face and by a capstone on top.
   d. Continuous fractures in the stone veneer were not observed.
   e. Access was not permitted to perform a wall plumbness survey.
   f. Since the CMU was covered by the stone veneer, a review of the current condition of the embedded CMU wall could not be performed.
   g. The maximum height of the wall was at the southwest corner of wall A-11 and appeared to be approximately 7'-0".
   h. The top of footing supporting wall A-11 could be seen at multiple areas.
   i. The grade was sloped and so a series of footing steps was observed.
   j. The distance from the southwest corner of the A-11 wall footing to the first footing step located to the north was estimated to be 5'-7".
   k. The distance from the southwest corner of the A-11 wall footing to the second footing step located to the north was estimated to be 7'-2".
   l. The approximate distance between the edge of footing and the exposed face of the veneer stone varied but appeared to be between 3" to 4".
   m. The estimated dimensions of the wall cap stone appeared to be approximately 18" wide and 2" thick.
   n. There was a separation space between the bottom of the cap stone and the top of the veneer at multiple areas. It was possible to see daylight through the wall underneath the capstone at multiple areas.
   o. It appeared that the capstone was not placed on a continuous bed of mortar that extended across the top of the CMU and veneer stone. Instead, it appeared that the capstone was placed on top of the wall with no mortar underneath and only a small amount of mortar was applied to the outside edges of the capstone at some areas.

2. Observations at Rubble Stone Walls A-1 and A-2 (located adjacent to Ocean Avenue)
   a. Walls A-1 (located to the east) and A-2 (located to the west) extended primarily in the east / west direction.
   b. Observations were taken from a position that was either at the edge of pavement on Ocean Avenue or west of the property line extending north/south between the 200 and 196 Ocean Avenue lots.
   c. The south face of wall A-2 appeared to be approximately 4 feet from the paved edge of Ocean Avenue.
   d. There appeared to be a slight slope downward from the edge of road to the face of wall A-2.
   e. In general, wall A-2 appeared to be taller than wall A-1 at most areas. For this reason, most of PSE's attention was devoted to A-2 rather than A-1.

f. Wall A-2 measured approximately 5'-6" high when standing on edge of pavement.
g. Wall A-2 was a retaining wall since it resists lateral earth pressure on the north side. The backfill on the north side was sloped downward toward the wall.
h. The height of the backfill being retained by A-2 varied considerably. At some areas it appeared to be within approximately 6" of the top of the wall whereas at other areas, in particular at the west end, it appeared to be below the top of wall by more than a foot.
i. 200 Ocean Avenue was located near the end of a blind curve (see Google Earth photo page 19).
j. Ocean Avenue appeared to be a busy road. A nearly constant flow of traffic was observed during both site visits.

D. TESTING AT WALL A-11

1. Background

   The 9/24/19 L/HEA letter stated that the CMU wall footing was connected to ledge with rebar pins. It further stated that one of the requirements for the CMU wall to have "adequate capacity to retain seven feet of crushed stone" is that the "ledge pins are properly developed."

   The above statement is referring to the concept of "development length." It is the code requirement that the reinforcement bar ("rebar") must have sufficient depth inside an acceptable substrate material (typically concrete or sound ledge) so that it can develop the necessary force capacity (tension and shear) without pulling out of the hole or experiencing another failure mode. ACI 318-14 defines "development length" as follows, "Length of embedded reinforcement required to develop the design strength of reinforcement at a critical section."

   During a discussion with Mr. Slager, he stated the footing below the new masonry wall on the property line adjacent to his house is not bearing on ledge. If this is correct, then the "pins" may have little or no tensile capacity and the stability of the CMU retaining wall may be in jeopardy.

   Because the existing CMU wall footing is exposed above grade at several places and is approximately 16" +/- from the property line, it is reasonable to assume that if there is ledge near the surface on the east side of the property line (200 Ocean Avenue), that ledge would also be close to the surface at the west side of the property line (196 Ocean Avenue).

2. Methodology & Results

   a. Two steel "probes" were obtained by using a new ½" diameter x 8' long steel grounding rod (pointed at each end) and cutting it at 34" from one end.

   b. A string-line with fluorescent flagging was installed to clearly mark the property line.

   c. See attached SK-1 for plan view indicating locations of probes #1 and #2 and SK-2 for PSE's estimation of the existing CMU wall section.

   d. Probe #1 - Test Date 11/11/19
      - Position: Due west from the southwest corner of the CMU wall footing
      - Distance between southwest corner and property line = 16"+/-
      - Distance between southwest corner and Probe #1 = 17"+/-
      - Total length of Probe #1 = 34"
      - Method of installing probe: 16" long small sledge hammer (4 lb head)
      - Height of probe above ground after embedment = 5"
      - Length of probe below ground = 29"
      - Estimated length of probe below bottom of footing = 27"
      - Estimated location of top of footing: 5" minimum above grade
      - Estimated bottom of footing assuming 2x8 forms used: 2" below grade
      - Condition at end of probe below grade: ledge not found but increasing difficulty in going further, every time probe was hit with hammer it continued to go deeper
      - Reason for stopping probe embedment: Potential difficulty in removing probe from ground.

e. Probe #2 - Test Date 11/11/19

- Position: Due west from a point located 5 feet north of the southwest corner of the CMU wall footing
- Distance between southwest corner and property line = 15" +/-
- Distance between southwest corner and Probe #1 = 16" +/-
- Total length of Probe #2 = 62"
- Method of installing probe: 16" long small sledge hammer (4 lb head)
- Height of probe above ground after embedment = 29"
- Length of probe below ground = 33"
- Estimated length of probe below bottom of footing = 23"
- Estimated location of top of footing: +/- 3" below top of grade
- Estimated bottom of footing assuming 2x8 forms used: 10" below grade
- Condition at end of probe below grade: ledge not found but increasing difficulty in going further, every time probe was hit with hammer it continued to go deeper
- Reason for stopping probe embedment: Potential difficulty in removing probe from ground.

f. Summary Table

Probe #	Probe Length	Depth Below Ground	Estimate Depth Below Bottom of Footing	Location of Ledge
#1	34"	29"	27"	Not Found
#2	62"	33"	23"	Not Found

g. Photos during Testing

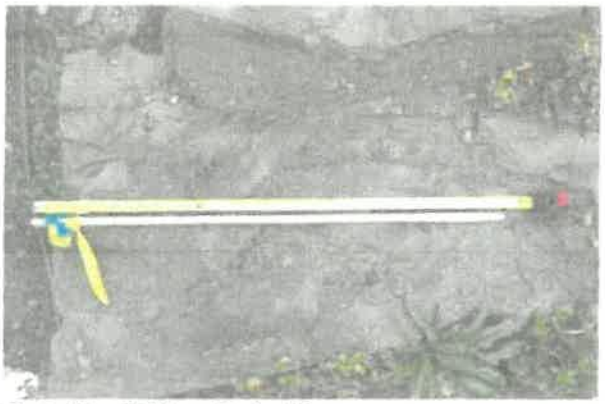


Photo #1 – 34" long Probe #1

Photo #2 – Probe #1 after embedment

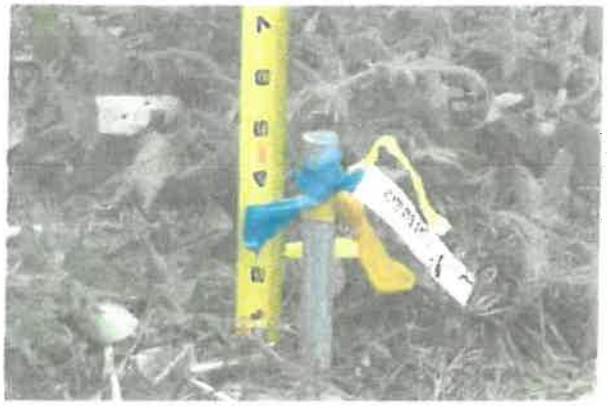


Photo #3 – Probe #1, ledge not found

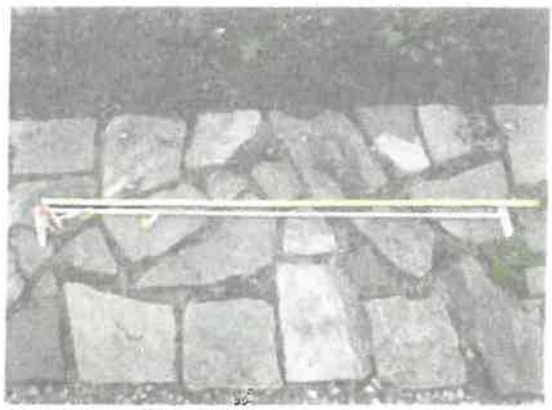


Photo #4 – 62" long Probe #2

Photo #4 – Probe #2, note pointed tip

Photo #6 – Probe #2 at 5' north of corner

Photo #7 – Probe #2 at 29" above grade

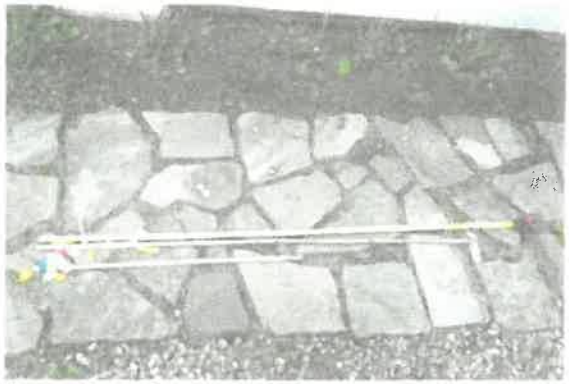


Photo #8 – Probes #1 & #2 after extraction

E. FEATURES OF "AS-BUILT" WALLS CURRENTLY IN PLACE

1. Wall A-11 – CMU wall supporting lateral earth pressure loads at west side of elevated patio expansion structure

   a. It is PSE's understanding that no design or sketch of the modified A-11 wall section using CMU was submitted to the town for review or approval. Not performing a design for wall A-11 in accordance with "accepted engineering practice" is a **violation of the IRC-15 building code** which states:

   "R404.1.1 Design Required – Concrete or masonry foundation walls shall be designed in accordance with accepted engineering practice where ... walls supporting more than 48 inches of unbalanced backfill do not have permanent lateral support at the top or bottom."

   b. Based on the information below, see the attached Detail SK-2 (page 21) for PSE's current understanding of how wall A-11 was constructed.
   Detail SK-2 is based on:
   - Information field measured by others
   - Information reported by others
   - Photos provided by others
   - Field testing by PSE
   - Estimated measurements by PSE (without crossing property line)
   - Observations by PSE
   - Photos by PSE (attached).

2. Walls A-1 and A-2 – Rubble stone walls adjacent to Ocean Avenue

   a. Based on the information below, see the attached Detail SK-3 (page 22) for PSE's current understanding of how wall A-11 was constructed.
   Detail SK-3 is based on:
   - Information field measured by others
   - Information reported by others
   - Photos provided by others
   - Field testing by PSE
   - Estimated measurements by PSE (without crossing property line)
   - Observations by PSE
   - Photos by PSE (attached).

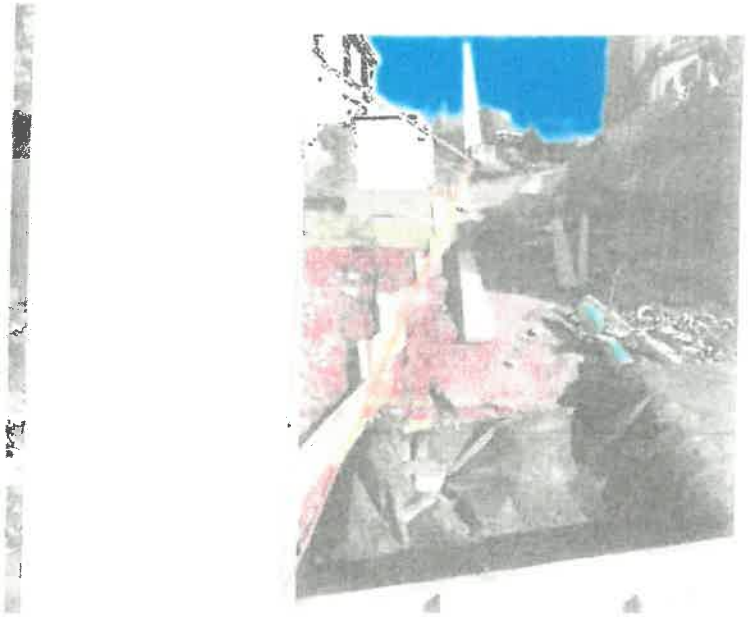
3. Photos of walls A-11

"View up property line where new wall will be installed. New drain pipe in green to connect to existing and daylight downhill. Gray sleeves for lighting and irrigation runs."

Photo #9 (by others) – Photo and caption above sent by email from Joshua Tomkins on 1/11/19 at Wall A-11. Crushed stone and formwork are clearly visible below bottom of forms. No ledge is observed or referenced in the caption. Soil compaction equipment is not observed in the photo.

"Forms in place for footing for block wall. Scheduled to be poured next week. The purpose of these walls is to gain valuable space above for the fire pit gathering area."

Photo #10 (by others) – Photo and caption above sent by email from Joshua Tomkins on 1/11/19 at Wall A-11. Crushed stone and formwork are clearly visible below bottom of forms. No ledge is observed or referenced in the caption. Soil compaction equipment is not observed in photo.



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Date: 1/15/19
Issued for: Lori Review

Photo #11 (by others) – View looking north. Photo and caption above from Joshua Tomkins on 1/15/19 at Wall A-11. Soil added up to bottom of forms. No ledge is observed or referenced in the caption. No soil compactors observed in photo. Plastic sheeting or filter fabric added. No ledge observed for securing steel pins into ledge under footing as reported. Note generator at upper left of photo.

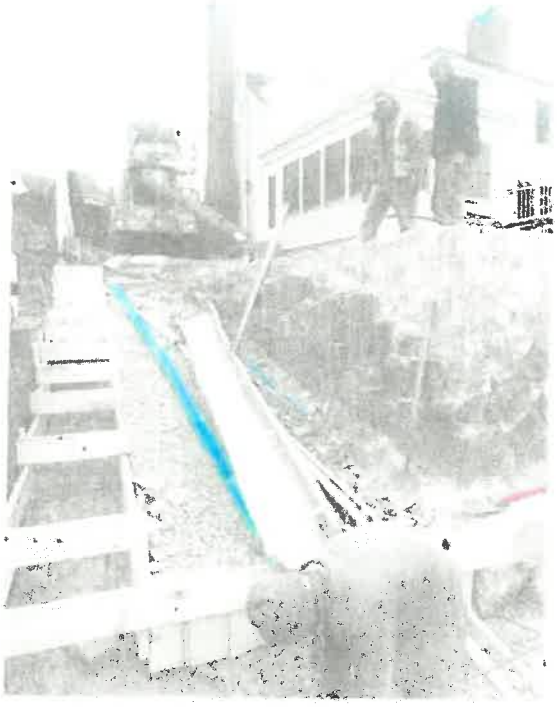


Photo #12 (by others) – Similar view as Photo #11 above, it is not clear what material the pins are embedded into. Based on Photos #9, #10, and #11, it appears doubtful that the material directly below the footing is ledge. Note location of blue underdrain is the same in both photos.

Photo #13 (by others) – Appears to be view looking south (generator on right, drain pipe on left) at stepped footing higher up the hill. Note CMU inside covered area beyond. An enlargement of this photo inside the cover is below (see Photo 14).

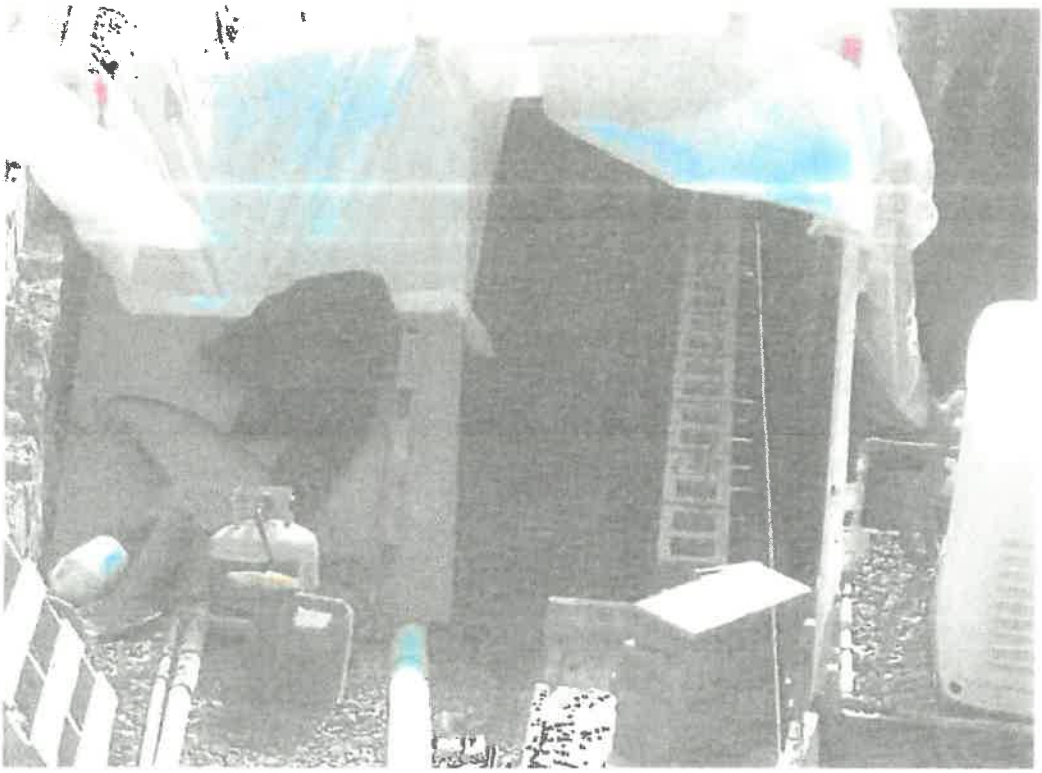


Photo #14 (by others) – View looking south. Concrete masonry block appears to have metal tie connectors at right side. Metal tie connectors are often used to connect stone veneer to CMU walls. Also note there appears to be vertical steel reinforcement inside the CMU vertical cells. Most of the bars are near the center of the core, but some are toward the west side of the cell (which reduces strength).

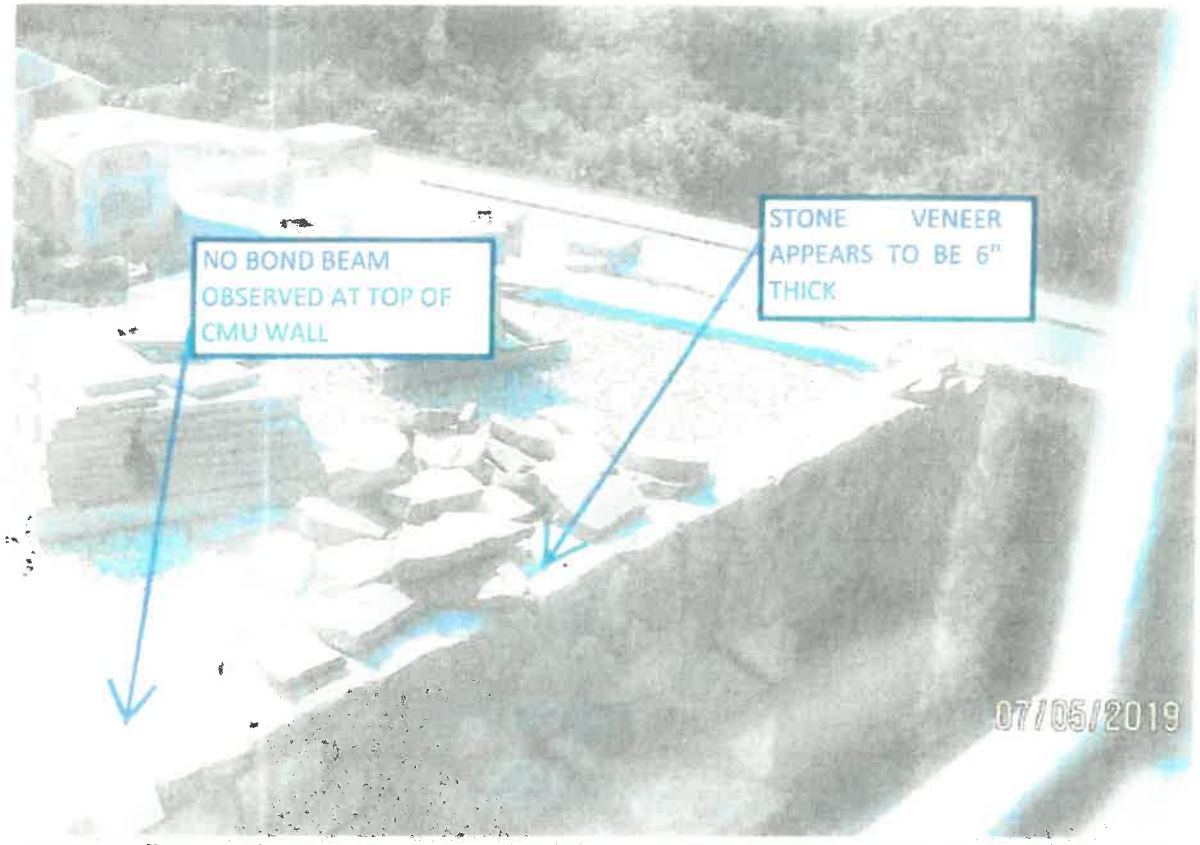


Photo #15 (by others) – Concrete masonry block does not appear to have a bond beam at the top and therefore likely has no horizontal reinforcement.

Photo #16 – Level cap at top of CMU wall

Photo #17 – CMU wall extends north of generator

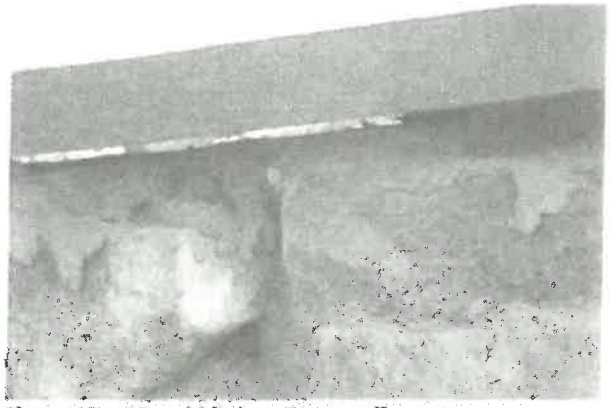


Photo 18 – Air void below CMU wall capstone

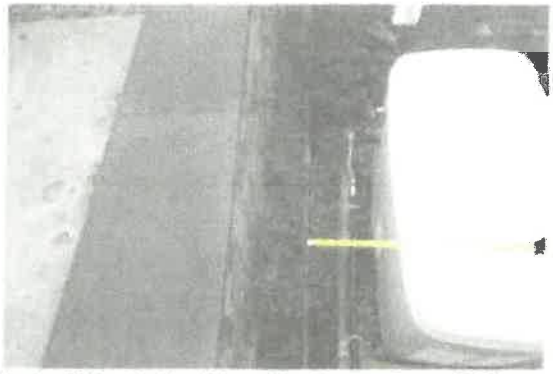


Photo #19 – Method to estimate capstone width

Photo **#20 – Fully exposed footing above final grade**

Photo #21 – Exposed footing near fence post

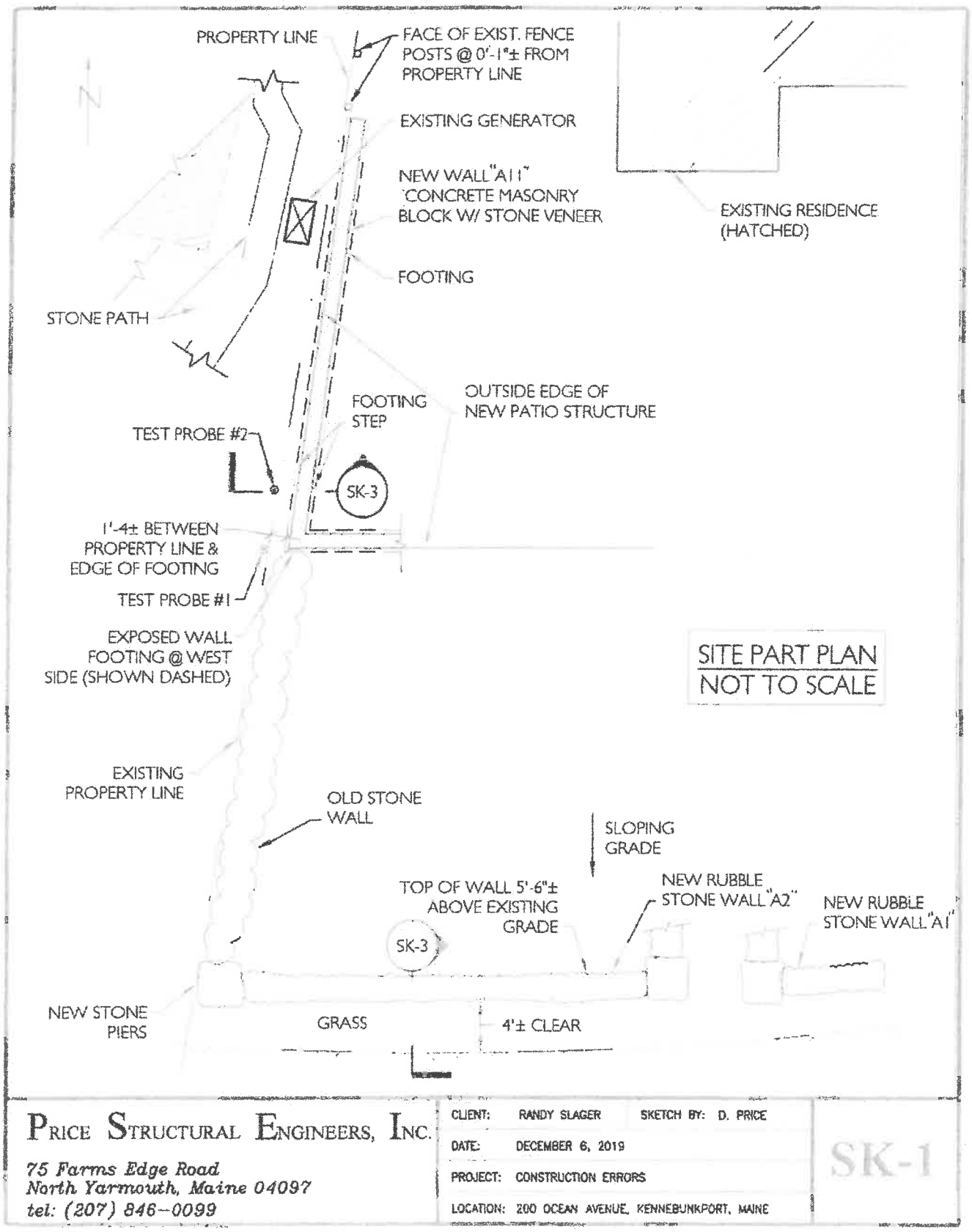
Photo #22 – Estimate wall A-2 distance form road

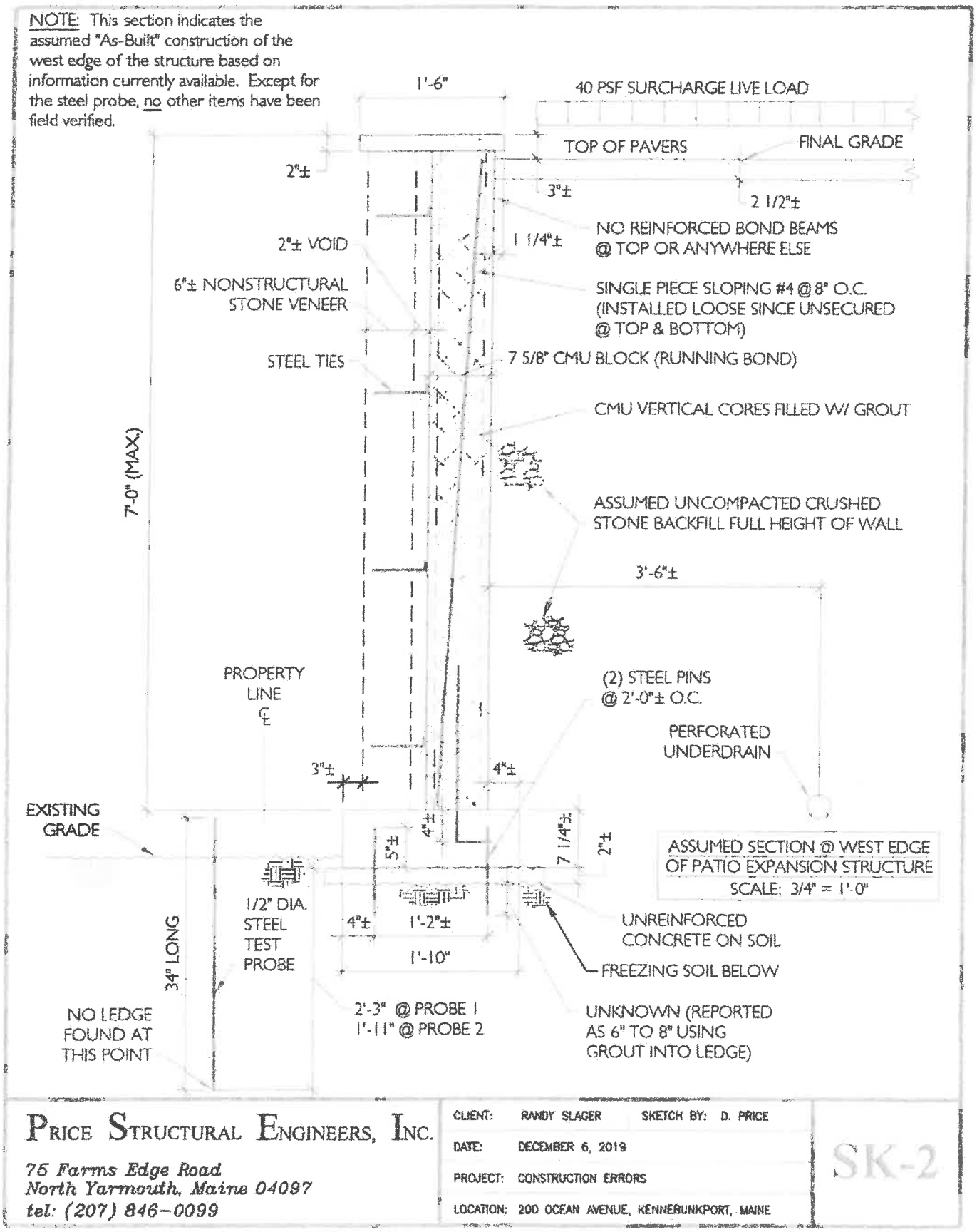
Photo #23 – Wall A-2 appears to be 5'-6" high

Photo #24 – Enlarged photo of A-2 rubble stone wall – No full width capstone "bonders" observed

Photo #25 – Blind curve in front of 200 Ocean Avenue (reference: Google Earth)

F. ILLUSTRATIONS - PLAN AND SECTIONS



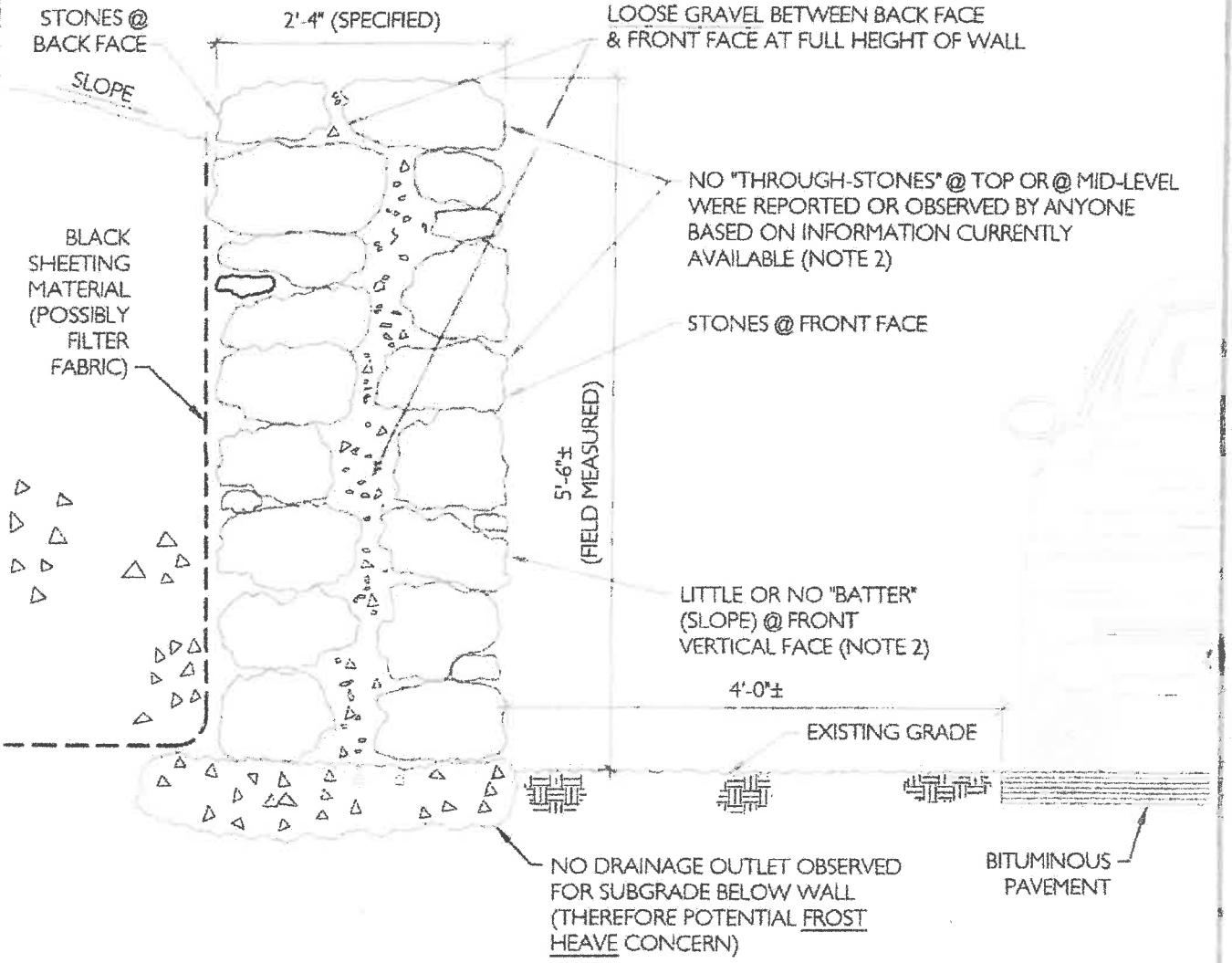


PRICE STRUCTURAL ENGINEERS, INC.
75 Farms Edge Road
North Yarmouth, Maine 04097
tel: (207) 846-0099

CLIENT: RANDY SLAGER SKETCH BY: D. PRICE
DATE: DECEMBER 6, 2019
PROJECT: CONSTRUCTION ERRORS
LOCATION: 200 OCEAN AVENUE, KENNEBUNKPORT, MAINE

SK-2

NOTES:
1. Based on the documents, field measurements, observations, reported information and photographs currently available, this sketch represents what is believed to be the as-built condition of the stone rubble retaining walls labeled "A1" and "A2" adjacent to Shore Road. The concern is that because there are no bonder units ("through-stones") at the top or mid-level, the stones at the front face are acting alone as a wall resisting large lateral loads and frost heave. This is because the stones at the back face provide no lateral support assistance to the stones at the front face.
2. Lack of through-stones and missing battered front slope were reported in the 4/3/19 report by Structural Integrity Consulting Engineers, Inc.



ASSUMED SECTION - SOUTH
WALLS "A1" & "A2" AT ROAD
(SEE NOTE)
SCALE: 3/4" = 1'-0"

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CLIENT: RANDY SLAGER SKETCH BY: D. PRICE
DATE: DECEMBER 6, 2019
PROJECT: CONSTRUCTION ERRORS
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SK-3

G. DISCUSSION

1. Structural Integrity and Failure

The following is a selected excerpt (in quotes) listed under a Wikipedia website topic labeled, "Structural Integrity and Failure" (underlining added by PSE)

"Structural failure can occur from many types of problems, most of which are unique to different industries and structural types. However, most can be traced to one of five main causes.

1.1 The first is that the structure is not strong and tough enough to support the load, due to either its size, shape, or choice of material. If the structure or component is not strong enough, catastrophic failure can occur when the structure is stressed beyond its critical stress level.

1.2 The second type of failure is from fatigue or corrosion, caused by instability in the structure's geometry, design or material properties.

1.3 The third type of failure is caused by manufacturing errors, including improper selection of materials, incorrect sizing, failing to adhere to the design, or shoddy workmanship. This type of failure can occur at any time and is usually unpredictable.

1.4 The fourth type of failure is from the use of defective materials. This type of failure is also unpredictable, since the material may have been improperly manufactured or damaged from prior use.

1.5 The fifth cause of failure is from lack of consideration of unexpected problems."

2. Unnecessary Gradual and Sudden Failures

There is a high likelihood that if a new structure is designed and built in accordance with the IBC codes, such as those adopted by Kennebunkport, there will be neither a gradual or sudden structural failure.

As described in the previous section, some types of structural failure do not provide a warning before the actual failure takes place. To prevent this, the building code mandates specific safety factors and construction requirements.

Providing a warning is a critical aspect of sound structural engineering design and construction because recognizing a warning is a key aspect for both preventing injuries and perhaps even preventing the imminent failure that is about to occur. Nevertheless, structural failures occur every year where there is no warning.

One of the first warnings that should be taken seriously is whether or not the structure was built in close compliance with the adopted building code. If the code provisions are violated, then the public may be put in a position of substantial risk.

3. Frost Heave

When water undergoes a physical change from liquid to solid form it expands in volume. It is for this reason that glass bottles filled with water will break when placed inside a freezer. The expanding liquid inside imposes forces in the glass which can ultimately break the glass. In a similar fashion, water inside soil below foundation wall footings can expand during cold winters if it freezes and vertically lift a foundation even with a structure on top of it. Most foundation materials, such as concrete, masonry, or stone, are similar to glass in that they are typically rigid materials. Therefore, when the characteristics of soil are not uniform below a foundation wall, the amount of expansion will vary from one portion of the wall to the next which can introduce large internal stresses inside a foundation wall, often capable of causing substantial fractures.

4. Stability Analysis of Dry Stacked Rubble Stone Walls

4.1 Typical Assembly

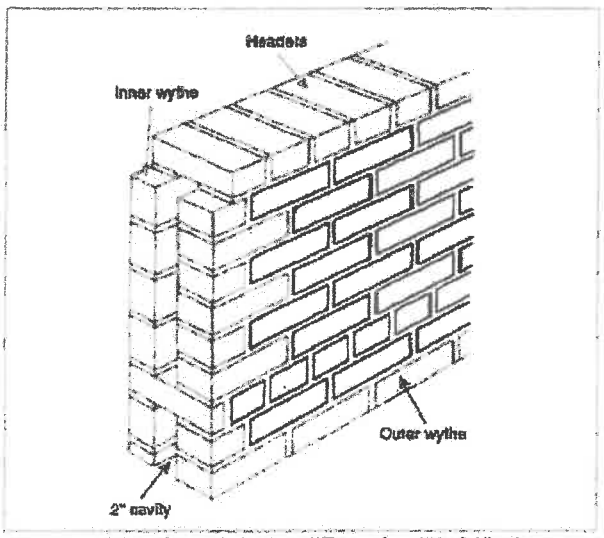
A "Dry-stacked" rubble stone wall is essentially exactly what it sounds like. The walls are constructed using large rocks that are stacked on top of each other with no mortar or other adhesive between any of the joints. Often, the rocks are installed with little or no field fabrication.

Due to the multiple sloped edges at the sides of the rocks, transfer of vertical loads occurs as point loads on a sloped surface, as opposed to uniform loads on a level bearing surface which occurs when using prefabricated masonry materials such as brick. As such, the rubble walls are significantly more unstable than walls constructed using prefabricated masonry materials. Therefore, they are typically limited to a few feet in height due to their high level of inherent instability.

4.2 Building Code Requirements

4.2.1 Bonders (also referred to as "headers" or "through-stones" on Tompkins Detail)

For taller walls, two vertical stone walls can be constructed next to each other but the two walls must then be tied together with long single piece stones at regular intervals which reach from the outside face of one wall and extend to the outside face of the other wall. It is best if these ties also occur at all of the top stones. This feature significantly improves the overall stability of the wall. This concept is also a longstanding feature in brick construction These single piece long stones that tie the two walls together are often referred to as "headers", "bonders", or as Joshua Tompkins indicated, "though-stones" and "capstones" which is a more visual description. The following sketch indicates the concept of headers ("bonders") in masonry construction:



Masonry Header Unit (or "Bonder Unit") Concept
(also applicable to dry-stacked rubble stone masonry)

The long transverse "bonder" stones are critical in rubble stone wall design which is why **bonders are a mandatory code requirement** for rubble stone masonry construction. In the building code they are referred to as "bonder units".
IRC-15 Code Section R606.13.3.2 states, "Rubble stone masonry 24 inches or less in thickness shall have bonder units with a maximum spacing of 3 feet vertically and 3 feet horizontally and if the masonry is a greater thickness than 24 inches shall have one bonder unit for each 6 square feet of wall surface on both sides."

4.2.2 Limiting Soil Stresses

When a rubble stone masonry wall is acting as a retaining wall, there is more backfill on one side than the other so this imbalance can further destabilize the wall. To reduce the potential collapse that might otherwise occur, the code limits the maximum lateral earth pressure that can be applied to the rubble stone wall.

The code mandates the following:
IRC-15 Code Section R404.1.8 states, "Rubble stone masonry foundation walls shall have a minimum thickness of 16 inches, shall not support an unbalanced backfill exceeding 8 feet in height, shall not support a soil pressure greater than 30 pounds per square foot per foot."

4.3 Batter

The Tompkins design called for 1:12 battered sides of the stone retaining walls. The word "batter," as it is used for structures retaining lateral earth pressure, means a sloping surface at either one side of a wall or both. The effect is that the bottom of the wall is wider than the top of the wall improving the wall stability.

The benefit is that the battered sides of the wall increase its resistance to overturning and the wider base is achieved without having to add as much material to the wall as would be necessary if the wall sides were plumb (vertical)

H. ENGINEERING ANALYSIS / REVIEW

1. Relevant Building Codes

   a. It is PSE's understanding that as of January 23, 2018, the town of Kennebunkport formally adopted the 2015 International Residential Code as described on page 2 of the attached "Calculation" chapter.

   b. It is also PSE's understanding that the new construction at 200 Ocean Avenue was to be in conformance with the above referenced code.

   c. On November 6, 2019 David Price briefly spoke with Werner Gilliam, the Director of Planning, as to whether there were any written modifications to these codes made by Kennebunkport that are available and Mr. Gilliam said that there were not any modifications at this time.

2. Wall A-11 Concrete Masonry Block Retaining Wall

   It is PSE's opinion that the following are serious problematic features that appear to pertain to the A-11 CMU wall:

   a. It is PSE's understanding that no written structural design of the CMU wall was provided to the town for review prior to the construction of the current A-11 CMU wall.
      - IRC-15 / R404.1.1 states "Design Required" for masonry retaining walls that support more than 4 feet of unbalanced backfill." For the CMU on this project, the actual unbalanced backfill is almost twice that amount.
      - Without an available written design, it is now difficult to confirm whether or not the wall is "in accordance with accepted engineering practice" as the code mandates or if it is currently a community hazard.

   b. Based on a review of the documents received to date, it is PSE's understanding that no independent verification of the integrity of the "ledge", to which the CMU footing was attached, was performed by the town or anyone else.

   c. It is PSE's understanding that the first time a licensed design professional reviewed the CMU retaining wall design was in late September 2019, seven months after it was completed with most of the essential components, including the ledge, no longer visible.
      It is PSE's understanding that much of the information in the stamped L/HEA September 2019 review letter was information that was reported by the contractor and, hence, could not be independently verified.
      If the "ledge" is compromised, it is of great concern. The letter appeared to indicate that the ledge is critical to the wall integrity for two reasons:
      - The foundation is adequately protected from frost heave, and,
      - Rebar pins properly developed into ledge are a critical component enabling the wall to retain seven feet of crushed stone.

   d. Photographic documentation, provided by Joshua Tompkins Landscape Architecture LLC ("JTLA") in his January 11, 2019 site visit report, contains images of what appears to be footing formwork with soil and crushed stone below the bottom of the footing and no ledge is visible or referenced in the photos.

e. It is PSE's understanding that the only independent direct observation of the ledge's integrity below the CMU wall footing was made by Randy Slager. Mr. Slager stated that there was no ledge below the footing.

f. To try to resolve the discrepancy between what was reported in the September 2019 letter and Mr. Slager's observation, a probe test was performed at two locations, 5 feet apart and +/- 17 inches from the edge of the CMU footing. The results were that the probes extended approximately 23" and 27" below the bottom of the footing and no ledge was found.
This would imply that there was either a very steep ledge slope immediately adjacent to the west side of the footing or that the footing was not bearing on reliable ledge material.

g. If there is no ledge then the CMU footing, the top of which extends above final grade, may be highly vulnerable to frost heave.

h. If there is no ledge, then an analysis using a conventional retaining wall design procedure (attached) indicates that the masonry wall may be highly unstable.

i. The position of the vertical wall reinforcement inside a masonry wall is critical to the flexural capacity of the wall and therefore the amount of backfill it can resist. Placing vertical reinforcement near the center of an 8' wide CMU cell causes high compression stresses in the CMU when large bending forces are applied, as can occur at retaining walls of this size.
An initial analysis of the CMU for this project (attached) indicates that the compression stress in the CMU appears to exceed the allowable masonry compression stress beyond acceptable limits. Further review of embedded reinforcement locations should be performed. Typically, if stresses are more than 5% above code limits they are considered excessive.

j. Further investigation of the ledge pin embedment into the bottom of the concrete footing should also be performed. An initial analysis indicates that there may be inadequate bond length for the embedded pin to reach the required tension capacity inside the footing itself.

3. Wall A-1 and A-2 Rubble Stone Retaining Wall

The following are serious problematic features that appear to pertain to the A-1 and A-2 rubble stone walls:

a. The rubble stone walls were not constructed in accordance with the landscape architect's Detail 15/L-4.0.

b. Of greatest concern is the lack of the code mandated "bonders" (see Section G of this report for discussion). The bonders (specified as capstones and "through-stones" on the project drawings) are the key components that provide stability for rubble walls, particularly those more than a few feet high.

c. Calculations (see attached) indicate that retaining walls A-1 and A-2 are highly unstable at the present time.

d. The A-1 and A-2 rubble stone walls are situated close enough to the existing Ocean Avenue pavement that if an overturning collapse were to occur there is a realistic possibility some of the stones could unexpectedly be in the travel path of vehicles.

e. The potential for a partial collapse of these walls should be taken seriously due to the significant volume traffic on Ocean Avenue. Furthermore, the walls are located near a relatively blind curve so there would be less reaction time if were stones unexpectedly in the travel path of vehicles (photo #25, page 19).

4. Elevated Patio Expansion Structure

According to the IRC-15 code adopted by the town of Kennebunkport, the definition of the word "structure" is, "That which is built or constructed." For something to be "constructed" means that it is an assembly of multiple necessary components. Furthermore, chapter 16 of the IBC-15 code adopted by the town of Kennebunkport is entitled, "Structural Design" and its purpose is to provide parameters necessary to protect the public from structural failures.

The CMU retaining wall is one component of a much larger structure, specifically the "elevated patio expansion structure." This is made evident by each of the following features:

a. The sole purpose of the CMU wall was to be a vital component of the larger "elevated patio expansion structure." A seven foot high retaining wall constructed within inches of the property line would not have been constructed if there was no elevated patio expansion structure.

b. The original top of the CMU retaining wall was sloped; it was later changed to a level profile for the sole purpose of maximizing the "valuable space" of the elevated patio. This is further evidence that the sole purpose of the CMU retaining wall was to provide support to the elevated patio expansion structure.

c. Obtaining "valuable space" was a major priority during the construction of the elevated patio expansion project.
In the 1/11/19 site visit report emailed to Lori Bell by Joshua Tompkins, the landscape architect for the project, he included the following caption below a photo of the 7' high retaining wall footing formwork (reference photo #10, page 14, underling added by PSE for emphasis):

"Forms in place for footing for block wall. Scheduled to be poured next week. The purpose of these walls is to gain valuable space above for the fire pit gathering area."

d. Further evidence that indicates the elevated patio expansion structure is indeed a "structure" is that the full or partial collapse of the CMU would endanger the community.

I. CONCLUSIONS

1. CMU retaining wall designated as "A-11"

Based on the reported information, observed conditions, available documentation, testing, photographs and analysis, PSE is of the following opinions:

1.1 Compelling evidence exists that indicates the footing below CMU wall A-11 may not be bearing on ledge.

1.2 The CMU wall was constructed without first performing a "design in accordance with accepted engineering practice" by a qualified professional. This is a violation of the IRC-15 / Section R404.1.1 code provision.

1.3 Further investigation of the wall should be performed as follows:

1.2.1 Phase 1– Minimum invasive investigation

- **Use diagonal steel probes at the west side of the existing CMU footing (similar to those used previously) to identify if probes can penetrate the substrate underneath the existing CMU wall footings at multiple places selected by PSE (10 places minimum).**

- **Temporally expose the west face of the existing CMU footing down to the bottom of the footing at multiple places selected by PSE (10 places minimum) so that the features of the substrate supporting the existing CMU footings, including the extents of reported ledge, may be observed directly.**

1.2.2 Phase 2 – Perform the investigation summarized in the previously issued 11/26/19 PSE document, "Field Test Summary for Patio Structure and Stone Wall" so that an accurate depiction of the as-built CMU wall structure can be determined and verification of load paths and safety factors identified.

1.4 If the existing CMU footing is not bearing on sound ledge, it is vulnerable to frost heave and is in violation of the IRC-15 / Section R403.1.4.1 code provision.

1.5 If the CMU footing is not adequately pinned directly to sound ledge, it is vulnerable to overturning and is in violation of the IBC-15 / Section 1807.2.3 code provision.

1.6 If the CMU wall footing is not pinned directly to sound ledge, it will likely need to be demolished and rebuilt.

2. Dry-stack rubble stone retaining walls designated as "A-1" and "A-2"

   Based on the reported information, observed conditions, available documentation, testing, photographs and analysis, PSE is of the following opinions:

   a. **Currently there are no photos or other evidence available that indicate the specified full width capstones and "though-stones" ("bonder units") were installed per Detail 15/L-4.0.**

   b. **Retaining walls A-1 and A-2 are highly unstable at the present time.**

   c. **The bonder units ("though-stones") missing from rubble stone walls A-1 and A-2 represent an extreme violation of the IRC-15 / Code Section R606.13.3.2 due to the corresponding loss of wall stability.**

   d. **The investigation summarized in the previously issued 11/26/19 PSE document, "Field Test Summary for Patio Structure and Stone Wall" should be performed so that an accurate depiction of the as-built rubble stone wall structure can be determined.**

   e. **Due to the poor construction of rubble stone walls A1 and A2, their relatively close proximity to Ocean Avenue, and the high volume of traffic, the wall height of walls A-1 and A-2 should be reduced to no more than 3 feet above existing grade, including at the wall end corners.**

J. SCOPE OF STRUCTURAL REVIEW AND LIMITATIONS

The scope of this report does not include a comprehensive evaluation for code compliance or government regulation compliance. However, specific items potentially in conflict with the building code may be noted. Except for the structural components summarized in the site visit descriptions contained herein (existing walls A-1, A-2, and A-11) no other structural components were reviewed.

No attempt has been made by PSE to document every possible condition that may exist regarding the items observed.

It is the responsibility of PSE to observe the conditions which were accessible and relevant to the purpose of the site visits. PSE is not, however, responsible for conditions that could not be seen or were not within the scope of our services at the time of the site visit. This report is not to be considered a guarantee of condition and no warranties are implied.

The opinions expressed within this report are based on visual observations made at the time of the site visit, documentation provided by others, and interviews with those present during the site visits. No disassembly of components was performed.

If additional information is discovered, provided or otherwise becomes available that might alter the conclusions expressed in this report, PSE reserves the right to review, and, if necessary, change some or all of the opinions contained herein.

This report has been prepared for the exclusive use of the client and the client's representatives. No unauthorized use or reproduction of this report, in part or as a whole, shall be permitted without prior written consent from the client or the client's designated representatives.

Price Structural Engineers, Inc.
Tel: 207-846-0099
Fax: 207-846-1633

Ave
Wall Retaining Wall Sheet 1 of
er -19

c sin 1

Stability Check

1. 1

a) Fri ica

m² ϕ

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mate

be assumed.

b B eight 110 pcf

Sp by Engineers on Previous PSE projects

Assumed

1.

a) Use

minimun
vau

4

Gillram, CFM Development conversation

1

5

4

Please for hours to the

2009 references

Administration

1604

I. Design Criteria

B. Requirements (cont.)

5. Engineered Design at Retaining Walls

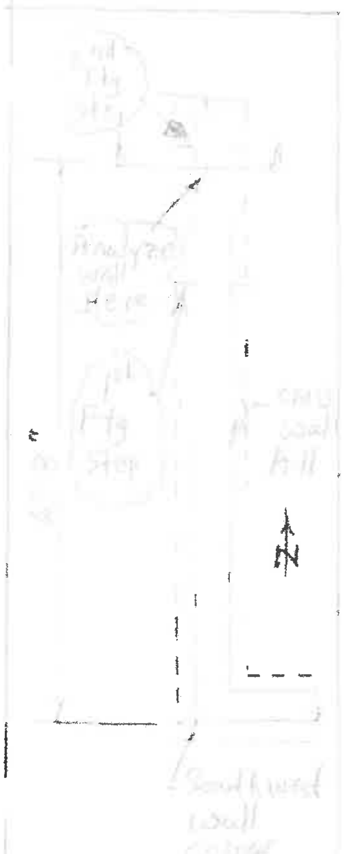
IRC-15 R404.1.1 - Design required

Quote from code

"Concrete or masonry foundation walls shall be designed in accordance with accepted engineering practice where:"

2. Walls supporting more than 48 inches of unbalanced backfill that do not have permanent lateral support at the top or bottom.

6. Select Wall Height ("h") above footing for wall section analysis



a) The wall height varies but largest forces occur where wall is tallest.

b) Nevertheless, there is a wall corner at the south end which provides lateral support to some portion of the wall. The beneficial restraining effect of the corner is reduced as wall occurs further away from the corner.

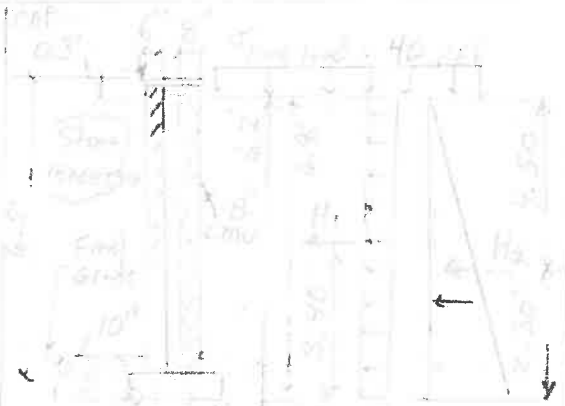
c) Since it appears no horizontal reinforced bond beams were installed, the wall must rely on horizontal shear in the masonry alone for transferring effects of corner restraint. The wall is unreinforced for horizontal shear stresses, so stresses could very well exceed code limits.

d) Also, without ledge, frost heave will induce additional significant shear stresses into CMU wall.

e) After the first footing step, the wall height is ~6' to 6' above footing. This height remains at the 7' north of southwest corner. Use h=6'

Date:

Analysis -



ht. due to surcharge

Pressure

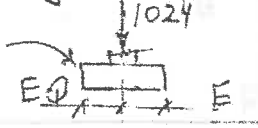
then

effecti

without

Since info is limited, assume centroid of masonry force acts footing ℄:

stone veneer (fully



11 / CMU

c) 11 (ASD load Lateral

backfill s

$\beta = 0°$ cos R19

1.

ϕ)

cos

$K_a = 1.0$ 1 +

(2)

=

H_{TOTAL} +

1)

f

b) M_r =

4(1

0" σ_1 H

1' strip

2

6

11

16

1.83'

(1.5 minimum)

a) Factor for resisting overturning

Note: A safety factor of 1.0 means that the items being reviewed may move but that there is little or no remaining safety to prevent sudden movement and instability. A safety factor of 1.0 does not mean stable or stable. This is the 1.5 requirement of the many codes that maintain the 1.5 requirement and the code mandate

"OT" = Overturning

$$\frac{M}{M_o} \quad \frac{1384}{2512} \quad .55 < 1.50$$

⇒ Extreme code violation

b) Safety Factor for resisting sliding

"SL" = Sliding

$$SF_{SL} = \frac{H_{RESIST.}}{H_{Lateral}} = \frac{508^{lb}}{} \quad .62 < 1.50$$

⇒ Extreme code violation

III Wall Stability Conclusion

Based on conventional structural engineering methodology for retaining analysis and design, the existing CMU retaining wall at [illegible] is in extreme violation from the adopted building code.

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Fax: 207-846-1633

Project: Ocean Ave. Kennebunkport
Subject: a
Date: December 2019
Designed by: AP
Sheet: 7 of
Job #: 132-19
Checked by:

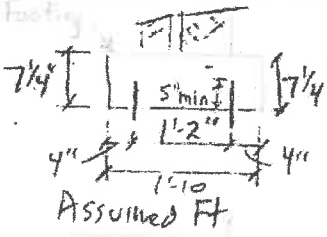
Wall A-11 (CMU Retaining Wall

Strength check
- Masonry Analysis
- Reinforcement Development Length

Design Criteria

A Assumptions
1. Concrete masonry f'm = 1500 psi
2. CMU wall designated as wall "A-11" was constructed as depicted on attached sketch SK 2
3. Steel reinforcement
   a) 1/2 diameter (#4)
   b) Fy = 60 ksi
   c) Vertical bars at 8" oc
   d) No horizontal bars
   e) Vertical bars centered in CMU wall
4. CMU width 7 5/8"
5. All CMU cells grouted
6. Grout f'c 2500 psi
7. Backfill γ 110 pcf, Ka 0.27

7. Concrete Footing
   a) f'c 3000 psi
   b) Dimensions = 1'-10" wide x 7" tall (2x8 form)
   c) Bottom pins @ 4" from edge of footing
   d) Bottom pins extend 5" (min) into bottom of ftg.
   e) Form depth = 7 1/4"



B Reference
1. Masonry Code ACI 530-13/ASCE 5-13
   Masonry Designers Guide 2013

Price Structural Engineers, Inc.
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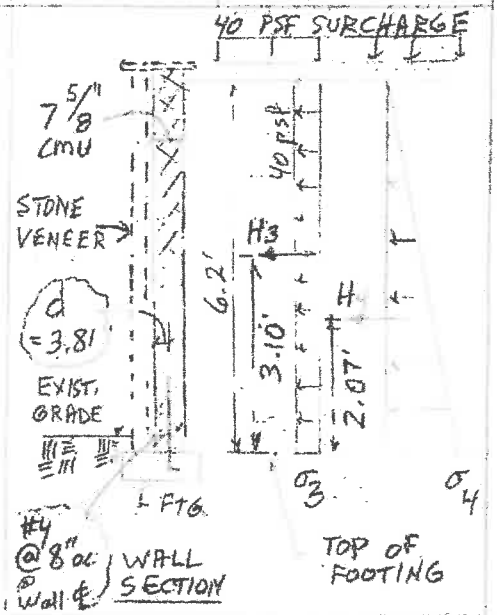
Project: 200 Ocean Ave
Subject: Wall A-11 CMU Retaining Wall
Date: December 2019
Designed by: AP
Sheet: 8 of
Job #: 32-19
Checked by:

Wall A-11 (CMU Retaining Wall)



II. Analysis

A. CMU Strength Check

1. Forces (unfactored)

For 1' strip

- H_3 Lateral load from live load surcharge on ground surface
- H_4 = Lateral earth pressure load

- $\sigma_3 = 40$ psf
  $H_3 = 40\text{ psf}(6.2) = \underline{248\text{ lb}}$
- $\sigma_4 = K_a(\gamma)(h) = .271(110\text{pcf})6.2'$
  $= 185$ psf
  $H_4 = \frac{1}{2}(185\text{psf})(6.2) = \underline{574\text{ lb}}$

2. Parameters

- d = distance between compression face and reinf. ℄
  Reinforcement @ CMU wall ℄
  $d = \frac{7.625"}{2} = \underline{3.81"}$ $b = \underline{12'}$ (1' strip)
- #4 bar area = 0.20 in²
- For #4 @ 8", $A_s = \frac{12"}{8"}(0.20\text{ in}^2)$ $0.30\text{ in}^2/\text{ft}$ ← As for 1' strip
- E_m = 900 f'm = 900 (1500 psi) 1350,000 psi ← cmu
- $n = \frac{E_s}{E_m} = \frac{29,000\text{ ksi}}{1350,\text{ ksi}} = \underline{21.5}$
- $\rho = \frac{A_s}{bd} = \frac{0.30\text{ in}^2}{12"(3.81")} = .00656$

$np = (21.5).00656 = \underline{0.141}$

- $k = -(np) + \sqrt{n^2\rho^2 + 2np}$ $.141 + \sqrt{(21.5^2)(.00656)^2 + 2(.141)}$
  $= \underline{.4084}$
  - $kd = .4084(3.81) = \underline{1.556"}$
- $j = 1 - \frac{k}{3}$ $1 - \frac{.4083}{3} = \underline{0.8639}$
  - jd $.8639(3.81") = \underline{3.29"}$

Wall A-11 CMU Retaining Wall

III Analysis

A. Strength Check

3. Allowable Stresses (ASD design)

Reference: ACI 530-13/ASCE 5-13 Building Code Requirements for Masonry Structures"

The above masonry code is referenced in the 2015 IRC under: Part IX "Referenced Standards" / Chapter 44

ACI 530) Section 8.3.3 (Reinf. masonry)

a) Steel; For grade 60 reinf., Max tensile stress in reinf shall not exceed 32,000 psi

b) Masonry: Section 8.3.4.2.2

Max compressive stress for flexure:

$F_b = 0.45(f'_m) = 0.45(1500\ psi) = 675\ psi$

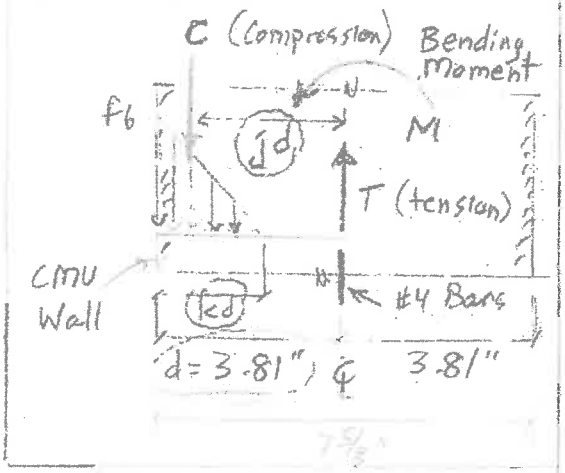
4. Analysis

a. Bending Moment

$M = 3.10'(H_3) + 2.07'(H_4)$

$= 3.1'(248\ lb) + 2.07'(574\ lb)$

$= 1957\ ft\text{-}lb$



b. Steel Stress $T = C$

$T = A_s(f_s)$

$M = (jd)(T) = (jd)A_s(f_s)$

$f_s = \frac{M}{(jd)A_s} \quad \frac{1957\ ft\text{-}lb(12)}{(3.29")(0.3in^2)} =$

$1983\ psi = 23,800\ psi < 32,000\ psi$ ok

c. CMU Stress

$C = \frac{b(kd)(f_b)}{2} \quad A_s(f_s) \quad \frac{M}{(jd)} = T \Rightarrow \frac{b(kd)(f_b)}{2} \quad \frac{M}{(jd)}$

$f_b = \frac{2(M)}{(b)(kd)(jd)} = \frac{2(1957\ ft\text{-}lb)(12)}{(12")(1.556")(3.29)} = 765\ psi > 675\ psi$

Overstress $\left[\frac{765-675}{675}\right]100\% = 13\%$ overstress EXCESSIVE CODE VIOLATION

Wall

An

B Development Strength k

1 Factored forces

reinforced con... design

1' strip • From previous calcs, turning at bottom footing 3.4'(272 lb) = 512'-lb

Load ("L") ("H")

• IBC Load Factors for design (net / ASD)

IBC Eqn. 16-2 : 1.6(H) + 0.5(L)

Earth pressure ↑ ↑ Load factor for residential live load

overturning:

Mu 1.6 [2.3'(90 lb)] 0. [3.4' lb]

= 2539' lb

& sion

Factured Tension/ft @ 1' stri. = 2.0 k @ 1' strip

1.5'

1-lb

u

Possible Bond Failure 5"

TENSION

For bars at 20"

Tens @ B = 20/12 k/ft)

**

Max pin of pins parallel footin

M... d between pin d + end of ftg.

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207-846-1633

Subject:
Date: December 201-
Designed by:

Kennebunkport
Sheet: 11 of
Job #: 32-19
Checked by:

Wall A-11 (CMU in

Analysis
B. ti Pin Develop t ngth

2. Reinforc nt development length

ACI 318-14 / Section 25.4

No hooks

ld available ppears to b +/- 5
(must be field verified)

f'c 000 psi (assumed) - normal wgt

bar #4 (reported) *Assume no epoxy coat

Reference ACI Table
For #6 & smaller bars

$$l_d = \left[\frac{f_y \psi_t \psi_e}{25\lambda\sqrt{f'_c}}\right] d_b$$

f_y p
ψ_t 1.
ψ_e = 1.0 (no coating
λ 1.0 (normal wgt)
f'c 000 p (ss but not yet fied)
d_b 0

$$l_d = \left[\frac{1)(1)}{\frac{1)}{3000}}\right](.5") = 21.9$$

nsile strength of b = $\phi(A_s)(f_y)$ 9(.20in²)(60 ksi)
= 10.8k

uacity/inch 1 9" k/inch

Approx. Bond (.5k/in) 2.5

0 (100%)= %

Code Violation

Price Structural Engineers, Inc.

2019 | 133-19 | Checked by:

Wall A-2 (Rubble Stone Retaining Wall @ Ocean Ave)

I. Design Criteria — Stability Check

A. Assumptions

1. Rubble stone wall A-2 was constructed as depicted on attached sketch SK-3. No headers ("binders" or "through stones") installed at either midlevel or at top of wall since none were observed in any of the project photographs. The binder units specified @ 3'-0" o.c. at midlevel on Tompkins detail and cap stone header along full length of wall all appear to be missing.
2. Wall is 2'-4" wide (per M²SE 4/24/19 calc)
3. No batter at sides (per 7/3/19 KTCEI letter)
4. Wall is 5'-6" high (per PSE site visit) and backfill at 8" below top of wall (per PSE site visit)
5. Slope of backfill = 15°
6. Weight of backfill = 110 PCF
7. Avg. wt. of stone wall = 120 pcf
8. ϕ = 35° (possibly too high due to voids)

Use same parameters as M²SE to be consistent (see note below)

10. Sliding coef. = 0.45 (specified by geotech engineer on other projects)
11. Safety factors: Overturning = 1.5, Sliding = 1.5 } per ...
12. Soil is 8" below top of wall (assumed until field measure)

* Existing soil should be reviewed by a geotechnical engineer to obtain more applicable values.

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North Yarmouth, ME
Tel: 207-846-0099

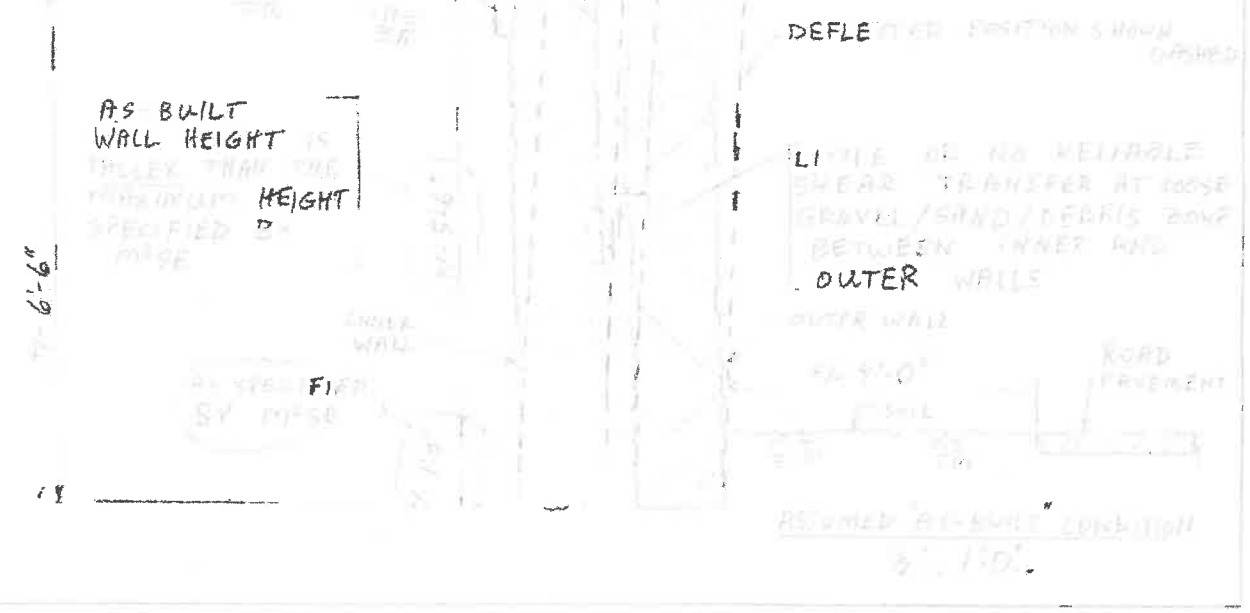
ve

Designed by: DAP

Checked by:

Methodology

SE received an
the rubble stone walls for
not agree with
ll does not app
e in
the Tomplkins
the walls were
Except for one
show "th ugh-stone
the top of specified by
page the 4/3/19
which appears to show
long A-2 wall, which
walls are
1. Many
ly exception is
site visit letter
bonder in the 34-foo
insufficient. As a result the
sentially independent and will
that was to check stability.



Price Structural Engineers, Inc.

A

III Analysis

A. Calculate K_a for sloped backfill

$$K_a = \cos\beta \left[\frac{\cos\beta - \sqrt{\cos^2\beta - \cos^2\phi}}{\cos\beta + \sqrt{\cos^2\beta - \cos^2\phi}} \right]$$

$\beta = 15°$

$\phi = 35°$

$\cos\beta = \cos(15) = 0.966$

$\cos^2\beta = \cos^2(15) = 0.933$

$\cos^2\phi = \cos^2(35) = 0.671$

$\sqrt{.933 - .671} = .119$

$K_a = .966 \left[\frac{.966 - .119}{.966 + .119} \right] = 0.80$ (for lateral component)

B Calculate K_p for passive pressure @ front of wall

(level grade at front of wall $\Rightarrow \beta = 0°$)

$\cos\beta = \cos(0) = 1.0$

$\cos^2\phi = 0.671$

$\sqrt{1.0 - .671} = .5736$

$K_p = 1.0 \left[\frac{1 + .5736}{1 - .5736} \right] = 3.43$

Price Structural Engineers, Inc.

Project: 200 Ocean Ave — Kennebunkport | Sheet: 15 of
Subject:
Date: December 2019 | Job #: 132-19
Prepared by: DAP | Checked by:

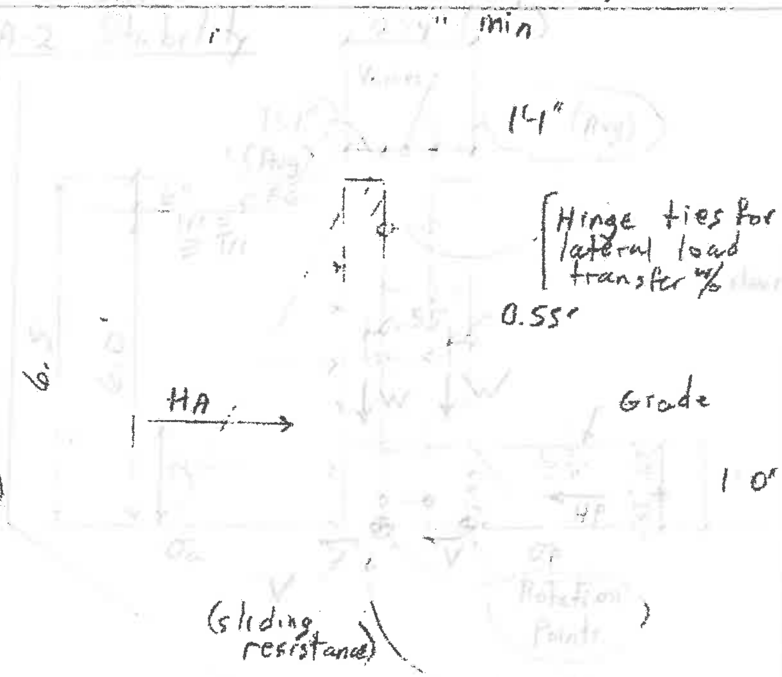
Wall A-2 Stability (cont)

III. Analysis

A. Loads
$\gamma_{backfill}$ = 110 pcf
γ_{stone} = 120 pcf

1' strip
W = 1.1'(6.5')(.12 kcf)
= .858^k (for one wall)

σ_a = Ka(γ)h
= 0.30 (.110 kcf) 6.0'
= 0.198 ksf



Analysis assumes Grade below wall corner has sufficient bearing capacity to support wall weight at or near rotation points

H_{a} = ½ (σ_a)(h) = .198 (6) / 2 = 0.60^k

Each wall resists half. Ha/wall = .6/2 = .30 k/wall

σ_p = Kp γh = 3.4 (.110) 1' = .374 ksf

Hp = ½ (σ_p) h = .374 (1) / 2 = .187^k   Hp/wall = .187/2 = .094^k

B. Overturning Moment

1) Mo - For each wall, Mo = 2'(.36 k/wall) = 0.72 ^(1-k)/wall

2) Resisting Moment
For each wall, MR = .55'(.858^k) + .33'(.094^k) = .50 ^(1-k)/wall

3) Factor of safety to resist overturning

F = MR / Mo = 0.50 / .72 = 0.70 < 1.5   Extreme instability w/ regard to overturning

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Project: 200 Ocean Ave | Kennebunkport
Subject:
Date: December 2019 | Sheet: 5 of
Designed by: A | Job #: 132-19
Checked by:

Wall A-2 Stability (cont.)

III Analysis

C. Sliding

1) Applied sliding force (per wall)

$H_a/wall = 0.30^k$

2) Resisting sliding forces:

$V_{wall} = \underset{\text{sliding factor}}{\mu}(W) + Hp/_{wall} = 0.4(.858^k) + .094^k$

$437^k/wall$

3) Factor of safety to resist sliding

$SF = \frac{V_{wall}}{H_a} = \frac{0.437}{0.30} = \underline{1.46}$

Check if within 5%

Req'd SF = 1.5

Actual SF 1.46

$\frac{1.5 - 1.46}{1.46}(100\%) = 3\% < 5\%$

ok

A-2 wall is stable with regard to sliding only

Werner Gilliam

From: geoff@civcon.com
Sent: Friday, January 17, 2020 5:21 PM
To: Werner Gilliam
Subject: RE: third party engineering support

Werner,

We can do that. Send me over what you have and we can take a look.

Geoff

Geoff Aleva
CIVIL CONSULTANTS

From: Werner Gilliam <wgilliam@kennebunkportme.gov>
Sent: Friday, January 17, 2020 4:52 PM
To: geoff@civcon.com
Subject: third party engineering support

Hi Geoff,
The Code office is in need of a structural engineer to provide some advice regarding some disputed stone/ retaining walls that permits were issued on. Is that a service that you may be willing to help us out with? Thanks for your consideration.
Feel free to call me on my cell [redacted]

Werner

Werner Gilliam, CFM
Director of Planning and Development
Town of Kennebunkport
(207)967-1604
wgilliam@kennebunkportme.gov

Werner Gilliam

From: geoff@civcon.com
Sent: Thursday, January 30, 2020 2:13 PM
To: Werner Gilliam
Subject: RE: Draft response 200 Ocean Avenue (cc20113000)

That works better.

Geoff Aleva
CIVIL CONSULTANTS

From: Werner Gilliam <wgilliam@kennebunkportme.gov>
Sent: Thursday, January 30, 2020 2:05 PM
To: geoff@civcon.com
Subject: RE: Draft response 200 Ocean Avenue (cc20113000)

Yes I see it after I zoomed in some more,
Revised it to state:

Numerous photographs have been supplied to this office indicating that the footings for this wall appear to be pinned to ledge, as well as some photographic evidence indicating placement of rebar within each block. Typically one would also see rebar extending up from the footing.

W

Werner Gilliam, CFM
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wgilliam@kennebunkportme.gov

From: geoff@civcon.com <geoff@civcon.com>
Sent: Thursday, January 30, 2020 1:58 PM
To: Werner Gilliam <wgilliam@kennebunkportme.gov>
Subject: RE: Draft response 200 Ocean Avenue (cc20113000)

That is hard to tell. It looks like rebar every other core hole in block. Also, the footing does not have rebar extending as you would typically see for wall construction.

I did not see enough information to indicate rebar in every core.

Geoff Aleva
CIVIL CONSULTANTS

From: Werner Gilliam <wgilliam@kennebunkportme.gov>
Sent: Thursday, January 30, 2020 1:50 PM
To: geoff@civcon.com
Subject: RE: Draft response 200 Ocean Avenue (cc20113000)

Thanks for the notes
I was looking at photo #6

W

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wgilliam@kennebunkportme.gov

From: geoff@civcon.com <geoff@civcon.com>
Sent: Thursday, January 30, 2020 1:27 PM
To: Werner Gilliam <wgilliam@kennebunkportme.gov>
Subject: RE: Draft response 200 Ocean Avenue (cc20113000)

Werner,

Attached are some markups review and change as you see fit.

The photos of the rebar in the CMU wall are unclear. I am not sure if you want to adjust you statement. If you have additional photos please send them over. I have only seen 2 or 3.

Geoff Aleva
CIVIL CONSULTANTS

From: Werner Gilliam <wgilliam@kennebunkportme.gov>
Sent: Thursday, January 30, 2020 12:30 PM
To: Amy K. Tchao <ATchao@dwmlaw.com>; geoff@civcon.com
Subject: Draft response 200 Ocean Avenue

Hi Amy and Geoff,
Please see attached my draft response regarding 200 ocean avenue. Let me know your thoughts.
Thanks!

Werner

Werner Gilliam, CFM
Director of Planning and Development
Town of Kennebunkport
(207)967-1604
wgilliam@kennebunkportme.gov

CC 2011300
GMS
1-30-20

TOWN OF KENNEBUNKPORT, MAINE
~ INCORPORATED 1653 ~

January 31st 2020
Via Email & Certified USPS

Lori Bell & John Scannell
188 Van Rensselaer Avenue
Stamford, CT 06902

RE: 200 Ocean Avenue, Map 7, Block 12, Lot 5 – Suspension of Permits

Dear Lori & John:

This letter is a follow up to the suspension of Permits 18-418, 18-419 issued 12/04/2018. Specific corrective actions requested were:

1. A resubmission of a new plot plan containing an updated lot coverage break down for review.
2. Verification by licensed professional engineer confirming wall sections A1 and A2 match submitted drawings.
3. Wall section A11 needs to be reviewed structurally for potential failure due to the amount of uneven back fill.

As you are aware your neighbor Randy Slager submitted via his Attorney Alan Atkins on 12/20/2019 a 47 page report prepared by David Price PE outlining numerous concerns. Due to the severity of the accusations I am requesting that in addition to the 3 items mentioned above, your engineer address the claims presented in the Price Report.

#1 has been addressed by the submission of boundary survey/plot plan revision #5 dated 11/04/2019 produced by Livingston Hughes. The concern regarding exceedance of preexisting lot coverage has been addressed on this plan by showing that the pre and proposed coverages do not create an increased non-conformity, however be aware that the expectation is that all areas on the property not identified as coverage are expected to be vegetated areas as indicated on the original plan submission.

#2 Wall Sections A1 and A2 (Aka Rubble Retaining Wall) was originally designed by Structural Integrity. Their design was submitted as part of the permit submission. An inspection performed by them on April 3rd 2019 confirmed that the wall was not being built per their plan. The Code Enforcement Office requested an updated design. An updated design was performed by Matthew Miller PE of M2 Structural Engineering on April 22nd 2019. On 1/27/2020 the Code Enforcement Office received a copy of that design along with photographs showing its construction. **Engineer shall provide written statement that indicates the renovated rubble wall is in conformance with 2015 IRC section R404.4- retaining walls.**

6 Elm Street, P.O. Box 566, Kennebunkport, Maine 04046 • Tel: (207) 967-4243 Fax: (207) 967-8470

FROM YOUR DESIGN PROFESSIONAL FROM LINCOLN/HONEY.

#3 Wall Section A11 was originally designed as a combination dry stack granite retaining wall with a 6' concrete stem wall. At some point early on in the project a decision was made to change the construction design to a block CMU wall with veneer. Numerous photographs have been supplied to this office indicating that the footings for this wall appear to be pinned to ledge, as well as photographic evidence indicating that each of the cores was filled with concrete and rebar. At numerous times Matthew Miller PE and Thad Gabryszewski PE have given opinions regarding the integrity of this wall. In a report dated January 23rd 2020 Mr. Gabryszewski responded to the Price Report while maintaining a favorable opinion regarding the structural integrity of the CMU wall. While informative the Code Enforcement Office is requiring that: **Engineer shall provide written statement that indicates the CMU wall is in conformance with 2015 IRC section R404.4- retaining walls, as well as stating that the CMU wall section has the required frost protection per IRC requirements. Adequate frost protection may be verified by performing minor excavation along side the existing CMU wall to verify the presence of ledge or the presence of non-expansive soils. Owner shall notify code office to allow for visual inspection of ledge or non-expansive soils.**

Any engineering documents and statements provided to the Code Enforcement Office regarding deviations from the Building Code sections referenced above may be accepted provided that they comply with the requirements of : *2015 IRC section.R104.11 Alternative materials, design and methods of construction and equipment.*

As part of the ongoing concerns regarding these improvements and in response to the concerns identified in the Price Report be aware that the code enforcement office has retained its own professional engineering advisor regarding this situation. The requests in this letter have been drafted in accordance with advisement provided by said advisor.

While progress has been made the suspension remains in effect until these specific items have been more adequately addressed. I am requesting this additional documentation be submitted to the Code Enforcement Office no later than February 19th 2020.

Sincerely,

Werner Gilliam

Werner Gilliam, CFM
Director of Planning and Development
Town of Kennebunkport

Enclosures

CC: Amy Tchao, Town Attorney
Laurie Smith, Town Manager
Paul Cadigan, Chair Zoning Board of Appeals
Randy Slager, 196 Ocean Avenue

TOWN OF KENNEBUNKPORT, MAINE
INCORPORATED 1653

January 31st, 2020
Via Email & Certified USPS

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3. Wall section A11 needs to be reviewed structurally for potential failure due to the amount of uneven back fill.

As you are aware your neighbor Randy Slager submitted via his Attorney Alan Atkins on 12/20/2019 a 47-page report prepared by David Price PE outlining numerous concerns. Due to the severity of the accusations I am requesting that in addition to the 3 items mentioned above, your engineer address the claims presented in the Price Report.

#1 has been addressed by the submission of boundary survey/plot plan revision #5 dated 11/04/2019 produced by Livingston Hughes. The concern regarding exceedance of pre-existing lot coverage has been addressed on this plan by showing that the pre and proposed coverages do not create an increased non-conformity, however be aware that the expectation is that all areas on the property not identified as coverage are expected to be vegetated areas as indicated on the original plan submission.

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#3 Wall Section A11 was originally designed as a combination dry stack granite retaining wall with a 6' concrete stem wall. At some point early in the project a decision was made to change the construction design to a block CMU wall with veneer. Numerous photographs have been supplied to this office indicating that the footings for this wall appear to be pinned to ledge, as well as some photographic evidence indicating placement of rebar within each block. Typically, one would also see rebar extending up from the footing. At numerous times Matthew Miller PE and Thad Gabryszewski PE have given opinions regarding the integrity of this wall. In a report dated January 23rd, 2020 Mr. Gabryszewski responded to the Price Report while maintaining a favorable opinion regarding the structural integrity of the CMU wall. While informative the Code Enforcement Office is requiring that: **Engineer shall provide written statement that indicates the CMU wall is in conformance with 2015 IRC section R404.4- retaining walls, as well as stating that the CMU wall section has the required frost protection per IRC requirements. Adequate frost protection may be verified by performing minor excavation along side the existing CMU wall to verify the presence of ledge or the presence of non-expansive soils. Owner shall notify code office to allow for visual inspection of ledge or non-expansive soils.**

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As part of the ongoing concerns regarding these improvements and in response to the concerns identified in the Price Report be aware that the code enforcement office has retained its own professional engineering advisor regarding this situation. The requests in this letter have been drafted in accordance with advisement provided by said advisor.

While progress has been made the suspension remains in effect until these specific items have been more adequately addressed. I am requesting this additional documentation be submitted to the code enforcement office no later than February 19th, 2020. In anticipation of receiving the requested documentation I expect to have a formal position regarding the suspension of your permits by February 28th, 2020.

Sincerely,

Werner Gilliam

Werner Gilliam, CFM
Director of Planning and Development
Town of Kennebunkport
Enclosures/Attachments

CC: Amy Tchao, Town Attorney
Laurie Smith, Town Manager
Paul Cadigan, Chair Zoning Board of Appeals
Randy Slager, 196 Ocean Avenue
Alan Atkins, Attorney for Randy Slager
David Lourie, Attorney for Randy Slager
Dan Rosenthal, Attorney for Lori Bell and John Scannell

Rubble Retaining Wall

200 Ocean Avenue

Kennebunkport, Maine

These calcs were completed after Structural Integrity's design (dated 20 Nov 2018) and Structural Integrity's letter to the town (dated 3 April 2019). Structural Integrity indicated that the wall was not completed per their design & detail; the wall was re-designed in these calcs.

April 22, 2019

Prepared for:

Maineway Landscaping and Excavating

1021 Portland Road

Saco, ME 04072

Prepared by:

M² Structural Engineering, P.C.

23 Thornbury Way

Windham, ME 04062

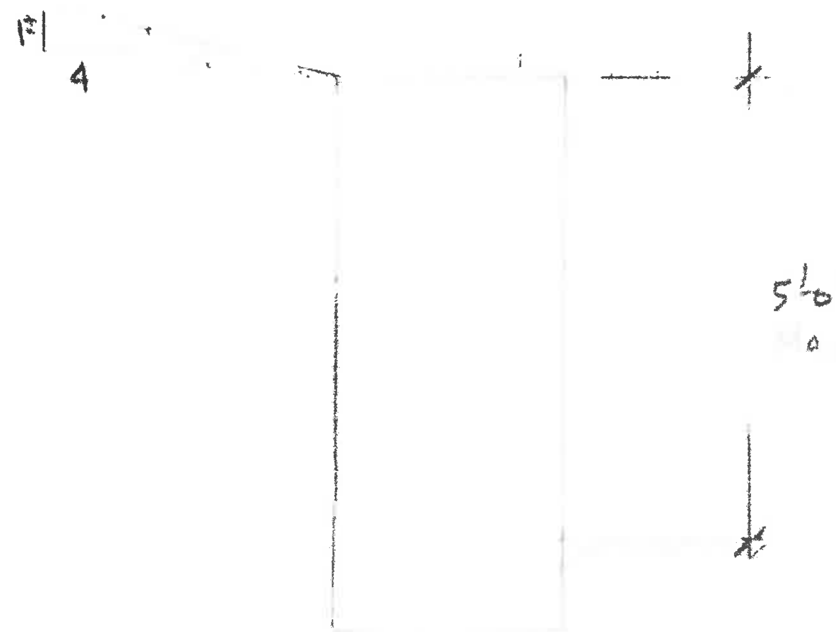
STATE OF MAINE
MATTHEW J. MILLER
LICENSED PROFESSIONAL ENGINEER

04/22/2019

M²SE Project No.: 19040

M2 STRUCTURAL ENGINEERING, P.C.
23 Thornbury Way
Windham, ME 04062
(207) 892-0983
www.m2se.com

PROJECT
PROJECT # 19010
CALCULATED BY M... DATE 4/22/19
CHECKED BY DATE
SHEET 1 OF



TAKE AV WEIGHT OF WALL = 120 PCF

... UNIT WEIGHT OF BA... = 11_ PCF

K...

... $\cos^2$ ...

M2 STRUCTURAL ENGINEERING, P.C.
23 Thornbury Way
Windham, ME 04062
(207) 892-0983
www.m2se.com

PROJECT
PROJECT # 1940
CALCULATED BY MF DATE 4-22-19
CHECKED BY DATE
SHEET 2 OF

: 269 lb

: EIF : 400 PLF

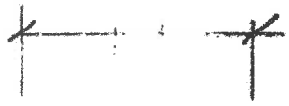


Fig 1

F

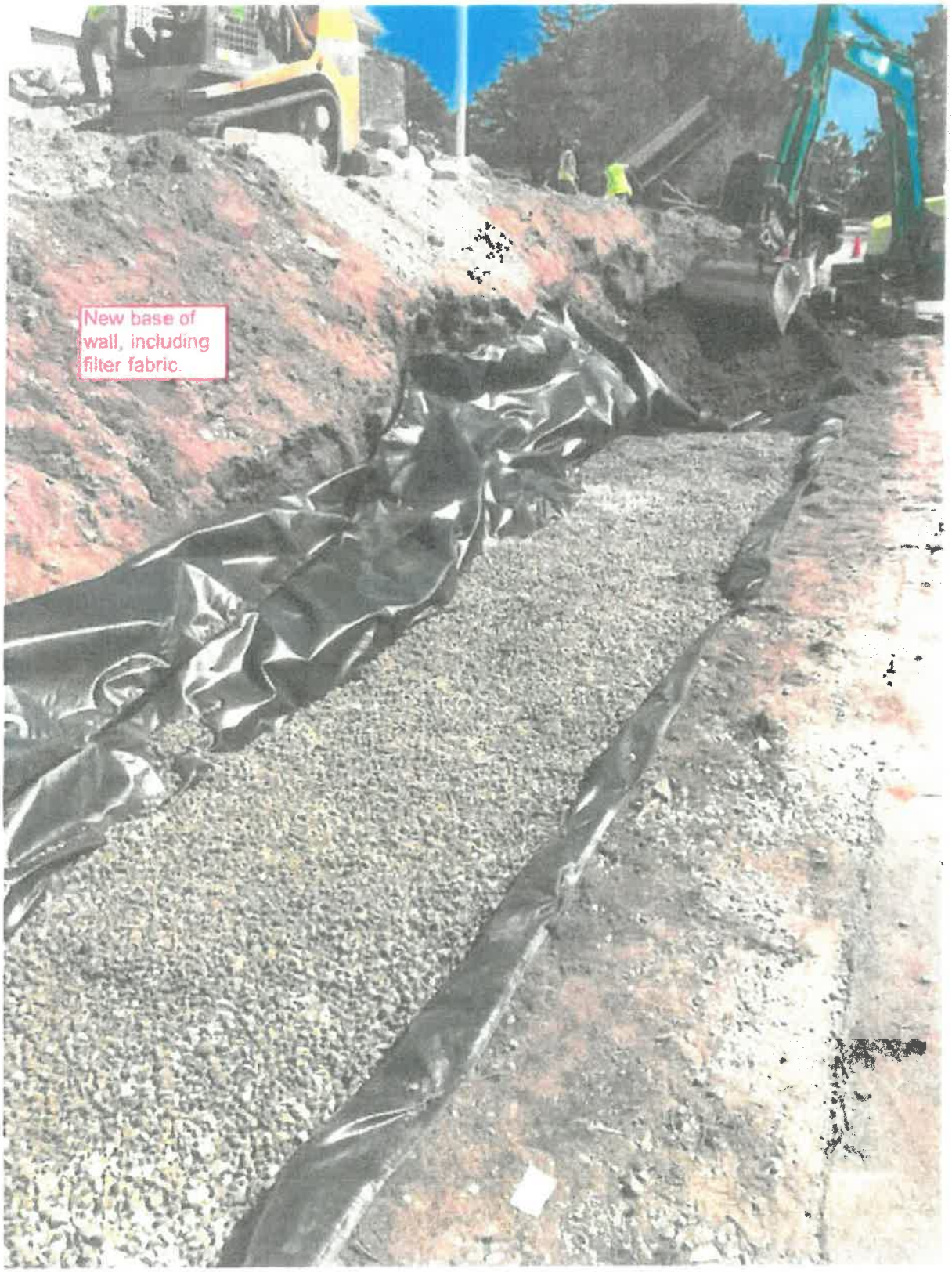
M2 STRUCTURAL ENGINEERING, P.C.
23 Thornbury Way
Windham, ME 04062
(207) 892-0983
www.m2se.com

PROJECT
PROJECT #
CALCULATED BY DATE
CHECKED BY DATE
SHEET OF

M2 STRUCTURAL ENGINEERING, P.C.
23 Thornbury Way
Windham, ME 04062
(207) 892-0983
www.m2se.com

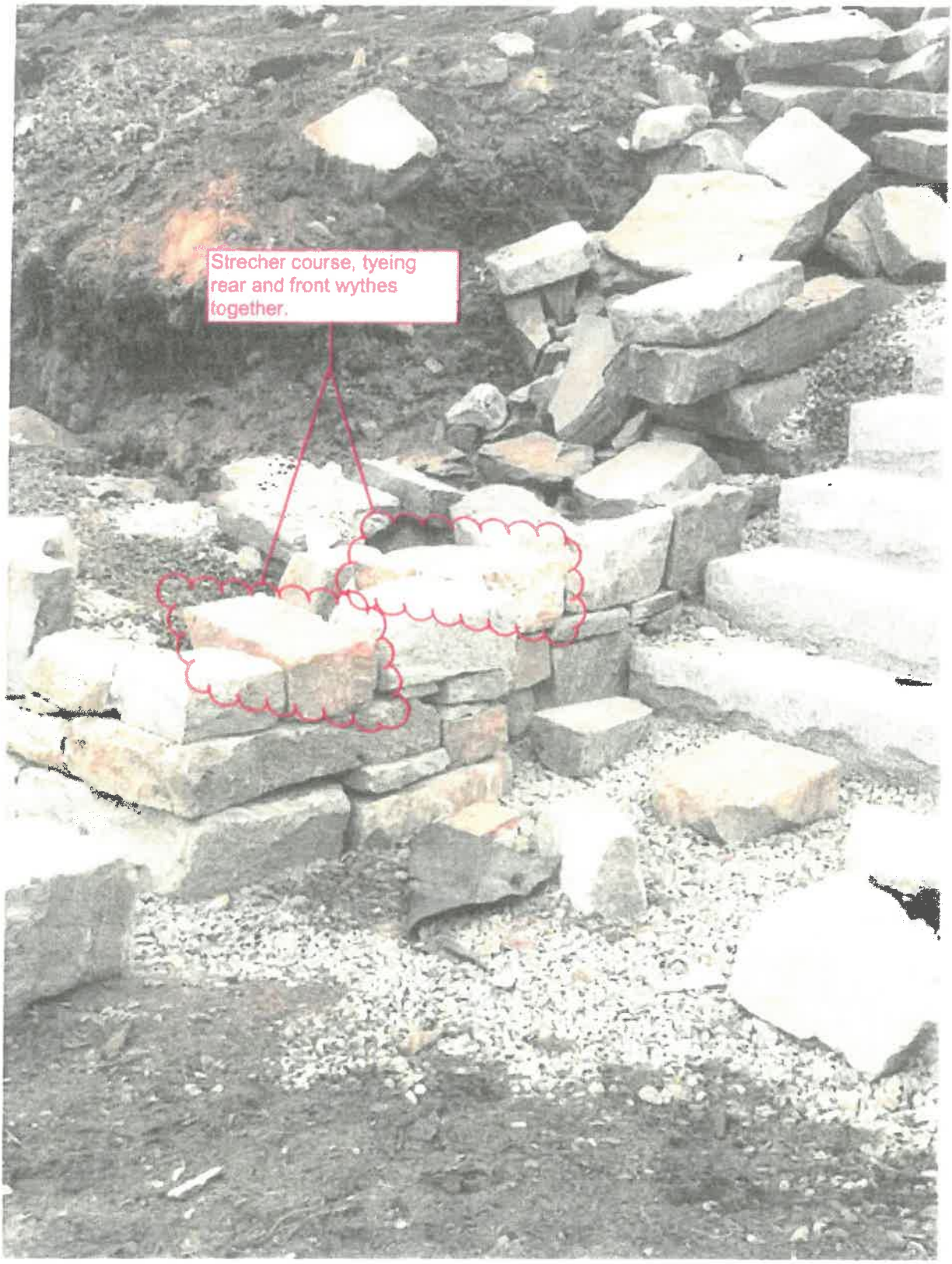
PROJECT
PROJECT #
CALCULATED BY M. M DATE
CHECKED BY DATE
SHEET 1 OF

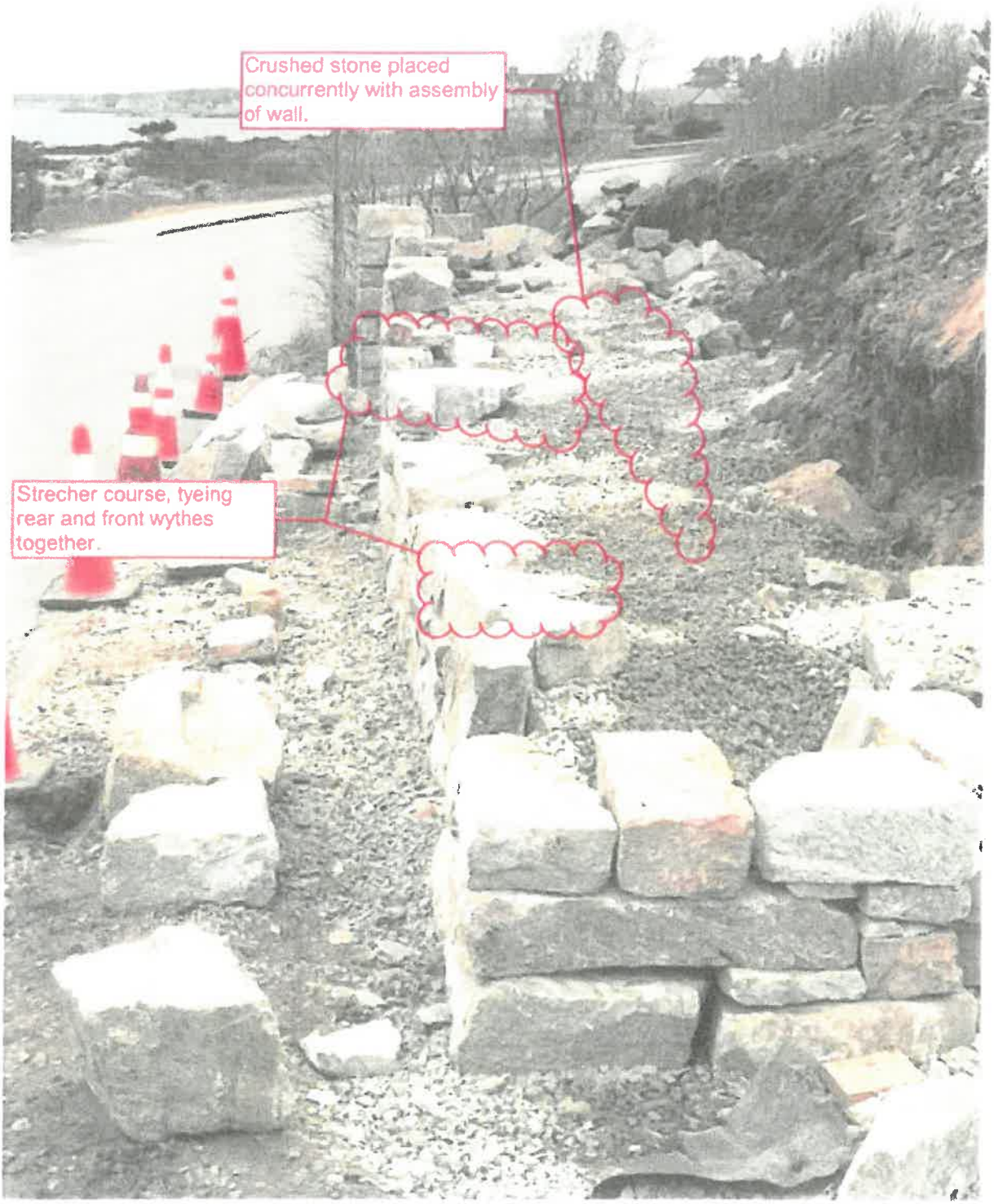
End of Submittal

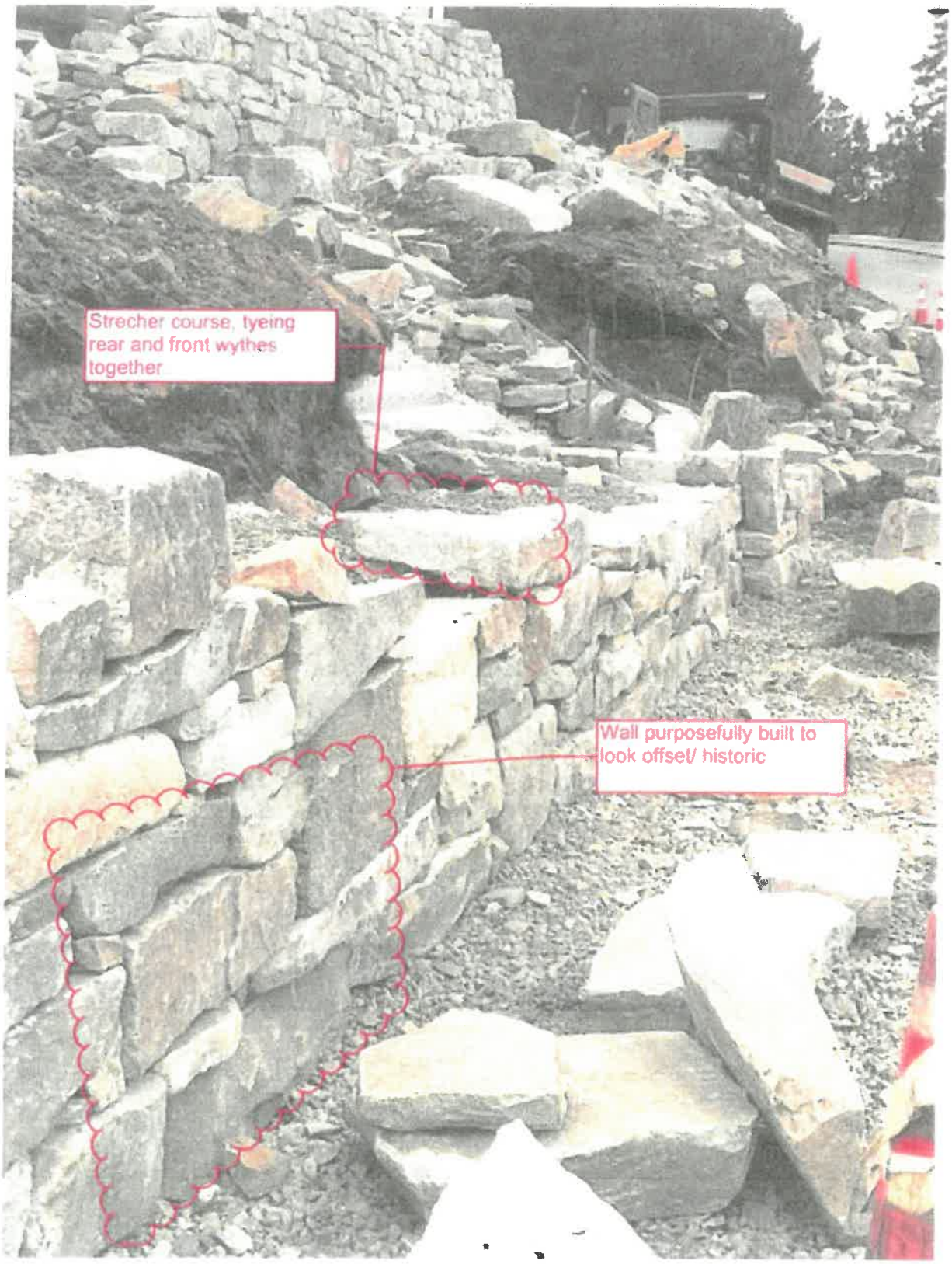

New base of wall, including filter fabric.


New base of
wall, including
filter fabric.

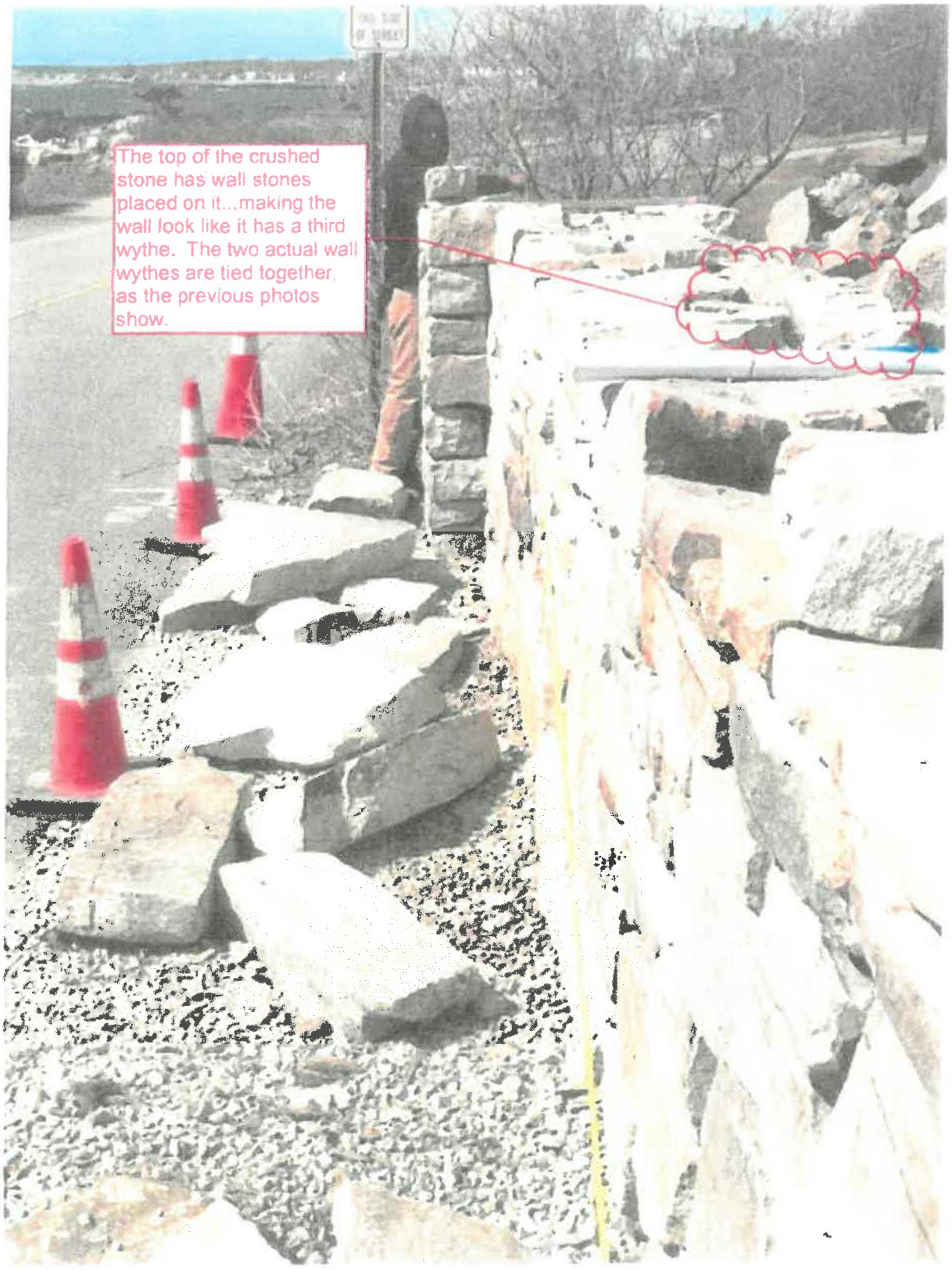

New base of wall, including filter fabric.


Strecher course, tyeing rear and front wythes together.

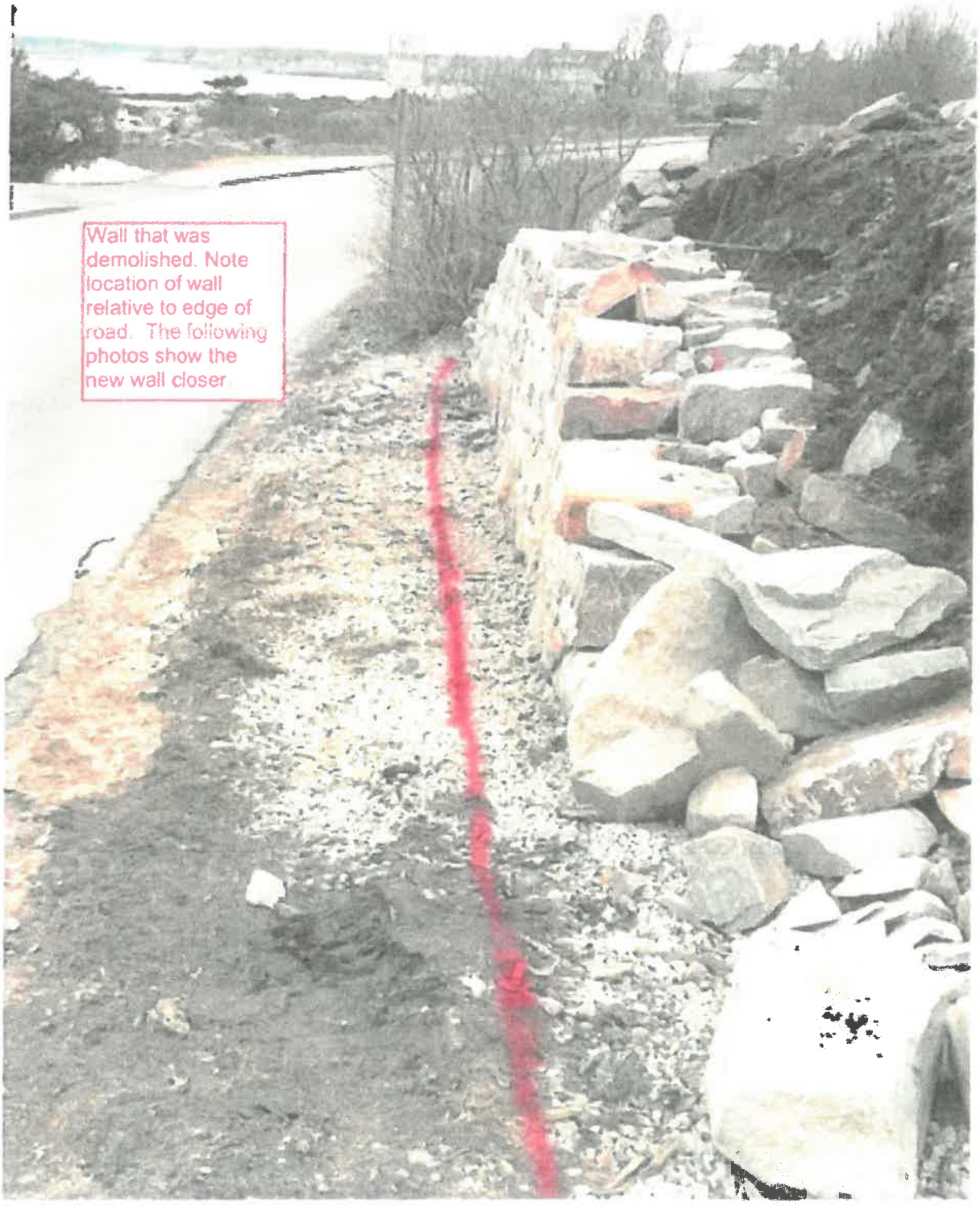

Crushed stone placed concurrently with assembly of wall.
Strecher course, tyeing rear and front wythes together.


Strecher course, tyeing rear and front wythes together
Wall purposefully built to look offset/ historic


Strecher course, tyeing rear and front wythes together.


The top of the crushed stone has wall stones placed on it...making the wall look like it has a third wythe. The two actual wall wythes are tied together as the previous photos show.


Wall that was
demolished


Wall that was demolished. Note location of wall relative to edge of road. The following photos show the new wall closer

Lincoln/Haney Engineering Associates, Inc.
Structural Engineering Consultants
Michael A. Cunningham, P.E., LEED AP
Thad Gabryszewski, P.E., S.E.

January 23, 2020

Ms. Lori Bell
200 Ocean Avenue
Kennebunkport, ME 04046

Subject: Stone Veneer and Reinforced Masonry Retaining Wall
200 Ocean Avenue, Kennebunkport, ME

Dear Lori:

In our September 24, 2019 letter to Owens McCullough, P.E. of Sebago Technics we provided our favorable professional opinion regarding the reinforced masonry retaining wall on your property at the above noted address. We have reviewed the Price Structural Engineers' report regarding the wall named "Structural Review of Existing Retaining Walls". The Price report is dated December 17, 2019 and was prepared for Mr. Randy Slager. We are not persuaded based on Price's Report to change our opinion, nor do we have new concern regarding the stability of the wall.

Since our original letter, the wall has undergone more cycles of freeze thaw and continues to show no signs of distress. Price's Report itself on Page 8, Section 1. d. notes "Continuous fractures in the stone veneer were not observed", further underscoring the good condition of the wall. Instead, the Price report speculates on how the wall "may be in jeopardy" based on unconfirmed assumptions.

Some attention is given in the Price report to the speculated lack of ledge below the retaining wall. The Price Report notes two test probes which did not find ledge. These probes are of questionable value as they were not below the wall, nor on the same property as the wall. The probes do nothing to confirm the bearing depth or bearing material of the wall. They were clearly not deep enough to find ledge, as numerous reports record the extremely rocky nature of the site. On January 13, 2020 we spoke with Mr. Keevan Geller, the original owner and builder of the home at 200 Ocean Avenue. Mr. Geller indicated that the site had previously been rejected by other potential buyers because of the extensive rock on site. Mr. Geller described the site as "rock city". Maine Drilling and Blasting was contracted on October 2, 1985 to blast the rock. The ledge was so prevalent that in addition to creating a hollow for house foundations, water and electrical utility trenches required rock removal. As little ledge as possible was removed to facilitate construction, leaving a very rocky site. Please see the attached photo. Rock is clearly visible in the formwork. Although this photo is also in the Price Report (Photo #12), the Report incorrectly speculates "…it is doubtful that the material directly below the footing is ledge." The photo also clearly shows rebar dowels in the upper sections of formwork, although the resolution of the photo could lead to a misinterpretation of the soils. In construction of foundations on ledge, a thin leveling layer of stone dust, gravel, or other soil is very commonly placed above the rock to facilitate formwork placement and to assure more consistent concrete placement. The thin soil layer does not increase risk of frost heave. Based on the photo, the wall builder's record of drilling dowels into ledge, prevalence of rock at this site, and the performance of the wall, it is difficult to doubt that the wall bears on ledge.

Calculations in the Price Report paint a grave picture. However, they are based on guesses in wall construction and conservative assumptions. The calculations assume bad situations exist, and so end with bad results. The actual wall on the other hand shows no signs of bad results. The wall has successfully retained soil through one and a half winters and has not shifted, cracked, heaved, settled, or otherwise become unstable.

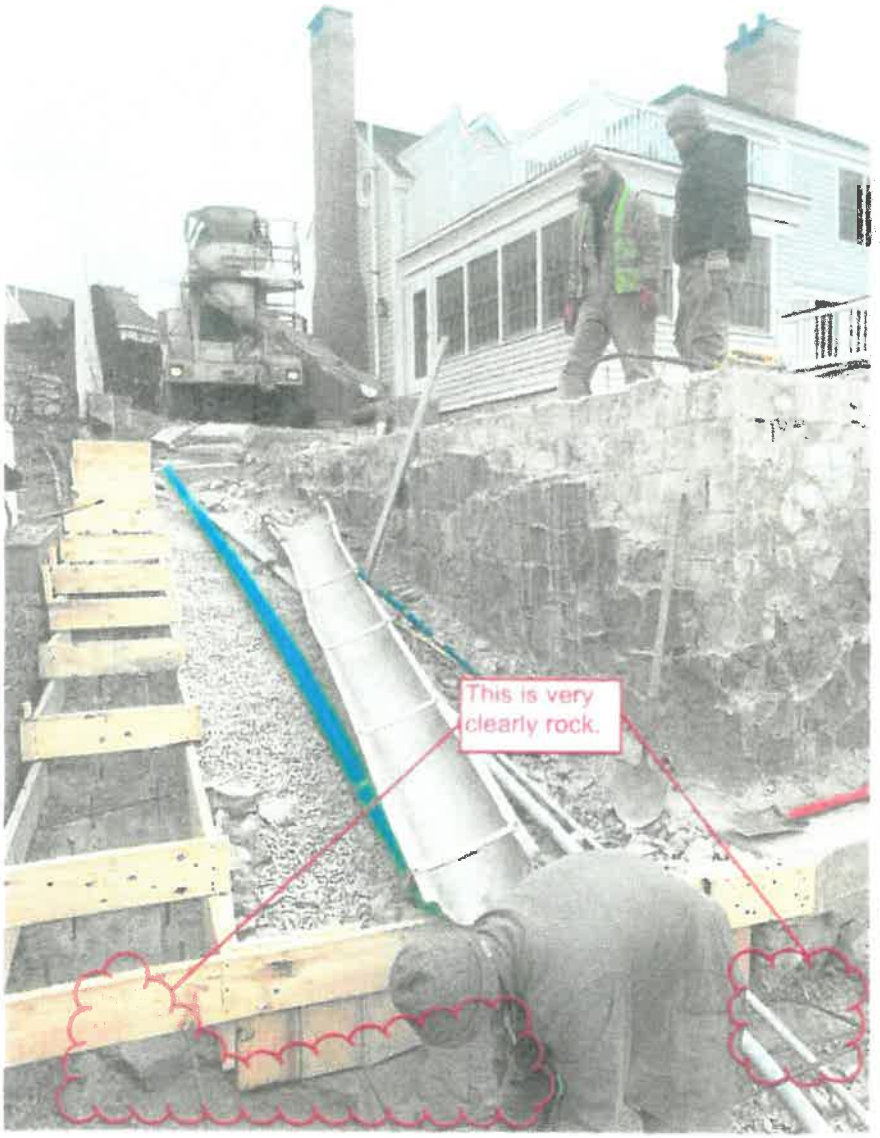
Although impressive in its photos, diagrams, and sheer volume, the Price Report does not conclude that the wall is in jeopardy but instead asks for more investigations to confirm its speculations (please see the Conclusions section of the Report on page 29). More compelling than these guesses is the readily apparent evidence of the wall's performance.

Based available documentation and its good performance, we maintain our opinion that the wall appears to be adequately constructed. Should you have any questions regarding this letter, please contact us at your earliest convenience.

Sincerely,

Lincoln/Haney Engineering Associates, Inc.

Thad Gabryszewski, P.E., SE
Vice President


This is very clearly rock.

R404.1.9.2 Masonry piers supporting floor girders. Masonry piers supporting wood girders sized in accordance with Tables R602.7(1) and R602.7(2) shall be permitted in accordance with this section. Piers supporting girders for interior bearing walls shall have a minimum nominal dimension of 12 inches (305 mm) and a maximum height of 10 feet (3048 mm) from top of footing to bottom of sill plate or girder. Piers supporting girders for exterior bearing walls shall have a minimum nominal dimension of 12 inches (305 mm) and a maximum height of 4 feet (1220 mm) from top of footing to bottom of sill plate or girder. Girders and sill plates shall be anchored to the pier or footing in accordance with Section R403.1.6 or Figure R404.1.5(1). Floor girder bearing shall be in accordance with Section R502.6.

R404.1.9.3 Masonry piers supporting braced wall panels. Masonry piers supporting *braced wall panels* shall be designed in accordance with accepted engineering practice.

R404.1.9.4 Seismic design of masonry piers. Masonry piers in *dwellings* located in Seismic Design Category D_0, D_1 or D_2, and townhouses in Seismic Design Category C, shall be designed in accordance with accepted engineering practice.

R404.1.9.5 Masonry piers in flood hazard areas. Masonry piers for *dwellings* in flood hazard areas shall be designed in accordance with Section R322.

R404.2 Wood foundation walls. Wood foundation walls shall be constructed in accordance with the provisions of Sections R404.2.1 through R404.2.6 and with the details shown in Figures R403.1(2) and R403.1(3).

R404.2.1 Identification. Load-bearing lumber shall be identified by the grade *mark* of a lumber grading or inspection agency which has been *approved* by an accreditation body that complies with DOC PS 20. In lieu of a grade *mark*, a certificate of inspection issued by a lumber grading or inspection agency meeting the requirements of this section shall be accepted. Wood structural panels shall conform to DOC PS 1 or DOC PS 2 and shall be identified by a grade *mark* or certificate of inspection issued by an *approved agency*.

R404.2.2 Stud size. The studs used in foundation walls shall be 2-inch by 6-inch (51 mm by 152 mm) members. When spaced 16 inches (406 mm) on center, a wood species with an F_b value of not less than 1,250 pounds per square inch (8619 kPa) as listed in ANSI AWC NDS shall be used. When spaced 12 inches (305 mm) on center, an F_b of not less than 875 psi (6033 kPa) shall be required.

R404.2.3 Height of backfill. For wood foundations that are not designed and installed in accordance with AWC PWF, the height of backfill against a foundation wall shall not exceed 4 feet (1219 mm). When the height of fill is more than 12 inches (305 mm) above the interior *grade* of a crawl space or floor of a *basement*, the thickness of the plywood sheathing shall meet the requirements of Table R404.2.3.

R404.2.4 Backfilling. Wood foundation walls shall not be backfilled until the *basement* floor and first floor have been constructed or the walls have been braced. For crawl space construction, backfill or bracing shall be installed on the interior of the walls prior to placing backfill on the exterior.

R404.2.5 Drainage and dampproofing. Wood foundation basements shall be drained and dampproofed in accordance with Sections R405 and R406, respectively.

R404.2.6 Fastening. Wood structural panel foundation wall sheathing shall be attached to framing in accordance with Table R602.3(1) and Section R402.1.1.

R404.3 Wood sill plates. Wood sill plates shall be a minimum of 2-inch by 4-inch (51 mm by 102 mm) nominal lumber. Sill plate anchorage shall be in accordance with Sections R403.1.6 and R602.11.

R404.4 Retaining walls. Retaining walls that are not laterally supported at the top and that retain in excess of 48 inches (1219 mm) of unbalanced fill, or retaining walls exceeding 24 inches (610 mm) in height that resist lateral loads in addition to soil, shall be designed in accordance with accepted engineering practice to ensure stability against overturning, sliding, excessive foundation pressure and water uplift. Retaining walls shall be designed for a safety factor of 1.5 against lateral sliding and overturning. This section shall not apply to foundation walls supporting buildings.

R404.5 Precast concrete foundation walls.

R404.5.1 Design. Precast concrete foundation walls shall be designed in accordance with accepted engineering practice. The design and manufacture of precast concrete foundation wall panels shall comply with the materials requirements of Section R402.3 or ACI 318. The panel design drawings shall be prepared by a registered design professional where required by the statutes of the *jurisdiction* in which the project is to be constructed in accordance with Section R106.1.

R404.5.2 Precast concrete foundation design drawings. Precast concrete foundation wall design drawings shall be submitted to the *building official* and *approved* prior to installation. Drawings shall include, at a minimum, the following information:

1. Design loading as applicable.
2. Footing design and material.
3. Concentrated loads and their points of application.
4. Soil bearing capacity.
5. Maximum allowable total uniform load.
6. Seismic design category.
7. Basic wind speed.

R404.5.3 Identification. Precast concrete foundation wall panels shall be identified by a certificate of inspection *label* issued by an *approved* third-party inspection agency.

tions for individual cases, provided the *building official* shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety or structural requirements. The details of action granting modifications shall be recorded and entered in the files of the department of building safety.

R104.10.1 Flood hazard areas. The *building official* shall not grant modifications to any provisions required in flood hazard areas as established by Table R301.2(1) unless a determination has been made that:

1. There is good and sufficient cause showing that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section R322 inappropriate.
2. Failure to grant the modification would result in exceptional hardship by rendering the lot undevelopable.
3. The granting of modification will not result in increased flood heights, additional threats to public safety, extraordinary public expense, cause fraud on or victimization of the public, or conflict with existing laws or ordinances.
4. The modification is the minimum necessary to afford relief, considering the flood hazard.
5. Written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation and stating that construction below the design flood elevation increases risks to life and property, has been submitted to the applicant.

R104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material, design or method of construction shall be *approved* where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code. Compliance with the specific performance-based provisions of the International Codes shall be an alternative to the specific requirements of this code. Where the alternative material, design or method of construction is not *approved*, the *building official* shall respond in writing, stating the reasons why the alternative was not *approved*.

R104.11.1 Tests. Where there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the *building official* shall have the authority to require tests as evidence of compliance to be made at no expense to the *jurisdiction*. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the *building official* shall approve the testing procedures. Tests shall be performed by an *approved* agency. Reports of such tests shall be retained by the *building official* for the period required for retention of public records.

SECTION R105
PERMITS

R105.1 Required. Any owner or owner's authorized agent who intends to construct, enlarge, alter, repair, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be performed, shall first make application to the *building official* and obtain the required *permit*.

R105.2 Work exempt from permit. Exemption from *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this *jurisdiction*. *Permits* shall not be required for the following:

Building:

1. One-*story* detached *accessory structures*, provided that the floor area does not exceed 200 square feet (18.58 m^2).
2. Fences not over 7 feet (2134 mm) high.
3. Retaining walls that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge.
4. Water tanks supported directly upon *grade* if the capacity does not exceed 5,000 gallons (18 927 L) and the ratio of height to diameter or width does not exceed 2 to 1.
5. Sidewalks and driveways.
6. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
7. Prefabricated swimming pools that are less than 24 inches (610 mm) deep.
8. Swings and other playground equipment.
9. Window awnings supported by an exterior wall that do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.
10. Decks not exceeding 200 square feet (18.58 m^2) in area, that are not more than 30 inches (762 mm) above *grade* at any point, are not attached to a dwelling do not serve the exit door required by Section R311.4.

Lincoln/Haney Engineering Associates, Inc.
Structural Engineering Consultants
Michael A. Cunningham, P.E., LEED AP
Thad Gabryszewski, P.E., S.E

February 5, 2020

Ms. Lori Bell
200 Ocean Avenue
Kennebunkport, ME 04046

Subject: Summary of Engineering and Verification Efforts
Rubble Retaining Walls and Stone Veneer/Reinforced Masonry Retaining Walls
200 Ocean Avenue, Kennebunkport, ME

Dear Lori:

This summary is to address concerns noted by the Town of Kennebunk in its January 31, 2020 letter regarding the retaining walls at your property at the above noted address. The Town's letter pertains to the rubble walls along Ocean Avenue, noted as Wall Section A1 and A2, and the stone veneer faced/ reinforced concrete masonry unit (CMU) wall along the western property line, noted as Wall Section A11. The Town's letter is in response to the report prepared by Price Structural Engineers. The Price Report was completed at the request of Randy Slager, the abutter to the west of your property. As we have noted in our January 23, 2020 letter to you, the Price Report is impressive in its size (47 pages) however does not conclude the walls are inadequate. Instead, the Price Report speculates that the walls could be inadequate if certain conditions exist. Three engineering firms have offered Opinions that counter the speculations of the Price Report and conclude that the walls are sound. The Opinions are based on calculations, observations of in-progress construction, and evidence of performance. This letter compiles and summarizes the engineering and verification efforts regarding the retaining walls.

Wall Sections A1 & A2 – rubble walls

Structural Integrity originally performed a design for the walls in 2018. Somehow, the original walls were constructed at a wrong location on the property. The project had a stop work order issued by the Town, and the walls were subsequently demolished. New walls were built closer to the road, and in accordance with a different design.

Structural Integrity was somehow sent photos of the new wall installation, and issued a letter stating that the walls were not built according to their details & calculations. What Structural Integrity may not have known is that another set of calculations were performed for the new walls.

M2 Structural Engineering prepared new calculations for the A1 and A2 Wall Sections, dated April 22, 2019. Matthew Miller, P.E., of M2 Structural Engineering also prepared a Memorandum recording his visit to inspect construction, dated July 30, 2019. Mr. Miller's Memorandum states, "Measurements for the width at the top of the wall and retained height of the walls were taken and were consistent with the structural design provided by our office." Mr. Miller also states, "Prior to our visit the upper wall had been backfilled and the lower wall partially backfilled therefore the width of the wall at the base could not be verified." Although Mr. Miller did not observe the bottom of the wall, photographic evidence exists to confirm the width and construction of the wall. Mr. Tony Aceto of Maineway Landscaping and Excavating provided several photos that document construction. The construction includes filter fabric, crushed stone backfill, two wythes of stone, and course of stone that connect the front and rear wythes. Further, Mr. Miller and I discussed the walls and his design via telephone on February 3, 2020. During this call Mr. Miller confirmed what his calculations show, that the rubble walls were designed as "mass walls". This means they resist soil pressure by their weight and size. So long as the walls are of the proper width and have courses that lock the two wythes, the walls are consistent with his design. Mr.

Aceto's photos show that the width of the walls is consistent over its height (verifying construction at the base of the wall) and that locking courses (stretcher courses) are in place. Mr. Miller further commented that he visited the site twice. He further commented that both times the wall construction was in accordance with his design, including the width and presence of stretcher courses.

Based on the stamped design of Mr. Miller, his stamped Memorandum, and the photos provided by Mr. Aceto, Wall Sections A1 and A2 are constructed in accordance with Mr. Miller's design.

Wall Section A11 – reinforced CMU wall

The wall at the western limit of the property has been retaining soil for over a year, through one and a half winters. The wall shows no signs of movement or distress despite numerous frosts. The wall shows no visible cracks. This was observed on site today, as well as documented by the Price Report on Page 8, Section 1. d. where the Report notes, "Continuous fractures in the stone veneer were not observed". Our September 24, 2019 letter documents what we knew to date about the wall, which includes: The wall ranges in height, and is composed of reinforced concrete masonry units (CMU), stone facing, with a concrete footing. The footing is pinned to ledge using two rows of reinforcing dowels, and we understand that each CMU cell is reinforced and grouted solid. The wall is backfilled with crushed stone and has a perimeter drain at its base. The foundation bears on ledge and so is adequately protected against frost heave. Based on reports from the wall's builder, each cell of the wall's CMU is reinforced with #4 reinforcing bars. Engineering calculations demonstrate that a wall reinforced in such a manner has sufficient capacity to resist Code required loads.

The Price Report speculates that Wall Section A11 does not bear on ledge, despite photos that show ledge and the testimony of the wall's builder. The Report notes two test probes driven by Mr. Price did not find ledge, however, these probes were not below the wall nor on the same property as the wall. Today three test holes were dug at the base of the wall. All three found ledge, and found the wall's foundation bears on ledge. Two test holes along the western wall seem to show that ledge gets deeper to the west of the property. This is consistent with plantings (a row of bushes) and utilities (a generator) to the west. The bushes need soil cover to prevent toppling over and utilities need soil cover to meet Code required burial depth. The Price probes did not find ledge because they were too far from the wall. They were in an area with more soil above ledge. Wall Section A11 bears directly on ledge and so is protected from frost heaves.

The CMU wall varies in height. Portions of the western wall are 48 inches or less in height. Those portions inherently support lower loads and fall within the IRC's prescriptive limit which do not ask for engineering design. The taller portions of the wall are laterally braced both by the wall's corners, and by an existing CMU retaining wall which ties into the new wall. The western portion of the new wall is closely located to the existing wall, and the soil fills between the two are all crushed stone. This lowers the demand on the wall because: less soil volume; crushed stone creates less retaining pressure; crushed stone freely drains water. Collectively all these items help make the wall more robust. These items are in addition to the reinforcing reported by the contractor. Based on these items, it is little surprise that the wall is performing well.

In the above noted report by M2 Structural Engineering, Mr. Miller states regarding Wall Section A11, "We did not observe indications of wall movement, either sliding or rotation, nor were deficiencies noted during our visit." In his September 24, 2019 letter regarding the wall, Mr. Owens McCullough, P.E. indicates, "The wall is in excellent condition with no observations of instability or distress and has been in place for approximately 7 months." The Lincoln/Haney letters of September 24, 2019 and January 23, 2020 both indicate that the wall is in good repair, and that evidence of its adequate construction is provided through its excellent performance. Three independent engineering firms attest that Wall Section A11 is performing well.

Complete documentation of the wall's construction is not available. Nevertheless, we can only conclude that Wall Section A11 is adequately constructed to safely resist its retained backfill because of the items noted above, and because the wall has successfully retained its backfill for over a year, through frost seasons, with no signs of distress.

Wall Sections A1, A2, and A11

As noted above, we do not doubt that Wall Sections A1, A2, and A11 are adequately constructed to effectively retain soil. If for argument's sake doubts remain in other persons' minds, perhaps concerns may be assuaged with understanding that walls are covered under the Contractor's insurance policy. However unlikely, if the walls start to show signs of distress, such distress would be gradual and would take time. If cracks form in the CMU wall, or stones start to shift in the rubble walls, repairs would be covered under the Contractor's policy, preventing a visual nuisance from developing.

Closing

We hope that this summary addresses concerns noted in the Town's January 31, 2020. Should you have any questions regarding this letter, please contact us at your earliest convenience.

Sincerely,

Lincoln/Haney Engineering Associates, Inc.

Thad Gabryszewski, P.E., SE
Vice President


Wall that was
demolished.


Wall that was demolished. Note location of wall relative to edge of road. The following photos show the new wall closer.

Rubble Retaining Wall

200 Ocean Avenue

Kennebunkport, Maine

These calcs were completed after Structural Integrity's design (dated 20 Nov 2018) and Structural Integrity's letter to the town (dated 3 April 2019). Structural Integrity indicated that the wall was not completed per their design & detail; the wall was re-designed in these calcs.

April 22, 2019

Prepared for:

Maineway Landscaping and Excavating

1021 Portland Road

Saco, ME 04072

Prepared by:

M² Structural Engineering, P.C.

23 Thornbury Way

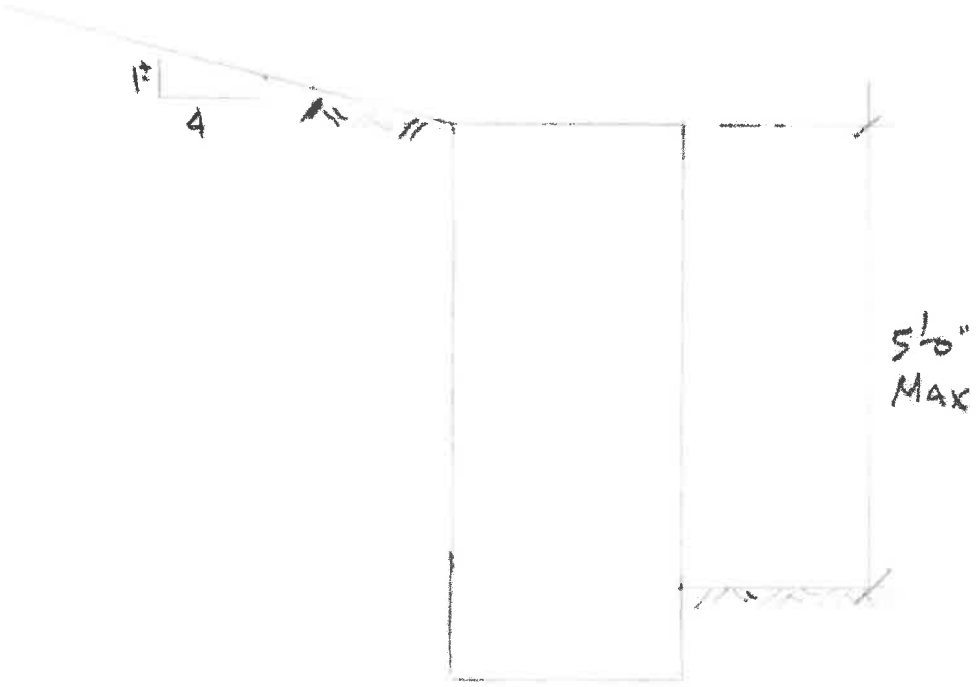
Windham, ME 04062

04/22/2019

M²SE Project No.: 19040

M² STRUCTURAL ENGINEERING, P.C.
23 Thornbury Way
Windham, ME 04062
(207) 892-0983
www.m2se.com

PROJECT [illegible]
PROJECT # 19040
CALCULATED BY MJM DATE 4/12/19
CHECKED BY DATE
SHEET 1 OF 4



TAKE AVG WEIGHT OF WALL = 120 PCF.

TAKE UNIT WEIGHT OF BACKFILL 110 PCF

ϕ BACKFILL = 35°

CALCULATE ACTIVE EARTH PRESSURE Ka

$$K_a = \frac{\cos\beta - \sqrt{\cos^2\beta - \cos^2\phi}}{\cos\beta + \sqrt{\cos^2\beta - \cos^2\phi}}$$

$\beta = 0°$

$$\therefore K_a = \frac{(.97 - 0.51)}{0.97 + 0.51} \quad \text{for } \beta = 1$$

$$\therefore P = .31(110) \quad 34 \text{ PLF}$$

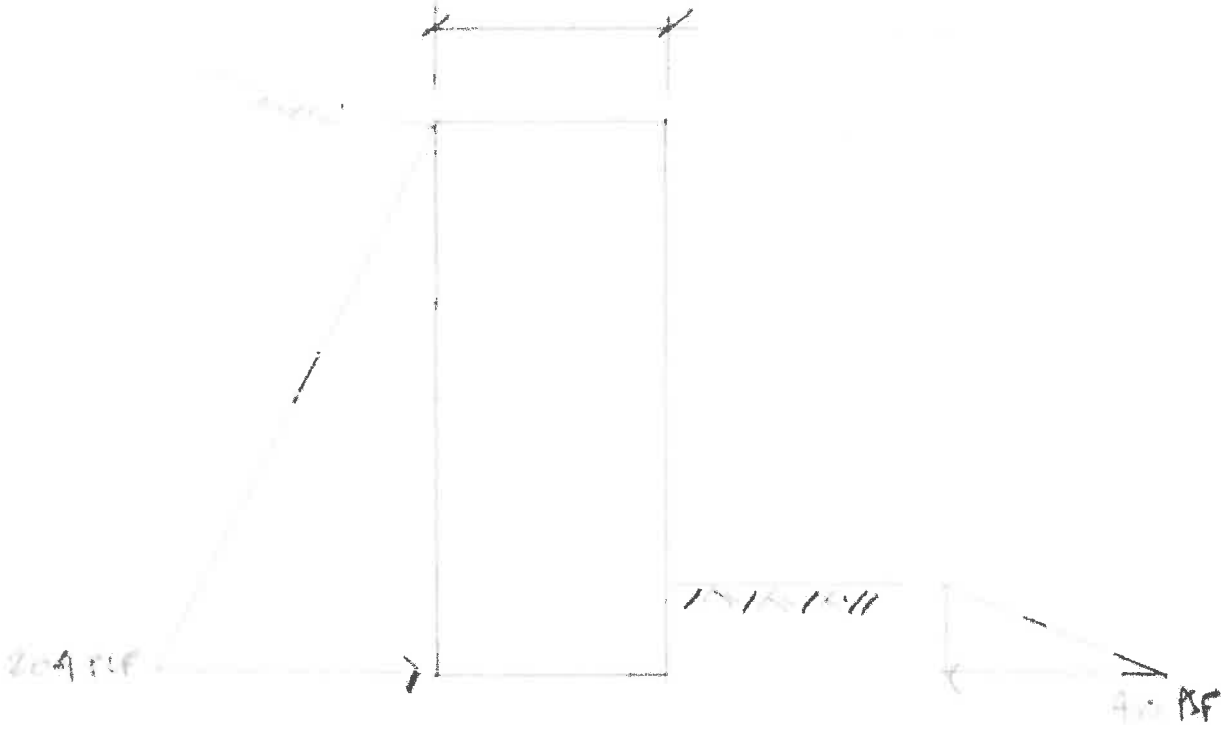
STRUCTURAL ENGINEERING, P.C.
23 Thornbury Way
Windham, ME 04062
(207) 892-0983
www.m2se.com

PROJECT
PROJECT #
CALCULATED BY MJM DATE 4-22-15
CHECKED BY DATE
SHEET 2 OF 4

Passive Earth Pressure

k_p: 3.69 [illegible] 3.7

∴ ETP = 400 PCF



Driving Force: F_D = [illegible] 612#

Resisting Force: F_R = 400(1½) = [illegible] /FT (Passive Pressure)

Friction: μ = 0.55 (Concrete on Gravel)

Weight of Wall [illegible] 720 PLF /FT

∴ F_F = 39[illegible] /FT of W[illegible]

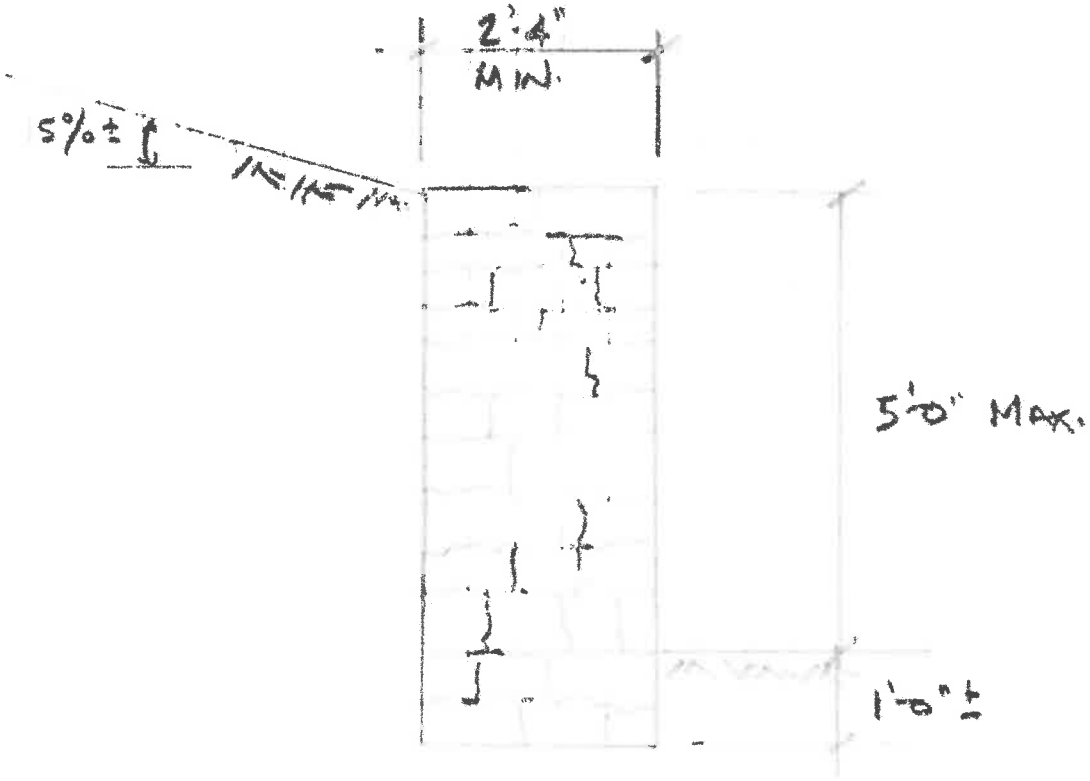
M2 STRUCTURAL ENGINEERING, P.C.
23 Thornbury Way
Windham, ME 04062
(207) 892-0983
www.m2se.com

PROJECT
PROJECT # 0
CALCULATED BY DATE 4-
CHECKED BY DATE
SHEET OF

STRUCTURAL ENGINEERING, P.C.
23 Thornbury Way
Windham, ME 04062
(207) 892-0983
www.m2se.com

PROJECT
PROJECT #
CALCULATED BY DATE
CHECKED BY DATE
SHEET 4 OF 4

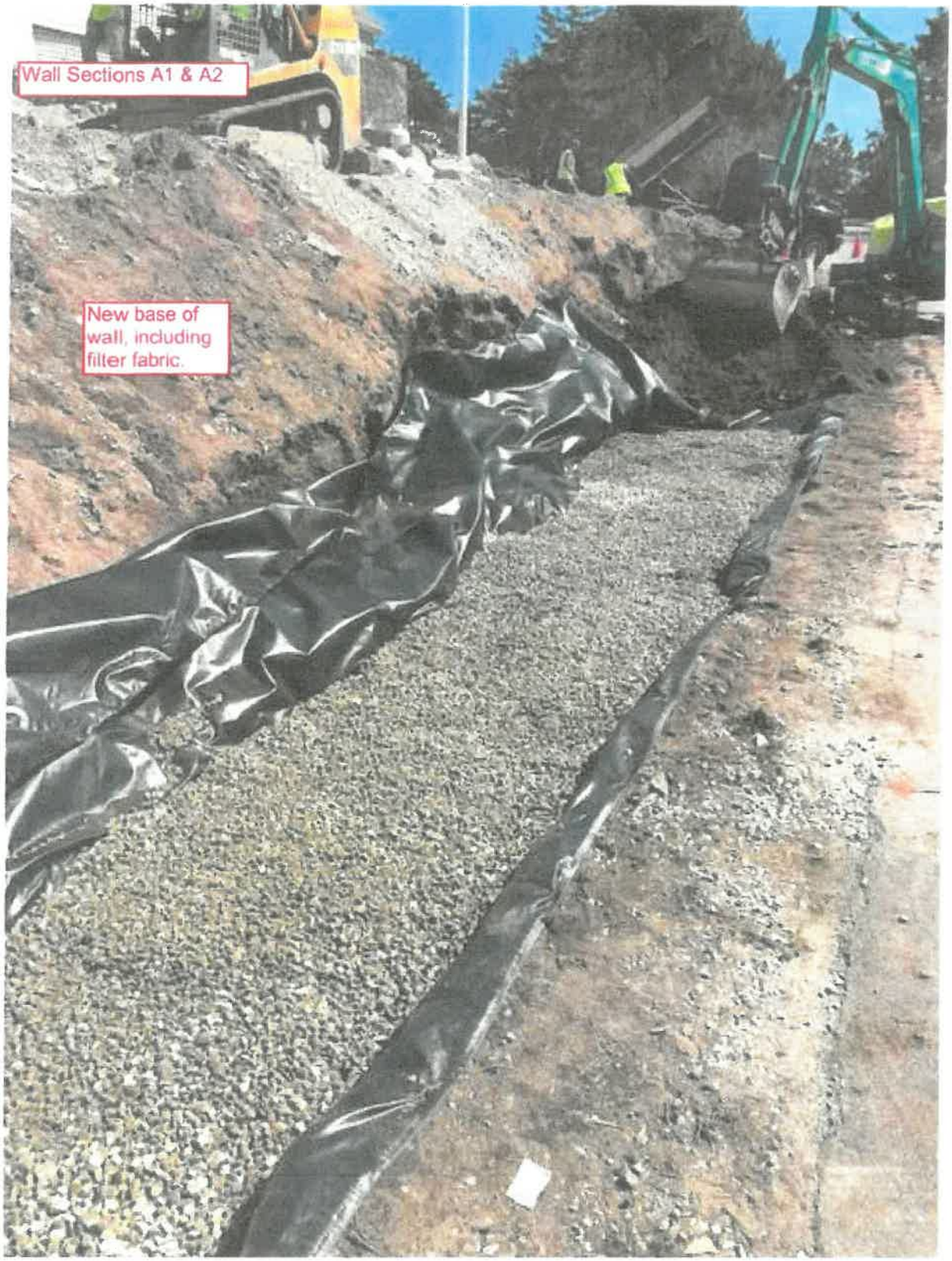
∴ Use 2'-4" Wide Wall Min.



Typical Wall Section

Not to Scale

End of Submittal

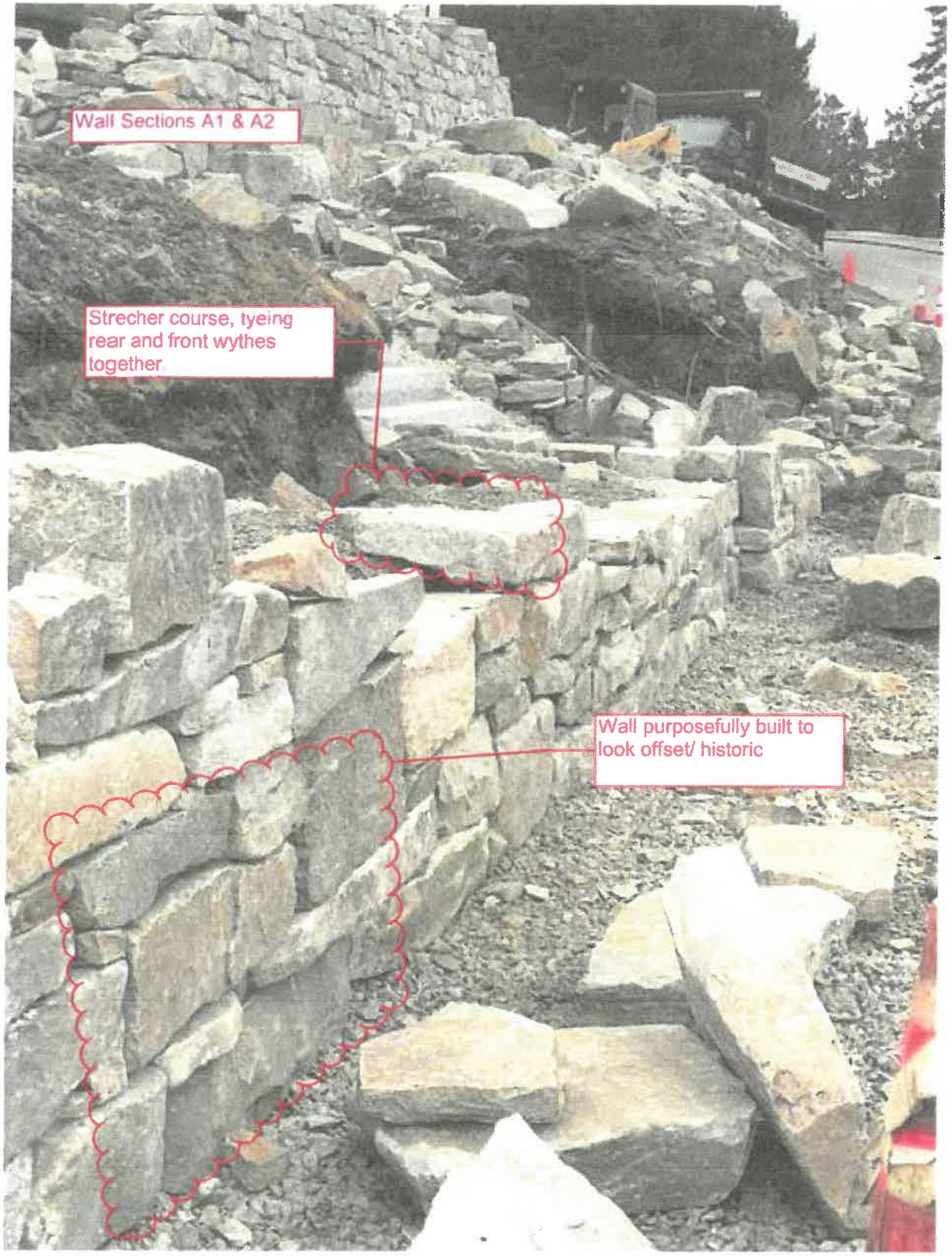

Wall Sections A1 & A2
New base of wall, including filter fabric.


Wall Sections A1 & A2
New base of wall, including filter fabric.


Wall Sections A1 & A2
New base of wall, including filter fabric.


Wall Sections A1 & A2
Strecher course, tyeing rear and front wythes together.

Wall Sections A1 & A2


Wall Sections A1 & A2
Strecher course, tyeing rear and front wythes together
Wall purposefully built to look offset/ historic


Wall Sections A1 & A2
Strecher course, tyeing rear and front wythes together.


Wall Sections A1 & A2
The top of the crushed stone has wall stones placed on it...making the wall look like it has a third wythe. The two actual wall wythes are tied together, as the previous photos show.

M² STRUCTURAL ENGINEERING, P.C.

23 Thornbury Way
Windham, ME 04062
(207) 892-0983

MEMORANDUM

Date: July 30, 2019

To: Tony Aceto
Maineway Landscaping and Excavating
1021 Portland Road
Saco, ME 04072

From: Matthew J. Miller, P.E.

Re: 200 Ocean Avenue, Kennebunkport, ME

At your request, M² Structural Engineering visited the project site at 200 Ocean Avenue in Kennebunkport, ME in Monday July 29, 2019 to review the construction of the rubble retaining walls.

Prior to our visit the upper wall had been backfilled and the lower wall partially backfilled therefore the width of the wall at the base could not be verified.

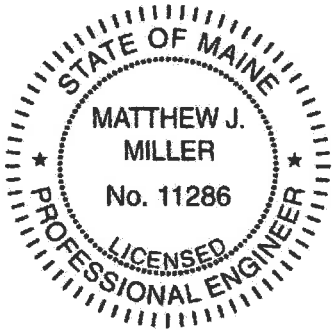
Measurements for the width at the top of the wall and retained height of the walls were taken and were consistent with the structural design provided by our office.

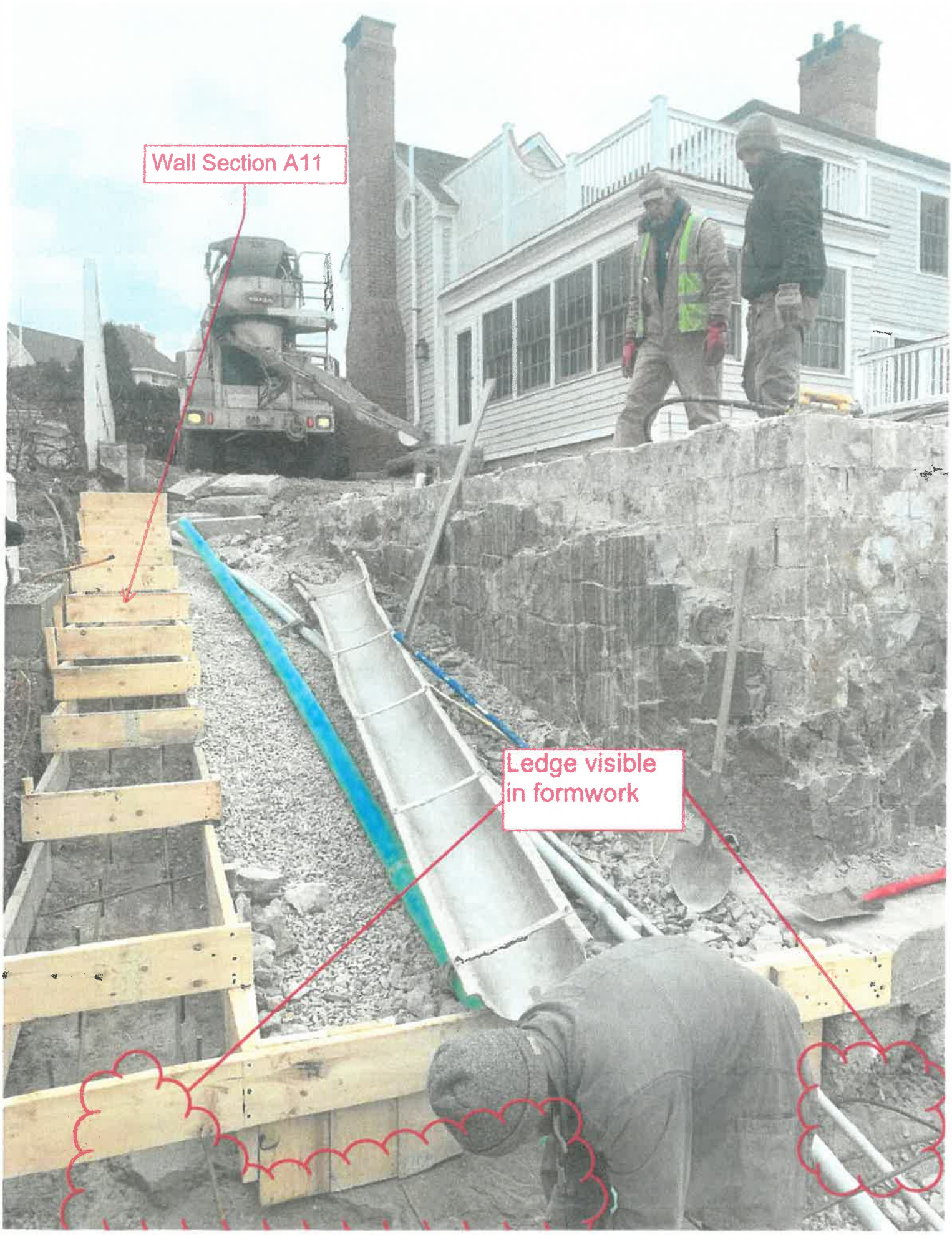
While on site we also provided a visual inspection of the retaining wall located on the west side of the property as requested. Our inspection was limited to visual observations of the completed wall and did not include any selective demolition to verify the wall construction. We understand that this wall was designed by another engineer and constructed by a previous contractor. M² Structural Engineering did not provide a structural analysis of the wall, nor were on site during the construction of the wall. Presence of crushed stone backfill of the wall limited our review to the front face of the wall. We did not observe indications of wall movement, either sliding or rotation, nor were deficiencies noted during our visit.

If you have any questions regarding this memo, please do not hesitate to contact me.

Regards,
M² Structural Engineering, P.C.

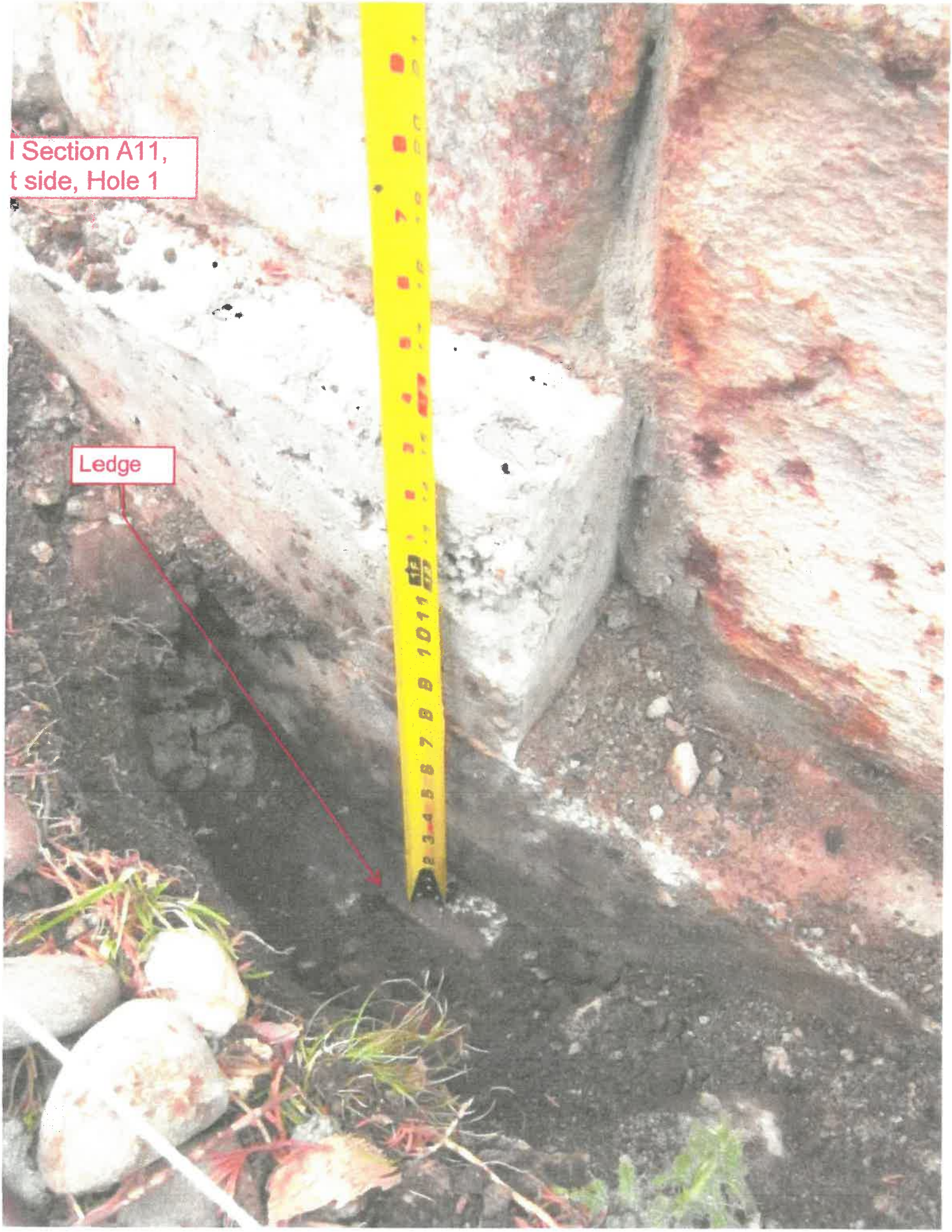
Matthew J. Miller, P.E.




Wall Section A11
Ledge visible in formwork


Section A11,
side
Hole 1
Hole 2

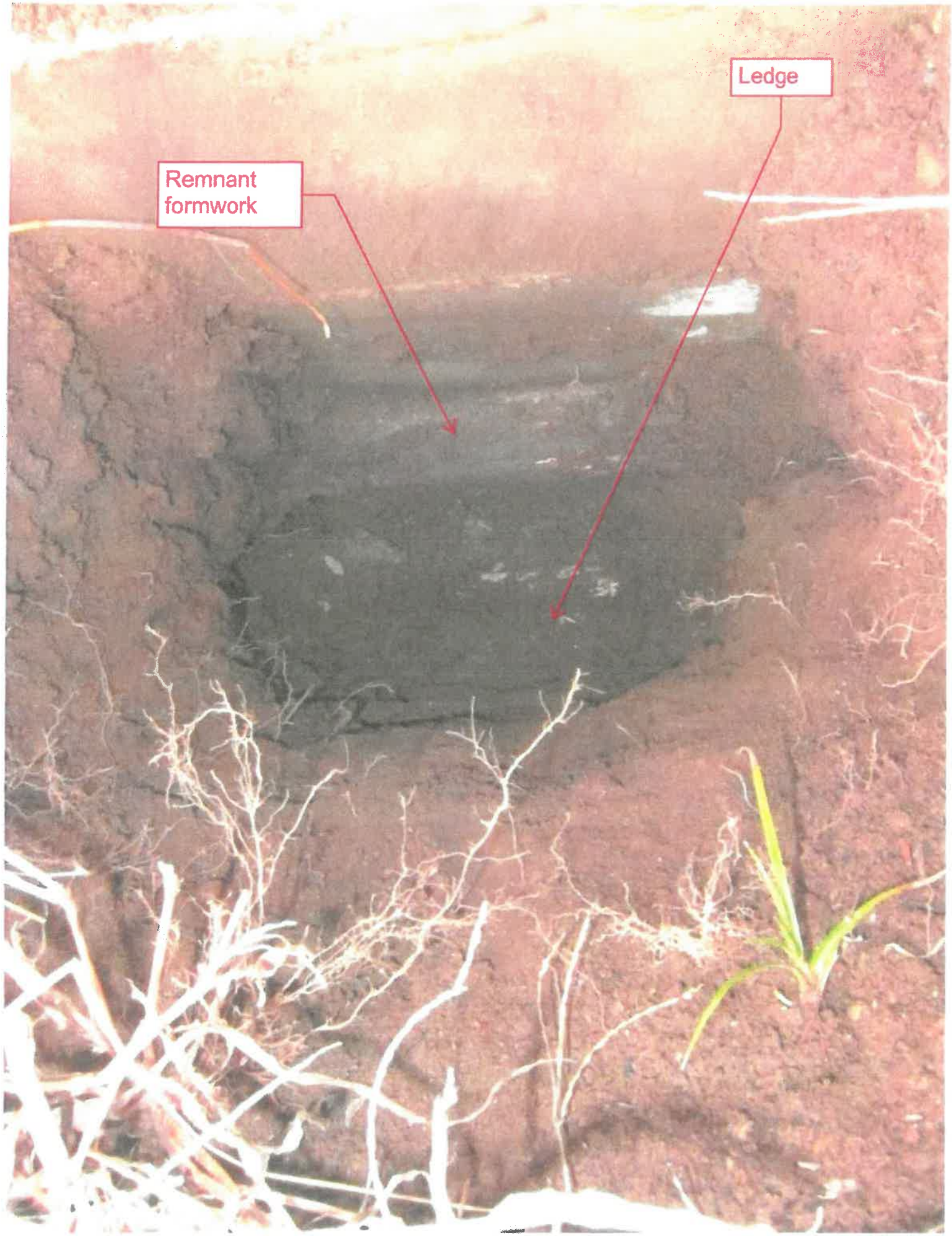

Wall Section A11,
west side, Hole 1
Ledge

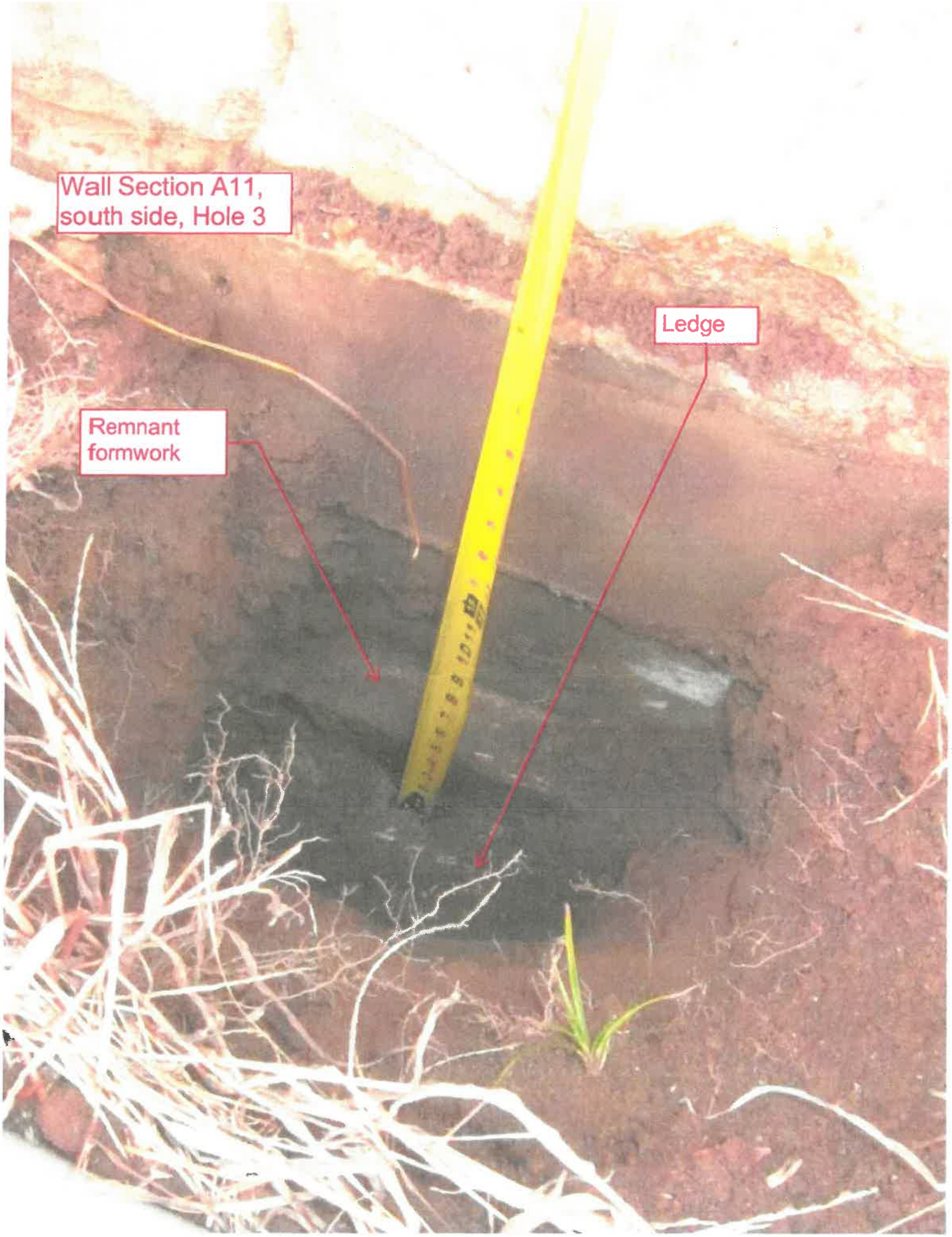

l Section A11,
t side, Hole 1
Ledge


Wall Section A11,
west side, Hole 2


Section A11,
side, Hole 2
Ledge


Wall Section A11,
south side
Hole 3


Ledge
Remnant formwork


Wall Section A11,
south side, Hole 3
Ledge
Remnant
formwork

Werner Gilliam

From: matt@m2se.com
Sent: Friday, February 14, 2020 3:21 PM
To: Werner Gilliam
Subject: RE: 200 Ocean Avenue letter as requested

Werner,

I have read through the report prepared by Thad at Lincoln Haney Engineering Associates. The report does a good job in summarizing my understanding of the sequence of events for the referenced project.

I am in agreement with the conclusions Thad has make regarding the rubble walls.

If you have any questions or require any further information on input, please do not hesitate to contact me.

Regards,

Matt

Matthew J. Miller, P.E.
M^2 Structural Engineering, P.C.
23 Thornbury Way
Windham, ME 04062
(207) 892-0983

Licensed in ME, NH, MA, VT, CT and NY

From: Werner Gilliam <wgilliam@kennebunkportme.gov>
Sent: Friday, February 14, 2020 3:00 PM
To: matt@m2se.com
Subject: FW: 200 Ocean Avenue letter as requested
Importance: High

Hi Matt,
Thanks for chatting with me today. I would appreciate knowing whether or not you are in agreement with the position Thad has taken regarding the rubble walls you designed.

Thanks

Werner

Werner Gilliam, CFM
Director of Planning and Development
Town of Kennebunkport
(207)967-1604

wgilliam@kennebunkportme.gov

From: Lori Bell <lbell@bellassoc.com>
Sent: Thursday, February 06, 2020 1:07 PM
To: Werner Gilliam <wgilliam@kennebunkportme.gov>
Cc: Dan Rosenthal (dlr@marcusclegg.com) <dlr@marcusclegg.com>
Subject: 200 Ocean Avenue letter as requested
Importance: High

Please see the attached letter from Lincoln/Haney Engineering Associates, Inc.

Thank you for your attention to this matter. Would you please confirm receipt of this letter I want to make sure the pdf goes through.

Lori Bell
Bell Associates Consultants, INC.
79 E Putnam Ave
Greenwich, CT 06830
203-707-1335 Direct
203-707-1330 Main
917-797-6770 Cell
203-621-3344 Fax
www.bellassoc.com
Click here to upload files.

Price Structural Engineers, Inc.

75 Farms Edge Road
North Yarmouth, ME 04097
Tel: 207-846-0099
Fax: 207-846-1633
E-Mail: PriceStructural@maine.rr.com

February 19, 2020

Randy Slager
200 Ocean Avenue
Kennebunkport, ME 04046

Re: Response to Recent Letters
Engineering Review of Retaining Walls
200 Ocean Avenue
Kennebunkport, ME 04046

Dear Randy,

This letter is written in response to the 3 letters that Price Structural Engineers, Inc. (PSE) recently received which are summarized as follows,

1. Town of Kennebunkport - dated 1/31/20
2. Lincoln / Haney Engineering Associates, Inc. (L/HEA) – dated 1/23/20
3. Lincoln / Haney Engineering Associates, Inc. (L/HEA) – dated 2/5/20.

Each of the letters received pertain to the walls currently referred to as A1, A2, and A11. These wall mark numbers are based on the landscape drawings issued for this project dated 10/29/19 that were prepared by Joshua Tompkins Landscape Architecture (JTLA).

L/HEA has expressed an opinion that the current as-built construction of these three walls is satisfactory. PSE disagrees with this conclusion and is of the opinion that the "satisfactory" conclusion is premature and very likely wrong.

<u>Rubble Stone Walls A1 and A2</u>

PSE appreciates the additional new photographs and information provided in the letters recently received. Page 2 of the 2/5/20 L/HEA letter states Mr. Miller visited the site twice. Please note that PSE has a copy of the 7/30/19 site visit letter but not for the second site visit. It would be helpful to have a copy of the summary letter for the second site visit.

PSE's concern is that portions of the A1 and A2 rubble stone walls are between 5 feet and 6 feet tall and are approximately 4 feet from the edge of a very busy public road near a blind corner. The partial collapse of these walls could easily result in some of the large stones being thrown into the vehicle right of way. If this were to occur during a dense fog or freezing rain, both of which are common in Maine, the results could be catastrophic. Therefore, it is both reasonable and proper to review the A1 and A2 rubble stone walls with greater scrutiny for code compliance than the other rubble stone walls at the project site.

In the abundance of calculations prepared by Bell's multiple engineers, it must be noted that none of them have yet issued their own rubble stone cross section detail specifying requirements at the rubble stone wall interior. All of the details issued by them to date (at least those that received by PSE) are limited to height, width, and soil slope/depth dimensions only but have no specifications of internal rock placement requirements. These placement requirements are critical because, as with any structure, it is the internal as-built construction features that are the key for the strength and reliability of the structure. That requirement is certainly true for these walls also. Without conformance to critical code-mandated internal construction features, the rubble walls are simply just very tall piles of unmortared, loose and possibly highly unstable big rocks.

It is also noteworthy that the first engineering firm, Structural Integrity Consulting Engineers Inc. (SICE), retained by Bell also expressed a negative opinion regarding the as-built rubble stone walls A1 and A2. This is based on their 4/3/19 site visit letter which stated, "It appears evident that the current construction to the walls does not match the intent of the typical detail for their construction." The "typical detail" being referred to is the wall cross section detail #15 on sheet L-4.0 issued by the landscape architect for the project.

Detail 15/L4.0 is relevant to the existing wall A1 and A2 structural adequacy question. It is the only detail provided by the Bell design team that provides clear specifications regarding the internal rock placement requirements inside the rubble walls. There are several important aspects as follows:

a. SICE did not need to provide a separate detail specifying internal rock placement requirements inside the wall since it clearly referenced Detail 15/L4.0 in its calculations.

b. The original A1 and A2 walls by JTLA were specified as 4.5' high with continuous capstones at the top. As such, calculations performed by PSE indicate that Detail 15/L4.0 was in conformance with the 2015 IRC for the A1 and A2 rubble stone walls.

c. The town approved the JTLA Detail 15/L4.0, which was a code-compliant detail for the A1 and A2 rubble stone wall construction as it was detailed on the JTLA drawings.

d. Subsequent rubble stone wall calculations were performed by another Bell engineer, specifically M² Structural Engineers (M²SE). The 4/22/19 M²SE calculations specify 2'-4" wide walls but do not specify Detail 15/L4.0. As a result, it is not clear what directive the contractor was given as to how they were to construct the internal rock placement for the stone walls. Though not confirmed by PSE, it is likely the contractor was given a copy of the landscape drawings which contained Detail 15/L4.0. Assuming that is the case, then it means it would be the contractor's sole responsibility to comply with the requirements on the JTLA design documents, including Detail 15/L4.0.

e. What is clear from the abundant photographs provided and a report from SICE is that the contractor did not construct the walls in accordance with Detail 15/L4.0. Therefore, the question remains, how were walls A1 and A2 actually constructed and did the contractor use any code - compliant detail at all?

f. Except for Detail 15/L4.0, no other detail specifying internal stone placement requirements were included in the "new calculations for the A1 and A2 Wall Sections" referenced in the L/HEA 2/5/20 letter, and no replacement detail has yet been provided. This gives the impression that the contractor may have decided to just "wing it" and hope for the best.

Rubble Stone Wall "Bonders" ("Headers")

Some of the most critical mandated provisions in the 2015 IRC building code for rubble stone masonry walls, especially those higher than a few feet, are those that pertain to the construction and subsequent stability of the wall. The reason is because, although visually appealing after construction is complete, these walls still remain as a simple pile of tall, loose, unmortared, and possibly highly unstable big rocks.

As can be seen by each of the rubble stone wall calculations performed to date, the width of the wall must be calculated since it is dependent on the wall height. It stands to reason, therefore, that as the wall gets higher it must also become wider to maintain stability.

As a result, taller rubble stone walls are typically constructed as two separate walls built side by side in order to obtain the necessary specified width. Each of these parallel walls is called a "**wythe**." These two parallel walls are then connected together at regular intervals with specific particularly large (and long) stones that the building code refers to as "**bonder units**" since the stones "bond" or "lock" the two walls together. The intent is that rather than two tall slender walls, the walls stabilize each other by the large (and long) bonder units that tie them together.

A descriptive reference is made to these bonder units near the bottom of the first page in the L/HEA 2/5/20 letter where it states, "So long as the walls are of the proper width and have courses that lock the two wythes, the walls are consistent with his design."
PSE is in agreement that it is the bonder units that are the critical element which "lock the two wythes" together. Nevertheless, because bonder units are in fact so vital, the building code also contains requirements which pertain specifically to these components. The code is abundantly clear that it is not enough to simply install bonder units. It is just as critical that the bonder units also be installed at the locations and frequency specified by the code.

The 2015 IRC code reference for the location and frequency of "bonders" in rubble stone masonry walls is as follows.

> "R606.13.3.2 Rubble stone masonry.
>
> - Rubble stone masonry 24 inches (610 mm) or less in thickness shall have bonder units with a maximum spacing of 3 feet (914 mm) vertically and 3 feet (914 mm) horizontally, and
> - If the masonry is of greater thickness than 24 inches (610 mm). shall have one bonder unit for each 6 square feet (0.557 m^2) of wall surface on both sides."

Note that the bonder layout requirements above are based on wall thickness, not on the height of retained soil. Therefore, these provisions apply even if there is no retained soil.

Furthermore, the 4/22/19 M²SE "new calculations" specified that the height of A1 and A2 walls must not exceed 5' above grade and concluded that the width of the A1 and A2 rubble stone walls must be a minimum 2'-4" wide. Because of the 24" thickness requirement, the 2nd provision indicated in R606.13.3.2 above applies to walls A1 and A2. What is of great significance is that the 2nd provision requires that there be bonders on both sides of the wall, not just one side.

Example Bonder Layout Pattern Calculation

A sample calculation of an acceptable bonder layout pattern on both sides of the wall may be performed as follows. This sample calculation assumes that bonders will be installed in pairs, with one bonder at mid-height and a second bonder at the top of the wall aligned directly above the bonder at mid-height. Assuming a 5'-9" (5.8') wall height with one bonder unit at the top of the wall and a second bonder at the mid-height level of the wall, a calculation can be performed to identify the horizontal spacing of each pair of bonders. The code specifies one bonder for each 6.0 square feet of wall surface on both sides of the wall. Let "S" = the horizontal spacing between the pairs of bonders.

Therefore, $\frac{5.8 \text{ feet high}}{2 \text{ bonders}} \times S = 6.0 \text{ sq. ft.}$ The result is S = 2.1 ft. on center

For this pattern, a wall elevation detail would then be developed showing two bonders in a 5.8 foot high wall, with one bonder at the top of the wall and another bonder at mid-height directly underneath. This pair of bonders would be repeated along the length of the wall with each pair of bonders spaced horizontally not more than 2.1 feet from the adjacent pair of bonders. This same pattern would then need to be repeated on both sides of the wall in order to conform to the IRC code requirements for rubble stone walls exceeding a width of 24".

Bonder Installation Requirements

Further description of rubble stone bonder installation requirements is provided in the TMS 402-13/ACI 530-13/ASCE 5-13 Building Code Requirements and Specifications for Masonry Structures. This document is referenced by the 2015 International Residential Code.

1. On page C-14 of this document (ACI 530-13) a definition of "Header" and "Bonder" is provided as follows (shown in bold). Note that the code uses terms "header" and "bonder" interchangeably to describe the same component in masonry construction.

   "Header (bonder) – A masonry unit that connects two or more adjacent wythes of masonry."

2. On page C-222 / section A.7.4.2 (ACI 530-13), the same previously stated code requirement listed in section R606.13.3.2 of the 2015 IRC for bonders is repeated in this code section.

3. Header (bonder) installation · On page C-223 (ACI 530-13) a code commentary page provides 4 diagrams demonstrating how headers (bonders) are to be installed in various masonry wall configurations such as solid units, hollow units, brick and also what appears to be cut stone (dressed ashlar) in the upper left corner labeled "a. Solid Units". A photocopy is attached on the following page.
   The diagram makes it clear that the headers (bonders) for large solid masonry units (including rubble stone) must conform with the following provisions:
   a. The header must be flush with one side of the wall
   b. The header must be large enough to extend more than half way across the width of the wall
   c. The header must bear directly on another stone that extends to the opposite side of the wall
   d. The header must lap at least 3" over the stone below.

4. **The "locking force" that ties the two wythes together is accomplished by friction imposed by the larger (and heavier) header on one side bearing directly on a stone that fully extends to the opposite side.**

COMMENTARY

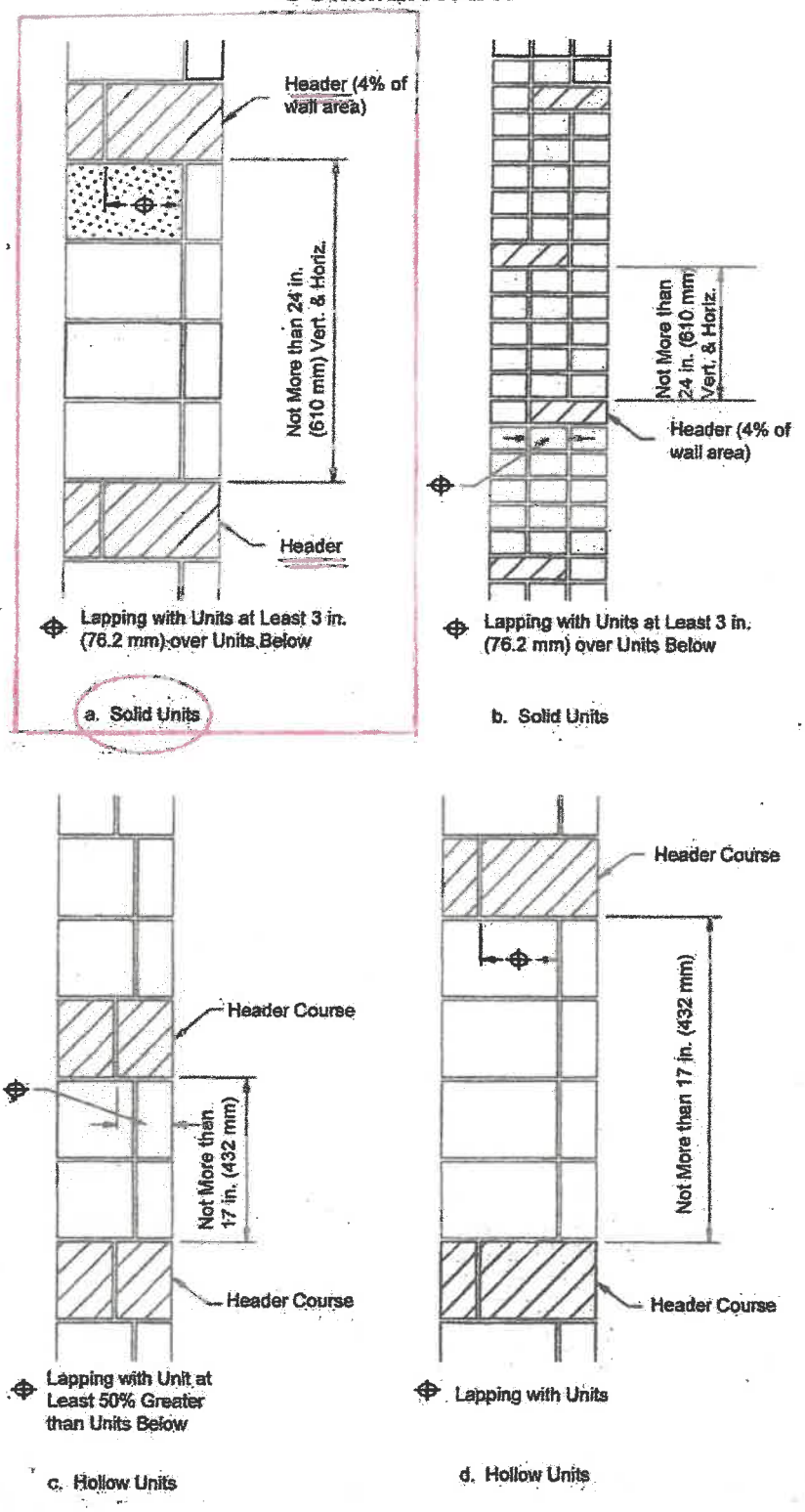


Figure CC-A.7-1 — Cross section of wall elevations

Structural Integrity Site Visit Report

On page one of the L/HEA 2/5/20 letter approximately 2/3 down the page, there is a section where L/HEA states,

"Structural Integrity was somehow sent photos of the new wall installation, and issued a letter stating that the walls were not built according to their details and calculations. What Structural Integrity may not have known is that another set of calculations were performed for the new walls."

This statement gives the impression that the 4/3/19 site visit report prepared by Structural Integrity (SICE) should be dismissed since other new calculations had already been performed which specified revised A-1 and A-2 wall dimensions and therefore infers that the SICE report is obsolete and irrelevant.

The L/HEA statement further endeavors to give the impression that the Structural Integrity review report was based solely on photos provided by others (**"was somehow sent photos"**) which implies that the photos contained in the 4/3/19 SICE report were taken by others and not SICE. PSE strongly disagrees with these sentiments for the following reasons.

a. When L/HEA references **"another set of calculations,"** what are the specific calculations they are referring to and who prepared them? It cannot be the M²SE calculations. This is because the SICE site visit report was dated 4/3/19 and the M²SE "new calculations" were dated 4/22/19, almost a full 3 weeks later. The M²SE calculations were not yet issued when SICE performed their site visit.

b. PSE has received no information or evidence indicating that the photos in the SICE 4/3/19 site visit report were taken by others. Furthermore, the SICE 4/3/19 site visit report (attached, please refer to appendix) contains no statement within the report that indicates the observations made were based on photos provided by others.

   Instead the report states that the building official requested SICE to perform a site visit and that SICE then performed that request. The report also states, "When I observed conditions on site..." which further clarifies that all observations were made directly by the report author and not by another source. The report also indicates measurements were taken of small features, including 3/8" drainage stone, which would could not be done from a photograph.

   Therefore, based on the information available, PSE is of the opinion that the 4/3/19 SICE site visit report conclusions were based on the observations made directly by the report's author and not based on photographs provided by others.

c. The L/HEA comment states that the SICE report photos are, **"photos of the new wall installation."** PSE agrees with that comment. The first photo in the 4/3/19 report provides a view of the A2 wall face and its proximity to the adjacent edge of road. The distance between the edge of pavement and the face of wall shown in the photo appears to match the current distance between the A2 wall face and the road.

   Therefore, based on the information available, PSE is of the opinion that the 4/3/19 SICE site visit report and its conclusions pertain to the A1 and A2 rubble stone walls currently in place.

d. The concerns expressed within the 4/3/19 report pertained to critical features that affect the overall wall stability. These features include wall face batter and stone orientation placement inside the wall. These observations should be taken seriously since they were performed on site by a qualified design professional and describe specific faulty construction concerns of the existing wall in its present condition.

e. The SICE 4/3/19 site visit report is relevant to the current concerns. This SICE report is one of the few times that the A1 and A2 walls were observed directly during its construction (not after) by a licensed structural engineer in Maine. The SICE report concluded by stating, **"It appears evident that the current construction to the walls does not match the intent of the typical detail for their construction."**

Therefore, based on the information available, PSE is of the opinion that the 4/3/19 SICE site visit report confirms that the A1 and A2 walls were not constructed in accordance with Detail 15/L4.0.

Furthermore, based on the information available, PSE is of the opinion that a section of the existing A2 wall should be disassembled, with a minimum width of 10' wide, so that the locations of bonders on both sides of the wall can be observed, measured, and compared to code requirements.

Concrete Masonry Wall A11

The following photo provides convincing and irrefutable evidence that the existing footing below the CMU wall does not bear on ledge. In the photo it can be seen that:

1. The formwork adjacent to the west property line is installed level.
2. The formwork has already been attached to the vertical support posts at the side.
3. The vertical height of the formwork relative to the shrubbery matches the conditions that are currently observed on site.
4. The southwest corner of the formwork extends above grade and this condition matches the field observation that the bottom of the existing installed footing is at grade level at the southwest corner.
5. There is a long stretch of level formwork at the south end of the formwork on the west side and then there are two footing steps farther to the north that are a short distance apart; this condition also matches current observations.
6. The caption below the photo confirms that the placement of concrete in the footing would occur within a few days.

Clearly this photo shows the formwork is in its permanent position prior to concrete placement and the caption indicates the placement of concrete occurred shortly thereafter.

More importantly, the photo dispels the notion that the wall footing is bearing on ledge or is connected to ledge. Existing grade is well below the bottom of the formwork.

"Forms in place for footing for block wall. Scheduled to be poured next week. The purpose of these walls is to gain valuable space above for the fire pit gathering area ."

Therefore, based on the information available, PSE is of the opinion that the existing footing below wall A11 is not bearing on ledge nor is it connected to ledge.

The photograph above was included with the 12/17/19 PSE report but no response was provided by the Bell engineers with regard to the photo. What is displayed in the photo above is dramatically different when compared to the photos provided by L/HEA, which depict a material at the bottom of the footing that does exhibit at least some appearance of ledge. That discrepancy is a mystery which must be identified and then field verified.

The following 3 excerpts were taken from the L/HEA 2/5/20 letter:

- "Today three test holes were dug at the base of the [A11] wall. All three found ledge, and found that the wall's foundation bears on ledge."
- "The Price probes did not find ledge because they were too far from the wall. They were in an area with more soil above ledge."
- "Wall section A11 bears directly on ledge and so is protected from frost heave."

A broader description of the "Price test probes" (PSE) is contained in the PSE report dated 12/17/19. It should be noted that the Price test probes were approximately 17" west of the A11 footing and that one of the probes extended approximately 27" below the bottom of the A11 footing but still did not encounter ledge.

The Bell team is proposing that all of the A11 footings are bearing on ledge and that the edge of the ledge, perhaps somehow by amazing good luck and coincidence, just happens to align perfectly with the existing property line. On its face, this does appear to be suspiciously very convenient. The Bell team is further stating that they have no problem believing that the ledge is essentially at the top of the existing grade or close to it all along the property line but that just 17" to the west the ledge immediately drops off to more than 27" below top of grade.

Therefore, based on the information available, PSE is of the opinion that further exploration of the substrate materials below the existing A11 footing is required and that it should be exposed by means of a 30"wide x 30" long x 3' deep open pit located immediately adjacent to the west side of the A11 footing near the south end.

The fact that there is nothing but air well below the bottom of the formwork makes it clear that a fully reinforced retaining wall footing capable of resisting overturning loads for a 7' high retaining wall should have been installed below the CMU wall to conform with code requirements.

Therefore, based on the information available, PSE is of the opinion that the contractor acted irresponsibly in proceeding with construction with no engineered design prior to construction and by not providing a submittal with construction details documenting the change to the town office prior to construction.

Frost Heave

Here in Maine we all understand that winters are far more severe during some years and much less severe during others. It would be a serious mistake to assume that this wall has been adequately tested with regard to frost heave concerns, particularly in light of the unknown materials below the CMU wall footing described above.

On the 2nd page of the 2/5/20 L/HEA letter it was noted that on 9/24/19 Owens McCullough, P.E. stated that the wall "has been in place approximately 7 months." This reasonably marks the date that the CMU wall was completed as being near the end of February 2019. Therefore, this means that the worst of the 2019 winter had already passed (December, January, and most of February) by the time the wall was completed.

Furthermore, so far this year the winter has been relatively mild. To confirm this I spoke directly with a senior manager last week at Shaw Brothers and he said there is actually very little frost in the ground right now. Further evidence of the mild winter is confirmed by the L/HEA 2/5/20 letter which provides photos indicating they dug several exploratory holes into the ground on 2/5/20 which they apparently accomplished with relative ease.

Therefore, based on the information provided, it is PSE's opinion that:

- **The observed satisfactory performance of the A11 of wall is due primarily to mild winters and an unusual lack of prolonged subzero weather; and that,**
- **It would be premature to assume that wall A11 is immune to frost heave.**

Long term frost heave is a legitimate concern for the A11 CMU retaining wall. Significant portions of the A11 CMU footing are either above grade level or just below the top of the existing grade. The stone backfill behind the CMU wall and drain pipe are all located at an elevation that is above the footing level and so these materials will not be able to drain water from soil materials located below the A11 footing.

Structures that do not have adequate frost heave protection are vulnerable to long-term progressive movement followed by degradation. The building code mandates that frost heave protection measures be provided for this wall. This critical requirement was stated in the 1/31/20 letter from Town of Kennebunkport which insisted that frost heave protection be provided for this wall.

Development Length for Embedded Steel Reinforcement

By not engaging a qualified engineer, the contractor made poor structural design choices which include critical code violations that pertain to the construction and reliability of this wall. There is a photo provided in the L/HEA 2/5/20 letter (no page numbers were provided in the letter) that states, "ledge visible in formwork" which display pins extending several inches above the ground surface below. L/HEA has repeatedly stated that it is these pins that are the primary source of confidence ensuring that the wall is stable.

Nevertheless, even if it were ledge, the vertical height of the pin embedded into the bottom of the concrete footing is far below the development length requirements specified by ACI 318-14. The pins at the east side of the photo (right side) are in extreme tension because these are the pins that are tasked with preventing overturning of the entire wall.

The minimum required development length for a #4 bar in 3000 psi concrete is approximately 22" which is far greater than the extension of the pin above the concrete. There are not even any 90° hooks in the pins. The photo itself demonstrates that this aspect of the A11 wall construction is in gross violation of the ACI 318-14 building code.

Engineered Design Required

The 2015 International Residential Code states that retaining walls which support more than 48 inches of unbalanced backfill and are laterally unsupported at the top must be designed in accordance with accepted engineering practice. The specific provision is as follows:

> "R404.1.1 Design required. Concrete or masonry foundation walls shall be designed in accordance with accepted engineering practice where either of the following conditions exists:
>
> 1. Walls are subject to hydrostatic pressure from ground water.
> 2. Walls supporting more than 48 inches (1219 mm) of unbalanced backfill that do not have permanent lateral support at the top or bottom."

By not engaging a qualified engineer the contractor chose to ignore this code provision (along with other code provisions) even though portions of the wall are almost twice the height of the maximum 48 inch limit. The contractor may have been counting on the code official to give him a pass. PSE fully acknowledges that the final decision of how best to proceed belongs to the code official. Nevertheless, among the considerations that should be included is a concern that if the contractor is given a pass on the gross inappropriate procedures and construction practices for this project it could strongly encourage this contractor and others to repeat this approach on future projects.

The L/HEA 2/5/20 letter suggests that the crushed stone behind the wall will provide some relief to the lateral forces applied to the wall. On 11/25/19 PSE spoke with a highly experienced licensed geotechnical engineer in Maine about this question regarding this specific project. The geotechnical engineer stated that it is true if you know the stone has been compacted but if it is not compacted you cannot rely on that. None of the photographs received to date show a compactor on the project site.

The L/HEA 2/5/20 letter also suggests that the wall corner will also provide some relief. PSE acknowledges that the corner will provide some localized restraint but cautions that there are no photos or other indications that horizontal reinforcement inside bond beams was placed anywhere in the wall. It is PSE's position that a corner is not an adequate replacement for a properly designed reinforced footing with regular spaced vertical reinforcement fully developed into the base of the retaining wall. This footing is "accepted engineering practice" and it is a critical component missing from wall A11.

The conclusion to the L/HEA letter states that "we do not doubt that Wall Sections A1, A2, and A11 are adequately constructed" and that "those who have doubts "may be assuaged with understanding that walls are covered under the contractor's insurance policy." This suggestion is essentially stating that if the Bell engineers guessed wrong it becomes the innocent neighbor next door who is forced into chasing the contractor's insurance company (a contractor not retained by the neighbor) in a laborious effort to access some pittance of assistance. Such a suggestion is an insult. The citizens of Kennebunkport deserve better than this.

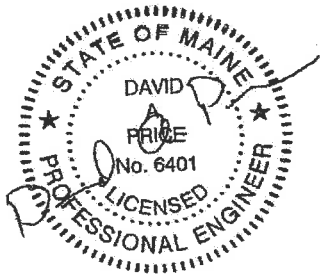
It is PSE's position that you can only expect what you inspect. It is also PSE's position that the approach by the Bell engineers to fully accept the contractor's construction by relying with confidence on the contractor's statements and an "it just might work" attitude in lieu of adequate testing and verification is disconcerting and inappropriate, particularly because this is new construction. The Kennebunkport citizens adopted a building code and deserve to have new construction conform with the code requirements that were adopted.

If you have any comments or questions regarding this letter, please do not hesitate to call or otherwise contact me.

Sincerely,

David A. Price PE, MLSE
President

Enclosure



APPENDIX A

APRIL 3, 2019 SITE VISIT REPORT
200 OCEAN AVENUE
KENNEBUNKPORT, ME

Performed by:

Structural Integrity Consulting engineers, Inc.
46 Forest Avenue
Portland, ME 04101

Notes:

1. Comments in red were performed by Structural Integrity Consultants (SICEI)
2. Comments in blue were performed by Price Structural Engineers, Inc. (PSE)

Structural Integrity
Consulting Engineers, Inc.

April 3, 2019

Mr. Matt Philbrick
Code Enforcement Officer
Town of Kennebunkport, Maine
6 Elm Street
Kennebunkport, Maine 04046

Reference:
New Dry-Laid Stone Retaining Walls along Ocean Ave at the Bell Residence
200 Ocean Ave
Kennebunkport, ME

Dear Matt,

As requested, I am writing this memo regarding our structural review for the construction of the walls along Ocean Ave at the above referenced residence. This memo is in response to your request that I review the construction of the walls being built along the town road on Wednesday March 27th, 2019. Architectural and proximity/locational conditions are not included in this report. No warranty expressed or implied, as to the condition of the structure, is intended.

The walls along the road are shown on Sheet L-4.0, Wall Elevations, specifically views, A1 and A2. The construction of the walls as stated on our calculation set;

"The walls shown on the Site Plan and L-4.0 Wall Elevations drawings, dated 10/29/18, are adequate for retainage based on the calculations provided."

was based on typical detail 15 on sheet L-4.0. When I observed the conditions on site, I found several items that did not match the typical detail on sheet L-4.0. I have attached a marked up copy of the detail to show the items the do not match and the following photos of the in-place wall built with the noted inconsistencies. It appears evident that the current construction to the walls does not match the intent of the typical detail for their construction

Do not hesitate to call with any question, comments, or if I can be of further assistance.

Sincerely,

Aaron C. Jones, P.E.,
President

STATE OF MAINE
AARON C. JONES
No. 10968
LICENSED PROFESSIONAL ENGINEER
04/03/2019

Page 1 of 6 from 4/3/19 Structural Integrity Consulting Engineers, Inc. (SICEI) report.
Comments in blue are from Price Structural Engineers, Inc.

Summary of deficiencies in wall construction observed and noted by SICEI:

1. Most stones set with their shortest dimension into wall (this causes wall to be less stable)
2. No full capstones as specified
3. Batter not seen (slope at front face not observed)
4. Stone gradations less than 3/4"

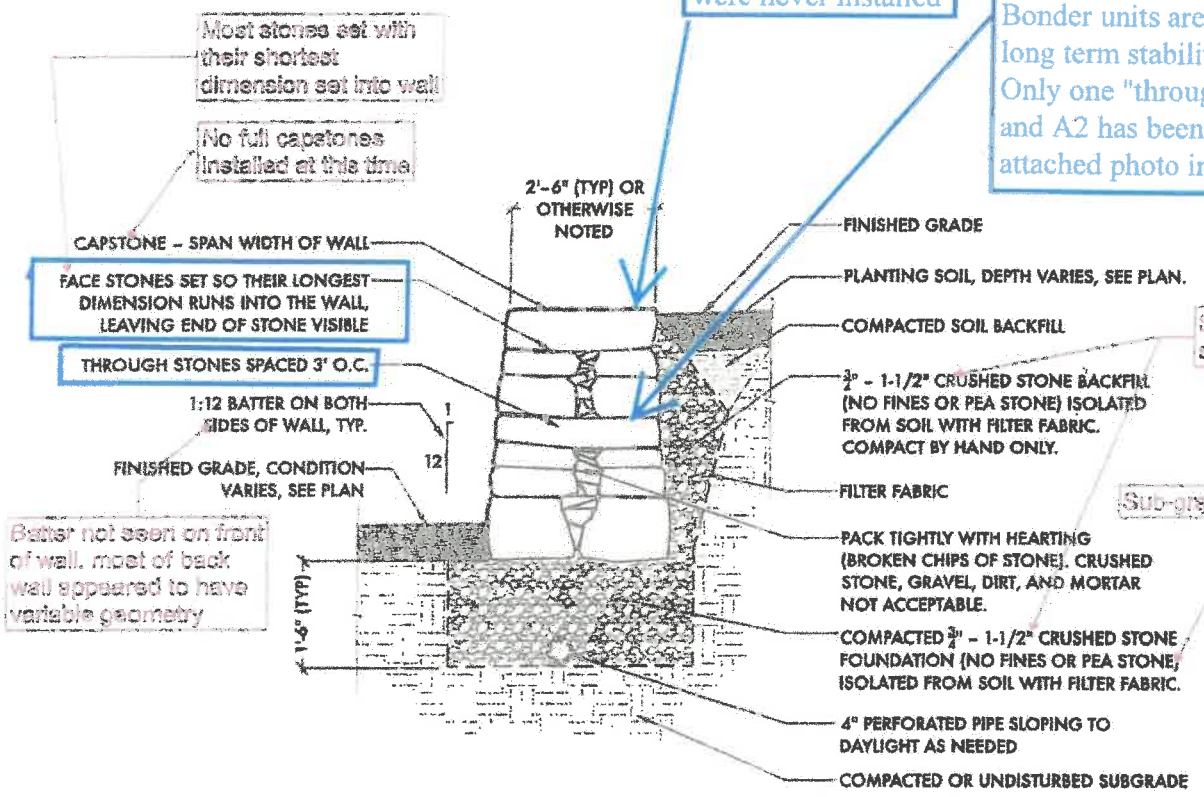
"Through Stones" (a type of Bonder unit) not installed at 3' on center as specified by the original Tompkins Landscape drawings.

Bonder units are specified by the International Residential Code 2015 adopted by the town of Kennebunkport.

Bonder units are critical to maintaining long term stability of rubble stone walls. Only one "through-stone" for walls A1 and A2 has been confirmed to date (see attached photo in this SICEI report)

Items Not Per Detail

Full CapStones" were never installed

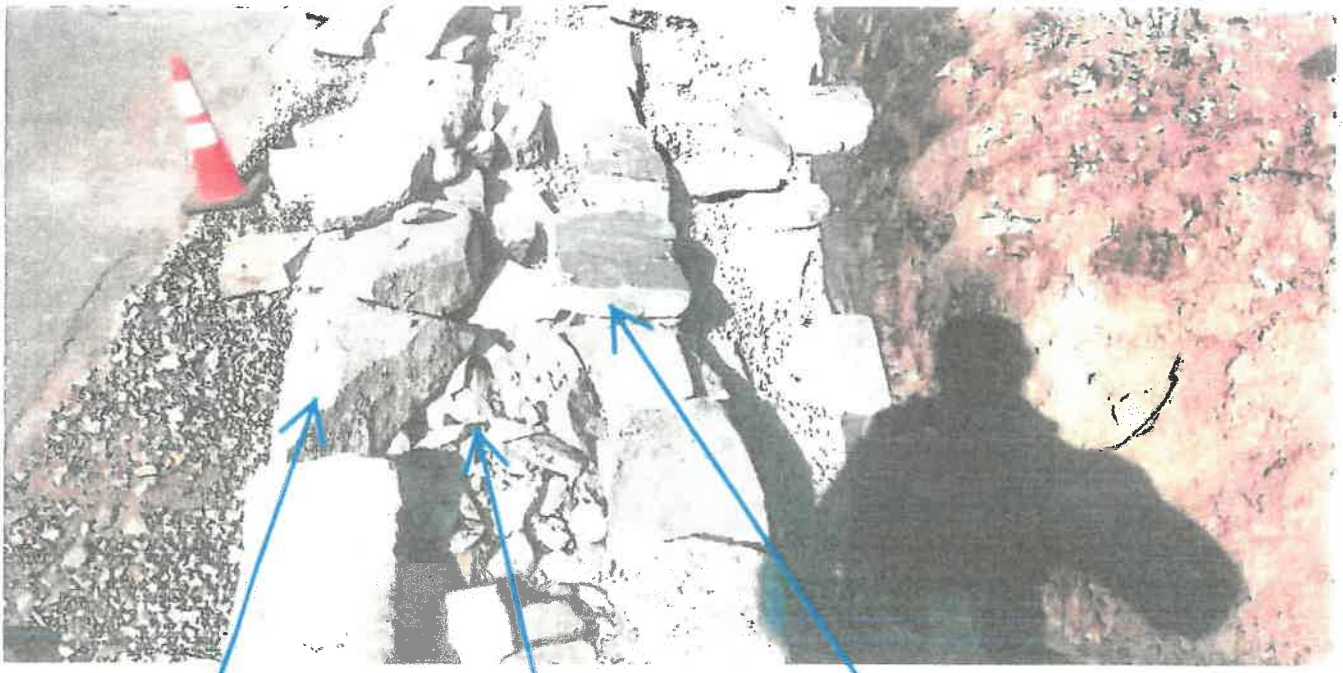


15 TYPICAL DRY-STACKED WALL DETAIL
SCALE: 1/2" = 1'-0

Comments / deficiencies noted in **red** are from SICEI.
Comments in blue are from Price Structural Engineers, Inc. (PSE)

Distance from edge of road to face of wall A2 appears to be the same as the wall that is currently in place.
The wall that was observed by Structural Integrity is therefore likely the same wall that is currently in place.

Page 3 of 6 from 4/3/19 SICEI report.
Comments in blue are from Price Structural Engineers, Inc.

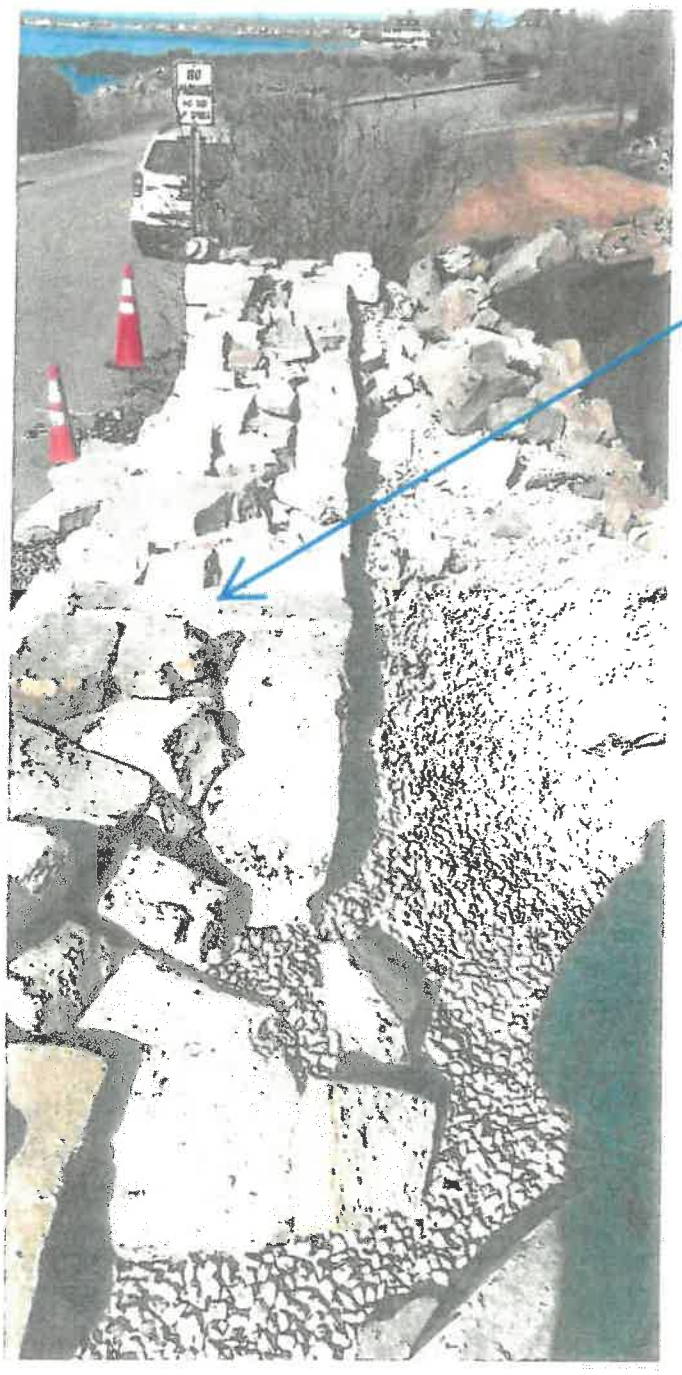


Loose Stones at Front Wall

Appears to be broken chips of stone, crushed stone, gravel and dirt at wide space between front and back walls

Loose Stones at Back Wall

Page 4 of 6 from 4/3/19 SICEI report.
Comments in blue are from Price Structural Engineers, Inc.



Only one "Through-Stone" observed in Wall A2.

Page 5 of 6 from 4/3/19 SICEI report. Comments in blue are from Price Structural Engineers, Inc.

No Through-Stones or Bonder Units observed in this photo

Page 6 of 6 from 4/3/19 SICEI report. Comments in blue are from Price Structural Engineers, Inc.

R606.13.2 Bonding with wall ties or joint reinforcement. Bonding with wall ties or joint reinforcement shall comply with Section R606.13.2.3.

R606.13.2.1 Bonding with wall ties. Bonding with wall ties, except as required by Section R607, where the facing and backing (adjacent wythes) of masonry walls are bonded with $^3/_{16}$-inch-diameter (5 mm) wall ties embedded in the horizontal mortar joints, there shall be not less than one metal tie for each $4^1/_2$ square feet (0.418 m^2) of wall area. Ties in alternate courses shall be staggered. The maximum vertical distance between ties shall not exceed 24 inches (610 mm), and the maximum horizontal distance shall not exceed 36 inches (914 mm). Rods or ties bent to rectangular shape shall be used with hollow masonry units laid with the cells vertical. In other walls, the ends of ties shall be bent to 90-degree (0.79 rad) angles to provide hooks not less than 2 inches (51 mm) long. Additional bonding ties shall be provided at all openings, spaced not more than 3 feet (914 mm) apart around the perimeter and within 12 inches (305 mm) of the opening.

R606.13.2.2 Bonding with adjustable wall ties. Where the facing and backing (adjacent wythes) of masonry are bonded with adjustable wall ties, there shall be not less than one tie for each 2.67 square feet (0.248 m^2) of wall area. Neither the vertical nor the horizontal spacing of the adjustable wall ties shall exceed 24 inches (610 mm). The maximum vertical offset of bed joints from one wythe to the other shall be 1.25 inches (32 mm). The maximum clearance between connecting parts of the ties shall be $^1/_{16}$ inch (2 mm). Where pintle legs are used, ties shall have not less than two $^3/_{16}$-inch-diameter (5 mm) legs.

R606.13.2.3 Bonding with prefabricated joint reinforcement. Where the facing and backing (adjacent wythes) of masonry are bonded with prefabricated joint reinforcement, there shall be not less than one cross wire serving as a tie for each 2.67 square feet (0.248 m^2) of wall area. The vertical spacing of the joint reinforcement shall not exceed 16 inches (406 mm). Cross wires on prefabricated joint reinforcement shall not be smaller than No. 9 gage. The longitudinal wires shall be embedded in the mortar.

R606.13.3 Bonding with natural or cast stone. Bonding with natural and cast stone shall conform to Sections R606.13.3.1 and R606.13.3.2.

R606.13.3.1 Ashlar masonry. In ashlar masonry, bonder units, uniformly distributed, shall be provided to the extent of not less than 10 percent of the wall area. Such bonder units shall extend not less than 4 inches (102 mm) into the backing wall.

R606.13.3.2 Rubble stone masonry. Rubble stone masonry 24 inches (610 mm) or less in thickness shall have bonder units with a maximum spacing of 3 feet (914 mm) vertically and 3 feet (914 mm) horizontally, and if the masonry is of greater thickness than 24 inches (610 mm), shall have one bonder unit for each 6 square feet (0.557 m^2) of wall surface on both sides.

R606.14 Anchored and adhered masonry veneer.

R606.14.1 Anchored veneer. Anchored masonry veneer installed over a backing of wood or cold-formed steel shall meet the requirements of Section R703.8.

R606.14.2 Adhered veneer. Adhered masonry veneer shall be installed in accordance with the requirements of Section R703.12.

SECTION R607
GLASS UNIT MASONRY

R607.1 General. Panels of glass unit masonry located in load-bearing and nonload-bearing exterior and interior walls shall be constructed in accordance with this section.

R607.2 Materials. Hollow glass units shall be partially evacuated and have a minimum average glass face thickness of $^3/_{16}$ inch (5 mm). The surface of units in contact with mortar shall be treated with a polyvinyl butyral coating or latex-based paint. The use of reclaimed units is prohibited.

R607.3 Units. Hollow or solid glass block units shall be standard or thin units.

R607.3.1 Standard units. The specified thickness of standard units shall be not less than $3^7/_8$ inches (98 mm).

R607.3.2 Thin units. The specified thickness of thin units shall be not less than $3^1/_8$ inches (79 mm) for hollow units and not less than 3 inches (76 mm) for solid units.

R607.4 Isolated panels. Isolated panels of glass unit masonry shall conform to the requirements of this section.

R607.4.1 Exterior standard-unit panels. The maximum area of each individual standard-unit panel shall be 144 square feet (13.4 m^2) where the design wind pressure is 20 pounds per square foot (958 Pa). The maximum area of such panels subjected to design wind pressures other than 20 pounds per square foot (958 Pa) shall be in accordance with Figure R607.4.1. The maximum panel dimension between structural supports shall be 25 feet (7620 mm) in width or 20 feet (6096 mm) in height.

R607.4.2 Exterior thin-unit panels. The maximum area of each individual thin-unit panel shall be 85 square feet (7.9 m^2). The maximum dimension between structural supports shall be 15 feet (4572 mm) in width or 10 feet (3048 mm) in height. Thin units shall not be used in applications where the design wind pressure as stated in Table R301.2(1) exceeds 20 pounds per square foot (958 Pa).

R607.4.3 Interior panels. The maximum area of each individual standard-unit panel shall be 250 square feet (23.2 m^2). The maximum area of each thin-unit panel shall be 150 square feet (13.9 m^2). The maximum dimension between structural supports shall be 25 feet (7620 mm) in width or 20 feet (6096 mm) in height.

R607.4.4 Curved panels. The width of curved panels shall conform to the requirements of Sections R607.4.1, R607.4.2 and R607.4.3, except additional structural supports shall be provided at locations where a curved section joins a straight section, and at inflection points in multicurved walls.

CODE

Grout, self-consolidating — A highly fluid and stable grout typically with admixtures, that remains homogeneous when placed and does not require puddling or vibration for consolidation.

Head joint — Vertical mortar joint placed between masonry units within the wythe at the time the masonry units are laid.

Header (bonder) — A masonry unit that connects two or more adjacent wythes of masonry.

Infill — Masonry constructed within the plane of, and bounded by, a structural frame.

Infill, net thickness — Minimum total thickness of the net cross-sectional area of an infill.

Infill, non-participating — Infill designed so that in-plane loads are not imparted to it from the bounding frame.

Infill, participating — Infill designed to resist in-plane loads imparted to it by the bounding frame.

Inspection, continuous — The Inspection Agency's full-time observation of work by being present in the area where the work is being performed.

Inspection, periodic — The Inspection Agency's part-time or intermittent observation of work during construction by being present in the area where the work has been or is being performed, and observation upon completion of the work.

Laterally restrained prestressing tendon — Prestressing tendon that is not free to move laterally within the cross section of the member.

Laterally unrestrained prestressing tendon — Prestressing tendon that is free to move laterally within the cross section of the member.

COMMENTARY

2/4

Infill, net thickness – The net thickness is shown in Figure CC-2.2-3

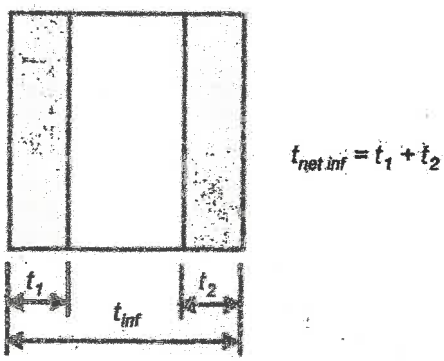


Figure CC-2.2-3 — Thickness and net thickness of an infill

Inspection, continuous — The Inspection Agency is required to be on the project site whenever masonry tasks requiring continuous inspection are in progress.

Inspection, periodic — During construction requiring periodic inspection, the Inspection Agency is only required to be on the project site intermittently, and is required to observe completed work. The frequency of periodic inspections should be defined by the Architect/Engineer as part of the quality assurance plan, and should be consistent with the complexity and size of the project.

CODE

A.7.3.2 Where adjacent wythes of masonry are bonded with prefabricated joint reinforcement, there shall be at least one cross wire serving as a tie for each $2^2/_3$ ft^2 (0.25 m^2) of wall area. The vertical spacing of the joint reinforcement shall not exceed 24 in. (610 mm). Cross wires on prefabricated joint reinforcement shall be not smaller than wire size W1.7 (MW11) and shall be without drips. The longitudinal wires shall be embedded in the mortar.

A.7.4 *Natural or cast stone*

A.7.4.1 *Ashlar masonry* — In ashlar masonry, uniformly distributed bonder units shall be provided to the extent of not less than 10 percent of the wall area. Such bonder units shall extend not less than 4 in. (102 mm) into the backing wall.

A.7.4.2 *Rubble stone masonry* — Rubble stone masonry 24 in. (610 mm) or less in thickness shall have bonder units with a maximum spacing of 3 ft (0.91 m) vertically and 3 ft (0.91 m) horizontally, and if the masonry is of greater thickness than 24 in. (610 mm), shall have one bonder unit for each 6 ft^2 (0.56 m^2) of wall surface on both sides.

A.8 — Anchorage

A.8.1 *General*

Masonry elements shall be anchored in accordance with this section.

A.8.2 *Intersecting walls*

Masonry walls depending upon one another for lateral support shall be anchored or bonded at locations where they meet or intersect by one of the following methods:

A.8.2.1 Fifty percent of the units at the intersection shall be laid in an overlapping masonry bonding pattern, with alternate units having a bearing of not less than 3 in. (76.2 mm) on the unit below.

A.8.2.2 Walls shall be anchored by steel connectors having a minimum section of $^1/_4$ in. (6.4 mm) by $1^1/_2$ in. (38.1 mm) with ends bent up at least 2 in. (50.8 mm), or with cross pins to form anchorage. Such anchors shall be at least 24 in. (610 mm) long and the maximum spacing shall be 4 ft (1.22 m).

A.8.2.3 Walls shall be anchored by joint reinforcement spaced at a maximum distance of 8 in. (203 mm). Longitudinal wires of such reinforcement shall be at least wire size W1.7 (MW11) and shall extend at least 30 in. (762 mm) in each direction at the intersection.

A.8.2.4 Other metal ties, joint reinforcement or anchors, if used, shall be spaced to provide equivalent area of anchorage to that required by Sections A.8.2.2 through A.8.2.4.

COMMENTARY

3/4

A.8 — Anchorage

The requirements of Sections A.8.2.2 through A.8.2.4 are less stringent than those of Section 5.1.1.2.5. Anchorage requirements in Section A.8.3.3 are intended to comply with the Steel Joist Institute's Standard Specification (SJI, 2002) for end anchorage of steel joists.

Werner Gilliam

From: geoff@civcon.com
Sent: Sunday, February 23, 2020 5:28 PM
To: Werner Gilliam
Subject: RE: 200 Ocean Avenue (cc2011300)

Werner,

This current Price letter gives some good information and some erroneous information regarding timelines and who inspected and designed the rubble walls A1 and A2.

If Bell agrees to the Price requests and if ledge if found along wall A11, I don't think that will settle any of the abutters concerns. They will turn to the lack of design drawings or details for the concrete block design.

Walls A1 and A2 are larger mass walls. The stretcher and "bonder" information presented in the latest Price report is typically for masonry walls that support a vertical load and not a retaining wall. The retaining wall section of the IRC really applies here. The installed walls are much more robust, the "stretcher" courses are hard to determine in the field with the wall completed. If Bell is willing, this issues for this wall could potentially be put to rest of limited excavation is completed behind these walls to determine the stone and overall width. That being said, there are two engineers hired by Bell that indicate confidence in the wall.

I think no matter what occurs the abutter will look for issues to not have the wall long his property line.

Please call me or email with questions / comments.

Geoff

Geoff Aleva
CIVIL CONSULTANTS

From: Werner Gilliam <wgilliam@kennebunkportme.gov>
Sent: Wednesday, February 19, 2020 4:03 PM
To: geoff@civcon.com
Cc: Lisa Harmon <lharmon@kennebunkportme.gov>; Andrew Welch <AWelch@kennebunkportme.gov>; Greg Reid <greid@kennebunkportme.gov>; Laurie Smith <lsmith@kennebunkportme.gov>
Subject: FW: 200 Ocean Avenue

Hi Geoff,
Please see attached a response from David Price. Let me know your thoughts.
Thanks

Werner

Werner Gilliam, CFM
Director of Planning and Development
Town of Kennebunkport
(207)967-1604
wgilliam@kennebunkportme.gov

From: Fulton Rice <FSRice@aratkinslaw.com> **On Behalf Of** Alan Atkins
Sent: Wednesday, February 19, 2020 3:19 PM
To: Werner Gilliam <wgilliam@kennebunkportme.gov>
Cc: atchao@dwmlaw.com; dlr@marcusclegg.com; David Lourie (david@lourielaw.com) <david@lourielaw.com>; Randy Slager (seareveler@me.com) <seareveler@me.com>; David Price (pricestructural@maine.rr.com) <pricestructural@maine.rr.com>; David Price (pricestructural@gmail.com) <pricestructural@gmail.com>; drosenthal@marcusclegg.com
Subject: 200 Ocean Avenue

Werner,

Attached for your consideration please find a letter from David Price on behalf of our client Randy Slager responding to the Town's letter to Lori Bell of January 31, 2020, and Lincoln/Haney's letters of January 23, 2020, and February 5, 2020.

Very truly yours,

Alan Atkins

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100 Commercial Street, Suite 305
Portland, ME 04101
207-747-4416
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tions for individual cases, provided the *building official* shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety or structural requirements. The details of action granting modifications shall be recorded and entered in the files of the department of building safety.

R104.10.1 Flood hazard areas. The *building official* shall not grant modifications to any provisions required in flood hazard areas as established by Table R301.2(1) unless a determination has been made that:

1. There is good and sufficient cause showing that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section R322 inappropriate.
2. Failure to grant the modification would result in exceptional hardship by rendering the lot undevelopable.
3. The granting of modification will not result in increased flood heights, additional threats to public safety, extraordinary public expense, cause fraud on or victimization of the public, or conflict with existing laws or ordinances.
4. The modification is the minimum necessary to afford relief, considering the flood hazard.
5. Written notice specifying the difference between the design flood elevation and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation and stating that construction below the design flood elevation increases risks to life and property, has been submitted to the applicant.

R104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved.* An alternative material, design or method of construction shall be *approved* where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code. Compliance with the specific performance-based provisions of the International Codes shall be an alternative to the specific requirements of this code. Where the alternative material, design or method of construction is not *approved*, the *building official* shall respond in writing, stating the reasons why the alternative was not *approved.*

R104.11.1 Tests. Where there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the *building official* shall have the authority to require tests as evidence of compliance to be made at no expense to the *jurisdiction.* Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the *building official* shall approve the testing procedures. Tests shall be performed by an *approved* agency. Reports of such tests shall be retained by the *building official* for the period required for retention of public records.

SECTION R105
PERMITS

R105.1 Required. Any owner or owner's authorized agent who intends to construct, enlarge, alter, repair, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be performed, shall first make application to the *building official* and obtain the required *permit.*

R105.2 Work exempt from permit. Exemption from *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this *jurisdiction. Permits* shall not be required for the following:

Building:

1. One-*story* detached *accessory structures,* provided that the floor area does not exceed 200 square feet (18.58 m^2).
2. Fences not over 7 feet (2134 mm) high.
3. Retaining walls that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge.
4. Water tanks supported directly upon *grade* if the capacity does not exceed 5,000 gallons (18 927 L) and the ratio of height to diameter or width does not exceed 2 to 1.
5. Sidewalks and driveways.
6. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
7. Prefabricated swimming pools that are less than 24 inches (610 mm) deep.
8. Swings and other playground equipment.
9. Window awnings supported by an exterior wall that do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.
10. Decks not exceeding 200 square feet (18.58 m^2) in area, that are not more than 30 inches (762 mm) above *grade* at any point, are not attached to a dwelling do not serve the exit door required by Section R311.4.

nance Code or the *International Fire Code*, or as is deemed necessary by the *building official* for the general safety and welfare of the occupants and the public.

R102.7.1 Additions, alterations or repairs. *Additions*, *alterations* or repairs to any structure shall conform to the requirements for a new structure without requiring the existing structure to comply with the requirements of this code, unless otherwise stated. *Additions*, *alterations*, repairs and relocations shall not cause an existing structure to become unsafe or adversely affect the performance of the building.

PART 2—ADMINISTRATION AND ENFORCEMENT

SECTION R103
DEPARTMENT OF BUILDING SAFETY

R103.1 Creation of enforcement agency. The department of building safety is hereby created and the official in charge thereof shall be known as the *building official*.

R103.2 Appointment. The *building official* shall be appointed by the *jurisdiction*.

R103.3 Deputies. In accordance with the prescribed procedures of this *jurisdiction* and with the concurrence of the appointing authority, the *building official* shall have the authority to appoint a deputy *building official*, the related technical officers, inspectors, plan examiners and other employees. Such employees shall have powers as delegated by the *building official*.

SECTION R104
DUTIES AND POWERS OF THE BUILDING OFFICIAL

R104.1 General. The *building official* is hereby authorized and directed to enforce the provisions of this code. The *building official* shall have the authority to render interpretations of this code and to adopt policies and procedures in order to clarify the application of its provisions. Such interpretations, policies and procedures shall be in conformance with the intent and purpose of this code. Such policies and procedures shall not have the effect of waiving requirements specifically provided for in this code.

R104.2 Applications and permits. The *building official* shall receive applications, review *construction documents* and issue *permits* for the erection and *alteration* of buildings and structures, inspect the premises for which such permits have been issued and enforce compliance with the provisions of this code.

R104.3 Notices and orders. The *building official* shall issue necessary notices or orders to ensure compliance with this code.

R104.4 Inspections. The *building official* shall make the required inspections, or the *building official* shall have the authority to accept reports of inspection by *approved agencies* or individuals. Reports of such inspections shall be in writing and be certified by a responsible officer of such *approved agency* or by the responsible individual. The *building official* is authorized to engage such expert opinion as deemed necessary to report upon unusual technical issues that arise, subject to the approval of the appointing authority.

R104.5 Identification. The *building official* shall carry proper identification when inspecting structures or premises in the performance of duties under this code.

R104.6 Right of entry. Where it is necessary to make an inspection to enforce the provisions of this code, or where the *building official* has reasonable cause to believe that there exists in a structure or upon a premises a condition that is contrary to or in violation of this code that makes the structure or premises unsafe, dangerous or hazardous, the *building official* or designee is authorized to enter the structure or premises at reasonable times to inspect or to perform the duties imposed by this code, provided that if such structure or premises be occupied that credentials be presented to the occupant and entry requested. If such structure or premises is unoccupied, the *building official* shall first make a reasonable effort to locate the owner, the owner's authorized agent, or other person having charge or control of the structure or premises and request entry. If entry is refused, the *building official* shall have recourse to the remedies provided by law to secure entry.

R104.7 Department records. The *building official* shall keep official records of applications received, *permits* and certificates issued, fees collected, reports of inspections, and notices and orders issued. Such records shall be retained in the official records for the period required for the retention of public records.

R104.8 Liability. The *building official*, member of the board of appeals or employee charged with the enforcement of this code, while acting for the *jurisdiction* in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered civilly or criminally liable personally and is hereby relieved from personal liability for any damage accruing to persons or property as a result of any act or by reason of an act or omission in the discharge of official duties.

R104.8.1 Legal defense. Any suit or criminal complaint instituted against an officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by legal representatives of the *jurisdiction* until the final termination of the proceedings. The *building official* or any subordinate shall not be liable for cost in any action, suit or proceeding that is instituted in pursuance of the provisions of this code.

R104.9 Approved materials and equipment. Materials, *equipment* and devices *approved* by the *building official* shall be constructed and installed in accordance with such approval.

R104.9.1 Used materials and equipment. Used materials, *equipment* and devices shall not be reused unless *approved* by the *building official*.

R104.10 Modifications. Where there are practical difficulties involved in carrying out the provisions of this code, the *building official* shall have the authority to grant modifica-