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INNOVATION FOR THE BUILT ENVIRONMENT

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REPORT - 30TH APRIL, 2014

STATE OF NEW HAMPSHIRE - DEPARTMENT OF RESOURCES & ECONOMIC DEVELOPMENT

DIVISION OF FORESTS & LANDS

IMPROVEMENTS AND CONSTRUCTION ADMINISTRATION TO FIRE TOWERS AND AUXILIARY BUILDINGS IN VARIOUS STATE RESERVATIONS

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PROLOGUE

The New Hampshire Division of Forests and Lands is the principle agency engaged in the protection, stewardship and sustainable use of New Hampshire's forests. Our fire towers and their lookouts serve to protect and promote the values provided by forests.

The NH Division of Forests and Lands operates 15 fire lookout towers from early spring to late fall. The fire towers provide early detection and reporting of fires in order to protect our communities and forest resources from the catastrophic effects of wildfire.

Extract from the New Hampshire Fire Lookout Towers brochure.

HISTORICAL SIGNIFICANCE

Fire lookout stations were established throughout New Hampshire during the early twentieth century. Although little, if any, structures from the original period still survive, the New Hampshire Fire Lookout Towers have played a role in the prevention of forest fires.

Exploration of the archives at the New Hampshire Division of Historic Resources rendered little information specifically addressing the Fire Towers themselves. The most substantial information was contained within Division of Historic Resources Area Forms, notably:

- Belknap Mountain Fire Tower Area
- Milan Hill State Park And Fire Lookout

It should be noted that many of the New Hampshire Fire Towers have been listed with the National Historic Lookout Registry, this is a cooperative effort of the U.S. Forest Service, the Forest Fire Lookout Association, state agencies and other private groups to recognize historic fire lookouts throughout the United States. For over a century, lookouts have been a proud symbol of forest conservation.

Listing in the National Historic Lookout Register is often a first step towards nomination to the National Register of Historic Places maintained by the U.S. Department of the Interior. Sometimes necessary structural modifications preclude listing in the latter register, and the only appropriate recognition given to these historic lookout sites is that afforded by the NHLR.

PREFACE

In late 2013 the State of New Hampshire through the Division of Forests & Lands retained the services of Alba Architects and our team to conduct a two phased approach to the existing State Fire Towers and auxiliary buildings in various State Reservations. This document forms the phase one report of the subject sites in preparation for phase two, design and construction implementation of necessary and recommended improvements.

The objective of this phase one document will be to report on existing conditions / assessment of sixteen (16) fire towers and auxiliary buildings to better understand and analyze their respective strengths and deficiencies. The document will look at each site, reporting the findings of the existing conditions survey and noting necessary and recommended works / maintenance to improve on the longevity and usefulness of each site, as well as the safety issues associated with public access to each site.

Report and Site Phase Goals:

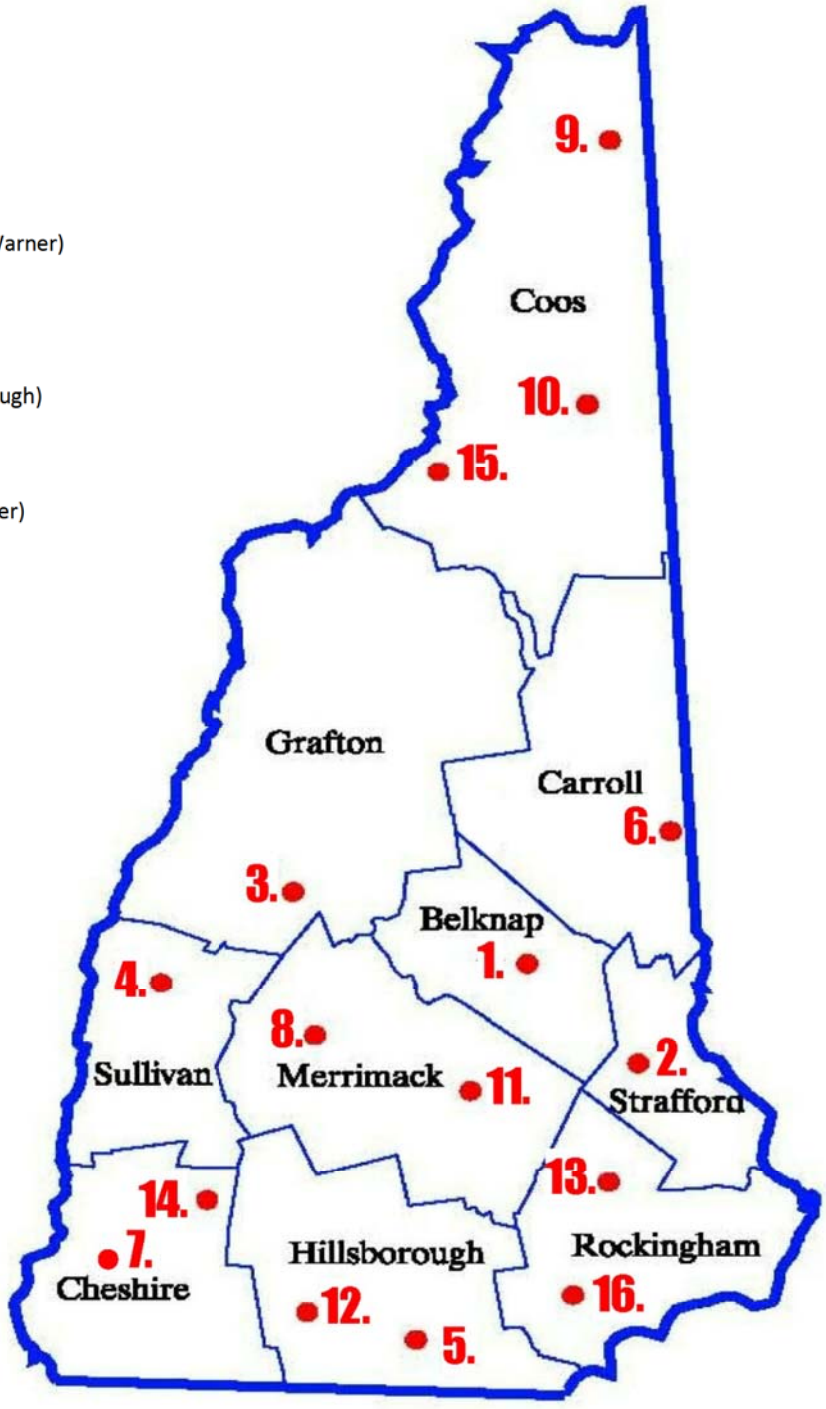
- Insure structurally sound towers and safe access stairs, including new treads and landings, and code compliant guardrails.
- Provide safe, efficient, durable and comfortable tower cabs.
- Provide sanitary facilities feasible within site confounds.
- Provide emergency shelter and safe, secure storage nearby to tower.
- Provide vehicle access to site, or secure garage facilities when site in not accessible.
- Paint/repair all steel elements and finishes to provide minimized maintenance requirements.
- Repair/replace and tension guy wires to provide maximum performance.
- Provide permanent (or removable) staging facility to each tower to expedite safe and efficient maintenance requirements.

At the conclusion, this report will prioritize work that requires more immediate attention versus work which can be addressed at a later date, with little or no detrimental effects on the subjects, in an attempt to best utilize the funds presently available for improvements to the subject sites.

0.0 CONTENTS

1.0 PROJECT SITES - STATEWIDE TOWER LOCATION PLAN

1. Belknap Mt. (Gilford)
2. Blue Job (Farmington)
3. Cardigan Mtn. (Orange)
4. Croydon Mtn. (Croydon)
5. Federal Hill (Milford)
6. Green Mtn. (Effingham)
7. Hyland Hill (Westmoreland)
8. Kearsarge Mt. (Wilmot and Warner)
9. Magalloway Mt. (Pittsburg)
10. Milan Hill (Milan)
11. Oak Hill (Loudon)
12. Pack Monadnock (Peterborough)
13. Pawtuckaway (Nottingham)
14. Pitcher Mt. (Stoddard)
15. Prospect Mountain (Lancaster)
16. Warner Hill (Derry)



Statewide Map of New Hampshire:

1. numbers denote approximate fire tower locations.

1.1 PROJECT SITES - TOWER LISTING WITH ANCILLARY & ADJACENT STRUCTURES

1. Belknap Mt. (Gilford)
   - Fire tower
   - Watchman's cabin
   - Wood store/outhouse
   - Storage/workshop building
   - Garage

2. Blue Job (Farmington)
   - Fire tower
   - Watchman's cabin
   - Storage hut
   - Outhouse
   - Privately owned and operated Communications buildings *(not included, but proximity noted)*

3. Cardigan Mtn. (Orange)
   - Fire Tower
   - Watchman's cabin
   - Storage building
   - Outhouse
   - Privately owned and operated CMU communications building within tower footprint

4. Croydon Mtn. (Croydon)
   - Fire Tower
   - Watchman's cabin
   - Storage building
   - Garage/sleeping quarters
   - Outhouse

5. Federal Hill (Milford)
   - Fire tower
   - Watchman's cabin
   - Storage building
   - Outhouse
   - Garage
   - Privately owned and operated Communications buildings *(not included, but proximity noted)*

6. Green Mtn. (Effingham)
   - Fire tower
   - Storage hut (within footprint of tower)
   - Watchman's cabin
   - Storage building
   - Outhouse

7. Hyland Hill (Westmoreland)
   - Fire tower
   - Outhouse
   - Privately owned and operated CMU storage/communications building *(not included, but proximity noted)*

8. Kearsarge Mt. (Wilmot and Warner)
   - Fire tower
   - Privately owned and operated Communications Tower and ancillary structures *(not included, but proximity noted)*

9. Magalloway Mt. (Pittsburg)
   - Fire tower
   - Watchman's cabin
   - Storage building
   - Outhouse
   - Privately owned and operated Communication building *(not included, but proximity noted)*

10. Milan Hill (Milan)
   - Fire tower
   - Watchman's cabin
   - Storage building
   - Outhouse
   - Privately owned and operated Communication building *(not included, but proximity noted)*

11. Oak Hill (Loudon)
   - Fire tower
   - Storage building/garage
   - Outhouse
   - Privately owned and operated Communications building *(not included, but proximity noted)*

12. Pack Monadnock (Peterborough)
   - Fire tower
   - Privately owned and operated Public interaction facility *(not included, but proximity noted)*

13. Pawtuckaway (Nottingham)
   - Fire tower

14. Pitcher Mt. (Stoddard)
   - Fire tower
   - Watchman's cabin
   - Outhouse
   - Storage building
   - Privately owned and operated Communication building *(not included, but proximity noted)*

15. Prospect Mountain (Lancaster)
   - Tower
   - Other buildings on site not in report content

16. Warner Hill (Derry)
   - Fire tower
   - Outhouse
   - Privately owned and operated Communication building *(not included, but proximity noted)*

1.2 PROJECT SITES - STATEWIDE TOWER LOCATION PLAN

1. Belknap Mt. (Gilford)
2. Blue Job (Farmington)
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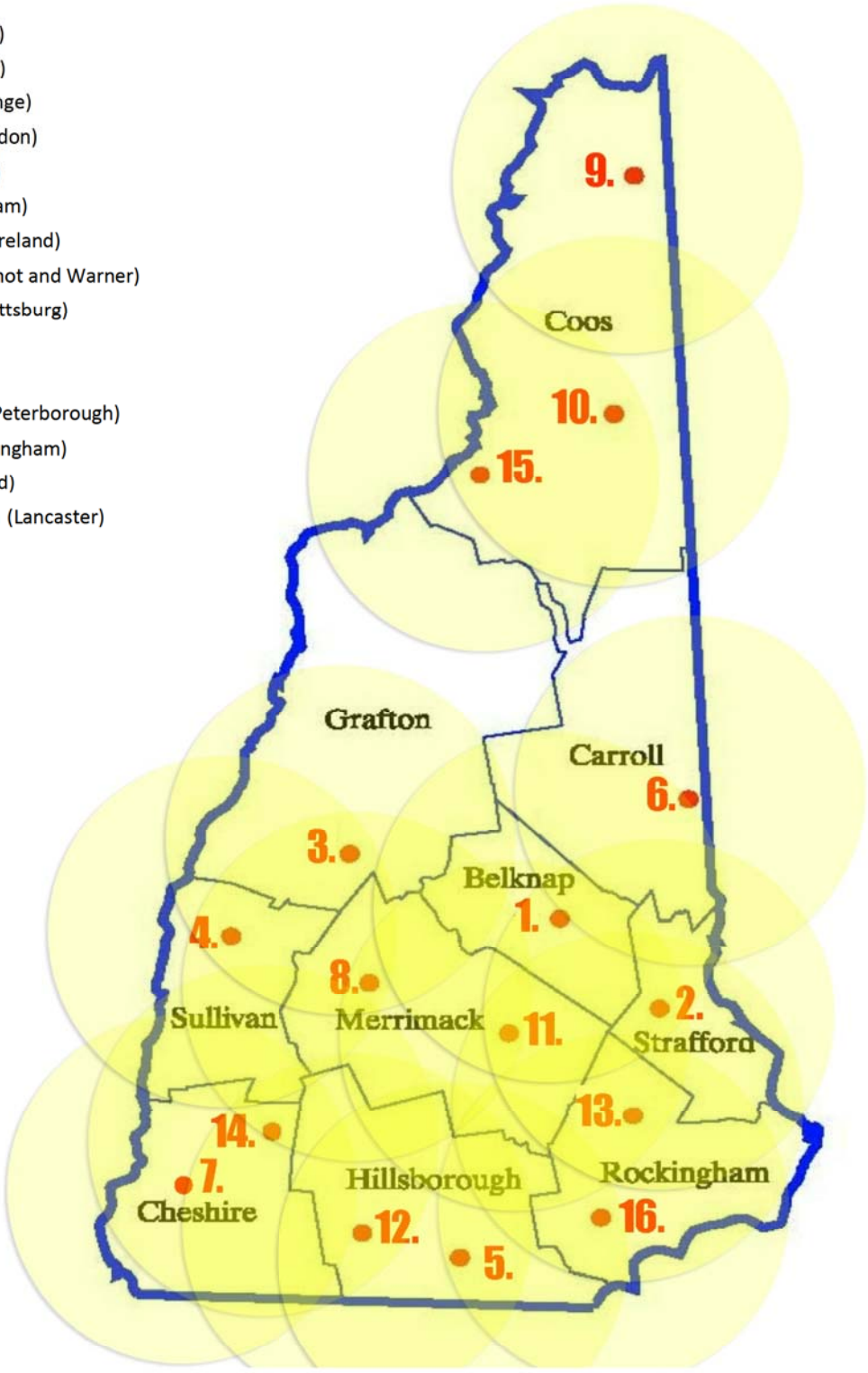


Statewide Map of New Hampshire:

1. numbers denote approximate fire tower locations.

2. shaded areas denote an approximate 25 mile radius view range from each tower location assuming no topographical blind spots.

2.0 INDIVIDUAL SITE SURVEY REPORT

2.1 BELKNAP MTN., GILFORD

The Belknap Mountain fire tower site consists of the fire tower, a watchman's cabin, a storage building, an outhouse / wood store and a garage at the parking lot.

The fire tower frame consists of painted steel angles and flat bar elements, as noted on the attached drawings. The frame members are generally in good condition though most exhibit significant areas of superficial rust. At this point, the rust poses no structural concerns, but the frame will require refinishing in the near future to insure no loss of integrity.

The tower stairs consist of four flights painted 2x10 pt treads bolted to 1.5x1.5" steel angles, which in turn are welded to 6x3/8" plate steel stringers. Handrail/guardrail consists of 1.5x1.5" steel top bar and uprights welded to plate stringer, with 1x3/8" flat bar mid-rail. As per the main tower frame, significant superficial rust is evident and will require refinishing in a timely manner to stop progression into loss of integrity. Stair treads will at minimum require refinishing, as they are generally in sound condition, but have a limited useful life left to them. Landings/Platforms exhibit the same conditions and requirements.

Visual inspection of the tower cab suggests the framing of the cab is sound and could be retained should that prove to be an economical solution. Exterior finishes of the cab are beyond usefulness and will need replacing. Windows remain operable and satisfy the most basic of functions, but will require refinishing at a minimum. Presently they are wood, single glazed upward-sliding sashes within site built frames/tracks. Wind/air tightness has ceased to be feasible with these units. Water ingress seems to be minimal. Interior wall finishes are still functional and are 1x pine vertical boarding. The vinyl floor finish is marginal and will require replacement in the near future. The condition of the substrate, believed to be a thin ply or underlayment is probably also of limited use. The 2x8 pt substructure appears to still be viable, from the underside, and could continue to be the substructure for a new floor, or cab, as it appears to have had very limited exposure to moisture.

Additional items to be addressed would be lack of guard around access hatch, access hatch security and operation.

The watchman's cabin is in reasonable condition, with no significant signs of rot or decay. Normal wear and tear over an extended period of time is apparent and the cabin finishes would be improved greatly with cleaning and repainting , and some replacement. Interior finishes are typically exposed framing with either the interior face of wall sheathing exposed and painted or an insert thin board between framing and painted. Ceilings are also a thin board painted. Floors are vinyl and will require replacement. The substructure seems sound and useful. The cabin sits on concrete blocks, which are crumbling and would need replacement, and raising the floor elevation of the cabin would be recommended. Exterior finishes have experienced some accelerated degradation due to the proximity to the ground/snow. Generally, the exterior finishes would be better replaced. Roof structure appears good. CMU chimney is not useful and should be removed. If a chimney is required in future uses, a new one would be recommended.

The outhouse appears to be in reasonable condition, for its use and construction, but would also benefit from raising off the ground a bit more. It will soon require repainting at the minimum.

The storage building appears to be in reasonable condition, as does the garage at the parking area. Both would benefit from minor repairs and repainting, though alternative uses would probably be necessary to justify retention and upgrade within a long term maintenance schedule.

SITE OBSERVATIONS & CONDITIONS ANALYSIS — BELKNAP MOUNTAIN (Gilford)

date: 17th January, 2014 - *weather conditions: snow flurries, partly sunny* , approx. 36 degrees F.

TOWER BASE

component	*description*	*comments*	*condition*
Base	14'-10" x 14'-10" on 34" x 30" concrete piers	repair,clean and re-seal concrete	Fair
Cables	8 total 3/8" steel (new, except 1)	little or no tension on cable	Good
Stair Base	30" x 30" concrete plinth	clean and re-seal concrete	Good
Connections	12" x 12" base plates bolted to piers	mild surface rust, clean and re-finish	Good

STAIRS

component	*description*	*comments*	*condition*
# of Flights	4		-
Treads	2x8 pt @ 21" +/-, 12 risers per flight	rise 8" +/-, recommend replacement	Poor
Stringer	1/4" x 6" steel plate	superficial rust, requires refinishing	Fair
Rail	1 1/2" x 1 1/2" angle @ 34" +/-	1/4" x 1 1/2" plate mid rail	Good
Landings	2x pressure treated, rail @ 34""	recommend replacement, slippery	Poor

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	3" x 3" angle vertical	surface rust evident, scrape and paint	Good
Secondary Member	3" x 3" & 2 1/2" x 2 1/2" angle horizontal	surface rust evident, scrape and paint	Good
Cross Bracing	2 1/2" x 2 1/2" angle	surface rust evident, scrape and paint	Good
Node Type	bolted plate	surface rust evident, scrape and paint	Good
Platform Members	3" x 3" angle & 4" channel section	surface rust evident, scrape and paint	Good

CAB

component	*description*	*comments*	*condition*
Approx. Dimensions	10' x 10'	-	-
Exterior Siding	1 x 4 wood clapboard, painted, woven corner	scrape and re-finish	Fair
Exterior Sub-Deck	2 x wood planks with 3/4" plywood deck	some deterioration from weather	Fair
Exterior Trim	wood, painted	scrape and re-finish	Fair
Roof	*undetermined*		
Interior Walls	vertical wood board, varnished / stained	water damage evident	Poor
Interior Floor	VCT	cracking and adhesion evident, replace	Poor
Interior Ceiling	panel, painted		Fair
Interior Trim	1 x wood flatstock, painted	scrape and re-finish	Fair
Window Operation	undetermined	belived to be vertical slider	Poor
Window Frame	wood, painted	scrape and re-finish	Fair
Window Glazing	single	condensation evident	Fair
Window Trim	1 x flat stock, painted	scrape and re-finish	Fair
Power Supply	mains power	load center in cab below windows	Fair
Heat	electric resistance baseboard	operation undetermined	-

ACCESS HATCH

component	*description*	*comments*	*condition*
Location	5 x 2' hatch in cab floor		Fair
Operation	hinged to short edge, up swinging		Good
Safety Rail	pipe rail @ 30" with (2) 2 x wood mid rails	height not code compliant	Fair
Security	basic padlock		Good

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees		Good
Cab Storage	some upper shelving and attic	adequate	Good

SITE OBSERVATIONS & CONDITIONS ANALYSIS — BELKNAP MOUNTAIN (Gilford)

date: 17th January, 2014 - *weather conditions: snow flurries, partly sunny* , approx. 36 degrees F.

ANCILLARY BUILDING ONE — Watchman Cabin

component	*description*	*comments*	*condition*
Function	watchman cabin	limited use	Fair
Approximate Footprint	12'-2" x 24'-3"	3 room (bedroom, living / kitchen, porch)	-
Foundation	poured concrete & cmu block		Fair
Structure	wood framing		Fair
Exterior Walls	wood clapboard and shingle, painted	peeling and cracking evident	Poor
Windows	wood double hung, 6 over 6 single pane	boarded over	Fair
Roof	asphalt shingle		Fair
Interior Walls	wood board, painted	inside face of sheathing at some locations	Fair
Interior Floor	wood sheathing, painted	failed in some locations	Fair
Interior Ceiling	panelized		Fair

ANCILLARY BUILDING TWO — Outhouse / Wood Storage

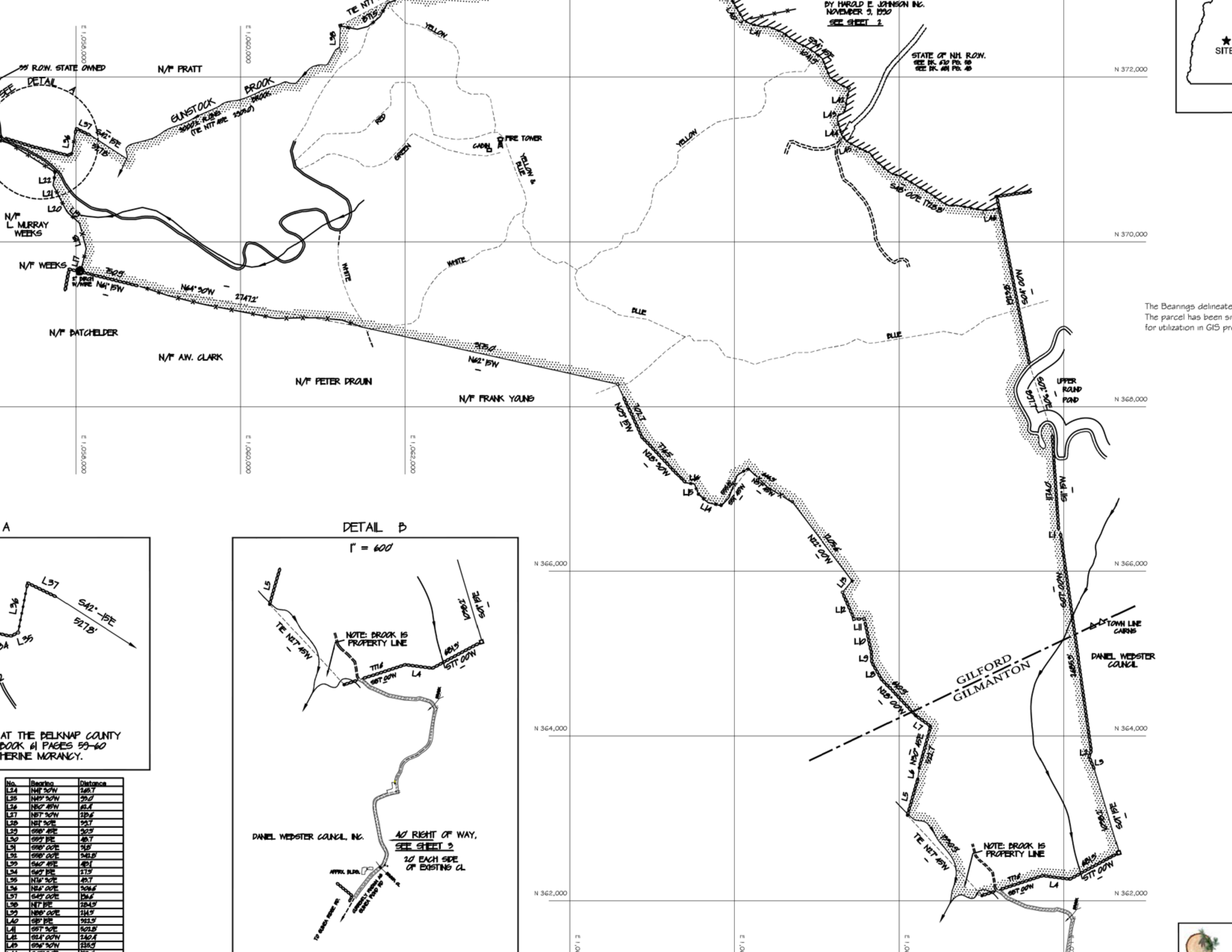
component	*description*	*comments*	*condition*
Function	outhouse	functional storage, outhouse undetermined	Fair
Approximate Footprint	5'-5" x 10'-3"	2 room (outhouse & storage)	-
Foundation	natural stone rubble	-	Fair
Structure	wood framing		Fair
Exterior Walls	wood shingle, painted	peeling evident, scrape and re-finish	Poor
Windows	none	-	-
Roof	rolled roofing	failing in some locations	Poor
Interior Walls	*inside face of siding, unfinished*	-	-
Interior Floor	1x wood board, unfinished	not all readily visible, some holes	Poor
Interior Ceiling	*inside face of roof sheathing, unfinished*	-	Poor

ANCILLARY BUILDING THREE — Storage

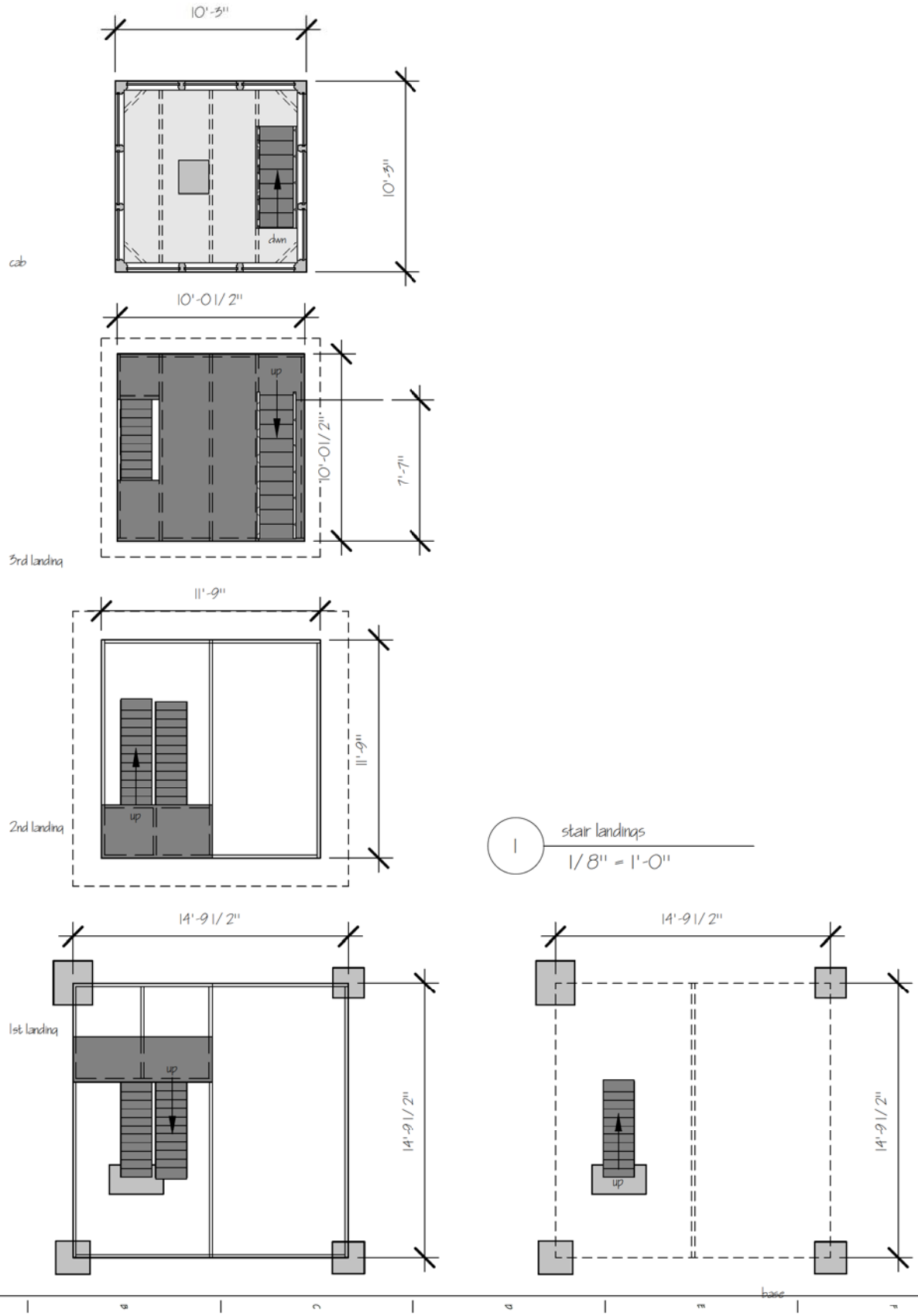
component	*description*	*comments*	*condition*
Function	storage / wood shed	actively used	Fair
Approximate Footprint	9' x 12'-5"	1 room	-
Foundation	poured concrete & cmu block	varying height as grade changes	Fair
Structure	wood framing		Fair
Exterior Walls	wood vertical board and batten	clean, scrape and re-finish	Fair
Windows	*none*	-	-
Roof	corrugated fiber based	-	Fair
Interior Walls	*inside face of siding, unfinished*	-	-
Interior Floor	2x wood boards, unfinished	-	Fair
Interior Ceiling	*inside face of roof sheathing, unfinished*	-	-

ANCILLARY BUILDING FOUR — Garage

component	*description*	*comments*	*condition*
Function	storage / wood shed	not in use	Fair
Approximate Footprint	12'-4" x 18'-3"	1 room	-
Foundation	natural stone rubble	varying height as grade changes	Fair
Structure	wood framing	post to one corner failing	Fair
Exterior Walls	wood shingle, painted	scrape and re-finish, no garage door	Poor
Windows	*undetermined*	boarded over, one missing	Poor
Roof	asphalt architectural shingle	relatively new	Good
Interior Walls	*inside face of sheathing, unfinished*	-	-
Interior Floor	gravel	-	Fair
Interior Ceiling	*inside face of roof sheathing, unfinished*	-	-



No.	Bearing	Distance
L24	N41°30'W	265.7'
L25	N45°30'W	55.0'
L26	N50°45'W	62.4'
L27	N57°30'W	215.6'
L28	N21°30'E	53.7'
L29	S58°45'E	30.3'
L30	S53°15'E	48.7'
L31	S58°00'E	31.3'
L32	S58°00'E	341.3'
L33	S40°45'E	49.1'
L34	S43°15'E	27.3'
L35	N16°30'E	45.7'
L36	N26°00'E	306.6'
L37	S43°00'E	136.6'
L38	N17°15'E	284.5'
L39	N86°00'E	214.5'
L40	S15°15'E	323.5'
L41	S57°30'E	502.8'
L42	S24°00'W	240.4'
L43	S36°30'W	235.5'



PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION
DRAWINGS ARE SUBJECT TO CHANGE, ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER

PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
BELKNAP MOUNTAIN
SURVEY-LANDINGS AX1.0

04-30-14

GENERAL NOTES:

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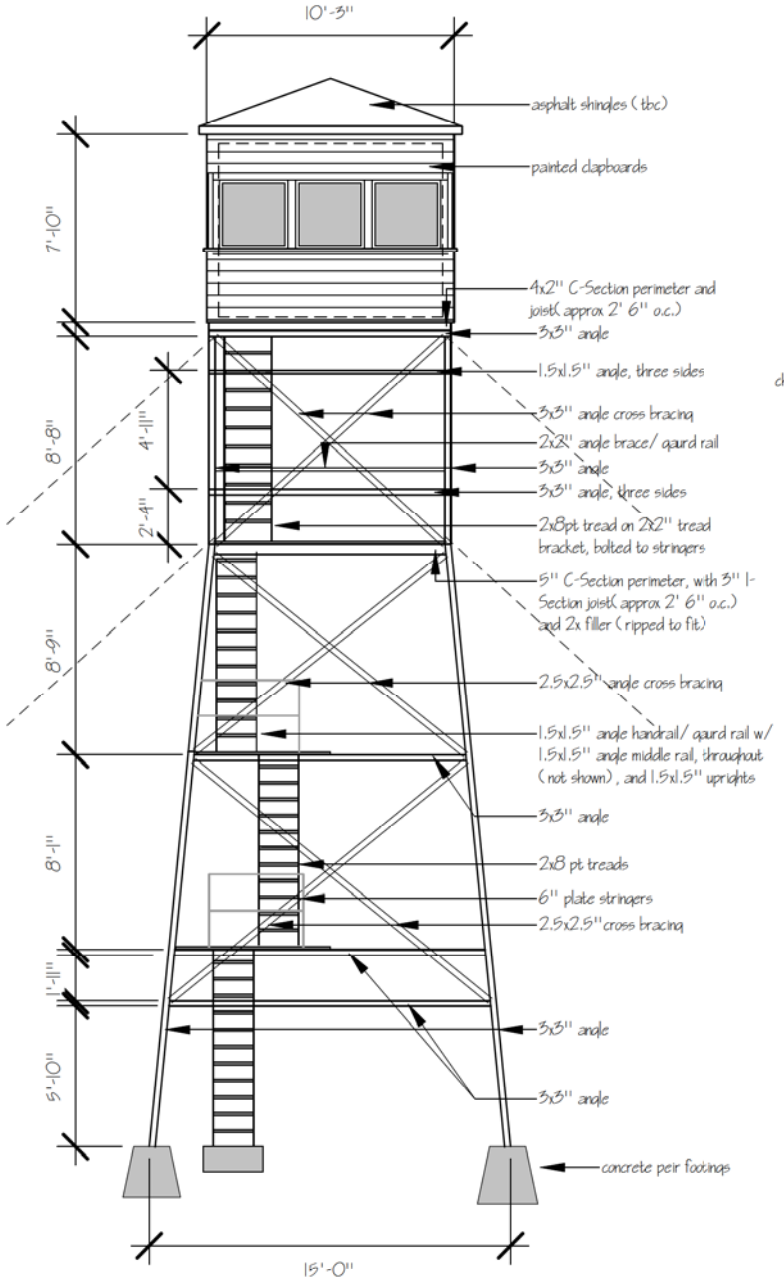

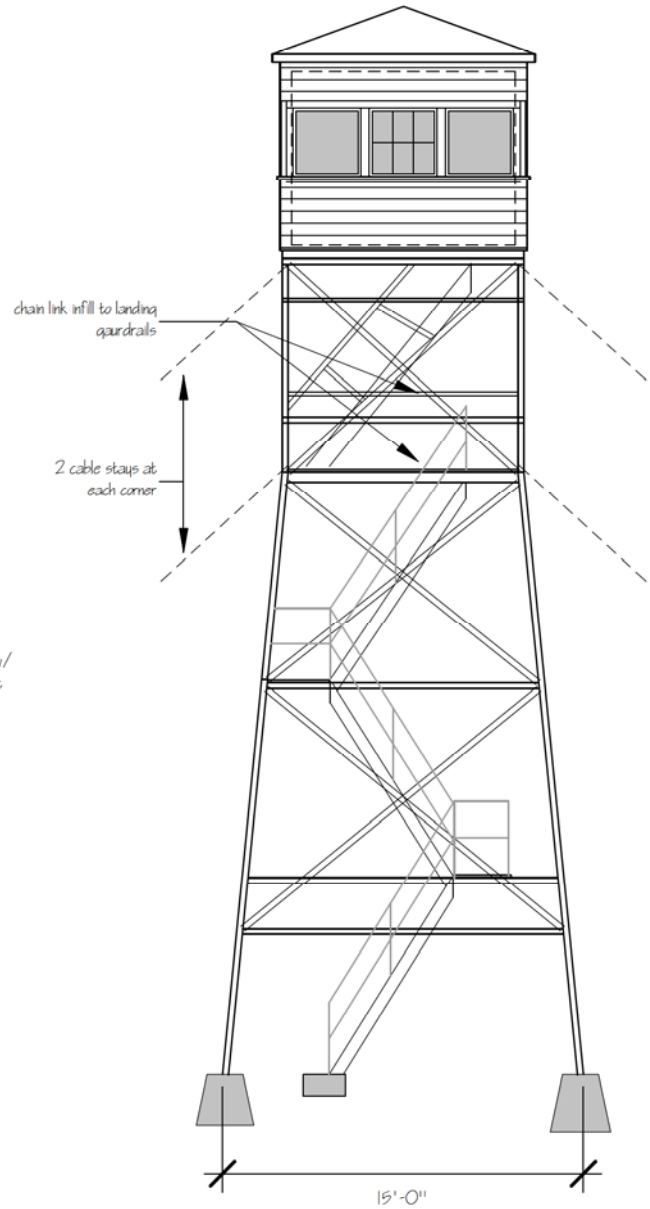

1 2D Tower Elevations
1/ 8" = 1'-0"

PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION
DRAWINGS ARE SUBJECT TO CHANGE, ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER

PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
BELKNAP MOUNTAIN
SURVEY-ELEVATIONS AX 1.1

04-30-14

GENERAL NOTES:

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EXISTING CONDITION PHOTOGRAPHS **BELKNAP MOUNTAIN** (Gilford)

date: 17th January, 2014 - *weather conditions: snow flurries, partly sunny*, approx. 36 degrees F.

EXISTING CONDITION PHOTOGRAPHS **BELKNAP MOUNTAIN** (Gilford)

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EXISTING CONDITION PHOTOGRAPHS **BELKNAP MOUNTAIN** (Gilford)

date: 17th January, 2014 - *weather conditions: snow flurries, partly sunny*, approx. 36 degrees F.

EXISTING CONDITION PHOTOGRAPHS

BELKNAP MOUNTAIN - WATCHMAN CABIN

date: 17th January, 2014 - *weather conditions: snow flurries, partly sunny*, approx. 36 degrees F.

EXISTING CONDITION PHOTOGRAPHS

BELKNAP MOUNTAIN - STORAGE

date: 17th January, 2014 - *weather conditions: snow flurries, partly sunny*, approx. 36 degrees F.

EXISTING CONDITION PHOTOGRAPHS

BELKNAP MOUNTAIN - OUTHOUSE / WOOD STORAGE

date: 17th January, 2014 - *weather conditions: snow flurries, partly sunny*, approx. 36 degrees F.

EXISTING CONDITION PHOTOGRAPHS

BELKNAP MOUNTAIN - GARAGE

date: 17th January, 2014 - *weather conditions: snow flurries, partly sunny*, approx. 36 degrees F.

2.2 BLUE JOB MTN., FARMINGTON

The Blue Job Mtn. fire tower site consists of the fire tower, a watchman's cabin, storage building, outhouse.

The fire tower frame consists of painted steel angles and flat bar elements, as noted on the attached drawings. The frame members do exhibit some substantial rust and potential section loss and some may require replacement. The frame will require refinishing in the near future to insure no further loss of integrity.

The four flights of the tower stairs consist of painted 20.5" long 2x8 pt treads bolted to 1.5x1.5" steel angles, which in turn are bolted to 6x3/8" plate steel stringers. Handrail/guardrail consists of 1.5x1.5" steel top bar and uprights bolted/riveted to plate stringer, with 1x3/8" flat bar mid-rail. Stair metalwork exhibits extensive rust and will require refinishing in a timely manner to stop progression into loss of integrity. Stair treads will at minimum require refinishing, as they are generally in sound condition, but have a limited useful life left to them. Landings/Platforms exhibit the same conditions and requirements. Some wire mesh infill has been installed at landings, but does not appear to be holding up well. Guardrails are typically 33" above stair treads and 44" high at main landings.

The tower cab to Blue Job has been recently replaced in its entirety. The cedar clapboards and trims to the exterior are showing signs of wear, but are generally in good shape and do not require immediate attention. Vinyl double hung/double glazed windows were utilized and require little more than regular, visual inspection. Interior has been finished with finish grade ply to walls and ceiling, with strip/battens at joints, and narrow strip oak boarding to floor, installed over what appears to be the 2x8 pt deck retained from the previous cab construction. The cab has mains electric, including electric baseboard heating.

Additional items to be addressed would be limited guard around access hatch, access hatch security and operation.

The ancillary buildings on the site are in poor shape and would require extensive repair and upgrade. The outhouse has been knocked over and the footings for the watchman's cabin are crumbling or knocked out. All buildings have little or no paint left on the siding, roof finishes are long past overdue. Due to good natural ventilation through air infiltration, the interior structure appears sound.

SITE OBSERVATIONS & CONDITIONS ANALYSIS

BLUE JOB (Farmington)

date: 16th January, 2014 - *weather conditions:* overcast, poor visibility, approx. 20 degrees F.

TOWER BASE

component	*description*	*comments*	*condition*
Base	16' x 16' on 20" x 20" x 22" concrete piers	clean and re-seal concrete	Fair
Cables	8 total 3/8" steel	little or no tension on cable	Good
Stair Base	27" x 23" concrete plinth	clean and re-seal concrete	Good
Connections	12" x 12" x 5/8" base plate bolted to piers		Fair

STAIRS

component	*description*	*comments*	*condition*
# of Flights	4		-
Treads	2x10 pressure treated @ 20", 9 - 13 risers per flight	rise 8 1/2" +/-, recommend replacement	Poor
Stringer	1/4" x 6 steel plate	superficial rust, requires refinishing	Fair
Rail	1 1/2" x 1 1/2" angle @ 32" +/-	1/4" x 1 1/2" plate mid rail	Good
Landings	2 x 8 pressure treated	fatigued due to exposure, recommend replac	Poor

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	3" x 3" angle vertical	surface rust evident, scrape and paint	Fair
Secondary Member	4" x 3" & 3" x 3 " horizontal	surface rust evident, scrape and paint	Fair
Cross Bracing	2" x 2" angle & 3/8" steel cable	surface rust evident, scrape and paint	Fair
Node Type	bolted plate	surface rust evident, scrape and paint	Fair
Platform Members	1 1/2" x 5" c-section	surface rust evident, scrape and paint	Fair

GENERAL NOTE: some elements will require replacement due to section loss

CAB

component	*description*	*comments*	*condition*
Approx. Dimensions	10' x 10'	-	-
Exterior Siding	1 x 5 wood clapboard, painted	relatively new	Good
Exterior Sub-Deck	2 x wood planks	some deterioration from weather	Fair
Exterior Trim	1 x 5 wood cornerboard, painted	relatively new	Good
Roof	rolled roofing	relatively new	Good
Interior Walls	birch plywood, polyurethane finish	relatively new, some water damage	Good
Interior Floor	oak strip, polyurethane finish	relatively new	Good
Interior Ceiling	birch plywood, polyurethane finish	relatively new	Good
Interior Trim	1 x pine, polyurethane finish	relatively new	Good
Window Operation	double hungs, approx 34" x 27"	all units operational	Good
Window Frame	vinyl		Good
Window Glazing	double thermal pane		Good
Window Trim	1 x 4 pine flat stock, polyurethane finish		Good
Power Supply	100 amp load center	panel location not code compliant	Good
Heat	electric resistance base board		Good

ACCESS HATCH

component	*description*	*comments*	*condition*
Location	5' x 2' hatch in cab floor		Good
Operation	hinged to short edge, up swinging		Good
Safety Rail	pipe rail @ 30" with mid rail	height not code compliant	Good
Security	basic padlock		

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees	communication tower in line of sight	Good
Cab Storage	upper shelving above windows	adequate	Good

SITE OBSERVATIONS & CONDITIONS ANALYSIS — BLUE JOB (Farmington)

date: 16th January, 2014 - *weather conditions:* overcast, poor visibility, approx. 20 degrees F.

ANCILLARY BUILDING ONE — Watchman Cabin

component	*description*	*comments*	*condition*
Function	watchman cabin	not in use, vandalism evident	Poor
Approximate Footprint	12'-4" x 18'-3 1/2"	3 room (bedroom, living / kitchen, porch)	-
Foundation	cmu block	failing in some locations	Poor
Structure	wood framing		Fair
Exterior Walls	wood clapboard and shingle	peeling and cracking evident	Poor
Windows	wood double hung, 6 over 6 single pane	boarded over, vandalism evident	Poor
Roof	asphalt shingle & rolled roofing	failing in some locations	Poor
Interior Walls	wood board, painted	inside face of sheathing	Fair
Interior Floor	wood plank	failed in some locations	Poor
Interior Ceiling	panelized	water damage evident	Poor

ANCILLARY BUILDING TWO — Outhouse

component	*description*	*comments*	*condition*
Function	outhouse	not in use, vandalism evident, tipped over	Poor
Approximate Footprint	4' x 4'		-
Foundation	-	-	-
Structure	wood framing		Fair
Exterior Walls	vertical board and batten	peeling and cracking evident	Poor
Windows	none	-	-
Roof	asphalt shingle	failing in some locations	Poor
Interior Walls	*undetermined*	-	-
Interior Floor	*undetermined*	-	-
Interior Ceiling	*undetermined*	-	-

ANCILLARY BUILDING THREE — Storage / Wood Shed

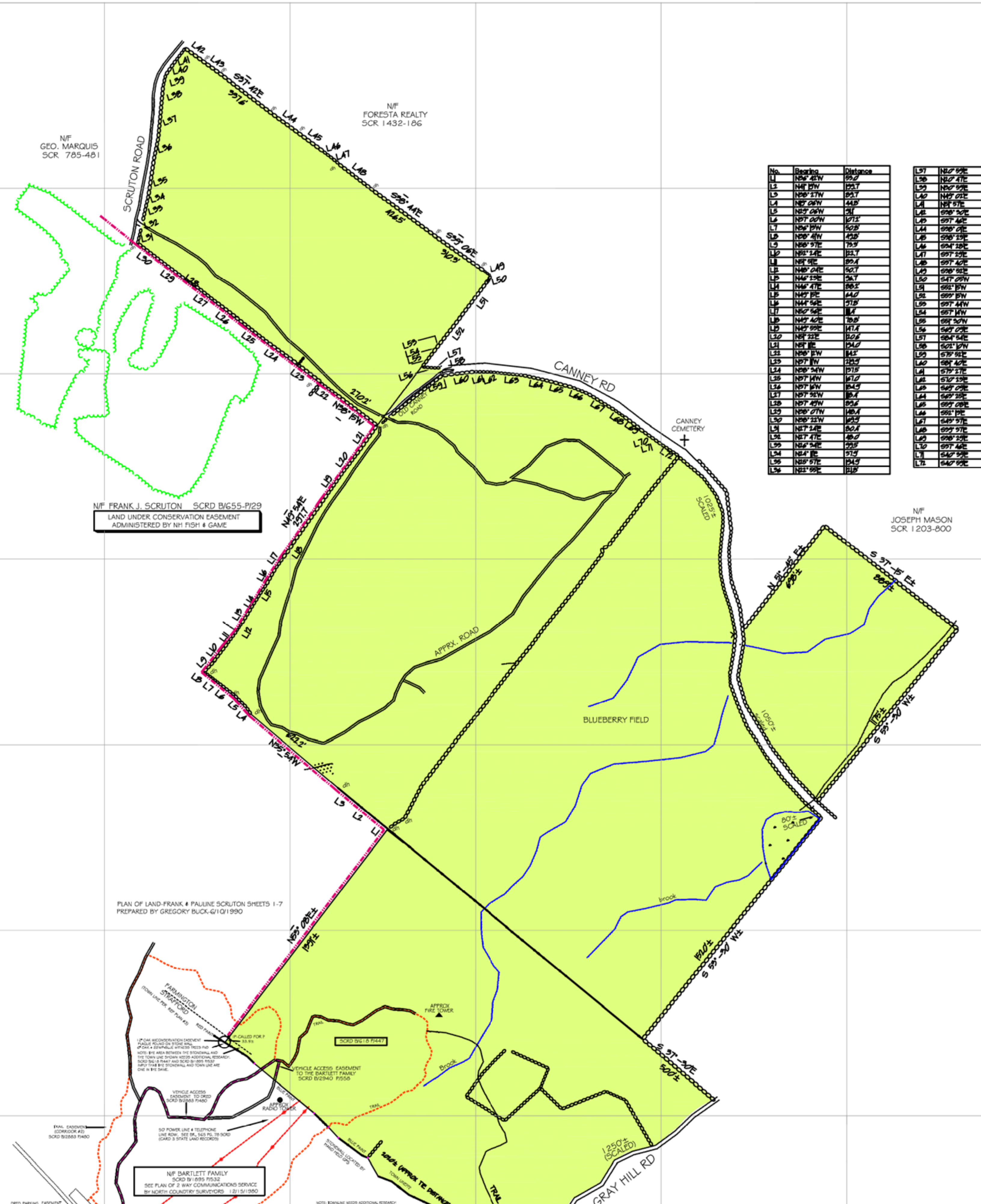
component	*description*	*comments*	*condition*
Function	storage / wood shed	not in use	Fair
Approximate Footprint	7'-9 1/2" x 10'-3 3/4"	1 room	-
Foundation	natural stone	varying height as grade changes	Fair
Structure	wood framing	post to one corner failing	Fair
Exterior Walls	wood shingle	scrape and re-finish	Fair
Windows	*undetermined*	boarded over	Fair
Roof	asphalt shingle	-	Fair
Interior Walls	*undetermined*	-	-
Interior Floor	*undetermined*	-	-
Interior Ceiling	*undetermined*	-	-

...82 PG. 479 STRAFFORD COUNTY REGISTRY
... STATE LAND RECORDS) FOR DESCRIPTION
...TELEPHONE ROW AND 10' ROW TO A GARAGE
...RIGHT TO KEEP AND MAINTAIN SAID GARAGE.

The parcel has been situated on the NH State Plane Coordinate System (NAD 83) for utilization in GIS projects and placement should be considered general.

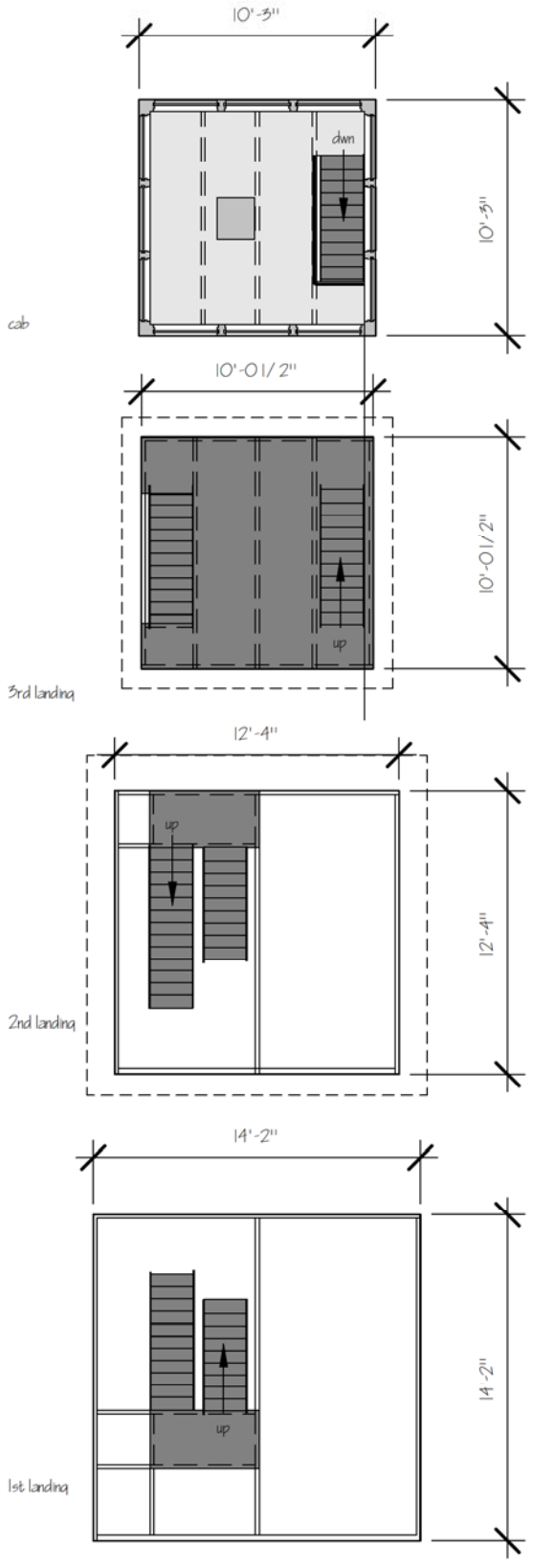
LOCATION SKETCH

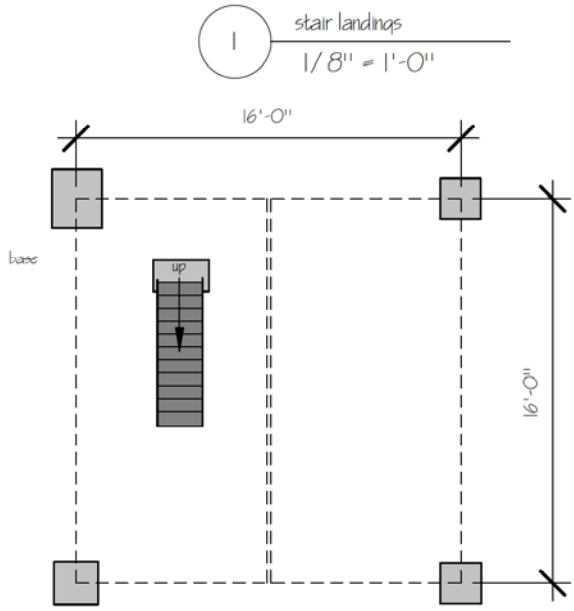
SOURCE: NH HIGHWAY MAP



No.	Bearing	Distance
L1	N36° 42'W	55.0'
L2	N41° 15'W	122.7'
L3	N38° 27'W	83.7'
L4	N37° 06'W	44.8'
L5	N25° 06'W	31'
L6	N37° 00'W	107.2'
L7	N36° 15'W	50.8'
L8	N38° 41'W	42.8'
L9	N58° 37'E	79.3'
L10	N52° 24'E	122.7'
L11	N57° 51'E	80.4'
L12	N48° 04'E	50.7'
L13	N46° 29'E	36.7'
L14	N46° 47'E	88.2'
L15	N45° 15'E	64.0'
L16	N44° 56'E	37.8'
L17	N50° 56'E	11.4'
L18	N45° 40'E	78.8'
L19	N45° 59'E	141.4'
L20	N51° 22'E	120.6'
L21	N51° 11'E	134.0'
L22	N38° 11'W	14.2'
L23	N37° 11'W	213.5'
L24	N38° 34'W	137.5'
L25	N37° 14'W	167.0'
L26	N37° 16'W	134.5'
L27	N37° 32'W	18.4'
L28	N37° 45'W	83.6'
L29	N38° 07'W	140.4'
L30	N38° 22'W	123.5'
L31	N17° 24'E	80.4'
L32	N17° 47'E	48.0'
L33	N16° 34'E	72.5'
L34	N14° 11'E	57.5'
L35	N15° 57'E	134.5'
L36	N21° 55'E	21.8'

L37	N20° 55'E
L38	N20° 47'E
L39	N30° 55'E
L40	N43° 01'E
L41	N51° 57'E
L42	S38° 30'E
L43	S37° 46'E
L44	S38° 01'E
L45	S38° 19'E
L46	S34° 28'E
L47	S37° 29'E
L48	S37° 40'E
L49	S38° 52'E
L50	S47° 05'W
L51	S52° 15'W
L52	S55° 15'W
L53	S57° 44'W
L54	S57° 14'W
L55	S51° 30'W
L56	S63° 05'E
L57	S84° 54'E
L58	S01° 10'W
L59	S75° 52'E
L60	S81° 40'E
L61	S79° 21'E
L62	S70° 19'E
L63	S63° 05'E
L64	S63° 25'E
L65	S55° 08'E
L66	S52° 15'E
L67	S49° 37'E
L68	S53° 37'E
L69	S38° 29'E
L70	S37° 46'E
L71	S40° 55'E
L72	S40° 55'E





PRELIMINARY DRAWINGS
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DRAWINGS ARE SUBJECT TO CHANGE, ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER

PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
BLUE JOB MOUNTAIN
SURVEY-LANDINGS AX 2.0

04-30-14

GENERAL NOTES:

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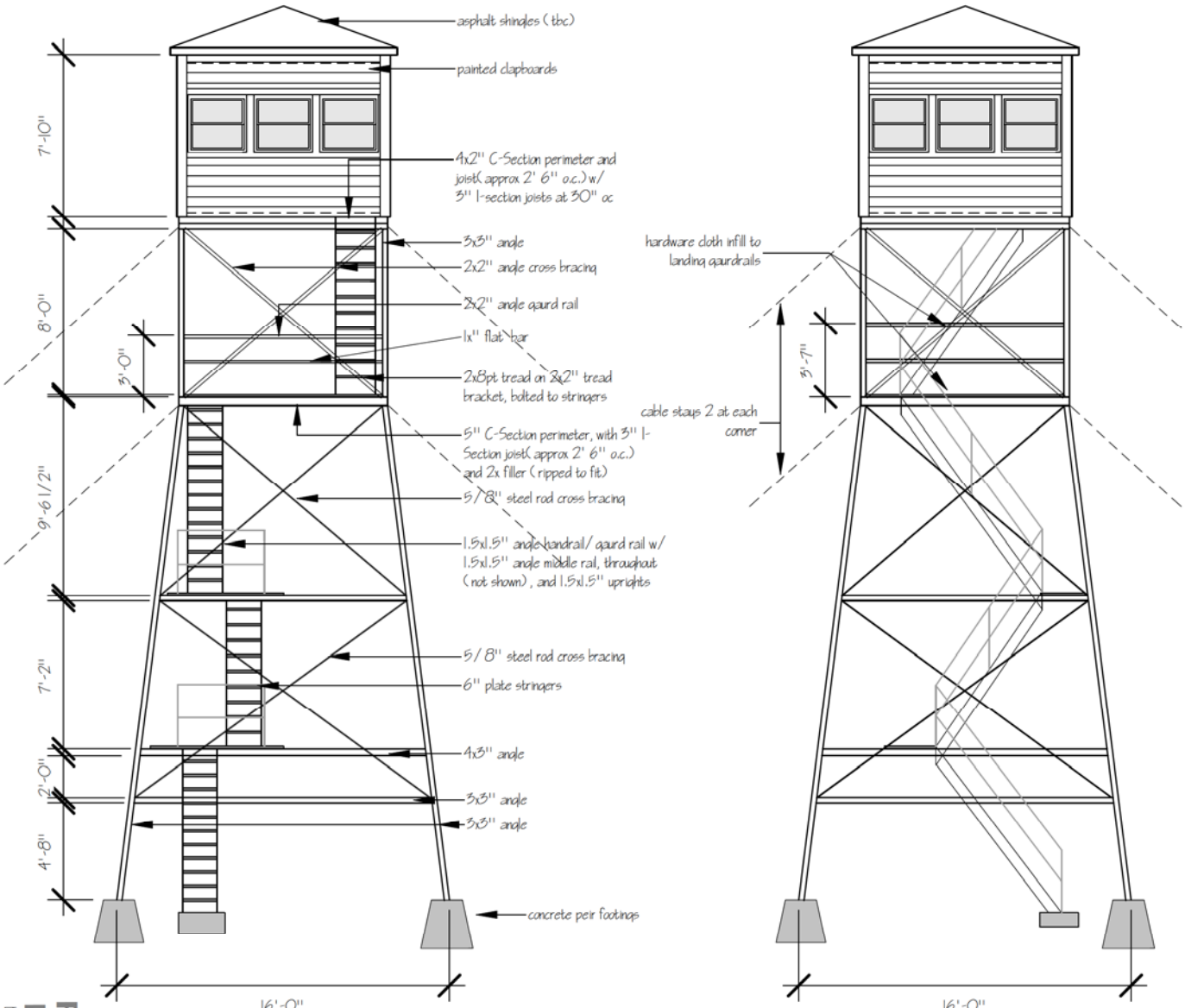

1 2D Tower Elevations

1/8" = 1'-0"

PRELIMINARY DRAWINGS

NOT FOR CONSTRUCTION

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PROJECT NAME & ADDRESS:

NH STATE FIRE TOWERS PHASE ONE

NH DRED

BLUE JOB MOUNTAIN

SURVEY-ELEVATIONS AX 2.1

04-30-14

GENERAL NOTES:

alba architects llp . stuart j anderson & philip m bennett . po box 186 . 137 main street . north woodstock . nh . 03262 . **(603) 745-4770** . albaarchitects.com

EXISTING CONDITION PHOTOGRAPHS **BLUE JOB** (Farmington)

date: 16th January, 2014 - *weather conditions:* overcast, poor visibility, approx. 20 degrees F.

EXISTING CONDITION PHOTOGRAPHS **BLUE JOB** (Farmington)

date: 16th January, 2014 - *weather conditions:* overcast, poor visibility, approx. 20 degrees F.

EXISTING CONDITION PHOTOGRAPHS **BLUE JOB** (Farmington)

date: 16th January, 2014 - *weather conditions:* overcast, poor visibility, approx. 20 degrees F.

EXISTING CONDITION PHOTOGRAPHS

BLUE JOB - WATCHMAN CABIN

date: 16th January, 2014 - *weather conditions:* overcast, poor visibility, approx. 20 degrees F.

EXISTING CONDITION PHOTOGRAPHS

BLUE JOB - STORAGE / WOOD SHED

date: 16th January, 2014 - *weather conditions:* overcast, poor visibility, approx. 20 degrees F.

EXISTING CONDITION PHOTOGRAPHS

BLUE JOB - OUTHOUSE

date: 16th January, 2014 - *weather conditions:* overcast, poor visibility, approx. 20 degrees F.

EXISTING CONDITION PHOTOGRAPHS

BLUE JOB - ADJACENT STRUCTURES

date: 16th January, 2014 - *weather conditions:* overcast, poor visibility, approx. 20 degrees F.

2.3 CARDIGAN MTN., ORANGE

The Cardigan Mountain fire tower site consists of the fire tower, a watchman's cabin, a storage building, an outhouse, and a cmu communications building under the tower (privately owned and operated).

The fire tower frame consists of painted steel angles and flat bar elements, as noted on the attached drawings. The frame members do exhibit some substantial rust and potential section loss and some may require replacement. The frame will require refinishing in the near future to insure no further loss of integrity. Several horizontal members are bowed, though it appears the damage was done during installation, possibly because member lengths were not cut exact. The tower includes three arrays of solar panels mounted at various angles and locations. Under the tower is a cmu constructed communications building with four 100lb propane tanks adjacent to it. Several footings/piers require patching.

The tower stairs consist of two flights with painted 2x12 pt treads bolted to 2x2" steel angles, which form the horizontal elements of 9" deep truss-stringers, also containing 2x2" steel angle top and bottom chords. Handrail/guardrail consists of 1.5x1.5" steel top bar, mid rail and uprights welded to plate stringer. As per the main tower frame, some superficial rust is exhibited and will require refinishing in a timely manner to stop progression into loss of integrity. Stair treads will at minimum require refinishing, as they are generally in sound condition, but have a limited useful life left to them. Landings/Platforms exhibit the same conditions and requirements.

Visual inspection of the tower cab suggests the framing of the cab could be sound and could be retained should that prove to be an economical solution (past Division of Forests and Lands experience suggests otherwise, however). Exterior finishes of the cab are beyond usefulness and will need replacing. Windows remain operable and satisfy the most basic of functions, but will require refinishing at the minimum. Presently they are wood, single glazed upward-sliding sashes within site built frames/tracks. Wind/air tightness has ceased to be feasible with these units. Water ingress seems to be minimal. Shutters are available, but at time of visit were not installed. Interior wall finishes are still functional and are 1x pine vertical boarding up to window sill, with composite boards above windows. The plywood floor finish is marginal and will require replacement in the near future. The 2x8 pt substructure appears to still be viable, from the underside, and could continue to be the substructure for a new floor, or cab, but does show signs of exposure and degradation.

The watchman's cabin is in poor condition due to vandalism and the presence of rodents, though not beyond repair. Normal wear and tear over an extended period of time is apparent and the cabin finishes would be improved greatly with cleaning and repainting, and some replacement. Interior finishes are typically exposed framing with either the interior face of wall sheathing exposed and painted or an insert thin board between framing and painted. Ceilings are also a thin board painted. Floors are vinyl and will require replacement. The substructure has been compromised with removal of stone and lack of maintenance, but is also not beyond repair. The cabin sits on rubble-stone footings and wooden 4x4 posts on stone footings. Exterior finishes have experienced some accelerated degradation due to the proximity to the ground/snow, with two sides half buried in snow drift at time of visit. Generally, the exterior finishes would be better replaced. Roof structure appears good. CMU chimney is not useful and should be removed. If a chimney is required in future uses, a new one would be recommended.

The outhouse has been vandalized as well and is presently lying on its side, probably requiring replacement.

The storage building is in reasonable condition, though it is nearly full of firewood, garbage and several full propane tanks. It would benefit from minor repairs and repainting, though alternative uses would probably be necessary to justify retention and upgrade within a long term maintenance schedule.

SITE OBSERVATIONS & CONDITIONS ANALYSIS — CARDIGAN MOUNTAIN (Orange)

date: 03.10.2014 - *weather conditions: clear, cold, windy*

TOWER BASE

component	*description*	*comments*	*condition*
Base	14'-8"x14'-8" on 18"x18" piers	replace/repair as needed, clean, reseal	poor
Cables	8 total, 1/2" diam steel	retentioning required at minimum	fair
Stair Base	36"x48" concrete plinth	clean and reseal	fair
Connections	steel base plate anchor botled to base	clean rust and repaint	fair

STAIRS

component	*description*	*comments*	*condition*
# of Flights	2	all steel req's scrape/repaint	fair
Treads	2x12 pt treads, 3" overlap, 23.5" wide, 9 per flight	useable but repaint at minimum	fair
Stringer	9" truss stinger, 2x2 top/bttm chord, 1.5x1.5 int.s	superficial rust req's removal and repaint	fair
Rail	2x2" angle top, mid and vert. support rails @36"H	as steel	fair
Landings	2x12" pt boards, 36"H rail, 35"x75"	rail as stair	fair

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	3x3x1/4" steel vertical angels	medium to heavy rust- scrape/repaint	fair
Secondary Member	3x3x1/4" steel horz angels	medium to heavy rust- scrape/repaint	fair
Cross Bracing	3x3/1/4" diagonal cross, upper lift only	medium to heavy rust- scrape/repaint	fair
Node Type	botled plate connections	medium to heavy rust- scrape/repaint	fair
Platform Members	3x3x1/4" steel angles	medium to heavy rust- scrape/repaint	fair

GENERAL NOTE: some elements will require replacement due to section loss

CAB

component	*description*	*comments*	*condition*
Approx. Dimensions	interior dim-9'-2"x9'-2", ext. 10'-3"x10'-3"		
Exterior Siding	wood clapboard, painted	requires replacement	poor
Exterior Sub-Deck	2x12 pt board	refinish, minimum	fair
Exterior Trim	1x4	requires replacement	poor
Roof	2x6 framing, standing seam metal roof		good
Interior Walls	1x pine to window sill, composite board above	refinish, minimum	fair
Interior Floor	untreated ply flooring on pt deck	requires replacement	poor
Interior Ceiling	ply ceiling w/ battens on joints	refinish, minimum	fair
Interior Trim	1x painted	refinish, minimum	fair
Window Operation	upward sliding sash	requires replacement	
Window Frame	wood		poor
Window Glazing	single		
Window Trim	1x flat stock, painted		poor
Power Supply	3 sets, photovoltaic panels	may require relocation-structural concerns	fair
Heat	none		

ACCESS HATCH

component	*description*	*comments*	*condition*
Location	2'x5' hatch in cab floor		fair
Operation	upward swing, hinged on 5' edge		fair
Safety Rail	half height wall two sides		fair
Security	basic padlock	exposed to weather, ices over	fair

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees uninterupted		
Cab Storage	no built-in storage		

SITE OBSERVATIONS & CONDITIONS ANALYSIS

CARDIGAN MOUNTAIN (Orange)

date: 03.10.2014 - *weather conditions:* clear, cold windy

ANCILLARY BUILDING ONE — Watchman Cabin

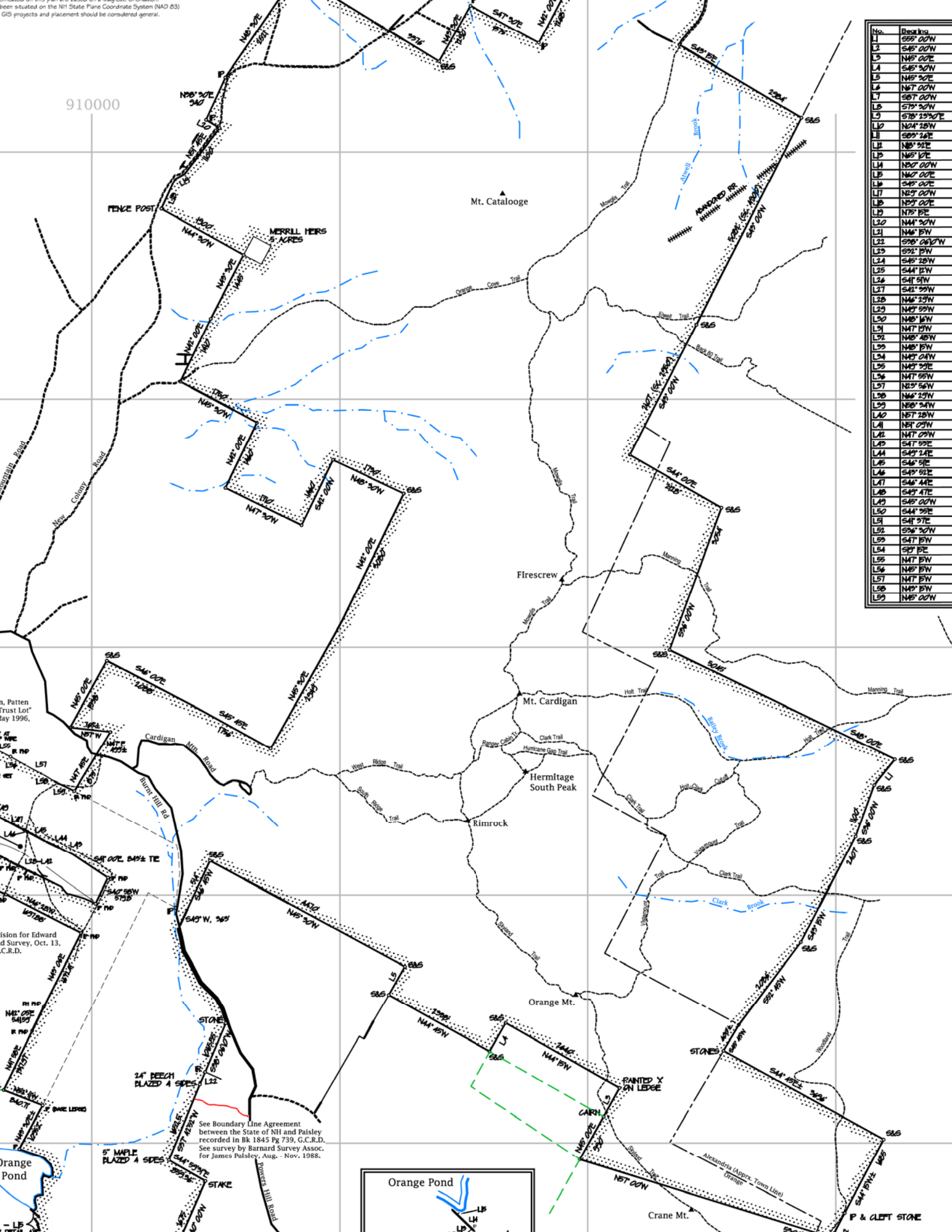
component	*description*	*comments*	*condition*
Function	living space/safety shelter	rodent/insect/vandal damage, repair req'd	fair
Approximate Footprint	24'-0"x12'-0"	sleeping, living and porch	
Foundation	random rubble stone	needs rebuilt	poor
Structure	2x4 and 2x6 wall and roof framing	dry, reasonable shape	fair
Exterior Walls	painted shakes	require replacement	poor
Windows	wood, double-hung, single glazed	require replacement	poor
Roof	asphalt shingle	reroofing required	poor
Interior Walls	exp. studs/painted sheathing and composite board	requires refinishing, some replacement	fair to poor
Interior Floor	painted pine boards	requires refinishing	fair
Interior Ceiling	composite board	requires refinishing	fair

ANCILLARY BUILDING TWO — Outhouse

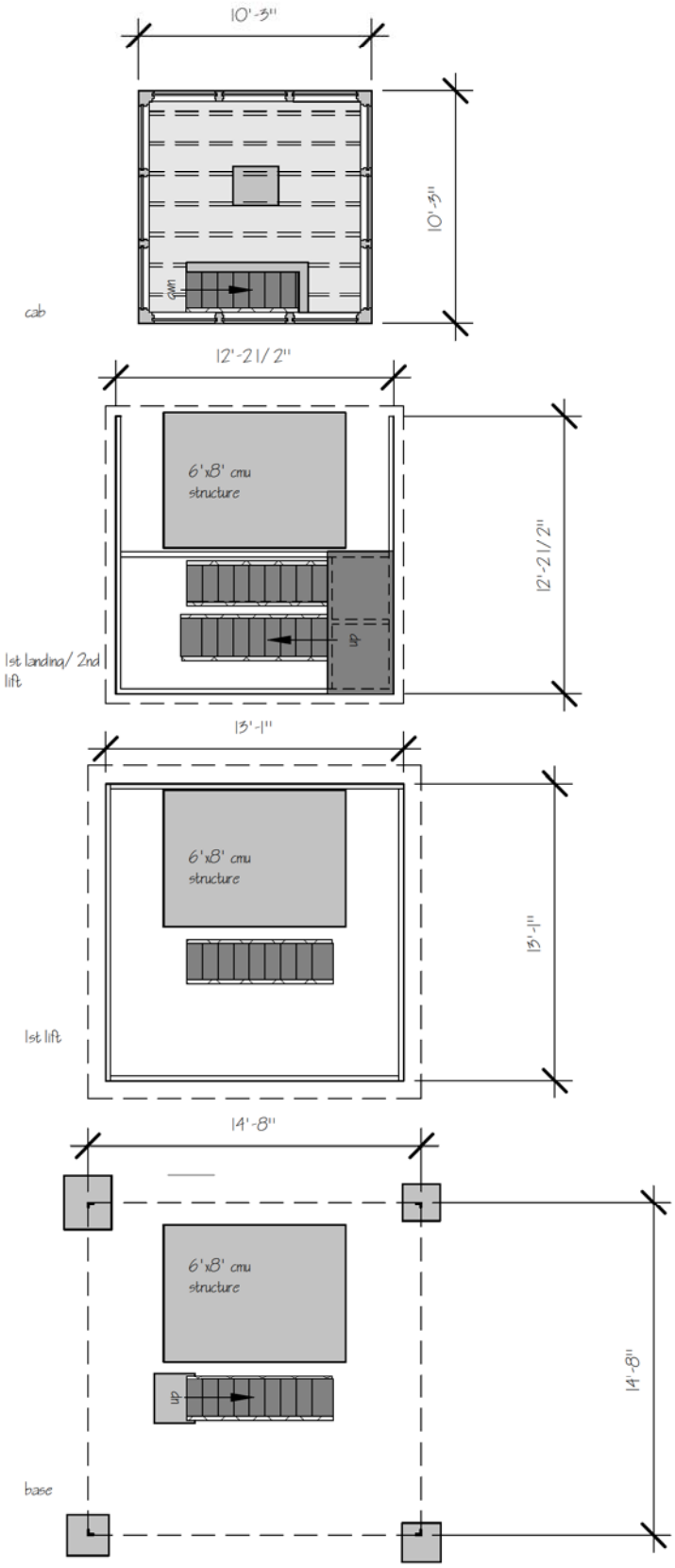
component	*description*	*comments*	*condition*
Function	sanitary facility	tipped over/damaged requires replacement	poor
Approximate Footprint	4'-0"x4'-0"		
Foundation	stone		
Structure	2x4 wood framing		
Exterior Walls	painted shakes		
Windows	not applicable		
Roof	asphalt shingles		
Interior Walls	exposed sheathing		
Interior Floor			
Interior Ceiling	roof sheathing		

ANCILLARY BUILDING THREE — Storage / Wood Shed

component	*description*	*comments*	*condition*
Function	stoarge	full, contains full propane tanks	fair
Approximate Footprint	10'-4"x7'-02"		
Foundation	cmu piers x 6	not square at risk of colapse	poor
Structure	2x4 walls, 2x8 floor, 2x4 roof	dry rot free	fair
Exterior Walls	painted board and batten	peeling, requires refinishing	fair
Windows	*not applicable*		
Roof	asphalt shingle	requires replacement	poor
Interior Walls	exposed sheating		fair
Interior Floor	exposed sheating		fair
Interior Ceiling	exposed sheating		fair



No.	Bearing
L1	S55° 00W
L2	S45° 00W
L3	N45° 00E
L4	S45° 30W
L5	N45° 30E
L6	N67 00W
L7	S67° 00W
L8	S75° 30W
L9	S78° 15'30"E
L10	N24° 15W
L11	S89° 26E
L12	N8° 30E
L13	N45° 00E
L14	N30° 00W
L15	N60° 00E
L16	S45° 00E
L17	N25° 00W
L18	N23° 00E
L19	N75° 15E
L20	N44° 30W
L21	N46° 15W
L22	S78° 06'0"W
L23	S52° 15W
L24	S45° 25W
L25	S44° 12W
L26	S41° 51W
L27	S41° 55W
L28	N46° 25W
L29	N45° 55W
L30	N45° 16W
L31	N47° 15W
L32	N48° 45W
L33	N45° 15W
L34	N45° 04W
L35	N45° 55E
L36	N47° 55W
L37	N25° 56W
L38	N66° 25W
L39	N58° 54W
L40	N57° 28W
L41	N51° 09W
L42	N47° 09W
L43	S47° 55E
L44	S45° 24E
L45	S46° 51E
L46	S45° 52E
L47	S46° 44E
L48	S45° 47E
L49	S45° 00W
L50	S44° 55E
L51	S41° 57E
L52	S56° 30W
L53	S47° 15W
L54	S5° 15E
L55	N47° 15W
L56	N45° 15W
L57	N47° 15W
L58	N45° 15W
L59	N45° 00W



1 stair landings

1/8" = 1'-0"

PRELIMINARY DRAWINGS

NOT FOR CONSTRUCTION

DRAWINGS ARE SUBJECT TO CHANGE, ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER

PROJECT NAME & ADDRESS:

NH STATE FIRE TOWERS PHASE ONE

NH DRED

CARDIGAN MOUNTAIN

SURVEY-LANDINGS AX 3.0

04-30-14

GENERAL NOTES:

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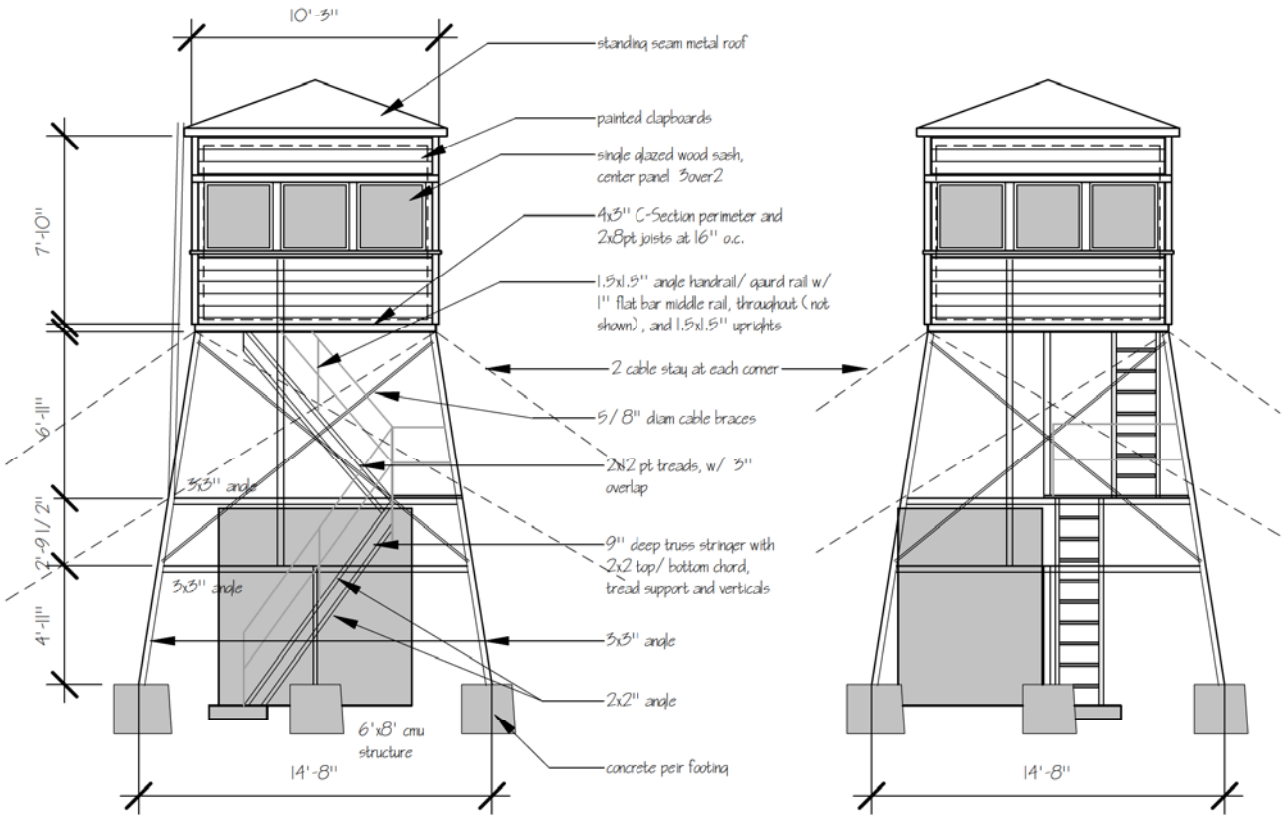

1 2D Tower Elevations

1/8" = 1'-0"

PRELIMINARY DRAWINGS

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PROJECT NAME & ADDRESS:

NH STATE FIRE TOWERS PHASE ONE

NH DRED

CARDIGAN MOUNTAIN

SURVEY-ELEVATIONS AX 3.1

04-30-14

GENERAL NOTES:

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EXISTING CONDITION PHOTOGRAPHS

CARDIGAN MOUNTAIN (Orange)

date: 10th march, 2014 - *weather conditions:* overcast, approx. 28 degrees F.

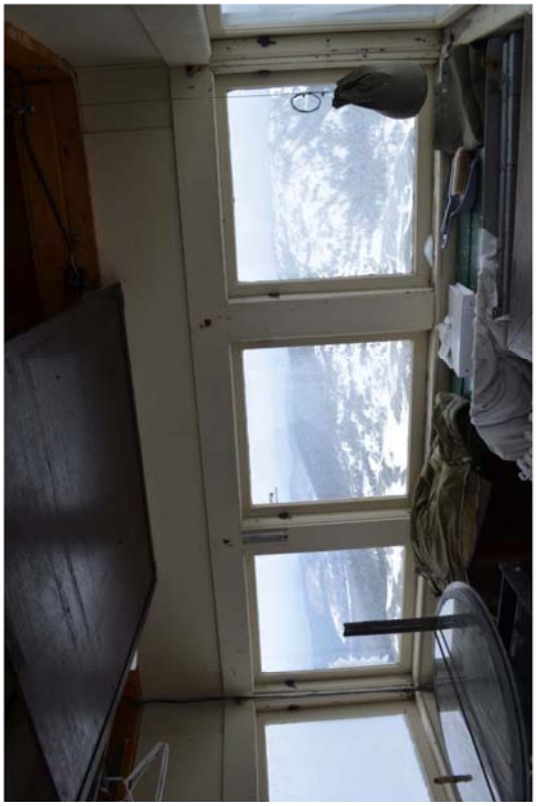
EXISTING CONDITION PHOTOGRAPHS **CARDIGAN MOUNTAIN** (Orange)

date: 10th march, 2014 - *weather conditions:* overcast, approx. 28 degrees F.

EXISTING CONDITION PHOTOGRAPHS

CARDIGAN MOUNTAIN (Orange)

date: 10th march, 2014 - *weather conditions:* overcast, approx. 28 degrees F.



EXISTING CONDITION PHOTOGRAPHS

CARDIGAN MOUNTAIN - WATCHMAN CABIN

date: 10th march, 2014 - *weather conditions:* overcast, approx. 28 degrees F.

EXISTING CONDITION PHOTOGRAPHS

CARDIGAN MOUNTAIN - STORAGE & OUTHOUSE

date: 10th march, 2014 - *weather conditions:* overcast, approx. 28 degrees F.

EXISTING CONDITION PHOTOGRAPHS

CARDIGAN MOUNTAIN - ADJACENT STRUCTURES

date: 10th march, 2014 - *weather conditions:* overcast, approx. 28 degrees F.

2.4 CROYDON MTN., CROYDON

The Croydon Mountain fire tower site consists of the fire tower, a watchman's cabin, a storage building at the summit, and an outhouse and a garage / sleeping quarters / storage building approximately 1/3 the distance to the summit.

The fire tower frame consists of painted steel angles and flat bar elements, as noted on the attached drawings. The frame members do exhibit some substantial rust and potential section loss and some may require replacement. The frame will require refinishing in the near future to insure no further loss of integrity.

The tower stairs consist of three flights of painted 2x10 pt treads bolted to 1.5x1.5" steel angles, which in turn are welded to 6x3/8" plate steel stringers. Handrail/guardrail consists of 2x2" steel top and mid-rail bars and uprights bolted to plate stringer. As per the main tower frame, significant superficial rust is exhibited and will require refinishing in a timely manner to stop progression into loss of integrity. Stair treads will at minimum require refinishing, as they are generally in sound condition, but have a limited useful life left to them. Landings/Platforms exhibit the same conditions and requirements.

The tower cab is relatively new, having been replaced in 2009. The oak floor of the cab is in reasonable condition although the finish is nearly ruined by sun exposure, and all wood interior finishes shows signs of bleaching and wear (it appears no finish was applied to walls, trims and ceiling). Exterior finishes of the cab are in reasonable condition, as would be expected for their age, and show no significant signs of atypical degradation. New vinyl double hung/double glazed windows are in good condition. The 2x8 pt substructure appears to still be viable, from the underside, as it appears to have had very limited exposure to moisture. Additional items to be addressed would be lack of guard around access hatch, access hatch security and operation.

The watchman's cabin is in poor condition, and would require significant repair if determined to be of value. Above normal wear and tear over an extended period of time, as well as complete disuse for several years is apparent. Upgrade for future use will include a lot more than just clean and paint. Interior finishes are a combination of varnished pine and painted composite board, with painted exposed framing. Paint is severely cracked in most areas and would need removal prior to refinishing. Floors are varnished pine and appear to be in better condition than most finishes. The substructure seems marginal. The cabin sits on rubble stone, which has been disturbed and would need replacement. Raising the cabin floor elevation would be recommended. Exterior finishes have experienced some accelerated degradation due to the proximity to the ground/snow. Generally, the exterior finishes would be better replaced. Roof structure appears good. CMU chimney is not useful and should be removed. If a chimney is required in future uses, a new one would be recommended. No sanitary facilities are located at the summit.

The storage building is in reasonable condition, though it is also prone to damage from snow drifts and shows signs of rot.

At lower level, approximately 1/3 the distance to the summit, a combination garage / sleeping quarters / storage building is located, along with an outhouse. These two structures are in fair condition and do not show the effects of severe exposure as the summit buildings do. Both structures could be readily improved and maintained, should they be deemed useful. The combination building is wood finishes throughout, with the exception of the dirt floor in the garage, and sound dry wood structure. It sits on stone footings, some of which have been disturbed and would need attention (reaching 4' off grade at the back portion of the building).

SITE OBSERVATIONS & CONDITIONS ANALYSIS — CROYDON MOUNTAIN (Croydon)

date: 20th March, 2014 - *weather conditions: clear, sunny* , approx. 40 degrees F.

TOWER BASE

component	*description*	*comments*	*condition*
Base	13'-8"x 13-8" on 34" x 30" concrete piers	repair/replace/re-seal concrete	poor
Cables	4 total 3/8" steel	little or no tension on cable	fair
Stair Base	12"x 27" concrete plinth	clean and re-seal concrete	Good
Connections	12" x 12" base plates bolted to piers	mild surface rust, clean and re-finish	fair to poor

STAIRS

component	*description*	*comments*	*condition*
# of Flights	3		-
Treads	2x8 pt @ 21" +/-, 11 risers/flight bttm 2, 10 rise top	rise 8" +/-, recommend replacement	Poor
Stringer	1/4" x 6" steel plate	superficial rust, requires refinishing	fair
Rail	2" x 2" angle @ 36" +/- and mid-rail	signficant rust to address	fair
Landings	2x pressure treated, rail @ 36""	recommend replacement, slippery	Poor

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	3" x 3" x1/4 steel angle vertical	most rusty ,scrape/paint or replace as req'd	fair
Secondary Member	3" x 3" & 2 1/2" x 2 1/2" angle horizontal	most rusty ,scrape/paint or replace as req'd	fair
Cross Bracing	2"x3"x3/16 steel angle	most rusty ,scrape/paint or replace as req'd	fair
Node Type	bolted plate	most rusty ,scrape/paint or replace as req'd	fair
Platform Members	3" x 3" angle & 4" channel section	most rusty ,scrape/paint or replace as req'd	fair

GENERAL NOTE: some elements will require replacement due to section loss

CAB

component	*description*	*comments*	*condition*
Approx. Dimensions	10' x 10'	new cab in 2009	good
Exterior Siding	1 x 4 wood clapboard, painted, corner boards		good
Exterior Sub-Deck	2 x wood planks with 3/4" plywood deck	some deterioration from weather	good
Exterior Trim	wood, painted		good
Roof	asphalt sheet or shingle (unconfirmed)		good
Interior Walls	vertical wood board, varnished / stained	sun damage evident	good
Interior Floor	finished h.w. plank	sun damage very evident, good for refinish	good
Interior Ceiling	ply with battens at joints	int. wood finishes not finished, need attentio	good
Interior Trim	1 x wood flatstock	int. wood finishes not finished, need attentio	good
Window Operation	double-hung		good
Window Frame	vinyl		good
Window Glazing	double glazed		good
Window Trim	1 x flat stock		good
Power Supply	no power		
Heat	no heat		-

ACCESS HATCH

component	*description*	*comments*	*condition*
Location	5'-10" x 2' hatch in cab floor		fair
Operation	hinged to long edge, up swinging		fair
Safety Rail	no rail in cab		
Security	basic padlock	prone to icing in present configuration	fair

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees		Good
Cab Storage	none	none	

SITE OBSERVATIONS & CONDITIONS ANALYSIS — CROYDON MOUNTAIN (Croydon)

date:20th March, 2014 - weather conditions: clear, sunny, approx. 40 degrees F.

ANCILLARY BUILDING ONE — Watchman Cabin

component	*description*	*comments*	*condition*
Function	living space/safety shelter	not maintained, significant work required	poor
Approximate Footprint	12'-0" x 30'-0"	3 room (bedroom, living / kitchen, porch)	-
Foundation	random rubble stone		poor
Structure	wood framing		Fair
Exterior Walls	wood clapboard , painted	peeling and cracking evident	Poor
Windows	wood double hung, 6 over 6 single pane	some boarded over, some have storm wind.	poor
Roof	asphalt shingle		poor
Interior Walls	wood board, painted	pine board, sheathing, composite board	poor
Interior Floor	h.w. t&g plank	failed in some locations	Fair
Interior Ceiling	composite boarding painted, battens at joints	peeling and cracking evident	fair to poor

ANCILLARY BUILDING TWO — Wood Storage

component	*description*	*comments*	*condition*
Function	storage and work areas	full of wood and other materials	poor
Approximate Footprint	8'-0" x 12'-0"	2 room (workshop & storage)	-
Foundation	natural stone rubble	-	poor
Structure	2x4 wood framing		Fair
Exterior Walls	wood shingle, painted	peeling evident, scrape and re-finish	Poor
Windows	one 22x26" single glazed fixed	peeling evident, scrape and re-finish	poor
Roof	asphalt shingles on sheathing/2x4 rafters	failing in some locations	Poor
Interior Walls	*inside face of siding, unfinished*	-	-
Interior Floor	1x wood board, unfinished	not all readily visible, some holes	Poor
Interior Ceiling	*inside face of roof sheathing, unfinished*	-	Poor

ANCILLARY BUILDING THREE — GARAGE/STORAGE/SLEEPING

component	*description*	*comments*	*condition*
Function	lower garage, storage, sleeping quarters	reasonable shape, less exposed	Fair
Approximate Footprint	12'-3"x26'-4"	2 spaces	-
Foundation	random rubble stone	varying height as grade changes	poor
Structure	2x4 wall and roof wood framing		Fair
Exterior Walls	painted skakes	clean, scrape and re-finish	Fair
Windows	single glazed wood framed	require refinishing	fair
Roof	asphalt shingle	covered in moss	poor
Interior Walls	inside face of sheating, unfinished	-	-
Interior Floor	painted pine flooring boards	gravel floor in garage half	Fair
Interior Ceiling	inside face of roof sheathing, unfinished	-	-

ANCILLARY BUILDING FOUR — OUTHOUSE

component	*description*	*comments*	*condition*
Function	sanitary facilities	usable, though not recently	Fair
Approximate Footprint	4'-0"x4'-0"		-
Foundation	cmu block	not grouted requires reconstruction	poor
Structure	wood framing	post to one corner failing	Fair
Exterior Walls	vertical wood board, painted	scrape and re-finish	fair
Windows	*none*	boarded over, one missing	
Roof	polycarbonate corrugated panels	relatively new	fair
Interior Walls	composite board painted	requires refinishing	fair
Interior Floor	painted pine board	requires refinishing	fair
Interior Ceiling	inside face of roof sheathing, unfinished	-	-


Fire Tower
Shed
Cabin
12 ft.
10 ft.
34 ft.
12 ft.

1 stair landings
1/8" = 1'-0"

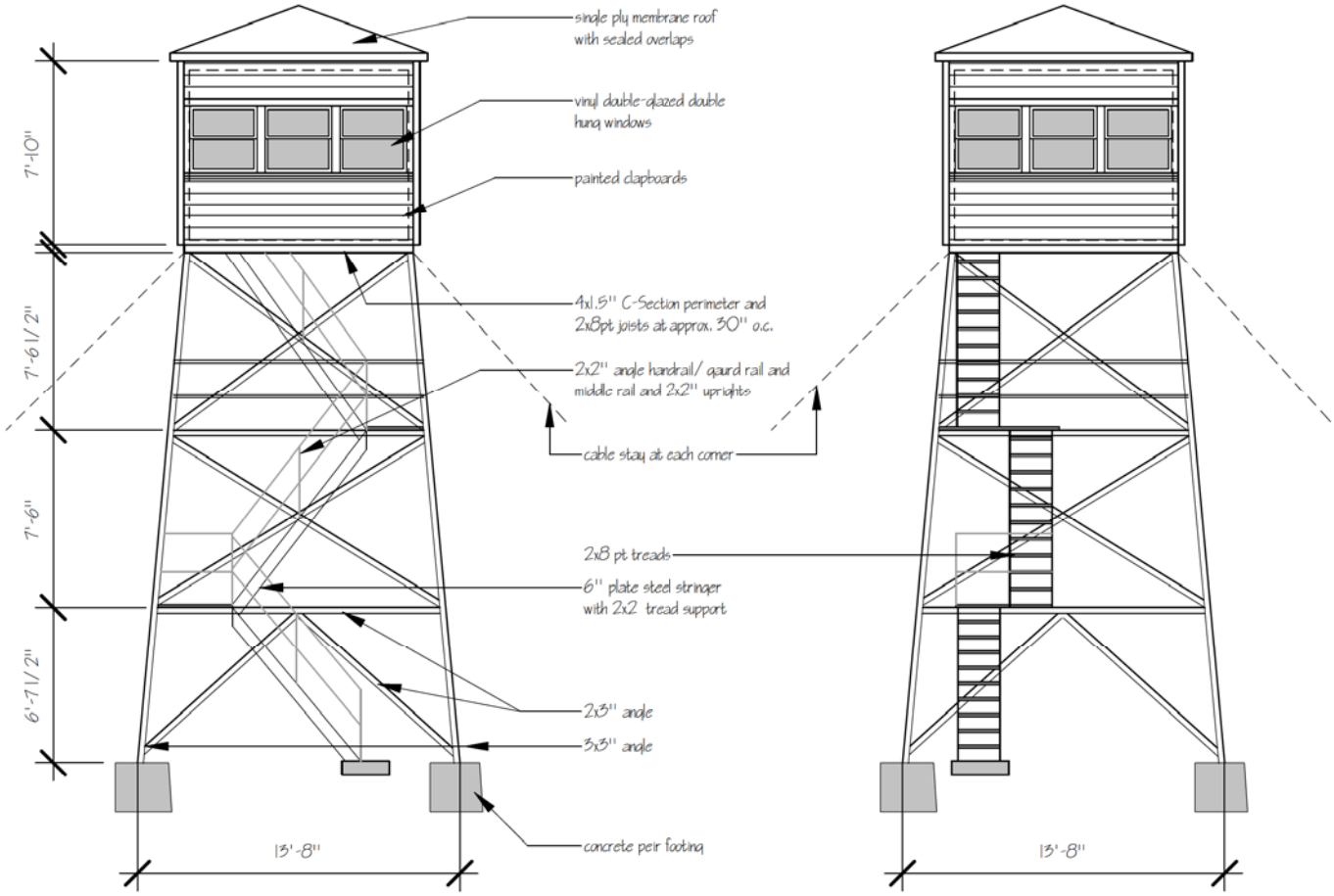
PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION
DRAWINGS ARE SUBJECT TO CHANGE. ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER

PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
CROYDON MOUNTAIN
SURVEY-LANDINGS AX 4.0

04-30-14

GENERAL NOTES:

alba architects llp . stuart j anderson & philip m bennett . po box 186 . 137 main street . north woodstock . nh . 03262 . (603) 745-4770 . albaarchitects.com



1 2D Tower Elevations
1/8" = 1'-0"

PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION
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PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
CROYDON MOUNTAIN
SURVEY-ELEVATIONS AX 4.1

04-30-14

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EXISTING CONDITION PHOTOGRAPHS

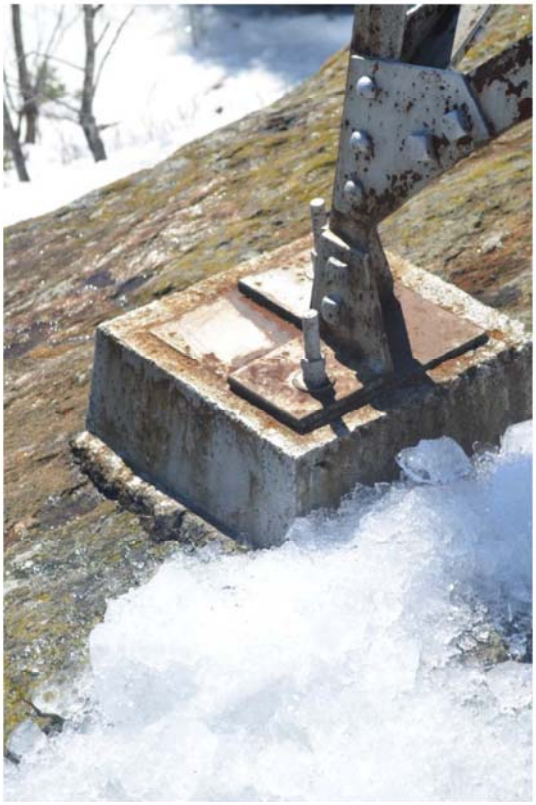
CROYDON MOUNTAIN (Croydon)

date: 3rd April, 2014 - *weather conditions:* mostly sunny, approx. 36 degrees F.

EXISTING CONDITION PHOTOGRAPHS

CROYDON MOUNTAIN (Croydon)

date: 3rd April, 2014 - *weather conditions:* mostly sunny, approx. 36 degrees F.



EXISTING CONDITION PHOTOGRAPHS **CROYDON MOUNTAIN** (Croydon)

date: 3rd April, 2014 - *weather conditions:* mostly sunny, approx. 36 degrees F.

EXISTING CONDITION PHOTOGRAPHS

CROYDON MOUNTAIN - WATCHMAN CABIN

date: 3rd April, 2014 - *weather conditions:* mostly sunny, approx. 36 degrees F.

EXISTING CONDITION PHOTOGRAPHS

CROYDON MOUNTAIN - STORAGE

date: 3rd April, 2014 - *weather conditions:* mostly sunny, approx. 36 degrees F.

EXISTING CONDITION PHOTOGRAPHS

CROYDON MOUNTAIN - GARAGE / CABIN

date: 3rd April, 2014 - *weather conditions:* mostly sunny, approx. 36 degrees F.

EXISTING CONDITION PHOTOGRAPHS

CROYDON MOUNTAIN - OUTHOUSE

date: 3rd April, 2014 - *weather conditions:* mostly sunny, approx. 36 degrees F.

2.5 FEDERAL HILL, MILFORD

The Federal Hill fire tower site consists of the fire tower, a watchman's cabin, a storage building, an outhouse and a garage at the base of the access road. Also on the site is a communications building and two propane tanks, surrounded by a wooden fence, that are all not included in the survey and report.

The fire tower frame consists of painted steel angles and flat bar elements, as noted on the attached drawings. The frame members do exhibit some substantial rust and potential section loss and some may require replacement. A full structural analysis is recommended due to the height of the tower. The frame will require refinishing in the near future to insure no further loss of integrity.

The tower stairs consist of painted 2x10 pt treads bolted to 1.5x1.5" steel angles, which in turn are welded to 6x3/8" plate steel stringers. Handrail/guardrail consists of 1.5x1.5" steel top bar and uprights welded to plate stringer, with 1x3/8" flat bar mid-rail. As per the main tower frame, significant superficial rust is exhibited and will require refinishing in a timely manner to stop progression into loss of integrity. Stair treads will at minimum require refinishing, as they are generally in sound condition, but have a limited useful life left to them. Landings/Platforms exhibit the same conditions and requirements.

Visual inspection of the tower cab suggests the framing of the cab is sound and could be retained should that prove to be an economical solution. Exterior finishes of the cab are beyond usefulness and will need replacing. Windows remain operable and satisfy the most basic of functions, but will require refinishing at the minimum. Presently they are wood, single glazed upward-sliding sashes within site built frames/tracks. Wind/air tightness has ceased to be feasible with these units. Water ingress seems to be minimal. Interior wall finishes are still functional and with refinishing would still function, though utilitarian would be the best description for them. Floor finish is marginal and will require replacement in the near future. The condition of the substrate, believed to be a thin ply or underlayment is probably also of limited use. The 2x8 pt substructure appears to still be viable, from the underside, and could continue to be the substructure for a new floor, or cab, as it appears to have had very limited exposure to moisture.

Additional items to be addressed would be lack of guard around access hatch, access hatch security and operation.

The watchman's cabin was inaccessible at the time of inspection. Visual exterior inspections indicates that the substructure, from below, is sound and useful. The cabin sits on concrete blocks, which are crumbling and would need replacement, and raising the cabin floor elevation would be recommended. Exterior finishes have experiences accelerated degradation due to the proximity to the ground/snow. Generally, the exterior finishes would be better replaced. Roof structure indicates some sagging, but appears to be performing. CMU chimney is not useful and should be removed. If a chimney is required in future uses, a new one would be recommended.

The outhouse appears to be in reasonable condition, for its use and construction, but would also benefit from raising off the ground a bit more. It will soon require repainting at the minimum.

The storage building was also inaccessible at the time of the visit, but from a visual inspection to the outside it is felt there are several significant repairs required. The concrete block foundation would need to be rebuilt; the large doors have been vandalized to the point of needing replacement; sill shows signs of dropping/bowing and could need replacement; built-up membrane of roof and wall shingles appear to be functioning, but would likely require replacement soon.

The garage, at the base of the access road, has little value as its construction is minimal at best and it has not held up well to the elements. Repairing for alternative uses would likely be more expensive than new.

SITE OBSERVATIONS & CONDITIONS ANALYSIS — FEDERAL HILL (Milford)

date: 21th November, 2013 - *weather conditions: sunny* , approx. 45 degrees F.

TOWER BASE

component	*description*	*comments*	*condition*
Base	18' x 18' on 18" x 18" tapered concrete piers	repair/replace/re-seal concrete	Fair
Cables	8 total 3/8" steel	little or no tension on cable	Good
Stair Base	33" x 26" two step concrete plinth	clean and re-seal concrete	Good
Connections	12" x 12" x 1/4" base plates bolted to piers	mild surface rust, clean and re-finish	Good

STAIRS

component	*description*	*comments*	*condition*
# of Flights	7		-
Treads	2x9 pt @ 21" +/-, 10 risers per flight	rise 8" +/-, recommend replacement	Poor
Stringer	1/4" x 6" steel plate	superficial rust, requires refinishing	Fair
Rail	1 1/2" x 1 1/2" angle @ 34" +/-	1/4" x 1 1/2" plate mid rail	Fair
Landings	2x pressure treated, rail @ 34""	recommend replacement, slippery	Poor

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	3" x 3" angle vertical	surface rust evident, scrape and paint	Fair
Secondary Member	4" x 3" angle horizontal	surface rust evident, scrape and paint	Fair
Cross Bracing	2" x 3" angle	surface rust evident, scrape and paint	Fair
Node Type	bolted plate	surface rust evident, scrape and paint	Fair
Platform Members	1 5/8" x 4" channel section	surface rust evident, scrape and paint	Fair

GENERAL NOTE: some elements will require replacement due to section loss

CAB

component	*description*	*comments*	*condition*
Approx. Dimensions	10'-3" x 10'-3"	-	-
Exterior Siding	T111, painted	recommend replacement	Poor
Exterior Sub-Deck	2 x wood planks with 3/4" plywood deck	some deterioration from weather	Fair
Exterior Trim	wood, painted	recommend replacement	Poor
Roof	*undetermined*		
Interior Walls	vertical wood board, varnished / stained	water damage evident	Good
Interior Floor	VCT	cracking and adhesion evident, replace	Poor
Interior Ceiling	panel, painted		Fair
Interior Trim	1 x wood flat stock, painted		Good
Window Operation	vertical slider, approx 34" x 33"	generally difficult, recommend replace	Poor
Window Frame	wood, painted		Good
Window Glazing	single	condensation evident	Fair
Window Trim	1 x flat stock, painted		Good
Power Supply	mains power	electrical panel location undetermined	Fair
Heat	portable electric		-

ACCESS HATCH

component	*description*	*comments*	*condition*
Location	5' x 2' hatch in cab floor		Fair
Operation	hinged to short edge, up swinging	operational but worn	Fair
Safety Rail	none		Poor
Security	basic padlock		Good

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees		Good
Cab Storage	upper shelving and attic	adequate	Good

SITE OBSERVATIONS & CONDITIONS ANALYSIS — FEDERAL HILL (Milford)

date: 21th November, 2013 - *weather conditions: sunny* , approx. 45 degrees F.

ANCILLARY BUILDING ONE — Watchman Cabin

component	*description*	*comments*	*condition*
Function	watchman cabin	not in use	Fair
Approximate Footprint	12'-4" x 32'-3"	*no access, number of rooms undetermined*	-
Foundation	natural stone rubble & cmu block		Poor
Structure	wood framing		Fair
Exterior Walls	wood shingle, painted	missing shingle & peeling evident	Poor
Windows	*undetermined*	boarded over	Fair
Roof	rolled roofing		Fair
Interior Walls	*undetermined*	-	-
Interior Floor	*undetermined*	-	-
Interior Ceiling	*undetermined*	-	-

ANCILLARY BUILDING TWO — Outhouse

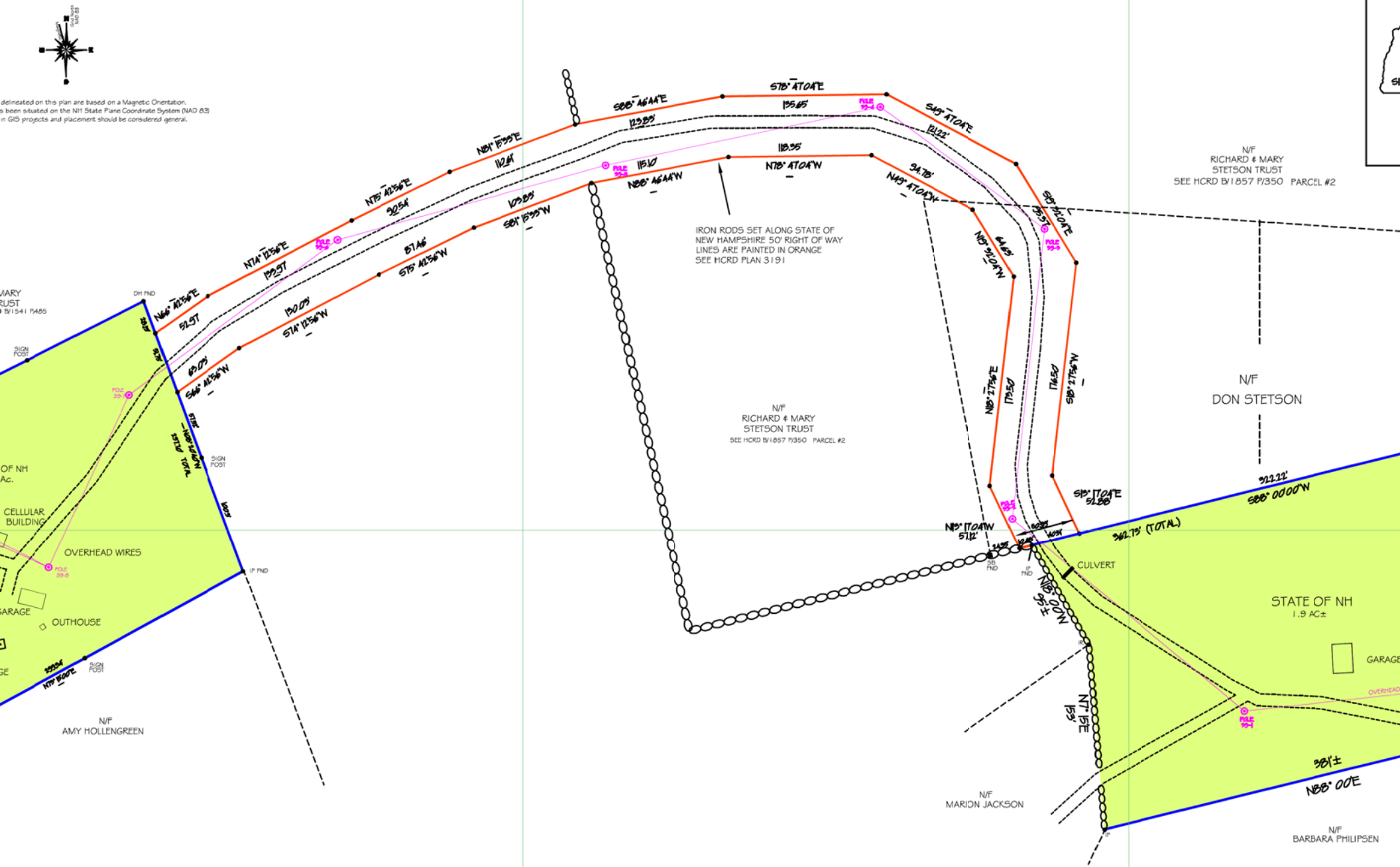
component	*description*	*comments*	*condition*
Function	outhouse	functional	Good
Approximate Footprint	4' x 4'	1 room	-
Foundation	natural stone rubble	-	Fair
Structure	wood framing		Good
Exterior Walls	wood vertical board, painted	clean	Good
Windows	none	1 daylight portal	Good
Roof	asphalt shingle	relatively new	Good
Interior Walls	*inside face of siding, painted*	-	Good
Interior Floor	carpet		Fair
Interior Ceiling	*inside face of roof sheathing, painted*	-	Good

ANCILLARY BUILDING THREE — Garage / Storage

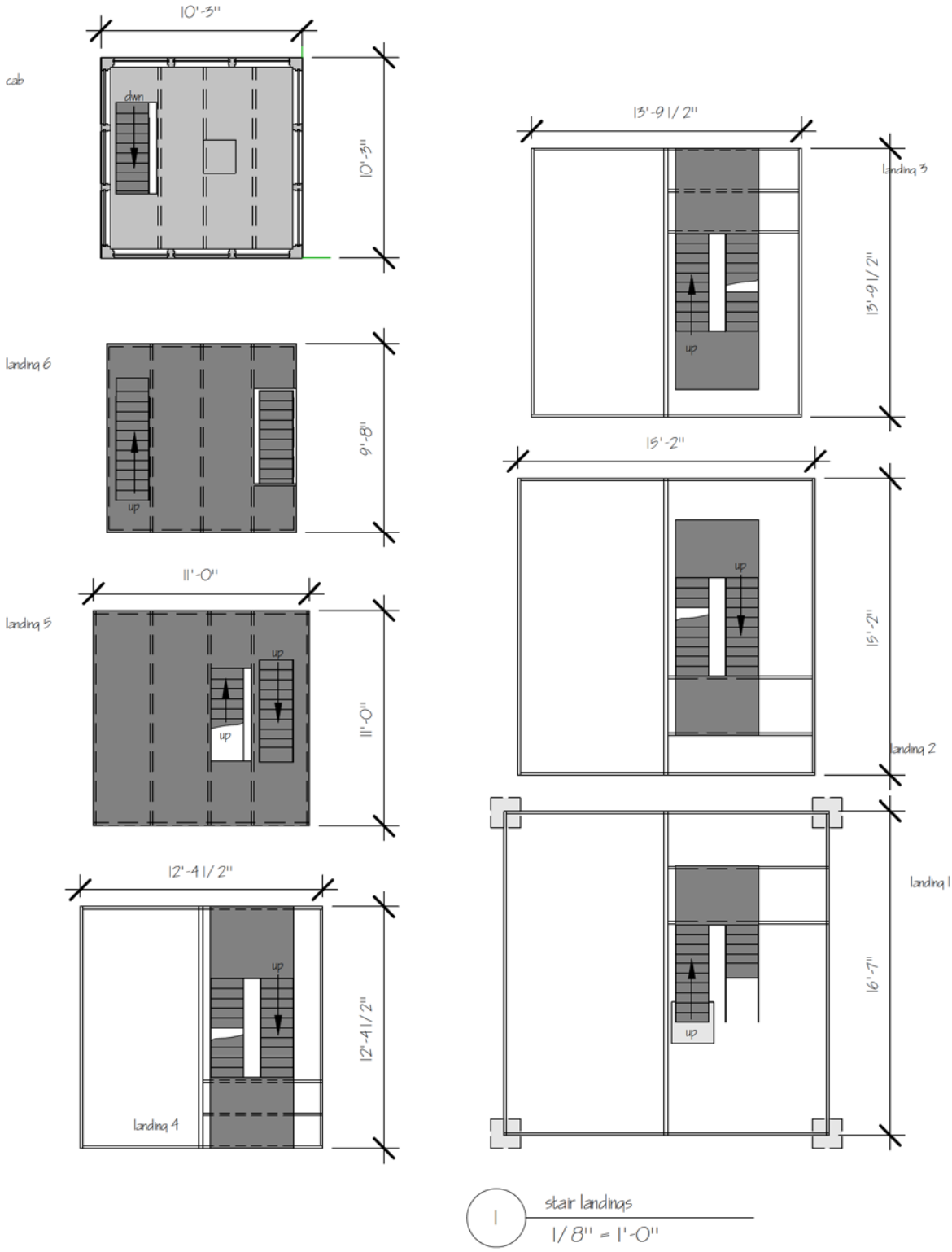
component	*description*	*comments*	*condition*
Function	garage / storage	not in use	Fair
Approximate Footprint	12'-6" x 21'-3"	1 room	-
Foundation	natural stone rubble & cmu block	evidence of distress	Poor
Structure	wood framing		Fair
Exterior Walls	wood shingle, painted	scrape and re-finish	Fair
Windows	*undetermined*	boarded over	-
Roof	building paper, no finish	add finish roofing	Poor
Interior Walls	*undetermined*	-	-
Interior Floor	*undetermined*	-	-
Interior Ceiling	*undetermined*	-	-

ANCILLARY BUILDING FOUR — Garage / Storage

component	*description*	*comments*	*condition*
Function	garage / storage	not in use	Poor
Approximate Footprint	16'-4 1/2" x 24'-1 1/2"	1 room	-
Foundation	cmu block wall, 3 courses above grade	clean and re-seal	Fair
Structure	wood framing		Fair
Exterior Walls	composite fiber siding, painted	peeling and cracking evident	Poor
Windows	*undetermined*	boarded over	-
Roof	corrugated metal	surface rust evident	Fair
Interior Walls	*undetermined*	-	-
Interior Floor	*undetermined*	-	-
Interior Ceiling	*undetermined*	-	-



ERIAL PHOTOGRAPHY AND OLD MAPS HAVE BEEN UTILIZED IN THE



1 stair landings

1/8" = 1'-0"

PRELIMINARY DRAWINGS

NOT FOR CONSTRUCTION

DRAWINGS ARE SUBJECT TO CHANGE, ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER

PROJECT NAME & ADDRESS:

NH STATE FIRE TOWERS PHASE ONE

NH DRED

FEDERAL HILL

SURVEY-LANDINGS AX 5.0

04-30-14

GENERAL NOTES:

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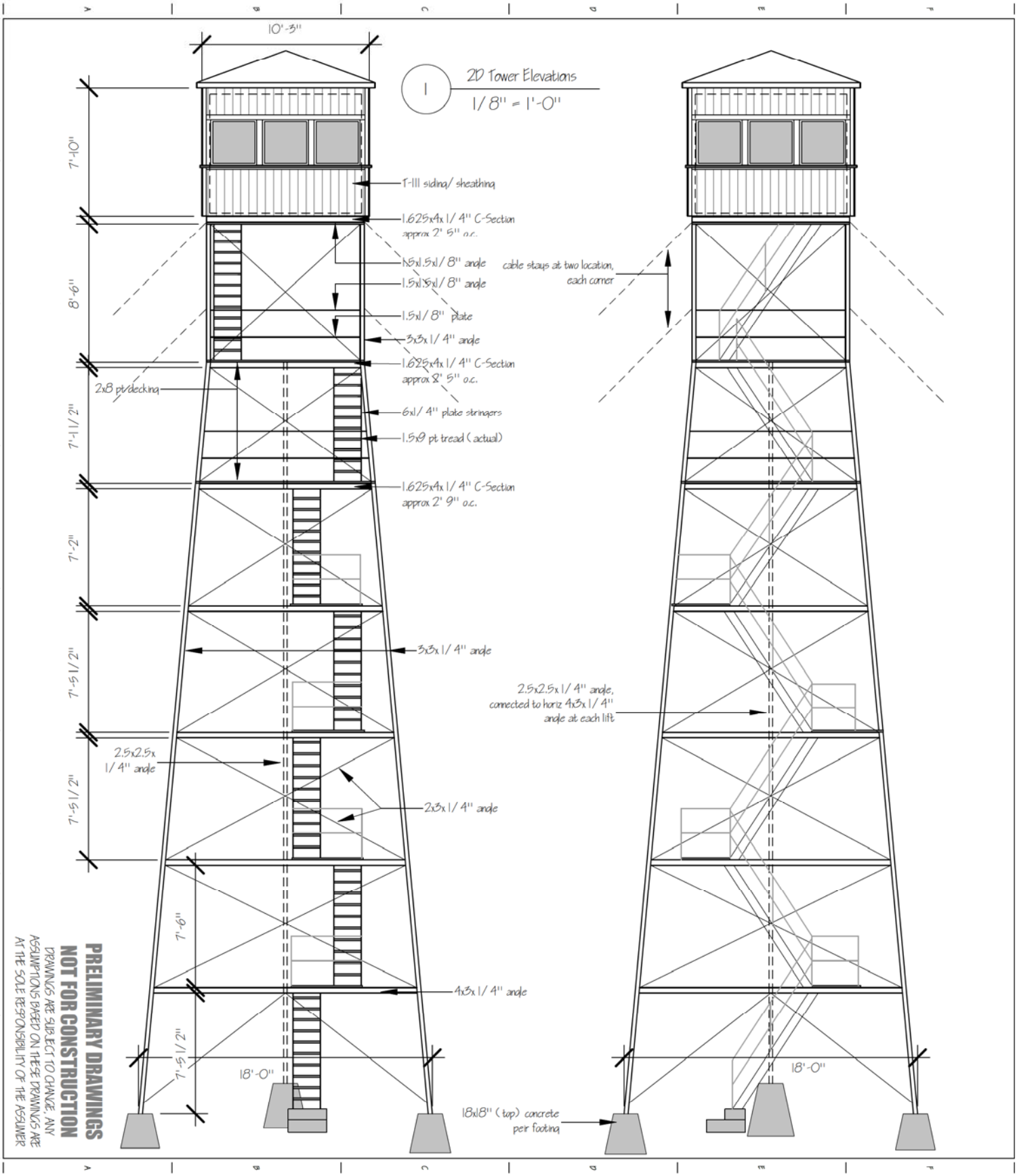

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PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
FEDERAL HILL
SURVEY-ELEVATIONS AX 5.1

04-30-14

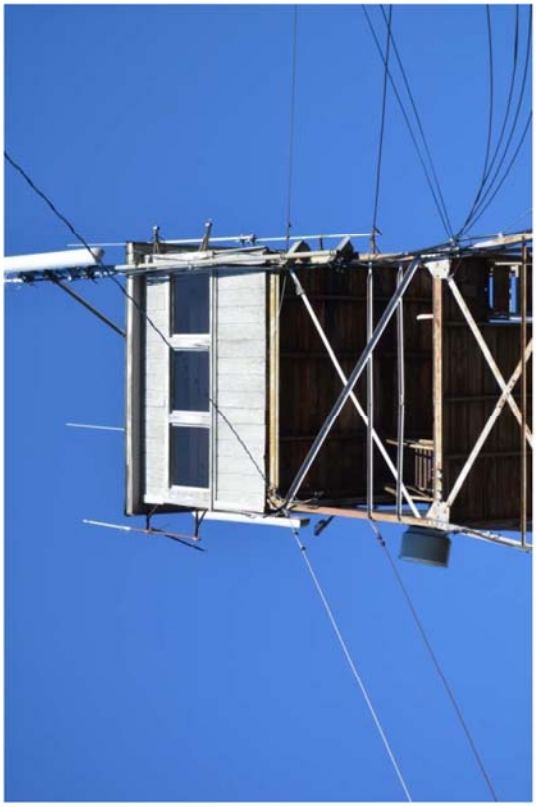
GENERAL NOTES:

alba architects llp . stuart j anderson & philip m bennett . po box 186 . 137 main street . north woodstock . nh . 03262 . **(603) 745-4770** . albaarchitects.com

EXISTING CONDITION PHOTOGRAPHS

FEDERAL HILL (Milford)

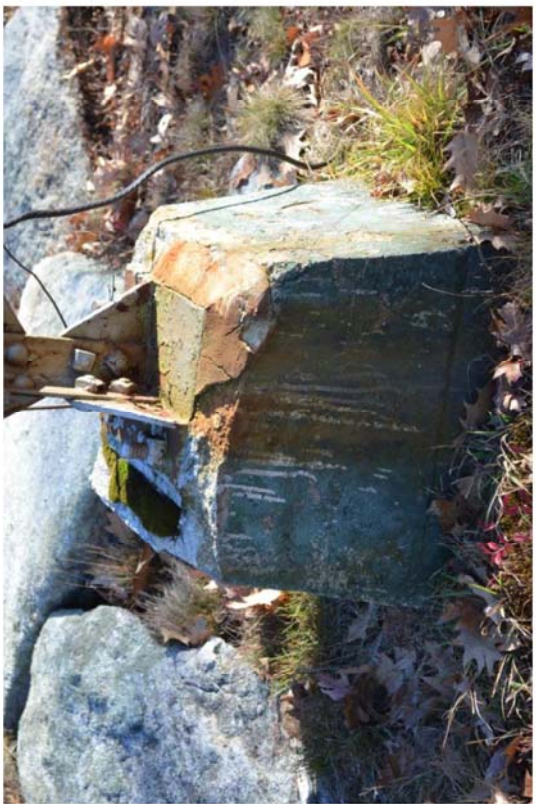
date: 21th November, 2013 - *weather conditions: sunny*, approx. 45 degrees F.

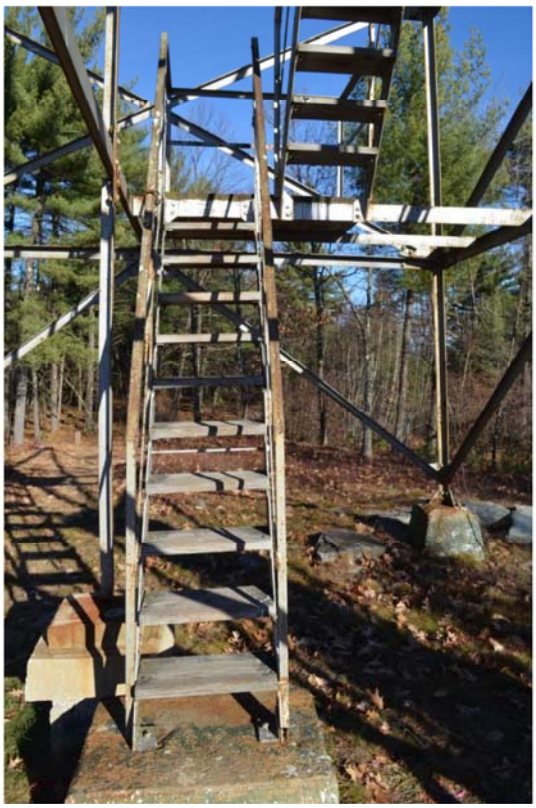


EXISTING CONDITION PHOTOGRAPHS

FEDERAL HILL (Milford)

date: 21th November, 2013 - *weather conditions: sunny*, approx. 45 degrees F.

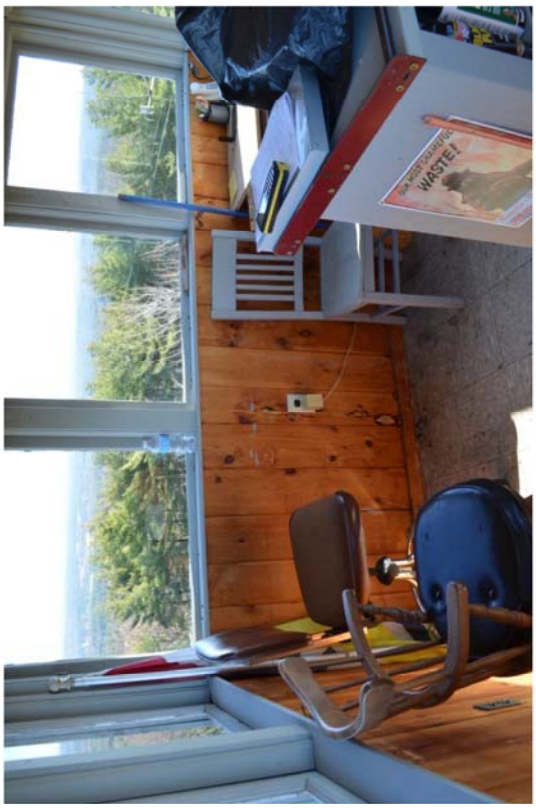


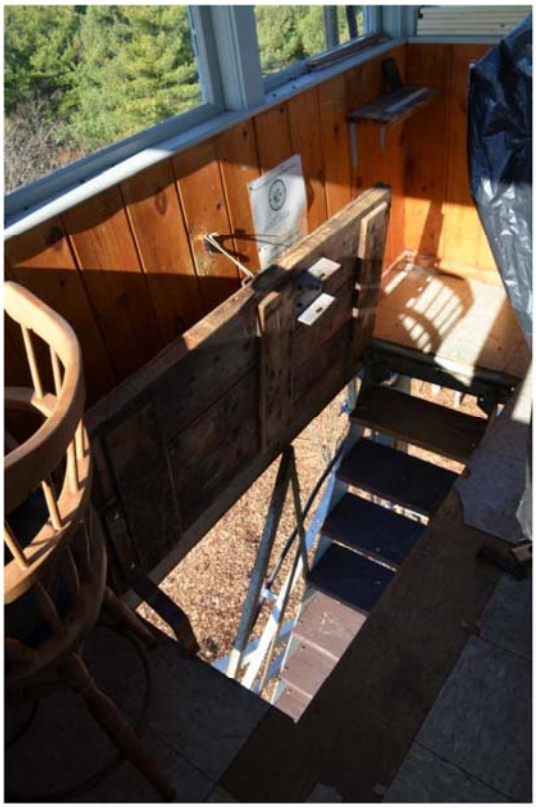


EXISTING CONDITION PHOTOGRAPHS

FEDERAL HILL (Milford)

date: 21th November, 2013 - *weather conditions: sunny*, approx. 45 degrees F.





EXISTING CONDITION PHOTOGRAPHS

FEDERAL HILL - WATCHMAN CABIN

date: 21th November, 2013 - *weather conditions: sunny*, approx. 45 degrees F.

EXISTING CONDITION PHOTOGRAPHS

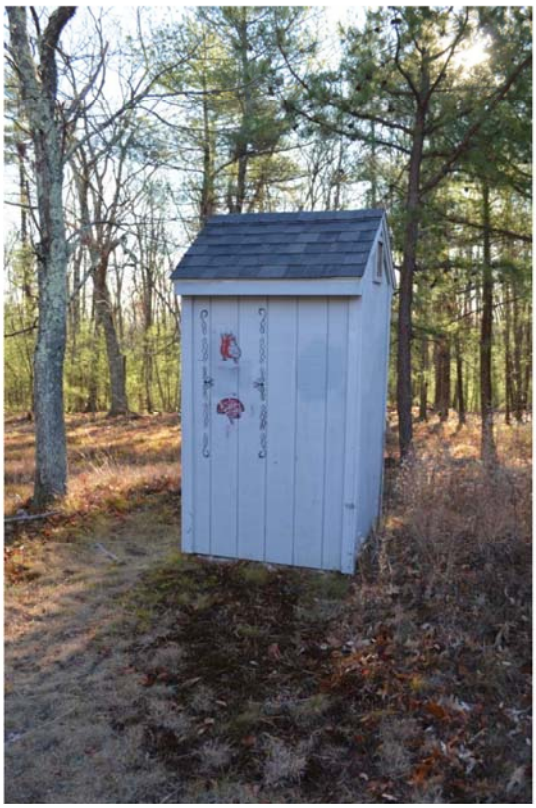
FEDERAL HILL - STORAGE

date: 21th November, 2013 - *weather conditions: sunny*, approx. 45 degrees F.

EXISTING CONDITION PHOTOGRAPHS

FEDERAL HILL - OUTHOUSE

date: 21th November, 2013 - *weather conditions: sunny*, approx. 45 degrees F.



EXISTING CONDITION PHOTOGRAPHS

FEDERAL HILL - GARAGE

date: 21th November, 2013 - *weather conditions: sunny*, approx. 45 degrees F.

2.6 GREEN MTN., EFFINGHAM

The Green Mtn. fire tower site consists of the fire tower, a watchman's cabin, a storage building and an outhouse.

The fire tower frame consists of painted steel angles and flat bar elements, as noted on the attached drawings. The frame members do exhibit some substantial rust and potential section loss and some may require replacement. A full structural analysis is recommended due to the height of the tower. The frame will require refinishing in the near future to insure no further loss of integrity.

The first four flights of the tower stairs consist of painted 2x10 pt treads bolted to 1.5x1.5" steel angles, which in turn are welded to 6x3/8" plate steel stringers. The next two flights consist of truss-stringers built with 1.5x1.5 steel angles. The top flight is plate steel stringers and steel round-bar treads. Handrail/guardrail consists of 1.5x1.5" steel top bar and uprights welded to plate stringer, with 1x3/8" flat bar mid-rail. As per the main tower frame, significant superficial rust is exhibited and will require refinishing in a timely manner to stop progression into loss of integrity. Stair treads will at minimum require refinishing, as they are generally in sound condition, but have a limited useful life left to them. Landings/Platforms exhibit the same conditions and requirements. The second to top landing has a wooden storage box which has been vandalized beyond repair. The guardrail has a wire mesh infill to address safety, but has not held up to use and/or vandalism, and needs replacement.

Visual inspection of the tower cab suggests the framing of the cab is sound and could be retained should that prove to be an economical solution. However, the cab is significantly smaller than most others and is not in especially good condition, so replacement of the cab could be a practical economical solution. Exterior finishes of the cab are beyond usefulness and will need replacing. Windows appear not to be operable and barely satisfy the most basic of functions, but will require refinishing at the minimum. Presently they are wood, single glazed sashes, apparently fixed within site built frames. Wind/air tightness is limited with these units. Water ingress seems to be minimal. Interior wall finishes are still functional and with refinishing would still function, though utilitarian would be the best description for them. Floor finish is marginal and will require replacement in the near future. The condition of the substrate, believed to be a thin ply or underlayment is probably also of limited use. The 2x8 pt substructure appears to still be viable, from the underside, and could continue to be the substructure for a new floor, or cab, as it appears to have had very limited exposure to moisture.

Additional items to be addressed would be limited guard around access hatch, access hatch security and operation.

The watchman's cabin was inspected. Visual exterior inspections indicates that the substructure, from below, is sound and useful. The cabin sits on concrete blocks, stone and ledge and raising the cabin floor elevation would be recommended. Exterior finishes have experiences accelerated degradation due to the proximity to the ground/snow. Generally, the exterior finishes would be better replaced. Roof structure shows signs of sagging, but seems viable. CMU chimney is not useful and should be removed. If a chimney is required in future uses, a new one would be recommended. Interior finishes are rough at best, though functioning. All surfaces would require refinishing. A limited amount of mold and water penetration is visible, though would be repaired. Electrical services would need replacing.

The outhouse appears to be in reasonable condition, for its use and construction, but would also benefit from raising off the ground a bit more. It will soon require repainting at the minimum.

The wood/storage building appears to be sound, but would also benefit from being raised. Exposed framing on interior is good. Exterior finishes are sound, though roof finish may need replacing.

SITE OBSERVATIONS & CONDITIONS ANALYSIS — GREEN MOUNTAIN (Effingham)

date: 16th January, 2014 - *weather conditions: overcast, snow flurries* , approx. 32 degrees F.

TOWER BASE

component	*description*	*comments*	*condition*
Base	14' x 14' on varying concrete piers	spalling evident, patch, clean and re-seal	Fair
Cables	8 total 3/8" & 5/8" steel	little or no tension on cable	Fair
Stair Base	30" x 18" concrete plinth	clean and re-seal concrete	Fair
Connections	12" x 12" base plates bolted to piers	surface rust, clean and re-finish	Fair

STAIRS

component	*description*	*comments*	*condition*
# of Flights	7		-
Treads	2x8 & 2x12 pt @ 20 1/2" +/-, 9 - 13 risers per flight	rise 8" +/-, recommend replacement	Poor
Stringer	1/4" x 6" steel plate & custom truss stringer	superficial rust, requires refinishing	Fair
Rail	1 1/2" x 1 1/2" angle @ 36" +/-	1/4" x 1 1/2" plate mid rail	Fair
Landings	2x pressure treated, rail @ 36"	hardware cloth railing infill	Poor

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	2 1/2" x 2 1/2" x 1/4" angle vertical	medium to heavy rust evident, scrape/paint	Fair
Secondary Member	2" x 2" x 1/4" angle horizontal	medium to heavy rust evident, scrape/paint	Fair
Cross Bracing	2" x 2" x 3/16" angle & 3/8" rod, replace missing	medium to heavy rust evident, scrape/paint	Fair
Node Type	bolted plate	medium to heavy rust evident, scrape/paint	Fair
Platform Members	2"x 2", 2"x 3", 2" x 4" channel section	medium to heavy rust evident, scrape/paint	Fair

GENERAL NOTE: some elements will require replacement due to section loss

CAB

component	*description*	*comments*	*condition*
Approx. Dimensions	7' x 7'	-	-
Exterior Siding	1x wood clapboard, painted	recommend replacement	Poor
Exterior Sub-Deck	2 x wood planks	some deterioration from weather	Fair
Exterior Trim	wood, painted	recommend replacement	Poor
Roof	*undetermined*		
Interior Walls	vertical wood board, painted		Fair
Interior Floor	VCT	cracking and adhesion evident, replace	Poor
Interior Ceiling	panel, painted	peeling evident, scrape and re-finish	Poor
Interior Trim	1 x wood flat stock, painted		Good
Window Operation	vertical slider, approx 33" x 32"	generally difficult, recommend replace	Poor
Window Frame	wood, painted	peeling evident, scrape and re-finish	Poor
Window Glazing	single	condensation evident	Fair
Window Trim	1 x flat stock, painted	peeling evident, scrape and re-finish	Fair
Power Supply	mains power	electrical panel location undetermined	Fair
Heat	none		-

ACCESS HATCH

component	*description*	*comments*	*condition*
Location	37" x 25" hatch in cab floor		Fair
Operation	hinged to long edge, up swinging	operational but worn	Fair
Safety Rail	pipe rail / bar	no mid rail	Poor
Security	basic padlock		Good

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees		Good
Cab Storage	upper shelving and attic	adequate	Fair

SITE OBSERVATIONS & CONDITIONS ANALYSIS — GREEN MOUNTAIN (Effingham)

date: 16th January, 2014 - *weather conditions: overcast, snow flurries* , approx. 32 degrees F.

ANCILLARY BUILDING ONE — Watchman Cabin

component	*description*	*comments*	*condition*
Function	watchman cabin	not in use	Fair
Approximate Footprint	16'-4" x 22'-4", with 8'-4" x 8'-1" porch	3 room (bedroom, living / kitchen, porch)	-
Foundation	natural stone rubble	evidence of distress	Poor
Structure	wood framing	sagging and alignment issues	Poor
Exterior Walls	wood shingle, painted	peeling and cracking evident	Fair
Windows	wood double hung, 2 over 2 single pane	boarded over	Fair
Roof	asphalt shingle	significant sag in ridge line	Poor
Interior Walls	panel, painted	cracking and peeling evident	Fair
Interior Floor	wood board, painted		Fair
Interior Ceiling	panel, painted	cracking and peeling evident	Fair

ANCILLARY BUILDING TWO — Outhouse

component	*description*	*comments*	*condition*
Function	outhouse	not in use	Fair
Approximate Footprint	4' x 4'	1 room	-
Foundation	cmu block	-	Fair
Structure	wood framing		Fair
Exterior Walls	wood vertical board and batten, painted	peeling evident, scrape and re-finish	Fair
Windows	none	-	-
Roof	rolled roofing	some lichen growth	Fair
Interior Walls	inside face of siding, painted	-	Fair
Interior Floor	wood boards, painted	scrape and re-finish	Fair
Interior Ceiling	inside face of roof sheathing, painted	-	Fair

ANCILLARY BUILDING THREE — Storage

component	*description*	*comments*	*condition*
Function	storage	not in use	Fair
Approximate Footprint	10'-2" x 12'-3"	1 room	-
Foundation	cmu block	distressed	Poor
Structure	wood framing		Fair
Exterior Walls	wood vertical board and batten	re-finish	Fair
Windows	*none*	-	-
Roof	rolled roofing	some lichen growth	Fair
Interior Walls	*inside face of siding, unfinished*	-	-
Interior Floor	wood boards, unfinished	water ingress evident	Poor
Interior Ceiling	*inside face of roof sheathing, unfinished*	-	-

CABINS

TOWER

545

1050.0'

S35°00'E

660.0'

N55°00'E

545

1368±

LOT #63

LOT #64

N/F
DWIGHT MILLS ADDITION

HIGH WATCH PRESERVE

SEE
LAND CONVEYED BY PORTLAND DOWELL TO
THE SAUNDERS BROTHERS
CARROLL COUNTY REGISTRY 400-529
PARCEL #7 IN EFFINGHAM 1/26/1966

MILLS PARCEL

DEARBOR

ADDITIO

P/O HIGH WATCH F

RIGHT OF WAY CONVEYED BY SAUNDERS
BROTHERS TO THE STATE OF NH
CARROLL COUNTY 610-419 10/6/1975

STATE ROW

BLUE BLAZED LINE

50' RIGHT OF WAY DEEDED BY NORTHERN LAND TRADERS, INC.
TO SAUNDERS BOTHERS.
CARROLL COUNTY REGISTRY 560-336 10/18/1973

SAME PRIVILEGES TO THE RIGHT OF WAY LATER DEEDED
BY THE SAUNDERS BROTHERS TO THE STATE OF N.H.
CARROLL COUNTY REGISTRY 610-419 10/6/1975

OLD
FOUNDATION

APPRX.
GATE

755±

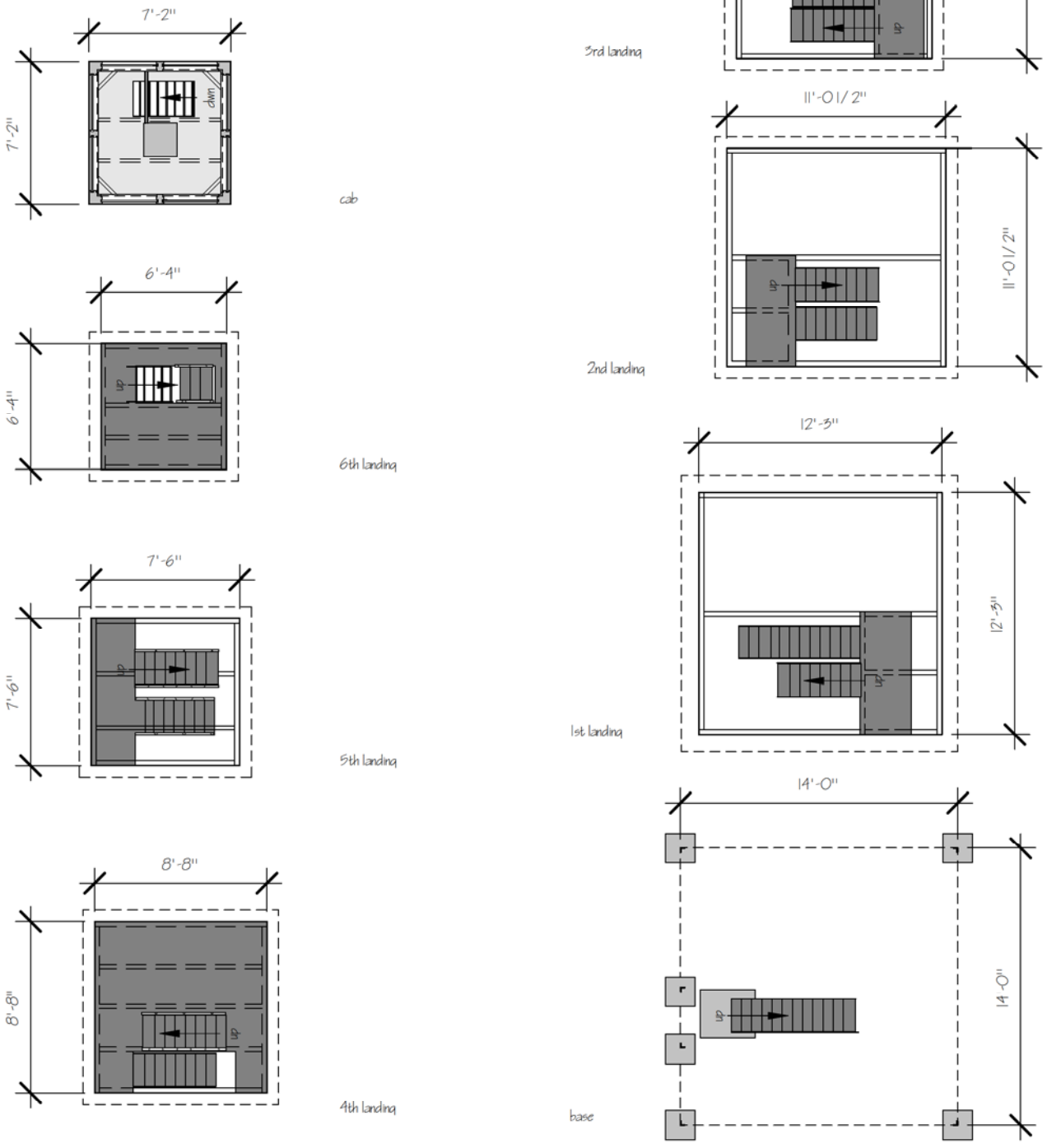
LIBBY ROAD

IP FND
ORANGE WITNESSES

LOCATION SKETCH
SOURCE NH HIGHWAY MAP - NH DTTD

1 stair landings

1/8" = 1'-0"



PRELIMINARY DRAWINGS

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DRAWINGS ARE SUBJECT TO CHANGE, ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER

PROJECT NAME & ADDRESS:

NH STATE FIRE TOWERS PHASE ONE

NH DRED

GREEN MOUNTAIN

SURVEY-LANDINGS AX 6.0

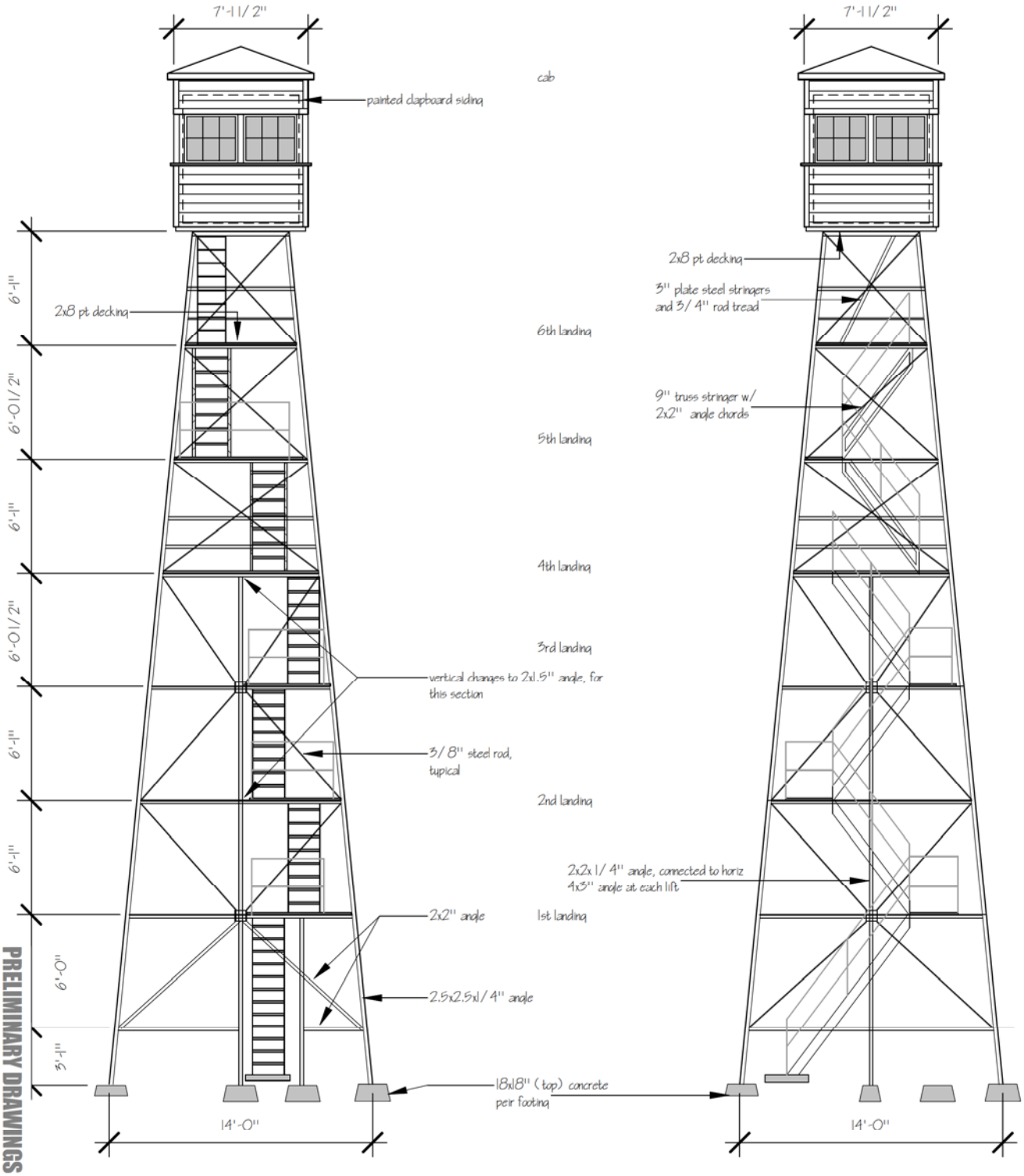
04-30-14

GENERAL NOTES:

alba architects llp . stuart j anderson & philip m bennett . po box 186 . 137 main street . north woodstock . nh . 03262 . (603) 745-4770 . albaarchitects.com

1 2D Tower Elevations

1/8" = 1'-0"



PRELIMINARY DRAWINGS

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PROJECT NAME & ADDRESS:

NH STATE FIRE TOWERS PHASE ONE

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GREEN MOUNTAIN

SURVEY-ELEVATIONS AX 6.1

04-30-14

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EXISTING CONDITION PHOTOGRAPHS **GREEN MOUNTAIN** (Effingham)

date: 16th January, 2014 - *weather conditions: overcast, snow flurries*, approx. 32 degrees F.

EXISTING CONDITION PHOTOGRAPHS **GREEN MOUNTAIN** (Effingham)

date: 16th January, 2014 - *weather conditions: overcast, snow flurries*, approx. 32 degrees F.

EXISTING CONDITION PHOTOGRAPHS **GREEN MOUNTAIN** (Effingham)

date: 16th January, 2014 - *weather conditions: overcast, snow flurries*, approx. 32 degrees F.

EXISTING CONDITION PHOTOGRAPHS

GREEN MOUNTAIN - WATCHMAN CABIN

date: 16th January, 2014 - *weather conditions: overcast, snow flurries*, approx. 32 degrees F.

EXISTING CONDITION PHOTOGRAPHS

GREEN MOUNTAIN - STORAGE & OUTHOUSE

date: 16th January, 2014 - *weather conditions: overcast, snow flurries*, approx. 32 degrees F.

2.7 HYLAND HILL, WESTMORELAND

The Hyland Hill fire tower site consists of the fire tower and an outhouse.

The fire tower frame consists of painted steel angles and flat bar elements, as noted on the attached drawings. The frame members do exhibit some substantial rust and potential section loss and some may require replacement. A full structural analysis is recommended due to the height of the tower. The frame will require refinishing in the near future to insure no further loss of integrity to the frame.

The six flights of the tower stairs consist of painted 2x10 pt treads bolted to 1.5x1.5" steel angles, which in turn are welded to 6x3/8" plate steel stringers. As with the frame, significant surface rust exists and will need treatment should the tower be retained.

Due to the fact that Hyland Hill tower has been left abandoned for several years, the tower cab has reached a level of disrepair that suggest only replacement is an option, should the tower be deemed worthy of retention. Interior and exterior finishes are beyond repair. Little is worthy of salvage. Should cab be replaced, steel corner posts integral to the frame will need to be addressed.

Visual inspection noted that at one time the tower did receive utility mains power, however feeder lines are now abandoned and lying on the ground.

The only State owned ancillary building on the site is this outhouse. This has been heavily vandalized and knocked over, and would benefit from replacement.

SITE OBSERVATIONS & CONDITIONS ANALYSIS — HYLAND HILL (Westmoreland)

date: 15th January, 2014 - *weather conditions:* sunny, approx. 30 degrees F.

TOWER BASE

component	*description*	*comments*	*condition*
Base	18' x 18' on 18" x 18" concrete piers	clean and re-seal concrete	Good
Cables	4 total 3/8" steel	little or no tension on cable	Good
Stair Base	30" x 38" concrete plinth	clean and re-seal concrete	Good
Connections	12" x 12" base plate with angles bolted to piers	surface rust, requires refinishing	Fair

STAIRS

component	*description*	*comments*	*condition*
# of Flights	7		-
Treads	2x8 pressure treated @ 20", 11 risers per flight	rise 8 1/4" +/-, recommend replacement	Poor
Stringer	1/4" x 6 steel plate	superficial rust, disconnected from structure	Poor
Rail	1 1/2" x 1 1/2" angle @ 34" +/-	1/4" x 1 1/2" plate mid rail	Fair
Landings	2 x 8 pressure treated	some rot evident, recommend replacement	Poor

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	3" x 3" angle vertical	medium to heavy rust, scrape and paint	Fair
Secondary Member	4" x 3" angle horizontal	medium to heavy rust, scrape and paint	Fair
Cross Bracing	2" x 3" angle	medium to heavy rust, scrape and paint	Fair
Node Type	bolted plate	medium to heavy rust, scrape and paint	Fair
Platform Members	1 1/2" x 5" & 4" x 3" c-section	medium to heavy rust, scrape and paint	Fair

GENERAL NOTE: some elements will require replacement due to section loss

CAB

component	*description*	*comments*	*condition*
Approx. Dimensions	10' x 10'	-	-
Exterior Siding	1 x 5 wood clapboard, painted	cracked boards evident, little finish intact	Poor
Exterior Sub-Deck	2 x wood planks with 3/4" plywood deck	unfinished, rot evident	Poor
Exterior Trim	1 x 5 wood corner board, painted	cracking evident, little finish intact	Poor
Roof	undetermined material	water ingress evident	Poor
Interior Walls	panel, painted	warping and surface damage evident	Poor
Interior Floor	plywood	spongy, rot evident	Poor
Interior Ceiling	wood board sheathing	exposed roof framing	Fair
Interior Trim	1 x pine, painted	extensive flaking evident	Poor
Window Operation	vertical slider, approx 32" x 32"	most units binding, difficult to operate	Poor
Window Frame	wood, painted		Poor
Window Glazing	single		Poor
Window Trim	1 x 4 pine flat stock, painted		Poor
Power Supply	none	old line laying on ground	-
Heat	none		-

ACCESS HATCH

component	*description*	*comments*	*condition*
Location	5' x 1'-8" hatch in cab floor		Poor
Operation	hinged to short edge, up swinging	no mechanism to hold open	Poor
Safety Rail	metal angle rail @ 30" with mid rail	height not code compliant	Fair
Security	basic padlock		

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees	tree tops in line of sight	Poor
Cab Storage	lower shelving below windows	minimal	Fair

SITE OBSERVATIONS & CONDITIONS ANALYSIS

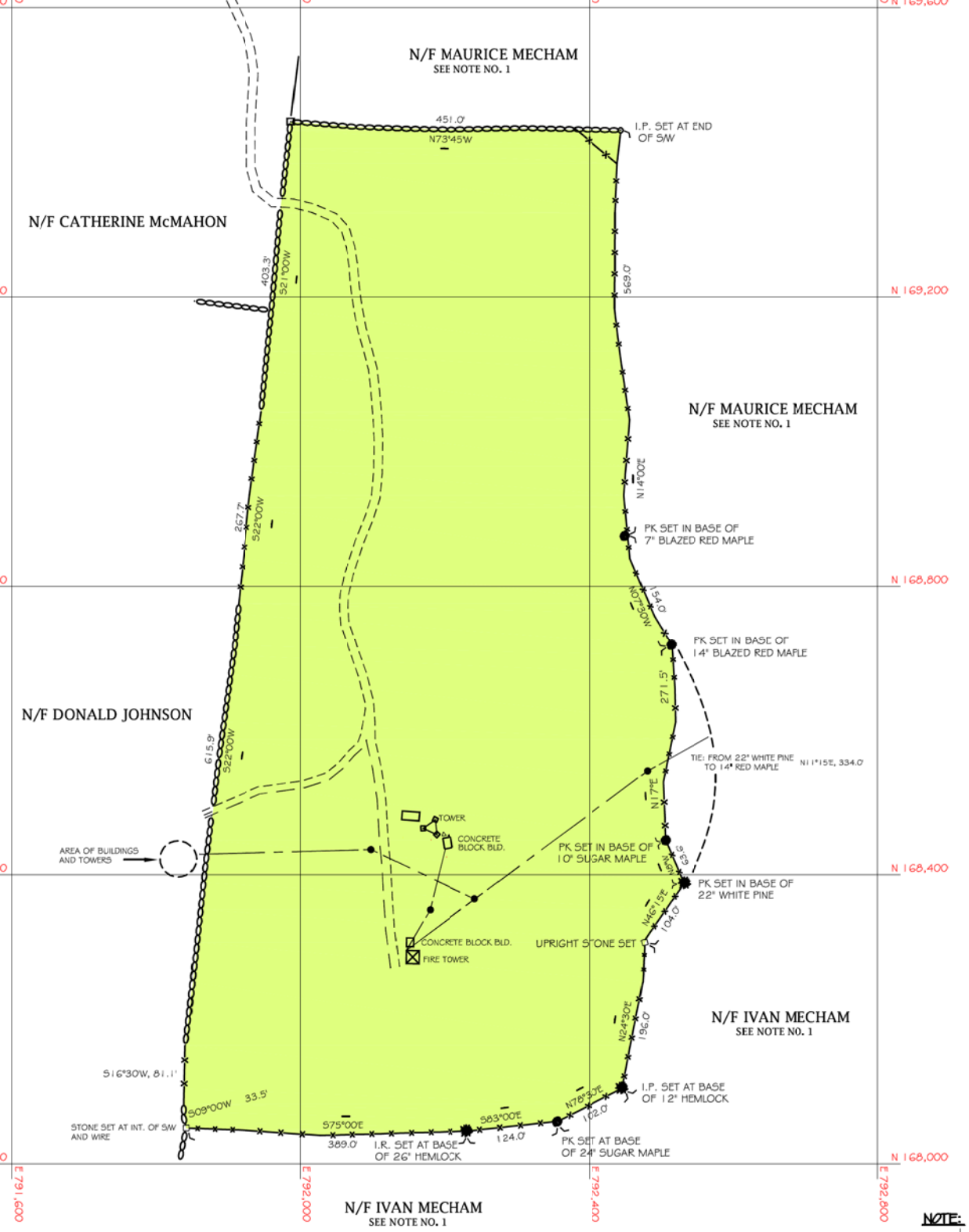
HYLAND HILL (Westmoreland)

date: 15th January, 2014 - *weather conditions:* sunny, approx. 30 degrees F.

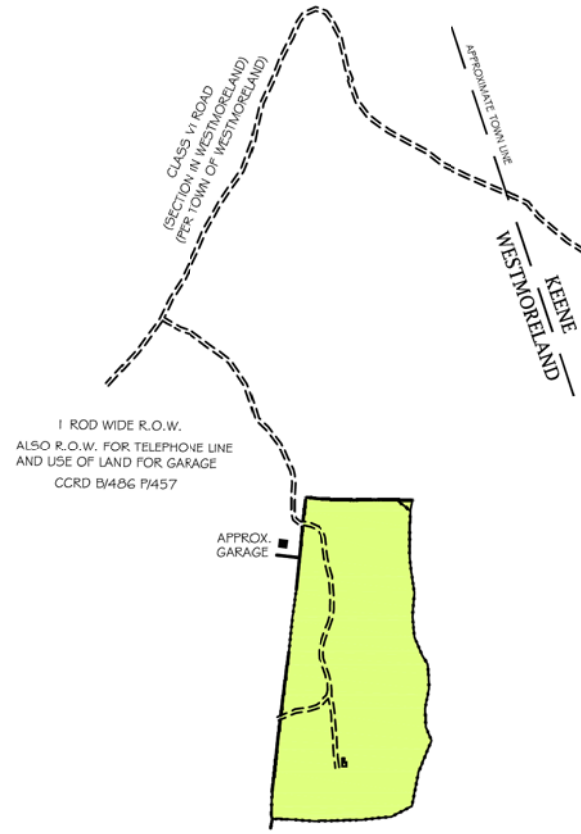
ANCILLARY BUILDING ONE

Outhouse

component	*description*	*comments*	*condition*
Function	outhouse	not in use, vandalism evident, tipped over	Poor
Approximate Footprint	4' x 4'		-
Foundation	cmu block	tipped over	Poor
Structure	wood framing		Fair
Exterior Walls	vertical board, painted		Fair
Windows	none	-	-
Roof	asphalt shingle		Fair
Interior Walls	*undetermined*	-	-
Interior Floor	*undetermined*	-	-
Interior Ceiling	*undetermined*	-	-



The Bearings delineated on this plan are based on a Magnetic Orientation. The parcel has been situated on the NH State Plane Coordinate System (NAD 83) for utilization in GIS projects and placement should be considered general.

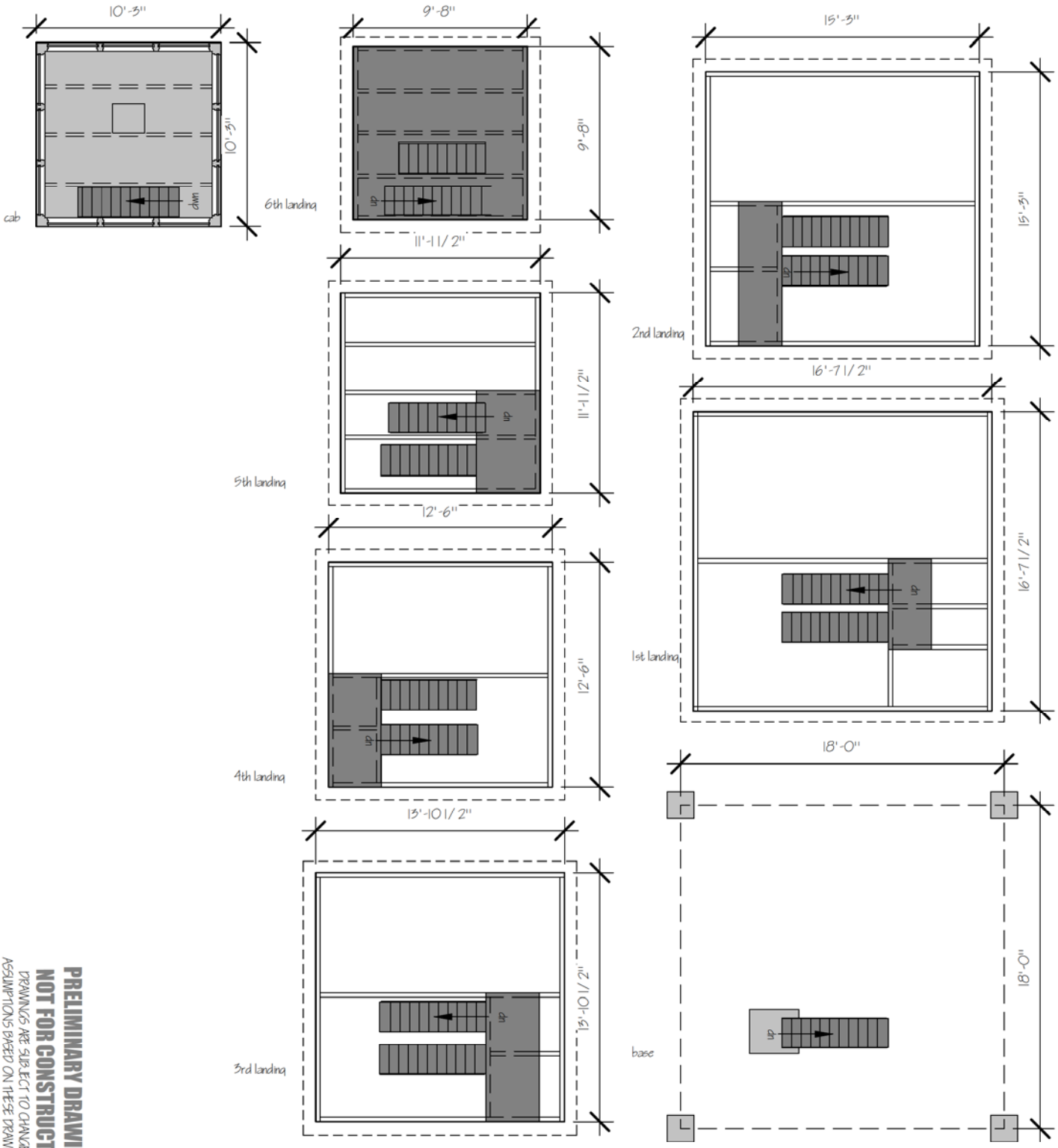


VICINITY MAP
1" = 400'±

NOTE:

1. PROPERTY SUBDIVISION OF RACHEL WOODWARD MECHAM BY THOMAS W. FLAVIN, FEB. 15, 1984. CAB. 5, NO. 149, ROLL 958, C.C.R.
4. INTERIOR ROAD, BUILDINGS, AND OTHER IMPROVEMENTS SHOWN WERE LOCATED WITH A TRIMBLE GEO-EXPLORER GPS UNIT WITH AN ACCURACY OF 3 TO 5

HY



PRELIMINARY DRAWINGS
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PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
HYLAND HILL
SURVEY-LANDINGS AX 7.0

04-30-14

GENERAL NOTES:

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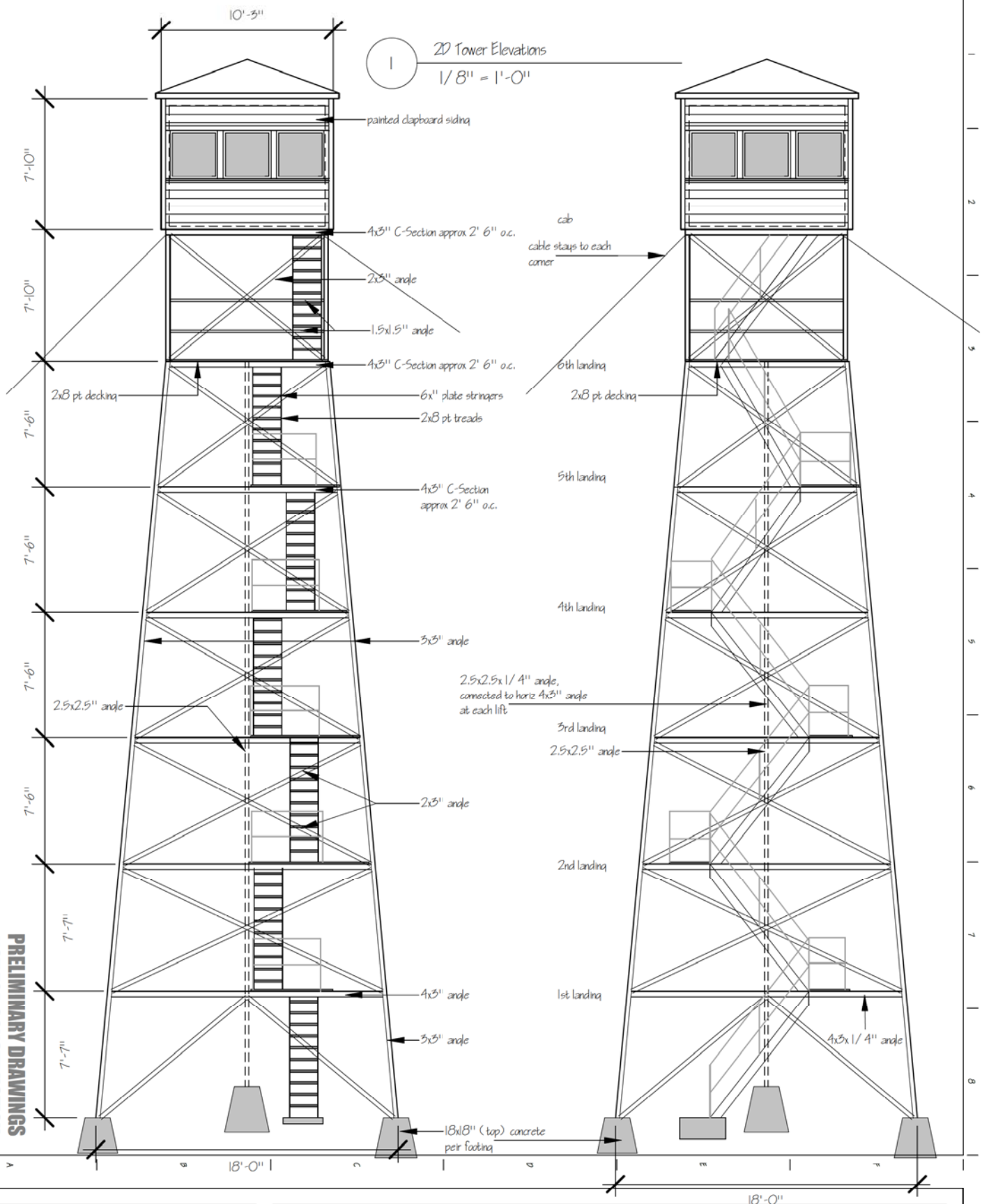

1 2D Tower Elevations

1/8" = 1'-0"

PRELIMINARY DRAWINGS

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PROJECT NAME & ADDRESS:

NH STATE FIRE TOWERS PHASE ONE

NH DRED

HYLAND HILL

SURVEY-ELEVATIONS AX 7.1

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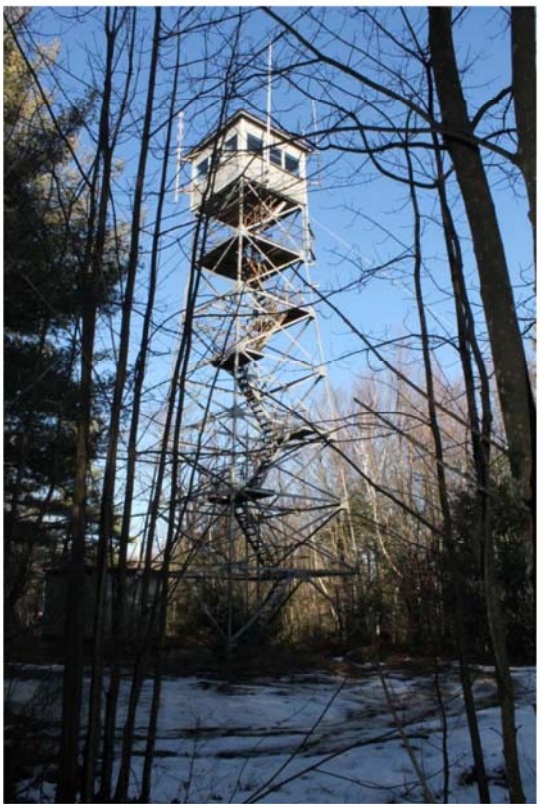
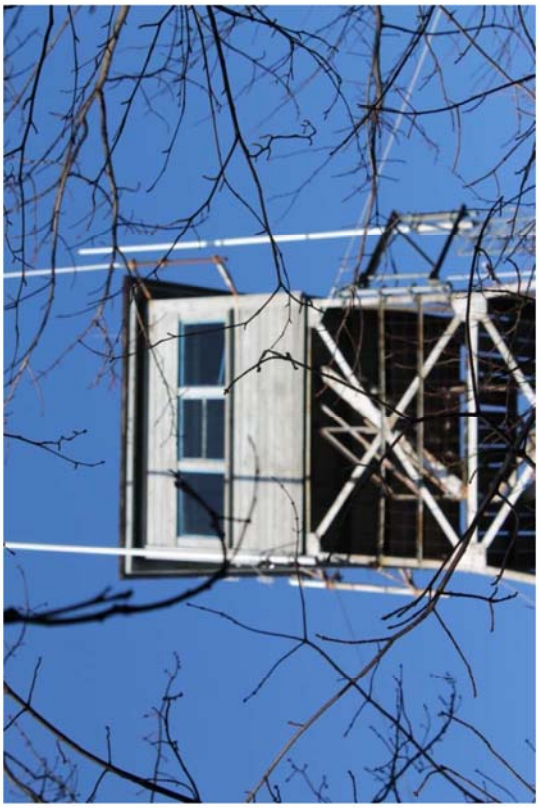
EXISTING CONDITION PHOTOGRAPHS

HYLAND HILL (Westmoreland)

date: 15th January, 2014 - *weather conditions:* sunny, approx. 30 degrees F.





EXISTING CONDITION PHOTOGRAPHS

HYLAND HILL (Westmoreland)

date: 15th January, 2014 - *weather conditions:* sunny, approx. 30 degrees F.

EXISTING CONDITION PHOTOGRAPHS

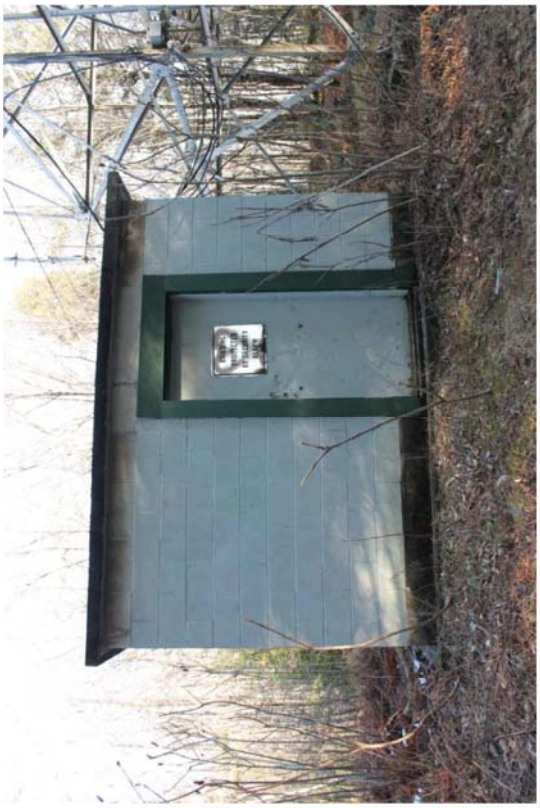
HYLAND HILL (Westmoreland)

date: 15th January, 2014 - *weather conditions:* sunny, approx. 30 degrees F.

EXISTING CONDITION PHOTOGRAPHS

HYLAND HILL - OUTHOUSE

date: 15th January, 2014 - *weather conditions:* sunny, approx. 30 degrees F.



EXISTING CONDITION PHOTOGRAPHS

HYLAND HILL - ADJACENT STRUCTURES

date: 15th January, 2014 - *weather conditions:* sunny, approx. 30 degrees F.

2.8 KEARSARGE MTN., WILMOT AND WARNER

Kearsarge fire tower site consists of the fire tower only.

The fire tower frame consists of painted steel angles and flat bar elements, as noted on the attached drawings. The frame members are generally in good condition but exhibit surface rust and will require refinishing soon.

The stairs consist of three flights truss-stringers built with 2x2" steel angles running parallel with the flights, 2x2" steel angle tread support/truss diagonal and 1.5x1.5" truss verticals. Treads are 2x12 pt treads 24" long. The last flight of stairs, to the cab, is constructed with 2x12 pt stringers and 2x10 pt treads 24" long, all painted. Handrail/guardrails are constructed of 2x2 angle uprights and top bar, as well as 1x3/8" flat bar mid rail. The steel members, as the frame, are in need of attention, as are the wood elements.

The tower cab will require at the minimum refinishing of the walls and ceiling materials, as significant wear is apparent. The vinyl floor finish will require to be replaced and has been installed on a backer board fixed to the 2x8 pt subfloor. Windows are vertical sliding and functional, but also show signs of wear. They are single glazed wood sashes. Exterior siding is in need of refinishing as soon as possible, if not replacement.

The tower has a communications building directly under it, and the frame has been altered to facilitate location of that building. See engineers report as to the sound nature of the altered frame. Several small communication towers have also been erected adjacent to the tower and are braced off the tower.

Wire mesh infill has been added to several of the landing guardrails, but has only been marginally effective and is in need of replacement.

Some elements of the footing are showing significant spalling in the concrete and should be patched and sealed.

SITE OBSERVATIONS & CONDITIONS ANALYSIS — KEARSARGE MOUNTAIN (Wilmot & Warner)

date: 16th January, 2014 - *weather conditions:* overcast, poor visibility, approx. 20 degrees F.

TOWER BASE

component	*description*	*comments*	*condition*
Base	14' x 14' on 26" x 12" concrete piers	spalling evident, clean and re-seal concrete	Fair
Cables	4 total 3/8" steel (new) with old turnbuckles	little or no tension on cable	Good
Stair Base	23" x 20" concrete plinth	clean and re-seal concrete	Good
Connections			Good

STAIRS

component	*description*	*comments*	*condition*
# of Flights	4		-
Treads	2x10 pressure treated @ 24", 9 - 13 risers per flight	rise 8 3/4" +/-, recommend replacement	Poor
Stringer	custom truss stringer	superficial rust, requires refinishing	Fair
Rail	1 1/2" x 1 1/2" angle @ 32" +/-	chicken wire infill	Poor
Landings	2x pressure treated, rail @ 44" & 27"	recommend replacement, slippery	Poor

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	3 1/2" x 3 1/2" angle vertical	surface rust evident, scrape and paint	Good
Secondary Member	3 1/2" x 2 1/2" angle horizontal	surface rust evident, scrape and paint	Good
Cross Bracing	2 1/4" x 2 1/4" angle	surface rust evident, scrape and paint	Good
Node Type	through bolt @ member junctions	surface rust evident, scrape and paint	Good
Platform Members	2" x 4" c-section	surface rust evident, scrape and paint	Good

CAB

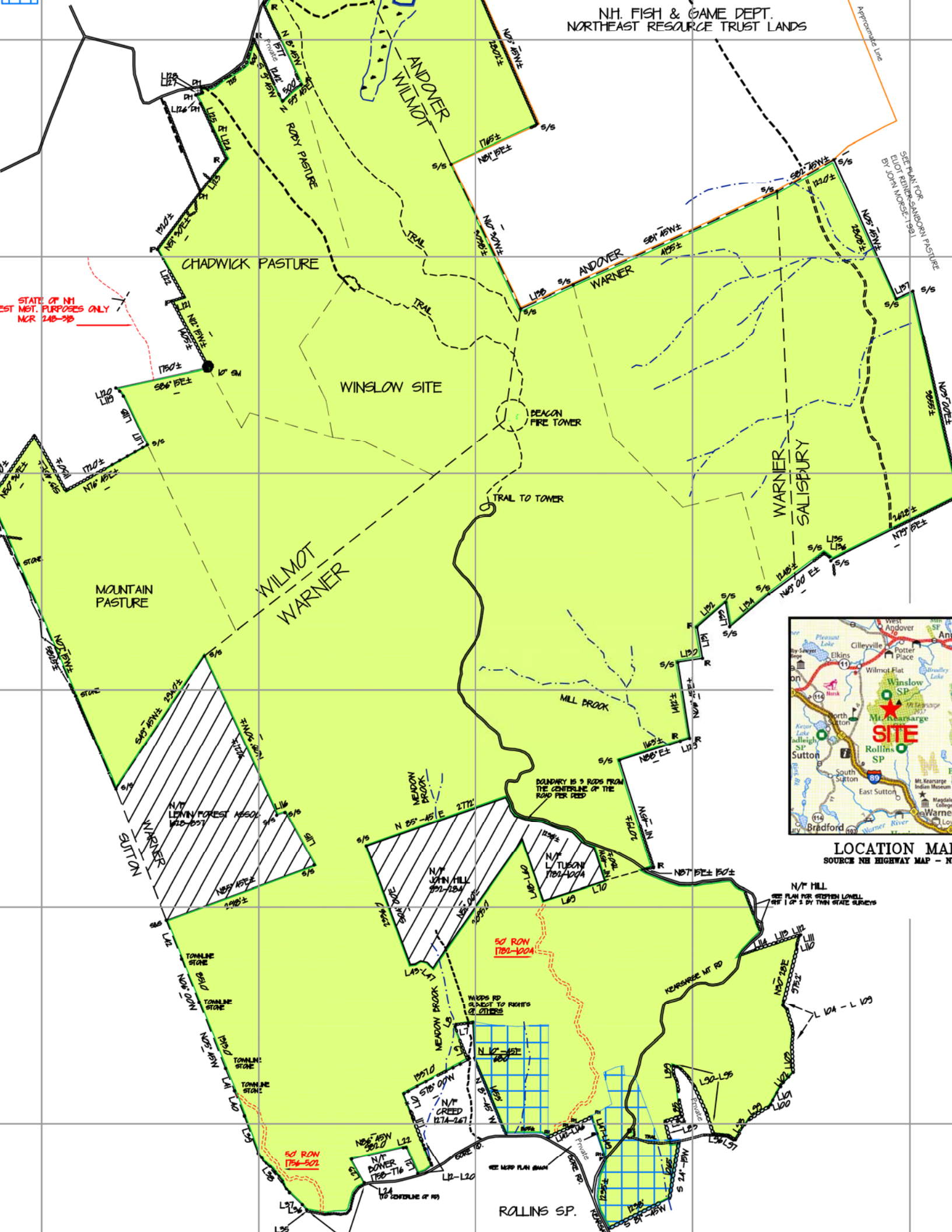
component	*description*	*comments*	*condition*
Approx. Dimensions	12' x 12'	-	-
Exterior Siding	1 x 5 cedar clapboard, painted	needs re-attachment and refinishing	Fair
Exterior Sub-Deck	2 x wood planks with 3/4" plywood deck	unfinished, some rot evident @ end grain	Poor
Exterior Trim	1 x 6 wood corner board, painted	needs refinishing	Fair
Roof	undetermined		-
Interior Walls	plywood, varnished / stained	water damage evident	Poor
Interior Floor	VCT	lack of adhesion	Poor
Interior Ceiling	plywood, varnished / stained	warping and water damage evident	Poor
Interior Trim	1 x pine flatstock, varnished / stained	water staining evident	Fair
Window Operation	vertical slider, approx 31 1/4" x 35"	most units binding, difficult to operate	Poor
Window Frame	wood, varnished / stained		Fair
Window Glazing	single	condensation evident	Fair
Window Trim	1 x flat stock, varnished / stained		Fair
Power Supply	mains power & battery	panel location undetermined	Fair
Heat	electric resistance base board	operation undetermined	-

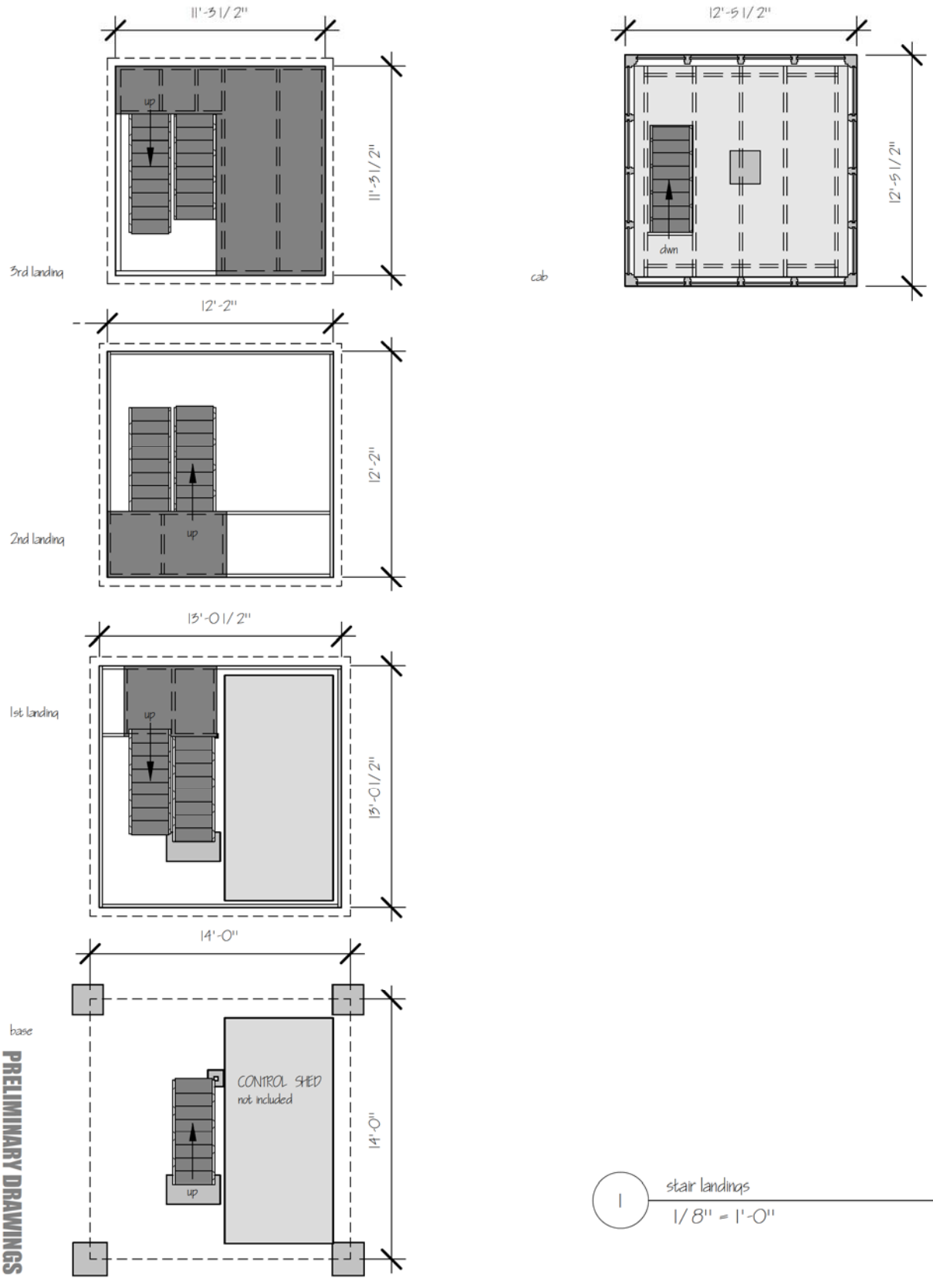
ACCESS HATCH

component	*description*	*comments*	*condition*
Location	5'-9" x 2'-4" hatch in cab floor	some lichen growth evident	Fair
Operation	hinged to long edge, up swinging		Good
Safety Rail	pipe rail @ 34" with mid rail		Good
Security	basic padlock	concern with self locking	Poor

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees	communication tower in line of sight	Good
Cab Storage	upper shelving above windows	adequate	Good


N.H. FISH & GAME DEPT.
NORTHEAST RESOURCE TRUST LANDS
Approximate Line
SEE PLAN FOR ELIOT REINER-SANBORN PASTURE BY JOHN NORSE-1991
ANDOVER
WILMOT
ROCKY PASTURE
TRAIL
CHADWICK PASTURE
ANDOVER
WARNER
STATE OF NH
EST MGT. PURPOSES ONLY
MCR 248-318
WINSLOW SITE
BEACON FIRE TOWER
WARNER
SALISBURY
TRAIL TO TOWER
MOUNTAIN PASTURE
WILMOT
WARNER
MILL BROOK
MEADOW BROOK
BOUNDARY IS 3 RODS FROM THE CENTERLINE OF THE ROAD PER DEED
N/F LEMIN FOREST ASSOC.
N/F JOHN HILL
N/F L TUSON
SUTTON
WARNER
TOWNLINE STONE
50' ROW
KEARSARGE MT RD
WOODS RD CLOSEST TO RIGHTS OF OTHERS
N/F CREED
N/F BOWER
ROLLINS S.P.
SITE
LOCATION MA
SOURCE NH HIGHWAY MAP - N



PRELIMINARY DRAWINGS
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1 stair landings
1/8" = 1'-0"

PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
KEARSARGE MOUNTAIN
SURVEY-LANDINGS AX 8.0

04-30-14

GENERAL NOTES:

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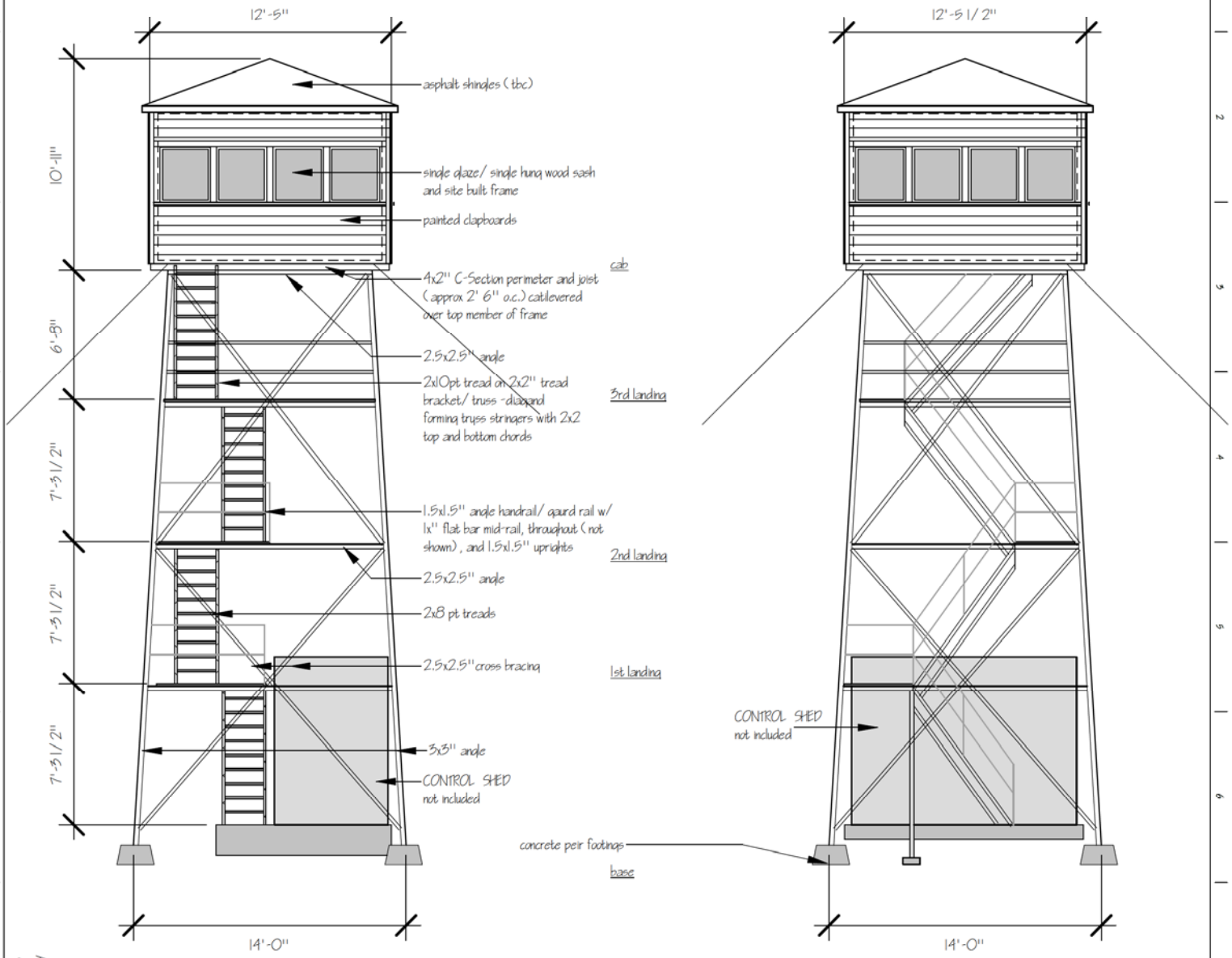

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1 — 2D Tower Elevations
1/8" = 1'-0"

PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
KEARSARGE MOUNTAIN
SURVEY-ELEVATIONS AX 8.1

03-30-14

GENERAL NOTES:

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EXISTING CONDITION PHOTOGRAPHS **KEARSARGE MOUNTAIN** (Wilmot & Warner)

date: 16th January, 2014 - *weather conditions:* overcast, poor visibility, approx. 20 degrees F.

EXISTING CONDITION PHOTOGRAPHS **KEARSARGE MOUNTAIN** (Wilmot & Warner)

date: 16th January, 2014 - *weather conditions:* overcast, poor visibility, approx. 20 degrees F.

EXISTING CONDITION PHOTOGRAPHS **KEARSARGE MOUNTAIN** (Wilmot & Warner)

date: 16th January, 2014 - *weather conditions:* overcast, poor visibility, approx. 20 degrees F.

EXISTING CONDITION PHOTOGRAPHS

KEARSARGE MOUNTAIN - ADJACENT STRUCTURES

date: 16th January, 2014 - *weather conditions:* overcast, poor visibility, approx. 20 degrees F.

2.9 MAGALLOWAY MTN., PITTSBURG

The Magalloway Mtn. fire tower site consists of the fire tower, a watchman's cabin, storage building and outhouse.

The fire tower frame consists of painted steel angles and flat bar elements, as noted on the attached drawings. The frame members are generally in good condition with numerous areas of superficial rust. At this point, the rust poses no structural concerns, and refinishing of the tower frame should be scheduled sooner rather than later.

The seven flights of the tower stairs consist of painted 20.5" long 2x8 pt treads bolted to 1.5x1.5" steel angles, which in turn are bolted to 6x3/8" plate steel stringers. Handrail/guardrail consists of 1.5x1.5" steel top bar and uprights bolted/riveted to plate stringer, with 1x3/8" flat bar mid-rail. As per the main tower frame, superficial rust is exhibited and will require refinishing in a timely manner to stop progression into loss of integrity. Stair treads will at minimum require refinishing, as they are generally in sound condition, but have a limited useful life left to them. Landings/Platforms exhibit the same conditions and requirements. Some wire mesh infill has been installed at landings, but does not appear to be holding up well. Guardrails are typically 33" above stair treads and 44" high at main landings.

The tower cab to Magalloway has been recently replaced in its entirety. The cedar clapboards and trims to the exterior are showing signs of wear, but are generally in good shape and do not require immediate attention. Vinyl double hung/double glazed windows were utilized and require little more than regular, visual inspection. Interior has been finished with finish grade ply to walls and ceiling, with strip/battens at joints, and narrow strip oak boarding to floor, installed over what appears to be the 2x8 pt deck retained from the previous cab construction. Electrical wiring has been incorporated into the cab, however there is no electrical service to the cab apart from minimal power provided by one 4x8 pv panel.

Additional items to be addressed would be limited guard around access hatch, access hatch security and operation.

The watchman's cabin was inspected. Although snow cover prevented complete inspection of the underside of the cabin, it appears, like most, to be supported off a combination of blocks and ledge and sits very close to the ground. The result of which is slightly more deterioration of the lower courses of shakes, but generally the frame is reasonably dry and in acceptable condition. Raising the building higher off the ground and replacing the sill supports would be beneficial, but does not appear to be critical. The metal corrugated roof is in a condition expected for its age, but appears to be providing an effective water barrier. No significant signs of water ingress were noted in the interior. In general, exterior finishes are holding out and appear to have been refinished relatively recently, with the exception of the shutters. Interior finishes appear to be a wood based thin particle board to walls and ceilings painted white. A general repainting of the interior finish would be beneficial but not critical. Floor appears to be painted plywood or wood based particle board. Single glazed wood double hung windows are operational and suffice for the intended seasonal use. Roof structure appears dry and in good condition. Insulated flue to a woodstove appears in working order, though the wood stove is clearly dated and would likely not comply with current codes.

There were two additional storage buildings on site which, from exterior visual inspection, appear to be in similarly acceptable condition to the watchman's cabin.

SITE OBSERVATIONS & CONDITIONS ANALYSIS — MAGALLOWAY MOUNTAIN (Pittsburg)

date: 15th November, 2013 - *weather conditions: partly sunny* , approx. 40 degrees F.

TOWER BASE

component	*description*	*comments*	*condition*
Base	18'x18' on 16"x16" & 25"x25" tapered concrete piers	clean and re-seal concrete	Good
Cables	4 total 3/8" steel	little or no tension on cable	Good
Stair Base	26 1/2" x 17" concrete plinth	clean and re-seal concrete	Good
Connections	12" x 12" base plates bolted to piers	mild surface rust, clean and re-finish	Good

STAIRS

component	*description*	*comments*	*condition*
# of Flights	6		-
Treads	2 x 8 pt @ 20" +/-, 11 risers per flight	rise 8" +/-, recommend replacement	Poor
Stringer	1/4" x 6" steel plate	superficial rust, requires refinishing	Fair
Rail	1 1/2" x 1 1/2" angle @ 36" +/-	1/8" x 1 1/2" plate mid rail	Fair
Landings	2x pressure treated, rail @ 34""	recommend replacement, slippery	Poor

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	3" x 3" x 5/16" angle vertical	surface rust evident, scrape and paint	Good
Secondary Member	4" x 3" 1/4" angle horizontal	surface rust evident, scrape and paint	Good
Cross Bracing	2 1/2" x 2 1/2" x 1/4" angle	surface rust evident, scrape and paint	Good
Node Type	bolted plate	surface rust evident, scrape and paint	Good
Platform Members	1 1/2" x 4" angle section	surface rust evident, scrape and paint	Good

CAB

component	*description*	*comments*	*condition*
Approx. Dimensions	10'-4" x 10'-4"	-	-
Exterior Siding	1 x 5 clapboard siding, painted	minor peeling of finish	Good
Exterior Sub-Deck	2 x wood planks	some deterioration from weather exposure	Fair
Exterior Trim	wood, painted	minor peeling of finish	Good
Roof	*undetermined*		
Interior Walls	birch plywood panels, polyurethane finish	relatively new	Good
Interior Floor	oak strip, polyurethane finish	relatively new	Good
Interior Ceiling	birch plywood panels, polyurethane finish	relatively new, staining at pulley location	Good
Interior Trim	1 x wood flat stock, polyurethane finish	relatively new	Good
Window Operation	double hung, approx 33" x 36"	all units operational	Good
Window Frame	vinyl		Good
Window Glazing	double thermal pane		Good
Window Trim	1 x wood flat stock, polyurethane finish		Good
Power Supply	no mains power	load center, rough-in complete, no finish	Fair
Heat-none	NOTE:solar/antennas/wind turbine may need relocation due to structural concerns		-

ACCESS HATCH

component	*description*	*comments*	*condition*
Location	60" x 20 1/2" hatch in cab floor		Fair
Operation	hinged to short edge, up swinging	operational, no means of security	Fair
Safety Rail	none		Poor
Security	basic padlock		Good

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees		Good
Cab Storage	upper shelving and attic	adequate	Good

SITE OBSERVATIONS & CONDITIONS ANALYSIS — MAGALLOWAY MOUNTAIN (Pittsburg)

date: 15th November, 2013 - *weather conditions: partly sunny* , approx. 40 degrees F.

ANCILLARY BUILDING ONE — Watchman Cabin

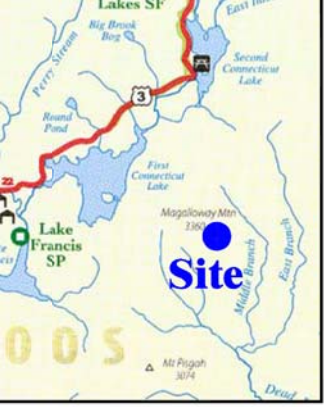
component	*description*	*comments*	*condition*
Function	watchman cabin	not in use	Fair
Approximate Footprint	12'-3" x 27'-5"	*no access, number of rooms undetermined*	-
Foundation	cmu block		Fair
Structure	wood framing		Fair
Exterior Walls	wood shingle, painted	minor re-finishing	Good
Windows	wood double hung, 6 over 6 single pane	boarded over	Fair
Roof	corrugated metal & asphalt shingle	*undetermined due to snow cover*	-
Interior Walls	*undetermined*	*no access to interior*	-
Interior Floor	*undetermined*	*no access to interior*	-
Interior Ceiling	*undetermined*	*no access to interior*	-

ANCILLARY BUILDING TWO — Outhouse

component	*description*	*comments*	*condition*
Function	outhouse	not in use	Fair
Approximate Footprint	4' x 8'	*no access, number of rooms undetermined*	-
Foundation	*undetermined due to snow cover*	-	-
Structure	wood framing		Fair
Exterior Walls	vertical board siding, painted	scrape and re-finish	Fair
Windows	none	-	-
Roof	*undetermined due to snow cover*	-	-
Interior Walls	*undetermined*	*no access to interior*	-
Interior Floor	*undetermined*	*no access to interior*	-
Interior Ceiling	*undetermined*	*no access to interior*	-

ANCILLARY BUILDING THREE — Storage

component	*description*	*comments*	*condition*
Function	storage	not in use	Fair
Approximate Footprint	12'-5" x 18'-4"	*no access, number of rooms undetermined*	-
Foundation	*undetermined due to snow cover*		-
Structure	wood framing		Fair
Exterior Walls	wood shingle, painted	scrape and re-finish	Fair
Windows	*undetermined*	boarded over	-
Roof	corrugated metal	*undetermined due to snow cover*	-
Interior Walls	*undetermined*	*no access to interior*	-
Interior Floor	*undetermined*	*no access to interior*	-
Interior Ceiling	*undetermined*	*no access to interior*	-



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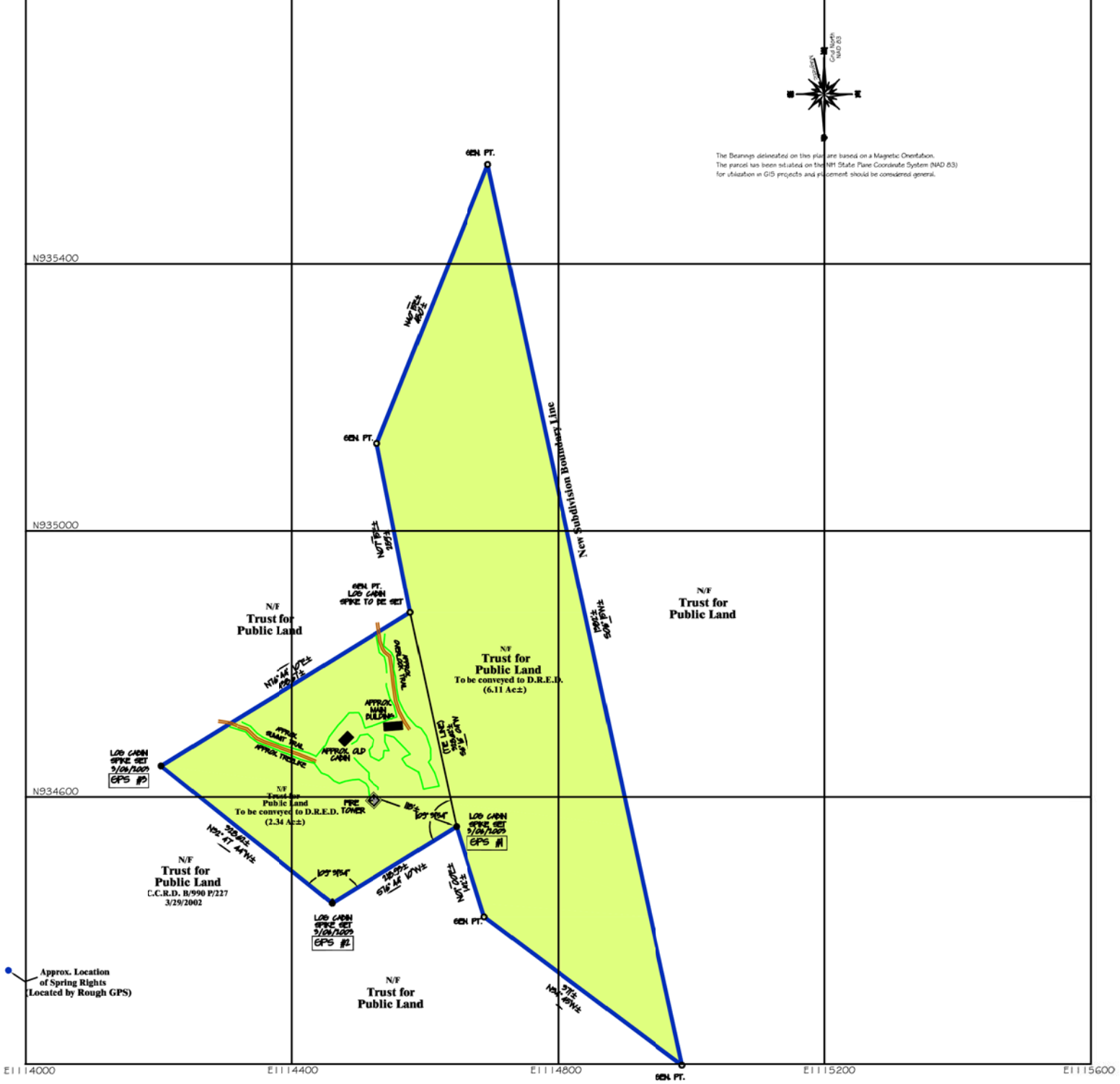

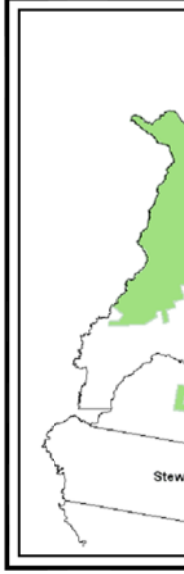

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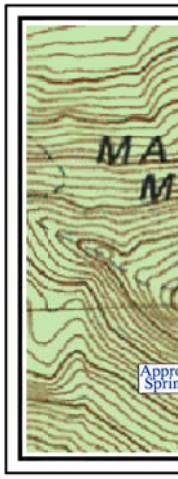

are based on observations
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Deeds- Plan #1792, Parcel 6-2;
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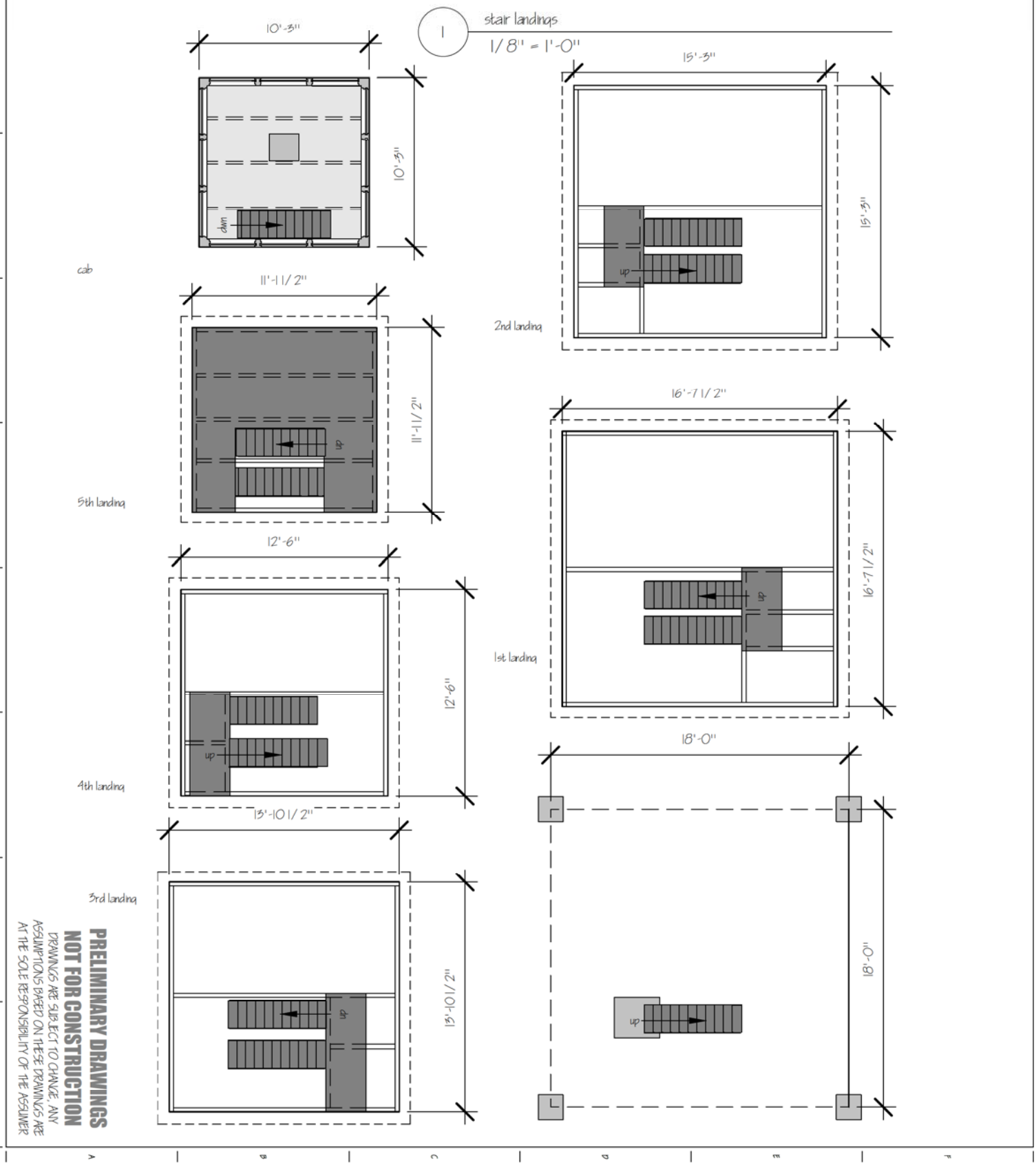
Owner of Record:



PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION
DRAWINGS ARE SUBJECT TO CHANGE, ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER

PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
MAGALLOWAY
SURVEY-LANDINGS AX 9.0

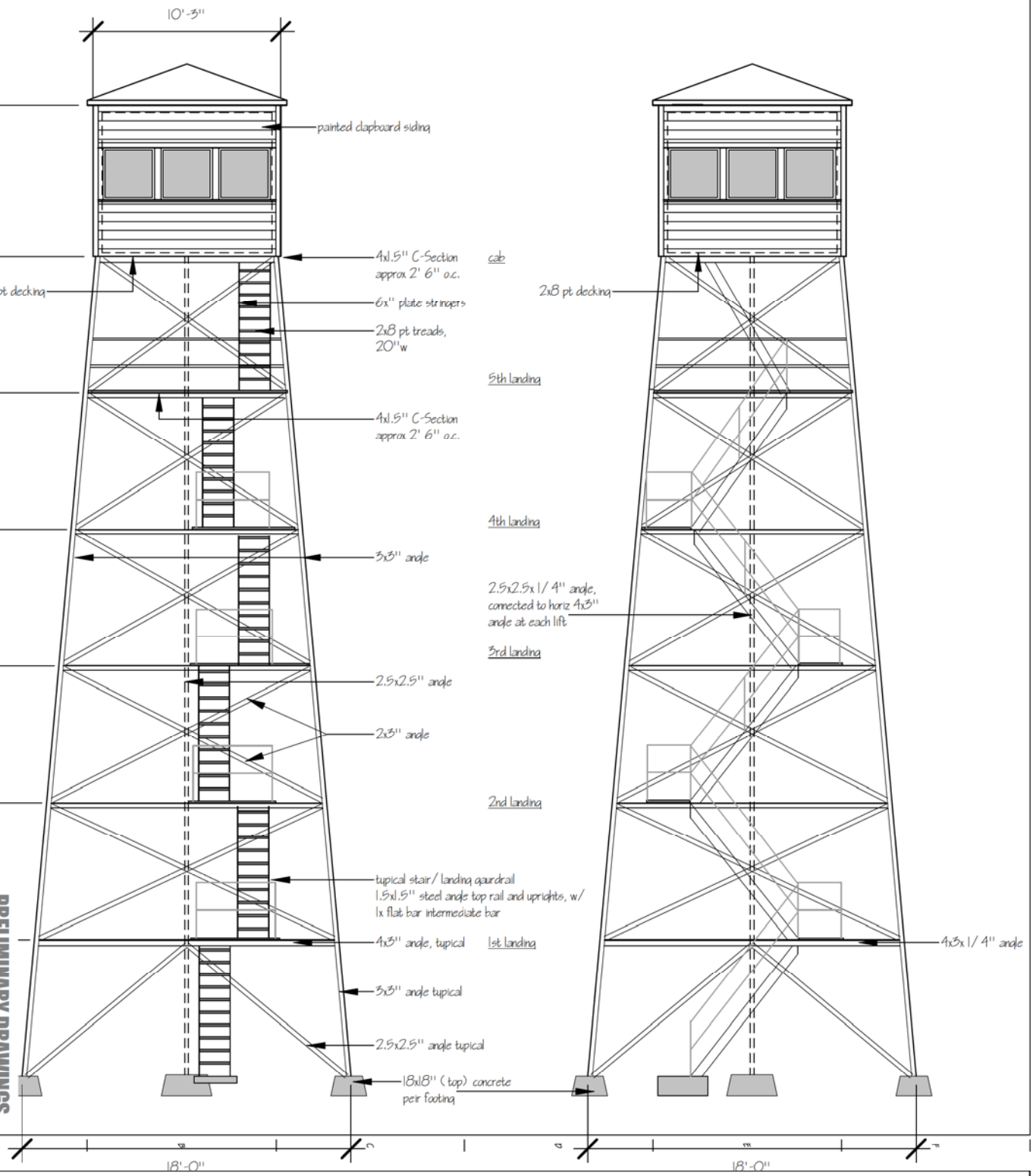
04-30-14

GENERAL NOTES:

alba architects llp . stuart j anderson & philip m bennett . po box 186 . 137 main street . north woodstock . nh . 03262 . **(603) 745-4770** . albaarchitects.com

1 — 2D Tower Elevations

1/8" = 1'-0"



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PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
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EXISTING CONDITION PHOTOGRAPHS **MAGALLOWAY MOUNTAIN** (Pittsburg)

date: 15th November, 2013 - *weather conditions: partly sunny*, approx. 40 degrees F.

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date: 15th November, 2013 - *weather conditions: partly sunny*, approx. 40 degrees F.

EXISTING CONDITION PHOTOGRAPHS

MAGALLOWAY MOUNTAIN - WATCHMAN CABIN

date: 15th November, 2013 - *weather conditions: partly sunny*, approx. 40 degrees F.

EXISTING CONDITION PHOTOGRAPHS

MAGALLOWAY MOUNTAIN - STORAGE & OUTHOUSE

date: 15th November, 2013 - *weather conditions: partly sunny*, approx. 40 degrees F.

2.10 MILAN HILL, MILAN

The Milan Hill fire tower site consists of the fire tower, a watchman's cabin, a corrugated steel storage building and an abandoned outhouse. Neither the storage building nor outhouse warrant further consideration and should be removed from the site.

The fire tower frame consists of painted steel angles and flat bar elements, as noted on the attached drawings. The frame members are generally in good condition though most exhibit significant areas of superficial rust. At this point, the rust poses no structural concerns, but the frame will require refinishing in the near future to insure no loss of integrity to the frame.

The six flights of the tower stairs consist of painted 22.25" long 2x8 pt treads bolted to 1.5x1.5" steel angles, which in turn are bolted to 6x3/8" plate steel stringers. Handrail/guardrail consists of 1.5x1.5" steel top bar and uprights bolted to plate stringer, with 1x3/8" flat bar mid-rail. As per the main tower frame, significant superficial rust is exhibited and will require refinishing in a timely manner to stop progression into loss of integrity. Stair treads will at minimum require refinishing, as they are generally in sound condition, but have a limited useful life left to them. Landings/Platforms exhibit the same conditions and requirements.

Exterior finishes of the cab are beyond usefulness and will need replacing. Windows appear to be minimally operable and only satisfy the most basic of functions, but will require refinishing at the minimum. Wind/air tightness is limited with these units, although water ingress seems to be minimal. Significant signs of rot and deterioration of all wood finishes is present and indicates necessary replacement is not far off. Interior has no wall finishes on the top half and is composed of painting the back side of the exterior board sheathing. The lower half has thin particle board finish painted, as is the ceiling. The floor consists of narrow plank hardwood flooring on the 2x8 pt sub-floor. All interior finishes are still functional but not of particularly high standard and would not warrant salvage. The frame of the cab appears to be in reasonable condition and includes steel angle members in the corners, a continuation of the tower structural frame. Whichever route is chosen will need to address the corner members, either building around them or cutting them off. The 2x8 pt substructure appears to still be viable, from the underside, and could continue to be the substructure for a new floor, or cab, as it appears to have had very limited exposure to moisture.

Additional items to be addressed would be limited guard around access hatch, access hatch security and operation.

The watchman's cabin was only inspected from the outside, as continued vandalism required plywood sheathing over all openings. Observing the interior through small penetrations in the ply covers suggest the condition of the structure and finishes are badly deteriorated. Any consideration of reuse of the structure will require further investigation. However, the structure is potentially one of the most interesting and historically notable structures for the watchman's cabin. The exterior includes stone foundation and piers to the covered entry deck, as well as a stone chimney and presumably fireplace. The exterior walls are covered in asphalt shingles, as is the roof. All exterior finishes and, as noted, interior finishes would have to be replaced. The refurbishment of this structure would be a very involved and relatively expensive venture. However, as the hill is not of notable significance and is fully accessible by vehicles, it suggests that there would not be a strong draw for campers to rent as overnight accommodation. The underutilization of nearby campsites supports this conclusion.

SITE OBSERVATIONS & CONDITIONS ANALYSIS

MILAN HILL (Milan)

date: 15th November, 2013 - *weather conditions: mostly sunny* , approx. 42 degrees F.

TOWER BASE

component	*description*	*comments*	*condition*
Base	18' x 18' on 16" x 16" tapered concrete piers	repair/replace/ re-seal concrete	Fair
Cables	4 total 3/8" steel	little or no tension on cable	Good
Stair Base	36" x 25" concrete plinth	clean and re-seal concrete	Good
Connections	metal angle bolted to piers	surface rust, clean and re-finish	Good

STAIRS

component	*description*	*comments*	*condition*
# of Flights	6		-
Treads	2 x 8 pt @ 22 1/4" +/-, 11 risers per flight	rise 8" +/-, recommend replacement	Poor
Stringer	1/4" x 6" steel plate	superficial rust, requires refinishing	Fair
Rail	2" x 2" angle @ 34" +/-	2" x 2" angle mid rail	Fair
Landings	2x pressure treated, rail @ 34""	chicken wire railing infill	Fair

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	3" x 3" 3/8" angle vertical	minor surface rust evident, scrape and paint	Good
Secondary Member	3" x 4" x 1/4" angle horizontal	minor surface rust evident, scrape and paint	Good
Cross Bracing	2" x 3" x 1/4" angle	minor surface rust evident, scrape and paint	Good
Node Type	bolted plate	minor surface rust evident, scrape and paint	Good
Platform Members	3" x 4" angle section	minor surface rust evident, scrape and paint	Good

CAB

component	*description*	*comments*	*condition*
Approx. Dimensions	10'-6" x 10'-6"	-	-
Exterior Siding	1x wood clapboard, painted	peeling, recommend replacement	Poor
Exterior Sub-Deck	2 x wood planks with 1x wood boards	some deterioration from weather	Fair
Exterior Trim	wood, painted	peeling, recommend replacement	Poor
Roof	*undetermined*		
Interior Walls	wood panel, painted	some warping evident	Fair
Interior Floor	wood strip, painted	minor wear	Fair
Interior Ceiling	wood panel, painted		Fair
Interior Trim	1 x wood flat stock, painted	recommend re-finishing	Good
Window Operation	vertical slider, approx 32 1/2" x 33 1/2"	undetermined	Fair
Window Frame	wood, painted		Fair
Window Glazing	single		Fair
Window Trim	1 x flat stock, painted		Good
Power Supply	mains power	meter socket @ first landing	Good
Heat	none		-

ACCESS HATCH

component	*description*	*comments*	*condition*
Location	56" x 31" hatch in cab floor		Fair
Operation	hinged to long edge, up swinging	bag weight and pulley	Fair
Safety Rail	angle section @ 34"		Fair
Security	basic padlock		Good

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees	tree tops in line of sight	Fair
Cab Storage	upper shelving and attic	adequate	Good

SITE OBSERVATIONS & CONDITIONS ANALYSIS — MILAN HILL (Milan)

date: 15th November, 2013 - *weather conditions: mostly sunny* , approx. 42 degrees F.

ANCILLARY BUILDING ONE — Watchman Cabin

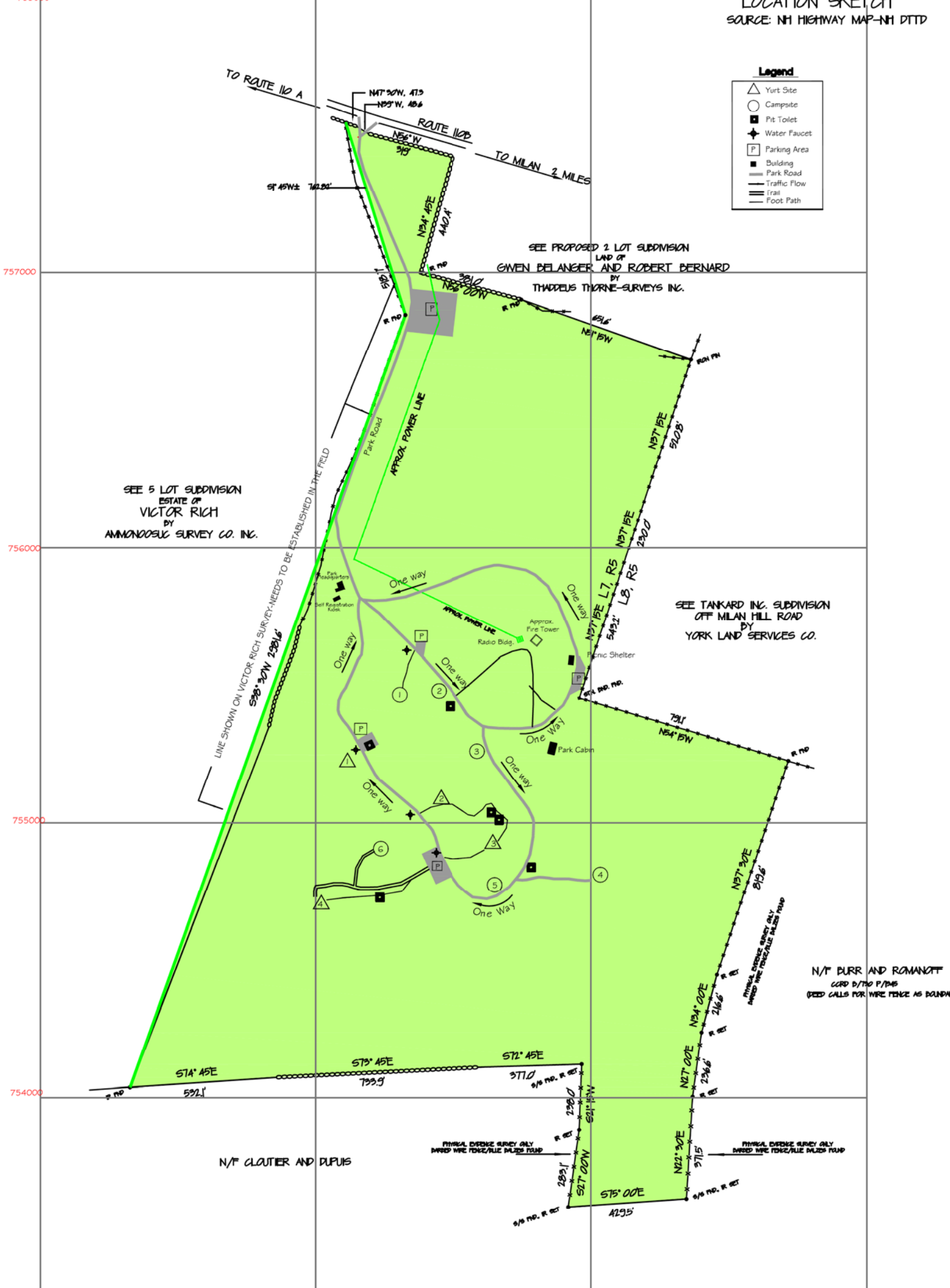
component	*description*	*comments*	*condition*
Function	watchman cabin	not in use	Poor
Approximate Footprint		*undetermined, no access to interior*	-
Foundation	natural stone rubble	evidence of distress	Poor
Structure	wood framing		Fair
Exterior Walls	asphalt shingle	deteriorated	Poor
Windows	*undetermined*	boarded over	-
Roof	asphalt shingle	deteriorated	Poor
Interior Walls	*undetermined*	*no access to interior*	-
Interior Floor	*undetermined*	*no access to interior*	-
Interior Ceiling	*undetermined*	no access to interior	-

ANCILLARY BUILDING TWO — Outhouse

component	*description*	*comments*	*condition*
Function	outhouse	function undetermined	Fair
Approximate Footprint	4' x 4'	1 room	-
Foundation	cmu block	-	Fair
Structure	wood framing		Fair
Exterior Walls	wood vertical board & batten, painted	peeling evident, scrape and re-finish	Fair
Windows	none	-	-
Roof	rolled roofing		Fair
Interior Walls	*undetermined*	*no access to interior*	-
Interior Floor	*undetermined*	*no access to interior*	-
Interior Ceiling	*undetermined*	no access to interior	-

ANCILLARY BUILDING THREE — Storage

component	*description*	*comments*	*condition*
Function	storage	not in use	Poor
Approximate Footprint		1 room	-
Foundation	*undetermined*		-
Structure	wood framing	unconventional framing	Poor
Exterior Walls	corrugated metal, painted	clean, scrape and re-finish	Poor
Windows	*none*	-	-
Roof	corrugated metal	surface rust evident	Fair
Interior Walls	*undetermined*	*no access to interior*	-
Interior Floor	*undetermined*	*no access to interior*	-
Interior Ceiling	*undetermined*	no access to interior	-


LOCATION SKETCH
SOURCE: NH HIGHWAY MAP-NH DTTD
Legend
Yurt Site
Campsite
Pit Toilet
Water Faucet
Parking Area
Building
Park Road
Traffic Flow
Trail
Foot Path
TO ROUTE 110 A
ROUTE 110B
TO MILAN 2 MILES
N47°30W, 47.9
N89°W, 48.6
N56°W 319'
S9° 45W± 762.82'
N34° 45E 440.4'
SEE PROPOSED 2 LOT SUBDIVISION
LAND OF
GWEN BELANGER AND ROBERT BERNARD
BY
THADDEUS THORNE-SURVEYS INC.
N89°00W 381.0
N81°15W 651.6'
N37°15E 512.8'
N37°15E 230.0
N37°15E L7, R5
L8, R5
543.2'
N54°15W 791'
N37°30E 815.6'
N34°00E 246.6'
N27°00E 236.6'
N22°30E 371.5'
S21°15W 521.0'
S27°00W 283.1'
S75°00E 429.5'
S72°45E 377.0'
S73°45E 799.9'
S74°45E 592.1'
S38°30W 2381.6'
LINE SHOWN ON VICTOR RICH SURVEY-NEEDS TO BE ESTABLISHED IN THE FIELD
SEE 5 LOT SUBDIVISION
ESTATE OF
VICTOR RICH
BY
AMMONOOSUC SURVEY CO. INC.
SEE TANKARD INC. SUBDIVISION
OFF MILAN HILL ROAD
BY
YORK LAND SERVICES CO.
N/F BURR AND ROMANOFF
CCRD B/730 P/1345
(DEED CALLS FOR WIRE FENCE AS BOUNDA
N/F CLOUTIER AND DUPUIS
PHYSICAL EVIDENCE SURVEY ONLY
BARBED WIRE FENCE/BLUE BLAZES FOUND
Park Road
APPROX. POWER LINE
Park Headquarters
Self Registration Kiosk
Approx. Fire Tower
Radio Bldg.
Picnic Shelter
Park Cabin
One way
1
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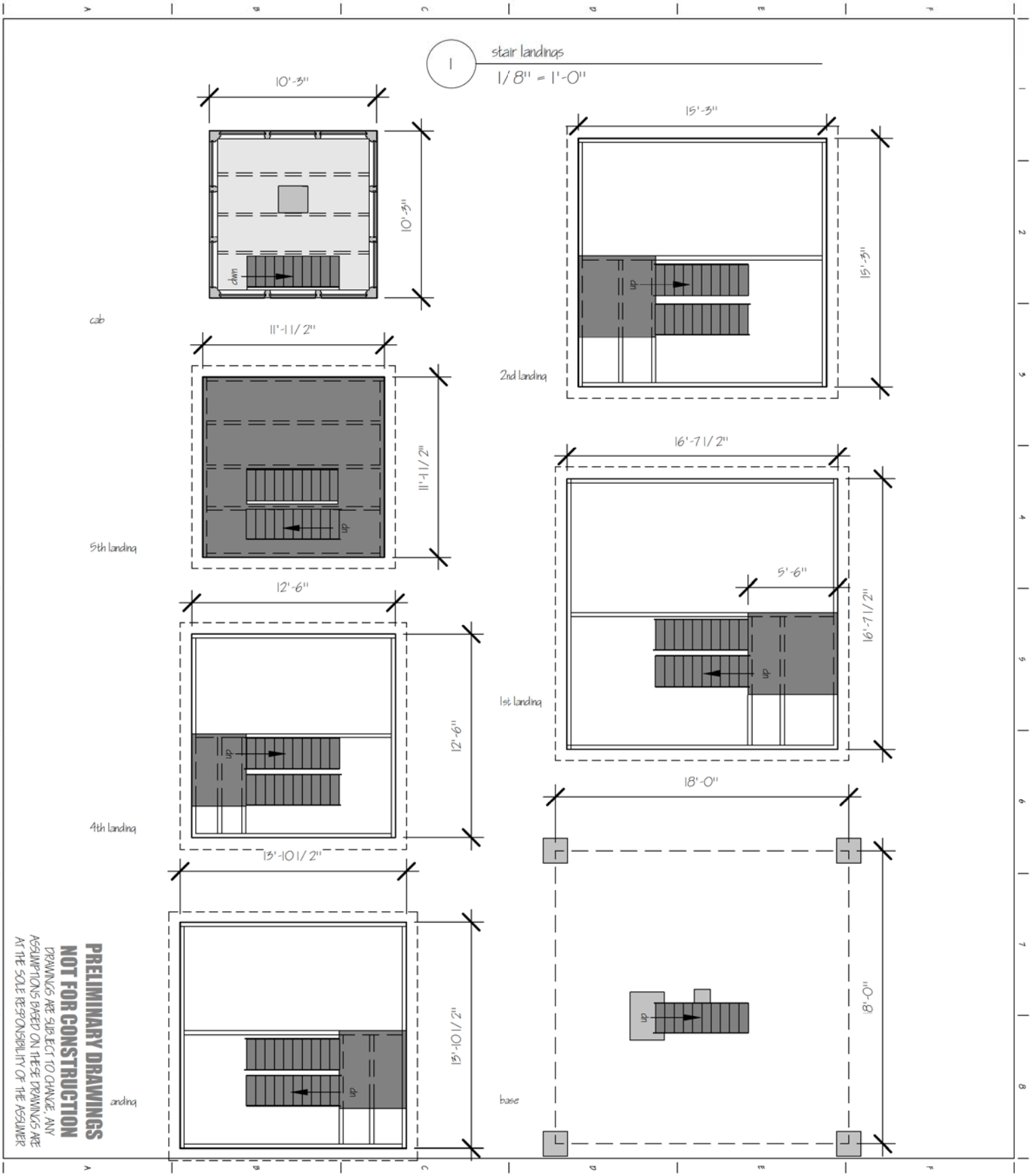

PRELIMINARY DRAWINGS
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DRAWINGS ARE SUBJECT TO CHANGE, ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER

PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
MILAN HILL

SURVEY-LANDINGS AX 10.0

04-30-14

GENERAL NOTES:

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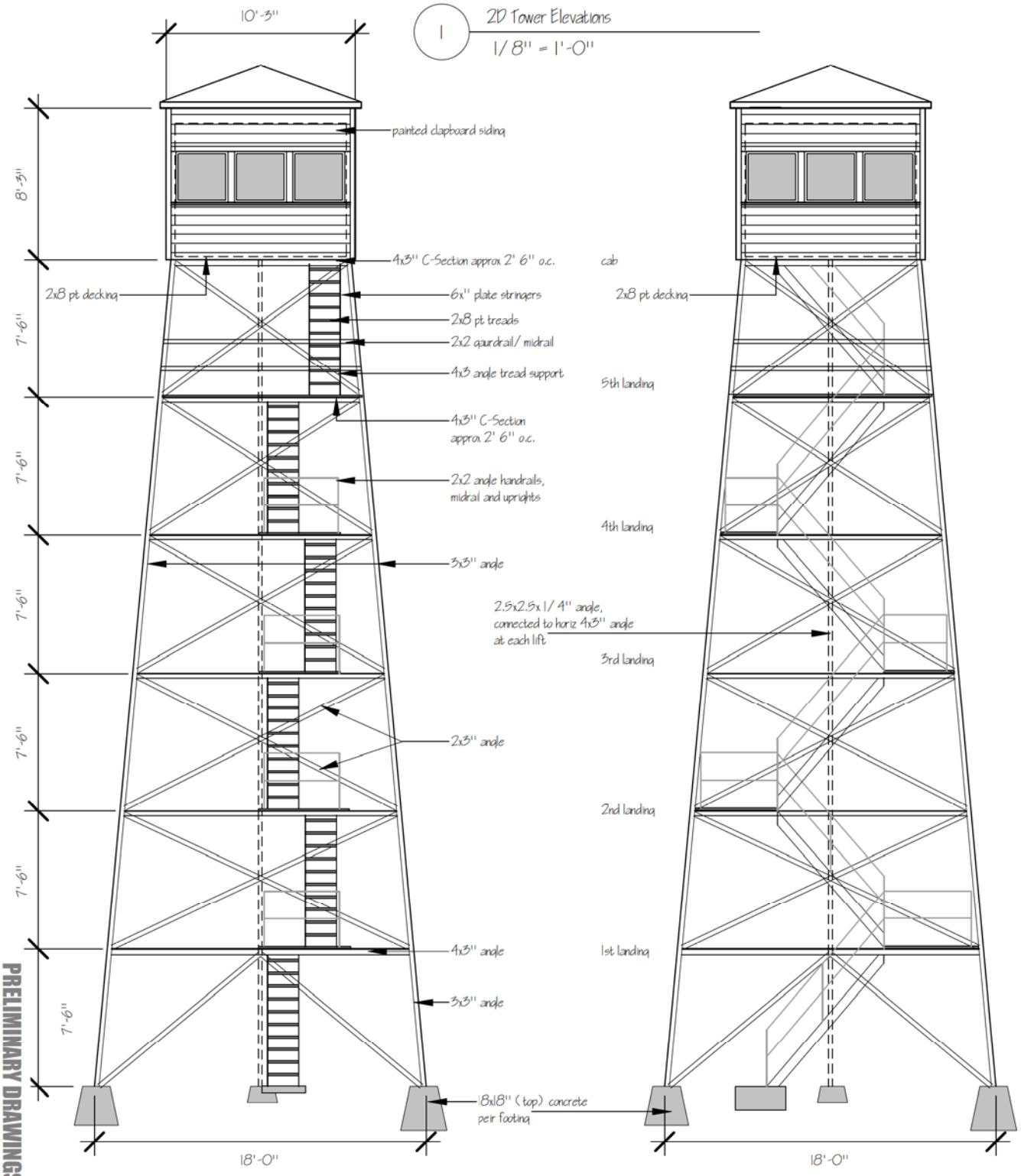

1 2D Tower Elevations

1/ 8" = 1'-0"

PRELIMINARY DRAWINGS

NOT FOR CONSTRUCTION

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PROJECT NAME & ADDRESS:

NH STATE FIRE TOWERS PHASE ONE

NH DRED

MILAN HILL

SURVEY-ELEVATIONS AX 10.1

04-30-14

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EXISTING CONDITION PHOTOGRAPHS

MILAN HILL (Milan)

date: 15th November, 2013 - *weather conditions: mostly sunny*, approx. 42 degrees F.

EXISTING CONDITION PHOTOGRAPHS

MILAN HILL (Milan)

date: 15th November, 2013 - *weather conditions: mostly sunny*, approx. 42 degrees F.

EXISTING CONDITION PHOTOGRAPHS **MILAN HILL** (Milan)

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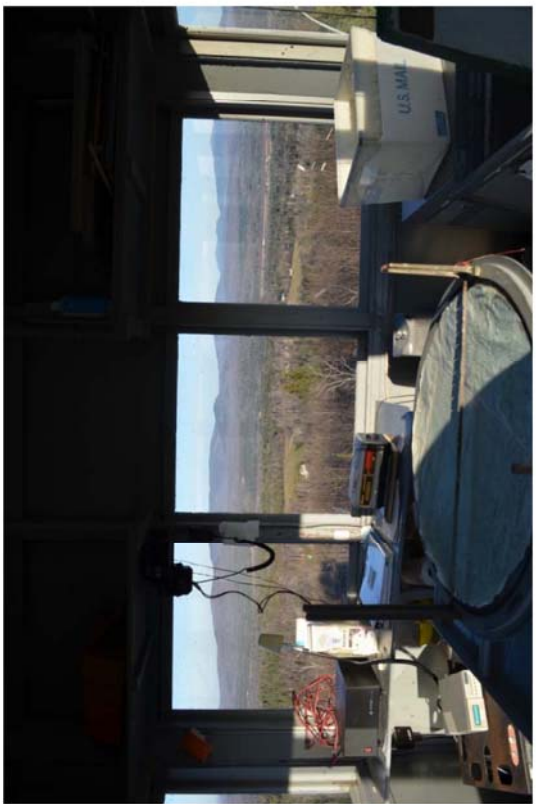
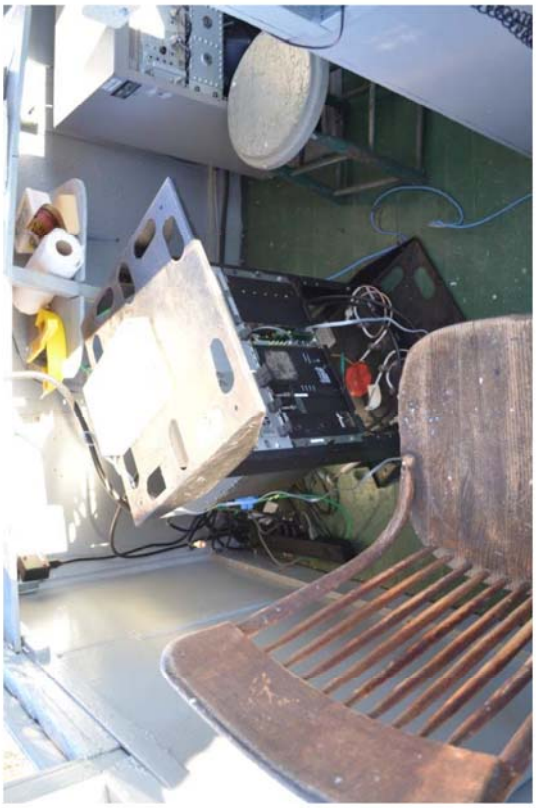




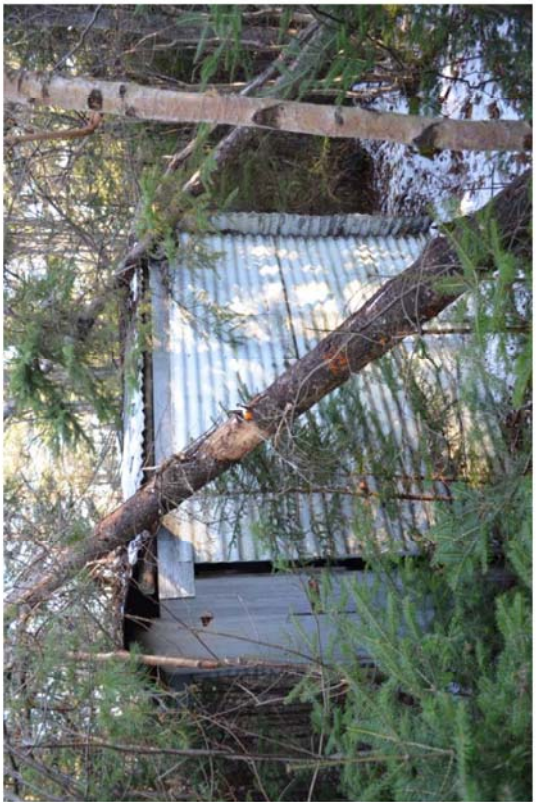
EXISTING CONDITION PHOTOGRAPHS

MILAN HILL - WATCHMAN CABIN

date: 15th November, 2013 - *weather conditions: mostly sunny*, approx. 42 degrees F.

EXISTING CONDITION PHOTOGRAPHS **MILAN HILL - STORAGE & OUTHOUSE**

date: 15th November, 2013 - *weather conditions: mostly sunny*, approx. 42 degrees F.



2.11 OAK HILL, LOUDON

The Oak Hill fire tower site consists of the tower, a garage storage building, an outhouse and an insulated shed at the base of the tower previously used in connection with the communication equipment. This building is beyond use and should be removed as soon as it is feasible.

The fire tower frame consists of painted steel angles and flat bar elements, as noted on the attached drawings. The frame members are generally in good condition though most exhibit significant areas of superficial rust. At this point, the rust poses no structural concerns, but the frame will require refinishing in the near future to insure no loss of integrity to the frame.

The six flights of the tower stairs consist of painted 22.25" long 2x8 pt treads bolted to 1.5x1.5" steel angles, which in turn are bolted to 6x3/8" plate steel stringers. Handrail/guardrail consists of 1.5x1.5" steel top bar and uprights bolted to plate stringer, with 1x3/8" flat bar mid-rail. The stair stringers show a less pronounced degree of superficial rust and do not need attention as urgently as the frame. Stair treads will at minimum require refinishing, as they are generally in sound condition, but have a limited useful life left to them. Landings / Platforms exhibit the same conditions and requirements.

Visual inspection of the tower cab suggests the framing of the cab is sound and could be retained should that prove to be an economical solution. Exterior finishes of the cab are approaching the point that they are beyond usefulness and will need attention very soon if it is the intention to retain. Windows remain operable and satisfy the most basic of functions, but will require refinishing at the minimum. Presently they are wood, single glazed upward-sliding sashes within site built frames / tracks. Wind / air tightness has ceased to be feasible with these units. Water ingress seems to be minimal. Interior wall finishes are still functional and with refinishing would be sufficient. Floor finish is a narrow oak plank flooring on the 2x8 pt decking. It shows significant wear and could benefit from refinishing, but at present is still usable. Walls are finished with vertical pine boarding and are adequate. The ceiling is a thin particle or wood board painted.

Additional items to be addressed would be limited guard around access hatch, access hatch security and operation.

The garage / storage building is built of stone and masonry footing and the structure as a whole seems stable and adequate. To retain the structure would likely need a more regular maintenance schedule as all wood finishes are showing signs of advanced wear. The structure seems to have no clear use and is of limited benefit to the site.

The outhouse is in a similar state though does seem to be utilized.

SITE OBSERVATIONS & CONDITIONS ANALYSIS — OAK HILL (Loudon)

date: 1st November, 2013 - *weather conditions: overcast* , approx. 55 degrees F.

TOWER BASE

component	*description*	*comments*	*condition*
Base	18' x 18' on 18" x 18" tapered concrete piers	spalling evident, replace/patch, re-seal	Fair
Cables	4 total 3/8" steel	little or no tension on cable	Good
Stair Base	32" x 34" concrete plinth	spalling evident, patch, clean and re-seal	Poor
Connections	12" x 12" x 1/4" base plates bolted to piers	mild surface rust, clean and re-finish	Fair

STAIRS

component	*description*	*comments*	*condition*
# of Flights	6		-
Treads	2 x 8 pt @ 21" +/-, 13 risers per flight	rise 8 1/4" +/-, recommend replacement	Poor
Stringer	1/4" x 6" steel plate	superficial rust, requires refinishing	Fair
Rail	1 1/2" x 1 1/2" angle @ 34" +/-	1/4" x 1 1/2" plate mid rail	Fair
Landings	2x pressure treated, rail @ 34" with 3 midrails	recommend replacement, slippery	Poor

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	3" x 3" x 5/16" angle vertical	significant rust evident, scrape and paint	Fair
Secondary Member	3" x 4" x 1/4" angle horizontal	significant rust evident, scrape and paint	Fair
Cross Bracing	3" x 2" x 1/4" angle	significant rust evident, scrape and paint	Fair
Node Type	bolted plate	significant rust evident, scrape and paint	Fair
Platform Members	2" x 3" angle section & 1 1/2" x 4" channel section	significant rust evident, scrape and paint	Fair

CAB

component	*description*	*comments*	*condition*
Approx. Dimensions	10' x 10'	-	-
Exterior Siding	1x wood clapboard, painted	peeling, recommend replacement	Poor
Exterior Sub-Deck	2 x wood planks with 3/4" plywood deck	some deterioration from weather	Fair
Exterior Trim	no corner board, woven	peeling, recommend replacement	Poor
Roof	*undetermined*		
Interior Walls	vertical wood board, stained	water damage evident	Fair
Interior Floor	wood strip, stained	minor wear	Fair
Interior Ceiling	wood panel, painted	some warping evident	Fair
Interior Trim	1 x wood flat stock, painted		Good
Window Operation	vertical slider, approx 34" x 33"	generally operational	Poor
Window Frame	wood, painted		Fair
Window Glazing	single	6 lite	Fair
Window Trim	1 x flat stock, painted		Good
Power Supply	mains power	electrical panel below window sill	Fair
Heat	portable electric		-

ACCESS HATCH

component	*description*	*comments*	*condition*
Location	27 1/2" x 49" hatch in cab floor		Fair
Operation	hinged to long edge, up swinging		Fair
Safety Rail	pipe rail @ 34"	no mid rail	Poor
Security	basic padlock		Good

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees	communication tower in line of sight	Fair
Cab Storage	upper shelving and attic	adequate	Good

SITE OBSERVATIONS & CONDITIONS ANALYSIS — OAK HILL (Loudon)

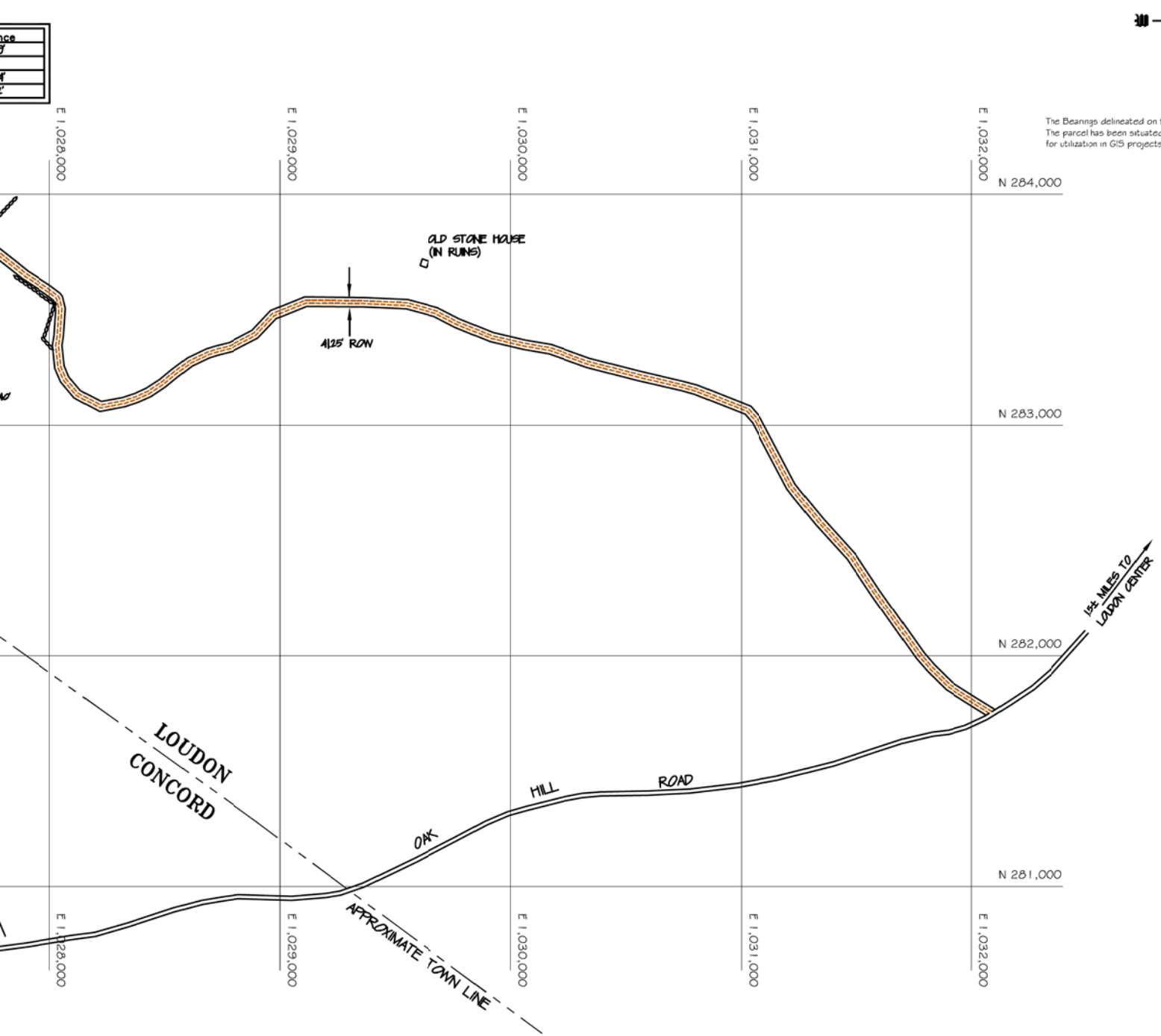
date: 1st November, 2013 - *weather conditions: overcast* , approx. 55 degrees F.

ANCILLARY BUILDING ONE — Garage / Storage

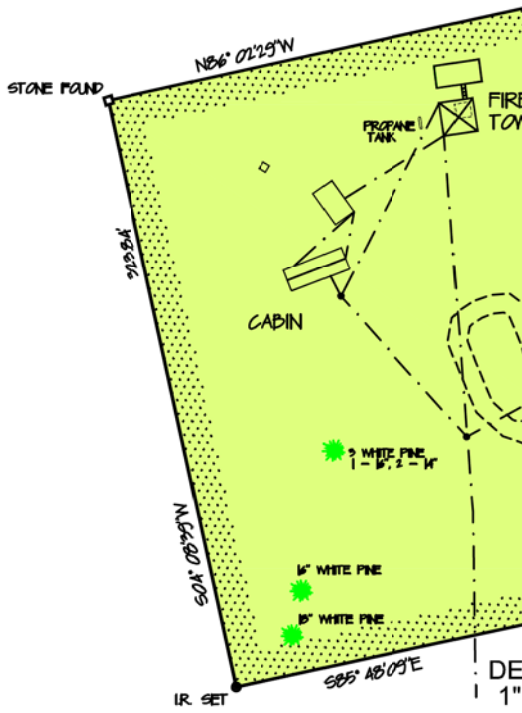
component	*description*	*comments*	*condition*
Function	storage	limited use	Fair
Approximate Footprint		1 room	-
Foundation	natural stone rubble	evidence of distress	Poor
Structure	wood framing		Fair
Exterior Walls	wood shingle, painted	peeling evident, scrape and re-finish	Fair
Windows	wood double hung, 6 over 6 single pane	boarded over	Fair
Roof	asphalt shingle	lichen growth	Poor
Interior Walls	*undetermined*	*no access to interior*	-
Interior Floor	*undetermined*	*no access to interior*	-
Interior Ceiling	*undetermined*	*no access to interior*	-

ANCILLARY BUILDING TWO — Outhouse

component	*description*	*comments*	*condition*
Function	outhouse	functional undetermined	Poor
Approximate Footprint		1 room	-
Foundation	none visible	-	-
Structure	wood framing		Fair
Exterior Walls	wood vertical board & batten	peeling evident, scrape and re-finish	Fair
Windows	none	-	-
Roof	rolled roofing	deteriorated	Poor
Interior Walls	*undetermined*	*no access to interior*	-
Interior Floor	*undetermined*	*no access to interior*	-
Interior Ceiling	*undetermined*	*no access to interior*	-



The Bearings delineated on this plan are based on a Magnetic Orientation.
The parcel has been situated on the NH State Plane Coordinate System (NAD 83)
for utilization in GIS projects and placement should be considered general.



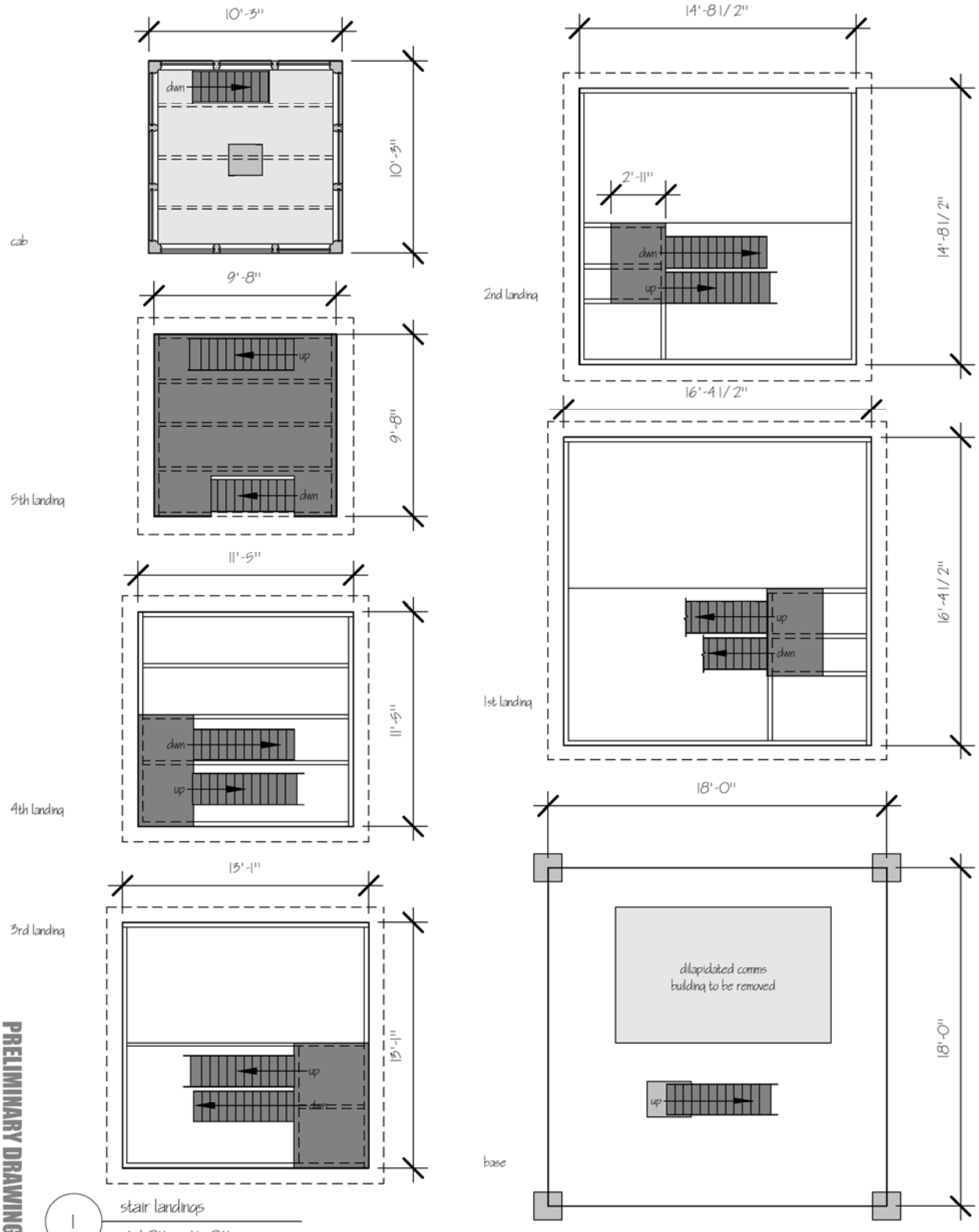
NOTE:

1. SOME DETAIL SHOWN ON THIS PLAN IS FROM GPS OBSERVATIONS USING A TRIMBLE GEO-EXPLORER MAPPING UNIT HAVING AN ACCURACY OF 3 TO 5 METERS AFTER CORRECTION.
2. THE 2± ACRE PARCEL SHOWN IN DETAIL A WAS SURVEYED BY DRED JULY 1986 USING A TOPCON GTS12D EDM.
3. SEE PROPERTY MAP OF OAK HILL FIRE TOWER DRAWN BY P.M. HODGKINS 2/5/64.
4. FOR THE STATES SOURCE OF TITLE SEE BOOK 458

LEGEND

TOWER

5/26/10



1 stair landings

1/8" = 1'-0"

PRELIMINARY DRAWINGS

NOT FOR CONSTRUCTION

DRAWINGS ARE SUBJECT TO CHANGE, ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER

PROJECT NAME & ADDRESS:

NH STATE FIRE TOWERS PHASE ONE

NH DRED

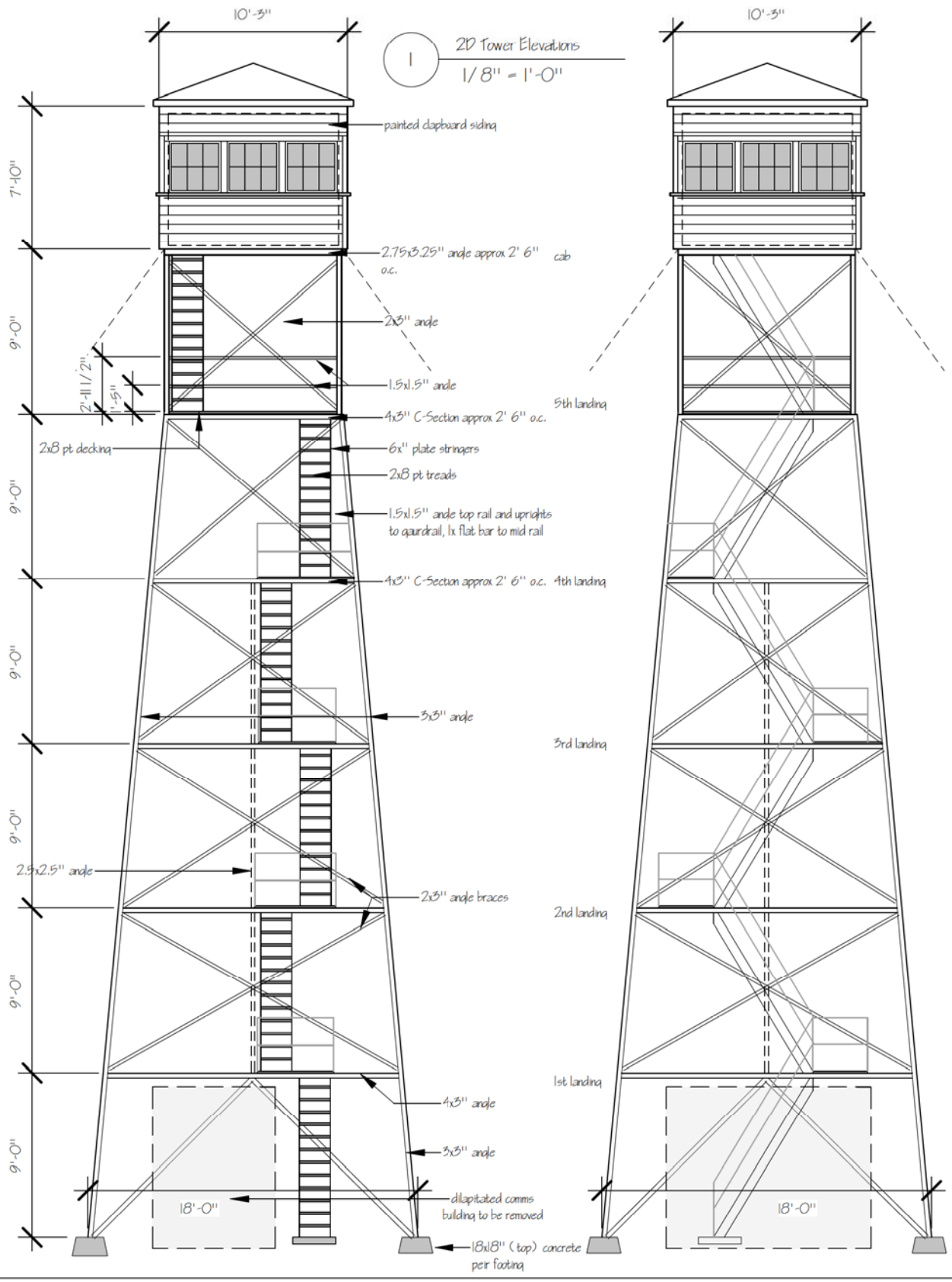
OAK HILL

SURVEY-LANDINGS AX 11.0

04-30-14

GENERAL NOTES:

alba architects llp . stuart j anderson & philip m bennett . po box 186 . 137 main street . north woodstock . nh . 03262 . **(603) 745-4770** . albaarchitects.com



1 2D Tower Elevations
1/8" = 1'-0"

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PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
OAK HILL
SURVEY-ELEVATIONS AX 11.1

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EXISTING CONDITION PHOTOGRAPHS

OAK HILL (Loudon)

date: 1st November, 2013 - *weather conditions: overcast*, approx. 55 degrees F.

EXISTING CONDITION PHOTOGRAPHS

OAK HILL (Loudon)

date: 1st November, 2013 - *weather conditions: overcast*, approx. 55 degrees F.

EXISTING CONDITION PHOTOGRAPHS

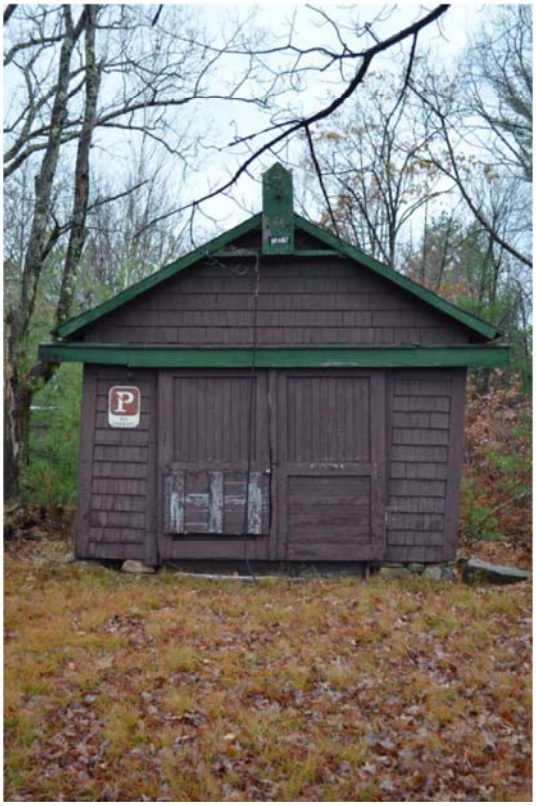
OAK HILL (Loudon)

date: 1st November, 2013 - *weather conditions: overcast*, approx. 55 degrees F.

EXISTING CONDITION PHOTOGRAPHS

OAK HILL - GARAGE / STORAGE

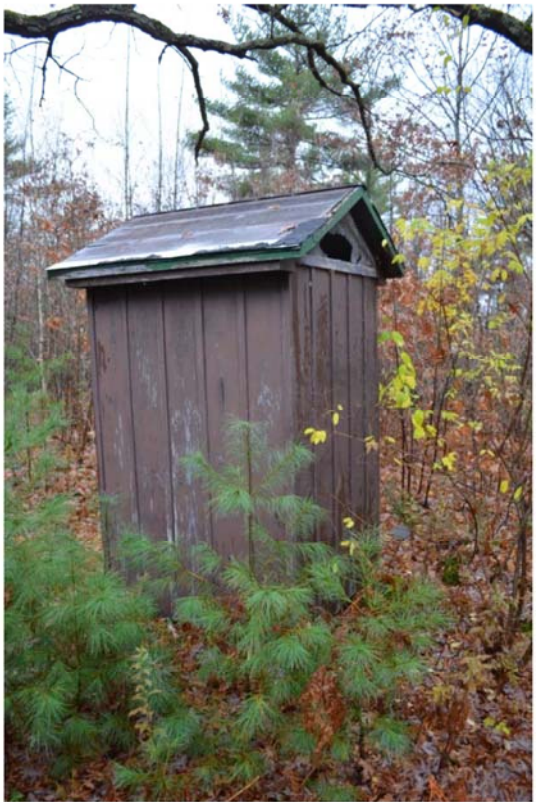
date: 1st November, 2013 - *weather conditions: overcast*, approx. 55 degrees F.



EXISTING CONDITION PHOTOGRAPHS

OAK HILL - OUTHOUSE

date: 1st November, 2013 - *weather conditions: overcast*, approx. 55 degrees F.



EXISTING CONDITION PHOTOGRAPHS

OAK HILL - ADJACENT STRUCTURES

date: 1st November, 2013 - *weather conditions: overcast*, approx. 55 degrees F.

2.12 PACK MONADNOCK, PETERBOROUGH

Pack Monadnock fire tower site consists of the fire tower only, located on Miller State Park land.

The fire tower frame consists of painted steel angles and flat bar elements, as noted on the attached drawings. The frame members are generally in good condition with less rust noted then on most towers. Repainting of this frame is not immediately necessary, but will benefit from regular inspection and a regular maintenance schedule.

The stairs consist of three flights truss-stringers built with 2x2" steel angles running parallel with the flights, 2x2" steel angle tread support / truss diagonal and 1.5x1.5" truss verticals. Treads are 2x12 pt treads 24" long. The last flight of stairs, to the cab, is constructed with 2x12 pt stringers and 2x10 pt treads 24" long, all painted. Handrail / guardrails are constructed of 2x2 angle uprights and top bar, as well as 1x3/8" flat bar mid rail. There are also two 2x4 intermediates evenly spaced to form infill to guardrail. The steel members, as the frame, are not immediately in need of attention, nor are the wood elements. However, with the introduction of the wood elements, in guardrail and stairs, the stair structure will require more frequent inspection and maintenance then typical.

The tower cab has been recently replaced, as was Magalloway, and is finished in similar fashion and standard. The cedar clapboards and trims to the exterior are showing signs of wear, more so than Magalloway, and will need attention sooner. There seems to be some issue of moisture in the wood, as the paint appears to be deteriorating quicker than would be expected and shows signs of impending blistering, as well as deterioration of the wood. There is some suggestion that maybe moisture coming through the wall from the interior is affecting the exterior finish. Vinyl double hung / double glazed windows were utilized and require little more than regular, visual inspection. Interior has been finished with finish grade ply to walls and ceiling, with strip/battens at joints. The floor has been carpeted and presumably consists of a thin backing board over the 2x8 pt decking and carpet. Electrical wiring has been incorporated into the cab which has been fully energized, including baseboard heating.

SITE OBSERVATIONS & CONDITIONS ANALYSIS — PACK MONADNOCK (Peterborough)

date: 21st November, 2013 - *weather conditions: mostly sunny* , approx. 38 degrees F.

TOWER BASE

component	*description*	*comments*	*condition*
Base	11'-4" x 11'-4" on 16" x 16" tapered concrete piers	clean and re-seal concrete	Good
Cables	4 total 3/8" steel	little or no tension on cable	Good
Stair Base	irregular two step concrete plinth	spalling evident, patch, clean and re-seal	Poor
Connections	12" x 12" x 1/2" base plates bolted to piers	painted	Good

STAIRS

component	*description*	*comments*	*condition*
# of Flights	4		-
Treads	2 x 12 pt @ 24" +/-, 9 - 11 risers per flight, 4" nosing	rise 9" - 9 1/2" +/-, scrape and paint	Fair
Stringer	custom truss stringer	painted	Good
Rail	1 1/2" x 1 1/2" angle @ 36" +/-	(2) 2x4 mid rails, scrape and paint	Fair
Landings	2x pressure treated, rail @ 34"	scrape and paint	Fair

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	3 1/2" x 3 1/2" x 1/4" angle vertical	painted	Good
Secondary Member	2" x 2" x 1/4" angle horizontal	painted	Good
Cross Bracing	2" x 2" 1/4" angle	painted	Good
Node Type	bolted plate	painted	Good
Platform Members	6" x 2" & 3" x 3" channel, 6" x 3" I section	painted	Good

CAB

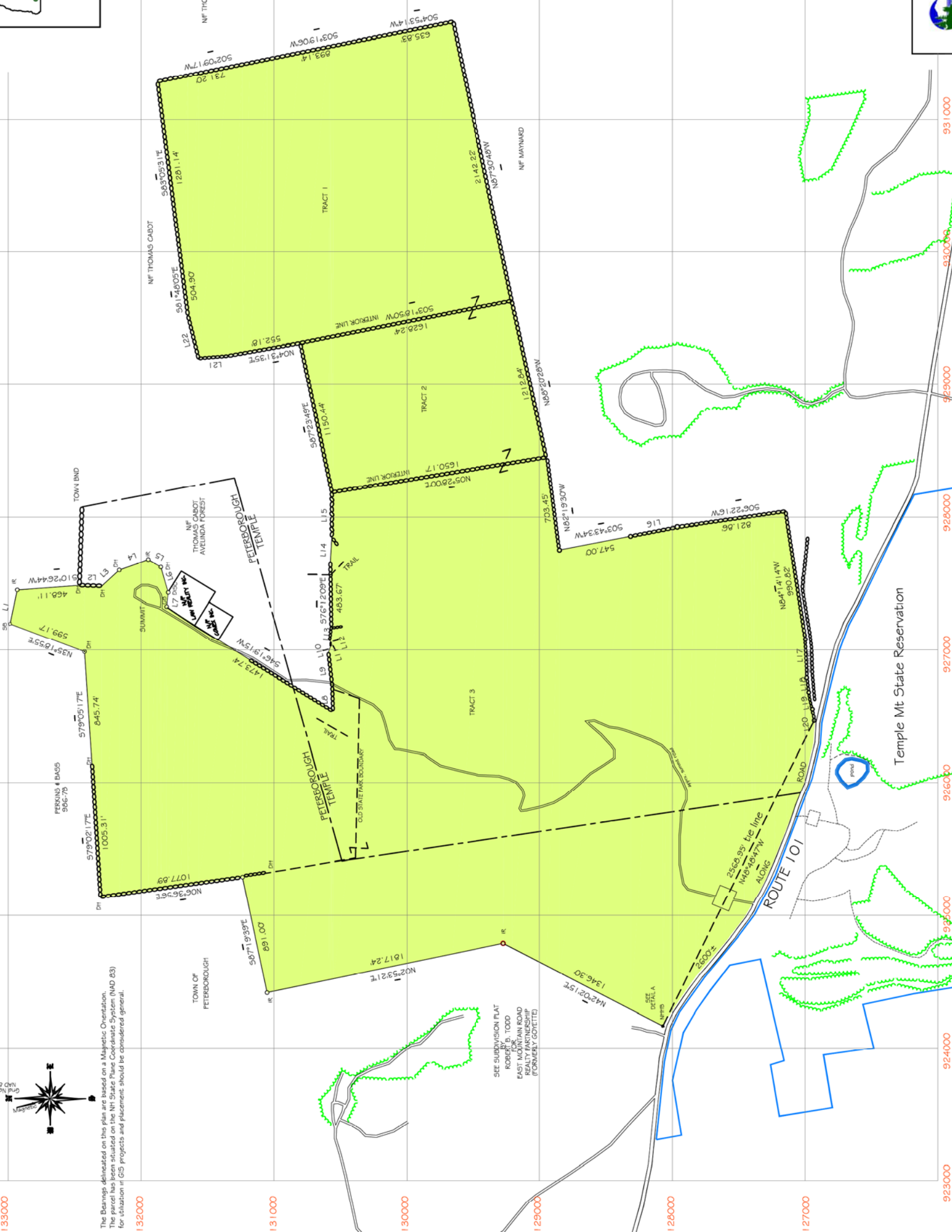
component	*description*	*comments*	*condition*
Approx. Dimensions	10'-3" x 10'-3"	-	-
Exterior Siding	1 x 4 clapboard, painted	relatively new, although finish peeling	Fair
Exterior Sub-Deck	2 x wood planks	scrape and paint	Fair
Exterior Trim	wood, painted	relatively new	Good
Roof	*undetermined*		
Interior Walls	pine plywood panels, polyurethane finish	relatively new	Good
Interior Floor	carpet	relatively new	Good
Interior Ceiling	pine plywood panels, polyurethane finish	relatively new, attic hatch	Good
Interior Trim	1 x wood flat stock, polyurethane finish	relatively new	Good
Window Operation	double hung, approx 33" x 36"	all units operational	Good
Window Frame	vinyl		Good
Window Glazing	double thermal pane		Good
Window Trim	1 x wood flat stock, polyurethane finish		Good
Power Supply	mains power	200 amp load center	Good
Heat	electric resistance baseboard		Good

ACCESS HATCH

component	*description*	*comments*	*condition*
Location	62" x 25" hatch in cab floor		Good
Operation	hinged to short edge, up swinging	spring loaded	Good
Safety Rail	none		Poor
Security	basic padlock		Good

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees		Good
Cab Storage	base & upper shelving, attic	adequate	Good



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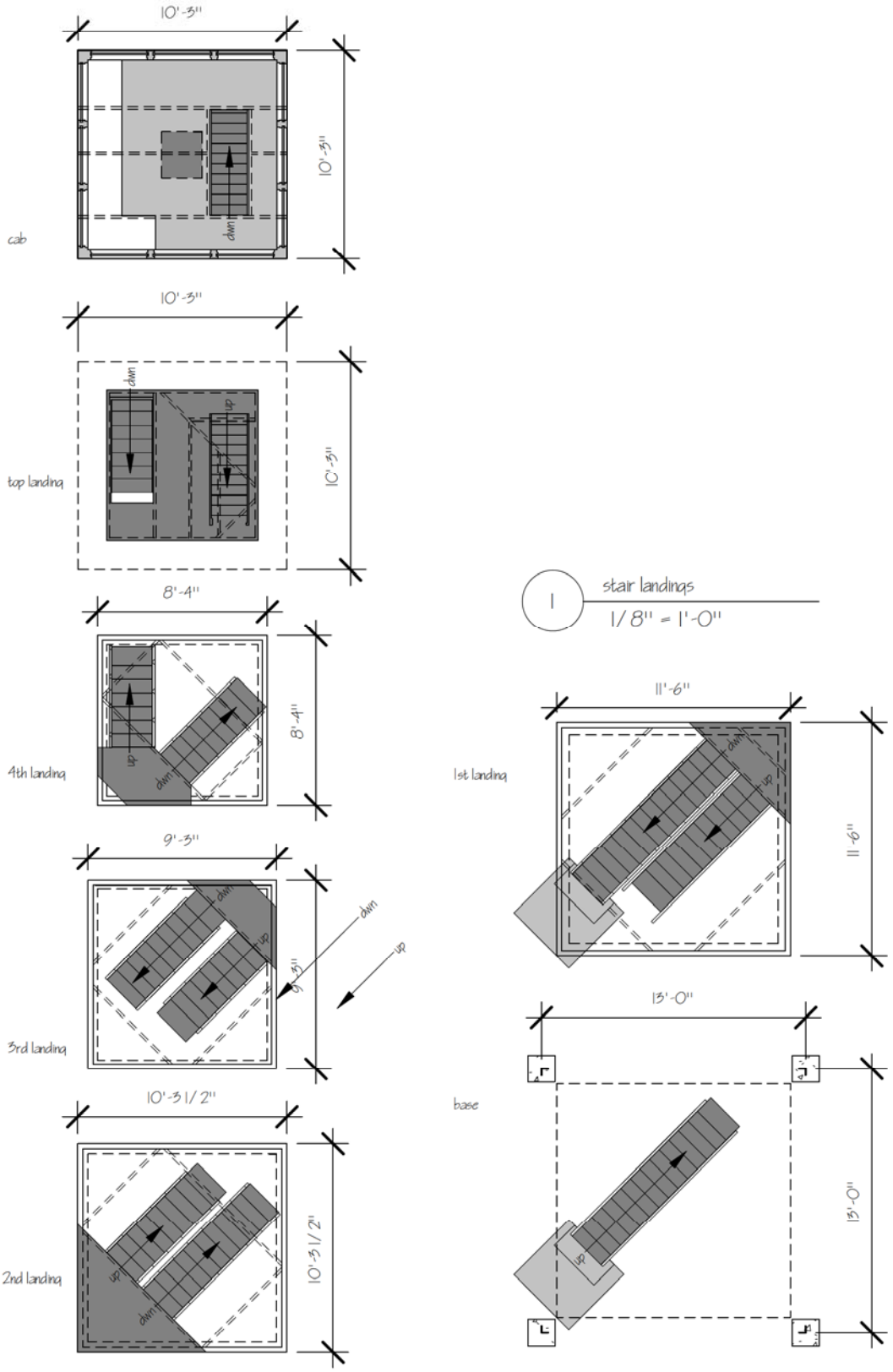

PRELIMINARY DRAWINGS
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PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
PACK MONADNOCK
SURVEY-LANDINGS AX 12.0

04-30-14

GENERAL NOTES:

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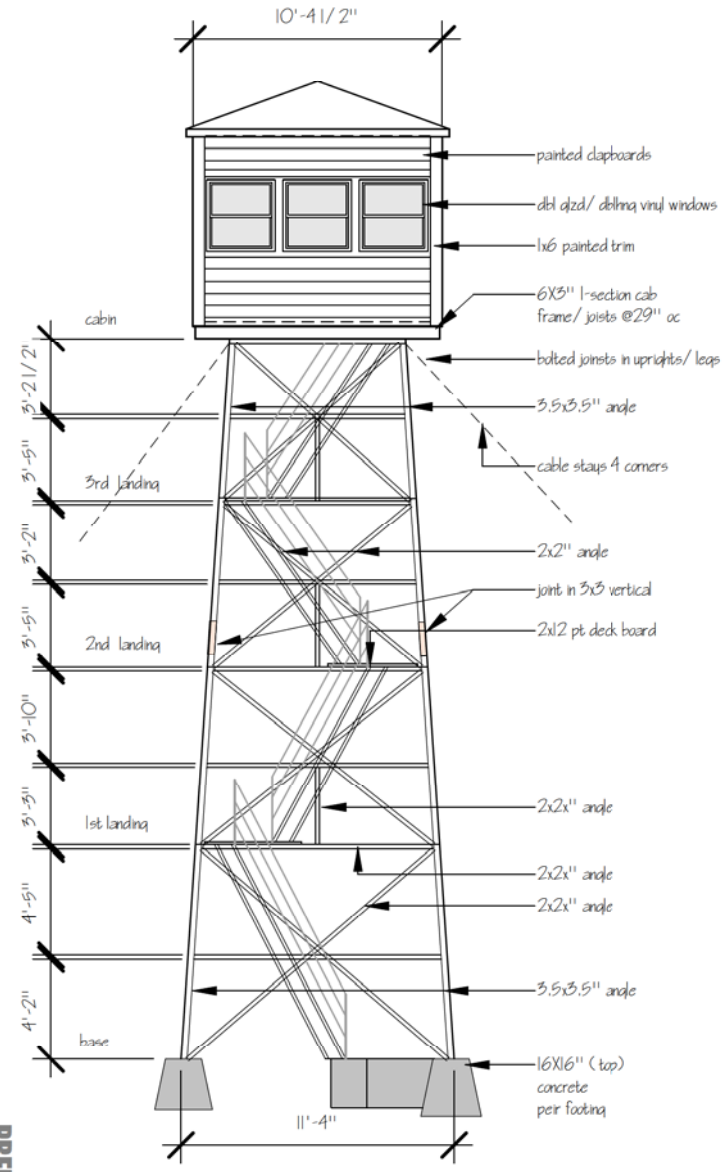

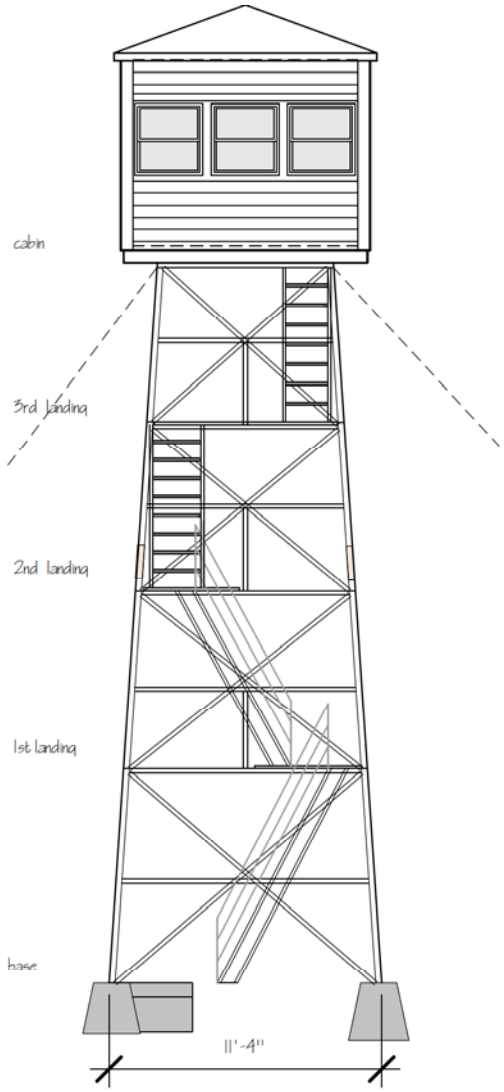

1 2D Tower Elevations
1/8" = 1'-0"

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PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
PACK MONADNOCK
SURVEY-ELEVATIONS AX 12.1

04-30-14

GENERAL NOTES:

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EXISTING CONDITION PHOTOGRAPHS

PACK MANADNOCK (Peterborough)

date: 21st November, 2013 - *weather conditions: mostly sunny*, approx. 38 degrees F.

EXISTING CONDITION PHOTOGRAPHS

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PACK MANADNOCK (Peterborough)

date: 21st November, 2013 - *weather conditions: mostly sunny*, approx. 38 degrees F.

EXISTING CONDITION PHOTOGRAPHS

PACK MANADNOCK - ADJACENT STRUCTURES

date: 21st November, 2013 - *weather conditions: mostly sunny*, approx. 38 degrees F.

2.13 PAWTUCKAWAY MTN., NOTTINGHAM

The Pawtuckaway Mountain fire tower site consists of just the tower. No other structures remain on the site.

The fire tower frame consists of painted steel angles and flat bar elements, as noted on the attached drawings. The frame members do exhibit some substantial rust and potential section loss and some may require replacement. The frame will require refinishing in the near future to insure no further loss of integrity.

The top flight of the tower stairs consist of truss-stringers built with 2x2" steel angles running parallel with the flights, 2x2" steel angle tread support / truss diagonal and 1.5x1.5" truss verticals. Treads are painted 22.25" long 2x8 pt treads bolted to the 2x2" steel angles. The lower three flights of the tower stairs consist of painted 22.25" long 2x8 pt treads bolted to 1.5x1.5" steel angles, which in turn are bolted to 6x3/8" plate steel stringers. Handrail / guardrail consists of 1.5x1.5" steel top bar and uprights bolted to stringers, with 1x3/8" flat bar mid-rail. The stair stringers show a higher degree of superficial rust and do need attention more urgently than the frame, which may include removal and replacement of some bolts and possible bearing angles. Stair treads will at minimum require refinishing, as they are generally in sound condition, but have a limited useful life left to them. Landings / Platforms exhibit the same conditions and requirements.

Visual inspection of the tower cab suggests the framing of the cab is sound and could be retained should that prove to be an economical solution. Exterior finishes of the cab are approaching the point that they are beyond usefulness and will need attention very soon if it is the intention to retain. It is unclear if the windows remain operable as they were not in place at the time of the inspection, with shutters in place instead. It is presumed they are reaching the end of their useful life as well, as they are single-glazed wood sash windows in need of significant maintenance. Interior wall finishes are still functional and with refinishing would be sufficient. Floor finish is a wooden board and the 2x8 pt decking. It is beyond reuse and will need replacement. Walls are finished with vertical pine boarding to window sill and are adequate. The ceiling is a thin particle or wood board painted.

SITE OBSERVATIONS & CONDITIONS ANALYSIS — **PAWTUCKAWAY** (Nottingham)

date: 15th January, 2014 - *weather conditions: mostly sunny* , approx. 38 degrees F.

TOWER BASE

component	*description*	*comments*	*condition*
Base	14'-10" x 14'-10" on varying tapered concrete piers	repair/replace as req'd, reseal	Poor
Cables	8 total 3/8" steel	little or no tension on cable	Good
Stair Base	34 3/4" x 18 1/2" concrete plinth	spalling evident, patch, clean & seal	Poor
Connections	12" x 12" x 1/2" base plates bolted to piers	mild surface rust, clean and re-finish	Fair

STAIRS

component	*description*	*comments*	*condition*
# of Flights	4		-
Treads	2x8 pt @ 19 3/4" +/-, 10 - 12 risers per flight	rise 8" - 9" +/-, recommend replacement	Poor
Stringer	1/4" x 6" steel plate	superficial rust, requires refinishing	Fair
Rail	1 1/2" x 1 1/2" angle @ 34" +/-	1/4" x 1 1/4" plate mid rail	Fair
Landings	2x pressure treated, rail @ 34"	recommend replacement	Poor

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	3" x 3" angle vertical	medium to heavy rust, scrape and paint	Fair
Secondary Member	3" x 3" angle horizontal	medium to heavy rust, scrape and paint	Fair
Cross Bracing	5/8" rod with turnbuckle	medium to heavy rust, scrape and paint	Fair
Node Type	bolted plate	medium to heavy rust, scrape and paint	Fair
Platform Members	1 5/8" x 4" channel section	medium to heavy rust, scrape and paint	Fair

GENERAL NOTE: some elements will require replacement due to section loss

CAB

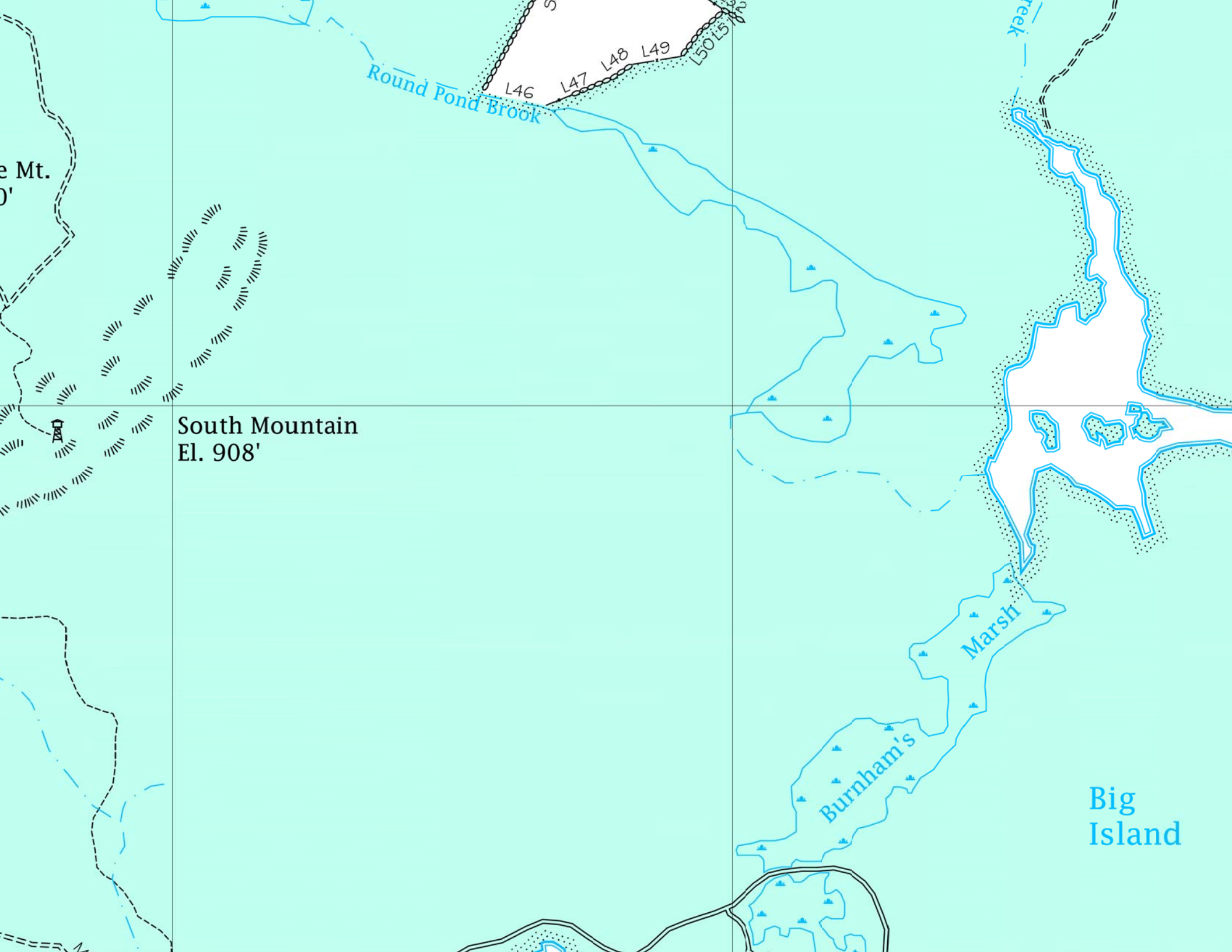
component	*description*	*comments*	*condition*
Approx. Dimensions	10' x 10'	-	-
Exterior Siding	1x wood clapboard, painted	scrape and paint	Poor
Exterior Sub-Deck	2 x wood planks	some deterioration from weather	Fair
Exterior Trim	no corner board, woven	scrape and paint	Poor
Roof	*undetermined*		
Interior Walls	vertical wood board, stained		Fair
Interior Floor	rubber mat over VCT	cracking and adhesion evident, replace	Poor
Interior Ceiling	plywood panel, painted	warping evident	Fair
Interior Trim	1 x wood flat stock, painted		Fair
Window Operation	undetermined	window removed, shutters installed	Fair
Window Frame	wood, painted		Fair
Window Glazing	single	6 lite	Fair
Window Trim	1 x flat stock, painted		Fair
Power Supply	mains power & battery	panel location undetermined	Fair
Heat	none		-

ACCESS HATCH

component	*description*	*comments*	*condition*
Location	57" x 27" hatch in cab floor		Fair
Operation	hinged to long edge, up swinging	very worn, pulley & spring	Poor
Safety Rail	pipe rail with wire infill		Fair
Security	basic padlock	difficult to latch / lock	Poor

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees		Good
Cab Storage	upper shelving and attic	adequate	Good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Marsh
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Big
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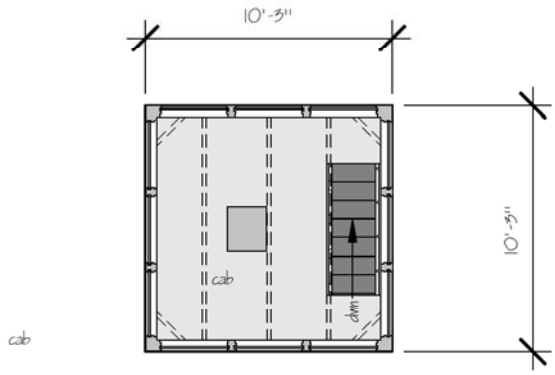
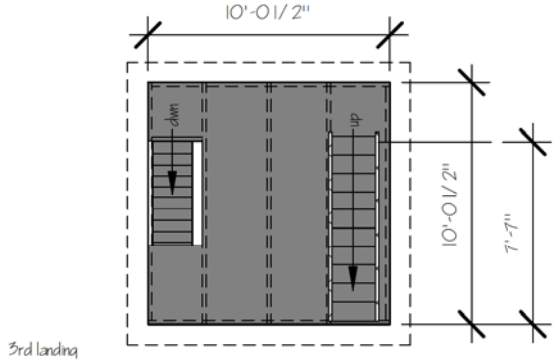
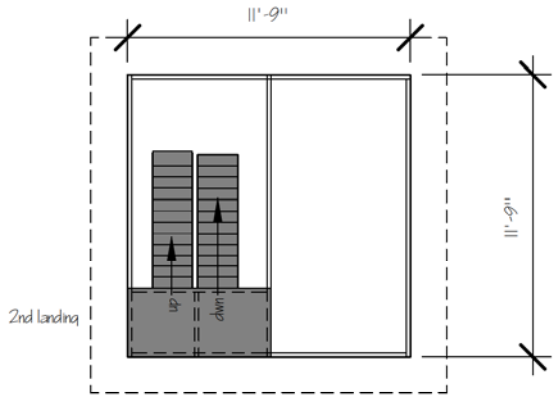
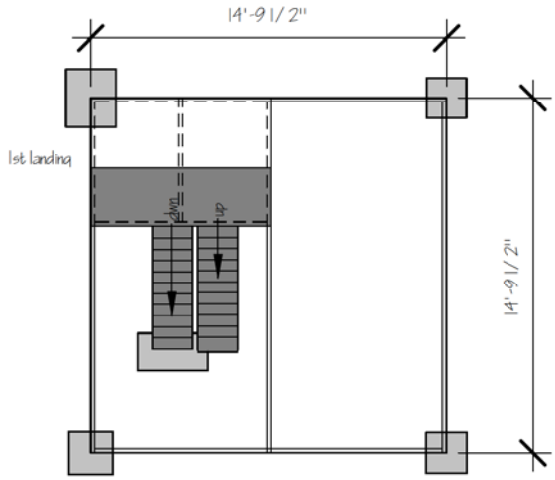
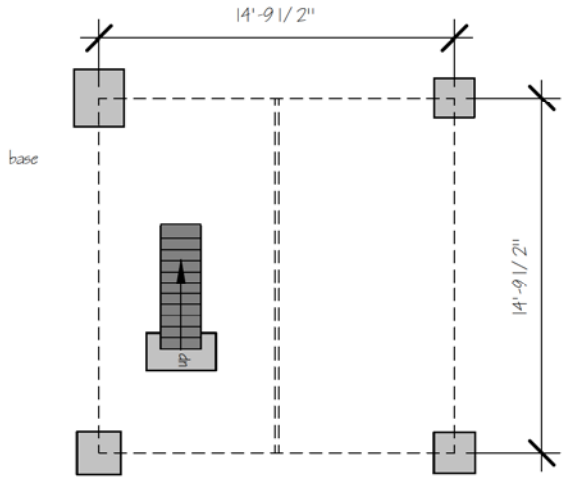










1 stair landings
1/8" = 1'-0"

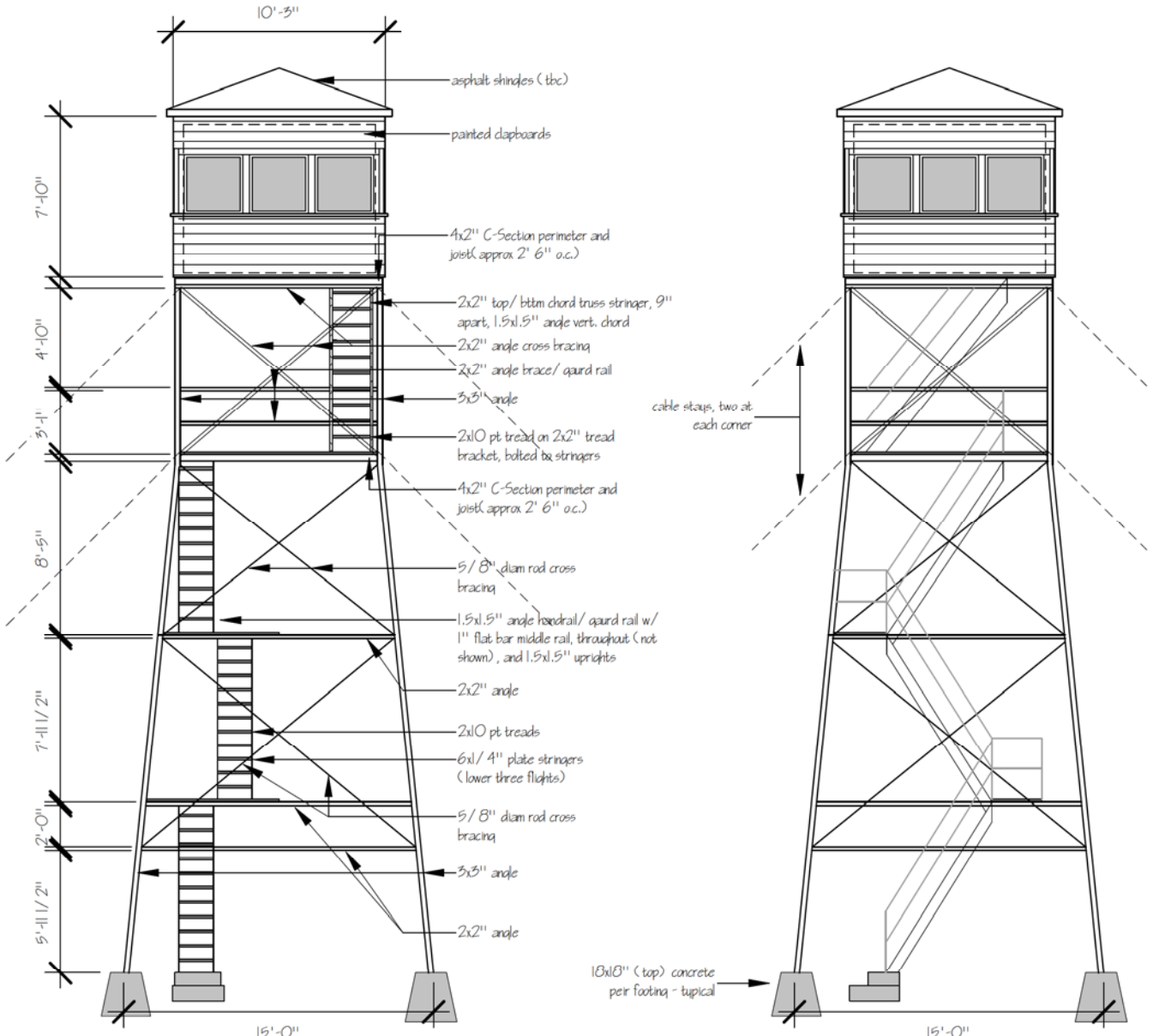
PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION
DRAWINGS ARE SUBJECT TO CHANGE. ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER

PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
PAWTUCKAWAY STATE PARK
SURVEY-LANDINGS AX 13.0

04-30-14

GENERAL NOTES

alba architects llp . stuart j anderson & philip m bennett . po box 186 . 137 main street . north woodstock . nh . 03262 . (603) 745-4770 . albaarchitects.com



1 — 2D Tower Elevations

1/ 8" = 1'-0"

PRELIMINARY DRAWINGS

NOT FOR CONSTRUCTION

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PROJECT NAME & ADDRESS:

NH STATE FIRE TOWERS PHASE ONE

NH DRED

PAWTUCKAWAY STATE PARK

SURVEY-ELEVATIONS AX 13.1

04-30-14

GENERAL NOTES:

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EXISTING CONDITION PHOTOGRAPHS **PAWTUCKAWAY** (Nottingham)

date: 15th January, 2014 - *weather conditions: mostly sunny*, approx. 38 degrees F

EXISTING CONDITION PHOTOGRAPHS **PAWTUCKAWAY** (Nottingham)

date: 15th January, 2014 - *weather conditions: mostly sunny*, approx. 38 degrees F

EXISTING CONDITION PHOTOGRAPHS

PAWTUCKAWAY (Nottingham)

date: 15th January, 2014 - *weather conditions: mostly sunny*, approx. 38 degrees F

2.14 PITCHER MTN., STODDARD

Pitcher Mtn. site consists of a fire tower, a watchman's cabin, an outhouse and a storage building.

The fire tower frame consists of painted steel angles and flat bar elements, as noted on the attached drawings. The frame members do exhibit some substantial rust and potential section loss and some may require replacement. The frame will require refinishing in the near future to insure no further loss of integrity to the frame.

The three flights of stairs consist of painted 22.25" long 2x8 pt treads bolted to 1.5x1.5" steel angles, which in turn are bolted to 6x3/8" plate steel stringers. Handrail/guardrail consists of 1.5x1.5" steel top bar and uprights bolted to plate stringer, with 1x3/8" flat bar mid-rail. Two flights of stair have been at some point moved to outside the tower footprint with a half landing on posts. Under the tower is a concrete block communications building, not included in this report.

The fire tower cab is in a particularly advanced level of wear and deterioration. All finishes are past their useful life and require replacement. Evidence from the roof hatch and space indicates residents larger than wasps and insects. Wood window frames and trims show moisture issues on the inside. Exterior finishes are similarly beyond their usefulness and indicate a relatively short life to them. The cab has utility electric power supply and seems to be functional.

Watchman's cabin is well worn but not beyond repair. The pier foundation / CMU foundation is in bad shape with settling evident, this would require replacement should the cabin be retained. Exterior wood shingle wall finishes and asphalt roof finishes are in fair condition, although little maintenance is apparent. CMU chimney had been removed from the side of the building with many of the blocks randomly lying adjacent to the structure. The single pane, double hung window sashes are in poor shape with broken glass, many of these have been boarded over. Interior finishes are fair and appear to have been recently re-painted. A woodstove still sits in the main room of the cabin, although as note earlier the exterior chimney has been removed.

An adjacent shed is probably of little value and has reached the stage that repair would likely cost as much as replacement.

The outhouse seems functional, although missing a door. This structure could be retained but raises the question of usefulness, and effective use of funds.

In general, all ancillary buildings, if retained, would require extensive refinishing and repairs.

SITE OBSERVATIONS & CONDITIONS ANALYSIS — PITCHER MOUNTAIN (Stoddard)

date: 15th January, 2014 - *weather conditions: sunny* , approx. 30 degrees F.

TOWER BASE

component	*description*	*comments*	*condition*
Base	16' x 16' on 30" x 43" concrete piers	spauling evident, clean and re-seal concrete	Good
Cables	4 total 3/8" steel (new, except 1)	little or no tension on cable	Good
Stair Base	48" x 48" concrete plinth	clean and re-seal concrete	Good
Connections	12" x 12" base plates bolted to piers	mild surface rust, clean and re-finish	Good

STAIRS

component	*description*	*comments*	*condition*
# of Flights	3		-
Treads	2x8 pressure treated @ 21", 11 - 12 risers per flight	rise 8 1/2" +/-, recommend replacement	Poor
Stringer	1/4" x 6" steel plate	superficial rust, requires refinishing	Good
Rail	1 1/2" x 1 1/2" angle @ 34" +/-	1/4" x 1 1/2" plate mid rail	Good
Landings	2x pressure treated, rail @ 34""	recommend replacement, slippery	Poor

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	3" x 3" angle vertical	medium to heavy rust, scrape and paint	Fair
Secondary Member	2 1/2" x 2 1/2" angle horizontal	medium to heavy rust, scrape and paint	Fair
Cross Bracing	2 1/2" x 2 1/2" angle	medium to heavy rust, scrape and paint	Fair
Node Type	bolted plate	medium to heavy rust, scrape and paint	Fair
Platform Members	2" x 6" C & I sections	medium to heavy rust, scrape and paint	Fair

GENERAL NOTE: some elements will require replacement due to section loss

CAB

component	*description*	*comments*	*condition*
Approx. Dimensions	10' x 10'	-	-
Exterior Siding	1 x 6 wood clapboard, painted	little finish remaining, water ingress	Poor
Exterior Sub-Deck	2 x wood planks	some deterioration from weather	Poor
Exterior Trim	1 x 5 wood cornerboard, painted	little finish remaining	Poor
Roof	rolled roofing	no longer weather tight	Poor
Interior Walls	panel, painted	warping and surface damage evident	Poor
Interior Floor	wood plank, painted	some cracking evident	Fair
Interior Ceiling	panel, painted	warping and water damage evident	Poor
Interior Trim	1 x pine flatstock, painted	scrape and re-finish	Fair
Window Operation	vertical slider, approx 32" x 32"	most units binding, difficult to operate	Poor
Window Frame	wood, painted	recommend replacement	Poor
Window Glazing	single	condensation evident	Fair
Window Trim	1 x flat stock, painted	recommend replacement	Poor
Power Supply	mains power & battery	panel location undetermined	Fair
Heat	portable electric		-

Note: antennas may require relocation from tower due to structural concerns

ACCESS HATCH

component	*description*	*comments*	*condition*
Location	5 x 2' hatch in cab floor	some lichen growth evident	Fair
Operation	hinged to long edge, up swinging		Good
Safety Rail	metal angle rail @ 30" with mid rail	height not code compliant	Fair
Security	basic padlock	concern with self locking	Fair

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees		Good
Cab Storage	some upper shelving and attic	adequate	Good

SITE OBSERVATIONS & CONDITIONS ANALYSIS — PITCHER MOUNTAIN (Stoddard)

date: 15th January, 2014 - *weather conditions: sunny* , approx. 30 degrees F.

ANCILLARY BUILDING ONE — Watchman Cabin

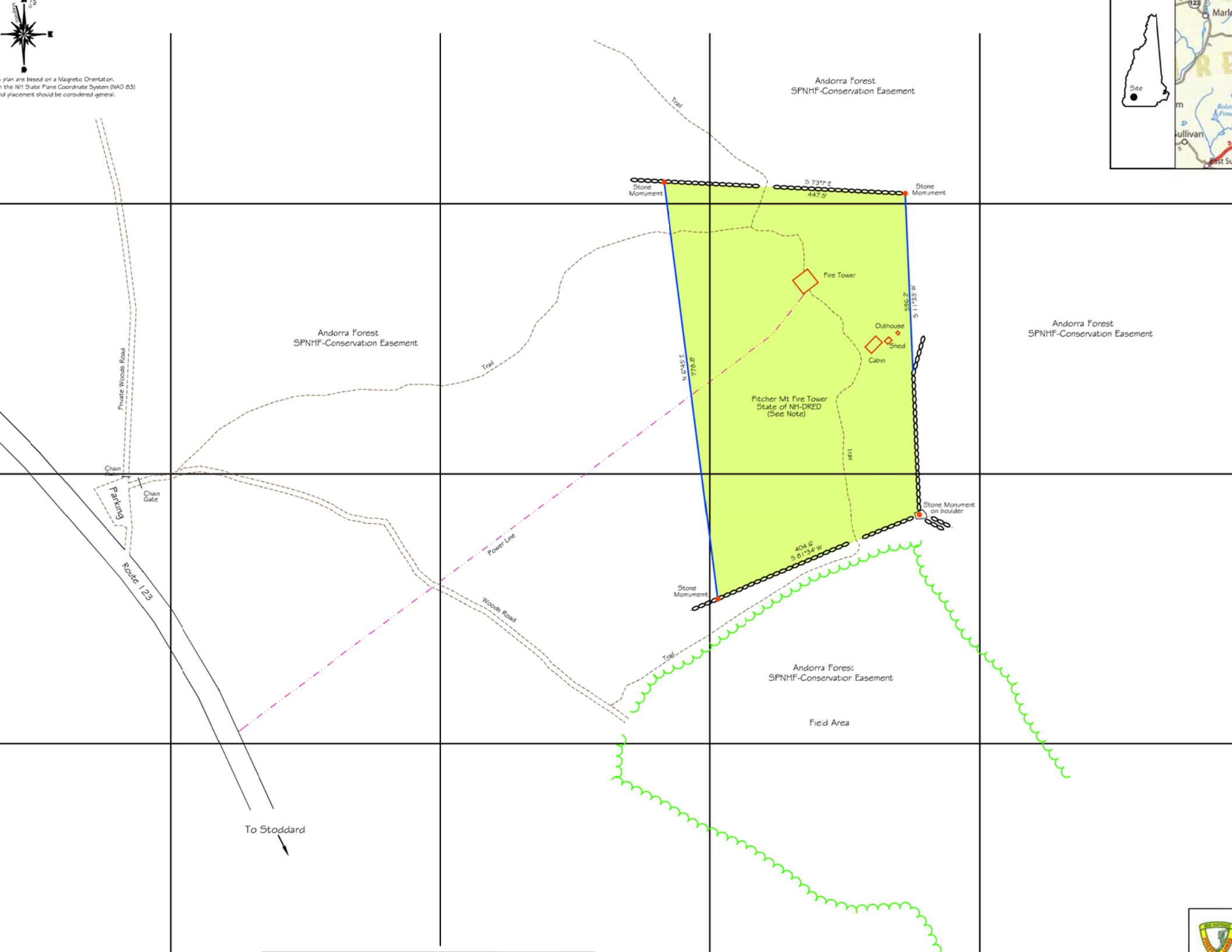
component	*description*	*comments*	*condition*
Function	watchman cabin	not in use	Fair
Approximate Footprint	12'-5" x 25'-6"	3 room (bedroom, living / kitchen, porch)	-
Foundation	tapered concrete pier / cmu block	failing in some locations	Poor
Structure	wood framing		Fair
Exterior Walls	wood shingle, painted	peeling, scrape and re-finish	Fair
Windows	wood double hung, 6 over 6 single pane	boarded over, some broken sashes	Poor
Roof	asphalt shingle	some lichen growth	Fair
Interior Walls	wood board, painted	inside face of sheathing	Fair
Interior Floor	wood plank, painted		Fair
Interior Ceiling	panelized, painted		Fair

ANCILLARY BUILDING TWO — Outhouse

component	*description*	*comments*	*condition*
Function	outhouse	not in use, vandalism evident, tipped over	Poor
Approximate Footprint	4' x 4'	no exterior door	-
Foundation	cmu block	-	Fair
Structure	wood framing		Fair
Exterior Walls	vertical board and batten	scrape and re-finish	Fair
Windows	none	-	-
Roof	rolled roofing		Fair
Interior Walls	*inside face of siding*	-	-
Interior Floor	wood board, painted	little finish intact	Fair
Interior Ceiling	*inside face of roof sheathing*	-	-

ANCILLARY BUILDING THREE — Storage / Wood Shed

component	*description*	*comments*	*condition*
Function	storage / wood shed	not in use, vandalism evident	Fair
Approximate Footprint	8' x 10'	2 room	-
Foundation	cmu block	varying height as grade changes	Fair
Structure	wood framing		Fair
Exterior Walls	vertical board and batten	scrape and re-finish	Fair
Windows	*none*	-	-
Roof	asphalt shingle	-	Fair
Interior Walls	*inside face of siding, unfinished*	-	Fair
Interior Floor	wood board	-	Fair
Interior Ceiling	*inside face of roof sheathing, unfinished*	-	Fair


plan are based on a Magnetic Orientation.
the NH State Plane Coordinate System (NAD 83)
d placement should be considered general.
Andorra Forest
SPNHF-Conservation Easement
Trail
Stone Monument
S 73°7' E
447.5'
Stone Monument
Fire Tower
S 11°33' W
595.2'
Outhouse
Shed
Cabin
Andorra Forest
SPNHF-Conservation Easement
Andorra Forest
SPNHF-Conservation Easement
Trail
N 6°45' E
776.8'
Pitcher Mt Fire Tower
State of NH-DRED
(See Note)
Trail
Private Woods Road
Chain Gate
Chain Gate
Parking
Route 123
Power Line
Stone Monument on Boulder
404.6'
S 81°34' W
Stone Monument
Woods Road
Trail
Andorra Forest
SPNHF-Conservation Easement
Field Area
To Stoddard
Site
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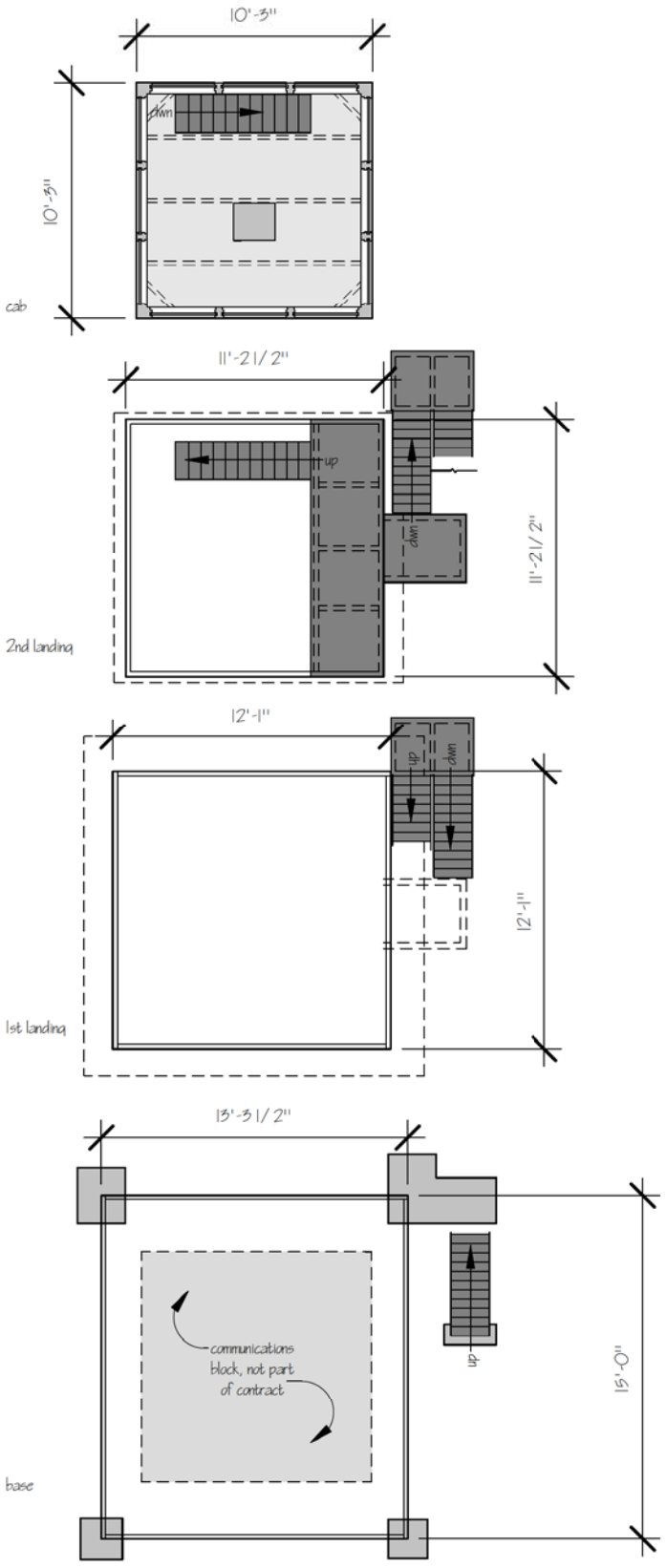

PRELIMINARY DRAWINGS
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1 stair landings
1/8" = 1'-0"

PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
PITCHER MOUNTAIN
SURVEY-LANDINGS AX 14.0

04-30-14

GENERAL NOTES:

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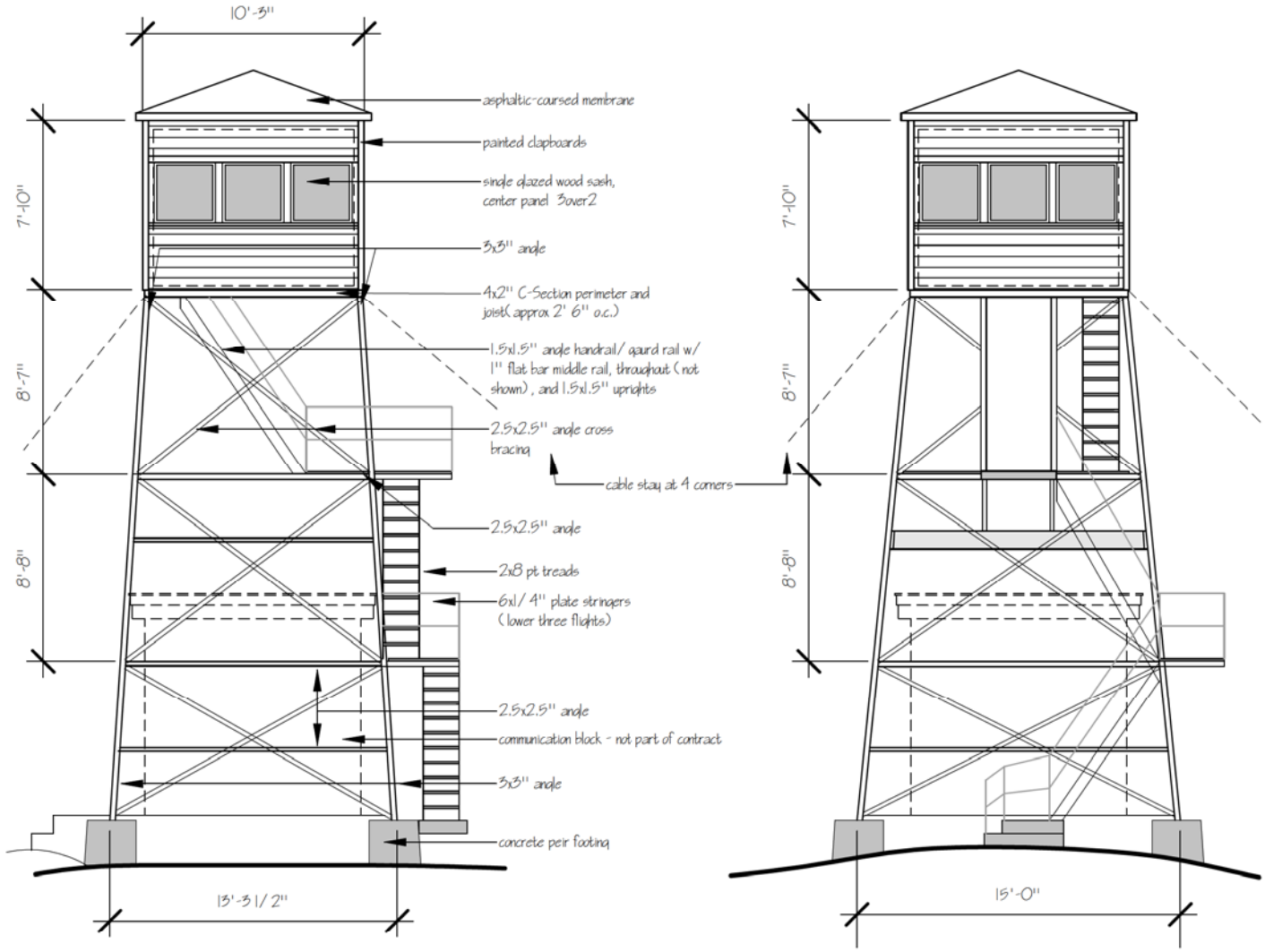

1 2D Tower Elevations
1/ 8" = 1'-0"

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PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
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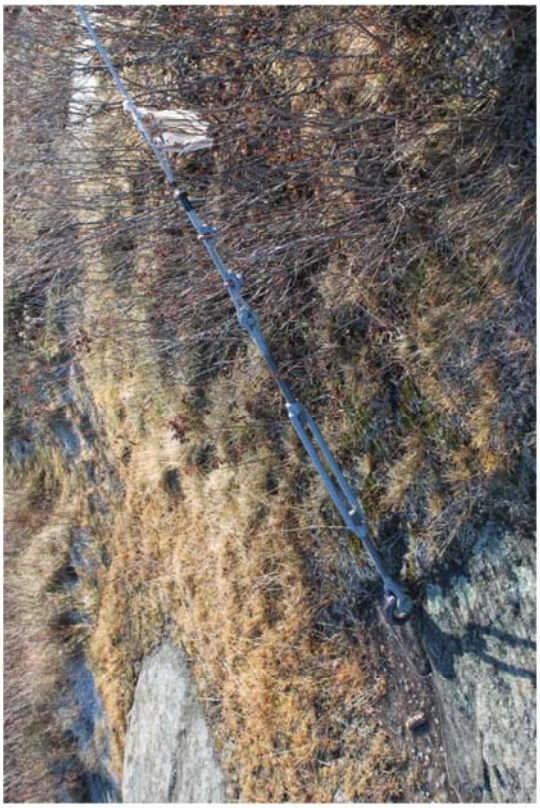
EXISTING CONDITION PHOTOGRAPHS **PITCHER MOUNTAIN** (Stoddard)

date: 15th January, 2014 - *weather conditions: sunny*, approx. 30 degrees F.

EXISTING CONDITION PHOTOGRAPHS **PITCHER MOUNTAIN** (Stoddard)

date: 15th January, 2014 - *weather conditions: sunny*, approx. 30 degrees F.



EXISTING CONDITION PHOTOGRAPHS **PITCHER MOUNTAIN** (Stoddard)

date: 15th January, 2014 - *weather conditions: sunny*, approx. 30 degrees F.

EXISTING CONDITION PHOTOGRAPHS

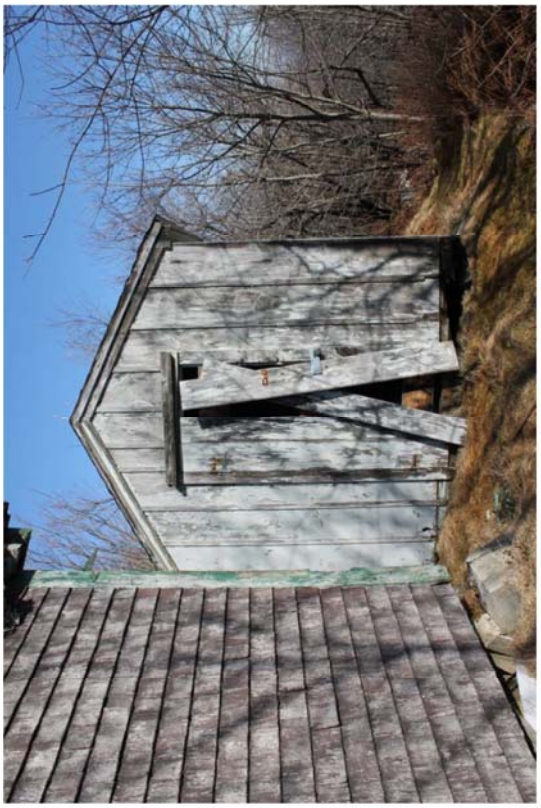
PITCHER MOUNTAIN - WATCHMAN CABIN

date: 15th January, 2014 - *weather conditions: sunny*, approx. 30 degrees F.

EXISTING CONDITION PHOTOGRAPHS

PITCHER MOUNTAIN - OUTHOUSE & STORAGE

date: 15th January, 2014 - *weather conditions: sunny*, approx. 30 degrees F.



EXISTING CONDITION PHOTOGRAPHS

PITCHER MOUNTAIN - ADJACENT STRUCTURES

date: 15th January, 2014 - *weather conditions: sunny*, approx. 30 degrees F.

2.15 PROSPECT MOUNTAIN, LANCASTER

The tower is located within the Weeks State Park and has a rangers cabin and other facilities that will not be addressed in this report.

The Prospect Mountain fire tower is unique among NH fire towers, being the only one entirely built of stone, with the exception of the top half of the cab, which is wood framed, and the stair structure, which is steel framed.

The circular stone structure at its base is 6'0" interior radius and 8'8" exterior radius. The tower tapers into about a 5'6" interior radius at 34' above grade, before splaying back out to a 6' 0" interior radius for the lower observation deck and cab above. The stonework shows significant signs of cracking and will require continued observation, maintenance and repair.

The stair structure within is a series of steel angle post with beams between and buried into the stone. The stringers for the seven flights up to the lower observation deck are comprised of steel channels with plate steel treads welded between, the seventh flight consisting of 10 treads, 3 of which are winders at the top. All the steel elements of the stair are showing significant signs of rust and need repainting very soon, some will require replacement due to heavy section loss. The stair between the top two levels is a 2x12 pt framed stair which appears to be relatively recent.

The lower observation deck is cast-in place concrete slab with steel tube sections at the stair opening and a 10" wide cast down-stand beam near the middle of the floor. The upper deck/cab floor is a wood framed deck with wood finish to top and bottom. The joists are built into the stone wall and appear to be rotting through, with the deck sitting on temporary 4x4 posts between the concrete deck and wood deck above. The deck of the cab will likely need removal and replacement to create a more permanent solution to supporting the floor.

There is a wood framed stair between lower observation deck and cab, with 2x12 treads, which has replaced a steel ladder still attached to the wall of the tower, and leading to a disused hatch.

The stone wall continues to sill level of the cab, with timber post forming an octagon structure above, and supporting the roof. Between the posts are double/mulled units of wood single-glazed double-hung windows. The windows are badly in need of maintenance and at least one sash has rotted through and needs replacement. There are eight mulled units in total, and four smaller units within the lower tower, most of which have been covered over with plywood, presumably due to vandalism and disrepair.

The roof sheathing will likely also require replacement as signs of water ingress and rot are present. The roof structure may only require selective replacement, but at this point it is hard to say if there is any advantage to retaining any of the existing roof.

Roof finish will need replacement. Exterior viewing of the roof plane was not feasible at the time of viewing and the material used for the roof finish is not known. Asphalt shingles is presumed, but not confirmed.

SITE OBSERVATIONS & CONDITIONS ANALYSIS — PROPSPECT MTN. (Lancaster)

date: 17th April, 2014 - *weather conditions: mostly sunny* , approx. 40 degrees F.

TOWER BASE

component	*description*	*comments*	*condition*
Base	fieldstone structure, 8'-8" (6' int) radius at base	tower tapers to lower observation	fair
Upper structure	fieldstone structure, 5'-6" int radius @ 34'	tower step out back to 6'-0" int. above 34'	fair
Stair Base	concrete floor of tower base	spalling evident, patch, clean & seal	fair
Masonry Structure	grade to cab window sill-fieldstone structure	cracking needs repointing regularly	fair

STAIRS

component	*description*	*comments*	*condition*
# of Flights	8	7 steel channel stringer/ 1 wood structure	-
Treads	steel plate treads, 9 1/2" deep w/ 1" overlap	rise 8" - 9" +/-	fair
Stringer	1 1/2"x10" channel stringers	exhibits extensive rust, some replace req'd	varies
Rail	top and mid rail- 1.75" diam. Pipe rails	not code compliant	Fair
Landings	steel plate surface on steel structure	scrape and repaint steel stair structure	fair

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	masonry structure	repointing/continued observation	fair
Secondary Member	wood framed wall and roof to cab		poor
Cross Bracing	na		
Node Type	na		
Temporary bracing	4x4 pt post to support failing top level floor structure	new floor structure likely required	poor

CAB

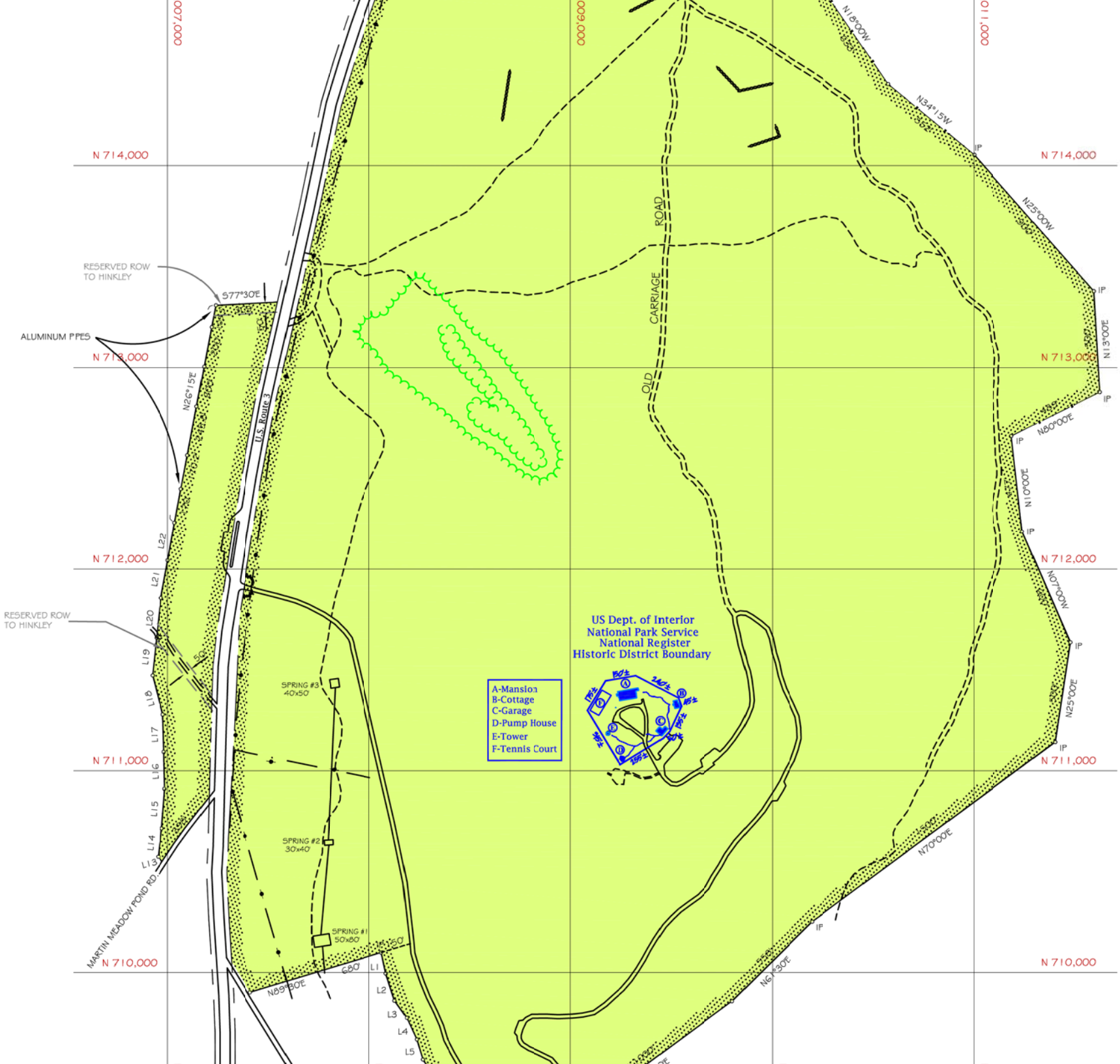
component	*description*	*comments*	*condition*
Approx. Dimensions	6'-4" int. radius to sill, 7'-0" radius octagon above	-	-
Exterior Siding	1x wood clapboard, painted	scrape and paint	Poor
Exterior Sub-Deck	2 x wood planks	some deterioration from weather	Fair
Exterior Trim	no corner board, woven	scrape and paint	Poor
Roof	asphalt shingles	finish and structure likely require replace	poor
Interior Walls	vertical wood board, painted		Fair
Interior Floor	wood	cracking and adhesion evident, replace	Poor
Interior Ceiling	wood, painted		Fair
Interior Trim	1 x wood flat stock, painted		Fair
Window Operation	double-hung		Fair
Window Frame	wood, painted	some rot, recommend all replaced	poor
Window Glazing	single	6 lite	Fair
Window Trim	1 x flat stock, painted		Fair
Power Supply	utility power	panel location undetermined	Fair
Heat	none		-

ACCESS HATCH

component	*description*	*comments*	*condition*
Location	24"x72"" hatch in cab floor		Fair
Operation	hinged to long edge, up swinging	very worn, pulley & spring	Poor
Safety Rail	no saftey railing	needs proper safety structure	poor
Security	basic padlock at hatch, lock at main door		

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees		Good
Cab Storage	none	undetermined, usage to be confirmed	



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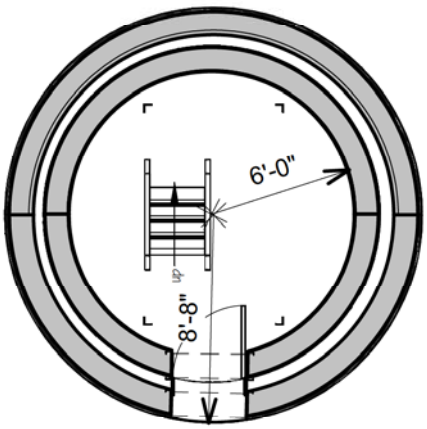
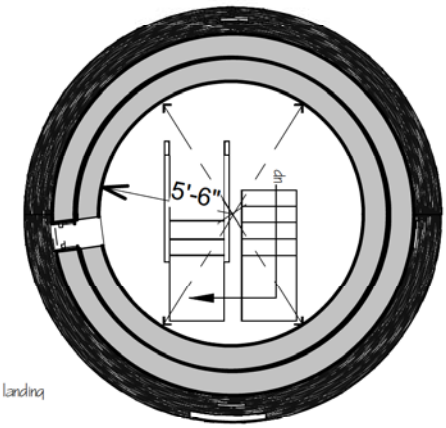
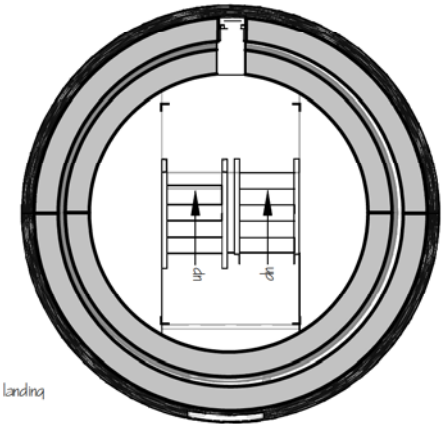


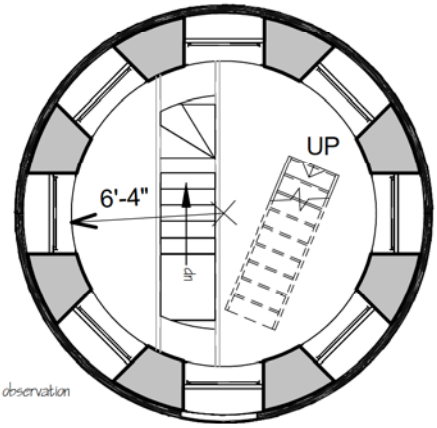
base



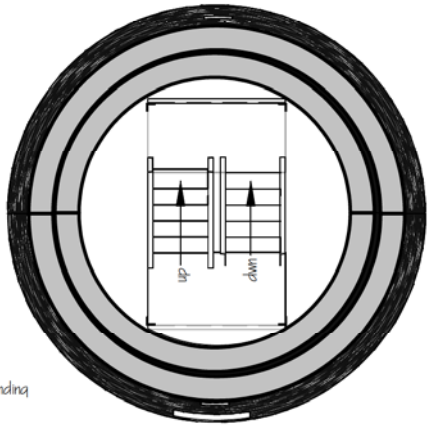
7th landing



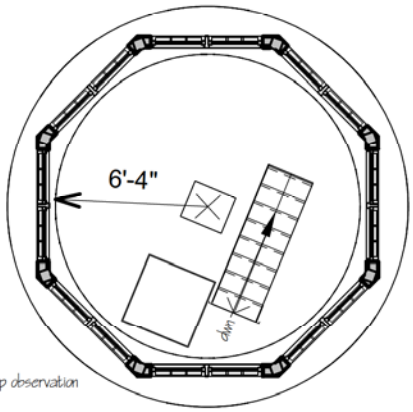
2nd landing



lower observation



4th landing



cab/ top observation

PRELIMINARY DRAWINGS
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PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
CROYDON MOUNTAIN
SURVEY-LANDINGS AX 15.0

04-30-14

GENERAL NOTES:

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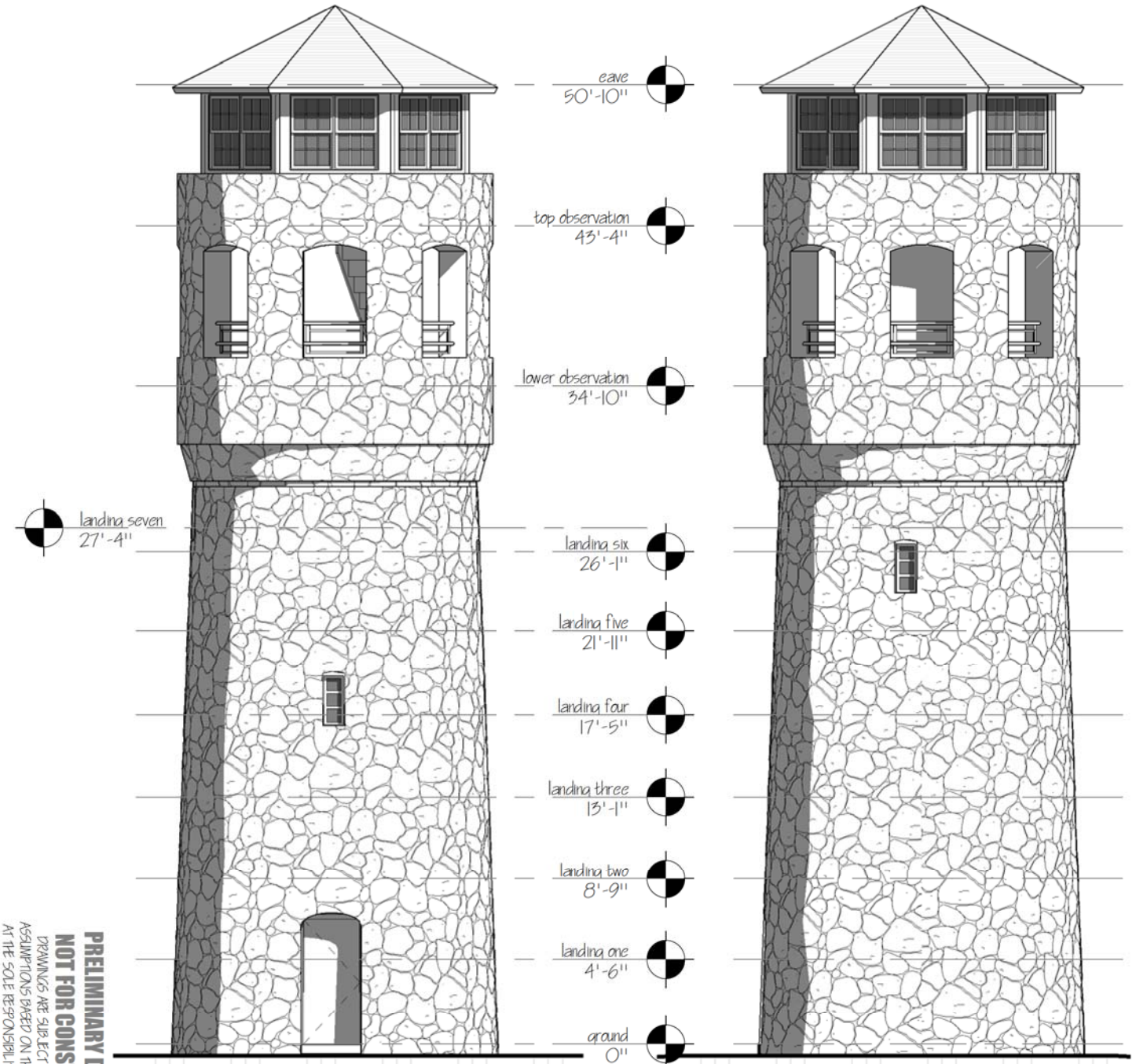

1 Elevation 1 - a
1/8" = 1'-0"

2 Elevation 2 - a
1/8" = 1'-0"

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PROJECT NAME & ADDRESS:
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CROYDON MOUNTAIN
SURVEY-ELEVATIONS AX 15.1

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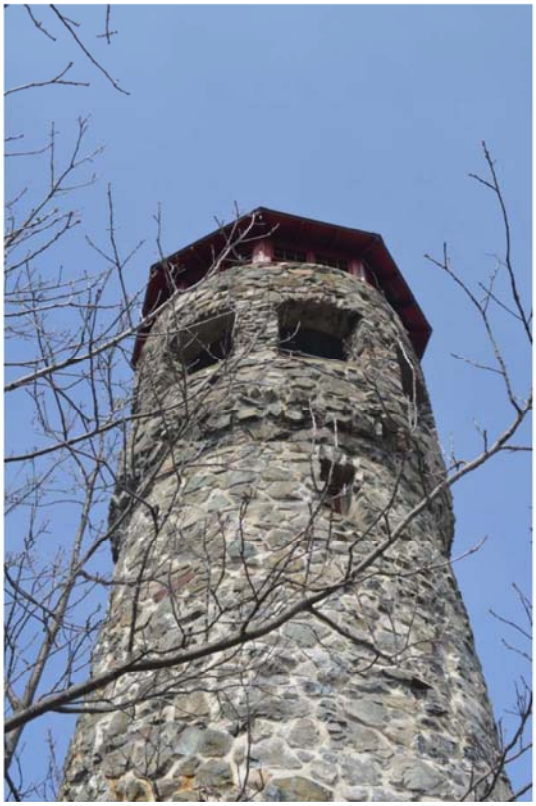
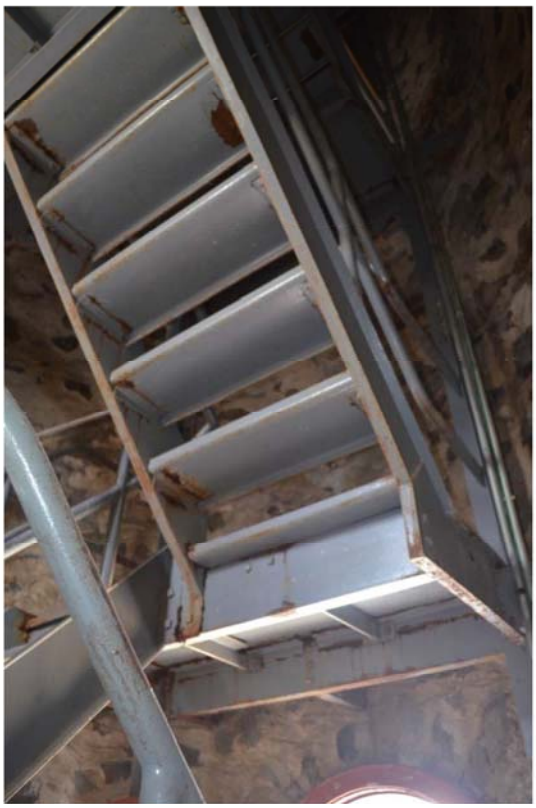
EXISTING CONDITION PHOTOGRAPHS **MOUNT PROSPECT** (Lancaster)

date: 17th April, 2014 - *weather conditions:* partly sunny, approx. 42 degrees F.



EXISTING CONDITION PHOTOGRAPHS **MOUNT PROSPECT** (Lancaster)

date: 17th April, 2014 - *weather conditions:* partly sunny, approx. 42 degrees F.



EXISTING CONDITION PHOTOGRAPHS **MOUNT PROSPECT** (Lancaster)

date: 17th April, 2014 - *weather conditions:* partly sunny, approx. 42 degrees F.

EXISTING CONDITION PHOTOGRAPHS **MOUNT PROSPECT** (Lancaster)

date: 17th April, 2014 - *weather conditions:* partly sunny, approx. 42 degrees F.

2.16 WARNER HILL, DERRY

The Warner Hill fire tower site consists of just the fire tower which is easily accessible from an access road to the tower.

The fire tower frame consists of painted steel angles and flat bar elements, as noted on the attached drawings. The frame members are generally in good condition and exhibit relatively little amounts of superficial rust. At this point, the rust poses no structural concerns, but the frame will require refinishing as a regular maintenance issue.

A full structural analysis is recommended due to the height, and missing members (diagonal bracing) should be replaced.

The six flights of the tower stairs consist of truss-stringers built with 2x2" steel angles running parallel with the flights, 2x2" steel angle tread support/truss diagonal and 1.5x1.5" truss verticals. Treads are painted 22.25" long 2x8 pt treads bolted to the 2x2" steel angles. Paint on the stingers, as the frame, is in reasonably good condition and will not need immediate attention. Handrail/guardrail consists of 1.5x1.5" steel top bar and uprights bolted to stringers, with 1x3/8" flat bar mid-rail. Stair treads will at minimum require refinishing, as they are generally in sound condition, but have a limited useful life left to them. Landings/Platforms exhibit the same conditions and requirements.

Visual inspection of the tower cab suggests the framing of the cab is sound and could be retained should that prove to be an economical solution. Exterior finishes of the cab are approaching the point that they are beyond usefulness and will need attention very soon if it is the intention to retain. Windows have been replaced with aluminum single-glazed double-hung storm windows and have a mill finish to both the interior and exterior. Interior wall finishes are still functional and with refinishing would be sufficient. Floor finish is a pine board on the 2x8 pt decking. It could be reused. Walls are finished with vertical pine boarding to window sill and are adequate. The wall above windows and the ceiling is a thin particle or wood board painted.

SITE OBSERVATIONS & CONDITIONS ANALYSIS

WARNER HILL (Derry)

date: 15th January, 2014 - *weather conditions: mostly sunny* , approx. 40 degrees F.

TOWER BASE

component	*description*	*comments*	*condition*
Base	13' x 13' on 16" x 16" tapered concrete piers	clean and re-seal concrete	Good
Cables	8 total 3/8" steel	little or no tension on cable	Good
Stair Base	two step concrete plinth	clean and re-seal concrete	Good
Connections	4" x 4" x 1/2" metal angle bolted to piers	mild surface rust, clean and re-finish	Good

STAIRS

component	*description*	*comments*	*condition*
# of Flights	6		-
Treads	2 x 10 pt @ 24" +/-, 8 - 14 risers per flight	rise 9" +/-, unfinished, slippery	Good
Stringer	custom truss steel stringer	painted	Good
Rail	2 1/2" x 2 1/2" angle @ 34" +/-	no mid rail, paint finish	Good
Landings	2x pressure treated, rail @ 34"	unfinished, slippery	Good

FRAME DETAIL

component	*description*	*comments*	*condition*
Primary Member	4" x 4" & 3" x 3" angle vertical	painted	Good
Secondary Member	2" x 2" angle horizontal	painted	Good
Cross Bracing	2" x 2" angle	painted, replace missing diagonal brace	Good
Node Type	bolted plate	painted	Good
Platform Members	various angle section	painted	Good

CAB

component	*description*	*comments*	*condition*
Approx. Dimensions	10'-3" x 10'-3"	-	-
Exterior Siding	1 x 4 wood clapboard, painted	scrape and re-finish	Fair
Exterior Sub-Deck	2 x wood planks, unfinished	some deterioration from weather	Fair
Exterior Trim	no corner board, woven, painted	scrape and re-finish	Fair
Roof	*undetermined*		
Interior Walls	vertical wood board, stained		Fair
Interior Floor	wood veneer, stained	cracking and adhesion evident, replace	Fair
Interior Ceiling	plywood panel, painted		Fair
Interior Trim	1 x wood flat stock, stained or painted		Fair
Window Operation	double hung, storm frames, approx 33 3/4" x 33"	recommend replace	Poor
Window Frame	wood, painted		Fair
Window Glazing	single	condensation evident	Fair
Window Trim	1 x flat stock, painted		Fair
Power Supply	mains power, meter at tower base	100 amp load center, under window sill	Good
Heat	portable electric		-

ACCESS HATCH

component	*description*	*comments*	*condition*
Location	62" x 23 1/2" hatch in cab floor		Fair
Operation	hinged to long edge, up swinging	no method to secure open	Fair
Safety Rail	none		Poor
Security	basic padlock		Good

GENERAL ISSUES / COMMENTS

component	*description*	*comments*	*condition*
Watchmen Visibility	360 degrees	communication tower in line of sight	Good
Cab Storage	lower & upper shelving, attic	adequate	Good
Air Conditoning		air conditioner installed to one window	
Electrical		panel location not code compliant	

SITE OBSERVATIONS & CONDITIONS ANALYSIS — **WARNER HILL** (Derry)

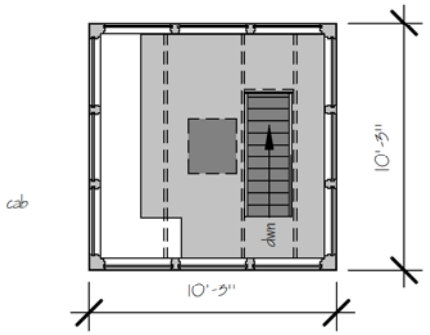
date: 15th January, 2014 - *weather conditions: mostly sunny* , approx. 40 degrees F.

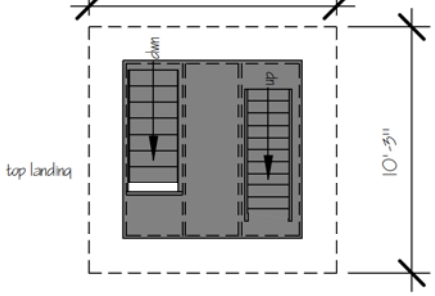
ANCILLARY BUILDING ONE — Outhouse

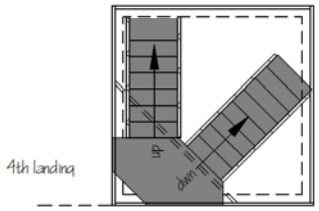
component	*description*	*comments*	*condition*
Function	outhouse	function undetermined	Fair
Approximate Footprint	4' x 4'	1 room	-
Foundation	cmu block	-	Fair
Structure	wood framing		Fair
Exterior Walls	wood vertical board, painted		Good
Windows	none	high level daylight portal	-
Roof	corrugated transparent plastic	green	Fair
Interior Walls	*inside face of siding, unfinished*	-	Fair
Interior Floor	1x wood board, unfinished	-	Fair
Interior Ceiling	*inside face of roof sheathing, unfinished*	-	Fair

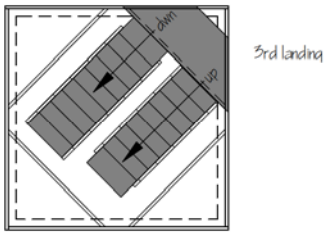
n a Magnetic Orientation.
ne Coordinate System (NAD 83)
d be considered general.

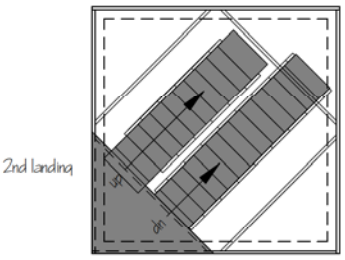
3/1963
11/1995
3/2000
6/2010

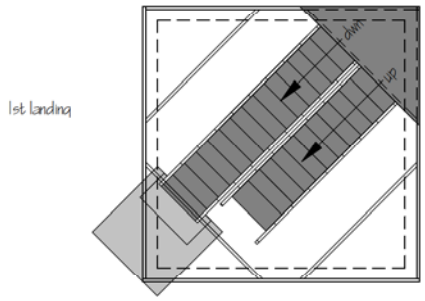


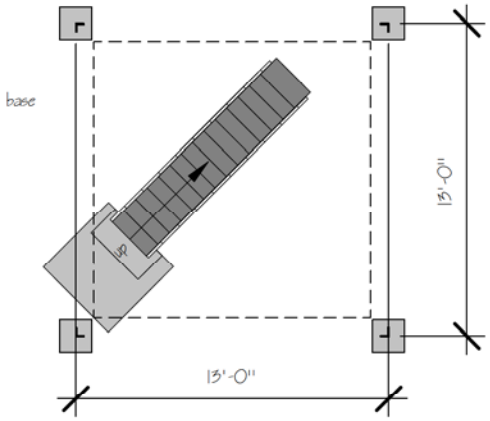












1 stair landings
1/8" = 1'-0"

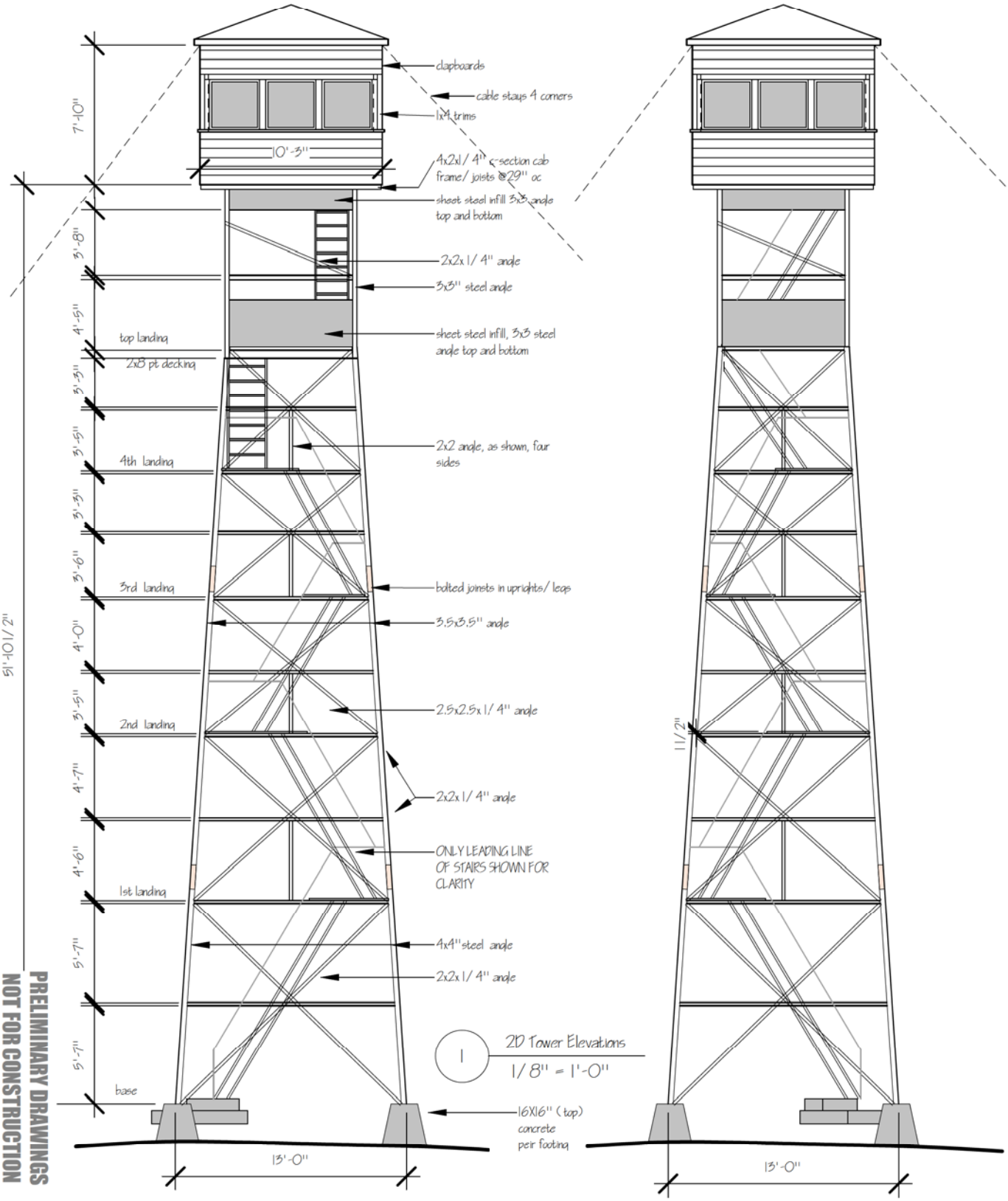
PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION
DRAWINGS ARE SUBJECT TO CHANGE. ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER.

PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
WARNER HILL
SURVEY-LANDINGS AX 16.0

04-30-14

GENERAL NOTES:

alba architects llp . stuart j anderson & philip m bennett . po box 186 . 137 main street . north woodstock . nh . 03262 . (603) 745-4770 . albaarchitects.com



1 2D Tower Elevations
1/8" = 1'-0"

PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION
DRAWINGS ARE SUBJECT TO CHANGE, ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER

PROJECT NAME & ADDRESS:
NH STATE FIRE TOWERS PHASE ONE
NH DRED
WARNER HILL
SURVEY-ELEVATIONS AX 16.1

04-30-14

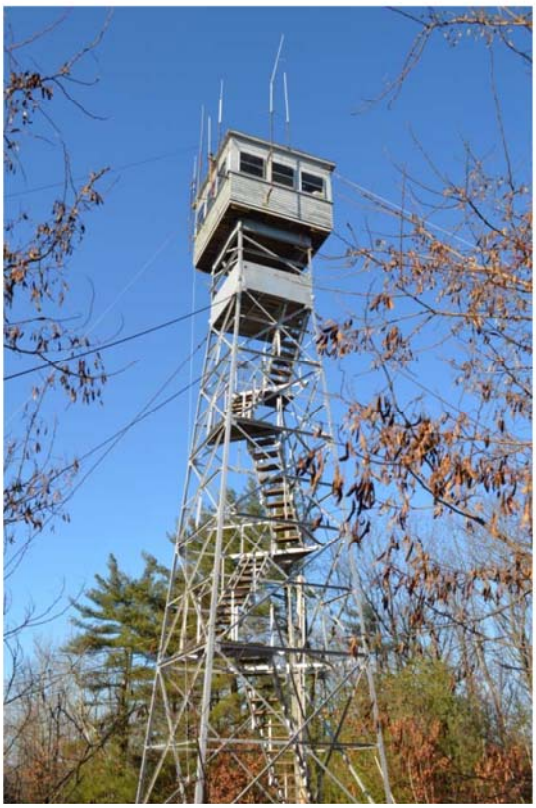
GENERAL NOTES:

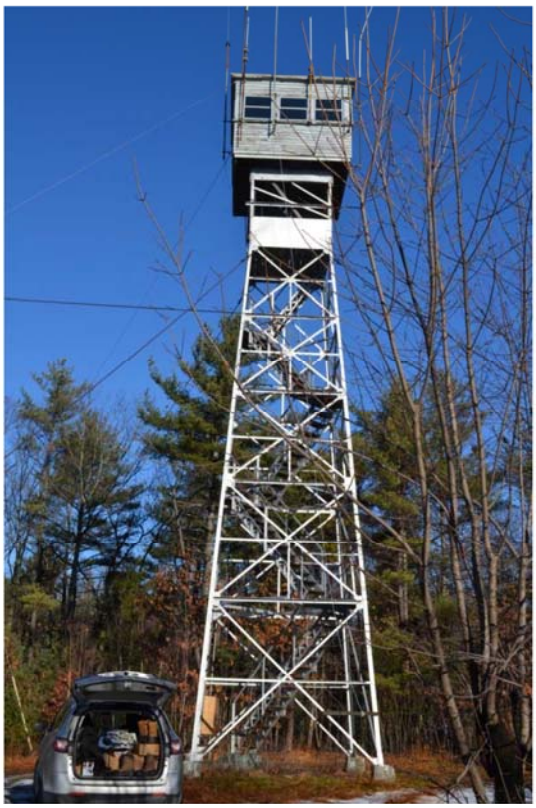
alba architects llp . stuart j anderson & philip m bennett . po box 186 . 137 main street . north woodstock . nh . 03262 . (603) 745-4770 . albaarchitects.com

EXISTING CONDITION PHOTOGRAPHS

WARNER HILL (Derry)

date: 15th January, 2014 - *weather conditions: mostly sunny*, approx. 40 degrees F.





EXISTING CONDITION PHOTOGRAPHS

WARNER HILL (Derry)

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EXISTING CONDITION PHOTOGRAPHS

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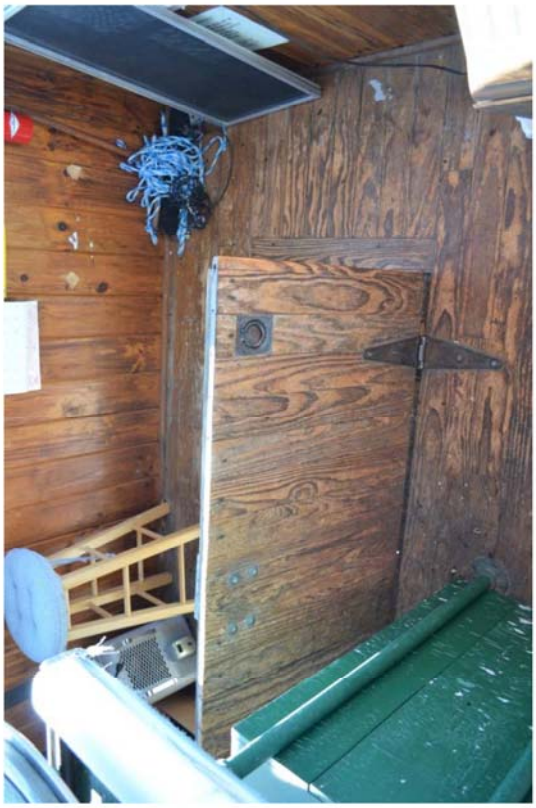

EXISTING CONDITION PHOTOGRAPHS

WARNER HILL - OUTHOUSE

date: 15th January, 2014 - *weather conditions: mostly sunny*, approx. 40 degrees F.

EXISTING CONDITION PHOTOGRAPHS

WARNER HILL - ADJACENT STRUCTURES

date: 15th January, 2014 - *weather conditions: mostly sunny*, approx. 40 degrees F.

3.0 ENGINEER'S SURVEY NOTES AND REPORT

1. Belknap Mt. (Gilford)
2. Blue Job (Farmington)
3. Cardigan Mtn. (Orange)
4. Croydon Mtn. (Croydon)
5. Federal Hill (Milford)
6. Green Mtn. (Effingham)
7. Hyland Hill (Westmoreland)
8. Kearsarge Mt. (Wilmot and Warner)
9. Magalloway Mt. (Pittsburg)
10. Milan Hill (Milan)
11. Oak Hill (Loudon)
12. Pack Monadnock (Peterborough)
13. Pawtuckaway (Nottingham)
14. Pitcher Mt. (Stoddard)
15. Prospect Mountain (Lancaster)
16. Warner Hill (Derry)

Belknap Mountain Fire Tower, Gilford, NH
Structural Assessment

HEB Engineers
CIVIL • STRUCTURAL • SURVEY

Observations:

During the site visit, the following items were observed:

The foundation of the structure consists of square concrete footings that bear directly on ledge. Some of the footings were observed to have heavy cracking and efflorescence. It is unknown whether the concrete is anchored to ledge.

Cracked concrete footing.

The tower structure consists of steel angles and channels that are bolted and riveted together. Minor surface rust was observed in several locations, however no significant section loss was observed. The structure appears to have been added onto and made taller than the original tower. There are two sets of guy cables at each corner of the tower that appear not to be part of the original structure. The cables are wrapped around the structure at the upper panel points. The anchorage to the ground is unknown.

Railings along platform.

The stairs and platforms are framed with a combination of pressure treated lumber planks along with steel channels, angles, and plates. The 2x8 decking was observed to have minor surface wear. The railings along the edge of the stairs and around the platforms are constructed of steel angles and wire mesh fencing. The railings do not appear to meet code requirements for height, load capacity, or member spacing. Based on observations, some of the floors may not meet the required live load capacity for stairways and elevated platforms.

The cab is attached to the top of the steel tower. It is a wood framed structure, with windows on all four sides, and a hipped roof. The cab framing appears to be in good condition. Several antennas are attached to the side of the cab.

Recommendations:

We recommend that the following items be addressed:

- Repair the damaged concrete footings
- Sand-blast and re-paint the steel structure
- Properly connect the steel guy cables to the structure
- Replace rotten or weathered wooden decking/stair treads as necessary
- Re-paint the timbers as necessary
- Replace railings and fencing along the stairs and around the elevated platforms

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Blue Job Fire Tower, Farmington, NH
Structural Assessment

HEB Engineers
CIVIL • STRUCTURAL • SURVEY

Observations:

During the site visit, the following items were observed:

The foundation of the structure consists of square concrete footings that bear directly on ledge. The concrete has been painted. Minor cracks were observed on the face of the concrete footings. It is unknown whether the concrete is anchored to ledge.

The tower structure consists of steel angles and channels that are bolted and riveted together. Surface rust was observed over the entire structure. In some locations, the rust is heavy and there is some minor to heavy section loss of the structural members. The structure appears to have been added onto and made taller than the original tower. There are two sets of guy cables at each corner of the tower that appear not to be part of the original structure. The cables are wrapped around the structure at the upper panel points. The anchorage to the ground is unknown.

Rusted steel with minor section loss.

Guy cables at corners of structure.

The stairs and platforms are framed with a combination of pressure-treated lumber planks along with steel channels, angles, and plates. The 2x8 decking was observed to be painted green and has some minor surface wear. The railings along the edge of the stairs and around the platforms are constructed of steel angles and wire mesh. The railings do not appear to meet code requirements for height, load capacity, or member spacing. Based on observations, some of the floors may not meet the required live load capacity for stairways and elevated platforms.

The cab is attached to the top of the steel tower. It is a wood framed structure, with windows on all four sides, and a hipped roof. The cab framing appears to be in good condition and almost new. Several antennas are attached to the side of the cab.

Recommendations:

We recommend that the following items be addressed:

- Sand-blast and re-paint the steel structure
- Repair/replace members with heavy section loss
- Properly connect the steel guy cables to the structure
- Replace rotten or weathered wooden decking/stair treads as necessary
- Re-paint the timbers as necessary
- Replace railings and fencing along the stairs and around the elevated platforms

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Cardigan Mountain Fire Tower, Orange, NH
Structural Assessment

HEB Engineers
CIVIL • STRUCTURAL • SURVEY

Observations:

During the site visit, the following items were observed:

The foundation of the structure consists of square concrete footings that bear directly on ledge. Minor cracks were observed on the face of the concrete footings. One footing on the south side of the structure is severely cracked and spalled. It is unknown whether the concrete is anchored to ledge.

Spalled concrete footing.

The tower structure consists of steel angles and channels that are bolted and riveted together. The tower is shorter than the other towers observed. Surface rust was observed over the entire structure. In some locations the rust is heavy and there is some minor to heavy section loss of the structural members. There are several horizontal members on the north side of the structure that are bent. There are several antennas and solar panels attached to the side of the structure. There are two sets of guy cables at each corner of the tower that appear not to be part of the original structure. The cables are wrapped around the structure at the upper panel points. The cables are anchored into bedrock.

Bent member on north side of structure.

The stairs and platforms are framed with a combination of pressure treated lumber planks along with steel channels, angles, and plates. The 2x8 decking was observed to be weathered and worn. The railings along the edge of the stairs and around the platforms are constructed of steel angles. The railings do not appear to meet code requirements for height, load capacity, or member spacing. Based on observations, some of the floors may not meet the required live load capacity for stairways and elevated platforms.

The cab is attached to the top of the steel tower. It is a wood framed structure, with windows on all four sides, and a hipped roof. The cab framing appears to be very weathered, with water damage inside the structure. There are solar panels and antennas attached to the cab.

Recommendations:

We recommend that the following items be addressed:

- Replace the damaged concrete footing
- Sand-blast and re-paint the steel structure
- Replace the bent structural members
- Repair/replace members with heavy section loss
- Properly connect the steel guy cables to the structure
- Replace rotten or weathered wooden decking/stair treads as necessary
- Re-paint the timbers as necessary
- Consider replacing the cab structure
- Replace railings and fencing along the stairs and around the elevated platforms
- Consider removing the solar panels and antennas from the structure or analyze for the additional loads

Croydon Mountain Fire Tower, Croydon, NH
Structural Assessment

HEB Engineers
CIVIL • STRUCTURAL • SURVEY

Observations:

During the site visit, the following items were observed:

The foundation of the structure consists of square concrete footings that bear directly on ledge. Cracks were observed on the face of the concrete footings. One footing on the south side of the structure is in poor condition. It is unknown whether the concrete is anchored to ledge.


Cracked footing.

The tower structure consists of steel angles and channels that are bolted and riveted together. Heavy surface rust was observed over the entire structure and there is some minor to heavy section loss of the structural members. There are guy cables at each corner of the tower that appear not to be part of the original structure. The cables are wrapped around the structure at the upper panel points and were observed to be very loose. The cables are anchored into bedrock.


Chain railing at upper level.

The stairs and platforms are framed with a combination of pressure-treated lumber planks along with steel channels, angles, and plates. The 2x8 decking was observed to be painted green, weathered, and worn. The railings along the edge of the stairs and around the platforms are constructed of steel angles. Once section of railing is missing at the top level and has been replaced by steel chains. The railings do not appear to meet code requirements for height, load capacity, or member spacing. Based on observations, some of the floors may not meet the required live load capacity for stairways and elevated platforms.

The cab is attached to the top of the steel tower. It is a wood framed structure, with windows on all four sides, and a hipped roof. The cab framing appears to be new and in good condition. There nothing in the cab and appears to have been unused since it was installed. The hardwood flooring in the cab has some water damage, possibly from condensation.

Recommendations:

We recommend that the following items be addressed:

- Repair/replace the damaged concrete footings
- Repair/replace members with heavy section loss
- Sand-blast and re-paint the steel structure
- Properly connect the steel guy cables to the structure
- Replace rotten or weathered wooden decking/stair treads as necessary
- Re-paint the timbers as necessary
- Replace railings and fencing along the stairs and around the elevated platforms

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Federal Hill Fire Tower, Milford, NH
Structural Assessment

HEB Engineers
CIVIL • STRUCTURAL • SURVEY

Observations:

During the site visit, the following items were observed:


Footings on bedrock.

The foundation of the structure consists of square concrete footings that bear directly on ledge. The concrete has been painted. Minor cracks and spalls were observed on the face of the concrete footings. It is unknown whether the concrete is anchored to ledge. The concrete footing under the stairway is severely cracked.

The tower structure consists of steel angles and channels that are bolted and riveted together. Surface rust was observed over the entire structure. In some locations, especially near the base of the tower, the rust is heavy and there is some minor to heavy section loss of the structural members. The structure is very tall and appears to have been added onto and made taller than the original tower. There are two sets of guy cables at each corner of the tower that appear not to be part of the original structure. The cables are wrapped around the structure at the upper panel points. The anchorage to the ground is unknown.


Stairs, platform, and railings.

The stairs and platforms are framed with a combination of pressure-treated lumber planks along with steel channels, angles, and plates. The 2x8 decking was observed to be painted brown and has some minor surface wear and weathering. The railings along the edge of the stairs and around the platforms are constructed of steel angles and wire mesh. The railings do not appear to meet code requirements for height, load capacity, or member spacing. Based on observations, some of the floors may not meet the required live load capacity for stairways and elevated platforms.

The cab is attached to the top of the steel tower. It is a wood framed structure, with windows on all four sides, and a hipped roof. The cab framing appears to be in good condition. The T1-11 siding appears to be weathered and warping in some locations. There are several antennas attached to the side of the cab.

Recommendations:

We recommend that the following items be addressed:

- Since the tower is so tall, perform a structural analysis
- Repair spalled and cracked concrete footing under the stairway
- Sand-blast and re-paint the steel structure
- Repair/replace members with heavy section loss
- Properly connect the steel guy cables to the structure
- Replace rotten or weathered wooden decking/stair treads as necessary
- Re-paint the timbers as necessary
- Replace railings and fencing along the stairs and around the elevated platforms

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Green Mountain Fire Tower, Effingham, NH
Structural Assessment

HEB Engineers
CIVIL • STRUCTURAL • SURVEY

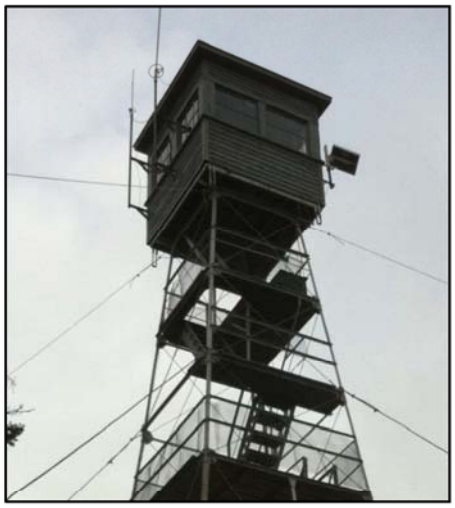
Observations:

During the site visit, the following items were observed:

The foundation of the structure consists of square concrete footings that bear directly on ledge. One footing is severely cracked and spalled. It is unknown whether the concrete is anchored to ledge.

Cracked and spalled footing.

The tower structure consists of steel angles and channels that are bolted and riveted together. One diagonal member was observed to be missing and several others were loose. Surface rust was observed over the entire structure. In some locations, the rust is heavy and there is some minor to heavy section loss of the structural members. The structure is very tall and appears to have been added onto and made taller than the original tower. There are two sets of guy cables at each corner of the tower that appear not to be part of the original structure. The cables are wrapped around the structure at the upper panel points. The anchorage to the ground is unknown.



Small cab on top of steel tower.

The stairs and platforms are framed with a combination of pressure-treated lumber planks, along with steel channels, angles, and plates. There is a metal ladder that leads from the top platform into the cab. The 2x8 decking was observed to painted green and has heavy surface wear and weathering. The railings along the edge of the stairs and around the platforms are constructed of steel angles and wire mesh. The railings do not appear to meet code requirements for height, load capacity, or member spacing. Based on observations, some of the floors may not meet the required live load capacity for stairways and elevated platforms.

The cab is attached to the top of the steel tower. It is wider than the structure below, but it is still very small. The cab is a wood framed structure, with windows on all four sides, and a hipped roof. The cab framing appears to be in good condition, but the siding is weathered. Several antennas are attached to the side of the cab.

Recommendations:

We recommend that the following items be addressed:

- Since the tower is so tall, perform a structural analysis
- If cab the size is to be increased, significant structural upgrades may be required
- Repair cracked and spalled concrete footing
- Sand-blast and re-paint the steel structure
- Repair/replace members with heavy section loss
- Properly connect the steel guy cables to the structure
- Replace missing diagonal member
- Tighten diagonal braces as necessary
- Replace rotten or weathered wooden decking/stair treads as necessary
- Re-paint the timbers as necessary
- Replace railings and fencing along the stairs and around the elevated platforms

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Hyland Hill Fire Tower, Westmoreland, NH
Structural Assessment

HEB Engineers
CIVIL • STRUCTURAL • SURVEY

Observations:

During the site visit, the following items were observed:

The foundation of the structure consists of square concrete footings that bear directly on ledge. The concrete appears to be in good condition. It is unknown whether the concrete is anchored to ledge.


Tall tower structure.

The tower structure consists of steel angles and channels that are bolted and riveted together. Surface rust was observed in several locations and there appears to be some minor to heavy section loss of the structural members. The structure is very tall and appears to have been added onto and made taller than the original tower. The steel structure extends through cab to bottom of roof. There is one set of guy cables at each corner of the tower that appear not to be part of the original structure. The cables are wrapped around the structure at the upper panel points. The anchorage to the ground is unknown. There are several unused antenna supports on the side of the tower.

The stairs and platforms are framed with a combination of pressure-treated lumber planks along with steel channels, angles, and plates. The 2x8 decking was observed to be very weathered and worn. The railings along the edge of the stairs and around the platforms are constructed of steel angles and wire mesh. The railings do not appear to meet code requirements for height, load capacity, or member spacing. Based on observations, some of the floors may not meet the required live load capacity for stairways and elevated platforms.

The cab is attached to the top of the steel tower. It is a wood framed structure, with windows on all four sides, and a hipped roof. The cab framing appears to be very weathered with water damage inside the structure. There are several antennas attached to the side of the cab.

Recommendations:

We recommend that the following items be addressed:

- Since the tower is so tall, perform a structural analysis
- Repair/replace members with heavy section loss
- Sand-blast and re-paint the steel structure
- Properly connect the steel guy cables to the structure
- Replace rotten or weathered wooden decking/stair treads as necessary
- Re-paint the timbers as necessary
- Replace railings and fencing along the stairs and around the elevated platforms

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Kearsarge Mountain Fire Tower, Wilmot/Warner, NH
Structural Assessment

HEB Engineers
CIVIL • STRUCTURAL • SURVEY

Observations:

During the site visit, the following items were observed:

The foundation of the structure consists of square concrete footings that bear directly on ledge. The concrete appears to be in fair condition, with some cracks and spalls. It is unknown whether the concrete is anchored to ledge.

Fire tower and surrounding structures.

The tower structure consists of steel angles and channels that are bolted and riveted together. Minor surface rust was observed in several locations, but there does not appear to be significant section loss of the structural members. The structure appears to have recently been painted. There is one set of guy cables at each corner of the tower that appear not to be part of the original structure. The cables are wrapped around the structure at the upper panel points. The anchorage to the ground is unknown. There are several other structures and antennas located around the fire tower.

The stairs and platforms are framed with a combination of pressure-treated lumber planks along with steel channels, angles, and plates. The 2x8 decking was observed to be painted green and is very weathered and worn. The railings along the edge of the stairs and around the platforms are constructed of steel angles and wire mesh. The railings do not appear to meet code requirements for height, load capacity, or member spacing. Based on observations, some of the floors may not meet the required live load capacity for stairways and elevated platforms.

The cab is attached to the top of the steel tower. It is a wood framed structure, with windows on all four sides, and a hipped roof. The cab framing appears to have some weathered with water damage inside the structure. There are several antennas attached to the side of the cab.

Recommendations:

We recommend that the following items be addressed:

- Properly connect the steel guy cables to the structure
- Replace rotten or weathered wooden decking/stair treads as necessary
- Re-paint the timbers as necessary
- Consider replacing the cab
- Replace railings and fencing along the stairs and around the elevated platforms

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Magalloway Mountain Fire Tower, Pittsburg, NH
Structural Assessment

HEB Engineers
CIVIL • STRUCTURAL • SURVEY

Observations:

During the site visit, the following items were observed:

The foundation of the structure consists of square concrete footings are in fair condition and bear directly on ledge. It is unknown whether the concrete is anchored to ledge.


Solar panels & turbine on structure.

The tower structure consists of steel angles and channels that are bolted and riveted together. Minor surface rust was observed in several locations, but there does not appear to be significant section loss of the structural members. The structure is tall and appears to have been added onto and made taller than the original tower. There is one set of guy cables at each corner of the tower that appear not to be part of the original structure. The cables are wrapped around the structure at the upper panel points. The anchorage to the ground is unknown. There are several unused antenna supports, as well as solar panels and a wind turbine attached to the side of the structure.

The stairs and platforms are framed with a combination of pressure treated lumber planks along with steel channels, angles, and plates. The 2x8 decking was observed to be somewhat weathered and worn. The railings along the edge of the stairs and around the platforms are constructed of steel angles and wire mesh. The railings do not appear to meet code requirements for height, load capacity, or member spacing. Based on observations, some of the floors may not meet the required live load capacity for stairways and elevated platforms.

The cab is attached to the top of the steel tower. It is a wood framed structure, with windows on all four sides, and a hipped roof. The cab framing appears to be in good condition and almost new.

Recommendations:

We recommend that the following items be addressed:

- Sand-blast and re-paint steel
- Properly connect the steel guy cables to the structure
- Replace rotten or weathered wooden decking/stair treads as necessary
- Re-paint the timbers as necessary
- Replace railings and fencing along the stairs and around the elevated platforms
- Consider removing antennas, solar panels, and wind turbine from structure or analyze for the additional loads

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Milan Hill Fire Tower, Milan, NH
Structural Assessment

HEB Engineers
CIVIL • STRUCTURAL • SURVEY

Observations:

During the site visit, the following items were observed:

The foundation of the structure consists of square concrete footings that are in fair condition. It is unknown whether the concrete is anchored to ledge or how deep they extend. The concrete footing under the stairway is broken.

Broken footing under stairs.

The tower structure consists of steel angles and channels that are bolted and riveted together. Minor surface rust was observed in several locations, but there does not appear to be any section loss in the structural members. The steel structure extends through cab to bottom of roof. There is one set of guy cables at each corner of the tower that appear not to be part of the original structure. The cables are wrapped around the structure at the upper panel points. The anchorage to the ground is unknown.

Tower structure.

The stairs and platforms are framed with a combination of pressure-treated lumber planks along with steel channels, angles, and plates. The 2x8 decking was observed to be weathered and worn. The railings along the edge of the stairs and around the platforms are constructed of steel angles. The railings do not appear to meet code requirements for height, load capacity, or member spacing. Based on observations, some of the floors may not meet the required live load capacity for stairways and elevated platforms.

The cab is attached to the top of the steel tower. It is a wood framed structure, with windows on all four sides, and a hipped roof. The cab framing appears to be in good condition, but the outside of the structure is weathered. There are several antennas attached to the side of the cab.

Recommendations:

We recommend that the following items be addressed:

- Replace concrete footing under stairway
- Sand-blast and re-paint the steel structure
- Properly connect the steel guy cables to the structure
- Replace rotten or weathered wooden decking/stair treads as necessary
- Re-paint the timbers as necessary
- Replace railings and fencing along the stairs and around the elevated platforms

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Mount Prospect Fire Tower, Weeks State Park, Lancaster, NH
Structural Assessment

HEB Engineers
CIVIL • STRUCTURAL • SURVEY

Observations:

During the site visit, the following items were observed:

The existing stone masonry tower is approximately 18 feet in diameter at the base and 53 feet tall. It has an eight-sided, wood framed cab at the top. There is a steel stairway inside the tower that accesses a cast-in-place concrete platform one level below the cab.


Stone tower.

The stone masonry is assumed to be unreinforced. Based on the multiple colors of grout observed between the stones, the tower has been repointed many times. The grout on the outside of the structure appears to be in good condition. The inside face of the structure has multiple large cracks up to ¼" wide. There is a concrete floor slab at the lowest level of the structure, but the rest of the foundation is unknown.

The interior steel stairway is approximately 5'-8" wide x 8'-10" long. It is constructed with steel angles, channels, and tube sections that have been bolted and welded together and painted grey. Surface rust was observed in several locations, with some minor to heavy section loss in the structural members. The railings do not appear to meet code requirements for height, load capacity, or member spacing.


Steel stairway structure.

There is an 8" thick concrete floor slab above the steel stairway. It is supported at the edges by the stone structure below. At one edge of the stairway opening, the slab is supported by a 10" wide x 15" tall concrete beam. The other edge of the opening is supported by a 8" x 2 ¼" steel channel. Reinforcing in the slab and concrete beam is unknown. The concrete appears to be in good condition.

The floor of the cab is constructed with timber beams that are supported on the stone walls. The ends of the timbers are rotten and temporary wooden posts have been installed under them to prevent the floor from collapsing. There is a wooden stairway that goes from the concrete floor into the cab. This stairway appears to be new and in good condition.

The stone walls extend approximately 34" above the floor of the cab. An eight-sided wooden roof structure with 6x6 posts has been constructed on top of the stone walls. The wooden roof structure is weathered and has some water damage in the roof.

Recommendations:

We recommend that the following items be addressed:

- Perform annual inspections of the structure to monitor for movement
- Re-point the stones (inside and outside) as necessary
- Sand-blast and re-paint the steel stairway structure
- Reinforce/replace steel members with heavy section loss
- Replace railings and fencing along the stairs and around the elevated platforms
- Replace rotten or weathered wooden floor beams in the cab
- Replace the wooden roof structure

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Oak Hill Fire Tower, Loudon, NH
Structural Assessment

HEB Engineers
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Observations:

During the site visit, the following items were observed:

The foundation of the structure consists of square concrete footings that are in fair condition. It is unknown whether the concrete is anchored to ledge or how deep they extend. The concrete footing under the stairway is broken.

Broken concrete under stairway.

The tower structure consists of steel angles and channels that are bolted and riveted together. Minor surface rust was observed in several locations, but there does not appear to be any significant section loss in the structural members. There is one set of guy cables at each corner of the tower that appear not to be part of the original structure. The cables are wrapped around the structure at the upper panel points. The anchorage to the ground is unknown. There are several unused antenna brackets on the side of the structure.

Tower elevation.

The stairs and platforms are framed with a combination of pressure-treated lumber planks along with steel channels, angles, and plates. Some of the steel floor beams are not fastened to the structure. The 2x8 decking was observed to be weathered and worn. The railings along the edge of the stairs and around the platforms are constructed of steel angles. The railings do not appear to meet code requirements for height, load capacity, or member spacing. Based on observations, some of the floors may not meet the required live load capacity for stairways and elevated platforms

The cab is attached to the top of the steel tower. It is a wood framed structure, with windows on all four sides, and a hipped roof. The cab framing appears to be in good condition but the outside of the structure is weathered. There are several antenna brackets attached to the side of the cab.

Recommendations:

We recommend that the following items be addressed:

- Replace concrete footing under stairway
- Sand-blast and re-paint the steel structure
- Properly connect the steel guy cables to the structure
- Replace rotten or weathered wooden decking/stair treads as necessary
- Re-paint the timbers as necessary
- Replace railings and fencing along the stairs and around the elevated platforms

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Pack Monadnock Fire Tower, Peterborough, NH
Structural Assessment

HEB Engineers
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Observations:

During the site visit, the following items were observed:

The foundation of the structure consists of square concrete footings that bear directly on ledge. The concrete appears to be in fair condition with some minor cracks and spalls. It is unknown whether the concrete is anchored to ledge. The concrete footing under the stairway is in poor condition.

The tower structure consists of steel angles and channels that are bolted and riveted together. The structure appears to have recently been renovated and there is very little rust. There is one set of guy cables at each corner of the tower that appear not to be part of the original structure. The cables are wrapped around the structure at the upper panel points. The cables are anchored into bedrock.

Stairs crossing diagonally across tower.

The stairs and platforms are framed with a combination of pressure-treated lumber planks along with steel channels, angles, and plates. There is a wooden stairway from the top level into the cab. The stairs cross diagonally across the tower structure. The 2x8 decking was observed to be painted green and is in good condition. The railings along the edge of the stairs and around the platforms are constructed of steel angles and wire mesh. The railings do not appear to meet code requirements for height, load capacity, or member spacing. Based on observations, some of the floors may not meet the required live load capacity for stairways and elevated platforms.

The cab is attached to the top of the steel tower. It is a wood framed structure, wider than the structure below, with windows on all four sides, and a hipped roof. The cab framing appears to be in good condition. There are several antennas attached to the side of the cab.

Recommendations:

We recommend that the following items be addressed:

- Replace the concrete footing under the stairway
- Properly connect the steel guy cables to the structure
- Replace railings and fencing along the stairs and around the elevated platforms

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Pawtuckaway Fire Tower, Nottingham, NH
Structural Assessment

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Observations:

During the site visit, the following items were observed:

The foundation of the structure consists of square concrete footings that bear directly on ledge. The concrete appears to be in poor condition with cracks and spalls. It is unknown whether the concrete is anchored to ledge. The concrete footing under the stairway is also in poor condition with large cracks.


Cracked footing under structure.

The tower structure consists of steel angles and channels that are bolted and riveted together. The structure appears to have been added onto and made taller than the original tower. Surface rust was observed in several locations with some minor to heavy section loss in the structural members. There is one set of guy cables at each corner of the tower that appear not to be part of the original structure. The cables are wrapped around the structure at the upper panel points. The cables are anchored into bedrock.


Tower elevation.

The stairs and platforms are framed with a combination of pressure-treated lumber planks along with steel channels, angles, and plates. The 2x8 decking was observed to be painted green, weathered, and in poor condition. The railings along the edge of the stairs and around the platforms are constructed of steel angles and wire mesh. The railings do not appear to meet code requirements for height, load capacity, or member spacing. Based on observations, some of the floors may not meet the required live load capacity for stairways and elevated platforms.

The cab is attached to the top of the steel tower. It is a wood framed structure, with windows on all four sides and a hipped roof. The cab framing appears to be in good condition, but the outside of the structure is weathered. There are several antennas attached to the side of the cab.

Recommendations:

We recommend that the following items be addressed:

- Replace concrete footing under stairway
- Repair the cracked footings at the corners of the structure.
- Repair/replace members with heavy section loss
- Sand-blast and re-paint the steel structure
- Properly connect the steel guy cables to the structure
- Replace rotten or weathered wooden decking/stair treads as necessary
- Re-paint the timbers as necessary
- Replace railings and fencing along the stairs and around the elevated platforms

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Pitcher Mountain Fire Tower, Stoddard, NH
Structural Assessment

HEB Engineers
CIVIL • STRUCTURAL • SURVEY

Observations:

During the site visit, the following items were observed:

The foundation of the structure consists of square concrete footings that bear directly on ledge. The concrete appears to be in good condition. It is unknown whether the concrete is anchored to ledge.


Antennas on side of structure.

The tower structure consists of steel angles and channels that are bolted and riveted together. Surface rust was observed in several locations, with some minor to heavy section loss in the structural members. There is one set of guy cables at each corner of the tower that appear not to be part of the original structure. The cables are wrapped around the structure at the upper panel points. The cables are anchored into bedrock. There is a CMU building within the footprint of the tower. There are also many large antennas attached to the side of the tower.

The stairs and platforms are framed with a combination of pressure treated lumber planks along with steel channels, angles, and plates. The stair structure starts outside of the tower footprint and then enters the tower structure at the level above the CMU building, just below the cab. The 2x8 decking was observed to be weathered and in fair condition. The railings along the edge of the stairs and around the platforms are constructed of steel angles. The railings do not appear to meet code requirements for height, load capacity, or member spacing. Based on observations, some of the floors may not meet the required live load capacity for stairways and elevated platforms.


Weathered cab.

The cab is attached to the top of the steel tower. It is a wood framed structure, with windows on all four sides, and a hipped roof. The cab framing appears to be very weathered with water damage inside the structure.

Recommendations:

We recommend that the following items be addressed:

- Repair/replace members with heavy section loss
- Sand-blast and re-paint the steel structure
- Properly connect the steel guy cables to the structure
- Replace rotten or weathered wooden decking/stair treads as necessary
- Re-paint the timbers as necessary
- Consider replacing the cab structure
- Replace railings and fencing along the stairs and around the elevated platforms
- Consider removing the large antennas from the structure or analyze for the additional loads

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Warner Hill Fire Tower, Derry, NH
Structural Assessment

HEB Engineers
CIVIL • STRUCTURAL • SURVEY

Observations:

During the site visit, the following items were observed:

The foundation of the structure consists of square concrete footings that are in fair condition. No major cracking or spalling was observed. It is unknown whether the concrete is anchored to ledge or how deep they extend.

The tower structure consists of steel angles and channels that are bolted and riveted together. The steel appears to have been recently painted, however there is still some minor rust and the paint is peeling in several locations. There does not appear to be significant section loss in the structural members. The structure is very tall and appears to have been added onto and made taller than the original tower. There are several missing diagonal members at the top level, as well as turnbuckles that are not attached to anything. There are guy cables at each corner of the tower that appear not to be part of the original structure. The cables are wrapped around the structure at the upper panel points. The anchorage to the ground is unknown.

Tower elevation.

The stairs and platforms are framed with a combination of pressure-treated lumber planks, along with steel channels, angles, and plates. The stairs run diagonally across the inside of the tower footprint. There is a wooden ladder from the top platform into the cab structure. The 2x8 decking was observed to have minor surface wear and weathering. The railings along the edge of the stairs and around the platforms are constructed of steel angles and wire mesh. At the top level, the rails have been in-filled with sheet metal. The railings do not appear to meet code requirements for height, load capacity, or member spacing. Based on observations, some of the floors may not meet the required live load capacity for stairways and elevated platforms.

Missing diagonal members and sheet metal infill at upper platform level.

The cab is attached to the top of the steel tower and is wider than the structure below. The cab is a wood framed structure, with windows on all four sides, and a hipped roof. The cab framing appears to be in fair condition, but the siding is very weathered. Several antennas are attached to the side of the cab. There is a second set of guy cables attached to each corner of the cab just below the roof.

Recommendations:

We recommend that the following items be addressed:

- Since the tower is so tall, perform structural analysis
- Sand-blast and re-paint the steel structure
- Properly connect the steel guy cables to the structure
- Replace missing diagonal members
- Replace weathered wooden decking/stair treads as necessary
- Re-paint the timbers as necessary
- Replace railings and fencing along the stairs and around the elevated platforms

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4.0 RECOMMENDATIONS AND PRIORITIZATION OF SITE WORK

After review of the towers and ancillary buildings at each of the fire tower sites, we are of the opinion that the main focus for prioritization of phase two of this project should be the towers. Although it is the case that some of the ancillary buildings are equally in need of attention, they are not the primary concern in the efforts to insure a continued, functioning presence at the sixteen tower sites reviewed. We have, therefore, determined that the prioritization of sites to be addressed in each round of works will be determined by the condition and usefulness of the towers themselves.

However, we are also of the opinion that it is not cost effective to visit each site, separately addressing the towers first, than revisiting the sites at a later date to deal with the ancillary buildings and other site issues. We would therefore recommend that prioritization of the sites be carried out based on the towers, but all work for each site be carried out within the same time frame as the tower work, thus minimizing mobilization and general conditions cost experienced for each site.

At this time we only have rough estimates of the cost associated with the intended remedial works. For that reason, we suggest it will be necessary to prioritize the works based on the degree of urgency and not dependent of anticipated cost. The following list is an attempt to identify that level of urgency, in descending order, to establish what we feel is the preferred schedule for the work.

The grouping below, A, B, C, D, breaks down the towers into those needing the most attention soonest in the 'A' group, and those needing the least amount of work when feasible in the 'D' group (all of which have had the cab replaced within the last 10 years).

The dollar amounts estimated for each cab are based on replacement cabs, as a comparison, for those that have not been replaced within the last 10 years. It may prove, with further investigation, that the framing and substructure of the cabs is in better condition than anticipated, which would offer some savings (see final page, SAMPLE TOWER / CAB COST ESTIMATES). However, our initial estimates suggest the savings would not be substantial and would not warrant reuse of any existing components of the cabs.

The following list of recommendations, common to each of the towers, is not listed in the individual tower descriptions, but is reflected in cost estimates:

- Upgrade all stair handrails/guardrails to be fully code compliant.
- Replace all stair treads, preferably with a more robust, maintenance free material.
- Scrape/sand blast steel frame members and repaint.
- Replace steel frame members experiencing material loss through rust (see engineers notes).
- Patch/repair/replace concrete footings (see engineers notes for frequency of each) and seal.
- Address possible structural deficiencies of floor/deck systems (see engineers notes).
- Properly re-connect and tighten all guy cables.

Ancillary building cost estimates not available at this time.

A-1 **Hyland Hill** - fire tower only, no ancillary buildings to address.
Should this tower be deemed to be suitable /desirable to put back into use, it is the most pressing for work on the cab and it is feasible to access with four-wheel drive vehicle capable of moving materials up and down the hill. Work to the 'access road' would be required, but anticipate cost would not be onerous in comparison to alternative access options.

Estimated Cost: tower work, full cab replacement, ground access- $ 38,045.00

A-2 **Pitcher Mtn.** - fire tower, watchman's cabin, storage, and outhouse.
The tower cab is usable, but exterior finishes would need to be replaced. Interior finishes are adequate. The watchman's cabin could be renovated but there is not perceived value or attraction for this building and restoration may create a building more vulnerable to vandalism, and likely not be deemed effective use of funds due to the expected under-utilization. The remainder of the buildings would also not be of any real value and would be deemed ineffective use of funds should they be restored. Access to site for cabin repairs/replacement is reasonable, not developed sufficient to be considered dirt road but would facilitate direct vehicular access.

Estimated Cost: tower work, full cab replacement, ground access- $ 38,045.00

A-3 **Green Mtn. -** fire tower, watchman's cabin, storage, outhouse/wood store.
The tower cab would require, at minimum, exterior finish replacement, though due to its limited size, would be a prime candidate for replacement. The remainder of the buildings would require exterior treatment, as well as interior upgrades/refinishing to the watchman's cabin. Vehicular access to the site is limited, though reports of past use suggest that it could be improved/upgraded for full vehicular access. The cost of upgrade may prove to be more competitive then air-lifting materials/refuse and should be considered.

Estimated Cost: tower work, full cab replacement, assume airlift- $ 41,040.00

A-4 **Milan Hill** - fire tower and possibly watchman's cabin.
The fire tower cab is in need of upgrade or replacement. Access to site is via a paved road and will pose no significant issues for transportation materials or refuse. The watchman's cabin is likely to be an expensive project with major repairs required, however as this is both already on the DHR list and probably would be considered one of the nicest of the examples of watchman's cabins, it is our belief that this cabin should be restored and possibly utilized as another rental unit.

Estimated Cost: tower work, full cab replacement, ground access- $ 38,045.00

A-5 **Prospect Mtn. -** fire tower only.
The tower at the Weeks State Park is badly in need of maintenance and should have the cab floor deck replaced as soon as is possible. Although it is not presently a severe safety risk, continued use by the general public is a continued liability to the state and potential hazard to the users. Window replacement and roof structure/finish are of concern, as is the continued degradation of the steel stair structure.

Estimated Cost: tower work- $ 18,000.00

Ancillary building cost estimates not available at this time.

B-1 **Warner Hill** - fire tower only, no ancillary buildings to address.
The exterior finishes of this cab are likely beyond retaining and at minimum should be replaced. Interior finishes are marginally better and could be retained if cab replacement is not deemed feasible. Access to site is via a reasonable unpaved road and is not particularly long.

Estimated Cost: tower work, full cab replacement, ground access- $ 38,045.00

B-2 **Federal Hill** - fire tower, watchman's cabin, garage/storage, outhouse, and garage.
Similar to Warner and Milan, the tower cab is usable, but exterior finishes would need to be replaced. Interior finishes are adequate. The watchman's cabin could be renovated but there is not perceived value or attraction for this building and restoration would just create a building more vulnerable to vandalism, both in its proximity to residential areas and expected under-utilization. The remainder of the buildings would also not be of any real value and would be deemed ineffective use of funds should they be restored. Access to site for cabin repairs/replacement is reasonable, though dirt road would need minor upgrades.

Estimated Cost: tower work, full cab replacement, ground access- $ 38,045.00

B-3 **Pawtuckaway Mtn** - fire tower only, no ancillary buildings to address.
The exterior finishes of this cab are likely beyond retaining and at minimum should be replaced. Interior finishes are marginally better and could be retained if cab replacement is not deemed feasible. Access to site is via a footpath and vehicular access would not be considered a viable option. Replacement of cab may prove more cost effective than renovate considering likely means of access.

Estimated Cost: tower work, full cab replacement, assume airlift- $ 41,040.00

B-4 **Kearsarge Mtn.** - fire tower only, no ancillary buildings to address.
The exterior finishes of this cab are likely beyond retaining and at minimum should be replaced. Interior finishes are marginally better and could be retained if cab replacement is not deemed feasible. Access to site is via a footpath and vehicular access would not be considered a viable option. Replacement of cab may prove more cost effective than renovate considering likely means of access.

Estimated Cost: tower work, full cab replacement, assume airlift- $ 41,040.00

Ancillary building cost estimates not available at this time.

C-1 **Oak Hill** - fire tower, garage/storage, and outhouse.
The tower cab is in similar condition to Warner and Milan towers and will require attentions soon, or replacement if deemed feasible. Garage/Storage and outhouse have little or no intrinsic value and do not warrant cost of retention. Site access is via a long and rough road that would benefit from repairs. These repairs do not seem cost prohibitive and would likely be more cost effective than alternative access measures.

Estimated Cost: tower work, full cab replacement, ground access- $ 38,045.00

C-2 **Belknap Mtn.** - fire tower, watchman's cabin, storage, outhouse/wood store, garage.
The Belknap site is one of the sites presently listed on the DHR register. All buildings would likely have to be retained. The tower cab would require, at minimum, exterior finish replacement, and the remainder of the buildings would require exterior treatment, as well as interior upgrades/refinishing to the watchman's cabin. Access to the site is approximately half-way via a reasonable road, but vehicular access to the top is marginal at best.

Estimated Cost: tower work, full cab replacement, assume airlift- $ 41,040.00

C-3 **Cardigan Mtn.** - fire tower, watchman's cabin, storage, outhouse.
This site will likely prove impractical to access with ground vehicles. Replacement of cab may prove to be more cost effective, but at the minimum should have exterior finishes replaced. Watchman's cab is in need of significant repair due to rodents, vandalism and lack of maintenance. Retention of cabin would be costly and would likely still be a target for vandalism. Outhouse requires replacement. Storage building requires some exterior finish replacement and repainting at minimum.

Estimated Cost: tower work, full cab replacement, assume airlift- $ 41,040.00

Ancillary building cost estimates not available at this time.

D-1 **Magalloway Mtn. -** fire tower, watchman's cabin, storage buildings, outhouse.
The tower cab has recently been replaced, and is in good shape with the exception of a small areas needing touch-up of paint and normal maintenance. Tower safety elements are of concern and will need addressing, as will condition of ancillary buildings. Access to site by ground vehicle is presently not feasible and expense of creating access would need to be reviewed. Upgrade/repair of ancillary buildings and tower elements will not likely be significant cost, in terms of overall budget, but can wait should funding make necessary.

Estimated Cost: tower work, repaint cab - $ 16,500.00

D-2 **Blue Job Mtn. -** fire tower, watchman's cabin, storage, and outhouse.
The tower cab has recently been replaced, and is in good shape with the exception of a small area requiring sealant to prevent further water ingress. The watchman's cabin could be renovated but there is no perceived value or attraction for this building and restoration would just create a building more vulnerable to vandalism, both in its proximity to residential areas and expected under-utilization. The remainder of the buildings would also not be of any real value and would be deemed ineffective use of funds should they be restored. Access to site for cabin repairs/replacement is reasonable, not developed sufficient to be considered dirt road but would facilitate direct vehicular access.

Estimated Cost: tower work, repaint cab - $ 16,500.00

D-3 **Croydon Mtn. -** fire tower, watchman's cabin, storage building, garage with sleeping quarters, outhouse.
The tower cab has recently been replaced, and is in good shape with the exception of finish to most interior finishes. No finish was applied and exposure to sun has faded and/or deteriorated applied finish. Watchman's cabin is in a bad state of repair and would require significant cost to bring to habitable condition. Storage building would require replacement of some exterior finishes, but is functional. The garage/sleeping quarters and outhouse are in reasonable condition needing mainly repainting and some foundation work to garage.

Estimated Cost: tower work, repaint cab - $ 16,500.00

D-4 **Pack Monadnock Mtn.** - fire tower only.
This cab to this fire tower is recently new and requires minimal repair/maintenance. Safety issues would be the main item to be addressed and would not be considered a significant expense in the overall project budget.

Estimated Cost: tower work, repaint cab - $ 16,500.00

5.0 SAMPLE TOWER / CAB COST ESTIMATE COMPARISON

5.1 CAB REPLACEMENT VS. RENOVATE - COMMON MATERIAL COST

Exterior siding/trims/underlayment/sheathing	$1735.00
Exterior roofing/flashing/underlayment/sheathing	$800.00
Windows/Hatch/Hardware	$3650.00
Interior wall finish/ceiling finish/trims	$910.00
Interior floor finish/underlayment	$900.00
Interior built-ins/spotter table/shelving	$1200.00
Wiring/switching/fixtures/heating	$550.00
Sealant/Paint/Adhesives	$350.00
Insulation/vapor barrier	$250.00
Contingency	$1100.00
Total	**$11,445.00**

5.2 CAB REPLACEMENT VS. RENOVATE - COMMON LABOR / MOBILIZATION COST

Selective demolition	$1200.00
Material transportation (assume vehicle access)	$500.00
Demolition removal	$500.00
Scaffolding/safety apparatus (transportation & erection)	$2000.00
Construction labor	$6400.00
Total	**$10,600.00**

5.3 CAB REPLACEMENT - UNIQUE COST

Framing materials and transportation	$1500.00
Labor	$1200.00
Total	**$2700.00**

5.4 PREFABRICATE / AIRLIFT CAB AND REFUSE – ESTIMATED COST

5.1 cost (reduced by shop-fabrication efficiencies)	$8800.00
5.2 cost (reduced by prefabricated unit delivered)	$6640.00
5.3 cost (reduced by shop-fabrication efficiencies)	$2300.00
Airlift mobilization and fees	$10,000.00
Total	**$27,740.00**

5.5 TOWER WORK - ESTIMATE

Remove stair tread, scrape tower and stair frames, paint	$5600.00
Repair stair frames as required, new stair treads	$3100.00
Fabricate/deliver guardrails for stairs/landings (assume one landing, four flights)	$3600.00
General repairs, contingencies	$1000.00
Total	**$13,300.00**

APPENDIX - FIRE LOOKOUT TOWER QUEST BROCHURE

FIRE LOOKOUT TOWER QUEST

The New Hampshire Division of Forests and Lands is the principle agency engaged in the protection, stewardship and sustainable use of New Hampshire's forests. Our fire towers and their lookouts serve to protect and promote the values provided by forests.

The purpose of the Fire Lookout Tower Quest program is to increase the public's recognition of, and appreciation for, the critical roles that our fire towers play in the protection, stewardship and sustainable use of New Hampshire's forests.

Select one of the fire tower locations from the attached list and plan your hike. Make sure that you are properly equipped and prepared physically before attempting your hike. Remember to document the date of your visit on the attached visitor register. Once you have visited five different fire towers simply fill out the attached request form and mail it to "Tower Quest Program" at the address that appears on the front of this brochure. In a few weeks you will receive your complimentary Tower Quest patch, certificate, and a letter in recognition of your accomplishment.

Patches are also offered for sale at $5.00 each to help support the program. Please make checks payable to the N.H. Federation of Forest Fire Warden's Associations and mail it to the same address in care of the Tower Quest Program.

NEW HAMPSHIRE FIRE LOOKOUT TOWERS

NH Division of Forests and Lands
PO Box 1856
Concord, NH
03302-1856
603-271-2217

www.nhdfl.org

A Cooperative Program between the N.H. Division of Forests and Lands, USDA Forest Service-State and Private Forestry, UNH Cooperative Extension, and the N.H. Federation of Forest Fire Warden's Associations.

The NH Division of Forests and Lands operates 15 fire lookout towers from early spring to late fall. The fire towers provide early detection and reporting of fires in order to protect our communities and forest resources from the catastrophic effects of wildfire.

Letters denote approximate fire tower locations. Detailed directions appear on the back of this brochure.

NEW HAMPSHIRE FOREST FACTS

- ☐New Hampshire is the second most forested state in the nation with 4.8million acres of forestland.
- ☐Forests cover 84% of the state's landscape.
- ☐4.5 million acres of our forests are classified as timberland.
- ☐80% of our forestland is privately owned.
- ☐The forest products industry is New Hampshire's third largest manufacturing industry contributing $3.9 billion annually to the state's economy.
- ☐Our forests provide essential habitat for hundreds of wildlife species.
- ☐Our forests offer a multitude of tourist and recreational values that contribute $1.05 billion annually to New Hampshire's economy.
- ☐Our forests are extremely diverse with 74 native tree species. These include 62 species of deciduous trees and 12 species of coniferous trees.

Explore our website for additional information on our fire towers, forest protection, stewardship and the sustainable use of our forest resources.

A. **Belknap Mt**. 2,384' (State) **GILFORD:** From Route 11A at Gilford Village. Follow Belknap Mtn. Rd. south for 2.4 mi to Belknap Carriage Rd., forks left and leads to a parking area. Green Trail (0.7mi) is short and fairly rough; Red Trail (0.8 mi) is slightly longer and more scenic.

B. **Blue Job** 1,356' (State) **FARMINGTON:** From Rte. 202A 5.4 mi. east of the junction with Rte. 126 in Ctr. Strafford or 2.8 mi. west of the junction with NH Rte. 202 near Rochester, take Crown Point Rd. 5.6 mi. Two trails lead a half mile to the summit.

C. **Cardigan Mtn.** 3,121(State) **ORANGE:** From Rte.118 about 0.5 mi. north of Canaan, turn east at the Cardigan sign and drive 4.1 miles to parking area. Westside trail from parking area (1.4mi) to summit.

D. **Croydon Mtn.** 2,781' (State) **CROYDON:** Private property not open to the public.

E. **Federal Hill** 690' (State) **MILFORD:** From Rt. 101A take Ponemah Hill Rd. south at the tower sign. Follow Ponemah Hill Rd for about 1 mi. Tower road is gated on the west side of the road. From Rt. 13 take Emerson Frontage Rd past Hampshire Hills fitness center to the intersection of Emerson and Ponemah Hill for about 1 mile.

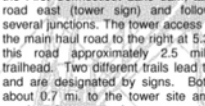
F. **Green Mtn.** 1,907' (State) **EFFINGHAM:** For the foot trail, take Rte 25 4.3 mi. east from the junction with Rte. 16 in Ctr. Ossipee, then turn right and go south on Green Mountain Rd. 1.4 mi. Turn left onto Highwatch Rd. and go 1.3 mi. to the trailhead (0.1 mi beyond the Lakeview facility). From here to the summit is 1.4 mi.

G. **Kearsarge Mt**. 2,937' (State) **WILMOT** and **WARNER:** The tower can be reached from the north (Wilmot) by a trail (1.1mi.) or from the south by the carriage road and trail. The trail side can be reached by following signs to Winslow State Park (I-89, exit 10 to Kearsarge Valley Rd.) or Rte 11 to Kearsarge Valley Rd. for the carriage road, follow signs to Rollins State Park from Rte. 103 in Warner. The toll road goes 3.7 mi. along the ridge to a small parking area. From this point, the trail to the summit is 0.6 mi. *Note: Park entrance fees will apply.*

H. **Magalloway Mt.** 3,360' (State) **PITTSBURG:** From Rte. 3 north of Pittsburg, 4.7 mi. beyond the First Connecticut Lake dam, take a woods road east (tower sign) and follow signs at several junctions. The tower access road leaves the main haul road to the right at 5.3 mi. Follow this road approximately 2.5 miles to the trailhead. Two different trails lead to the tower and are designated by signs. Both trails are about 0.7 mi. to the tower site and negotiate rough and steep terrain.

I. **Milan Hill** 1,737' (State) **MILAN:** From Rte 110 B west of Milan, the Milan Hill State Park road goes south to a parking area very near the base of the tower.

J. **Pack Monadnock** 2,280' (State) **PETERBOROUGH:** Located off Rte.101 on Pack Monadnock in Miller State Park. Auto road access to the tower site. *Note: Park entrance fees will apply.*



K. **Oak Hill** 920' (State) **LOUDON:** From E. Concord (exit 16 on I-93) Across to Shawmut Continue to fork, take left onto Oak Hill Road into the town of Loudon. The Tower road (which has a sign) will be on your left may be gated, and is rough and steep. From Rte. 106 head west onto Rte. 129, take School Street to Oak Hill Rd. Tower Rd. will be at top of hill on right.

L. **Pawtuckaway** 908' (State) **NOTTINGHAM:** Take Rte. 107 from either Deerfield or Raymond to Reservation Rd. Follow the signs on Reservation Rd. which lead to a small parking lot at the base of South Mountain. At the parking lot you should follow the signs for trailhead # 6 and the hike is about 0.4 mi. to the tower.

M. **Pitcher Mt.** 2,153' (State) **STODDARD:** Tower is northeast of Rte. 123 west of the town of Stoddard. A trail and a gated jeep road provide access from a signed parking area just west of the height of land. The trail is part of the Monadnock-Sunapee trail corridor.

N. **Mt. Prospect** 2,059' (State) **LANCASTER:** Tower is in Weeks State Park east of Rte. 3 between Lancaster and Whitefield. The auto road to the summit is gated when the park is closed, but it is an easy 1.5 mile walk.

O. **Red Hill** 2, 029' (Town) **MOULTONBORO:** Take Bean Road from near the junction of Rte. 25 and Rte. 25B in Center Harbor. After 1.4 mi. turn onto Sibley Rd. (fire tower sign) to a parking lot at a gated jeep road. Distance to Red Hill tower 1.7 mi.

P. **Warner Hill** 605' (State) **DERRY:** Off Warner Hill Rd. about 0.5 miles east of the intersection with Floyd Rd. Auto road access to the tower site.

New Hampshire Fire Lookout Tower Quest Visitor Register

☐ Belknap Mt.	Date_____
☐ Blue Job.	Date_____
☐ Cardigan Mt.	Date_____
☐ Federal Hill.	Date_____
☐ Green Mt.	Date_____
☐ Kearsarge Mt.	Date_____
☐ Magalloway Mt.	Date_____
☐ Milan Hill.	Date_____
☐ Pack Monadnock.	Date_____
☐ Oak Hill.	Date_____
☐ Pawtuckaway.	Date_____
☐ Pitcher Mt.	Date_____
☐ Prospect Mt	Date_____
☐ Red Hill.	Date_____
☐ Warner Hill.	Date_____

Tower Quest Patch Request

Name_____

Address_____

_____

_____

Email_____

We Welcome Your Comments!

Fire Towers and Their Lookouts Serve to Protect and Promote the Values Provided by Our Forests!

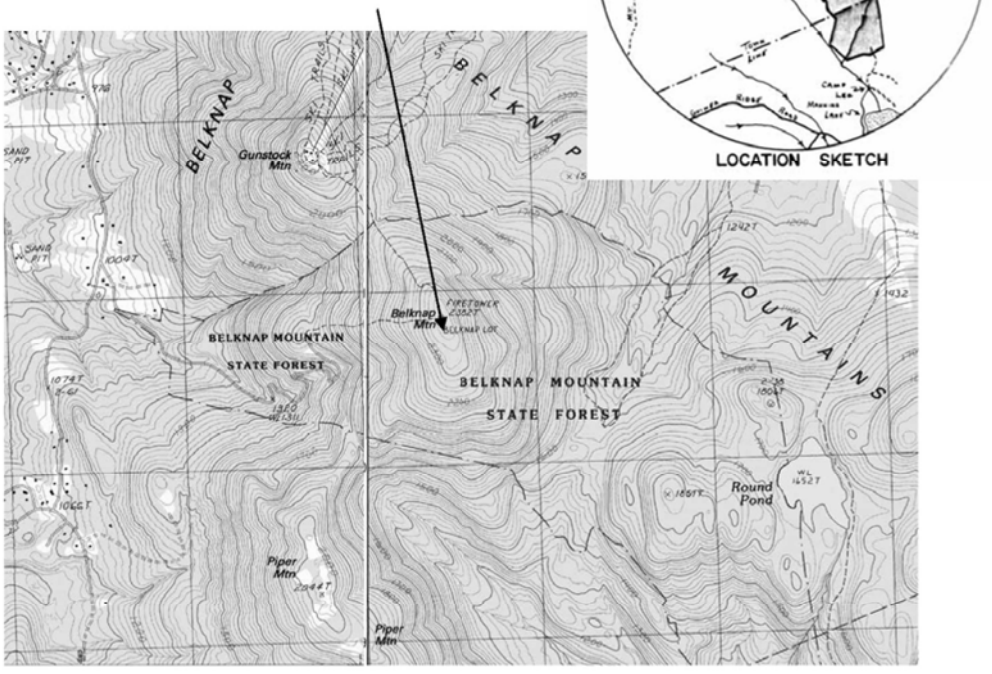
APPENDIX - DHR Area Form Cover Sheet for Belknap Mountain Fire Tower Area

New Hampshire Division of Historical Resources Page 1 of 54

AREA FORM **BELKNAP MOUNTAIN FIRE TOWER AREA**

1. Type of Area Form
   - Town-wide: ☐
   - Historic District: ☐
   - Project Area: ☒
2. Name of area: Belknap Mountain Fire Tower Historic Area
3. Location: Belknap Mountain State Forest
4. City or town: Gilford
5. County: Belknap
6. USGS quadrangle name(s): West Alton
7. USGS scale: 1:24000
8. UTM reference: 19.308460.4820845
9. Inventory numbers in this area
   - previous survey: N/A
   - current survey: N/A
10. Setting: rural, wooded, mountaintop
11. Acreage: state forest total 1,321 acres
12. Preparer(s): Kari Laprey, Carol Hooper
13. Organization: Preservation Company, Kensington, NH
14. Date(s) of field survey: October 2010

15. Location map



APPENDIX - DHR Area Form Cover Sheet for Milan Hill State Park And Fire Lookout

New Hampshire Division of Historical Resources Page 1 of 113

AREA FORM **MILAN HILL STATE PARK AND FIRE LOOKOUT**

1. Type of Area Form
   - Town-wide: ☐
   - Historic District: ☒
   - Project Area: ☒
2. Name of area: Milan Hill State Park and Fire Lookout
3. Location: off NH 110B – Milan Hill Road
4. City or town: Milan
5. County: Coos
6. USGS quadrangle name(s): Milan, NH
7. USGS scale: 1:24000
8. UTM reference: 19.323436.4937620 (fire tower)
9. Inventory numbers in this area
   - previous survey: N/A
   - current survey: N/A
10. Setting: wooded, rural, mountains
11. Acreage: 102± acres
12. Preparer(s): Kari Laprey, Laura Driemeyer
13. Organization: Preservation Company, Kensington, NH
14. Date(s) of field survey: October 2010

15. Location maps