Old Field Point Lighthouse
Setauket - East Setauket, New York
REPORT OF INVESTIGATION
22 February 2022

INTRODUCTION

The Village of Old Field, New York engaged Walter Sedovic Architects PC *dba* WSA|**ModernRuins**® [WSA] to conduct a condition survey for its exquisite heritage property Old Field Point Lighthouse [1868], located at 207 Old Field Road, Setauket, New York. Our survey, consisting of archival research and culminating with a comprehensive field survey in December 2021, combines the salient issues related to ongoing stewardship evident at this time, while referencing our initial survey of this resource completed 17 years ago in 2004-5.

EXECUTIVE SUMMARY

Old Field Point Lighthouse is inherently an exceptionally durable, sustainable structure. While that may be self-evident, it's further demonstrated by the US Lighthouse Board's decision to construct six "sister" lights between 1867-1869, each derived from the same basic plan with proven performance… yet each nuanced and unique in her own right. These six sister lights are:

- Block Island North (1867), Town of New Shoreham RI, which served as the successful prototype;
- Great Captain Island (1868), Greenwich CT;
- Morgan Point (1868), Noank CT;
- Old Field Light (1868), Setauket NY;
- Sheffield Island (1868), Norwalk CT; and
- Plum Island (1869), Plum Island NY.

The pleasing similarity among these lights is stunning and enjoyable. Beyond that, each serves as a point of reference for the others, containing a trove of relevant information. Old Field Light is distinguished with what is arguably the most intact interior; this alone is enormously valuable. Over the years our firm has engaged with several of these sister lights to develop stewardship plans, and so we can speak with some authority on the similarity of pathologies of deterioration affecting all of these structures in varying ways, as well as to the success of remediation treatments prescribed.

This lighthouse has changed hands multiple times over the past century; it has been under the ownership of the Village of Old Field – serving as municipal offices and as an active USCG/DHS aid to navigation – since 1991. For various reasons, much of the work recommended in 2005 has not yet been accomplished; still, the building remains in remarkable, and imminently restorable, condition. The most egregious issues result from water penetration, deferred maintenance and incompatible alterations… described in detail below.

Ultimately, a Work Sequence Schedule (Prioritization) with a Line Item Cost Estimates should be developed to complement this document, following deliberations with Village leadership, assigned representatives for long-term stewardship and other concerned stakeholders representing the global constituency of interested parties, including potential underwriters and supporters of planned remediation and ongoing management.

FINDINGS & RECOMMENDATIONS

A. Site, Siting & Grounds

Old Field Point Lighthouse is oriented on cardinal points; its tower facade facing due north. This inherency presents issues relative to its engagement with Long Island Sound and its buffeting winter winds, coupled with a slower drying time for the stone facade and tower (facing away from the sun), which in turn allows for salt-laden water to linger within the stone masonry and cast iron elements. It is not surprising, then, that the bulk of significant damage to cast iron occurs on the northern fringes of the tower and lantern.

Coastal erosion has positioned the Lighthouse closer to the edge of the shoreline. Recent valiant efforts to render the shoreline more resilient are being monitored for effectiveness, and undoubtedly will continue to be refined. The care and concern for the well-being of the property edges, and stability of this enchanting heritage resource, speaks well for its ongoing stewardship.

The grounds surrounding Old Field Point Lighthouse are nearly level for their entirety, comprising sandy loam over a permeable base. Inexplicably, the lighthouse stormwater conveyance system (roofs, gutters, leaders) are directed to a subsurface drainage system that has no verifiable terminus; that is, stormwater is routed underground along the foundation and then disappears. It is apparent by rampant growth of vegetation near the southeast bulkhead that copious amounts of water collect in that location, and have for many years. At the base of the bulkhead, within the cellar directly in proximity of main electrical service connections, water also collects on the cellar floor in significant pools.

Immediate concerns relating to *Site, Siting & Grounds* include the following:

- Redirect stormwater to either 1) flow to a verifiable point of collection below grade, or 2) flow over grade to surface attenuators or small swales;
- Continue the laudable efforts already underway to enhance shoreline resiliency; and
- Consider removing or trimming invasive vegetative growth between the Lighthouse and the Sound, re-establishing its important historic visual relationship to local mariners.

B. Lantern

The heart of every lighthouse and lightship is its light… and the Lantern that houses it.

Paradoxically, one of the most robust features of Old Field Point Lighthouse is also its most vulnerable: the cast iron Lantern. Early cast iron has unique properties that lead to a unique pathology of deterioration. Generally, the cast iron is heavily dependent on the quality of its coating systems. Early industrial coatings relied heavily on metallic constituents – such as lead and iron oxide – that provided a hearty protective barrier against the elements. Their rate of their deteriorate accelerates over time, and what often results is the lack of a cohesive remedial approach, relying instead on a lineup of products and applications not up to the task. This is evident across virtually all of the Lantern's cast iron components, resulting in an assembly prone now to literally splitting apart at its seams. The good news is that 1) cast iron is reparable and 2) modern paint coating systems provide exceptionally durable protection.

Significant findings of this investigation relating to the *Lantern* include the following:

- For purposes of this report, the Lantern comprises all of the cast iron construction relating to the Service Room, Lantern, its Gallery and the Lantern Dome. It has a mix interwoven geometric forms:
    - Spherical Ventilator Ball, mounted on a…
    - Hexagonal (6-sided) Ogee Dome, supported by a…
    - Dodecagon (12-sided) Glazed Lantern, supported by a…
    - Circular (Round) Drum, incorporating an exterior…
    - Octagonal (8-sided) Watch Gallery and Railing, supported by an…
    - Octagonal Service Room.
- The intricacies of attaching these varied forms resulted in myriad joints and laps, several of which are cracked, missing or in a severe state of deterioration, allowing copious amounts of salt-laden water into the tower structure, masonry walls and lower inhabited spaces. This action is corrupting masonry walls, timber framing, finishes and windows. It also is contributing to potential growth and proliferation of microbiological colonies (e.g., mold and fungus).
- At the pinnacle of the Lantern roof, the ventilator ball terminal lacks a lightning protection system, rendering the metal tower vulnerable to lightning strikes… and consequential damage;
- The ogee dome has open joints between overlapping panels that collect water;
- Lantern glazing (glass & related seals within framed openings) breaks on occasion, most likely the result of expanding rust activity and formation of ice in the condensate troughs within the Lantern.

An aftermarket aluminum panning system was installed, ostensibly, to protect perimeter seals, but the fasteners holding these components in place aren't even attached to the substrate materials; they were easily pulled out by hand, indicating that this intervention is probably exacerbating this condition (it is noted that there were no broken panes in place during our inspection);

- An *ad hoc* – albeit inventive – water collection and drainage system is in place inside the Lantern at the cove of the dome's intersection with the glazed wall panels: it consists of multiple funnels hung from the framing, with flexible tubes attached and routed through the wall vents to drain onto the Lantern gallery. Appropriately restoring the Lantern will obviate the need for this drainage system.
- The cast iron / wrought iron / steel railing system has new stainless steels fasteners connecting it to the cast iron plates of the gallery. It is not known whether this fastening arrangement provides the requisite level of resistance to overturning moments to ensure the safety of visitors to the gallery;
- Beneath the walking surface of the Lantern gallery, several large sections of cast iron have broken away, leaving gaping holes that invite water egress. Direct evidence of that is seen within the stair tower leading to the lantern, where mortar, structural framing and finishes have sustained damage;
- Exterior panels and molded enframements of the Service Room are in remarkably good condition;
- The original cast iron window of the Service Room remains intact, though currently inoperable; and
- Residual debris resulting from prolonged water infiltration has accumulated at each level/landing of the interior stair tower beneath the Lantern.

C. Envelope

Every building envelope – roofing, walls, foundation & windows – is its first line of defense against untoward effects of the environment, providing protecting from water ingress, air infiltration, excess heat and cold, ice damming, freeze-thaw damage, microbiological colonization (e.g., mold) and habitat for animals, birds, and insects. All of these have coalesced at the Lighthouse into a spectrum of issues that continue to accelerate and worsen. Repairing envelope deficiencies must be addressed before remediation efforts are undertaken on interior building elements and systems. Healthy envelopes demonstrably benefit indoor environmental quality (air, light, moisture), reduce maintenance-associated costs, enhance energy efficiency and long-term building performance, year after year.

Significant findings of this investigation relating to *Envelope* include the following:

- The composite shingle roofing system is nearing the end of its defined performance life, though it may serve the Village adequately for another 5-10 years;

- The stormwater collection system (i.e., gutters, leaders, drains) are in varied states of repair, difficult to access, errantly installed, undersized and not able to be verified relative to unimpeded flow;
- Significant protracted leaks through gutter and leader breaches (seams and edges, mostly) have led to deterioration of the wooden soffit, rafter ends in the attic, structural floor framing in the cellar and rampant vegetative growth over and within the facades and fenestration of the southeast corner;
- Also at the southeast corner, in the vicinity of the bulkhead providing access to the cellar, copious amounts of rainwater (and groundwater) migrate at the base of the bulkhead stairs, forming pools of water following heavy rains. This is of particular concern as the pools form directly beneath access to the primary electrical service, panels and wiring;
- The solid coursed ashlar granite wall system is in remarkable condition – nearly as new – showing only intermittent anomalies mostly attributable to later interventions (e.g., interposition of anchors);
- Cellar ventilation windows are sealed shut, with leads to several negative effects:
    - Difficulty in properly maintaining them, leading to premature failure; and
    - Disallowing fresh air into the cellar, which neutralizes the accumulation of radon and introduces moisture laden cool air in to refresh interior spaces as it is naturally routed through the building via convection (it's the principal reason these windows exist at all);
- Most of the wooden double-hung windows are either early or original, in very restorable condition;
- So-called triple-track storm windows are failing to achieve their desired intent: they are warped, broken and seized open/closed with their open-cell seals failing and falling into the viewshed. We have witnessed elsewhere the premature degradation of primary windows (beginning at the sills) resulting from the installation of triple-track aluminum storms; and
- Widespread need to maintain surface paint coatings, wet & dry seals, and hardware lubrication.

D. Structural Stability

Excluding the cast iron Lantern – which is a site-assembled, pre-fabricated, stand-alone structural element – the primary structure of the Lighthouse comprises 1) coursed and random ashlar granite foundations & walls and 2) timber and wood framing of roofing, floorplates & interior walls. Each of these base *materials* – iron, stone, wood – represented in 1868 the very highest quality among choices for their respective applications. Performance, though, has been corrupted because of deferred maintenance, prolonged water infiltration and errant forms of intervention; in other words, the diminution of structural stability is largely self-inflicted, and should never construed as a by-product of "old" materials or systems.

Significant findings of this investigation relating to *Envelope* include the following:

- Continuous water infiltration is degrading mortar joints of the foundation walls, rendering them more porous (via their mortar matrix, not through the unit masonry itself);
- The non-original installation of a poured concrete cellar floor has the effect of forcing ground-borne water/moisture through the brick masonry transverse walls and piers, which are more porous than modern concrete… thus becoming the "path of least resistance." This in turn leads to degradation of the brick masonry via an action referred to a "capillary rise," where water wicks up into the brick masonry. As it evaporates, it deposits crystallized salts behind the surface of the brick, which in turn causes the brick to spall, forming small piles of red brick dust at the bases of these structural piers;
- Continuous water infiltration also has led to widespread rotting of the floor framing joist ends that were once embedded within the stone foundation and walls. Having rotted, their ends have been disengaged from the walls, and the entirety of the floor plate system is now supported on wooden beams placed parallel to the foundation walls (beams are oriented north-south), which in turn are supported by steel columns placed on the poured concrete cellar floor. *This is not a permanent structural application and, as such, is inherently unstable and unsafe!*
- Likewise, though to a lesser extent, roof rafter ends at the attic level – supported by a roof plate on top of the granite walls – have been modified, with altered load paths, because of rotting that has resulted from overflowing gutters and water-permeable eaves.
- Structural elements positioned away from the perimeter areas of water infiltration remain in stable condition.

E. Systems

Until the building envelope is secure – via both temporary repairs and selective remediation – it is inadvisable to effect change or refinement to the Lighthouse's MEP (Mechanical/Electrical/Plumbing) systems: condition of the envelope is a crucial determinant of both the demands placed on systems and their ability to perform as intended (for instance, when exterior walls are wet from water infiltration, they can lose as much as 96% of their normal thermal and insulating properties, which causes mechanical systems to have to perform well beyond their calculated loads, in turn shortening their life while increasing costs and frustrations associated with maintenance & operations). The general arrangement of the systems remains workable; still, numerous eccentricities are evident throughout both the mechanical spaces as well as the system distribution (wiring, piping, controls and accessories).

Significant findings of this investigation relating to *Systems* include the following:

- The oil-fired closed-loop hydronic heating system is distributed from a high quality, relatively new boiler to (largely) original cast iron floor mounted radiators. This perimeter radiant system is ideally suited to a solid stone masonry Lighthouse: it tends to warm the exterior stones – keeping outside cold at bay – as well as bodies within the interior. *This is one of numerous examples of inherent and ideal forms of symbiosis at play in this, and other, high quality heritage buildings that continues to instruct how we build durable and effective buildings well-suited to their environment and purpose*.
- Components of the heating distribution system (vents, valves, traps, pumps) require programmed regular maintenance to keep them operating optimally;
- The massive walls and form of this Lighthouse – incorporating passive convection for both heating and cooling – should preclude the need for "central" air conditioning; that said, a well-conceived split system air conditioning system could be judiciously installed, serve the needs of Village offices, and modulate ambient moisture to a now-acceptable steady range of 55-65% RH (relative humidity).
- Not surprisingly, electrical service and distribution has been upgraded and modified more frequently, it seems, than any other component of this Lighthouse; accordingly, does not present as a unified system, either in quality of installation or intent. A unified plan to corral loose and varied wiring runs, and to determine safe loading capacities for all defined circuits, is advised;
- Other system layouts, including plumbing and various warning/alert devices, appear appropriate to their respective applications

F. Interior Fit & Finish

Generally, it is beyond the scope or intent of this survey to comment on interior fit-out that accommodates the evolving program needs of the Village and its functions – except as it relates to the stability and wellness of the underlying heritage resource. To that end, there are a few overarching comments provided for your consideration:

- The regular introduction of fresh air will benefit virtually all heritage materials, spaces, finishes and systems, and may be accomplished via operable windows and vents or induced with a mechanical intake system, thoughtfully designed;
- Given the high degree of water infiltration, the fewer "soft" surfaces (e.g., carpeting) the better;
- Regular maintenance of less-often-visited spaces (e.g. stairhall to Lantern, attic) is beneficial; and
- Once water infiltration is remedied, allow 4-6 months for plaster & masonry to fully dry & stabilize.

RECOMMENDED SCOPE OF WORK

1st Priority: Immediate (0-3 Years)

1. *Watertight Integrity*. Unless and until water is kept out of the building, Old Field Point Lighthouse will continue a trajectory of needless deterioration. Three separate but interrelated components comprise the focus of this work:

    a. Lantern: Cast iron repairs and high performance coatings;
    b. Stormwater Collection: Roofing, gutters and leaders (downspouts); and
    c. Stormwater Distribution: Subsurface or at-surface water collection systems.

2. *Structural Stability*. Reintegration of floor & roof framing systems with the exterior load-bearing masonry. As it concerns the floor plates, this is a major undertaking because the original floor joists have had their ends cut away from original joist pockets within the bearing masonry, rendering them "floating" frames. Also, there is no evidence that new piers were constructed below the steel columns inserted beneath the new longitudinal N-S beam, calling into question whether they could puncture the concrete floor as an indeterminate point load; this could lead to a dire condition for the building and its occupants, especially because the beams are interspersed with live infrastructure systems (electrical, plumbing & heating).

3. *Earth:Building Relationship*. Early builders using traditional systems were smart, and in the case of this Lighthouse, a track record of performance was already being proven by virtue of its five "siblings." Over time, we tend to forget or overlook the value of these inherent benefits, inadvertently corrupting them and making ambient conditions worse. The cast-in-place floor of the cellar is a prime example: What was intended to be an entire permeable floor that allowed ground-borne moisture to evaporate gently up into inhabited spaces – while keeping the cellar temperate year 'round – has now forced water into any crevice it can find to escape. A properly tailored modification to this flooring intervention can allow the Village to have it both ways: Keep a stable concrete floor system while allowing moisture to evaporate. Along with the stormwater system refinements, this modification will also eliminate cellar flooding.

4. *Window Restoration & Storm Windows*. The present wood windows of the Lighthouse will respond well to restoration treatments, also incorporating appropriate finishes (paint), lubrication (hardware) and refinements (integrated weatherstripping elements). New, properly conceived and constructed storm windows will provide the performance the Village has sought, with low maintenance, high performance, safety, UV protection, sound attenuation and multiple options for operability and installation location (interior or exterior).

5. *Operations & Maintenance*. All of the above is best viewed through the lens of consistent and refined operations & maintenance. This may include defined daily/weekly/monthly protocols for cleaning and investigation of mission-critical systems, simplified keying to readily allow (or limit) access to spaces and systems, taking advantage of preservation maintenance training programs offered at numerous locations around the region, and engaging – to the extent possible – with service providers and contractors who have developed a deep familiarity with this Lighthouse, its systems, its quirks and its awesome value.

2nd Priority: Moderate (3-7 Years): *Reserved pending further Village/Community engagement & input.*

3rd Priority: Long-Range (7-20 Years): *Reserved pending further Village/Community engagement & input.*

PRELIMINARY COST ESTIMATES

A Word About Budgets

Budgets are not contractor bids; that is, while they reflect anticipated cost of construction, they also include allowances for contingencies that are not yet fully known or defined. **WSA|ModernRuins** develops budgets in a very specific manner: estimated costs are calculated based on unit costs of similar work conducted in the New York metropolitan area; these unit costs are maintained in the firm's database and are continually updated. Projected costs represent the mean, or average, cost for defined work, *not* the lowest cost; that is, our projections are where we expect the center of a bell curve of bid responses to fall. It is reasonable to expect that actual bids received from qualified contractors may be lower or higher than calculated budgets, depending on market conditions, a more refined scope or other factors in play at the time of bidding. All budgets indicated as "preliminary" include a contingency in the range of 7-10% to cover unknowns at this time or discretionary additions to a construction project while it is underway. We have found that oftentimes it is the case that when a well-performing contractor is on site, owners prefer to complete additional similar work based on convenience or cost-effectiveness. Therefore, our budgets seek to eliminate a shortfall of funds, while establishing a relative value for each work element identified. Budgets reflect a quality of work consistent with the construction of the original building. Unless otherwise indicated they do not include A/E professional services or regulatory fees. Budgets are shown in current (2022) dollars.

1st Priority: Immediate (0-3 Years)

Seq No.	Summary Scope		Est Budget
1.101	New Gable Roof, Eave Gutters & Leaders (Downspouts)	$	98,000
1.103	New Subsurface Stormwater Perimeter Collection & Distribution System		24,000
1.201	Restore Original Attic Rafter Ends & Integrate Original Framing System		54,000
1.202	Restore Original 1st Floor Joist Ends & Integrate Original Framing System		184,000
1.301	Modify CIP Concrete Cellar Floor to Re-Render It Permeable		42,000
1.302	Restore Deteriorated Brick Piers & Stone Foundation Walls at Floor Level		138,000
1.401	Lantern: Remove Deteriorated Coatings & Superficial Rust; Prime		335,000
1.402	Lantern: Recast & Reintegrate Missing & Damaged Cast Iron Elements		140,000
1.403	Lantern: High Performance Paint, Glazing, Dry & Wet Seals, Accessories		266,000
1.501	Lightning Protection System, Master Label Equivalent		33,000
1.601	Wood Window Restoration (All Levels) & Operable Interior Storm Windows		111,000
1.701	Systems Upgrades (Electrical, Radiant Heating, Data & Security		125,000
1.801	Accessory Restoration, Repair & Maintenance: Wood, Masonry, Hardware		134,000
	TOTAL	**$**	**1,684,000**

2nd Priority: Immediate (0-3 Years)

Seq No.	Summary Scope	Est Budget
2.101	Reserved	$ tbd

3rd Priority: Immediate (0-3 Years)

Seq No.	Summary Scope	Est Budget
3.101	Reserved	$ tbd

— END OF REPORT OF INVESTIGATION —

Photo 1. Old Field Point Lighthouse is oriented precisely on cardinal points: its tower faces due north.

Photo 2. Aerial view northeast c.2021. Image © *marinas.com*.

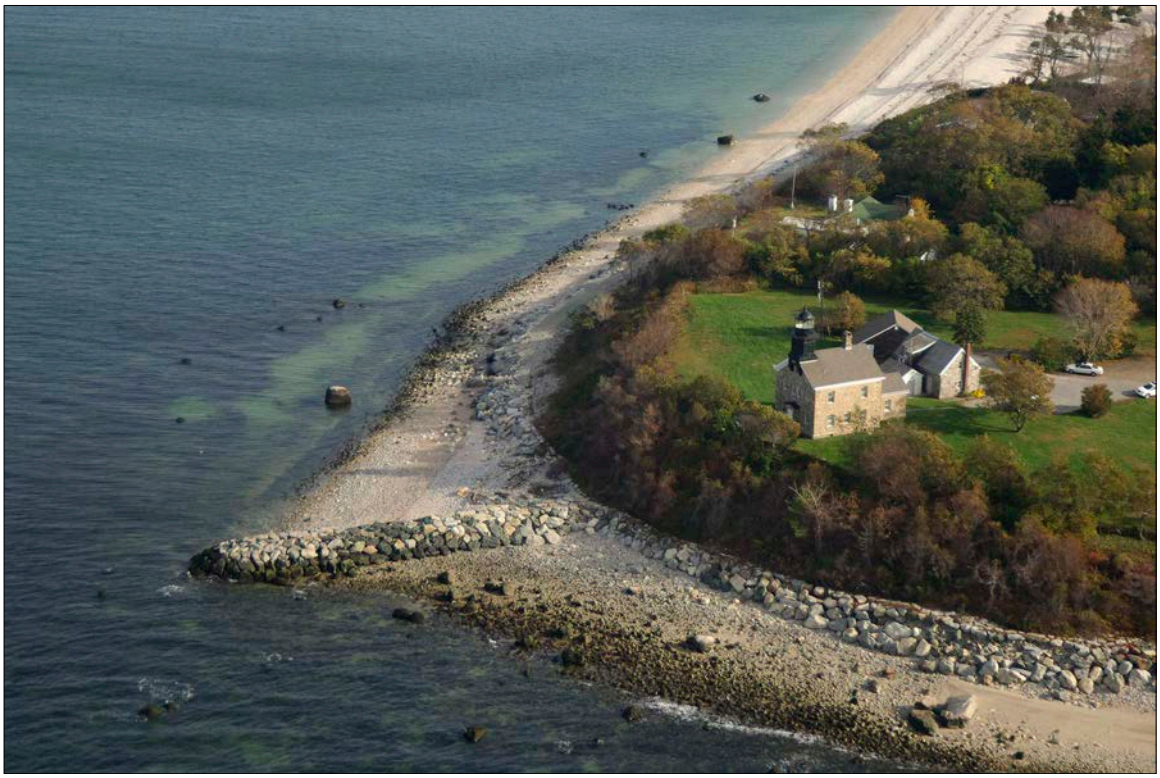

Photo 3. Aerial view southeast c.2021. Image © *marinas.com*.

Photo 4. Stormwater collection and distribution systems are, generally, undersized and inadequately integrated. Subsurface drains are perhaps irredeemably clogged, resulting in water pooling at foundation, bulkhead stairs, and cellar door at base of bulkhead (adjacent to electrical panel). Rampant vegetative growth in southeast corner is supported by pooling water within the soil.

Photo 5. View to southeast within cellar, at the base of stairs within the bulkhead shown in prior photo. This area floods frequently. Current system of roof gutters, leaders & subsurface drains is both inadequate & corrupted.

Photo 6. At the Lantern, an *ad hoc* system of funnels (6 total) collects rainwater from the interior of the cove, which is accessed via open joints of the ogee roof dome above. Water collected is channeled via clear tubing to the exterior deck of the Lantern Gallery, through the Lantern's air vents. This is neither a sustainable installation, nor effective: Properly repairing the roof and cove will keep rainwater out of the Lantern interior.

Photo 7. Detail of one of 6 funnels retrofitted to collect rainwater once it has penetrated the open joints of the Lantern roof.

Photo 8. Detail of flexible tube routing rainwater collected from within the Lantern via funnels at the roof cove through the Lantern's original air vents (which, incidentally, were originally designed to regulate the lantern flame).

Photo 9. General view through Lantern of Long Island Sound, looking northwest, with upgraded LED Fourth Order Light in foreground. The Light's characteristic alternates red and green.

Photo 10. View to top of Lantern at culmination of the iron spider frame. The opening at center leads to the spherical vent ball mounted at the roof apex, which controls crucial convective air currents from grade to Lantern. This current continually refreshes the air at all levels of the Lighthouse.

Photo 11. Lantern hatch to Lantern Gallery. This door is actually in sound working order fundamentally, although the application of inappropriate seals and deteriorating paint interferes with its smooth operation.

Photo 12. View of opened Lantern hatch, showing operation & hardware.

Photo 13. Detail of upper interior corner of cast iron hatch providing access from Lantern to Gallery. Note the addition of non-compressible perimeter seals as well as the build-up and deterioration of paint coatings.

Photo 14. View of six-panel ogee dome atop Lantern, including ventilator ball. The original terminal is not connected to a lightning protection system. Open joints are severe and allow water to migrate into Lantern (leading to the funnel & tube collection apparatus at the interior cove); joints, surfaces and features of this roof are all imminently restorable.

Photo 15. The original Lantern frame incorporates a superlative glazing bar system. Aluminum panning over the original glazing bars might have the appearance of an upgrade, but is corrosive to the underlying original system. It introduces a dissimilar metal (potentially producing a galvanic reaction), hides the condition of the original, relies only on weak sealants at corners, and is not secured to the underlying structure (the screw indicated – one of many – is just placed in the hole for show, not actually fastened to anything).

Photo 16. General view through exterior lantern glazing, looking northwest.

Photo 17. Lantern Gallery embossed decking, original circular drum and sill, modified railings. Note flexible tube from funnel collection system protruding through original air vent terminus.

Photo 18. Looking down from Lantern Gallery, over railings. The condition of the Service Level facade plates, blind window hood & sill, and dated breastplate beneath them are in superlative condition. There are, however, significant breaches in the fascia directly under the Gallery, a particularly weak point for weathertight integrity, particularly when facing the direct brunt of salt laden storm water and high winds. All of it is readily restorable.

Photo 19. View of Watch Deck fascia, looking northeast. Note deep corrosion at miter on left, which corresponds to the rail anchors, and their relative watertight integrity.

Photo 20. Interior Lantern drum vertical tongue-and-groove paneling. The end grain of wood readily absorbs water/moisture, and is where pathologies of deterioration often begin. Note the damage to paint associated with end grain at the base of the paneling.

Photo 21. Horizontal tongue-and-groove paneling of the Service Level, which is bound by cast iron facade plates. Paint loss is indicative of moisture collecting behind the paneling; water likely accesses this location from the vicinity of the Watch Deck level above.

Photo 22. The original cast iron Service Level single hung window, readily seen on the Tower facade. The window remains in superlative condition, though deterioration of coatings, surface corrosion and lack of use have rendered it presently inoperable.

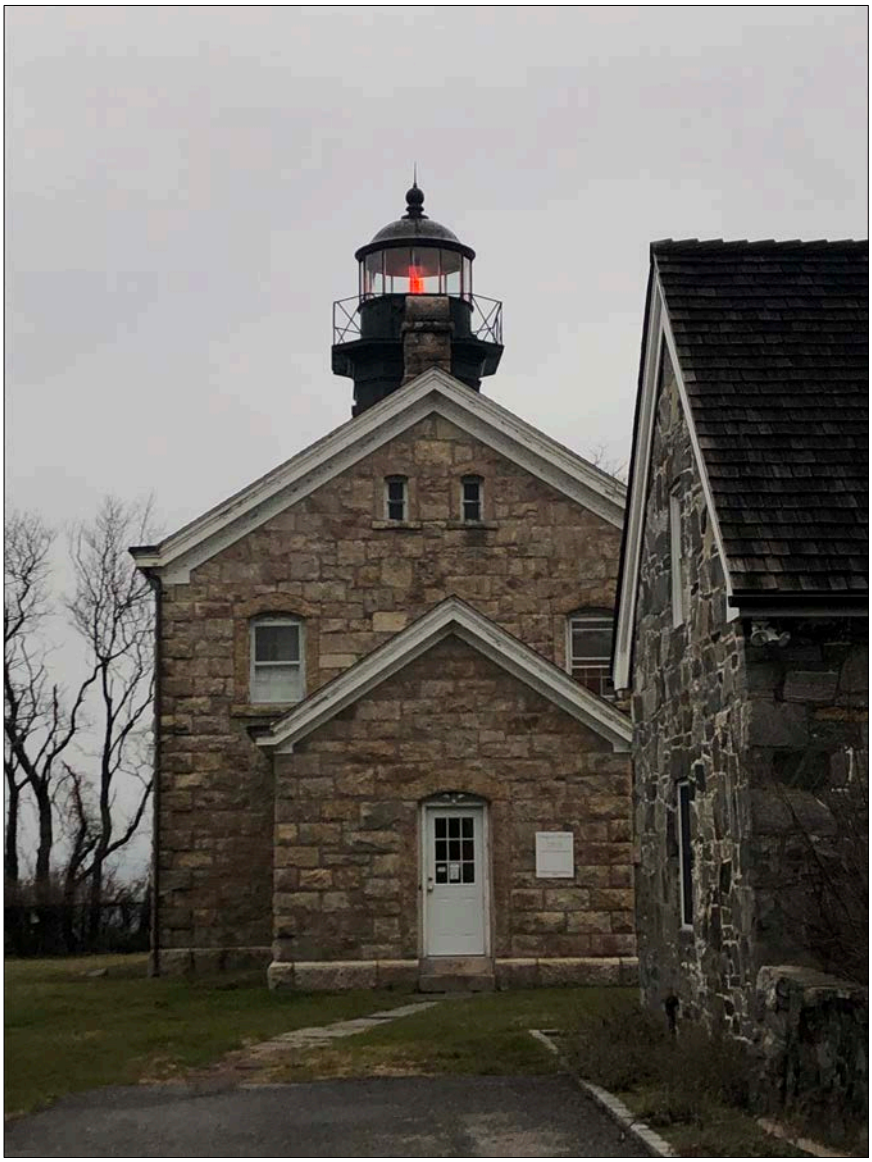

Photo 23. Corresponding to established regulatory protocols, the new LED lamp has a visual characteristic of alternating red….

Photo 24. … and green.

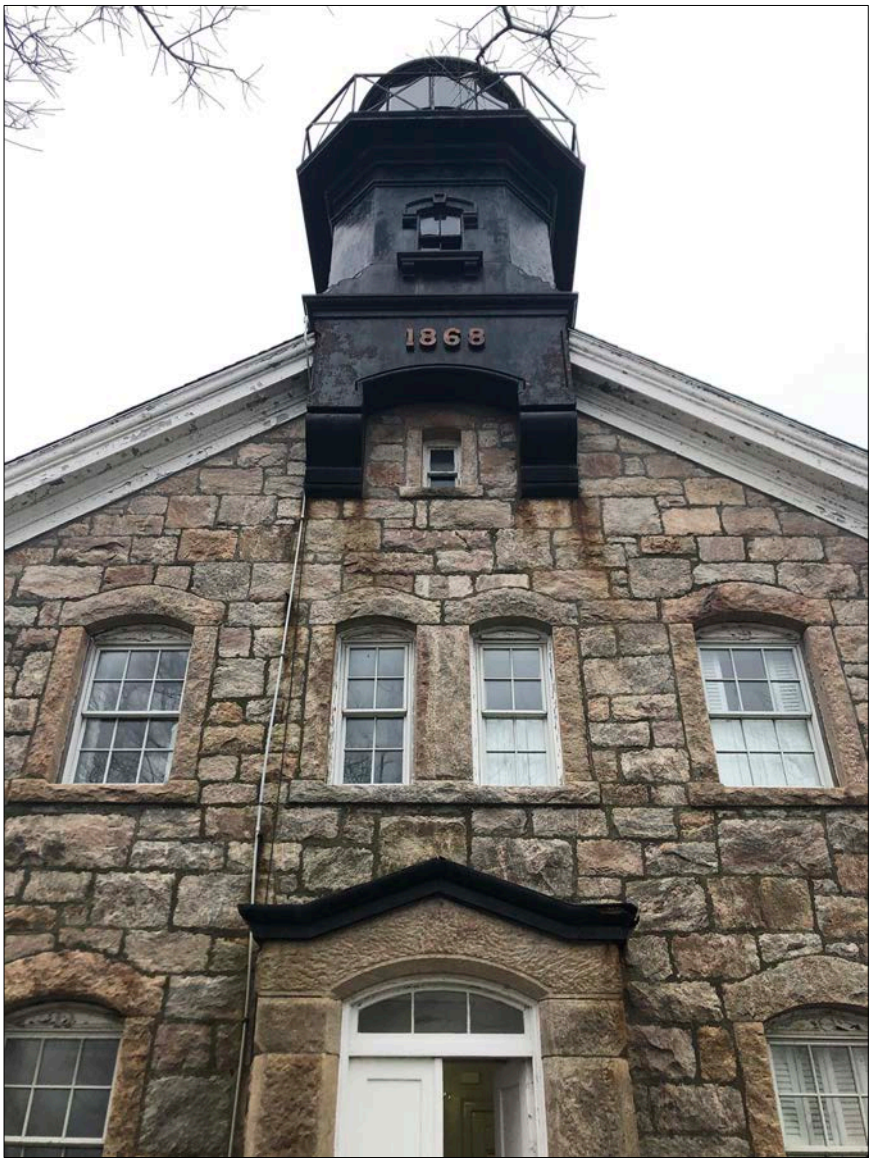

Photo 25. Magnificently classic in form, the durability of Old Field Point Lighthouse – and its 5 sisters – is truly awe-inspiring. Granite, windows, roof form and the cast iron Lantern remain in exceptional condition, with flaws that are well understood and restorable. Frontal view of dated breastplate predominates a formidable facade.

Photo 26. Composition shingle roof is nearing the end of its performance life. Chimney masonry and flashing remain in serviceable condition. Stormwater collection and distribution systems – gutters, leaders (downspouts) and subsurface stormwater conveyance components – are undersized, not well integrated, and clearly breached in numerous critical locations. The condition of subsurface elements is, on the whole, a complete mystery; further investigation, via a drain scope, is warranted.

Photo 27. Upper wall system seen from the attic in the vicinity of the roof eave, where leaking gutters have led to water migration through the stone. Dusting on the adjacent attic flooring is indicative of microscopic degradation of mortar matrix. While not of particular concern, it is worth monitoring.

Photo 28. Early double-hung wood windows are in remarkably excellent condition, despite being somewhat sealed in by exterior triple-track storm windows. Note failing (dislodged) dry seals within the interstitial spaces, as well as encroaching vegetation and a stuck-in-place outer sash. There are far more effective ways to treat the windows and ensure superior energy, ventilation and visual performance. The integral blind shutters are beautiful.

Photo 29. Quintessential view of Old Field Point Lighthouse, looking northeast. The building envelope, constructed principally of granite ashlar blocks, cast iron and simple gable roof forms is sound, though issues persist relating to stormwater management and – on the interior – structural framing.

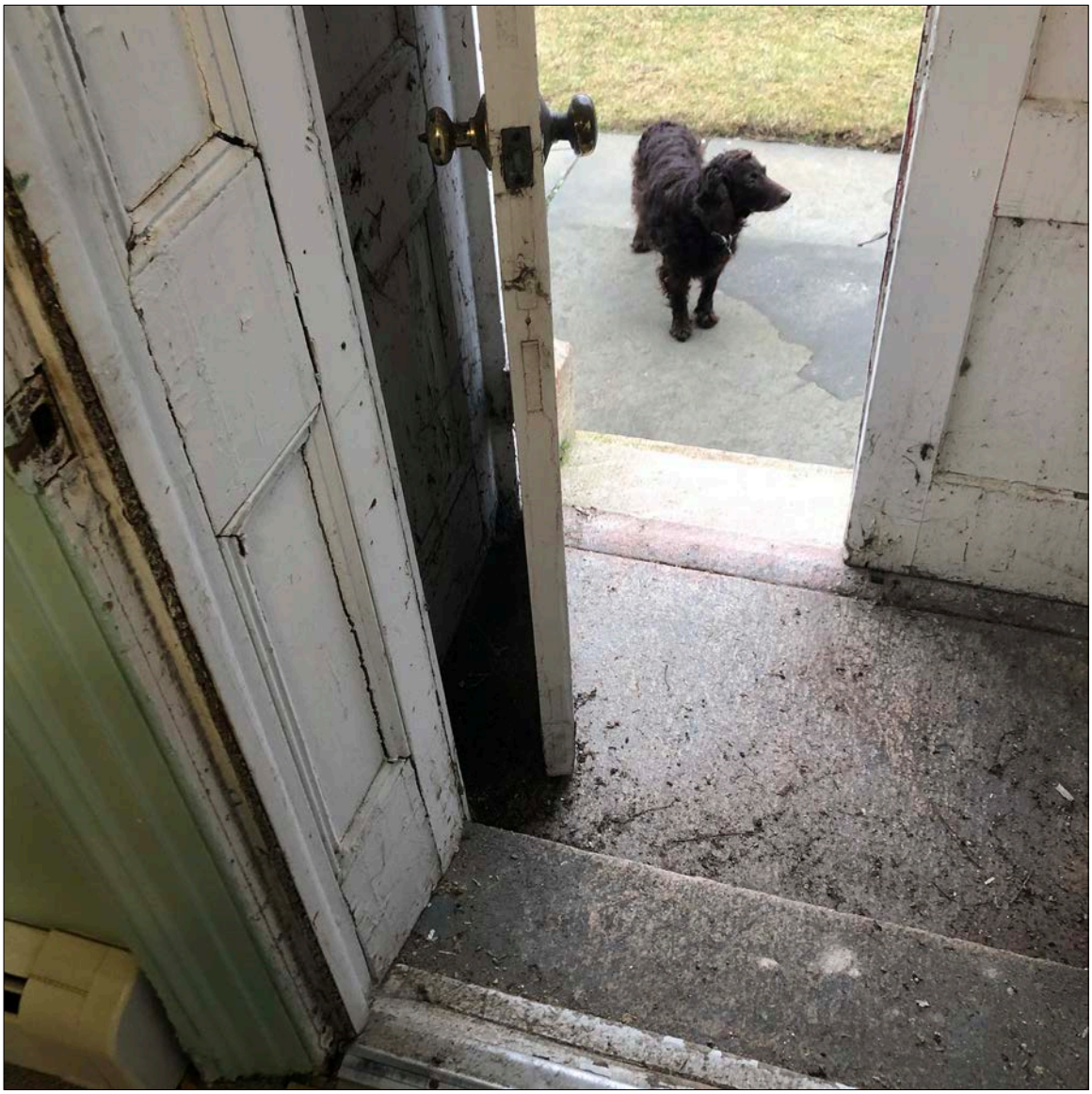

Photo 30. The formal entrance to the Lighthouse is through the tower (north) double-leaf door. The entire assemblage of floors, walls, doors, hardware, lighting is in remarkably authentic condition.

Photo 31. Tower (north) entrance and frontispiece. Aside from the errant electrical conduit to the left (east) and the cracked corner of the cast iron cornice, this entrance is in stunning condition. Bear in mind, too, that is has been the sole point of first contact for almost every major storm over the last 154 years.

Photo 32. Detail of cracked corner of north entrance cast iron cornice. This is fully restorable, in cast iron (i.e., not alternative materials of lesser durability).

Photo 33. North facade and projecting Tower entrance, looking southeast.

Photo 34. Early double hung wood windows, and their wood casing, are in highly serviceable condition, requiring primarily reconditioning of their wood substrate followed by a high performance primer and paint coating system. Colors are advised to be based on originals, information of which may be gathered via a comprehensive paint color and material analysis. Aluminum triple track storm windows tend to corrupt underlying early wood windows and finishes more than they might provide any ambient benefit.

Photo 35. Original ventilator windows fitted within the foundation walls and servicing the cellar played a large role in the health and stability of the Lighthouse and its occupants: Disallowing the buildup of radon, illuminating and ventilating the cellar and – via convection – upper occupied floors, oxygenating the original lamp, and optimizing ambient moisture. Blocked, they provide no benefit and allow for the ingress of water to occur unnoticed.

Photo 36. Breaches in the stormwater collection and distribution system have led to serious degradation of structural framing and soffits, and have fed rampant vegetative growth occurring in the building's southeast corner.

Photo 37. Ties, sister joists, and other interventions have occurred at both the roof rafter structural framing system and, illustrated below, floor plate framing. This has universally been necessitated by the inability of the roofing, flashing, gutters, downspouts and subsurface connections to properly and consistently collect and move stormwater safely away from the building. White stains on the right framing member in the image indicates water staining and residual water-borne particulates (salt).

Photo 38. Another view in the attic shows the extent of prolonged water migration… and damage.

Photo 39. In contrast to the previous two images, for areas located away from the eave gutters, original framing remains robust and pristine.

Photo 40. While common, pouring concrete floors over originally permeable cellar floors is extremely hazardous to the structural stability of porous masonry piers and foundation walls, because ambient groundwater that has always been present can no longer safely evaporate into the space (concrete is impermeable; it won't allow for moisture to transpire). Therefore moisture wicks up the only escape route available – porous brick masonry piers and foundation walls. The excess moisture and soluble salts forced into these structural systems begins a slow, measurable pace of structural deterioration. That is evidenced here by the spalling surfaces of the lower 4 courses, which will rise over time.

Photo 41. Like the pier, this masonry bearing wall is being undermined from beneath due to “rising damp,” the capillary action that draws moisture from the ground up into porous masonry elements, destabilizing their bases. Here there are 6 courses of brick affected. There are sound methods of arresting this condition, though not reversing it; that requires selective reconstruction.

Photo 42. By far the most serious malady present in the Lighthouse is the disengagement of the entire first floor framing from its original bearing on the solid masonry foundation walls. Apparently, floor joist ends rotted from the presence of excess water caused by insufficient stormwater drainage. Rather than correcting the core issue, the rotted joist ends were cut away with their load path transferred from the walls to a series of attenuated steel columns that likely lack piers or footings. This is a potentially dangerous condition requiring immediate attention and remediation; it is highlighted as such in this Report of Investigation.

Photo 43. Many conditions of concern: 1) Disengaged floor plate; 2) Electrical wiring fastened to a girder that is inherently unstable (or, at least, structurally indeterminate); 3) Vegetation growing through the block ventilation window; 4) Blocked ventilation window(s); 5) Discontinuous insulation that is now partially trapping excess moisture within the cellar (rather than allowing it to dissipate naturally upward via convective heating, as the building's inherent design features intended); and 6) A confluence of issues so baffling that an untrained eye would find it difficult to discern where to begin… or why.

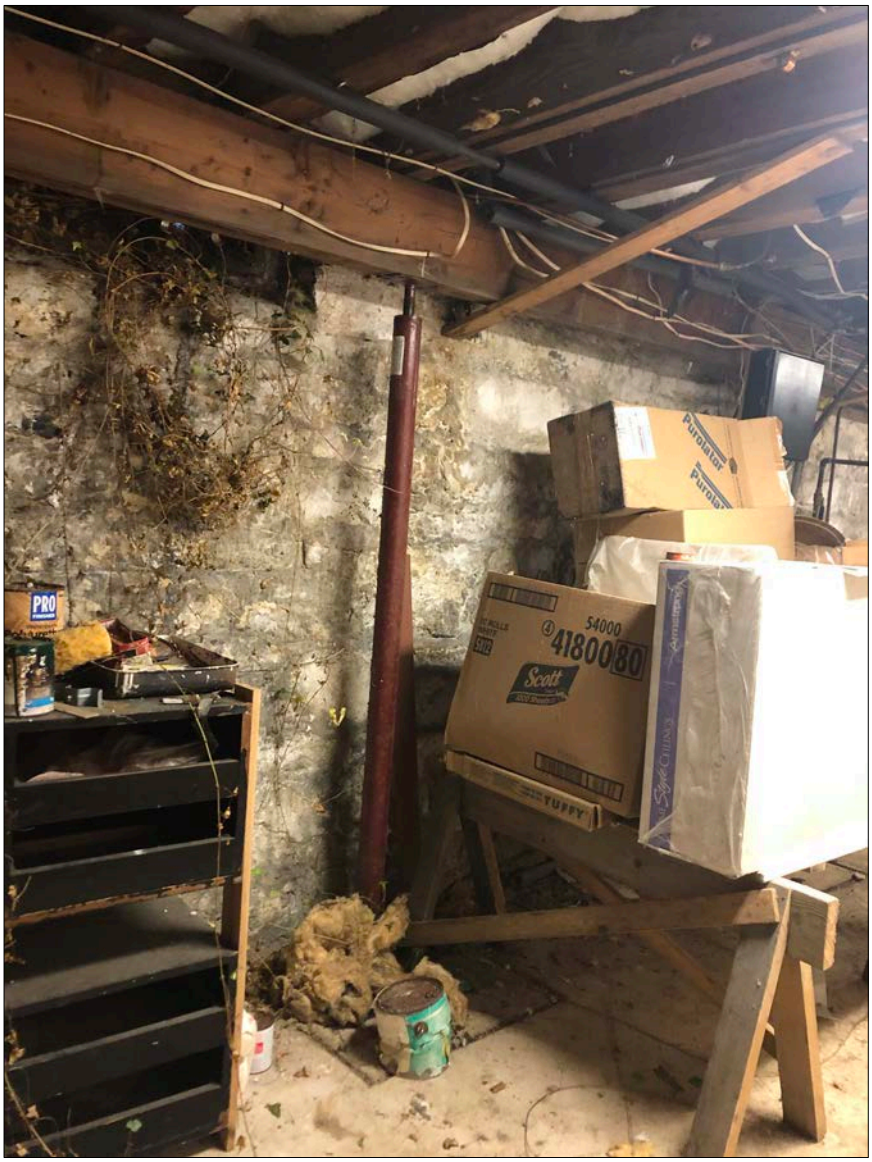

Photo 44. More of the cellar conditions described in Photo 43 above, along with accumulation of materials and debris. The square-formed concrete at the base of the column indicates that an independent pier is likely, which is positive, though the specifics of its design and installation are yet unknown.

Photo 45. A corbelled flying buttress providing lateral support of the original brick chimney is engaged and in stable condition; this is an original element.

Photo 46. A relatively new boiler, skillfully piped, serves as the heart of the Lighthouse's oil-fired closed-loop hydronic heating system, which is distributed within habitable space via cast iron radiators, most original. This is an exceptionally efficient system for a building of solid masonry construction.

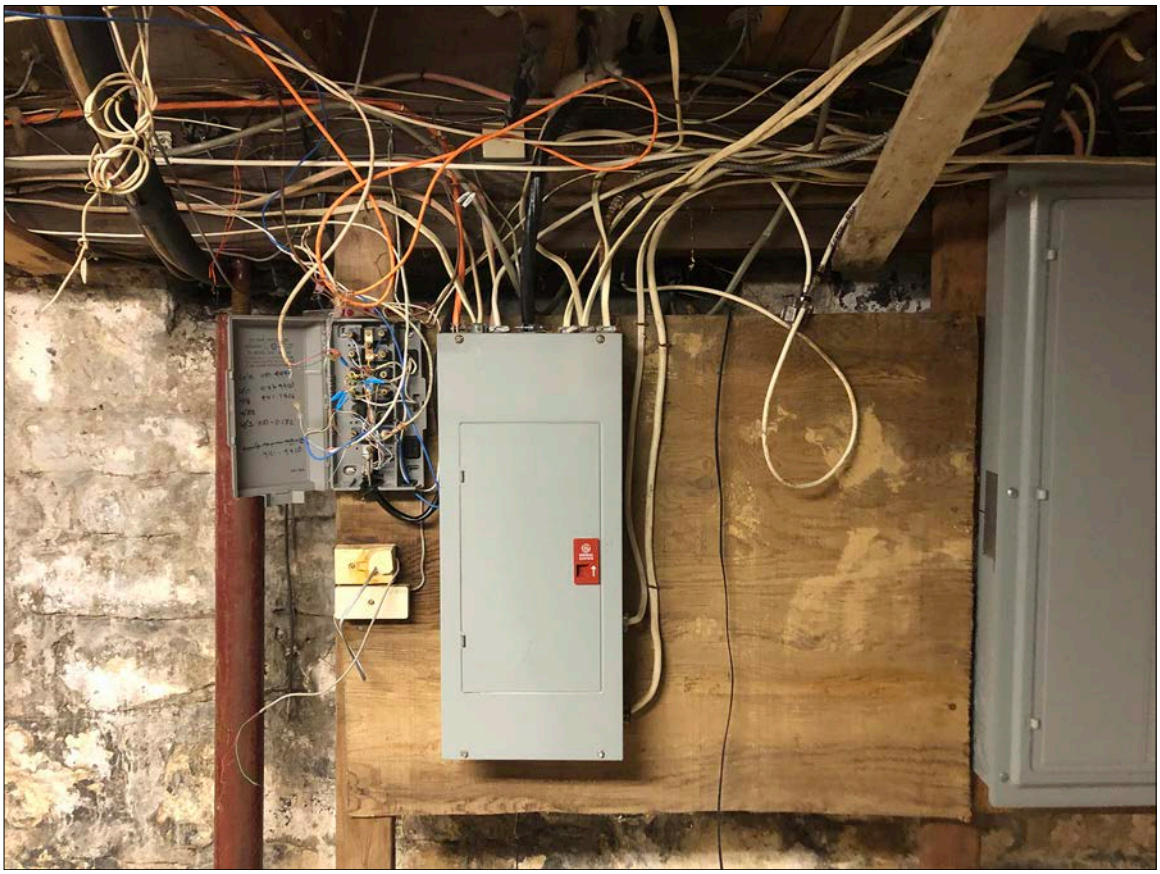

Photo 47. Electrical service is a series of *ad hoc* modifications, lacking an overarching benchmark of quality control. Beneath this panel is precisely where regular flooding forms, just inside the base of the southeast bulkhead entrance. Flooding is caused by an inadequate stormwater collection & distribution system.

Photo 48. Myriad services and materials draped over, or attached directly to, the disengaged floor plate load transfer system.

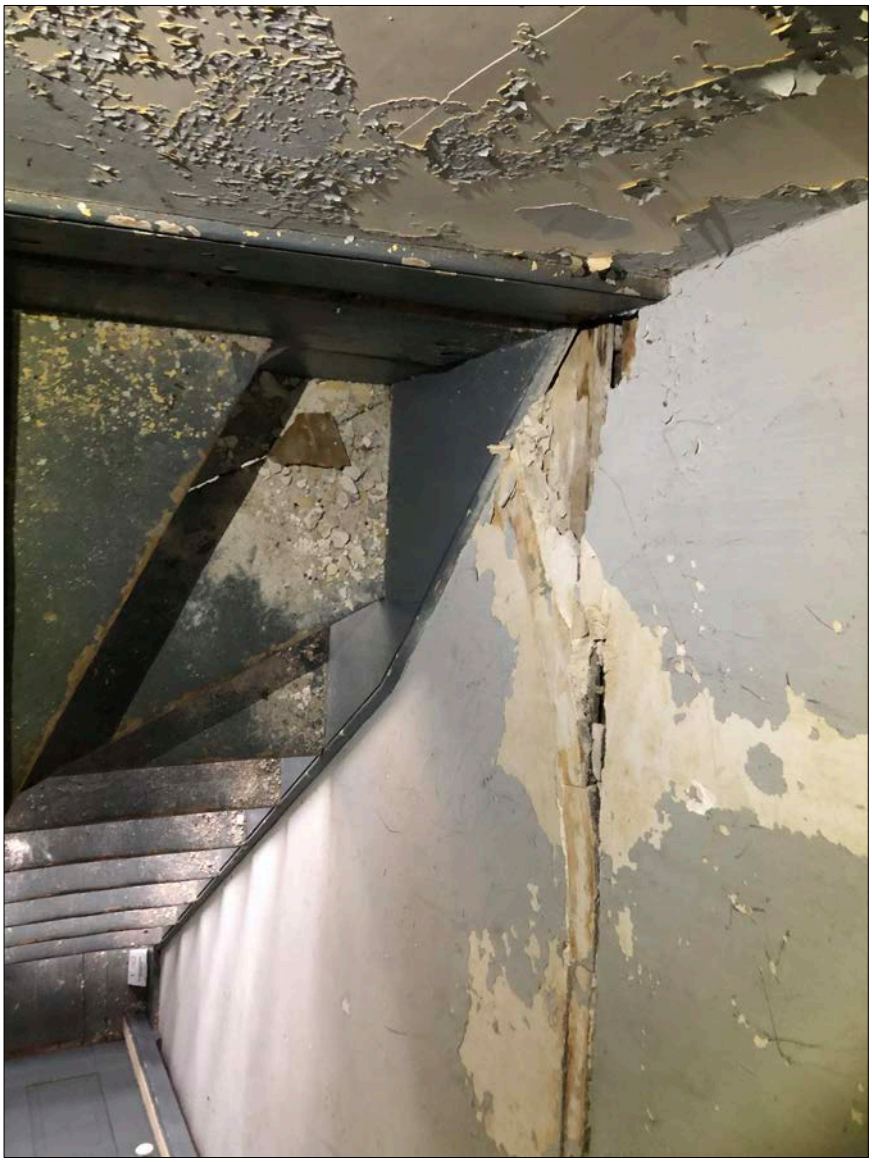

Photo 49. Generally, interior surfaces suffer from migration of stormwater – which has corrupted and deteriorated the original plaster wall finishes and other systems – and a lack of regular cleaning of those interior spaces that are only intermittently used.

Photo 50. Arrangement of interior spaces – while beyond the defined scope of this report – are mostly original, well maintained, and suited to their purpose. Here, the early second floor bathroom indicates a level of quality in its materials and arrangement, and a level of care in its ongoing maintenance.

Image 1. Old Field Point Lighthouse, looking WSW, c.1868.

Image 2. Old Field Point Lighthouse, looking ESE, c.1875.

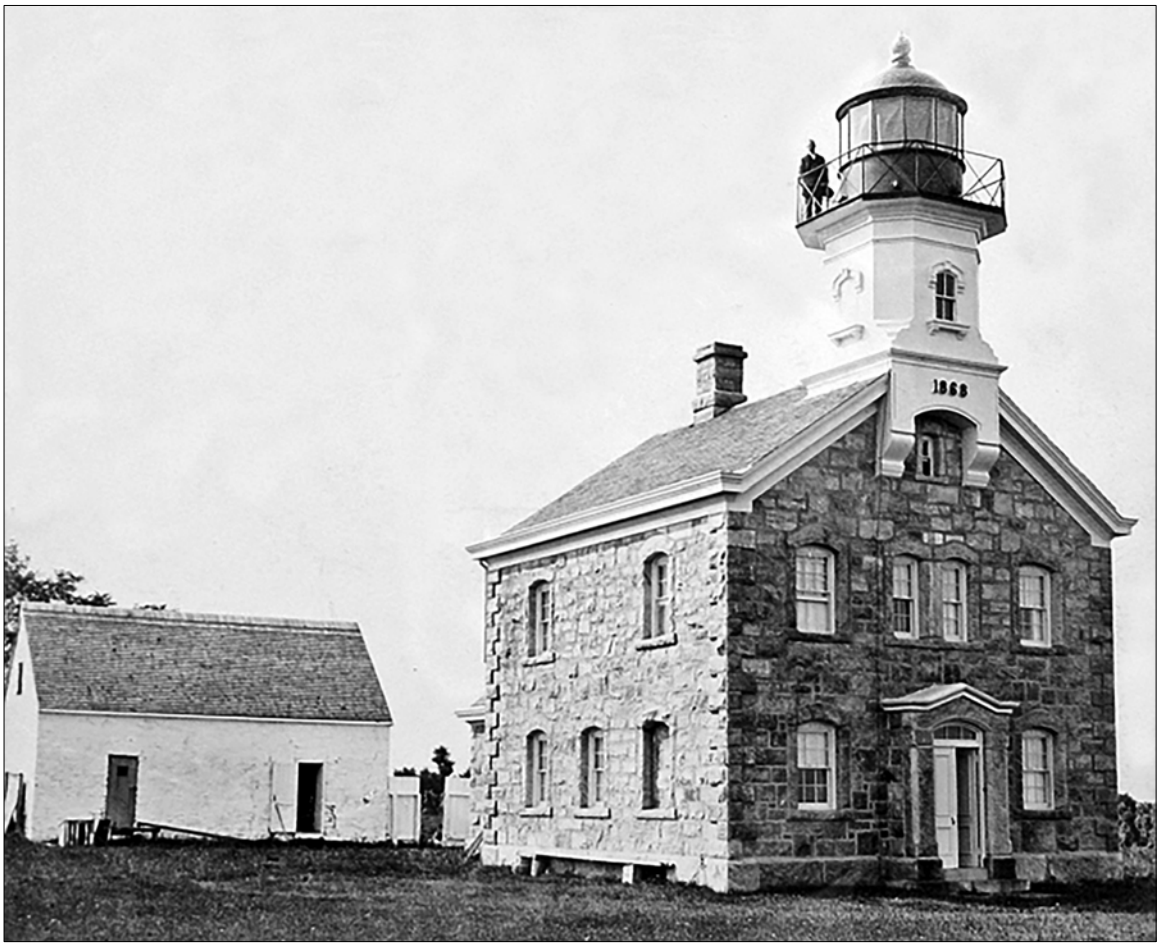

Image 3. Old Field Point Lighthouse, looking SW, c.1885.

Image 4. Old Field Point Lighthouse, looking SE, c.1890.

Image 5. Old Field Point Lighthouse, looking SW, c.1905.

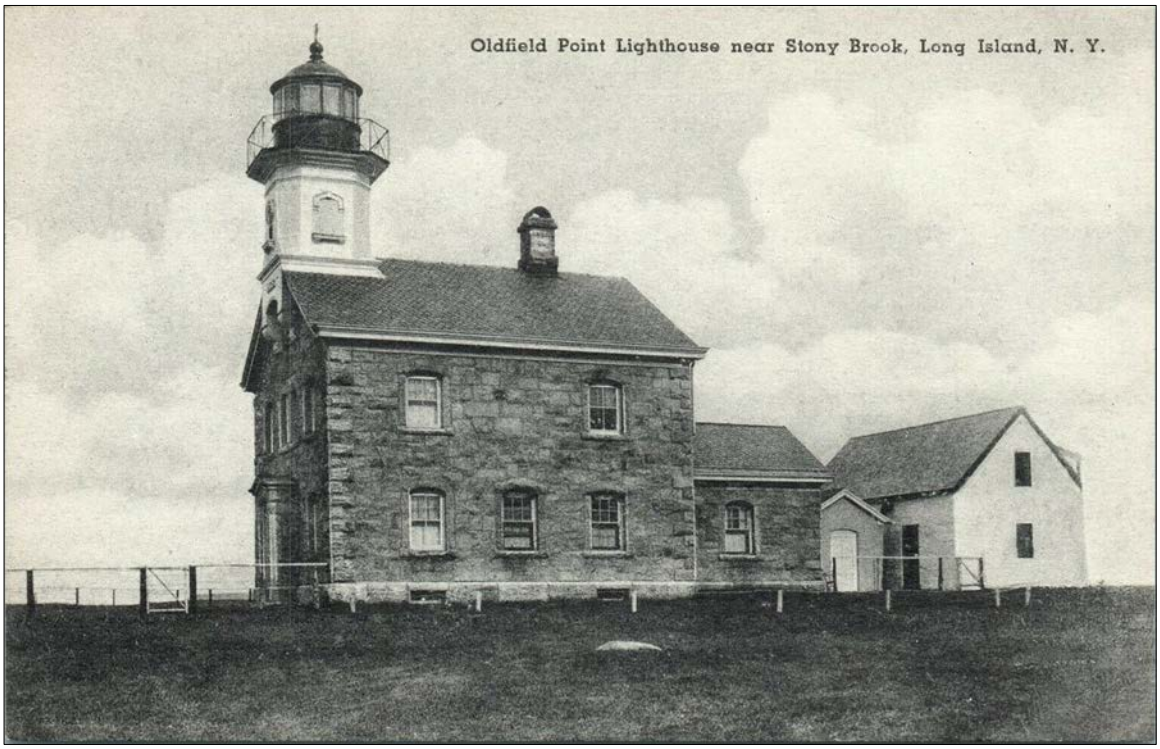

Image 6. Old Field Point Lighthouse, looking ESE, c.1912.

Image 7. Old Field Point Lighthouse, looking ESE, c.1930.

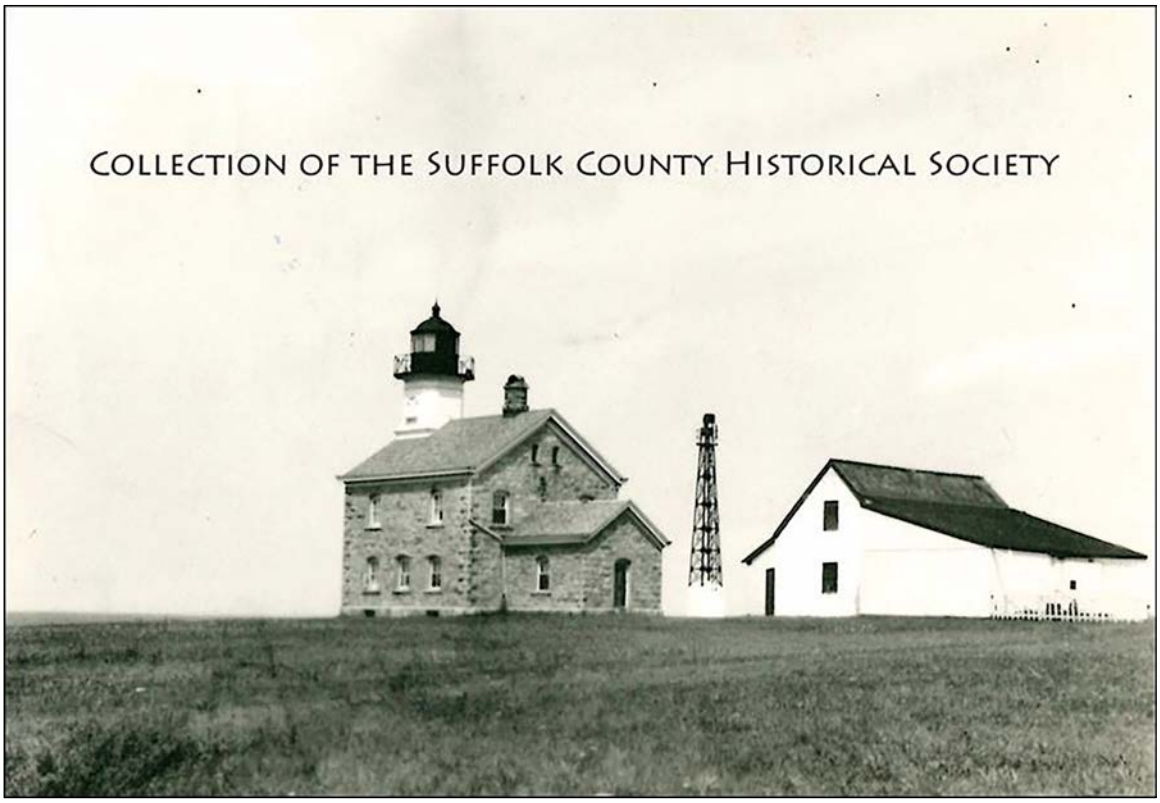

Image 8. Old Field Point Lighthouse, looking NE, c.1933. *Courtesy Suffolk County Historical Society.*

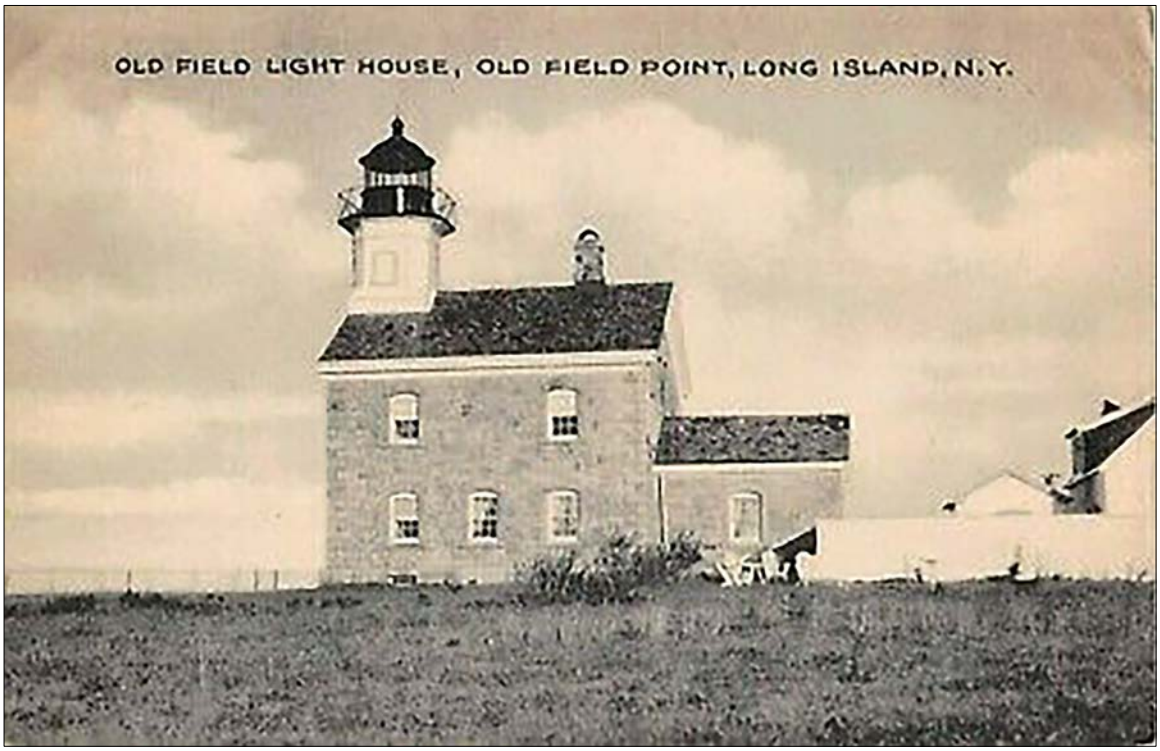

Image 9. Old Field Point Lighthouse, looking NE, c.1940.

Image 10. Old Field Point Lighthouse, Looking E, c.1942. *Courtesy US Coast Guard Archives.*