Historic Structure Report for
Danish West India & Guinea Company Warehouse (GCW)
(CRIS HS 7029)
Historic Kitchens Nos. 1 & 2;
the Public Restroom;
Site Features—Exterior Walls, Cisterns, and Gates; and the GCW Paint Analysis

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National Park Service * Southeast Region

Christiansted National Historic Site
2100 Church Street #100
Christiansted, St. Croix, USVI

February 10, 2020

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Christiansted National Historic Site
Danish West India and Guinea Company Warehouse (GCW)
CRIS HS 7029; Kitchens Nos. 1 & 2; the Public Restroom; and
Site Features—Exterior Walls, Cisterns, and Gates

Christiansted, St. Croix, USVI

Historic Structures Report

2020

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Foreword

We are pleased to make available this Historic Structure Report (HSR), part of ongoing efforts to provide comprehensive documentation for the historic structures and landscapes of National Park Service units in the Southeast Region. A number of individuals contributed to the successful completion of this work, but we would particularly like to thank Chief of Resource Management, Zandy Hillis-Starr, and Chief of Facilities, Daniel Ritter, at the Christiansted National Historic Site, both of whom assisted with the project by providing relevant documents from park files, logistical assistance, and general editorial review. Special thanks go to Dr. Ali A. Miri, Historic Architect, National Park Service Southeast Regional Office, who provided project oversight and technical review. Special thanks also go to NPS Southeast Archaeological Center's Cultural Resource Specialist/Archaeologist, Dr. Meredith Hardy, and VISHPO Historian, Dr. George Tyson. We hope that this study will prove valuable to park management in ongoing efforts to preserve the Danish West India and Guinea Company Warehouse at Christiansted National Historic Site. A project goal is for the HSR to enhance the understanding of the buildings' history for park visitors and to provide a basis for interpreting the CHRI Site's rich history.

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Table of Contents

List of Figures viii
List of Tables xiv

Management Summary
Administrative Data xv
Executive Summary xviii
Preface xxii

Sidebar on Construction Materials

Part 1
Developmental History
General Historical Background, Context, and Site Chronology 1

Physical Description and Condition Assessment

Sidebar of Local Style of Architecture

Site 14
Topography and Drainage 17
Vegetation 19
Walkways and Steps 25
Miscellaneous Features 30
Character Defining Features—Site 31
Removed Buildings 34

West Kitchen 39
General Description 42
Condition 42
Differential Responses to Temperature & Moisture of Materials 46
Record of Repairs/Alterations Overview of Modifications Over Time 47
Exterior—Description and Condition of Elements 51
Possible Causes of Cracks in the West Kitchen Walls 59
Windows and Doors 63
Interior—Condition 64
Character Defining Features 69

Perimeter Walls 71
General Description 71
Record of Repairs/Alterations Overview of Modifications Over Time 77
Character Defining Features 79

Cisterns 81
General Description 81
Record of Repairs/Alterations of Modifications Over Time 88

Description and Condition of Elements 89
Character Defining Features 93

East Kitchen 94
General Description 94
Treatments for Interior Repairs—Concrete 100
Record of Repairs/Alterations Overview of Modifications Over Time 100
Chimney Height Evaluation Photographs 104
Character Defining Features 108

Comfort Station 109
General Description 109
Record of Repairs/Alterations Overview of Modifications Over Time 115
Description and Condition of Elements 121
Character Defining Features 121

Danish West India and Guinea Company Warehouse (GCW) 123
General Description 123
Exterior 134
Roofing and Roof Appurtenances 134
Rainwater Collection System 136
Walls 137
Windows, Doors, Shutters 137
Windows 139
Doors 140
Shutters 141
Interior 152
Floors/Ceilings/Walls 152
Flooring Treatments 160
Wall Conditions 160
A History of One Area of Wall Moisture Issues 168
Wall Treatments 170
Built-in Features 171
Lighting 172
Interiors of the Crawlspace and Attic 172
Ceiling Treatments 176
Record of Repairs/Alterations Overview of Modifications Over Time 177
Moisture in the GCW Walls 195
Seismic Study 196
Character Defining Features 200
Systems—HVAC, Electrical, Lighting, Security, Smoke/Fire Alarm, Accessibility 203
Energy 207
Egress and Stairs 207
Other General Conditions 207
Sidebar Regarding Brick

Part 2

Ultimate Treatment..... 208
Treatment Plan 208
Expectations of Use as Expressed in 2000 Planning Documents 209
Cissel's Sense of Importance of the Site 209
An Assessment of Potential Interpretive Themes 210
Previous Proposals and Significance..... 211
Significance..... 215
Interpretive Themes..... 216
Future Research Needs 217
The Moisture in the Walls..... 219
Moisture Monitoring..... 220
Materials Conservation Treatments..... 220
Site Drainage..... 221
Site Walls and Gateways 222
Concrete Cistern Stairway Repairs..... 223
Concrete Caps to Cisterns..... 223
Cracks in Perimeter Walls and Building Walls..... 223
Spall Repairs 225
Doors, Windows, and Shutters..... 225
Wood Frames 226
Metal Window Grates..... 227
Gutters and Downspouts/Rainwater Collection System..... 227
First Floor Used as Exhibit Space 228
Site Used for What?..... 230
Resiliency/Climate Change..... 232
Bibliography..... 238

Appendices

A—1938-1939 Drawings and Plans and Site Plan of 1945
B—Mortar Analysis Report
C—Paint Analysis Report
D—X-Ray Fluorescence (XRF)
E—2019 Drawings and Plans
F—Historic Photographs and Images
G—2019 Emergency Stabilization Project
H—National Register Nomination Forms: 1974, 1977, and 1999
I—Borescope Investigation

NOTE: There can be situations for which additional information from photographs may prove helpful in providing different views of a particular area or condition. To facilitate access to the photographic documentation, the captions for the figures include a parenthetical reference to actual files such as (0368), (2988), or (153056). This notation references digital photographs taken, all of which are provided electronically; they allow the reader to access the prior and next digital photographs in sequence. The need for further information should be first approached by examining the photographs taken just before and just after the photograph selected and referenced in the caption. Additional supplementary views of the desired area or situation will potentially be available in the photographic files of the other three photographers. For select photographs another view may be referenced for viewer consideration. The Word documents provided with the final submittal are searchable.

List of Figures

Figure Title.....Page No.
Figure 1: Christiansted Wharf Area, ca. 1778 7
Figure 2: Oxholm's Plan No. 2—Christiansted (1779).....9
Figure 3: Closeup View of Oxholm's Plan No. 2.....9
Figure 4: Oxholm's Plan of DWI&GCW.....10
Figure 5: Detail of Figure 4 11
Figure 6: Straight-on view of the Welcoming Arms Staircase.....12
Figure 7: The west elevation of what is now called the Comfort Station 12
Figure 8: East gateway 13
Figure 9: Draft of conditions seen in DWI Compound Site Plan 16
Figure 10: Size of tree in an 1860s photograph.....19
Figure 11: 1890 photo of Warehouse Building. 20
Figure 12: Detail of 1937 aerial photo 20
Figure 13: Detail of 1950 photo.....21
Figure 14: General view from northeast, January 1960 22
Figure 15: Detail of 1973 National Register Nomination photo 23
Figure 16 (4727): November 2018 photograph of palm tree.....24
Figure 17: Perimeter wall plantings of 1888-1893 24
Figure 18 (3000): East stairway.....26
Figure 19 (3022): East elevation lower stairs.....26
Figure 20 (3024): Detail of east elevation's lower stairs 27
Figure 21: Wooden Gallery 27
Figure 22 (3023): East elevation's lower stairs. 28
Figure 23 (3021): North wing, east elevation.....28
Figure 24 (3014): North wing, east elevation.....29
Figure 25 (3019): Detail of north elevation's upper stairs 29
Figure 26 (3080): Flagpole in CHRI Courtyard 30
Figure 27 (7163): Concrete pad.....30
Figure 28 (7176): Trench.....31
Figure 29: Perimeter Walls form the west wall of the West Kitchen 33
Figure 30: 1885 map showing location of three nonextant buildings.....34
Figure 31: Closeup view of GCW Compound 34
Figure 32: Aerial view of Christiansted, 1937.....35
Figure 33: Closeup view of Figure 32.....35
Figure 34: Closeup view of Mystery Building A.....36
Figure 35: Photocopy of postcard (St. Croix Series No. 32).....37
Figure 36: Detail of figure 35 37
Figure 37: The red arrow points to Mystery Building A.....38
Figure 38: West Kitchen floor plan.....39
Figure 39 (3575): West gate and south elevation of West Kitchen 40
Figure 40 (4728): East elevation of West Kitchen.....40
Figure 41 (165140): West Kitchen north elevation 41
Figure 42 (4769): West Kitchen, west elevation 41
Figure 43: Ground plan of the GCW complex 44
Figure 44: 1985 image showing West Kitchen's west elevation.....45

Figure 45: A crop of Oxholm's 1779 measured drawing.....47
Figure 46: 1930s aerial photograph 48
Figure 47: Closeup of figure 46.....48
Figure 48: Detail of 1945 shower installation plan.....49
Figure 49: Detail of 1978 plans 49
Figure 50: Detail of shutter plan.....50
Figure 51 (DH4728): Overall view of East Elevation of West Kitchen 51
Figure 52 (0250): Interior view of framed wood structure.....51
Figure 53 (3643): Red arrow points to roof covering 52
Figure 54 (165112): Red arrow points out the roof covering.....52
Figure 55 (Cropped 7194): Roof covering 52
Figure 56 (3635): Galvanized metal gutter.....53
Figure 57 (3642): Note rust on the end cap; note cracks in walls.....53
Figure 58 (DB7309): Historic building remnant 54
Figure 59 (DB7262): Decorative treatment for the west wall 55
Figure 60 (3500): West Kitchen exterior wall cracks 56
Figure 61 (DB7174): West Kitchen exterior 56
Figure 62: West Kitchen Crack Diagrams.....57
Figure 63 (DB7159): West Kitchen exterior wall cracks, southeast corner.....58
Figure 64 (DB7236): West Kitchen exterior wall cracks.....59
Figure 65 (3588): West Kitchen exterior wall cracks 60
Figure 66 (3591): West Kitchen exterior wall cracks 60
Figure 67 (165112): West Kitchen exterior wall cracks, overview 61
Figure 68 (165140): West Kitchen exterior wall cracks 62
Figure 69 (3582 crop): Photo of south opening's wood "window".....63
Figure 70 (3586): The door opens outward.....63
Figure 71 (0243): Interior, storage of cleaning supplies as use 64
Figure 72 (0268): West Kitchen interior, beam over original hearth.....65
Figure 73 (0246): West Kitchen—Interior, looking east at entry door.....65
Figure 74 (0248): West Kitchen—Interior wall at window of east elevation 66
Figure 75 (0304): West Kitchen—Interior, south elevation window opening 67
Figure 76 (0301): West Kitchen—Interior, south elevation window opening 67
Figure 77 (0306): West Kitchen—Interior 68
Figure 78 (0293): West Kitchen—Interior 68
Figure 79 (3639): North face of West Kitchen's chimney 70
Figure 80 (3644): West Kitchen's north and west faces of the chimney 70
Figure 81 (3575): West Gate entry 71
Figure 82 (3091): East Gate entrance.....71
Figure 83 (3436): Northeast corner of Perimeter Wall, outside face.....72
Figure 84 (3603): Northeast corner of Perimeter Wall, inside face.....72
Figure 85 (3458): North Wall 73
Figure 86 (3460): North Wall condition, close up.....73
Figure 87 (3463): Northwest corner, November 2018.....74
Figure 88: Northwest corner, 1950s.....74
Figure 89: Northwest corner, 1917 75
Figure 90 (3472): West Wall, north portion, to northwest corner 75

Figure 91 (3469): West Wall condition....76
Figure 92 (3054): West Wall interior is the wall of cisterns....76
Figure 93 (4843): Northwest corner from interior....77
Figure 94: Overall view of typical perimeter wall....78
Figure 95: Overview of 2011 impact damage to column....78
Figure 96: Closeup view of 2011 impact damage to column....79
Figure 97: Closeup of 1945 site plan showing presence of cisterns....81
Figure 98: 1939 Rainwater Collection System....82
Figure 99: Rainwater collection system....82
Figure 100: Rainwater Collection system of the West Kitchen....83
Figure 101 (JDF 153115): Twisted rebar and no dark blue stone....84
Figure 102 (JDF 153126): Closeup view of Figure 101....84
Figure 103 (DSCN 4722): A shallow hole in the cistern wall....84
Figure 104 (4725): Exposed aggregate of a cistern wall....84
Figure 105: (4891) Photo of concrete lintel and (4923) the reinforcing bar....85
Figure 106 (165112): Cisterns #2 and #3....87
Figure 107 (4944): Preparing to measure the interior of Cistern #5....87
Figure 108 (7166left+4961right): Two views of Cistern #4 from above....87
Figure 109 (3630): View from Cistern #5 looking south to Cistern #2....87
Figure 110: View of the interior of a cistern....89
Figure 111: Sample of GPR scan showing vertical reinforcing bars....90
Figure 112: View of concrete curb....90
Figure 113: Closeup view of cistern concrete....90
Figure 114: Overview of cisterns, stairway, and Comfort Station....91
Figure 115: Closeup view of a twisted square reinforcing bar....92
Figure 116: Closeup view of stairway....92
Figure 117: Floor plan of present-day East Kitchen....94
Figure 118 (3604): South portion of the East Kitchen's west elevation....95
Figure 119 (403605): North portion of the East Kitchen's west elevation....95
Figure 120 (3613): View of interior, window of north elevation....96
Figure 121 (3612): Hearth at right....97
Figure 122 (3613): Historic opening to street behind shutter....97
Figure 123 (3614): Ceiling—Rusted rebar causing concrete spalling....97
Figure 124 (3615): Ceiling—pieces have fallen and will continue to fall....97
Figure 125 (153308): Detail of damaged area at window....98
Figure 126 (3067): East Kitchen, south wall, overview of damage....98
Figure 127 (3616): Ceiling....98
Figure 128 (3617): Ceiling....98
Figure 129 (3618): Stove....98
Figure 130 (3619): Hearth....98
Figure 131 (3620): Stove....99
Figure 132 (3622): Chimney interior....99
Figure 133 (3623): Chimney interior....99
Figure 134 (3624): Shelf to the right of stove....99
Figure 135 (3625): Shelf to the right of stove....99
Figure 136 (3626): Above shelf....99

Figure 137: The GCW complex with overlay of the 1780 floorplan and the proposed 1803 floorplan....101
Figure 138: GCW compound section from Oxholm 1779, Christiansted's wharf area....101
Figure 139: Enlargement of 1855 map of downtown Christiansted....102
Figure 140: View of exterior of DWI GCW in 1860....103
Figure 141: View of DWI & GCW ca. 1890s....103
Figure 142: View of the 1960 East Kitchen....104
Figure 143 (166265pu—300): 1960 HABS photo of East Kitchen roof....104
Figure 144 (2919): 2018 overview of present-day roof of East Kitchen....104
Figure 145: Floor plan of present-day East Kitchen....105
Figure 146: Overview of East Kitchen structure as seen at the interior....106
Figure 147: View looking up to roof and chimney structure in East Kitchen....107
Figure 148: Corrosion of reinforcing and associated concrete spalling....107
Figure 149: First-story plan of present-day Comfort Station....109
Figure 150 (3091): Comfort Station's South Elevation....110
Figure 151 (3442): Comfort Station's East Elevation overview....110
Figure 152 (3443): Comfort Station's East Elevation....111
Figure 153 (3627): North Elevation and roof of Comfort Station....111
Figure 154 (7156): Comfort Station's West Elevation....112
Figure 155: Roof framing drawing 1939 U.S. Post Office Drawings....113
Figure 156: Infrared thermograph superimposed onto photo....113
Figure 157: View of Comfort Station in the 1890s....114
Figure 158: A detail of Oxholm's 1779 drawing....114
Figure 159 (YoungT_Slides_008): 1985 East Elevation, Comfort Station....115
Figure 160 (YoungT_Slides_048): 1985 West Elevation, Comfort Station....115
Figure 161: Closeup of 1945 Plan of Comfort Station/Store House....116
Figure 162: 1939 Plan of Comfort Station/Store House....116
Figure 163: 1978 plans for remodeling store house to a Comfort Station....117
Figure 164: Work Statement from 1988 Plans for Comfort Station....118
Figure 165: Southwest corner of Comfort Station....119
Figure 166: View from the interior of blistering paint and spalling plaster....119
Figure 167 (3443): Character Defining Features north end of the wall....121
Figure 168 (3448): Two small windows of the East Wall....122
Figure 169: CHRI GCW Site Plan....124
Figure 170: GCW First story plan....125
Figure 171: GCW Second story plan....126
Figure 172: GCW west and south elevations....127
Figure 173: GCW east and north elevations....128
Figure 174 (2926): North elevation of East Wing from the courtyard....129
Figure 175 (4751): East elevation of East Wing....129
Figure 176 (4752): East and south elevations....130
Figure 177 (2950): South elevation....130
Figure 178 (4757): South elevation, west portion....131
Figure 179 (2968): West elevation....131
Figure 180 (4760): Detail of west elevation....132

Figure 181 (2988): North elevation of North Wing.....132
Figure 182 (3000): East elevation of North Wing.....133
Figure 183 (1950s.1): Photo from the 1950s.....133
Figure 184 (1950s.2): 1950s photo of the Post Office.....134
Figure 185 (GCW Roof photos (1): GCW roofs.....134
Figure 186: Louvered opening in the south elevation of the West Kitchen.....138
Figure 187 (3606): Door to the East Kitchen.....140
Figure 188 (3270): Door 103, typical.....141
Figure 189 (2932): A straight bar with 90-degree bends.....142
Figure 190 (3528): upside down lower left pintle plate.....142
Figure 191 (2925): Door 104 at the loading dock.....143
Figure 192 (2976): The height of Window 1.2 warrants three hinges.....143
Figure 193 (2914): Window C.2 of Comfort Station.....144
Figure 194 (3541): Door 101.....145
Figure 195 (2937): Door 204.....145
Figure 196 (2965): Window 2.18.....146
Figure 197 (2952): Window 1.10.....146
Figure 198 (2989): Window 1.3.....147
Figure 199 (3528): Window 1.2.....148
Figure 200 (2945): Window 1.9 shutter.....149
Figure 201 (3550): Detail of Door 103 shutter hinge.....149
Figure 202 (2977): The pintle plate of Window 1.2 is gone.....150
Figure 203 (3528): The pintle plate was mounted upside down.....150
Figure 204 (3526): Window 1.2.....151
Figure 205 (3527): Window 1.2.....151
Figure 206 (3272): Service Lobby Floor.....152
Figure 207 (3238): Box Lobby Floor.....153
Figure 208 (4982): Wall plaster behind the stainless steel.....153
Figure 209 (3240): Box Lobby Floor.....154
Figure 210 (3337): Bathroom tile walls.....154
Figure 211 (3333): Bathroom tile floor.....155
Figure 212 (3312): U.S. Post Office Residual Detail.....155
Figure 213 (3313): U.S. Post Office Residual Detail.....156
Figure 214 (3269): U.S. Post Office Residual Detail.....156
Figure 215 (3406): Bathroom.....157
Figure 216 (160936): Note coating placed on top of the asphalt planks.....158
Figure 217 (3238): Condition of Box Lobby flooring.....159
Figure 218 (3272): Condition of Service Lobby flooring.....159
Figure 219 (300347): Flooring: vinyl tile, marble threshold, ceramic tile.....160
Figure 220 (3134): Window 1.10.....161
Figure 221 (3126): East interior wall of the east wing.....162
Figure 222 (162012): By door 103 in the south wall.....162
Figure 223 (300364): West wall of the North Wing.....163
Figure 224 (162644): Complete plaster loss at Window 1.1.....163
Figure 225 (3125): Plaster loss around Window 1.7.....164
Figure 226 (3129): Plaster loss around Window 1.8.....164

Figure 227 (3131): Plaster loss around Window 1.9 165
Figure 228 (3137): Plaster loss around Window 1.1 165
Figure 229 (3138): Plaster loss around Window 1.2 165
Figure 230 (3140): Plaster loss around Window 1.3 166
Figure 231 (3143): Plaster loss above Window 1.4.....166
Figure 232 (3146): Material loss at the side of Window 1.5.....166
Figure 233 (164242): Upper inspection port in Room 109.....167
Figure 234 (DH4999): Lower inspection port in Room 109.....167
Figure 235 (3304): Now-removed bulletin board in Box Lobby.....171
Figure 236 (3302): Plaster damage evidenced by scaling paint 172
Figure 237 (4932): Brick wall of the interior of the crawlspace 173
Figure 238 (4936): Ceiling of crawlspace with rusted reinforcing bar.....173
Figure 239 (4934): Rusted reinforcing bar of the beam.....173
Figure 240 (5009): Wood framing in the attic.....174
Figure 241 (5007): The attic of the East Wing is exposed structure beams.....174
Figure 242 (3063): The crawlspace ceiling 175
Figure 243 (3132): The suspended ceiling 176
Figure 244: Bouchardy's portrait of Peter Lotharius Oxholm 177
Figure 245: View of GCW ca 1890 178
Figure 246: 1760 plan with index for identification of the buildings 179
Figure 247: Closeup of 1760 plan 179
Figure 248: 1777 plan 180
Figure 249: Closeup of 1777 plan.....180
Figure 250: 1779 site plan as drawn by Peter Lotharius Oxholm.....181
Figure 251: Detail of 1779 plan as drawn by Peter Lotharius Oxholm 182
Figure 252: Detail of second story of 1779 plan 182
Figure 253: West elevation of GCW in 1779 plan 183
Figure 254: Floor history diagram of the north wing.....184
Figure 255: Ground plan of the DWI-GCW complex 185
Figure 256: View of Custom House Square, 1860 186
Figure 257: Annotations identifying roofing materials of GCW.....187
Figure 258: U.S. Navy band marching down King Street, c. 1917 188
Figure 259: Detail of West Elevation in the 1939 Post Office Set.....191
Figure 260: Infrared thermograph of West Elevation.....191
Figure 261: First Floor Plan of 1985 U.S. Post Office.....193
Figure 262: Second Floor Plan of 1985 U.S. Post Office 194
Figure 263: Map of North American–Caribbean plate boundary region.....197
Figure 264: Map of St. Croix showing seismic events recorded by USGS 197
Figure 265: Map of St. Croix showing seismic events recorded by USGS 198
Figure 266 (3235): Fluorescent fixtures in first-story suspended ceiling 204
Figure 267 (3355): Recessed can fixtures on the second story 204
Figure 268 Photos from TCI's 1985 HSR.....214
Figure 269: Photo of curb near the southwest corner of the GCW.....221
Figure 270 (Stabilization, Church St 310122) 226
Figure 271: 1939 Rainwater Collection System 228
Figure 272: 1754 Map drawn by Beck.....231

Figure 273: 1760s Map, drawn by Von Rohr 231
Figure 274: Saffir-Simpson Hurricane Wind Scale 232
Figure 275: Satellite image of Hurricane Maria 233
Figure 276: Preliminary Report on Hurricane Georges 235

List of Tables

Table 1: Chronological Timeline 1
Table 2: Timeline 2
Table 3: Actions Delineated by the 1939 Plans 189

C: Management Summary

1. Administrative Data

a. Project Identification

"Historic Structure Report on Danish West India and Guinea Company Warehouse; Kitchens No. 1 & 2; the Public Restroom; the Site Features—Exterior Walls, Cisterns, and Gates; and the Guinea Company Warehouse building paint analysis at the Christiansted National Historic Site, in Christiansted, USVI"

Location Data: Christiansted National Historic Site, Christiansted
County: St. Croix
Territory: United States Virgin Islands (USVI)

b. Project Statement and Purpose

The purpose of this project is to produce a Historic Structure Report (HSR) for the following: Site, Historic Kitchen No. 1 (hereafter the West Kitchen), Exterior Walls (hereafter the Perimeter Walls), Cisterns (hereafter Cisterns), Historic Kitchen No. 2 (hereafter the East Kitchen), the Public Restroom (hereafter the Comfort Station), and the Danish West India & Guinea Company Warehouse (hereafter GCW), as well as GCW building materials and paint analysis. The report includes a Management Summary; Part 1: Developmental History, as well as measured drawings and photographic documentation drawings of the buildings; and Part 2: Treatment and Use. The goal of the project is to identify and document the original appearance, intact remaining historic features and their integrity, and historic evolution of the buildings; to identify their appearance from 1749 to 2000s; and to recommend treatment strategies for consideration that best preserves the character defining features of the exterior and interior. This document is needed to guide future preservation, management, and use of the GCW at the Christiansted National Historic Site, in Christiansted, St. Croix, U.S. Virgin Islands. This HSR will serve to guide treatment selection and preservation and maintenance recommendations.

c. Names, Numbers, and Locational Data

The Danish West India & Guinea Company Warehouse (GCW) is located at the intersection of Church Street and Company Street, within the boundaries of the National Park Service's Christiansted National Historic Site at Christiansted, St. Croix, USVI.

This Historic Structures Report evaluates the entire site and includes structures that comprise the Guinea Company Warehouse Compound. Specifically, the structures in the compound are evaluated in the following order: Site, Historic Kitchen No. 1 (hereafter "West Kitchen"), Exterior Walls (hereafter Perimeter Walls), Site Feature—Cisterns (hereafter Cisterns), Historic Kitchen No. 2 (hereafter "East Kitchen"), Public Restroom (hereafter "Comfort Station"), and Danish West India & Guinea Company Warehouse (hereafter GCW). The structures and their numbers on the Cultural Resource Inventory System (CRIS) are:

Structure Name	**CRIS HS 7029**
Historic Kitchen No. 1 (hereafter the West Kitchen)	
Site Feature—Exterior Walls (hereafter the Perimeter Walls)	
Site Feature—Cisterns (hereafter Cisterns)	
Historic Kitchen No. 2 (hereafter the East Kitchen)	
Public Restroom (hereafter the Comfort Station)	
Danish West India & Guinea Company Warehouse (GCW)	

d. Primary Related Studies

1. Cissel, William F. 2000. Report—The Danish West India & Guinea Company Warehouse, Christiansted National Historic Site Proposed Restoration and Slave Trade Museum.
2. Hardy, Meredith D. 2011. Christiansted National Historic Site, St. Croix, United States Virgin Islands: Archeological Overview and Assessment. Tallahassee, Florida: Southeast Archeological Center of the National Park Service.
3. Highfield, Arnold R. and George F. Tyson. 1994. Slavery in the Danish West Indies: A Bibliography. St. Croix, USVI: The Virgin Islands Humanities Council.
4. The Collaborative Inc. "Historic Structure Report for U.S. Post Office & Customhouse, 11 Christiansted, St. Croix, U.S.V.I.," 1985.

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Donald Harvey, Structural Engineer, Atkinson-Noland & Associates

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For the Collaborative Inc.

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- Dean Brookie, Historic Architect: Field Work, Digital Photography, Code Considerations in Adaptive Re-Use, Treatments Development
- Sarah Feinberg, Administrative Coordinator, Logistics Manager, Researcher, Field Technician, and primary documentation photographer
- Tita Young: Historic Research, Data Compilation, Report Production, Graphics, Professional Document Editing

For Atkinson-Noland & Associates

- Donald Harvey, Principal Engineer: Condition Assessment, Structural Evaluation, Treatments Development, Coordination and Evaluation of Mortar Analysis

For Built Environment Evolution

- Natalie Feinberg Lopez, Conservator: Paint Analysis, X-Ray Fluorescence (XRF) Analysis of Paint/Stucco coatings

f. Ranking of Condition Levels

In this report, we are using History Colorado's system of condition-level ranking. Below is a description of each level of condition, that is, what the words Good, Fair, and Poor condition indicates.

- **Good Condition**
  It is intact, structurally sound, and performing its intended purpose.
  There are few or no cosmetic imperfections.
  It needs no repair and only minor or routine maintenance.
- **Fair Condition**
  There are early signs of wear, failure, or deterioration, although the feature or element is generally structurally sound and performing its intended purpose.
  There is a failure of a sub-component of the feature or element.
  Replacement of up to 25 percent of the feature or element is required.
  Replacement of a defective sub-component of the feature or element is required.
- **Poor Condition**
  It is no longer performing its intended purpose.
  It is missing.
  It shows signs of imminent failure or breakdown.
  Deterioration or damage affects more than 25 percent of the feature or element and cannot be adjusted or repaired.
  It requires major repair or replacement."

Executive Summary

Synopsis of Developmental History

Regarding colonization by European powers of the islands in the Caribbean, the Danish were relative latecomers. The Danish West India and Guinea Company (the Company) bought St. Croix in 1733; the first settlers landed in 1734. The Company saw opportunity in the development of the island of St. Croix by creating plantations growing sugarcane and cotton. Cotton never became a significant crop; sugar and rum were the major products for 100 years, and were exported to Denmark and then on to European consumers. The plantations required both laborers and basic supplies, from cookware to nails. The labor was provided by enslaved persons transported from West Africa.

In 1748-1749, the Company constructed the Guinea Company Warehouse (GCW), a complex of smaller buildings and site enclosures, to service the Company's Christiansted-located trade activities. Building construction was likely largely completed by enslaved craftspeople. The walls were constructed of local limestone, coral stone, and imported Flensburg brick brought over as ballast in ships. The details of the size and functions of the buildings in the complex and the rooms in the GCW were recorded in plans from 1778-1780 by Oxholm, a Danish Government official, some 15 years after the Danish King bought out the Company and all its assets. The GCW remained as Oxholm defined in the plans until a major renovation in 1939. The site and complex of buildings experienced significant evolution when Hospital Street was extended through the site in 1796-1797.[1] The buildings in the street right-of-way were removed: weighing master's office, a guardhouse, part of the comptroller's office, one building of an unidentified use, and the bakery. The site to the east of Hospital Street changed, with many of the uses of the now-demolished buildings being housed in existing and new buildings, some being installed similarly on the west site. The west site continued to develop with many new buildings; the construction of a perimeter masonry wall, created a compound. The east site was cleared to allow construction of the Customs House.

Over the years, the changes to the main building, the GCW, and the other buildings of the compound were a result of several significant forces, including: 1) the economy: there was a decline in the value of the sugar crop as a consequence of the rise in production in Europe of the newly developed (hybridization of even sweeter) sugar beet; 2) the Napoleonic Wars interrupted the delivery of the cane sugar; 3) the resulting reduction in the need for farm labor was coupled with rebellions by the enslaved workers leading to emancipation in 1848; 4) major hurricanes had effects on the structures. The choice of masonry as the primary construction material served to create resiliency in terms of the effects of hurricanes; however, considerable hurricane damage had occurred to wall coating systems, shutters, and doors/windows. The high winds had toppled chimneys and pushed salt-laden water into the masonry, breaching the stucco via cracks and gaps. This damage is the greatest from the most powerful hurricanes in 1772, 1916, 1989, and 2017.

[1] "By 1803, the large complex was cut in two by the extension of Hospital Street to intersect with King Street. Although Olsen (1961: 85) states that this occurred in 1795, a citation has been found which would appear to help date the bisection of the complex to a later date, possibly in conjuction with the cessation of the Danish slave trade on 1January 1803." Source: Cissel 2000, 14.

One hundred years after the construction of the GCW, the highest levels of sugarcane production and value had passed, but the military support function of the complex was still active. Yet no one believed there was enough military strength on the island of St. Croix to repel an invasion, as occurred with the British occupation early in the 19th century. While the United States and Denmark began discussions of the sale of the three islands as early as the mid-1800s, it was not until the combination of German aggression and World War I, the acknowledged inability of the Danish military to offer an effective defense, and the United States' concerns of the islands being occupied by Germany that the two countries agreed in 1917 on the price and terms of the transfer of ownership to the United States of the Danish assets. While the United States and Denmark began discussions of the sale of the three islands as early as the mid-1800s, it was not until there was the combination of German aggression and World War I, the acknowledged inability of the Danish military to offer an effective defense, and the United States' concerns of the islands being occupied by Germany. The two countries agreed in 1917 on the price and terms of the transfer of ownership of the Danish West Indies—St. Croix, St. Thomas, and St. John (and all the building)—to the United States.

In the years leading up to the sale, perhaps as early as the 1880s, the GCW becomes known as the Cable Building as it was the local home of the West India and Panama Telegraph Cable Company. The building was still referenced as the Cable Building in the significant remodeling drawings from 1938-1939. In these drawings, a new material was introduced into the fabric of the building: reinforced concrete. Essentially, the interior was removed to install steel reinforced concrete bond beam, floor structure, and lintels over each opening. The roof structure continued the use of wood. The building's 1939 transition to a new use had a first-story U.S. Post Office and a second-story U.S. Customs bureau, and included all new interior finishes and specialty built-ins such as post office boxes, counters, and a vault.

The other extant buildings on the site, all significantly smaller in size than the GCW, changed from the original function to new functions, e.g., the West Kitchen became storage. Three other buildings are seen in historic documents and have been removed prior to 1939: mystery buildings A, B, and C. The building straddling the north Perimeter Wall, designated in the report as Mystery Building "B," has tentatively been attributed to function as the gunsmith's residence. The building is first seen on a plan from 1855 and is visible in photographs from 1917 and after. The four reinforced concrete cisterns were added in the twentieth century. The U.S. Navy functioned as the administrators of the then-named Virgin Islands of the United States from 1917 to 1931. The dates of construction of these reinforced concrete cisterns are not yet known. If not built by the Navy, these cisterns were constructed under New Deal programs active later in the 1930s, programs that were known to be building cisterns on St Croix. These reinforced concrete cisterns are the last full structures to be constructed. One addition was made to the public restroom (Comfort Station) in 1988.

Synopsis of Select Condition Issues

The GCW Compound is located 235 feet from the ocean and is therefore exposed to salt aerosols on a regular basis and salt-laden rainwater driven by high winds during hurricanes. Local residents divert their rainwater capture systems during hurricanes to

avoid contamination of the water in their cisterns by the salt in the rainwater. Salt is a significant agent of deterioration of the reinforced concrete installed in the 20th century, causing the rusting of the steel reinforcing. The rusting process adds to the dimension of the reinforcing bar by exfoliation that, in turn, causes pressures that push the concrete covering to the point where it falls apart. The entire process is referred to as rust bursting. It is seen in a number of locations in the GCW, the West Kitchen, and the East Kitchen. In the GCW, the rust bursting has caused deep cracks in the exterior at the horizontal band where the roof structure is connected to the original masonry. The reinforcing bar has large sections where the covering concrete is gone. The visual evidence of the deterioration is seen as a wide horizontal crack at the exterior surface. A second visual indicator of rust bursting is at the beams under the first floor of the north wing. In many places, at least one of the reinforcing steel bars has completely rusted away. Similar losses can be observed at the bond beam of the second-story floor plate and its connection to the masonry wall. At virtually all openings, there is a concrete lintel; distress is evident at the surrounding masonry, at the exterior stucco, and the interior plaster. These concrete problems extend to both kitchens including the low sloped roof of the East Kitchen with exposed rusted reinforcing bars and consequent falling concrete, and the lintels and surrounds of the windows and doors of the West Kitchen, with significant material loss and loss of connection between the frames and the structure.

What cannot be seen are many other reinforced concrete assemblies likely to have significant reinforcing bar rusting issues such as all bond beams and connections between floor plates and exterior walls, all under floor beams of the GCW first floor, second floor beams, and roof structure. Most of these surfaces are not visually observable without some disassembling of building fabric: accessing under the east wing's first story (excavation), all second story under-floor beams (ceiling removal), and all roof structure. Lintel conditions are not directly observable because of the exterior stucco covering and interior plaster covering; however, the cracking of the coating systems indicates outward pressure consistent with rust bursting.

Ultimate Use

Since the early days of the establishment of the Christiansted National Historic Site (hereafter Park) in 1952, the GCW building was targeted for purchase and inclusion in the Park. The pre-purchase investigation of 2000 evaluated the building with regard to its use as a "Slave Trade Museum." The NPS historian Cissel completed a report reviewing the history of the trade and the role of the building and site. In the final analysis, the interpretation of the site cannot rely on any significant extant resources directly related to the processing of enslaved persons for sale. The return of the site to a time of the period of slavery and when the structures were in place has the two kitchens and one cistern to interpret. While the north two-thirds of the Comfort Station existed for much of the slavery period, it has been significantly altered. Therefore Site Interpretation will need to rely on site-located interpretive exhibit panels, and the various major interpretive themes will need to rely on panels placed in the first-story interior, a dedicated museum space.

There has been discussion among the project team members regarding how to refer to the project site. Should it be "complex" or "compound?" Relying—as usual—on our authority Merriam-Webster.com, the following definition helped us resolve the discussion; i.e., "compound" is the most accurate. Hereinafter, "compound" will be used to discuss the West Kitchen, the Perimeter Walls, the Cisterns, the East Kitchen, the Comfort Station, the Guinea Company Warehouse (GCW), and the open space among the structures.

Compound (n): a fenced or walled-in area containing a group of buildings.

Preface

On July 26, 2018, the National Park Service issued a contract to the Collaborative inc. to write a Historic Structure Report on the Danish West India and Guinea Company Warehouse (hereafter GCW), its Site, and its associated buildings—Kitchen 1 (now West Kitchen), Perimeter Walls, Cisterns, Kitchen 2 (now East Kitchen), and Comfort Station—all within the compound that is part of the Christiansted National Historic Site.

Historic research of the project's site began immediately and continued through to the completion of the 95% Draft.

The tCi team's field visit was from October 27 to November 3, 2018.

On March 21, 2019, the tCi team delivered the 75% Draft to the NPS.

On April 26, 2019, the NPS delivered three sets of comments to the tCi team.

On July 29, 2019, the tCi team delivered the 95% Draft to the NPS.

On October 7, 2019, the third set of NPS comments were sent to tCi and arrived in the Boulder (Colorado) office on October 11, 2019.

On October 31, 2019, the tCi team delivered the 100% Draft to the NPS.

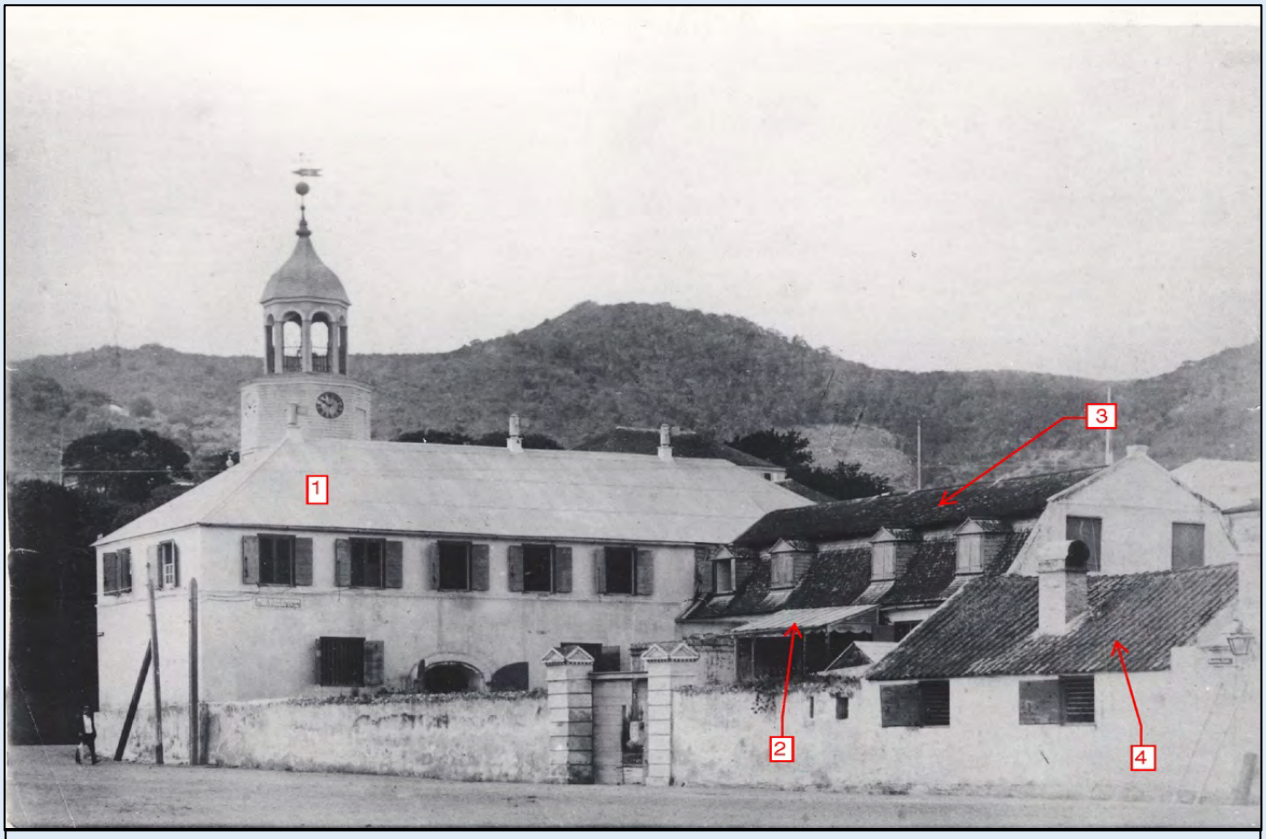
On January 28, 2020, the NPS delivered comments on the 100% to the tCi team.

On February 10, 2020, the tCi team shipped one copy of the Final Report, printed on both sides; the signature page is left blank so that Zandy Hillis-Starr (ZHS) can begin circulation of that page for the relevant signatures.

A substantial amount of work was done to the buildings' exterior stucco and coating. during a "2019 Emergency Stabilization Project." This funding request came through and work was instituted after the fieldwork for this HSR was completed and much of the report was completed. The HSR Schedule was adhered to. However, during the course of the HSR preparation, upon request, the Park provided photography of their stabilization project; thus, this HSR is a snapshot in time for then existing conditions of early November 2018. Recognizing that change has occurred as a result of this stabilization project, we have included key project information in Appendix G—2019 Emergency Stabilization Project—in which there is a synopsis of work completed, associated paperwork provided by the NPS, and photographs taken by onsite NPS personnel, principally Zandy Hillis-Starr.

Sidebar Regarding Construction Materials

In general, the buildings of St. Croix were constructed of different materials in different periods. The two primary construction materials overall were wood and masonry. The first years of St. Croix development were marked by wood construction with wood sourced from the island's own forested landscape. Extra wood resulting from land clearance of the plantations was sold to the other islands. Only later was wood imported first from Europe and then after the American Revolution from the previous English Colonies. St. Croix trees that had not been previously cut down were harvested as they reached harvest size—most notably the rot and termite resistant native mahogany and lignum vitae. A lignum vitae beam is over the hearth in the East Kitchen.



Sidebar Figure: Annotations on this historic photograph identifies roofing materials of the GCW.
1= Corrugated metal panels, 2= Batten seam metal, 3= Wood shingles, 4= Fired clay tiles.
Also note shutter hardware, ridge treatments, roof vents.
Source: www.kb.dk/images/billed/2010/okt/billeder/object276358/da/#kb)SD-0=page:1.

The wood buildings had walls of wood, such as post and beam, and wood siding, roofing, moldings, windows, doors, shutters, and floors. Wood shingles were typically imported from the United States and were used as the exposed siding and as roofing. The gunsmith's residence, believed to be the structure that existed over and above the north portion of the Perimeter Wall, exhibits wood as the predominant building material in historic photographs. This building was elevated on masonry columns. Several other buildings in Christiansted of the period exhibit masonry first stories and wood second-stories. The drawbacks of wood construction were amply illustrated in major hurricanes and fires. Beyond these "events," termites were the major concern. Almost every building code relative to fire resistant construction for St. Croix was promulgated after each major fire. A blaze was said to spread by flaming

wood shingles carried on the wind. Sheet metal roofing enjoyed an expanded market based upon both its fire resistance and its light weight. Fired clay tiles were less often used as a fire resistant retrofit due to their weight. In the photograph from the 1800s (on the previous page), four different types of roofing are seen on the buildings: corrugated metal, standing seam metal, tile, and wood shingles.

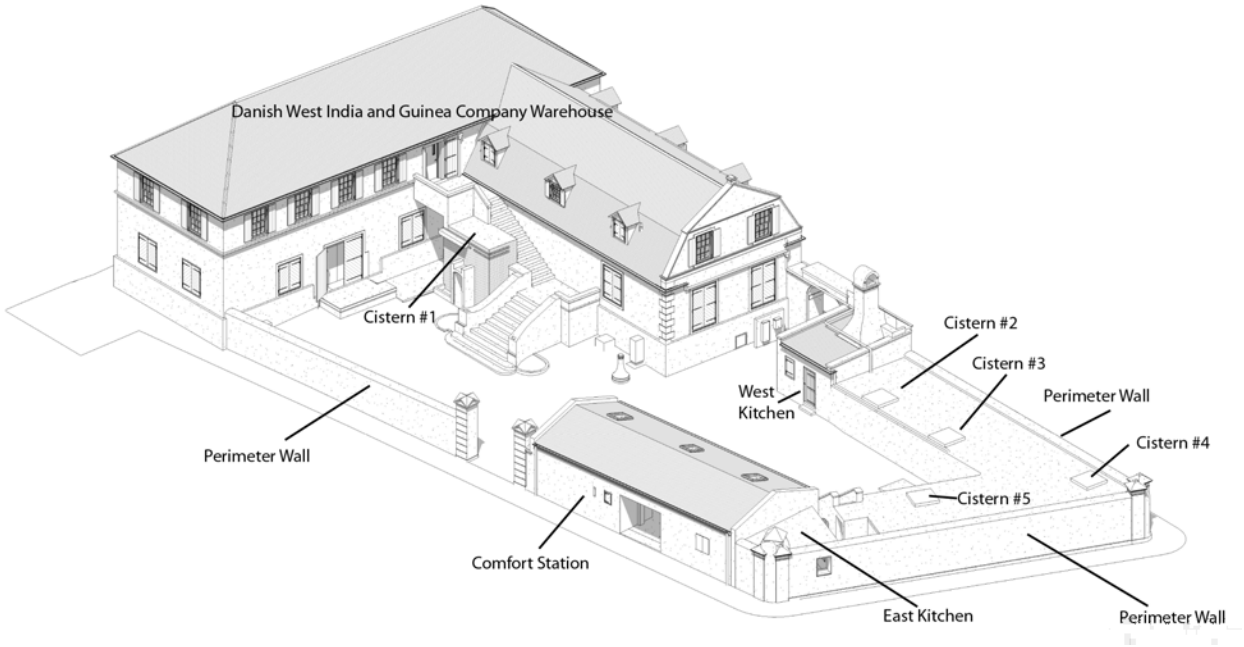
Masonry construction used three different types of masonry units: local coral stone, local limestone, and bricks. In the years of construction of the GCW—1748-1789—the bricks came from Denmark and were said to be used as ballast (and were awash in bilge water for months). Ship's manifests show bricks from Denmark to be in the outbound cargo of slave traders from Denmark to West Africa. Some of these bricks were traded in West Africa, and what was not sold were carried to St. Croix as ballast. What is clear is that bricks were a trade commodity and show up in advertisements in the local newspapers such as the "Royal Danish American Gazette" Vol. 1, No 67, of February 23, 1771. The advertised items, as drawn from five advertisements of that date, included: boards, thick and thin boards, shingling, copper nails, nails of all sorts, tiles, tar, paint oil in jugs, and "building and temper lime."

Many of the bricks were fired in Flensburg, a Duchy of Denmark (now Germany) and the yellow color was a distinguishing features. Flensburg was also a town with a great many distilleries turning the molasses from the Caribbean into rum.

The lime is of keen interest as the island had limestone that was burned in a lime kiln to make lime. The island possessed an abundance of shells that could likewise be burned to form lime. The literature indicates widespread local production of lime for mortar, stucco, or for use in other renderings. The GCW has lime mortar. In the mortar testing the aggregate had a significant amount of calcareous material which dissolved along with the lime binder (See the Mortar Analysis Report in Appendix B). In the test, a significant amount of aggregate in the mortar was digested by the acid, leading to the conclusion that the aggregate had a significant amount of limestone particles, coral particles, and shells. Based on the mortar analysis, even though lime was imported, the local lime could well have been the binder. The contents of the aggregate would have been good source material for the lime kiln.

Most of the materials listed in the above advertisements would be familiar to a modern day contractor with the exception of "tar." This material could be an asphaltum, but that is highly unlikely. In the nomenclature of the day, tar referred to pine tar, widely used as a wood preservative. This is sometimes referred to as Stockholm Tar as the Swedes attempted a monopoly on production and distribution. The pine tar could well have been smuggled in from the British Colonies, such as New England, where pine tar was produced. The colonists fiercely objected to the British government's objectives to send all pine tar to England to keep the Royal Navy in supply. Tar's preservation of wood properties was widely known—the material was in great demand—and regulations or not, was a trade item of consequence.

Part 1—Developmental History



Graphic of Project Overview

Part 1

Developmental History

General Historical Background, Context, and Site Chronology[1]

The Guinea Company Warehouse is notable by its evolution as an individual structure and its uses and configuration, and as the major building anchoring a compound of evolving buildings and uses contained within a walled courtyard. Under a charter from the Danish king, the Danish West India Company (the "Company") constructed the Danish West India and Guinea Company Warehouse (hereafter GCW), a two-story ell-shaped building, to perform as a warehouse serving the Danish colony—St. Croix. The warehouse stored the island's principal products to be shipped: sugar and molasses. It stored imported items as well, principally from Denmark, such as food, fabric, tools, and building construction materials including ballast brick from Denmark, and building materials from other Caribbean sources for use by plantations and residents of St. Croix. Initial warehouse construction was from 1748 through 1749. A few years later, in 1754, the King of Denmark ordered the purchase of the holdings of the Company, in part because of supplications of the plantation owners complaining about restrictions and excessive duties on trade, and in part due to the financial conditions. Thus the history of the now-named Guinea Company Warehouse can be divided into the three periods of ownership: the Company from 1748-1754, the Danish Crown/Government 1754 to 1917, and the government of the United States from 1917 until today. There is a sequence of U.S. government divisions in possession over time: the military, the Department of Treasury, the United States Postal Service, and the National Park Service.

The exploitation of the resources of the Western Hemisphere by Britain and the European powers was often undertaken by commercial joint stock companies; the Danish West India and Guinea Company was one of these companies. The name reflects the location of the efforts in the West Indies and along the west coast of Africa. The following table is a timeline of the history of the company compiled by Waldemar Westergaard in his book "The Danish West Indies, Under Company Rule" 1917, page [xi].

Table 1—Chronological Timeline of Danish West India and Guinea Company

CHRONOLOGICAL TABLE

1660. *Coup d'état* of Frederick III.
1671. Establishment of West India Company.
1673. West India and Guinea companies united.
1685. Brandenburg treaty concerning St. Thomas.
1690. Arff takes over Guinea factory.
1690. Thormöhlen lease of St. Thomas begins.
1694. Company receives back St. Thomas.
1696–97. Arff gives up Guinea trade.
1697. Company begins slave trade in earnest.
1706. Planters send first delegation to Copenhagen.
1715. Planters send second delegation.
1717. St. John occupied by Danes.
1726. Drought and famine on St. Thomas.
1733. Negro insurrection on St. John.
1733. St. Croix purchased from France.
1734. New charter granted by king.
1747. "Union plan and convention" enlarging Company.
1748. Planters send third delegation to Copenhagen.
1754. Company's shares sold to king; Danish islands become royal colonies.

[1]This Developmental History of this HSR describes the chronology of the GCW Compound and site, specifically noting major changes. In addition to this, each structure (namely, West Kitchen, Perimeter Walls, Cisterns, East Kitchen, Comfort Station, and GCW), has a section entitled "Record of Repairs and Alterations Overview of Modifications Over Time," which can be located by using the table of contents of each structure.

The following table is a timeline drawn from sources represented by direct quotations. The authors' terms are from their own time period and may not represent currently preferred terminology. The timelines of the multiple authors will naturally have several dates in common. Such repetition is an indication of the common understanding that these dates are important in the chronology of the site and region. Also, the date annotations refer to more buildings than just the GCW. Other buildings are part of the physical and historic context. As a point of possible confusion, the names of the referenced buildings may change over time.

Table 2—Timeline

1660[5]	*Coup d'état* of Frederick III
1671[5]	West India Company established by Royal charter granted to several merchants
1673[5]	West India and Guinea companies united
1685[5]	Brandenburg treaty concerning St. Thomas
1690[5]	Thormöhlen lease of St. Thomas begins
1694[5]	Company receives back St. Thomas
1697[5]	Company begins slave trade in earnest
1706[5]	Planters send first delegation to Copenhagen
1715[5]	Planters send second delegation
1717[2]	Danish occupation of St. John
1726[5]	Drought and famine on St. Thomas
1733[2]	Danish purchase St. Croix from France
1733	Slave rebellion on St. John
1734[2]	King of Denmark-Norway grants Charter to the Danish West India and Guinea Company
1734-1754[2]	Danish West India and Guinea Company rule St. Croix
1734-1738	Sometime during this era, a one-story, half-timbered warehouse measuring about 50 feet wide by 20 was erected in the wharf area of Christiansted by the Danish West India and Guinea Company
1742	A two-story, half-timbered, shingled house was built next to the warehouse as a residence for the bookkeeper of the Danish West India and Guinea Company
1747[5]	Union plan and convention enlarging Company
1747[4]	The first building code for St. Croix was enacted. At the time, the privilege of private trade was revoked in the islands. The colonists became desperate and sent to Copenhagen a delegation which obtained concessions.
1748[5]	Planters send third delegation to Copenhagen
1748[5]-1749	GCW designed and constructed by the Danish West India Company
1751[5]	The Privy Council of St. Croix decided to remove the second floor of the bookkeeper's house and to enlarge the ground floor in masonry.
1753[4]	A single governor-general was appointed for all the Danish islands.
1754[5]	Company shares sold to king; Danish islands become royal colonies
1755[2]	Danish King makes a Crown Colony of all 3 islands.
1755-1819[2]	Danish Colony and "golden age" of St. Croix plantation society
1756-1763	Seven Years War, causes boom in trade, followed by trade depression commencing at war's end.
1765[1]	The Governor General of the Danish West Indies and the Privy Council of St. Croix proposed to the Danish State Government that a new customs house be built to replace the existing and dilapidated one. This is the first time that the "bookkeeper's" residence is referred to as the "customs house."

1766	By order of the king, export duty on cotton and sugar from the Danish islands was reduced, thus helping St. Thomas to regain commerce.
1768[1]	The Danish State Government approved the construction of a new customs house in Christiansted. However, even though materials for its construction were bought in 1769, it was never built.
1775-1783	American War of Independence
1787[4]	The Danish king decreed that public schools should be provided for slaves in the Danish West Indies.
1792[4]	Abolition of slave trade enacted, 10-year grace period starts.
1792-1801	French Revolutionary War
1796-1797[3]	The Hospital Street extension halved the GCW property, thereby creating space for the Danish Customs House across Hospital Street from the actual GCW compound.
1798-1799[1]	An arcade having six brick pillars was added to the north side of the customs house, thereby increasing ground-floor dimensions to 42 feet by 29 feet. A new shingled roof with one large and four small dormers facing north-south was laid on the building. Other renovations, including an exterior stairway and platform to the second floor, increased alteration costs to 4,400 Rigsdalers. [Reference is to the Customs House, location not designated in the full text] *For a sense of value, according to www.historicalstatistics.org/Currencyconverter.html, 4,400 riksdaler riksgälds [1789-1855] in the year 1798 could buy the same amount of consumer goods and services in Sweden as $120,775 could buy in Denmark in year 2015.
Late 1700s - early 1800s[3]	Hospital Street extended, bisecting site.
1801-1802[4]	The Danish islands surrendered after a blockade, the British occupy the whole Virgin Islands archipelago.
1802[1]	Efforts to repair the old warehouse proved fruitless when it collapsed, and the building was completely torn down and removed from the site. [The referenced warehouse is clearly not the GCW, the text indicates there were multiple warehouses in the locational context, at least one of which was a warehouse of poor construction, torn down but not rebuilt.]
1802[4]	Britain restored the Danish islands which regained property lost during the occupation
1803-1815	Napoleonic Wars
1807	The Danish naval ships in Copenhagen's harbor were seized by the British. After a sea battle off St. Thomas, the British occupy the whole Virgin Islands archipelago again.
1813[5]	Danish state is bankrupt.
1814[5]	Having supported Napoleon; by the end of the Napoleonic Wars in 1814, Denmark surrendered Norway to Sweden. Poverty of the Danish commoners became ubiquitous. Norway was combined with Sweden and Danish influence in northern Germany shrank.
1815[4]	Treaty of Kiel (1814) returned St. Thomas, St. Croix, and St. John to Denmark. The delay in transfer of ownership of the islands to Denmark is attributed to a series of mishaps.
1815-1820	Five most prosperous years.
1818[4]	In Copenhagen, the New Testament was published in "Negro Dutch Creole" for use in the Danish islands.
1820-1917[2]	St. Croix experiences economic decline
1823[1]	The wooden second story of the customs house was reported to be in danger of falling down. The colonial government submitted a request to the home government for authorization to rebuild the second story in brick.
1848[2]	Slave uprising on St. Croix forces the Governor-General to proclaim general emancipation throughout the Danish West Indies on July 3, 1848.

1849[4]	A labor act was passed in the Danish islands to regulate working conditions for emancipated blacks.
1867	Major earthquake
1868[4]	The people of St. Thomas and St. John voted to transfer to the United States. St. Croix petitioned the Danish crown for inclusion in the sale to the United States. The sale did not go through.
1872[4]	Telegraphic communication was instituted between St. Thomas and Europe.
1878[2]	Labor insurrection
1899	Major hurricane
8/4/1911	U.S. and Denmark "Convention"
1916	Major hurricane
1917[2]	Treaty of purchase ratified in Washington (January 17, 1917); formal transfer March 31, 1917
1917-1931[1]	U.S. Navy administered the new American territories; admirals and captains were the governors.
1928	Major hurricane
1935[2]	Historic Sites Act
3/7/1939	Cable Office Building to the U.S. Treasury by Executive Order No. 8061 to be used as a post office.
6/22/1939	Virgin Islands Organic Act: Control placed in the Government of the Virgin Islands Old Custom House and Library Building and Old Fort.
1939[3]	Conversion to a U.S. Post Office: major changes to the building: floor and roof structures to concrete, north wing first floor lowered 2.5 feet, entrances altered, windows altered.
1952[2]	Secretary of the Interior Designates Virgin Islands National Historic Site & first (MOA) between DOI and Government of the Virgin Islands
1961	NPS responsibilities includes NPS review of Post Office renovations
1961[2]	Virgin Islands National Historic Site Redesignated as Christiansted National Historic Site
1972[2]	MOA determined "the Virgin Islands government would control the Government House, the Scale House, and the Old Customs House. The NPS would manage Fort Christiansvaern and the Steeple Building. The U.S. Treasury would control the West India and Guinea Company Warehouse
1974[2]	P.L. 93-435 Submerged Lands Act: Transfer of submerged lands was between U.S. Dept of Interior and the Government of the Virgin Islands of the United States.
1975[2]	Public Land Order No. 5463 CHRI reserved from conveyance to control of the Government of the Virgin Islands
1976[2]	MOA (Addendum #1) Re: CHRI— the NPS was to "restore the Customs House to its appearance of 1844"
1977[2]	MOA (Addendum #2) Re: CHRI—the NPS would restore the Scale House for use as a Virgin Islands Department of Tourism facility.
1978[2]	Reaffirmation of Memoranda, Re: CHRI
1982[3]	All wood sashes, frames, sills, and storm shutters were replaced in the building. [The referenced building was the GCW, then the Post Office.]
1984[2]	Title to the Government House acquired1985 MOA Re: CHRI 1986 General Management Plan (including plan to remove parking lot)
1985[2]	MOA re: CHRI "To clarify the administrative direction for the historic site, a new Memorandum of Agreement will be prepared that will include all pertinent elements of the previous memoranda, appropriate elements of this GMP, and any other elements necessary to reflect the current needs of the Government of the Virgin Islands and the NPS. "The new Memorandum of Agreement would, for the sake of clarity, supersede all previous memoranda." (U.S. Dept. of the Interior/National Park Service. June 1986.

	General Management Plan/Environmental Assessment—Christiansted National Historic Site, St. Croix, U.S. Virgin Islands)
1985[3]	TCI writes and delivers HSR on U.S. Post Office and Customs House
1986[2]	General Management Plan (including plan to remove parking lot)
1989[2]	Hurricane Hugo/Park Re-organization1989 Co-Management of Joel L. Tutein and William Cissel
1995[2]	SERO Audit
1998[2]	General Management Plan implemented
1999[2]	CHRI gains autonomy from Virgin Island National Park, St. John, Virgin Islands
1999[2]	Cultural and Natural Resources Management Consolidated
1999[2]	Joel A. Tutein Superintendency begins
2001[2]	Planning begins for the Marine Research and Education Center
9/14/2001[2]	Dec 10: The GSA sold GCW to the National Park Service
1/1/2002	GCW turned over to NPS by USPS

Notes:

[1]Historic American Buildings Survey (HABS). 1966. Historic Architecture of the Virgin Islands. Philadelphia: NPS. "Customhouse and Post Office now Christiansted Library, HABS No. IV-4"

[2]National Park Service, U.S. Department of the Interior. Christiansted National Historic Site, 2100 Church Street #100, Christiansted, St. Croix, VI 008-4611, Catalog Number: CHRI 11424. 2012 (?). Finding Aid—Park Management Records 1952-2012 (bulk dates: 1980-2000)

[3]The Collaborative Inc. 1985. Historic Structure Report for U.S. Post Office & Customhouse, Christiansted, St. Croix, U.S.V.I.

[4]Varlack, Pearl and Norwell Harrigan. *The Virgins: A Descriptive and Historical Profile*. St. Thomas: the Caribbean Research Institute College of the Virgin Islands, 1977

[5]Westergaard, Waldemar. 1917. The Danish West Indies under Company Rule (1671-1754). New York: MacMillan Company. http://sciencenordic.com/1814-denmark-lost-norway-gained-democracy and http://www.kb.dk/en/nb/nyheder/nbnyheder/0903Nap-SBL.html (22 April 2019).

The colonial economy languished under heavy-handed Company rule, which sought to maximize its profits primarily through the control of trade and land sales. Changes instituted, for example, were hauling only Danish goods in only Danish ships, attempts at restitution of escaped slaves from Spanish territories, revolving weak governing authorities, and Danish West India quashing profitable illicit trade. Together these changes caused uncertainty and consternation, coupled with significant market swings. When laws were liberalized to open up trade in 1735, allowing private shipowners to be trading partners, profits for the planters increased. The laws were reversed 12 years later by royal edict declaring the Company to have the monopoly on West Indies trade. Privateers were not only annoyances, their actions caused increases in friction between European countries given the privateers' letters of marque grantors and the flags of the ships taken. The powers of Europe were often in conflict with alliances switching constantly, thus what was happening in Europe was of stronger focus of the monarchs than what was happening in the Caribbean. The forces of nature were also in play: shipwrecks represented heavy losses (ships, cargoes, and crews) for the Company. "During the twelve years (1735 and 1746, inclusive), five of its ships, two of them with full West Indian cargoes and their entire crews, were completely lost" (Westergaard 1917, 230). In the midst of this turmoil, the prices of the two main crops of cotton and sugar fluctuated, sugar being the most extreme, with major decreases and increases in price paid to the Saint Croix planters, doubling and halving in waves. During this same

period, the costs to the planters for purchasing enslaved persons as workers more than doubled.

Items imported to Saint Croix were warehoused for security and protection from the elements. After the limitations of the royal edict of March 1747 were implemented, planters were afraid that a list of necessary items would no longer be available, adding to their hue and cry. Westergaard notes the vessels from New York, Providence, and Boston (and likely Maine for wood products) brought both provisions, barrel components (staves, bottoms/tops, hoops), and building supplies. These same ships brought mules and horses to run the sugarcane mills and to transport people and goods.

With what was apparently a renewed optimism in the future, the Company decided to build a masonry warehouse in 1748-1749 adjacent to the waterfront in Christiansted. This was not a small undertaking in terms of financial outlay and the difficulty in getting building materials to the site. Yet with all the turmoil of the time, the planters were to all appearances doing well as evidenced by the growth in population, the growth in the number of enslaved persons, the borrowings of planters from the Company, and the like. A reason for Company optimism was a doubling in 1747 of the receipts from customs duties from 26 dollars per capita to 46 dollars per capita (Westergaard 1917, 237). Conversely, 3,547 hogsheads of sugar were reported for 1753, and the number dropped to 1,910 in 1754.

In 1754, King Frederick V assumed direct control of the islands. The King also bought the 1,250 shares of the Company along with its debts and assets, such as the warehouse compound in Christiansted and the refinery. Sugar as a primary export serves as a good gauge of economic health for St. Croix. By example, there were eight windmills for grinding sugarcane in 1754 and in 1766 there were sixty-three mills. An average of 3.5 shiploads were the norm in 1755 and the years leading up to that year, while after that the average number of annual cargoes was 38 (Westergaard 1917, 245-246). In 1755, the island was producing 1.5 million pounds of sugar and 15 years later the production had risen to 17 million pounds.

Documentation in the form of plans indicate the warehouse evolved from a single building to a complex of added smaller buildings and uses; the grounds were surrounded by a wall of materials—first wood and later masonry—thereby creating a compound. The primary building had the warehouse functions on the ground floor and residential use above. Some researchers such as Larson (1928) and Oldendorp (1977, v. 1, pp. 248-249) indicate living quarters in the upper story of each wing. Please note: common nomenclature for ell-shaped buildings denotes the wing name by its direction from the common point, in this case southwest—a north extending wing being the North Wing and the perpendicular being the East Wing. In some reports and plans, this identification norm has not been followed. The North Wing housed the Company employee in charge of the operations of the Company and his family. The East Wing had three second-story rooms housing other Company employees. The Cissel “Report” (2000) indicates on page 8 that the building was “designed and built under the supervision of Chief Building Inspector Johann Wilhelm Schopen. After his death in 1771, Schopen's residence on

King Street, Christiansted, was purchased by the Danish colonial government to serve as the official residence of the Danish governors-general. It has ever since been known as Government House.

There are two plans from the late 1770s, one by Peter Lotharius Oxholm and the other unknown, with a fine degree of both drawn detail and word descriptions. Cissel, in his "Report, The Danish West India & Guinea Company Warehouse, Christiansted National Historic Site, Proposed Restoration and Slave Trade Museum," revised January 2000, provides a detailed description of the uses, layouts, and locations with the advantage of translation of the 1770s Danish into English. His descriptions from pages 10-12 follow; the plan that provides the basis of the description is provided below.

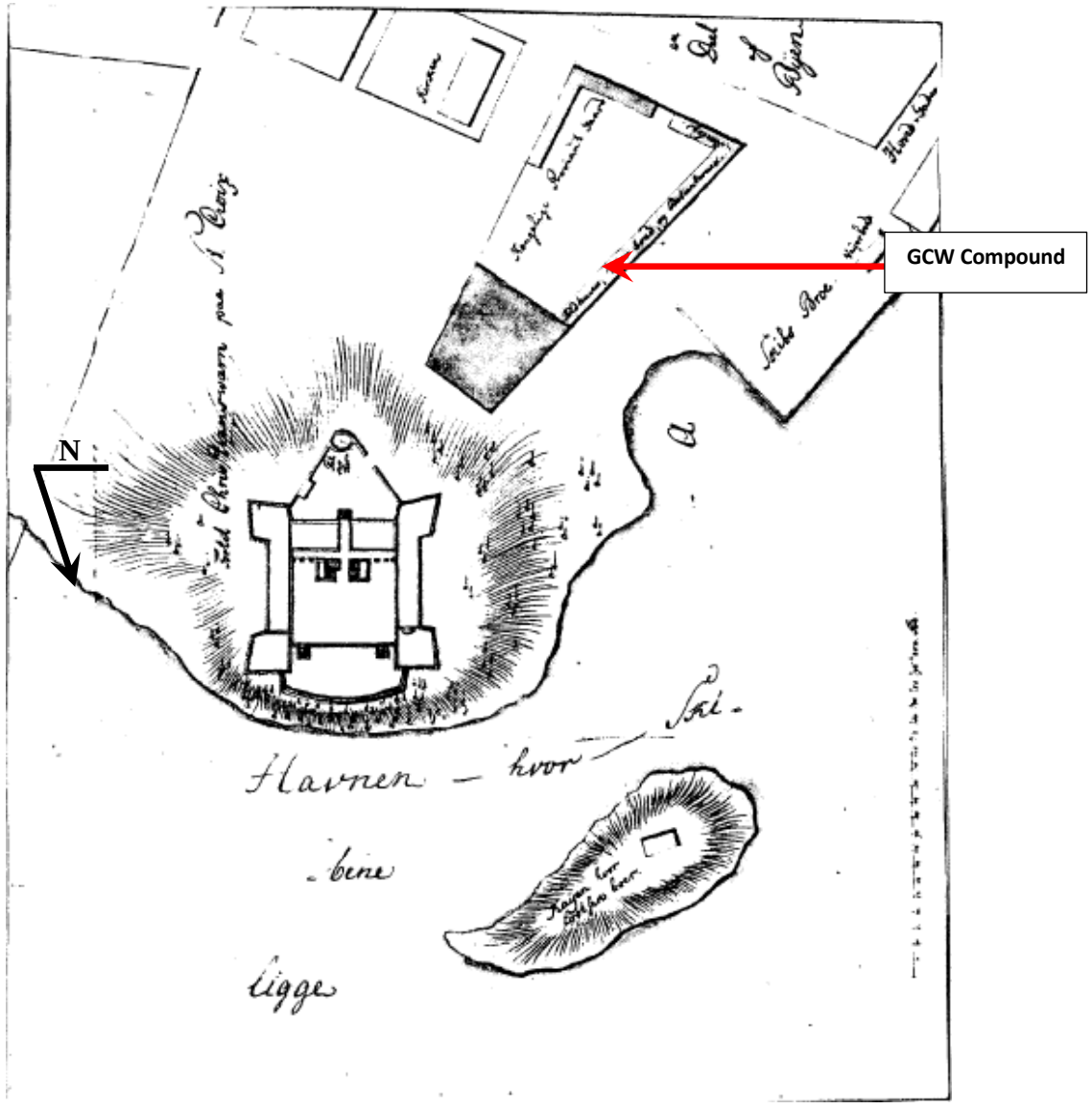


Figure 1: Christiansted Wharf Area, ca. 1778. Source: Rigsarkivet, Copenhagen.

"Peter Lotharius Oxholm's surveys of Christiansted, 1778-1779, are the first (so far as is known) that shows the Company's warehouse in detail, with its very extensive walled compound lined with structures (Figures 11, 12, and 13). The inscription within the Warehouse compound in Figure 11 reads as follows: (a) along the south side (i.e., Company Street), the "Royal Provisions Yard" (kongelige Proviant Gaard); (b) facing north toward the harbor, and continuing along the west side (i.e., Church Street) the "Customs House, Weighing House, and [illegible]" (Toldhuus, Weyer Boed, og [illegible]).

"The plan of the main building (at the intersection of Company and Church Streets) is identified as follows. The first floor of the main building (Grundriss af Proviant og Material Gaarden i Christiansted) provided for the following usage: (a) (west side, viewed north to south): the "Administrator's office under which is a good cellar" * (Forvalteren Comptoir hvor-under en god Kielder), and the "Custom Broker's chamber" (Told Megligers Kammer). (b) south side: the "storehouse" (Magazin).

"The second floor rooms (Grundriss af Loft Etagen i Proviant og Material Gaarden) contained: (a) (west side, viewed north to south): the "Material Administrator's residence" (Material Forvalterens Boelig) of three rooms, the middle of which had a stairway leading up from the interior of the first floor. (b) (south side, viewed east to west): "dormitories" (Rust Kammre) consisted of three rooms, the westernmost of which had a stairway leading up from the interior of the first floor.

"The Church Street (i.e., west) elevation of the main building showed four dormers in the modified mansard roof (the north end terminated in a gable). The ground floor, viewed north to south, had three windows and a door. Above the door (and for the width of its frame) there were five rectangular slits, possibly for ventilation. There are two small windows directly beneath the northernmost two ground floor windows, possibly serving a small cellar.

"The abovementioned wing had a raised gallery facing the courtyard, with steps leading up to it from the north and the south. A door off the gallery led into the first floor "Broker's office." Another door accessed the Company Street wing "storehouse."

"The complex, beyond the main building, featured: (a) On the south side, referred to as "the Company's street" (Compagniets Gade) (viewed from east to west): six "Negro houses" (Neger Huuser); an adjacent, slightly larger structure of unspecified use; an oven (Ovn); and the oven furnaces (Bagerhuul) below ground level, with steps descending from the baking area. (b) On the west side (viewed north to south): a privy; a rectangular structure partitioned into four rooms, the floor levels of which were apparently raised as each room was accessed from the courtyard by raised steps; a small street-facing door or gate (now evidenced by a blocked-up niche); and a main gate serving Church Street, apparently of wood, and most probably of double-planked construction. (c) On the north side, several adjoining fenced-in "yards" within the larger complex, providing offices, residences, outbuildings, and enclosures for Customs and Weighing officials (viewed east to west): (i) A rectangular structure of unspecified use (oriented lengthwise north to south), partitioned into two rooms (the northern one having west-facing steps leading up from a small yard, and the southern one having south-facing steps leading up from the main "Material Yard" (Material Gaard). Within this small yard, there was a rectangular structure (oriented north to south) located adjacent to and west of the first room in (ii), following, identified as the "Customs Administrator's office" (Told Forvalterens Comptoir). (ii) A large rectangular structure partitioned into several rooms (oriented lengthwise east to west), namely the "Broker's and Customs Administrator's office" (Meglerens Contoir + Told Forvalterens); the "Customs Administrator's office" (Told Forvalter-ens Comptoir), with interior steps/stairs oriented east to west—one at the southeast corner and the other in the middle of the west wall; the "Broker's office" (Meglerens Comptoir); a storage place" (Oplags sted); and a room partitioned into two—a smaller (north-facing) and a larger (south-facing), both identified as the "Comptroller's office" (Controlerens Comptoir). This complex had an adjacent "L"-shaped enclosed yard to the south and the west. There was also a privy situated in the southwest corner of this yard. (iii) A "Guard House" (Vagt Huus), which controlled access to the main "Material Yard" from the wharf. (iv) A rectangular structure of moderate size (oriented lengthwise east to west), consisting of the "Weighing Master's office" (Veyer-mesterens Comptoir), with steps leading up from the wharf, and having a small attached enclosure to the south; the "Weighing Master's residence" (Veyermesterens Boelig), with a narrow rectangular structure of unspecified use attached on the southern side; and a room partitioned in two—the larger one having two stairways (at 90 degree angles to one another, connected by what appears to be a small landing) in the southwest corner, and a small adjacent room south of the stairs, also of unspecified use. This complex also had an enclosed "L"-shaped yard to the south and the west. …. Source: Cissel 2000.

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*"good cellar" was a below first level storage space in the north wing for which there was an access door under the stairs on the east elevation. For the rehabilitation construction in 1939, the floor level was lowered some 2.5 feet, significantly reducing its height and consequently its use for storage.



Figure 2: Oxholm's Plan No. 2—Christiansted (1779)
Source: Rigsarkivet, Copenhagen.

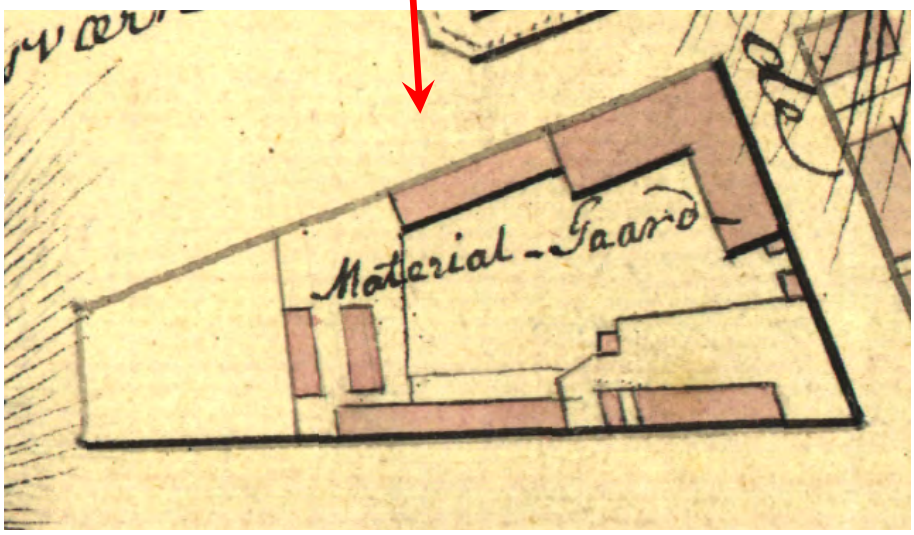


Figure 3: Closeup view of Oxholm's Plan No. 2—Christiansted (1779)
Source: Rigsarkivet, Copenhagen.

"A slightly later plan of the warehouse compound, ca. 1780, is far more detailed. It not only identifies the use of the rooms, but delineates partitions and stairs within rooms. Source: Cissel 2000.

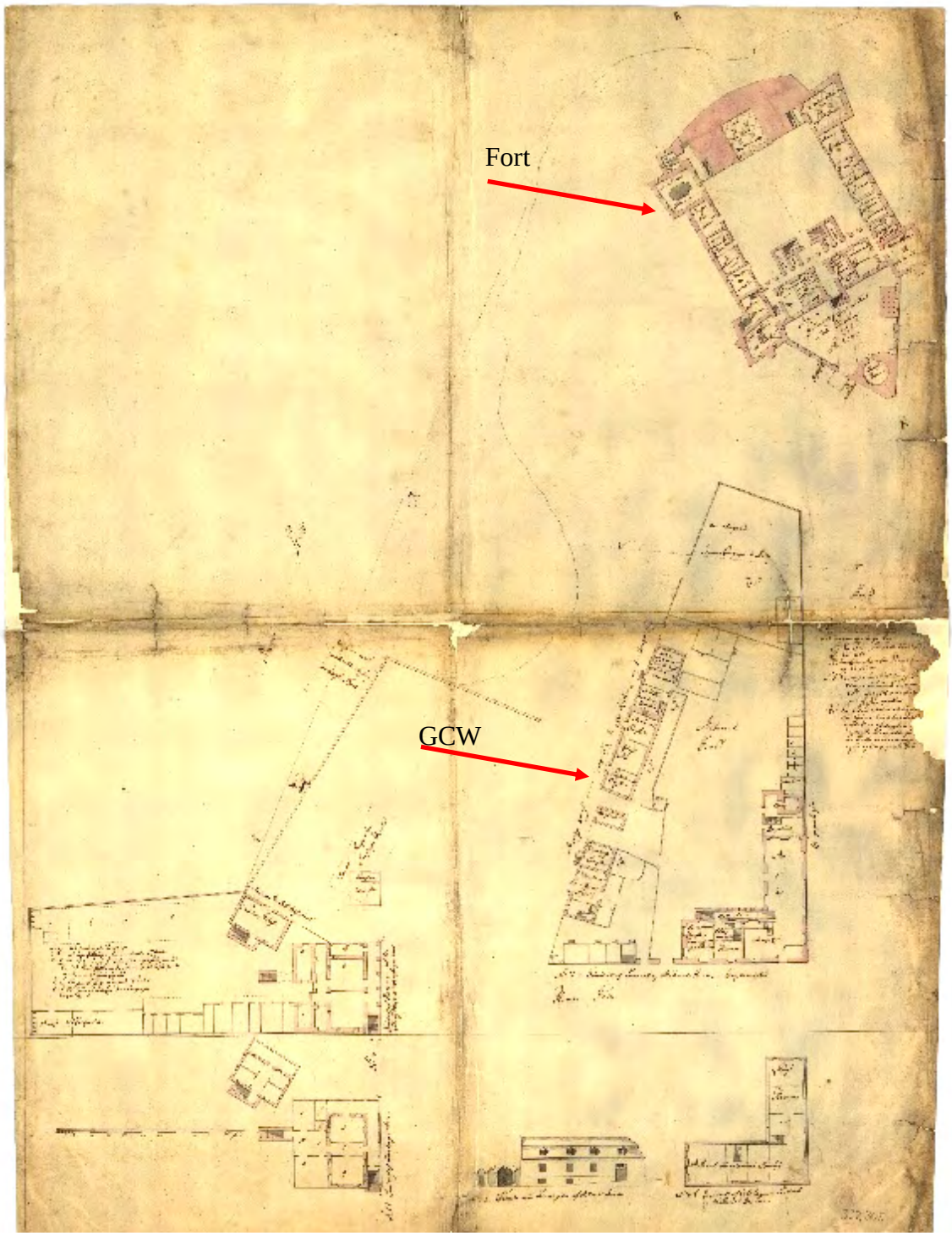


Figure 4: Oxholm's Plan of the Danish West India & Guinea Company Warehouse—ca. 1795. Source: Rigsarkivet, Copenhagen.

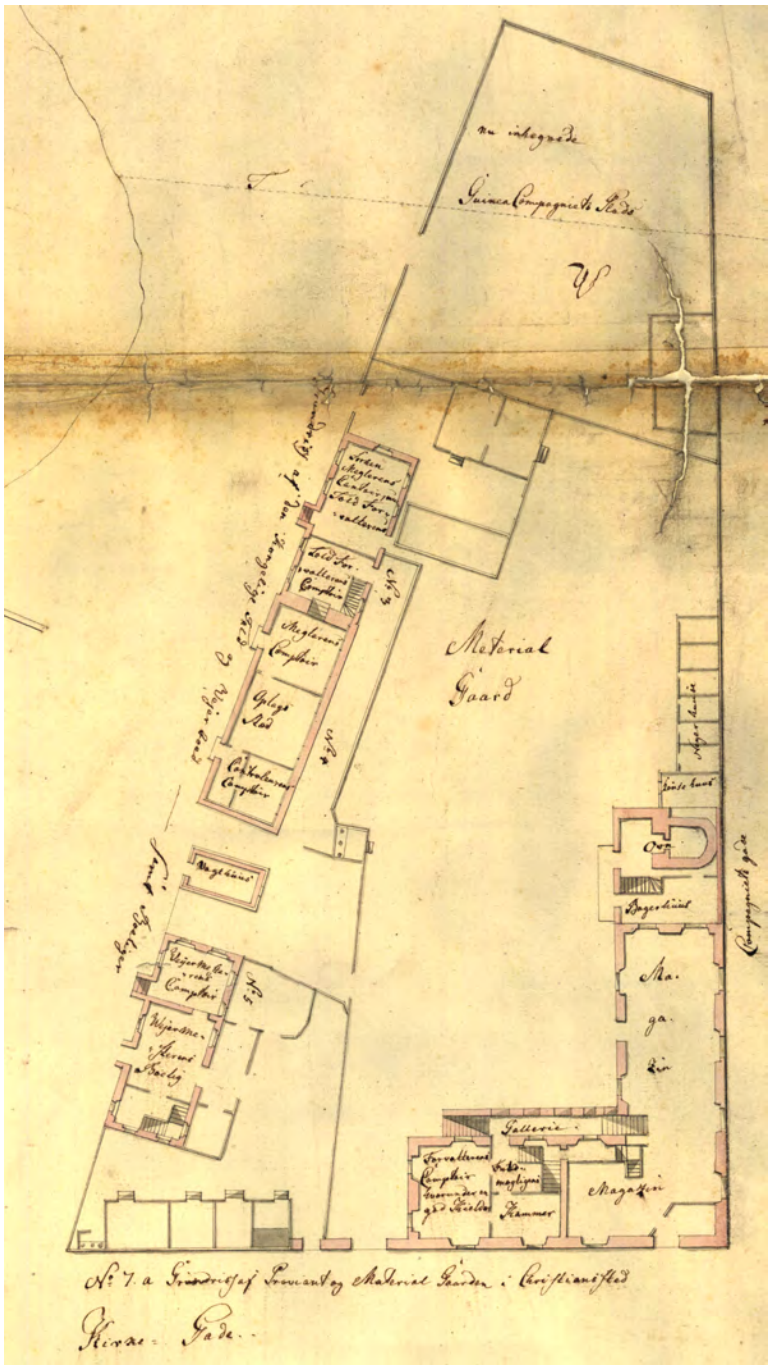


Figure 5: Detail of Figure 4.

The historic photographs and images, commencing in approximately 1860, are presented in an appendix. As they show evolution of buildings and site features over a period of 100+ years for each section of this report, each individual building has a discussion of changes and alterations to the building and these historic photographs provide the

primary illustration of these changes. In addition, buildings seen in photographs and no longer extant are reviewed.

Select Historic Photographs from 1985 Historic Structure Report



Figure 6 (YoungT_Slides_036): Straight-on view of the Welcoming Arms staircase and surrounding vegetation.



Figure 7 (YoungT_Slides_044): The west elevation of what is now called the Comfort Station.



Figure 8 (YoungT_Slides_047): East gateway. Note the near-new iron gates.

Sidebar Regarding Local Style of Architecture

Multiple Factors Converge to Develop a Local Style of Architecture:

1. The predominant architectural style of the period is Georgian.
2. Each building type has its own style; for example, a bank looks unlike a barn.
3. The country of origin of the owner, for example Denmark, Holland, and England as major countries of origin for the St. Croix settlers, influenced the style of architecture.
4. The materials locally available for construction determine the style of the openings topped by a wood lintel (big timber available), big stones, or arches where big stones are not available.
5. Local climatic conditions and storm events are factors that determine how resistant the buildings are to high winds, major rains, or seismic events.
6. Choices are made in response to insects like termites that cause materials deterioration, or larger animals that can enter a building like rats and snakes. These considerations are part of the design decision for both the materials and the building.

Sometimes these factors are in conflict. Deep eaves providing rainwater protection also provide desirable shade walls in sunny hot climates. Buildings in Denmark do not have the hot sun as a major design consideration so that country's design idiom may not transfer well to a hot climate. Other techniques to provide shade and weather protection are in evidence, such as the use of arcades and porticoes. Adaptation of a home country architectural style to the new country can occur relatively quickly if it is an add-on. It is more difficult to adapt a building's inherent style such as eave depth or orientation to prevailing breezes after construction. Consideration of the experiences of the owners may provide insight into their exposure to other styles of other countries with similar climatic characteristics. For example, the British Empire was widespread and the architectural styles of hot climates were known to the British traders and their vessels. Given that the plurality of inhabitants of St. Croix were British or of British descent during the 1700s and 1800s, the architectural styles of their dominions may be seen in the architecture of St. Croix.

The architecture of the two major towns of St. Croix—Frederiksted and Christiansted—differ from the architecture of the plantation homes. These city-located buildings are indeed urban buildings (both residential and commercial). There are a number of government buildings with similar stylistic elements and character. The buildings, regardless of use, are set in the grid plans of each of the planned cities. The other major building type was the church set within the urban fabric, executed in the style of the churches in the home country—for example, Moravian churches. Churches typically occupied more than a just one building lot as there was often an associated cemetery. Most buildings were situated on one lot or at most two within the grid. The Guinea Company Warehouse complex, as seen before being subdivided and reduced by the extension of Hospital Street, extended beyond the grid toward the Fort. After the subdivision the portion with the warehouse was transformed into a compound with the perimeter enclosed by the masonry wall and the walls of the buildings. The premises had gone from a generally outside the grid parcel with a sprawling area of structured and unstructured uses to a confined compound within the grid with structured uses. The plan of the compound of 1795 is quite different from that of 1779.

Local materials used in construction started with wood, abundant in early times of European colonization. As time went on the amount of wood being harvested exceeded the natural replacement. In addition, lands were cleared for crops; the wood harvested from the future fields was used locally and sold to other islands. As a construction material, while originally plentiful, wood proved to be subject to termite damage, was often heavily damaged by hurricane winds, and was completely destroyed by fire. With respect to fire, the government instituted codes to induce switching to fire resistant construction, namely masonry. Local masonry used a substantial amount of local materials such as limestone and coral stone mixed with imported brick. The latter was used for corners, around window openings, parapets, chimneys, and decorative details as seen in the West Gate's Church Street elevation and the quoins on the main warehouse building corners.

As seen in the walls of buildings in Christiansted where the masonry is exposed, there are two colors of brick—red and yellow—and two sizes, the flat shaped bricks looking like books in proportion to the more normal sized brick. These bricks, regardless of dimensions, have been referred to as ballast brick based on the need for ships to have heavy loads placed low in the holds to assist the ships' resisting the side pressure of sails and rigging above. The primary purpose of some of these bricks was the use of their weight as ballast. The weighty cargo on the return trip was sugar and molasses. Since the bricks were no longer necessary for ballast, they were available to be sold to the local population for construction.

Perhaps the most recognizable ballast bricks, called adoquines, are those paving the streets of Old San Juan, Puerto Rico. Originally these bricks were fired in Spanish kilns from the slag (residue) of iron furnaces. Today, replacement bricks are carefully matched to the originals in size and color and provide an ongoing icon of the history of the city. In many former British Colonies, the ballast bricks have the identifying name of the brick yard stamped into the face. These bricks are cherished as symbolic reminders of the past.

References have been made to ships carrying 10,000 bricks. Possibly this is an average amount. However, the amount of ballast needed by a single ship in part depends on ship length, the weight of the other cargo, the ability to fix the cargo in place, characteristics of live ballast (people traveling as crew and willing or unwilling travelers), and other factors relating to stability. The Danish ships took on ballast bricks in Flensburg. It appears the shipowners also sold the bricks in both Africa and the Caribbean so more bricks were likely hauled than were strictly needed for ballast. From a math basis, 10,000 bricks would build 476 square feet of a three-wythe wall (three bricks thick, typical thickness), or about 60 lineal feet of an eight-foot-high wall. This is about the size of the West Kitchen.

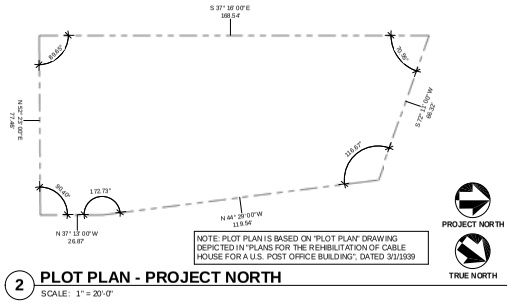
After the American Revolution, the newly formed Republic expanded its previously restricted trade. One trade good with an expanded supply was bricks. In addition, lime for mortar and plaster was being exported. Bricks and lime are widely advertised as being available and for sale in the local newspaper of St. Croix. In sum, not all bricks used in St. Croix were Danish in origin, and not all bricks were simply left over from its use on the passage as ballast. Ten thousand bricks do not go very far, hence the early sparing use of the brick with the field being the random rubble masonry of locally sourced material.

> *…From Europe, the colonial architects acquired a fondness for brick as a building material (an expensive fondness, as all brick had to be imported) and for such details as elaborate cornices and pediments, columns, pilaster strips and string courses, quoins and plaster imitations of rusticated masonry, and most important, they acquired a love of symmetry and overall grace of proportion. But they eliminated the large chimneys of northern climates and moved the staircase to the upper floors outside; the main entrance was raised one story above the ground. These exterior staircases became typically West Indian and lent themselves to elaborate architectural treatment. The most common type is a gently flaring shape known as the "welcoming arms."*
>
> —Gosner 1971, page 13.

Physical Description and Condition Assessment—Site

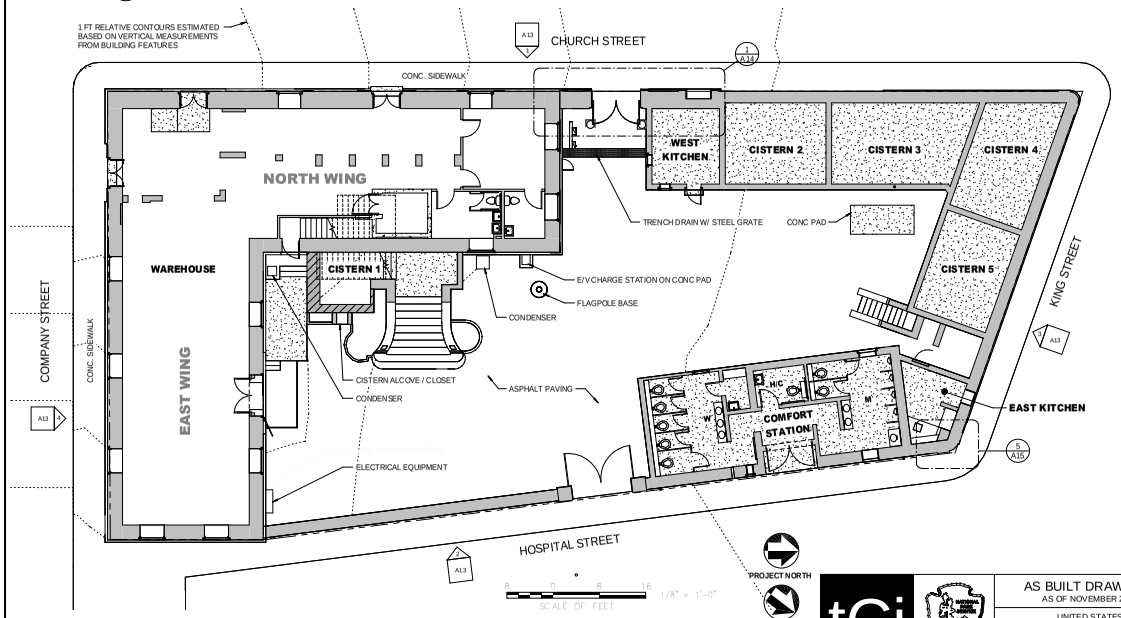
DANISH WEST INDIA AND GUINEA COMPANY WAREHOUSE AND ASSOCIATED STRUCTURES ON THE SITE

CHRISTIANSTED NATIONAL HISTORIC SITE , ST CROIX, VIRGIN ISLANDS



2 PLOT PLAN - PROJECT NORTH

SCALE: 1" = 20'-0"

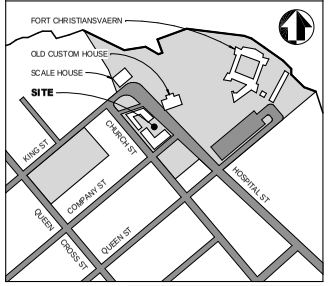


1 SITE PLAN

SCALE: 1/8" = 1'-0"

NOTE: PLAN CUT LEVEL VARIES ACROSS SITE. SHOWN APPX 4'-0" ABOVE NEAREST BUILDING FLOOR LEVEL

VICINTY MAP



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PROJECT INDEX

SHEET NO.	DESCRIPTION
-	COVER SHEET / SITE PLAN
A2	3D SITE VIEWS
A3	WAREHOUSE FLOOR PLAN
A4	WAREHOUSE FLOOR PLAN
A5	WAREHOUSE ROOF PLAN
A6	WAREHOUSE ELEVATIONS
A7	WAREHOUSE ELEVATIONS
A8	WAREHOUSE SECTIONS
A9	COURTYARD BUILDINGS FLOOR PLAN
A10	COURTYARD BUILDINGS ROOF PLAN
A11	COURTYARD BUILDING ELEVATIONS
A12	COURTYARD ELEVATIONS, BUILDING SECTIONS
A13	SITE ELEVATIONS
A14	CHURCH STREET WALL FEATURES
A15	HOSPITAL STREET WALL FEATURES
A16	CRACK ANALYSIS ELEVATIONS
A17	CRACK ANALYSIS ELEVATIONS
A18	WINDOW / DOOR SHEET
A19	CHRONOLOGY / SITE EVOLUTION PLANS
A20	CHRONOLOGY / GCW EVOLUTION PLANS
A21	CODE ANALYSIS / ULTIMATE TREATMENT PLAN

tCi the Collaborative inc

AS BUILT DRAWINGS
AS OF NOVEMBER 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE
SOUTHEAST REGIONAL OFFICE

TITLE OF DRAWING
COVER SHEET / SITE PLAN

LOCATION WITHIN PARK
DWI GCW

NAME OF PARK
CHRISTIANSTED NATIONAL HISTORIC SITE

REGION: SOUTHEAST
CITY: CHRISTIANSTED
STATE: ST. CROIX, U.S.V.I.

DRAWING NO. ———
PMIS / PKG NO. ---
SHEET 1 OF 21

12/4/2018 1:45:21 PM

Physical Description and Condition Assessment—2019

Introduction

The condition assessment sequence of the text commences with the Site, the West Kitchen, the Perimeter Walls, Cisterns, the East Kitchen, the Comfort Station, and the Guinea Company Warehouse (GCW) is the final structure. For each building, the sequence commences with the exterior, and the text proceeds subsequently to the interior features.

The following methods were employed in the condition assessment:

1. Measurement of several of the components as pure documentation (width, thickness, height, length) and to discover possible anomalies particularly related to deformation.

2. Sounding of exterior surfaces and interior plastered surfaces, using a custom-made sounding device to determine areas of hollows and likely delamination.

3. Ground/Surface Penetrating Radar (G/SPR) scanning of the structural walls composed of materials such as plaster, stucco, brick, stone, coral, and concrete, revealing the sub-surface conditions. Equipment used was a GSSI SIR-3000 system, scans were generally completed around the structure at or near the bottoms of walls, above the wainscot, vertically up the sides of the exterior, and for select areas of the interior.

4. Thermal imaging of exterior surfaces using a FLIR T600 to track heat differentials indicative of moisture penetration, delamination, and other anomalies in thermal conductivity.

5. Photographic Documentation using a 24.3 megapixel high resolution camera capable of providing high resolution close-up views

6. Oblique light examination of exterior wall surfaces to better indicate the presence of cracks, spalls, infill areas, stucco delamination, and surface bubbles.

7. Close up visual examination, and distance viewing aided by binoculars/spotting scope/other means, of the exterior and interior surfaces.

8. Exploratory drilling of the walls to reveal internal conditions of materials including near surface materials, their depth, and type; and moisture within the walls. Drill holes were viewed by video through a borescope.

9. Surface sampling of wall materials to test in the historic materials laboratory: mortar being the priority.

10. Sampling of surface paints to examine the layers and their colors as matched to the Munsell International System of color.

Site

Figure 9 illustrates the overall site configuration at the time of the team observations in November 2018.

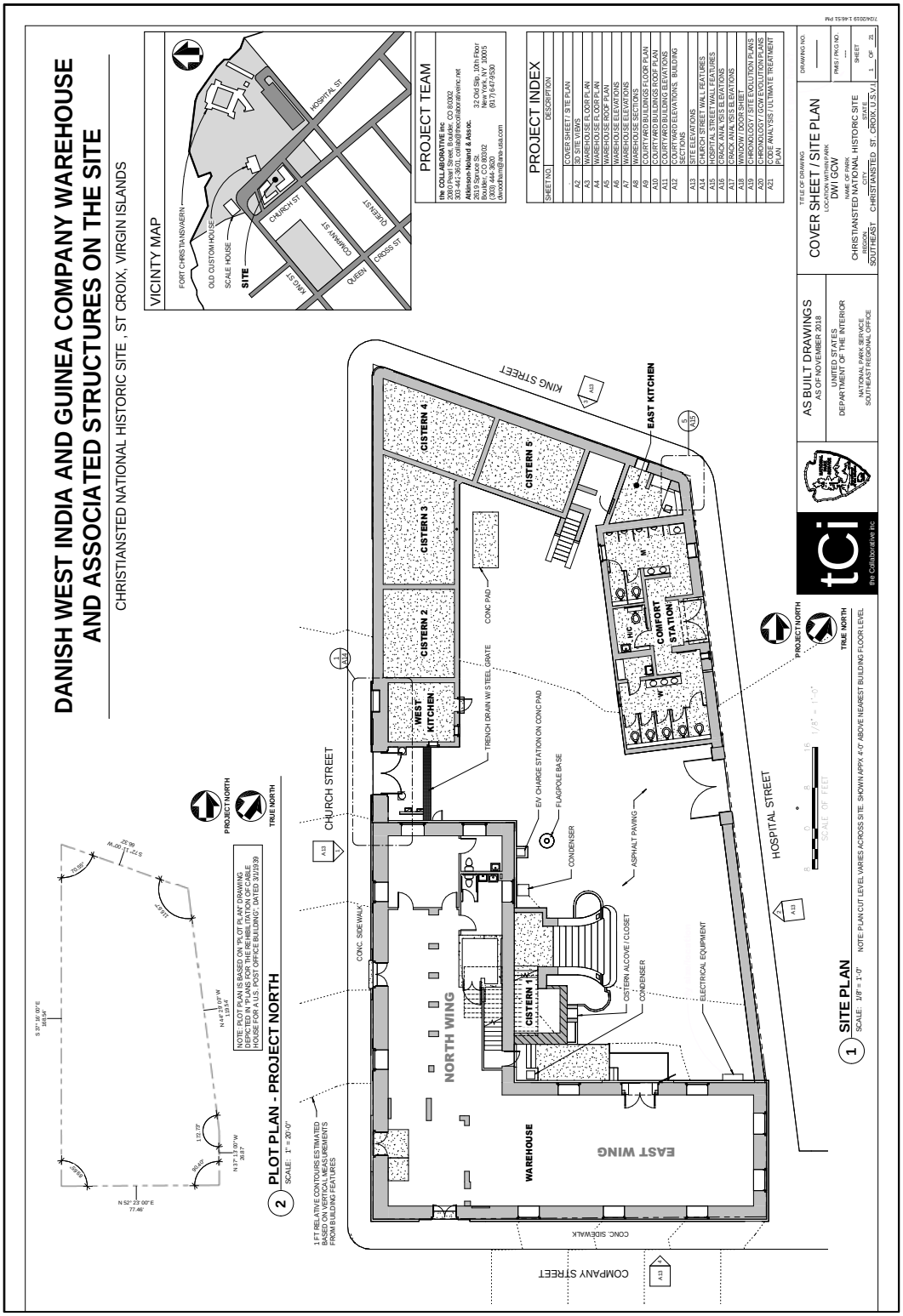


Figure 9: Draft of Conditions as seen in November 2018, DWI Compound Site Plan.

Topography and Drainage

The approximate elevations in feet above sea level at the four corners of the site are: northeast 10 feet, northwest 11 feet, southeast 12 feet, and southwest 14 feet. The maximum calculated slope is about 2.75% diagonally across the site from the southwest down slope to the northeast. The sidewalk slope along Church Street is an average of 2%, along Hospital Street an average of 1.5%, along Company Street an average of 2.75%, and along King Street an average of 1.75%. Floodwater from tropical rain storms enters the building through the GCW doors nearest the southwest corner of the site, the pair of doors on Company street, and the pair of doors on Church Street. The Church Street entrance is the primary accessible entrance to the building.

The enclosed courtyard drains toward the east gate, but not effectively because of insufficient slope and surface irregularities. Some portion of surface water pools up in the northeast corner by the stairs to the top of the cisterns. The area has a pipe of uncertain dimensions as it is under some concrete, which passes through the perimeter wall to the north to provide overflow response to high water conditions. This pipe appears to be the sole drain outlet, is probably no more than 3 inches in diameter, passes through the interior wall into the storm swale outside the wall, and then flows into the old drainage culvert that runs south to north under King Street. Reportedly, the storm drainage continues by the Scale House to flow down the gutter past King Christian Hotel and then eventually into the harbor.

Drainage onto the Site from offsite is a noteworthy problem in the southwest corner of the compound for two reasons: confluence of contributing flows from Church Street and Company Street; and the curb is cut to allow a ramp on to the sidewalk. Church Street goes down a hill, dropping 45 feet in elevation in 600 horizontal feet. The perpendicular Company Street is not as steep but its drainage flows toward this same corner. While in the field, the investigative team did not have the opportunity to observe the flows during an intense rain event. The sandbags next to the adjacent entry doors created a discussion as to when these were used to increase the building's resistance to flooding. "Often enough" was the response. The GCW doors nearest the southwest corner of the site, the pair of doors on Company street, and the pair of doors on Church Street have been the path by which floodwater from tropical rain storms enters the building. The Church Street entrance is the primary accessible entrance to the building.

The drainage from offsite problem cannot be solved unless the flood waters above the site is interrupted.

The drainage issues of yesterday will continue to be of greater intensity in the future for several reasons:

1. An increase in the average amount of water resulting from a storm.
2. The intensity of storms, staying over the site for longer periods, thus increasing the quantity of rain while reducing absorption as the extended time of exposure from the continued rainfall causes the soil to reach the saturation point.

3. The rising sea levels affecting the storm water outfall line's ability to drain; outlet structures do not work when underwater as is now the storm-based high tide case in Miami. Greater storm-based tidal surges have the same issues of a rise in sea level.
4. Increases in the percentages of the area's ground surface being hard surfaced; for example, paved parking lots, paved roads, patios, and roofs. Less capability for the ground to absorb water means more runoff.
5. Alterations of flow patterns and open drainage channel capacities. Constantly adding asphalt overlays to streets raises the level of the street surface and reduces the channel capacity of road gutter systems to the point where storm flows can "jump" the lower height curbs. The enhancement of accessibility by the provision of sloped ramps at the gutter/curb/sidewalk interface is a notable point of capacity loss and provides a path for water to move from the channel up on to the sidewalk.

The Site's resiliency can be increased by protecting lower level openings particularly the doors along Church and Company streets with removeable storm doors to seal entry. Such doors can be stored inside until their use is necessary. Providing these types of doors at the gates into the courtyard, providing drain lines with back flow valves for the courtyard, and working with the local authorities to intercept drainage before it reaches the site. There is a more extensive discussion of the problem and treatments in the section on climate. There is a more extensive discussion of the problem and treatments in the section on climate.

The park has initiated requests for storm water control, a prevention plan, and road mitigations. This will have to be coordinated with GVI Water and Power Authority and Public Works Department, both of which have authority over Church Street and which do road work on NPS owned road sections of King Street, Hospital Street, and Company Street.

Vegetation

As seen in photographs on this and the following page, there have been trees in the courtyard at different times in the history of the compound. The largest tree was possibly a mahogany tree, based upon crown configuration. One or more palm trees can be seen in several photographs; the heights of the trees provide a gauge for the age of the photograph. See, for example, figures 10-15.



Figure 10: Size of tree in an 1860s photograph "Custom House Square."
Source: New York Public Library, Image ID 1649216.



Figure 11: 1890 photo by Christian Ludvigsen: Warehouse Building. Source: The Royal Danish Library.



Figure 12: Detail of 1937 aerial photo purchased by TCI from Ebay.



Figure 13: Detail of 1950 photo: Church Street with U.S. Post Office and Town Clock on left.
Source: St. Croix Landmarks Society #13,598.



Figure 14: General view from northeast, January 1960.
Source: http://hdl.loc.gov/loc.pnp/hhh.vi0125/photos.166262p.



Figure 15: Detail of 1973 National Register Nomination photo.



Figure 16 (4727): November 2018 photograph of the palm tree located at the base of the masonry staircase for cisterns.

The palm tree located at the base of the masonry staircase for the cisterns was removed in 2019; only a short 30-inch stump remains. The tree was removed because it was host to a tree termite colony that was affecting wood elements in both kitchens. Other areas on the compound exhibit plantings in historic photographs including locations near the current loading dock. According to Zandy Hillis-Starr (ZHS), the palms outside of the compound were planted by the NPS in 2000 during the removal of the public parking lot at the Customs House and restoration of the traffic island at the corner of Church Street and King Street.

Planting beds were delineated by what appear in the photographs to have been stone borders. One unusual feature was what possibly could have been top-of-perimeter-wall plantings, particularly visible along the east wall of the perimeter from GCW to the first building (now known as the Comfort Station) (see figure below). At the east stairway, there is a recessed planter in the solid balustrade tops, about even with the first tread.



Figure 17: Note the top of perimeter wall plantings that are particularly visible along the east wall of the perimeter GCW 1888-1893.
Source: www.kb.dk/images/billed/2010/okt/billeder/object276358/da/#kb)SD-0=page:1.

Walkways and Steps

Walkways: There are no internal walkways—that is to say, no walkways inside the perimeter wall. There are concrete sidewalks on three sides: along Church, Company, and Hospital Streets. The longitudinal slopes have been provided above as these sidewalks are part of the accessible routes to the building. All are acceptable slopes. Cross-slopes were not measured. The sidewalks are beyond the site boundaries.

Steps: On the west sidewalk (adjacent to Church Street) there is one step and two risers leading up and into Door 102 (see TCI Plan sheets A3 and A4 in Appendix E), one of the access doors into the main lobby entrance of the previous U.S. Post Office for downtown Christiansted. These steps are of concrete although as with other stairs on the site, the concrete may be an overcoat of the earlier brick stairs.

An historic set of stairs is located at the east end of cistern number five, first seen in historic photographs as being covered by the shed roof extension of the gunsmith's residence. After the loss of the gunsmith's residence, the stairs may have remained in this location. However, historic photographs of the inside of the Perimeter Wall at the location of the stairs have not yet been found. The current stairs ascend to a reinforced concrete platform at the same height as the adjacent cistern roof, supported on reinforced concrete columns. The columns exhibit substantial loss of concrete due to exfoliation of the reinforcing bar.

Two other first-floor doors have stairs leading up to them. Both of these are located on the north elevation of the east wing: one set leads up to the loading platform with two steps/three risers and on via the platform to entry door 104; the second set of two stairs/three risers serves door 105 and the internal stairs from the second story offices. Both sets are in good condition (see TCI Plan sheets A3 and A4 in Appendix E for door references).

The last set of stairs is in two sections and constructed in two periods. The earlier construction is a section ascending from ground level to an intermediary landing. It is in the characteristic design of the Virgin Islands known as "Welcoming Arms" because of its characteristic solid balustrades wider at the bottom with volute returns. This section was built first and rose to the earlier height of the first floor of the north wing, 2.5 feet higher in elevation than after the 1939 construction lowered the floor. Therefore this section of stairs was constructed earlier than the date for the rehabilitation of the Cable Building into the U.S. Post Office. As part of the 1939 construction, a concrete upper set of stairs leading to the second story of the east wing was added. The earlier section was reported to be constructed of brick, which can be seen under a light rendering for the balustrades, but the treads now mostly show a concrete with aggregate similar to the other concrete of the 1939 construction; dark gray angular stones are prominent. The platform was at the height of the wooden gallery along the east side of the north wing.



Figure 18 (3000): East stairway. Construction date unknown, but these "Welcoming Arms" stairs were typically built in the late 1700s and early 1800s. It may have been built in association with other changes, such as the extension of Hospital Street. The upper (later) section is to the left.



Figure 19 (3022): East elevation lower stairs.



Figure 20 (3024): Detail of east elevation's lower stairs.

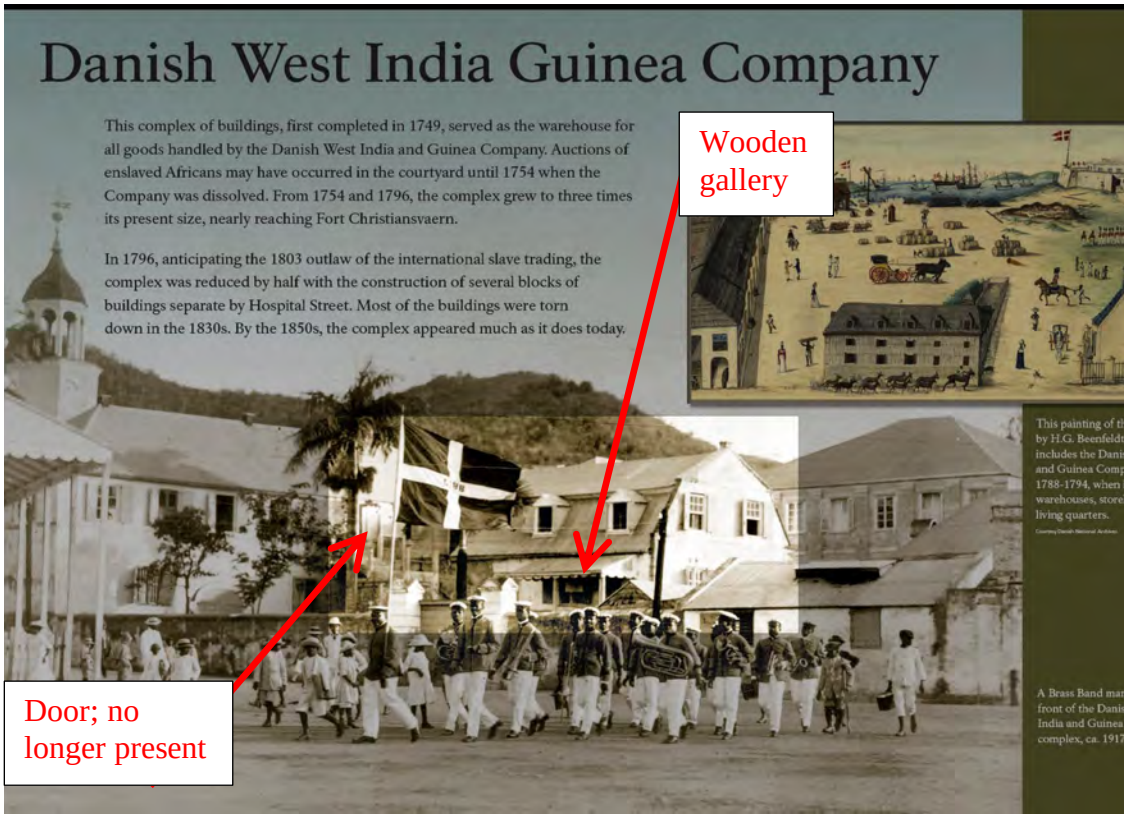


Figure 21 (wayside exhibit –image is from 1917): Wooden Gallery



Figure 22 (3023): East elevation's lower stairs. Note "planter" in top of balustrade, steel handrail installed post 1985 possibly to respond to code considerations. Note: no steel handrail as of 1985.



Figure 23 (3021): North wing, east elevation. Partial view of stairs to second story, parallel to elevation at the turn.



Figure 24 (3014): North wing, east elevation. Upper portion of stairs seen in figure above.



Figure 25 (3019): Detail of north elevation's upper stairs. Vertical pipe leads to Cistern #1.

Miscellaneous Features

During Hurricane Maria in September 2017, the flagpole was broken at a point just above its base. The assembly was installed in 1939.



Figure 26 (3080): Miscellaneous site feature—flagpole in CHRI Courtyard; east gateway beyond.

There is a concrete pad previously used as platform for a compressor, now removed, the pad is vacant. It can be removed.



Figure 27 (7163): Miscellaneous site feature—concrete pad for removed compressor, which is no longer needed. The palm tree has a termite infestation and was removed 2019.

By the west gate there is a utility trench for pipes to cross the drive.



Figure 28 (7176): Site feature—Trench between West Kitchen and north wing.

Character Defining Features—Site

Character Defining Features (CDFs) are presented for each individual site feature in turn, beginning with the Perimeter Walls and proceeding clockwise around the compound. In the late 1790s, the site was the subject of one major change that split the complex into two—the extension of Hospital Street to intersect King Street. Archeological remains of the former sections of GCW potentially under and on the east side Hospital Street are not considered a part of the GCW compound and is not evaluated.

The Character Defining Features of the site are the masonry Perimeter Walls, corner decorative details at the northeast and northwest wall corners, two ferrous metal gates at the east and west sections of the wall, associated gate columns for both gates, and decorative masonry panels on the west gate's adjoining wall section's west elevation. The Perimeter Walls, enclosing an area of fairly flat ground, are composed mostly of historic, "imported Danish 'ballast brick'" masonry (NRN 1974, see description on second page, second paragraph), a blend of bricks from different time periods including both the more typical size bricks (2.16" x 8.97" x 4.25") and smaller Danish Flensburg's bricks (1.5" x 4.25" x 9"). The wall surfaces are covered on both faces and the top with a stucco type coating with a color finish.

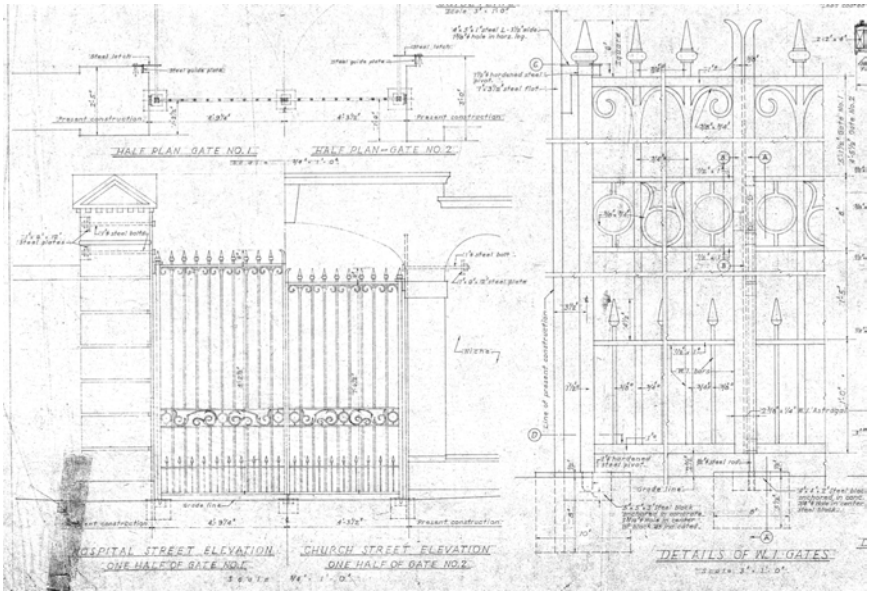
The Perimeter Walls comprise one of multiple site features: the West Kitchen, five cisterns constructed c. 1930s with reinforced concrete for the walls/floor/roof of four, the East Kitchen, and the building currently used as a Comfort Station. Collectively these buildings are referred to as the outbuildings.

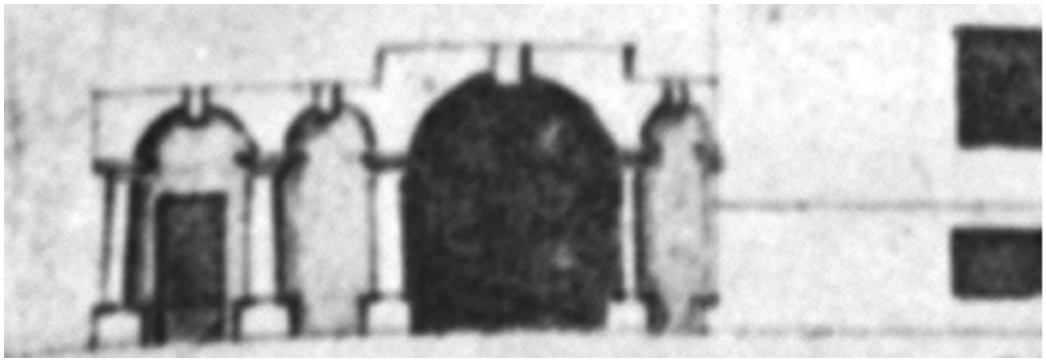
The entry by the west gate on the west elevation is marked by columns and by a significant series of adjacent decorative elements (see the following figure).

CDFs that could be considered for replacement have been documented, are integral to interpretation of the site, and do not affect functionality.

The Character Defining Features are the opinion of the authors based on an understanding of the historic significance and architecture of the compound, and are supported by the conclusions of various authors of manuscripts in which the building has been considered, such as the three National Register Nominations, HABS studies, the various studies found in the Danish Archives, and generated books on the architecture of the Virgin Islands.

Character Defining Features that may be missing are well documented in historic photographs, such as the chimney on the East Kitchen. These are listed below.





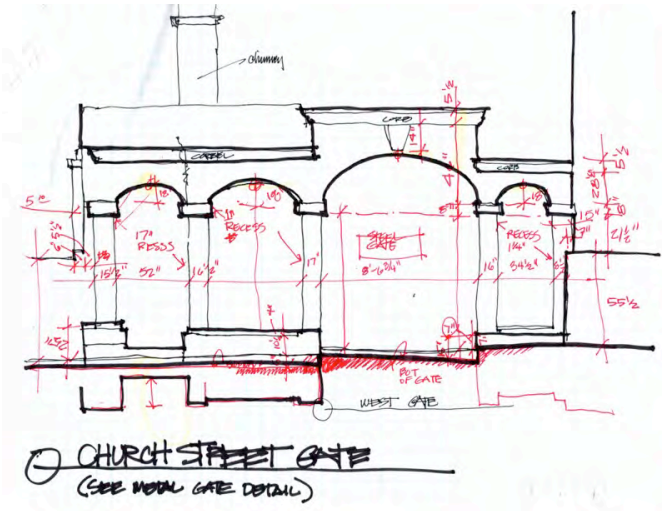


Figure 29: Perimeter Walls form the west wall of the West Kitchen. Although this section is a discussion of CDFs of the site, a full discussion of the Perimeter Walls follows the West Kitchen section of the report. This part of the Perimeter Walls is the west wall of the West Kitchen. The top drawing of the east and west metal gates is from 1939 plans, the middle drawing is an enlarged detail from the 1779 Oxholm drawing of the west elevation of the Warehouse, and the bottom drawing is a field sketch generated by TCI. Note the doorway in the Oxholm drawing, far left, the entry into the West Kitchen before it was a kitchen.

Removed Buildings

Three buildings can be seen in some historic photographs from 1860 on and on an 1855 map (see below). Research on these nonextant buildings is outside the scope of the HSR, yet the answers to the questions of the purposes of the buildings, when constructed and when lost, would all be of keen interest. All three buildings are shown on the 1855 map below.

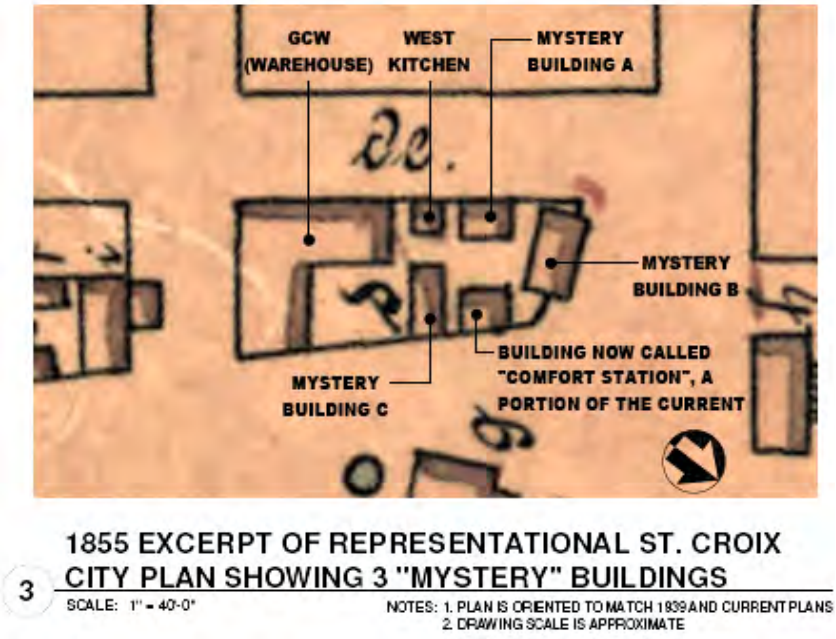


Figure 30: 1855 map showing location of three nonextant buildings.

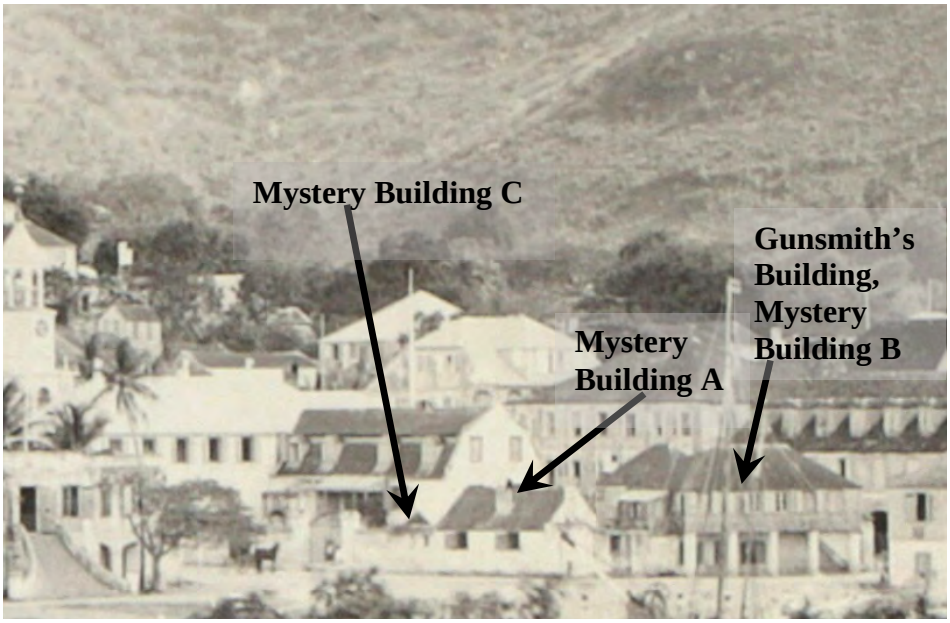


Figure 31: Closeup View of GCW Compund, likely taken from Protestant Cay.
Source: https-//bruun-rasmussen.dk/m/lots/26E9F0538749/images/16 Christ.

A building can be partially seen in close-up views of the historic aerial photograph from 1937 (on the next pages). It is behind and to the west of the now-called Comfort Station. It appears to be one story, of wood construction, and gabled roofed with a ridge running east-west.



Figure 32: Aerial view of Christiansted, attributed to 1937. Source: Ebay—purchased by TCI.

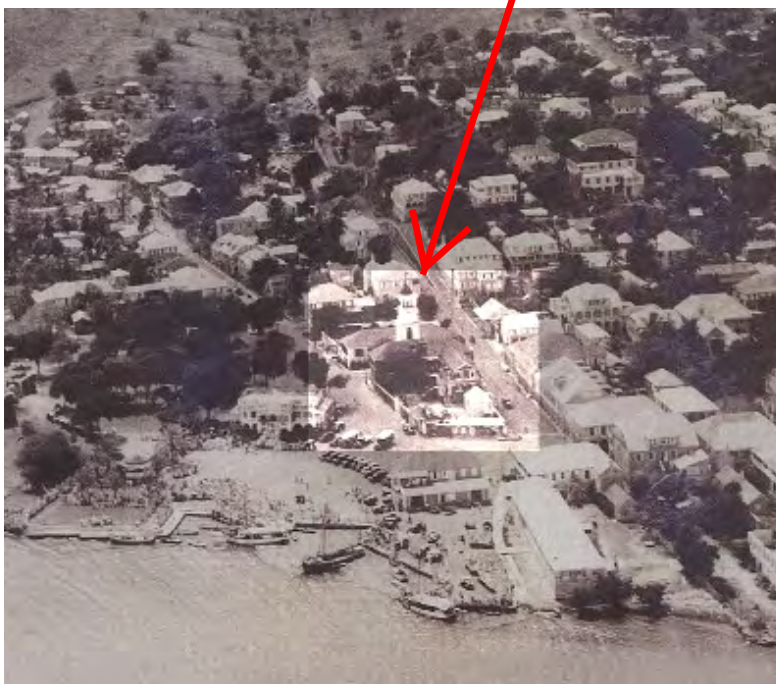


Figure 33: A closeup view of DWI GCW is in the highlighted area, which is on the next page.



Figure 34: Highlighted area showing enlargement of the closeup view of DWI GCW, Mystery Building A.

In this photograph, attributed to 1937, the gunsmith's residence is gone. The other mystery building (Building A) is possibly there. The photograph has been enlarged quite a bit, so it is difficult to be certain.

After the Guinea Company Warehouse (GCW), the next biggest building was the residence of the military "gunsmith" or armorer. This building straddled the north Perimeter Wall and was two stories in height. The portion of the building to the north of the Perimeter Wall was supported by masonry columns. The second story was constructed of wood with shingle siding (see photos below). It was lost by fire (personal communication, Zandy Hillis-Starr, 2018), although the date of the loss has not yet been found in the literature search. It is not referenced in the 1939 Post Office plans; thus, it was gone by then.

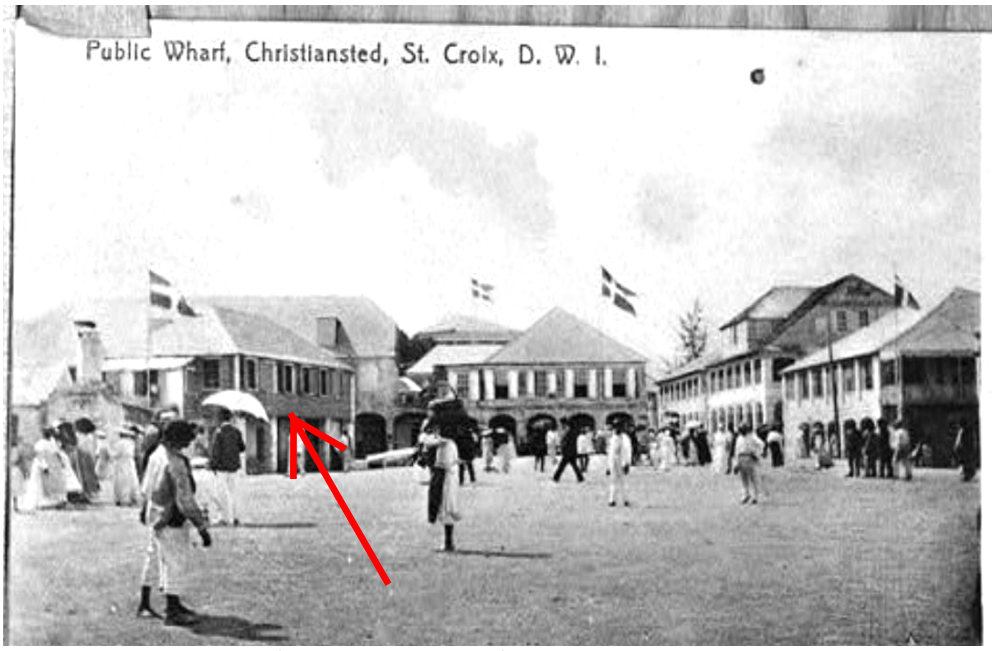


Figure 35: Photocopy of postcard (St. Croix Series No. 32) Lightbourn, photographer, c. 1910 View of Wharf Area - City of Christiansted (General Views), Christiansted, St. Croix, VI. Arrow points to what is identified today as the Gunsmith Building (Mystery Building B) and its upper story of wood shingle siding.
Survey number: HABS VI-98.



Figure 36: Detail of figure 35.

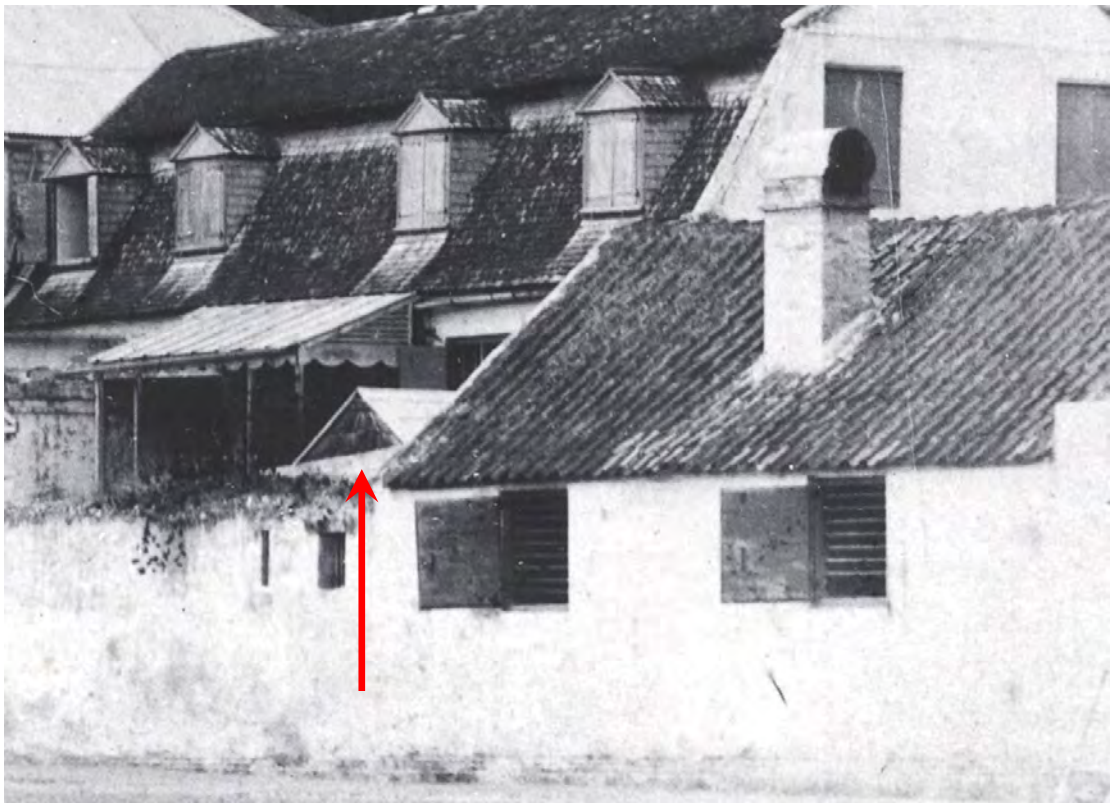
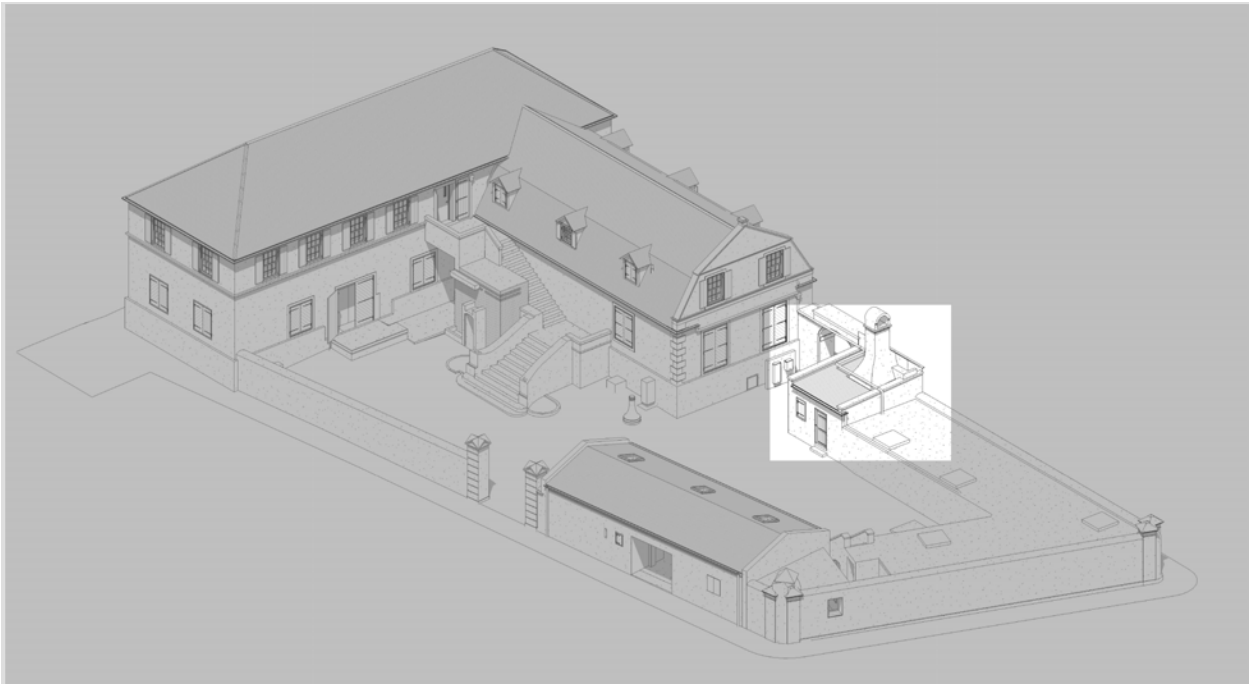


Figure 37: The red arrow points to another removed building (Mystery Building A), which is behind the Hospital Street Perimeter Wall. Perhaps it is the same building as seen in some earlier plans, designated as housing.

Physical Description and Condition Assessment—West Kitchen



West Kitchen

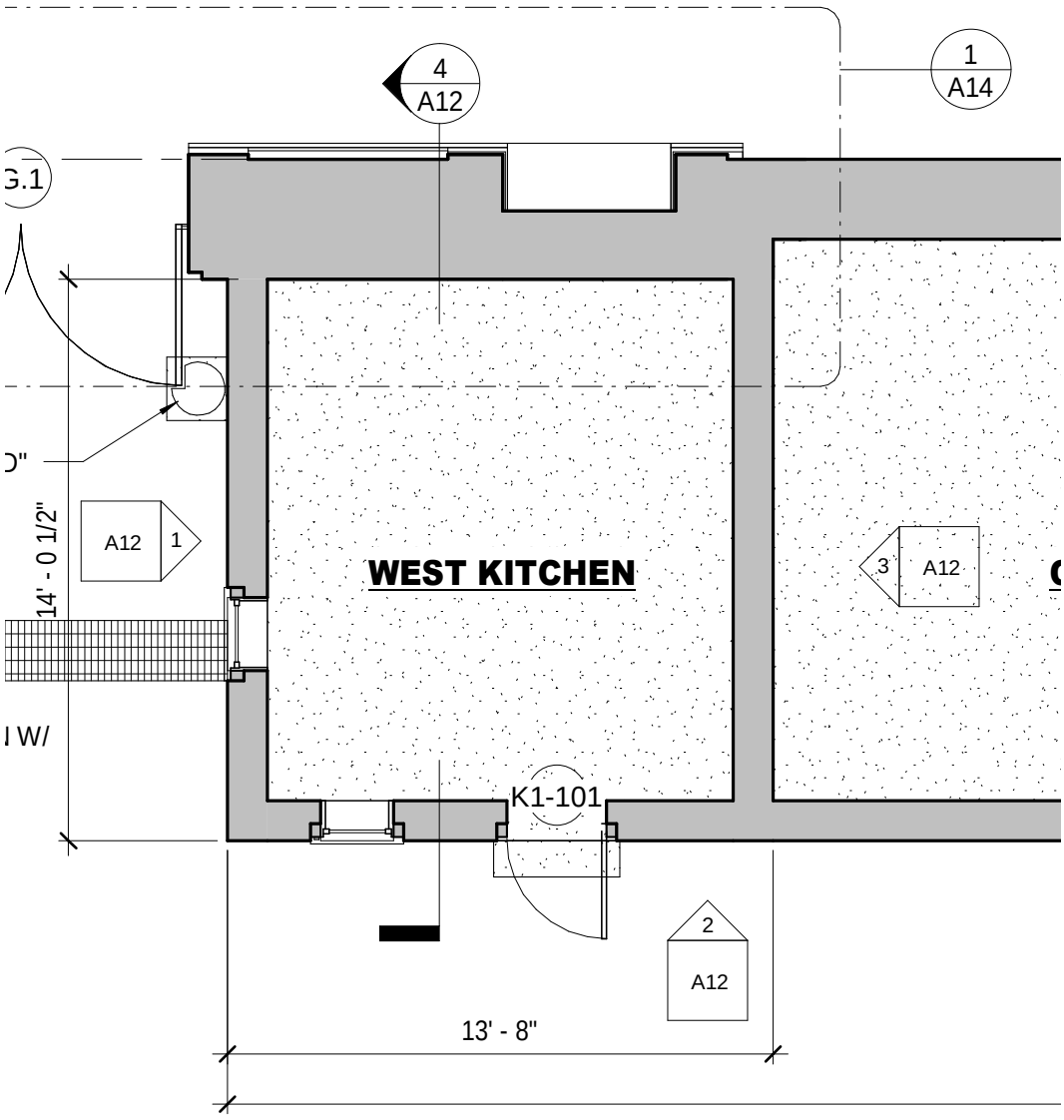


Figure 38: West Kitchen floor plan.



Figure 39 (3575): West gate and south elevation of West Kitchen



Figure 40 (4728): East elevation of West Kitchen



Figure 41 (165140): West Kitchen north elevation



Figure 42 (4769): West Kitchen, west elevation is to the left of the gate partially behind the utility poles.

General Description

The West Kitchen is a one-story rectangular shaped building with a wood framed roof. The walls are constructed of brick masonry, with an exterior painted render and interior plaster. The building's back wall (west) is integral with the site perimeter wall. The

building is located between the west gate and cistern #2. The 1795 plan of the site provides a representation of the building with a doorway opening to the south and designation as kitchen (kiokken).[1] Photographs of the kitchen building, beginning in the 1860s, show a chimney with the typical arched brick covering over the open top and with significant decorative treatment of the top 2 feet (See Figures 40 and 41).

Exterior: The wood roof deck is supported by wood beams all with the current top coat of white paint. There is painted stucco (which could be lime based in a few spots) over masonry. There are also reinforced concrete lintels and portions of jambs, embedded steel attachment plates at window frames and door frames, and a concrete floor.

Interior: The ceiling is painted, the walls are finished with painted plaster, and the floor is concrete, all of which were comprehensively redone in 1939. In the past, the interior has accommodated a variety of equipment and built-in features: as a kitchen, a hearth; as a shower, situated in parallel with the west wall and containing a shower stall with wall; as a pump house, a pump and piping; and as a mechanical room, a chiller, controls, and piping. Electric wiring changed with the later changes in use of pump house and HVAC equipment location. Current use is for cleaning supplies; shelving units are the norm. After the Hospital Street extension, the bakery was removed. The West Kitchen had a hearth and chimney, thus we call it a kitchen. The historic oven hood brick and wooden beam (maybe lignum vitae) are still intact in the West Kitchen; however, the hearth is no longer present.

Condition

The West Kitchen is a particularly appropriate example of condition problems for walls, lintels, and window/door frames. Additionally, the building has undergone substantial changes in use, each of which has left its marks, not always positive marks. The building suffers from a use of concrete at door and window openings, with a good deal of cracks, indicative of subject face problems. The building is a valuable building, for the first analysis of its problems are representative of condition issues present in the other buildings. For this reason, the causes and effects are reviewed in depth and provide a foundation for understanding a good deal of the problems affecting the other buildings. The detailed in-depth evaluation provides the reference for these problems in other buildings. Thus, for example, rust bursting can hereinafter be referenced without providing the detailed explanation provided for the West Kitchen.

Treatment of Special Features: Both kitchens have hoods supported on a lignum vitae beam, with the hood leading to the area below the bottom of the chimney (throat area). The west kitchen does not have a hearth, the east kitchen does. The repairs to the masonry of the hearth of the east kitchen are recommended; with the treatments as set out for interior masonry and interior “plaster” finishes.

Infestation: Termite mud tubes were present in November 2018. Treatment for termites is reported to have been done in 2019. The damage potentially caused by the termites has

[1]According to George Tyson, VISHPO, the date for the Hospital Street extension is 1795, although it has been previously attributed to 1803.

not been assessed. The likely targets are: wood roof beams, wood decking, wood door frame, wood door, two window opening frames, and two louvered windows. In addition, there is a wood beam over the hearth, believed to be the termite resistant lignum vitae.

Concrete Floor: The concrete floor appears to be in generally good condition with a few considerations. It is noted, much of the floor surface was obscured by stored items during the site visit. There are holes in the concrete floor slab associated with previous uses—principally piping. The pipes should be removed and the holes filled. There also is a pair of cast concrete mounts for what was likely to have been platforms to support the pumps when it was a pump room and/or supports for a chiller. These extend above the floor plane and are a tripping hazard. These should be removed.

Treatment: Floor, cracks/holes in concrete: The recommended treatment of cracks in concrete floors is to widen the crack by removing enough material for the crack to be a minimum of 1/4-inches in width. Clean out the crack. Test mixes for matching in color and aggregate. moisten side walls of crack. Fill the crack with selected mix and finish the top surface to match adjacent material. For holes in the concrete, given that most holes are evidence of previous mechanical installations, there is a consideration to protect the evidence of the prior uses. Also, many of these holes have piping extensions to other buildings. The recommendation is to drive a plug into the interior of the pipe to 4-6 inches below the floor surface, and fill the remaining volume with concrete up to the floor's surface.

Reinforced Concrete Lintels: Over the openings are concrete lintels (installed in 1939) with exposed heavily rusted reinforcing bar, which has broken off the overlying cast concrete. The classic treatment is replacement of the concrete lintels. Treatments are delineated in the overall treatments list.

Walls, Alterations: The West Kitchen, as seen in historic plans, had three locations for entrance doors: west, south, and the current east. The entrance door on the west elevation was set within the current arched recess, the northerly and deeper of the pair of arched recesses. The building at the time functioned as a guard station. This function generally requires the guard to come out of the station, go beyond the gate, and view the person, cart, or wagon before allowing entry to the enclosed and gated compound (see the west elevation in Figure 43). Gates can also cause wall damage during their operation. The early gates appear to have been made of wood, as the east gates so appear in an 1860 photograph. The gate-related wall deterioration occurs in several ways: the gate can swing back against the wall if a stop is not in place; the cantilever force of a suspended gate pulls on hinges and the gates' attachment to the wall. Impacts to gates and adjacent walls can be attributed to passing through gateways, which require lining up the cart or wagon to get through. Going through the gate typically involves impact with the wall, although grooves from scrapes are also typical. Getting in and out of the gates with the restricted turning caused by the tightness of the spaces between the buildings causes the difficulty in getting through the gates, and at least makes the impacts understandable, if not less damaging.

The next period shows the doorway located on the south wall. The building's function was as a kitchen, as seen in Figure 43, with the hearth. The floor plan image shown is from an 1803 plan. The removal of the door from the west elevation must have occurred after it was represented as being located on the west elevation in the Oxholm plan. Precise determinations of function and door locations is dependent on the accuracy of the plans; yet one should not always assume the building represented in say 1803 is the same as the building in 1779 or 1799. The removal of the door from the recessed wall section would not be as impactful as cutting in a new door on the south elevation or that doorway's later infilling: the west door was in an arched opening and the loads were thus directed to the sides of the door. The south wall location would have required that either an arch over the doorway be constructed or a lintel be placed over the door. Both methods require the mason to be dealing with a fairly good-sized area that extends beyond the door opening in width and over the doorway in height. In contrast, today there are methods used to install doorways in masonry walls with the intention of the least disturbance of the surrounding masonry, with the certainty that the area of temporarily unsupported masonry above the door be supported until the lintel is placed or an arch is created. Door location changes affect extended areas.

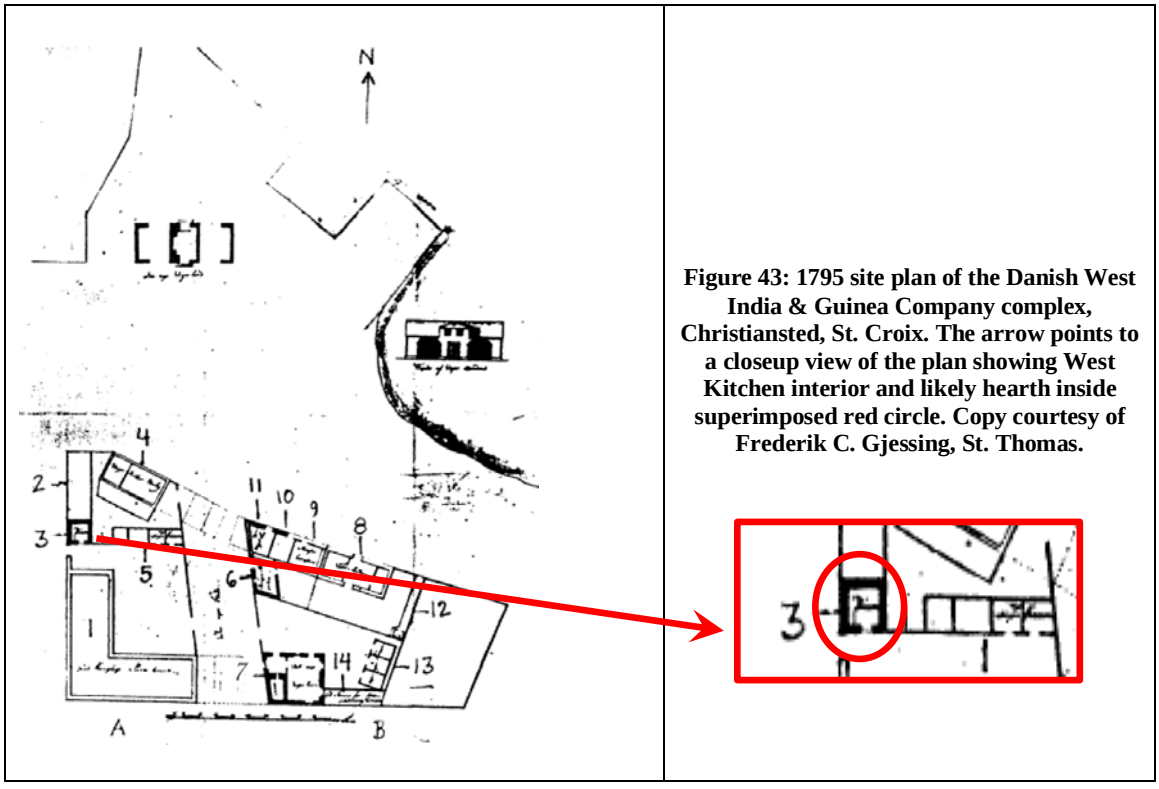


Figure 43: 1795 site plan of the Danish West India & Guinea Company complex, Christiansted, St. Croix. The arrow points to a closeup view of the plan showing West Kitchen interior and likely hearth inside superimposed red circle. Copy courtesy of Frederik C. Gjessing, St. Thomas.

Filling in a doorway with brick is easier than cutting in the new doorway. However, even brick infill can have issues. Often the mason will not stitch the new bricks into every other course of the surrounding brick. The preferred method can cause a crack or seam between the infilled area and the existing context brick. Given that mortar needs to cure, and lime mortar takes many months for the carbonization of the lime to occur fully, settlement of the area by compression of the loaded mortar beds can occur, particularly in

the lower ones. Horizontal cracks at the top of the infilled area indicate this mortar bed compression. This top of infill area gap may also be due to shrinkage of a wood lintel, and/or differential movement between the wood and the brick as each reacts differently to temperatures and moisture. Of course, the lintel could have been removed.



Figure 44 (YoungT_Slides_010): 1985 image of the West Elevation of West Kitchen and Cistern #4. Note compressor in cage at photo right; cement slab is still present in the compound at the time of fieldwork (2018).

Alterations to the Building Beyond Doors: When the interiors of buildings are altered the forces acting on the walls may change. For example, in the 1945 drawings, which are principally describing painting locations, the interior was altered to create a shower. This alteration introduced more moisture into the exterior walls of the building where previously moisture had come from the outside as weather.

Sidewall and Other Loads: The reinforced concrete cisterns are believed to date from after 1917 and are shown on the 1939 plans. The south wall of Cistern #2 was poured up against the north wall of the West Kitchen. Concrete shrinks; most of the shrinkage occurs in the first few months after construction. The concrete wall's shrinkage would have transferred these forces, to some degree, to the north wall of the kitchen. While we think of a reinforced concrete wall as having minimal flex, still this wall would flex under the load of the forces of water pressure. If the cistern had six inches of water, the wall flex would be different from six feet of water. The cistern would be filled to its greatest extents during rainfalls that are typically the most intense during November's rainy season. The wind load on the parapets that are on the north and south ends of the West Kitchen would likewise be at its greatest during hurricanes.

The west wall of the West Kitchen comprises two walls. These two walls are parallel and are against each other. In plan view, it looks like one wall, but the West Kitchen's west wall is historic masonry and the other wall is that of Cistern #2 and is modern concrete. The backwall of Cisterns #2, #3, #4, and #5 share a wall with the Perimeter Walls. Note that the cisterns are discussed in another section following the Perimeter Walls section.

Sidewall loads also are induced by the parapets of the south and north elevations. While these are relatively short, they are still extensions to the walls that do not have stiffening structures and thus respond differently from the walls below to winds, seismic events, and temperature changes. Of even more concern, when the parapets catch wind, say from hurricane force winds (74+ mph) that will push on the sides of the parapet; cracks at the base of the parapets will arise. The roof structure acts as a diaphragm providing a zone of stiffness where the roof intersects the sidewall. Stiffness varies with materials, beam direction, and connections.

Differential Responses to Temperature and Moisture of Different Materials
All materials respond differently to the two forces of moisture and temperature.

Moisture: Wood regularly changes its moisture content: a range of 6% upwards to 19% is possible (dry to wet). Brick dimensions are very stable depending on the amount of moisture exposure and the porosity of the brick. Temperature: East and west parapets have full sun on the sunny south side and close to ambient temperature on the shaded north side. Brick walls will expand in size in response to heat. The parapet example means one side is expanded, as temperatures can reach 150 degrees for masonry in the sun, and the shady side could be at 80 degrees. The daily repetitive cycle of this temperature differential works on the parapet affecting the bed joints of the lowest section where the parapet meets the wall below. Seismic events are also typical causes of parapet cracks.

Metals are more sensitive to temperatures. By example, long metal gutters may require an expansion joint, typically placed at the high point of the gutter, where flows diverge. The gutter on the West Kitchen is short. Though there is other metal in the flashing of the roof into the parapets, it comprises short lengths. The metal building elements are not contributing to wall cracking due to expansion and contraction cycles.

Steel exposed to moisture, and particularly salt air, will rust. With rust comes expansion of the metal and the consequent rust bursting or exfoliation. The West Kitchen has multiple exposed metal elements: through-wall pipes, some metal bolts, and a few fastener plates. These can be seen in the documentary photographs. The embedded steel plates and the reinforcing steel bars are the primary problems.

The West Kitchen walls are in poor condition with surface material losses due to moisture and dislocation of masonry units and mortar by prior installations of attachments (see the photographs of condition). The window and door frames are attached to the adjacent walls via embedded metal plates that have severe rusting with exfoliation. The resultant expansion has caused significant rust bursting at each of the twelve (3x4) connector plates; the overlying material has either been lost, or there are significant cracks in any remaining material indicating loss to be imminent. Comprehensive repair of the wall will require removal of the interior render, replacement of the steel plates with stainless steel plates, lintel repairs or replacement, and masonry repairs as indicated by the now revealed masonry, from pointing to selective rebuilding.

Final steps are to install new render to the wall with a lime wash final surface.

A representation of the interior can be seen in the 1795 plan when enlarged exhibiting a likely "ell" shaped raised hearth (see Figure 43 on page 44). The hearth is not present today.

Record of Repairs and Alterations Overview of Modifications Over Time: West Kitchen[2]
1779: The Oxholm plan shows a rectangular-in-plan building with four rooms (inside superimposed oval in Figure 45 below), each with individual entry stairs on their east elevation, but not the West Kitchen. The units seen on the remainder of the Oxholm plan are identified as to use, the unusual exception being the four units in this rectangular building.

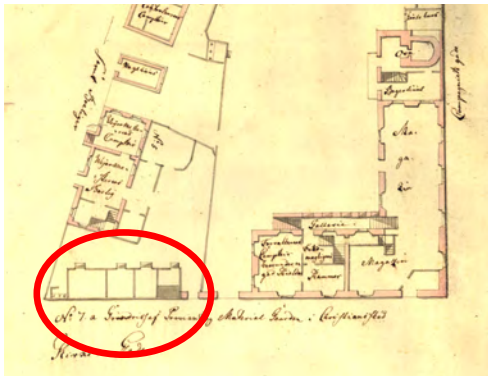


Figure 45: A crop of Oxholm's 1779 measured drawing with a red circle showing the rectangular-in-plan building with four rooms and no West Kitchen. Note that each building has individual entry stairs on their east elevation.

The entry is through the wall, later into the West Kitchen building.

On the plan at the east boundary of the enclosed yard, there is an unusually shaped building, indicated as a bakery on the plan, the building being located to the east of the current east elevation of the GCW's east wing. The need for food preparation may have been met by a kitchen undesignated on the plan or the bakery may have been used for cooking. The bakery is seen only in plan view; therefore, if it had other smaller ovens or open fires associated with it, these are not noted on the plan. The bakery structure was removed as part of the extension of Hospital Street through the site.

1795: The 1795 plan indicates two buildings dedicated to food preparation: east of Hospital Street is building #7 (Cissel's denotation), "a structure partitioned into four rooms, used as "the new Baking House," and west of Hospital Street the currently designated West Kitchen is #3, "a single structure used as a 'kitchen.'" In this somewhat representational plan the interior walls of the remainder of the rectangular building are not indicated. However, the entry for the kitchen is indicated and is shown as being on the south elevation, whereas the earlier Oxholm plan had indicated the entry on the east elevation.

1855: The 1855 map of the downtown area of Christiansted, enlarged for the sub-area containing the GCW, shows six buildings, of which the West Kitchen is one.

[2]There is also a chronology discussion in the Developmental History of this HSR.

1860s: Beginning in the 1860s the first known photographs of the site are available, potentially providing more information, including relative building height, the location of windows/doors, material types, and appurtenances. However, not every photograph of the complex will have the subject building in view. Unfortunately, the West Kitchen is not in any of the historic photographs until an aerial photograph from the 1930s.

1930s: In this aerial photograph, taken at an oblique angle, there is a two-story building on top of a portion of the current West Kitchen. The existing chimney location appears to be in this photograph. A common configuration of buildings in St. Croix has a masonry first story and a wood-framed second story. In the records of the government, local Danish officials of St. Croix placed monetary requests to repair or replace second story portions; in essence, these were "replaceable," being lost to rot, fire, and to hurricane-force winds. Thus, in 1930 views, this second story building could be wood and be a 19th-century addition to a masonry first floor. The reasons for replacement provided in the records also include deterioration due to rot. Termites are probably another major cause, adding to the condition problems of wooden second floors. The sudden loss of wooden second story portions of buildings was often attributable to hurricanes. Post hurricane photographs of area buildings show shingled siding portions of buildings of wood construction lying beside the remainder of the building.

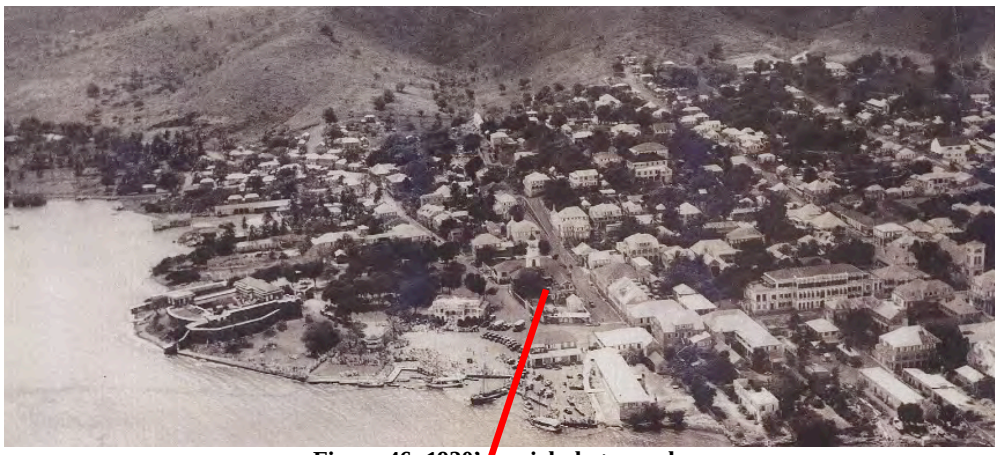


Figure 46: 1930's aerial photograph.



Figure 47: The two-story mystery building, indicated by the arrow, can be seen in the closeup of Figure 46.

1939: Photographs and the plans for the conversion of the Cable Company building (the GCW) to a U.S. Post Office, dated 1938-1939 (see Appendix A), indicate the West Kitchen in its present configuration with single story height, a shed roof sloping from west to east, and the chimney located at the near mid-point of the west wall. New improvements and additions were specified: “new concrete floor sloped to the door,” “new sheet metal roof, metal flashing and counter flashing,” “new storm doors and frames,” “new storm windows and shutters,” and “new drain to extend into cistern.” The latter is important as the building was being called and used as the “Pump House,” drawing water by a pump from the adjacent cistern to the north, and providing water service to the Post Office by a 3/4" diameter water line.

1945: In July of 1945, plans were prepared by the Post Office with the intent to create a shower in the pump house along the west wall (see below). Confirmation of its construction is indicated in the 1978 plans.

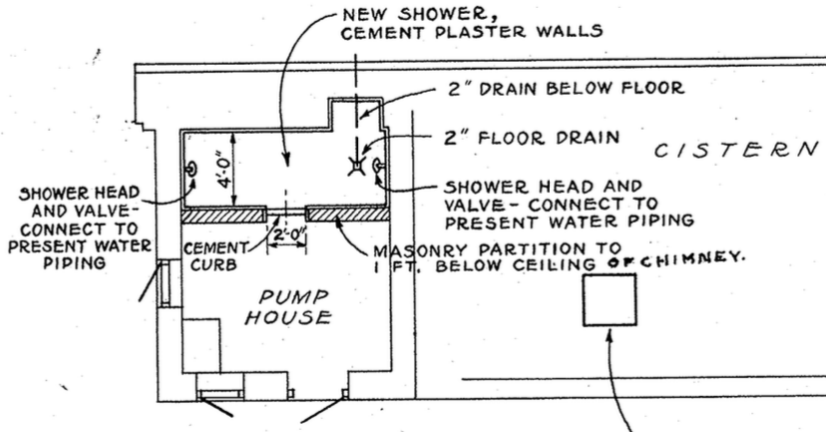


Figure 48: Detail of shower installation plan 1945.

1978: In 1978, plans prepared by Stetson-Dale (detail below) indicated removal of the shower wall that had been installed earlier, perhaps in the 1940s. Neither drawing—1945 or 1978—shows the extant hood that is located over the removed hearth.

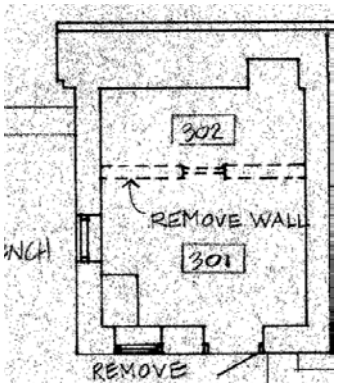


Figure 49: Detail of 1978 plans.

2018: The photographs from the 2018 site visit indicate additional minor alterations to the electrical system. Shutter and shutter hardware modifications are indicated on plans from March 22, 2010. Window and shutters have been modified as seen in the detail below, which shows the south shutter covering fixed louvers. According to Zandy Hillis-Starr (in one of several comments written on April 20, 2019), the fixed louver had been installed in 2003.

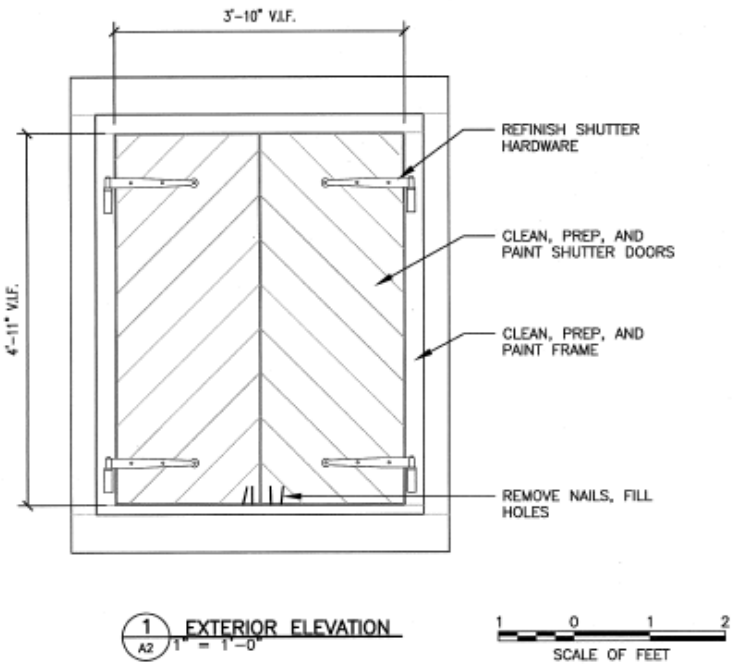


Figure 50: Detail of shutter plan.

Source: National Park Service 2010 construction drawings "Repair Historic Guinea Company (HQ)"—sheet 3.

Exterior

Description and Condition of Elements

The West Kitchen has also apparently been modified several times over the life of the site. The current construction consists of brick masonry walls and chimney with a wood-framed roof (Figure 51). The walls appear to have moisture concerns, especially beneath the parapets at the North and South Walls; this is likely related to the observed plaster cracking. No other major structural distress was observed.



Figure 51 (DH4728): Overall view of East Elevation of West Kitchen (at left with chimney) and cisterns.

Roof Structure: Framed wood with wood deck planking is observed from the interior (See Figure 52). The roof is of one slope, 1-foot rise in 11.5 feet of horizontal distance.



Figure 52 (0250): Interior view of framed wood structure with planking between structural components. Photograph courtesy of Zandy Hillis-Starr.

Roof Covering—Description: Gray colored lapped (see the following figures).



Figure 53 (3643): Red arrow points to roof covering.



Figure 54 (Cropped 165112): Red arrow points out the roof covering.



Figure 55 (Cropped 7194): Roof covering as seen from the second story of the inside of the GCW.

Roof Covering—Condition: The roof and roofing condition are both good.

Roof Appurtenances

Description

The galvanized metal gutter collects the roof drainage water at the roof's east edge, carries it around the corner of the building to the north, and directs it into Cistern #2 by a piping system of painted plastic pipe (see Figure 56).



Figure 56 (3635): Galvanized metal gutter directs collected roof drainage water around the corner of the building to the north, into cistern number two by a piping system of painted plastic pipe. PVC is a common plastic used for pipes. There are many other types of plastic used for pipe, such as ABS, CPVC, and PEX. The investigative team did not remove paint to look for an identification.

Condition

The interior of the gutter exhibits substantial rust. The end cap as seen in Figure 57 has a spot of rust, indicating that the metal has rusted through in a location less prevalent to rust than the run of the gutter. The condition of the gutter is poor.



Figure 57 (3642): Note rust on the end cap; note cracks in walls.

Walls

Description

Based upon the radar scans, the West Kitchen's walls appear to be constructed entirely of brick. Walls of all brick are atypical, in comparison to other GCW compound buildings, which are constructed of random rubble masonry of limestone and coral, with brick reserved for use at the edges of window and door openings, at building corners, at the tops of walls, and at details. The walls of the West Kitchen being constructed entirely of brick is understandable given the building's small size, number of windows and doors over time, and extensive detailing of the west elevation along Church Street.

As seen in Figure 58, an historic building remnant in the parking lot for government house, whole buildings were constructed from brick. Most likely there was sufficient funding to pay for such expensive masonry in terms of both the cost of the bricks and the skill of the mason to execute the detailed decorative work. And the bricks had to be available. The bricks were brought from Denmark, and not from other islands in the Caribbean, so the period of construction likely needed to coincide with periods when many ships were landing cargo from Denmark; the bricks were used for ballast, and were used on the first leg of the voyage as trade goods to assist in purchases.



Figure 58 (DB7309): This historic building remnant, located in the Government House parking lot off the north side of King Street, was constructed entirely of brick,.

The north and south walls extend from ground level up to a low parapet capped by a masonry coping. There is no parapet for the east wall with the rainwater flowing directly to the gutter. The west elevation has decorative treatments with recesses, arches, moldings, and a sloped top (see Figure 59). This wall is quite thick. Please note that Oxholm's plan of 1779 has an elevation that includes this wall, although there was no building behind the wall. The wall depiction in an elevation of the 1779 plans, although of small size, appears to match the current decorative treatment. The decorative wall treatment is connected to the entry gateway.



Figure 59 (DB7262): This photograph shows the decorative treatment for the west wall with recesses, arches, moldings, and a sloped top. The area of the recess, with arch at photo left once had a door when the building may have been used as a guard station.

Condition

The walls are in fair to poor condition. On a per-square-foot-of-surface basis, these walls have more cracks than any of the other structures. In the series of photographs of the exterior walls seen below, the cracks are quite evident. The captions indicate the types of cracks and the possible causes. Note the removed equipment has left behind holes.



Figure 60 (3500): West Kitchen exterior wall cracks. South portion to the gate column at photo left.



Figure 61 (DB7174): West Kitchen exterior wall cracks, south elevation, west portion.

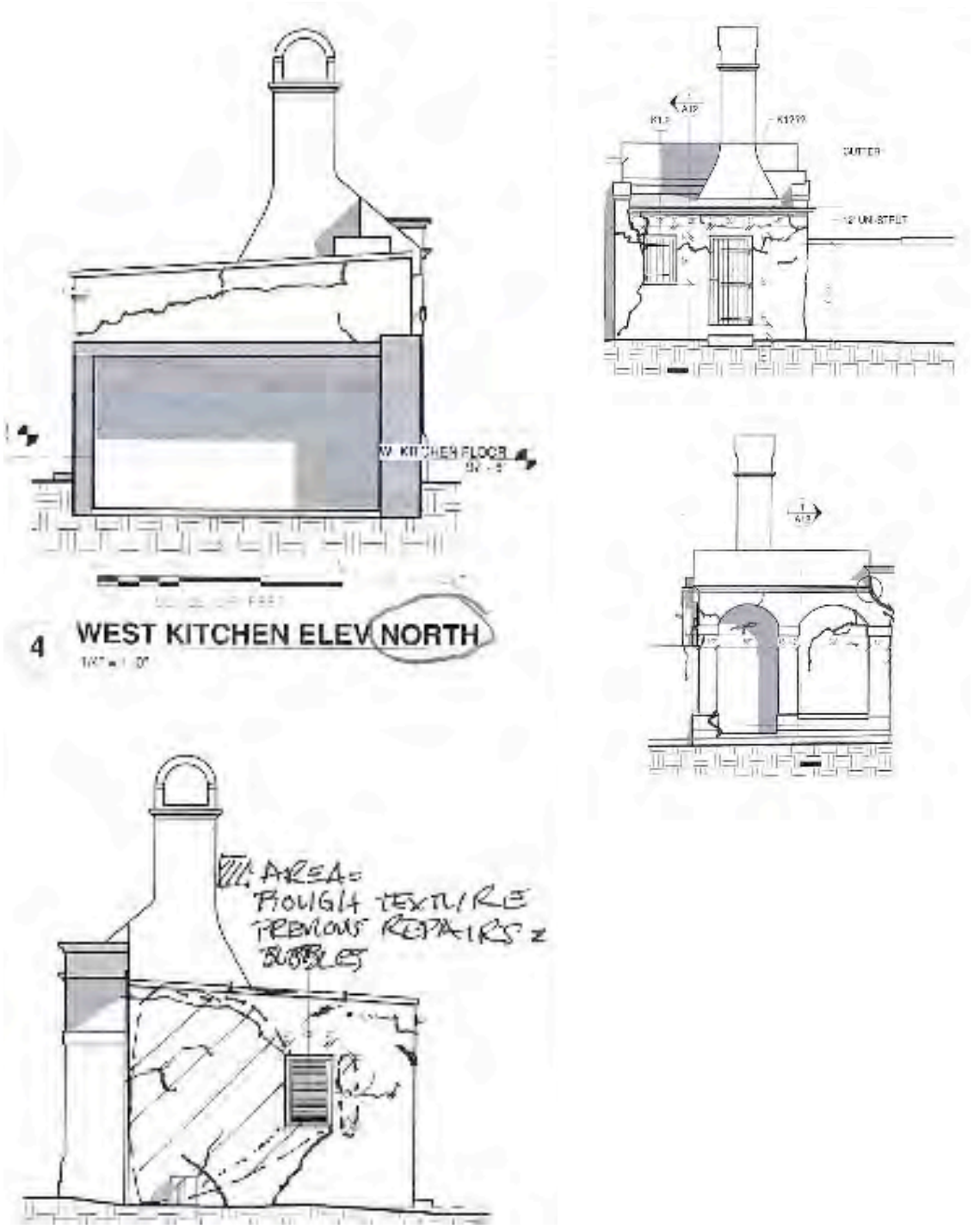


Figure 62: West Kitchen Crack Diagrams



Figure 63 (DB7159): West Kitchen exterior wall cracks, southeast corner.

Also, as pointed out by the red arrow, there is a green bollard that protects the wall from damage when the gate opens.



Figure 64 (DB7236): West Kitchen exterior wall cracks, east elevation.

Possible Causes of Cracks in the West Kitchen Walls

The causes for cracking can be: results of shaking from seismic events, vibrations from adjacent traffic and construction activity, settlement, and, as is true in most cases in these buildings, rusting expansion of metal in the masonry/concrete.



Figure 65 (3588): West Kitchen exterior wall cracks, a window downward crack.

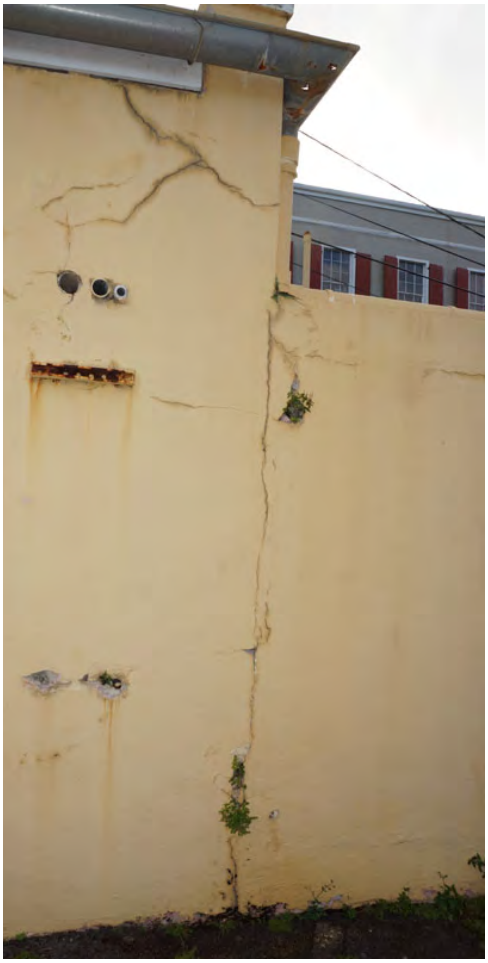


Figure 66 (3591): West Kitchen exterior wall cracks, northeast corner, upper crack includes rotation. An exacerbating cause is possible seismic activity.

Note piping remnants and rusted wall hanger.



Figure 67 (165112): West Kitchen exterior wall cracks, overview, from north looking south. Note the cracking at the corner (to which the red arrow points), indicative of a shift in the substrate.

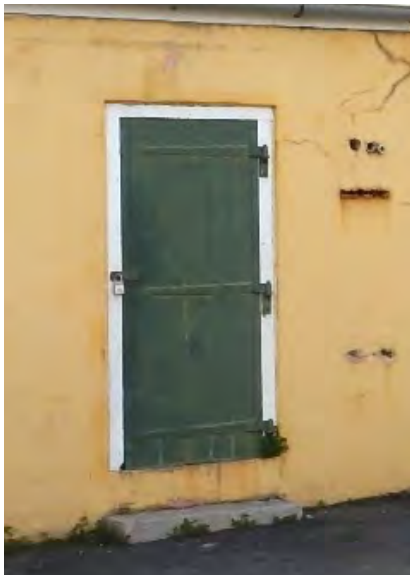


Figure 68 (165140): West Kitchen exterior wall cracks, an overview of north elevation.

Windows and Doors

Description

There is a single window opening on the south elevation, and a door and window opening on the east elevation. The south opening has a wood louvered "window" set in a wood frame (Figure 69). There is no visible exterior hardware. The east two openings have wood shutters constructed similar to the others of the site except the window opening shutter is constructed like a door, a single leaf, hung from the south side of the wood frame. The door opens outward and is supported from the north side of the frame. Both are hung by decorative strap hinges of pintle configuration (Figure 70).

	**Figure 69 (3582 crop): Photo of the south opening's wood louvered "window" set in a wood frame, installed in existing opening 2003-2005.**
	**Figure 70 (3586): The door opens outward and is supported from the north side of the frame. Both the door and window are hung by decorative strap hinges of pintle configuration.**

Condition

The window and door assemblies appear to be in good condition.

Interior

Condition

As seen in Figure 71, there has been damage to the walls with the apparent cause being water intrusion. The building has experienced so many alterations in use and layout that there are many "residuals" on the walls and floor such as holes for piping, connectors, brackets, and the like. The condition is good.



Figure 71 (0243): Interior, storage of cleaning supplies as use. Finishes are concrete floor, plaster on brick walls; roof structure is wood; ceiling is painted wood. Photo courtesy of Zandy Hillis-Starr.

Overall the interior is in good condition, with the exception of the elements. Conditions for interior elements follow:

- Ceiling—some paint loss, otherwise good.
- Beams—some paint loss, otherwise good.
- Wall Plaster—Water damage and damage from rust bursting of embedded metal, otherwise fair condition.
- Floor—Without consideration of the many holes in the floor, all of which are residual evidence of prior systems, the concrete floor is in good condition.
- Concrete Lintels and Door Surrounds—Due to rust bursting of embedded metal, these are in poor condition.
- Hood and Beams—Good condition.
- Chimney Interior—Variable condition but in general good.

For details, refer to Management Summary's Administrative Data, f. Ranking of Condition Levels.



Figure 72 (0268): West Kitchen interior, beam over original hearth, probably lignum vitae as is the beam in the East Kitchen. Photo courtesy of Zandy Hillis-Starr.



Figure 73 (0246): West Kitchen—Interior, looking east at entry door, showing condition of steel plates, at jambs, major exfoliation. Photo courtesy of Zandy Hillis-Starr.



Figure 74 (0248): West Kitchen—Interior wall at window of east elevation. Embedded metal attachment plates exhibit rust bursting, *typical* for all openings in this building. Photo courtesy of Zandy Hillis-Starr.



Figure 75 (0304): West Kitchen—Interior, south elevation window opening has reinforced concrete lintel, major cracks, rust bursting of reinforcement bars, and cracks extending down through jamb. As seen in other photos, metal plates embedded in walls have major exfoliation (See Figure 77 below). Photo courtesy of Zandy Hillis-Starr.



Figure 76 (0301): West Kitchen—Interior, south elevation window opening has reinforced concrete lintel, major cracks, rust bursting of reinforcement bars, and cracks extending down through jamb. As seen in other photos, metal plates embedded in walls have major exfoliation. Photo courtesy of Zandy Hillis-Starr.



Figure 77 (0306): West Kitchen—Interior, condition of wall. Whatever was fastened to the wall had many fasteners (12 in this photo) that have split the wall masonry at most of the holes. Photo courtesy of Zandy Hillis-Starr.



Figure 78 (0293): West Kitchen—Interior, the concrete floor has several holes from previous uses; note cut-off pipes and pipe chases. Photo courtesy of Zandy Hillis-Starr.

Character Defining Features—West Kitchen

Summary of Alterations Relative to Effect on Character Defining Features

The West Kitchen is located adjacent to the west gate, and consequent entry into the courtyard. The original purpose of the building is probably a guard station, although the 1779 Oxholm Plan attributes this function to a building on the north wall without a gate. In 1779, this building did not exist. While there are currently two alcoves with blank walls along the west elevation, the more northerly alcove contained a door entry into the building. Other openings have been changed over time; by example, an early south elevation entry door is now in the east elevation. The building underwent significant changes in the 1939 conversion of the GCW to the Post Office and modifications to the fenestration are evident as marked by reinforced concrete lintels. The interior has been altered as the hearth is gone but the over-hearth hood remains. The chimney was reportedly rebuilt to match the other kitchen's chimney, of locally characteristic design, well documented in historic photographs. On the interior a shower was installed in the hearth area in 1945. The drawings for this construction do not show any demolition of the hearth.

There is a bit of a mystery as to whether there was a two-story building over this one-story building. The mystery building (see detailed description beginning on page 30 of this HSR) is seen somewhat clearly in one historic aerial photograph from 1937. Based on historic photographs the building may not have been there long, or it was obscured in all earlier ground-based photos by buildings in the foreground. It is difficult to tell. The south wall of the mystery building appears to be lined up with the West Kitchen.

West Elevation, and Associated Gateway/Wall

Description: The west wall is part of the perimeter wall of the compound, which in turn is in plane and appears as an extension of the west elevation of the GCW. This section of wall exhibits the greatest amount of decorative detailing of the entire compound. The detailing indicates the expected importance of the entry from the west.
Period: The detailing as seen currently matches the detailing indicated in the elevation seen in Oxholm's 1779 drawing.
Integrity: While the door is not present, the wall otherwise appears as drawn in the Oxholm Drawing.

Chimney

Description: An arched top partially covers the otherwise open top of the chimney. Graduated string courses are lower on the chimney, providing both a strong visual base and greater interior dimension. As seen through the chimney's throat, the bricks cantilever inward (corbelled) to form the chimney above and the throat of the hood below. The hood portion—the character defining feature of the interior—is partially supported on a lignum vitae beam (likely species) running north to south in parallel with the west wall.
Period: The building's use as a kitchen is most likely to have begun in the 1800s. The chimney was rebuilt in the modern era; however, the exact date uncertain.
Integrity: Its physical integrity is good. Its architectural integrity is also good; it matches both the east building's chimneys as seen in the photographs from 1860 to 1916 for the

Comfort Station building, and later for the East Kitchen. The West Kitchen's original chimney was reportedly lost during the 1989 Hurricane Hugo; similarly, the East Kitchen's original chimney was lost in another hurricane, and a hurricane in 1916 caused the loss of the Comfort Station chimney.



Figure 79 (3639): North face of West Kitchen's chimney.



Figure 80 (3644): West Kitchen's north and west faces of the chimney.

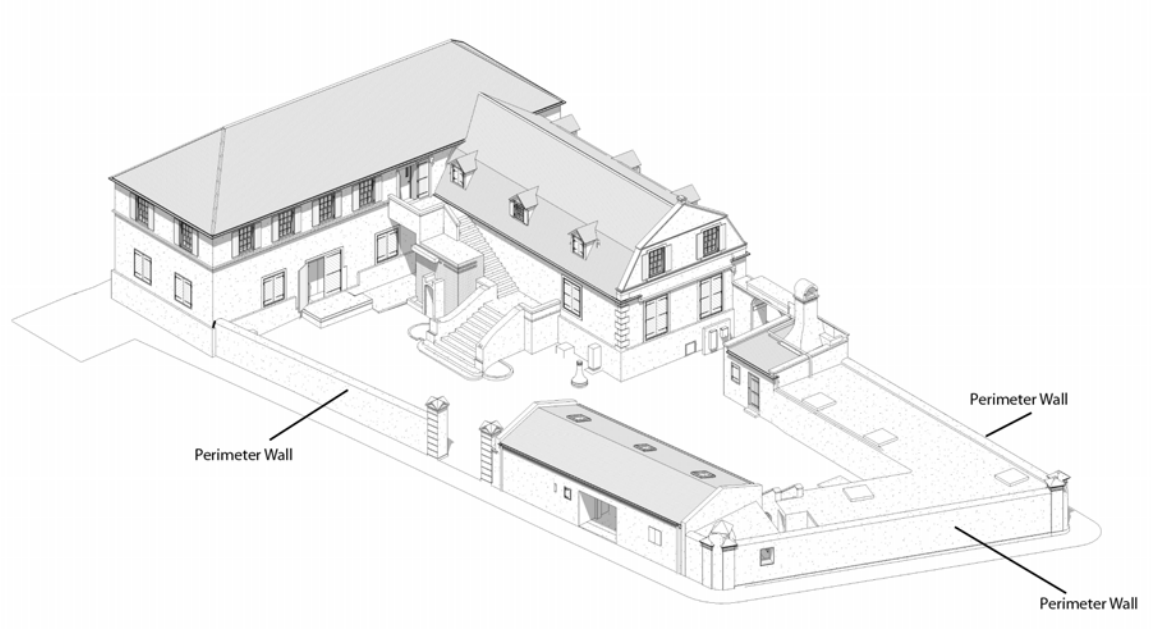
Form and Walls

Description: The West Kitchen is small, is one-story high, and has a low sloped roof that drains from west to east. There is a simple feel to the building in marked contrast to the highly detailed west wall. The building's exterior shares the characteristic yellow colored stucco, thereby tying it to all the other buildings and the perimeter wall of the Compound.

Period: The proportions appear to be from the building's date of original construction; there have been no additions to the length of the walls and the height does not indicate alterations.

Integrity: The cistern number two is an addition as it is constructed of reinforced concrete while the West Kitchen's walls are brick. The reversibility of the concrete construction is not known; there does not appear to be an intentional separating gap.

Physical Description and Condition Assessment—Perimeter Walls



Perimeter Walls

General Description and Condition

The Perimeter Wall of the property, including the decorative West and East Entrance Gate columns (gate posts) seen in figures 82 and 83, appear to be primarily comprised of fired clay brick masonry and stucco. On the west elevation by the West Gate, the entry is marked not just by pillars; in addition, there is a significant series of decorative elements. The top surfaces are generally stuccoed and pitched, but are not capped with metal or stone (Figure 83). At the East Gate, the two columns (gate posts) adjacent to the entrance have been replaced to some degree with reinforced concrete. Note the decorative treatment of crossed gables with miniature tympanums for caps.

In general, the structural condition of the perimeter walls and entrances is fair, with cracks in the stucco and loss of coating in some areas, contributing to significant moisture trapped in the masonry portions of these walls.



Figure 81 (3575): West Gate entry



Figure 82 (3091): East Gate entrance is at the bottom. Note the pitched top (typical) of the wall at photo right.

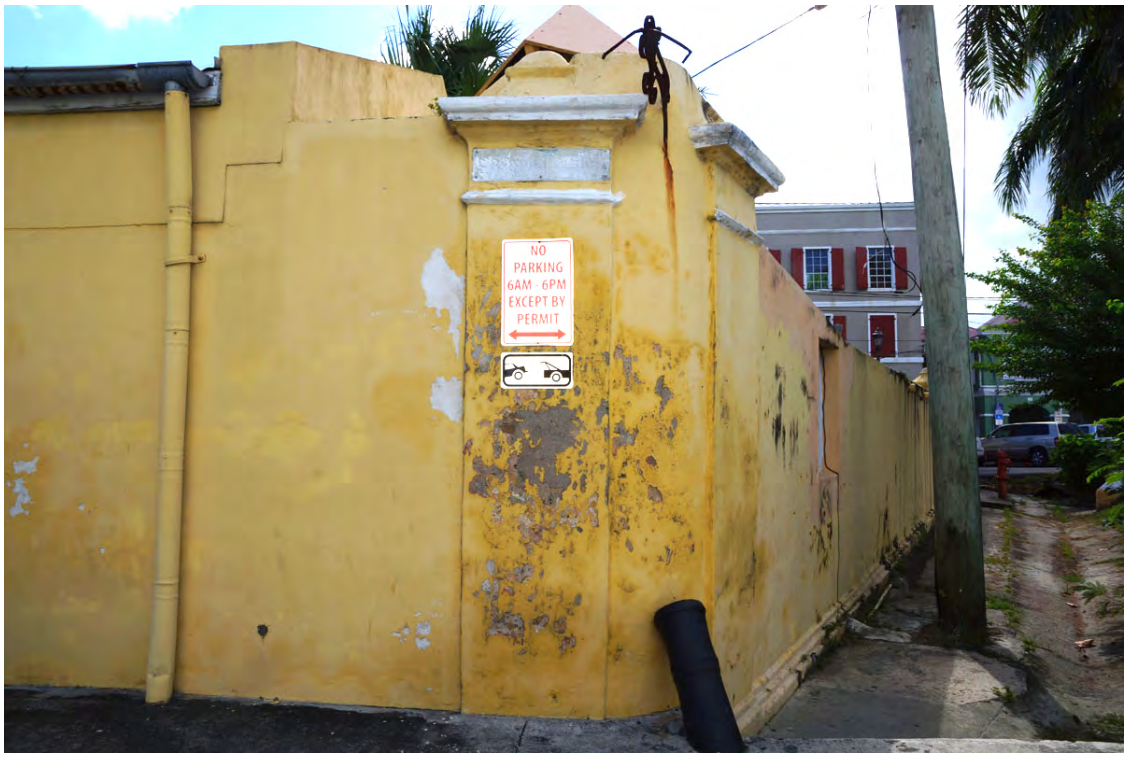


Figure 83 (3436): Northeast corner of Perimeter Wall, outside face.



Figure 84 (3603): Northeast corner of Perimeter Wall, inside face. The dark wavy line is a termite tunnel.



Figure 85 (3458): North Wall. Note through-wall pipes from cisterns.



Figure 86 (3460): North Wall condition, close up; minor cracking, biological based drip tracings.



Figure 87 (3463): Northwest corner, November 2018

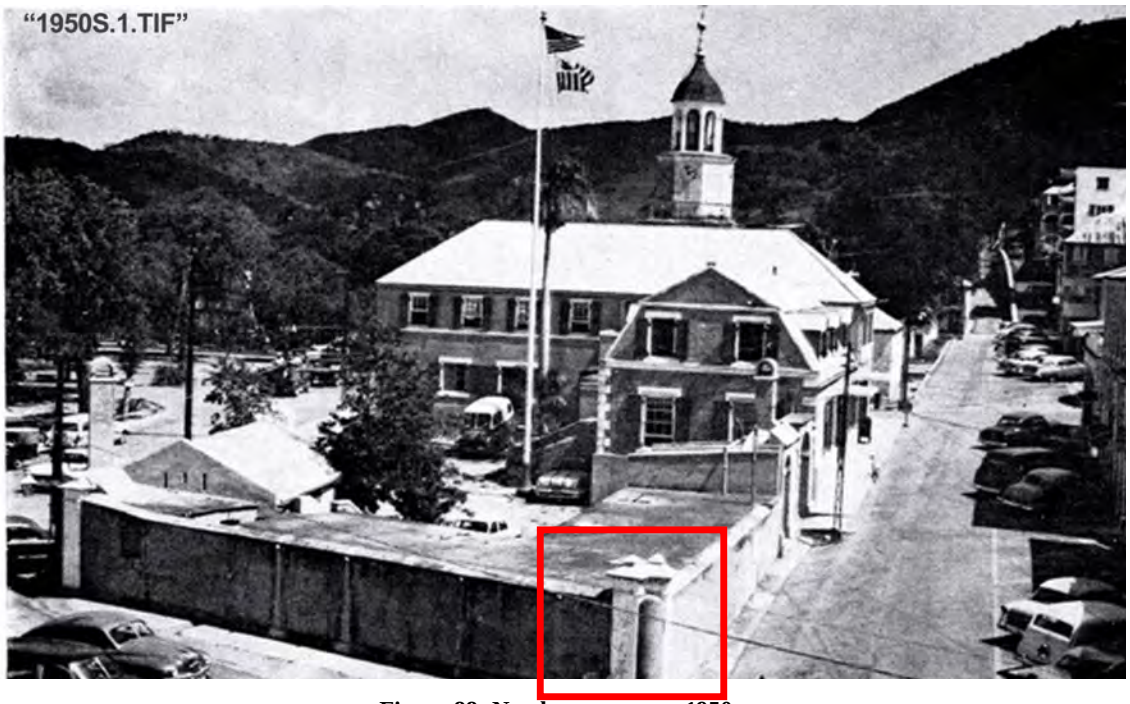


Figure 88: Northwest corner, 1950s

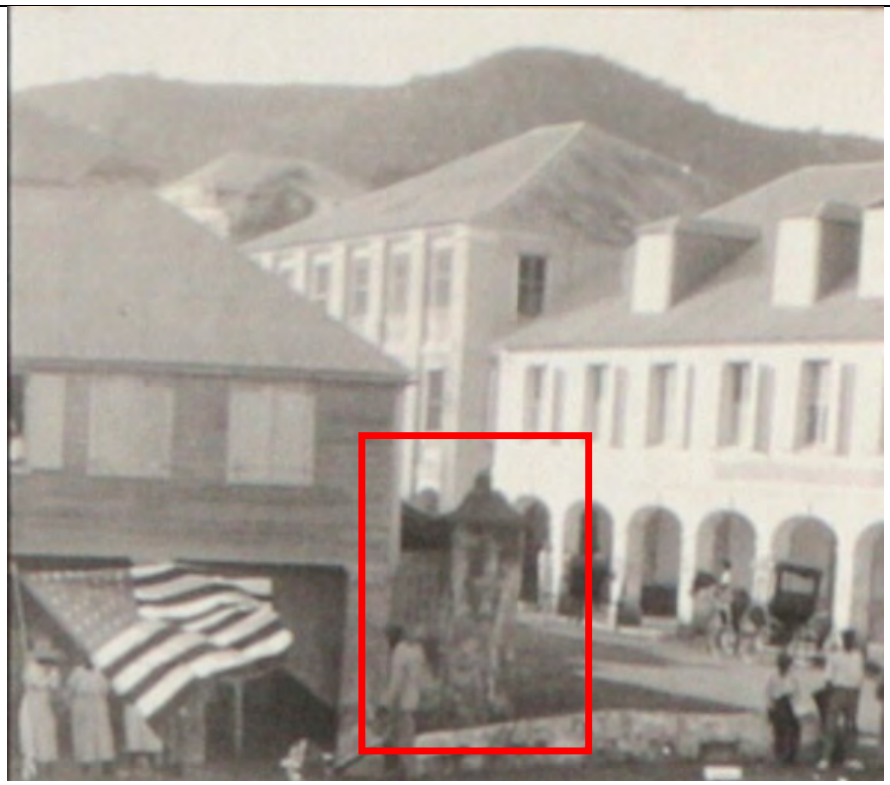


Figure 89: Northwest corner, 1917



Figure 90 (3472): West Wall, north portion, to northwest corner.



Figure 91 (3469): West Wall condition



Figure 92 (3054): West Wall interior is the wall of cisterns.



Figure 93 (4843): Northwest corner from interior.

Record of Repairs and Alterations Overview of Modifications Over Time: Perimeter Walls[3]

1779: On the Oxholm 1779 plan the few pieces of Perimeter Wall are shown graphically as similar to building walls by two parallel lines indicating masonry, principally beside the West Gate. Other double lined representations are in association with buildings along the then north property line. Otherwise, the perimeter was noted by a single line, perhaps representing a wood fence.

1803: Before the division of the site by the extension of Hospital Street, a 1795 map shows the courtyard enclosed by a structure of indeterminate construction, although its location matches today's. The East Gateway is also indicated on this simple sketch of the site layout.

1860: The photographs from the 1860 period show what appears to be a masonry wall. In addition, the distinctive corner features of paired columns are seen at the northeast corner. It is anticipated that the same features were present at the northwest corner as seen in a 1917 photograph. The photographs from 1860 on show that the northeast corner

[3]There is also a chronology discussion in the Developmental History of this HSR.

had an ornate lamp on a metal bracket extending from the northeast corner. This bracket was still fairly intact in 1985.

1890: A flagpole appears in the same area of the northeast corner. In many photographs, the Danish flag is displayed.

Gate Post Repair: The north gate post of the East Gate was damaged by a vehicle in 2011, and the top two-thirds was broken off. The top was replaced by brick with a concrete parge coat as was the other gate post. The materials were confirmed in the 2018 radar scans completed for this report.



Figure 94: Overall view of typical perimeter wall, showing pitched top surface. Photo includes south portion of the East Gate column of the gate, which is constructed in part of reinforced concrete. In historic photographs, this gate was wood with two leafs and a man-door. The West Gate does not show up in any historic photographs. The Gates date from 1939.



Figure 95: Overview of impact damage to column from vehicular impact in 2011. Photo courtesy of Zandy Hillis-Starr.



Figure 96: Closeup view of damage to column from vehicular impact in 2011. Photo courtesy of Zandy Hillis-Starr.

Character Defining Features

Summary of Alterations Relative to Effect on Character Defining Features

Between 1795 and 1803, Hospital Street is extended, cutting through the site, and dividing the site into two sections. The east section undergoes redevelopment with a new building on a cleared site. The west section becomes more formal, at least in terms of security, with the construction of a solid masonry wall replacing a combination of masonry building walls and fencing. This wall encircles the site. The two prominent features of this wall are two gates and columns clustered together at the northwest and northeast corners.

Gateways/Gates

Description: Square columns with pyramidal-shaped tops flank the columns of the two entries. These Gate columns also have dentils at the margin between the pyramidal top and the square "shaft." The Gates currently appear to be wrought iron, although there are many pictures with a wood gate and a man door in the west gateway. The East Gateway may have been similar but there are no historic photographs.

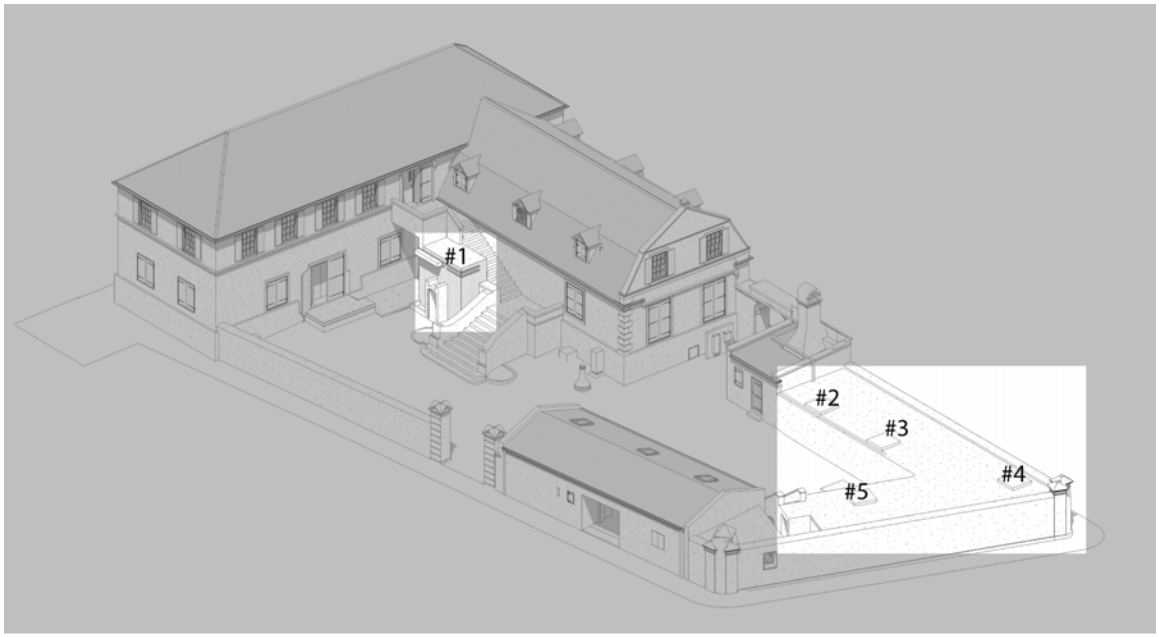
Period: Beginning about 1795 , the site was separated and truncated. From that time period the site was formalized and the walls were completed. However the West Wall dates from the period of at least the Oxholm depiction in 1779. The West Wall was the

back wall of a long building with multiple rooms. The wrought iron gates are first seen in the construction drawings of 1939, and the metalwork is quite detailed.
Integrity: The condition of the Perimeter Walls is good; the condition of the Gates is poor with extensive rust. The East Gate columns have been damaged and the historic material replaced by concrete.

Corner Features of Paired Columns
Description: At both the northwest and northeast corners of the Perimeter Walls, there is a pair of masonry columns with tops matching the Gate columns. These extend above the top of the adjacent walls.
Period: The construction dates are uncertain. The two columns may have been built at different times: the northwest corner in the mid-1700s and the northeast in the early 1800s.
Integrity: Their appearance today appears to match their appearance in historic photographs, which primarily show the northeast corner. Of note—the northeast corner photographs show a lantern projecting from the corner, supported from an ornate metal bracket. The photographs also show a nearby ladder that may have been used to allow for fueling and lighting the lamp.

Wall Height and Form
Description: The wall follows the adjacent grade without steps in height. The top has a sloped surface with a central ridge. The top's configuration is not original, but the date of change is not yet known. The wall height does not differ in any of the historic photographs. The wall's surface finish is colored stucco, the predominant color being the characteristic yellow.
Period: Construction times vary, from the 1700s to the first half of the 1800s.
Integrity: There is no evidence of alterations of significance. The top's profile alteration was probably a response to the negative effects of the vegetation seen populating the top in earlier photographs.

Physical Description and Condition Assessment—Cisterns



Cisterns

General Description

On St. Croix, the primary supply of water for dwellings and businesses is provided by individual rainwater capture systems, most of which have the following components:

1. Roof drainage is collected via a rainwater collection system and is directed through rain gutters and piping to storage tanks known as cisterns.
2. The water may or may not receive treatment prior to being pumped into the supply piping network of the building.
3. The cisterns are located on the grounds—the yard—and are buried, partially exposed, or above ground. The historic cistern construction material is brick, the top is built as a barrel vault (arched dome), and the interior is typically coated with a hydraulic lime mix to reduce leakage.

Today, the GCW Compound contains five cisterns. In 1917, a critical year for health concerns of the U.S. Navy as the government, there was probably only the original cistern (Cistern #1). After the U.S. Navy took over the administration of the three islands making up the then-newly named United States Virgin Islands, there was a variety of major health concerns, reported in *Annual Reports of the Navy Department* (1918). Chief amongst these concerns was the lack of drinking water of adequate quality and quantity. When the Navy assumed ownership, they worked to increase the availability of healthy water. Cistern #1 is constructed principally of brick; its location is tucked up to and under the entry stair that ascends over the Cistern. As seen on the site plan below of the compound (Figure 97), four other cisterns were added. These other four differ in construction type and materials from the brick of Cistern #1. They are constructed of a 20th century material, reinforced concrete.

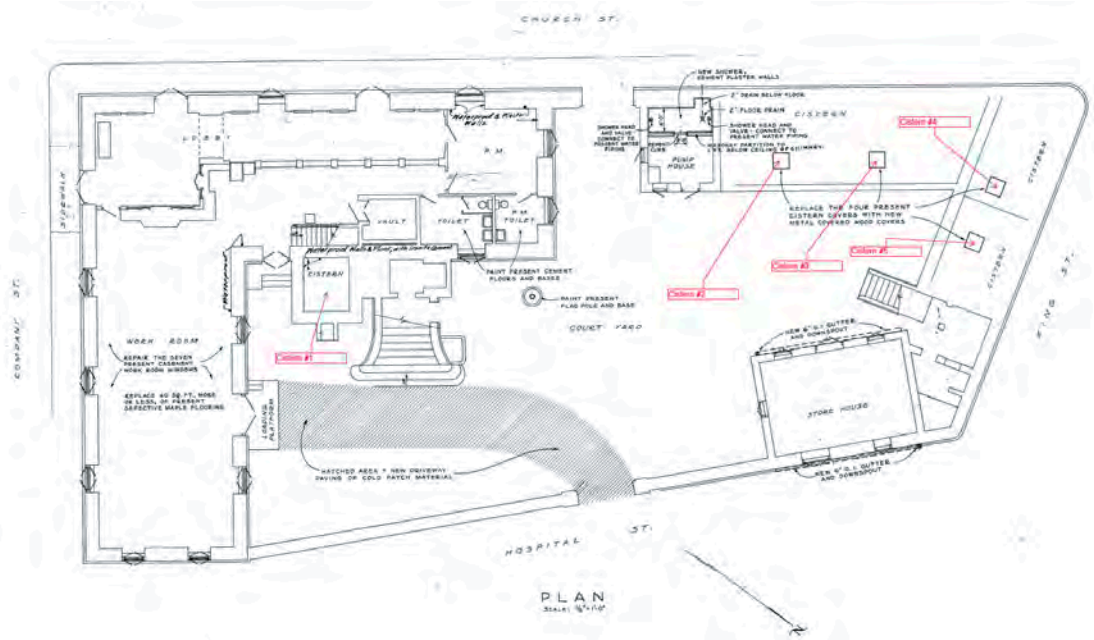


Figure 97: Closeup of 1945 site plan showing presence of cisterns.

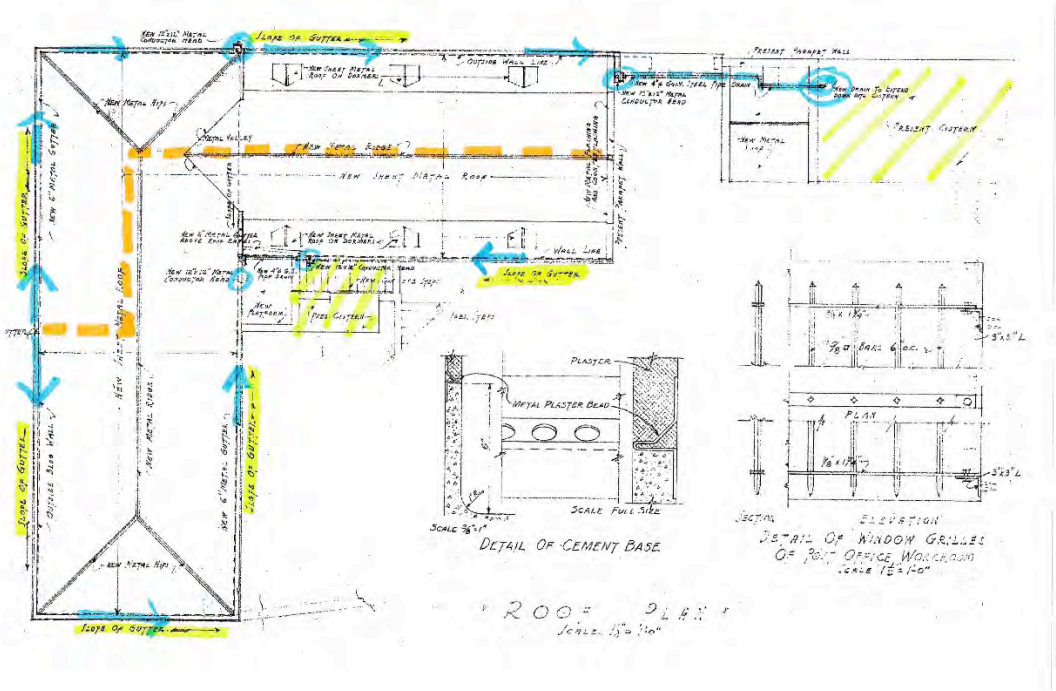


Figure 98: 1939 Rainwater Collection System shown are gutter slopes and end point cisterns.



Figure 99: Photo 1 of 2 showing rainwater collection system coming across the West Kitchen from the GCW to fill Cisterns #2 and #3.



Figure 100: Photo 2 of 2 showing rainwater collection system of the West Kitchen, which fills Cistern #4 and Cistern #5.

The expectation is that the four reinforced concrete cisterns were built at the same time. Some ways to tell the age is to evaluate the details of the construction type and construction materials. For the overall site of the GCW Compound, there are two concrete types, differentiated by the easily visual aspects of aggregate mix, where an exposed face is present, with the blue angular larger aggregate as a marker, and the second type where the blue aggregate pieces are not visible. The second differentiating characteristic is the shape of the reinforcement steel bars, twisted versus deformed. For the earlier twisted rebar and no dark blue stone in the aggregate, see the access stairs photographs at the east end of Cistern #5 (Figures 101 and 102). Another photograph with exposed aggregate of a cistern wall is located by a photograph (Figure 103) of a shallow hole in the cistern wall, likely left by a removed “Parking Reserved” sign. Figure 104 provides a close up of the aggregate in this location. These aggregates do not match those of the GCW entry stairs, which have the dark aggregate. The same aggregate indicator is seen in all the structural work of 1939: see Figure 105 for a concrete lintel; reinforcing bar is seen in the lower part of Figure 105, a photograph of reinforcing bar in the crawl space in the GCW with known date of 1939. If there is reinforced concrete that predates the U.S. Navy administration and construction, the reinforcement bars, once exposed, could serve as the tell-tale differentiator. The early use of reinforced concrete occurs well after the initial introduction of Portland cement to the new world in 1894. It is therefore expected that all four cisterns were constructed by the Navy (1917-1931) or one of the New Deal Programs of the mid to later part of the 1930s. There are differences between the concrete of the cisterns and that of the 1939 construction; however there is no visible evidence of differences in the concrete between the four cisterns, which are alike in the concrete (proportions and aggregate), likely reinforcement size, and layout/configuration.



Figure 101 (JDF 153115): Twisted rebar and no dark blue stone in the aggregate close to the access stairs at the east end of Cistern #5, pre-1939.



Figure 102 (JDF 153126): Closeup view of twisted rebar and no dark blue stone in the aggregate close to the access stairs at the east end of Cistern #5.



Figure 103 (DSCN 4722): A shallow hole in the cistern wall, exposed aggregate of a cistern wall.

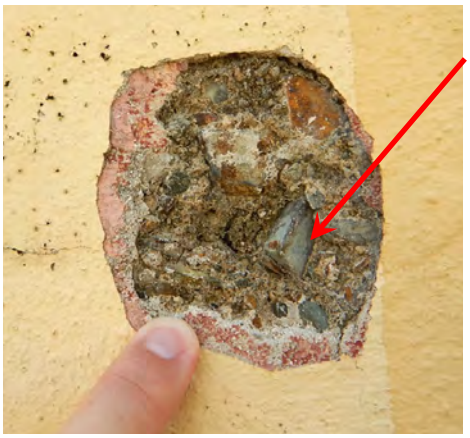


Figure 104 (4725): Exposed aggregate of a cistern wall with the tell-tale blue aggregate (pointed to by the red arrow).





Figure 105: Above (4891) is a photo of the concrete lintel and below (4923) is the reinforcing bar in the GCW crawlspace. Note the blue aggregate, 1939.

Alternate sources of water supply came into use with the installation of centralized systems, sourcing water by wells, storage in tanks, and distribution by piping networks. A

report published by the United States Government in 1963, "Groundwater for Public Supply in St. Croix Virgin Islands (Geological Survey Water-Supply Paper 1663-D)," by G.E. Hendrickson, indicates a number of well fields in 1962 were either developed or in the development process.

> *"As of June 1962 four major well fields for public water supply were active or were being developed. In addition, there are several small public-supply systems for small communities in various parts of the island. These small public supplies generally consist of 1 to 3 wells each and a storage tank from which the local residents haul their water. Plans are now being made to provide pipelines to individual homes in some of these communities." Page D9*

The five cisterns are not currently used for water supply to the GCW and the outbuildings. These buildings are served by the local central system. The cisterns can be activated for use as a source for domestic water after installation of a pumping/piping network. Alternatively, the water can be used for everything but drinking water (even though most everyone with a cistern uses the water for all their needs, including drinking water). The cisterns represent a part of the history of the site, particularly the time period of the U.S. Navy administration (1917-1931) and the New Deal. It is believed there is nothing else constructed by the U.S. Navy in the GCW Compound . The 1999 National Register nomination indicates a period of significance from 1734 to 1931. The previous National Register nomination concluded prior to the U.S. Navy period. With the period of significance encompassing the 1930s, the protection of the only resources of the period—the four cisterns—has increased in importance.

The cisterns were developed at different time periods with different materials. The cistern next to the entry stairs, inside corner of the ell of the join of the two wings, is considered to be the oldest due to its brick construction integration with the stairs, its appearance on the 1939 plans, and its being visible in historic photographs. The cistern has been designated "Cistern #1." Its water source is a filler downspout from the gutters above. This filler is still evident and is additionally evident in historic photographs. Of particular interest is an arched extension of the Cistern on its east elevation. It is, however, quite short, now missing the door. This extension was enclosed and controlled access to the location of a spigot used to fill water containers. The door would have had a lock to control the availability of the water for distribution. No pump for this Cistern is shown on any plans—the flow was by gravity. The pump for cistern water was shown for "Cistern #2" located to the north of the historic West Kitchen, in which a pump was either first located (or possibly changed out) as described in the 1939 plans. In these plans, the Cistern #2 fed water to the U.S. Post Office.

Cisterns #2 through #5 were fed by water from the GCW roof collection system directly over the roof of the West Kitchen (See Figures 106-108). It appears that the Cisterns were filled in series—as one filled, the water flowed into the next. The Cisterns are up against the site Perimeter Walls: north of the West Kitchen to the corner of King and Company Streets, and thence east toward the corner of King and Hospital streets, stopping short of that corner by some 20 feet. While these four Cisterns (#2-#5) are principally constructed

from reinforced concrete, the east exterior wall of Cistern #5 is at least partially brick. In addition to the concrete walls, these four Cisterns have concrete floors and roofs. Access for all five is by a hatch in the roof. The hatches for #2-#5 are indicated to be replaced on the 1945 construction drawings. As these Cisterns are below the height of the Perimeter Wall of the site, they do not show up in historic photographs prior to the 1937 oblique aerial.



Figure 106 (165112): Cisterns #2 and #3.



Figure 107 (4944): Preparing to measure the interior of Cistern #5.





Figure 108 (7166left+4961right): Two views of Cistern #4 from above. First has metal strap holding down concrete access hatch; second shows the open access hatch.



Figure 109 (3630): View from Cistern #5 looking south to Cistern #2.

There is a stairway adjacent to the east wall of Cistern #5 that leads to a concrete platform at the same level as the roof of the adjacent Cistern. The platform is supported by concrete columns at its north edge. The location of the stairs is approximately the same as the access stairs to the earlier gunsmith's residence. The residence was lost by fire. It is curious why these concrete stairs are located here; overlap in U.S. Navy and gunsmith residence is possible. Once the date for the loss of the gunsmith shop/residence is known, the overlap in time with the U.S. Navy could explain the concrete overlay of the steps.

Condition: The stairs are in fair shape. The columns supporting the north edge of the platform exhibit rusted metal reinforcing bar and areas of concrete loss. For some of the length of these bars, the concrete loss is significant enough that the bars are mostly separated from the concrete. The condition of the columns is poor. [Repairs were made in 2019.]

Condition: The keys to the locks on the access hatches were not handed over to the NPS by the GSA after the U.S. Post Office transfer. For the site visit, the locks were cut off with bolt cutters for Cisterns #2-#5 to allow access and observation of the interior. However, the interior of Cistern #1 was not accessed as that lock was not cut. Water was found in only Cistern #2. Water is routed from the warehouse roof to Cistern #1. As the walls of this cistern leak water, it is deduced that Cistern #1 is at least partially filled with water.

The removal of the locks revealed that the locks' fasteners to the concrete roof deck are loose. In some cases the holes are large enough that the connection cannot be maintained. The condition of the hatches are good, and the condition of the steel straps over the top of the hatches is also good. The condition of the fasteners of the straps to the roof deck is, because of the looseness, rated poor.

The roof deck and walls conditions are rated good for Cisterns #2-#5. The walls of Cistern #1 leak; therefore these walls' conditions are rated poor.

Record of Repairs and Alterations Overview of Modifications Over Time: Cisterns[4]
The site contains five cisterns. Between the two kitchens, four cisterns are constructed from reinforced concrete. Each has an access hatch in the concrete roof deck. The four cisterns have over 6,000 cubic feet of volume or an equivalent capacity to store over 45,000 gallons of water. Each cistern is interconnected with its adjoining neighboring cistern.

1917: The dates of the cistern construction are unknown. Cisterns #2-#5 are of reinforced concrete and are shown in place in the 1939 drawings. Due to the use of reinforced concrete, the construction is of the first 40 years of the 20th century, most likely after transfer to the United States in 1917. Whether there were earlier cisterns at this location is

[4]There is also a chronology discussion in the Developmental History of this HSR.

not known. However, the radar scans did not pick up an underlying wall of brick masonry in association with the cisterns, except at the east end of Cistern #5. Cistern #1 is brick and is located under and beside the staircase to the second floor. This was probably the original Cistern given its type of construction, its location adjacent to the building, and it being the recipient of the warehouse roof drainage water as the supply. At a later point, the roof drainage water was brought over to the West Kitchen and beyond to the cisterns.

1937: The 1937 aerial oblique view photograph shows the roofs of what appear to be cisterns along the north wall. The West Wall cisterns may or may not be present as a now removed building sat in this area of the site.

Early plans have provided a significant amount of detail, like the Oxholm plan of 1779, but none show cisterns. Yet cisterns were a necessity until a municipal water system became available circa 1930s. Cisterns are required of all new construction in the USVI.

Description and Condition of Elements

Walls and Caps: The cisterns comprised cast-in-place reinforced concrete walls and caps and a concrete slab floor (Figure 105). Based on GPR scanning, the walls are reinforced vertically at approximately 6 to 8 inches on-center and are approximately 1 foot thick (Figure 111). At the north and west walls of the cisterns, it appears that the existing masonry fence/wall was used as the exterior formwork for the concrete walls ; the concrete was poured directly against the interior surface of the masonry. The reinforced concrete caps are approximately 7 inches thick (Figure 112). The exact date of construction of the cisterns is unclear. However, they appear to pre-date the 1939 Post Office conversion, based on those drawings. Additionally, the cisterns are comprised of a lighter color aggregate (gravel) than the concrete used in the 1939 work (Figure 113).



Figure 110: View of the interior of a cistern, showing formed concrete construction.

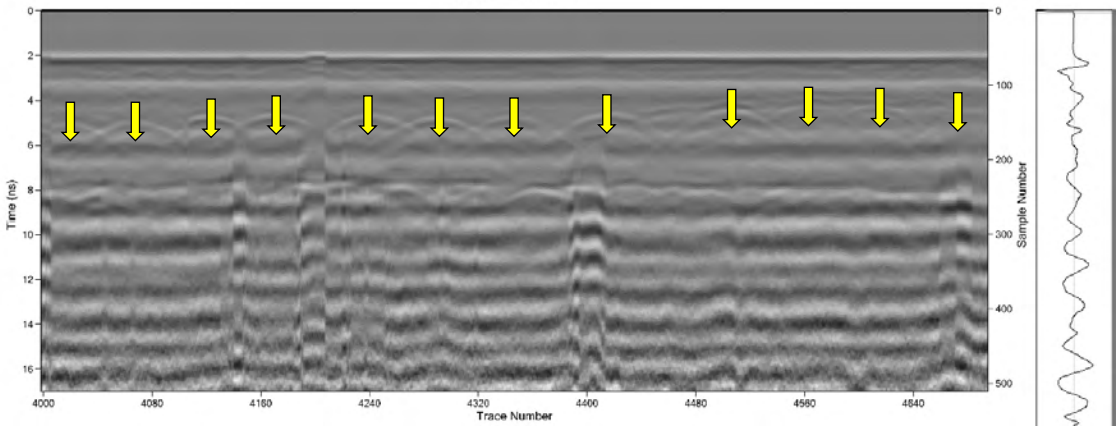


Figure 111: Sample of GPR scan showing vertical reinforcing bars in the interior/courtyard walls of the cisterns, indicated with arrows at approximately 6 to 8 inches on-center.



Figure 112: View of concrete curb (approximately 3 inches above cap thickness) at cistern entrance with height measurement from bottom slab of cistern.



Figure 113: Closeup view of cistern concrete, showing an aggregate that appears to be different from the 1939 reinforced concrete used at the warehouse building for post office conversion. The conclusion is that this concrete is earlier than 1939.

Overall, the structural condition of the cisterns appears to be good. There are indications that cracks have been repaired in the past, as would be expected in a concrete water container, but the overall structural integrity of the cisterns appears sound. There is no sign of corrosion of the embedded reinforcing or other significant distress. Since the cisterns are not currently being used to contain water, only the top surfaces of the structures are exposed to significant weathering and moisture. It appears that no structural remediation is required at the cisterns. Coatings on the interior walls are possible but not evident in Cisterns #2-#5. Recoating the interior of Cistern #1 should be considered.

Stairway: Similar to the cisterns, the stairway is comprised of cast-in-place reinforced concrete (Figure 114). Also like the cisterns, the stairway is shown in the 1939 Drawings as existing. The concrete contains light-colored aggregate. These stairs appear to have been constructed at the same time as the cisterns.



Figure 114: Overall view of cisterns, stairway, and west side of Comfort Station.

The structural condition of the stairway is generally fair, but the platform condition is poor, due to extensive rust bursting as exhibited by reinforcing corrosion and related spalling (Figure 115). The reinforcing used at the stairway appears to be a twisted square section, which is also different than the 1939 round-bar construction.



Figure 115: Closeup view of a twisted square reinforcing bar at the stairway to the top of the cisterns. The aggregate in this concrete does not appear to match the reinforced concrete at the warehouse building.

This stairway element is possibly close to 100 years old and serves a limited function. Treatment of the concrete deterioration should be considered a relatively low priority, although safety is of concern. Removal of loose concrete, cleaning of corroded reinforcing, and patching with compatible concrete (with mixes that would be set out in construction specifications) should provide adequate performance at this element.



Figure 116: Closeup view of stairway.

Character Defining Features
The configuration of cistern form should be retained. The access doors should reflect their latest iteration. The piping network of the rainwater collection system is a character defining feature.

Summary of Alterations Relative to Effect on Character Defining Features
The Cisterns numbered #2 through #5 are constructed of reinforced concrete, probably in the first 40 years of the twentieth century. These four may have been located where other buildings were previously located. The earlier Cistern #1 is under the stairway rising to the second story on the east elevation of the north wing. The stairway rising over the Cistern was built in 1939. This Cistern is constructed from brick with applied coatings to provide a degree of water tightness necessary to hold the captured rainwater.

Cistern #1—Brick Construction and Arched Attachment
Description: The Cistern is constructed from bricks. The arched attachment is a small short structure of less than 2 feet in depth with provisions for a door (now removed) and with a spigot just above ground level coming out of the Cistern's east wall. The interconnection of the attachment's structure with that of the Cistern indicates the high likelihood both were constructed at the same time. This Cistern is not connected by piping to the interior of the GCW. Water was drawn from the Cistern by the spigot. Access to the interior of the Cistern is through a top hatch.
Period: Water being necessary, the Cistern is likely to have been constructed at the same time as the GCW.
Integrity: The integrity is good; alterations have been minimal including small scale water resistance enhancement repairs and a new roof.

Cisterns #2-5, Concrete Construction
Description: The four Cisterns share wall and roof construction of reinforced concrete. The exception is a portion of the east wall of Cistern #5, which is brick. The Cisterns are equipped with piping to receive the captured rainwater and move the water to the next Cistern in line as overflow.
Period: The use of reinforced concrete as the construction method sets the earliest possible construction as about 1900. Cisterns may have been constructed from concrete by the U.S. Navy, the U.S. Army Corps of Engineers, or as part of a New Deal era Federal Emergency Relief Administration Program project by the CCC, Works Project Administration, or others.
Integrity: There are no condition issues of significance. The integrity is good.

Concrete Stairway
Description: Located at the east end of Cistern #5, these stairs are likely to have provided access into the gunsmith's house as the historic photographs show the house entrance in this location.
Period: The stairs were likely associated with the gunsmith's building and probably were installed as a replacement of an earlier set of stairs in the first 20 years of the 20th century.
Integrity: There are condition issues with the columns supporting the stair landing; such as deteriorated concrete and rusted reinforcing. [Repaired in 2019.]

Physical Description and Condition Assessment—East Kitchen



East Kitchen

General Description

Description: The roughly trapezoidal shaped room is formed by one wall perpendicular to the site Perimeter Wall at the King Street side, ten feet in from the two walls' (Hospital and King) intersection. The third side is the north wall of the Comfort Station. The Comfort Station building in its original size and form had a centrally located chimney of similar scale to that of the East Kitchen. The East Kitchen has a masonry hearth with a wood beam over the front (east) edge of the hearth. The original tall ornate brick chimney was lost in Hurricane Hugo in 1989; the opening of the remaining portion or stump is covered by a peaked piece of plywood installed by the NPS. The chimney is scheduled to be rebuilt in a 2020 project. The room has a window through the Perimeter Wall providing ventilation access to King street. A window and door in the west wall lead to the top of the cistern via a narrow passage behind the access stairs. The roof appears to have been partially redone in reinforced concrete.

The East Kitchen is a fired clay brick masonry structure constructed using brick units and mortar that appear to be similar to those used at the GCW. Other than lintels, a door, and windows, the original structure appears to be made entirely of brick masonry and plaster.

The East Kitchen came into existence as an extension of the building now known as the Comfort Station.

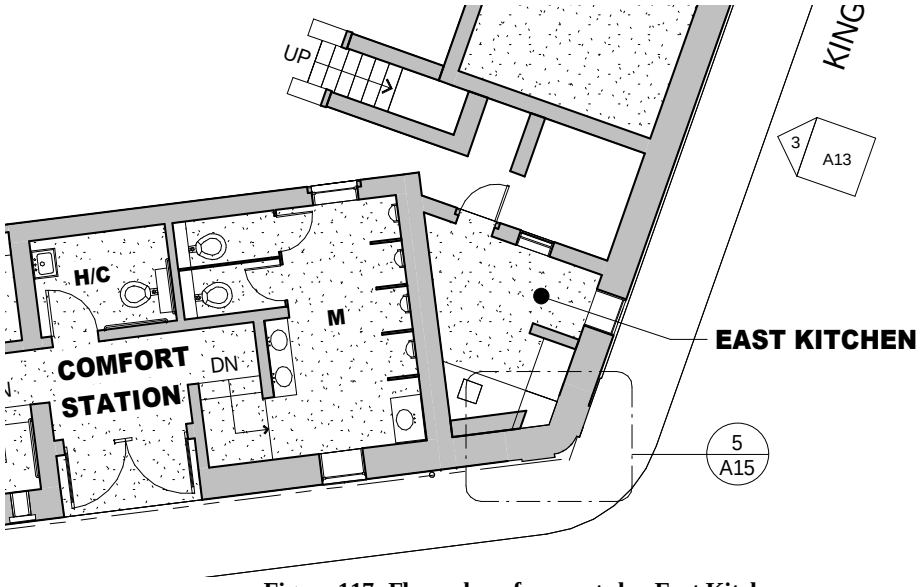


Figure 117: Floor plan of present-day East Kitchen.



Figure 118 (3604): South portion of the East Kitchen's west elevation. Note the window is open to the weather.



Figure 119 (403605): North portion of the East Kitchen's west elevation.



Figure 120 (3613): View of interior, window of north elevation.

Condition: This room exhibited a trail of termites, some deterioration of the render on the brick hearth, and concrete roof deterioration exhibited as rusted reinforcing bar and concrete spalls of the underside of the roof deck. As described, the chimney has been cut down to just above roof level. The overall condition is poor, yet all of the treatments are straightforward and the chimney reconstruction can be guided by multiple historic photographs. The area of the back corner of the site is moist; access to this room is poor due to the wet conditions and trash. Yet this room has abundant original features and has strong potential for interpretation.



Figure 121 (3612): Hearth at right.



Figure 122 (3613): Historic opening to street behind shutter.



Figure 123 (3614): Ceiling—Rusted rebar causing concrete spalling. There is no roofing material covering the top surface of the slab.



Figure 124 (3615): Ceiling—pieces have fallen and will continue to fall.



Figure 125 (153308): Detail of damaged area at window in north wall, interior shutters.



Figure 126 (3067): East Kitchen, south wall, overview of damage, including rust bursting at the ceiling.



Figure 127 (3616): Ceiling



Figure 128 (3617): Ceiling



Figure 129 (3618): Stove



Figure 130 (3619): Hearth



Figure 131 (3620): Stove

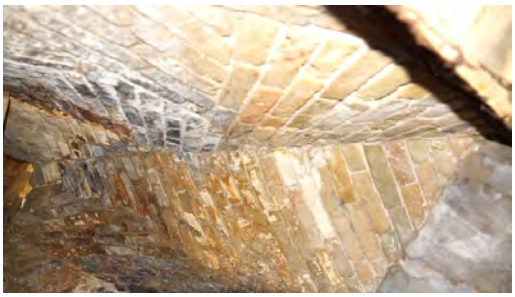


Figure 132 (3622): Chimney interior

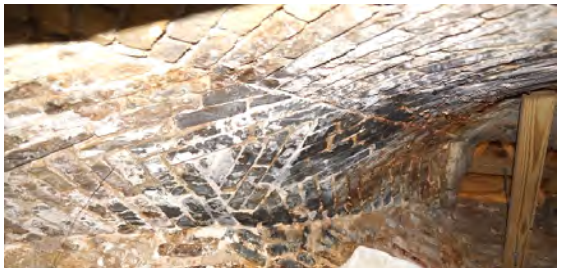


Figure 133 (3623): Chimney interior



Figure 134 (3624): Shelf to the right of stove



Figure 135 (3625): Shelf to the right of stove



Figure 136 (3626): Above shelf

Treatments for Interior Repairs—Concrete Floors

Floor, cracks/holes in concrete: The recommended treatment of cracks in concrete floors is to widen the crack by removing enough material for the crack to be a minimum of 1/4" in width. Clean out the crack. Test mixes for matching in color and aggregate. moisten side walls of crack. Fill the crack with selected mix and finish the top surface to match adjacent material. For holes in the concrete, given that most holes are evidence of previous mechanical installations, there is a consideration to protect the evidence of the prior uses. Also, many of these holes have piping extensions to other buildings. The recommendation is to drive a plug into the interior of the pipe to 4-6 inches below the floor surface, and fill the remaining volume with concrete up to the floor's surface.

Record of Repairs and Alterations Overview of Modifications Over Time: East Kitchen[5]

This building has changed size, features, and uses.

1779: The earliest drawing of the compound appears to have been created as a measured drawing, rather than broadly representational, and is attributed to Oxholm, dated 1779. 1779 pre-dates by some 20 years the splitting of the enclosed courtyard by the extension of Hospital Street, circa 1803. The resultant truncated site is as seen in 2018; the east boundary is Hospital Street. Using the Oxholm plan as a base, can the question be answered: were the subject buildings (the East Kitchen and a portion of the Comfort Station) present in 1779? From the northeast corner of the East Wing of the GCW, using the Oxholm plan, the first structure encountered would be 167 feet away bearing northwest. The bearing is parallel to Hospital Street. The Oxholm plan indicates this structure farther from the GCW than is possible for it to be the subject building, the prior iteration of the comfort station. In addition the building on the Oxholm plan is not aligned with any Hospital Street walls as it did not exist as yet in this location; instead the walls were at right angles and parallel to the King Street alignment. Therefore, the walls of the Comfort Station were not part of the walls of any structure seen on the Oxholm plan. This is one of several plans attributed to Oxholm, in the same general period, and none of these plans have a building alignment and location representative of the subject buildings.

[5]There is also a chronology discussion in the Developmental History of this HSR.

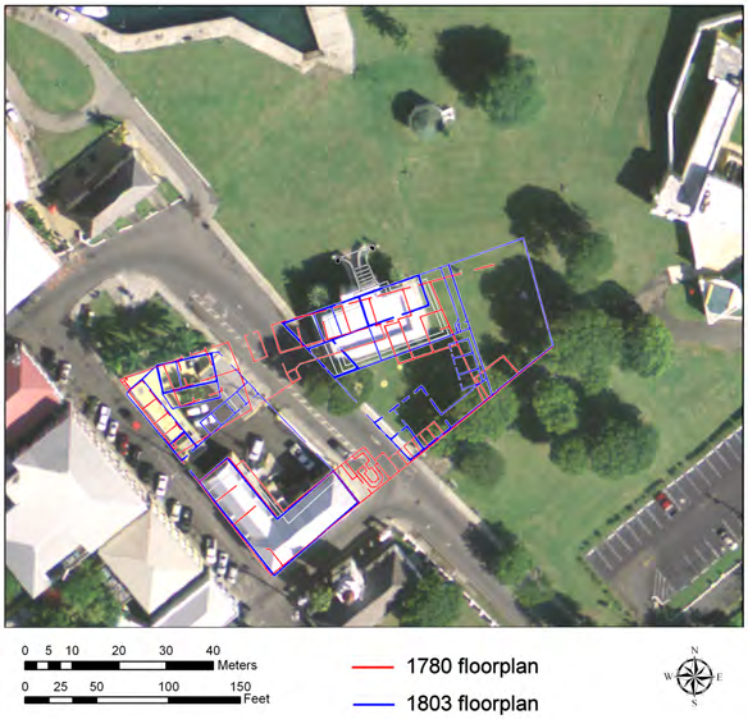


Figure 137: Photo of west side of the Danish West India and Guinea Company Warehouse (GCW) complex with overlay of the 1780 floorplan and the proposed 1803 floorplan. The red arrow points to the East Kitchen. Source: Christiansted National Historic Site: Archeological Overview Assessment, 196.

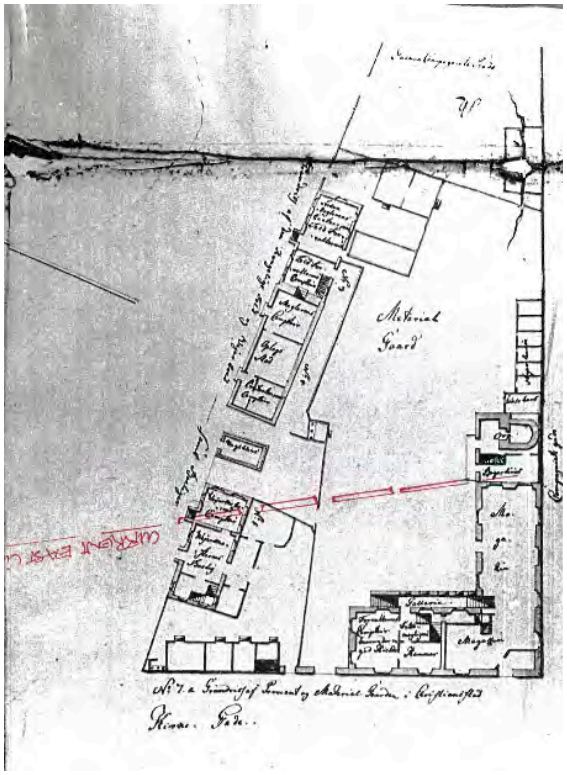


Figure 138: GCW compound section from Oxholm 1779, Christiansted's wharf area. Note the red letters (added by TCI) and lines indicate the current east limit of the site, i.e., after the Hospital Street extension. Source: HABS No. VI-98-2.

The 1855 map of the downtown area of Christiansted, displayed below in an enlargement (Figure 139), indicates the site containing six buildings. Several of these six are identifiable. 1, West Kitchen. 2, Mystery Building A. 3, Mystery Building B, which straddles the north wall; which has been described by historians as being used for metal working in support of the fort, the armorer, or military gunsmith. This rectangular building, the function of which is not documented, is seen in several historic photographs. 4, Building now known as Comfort Station. 5, Mystery Building C. 6, GCW. The buildings do not appear to be drawn in response to detailed measurements, but the building shape and rough size are helpful. Yet the plan must be considered representational. Descriptions of the uses of the buildings are not provided. The index indicates the use of the entire site, but not the individual buildings.



Figure 139: Enlargement of 1855 map of downtown Christiansted.
Source: http://ao.sa.dk/ao/data.ashx?bid=55098909.

1860s: Black and white photographs (Figures 140-143) are seen on the following pages. They are respectively attributed to the 1860, 1890, and 1960. They provide a vital bridge between the historic plans and the plans drawn prior to the 1939 conversion of the GCW to a post office by the U.S. government. As the photographs were taken from outside the courtyard walls, these same walls obscure much of the lower portions of the walls of the buildings inside the courtyard. However, what is clearly visible of the East Kitchen building are the sloped roof, chimney, the short east wall, and the north wall with louvered window opening (much shorter than current one).

Do note that Zandy Hillis-Starr reported to the investigation team that the West Kitchen chimney is a reproduction of the East Kitchen chimney. However, the East Kitchen chimney appears in two photographs (as seen below) to be of different heights. In an historic photograph attributed to 1860 (Figure 145), the chimney's height is "medium" and in a HABS photograph of 1960 (Figures 142 and 143), the chimney is of a tall height. As measured from the downslope side of the chimney structure to the top, the West Kitchen chimney height is 11 feet. In sum, the East Kitchen chimney's height has varied over time, being shorter in 1860 than its height as depicted in the HABS photograph of 1960. There are several possible reasons for the change of height, one being that perhaps the medium-height chimney did not work very well and had limited draw and was extended in height to enhance the draw. A taller chimney may have replaced the shorter chimney if it was blown down in hurricane force winds, a typical problem with chimneys.

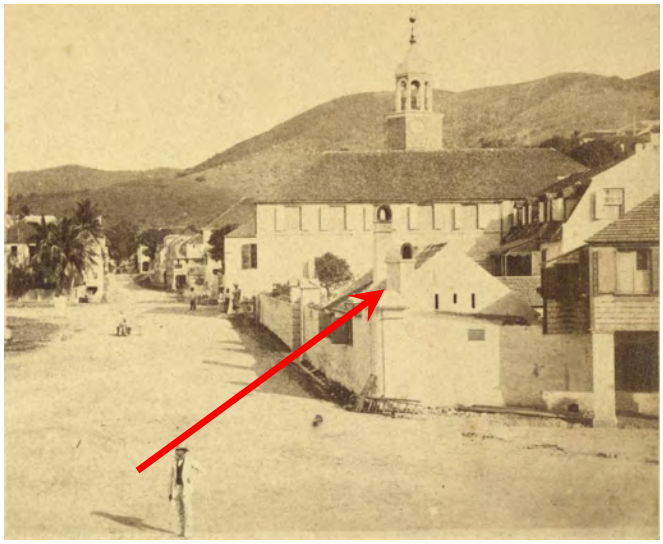


Figure 140: View of exterior of DWI GCW in 1860. The arrow points to the medium-height chimney. Source: New York Public Library Digital Collection.



Figure 141: View of DWI & GCW ca. 1890s. Photograph by Luldvigsen. NOTE: The chimney is taller than in the prior photograph. Source: Cissel 2000, page 63.

Chimney Height Evaluation Photographs



Figure 142: View of the 1960 East Kitchen. The chimney is tall. Source: HABS.



Figure 143 (166265pu—300): 1960 HABS photo showing overview of East Kitchen roof. Compared to the 1890 photograph (Figure 141), the chimney has been extended. The chimney height seen in this HABS photograph appears similar to that seen in the 1890 photo. The chimney present in this photograph was lost in Hurricane Hugo (1989).



Figure 144 (2919): 2018 overview of present-day roof of East Kitchen. Also note the window opening with metal bars and the wood entry door.

Roof Structure: A low-slope reinforced concrete roof is present with the same dark-colored aggregate used in the 1939 Post Office conversion. It may be partial. There is no roof covering.

The entire reinforced concrete roof slab appears to be suffering from rust bursting of the reinforcement bars. Not all of the roof slab has concrete loss, but the condition is likely to be present throughout, given the lack of a roofing material covering the top (exposed) surface of the roof slab.

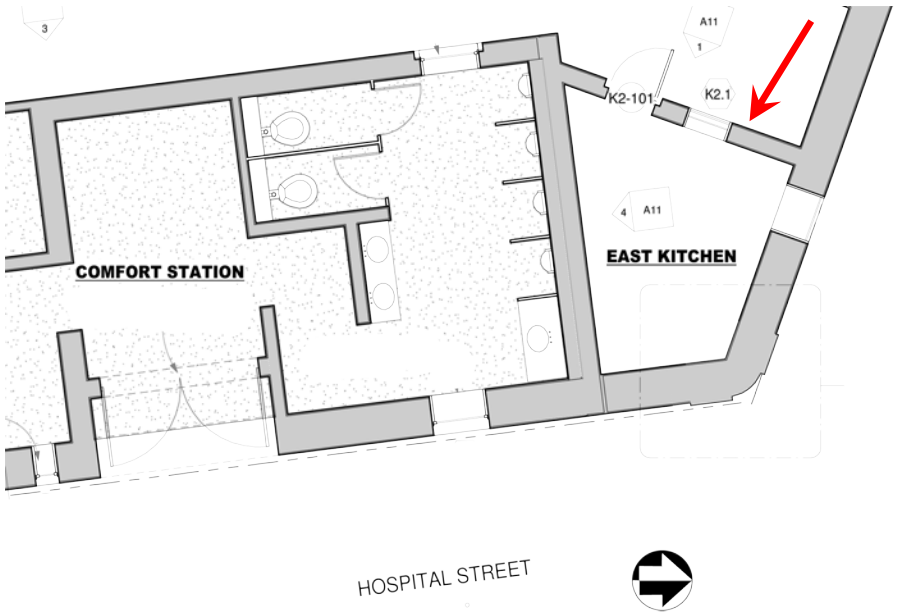


Figure 145: Floor plan of present-day East Kitchen. Red arrow points to the unique East Kitchen wall.



Figure 146: Overall view of East Kitchen structure as seen at the interior, showing fired clay brick masonry construction with a large timber lintel.

Before considering replacing the chimney, the roof slab condition must be addressed. The missing chimney was destroyed during 1989 Hurricane Hugo (Figure 147). The chimney opening is now capped using modern lumber. Additionally, there is severe corrosion of metal at the hearth. Termite tunnels are observed on the walls around this structure; there appears to be termite damage to the wood windows and doors. Plaster cracking and staining indicate that moisture is likely a significant concern at the walls—the roof is providing a path for moisture intrusion.

Note of Interest: Zandy Hillis-Starr reports that the termites were treated in 2019. Drainage issues outside the kitchen door were causing a moist environment attracting termites. NPS will be working to control this drainage issue. Water line to bathroom and bathroom drainage was repaired in Comfort Station "ReRe 2019."



Figure 147: View looking up to roof and chimney structure in East Kitchen. The upper portion of the chimney was removed and capped following storm damage from Hurricane Hugo (1989).



Figure 148: Corrosion of reinforcing and associated concrete spalling in the roof of the East Kitchen and plaster spalling of the walls, all indicative of moisture intrusion.

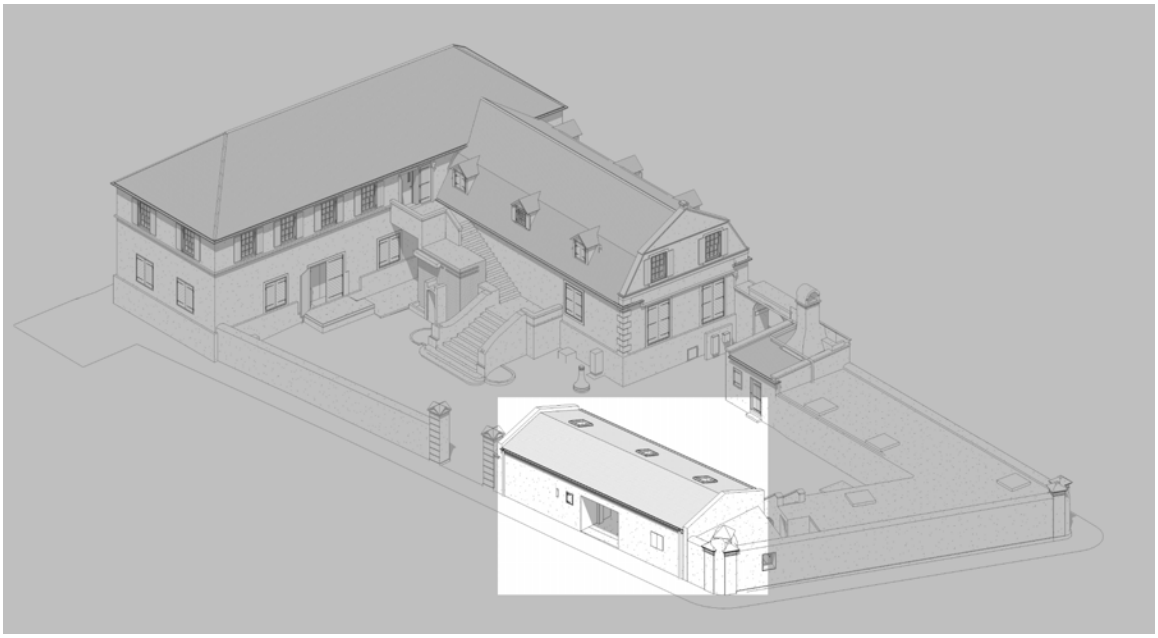
The window next to the door has horizontal bars and does not have any protection, such as louvers or shutters, from moisture intrusion. Worse, the roof drains to this elevation without any gutter.

Character Defining Features
The form, the wall material, the roof, the chimney, the hearth, and the windows and door are all CDFs.

Remedial Treatments and Interventions:

- Termite treatment (Completed in 2019).
- Concrete spall repair per the Treatments section.
- Repair any wood damage from termites to windows and door.
- Reconstruct chimney per the calculated height from 1950 photograph (10 feet above current chimney point of termination).
- Add shutters to the windows or louvers.

Physical Description and Condition Assessment—Comfort Station



Comfort Station

General Description

Description: This building has been significantly altered: expanded to the south, roof structure changed out and raised in height, walls raised in height, chimney removed, most windows altered, door entries altered, and entire interior finishes and fixtures altered multiple times to become and continue as a comfort station. While the building was not open to the public during the time of the site visit, information was provided to us that the typical users groups are park visitors, public, and cruise ship passengers when on tour to Christiansted. Operationally, the comfort station has been locked each night.

The materials of the exterior shell of the building include brick masonry, stud frame additions for the walls (length and height), and a wood-framed roof structure with galvanized corrugated sheet metal roofing, punctured by glass skylights.

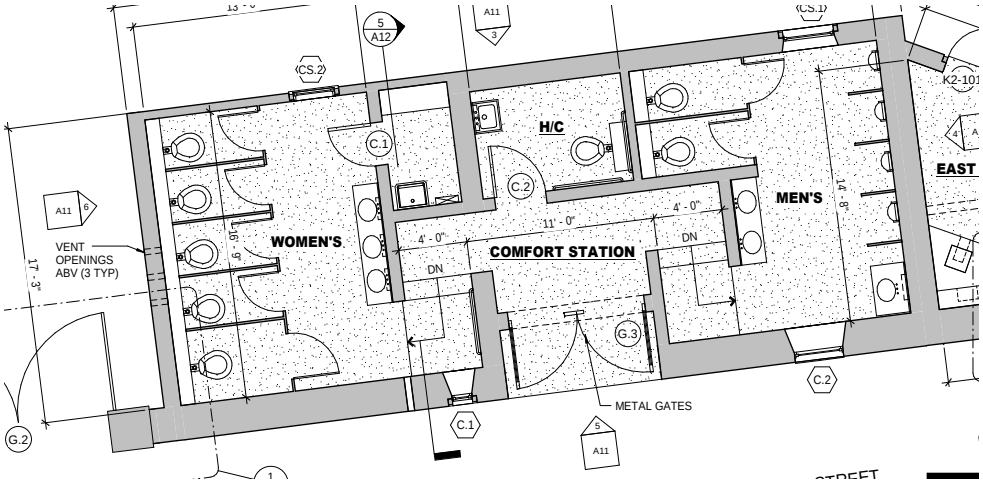


Figure 149: First-story plan of present-day Comfort Station.



Figure 150 (3091): Comfort Station's South Elevation



Figure 151 (3442): Comfort Station's East Elevation overview



Figure 152 (3443): Comfort Station's East Elevation



Figure 153 (3627): North Elevation and roof of Comfort Station.



Figure 154 (7156): Comfort Station's West Elevation viewed from courtyard toward northeast.

Condition: The condition of the facility had reached a level of deterioration that precipitated a renovation of the interior finishes, bathroom fixtures, and exterior finishes, scheduled to begin about the time of the site visit in early November 2018. Therefore, photo documentation is of the "before" condition.

The Comfort Station is one of the most heavily modified structures of the compound property. The roof has been entirely replaced multiple times. The entrance has been moved multiple times. The heights of walls have changed. The building has been expanded, and a chimney has been removed. The current structure appears to consist of clay brick masonry at the bottom portion of the East Elevation, the North Elevation, and a portion of the West Elevation. Modern wood stud wall construction and modern lumber roof framing are also used (Figure 155). The material boundaries are evident by linear cracks in the stucco of the exterior.

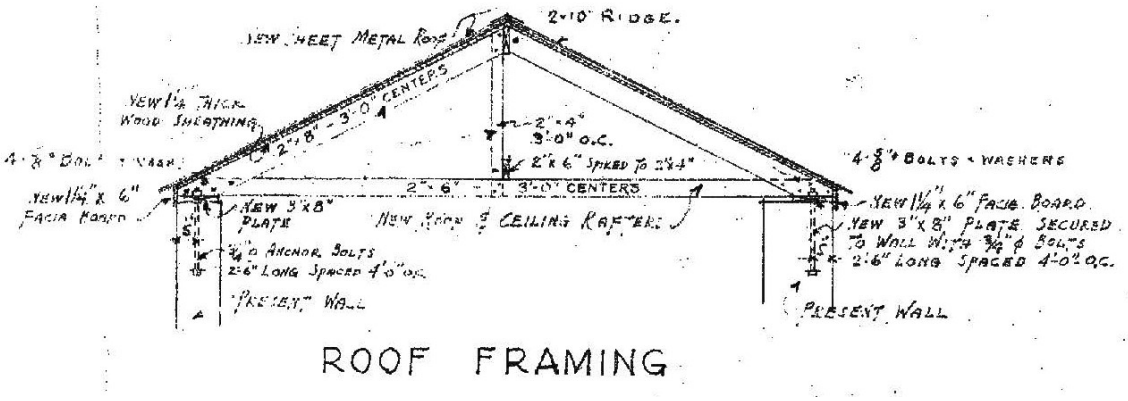


Figure 155: Roof framing drawing from Sheet 4 of the 1939 U.S. Post Office Drawings, showing new roof framing, decking, and roofing at the Comfort Station. There is no indication of an existing chimney at the time of these drawings. The tall chimney fell during the 1916 hurricane.

Structural distress observed at the Comfort Station is primarily related to cracking at some lintels and to moisture concerns at the East Elevation walls (Figure 156) and to non-structural cracks between the different wall types. This distress is likely very similar in nature, causes, and recommended remediation to the moisture concerns described in the GCW.



Figure 156: Visual light photograph of the Comfort Station with infrared thermograph superimposed, showing thermal difference between masonry construction at the base of the East Elevation and wood framing near the roof level.

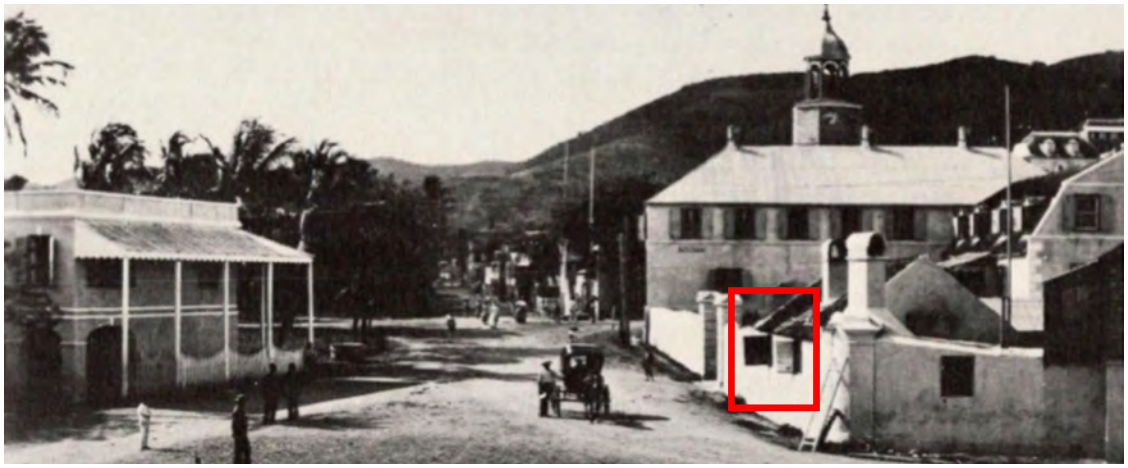


Figure 157: View of Comfort Station in the 1890s, highlighted, viewed from the north. Photo by T. Luldvigsen. Source: Cissell 2000, 63.

A large tall chimney was centered on the east slope of the roof. Possible uses needing a chimney are metal work, cooking, or baking. The cooking and baking functions have been discussed previously.

If the chimney was associated with the blacksmith, its location is sensible. Blacksmith hearths in warm climates are typically separated from the residence of the smith. If the armorer or smith was situated in the building straddling the north wall, it was quite close to this building. This near adjacent building might have had a hearth or just served as a residence or a machine shop or a combination. If it did, perhaps the blacksmith use was integrated within the building. Reportedly the building was destroyed by fire after 1917.



Figure 158: A detail of Oxholm's 1779 drawing, the red arrow is pointing to an oven.

The roof form is gabled, and contained at its north and south ends by parapet walls. The roof is covered by fired clay tiles in a barrel shape similar to mission style, but could be in the Marseille style. These end walls have vertical and narrow ventilation slots. The window openings seen on the East Wall were louvered, likely wood; the openings could be closed by wood shutters. Most every roof gathered rain water for storage, yet when gutters and downspouts were replaced in the mid-twentieth century per the drawings, the rainwater piping to the nearby cistern was not indicated.

Record of Repairs/Alterations Overview of Modifications Over Time[6]

The West and East Walls were a different shape from today's rectangular face. The corners were stepped. Entry to the interior has changed location from East Elevation, from West Elevation, and from both. In the early photographs there is no door on the East Elevation. Each photograph can be seen below with the date and the noted differences in the annotations.



Figure 159 (YoungT_Slides_008): East Elevation of Comfort Station in 1985. Source: TCI's 1985 HSR.



Figure 160 (YoungT_Slides_048): West Elevation of Comfort Station in 1985. Source: TCI's 1985 HSR.

[6]There is also a chronology discussion in the Developmental History of this HSR.

1945 plans and the 1939 plans call out this building as a "STORE HOUSE." See closeups below—Figures 160 and 161) and full sheets in Appendix A.

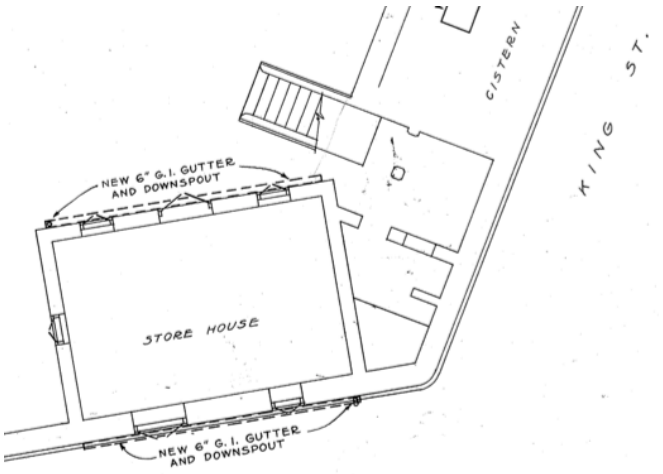


Figure 161: Closeup of 1945 Plan when what is now the Comfort Station was called "Store House." Source: TIC, NPS.

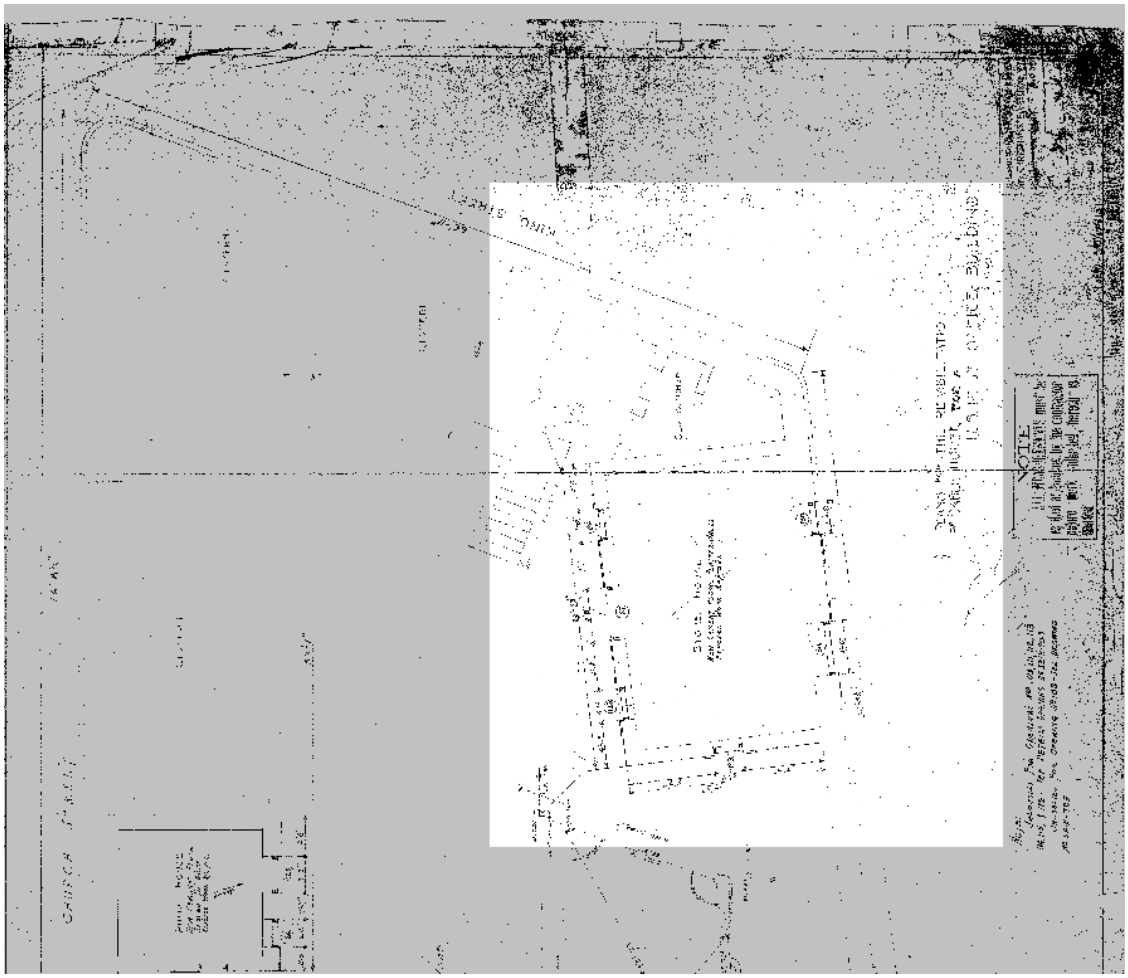


Figure 162: 1939 Plan with what is now the Comfort Station was called "Store House." Source: SERO, NPS.

In **1978,** the building was remodeled as a Comfort Station (See the plans below).

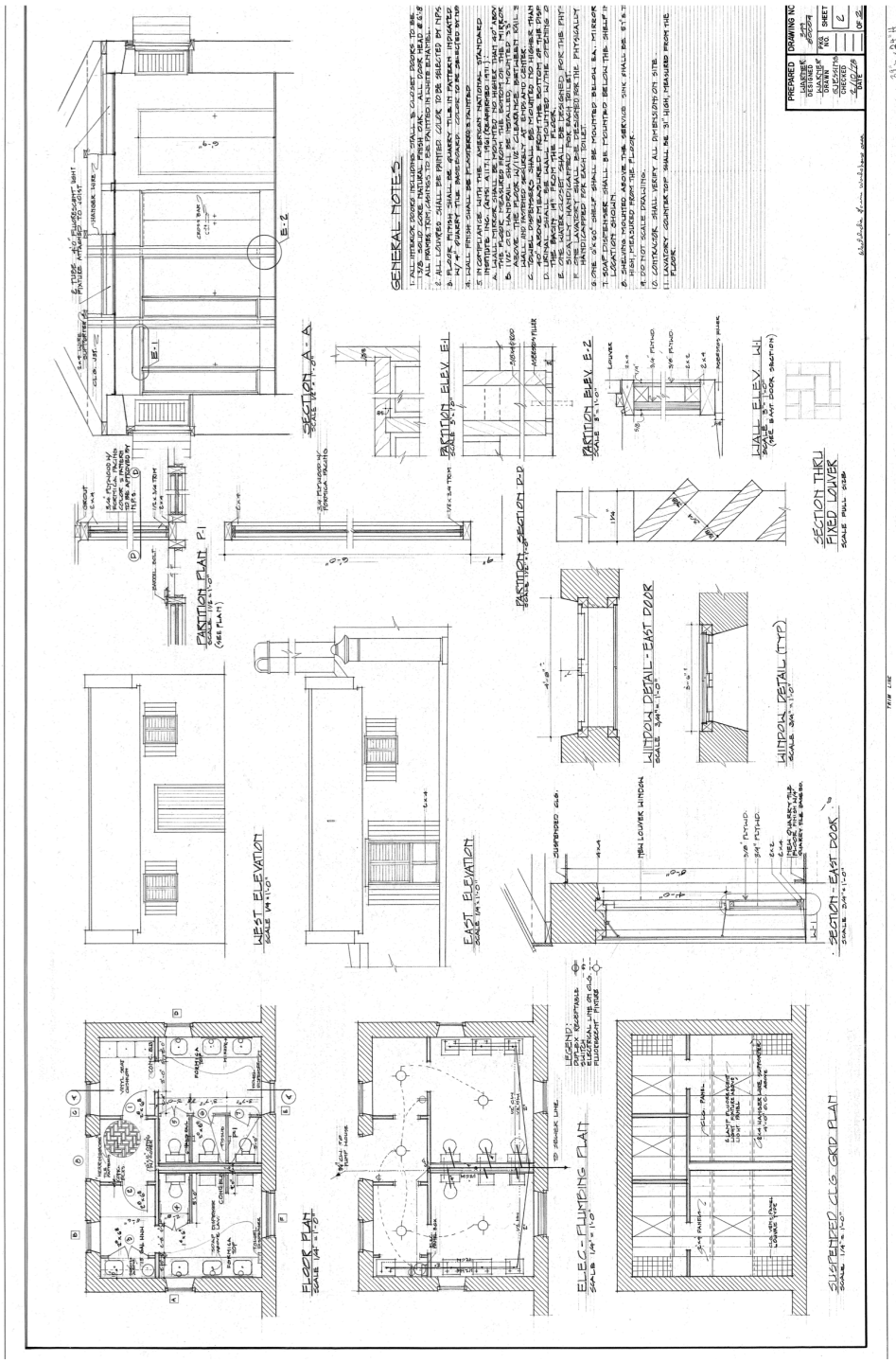


Figure 163: 1978 plans for remodeling store house to a Comfort Station. Source: TIC, NPS.

In **1988** the building was expanded in size by an addition to the south; the increased square footage was remodeled to increase the capacity. A description of alterations from the drawings is below.



WORK STATEMENT :

B. Site Preparation - Provide all labor, materials and equipment required to perform grading, excavation, backfill, fill and compaction.

C. Concrete Work

1. Surface preparation of substrates.

2. Application of bonding agent.

3. Placement and removal of formwork.

4. Installation of epoxy coated steel dowels, metal reinforcements, and accessories.

5. Placing and finishing of reinforced concrete.

6. Installation of control and expansion joints.

D. Concrete Unit Masonry

1. Construct concrete unit masonry walls as indicated on drawings.

E. Masonry Repairs

1. Infill selected masonry openings.

2. Modify by widening selected masonry openings (this work may include shoring and possible rebuilding of a portion of masonry wall.)

Included in the work are the installation of lintels and any other built-in hardware required in this contract.

All masonry surfaces shall be rendered sound and watertight.

F. Ornamental Metal Entrance Gates and Miscellaneous Metal

1. Fabricate and install new entry gates and all related components as indicated on the drawings.

2. Fabricate and install new metal shutter hinges as indicated on the drawings.

G. Carpentry, Millwork, Plastic Fabrication and Roofing

1. Install roof structural framing to include ridge, rafters, joists, plates and sheathing.

2. Clean existing metal roofs.

3. Install framed walls and interior partitions.

4. Repair and install trims and fascia boards.

5. Repair window frames, louvers and shutters.

6. Install window frames, louvers and shutters.

7. Fabricate and construct plywood box beams, backings and wood framing for plastic veneer finishes to lavatory, countertops, and exposed portions of toilet and urinal mechanical chases.

8. Construct wood framing and plywood backing for ceramic tile finishes to toilet and lavatory mechanical chases, janitor closet, and to countertops apron fascias.

H. Gutters and Downspouts - Install new metal gutters and downspouts on east and west elevation.

I. Sealants and Caulking - Provide and install all sealants, caulking and filler materials required for masonry control joints, concrete expansion joints, around plastic fabrication, door and window frames, louvers and shutters, plumbing fixtures and other related items.

J. Lath and Plaster - Repair existing interior lime plaster finishes, plaster selected concrete masonry walls, plaster interior framed walls.

K. Stucco

1. Repair selected exterior masonry surfaces and apply to exterior wood frames walls.

2. Bid Alternate - Remove deteriorated exterior finishes and apply stucco to all wall surfaces.

L. Ceramic and Quarry Tile - Install ceramic and quarry tile on selected walls and floors as indicated on drawings.

M. Painting and Other Finishes

1. Exterior surfaces including window frames, louvers and shutters, ceilings at main entrance, gutters, downspouts, new framed stucco walls, millwork and trim.

2. Interior walls and ceiling surfaces including all exposed roof framing components, (roof sheathing, rafters, joists, plates, etc.) door and window trim.

3. Bid Alternate - Limewash exterior masonry walls.

N. Signs - Install signs in accordance with sign schedule.

O. Toilet Accessories - Install in accordance with accessory schedule.

P. Toilet Partitions and Urinal Screens - Fabricate and install plastic toilet doors, partitions and urinal screens as indicated on drawings.

Q. Disinfection of Water Lines - Disinfect all portions of water system.

R. General Plumbing - Install a complete plumbing system to include sanitary, cold water and vent system.

S. Plumbing Fixtures and Trim - Install in accordance with plumbing fixture and trim materials list.

T. General Electrical Provisions - Install a complete electrical system including all wiring, connections, equipment and lighting fixtures.

U. Fire Alarm System - Install heat detectors as indicated on drawings.

Figure 164: Work Statement from page 3 of 5 of the 1988 Plans for Comfort Station Expansion

In **2010,** plans for replacing the skylights damaged by storms indicate the skylights were installed on the west facing roof slope of this building between 1988 and 2010.

In **2018-2019** interior finishes were redone and the fixtures were replaced. There are no plans for this; however, there is a work statement available at the Park.

In **2018-2019** interior finishes were redone and the fixtures were replaced. There are no plans for this; however, there is a work statement available at the Park.



Figure 165: Southwest corner.



Figure 166: View from the interior of blistering paint and spalling plaster due to moisture at the East Elevation of the Comfort Station.

20th Century Photographs: Each photograph provides information on the alterations to the now-existing buildings, the additions made to the buildings, and the no-longer-extant buildings. Focusing on the current Comfort Station building, changes can be observed, although in some of the photographs, it's hard to see the building details.

Description and Condition of Elements

Roofing: A large tall chimney was centered on the east slope of the roof. To what use was the chimney being put? Metal work, cooking, or baking? A bakery existed on the site before the extension of Hospital Street; thus, there is a high potential use for a newly constructed building around 1800. A bakery was to be built or was built in the remaining portion of the site now east of Hospital Street. A bakery function was installed in the church (now known as the Steeple Building) to the south in 1840. There are two other kitchens, one on the west boundary of the site and one to the north of the Comfort Station building at the east boundary. Both kitchens had hearths, not masonry ovens, as the core feature of the bakery building removed in 1800.

Character Defining Features

Summary of Alterations Relative to Effect on Character Defining Features: This building has been the subject of the greatest number of intense alterations of any of the outbuildings, leaving the building with a low percentage of intact original features. The building has been enlarged by extension by modern era walls and roof to the south and extension in height of the north portion's walls. The entrance has been moved from the west elevation to the east. The roof has been altered in height above ground with the ridge height increased. Still there are some characteristics of roof shape, and surface appearance that are character definers. The building with its southward expansion "inherited" the east wall of another building, its only remaining portion, as the wall also was a part of the perimeter wall. The interior has been renovated multiple times in order to create the restrooms: flooring, wall, and ceiling finishes; lighting fixtures and locations; toilet, sinks, and associated fixtures; and new floor plan layouts.

Roof Shape

Description: Gabled roof with ridge running parallel to Hospital Street, the roof form is the feature.
Period: The original roof dates from the 18th century or very early 19th century. Major alterations have occurred in the mid to last half of the 20th century.
Integrity: The roof has been reconstructed, increasing the height above ground, and rising above the end parapet walls that had in turn been extended upward in height.

Portions of the Building's Walls—The North Two-Thirds

Description: The lower 80% is original. The finish characteristics on the exterior face of stucco, and its texture and color range are characteristic of the exteriors of the buildings and walls of the compound.
Period: Late 1700s to very early 1800s.
Integrity: The original walls have been altered substantially.

Two Small Window Openings, East Elevation

Description: Atypical with their narrow small size, the openings were originally with either louvers or bars and were in a no longer extant building for which only its east wall remains.

Period: These two windows are associated with the east wall of a no longer extant late 1700s or early 1800s building. The former building's wall is part of the compound's Perimeter Wall.

Integrity: The openings appear to be in their original location, and proportions, when existing, is compared to historic photographs.

Only a portion of the building—the north two-thirds—has any original material. This portion has enough extant information in the forms of historic photographs to allow the building's accurate restoration as to exterior form, roof and roofing, the design of the currently removed chimney, location of window and door openings, and their typology. Windows were wood louvered with wood shutters. These would be CDFs upon the building's restoration. Currently the building has been so modified that it has lost significant historic integrity. Character Defining Features would be limited to the north two-thirds of the walls (Figure 167) and the smaller two "window" openings of the East Wall (Figure 168). These openings were associated with another building now removed, the rectangular building, Mystery Building C.



Figure 167 (3443): Character Defining Features at the north two-thirds of the walls. The two small wall openings of windows are the last part of Mystery Building C, no longer extant as a building. Just this wall is left (see Figure 160 as well).



Figure 168 (3448): Character Defining Features also comprise the smaller two window openings located in the East Wall of a removed building and continuing to be used in the Comfort Station.

Physical Description and Condition Assessment—Guinea Company Warehouse (GCW)



Danish West India & Guinea Company Warehouse (GCW)

General Description

The two-story ell-shaped structure is constructed of random rubble masonry with locally sourced limestone and coral stone and Danish brick. The surface is finished on the outside with a tinted rendering. The East Wing has a hip roof with metal roofing; the North Wing has a gambrel-shaped roof, with metal roofing and three dormers per each face, the north or gable end rising to a short parapet. The walls have simple decorative details such as expressed corner quoins for a few corners, a string course below the second story windows, expressed coping at the top of the gable end parapet wall, and a thickened wall base.

In 1939, the interior was significantly renovated after being gutted; concrete floors were installed in both stories of both wings. The last time comprehensive plaster rendering had been applied to the interior walls was in 1939.

The interior has undergone several renovations after 1939 when it served as U.S. Post Office on the first floor and U.S. Customs Office on the second floor: 1) maintenance and painting in 1945; 2) renovations in 1978; and 3) interior renovations on the second story in 2003 to accommodate the needs of the National Park Service—the second-story interior was furred out with stud walls that were then covered with gypsum dry wall.

In each of these three renovations, in addition to finishes, utility systems were to a large extent changed out: plumbing, mechanical, electrical, and lighting.

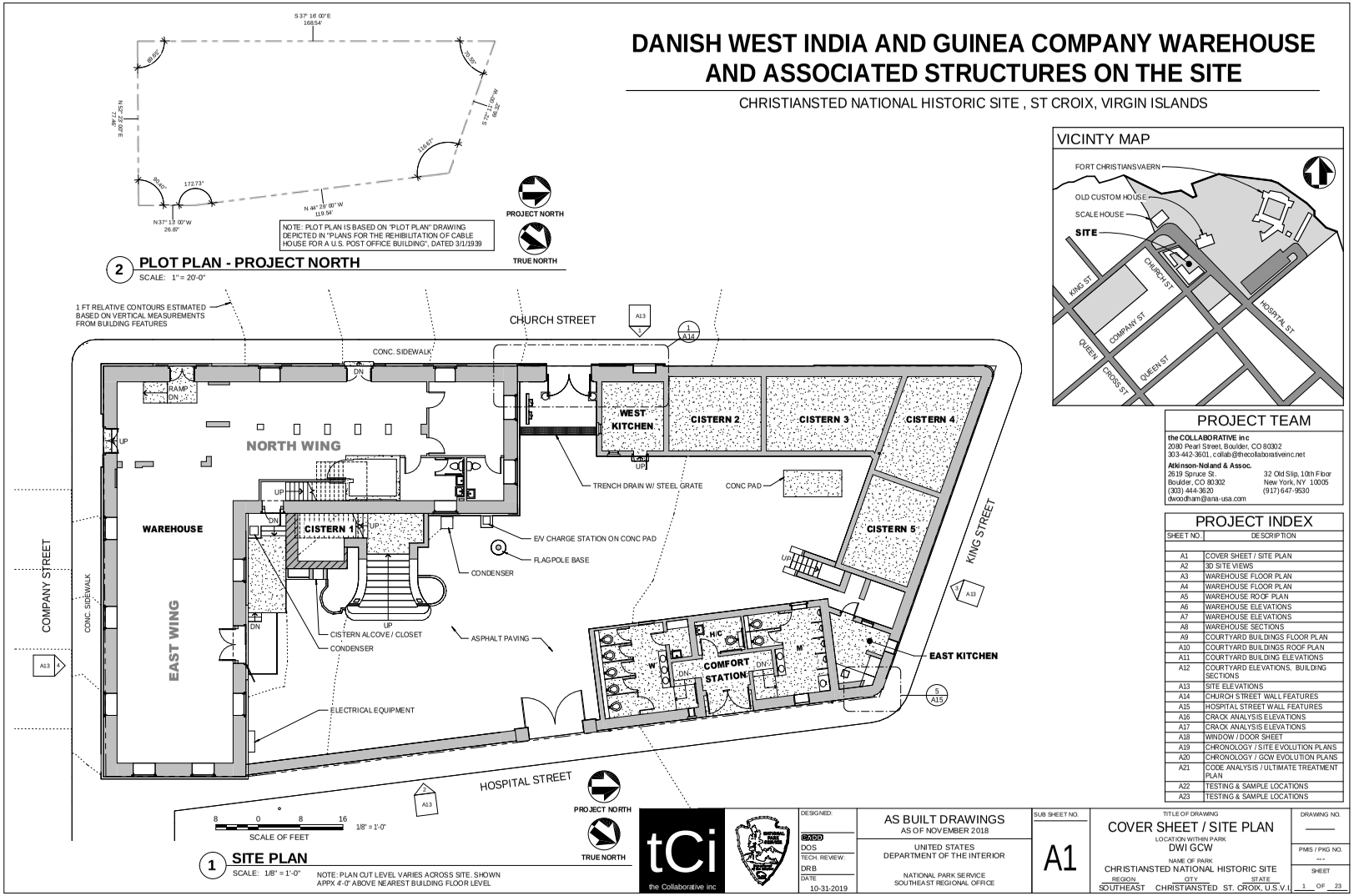


Figure 169: CHRI GCW Site Plan

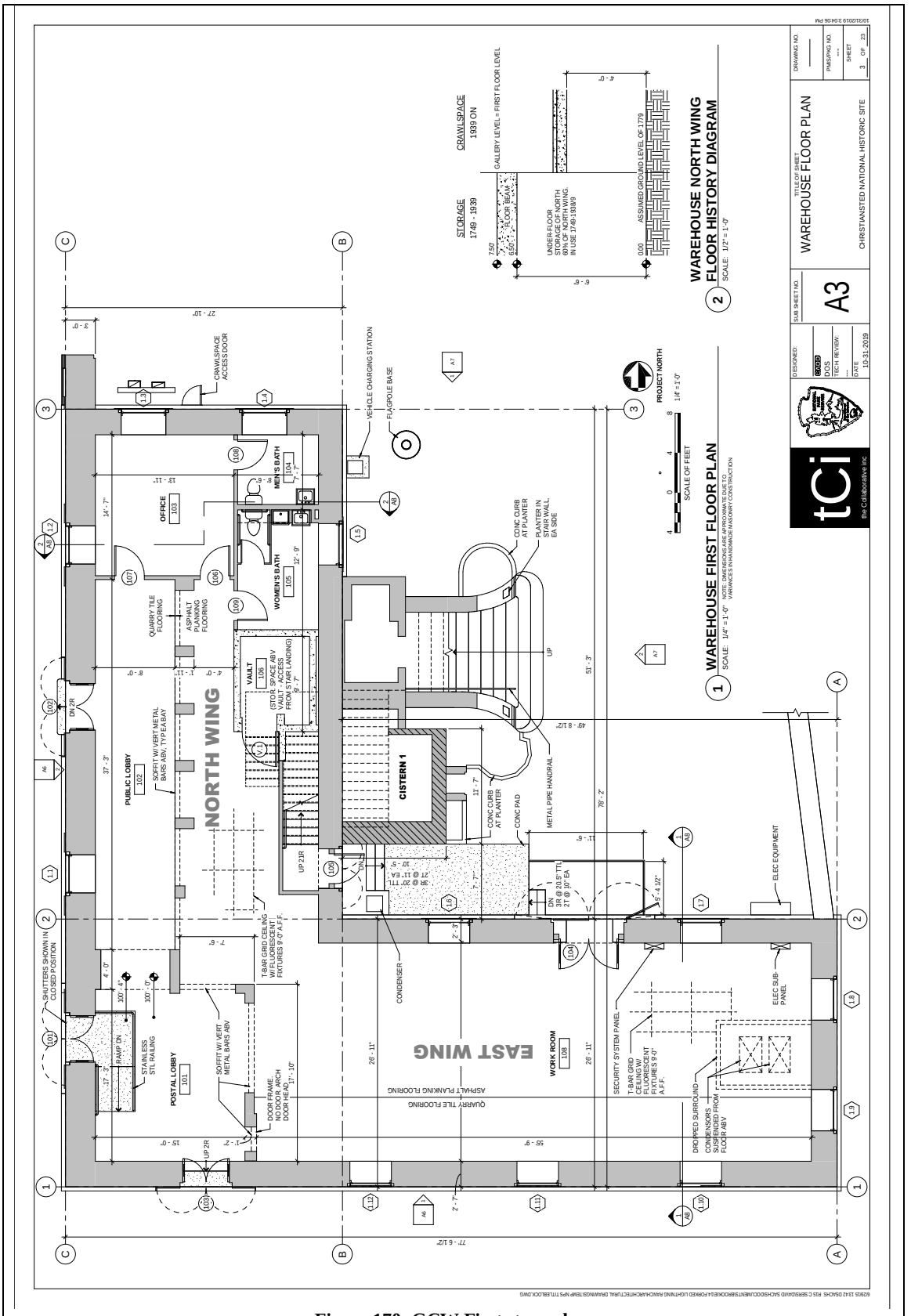


Figure 170: GCW First story plan.

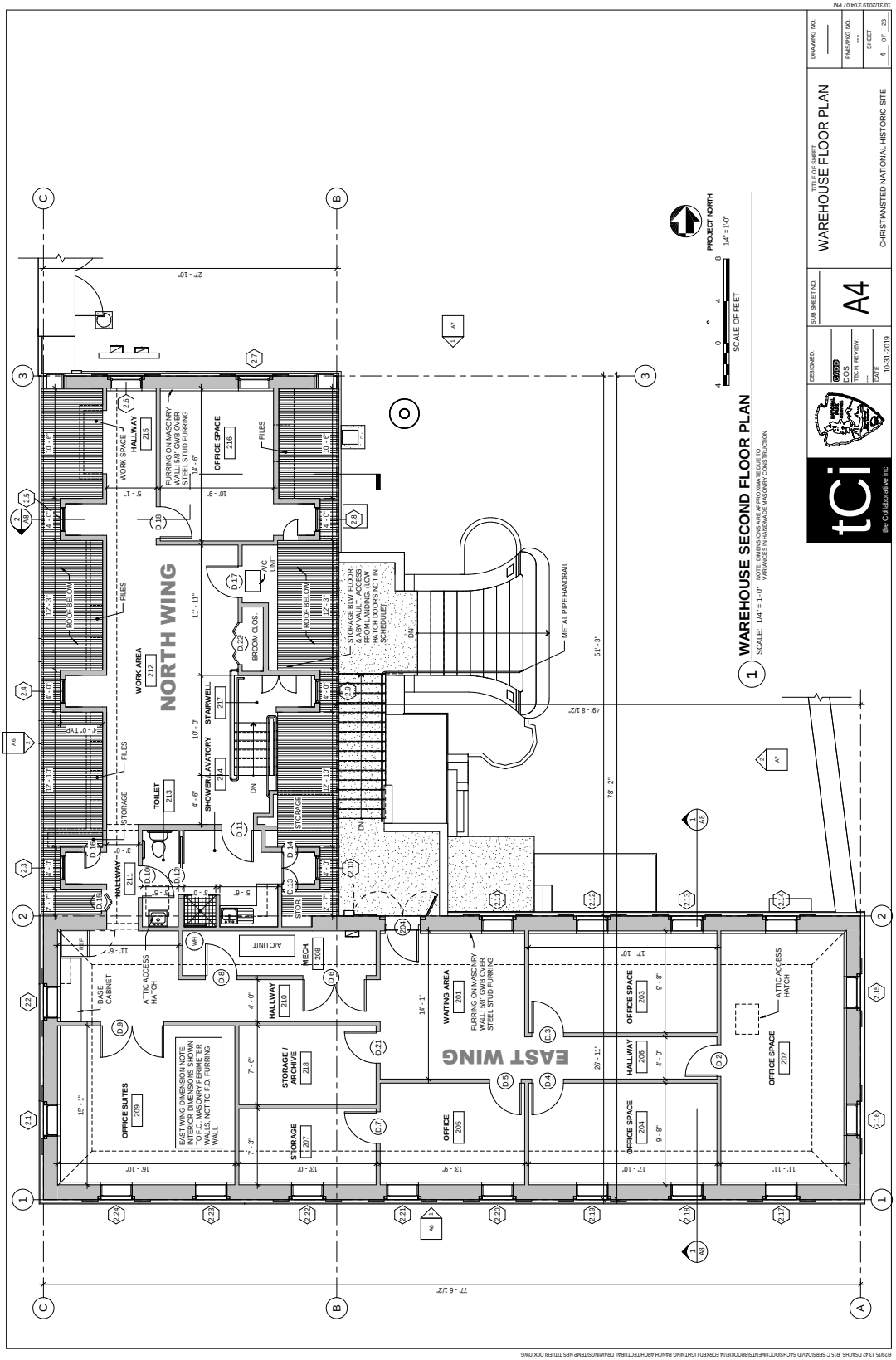


Figure 171: GCW Second story plan.

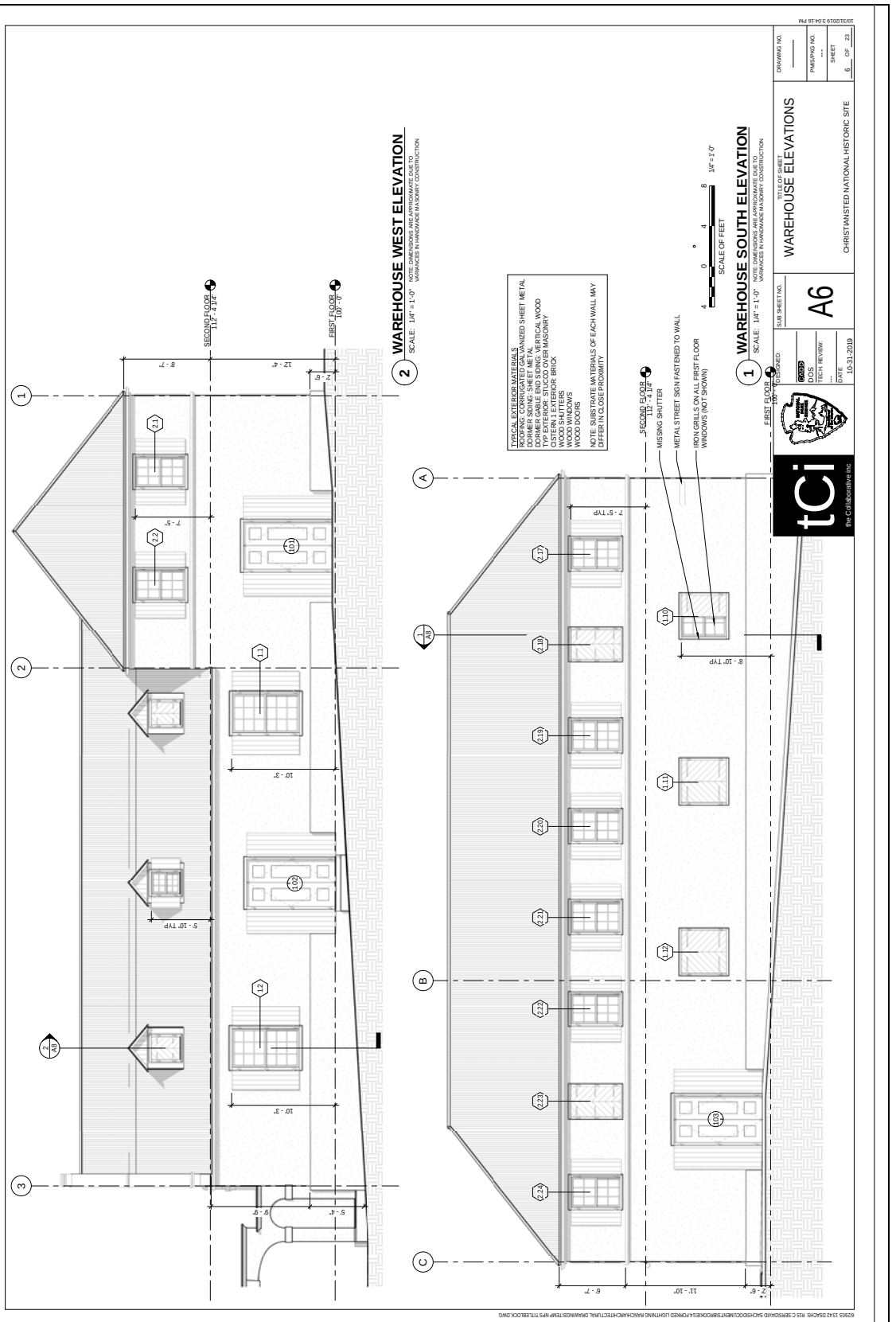


Figure 172: GCW west and south elevations, which front Church Street and Company Street, respectively.

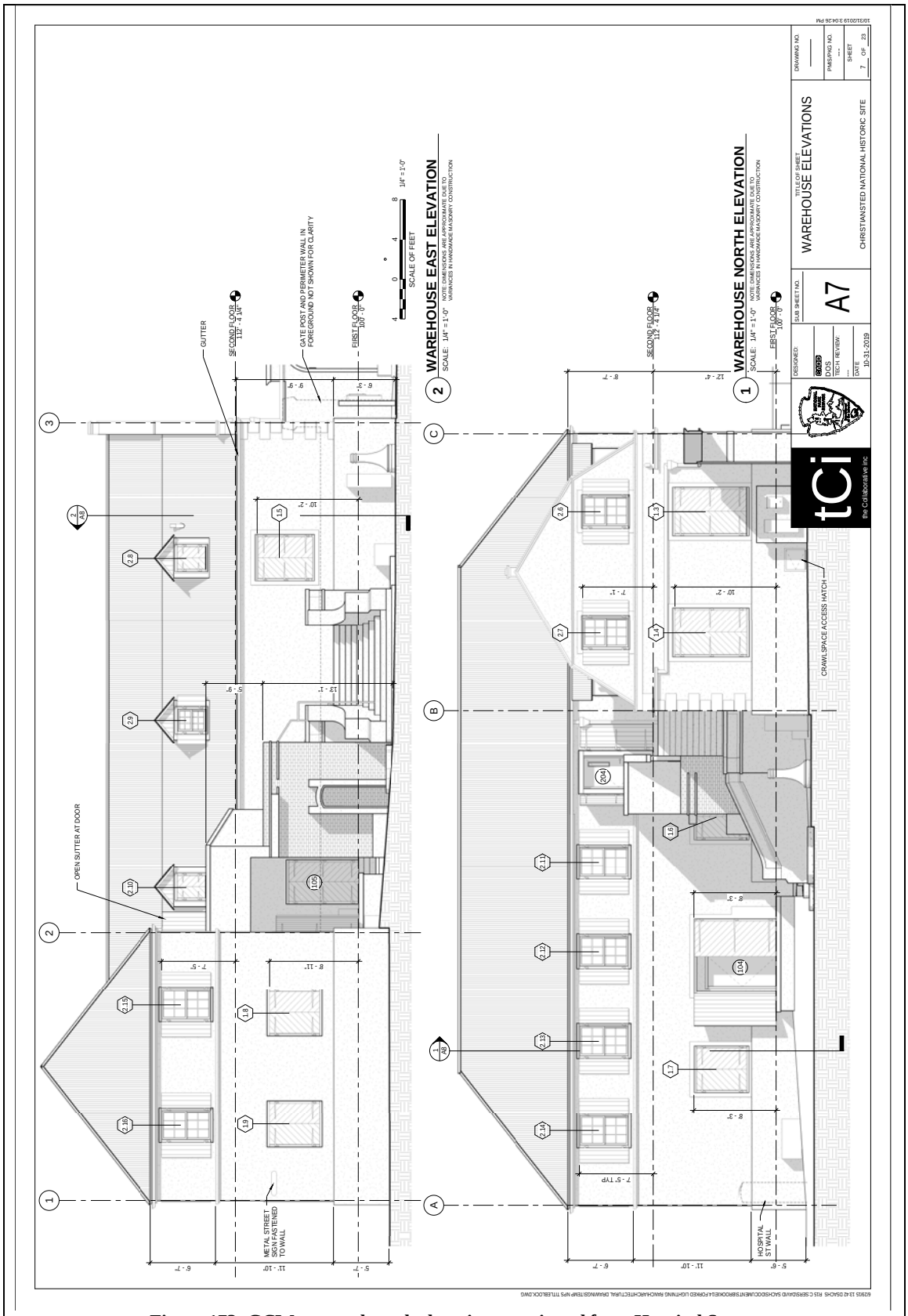


Figure 173: GCW east and north elevations, as viewed from Hospital Street.



Figure 174 (2926): North elevation of East Wing from the courtyard. Photo sequence is clockwise.



Figure 175 (4751): East elevation of East Wing as seen from Company Street.



Figure 176 (4752): East and south elevations as seen from the intersection of Company Street and Church Street.



Figure 177 (2950): South elevation, as seen from Company Street.



Figure 178 (4757): South elevation, west portion, as seen from Company Street.



Figure 179 (2968): West elevation as seen from Church Street.



Figure 180 (4760): Detail of west elevation along Church Street.



Figure 181 (2988): North elevation of North Wing. Church Street and West Entry Gate in background.



Figure 182 (3000): East elevation of North Wing.

The exterior changes to the GCW include the replacement of the windows/doors, fill in of several windows and three doors, removal of the chimney, decrease in the number of dormers and regularity in spacing, and canopy placement/removal.



Figure 183 (1950s.1): Photo from the 1950s of an overview of both wings of the GCW. This configuration of the compound is essentially what existed at the field site visit in November 2018, as well. Note the East Kitchen's chimney and its substantial height.



Figure 184 (1950s.2): 1950s photo of the Post Office showing three dormers on the North Wing's roof, a 1939 change.

Exterior

Roofing and Roof Appurtenances

Description

The two wings have corrugated galvanized sheet metal roofing. The North Wing has a gambrel shaped roof with a north elevation masonry parapet extending above the gable end. The East Wing has a hipped roof form that is predominant at the east portion. The join of the two roofs is typical, a hip at the outside bend and a valley at the inside. Flashing consists of ridge rolls, hip rolls, and valley flashings.



Figure 185 (GCW Roof photos (1): Photo of the roofs taken from the Steeple Building. Photo courtesy of A. Miri.

The roofing material prior to the current metal roofing was wood shingles as is observed in historic photographs. Metal ventilators were added with the change to metal roofing. These were located at the East Wing roof ridge, and were the type that rotated with the wind to allow ventilation of the attic/upper floor, enhanced by downwind air flow. The ventilators were removed when the building switched from natural cooling by ventilation to air conditioning.

The flashing between the north edge of the North Wing's roof and the south face of the Parapet Wall is in an area typically subject to moisture intrusion. The flashing of this joint is critical. The current design extends the metal flashing from a joint in the backside of the parapet to over the edge of the roofing. The flashing pieces overlap as the flashing system extends down the slope.

There are individual gable roofs over each of the dormers, extending over the "zinc plates" covered sides. Each of the dormer roofs has a ridge roll. Typical of dormers, there are multiple joints with the main roof requiring flashing: dormer roof to main roof, main roof to dormer sides, and face front with window to main roof. The latter's flashing is often integrated with window sill flashing.

Condition

Wind uplift and expansion and contraction cycles can create condition issues. The effects are apparent for the wind uplift at roof edges where wind forces lift the edges up. The edges for the main roofing are at the ends and sides of each panel. Once the strong winds of a hurricane lift an edge they can peel back the panel. The photographs taken from the Steeple Building of the GCW roof show that several panels have been recently replaced as indicated by a color difference. No loose panels were observed.

The flashing exhibits edge lift at several places at the parapet's back side. The underside of flashing to roof joint is quite vulnerable to wind uplift. It is difficult to achieve downward pressure on this type of flashing, as such pressure needs to be sufficient to counteract the upward wind pressure. Resistance enhancement such as caulking or sealants may have been applied but these are not typically visible given their location far back from the edge. Caulking/sealant application is a treatment recommendation as an enhancement. The flashing of both the dormers and parapet should be monitored for looseness given its vulnerability to wind uplift.

The expansion and contraction of sheet metal on a diurnal cycle often leads to the fastener hole evolving from a round shape to an elliptical shape. This expanded penetration may be seen by backing out a sample of fasteners to examine the hole geometry. Leaking around fasteners is one issue traceable to hole geometry. Once water gets into the area of the fastener, the threads will no longer grip as well because of the weakened wood fibers; contact between the underside of the fastener head and the roof will become compromised. The resultant gap allows more water to enter the area, further weakening the wood around the hole. Depending on the wood fiber condition, amount of surrounding intact wood, and the size of the expanded hole, a larger fastener with a bigger head can be used for treatment. Other treatments are also available.

Rainwater Collection System

Description

The rainwater flowing off the roof surfaces of the GCW is gathered by the gutters and directed by piping into Cistern #1 or Cisterns #2 and #3. The system has likely been altered from its original configuration in response to the addition of Cisterns #2-#5. The flow direction starts west at the south elevation's approximate center point, and is wrapped around the west elevation and over the West Kitchen's roof by piping. From the same highpoint the rest of the gathered water then runs west around the west elevation and on to the north elevation of the East Wing, entering Cistern #1. The east roof slope of the North Wing historically also fed Cistern #1, the oldest cistern. In the last 35 years the flow has been altered, now being taken around to the north elevation of the North Wing and directed by piping to Cisterns #2 and #3.

Condition

The gutter portion of the capture system exhibits some rust. The north elevation of the North Wing has severe leakage at several places and requires replacement. The underlying causes for these problems were not fully identified; however, some of the causes were metal perforation, loose joints, weakened hangers, and long runs. The alteration in direction of flow was likely the result of a decision to not put so much water into Cistern #1; it leaks.

It is possible that leakage from the gutter system has been a significant source of moisture in the walls. There was one area of significant leakage observed in November 2018. The header box at the northeast corner of the North Wing was leaking. As the fairly constant condensate water from the second floor air conditioning system was directed into the feeder gutter (east side of the North Wing), the leak was particularly detrimental to the wall below—the wall did not get an opportunity to dry out.

A second area of deterioration of the GCW walls may be related to the rainwater capture system. The southwest corner of the GCW has exhibited moisture condition issues since at least 1985. One contributing cause of moisture in the walls in this area could be a leaking gutter as the gutter makes a 90-degree turn at the corner and may not have enough elevation drop to maintain flow. The length of the gutter along this elevation of the North Wing is quite long requiring expansion joints to accommodate thermal expansion. Although the rules of practice vary by trade organization and jurisdiction, expansion joints should be no further than 25 feet from a corner and no more than 40 feet apart. The west elevation is 83 feet in length. The expansion forces in this extra-long run are in part being taken up by the corner at which point thermal expansion is trying to separate the joint.

The system was replaced in the winter of 2019. What, if anything, was done to accommodate expansion forces is not yet known.

Walls

Description

The walls are of masonry construction, composed of coral-stone, limestone, and lime mortar, with bricks at details, openings, and corners At the openings—windows and doors—the lintels are of reinforced concrete placed as part of the 1939 renovation. The openings have a wood frame or rough buck to which the window and door assemblies are attached. The rough buck serves as a jamb assembly in many cases.

Also introduced in 1939 were reinforced concrete bond beams at the intersection of roof structure and walls, and floor structures and walls.

The coating of the exterior surfaces of the walls is stucco. The stucco is likely to be of different composition typical of the period or periods of application. For example, in 1749 the stucco would have been lime based. Repairs would have been of similar material until the 1900s when Portland cement stucco would have increased in use. It is anticipated that the walls' stucco is composed of both lime based and Portland cement based stuccos.

Condition

The walls have recently undergone emergency repairs in which the primary steps were: remove loose stucco, clean out the cracks, fill the cracks with mix, and re-coat with a color coat mix of primarily lime base. While the predominant repairs were the crack repair and the finish re-coat, there were a few areas where more extensive repairs were instituted. One of these areas was marked by extensive stucco loss and resultant exposure of the sub-base under the stucco (west elevation near the southwest corner, second story). The sub-base was cleaned of loose material and an in-depth stucco patch was executed. Crack repair did not include stitch and fill. This method provides reinforcing across the crack to strengthen the area.

Windows, Doors, Shutters

In the field of historic preservation, retention of historic windows is of high priority for each project. In this complex of buildings, there are no original windows. The focus is on discovering which windows might be the oldest still extant and their dates. Relatively speaking, these windows can be termed "older." The evaluation of these older windows would include: how old are they; are these of the same type as the earliest evidence of windows seen in historic photographs for the same location (such as double hung versus casement); and are these matching the configuration of the earlier documented windows. For example, some of the older windows are casement type with a configuration of glass upper and solid wood lower. Windows were functionally providing a view to the exterior world and provided critical ventilation, before air conditioning and power ventilation/air movement systems became commonly available and installed.

The selection of window type can be considered in terms of several factors: with the window open, will the entire area be open for ventilation or just a portion; will the casement window open inward or out, and what interference with work space or pedestrian traffic will its direction of swing encounter; and how thick is the wall in which

the window will be placed. This last factor may be a determinant as to swing and clearance as a thick wall allows a pair of casement windows to have an inward swing and lay back against the jamb returns without infringing on the adjacent space. The location of these casement windows and their hinges is toward the exterior of the opening. For example, a pair of 18-inch casement windows can be set into a 3-foot-wide opening in a 21-inch-thick wall, maximizing the ventilation with no interior space infringement.

In terms of ventilation, not all window openings had glass windows. Fixed wood louvers were set in the window frame for select openings where vision was not desirable and ventilation was the primary reason for the opening (See Figure 186 showing the louvered opening in the south elevation of the West Kitchen). Glass was selectively used due to expense. If an opening did not require visual access but did need ventilation, fixed wood louvers were the choice. The warehouse window openings were thus likely to have louvers until glass became less costly. For warehouse functions, security was and is a significant concern. Wood shutters assisted in providing security against unwanted entry and against storm-driven rain. Wood shutters are seen in all historic photographs covering or available to cover the wall openings—windows and doors—of all the buildings in the complex. In these photographs, whether the shutters are closed or open may indicate something about the functions of the space behind and the concerns about security. For many second-story spaces, the shutters are open. For unoccupied spaces the shutters often appear closed. For spaces with a good deal of heat and a consequent desire for ventilation, the shutters are open: e.g., the second-story spaces, kitchens, and bakery. The first-story shutters of the Post Office windows are often seen open in the photographs. There was no security concern, as steel bars or grates covered the windows. The doors were “shuttered” after business hours, with the use of padlocks to secure some of the doors; others had keyed locks.



Figure 186: Louvered opening in the south elevation of the West Kitchen

In exterior views, doors and windows provide a pattern to the elevations. The pattern of the windows of the first and second story for the two street elevations of the Guinea Company Warehouse—south and west—are regular enough to set up a rhythm. The

locations of these windows for the first story are not dictated by any wall locations as the functional original warehouse space was open, the post office space was open, and the current space is open. The second-story spaces for the North Wing did have windows reflective of the internal division of space. However, the four unequally spaced dormer windows of the North Wing second story were replaced by equally spaced three dormer windows in 1939 renovation. Those plans stated the requirement to align the second-story dormers over the lower-story windows. Such alignment could be done for the west elevation as the windows were more prominent due to the regularity of their new spacing. The windows of the east elevation of the North Wing were fewer in number, and the functional placement of the stairway over-rode any objective of regularity. The earlier window location choices were based more on functionality and less on a regard for equal spacing, rhythm, or regularity.

In addition to windows, doors often indicate their internal functions by size; for instance, wide double doors indicate the need to accommodate the passage of larger objects. The Guinea Company Warehouse, in the 1779 drawings, originally had first-story double doors to take deliveries of goods to be stored. This doorway is still in its original location and is in association with the current loading dock. It is important to note that the slope of the site was a locational factor for door types and functions, in that goods moving in and out of a warehouse from wagons need the receiving warehouse floor level to be at or nearly at the same level as the wagon bed. For the pedestrian entry, being nearly level with the street is efficient. In the 1779 plan, the door at the southwest corner of the building served the pedestrian access function while the paired doors of the north elevation of the East Wing served the freight wagons, taking advantage of the slope of the site.

Warehouse spaces are adaptable and favored for re-use due to the lack of interior walls, minimal columns, and floor load capacity. This easy adaptability was not the hallmark of the big project for the conversion of the warehouse space to a United States Post Office in 1939. The project modified the entire building somewhat radically: removed/replaced the roof structures; added concrete floors; and interconnected concrete bond beams with exterior walls. The dormers of the North Wing have been mentioned. The floor level of the North Wing was dropped 2.5 feet, which could have affected window heights above the floor but did not because the second level windows were in the dormers of the space. The first story in this wing created new space with west elevation windows changing in size and location. Therefore, not only were window types and configurations changed, so were locations and sizes. Previous window locations were blocked up: in the West Wall of the North Wing, one at sidewalk level and one below sidewalk level, as the lowered floor shortened the basement into the less usable crawl space. These locations are seen both on the 1939 plans and were seen in the infrared documentation of the field work.

Windows

Description: The first-story windows of the Warehouse are not new, but at least they are wood. The second-story windows are modern windows, vinyl or vinyl clad. The type of all these windows are the same: double hung. Originally there was a significant number of casement windows; these have all been changed out for double hung. The second-story

windows were installed during the occupation by the National Park Service after the change in ownership. The first-story windows appear to have been installed circa 1978. These lower-story windows are mostly covered on their exterior face by shutters affixed to the window frame by nails and screws. On either the interior face or the exterior face of these windows are metal bars or grates. Visual access to evaluate the condition of the exteriors of these windows was therefore not available. Condition examination was limited to the interior.

Condition: Water has been entering the windows areas at least by the obvious gap between the window frame (also known as rough buck) and the masonry. In general, the gap varies between 1/8th of an inch and 3/8ths of an inch. The wood windows indicate some water damage to paint, some split wood, and some damage to the weatherstripping (impact caused). The windows are in good condition except the following windows, which are in fair condition: 1.2, 1.3, 1.4, 1.8, and 1.9. The problems for these windows are as enumerated (see sheet A3 of the drawings in Appendix E) .

Doors

Description: The doors of the buildings differ in construction. The door to the East Kitchen is constructed from ten vertical planks joined by six horizontal battens (See Figure 187). The door to the West Kitchen is of similar construction. The doors into the postal work room from the loading dock are modern flush doors. There is a metal rollup door as well that is basically scrap; it is sufficiently dangerous so that unrolling it was deemed inappropriate due to safety. A modern steel flush door with safety window is located at the top of the stairs to the second story, Door 204. The first-story doors associated with the post office and exiting to the public streets are wood panel doors, each leaf with three panels (See Figure 186 of Door 103, which is typical of all others).



Figure 187 (3606): Door to the East Kitchen is constructed from ten vertical planks joined by six horizontal battens.



Figure 188 (3270): Door 103, typical of all others, is a wood panel door, each leaf with three panels.

Condition: Other than the rollup door of the loading dock, which is in poor condition, the doors are in good condition.

Shutters

Description: The shutters are constructed from wood. Given their exposure to the elements, deterioration rates have led to multiple replacement campaigns. The shutters have vertical wood boards on the side facing the building when closed and diagonal boards for the opposing side. The two sides are fastened to each other with a variety of fastener types: common nails both galvanized and plain, modern (20th century design) screws with Phillips head design, and bolts at and through the hinges and some closure hardware. Rust can be seen on the shutters, most often traceable to the fasteners. While no investigation was taken of the fastener metals used, all were assumed to be of steel due to the rust, and none were believed to be stainless steel or bronze metals, typically used in areas with salt aerosols as along the seafront. The original material used for fasteners for the shutters was likely to have been forged iron.

Most of the openings closed by shutters have two leafs. The single leaf shutters are for small window openings, such as the window of the east elevation of the West Kitchen. Hardware varies somewhat for the openings with one leaf versus two, but all share the need to be able to stay in the open position and stay in the closed position.

To accomplish staying in the open position (see Figure 189), a straight bar with 90-degree bends at each end to form hooks is dropped into eyebolts at the middle bottom of each leaf. To stay in the closed position, the bar is removed and typically stored in the adjacent room, the shutters are closed and a pivoting bar on one leaf drops into a retainer on the other leaf. This description is for second-story windows. First-story shutters have hook and eye holdbacks. The hinges are in two parts: the offset strap hinge is mounted on the face exposed when closed, and the pintle is mounted on the window frame or rough buck. The straps are fastened by steel through-bolts to the shutter. The pintle plates are

lag screwed into the rough buck. See Figure 188 as the lower left pintle plate has been placed upside down, due in all likelihood to deterioration of the wood in the correct place for pintle plate installation.



Figure 189 (2932): A straight bar with 90-degree bends at each end to form hooks is dropped into eyebolts at the middle bottom of each leaf.

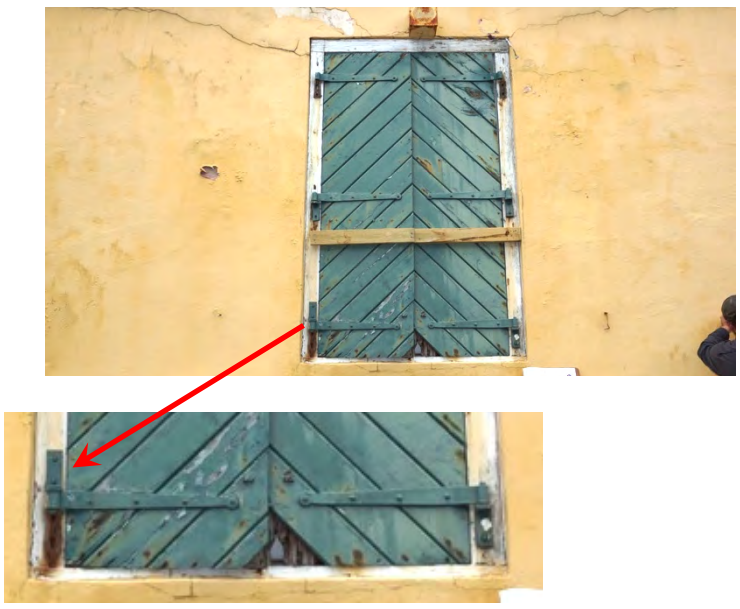


Figure 190 (3528): upside down lower left pintle plate.

The taller height shutters associated with taller height doors, like Door 104 at the loading dock, have three hinges for each leaf (see Figure 191) and the hinges are longer than normal. The same arrangement is present at Window 1.2 where the height warranted three hinges (see Figure 192). Those few smaller windows with shutters with two leafs have two hinges per leaf, but the hinges are shorter than normal for Window C.2 of the Comfort Station, the east elevation. The same arrangement is typical for the dormer's six windows' shutters.



Figure 191 (2925): Door 104 at the loading dock, have three hinges for each leaf.



Figure 192 (2976): The height of Window 1.2 warrants three hinges.



Figure 193 (2914): Window C.2 of the east elevation of the Comfort Station is one of a few smaller windows with shutters with two leafs have two hinges per leaf.

Conditions: The wood shutters have a series of typical condition problems: paint loss, rusted fasteners, splitting wood, and missing wood pieces. Missing wood problem typically has the smallest pieces of the diagonal face missing, lowest one down, a whole piece or part of a piece (See Figure 193 as an example). Rusted fasteners can be the hardware through bolts and the wood face to wood face fasteners. (See Figure 194 of this typical problem illustrated here for Door 101.) The cause of missing wood is often that the wood has split and the grip of the fastener is thereby no longer useful. Paint loss patterns include loss from the edges of boards toward the middle. Where boards have been lost, there is no back priming of back sides (Figure 195 shows Door 204 with edge loss of paint coating problem). Paint loss was observed for several shutters as spots; closer examination indicated the spots were on or near fasteners (see Figure 196 for the shutter at Window 2.18). Damage has been sufficiently significant for one window, Window 1.10, to be closed off with plywood over the shutter (see Figure 197). In the photo, also note the extreme rust stain emanating from the upper pintle plate. Window 1.3 appears to have experienced a hardware failure as the window has been set into the closed position by placing a wood batten screwed into the face of the two leafs (see Figure 198). Likewise, a batten has been placed across the face of the shutter of Window 1.2 (See Figure 199). Window and door numbers are displayed on sheets A3 and A4 in Appendix E.

	**Figure 194 (3541): Door 101 illustrates the typical problem of rusted fasteners that can be the hardware through bolts and the wood face to wood face fasteners.**
	**Figure 195 (2937): Door 204 showing the edge loss of paint coating problem.**

	**Figure 196 (2965): This photograph of Window 2.18 shows paint loss for one of several shutters. Closer examination revealed that the spots are on or near fasteners.**
	**Figure 197 (2952): Window 1.10 has significant damage that has required it be closed off with plywood over the shutter. Note: At photo right, an extreme rust stain emanating from the upper pintle plate can be seen.**



Figure 198 (2989): Window 1.3 appears to have experienced a hardware failure as the window has been set into the closed position by placing a wood batten screwed into the face of the two leafs.



Figure 199 (3528): A batten has been placed across the face of the shutter of Window 1.2.

Hardware Conditions: There are many issues. Failure of the paint coat has caused rust to occur on the hinge and fasteners—this is easily observed due to the brown marking (see Figure 200 of Window 1.9 shutter and Figure 200 detail of hinge for Door 103 shutter). Fastening of the pintle plate into the window frame or rough buck has failed due to deterioration of the wood fibers and consequent pulling out of the fasteners. In some cases, the pintle plate is gone and the expedient measure was taken of screwing the shutter to the window frame (see Figure 202 for Window 1.2). As seen in Figure 203, the pintle plate was mounted upside down due to damage of the wood. See details of this damaged wood condition in Figures 203 and 204.

	**Figure 200 (2945): Window 1.9 shutter. Note brown marking due to failure of the paint coat causing rust to occur on the hinge and fasteners.**
	**Figure 201 (3550): Detail of Door 103 shutter hinge. Note brown marking due to failure of the paint coat causing rust to occur on the hinge and fasteners.**



Figure 202 (2977): The pintle plate of Window 1.2 is gone and the expedient measure was taken of screwing the shutter to the window frame.



Figure 203 (3528): The pintle plate at lower left of the photo was mounted upside down due to damage of the wood.

	**Figure 204 (3526): details of this damaged wood condition at Window 1.2**
	**Figure 205 (3527): Details of damaged wood condition at Window 1.2**

Interior
Finishes

Floors/Ceilings/Walls

Description: The flooring in the Postal Work Room, Postal Lobby, Postmasters Office, and both the Postmasters bathroom and "women's" restroom vary. The Postal Lobby has fired clay tile flooring (Figure 206 is one type) and plaster walls with fired clay tile wainscoting (Figure 207). The Postal Work Room has plaster walls with some walls with stainless steel wainscot (see photo of wall plaster behind the stainless steel—Figure 208), and flooring of asphalt planks (a resilient tile, typical of these postal work room floors, selected for their ability to accommodate heavy mail carts—Figure 209). The bathrooms have tile walls (Figure 209) and smaller fired clay 2-by-2 inch tiles on the floors (Figure 210). There are a few residual details from the first story's prior days as the U.S. Post Office: the special flooring, a steeped cove ceiling in the southeast corner, wood moldings with typical detailing at the wall between the southeast ornate ceiling defined area of the service lobby, and the associated postmaster's suite of office and restroom (See Figures 212-215). The ceilings are suspended grid with lay-in panels.



Figure 206 (3272): Service Lobby Floor, one type of fired clay tile flooring.

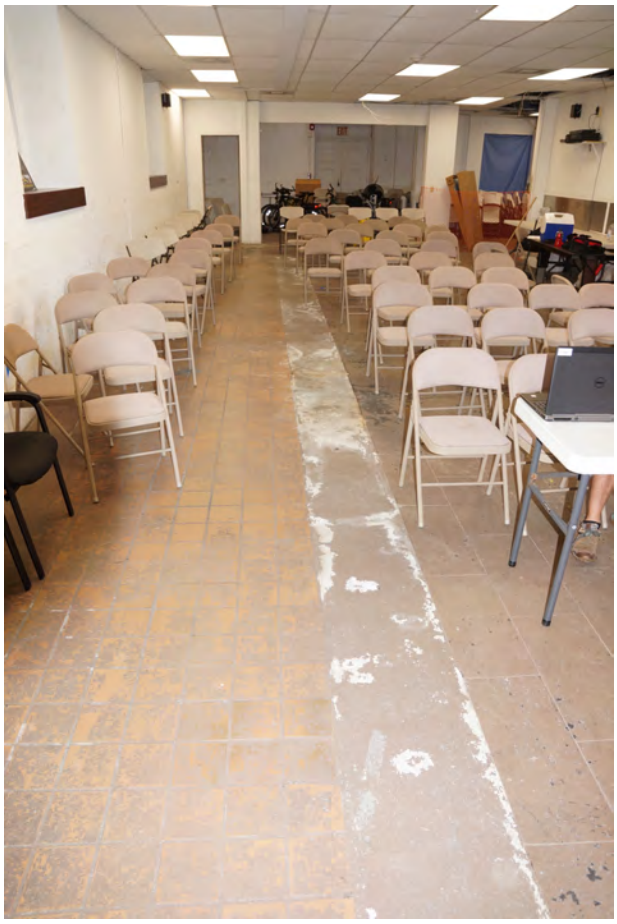


Figure 207 (3238): Box Lobby Floor, plaster walls with fired clay tile wainscoting.



Figure 208 (4982): Wall plaster behind the stainless steel



Figure 209 (3240): Box Lobby Floor—flooring of asphalt planks.



Figure 210 (3337): Bathroom has tile walls.



Figure 211 (3333): Bathroom has smaller fired clay two by two inch tiles on the floors.

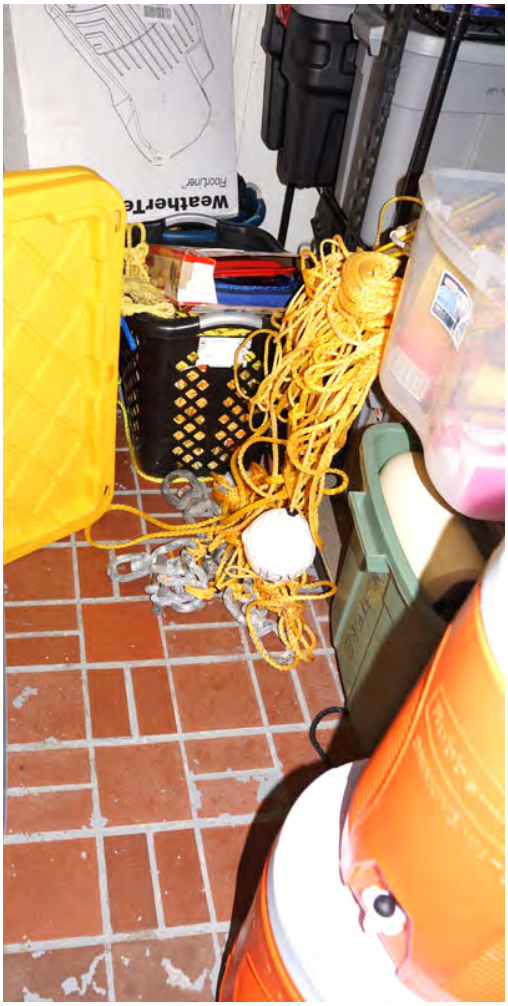


Figure 212 (3312): U.S. Post Office Residual Detail—Special flooring.



Figure 213 (3313): U.S. Post Office Residual Detail—Steep cove ceiling in southeast corner.



Figure 214 (3269): U.S. Post Office Residual Detail—Wood moldings have typical detailing at the wall between southeast ornate ceiling.

The second-story finishes are: vinyl composition resilient floor tile, painted 1/2-inch gypsum wall board for walls, and 2' x 4' drop-in acoustical ceiling tiles. The bathroom has fired clay tiles over moisture resistant drywall and ceramic floor tiles (Figure 215).



Figure 215 (3406): Bathroom with fired clay tiles over moisture-resistant drywall and ceramic floor tiles.

Flooring Conditions: The first-story flooring is in variable condition. As seen in Figure 216, the asphalt planks have some type of coating placed over the top, now partially in place. Where the call window area and call boxes were located, there are parts of the floor where equipment and built-ins were located. These were removed for use in the new post office location leaving behind areas without flooring. The ghosts of the post office box lobby wall and call windows are important and should be highlighted in the building's preservation as by example a neutral gray tile marking these prior feature locations (Figures 217 and 218).



Figure 216 (160936): Note that the asphalt planks have some type of coating placed over the top, now partially in place.



Figure 217 (3238): Condition of Box Lobby flooring.
Note the ghosts of the post office box lobby wall and call windows.



Figure 218 (3272): Condition of Service Lobby flooring. Note the ghosts of the post office box lobby wall and call windows.

There was a significant amount of materials stored in many parts of the first story, much of this material obscured the conditions of the flooring. For example, most of the north

wing's first story floor was covered. An example of the flooring could be found in spots (Figure 219): vinyl tile, marble threshold, and ceramic tile.



Figure 219 (300347): Left to right, the flooring is vinyl tile, marble threshold, and ceramic tile.

The second story flooring is in good condition.

Flooring Treatments

Floor, tiled surface: Assuming the tiles do not contain asbestos, they may be repaired or damaged tiles removed and replaced. The GCW's tiles include ceramic, composition resilient, and "asphalt planks" as laid in post office workrooms. The asphalt planks in this work room replaced in the 1950s the original 1939 end grain hardwood installed on the work room floor. Every different type of flooring material requires different treatments and many have non-original coatings of unknown composition. The flooring materials of the first floor of the former post office present various re-use difficulties attendant with the re-use of the space as a museum, altogether requiring a comprehensive discussion at the time of re-use design incorporating materials conservation considerations, historic materials conservation, and flooring appropriateness for museum re-use.

Wall Conditions:

Crawlspace: The interior surface of the exterior wall exhibits many small scale issues such as a bit of efflorescence, some exposed bricks are a bit soft, some stones are missing small pieces, and the interior surface rendering is incomplete. None of these conditions are widespread and in the aggregate are not of effect. The inside of wall condition in the crawl space is overall rated good.

Attic: See the section on the Attic beginning on page 172.

First Floor: The plaster is placed directly on the exterior walls—no lath—and thus telegraphs problems of the wall behind the plaster such as cracks, spalling, and moisture considerations, from intrusion to condensation. As the walls have been painted, some conditions will be more obvious and others obscured to some extent. Paint blisters are

moisture intrusion indicators. Micro cracks may be obscured. Areas of moisture intrusion will cause plaster blooms that show up on the interior surface. As seen in Figure 220, window 1.10 of the first floor wall of the east wing, moisture has entered the area around the window and in particular the top left of the plaster return exhibits damage. (This window was selected to note the more subtle indicators of damage, it exhibits only moderate damage, heavier damage is naturally easier to see). The damage to the plaster of the return becomes ever larger proceeding further down the return; essentially a triangular area of deteriorated plaster with the base even with the window sill. This is an observation of just the condition of the plaster. However, looking at the window and its surround, the window head's steel lintel exhibits rust spots and the wood window exhibits evidence of moisture intrusion at the bottom 6 inches; paint discoloration and lifting of paint layers due to the swelling of the wood.



Figure 220 (3134): Window 1.10 of the first floor wall of the east wing exhibits damage from moisture intrusion.

The wall issues are in numerous locations: the east wall of the east wing (Figure 221), by door 103 in the south wall (Figure 222), the west wall of the north wall (Figure 223), the north 30 feet of the north wing (comprehensive viewing blocked by stored items), and localized to the area of plaster around the windows; the window jambs or returns. For example, complete plaster loss as in the jamb of window 1.1 (Figure 224). Perhaps the most dramatic examples of plaster deterioration due to moisture penetration around the windows is seen in the following series of photos: for windows 1.7, 1.8, 1.9, 1.1, 1.2, 1.3, 1.4., and 1.5 (Figures 225-232).



Figure 221 (3126): East interior wall of the east wing.



Figure 222 (162012): By door 103 in the south wall.

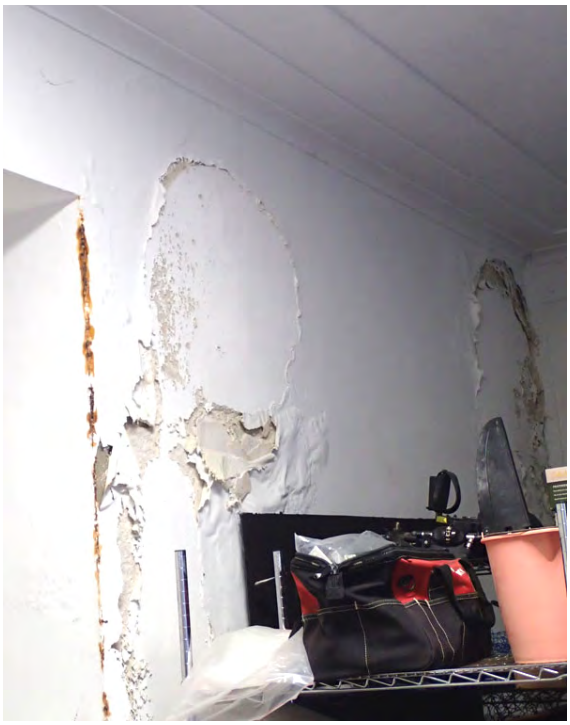


Figure 223 (300364): West wall of the North Wing.



Figure 224 (162644): Complete plaster loss at the jamb of Window 1.1



Figure 225 (3125): Plaster loss at the side, top, and cracks around Window 1.7



Figure 226 (3129): Plaster cracks around Window 1.8



Figure 227 (3131): Plaster loss at the side, top, and cracks around Window 1.9



Figure 228 (3137): Plaster loss at right side of Window 1.1



Figure 229 (3138): Plaster loss at the right side and ceiling above Window 1.2



Figure 230 (3140): Plaster loss at the side, top, and cracks around Window 1.3



Figure 231 (3143): Plaster loss above Window 1.4



Figure 232 (3146): Material loss at the side of Window 1.5

Wall conditions on the second story are obscured by the new wall (2003) placed in front of the exterior walls' interior face. One inspection area was accessed by cutting two inspection ports in the drywall in the south wall of the southwest room (room #109), one high and one low about one square foot each. The location was suggested by Zandy Hillis-Starr as she recalled it had been a trouble area before the new walls were erected. The lower inspection port, after being cut, provided a path for sand that poured from the wall. The sand appeared to have possibly been from the wall mortar, given both average grain size and fine gradation. Another source could be the plaster placed on the inner stone surface as part of the 1939 rehabilitation. The upper inspection port exposed the plastered wall (Figure 233), for which the plaster was partially intact/attached. The source for the sand was not specifically obvious: there was not a hole or area of loss visible. The area visible was about two square feet, a small portion of the potential area from which the sand could have been the source. Photographs were taken by smaller cameras, the Olympus and the small Nikon rather than the large Sony, to enhance the size of the potential viewable area by positioning the camera between the two walls in the interstitial space. In the final analysis, we were unable to conclude whether the sand was associated with wall mortar or wall plaster.



Figure 233 (164242): The upper inspection port exposing plaster wall in Room 109.

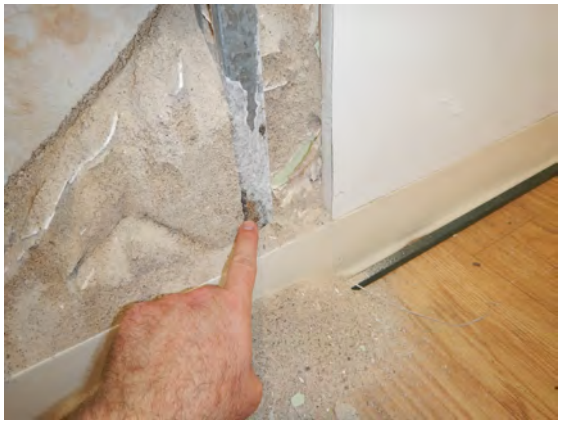


Figure 234 (DH4999): A photo of the lower inspection port—which, after being cut, provided a path for sand that poured from the wall. The sand appeared to have possibly been from the wall mortar.

A History of One Area of Wall Moisture Issues

John Feinberg's first exposure to the GCW walls was in 1985 at which time the firm was preparing a condition assessment of the Post Office. The photographs from that period clearly show significant damage to the plaster on the second story at the southwest corner and additional but more limited damage to the same area on the first story. During the 2018 site visit, Zandy directed us to the same location for investigation of wall conditions and the wall was opened up by removal of the gypsum board from the face of the furred wall. Subsequently, sand poured from the wall with the plaster as the expected source.

In 2018, at the exterior elevations of this same area, the "stucco" coating and the brick masonry exhibited damage. The sources for the causes of the damage have been discussed and the following potential sources/underlying causes for deterioration have been identified:

1. Storm water concentrated flows at the corner, sandbags are used to impede the water from entering the building. Wall saturation at sidewalk level to three feet above are likely.
2. Roof Shape: The concentration of flows from heavy rain events is a function of roof shape. The gutters can be overflowed.
3. Gutter Size and Lengths: The gutters collect rainwater and direct it to the cisterns. Long lengths of metal gutters present expansion and contraction problems, the corners get pushed by expansion leading to the joint being compromised, the size of the gutters are small in comparison to the intensity increases in rain events, isolated or in conjunction with hurricanes. The collection boxes have leaked; for example, at the northeast corner of the north wing. Joints have leaked throughout the system.
4. Enclosure Gaps: Water enters through gaps in the exterior enclosure including at door frames, window frames, joints between the wood and the masonry, at cracks such as over exfoliating reinforcing steel, and at penetrations for utility systems.
5. Exterior Coating System: The coatings are not breathing. Since the 1939 extensive renovation, there have been 80 years of coating campaigns. There appears to be a large variety of coating systems, many of which do not breathe. Pockets of water behind the paint—bubbles—are prevalent.
6. Interior Issues of Condensation/Dew Point Location: The wall is being charged with moisture from the interior. The space between the back of the furring wall and the interior face of the exterior masonry wall could be vented and replacement air be run through a dehumidifier. The crawl space of the North Wing and the attic space of the East Wing were equipped with ventilation, since removed. These spaces should be considered for ventilation.

A more in-depth discussion of moisture transport through the wall from the inside is provided below.

The addition of metal studs and gypsum wallboard at the interior of the second floor, in combination with air conditioning of this space, have had an impact on the heat and moisture transport behavior of the exterior walls in these areas. The gypsum board and metal stud assembly encapsulate a layer of air near the exterior wall. Since this wall,

especially in areas such as the southwest corner, tends to attract and hold water, this air pocket adjacent to the wall would tend to become humid as the wall attempts to dry out to the interior. Where the interior plaster and paint are deteriorated, this path for water vapor to the encapsulated air space is even more direct. As this air becomes warm and humid, the differential conditions in the cool, dry air-conditioned interior space creates a vapor drive as conditions attempt to equalize. As the warm, humid air behind the wallboard attempts to push through the finishes, moisture conditions are further exacerbated by the tendency for condensation on metal elements since they tend to form a thermal bridge to the cool interior. The net result of the microclimate encapsulated by the furring studs and wallboard is limited drying of the exterior wall to the interior and deterioration of the new interior finishes such as corrosion of the metal studs and moist conditions on the drywall. These conditions could also accelerate the deterioration of the original interior plaster. The furred out conditions are part of an overall systemic concern related to the limited ventilation, air-circulation, and breathability of the original exterior walls that has led to excessive moisture trapped in these walls.

Two NDE investigative techniques were used to evaluate areas of likely moisture, these were thermal imaging and borescope viewing of wall interiors via drilled holes. Thermal imaging did not show cooler areas of moisture as the thermal differentials were insufficient. Borescope inspections were successful.

Holes were drilled partially through the exterior wall thickness (generally approximately 8-inches deep) at several interior and exterior locations. The dust was flushed out of these holes with water, and the holes were viewed with a fiberoptic borescope (a.k.a. videoscope). The images acquired are included in the appendix, and the video files will be provided on a flash drive. (Note that we have obtained a new borescope device since this site visit that captures images with better resolution, color, and focus.)

The purpose of the borescope observations was to directly, visually observe subsurface conditions at the exterior walls of the GCW. The focus of these observations included the following:

- The thickness and layers of exterior and interior plaster
- The extents of brick and coral masonry
- The solidity of the wall / extent and nature of internal voids.

Based on the borescope observations, the following conclusions were reached:

- Coatings and exterior repairs over the years have included a dark grey material that appears to have a high Portland cement content (based on color). This finish material is, therefore, likely relatively vapor impermeable and limits breathability at exterior surface. Vapor permeable wall coatings could assist with the wall drying out to the exterior.
- The exterior wall construction generally appears to include fired clay brick around openings and limestone and coral away from openings, at least at first level. Other observations indicate that brick is also used at foundation elements.
- Large voids were observed throughout the masonry in the wall. These voids appear to be distributed and discontinuous (i.e., not continuous collar joints

between wythes of masonry). The size and nature of these voids has several implications:

- Generally, water will tend to drain downward through these voids until it is trapped or perched. Since the second-floor reinforced concrete slab interrupts the exterior wall through the entire thickness (except the plaster), this is one area where moisture would tend to collect from above.
- The large size of these voids serve as capillary breaks, which would generally tend to reduce the impact of “rising damp” moisture being transported upward through the wall.
- These types of voids can serve as “reservoirs” for liquid water that can make it difficult for a wall to dry out completely even over an extended time period.

Wall Treatments

Wall Metal Connectors: Remove rusted steel from the walls at window and door surrounds. Replacement of the steel as frame connections within the masonry can be accomplished by rot and bug resistant wood inserts (lignum vitae has historically been used in the building, as for a beam over the hearth), stainless steel, or hot dipped galvanized steel. Patch the disturbed area with mortar (per mortar analysis for this building) and chinking (brick). The building is constructed of brick with bricks from different periods. Brick matching should only be approximate to allow for future researchers to easily discern the visual differences such as size and color. The physical characteristics of strength and porosity, by example, should be close to that of the original bricks used in each specific area. Given the multiple alterations to this building with by example door locations(the current is the third location) and windows size and location, the areas surrounding these openings will differ in terms of the bricks encountered.

Wall—Door and Window Lintels: Rusted reinforcing bars require repair if ten percent or more of the bar’s diameter is rusted; per depth of exfoliation as observed. Remove and replace such bars by cutting out the bar for its entire length. new bar or bars to be epoxy coated Pin new concrete to old with 1/4” diameter Stainless Steel all thread set into the old with epoxy glue at 8 inch centers. First coat on to the existing and remaining concrete material to be specified by the structural engineer for each specific circumstance based on load and existing material condition.

Wall—Patching: The two materials likely to require patching are the substrate brick wall and the interior “plaster" covering the substrate. The substrate repairs for brick walls have been previously described. The interior plaster repairs will generally include mortar overlain by lime wash. For some locations the demolition may reveal the spot use of plaster as an expeditious repair material. After determination of originality of the wall materials—plaster patch versus original plaster—the repair should proceed in-kind with the original material finished to match. Final coating should match the original material, in texture, and color.

Built-in Features

The sole built-in features of the first floor are two shallow cases, mounted on the wall, that contained bulletin boards. As the bulletin boards have been removed from the cases, the back wall of each case shows the inside face of the original random rubble masonry construction: stone, coral, and lime mortar (Figure 234). While not a built-in per se, the interior of the first-story window openings contain security screens of painted welded steel rods set into the frames (Figure 235).

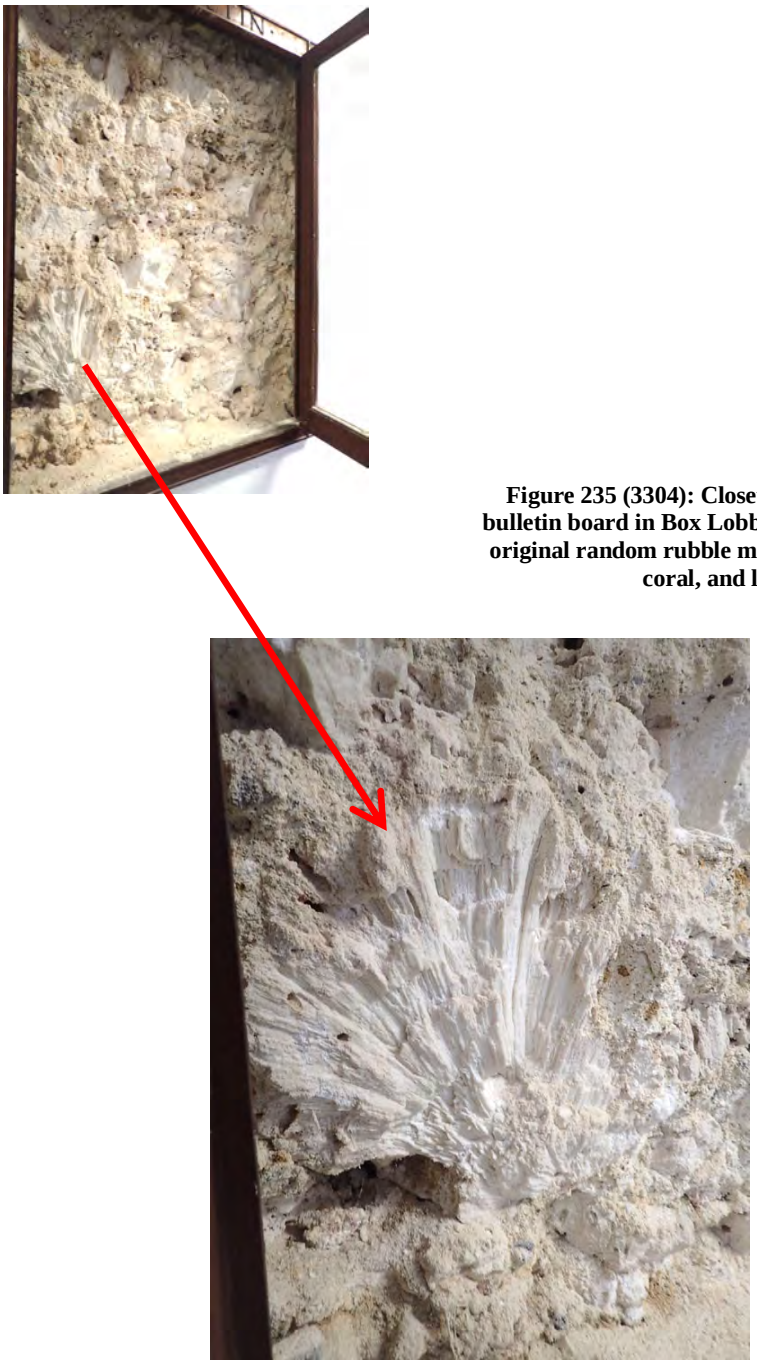


Figure 235 (3304): Closeup views of now-removed bulletin board in Box Lobby showing inside face of the original random rubble masonry construction: stone, coral, and lime mortar.



Figure 236 (3302): Plaster damage evidenced by scaling paint.

Lighting

The light fixtures located in the suspended ceiling grids of the two stories are fluorescent, and are of modern design.

Interiors of the Crawlspace and Attic

Crawlspace Description: The crawlspace is under the North Wing, with an earth floor, exposed concrete slab and beams above, and walls of stone masonry and brick. The brick is associated with both the infill of openings in connection with work called for in the 1939 drawings, the floor being reconstructed 2.5 feet below where it had been, and the base of the chimney removed possibly in 1939. The chimney's location can be taken from the 1939 plans and measurements transferred to the crawl space (Figures 236-240). The attic of the East Wing is exposed structure: wood beams, pony wall studs, floor/ceiling joists; for the portions above, backs of roof decking planks; for the portions below, back side (tops) of the gypsum drywall ceiling of the story below (Figures 239 and 240).



Figure 237 (4932): View from the crawlspace looking west at a reinforced concrete floor beam framing into the brick masonry West Elevation foundation wall. A corroding metal lintel and recessed area in the foundation wall appear to indicate a window well or ventilation opening that has been closed off at the exterior.



Figure 238 (4936): View from the crawlspace looking upward at the bottom surface of the reinforced concrete slab showing limited corrosion and spalling of the reinforcing in the slab itself (as opposed to the beams).



Figure 239 (4934): View from near the crawlspace entrance of the reinforced concrete first floor structure, including cast-in-place reinforced concrete slab, beams, and footings.
Note the visible corroding reinforcement and spalling at the beam on the left.



Figure 240 (5009): View looking downward in the attic space of the vertical framing (king post) connections at the ceiling joists.



Figure 241 (5007): View from the attic space of a roof rafter and ceiling joist near the change in pitch of the gambrel roof.

Crawlspace Condition: As seen in Figure 242, and others in the series, the ceiling is composed of concrete slab and beams, and exhibits major spalls and material loss caused by the exfoliation (rust bursting) of the reinforcing bars. The condition varies from fair to poor.



Figure 242 (3063): View of spalling at corroding reinforcement (rust bursting) in the reinforced concrete lintel directly above the crawlspace entry at the North Elevation of the Warehouse.

Attic: There is no ceiling per se; it is exposed concrete structure, without a ceiling finish.

Ceiling of First Story: As seen in Figure 243, the suspended ceiling is in generally good condition with exceptions. Construction activities had removed some panels from the grid to gain access, a temporary situation. Only minor stains were observed, at the edge of panels next to the outside walls.



Figure 243 (3132): The suspended ceiling is in generally good condition.

The exception to good condition are adjacent to the windows along the exterior walls of the east, south, and west where moisture has entered, the panels have been damaged, and the grid exhibits rust. These conditions are evident in the wall condition photographs set out for the first floor, below. In these areas the ceiling (and wall) condition is poor.

Ceiling of Second Story: The condition of the ceiling panels is good.

Ceiling Treatments

Ceiling: Paint restoration of wood ceilings; scrape, sand, prime bare spots, apply new paint to match historic colors. Restoration of plaster ceiling, patch with like kind materials, scrape, paint, and apply new coating of paint or lime wash as the case may be.

Record of Repairs and Alterations—Overview of Modifications Over Time: Danish West India and Guinea Company Warehouse

Information on the warehouse is sourced for the first 100 years from maps and plans in the Danish National archives and other repositories in Denmark. As photography came into use—there was limited use in the 1860s—the historic photographic documentation is both more precise and less comprehensive: more precise because what is seen in the photography was actually there, not just what was intended to be built per a set of plans; less comprehensive in that not all buildings were visible in the photograph nor were all sides of even a single building visible. Photography is understandable, not comprehensive. Given the effort required to take a single photograph in 1860, one seldom sees a series of photographs intended to document the entire then-existing conditions.

GCW has changed little in exterior form from its construction in 1748-1749: overall "ell" shape in plan, two-story height, gambrel roof over the North Wing, hip roof over the East Wing, four dormers in the North Wing roof (now three), generally two floor levels, and walls extending to ground level. The interior has been modified to accommodate a series of uses, including: warehouse in the East Wing and part of the North Wing, residence and possibly offices in the second story. The best plan documentations are the 1779 measured drawings created by Oxholm, including the warehouse, the site, and site outbuildings. After 1754, the complex was owned by the King of Denmark who purchased the Danish West Indies and Guinea Company assets. The uses for the complex—buildings and site—are identified by Oxholm in 1779 and reflect serving a larger economy, the King's business functions of trade (sugar, molasses, enslaved persons) by government revenue collection, and the support of the military functions by warehouse, by housing royal slaves, and by bakery.



Figure 244: Bouchardy's portrait of Peter Lotharius Oxholm. Source: Det kgl. bibliotek - http://img.kb.dk/portraet/DP024361.jpg.

As the sugar trade fluctuated so did the need for warehouse space. After 1848 the enslaved people were emancipated and working the plantations changed in terms of labor costs. As needs changed, for example warehouse storage, the outbuildings of the complex changed. At the end of the 19th century the warehouse also included a telegraph cable that fed cable office seen in 1890 photographs on the second story of the East Wing. Historic literature referred to the building as the "Cable Building"; the sign on the wall reads "West India and Panama Telegraph Company."[7] Still, there were no significant changes to the exterior. After the United States bought the complex in 1917, along with the now-called United States Virgin Islands, there was still no significant exterior alterations to the building.

[7]http://atlantic-cable.com//CableCos/CandW/WIPTC

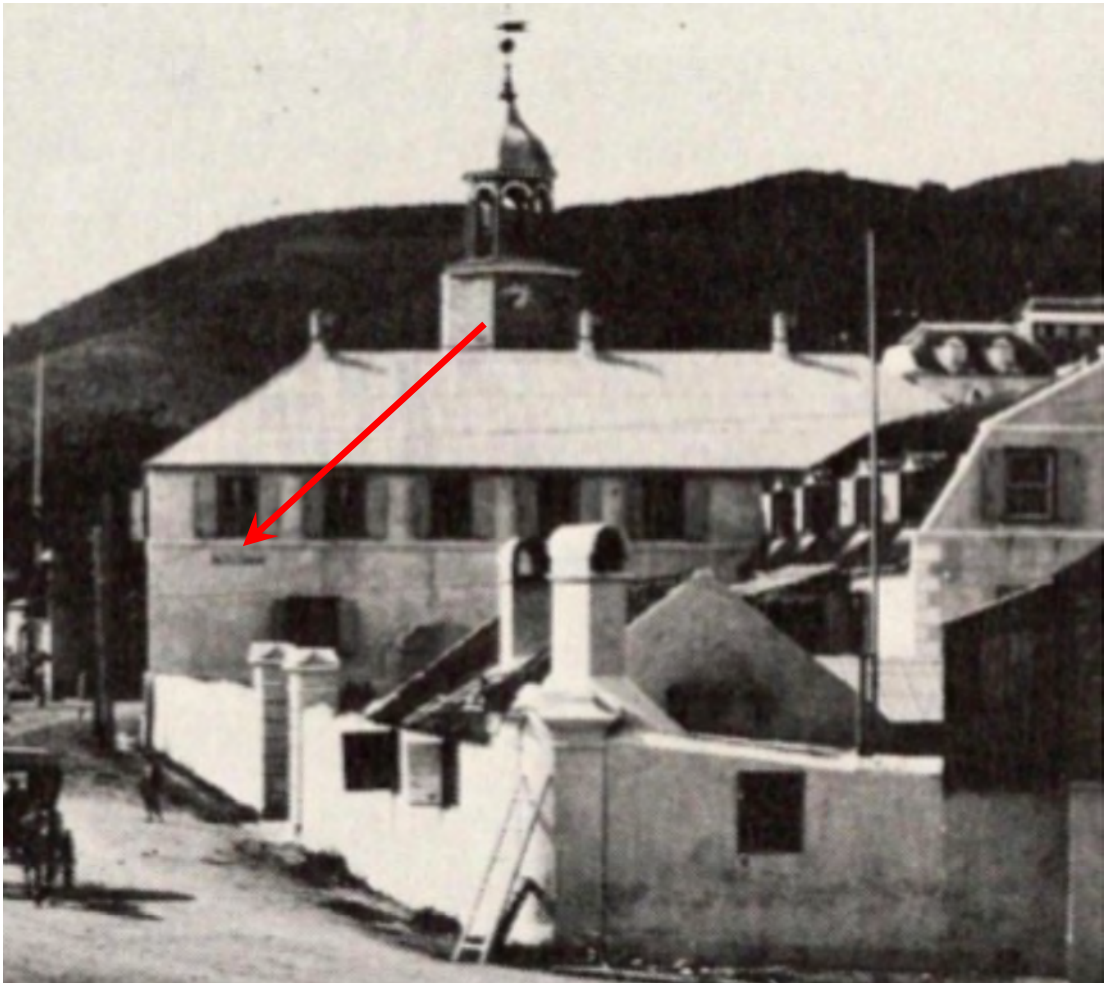


Figure 245 (view of GCW ca 1890 CROPPED): Red arrow points to sign—"West India and Panama Telegraph Company."

In 1939 plans were completed for an extensive remodel to functionally change the building into the U.S. Post Office. This project did make subtle alterations to the exterior which will be detailed in the discussions below. The interior modifications were substantial and will also be detailed. Overall, the building appears to have changed very little between the mid 1700s and 1939. Since the significant changes of 1939, the changes have also been subtle on the exterior. The interior alterations from the Post Office use to National Park Service use have been more significant.

1760-1778: The maps from this period may best be termed representational in that the buildings are in the approximate correct location, the building shapes are simplified (a scale consideration of these buildings being a small portion of large maps), and details are absent. This period had not focused on the GCW compound to produce measured drawings on a single sheet. Rather the compound is part of maps for Christiansted. The below plan of 1760 (date attributed to the plan by NPS) shows an "ell"-shaped building

with two wings with approximate roof shapes. Some small buildings are seen located to the north, in the proximity of the current site. The buildings are identified by letters and are described in the plan's index. At this period in the history of the development of Christiansted, there are very few other buildings seen on the map. The 1777 map does show many more buildings in the town, but little substantive change to the warehouse complex. (see the 1777 plan below, Figures 248 and 249).

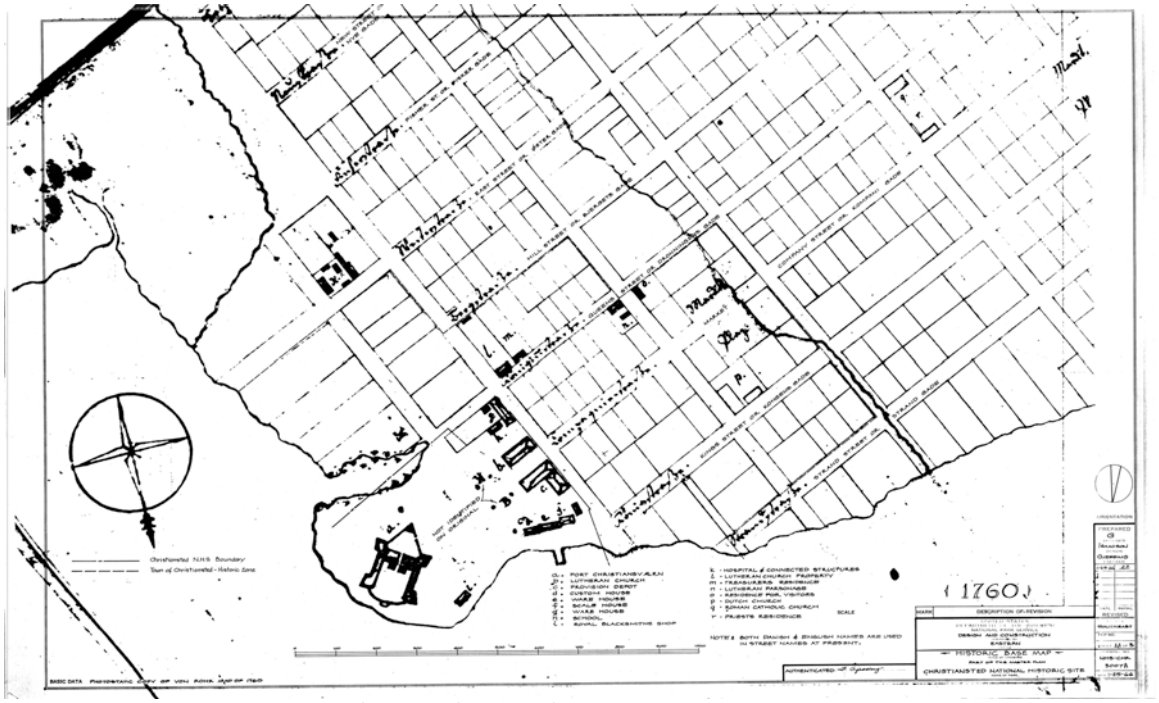


Figure 246: 1760 plan with index for identification of the buildings. Source: National Park Service (TIC), 1966.

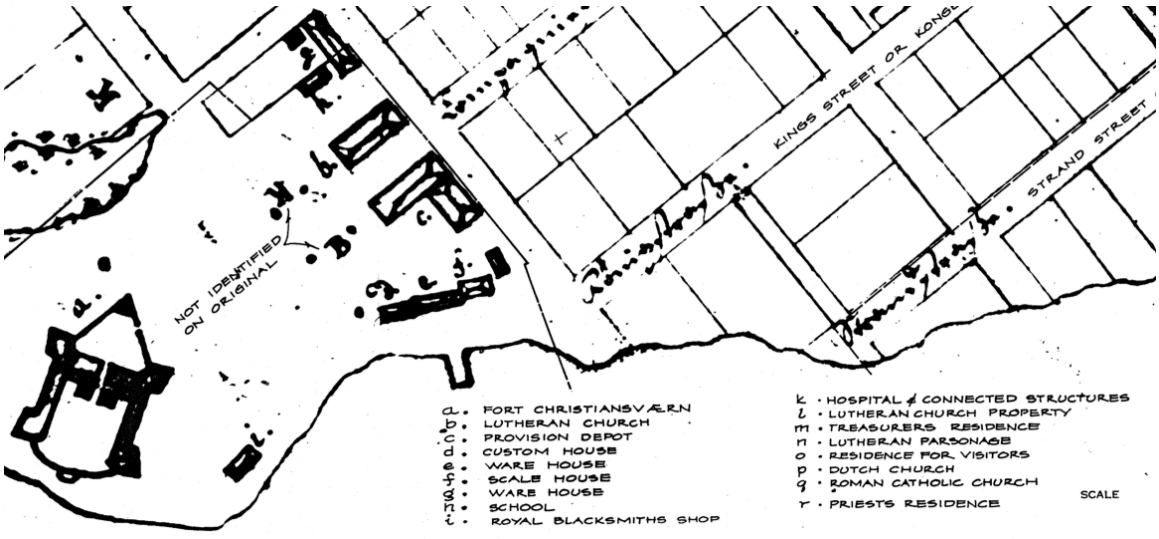


Figure 247: Closeup of 1760 plan with index for identification of the buildings. Source: National Park Service (TIC), 1966.

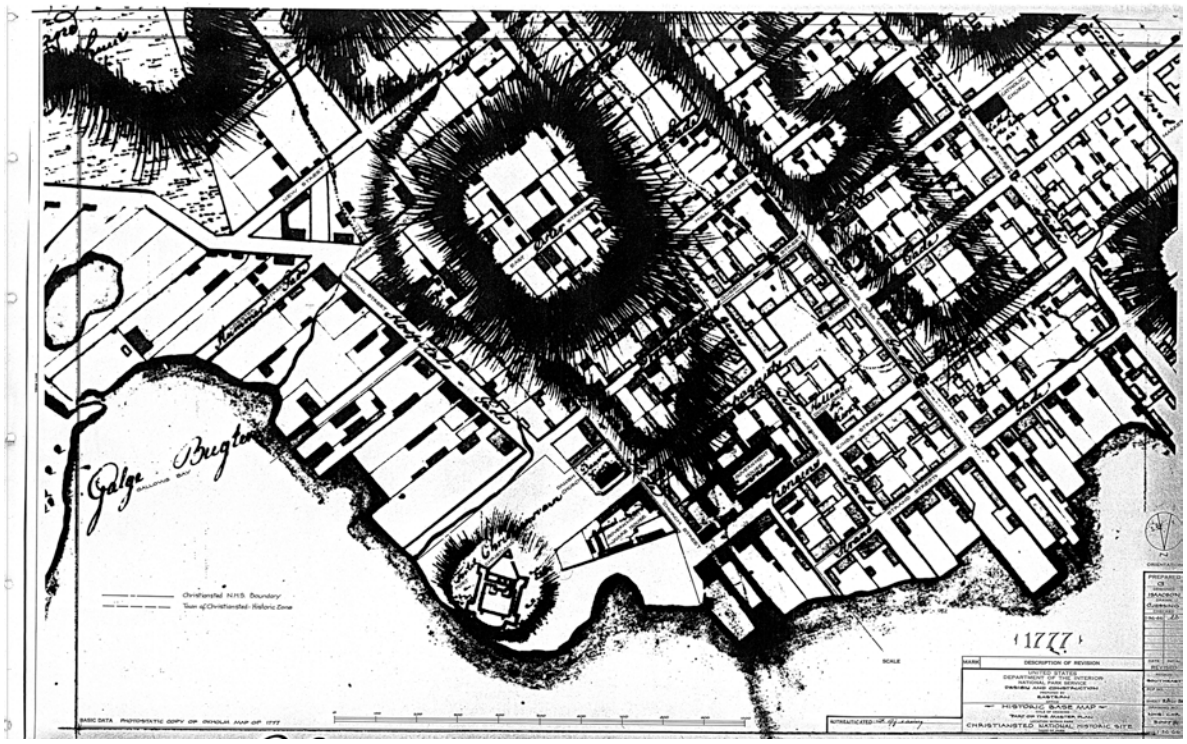


Figure 248: 1777 plan. Source: NPS (TIC).

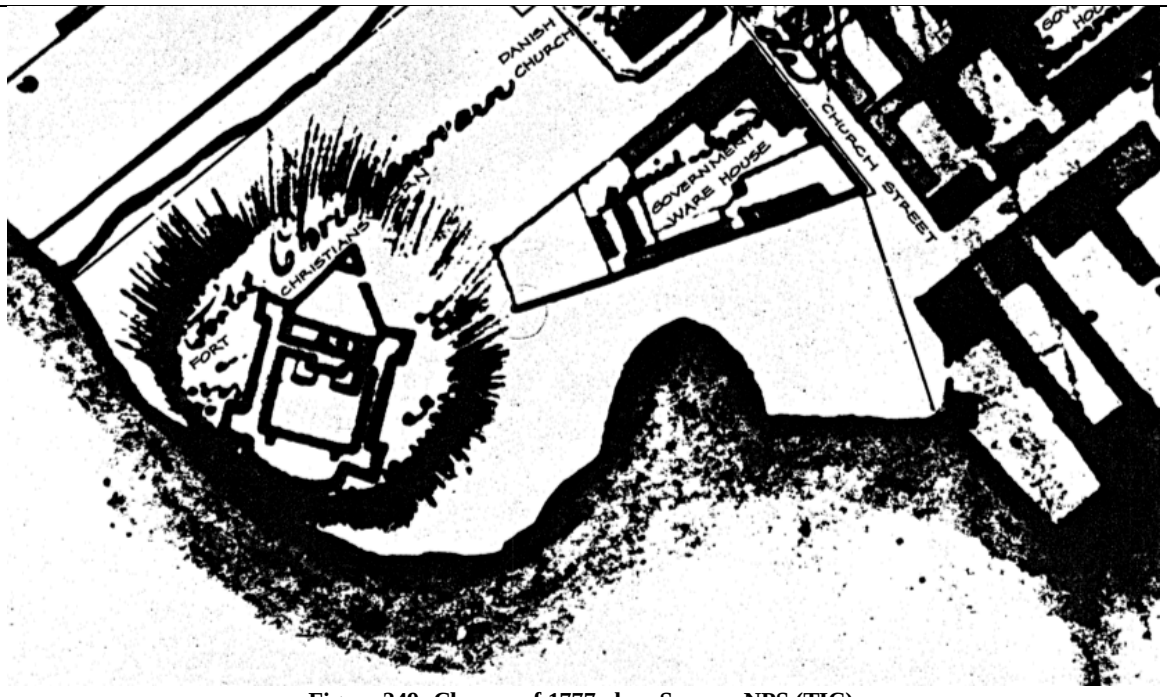


Figure 249: Closeup of 1777 plan. Source: NPS (TIC).

1779: This plan (Figure 250) is based on measurements taken under the guidance of Peter Lotharius Oxholm, the surveyor for whom the plan is commonly referenced: The Oxholm Plan. The plan contains a number of features: the west elevation extending from the southwest corner to and just beyond the decorative detailing of the Perimeter Wall adjacent to the West Gate, a detailed first floor plan of both wings including staircases of both the exterior gallery and the interior connecting stairs, and a second-story plan with room partitions. There are notations in Danish of individual room uses. Of particular note is the single elevation drawing; it shows two "windows" below the first-story level, thus providing light and air to the downhill or north 60% of the North Wing's crawl space. There is no floor plan for this space, which was probably no more than 6.5 feet in height. In one reference, the area was identified as a substantial storage space. The relationship of the floors in this wing to each other, to the roof, and to the ground, is complex enough that a sketch of the cross-section was developed to assist in understanding. In 1939, the first floor of the North Wing was lowered 2.5 feet for the north 60%, leaving nothing to evidence the historic previous height above grade nor interaction with the upper floor level and the floor level of the East Wing.

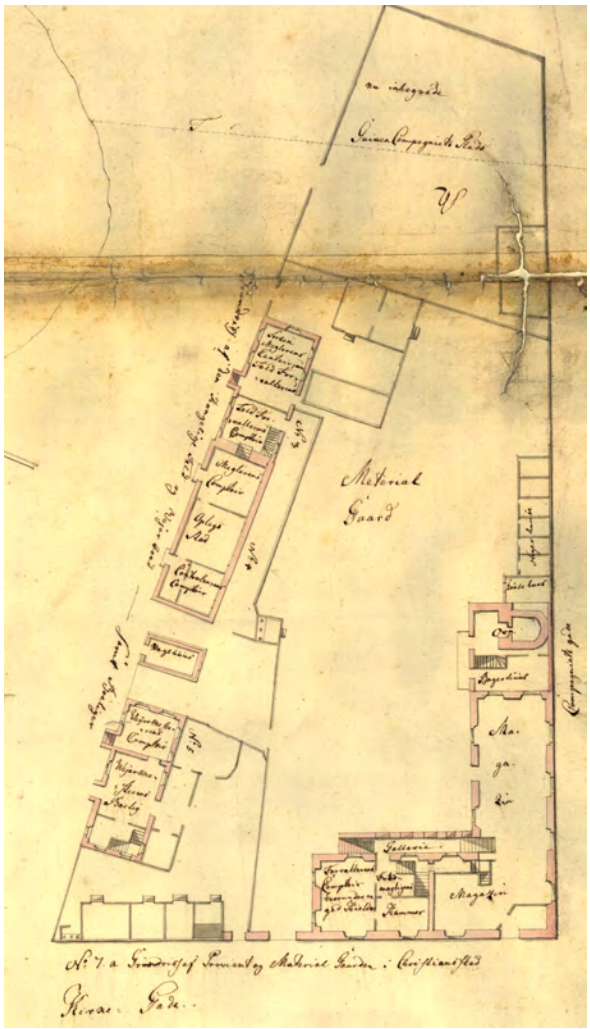


Figure 250: 1779 site plan as drawn by Peter Lotharius Oxholm, enlargement of GCW compound. Note west elevation and second story of GCW are on an extension of this plan, provided in the following two pages (Figures 251 and 252).
Source: http://ao.sa.dk/ao/data.ashx?bid=55099016.

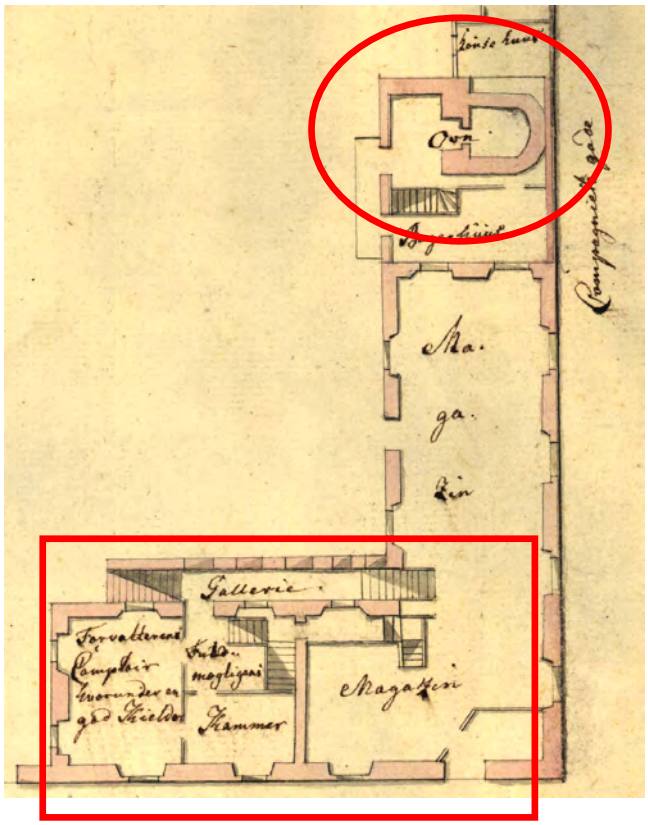


Figure 251: Detail of 1779 plan as drawn by Peter Lotharius Oxholm. This upper portion (with the red circle) shows the bakery's oven with massive walls.

The lower portion (with the red square, shows stairs leading from the ground up through the gallery to the second story. The Welcoming Arms stairs were built later, likely after the Hospital Street extension. Source: http://ao.sa.dk/ao/data.ashx?bid=55099016

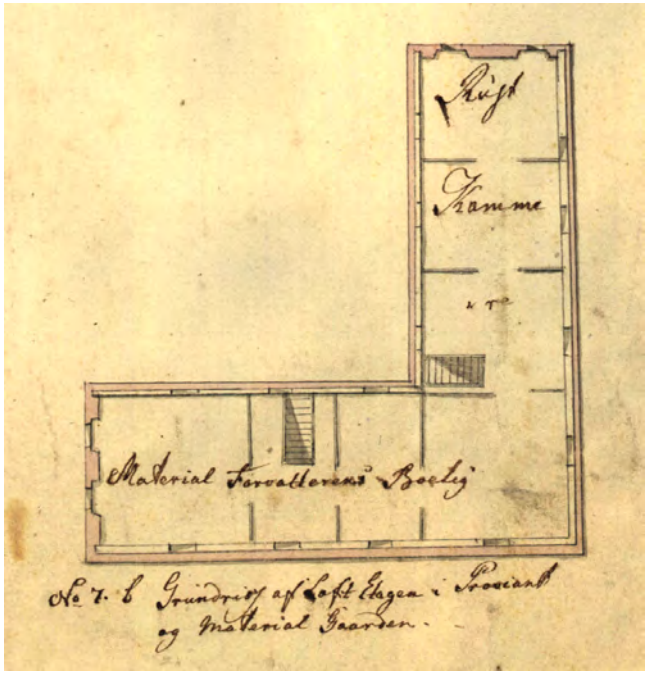


Figure 252: Detail of second story of 1779 plan as drawn by Peter Lotharius Oxholm. Source: http://ao.sa.dk/ao/data.ashx?bid=55099016



Figure 253: West elevation of GCW in 1779 plan as drawn by Peter Lotharius Oxholm.

Source: http://ao.sa.dk/ao/data.ashx?bid=55099016

Another feature of the 1779 plan shows how access from ground level up into the first story of the North Wing is achieved. Oxholm shows 13 risers coming from ground level near the northeast corner of the North Wing up to a gallery extending from the top of this staircase most of the way along the east elevation of the North Wing. Thirteen risers at 7" height per riser is about 7'-6" in total elevation increase. In the period of 1749-1939, there was an underfloor storage area with principal access from the east. The sketch (Figure 253) indicates the space then and now with entry into this elevated first story through a door. Stairs from this level lead up to a second story and down to the first story of the East Wing. There was a reduction in the first-story floor elevation of 2.5 feet in 1939. A spot excavation of the crawl space might reveal a still lower level with perhaps the remains of a floor. The historic height to underside of beams would have been 6.5 feet. The two low windows of the west elevation in Oxholm's drawing make even more sense with a more usable basement (Red arrows point to these windows on Figure 252 above).

Finally, the 1939 drawings call for the removal of a chimney, not seen in Oxholm's drawing. The chimney's location was in the 60% length and along the West Wall, giving rise by its location of the possibility of an indoor kitchen. While kitchen locations in hot climates are preferred to be outside, another location/preference for kitchens is in the basement, the classic old world compromise location in northern climes.

At the south end of the exterior gallery, a stairway rose to an entry into the upper story of the East Wing, again with about 13 risers. This resultant elevation is relatively consistent with the current elevation found both today and in 1939. Per the Oxholm plan, the various interior level changes as seen for the North Wing are quite interesting. The rationale for these changes is related to the north 60% of the North Wing being used for non-warehouse functions, residences, and possible offices. In the warehouse areas of the East Wing, as in most warehouses transferring goods such as barrels and bales, transfers are best accomplished the receiving area is on the same level as the warehouse floor, and the receiving area is on level, or nearly so, with the equipment conveying the goods to be stored, such as the beds of carts and wagons. The north elevation of the East Wing has a door in the Oxholm plan, the logical receiving door. And the plan shows a door at the south end of the North Wing's west elevation at grade with the sidewalk. This is the

client access door, with a full or partial wall back from the door, creating an area suitable for paperwork and client interaction. A short distance behind this closed-off area are stairs to the upper level where perhaps there were offices where duties and fees could be paid and goods could be accepted.

The window and door locations are clearly delineated on the Oxholm plan as are the previously discussed stairways of both the exterior and the interior as well as partition locations.

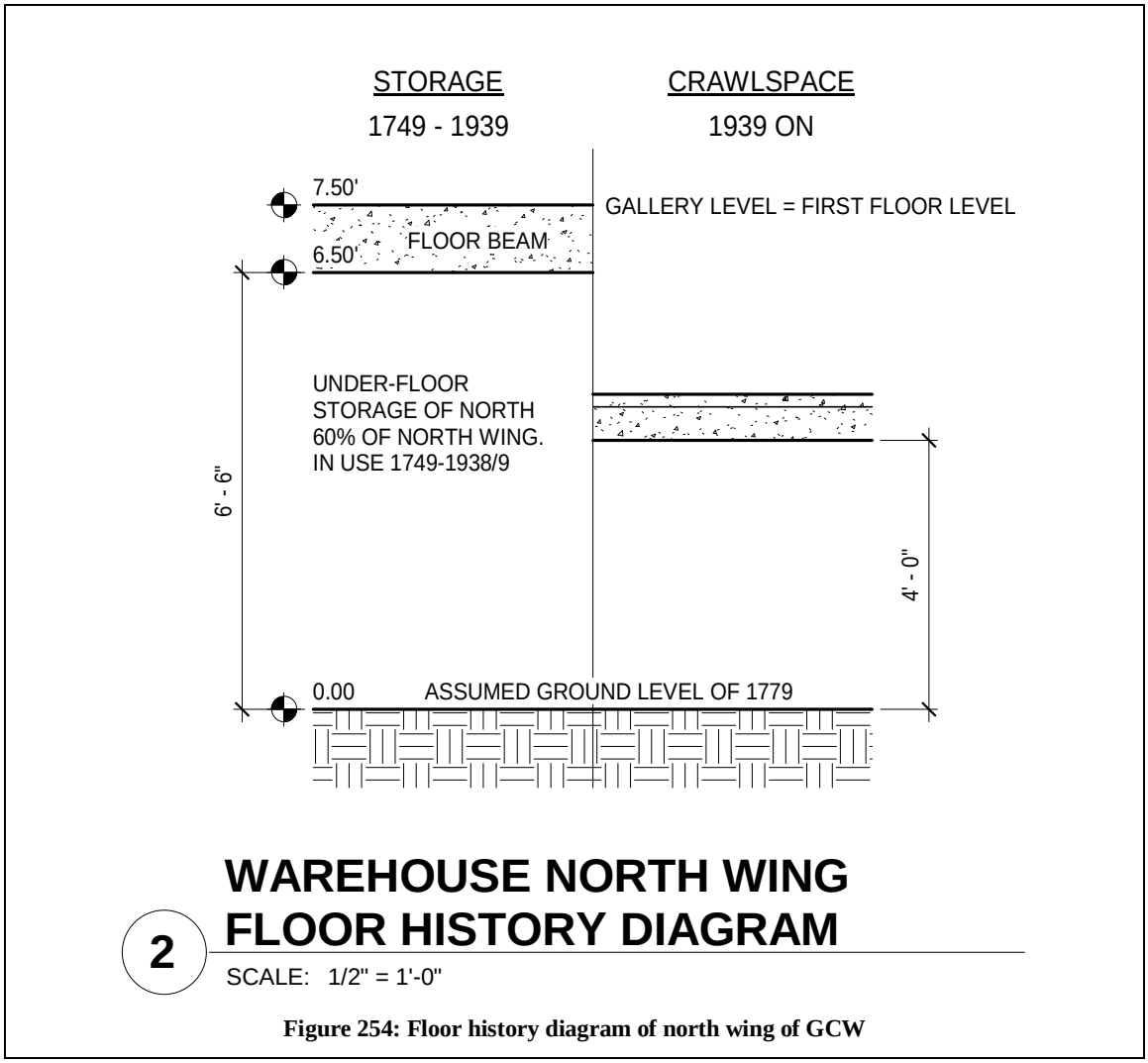


Figure 254: Floor history diagram of north wing of GCW

1795: This schematic plan shows the site after the extension of Hospital Street. No changes are delineated for the warehouse.

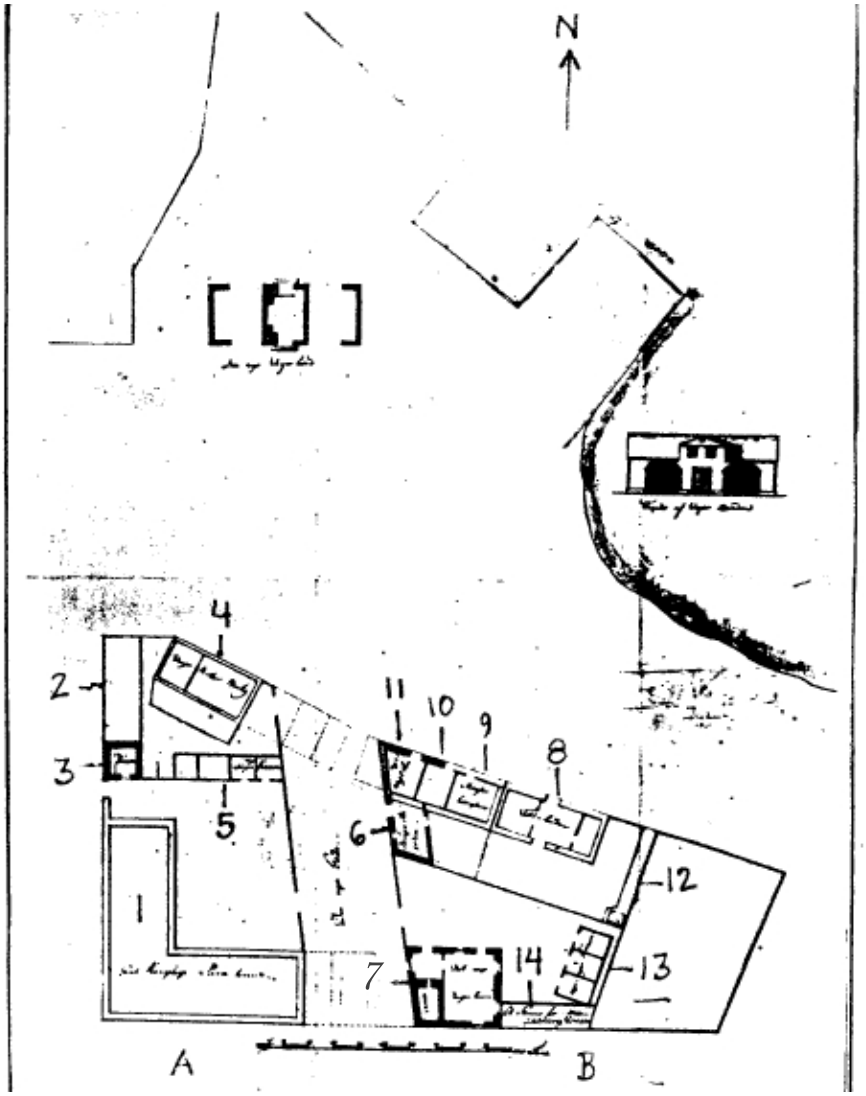


Figure 255: Ground plan of the Danish West India & [1795] Guinea Company complex, Christiansted, St. Croix. Copy courtesy of Frederik C. Gjessing, St. Thomas.

According to Cissel (2000), the compound on the west side of Hospital Street (A):

Key No.	Danish	English
1	Det kongelige Pack Huus	the Royal Warehouse (the main building);
2	a rectangular structure, which use is not specified;	
3	Kiokken	Kitchen;
4	Veyer Mester Boelig	Weighing Master[’s] residence;
5	nye Neger Kammer	four rooms, the eastern two of which were identified as the “new Negro chambers”; the use of the western two were not specified.

The complex on the east side of Hospital Street (B) was subdivided into several compounds. Structures facing west (viewed north to south) were

6	Oplage Magazin	stock warehouse;
7	A structure partitioned into four rooms, used as "the new Baking House";	
8	Told-Boden	Customs Houses;
9	Magler Comptoir	Broker's office;
10	a single structure, the use of which was not specified;	
11	Nye Vagt Stue	new Guard Room;
12	a long passageway, leading to privy;	
13	Nye Neger Kammer Det nye Bager Huus	three rooms, collectively identified as the new Negro chambers.

1860: This period is shown by an historic photograph (actually a pair of stereoscope photographs showing the gallery—Figure 256). If there are stairs to the second level they do not show well in the photograph. In clearer photographs from after 1860, the stairs do not show either.



Figure 256: View of Custom House Square, 1860. Source: New York Public Library.

1890: This photograph (Figure 257) illustrates the roofing materials seen on the warehouse and its gallery, plus one site-located building, the current Comfort Station. Previous historic photographs show the East Wing with wood shingle roofing. This photograph shows the North Wing still has wood shingles and the East Wing roofing is now corrugated sheet metal. In addition, three ventilators, with wind vanes to enhance their operation in evacuating hot air, are located along the ridge line. The GCW is at this point serving as the Cable Building, a function in addition to any warehouse function (the loading doors of the warehouse are in the open position in the photograph). By close examination, notation of the cable function is shown by the two telegraph poles off the east elevation, cables from them entering into the buildings via the first two adjacent windows, and a sign on the wall below the first of these two windows "West Indies and Panama Cable Company."

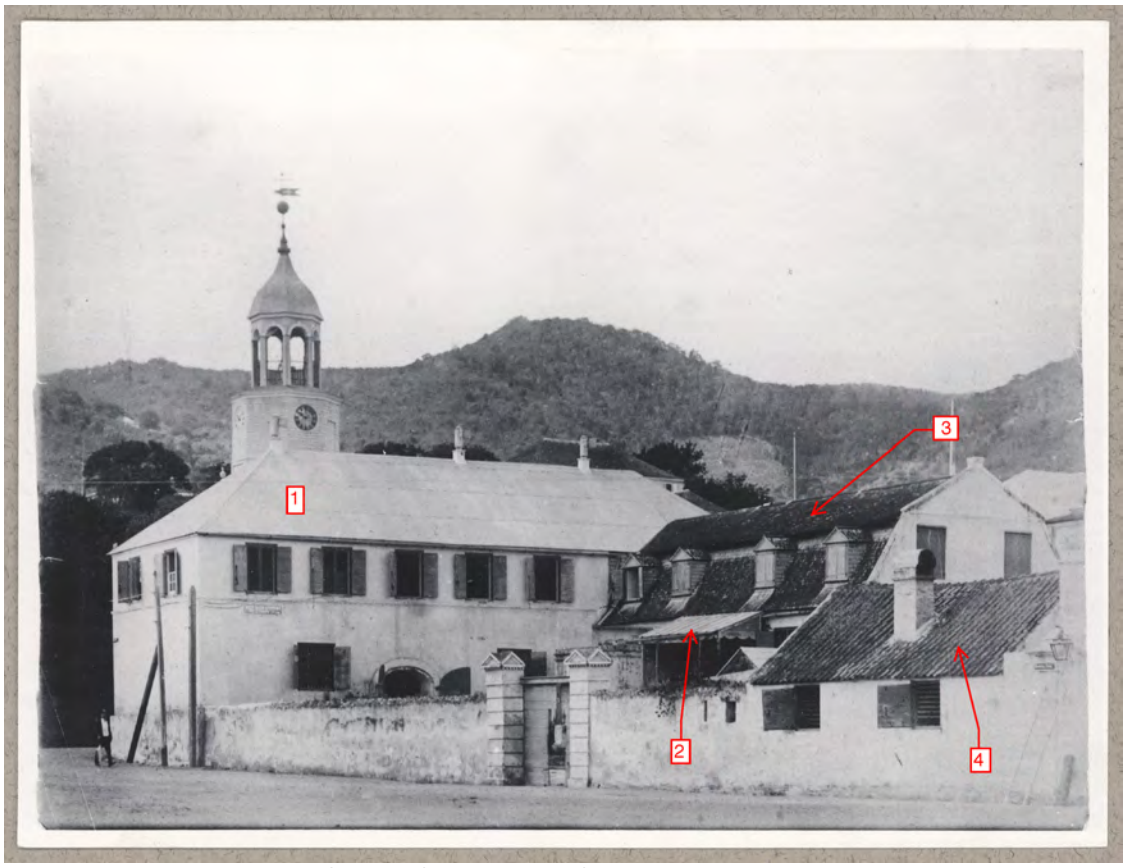


Figure 257: Annotations identifying roofing materials of GCW. 1= Corrugated metal panels, 2= Batten seam metal roof of gallery, 3= Wood shingles, 4= Fired clay tiles roof of building possibly used as a bakery. Also note shutter hardware, ridge treatments, roof vents.

Source: www.kb.dk/images/billed/2010/okt/billeder/object276358/da/#kb)SD-0=page:1.

1917: Transfer day photograph shows a small slice of the building (photo left) with the American flag-bearing newly formed newly formed U.S. Navy Band marching down King Street. Additional research is likely to find more photographs of the event. Supplementary views might show changes to the warehouse.



Figure 258: U.S. Navy band marching down King Street, c. 1917.
Source: https://bruun-rasmussen.dk/m/lots/26E9F0538749/images/15

1939: This set of plans, which is in an appendix, is the first done since those of Oxholm in 1779 that accurately shows most of what was there prior to selective demolition and comprehensive rehabilitation in the transformation of the "Cable Building" into a United States Post Office. Below is a list of actions delineated by these plans.

Table 3—Actions Delineated by the 1939 Plans

1939	**Based upon Plans "Plans for the Rehabilitation of the Cable House for a U.S. Post Office Building." The notes follow.**
Site	From plan named "Ground Floor Plan"
Add	New flagpole, 60 foot, steel
Remove	Wall at east edge of historic stairs
Remove	Historic stairs, parallel to… [unreadable], likely to gallery.
Remove	Present septic tank
New	Concrete steps outside in association with new interior stair from 2nd level; beside cistern #1
New	Concrete loading platform
New	Brick wall, blocking entry from north to under stairs
Replace	All damaged curbing
New	Concrete steps to 2nd floor from present platform
Outbuildings	
West Kitchen	Called out as "Pump House"
New	"cement" floor sloped to door
New	Pipe to cistern
New	Metal roof
New	Flashing
New	Storm doors and frames
New	Storm shutters and frames
Store House	Now, north portion of Comfort Station
New	Cement floor, plaster walls, exposed wood rafters
New	"Sheet metal roof" from next plan "East Elevation of Wall"
New	"Storm shutters and frames at open window east"
New	"Storm doors and frames," east elevation
Replace	Remove existing roof structure and decking, and replace with new 2x8 rafters and 2x6 ceiling joists. Install new 1-1/4" thick wood roof decking.
DWI GCW	
Exterior Walls–AKA GROUND FLOOR REMOVALS, ADDITIONS, ALTERATIONS, as seen on Ground Floor Plan 1	
Remove	"door and block up opening" east elevation of North Wing, previous entry from old stairs, ghost noted in oblique light study
Remove	"brick up opening," north of Cistern #1 in the wall between under-stair secret room and current vault
Additions	"cut new window openings"; two, at east wall of East Wing, and two at West Wall of North Wing
Additions	"New window sills" or "new wood sills for windows, typical
Additions	"New metal rolling door" and "New metal flush threshold," both at loading platform
Addition	"New metal thresholds" at doors

Addition	"New concrete step-up, 4 risers" at west elevation of North Wing, northern set of doors
Addition	New metal gutters and piping to cisterns
Addition	New dormers on the west elevation of North Wing, and three new dormers on the East Elevation sides of "lead coated copper."
Addition	New metal roof
Addition	New wood storm shutters at all exterior openings
Addition	"New fixed wrought iron (WI) grilles" at East Elevation, postal, 1st level & south elevation 1st
Addition	New double-hung sashes and frames, 2nd level
Addition/Repair	Exterior stucco, incomplete notes as to "actions," some new, some repair BUT overall not much direction
Remove	"Brick up present opening," three on West Elevation
Interior	
In general, all partitions removed, floors removed. New metal stud walls, new "cement floor," new plaster, new 1st floor finishes on the floor/wall/wainscot. Six-inch mesh reinforced concrete floor at first level, second level noted at 3 inches. 2nd floor covering linoleum. First floor wood Postal Work Room and in Postal Lobby, quarry tile, and tile wainscot. Bathrooms "cement" floor, vault concrete floor. Post Master's Office had wood chair rail fixtures define for post office functions.	
Addition	New concrete stairs from second level to first level
Addition	New panel doors
Structural	
Removal	Remove floor joists at first and second floor framing levels (likely wood) and brick up bearing pockets
Removal	Remove top portion of retaining wall between slab on grade and suspended North Wing floor as needed to lower the North Wing floor height to match the East Wing
Addition	New reinforced concrete suspended first floor system with new interior columns and footings at North Wing, located several feet below previous floor level.
Addition	New reinforced concrete second floor beams and slab, including bond beam embedded in the existing exterior walls.
Removal	Remove all existing roof framing (rafters, ceiling joists, etc).
Addition	New wood dimensional lumber roof framing and tongue-and-groove decking.
Addition	New reinforced concrete loading platform
Addition	New reinforced concrete vault at first floor of North Wing with storage above.
Addition	New reinforced concrete landing at second floor entry (at top of new reinforced concrete stairs).

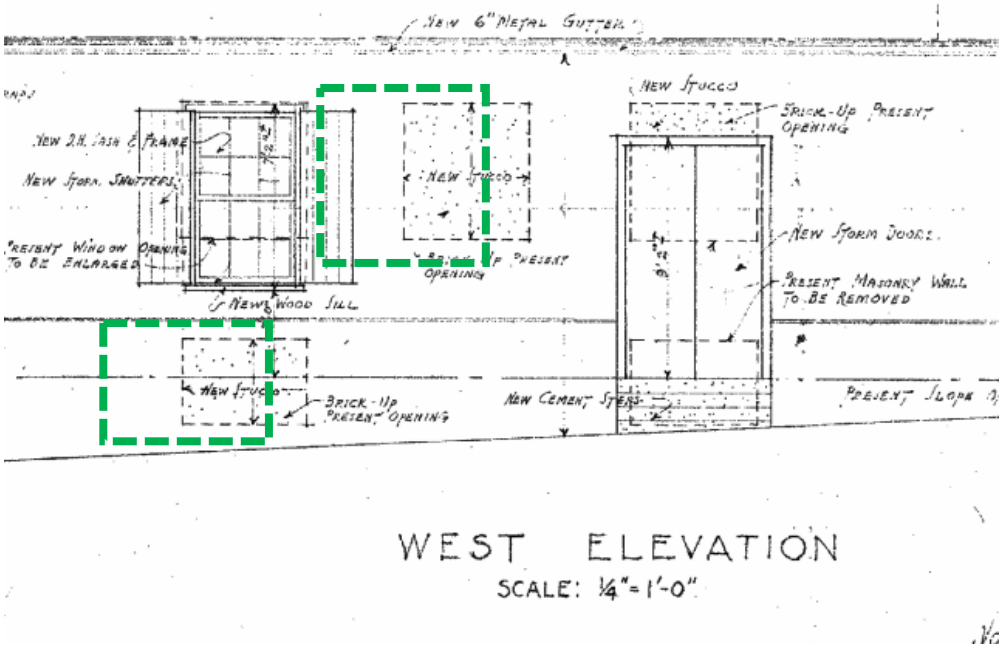


Figure 259: Excerpt from West Elevation Drawing on Sheet SE-R-703-A of the 1939 Post Office Set. The infill areas are outlined in green. Church Street view.



Figure 260: Infrared thermograph of West Elevation during daytime showing lower temperatures at infilled openings (indicated with arrows).

The two big changes to the structure were the removal of the roof and its reconstruction on a new bond beam made of concrete and steel reinforcing, and new structural concrete floors, including new floor levels, particularly the first-story floor of the North Wing. Externally this massive internal change of the structure is difficult to see. However, the number of dormers and their alignment went down to three from the previous four. And, the chimney was removed, the chimney that, due to its location behind the gambrel roof along the East Elevation, was often just barely discernible in historic photographs.

1978: The focus of the 1978 plans was the redoing of finishes and upgrading of electrical and mechanical systems. The plans are referenced as the Stetson-Dale plans, the name of the architectural firm.

1978 Stetson-Dale Construction Drawings

Site

- ◊ trench with cover for piping—chilled water— between north end of north wing and west kitchen
- ◊ concrete pad and condenser units
- ◊ repair metal West Gate

Cisterns

- ◊ #1, new 1 1/8-inch diameter condensate line from east wing over to the cistern.
- ◊ #2, pump moved from roof of cistern to west kitchen. pump was in a pump house on the roof of the cistern and was removed with the pump

Site Buildings

- ◊ West Kitchen, new metal roof
- ◊ relocated pump drawing water from cistern to supply building
- ◊ added HVAC equipment: pump air separator, water chiller, expansion tank, piping to condenser, controls panel, and removal of the now no longer used shower wall
- ◊ pump and chiller installation

Exterior of GCW

- ◊ new canopies over four first story entries
- ◊ repairs of stucco
- ◊ new gutters AKA rainwater collection system components
- ◊ paint metal roofs
- ◊ shutters repairs
- ◊ new windows and frames
- ◊ new doors and frames

Interior of GCW

- ◊ portable ramp to be placed at southwest door along Church Street interior
  new toilet partitions
- ◊ stainless steel wainscot
- ◊ replace wood floors in postal work room with new asphalt plank
- ◊ new chilled water AC system, piping, equipment, fan coils
- ◊ electrical upgrades
- ◊ piping from west kitchen, via site trench, enters building along north wall of north wing and then up through the floor.
- ◊ chilled water cooling system installed, as well the system ventilates
- ◊ fan-coil units, thirteen in total, duct work, and registers installation at ceiling above grid.
- ◊ toilet exhaust fan unit exits building by the top of a dormer window louvered grill [window indicated is at the top of the east stairway along the north wing.]
- ◊ electrical system alterations including support for revised HVAC system.
- ◊ electrical, removal of certain outlets, switches, conduit, junction boxes, and light fixtures. Removal of existing electrical service, switch, meter, conduit, and wiring. Removal of existing panel, circuit breakers, and associated items. Removal of existing thermal detector and wiring.
- ◊ Install new electrical system and lighting.

1985: The two drawings below are from TCI's 1985 Historic Structure Report on the GCW, then called the U.S. Post Office. These two drawings—the first floor and the second floor—show the configuration and names of rooms at that time.

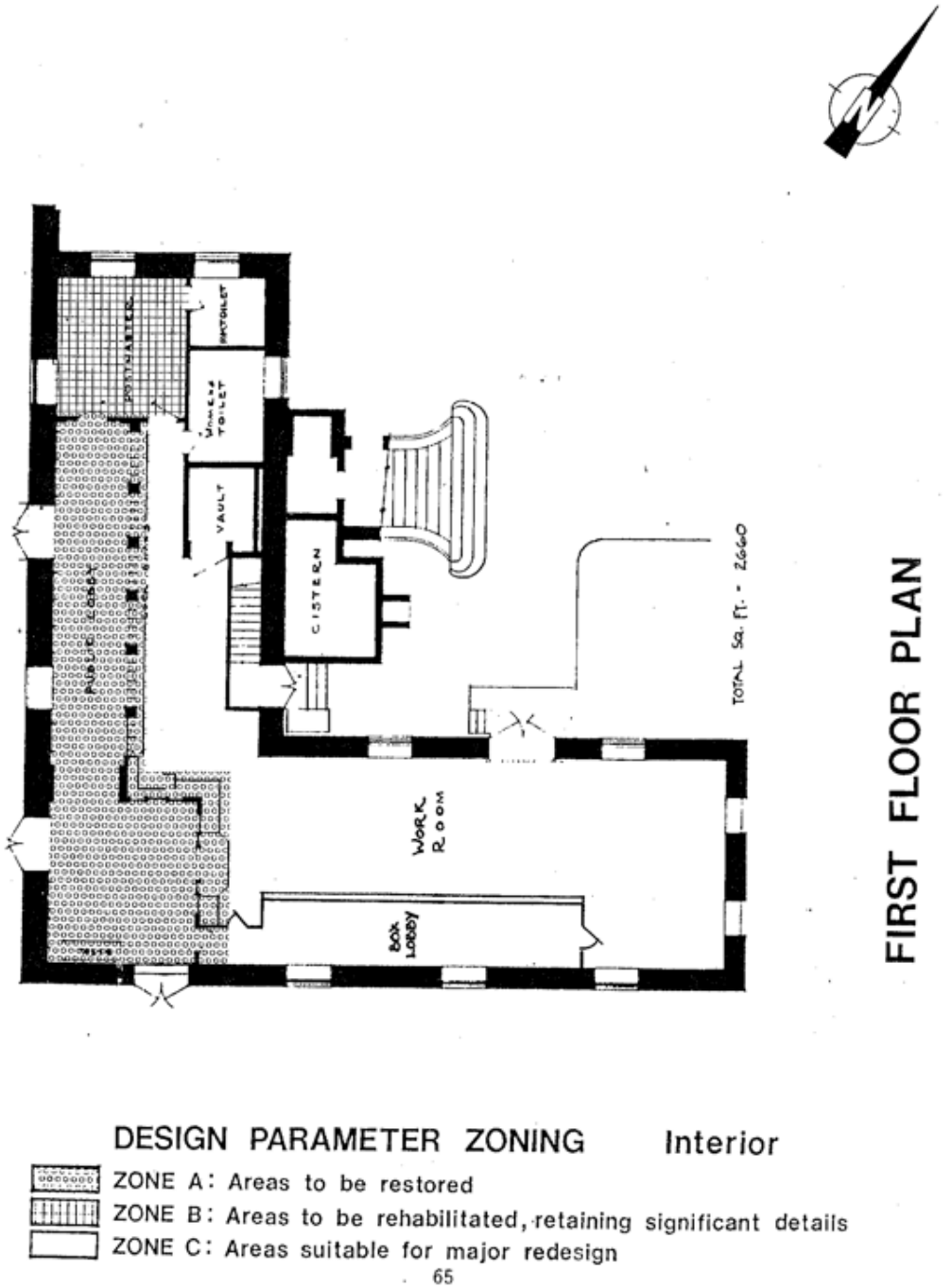


Figure 261: First Floor Plan of 1985 U.S. Post Office. Source: TCI 1985.

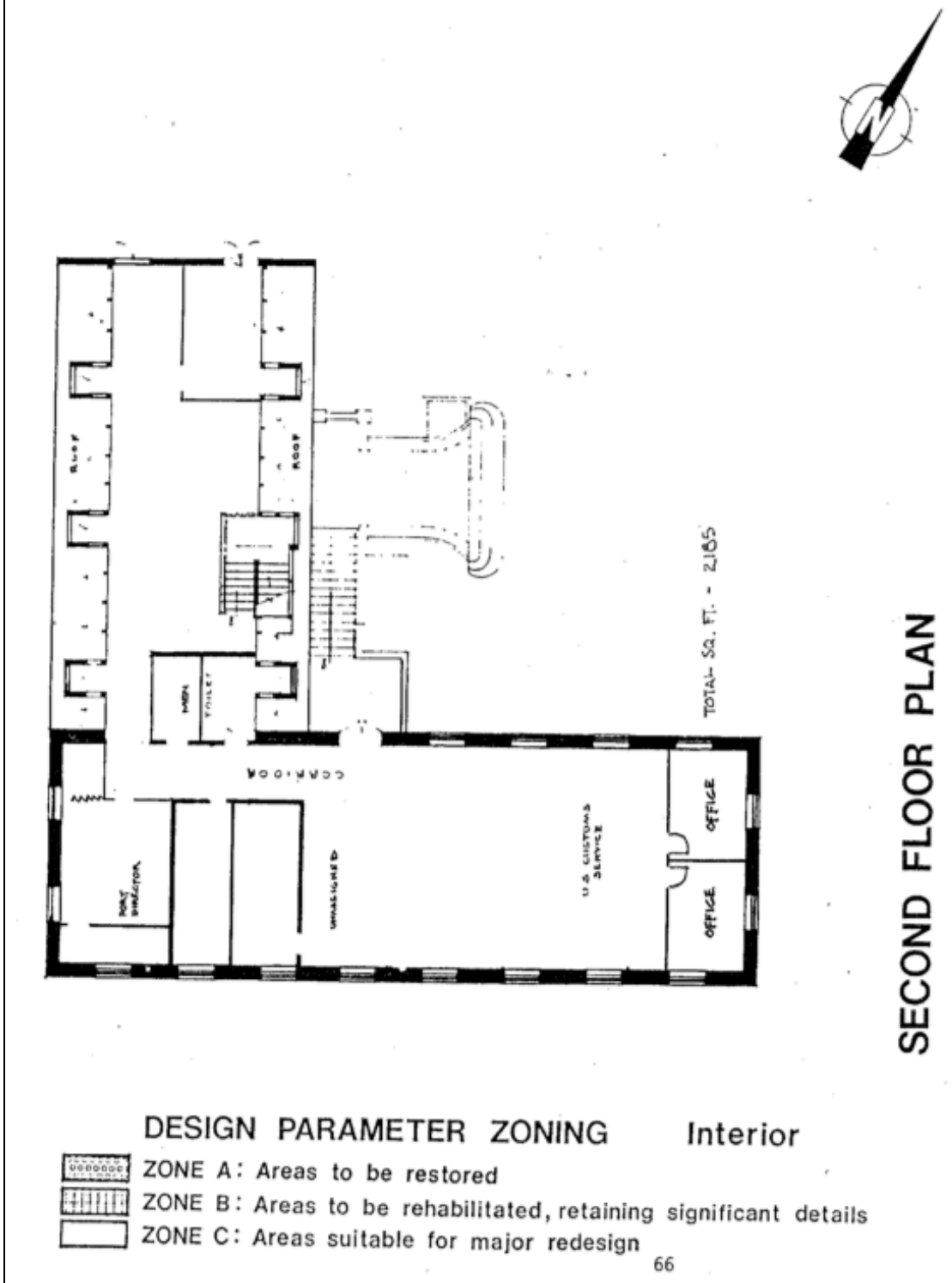


Figure 262: Second Floor Plan of 1985 U.S. Post Office. Source: TCI 1985.

2003: These plans are referred to as the Tip Top Construction plans. Their focus was systems upgrades and new walls including the installation of an inner wall in parallel with the exterior wall, several inches into the interior space.

2003 Tip Top Construction

Exterior

- New shutters on windows

Interior

- HVAC, Plumbing, and Electrical system modifications
- second story bathroom/laboratory remodels, some new partition walls, perimeter walls, bathroom, finishes, doors, windows, HVAC runs, electrical, and lighting
- new room layouts and finishes
- new perimeter stud wall out from Perimeter Wall

Moisture in the GCW Walls

Four methods of testing on the GCW exterior walls were employed to understand the relative moisture levels present. These were:

1. Thermal imaging using the IR light spectrum as observed and recorded on a Flir Infrared Camera. The heat signature may change in comparing dry and wet materials if the resultant temperature differentials are sufficient.
2. Direct observation with a focus on the effects of moisture such as blistering of coatings, salts crystallization, and powdering of plaster.
3. Evaluation of photographs taken during earlier time periods to document areas of earlier moisture concentration. For example, the southwest corner photographs from 1985 exhibit damaged plaster at the interior, particularly at the second story.
4. Bored holes of a depth sufficient to reach the interior of the wall. The relative moisture content of the holes can be observed by how much the drill fines stick to the bit, and by how large the halo around the hole is as moisture moved to the hole and wall surface at the hole.

The various possible sources and pathways of moisture intrusion into the wall are described below. Most often the moisture seen in the wall is the result of a combination of these.

1. Cracks in the wall surface. The wider and deeper the crack the more likely water will penetrate. Note storm events and wind direction are exacerbation factors.
2. Gaps around window and door frames/rough bucks.
3. Gaps between doors and windows and the frames.
4. Gaps around and under sheet metal flashing. Note these gaps may open only during high winds.
5. Absorbent surfaces in contact with water or with high humidity air.
6. Ground water.
7. Rainwater, especially when driven by high winds such as during storm events.
8. Condensation at locations where high humidity air meets a cooled surface.
9. Leaking piping, rainwater collection gutters, rainwater conductor heads, and cistern (#1).
10. Storm water flowing from the street up against the building such as at the southwest corner.

Where evaporation is less than moisture inflow, the moisture content of the wall material will rise. If evaporation is retarded, the moisture levels will rise. Such retardation in evaporation can occur as the result of the application of inappropriate coatings with low vapor transmission coefficients, reduction in airflow passing over the surface such as by furring out a wall, reduction in air flow through reduced air exchange such as removing attic ventilation systems, keeping the wall in the shade because of the shadow from trees or man-made shade structures, and in general the specific microclimate. For example, the northeast corner of the courtyard, behind the Cistern #5 stairs, has a wet microclimate due to surface drainage concentration, shade, and constricted—therefore less than normal—air flow.

The southeast corner of the GCW has exhibited moisture-related problems for some time, as was documented in the 1985 HSR, noted by Zandy Hillis-Starr as a problem area prior to the furring out of the second floor Perimeter Walls, and observed in 2018 through ports cut into the drywall to determine the original plaster's condition. This area has four openings: two windows on the second story flanking the corner, and two sets of double doors flanking the corner. These wall openings have a troublesome gap between rough bucks and wall masonry. Leakage also occurs around window heads and sills. The poor street drainage during storm events has resulted in flows jumping the curb. Even though the park's staff sandbag the doors, it is likely the walls are picking up moisture via the face or from below by capillary action. The two interior walls present a significant amount of surface area exposed to the cooled interior air. Continuing the review of the above lists as applicable to this example, the wind-driven rain may be affecting this corner more than others. The use of extra-long runs of rain gutter without provision for expansion is most likely affecting the corner of the 83.25-foot gutter run. Leaks are likely happening, at least on a sporadic basis. In sum, all ten of the possible sources and pathways for water are in play at the GCW's southwest corner.

<u>Monitoring</u>
The moisture content of the walls should be monitored to determine what is happening where and when.

Seismic Study
The building complex is in a region that is seismically active. The area (Figure 194) is located along the boundary between the North American and Caribbean tectonic plates, with the North American plate moving west-southwestward relative to the Caribbean plate at a rate of 19.4 mm/year (Mueller et al. 2004). Several major earthquakes have been recorded in the area in the past. In 1970, a 6.1-magnitude earthquake was recorded just 20 miles north of the island.

Following the provisions of the International Building Code (IBC) for the design of new buildings, the site has the following seismic design parameters:

- Short-period design spectral acceleration parameter, $S_{DS} = 0.639$
- One-second design spectral acceleration parameter, $S_{D1} = 0.364$

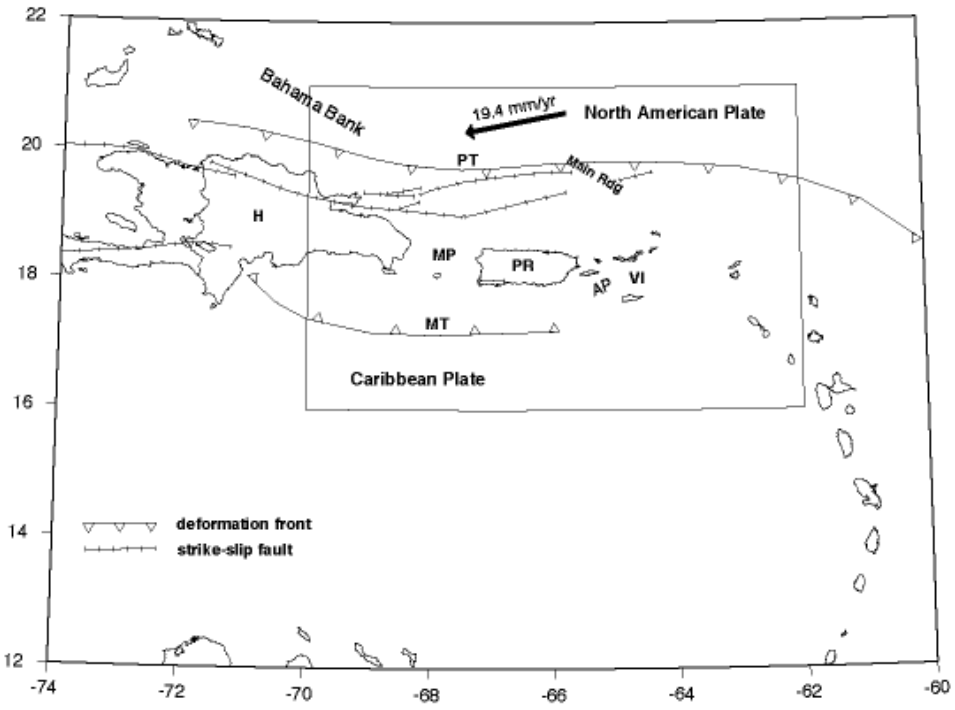


Figure 263: Map of North American–Caribbean plate boundary region (Mueller et al. 2004).

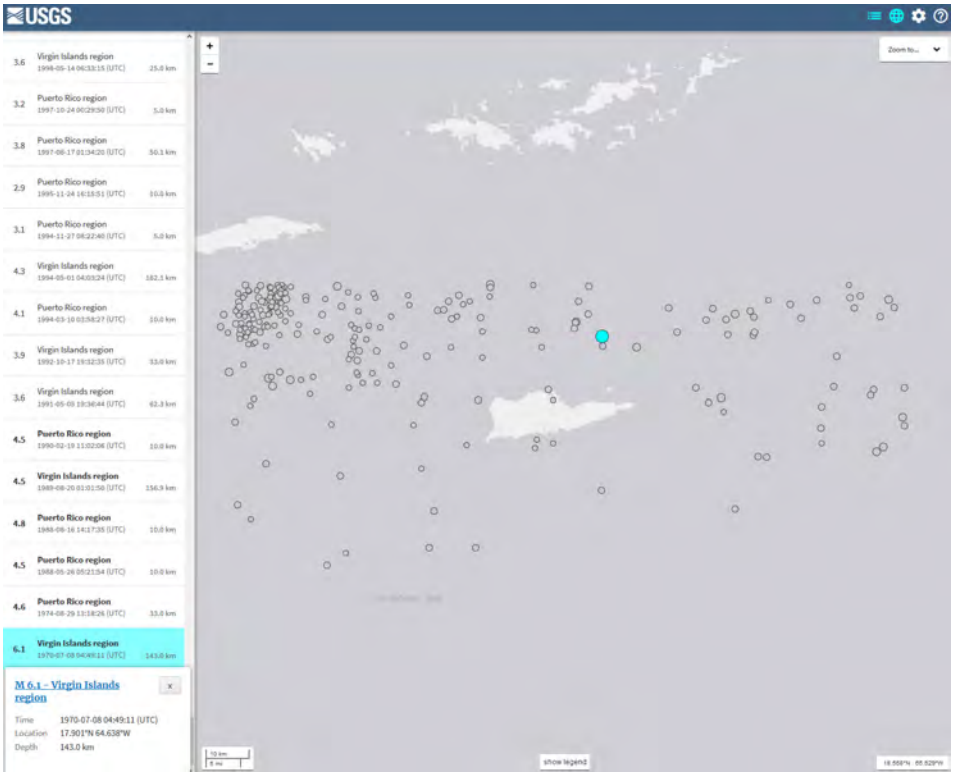


Figure 264: Map of St. Croix showing seismic events recorded by USGS with magnitude 6.1 earthquake on July 8, 1970 highlighted in blue just north of the island. This event is the largest magnitude earthquake in the St. Croix region listed by USGS. The starting date for USGS records in this region is not provided, but there are no entries for the region prior to 1970.

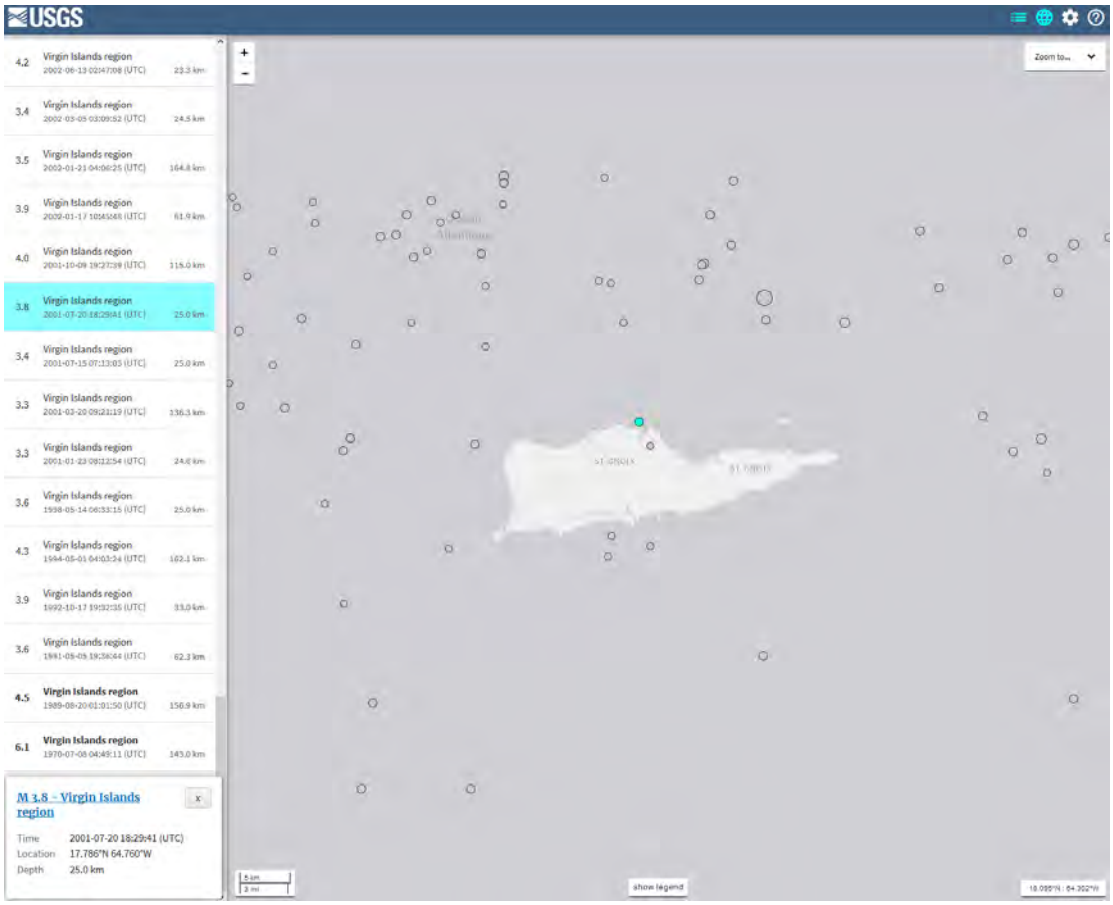


Figure 265: Map of St. Croix showing seismic events recorded by USGS with magnitude 3.8 earthquake on July 20, 2001 highlighted in blue near Salt River Bay. This event is notable due to the proximity of the epicenter of the quake to the island and due to the fact that it is a relatively recent event. The other circles shown on the map represent additional earthquake events since 1970 with the diameter of the circle indicating the magnitude of each earthquake.

Based on the above parameters, and assuming a risk category 2, the building complex falls into the Seismic Design Category D: a high level of seismicity.

Given the time period when the complex was constructed and renovated, it's unlikely that the existing structural components would meet modern-day seismic design requirements. Furthermore, historic construction generally lacks the level of detailing required by modern design codes to limit extensive damage and provide ductile behavior.

Structural deficiencies and likely damage associated with these buildings include:

- **Parapets and Fences**: As originally constructed, they are not braced back to the roof and are susceptible to out-of-plane failure. Falling parapets pose a life safety hazard to pedestrians adjacent to the wall. Low-to-moderate intensity of ground shaking is usually enough to cause parapet failure.

There are few parapets and fences at the subject property; most of the parapets are relatively short. However, as discussed earlier, the parapets at the West Kitchen exhibit cracking that could be associated with seismic damage. Existing fences do not exhibit signs of distress typically associated with earthquakes, but unreinforced fences can generally perform poorly in earthquakes, depending upon the direction of the shaking relative to the fence.

- **Wall-Diaphragm Connections**: Wall-diaphragm separation due to inadequate or missing ties can lead to out-of-plane failures of walls. Missing ties can also lead to the diaphragm sliding along the in-plane walls and then pushing against the walls perpendicular to the movement, resulting in corner damage to the walls. Moderate intensity of ground shaking is typically required to produce such failure modes.

  The Warehouse Building and the Cisterns appear to have substantial diaphragm connections in most areas. However, the West Kitchen, East Kitchen, Comfort Station, and north end of the roof at the North Wing of the Warehouse have questionable diaphragm connectivity.

- **Structural Walls**: Diagonal cracking from bed-joint sliding are common in unreinforced masonry walls with low mortar strength. Typically, this failure mode appears as a stair-stepped diagonal crack where the head joints open and close to allow for movement on the bed joint. During prolonged ground shaking, diagonal cracking may compromise the structural integrity of load-bearing walls, posing a life safety hazard due to the risk of structural collapse. This failure mode is typically associated with moderate-to-high levels of seismicity, or ground shaking.

  Diagonal cracking consistent with overstressed shear walls was observed at the North Elevation of the North Wing of the Warehouse adjacent to openings. This wall could tend to experience significant lateral load stresses during an earthquake due to the building geometry and the multiple window openings in this relatively small wall.

Character Defining Features

Summary of Alterations Relative to Effect on Character Defining Features

The warehouse building remained in a fairly intact original condition until an intense rehabilitation in 1938-1939 during which the building's walls were the only parts left standing. The character defining features of yesterday that are still present today are these walls, and the form of the roofs of each wing, and the form of the building in plan view and of the roofs of each wing.

Building Materials of the Walls

Description: The walls are constructed of the typical period construction in St. Croix of random rubble masonry of local stone and coral stone with brick used at corners, window/door openings, and building edge detailing of expressed parapets, string courses, and quoins. The walls are finished on the exterior by a lime-based stucco and on the interior by plaster. The composition of the stucco may have changed from the original lime base as other materials became available—like Portland cement— and the mix was consequently amended. The final finish coat has obviously been changed as at least one earlier coating layer was red instead of the prevalent and current yellow.

Period: The walls are mostly composed of the original material from the original construction except for the previously mentioned coatings and the lintels over openings. The lintels were changed to reinforced concrete in 1939. As well, reinforced concrete is in and at the walls in association with the new roof structure and floor structures installed in 1939.

Integrity: One opening was originally arched—at the loading dock—and is now headed by a horizontal lintel. This is an integrity issue. As to longevity, the reinforced concrete lintels are deteriorating; the physical integrity for these and the other reinforced concrete elements are of concern. They are in variable condition with areas of deteriorated condition.

Roof Forms

Description: The East Wing has a hipped roof and the North Wing has a gambrel roof. The latter is punctured by three evenly spaced gable ridged dormers, replacing the four previous four dormers, all possible as the entire structure of both wing's roofs were replaced. The difference in the roof shape of each wing is because the second floor of the North Wing was used for housing for key personnel. The North Wing had three stories in the original configuration with the lowest being partially sub-grade and used for storage. In the 1939 rehabilitation, the floor levels in the two wings were brought into a single plane. The consequent lowering of the North Wing's first-story level altered the under first-floor space's height by 2.5 feet resulting in a significantly less useful under-floor space in exchange for enhanced usefulness of upper story spaces. The associated alterations included blocking off the doors and window giving access and light to the underfloor space. The new U.S. Post Office and Customs House uses did not utilize any portion of the building for employee housing. The dormers in the prior employee housing gave the essential benefits of venting hot rising air, gaining fresh air, and creating cross ventilation. These benefits continued post-1939 until the installation of mechanical systems some 40 years later. The roof shape, the dormers, and the closed-up window and

doors are key character defining features for the reasons described above and assist in telling the story of the building's history.
Period: Essentially the same forms with small alterations to the 1749 form as made in 1939.
Integrity: The integrity has been maintained.

Building Form
Description: The wider a building, the longer are the spans to be bridged by the structural system. The width of the two wings was possibly related to the available lengths of structural timber. In addition, the greater the width, the greater the distance from the ventilation provided by the window openings and the consequent cooling effect of the breezes. Temperature is an issue in storage warehouses depending on the types of stored items and their shelf life. For the goods stored in readiness for export, these considerations likely were not of concern. For imported goods, temperature and time were much more critical and a fast sale was desirable, especially for the foodstuffs.
Period: The same exterior forms as the 1749 original were maintained in the 1939 rehabilitation.
Integrity: The integrity has been maintained.

Wall Details: String Course, Expressed Parapet, and Corner Quoins
Description: These decorative elements are consistent with detailing of the period.
Period: These are all original details from 1749.
Integrity: These are in the same condition as the adjoining wall although the string course, due to it being a projection from the exterior plane of the wall, does receive more rainwater effects and has more condition issues, namely the loss of stucco and exposure of the substrate.

Roofing Material
Description: The corrugated metal roofing now on these roofs is seen in historic photographs from the 1890s. A series of metal ventilators on the East Wing are appurtenances of both character and function.
Period: Metal roofing in standing seam or batten configuration pre-dates the corrugated. Metal replaced wood shingles on many buildings in response to both code decrees and to individual concerns about fire. Hurricanes were notably hard on wood shingles; flying shingles became associated with wind speeds of 50 mph and above (Beaufort Scale 9).
Integrity: Metal roofing replaced the earlier predominant wood shingles. The existing corrugated roofing has historic integrity and has a good physical integrity.

Loading Dock
Description: The building's North Wing was not where most goods were transferred out or in for storage. The East Wing was the primary storage wing and the loading dock declared this function. It continued as a use area with the change to U.S. Post Office, although the materials changed to concrete (perhaps over earlier brick). The dock continued to have double doors; a protective canopy was added in 1939.
Period: All periods have had the dock, as best as can be determined.

Integrity: The dock is in its original location although the materials may have changed from the expected historic brick to the 1930s concrete.

Windows/Doors/Shutters

Description: All the historic windows and doors have been removed and new added in the entirety and portions of all, at differing time periods. There are no known original windows or doors in place. A small percentage of the openings have been modified: eliminated, moved slightly, or enlarged. The pattern of the openings is character defining. Louvered windows are character defining. The shutters and the hardware appear similar to the originals and are character defining.

Period: Major alterations to the openings have occurred in 1939, the 1970s, and the early 2000s.

Integrity: With the installation of air conditioning the need for cross ventilation is virtually eliminated and the need to keep cooled air in the space becomes a necessity.

Welcoming Arm Stairway

Description: These types of stairways became popular in the period of the mid to late 1700s. The literature, such as *Historic Architecture of the U.S. Virgin Islands*, by Pamela A. Gosner, notes the rise in popularity of this distinctive stairway and the increase in number of masons with this specialization. With brick stair treads and stuccoed cheek walls and balustrades, these are distinctive additions to the houses and commercial structures of the time.

Period: The construction period of these type of staircases is from the mid-1700s well into the 1800s. The Welcoming Arms staircase of the GCW probably dates after the Hospital Street extension when masons were completing modifications to the Perimeter Wall and the buildings of the compound, say the first 10 years of the 19th century.

Integrity: Although somewhat modified by modern materials such as concrete overlays, the stairway retains its distinctive form.

Interior Wood Details and Finishes

Description: With the conversion of the Warehouse into a Post Office, some decorative elements such as wood moldings were introduced, finishes such as plaster and a variety of floor finishes were upgraded, and specialized post office functional items such as post office boxes and counters were installed. The latter have all been removed; most are being re-used in the new Post Office. The plaster finishes are still there and in one area the stepped decorative cove is intact. In other areas there is a tile wainscot. The specialized floor finishes are present: asphalt plank in the work room, quarry tile in the lobby, and small colored ceramic tile in the restrooms.

Period: The primary interior finishes date from the 1939 rehabilitation. The floor finishes also date from 1939, with some exceptions, such as the later change out of wood in the work room for asphalt plank and the installation of floor tile as restrooms become modernized in the 1970s and later. The wood moldings in the Postmaster's Office suite and the Postal Lobby are original to the 1939 project, as is the decorative plaster ceiling of the Postal Lobby.

Integrity: All the floor coverings show damage and wear. Ghosts of the wall that contained the post office boxes and the area of the call window are visible as bare concrete.

Systems—HVAC, Electrical, Lighting, Security, Smoke/Fire Alarm, Accessibility
Two of the buildings have systems beyond the simple lightbulb: the GCW and the Comfort Station, which has newly revised systems completed without drawings. In addition, the East Kitchen houses controls for exterior lighting. The GCW has the systems as described below.

HVAC Systems

Description

First Story: A large A/C unit is suspended from the ceiling at the east end of the large warehouse room. This unit conflicts with a programmed use (e.g., assembly, meetings, exhibit space) due to its visibility and noise generation.

Second Story: The second-story renovation in 2003 relocated an existing A/C unit to Room 108 with a condenser set on grade near door 105. Distribution via new flexible ductwork serves all upper story rooms. CPS's shown are code compliant.

Condition

First Story: Existing A/C unit is past its useful life and should be replaced.
Second Story: System is fully functional although A/C units are of unknown age and could be significantly more energy efficient.

Treatment

First Story: New HVAC unit and distribution should be provided to serve the entire first story. The design is to be supportive of proposed re-use of this space. According to the NPS, "First-story compressors were recently replaced including interior the air handler; need to verify with Dan but believe it is possible that it was as recent as 2017."

Second Story: A/C unit is nearing the end of its useful life (dating from circa 2000) and should be replaced with a more energy efficient unit including de-humidification.

Electrical System

A new main disconnect service panel has been installed on a concrete wall near the Church Street gate. It appears this was installed circa 2017, concurrent with the remodel of the second-story offices. Subpanels serving the ancillary structures appear to have adequate capacity. A new panel has been installed primarily for the A/C unit in the large warehouse room, first story East Wing. This is located on the North Elevation next to the loading dock.

Lighting

Description

First Story: Within the grid of the suspended ceiling, 2x4 fluorescent fixtures. Where there is an exposed decorative ceiling, such as the southwest corner), the lights are surface-mounted fluorescent fixtures.



Figure 266 (3235): 2x4 fluorescent fixtures in suspended ceiling of the first story.

Second Story: The predominant fixtures are contemporary recessed cans.

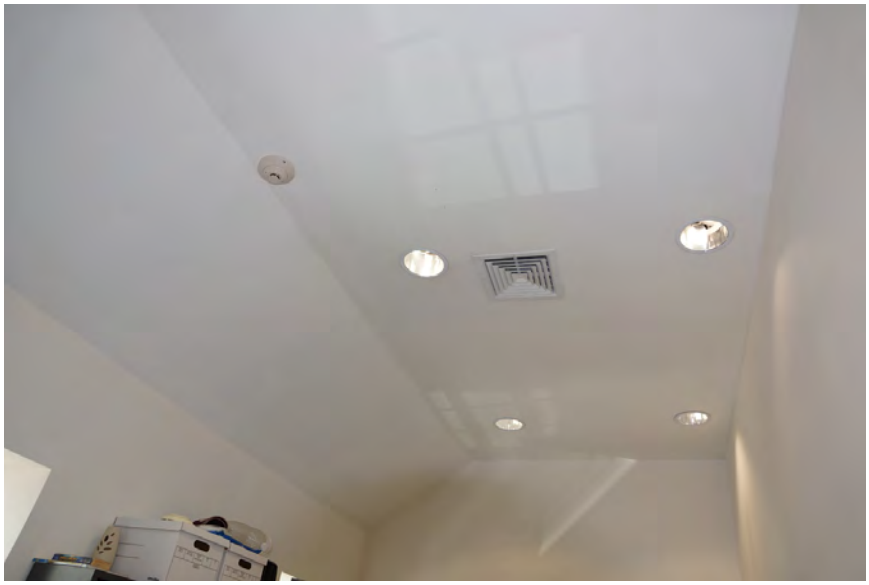


Figure 267 (3355): Recessed can fixtures on the second story.

Ancillary Structures: Lighting in both kitchens is utilitarian: natural (nonelectric) lighting comes into the West Kitchen through the louvered window and into the East Kitchen through the louvered window and the window with bars.

Condition

All lighting except the second story of the GCW is antiquated and not up to current standards for energy efficiency or optimal lumen output.

Treatment
Replace lighting at all locations with lighting appropriate for new proposed uses, except at second story of main building.

Security System

Description
Only door locks with security key pads have been provided at the second story exterior entrance. Special security and/or cameras in the Police area second story were not able to be viewed.

Condition
Condition of door locks is good; however, the locks provide limited security for the structure.

Treatment
Installation of a full security system with door contacts and multiple camera locations for interior and exterior surveillance should be considered.

Smoke/Fire Alarm System

Description
According to ZHS, "Fire detection system was recently installed (2018) as part of a larger historic building system that is monitored 24 hours."

Condition
Existing smoke alarms at the second story are in good condition.

Treatment
Staff should ensure that an overall smoke/heat alarm system is installed throughout the facility with direct interface with the Municipal Fire Department.

Accessibility

There are numerous issues related to accessibility to and through all functions of the main building, as well as the overall site. Of primary concern is the lack of an accessible route to both first and second stories of the main structure, as well as public access for any future utilization of the structure. The parking lot currently has no accessible route from designated parking spaces into the building.

Currently the designated accessible route is via the southwest corner, Church Street entry, into the former lobby of the Post Office. An attempt has been made to provide a ramp from the threshold to the existing main story level. The existing ramp is partially compliant; the existing rail is non-compliant and should be redesigned. This entry does not connect to any handicap parking via a compliant accessible route.

Handicap access to the entire second story structure is lacking. Options include the installation of an elevator to serve the second story. If no elevator can be installed, then "reasonable accommodation" for all second-story functions must be accommodated on the first story of the structure. There is public off-site parking on the Church Street side.

Restrooms

Restrooms on the first story are not fully compliant with current ADA design guidelines. Modifications of the two existing restrooms would be necessary for any public use on the first story. The second-story restroom is in general compliance with ADA requirements. Future designated uses for the large warehouse space for an assembly occupancy will need to be evaluated for required fixture count, with possible expansion of the current restroom facilities. See Sheet 21 of the drawings in Appendix E.

Energy

The building should be evaluated to determine the most effective energy system with an emphasis on the protection of the building itself from the climate system. See section titled "Moisture Monitoring" within Part 2 because of condensation from the air conditioning system. Prior to the installation of air conditioning systems, hot temperatures were removed from upper floors by cross-ventilation, and attic ventilation. Shutters could act as steadying devices while still allowing for ventilation.

Egress and Stairs

Door swings at all designated points of egress based upon the proposed reuse will need to be in the direction of flow. Door swings will need to swing in an outward direction. Consideration of multiple door/louvre configurations should be accommodated in order to be compliant with egress function. This will require the application of appropriate hardware to comply with code-required egress functions.

Treads and Risers

Existing exterior treads and risers to the loading dock, which provide current primary access to the warehouse first story, are non-compliant with current code. They will need to be modified with appropriate railings, including extensions at top and bottom of stairs. Interior stairs are generally compliant.

Stair railing from the primary access to the second-story landing does not have a compliant handrail. New handrails will be required on both sides of the stairs to provide continuous gripable handrail at appropriate height and will require extensions at top and bottom.

Other General Conditions

Termites

Termite colonies are evident on exterior walls of the compound. It is noted that the conditions for termite infestation are quite optimal. A continual program to mitigate termites should be implemented on a more frequent basis than annual inspections.

Mold

Given the climate conditions and susceptibility for aggressive mold throughout the structure, it is recommended that additional ventilation be provided in the attic, crawl space, and gaps between existing masonry and any existing or new furred-out interior wall. The solution would be in response to the results of moisture monitoring as such data will tell how much treatment is appropriate, allowing the development of a hierarchy of treatment options.

Sidebar Regarding Brick

From the founding of the Danish West Indies colony the architecture was based on brick sailed from Denmark to the islands as ballast, approximately 10,000 bricks per trip. In Denmark the heavy brick from the Middle Ages was common, but from the end of the 16th century and up through the 17th century the smaller Flensburg brick produced at the many brickworks near Flensburg Fjord, but also for example at the Nivå brickworks, took over. Compared with the medieval brick of 7 x 13 x 27 cm, the Flensburg brick is relatively small at only 4 x 10.8 x 22.8 cm. The small size made it easy to handle with just one hand, so the mason's work was almost halved – and building speed more than doubled. Today's brick is 5.5 x 10.8 x 22.8 cm.

The masonry of many large buildings consists predominantly of Flensburg brick. But the stone was also used to build the corners, edges, and arches over windows and doorways, because it has a precise shape and could easily be adapted to decorative details. It was because of these qualities that Flensburg brick was brought from Europe and used in the colony's buildings. This way the Europeans got homes they could not only live in, but which were desirable residences.

A recurring stylistic feature – the masonry arch – is seen throughout the colony's architecture. It is important to note that the builders continued to use the broad 'basket-handle-arch' in the Caribbean long after it was considered old-fashioned by the architects in Europe. This indicates that design in the islands was not the work of architects, but was generally based on the craft tradition that had been created in the colony.

Brick protected by a layer of lime plaster was commonly used in the Caribbean because the subtropical climate is hard on buildings with salty air, sun, and wind that will break down the brick in the long run.

—Sidebar Regarding Brick

Part 2—Ultimate Treatment

Part 2

Ultimate Treatment

Introduction

Codes are guides towards the evaluation, reuse, and updating of the site and the buildings for compliance.

Code Analysis

Applicable Codes for New Construction:

The U.S. Virgin Islands have adopted the following building codes as administered by the USVI Department of Planning and Natural Resources.

The most applicable reference for these structures would be the 2018 International Existing Building Code (by reference in IBC)

- 2018 International Building Code
- 2018 International Energy Conservation Code
- 2018 International Fire Code
- 2018 International Mechanical Code
- 2018 International Residential Code
- 2018 International Existing Building Code by reference in IBC

Accessibility Standards:

For non-residential structures, the National Park Service implements ABAAS (Architectural Barriers Act Accessibility Standards), which defines "accessibility to sites, buildings, and elements for new construction and alterations to Federal properties and leased portions of existing buildings or facilities." This translates to implementing the 2010 ADA (Americans with Disabilities Act) Standards for Accessible Design.

Treatment Plan

Overview of Import Sources

The development of the treatment plan has been based upon discussions with NPS personnel in Christiansted, detailed review and evaluation of the "Foundation Document for Christiansted National Historic Site" (January 2015) and the "Proposed Restoration and Slave Trade Museum," William Cissel (January 2000), and the companion document "Proposal for the Restoration and Rehabilitation of the Danish West India and Guinea Company Warehouse Complex" by Hartrampf, Inc of Atlanta, Georgia (individual authors not identified) (March 22, 2000). In addition, NPS documents produced as brochures for the Christiansted National Historic Site were reviewed as was information on the park's website. For example, the Visiting the Park Brochure on the website states: "3. The Danish West India and Guinea Company Warehouse (1749) housed offices and storerooms. Slaves were auctioned in the yard." (https://www.nps.gov/chri/planyourvisit/upload/CHRI-small.pdf). Finally, sourcing and evaluating written documents provided significant insight into the resource base of the buildings. These insights applied as well to the immediate context of Christiansted and

the broader series of contexts of St. Croix, the other associated Danish-owned islands of the time, and other Caribbean Islands owned by other countries with reference to trade traffic and goods, and slave rebellions, slave trade, and eventual emancipation. The greater context of Denmark's relationship with other countries, and the laws promulgated to regulate and procure revenues by and between Denmark and the three islands, are critical in understanding this site's place in history.

Evaluations were performed to determine 1) the extant buildings' and site's capabilities to provide a sense of time and place; 2) the integrity of the remaining historic resources (buildings and the courtyard); 3) the multifunctional requirements of existing uses; and 4) the use and the associated carrying capacity of a significantly better program of interpretation.

Most certainly, the alteration in focus of the site's interpretation and the vigor of its interpretation will cause conflicts. A measure of the success of a proposed treatment plan is the degree to which it provides sufficient satisfaction of multiple objectives, i.e., the treatment plan sits in the "sweet spot" of divergent opinions.

Expectations of Use of the Complex as Expressed in Planning Documents from 2000
The second story would continue as is with the current NPS office uses of administrative activities including Divisions of Resource Management/Research, Interpretation/ Education and Outreach, and Visitor and Resource Protection.

The first story would be devoted to interpretation of the trade in enslaved people.

The site would also be considered as a resource for the interpretation of enslaved people.

Cissel's Sense of the Importance of the Site
As set out in the introduction to his January 2000 study referenced earlier, the below quote reflects what was Cissel's assessment of the importance of the site. Do note that the property was purchased from the U.S. Post Office and transferred to NPS control later in the year, and therefore these evaluation and background reports do not reflect the extent of current use of the site by the new occupants, the NPS.

Cissel begins by relating a series of firsts for the island or the collection of islands as the case might be, including the most important "first" for this site,

> *…the emancipation of the slaves (1848). These events, as important as they are, pale in comparison to the magnitude and impact of the African slave trade, played out over centuries. Islands like St. Croix were at center stage in a[n] economic system that linked Europe, West Africa, the West Indies, and North and South America. On this side of the Atlantic, the story of Denmark's participation in the trade—and its status as the first European nation to outlaw it in 1803—is physically embodied in the Danish West India and Guinea Company Warehouse complex within the boundaries of Christiansted National Historic Site.*
>
> (Cissel 2000, p. 2).

An Assessment of Potential Interpretive Themes Based Upon Site Resources and History

The overarching theme is "The GCW complex was at the crossroads of a significant Atlantic economy and conflicts of economic import, perceived to be unfair and financially stifling controls by the Crown, and conflicts between economic wellbeing and the moral imperatives surrounding slavery. The trade goods in play, such as sugar, rum, and cotton, were central to the Atlantic economy."

An interpretive method is to ask one or more lead questions to stimulate discussion around a theme.

- Why was the warehouse constructed at this point in time?

- What was happening that precipitated the expenses and difficulties in constructing a substantial warehouse in 1748-1749 in Christiansted?

- Given the purchase by the Crown of the Company's complex (and the islands) just a few years later, was the warehouse a last desperate measure to revive the Company's fortunes?

- Given the complaints of the traders and plantation owners to the King from, say, 1736 on, was there a deal made between the King and the Company; "If it does not work out, I will buy it…"?

- What was the relationship between the King and the Company?

- What were the complaints of the planters and traders regarding who could ship what, Danish "bottoms" restrictions, tariffs, restricted cargo destinations, and allowable trading partners?

- Was this similar to the circumstances in the 13 British colonies in North America that led to the American Revolution?

- Did the fear of a similar circumstance of revolution in the Danish West Indies affect the Danish Crown's decision-making regarding trade?

- Or did it cause an increase in the military presence?

- What was happening in the adjacent British Virgin Islands?

- Were there any slave rebellions on board Danish ships like the one on the *Amistad*?

- What is the history of slave rebellions in the Caribbean and how were they dealt with in each individual case, including changes that were made in governance or treatments as a result?

- How central were slaves to the island economy?

- Who brought the slaves to the Island, what was their treatment during the crossing and in St. Croix upon arrival, and how were they sold?

- After sale how were they treated?

- What were the foodways given the presence onsite of multiple kitchens and a bakery?

- If so much of the island's cropland was given to growing export goods, what was being eaten?

- How much food was being imported and was salt cod a staple?

- Did the Danes rule slavery in a manner different from other nations?

- Who led the slave rebellion of 1848? Why did the Emancipator act when he did (1848) and without the approval of the Danish government?

- Were the planters and others compensated? What role did the traders play as group and did they have bigger stakes than others as they possibly also owned their own ships and cargoes?

- Later in the history of the complex, the military support function increases, both in the times of Danish ownership and later after 1917, with the presence of the U.S. Navy. What role did the military play in each period on the island and in the region? How important was the telegraph cable to the military during the period when the warehouse functioned as the cable company? Did the complex of buildings on this site and nearby sites signal that the area was becoming ever more government-services oriented? Did the Post Office and Customs House transformation add to this sense of downtown being a center for government services?

Previous Proposals and Period of Significance

The proposals for re-use of the GCW and site was presented in the year 2000 before the building passed to the NPS in January of 2002. The proposal for the GCW building was to support a museum on the first story. The site proposal was vague, presupposing the cisterns were previously housing for enslaved people. The field research for this HSR (Historic Structure Report) can state that the walls of the cisterns are virtually all constructed from reinforced concrete, the exception being the cistern attached to the GCW, Cistern #1, and which was not considered for the interpretation of the site's slave trade days.

The definition of a Period of Significance (POS) for a single building, complex of buildings, and/or site must take into account many factors. The POS will change over time as different aspects of history change in their intensity, new developments occur, and society's opinion on what is significant evolves. Essentially, as time passes, certain

aspects of history gain in importance while other aspects may lose in importance. One of the guiding documents for setting the POS is National Register Nominations in which the Period of Significance question is posed. Since 1974 there have been three National Register Nominations (NRN) for the Christiansted National Historical Site. The three have the following POS:

1. The 1974 NRN set the POS as "mid 1740s to early 1900s"
2. The 1976 NRN set the POS as "1734-1931"
3. The 1999 NRN set the POS as "1734-1931"

Only one building—the Fort—has existed for the entire period. The earliest date of the POS for the overall Park and its collection of buildings does not reflect the GCW date of construction. However, a structure's POS may best be set with the understanding of why the structure was built. The GCW construction is related to prior events as a cause for the construction: commercial opportunities, defense, and security. Therefore, the prior period contains the perceived basis for the need to build. The Guinea Company Warehouse construction did not commence until 1748, yet its construction was a response to the prior period actions: the purchase of St. Croix in 1733, settlement with sugar plantations, the burgeoning trade in enslaved persons from Africa, the increasing need for goods to be brought into St. Croix to support development of the plantations and commerce, and the need for a transfer warehouse in support of the export of sugar and molasses. Money was to be made. The warehouse was a support function and the collection of company tariffs was the key function. The Company buildings were located at the harbor as the control portal.

The 1734 date as the beginning of the POS for the Park is reasonable. It is the beginning of the period of ownership of the island by the Danish West India and Guinea Company with the settlement commencement of September 1, 1734, under the aegis of Governor Fredrick Moth. The ending date of the POS is more of a challenge, the question being when was this building's use no longer significant? The building was constructed in response to contextual factors; the contextual factors of the end date of the Period of Significance are to be examined.

As to the end date of the POS, the two most recent NRNs (National Register Nominations) have a specific year of 1931. This year is the end of a period of control of the governance by the U.S. Navy and the transfer to Civilian Authorities. The Navy began its control after the Island was purchased from the Danish Government in 1917. One overall reason given for the purchase was for defense, with supporting reasons that the United States did not want Germany to control the Island (whether by purchase or sale), and the Islands would be of value as locations for the provision of another military port or ports in the region.

Beyond the NRNs, two other documents were reviewed for POS discussions: the General Management Plan for the Park and a special reports for the GCW re-use plan of 2000. This report date is prior to the purchase by the NPS from the GSA but in line with the

expectation that the GCW would become an integral part of the Park, and the U.S. Post Office and Customs House would end their 60-plus year use of the building.

The General Management Plan (GMP) was adopted in 1986. The building was not under the full control of the National Park Service until 2002-2003. The GMP is focused on the time period of what was titled the Danish Colonial Period of 1734-1917. However, in the themes section there is a focus on the naval period, but the POS is not including this period. Also there is an additional thematic focus on the pre-European inhabitants.

The Restoration and Slave Trade Museum Plan of 2000 focuses on the interpretation of the GCW only in relation to the slave trade. The regional slave trade started in the 1600s in the Caribbean, and for St. Croix and the other two Danish Virgin Islands, ended in 1803. The slave trade ended at different times for different islands under different national ownerships.

The National Register has criteria for consideration of resources for inclusion on the register. One criterion is age. In special circumstances resources of less than 50 years of age can be considered but the 50-year exclusion also acts as an inclusion: with more than 50 years of age the resource might be eligible. In the three NRNs for the Park, none ended the POS at 50 years prior to the nomination date. The closest was the 1999 nomination, the date it ended the POS was 1931, 68 years prior. The post-1931 changes to the site and building were highly significant in terms of magnitude and in terms of use as it became the United States Post Office and Customs House. This conversion was completed in 1939, 60 years before the 1999 nomination.

Does the building's use by the United States Government continue a tradition of government buildings in Christiansted? Pamela A. Gosner is one of several authors who writes about the importance of the location of government buildings in Christiansted: "two factors contribute to the architectural distinction of Christiansted: the fact that from the beginning it was a planned town, subject to a strict building code, and the large amount of public building erected because of the town's position as capital from 1855 to 1871" (P. A. Gosner 1971, 58). Further, the authors of "Three Towns," the Royal Danish Academy study of the town state: "The buildings of Kongensgade in the area nearest the harbour and in a few other streets in the immediate vicinity of the Government House, form a distinguished whole, marked by ambitious colonial affluence." The authors go on to claim a high level of significance, repeated in the 1999 NRN. "There are not many townscapes of this kind to be found in the world. The architectural quality bears comparison to the European Court towns of the 18th century." In sum, the area is where most government buildings have been located since the beginning of the settlement of Christiansted. The U.S. Post Office and Customs House has continued the long tradition of governments of different times locating government buildings in this area.

An often-overlooked aspect of post offices is the function as a gathering spot for locals. Beyond the postal service function and purpose, one can observe the exchange of information inside between patrons and postal workers, and between patrons. The exchanges continue outside the building. In the preparation of the 1985 Historic

Structures Report by the leader of the same team as this report, John Feinberg noted the need for a conversation to be completed by friends on the sidewalk adjacent to the building before his team could take the elevation photographs, often waiting 10 minutes.





Figure 268 (at left: YoungT_Slides_014 and at right: YoungT_Slides_018): These photos from TCI's 1985 HSR illustrate how friends' conversations had to be finished before photographs of the elevation could be taken.

In public hearings held by the National Park Service earlier in 2019, the social aspect of the post office was discussed by several attendees, with their stressing the importance of this function in their often-daily visits.

While it is true that some Periods of Significance may be just a moment such as Ford's Theater at the time of Lincoln's assassination, most Periods of Significance are long and contain both moments and individual Periods of Significance within the larger Period of Significance. These individual Periods of Significance will not be of equal importance, especially when seen through the lens of the current era. Not all these periods are independent. The period of slavery overlaps the DWI&GCW ownership and that of the King. The time after emancipation, post 1848, may still have seen the warehouse function continue; the government office functions continue. The Cable Building designation for the GCW commences in the Danish period and continues into the U.S. period. If the lens is focused on communication, then the cable period will be reviewed as a building function, as will the U.S. Post Office function. The building and the compound's rich history allows it to serve as the focus of, and background to, many interpretive themes.

An end date of 1945 is recommended. The building, during a time of the international turmoil of World War II, served as a poignant and potent symbol of constancy and the strength of the United States and the Government. The inhabitants had only recently become part of the United States. Their nationality went from being Danish to something of which they were not sure. Their country had sold their islands. Was the buyer going to

be a positive force in their lives? World War II was an important milestone in the development of allegiance to America.

The recommended Period of Significance is 1734 to 1945. The 1917 purchase by the United States was in large part motivated by a strategic military concern relative to control of the islands by the United States rather than Germany. Such concern with control continued on through World War II.

There are several documents that have described a Period of Significance and were reviewed for this HSR. The Period of Significance was declared in the Statement Of Work (SOW) for this Historic Structures Report (p. 5) as "The period of significance for the DWI GCW is from 1749 to 1850s, the period of significance for the historic site." The May 1974 National Register nomination declares its significance as being the mid 1740s through the early 1900s, Part : Period; Specific Dates. The text goes on to note the significance of the site: "It continued as an integral part of the city's commerce through the 19th century, at one time housing a Panama Telegraph and Cable Company office, and now containing the U.S. Post Office substation on the first floor and U.S. Customs on the second floor." (National Register nomination for the Site, 1974, Part 8: Statement of Significance.)

The third document is undated, but probably the most recent is the 2015 "Foundation Document Overview, Christiansted National Historic Site, U.S. Virgin Islands" by CHRI NHS staff, members of the U.S. Virgin Islands governing body and partners NPS Southeast Region personnel, NPS WASO Park Planning, and the NPS Denver Service Center. This document's geographic scope is the entire area of the Christiansted National Historic Site and the buildings and site therein. What follows are excerpts from the document as directly related to the GCW site.

The fourth document is the current National Register Nomination from 1999 in which the Period of Significance is extended to 1931.

Significance

Christiansted National Historic Site preserves and interprets the site where tens of thousands of enslaved Africans were transported to the Caribbean, disembarked, and sold at auction, serving as a tangible link and witness to the history of the Transatlantic Slave Trade.

Christiansted National Historic Site reflects St. Croix's colonial legacy. It was formerly one of the wealthiest islands in the West Indies, whose economy relied on sugar production, international trade, and a labor system of enslaved Africans and their descendants. The National Historic Site provides an exceptional opportunity to study and interpret the complexity of West Indian society resulting from ownership/colonization by several nations, most recently the transfer from Denmark to the United States in 1917.

Interpretive Themes

Interpretive themes are often described as the key stories or concepts the visitors should understand after visiting a park—they define the most important ideas or concepts communicated to visitors about a park unit. Themes are derived from—and should reflect—a significant park purpose, resources, and values. The set of interpretive themes is complete when it provides the structure necessary for park staff to develop opportunities for visitors to explore and relate to all the park significances and fundamental resources and values.

Through the Transatlantic slave trade, tens of thousands of captive Africans endured unimaginable suffering and loss. Despite these hardships, enslaved people maintained their cultural identity; through their survival and human spirit they forever changed the island of St. Croix.

No matter how they got here, diverse groups of people have influenced and defined life on the island of St. Croix through a rich exchange of beliefs, customs, and cultures that continues today.

The growth and production of sugar on plantations throughout the island not only fueled a complex global economy that brought international trade and commerce to St. Croix, but also served as the financial backbone for the local community struggling to make a living in Christiansted.

Reflected in the colonial administrative buildings that controlled commerce on the wharf, and in Fort Christiansvaern that protected the wealth of the Danish West Indies on St. Croix, Christiansted was an influential center of power for both the administration and defense of Denmark's interest on the global stage of the Caribbean. Christiansted is increasingly becoming a destination for Danes to explore the former DWI colonies and the period when their nation enslaved people for profit.

The transfer of the islands of the Danish West Indies to the United States of America had political and economic consequences both internationally as well as locally, allowing one to reflect on St. Croix's colonial past and what it means to be a U.S. territory today.

Although their functions and uses have changed over time, the historic structures and Danish colonial architecture at Christiansted National Historic Site are a unique chapter of our national heritage that continues to plan an important role within the community of St. Croix and beyond.

The "Ultimate Treatment" is to be "developed in collaboration with NPS staff and will outline the requirements for treatment and use, including applicable laws, regulations, planning and functional requirements." (Statement of Work, previously referenced.) This draft of the HSR is the second step in a process intended to have as the result an Ultimate Treatment for the GCW, the outbuildings, and the site. As the SOW (Statement of Work) states, the process is intended to involve "resolving conflicts that might result from a building's 'ultimate treatment'."

Future Research Needs

History

African-Crucian Masonry Traditions

Reference is made by "Dahl and de Fine Licht" that the distinctive feature of West Indian Architecture, the so-called "Welcoming Arms Staircase," was probably built by bricklayers trained at the Herrnhuter stations.[1] This reference is qualified by the word "probably." Others feel the GCW was built by enslaved people who were qualified masons. The masonry traditions of West Africa per ANA's Investigator Donald Harvey's admittedly limited experience in the restoration of a slave trading fort in current-day Sierra Leone, indicate a general lack of masonry materials for construction in the area. Thus, trained masons were unlikely to have been among the slaves purchased in West Africa and transported to the New World. Trading vessels seeking to purchase slaves in West Africa also carried bricks to trade from Flensburg (The Westindian Heritage 2019), indicating some masonry traditions, perhaps beyond the so called "Castles" which were often constructed by slaves brought there by the European slave trading nations.

According noted historian George Tyson, "It is well documented in the Danish archives (Getting it Straight 2011) that African and Creole master masons enslaved to the Danish West India Company were responsible for constructing **ALL** of the original masonry structures at the Christiansted National Historic Site. All of these masons were brought by the Company from St. Thomas, where most, if not all, had honed their trade working on Company buildings during the previous 70 years. It is suggested that there should be investigations into the African background of their skills, and also about how masonry traditions were developed and sustained among African-Crucians throughout St. Croix during and after enslavement."

More information would help in the understanding and the telling of the stories of: the African masonry tradition, such as it was, in West Africa; the training of enslaved persons in St. Croix in masonry; the role of the Moravian Church in training masons; the characteristic masonry practices and details associated with the Moravian trained masons; and anything else so associated.

Archaeology

The work done to date has recommended specific follow-ups with more intense levels of field evaluations.

Auctions of Enslaved People

Where did this take place and in what years, as the trade was ratcheted down by laws and by bifurcation of the site. Identification of historic sources for this information is needed. There are results of extensive research undertaken by G. Tyson and Dr. Svend Holsoe (and provided to the NPS, unknown date); however, despite their pretty conclusive findings, more research is certainly necessary.

[1] "In towns the use of brick gradually became more widespread, particularly for building sophisticated or monumental outside staircases—which are themselves a distinctive feature of West Indian architecture. Many bricklayers trained at the Herrnhuter stations were **probably** involved in the construction of the many staircases built as early as the 18th century." Source: Dahl and Licht 2004, p. 249.

Cultural Landscape
A more comprehensive report than Bradley's 1985 Cultural Landscape Report would be of assistance.

Foodways
Were there three facilities (two kitchens (west and east) and a bakery) onsite after 1799 until 1840? Was there another bakery in some other location before the bakery was installed in the Steeple Building in 1840? What was the use of the current Comfort Station when it had a chimney? (The tall chimney fell during the 1916 hurricane.)

Information about the building referred to as being the Gunsmith Building
When was it built, and when and how was it lost? What is the source of the information on this building?

Iron Grills
Iron grills cover the first story windows of the GCW building. These grills were installed in conjunction with the rehabilitation of the Cable Building into a U.S. Post Office. Unfortunately, the 1939 set of drawings did not include the then-existing conditions, such as the presence of earlier iron grills. It would be likely that security would be a high priority of any warehouse use, lacking plans showing earlier window grills. It is hoped that future research might show historic grills pre-1939.

Storm Shutters/Doors
The current wood shutters found on the first and second stories of the GCW are not original but are consistent with the historic in design and materials of noted historic shutters and the shutters found in historic photographs of the GCW. Should any additional historic photographs be found, careful examination of the wood shutters on windows and door should be undertaken.

To keep drainage water from entering the building during severe weather events, it is recommended that the NPS consider the installation of storm closures for vulnerable openings, such as at the southwest corner, these being installed prior to the storm event and removed afterwards. (NOTE: such shutters would have a watertight seal, and are not intended for passage.) These storm closure systems will need to be stored in a location accessible to the Facilities staff in order to readily install.

United States Navy
During the period 1917 to 1939, did the Navy use the building, and if so, how? These records can be searched in the National Archives in Washington, D.C. Additionally, NARA has now obtained the file references for us.

Wood Gates
The two steel gates in the perimeter wall entrances to the courtyard were installed in 1939. The East Gate appears as wood in historic photographs taken from the northeast looking towards the GCW. There are not photos showing the entire gate and its two leaves nor any of the interior surface. Thus, replication of these gates is not possible an

evocation of these gates is possible based upon the photographic evidence and the characteristic design and materials of other wood gates found in the adjacent historic Park Service buildings such as the Fort. In the future, should there be a consideration to replace the current 1939 metal gates with wooden gates, a study of all wood gate designs associate with the overall sites could be undertaken, including regional characteristics. Of particular interest, the gates might be designed to impair the intrusion of flood waters.

Materials Conservation

Mortars—Which and When: What mortars were used at what time periods in the construction of buildings in St. Croix? Differences in mortar formulation can provide detailed information about the following: when the mortar was created given the materials such as the source for the lime, local lime, Danish lime, or lime from someplace else like Maine; was any aggregate imported and from where (dark blue almost black stone, the so called "blue bitch" is a distinctive marker); the richness (higher percentage) of the binder—more is used when more is available and funds are available to purchase; and the first use of Portland cement in the mortars.

Mortar and Stucco Colorants: What were the colorants for the lime-based stuccos? XRF (X-ray fluorescence) can determine the coloring agents such as chemical additives, brick dust, or other aggregates. Understanding the exterior stucco formulas will allow tracking of stucco campaigns. Additionally, in 1939, was all the original stucco removed from the walls and replaced with Portland cement-based stucco? Answering this question will increase our understanding of how the original stucco performed if some had been left in place. Limited XRF testing was completed on four samples, the results of which are included in an appendix. (The new stucco/lime wash adhesion has been incomplete, possibly related to binding with one or more earlier wall treatments. The XRF can determine the components causing the rejection.)

The Moisture in the Walls

What Are the Effects of the Various Reduction Methods on Wall Moisture: There are many locations in the walls where moisture is now concentrated, and areas that are less moist. The question is how long it takes to have moisture content reduced in the walls. This is of course an expected function of time plus removal of moisture sources to the feasible extent possible; one can eliminate the leaks from gutters but not the moisture from the rain. Other means are also used to reduce moisture inflow such as the patching of the stucco and sealing/caulking of wood frames of windows and doors with the adjoining masonry. To determine the effect on moisture content of these measures, testing and monitoring of wall moisture content is recommended.

First Round, then Second Round: The first round of moisture reduction measures was undertaken Winter 2019. The 2019 Stabilization Program had as its primary purpose the reduction of water in the walls of the structures of the GCW compound. Three primary methods were used: replacing the gutters, filling the wall cracks, and recoating the walls with a non-proprietary mix called limewash.

The next round of moisture reduction measures will depend on the effectiveness of the first: do more or not. Further recommendations include the ventilation of attic, crawl

space, and air space behind the second story perimeter walls; and the replacement of interior paint on plaster surfaces of the first floor, and the exterior stucco and coating, using coatings with a high capacity for vapor transmission. To evaluate the effectiveness of these measures will require testing and monitoring systems to be installed and protocols to be developed and employed.

Moisture Monitoring

This investigation determined that there are very high levels of moisture inside the exterior walls in some areas. There are several likely causes of this elevated moisture content, and the proposed treatments address many of these potential causes. However, the scope of the investigation to date has not included measurement and analysis of moisture migration through the walls (both vertically and horizontally). Additionally, once remedial activities are initiated, it would be helpful to have a means of verifying whether these treatments are effective in reducing the exterior wall moisture content.

Therefore, it is recommended that a moisture monitoring system be used to evaluate moisture travel within the walls and, if possible, to monitor the effectiveness of various remedial treatments. It is our recommendation that the monitoring system include sensors embedded in the exterior wall at a few typical areas of high moisture exposure such as beneath window sills and near grade in areas that might experience surface runoff. Additionally, it is recommended that the system include a series of sensors located at several locations along the height of the wall to indicate wetting and drying direction vertically. It is also recommended that a series of sensors be installed through the wall thickness to indicate the direction of moisture travel through the wall. The primary focus of the sensor locations should be near the southwest corner of the Warehouse Building since this is an area of known moisture concerns. The specific locations of the sensors are part of the design of the monitoring system.

The monitoring scheme should help determine primary moisture paths within the wall. For example: sensor measurements may identify significant rising damp with water wicking up from the base of the wall during wet periods. Additionally, the monitoring can help determine whether moisture tends to collect near the interior or exterior surface of the wall and how the wall tends to dry out. This information can help focus remedial activities on the mechanisms that appear to be the primary moisture concerns. Finally, if the monitoring system is left in place, it can be used following remediation activities to determine if the walls are drying more thoroughly or not and where this drying is happening.

Material Conservation Treatments

The treatments presented are recommendations for consideration. Each treatment has been developed based upon the needs of the resource, a dual focus of treatment of both effects and the causes, compliance with the Secretary of Interior's Standards, and the presentation of alternatives where appropriate. Treatments may be designed to mitigate effects where elimination of the cause is not possible. There are five main general causes of condition problems: poor original design, poor materials selected, poor construction, poor maintenance, and the long-term effects of time/weather/use. In areas of intense

weather events, the effects are often significant in the short term. Other short-term events of significant effect are tsunamis, earthquakes, and volcanic eruptions.

Site Drainage

1. Install a subsurface drainage system with drain inlets in the courtyard. Lead the outlet to the existing drainage system (storm drains). Equip any piping with a back-flow valve as sea levels are dynamic; that is to say, increased sea levels during tidal surges caused by hurricanes may cause a backup in the storm drains, leading to the ocean flooding the streets (e.g., the current situation in Miami at extra high tides).
2. Enhance the flow under the Perimeter Wall at the northeast corner by positive flow direction, capture, and routing. This is a drainage collection spot now, but the drainage control is minimal with one drain pipe; the area collects trash that can block the pipe.
3. Explore with municipal government the possible diversion of flows coming down the hill, affecting the southwest corner of the site. This is the corner with the curb "ramp", where drainage flows can “jump” the curb and enter the building. Alternate treatments should be explored with the municipality. It is a complex situation as grades are likely to need to be changed and access considerations for pedestrian and vehicles need to be considered.



Figure 269: Photo of curb near the southwest corner of the GCW.

Site Walls and Gateways

NOTE: For building and site walls, material conservation treatments are proposed for application for similar conditions regardless of location. The treatment recommendations will differ somewhat by substrate, as Cisterns #2-#5 are reinforced concrete, the Perimeter Walls are brick, and there are other locations with the typical mixed masonry of the building walls. Otherwise, the recommended treatments for the condition issues will be applicable to all walls of similar construction unless noted otherwise.

Replacement of non-historic construction with historic materials often has some difficulties, such as:

- The non-historic construction's existence may be hidden, as the non-historic materials may be under a coating system such as stucco and may not be easily identified from the surface view. For example, Surface Penetrating Radar may show the substrate material as brick but cannot determine if it is the historic brick.
- The removal of non-historic materials may cause significant damage to the adjacent contextual materials. Thus removal may be considered inappropriate if the damage potentials assessment indicates the status quo will likely result in less damage then the replacement. This is a typical concern for removal of non-historic Portland cement mortars and Portland cement renders.
- The original construction materials may no longer be available.

The Perimeter Wall's East Gateway has two attached columns flanking the entry. These masonry gate columns have had some original material—bricks—replaced by concrete as a repair, completed by the company whose vehicle struck at least one of the columns. Both columns have a markedly different paint color from the adjacent wall yet only one column—the north one— showed material loss in a modern color photograph, date unrecorded.

The walls of Cisterns #2-#5 were constructed of cast-in-place reinforced concrete. One wall of each was cast up against the courtyard face of the Perimeter Wall, using it as the form. Removal of the concrete may be damaging to the Perimeter Wall.

The repairs to the East Gateway columns by the prior substitution of concrete for brick may not cause any materials conservation problems, but will have historic integrity considerations as a case of non-period materials being used as a repair. The two treatments for consideration are to leave the concrete repair as is, or alternatively remove the concrete and repair with brick from the Park's salvage supply. From ZHS: "For the record, the repair that was made to the north column of the east perimeter gate was done with historic brick. The contractor actually removed non-historic materials and did a historic restoration."

The metal gates of the West and East Gateways have major condition problems. These metal gates were fabricated and installed as part of the 1939 rehabilitation, replacing what appears to be solid wood gates as seen in historic photographs of the East Gate. If it is decided to restore the metal gates, there are drawings of each on the 1939 plans. The advanced deterioration of the metal would lead to consideration of two alternatives:

1.) total replacement in-kind, and 2.) replacement of all the deteriorated pieces of the gate with in-kind wrought iron to match. The West Gate is in a more deteriorated state than the East Gate. The East Gate is operational while the West Gate is deemed to be too deteriorated to operate and is left chained and padlocked. Repairs are required to the gates, the gates hardware, and the "stops' on the ground which keep the gates from hitting the adjacent building. Consideration may be given to replacement of these metal gates with wooden gates as seen in historic photographs for the East Gate and projected as similar for the West Gate.

Concrete Cisterns Stairway Repairs

The stairway was constructed prior to the introduction of Portland concrete to the Caribbean. However, earlier stairs could have been replaced by the stairs we see now. The use of modern reinforced concrete during the 20th century to create the stair platform at the east end of Cistern #5 was time period appropriate. With the assumption that this feature is expected to continue, the repair of the deteriorated concrete is to be considered a high priority. The recommended treatment for consideration has the following protocol: remove deteriorated concrete by chisels, or by a power scaler called a scabbler, down to sound concrete; evaluate reinforcing bar to determine the amount of original lost; if loss is above 20% replace with new reinforcing bar; if below 20% in cross sectional loss, clean rebar by sand blasting to bright metal and coat with epoxy paint; coat exposed fresh concrete with specified cementitious mix; build up patch with specified concrete mix: and finish surface to match adjacent original material in color and texture.

This protocol is applicable to other similar areas of concrete deterioration that may be encountered, such as the roof of the East Kitchen. Mixes and application of patch material will require adjustment to match the specifics of each location and circumstance.

Concrete Caps to Cisterns

The roofs of the cisterns have minor cracks of two types. Where the roof meets the sidewalls, the minor cracks are due to differences in heat or the presence of a cold joint resulting from the original concrete placements; between cisterns the same two factors may be in play with the cap exposed fully to the sun's heat while the underlying wall remains cooler. These minor cracks are due to differential expansion and contraction. Concrete shrinks the most after immediate placement and continues shrinking to a much lesser degree over time, showing up the most at cold joints. The recommendation is for monitoring.

It is better to fill and drain the cisterns intentionally rather than the cisterns leaking; repair the leaks.

Cracks in Perimeter Wall and Building Walls

Each crack is the response of the wall to a force. The simplest to understand is the impact of a vehicle on the surface. The other end of the spectrum is a loose pattern of minor cracks which if superficial—not emanating from the substrate—may be related to application of an overly wet stucco mix and resultant abnormal shrinkage, exposure during curing to excessive drying such as by hot winds, or other aspects of poor mix,

application, and curing. Crack size, direction, and width variation explain a good deal about the forces which have caused the crack. A parallel sided crack indicates an internal force pushing outward such as the rust bursting of reinforcing bar in reinforced concrete. A crack with a variable width indicates the hinge point is the narrowest part and rotation occurs about this point. Relatively short cracks in a wall originating in the corners of a wall opening—window or door—and radiating outward are indicative of differential movement resulting from the variation in both thermal properties and strength of the assembly. Cracks around a square or rectangular area are typically indicative of infill. Cracks around a wood lintel placed in a masonry wall reflect differences in materials, or shrinkage and expansion cycles of the wood. A more rigid element in a less rigid wall will exhibit cracks around its perimeter as the responses to weather are different for the dissimilar materials. Diagonal cracks at building corners are most often indicative of settlement but can be indicative of seasonal changes in sub-surface bearing conditions such as the high tides of spring, tidal surges associated with summer and fall hurricanes, super saturation of the ground associated with heavy rainfall. Essentially cracks are the visual effect of a force applied to the wall.

Cracks can be dynamic. The smallest changes are diurnal. Seasonal changes can be tracked as the opening and closing of a crack, by degrees. When cracks get larger this is informative. Likewise, when cracks develop in a wall where no cracks were previously present, this is cause for investigation if not full out concern. Crack depth is another measure of concern, especially deep cracks that extend into the substrate. In most cases for this complex, the substrate is masonry. When a crack on the exterior of a building extends to the interior, the crack is quite significant. The building is indicating a structural concern and needs to be fixed. The two sides of a crack may be out of plane.

Long-term damage to a building by vibrations, such as those generated by vehicles, will show up as cracks: diagonal cracks, out of plane displacement, and cracks in adjacent concrete flatwork. This group of signs of vibration causing distress in the GCW complex is not present. Notwithstanding this statement, the southeast corner of the East Wing does have a few diagonal cracks. There is a more detailed discussion about wall cracks in the section “Seismic Study” (beginning on page 193).

Small width superficial cracks have a different treatment protocol then for larger structural cracks that extend into the substrate. The superficial cracks are typically cleaned of all surface contaminants by flushing with potable water. When the adjoining edges have dried to the point where the water sheen is gone, the area has reached a state known as Saturated Surface Dry or SSD. At this point the moisture of the patch material will not be overly absorbed drying out the patch material. The architectural conservator will specify the patch material based upon the testing of existing material in the context of the crack, evaluating why the crack occurred, determining if the crack represents a dynamic situation for which the patching material requires flexibility, and the component mix color and resultant texture resulting from the aggregates specified for both gradation and color.

Once the cause of the crack is determined, the crack can be repaired and the cause remediated. For major cracks that include the substrate and where there is a stucco rendering, the following treatment protocol is recommended for consideration: expose the substrate, stitch the crack using stainless steel all thread set into raked out joints with two rods per joint, each bed joint, to one foot either side of crack; and point joint back in to match adjacent historic joints. If there are bricks cracked through, replace them as near to in-kind as possible. If the crack runs horizontally, bend the rods to cross the crack via the adjacent head joints. After the crack has been repaired, replace the rendering to match the adjacent with a formula specified by the conservator.

Spall Repairs

Where the stucco rendering has a spalled surface, first determine the cause to direct the repair of both the cause and the effect. The cause may be an embedded piece of metal. The history of the metal piece needs to be documented as it could have been installed a few years ago or 200 plus years ago. If removed, document and save the metal piece. The deteriorated render shall be cut back to sound material, the edge of the adjacent render undercut, and a patch of the render installed: render specified by architectural conservator to match, application specified, and color and top surface texture matched. If coated, coat to match the adjacent color or agreed upon color.

Doors, Windows, and Shutters

The three site located outbuildings—West Kitchen, East Kitchen, Comfort Station—have windows and doors with shutters. The repair treatments for these three buildings' windows, doors, and shutters are the same and can be used equally for the GCW.

1. Wood shutters: Remove from building, remove hardware, replace all cracked wood pieces to match, back prime and paint before reassembly, install new wood pieces using either copper nails or bronze screws (for small pieces add waterproof glue to support the connection), remove existing paint from hardware (chemical strip followed by wire brushing), prime metal (possibly zinc chromate), apply two coats of specified final color/paint, reinstall using enhanced fasteners (enhanced=galvanized with multiple coats). There are some locations where the hardware connection hole into the frame of the window has lost enough wood fiber to be insufficient for connectivity. In such cases it is recommended that the hole in the frame be drilled out to a larger size and a dowel glued into place using a waterproof glue. After the glue has set, drill a pilot hole to the required size for the lag screw connection. If there is any hardware missing, source hardware to match or have it fabricated.
2. Windows and Window Frames: Many of the window openings of the site buildings have wood louvers in wood frames. Replace any broken louvers, paint and install in the frame. For windows with glass, repair any split sash dividers by gluing together with waterproof glue. Paint the entire assembly, check for operational capability, and adjust for functionality. For windows with damaged weatherstripping, replace the weatherstripping with new. Repaint, install, and check for operational capability as the weatherstripping can alter functionality. The windows were specified to be replaced in kind in the 1978 plans by Stetson Dale.

3. Doors (not storm shutters): While there were no significant condition issues observed with the wood doors, the same treatments set out for the condition problems of the shutters can be applied to the doors. The doors were specified to be replaced in kind in the 1978 plans by Stetson Dale.

Wood Frames of Doors and Windows

The frames contain the doors, and the windows, and connect to the adjacent masonry. The frames have a rabbet cut into the lower rail that could have been originally been a drip release design or was made to receive flashing to cover the lower frame to masonry joint—see in particular the second-story windows' joints with the string course of masonry. The "flashing," as seen in the photograph, appears to be mortar rather than the more typical sheet metal. As part of the recommended treatments for the frames, the flashing condition should be checked. The joint is generally without any material to block the entry of water into the walls and window and door openings of the walls below. In the review of caulking and sealants, the objectives to be met should include being able to bridge the gap, adhesion to both wood and wall masonry, matching the color of the wall, and having some texture to blend in with the wall texture. In many locations, the gap may be too large and too deep for any caulking, sealant product, or filler to bridge. The gap may need to be filled by other products/techniques: mortar in the joint, backer rod, oakum, or a combination. Three treatments require coordination, the filler placed, the caulking completed, and the frame painted. The frame should be painted before the other work is done and then again after the work is finished. If possible, the condition of the connection of the frame to the wall should be checked and corrections made prior to the gap being filled.



Figure 270 (Stabilization, Church St 310122). Photo courtesy of Zandy Hillis-Starr.

Metal Window Grates of the GCW, and Window Grate of the East Kitchen
The metal grates of the first-floor windows were placed in 1939 with the conversion of the Cable Building into a U.S. Post Office. Given the concern for security of any Post Office, unwanted entry through the ground floor windows was a concern for which the grates were the primary deterrent. After the initial installation, the grates may have undergone some preservation as part of the process of replacing the windows in 1978-1979. The main condition issue is rust.

The treatment recommended for consideration is to: mark the window opening location on each grate, remove the grate from the opening, and have the grates transported to a refinishing facility where they can be media blasted, hot dip galvanized, and powder coated with matte black finish. Upon return, re-install them in the designated openings, test operate to determine any operational problems, and repair any problems with effective operation of any grate hardware. Treat the East Kitchen window grate similarly.

Gutters and Downspouts/Rainwater Collection System
The gutter system of the GCW collects rainwater and channels it to the cisterns. The gutter systems of the three site located buildings, all of which are of substantially less size, do not all direct the water collected from their roofs to the cisterns. The East Kitchen's roof drainage is by sheet flow to the west to the ground. The Comfort Station West Elevation has a gutter and no downspout. On the East Elevation there is a gutter with downspouts at each end, leading to and under the ground. The West Kitchen roof does capture the rainwater and transports it from the gutter along the east edge of the roof around the northeast corner to a downspout connected to a pipe crossing over the east edge of the roofs of Cisterns #2 and #3, thence turning east to enter into Cistern #4. As of this writing in the winter of 2019, there is a contractor on site who is expected to have as a task the replacement of all roof drainage systems collection components, and downspouts both present and missing, principally on the north wing's northeast corner and east elevation along the north wing.

While at different times in the history of the complex there were less cisterns than today, the collected roof-based rainwater was captured from different buildings and different sides of buildings' roofs, and was directed to different cisterns at different times in the history of the complex. To understand to where the captured rainwater was directed requires mostly detailed study of historic photographs. The 1939 rehabilitation drawings indicate where the captured rainwater flowed. For example, the GCW was the sole source of rainwater for Cistern #1. When more cisterns were added changes were made to redirect flow to fill these new cisterns.

Cistern #1 was filled by water captured from the east half of the south slope of the East Wing of the GCW. The water was carried around the building to the cistern feed in the inside corner of the ell. The rest of the water from the East Wing's south slope is directed around the building to the southwest corner. Piping picks up the rainwater from the gutters via conductor heads that carry it to Cisterns #2 and #3 by overhead piping similar to present day piping. One other roof surface contributes to Cistern #1: the east slope of the North Wing. Given the large roof surface area contributing to Cistern #1, with a

relatively small capacity, the highest likelihood was that Cistern #1 was the first to be used. The first backup function was therefore likely to be met by Cisterns #2 and #3, fed by rainwater from the other half of the GCW roof.

While we do not yet have a date for the construction of Cisterns #2 through #5, since the 1939 drawings indicate "present cistern," the Cisterns were constructed prior to 1939. In 1917, the U.S. Navy's first year report was in large part focused on the diseases found and causes thereof, including describing a need for clean water. Securing a supply of potable water for naval vessels has always been a high priority and focus of shore visits. It would seem likely that the Cisterns were constructed by the United States Navy about 100 years ago.

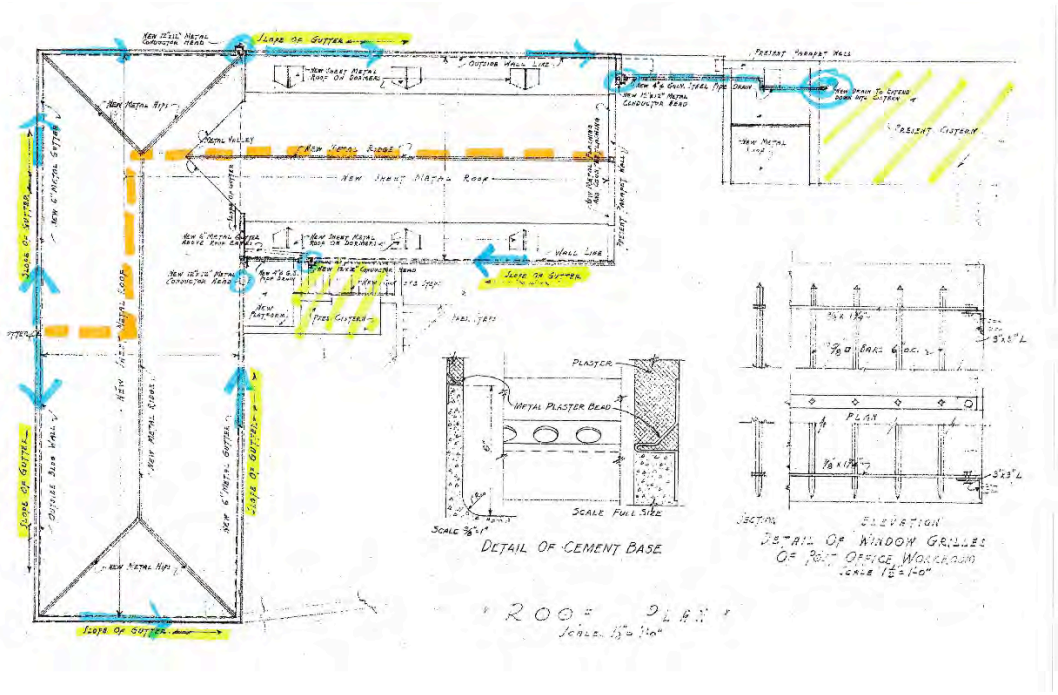


Figure 271: 1939 Rainwater Collection System shown are gutter slopes and end point cisterns.

First Floor Used As Exhibit Space

The following considerations are of concern in the re-use of the first-story level of the GCW as an Interpretive Space.

1. Access: At-grade access can be provided, as was previously for the U.S. Post Office, at the southwest corner doors. To be fully accessible to all people, some modifications will be required, such as: signs written in Braille; door openers, automatic, button operated and lever activated, with no more than the allowable pressure/pull to open; and possibly the inclusion of windows in the doors for opening safety enhancement. The fire code egress requirements will be met by multiple egress paths in an emergency, and the current number of doors (4) is of assistance, but the locations and paths to safety will require some discussion.

2. Quiet: The use of the space for interpretive purposes anticipates the space as being quiet. The sources of noise need to be moved to another location; the most impactful noise source is the site-based HVAC unit.

3. Post Office Floor Loads: There are two different first floor structural conditions, a slab-on-ground construction at the East Wing and a suspended cast-in-place reinforced concrete slab and beam construction on a portion of the North Wing. The 1939 drawings do not include structural notes or Code references that call out a specific design load for either of these slabs. Nor do the drawings have modern concrete material property specifications. However, the geometry and reinforcing of each floor system is described well. The slab-on-ground construction is 6" thick over fill with wire mesh reinforcing. Assuming that the fill material was well-compacted, this type of construction is well suited to handle even heavy vehicular loads, and would certainly be capable of supporting any typical interior occupancy floor load. The suspended slab at the North Wing is 5 inches thick in some areas and 6 inches thick in other areas with relatively short one-way spans between reinforced concrete beams. This is also a robust structural system that would generally be capable of handling very large floor loads. However, there is also deterioration of the floor system due to reinforcing corrosion in this area that has compromised the original strength of this system.

   Basement Beam %: Access in the crawlspace was very limited. Therefore, most observations of the reinforced concrete beams beneath the first floor of the North Wing were limited to the vicinity of the crawlspace entrance at the North Elevation. In this area, all of the observed beams had visible corroding rebar that had resulted in spalling of the concrete cover (i.e. severe reinforcement corrosion). While the degree of visible corrosion varied somewhat along the length of the observed beams, none of the observed beams were completely unaffected, and it is likely that corrosion is significant even where spalling has not yet occurred. Therefore, it is assumed that repair treatments will be required at all beams.

4. Interior Climate: The current HVAC unit needs to be relocated to a new site where its noise will not be an issue. Alternately, a different HVAC system (energy efficient, effective, quiet, and efficient in its use of space) could be installed, either on the first floor or elsewhere.

5. Electricity and Lighting: Exhibit space requires electrical systems for lighting that supports the exhibits in terms of subject visibility, and reduces ultraviolet and infrared waves hitting any vitrines or other displays containing light sensitive materials. Lighting systems are designed to be flexible to adapt to changing exhibits.

6. Security: During both open hours and after, security is a concern with entry locks in play, closed circuit television, and alarmed openings. Given the law enforcement personnel in residence on the second floor, the human part of security is well met by the space location.

7. Parking: The nearby parking lot is across the street at the Fort.

8. Loading Dock: To a variable degree exhibits may be changed. At those times some of the so-called permanent exhibits may need to be removed to storage and the exhibits of the temporary exhibition need to be installed. Loading docks such as the one in place are critical for this purpose.

9. Restrooms: The first floor has two restrooms.

10. Current Use: Most of the space of the first story is used for storage of material associated with the Park's research efforts.

Site Used for What?

The following considerations are of concern for using the site to documenting and interpreting the Danish slave and slavery functions.

1. The Site's Current Buildings and Cistern Structures are part of the site's history: Removal of any historic building or structure needs to be carefully evaluated in and of itself. If it is being removed because something else is wanted in its place, each of these decisions needs evaluation: the removal, the replacement, and the comparison of the benefits of the two actions versus the losses.
2. Which of the Current Buildings Would be Restored: in form or in use? If buildings were to be re-used for their original function, this would be a positive. For example, if the West Kitchen was restored as a kitchen and used for food ways interpretation instead of its current use for storage of cleaning products, this would be considered a positive. Storage can be accomplished in other places. The Comfort Station, with further research, might be returned to its original use , as perhaps a bakery, requiring restoration of the building and accommodating the Comfort Station functions in some other location, perhaps in the parking lot across the street.
3. How do the current uses get accommodated elsewhere if not able to be continued on site? The Comfort Station was discussed above, other uses are probably as easy or difficult to relocate as the replacement cost of the infrastructure to support the use, like a charging station for a plug-in vehicle. The second part is the convenience factor, typically proximity of parking to the driver's office, or items to be stored location's proximity to the researcher's office (e.g., dive gear). Location as a necessity is subject to discussion
4. The cisterns, resource or nuisance? This discussion is central to any adaptation of the courtyard to an interpretive use. The functional argument brings up how they are currently not used. Then the question arises if they could be used? For example, storing storm water is part of the narrative around storms, as an emergency supply is also part of the storm narrative, and relative to sustainability the cisterns could be used for original use as drinking water, or used to feed water toilets, either of which would reduce the dollars spent to buy water. What are the costs to maintain the cisterns? The cisterns are in reasonably good condition structurally and the reconditioning of interior parge coat is not generally a costly maintenance requirement.

5. What resources are needed to tell the story of slave auctions on the site? Can the story be told with exhibit panels or does it require buildings or open space?
6. Was this the original location of slave auctions? If authenticity is critical, then more research is definitely required to ascertain where slave auctions were held. For example, were they held on Royal Grounds after the slave trade prohibition took effect? Prior to then, were the slave auctions held in the part of the compound now gone, the across Hospital Street portion? AND, was the auction story more important a story than other stories about the entire process of the slave trade, the trade goods, the people involved, the ships, the nations?

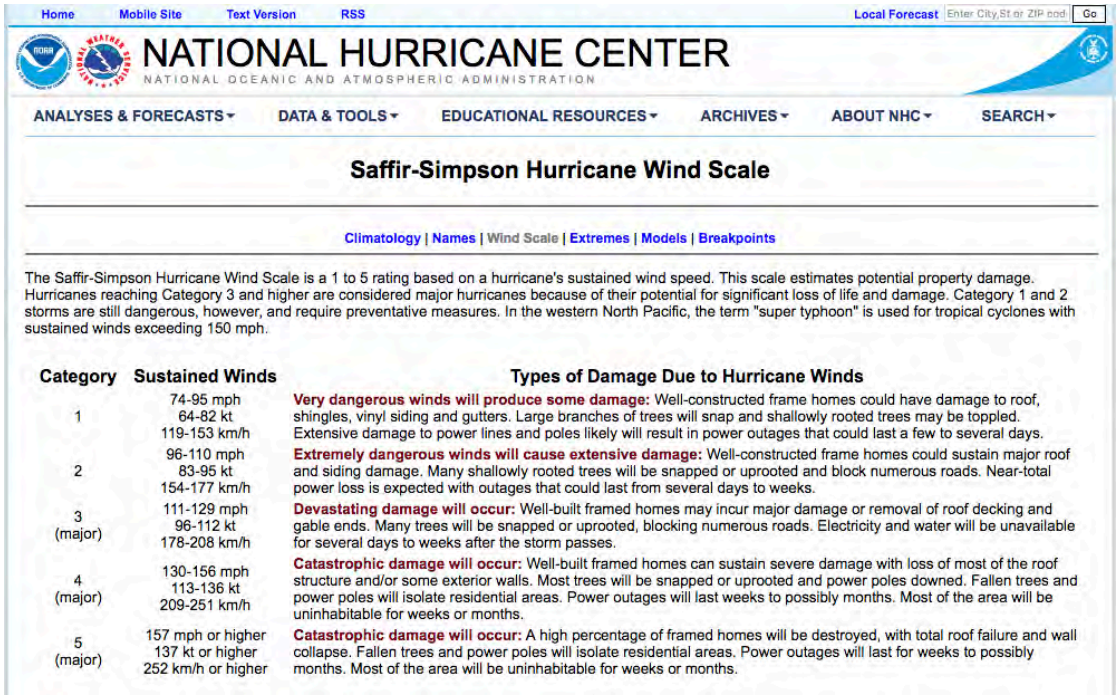


Figure 272: 1754 Map drawn by Beck.


Figure 273: 1760s Map, drawn by Von Rohr.

Resiliency/Climate Change

Since the construction of the GCW and the associated outbuildings, the most impactful type of weather event has proven to be the hurricane with its associated significant amounts of rain and high winds. The hurricane index which is most commonly used as a reference is known as the "Saffir-Simpson Hurricane Wind Scale," provided below. It divides the wind forces into five categories and describes the damage potential associated with each range of wind speed. For certain, damage is caused by more than just the wind during hurricanes. Two other hurricane related elements are rainfall and tidal surge. Recent trends in the effects of hurricanes indicate that the water related effects have an increasing impact due to the storms staying over land masses much longer, hotter oceans feeding the hurricane's power and moisture levels, storm tidal surges on top of rising sea levels, and reduced buffering of coastlines due to reduced coastal wetlands, barrier islands, and coral reefs. For example, 2019's Hurricane Dorian had a 25 foot storm surge, steady winds of 185 mph, and gusts up to 324 mph.



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Saffir-Simpson Hurricane Wind Scale

Climatology | Names | Wind Scale | Extremes | Models | Breakpoints

The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous, however, and require preventative measures. In the western North Pacific, the term "super typhoon" is used for tropical cyclones with sustained winds exceeding 150 mph.

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph 64-82 kt 119-153 km/h	**Very dangerous winds will produce some damage:** Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110 mph 83-95 kt 154-177 km/h	**Extremely dangerous winds will cause extensive damage:** Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (major)	111-129 mph 96-112 kt 178-208 km/h	**Devastating damage will occur:** Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (major)	130-156 mph 113-136 kt 209-251 km/h	**Catastrophic damage will occur:** Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (major)	157 mph or higher 137 kt or higher 252 km/h or higher	**Catastrophic damage will occur:** A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

Figure 274: Saffir-Simpson Hurricane Wind Scale. Source: https://www.nhc.noaa.gov/aboutsshws.php

Hurricane effects often include:

- uprooted trees, falling on buildings, on vehicles, across roads, and pulling down power lines,
- for some locales, disabled substations/power plants,
- power losses equal loss of water supply as both treatment and pumping use electricity,
- roofs lost and roofing torn off,
- buildings pushed off their foundations,

- loss of communications: cell, telephone land lines, and internet,
- service reduction/shut down of key facilities such as hospitals,
- flooding and all its effects, including mud slides,
- tidal surge with possible significant effect along the shore.

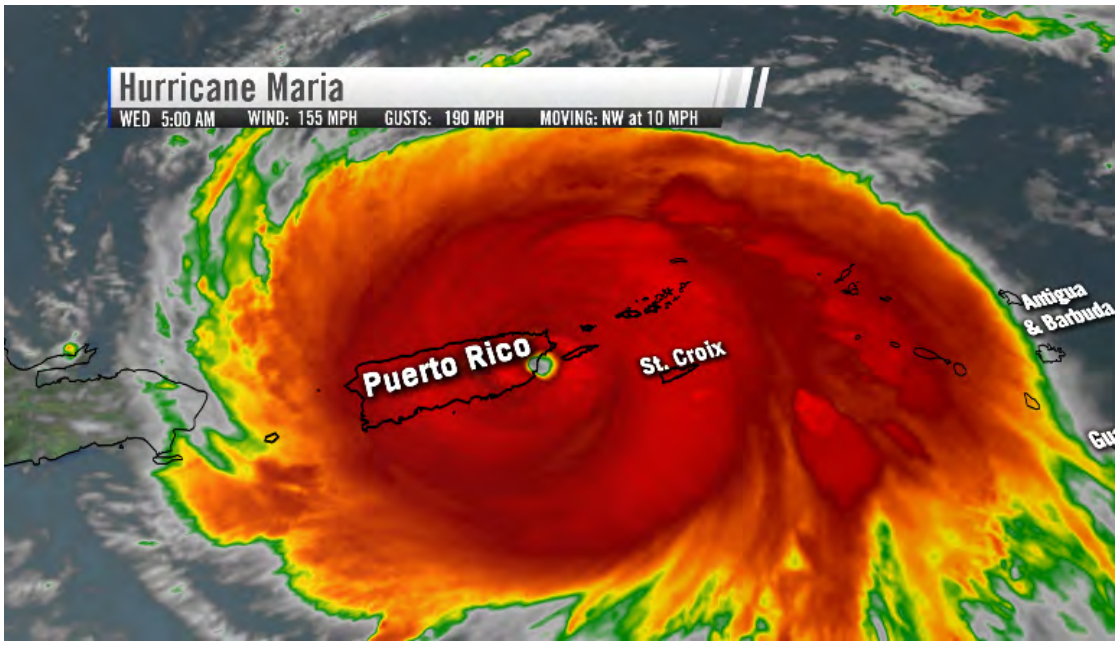


Figure 275: Satellite image of Hurricane Maria.

Hurricane Maria: Prior to Maria's landfall, Irma made landfall but was of lesser effect, within 12 days of Maria. High winds can more easily topple a tree from rain saturated ground. The rainfall effect of added rain is higher when the ground is already saturated or nearly saturated. Even without directly hitting St Croix, Hurricane Irma may have been of significant consequence because its rain raised the moisture level in the ground, multiplying the later effect of the rainfall of Maria's arrival 12 days later. The more water-saturated is the ground, the easier it is for trees to fall over.

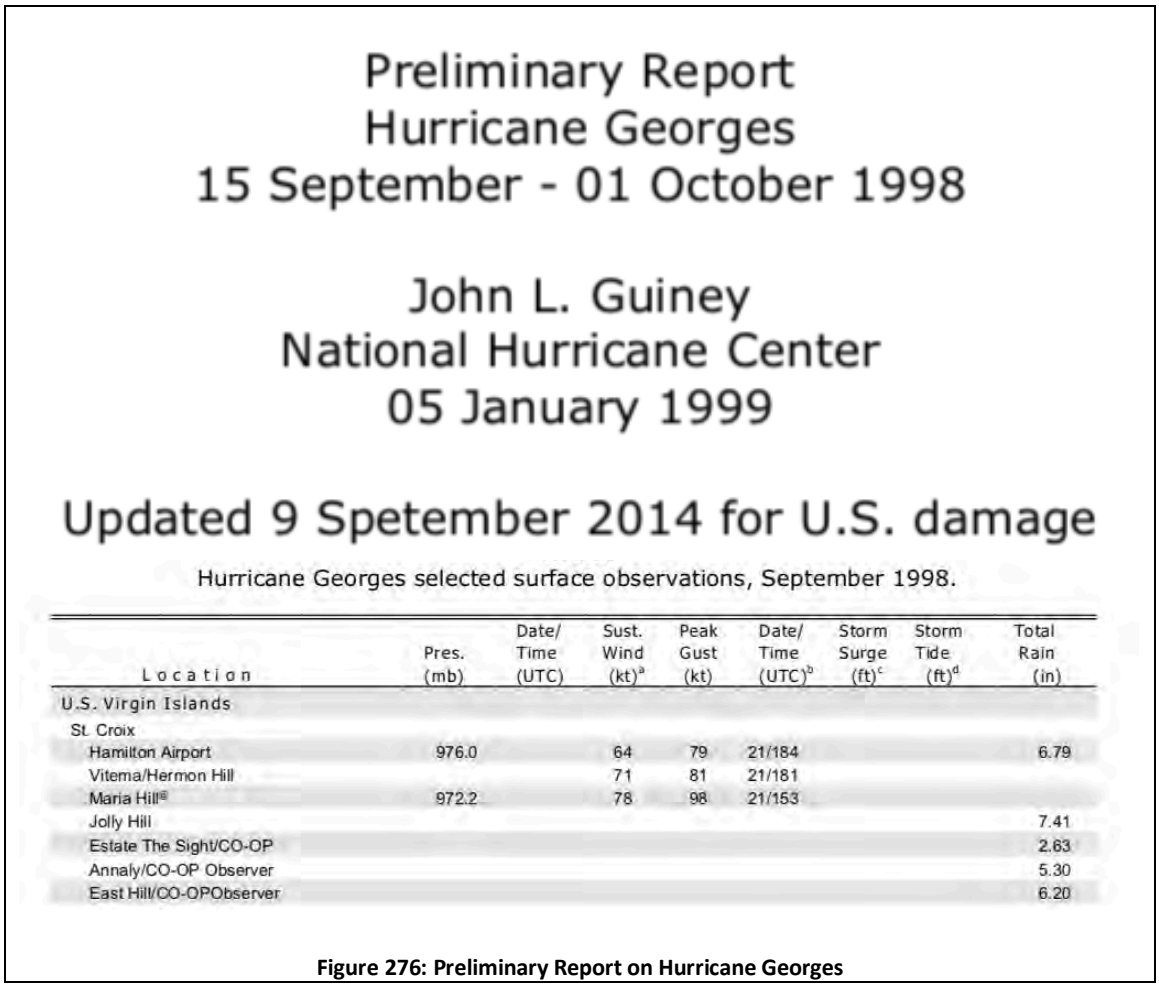
In 1989, Hurricane Hugo landed on St. Croix. The lessons from Hugo's impacts on the island's buildings were incorporated into new building codes. New buildings constructed under the new code exhibited substantially more storm resilience—for example, their roof structure stayed together, as evaluated in post-Maria comments. In the aftermath of many of the historic hurricane events of the 1700s and 1800s, new codes were passed to enhance the resistance of structures to hurricane forces. These codes required capital to implement and were more effective in good economic times.

The thick walls of the GCW were normal given their height (Slenderness Ratio of 10:1) and they provided the advantages of thermal mass in keeping the building cool.

Other hurricanes of strong effect and their dates, and English names if after 1950, are:

- ◊ 1738 August 29-30, “Santa Rosa”
- ◊ 1772 August 31- September 1, “San Agustin’ (the hurricane whose damage was the subject of Alexander Hamilton’s letter to his father.)
- ◊ 1785 August 25-27
- ◊ 1804 Sept 3-4 Antigua-Charleston Hurricane
- ◊ 1871 Aug 21st, to the north with 115mph winds from the ESE
- ◊ 1876 Sept 13th, 115mph from the east
- ◊ 1889 Sept 3rd, 105mph from the S.E just north
- ◊ 1893 August 16th, 95mph winds while moving WNW
- ◊ 1894 Oct 13th, 95mph from the SSE
- ◊ 1899 Aug 8th, 145mph hits just south from the ESE causing heavy damage
- ◊ 1910 Sept 6th, 95mph from the east
- ◊ 1916 August 21st, 95mph from the ESE just north
- ◊ 1916 October 9th, 110mph 963 mb implies winds of at [least] 97 kt from the southern pressure-wind relationship.
- ◊ 1928 Sept 13th, 155mph hits causing major damage from the ESE just south pressure of 27.50 was recorded
- ◊ 1930 Sept 2nd, 110mph to the south from the ESE
- ◊ 1931 Sept 10th, 90mph just north from the east
- ◊ 1932 Sept 26th, 110mph just north from the east
- ◊ 1956 August 12th, hurricane Betsy hits with 90mph winds from the ESE
- ◊ 1989 Sept 18th, hurricane Hugo hits with 140mph winds from the S.E island is devastated.
- ◊ 1995 Sept 15th, hurricane Marilyn hits with 105mph winds from the S.E causing very heavy damage gusts to 125mph west side hit hardest
- ◊ 1998 Sept 21st, hurricane Georges hits with 110mph just north from the ESE moderate damage here
- ◊ 1999 Nov 17th, Major hurricane Lenny with 145mph winds from the WSW causing moderate damage to the island, gusts to 112mph reported
- ◊ 2008 Oct 15th, Hurricane Omar passes just east coming from the south with 115mph winds. A very small wind field only affected the east part of the island with hurricane force gusts but overall minor damage
- ◊ 2017 Sept 5th, Hurricane Irma, category-5 hurricane, with maximum sustained winds of 185mph, making Irma the strongest hurricane ever observed in the open Atlantic Ocean, and one of only 5 hurricanes with measured winds of 185mph or higher in the entire Atlantic basin.
- ◊ 2017 Sept 19th, Hurricane Maria passes just south while moving NW with 170mph winds at closest approach. Most still have no power or cell service 75 days after Maria hit. Sandy Point NWR, St. Croix (XCRX) sustained 107mph, gusts to 137mph. Wind damage was evident across the entire island with many fallen trees, downed signs, roof damage and complete destruction of many wooden houses. Excessive rainfall generated significant flooding and mud slides across the island.

The measures of potential damage are wind speeds, rainfall, and title surge. Each of these is quantifiable, but should be evaluated on a site-specific basis due to geographic variability. For example, rainfall can vary significantly in amounts, even for a small land mass such as St. Croix. Shown below are differences in readings at measuring sites around St. Croix for Hurricane Georges September 1998.



Preliminary Report
Hurricane Georges
15 September - 01 October 1998

John L. Guiney
National Hurricane Center
05 January 1999

Updated 9 Spetember 2014 for U.S. damage

Hurricane Georges selected surface observations, September 1998.

Location	Pres. (mb)	Date/ Time (UTC)	Sust. Wind (kt)[a]	Peak Gust (kt)	Date/ Time (UTC)[b]	Storm Surge (ft)[c]	Storm Tide (ft)[d]	Total Rain (in)
U.S. Virgin Islands								
St. Croix								
Hamilton Airport	976.0		64	79	21/184			6.79
Vitema/Hermon Hill			71	81	21/181			
Maria Hill[e]	972.2		78	98	21/153			
Jolly Hill								7.41
Estate The Sight/CO-OP								2.63
Annaly/CO-OP Observer								5.30
East Hill/CO-OPObserver								6.20

Figure 276: Preliminary Report on Hurricane Georges

This is a hurricane with variable effect, not massive, not a high category storm. Rainfall ranged from 2.63 inches to 7.41 inches. Wind speed as examined by maximum gust ranged from 79 to 98 miles per hour. The important factor is the degree of variability. Hurricane Maria had wind speeds as high as 190mph. Basically category five is defined as having winds anywhere above 157mph, a hard to imagine wind speed and its effects on mother nature and man-made structures. The effects of wind are shown with finer gradations on the Beaufort Scale which uses 12 categories, each with a description of effect. A Force 12c wind on the Beaufort Scale is over 72mph and the effects are described for sea and for land: “Sea; Huge waves, air is filled with foam and spray. Sea white with driving spray; visibility very seriously affected. Land: Countryside is

devastated." Do note: Devastation on the Beaufort scale's Force 12 occurs at wind speeds above 72mph, and the hurricane category scale presented above's top category is above 157mph. 74mph is the beginning of Category One. By whatever scale one uses, the damage potential of high wind speeds to buildings is significant.

Building codes can alter construction practice to result in more wind/hurricane resistant buildings. However, the buildings need to serve as shelter as people cannot be outside in high winds and must take indoor shelter. People cannot stand up in high winds. And, when the air is filled with spray, breathing can be the equivalent of drowning, as related by those divers of the U.S. Coast Guard doing rescue work, jumping from helicopters into the water. Big hurricanes do make landfall on St. Croix. These storms will often bring high winds (Maria 190mph), extreme levels of rainfall, and tidal surges. One other key measurement of a storm is the millibar reading: how low did it go. Comparing Irma and Maria, according to Jonathan Belles (Weather.com), April 11, 2018 evaluation of the final NOAA report on Maria, "Maria's minimum central pressure of 908 millibars recorded near St Croix late on September 19 set a new record for the lowest pressure ever recorded in the Atlantic Basin east of the Bahamas. This broke the record from just weeks earlier, set by Irma's 914 millibars." In general, the lower the millibars the higher the winds. Another measure of a hurricane's intensity is how much damage resulted. It is an inexact measurement due to the large number of factors involved such as resource density, values, quality of construction and so on. Maria exceeded the most destructive previous hurricane hurricanes to hit the United States by three times over. Puerto Rico alone had damages exceeding $90 billion.

Based upon Maria's high intensity of its forces and readings—rainfall, winds, tidal surge, millibar reading—the storm provided a heavy test of the GCW and its resiliency. The field examination by the tCi investigative team took place 13.5 months after Maria (September 19, 2017 Maria and October 29, 2018 commence field investigation). Much of the damage had not yet been addressed: broken shutters, water intrusion into the walls and the effects thereof, and even the flagpole had snapped off. Given the storm's intensity the building weathered the event quite well. However, the forces affecting the building were not the most powerful on the island and these forces are likely to gain strength as climate alterations continue.

Expected changes over the next years include:

- ◊ a reduction in total rainfall and increase in the number and duration of periods of reduced rainfall
- ◊ increases in sea levels (varies by source of prediction, perhaps as much as 1.79 feet by 2100)
- ◊ hurricanes to have higher winds, more associated rainfall, and greater height tidal surges in themselves and even higher with predicted rises in the sea level.

There are combination effects to consider as well. By example, deaths of tree and other vegetation can be caused by extended drought. This can be followed by a hurricane with intense rainfall and high winds causing major loss of vegetative cover and resultant major mud slides. Such combination of effects can be greater than the effect of a single factor.

One can term this negative synergism. Sea level rise is one effect but much higher water levels will occur with tidal surge. With high intensity rainfall, fresh water will add to much higher sea levels. And so on.

The most likely negative effect, beyond the ones that were experienced as a result of Maria, is this combination of tidal surge, sea level rise, and intense rainfall. Flooding of the harbor front and the entire GCW site should be expected.

Typical of such circumstances is a backup of the storm sewer system. Installation of one-way valves is recommended. The sanitary sewer system is also likely to flood. Whether the GCW site can be made resilient by several treatments and means is the subject of a future detailed study. However, these treatments are recommended to be considered as part of the study: East and West Entry gateway barriers with inflatable seals and dogged to the associated gate columns, similar barriers for the four first story doors, site drainage backflow valve structures at the northwest corner outlet and any new storm sewer connection, drawing down cisterns to maximize capacity to take roof drainage water, and backup generator and pumps. The ground-located electrical equipment's exposure to water (flood) must be reduced or eliminated.

CHRI is currently funded to do a line item construction project to repair/replace the wharf bulkhead to a 40-year life cycle. This design is to allow for storm water to overtop the bulkhead and then drain away.

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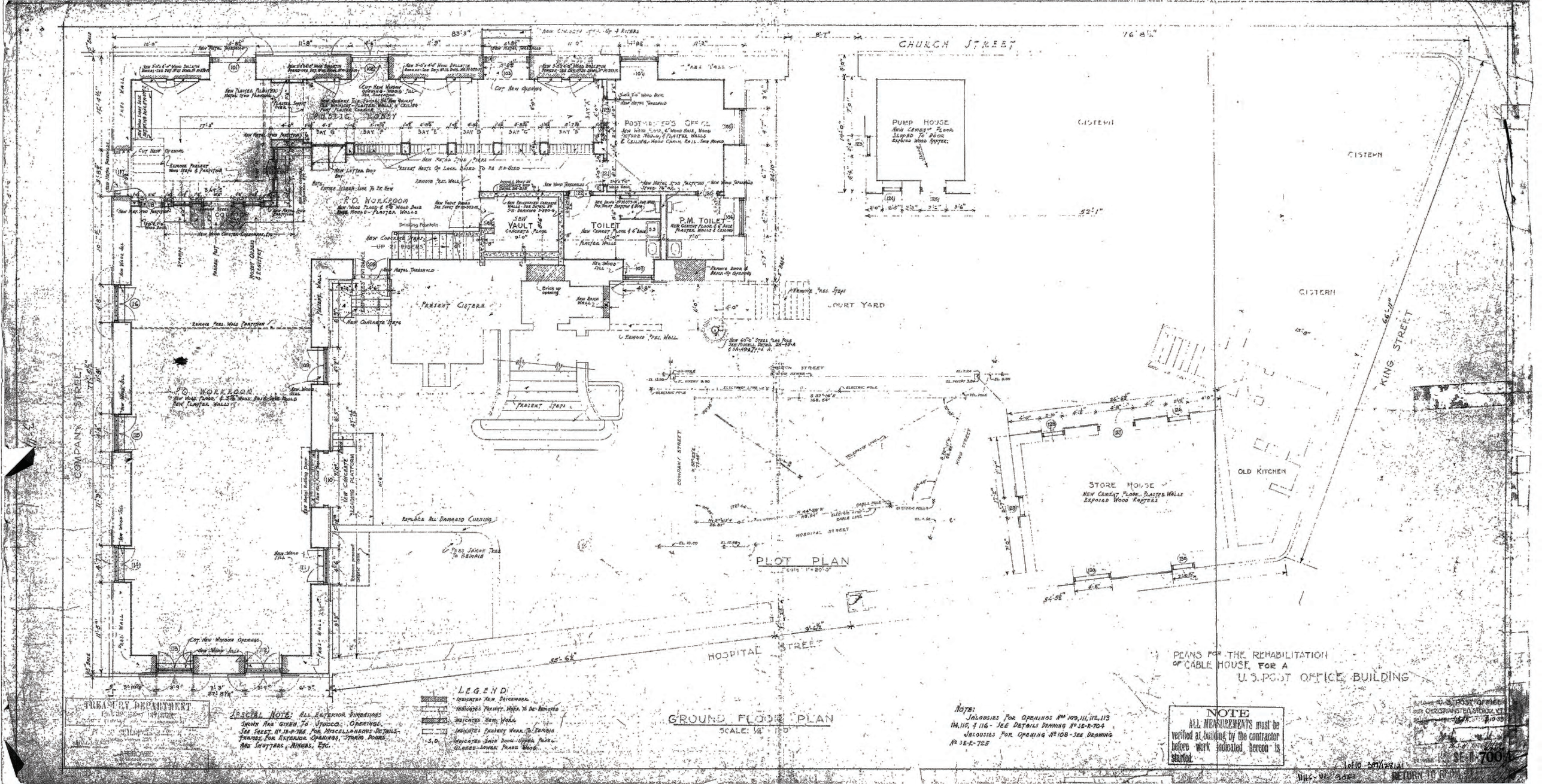
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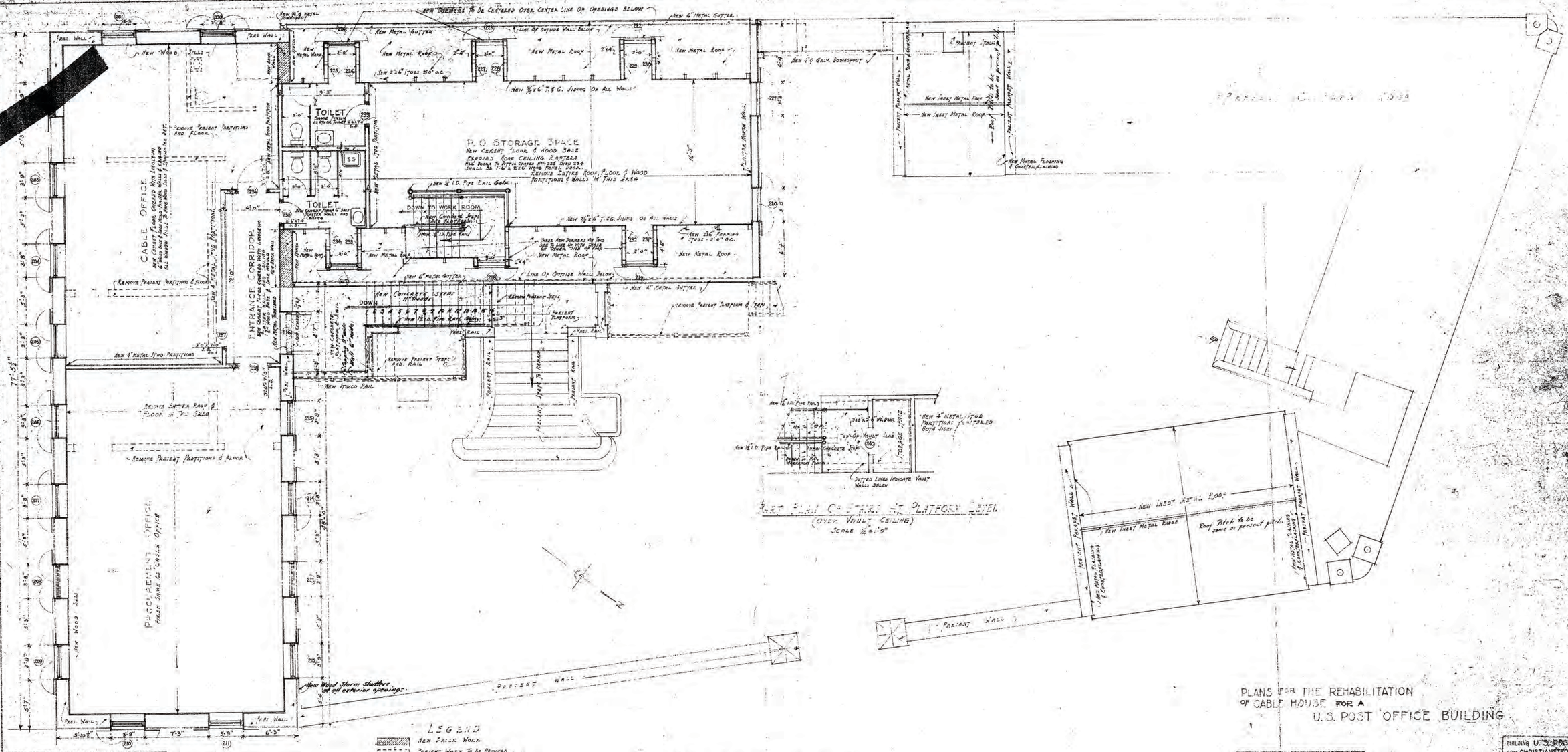
Appendix A:

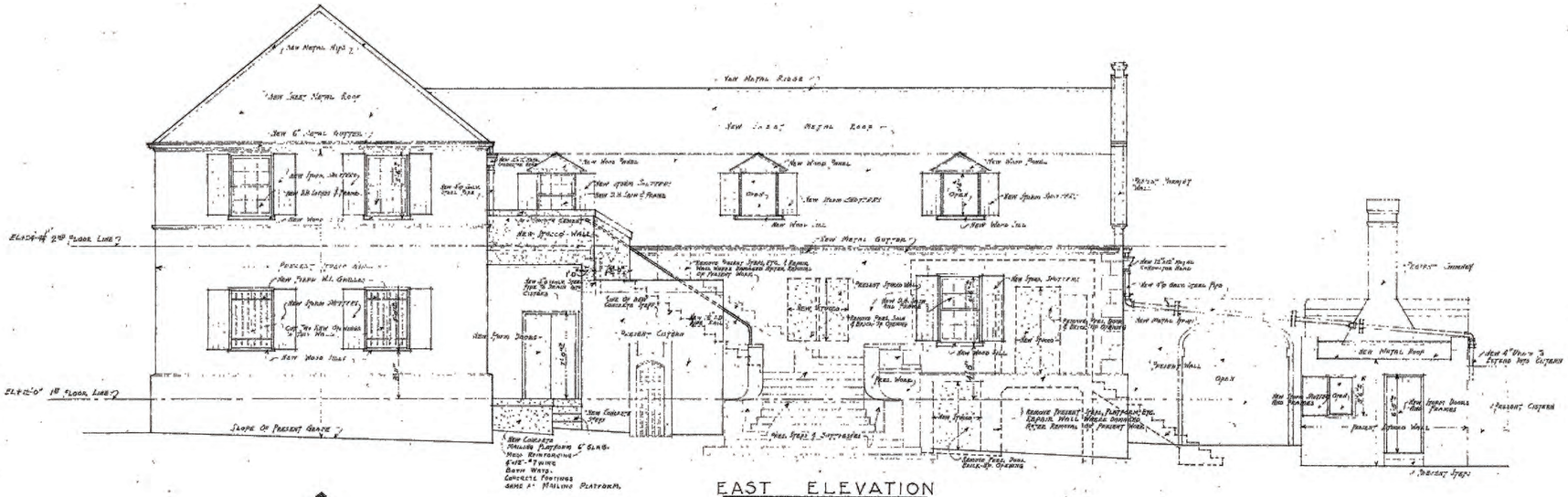
Full Set of 1939 Drawings

and

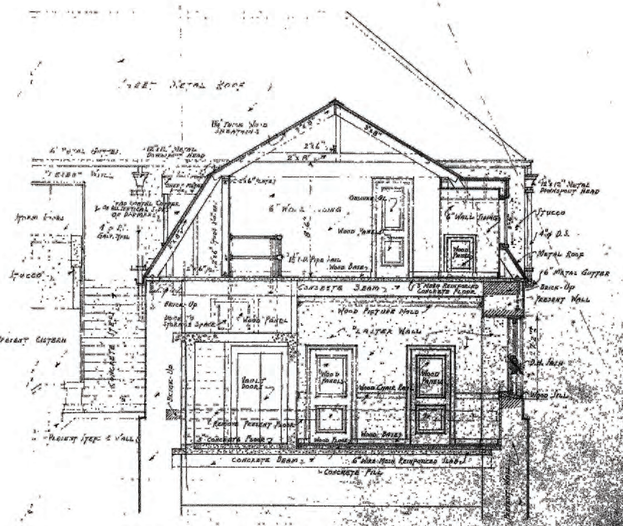
Site Plan of 1945


GROUND FLOOR PLAN
SCALE: 1/4" = 1'-0"
PLOT PLAN
SCALE 1" = 20'-0"
PLANS FOR THE REHABILITATION OF CABLE HOUSE, FOR A U.S. POST OFFICE BUILDING
CHURCH STREET
COMPANY STREET
KING STREET
HOSPITAL STREET
COURT YARD
CISTERN
PUMP HOUSE
New Cement Floor, Sloped To Door, Exposed Wood Rafters
STORE HOUSE
New Cement Floor, Plaster Walls, Exposed Wood Rafters
OLD KITCHEN
PUBLIC LOBBY
POST MASTER'S OFFICE
P.O. WORKROOM
P.M. TOILET
TOILET
NEW VAULT
PRESENT CISTERN
PRESENT STEPS
NEW CONCRETE STEPS
NEW CONCRETE RAMP
NEW BRICK WALL
REMOVE PRES. WALL
REMOVE PRES. STEPS
REMOVE PRES. WOOD PARTITION
REPLACE ALL DAMAGED CURBING
NEW CONCRETE LOADING PLATFORM
NEW 60'-0" STEEL FLAG POLE
TREASURY DEPARTMENT
SPECIAL NOTE: ALL EXTERIOR DIMENSIONS SHOWN ARE GIVEN TO STUCCO OPENINGS. SEE SHEET No SE-R-705 FOR MISCELLANEOUS DETAILS, FRAMES FOR EXTERIOR OPENINGS, PANEL DOORS AND SHUTTERS, HINGES, ETC.
LEGEND
INDICATES NEW BRICKWORK
INDICATES PRESENT WORK TO BE REMOVED
INDICATES NEW WORK
INDICATES PRESENT WORK TO REMAIN
S.D. INDICATES SASH DOOR - UPPER PART GLAZED - LOWER PANEL WOOD
NOTE: JALOUSIES FOR OPENINGS Nos 109, 111, 112, 113 114, 115, & 116 - SEE DETAILS DRAWING No SE-R-704 JALOUSIES FOR OPENING No 108 - SEE DRAWING No SE-R-725
NOTE
ALL MEASUREMENTS must be verified at building by the contractor before work indicated hereon is started.
U.S. POST OFFICE
CHRISTIANSTED, ST. CROIX, V.I.
SE-R-700


CABLE OFFICE
ENTRANCE CORRIDOR
PROCUREMENT OFFICE
TOILET
TOILET
P. O. STORAGE SPACE
DOWN TO WORK ROOM
DOWN
PRESENT WALL
LEGEND
SECOND FLOOR PLAN
SCALE 1/4" = 1'-0"
ROOF PLAN OF PLATFORM LEVEL
(OVER VAULT CEILING)
SCALE 1/4"=1'-0"
PLANS FOR THE REHABILITATION
OF CABLE HOUSE FOR A
U.S. POST OFFICE BUILDING
TREASURY DEPARTMENT
PROCUREMENT DIVISION
PUBLIC BUILDINGS SERVICE
APPROVED:
POST OFFICE
BUILDING U.S. POST OFFICE
CITY CHRISTIANSTED, STCROIX, V.I.
DRAWN BY ARCH. J.A.H. DATE 2-10-39
CHECKED BY M.E. DATE
CHECKED BY STR. DATE
CHECKED BY R.S.H. DATE 3/1/39
DRAWING No. SE-R-701-A
NAS-VI 9053
RETURN TO

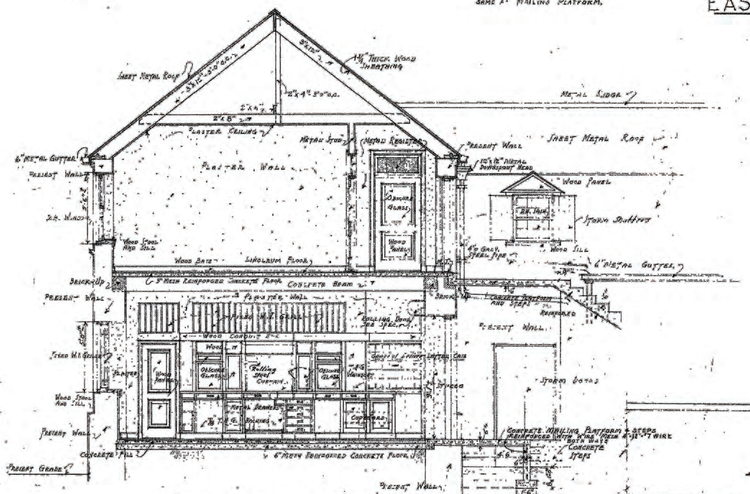


EAST ELEVATION
SCALE: 1/4" = 1'-0"



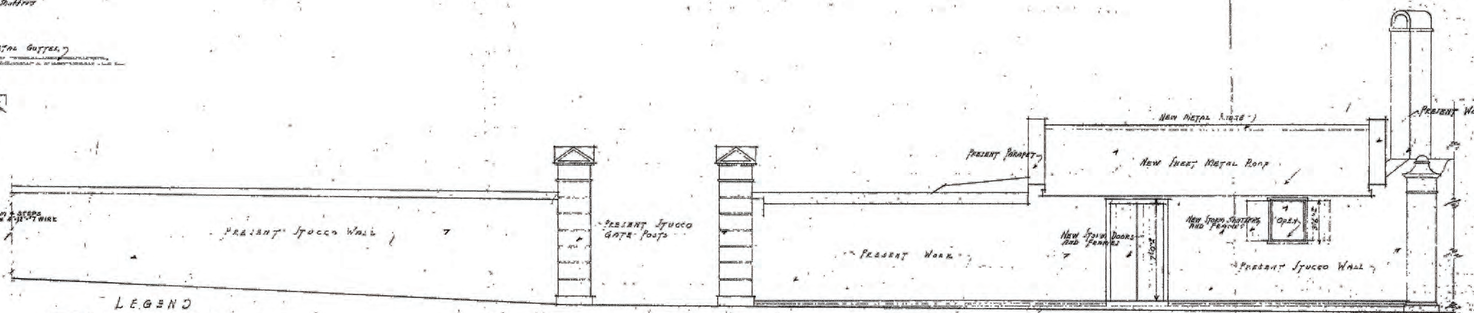
SECTION B-B
SCALE: 1/4" = 1'-0"

NOTE
ALL WORK SHOWN ON SECTION B-B NOT OTHERWISE NOTED AS PRESENT WORK SHALL BE NEW.



SECTION A-A
SCALE: 1/4" = 1'-0"

NOTE:
ALL WORK SHOWN ON SECTION A-A NOT OTHERWISE NOTED AS PRESENT WORK SHALL BE NEW.



EAST ELEVATION OF WALL, ETC.
SCALE: 1/4" = 1'-0"

LEGEND
- INDICATES NEW BRICKWORK
- INDICATES NEW CONCRETE WORK.
- INDICATES NEW WORK.
- INDICATES PRESENT WORK TO BE REMOVED
- INDICATES PRESENT WORK TO REMAIN

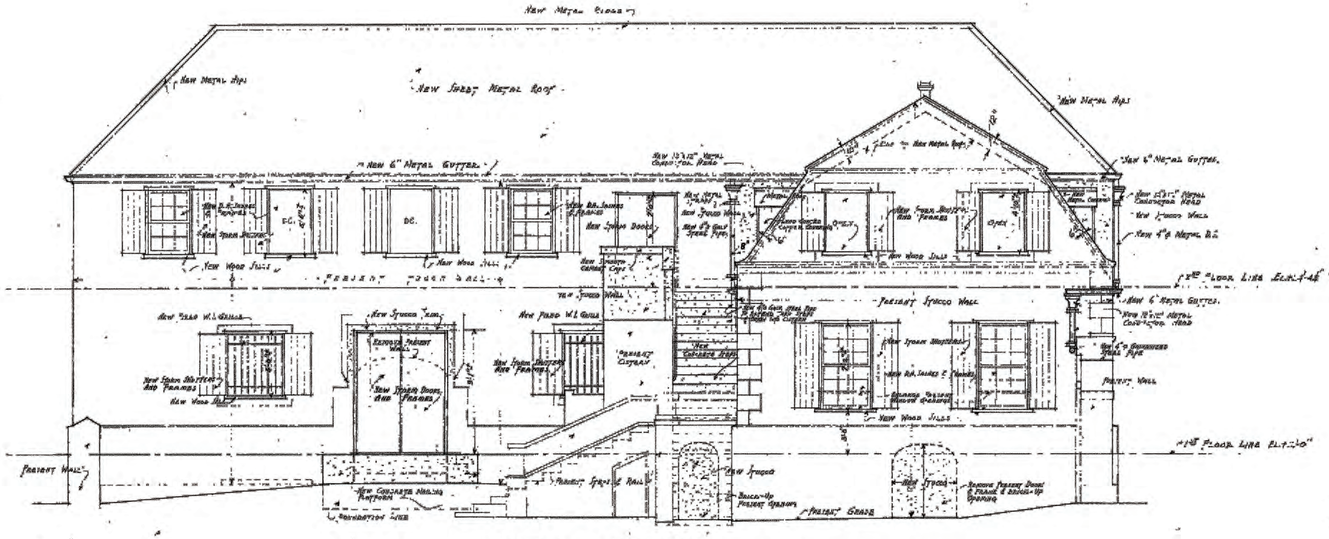
TREASURY DEPARTMENT
SUPERVISING ARCHITECT
APPROVED
[illegible]

NOTE
ALL MEASUREMENTS must be verified at building by the contractor before work indicated hereon is started.

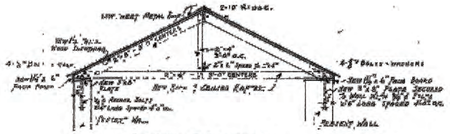
PLANS FOR THE REHABILITATION OF CABLE HOUSE FOR A U.S. POST OFFICE BUILDING

BUILDING U.S. POST OFFICE
CITY CHRISTIANSTED, STCROIX, V.I.
DRAWN BY ARCH. J.A.J.C. DATE 2-10-39
CHECKED BY M.E. DATE
CHECKED BY STR. DATE
CHECKED BY M. DATE 3/1/39
DRAWING No. SE-A-702-A

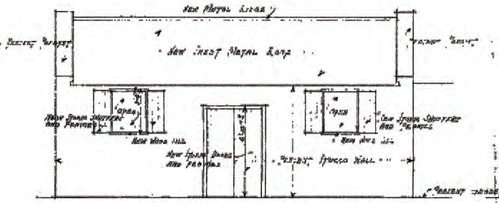
3-F10 389/2313
NHS-VI-2053
RETURN TO ROOM 41



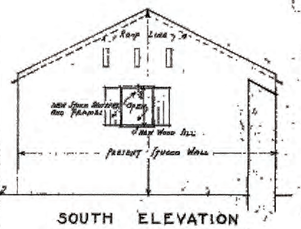
NORTH ELEVATION
SCALE: 1/4"=1'-0"



ROOF FRAMING

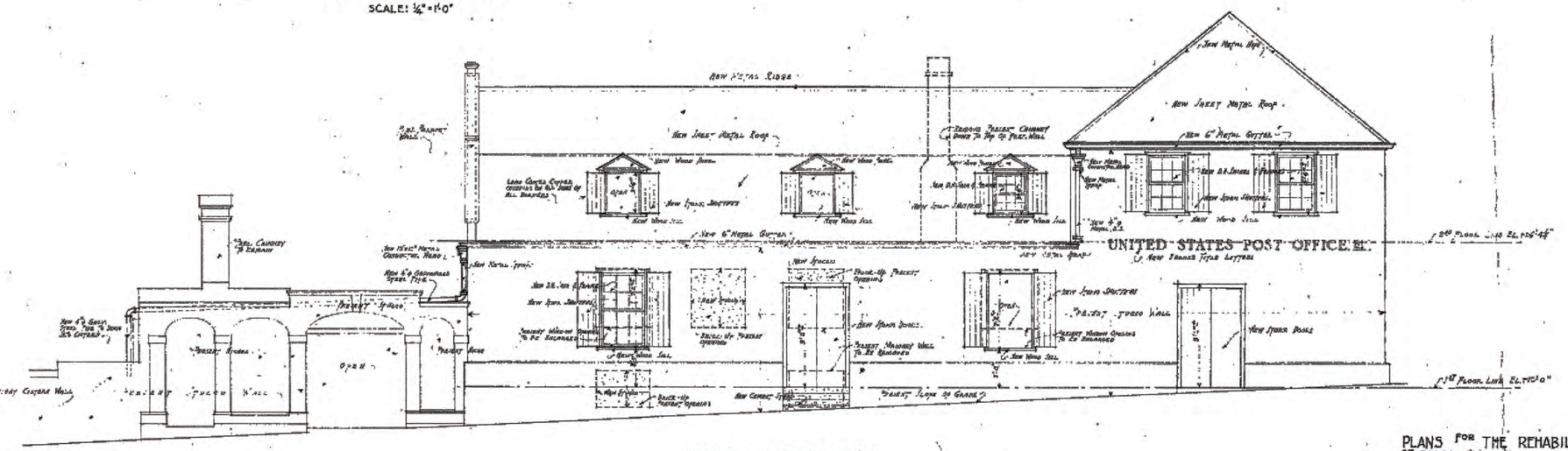


WEST ELEVATION



SOUTH ELEVATION

STORE HOUSE DETAILS
SCALE: 1/4"=1'-0"



WEST ELEVATION
SCALE: 1/4"=1'-0"

NOTE:
ALL EXTERIOR OPENINGS SHALL HAVE NEW WOOD FRAMES.

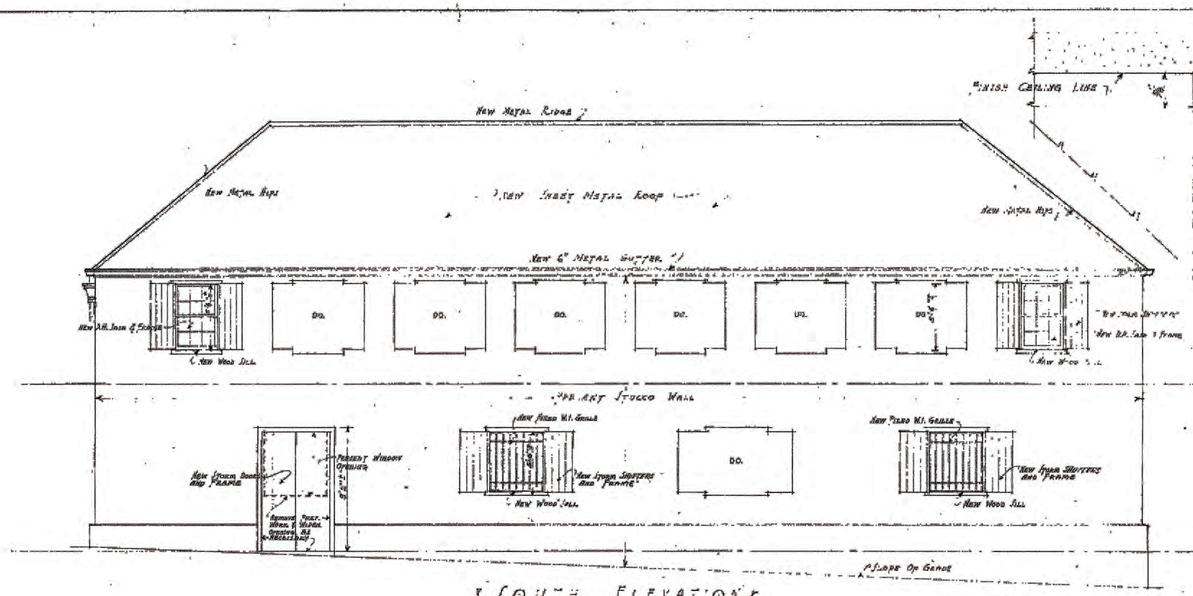
NOTE
ALL MEASUREMENTS must be verified at building by the contractor before work indicated hereon is started.

TREASURY DEPARTMENT
PUBLIC BUILDINGS SERVICE
DIVISION OF PUBLIC BUILDINGS DESIGN
APPROVED

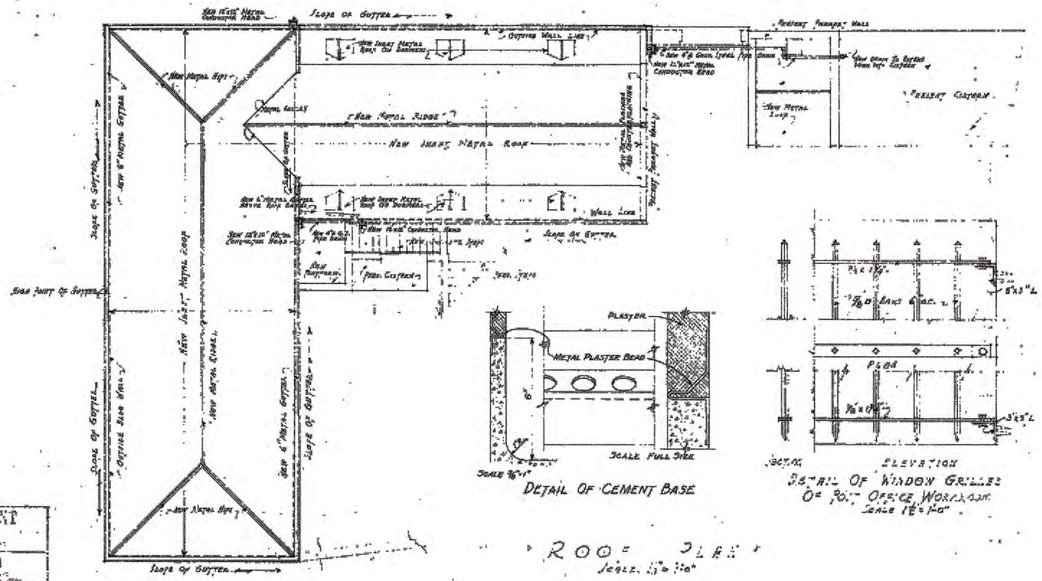
PLANS FOR THE REHABILITATION OF CABLE HOUSE FOR A U.S. POST OFFICE BUILDING

BUILDING U.S. POST OFFICE
CITY CHRISTIANSTED, STCROIX, V.I.
DRAWN BY MGH DATE 2-10-54
CHECKED BY M.E. DATE
CHECKED BY SSE DATE
CHECKED BY E.J.S.-M DATE 3/4/54
DRAWING No. SE-D-703.4

WHS-41-9063



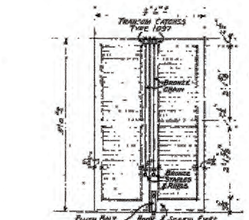
SOUTH ELEVATION
Scale 1/8"=1'0"



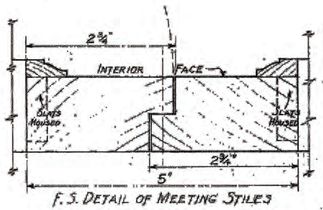
ROOF PLAN
Scale 1/8"=1'0"

DETAIL OF CEMENT BASE

DETAIL OF WINDOW GRILLES
Of Post Office Workroom
Scale 1½"=1'0"

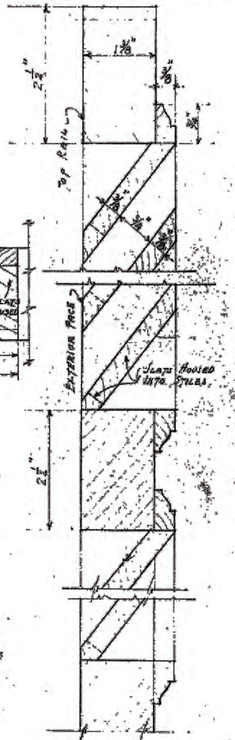


DETAIL OF JALOUSIES FOR OPENINGS
Nos 109,111,112,113,114,115 & 116

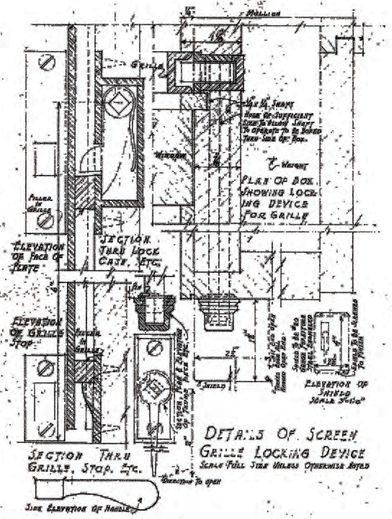


F.S. DETAIL OF MEETING STILES

F.S. DETAIL OF PLASTER CORNICE IN PUBLIC LOBBY



F.S. DETAIL OF JALOUSIES



DETAILS OF SCREEN GRILLE LOCKING DEVICE
Scale Full Size Unless Otherwise Noted

PLASTER SOFFIT WHERE SAME OCCURS

TREASURY DEPARTMENT
PUBLIC BUILDINGS DIVISION
OF THE PROCUREMENT DIVISION
Approved
Acting Supervising Architect

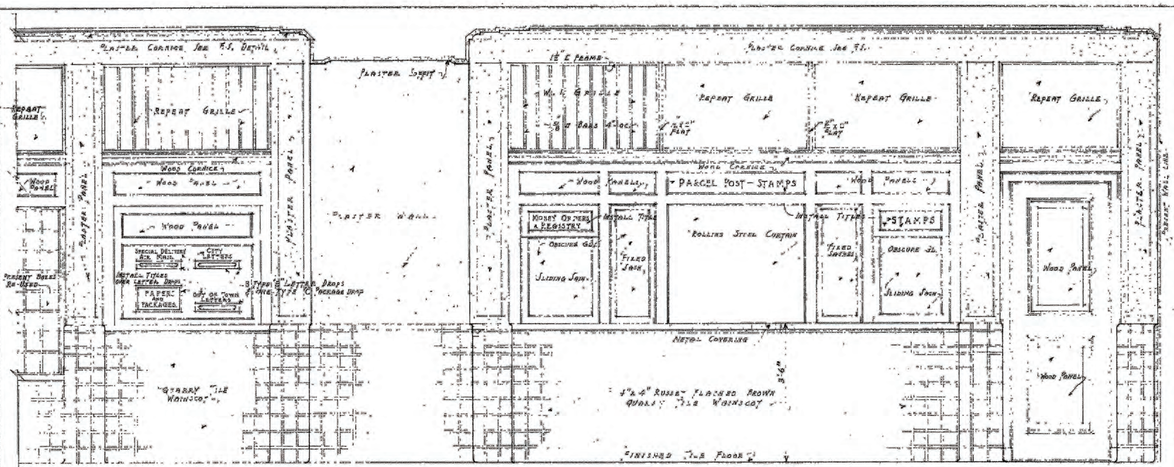
PLANS FOR THE REHABILITATION OF CABLE HOUSE FOR A U. S. POST OFFICE BUILDING

NOTE
ALL MEASUREMENTS must be verified at building by the contractor before work indicated hereon is started.

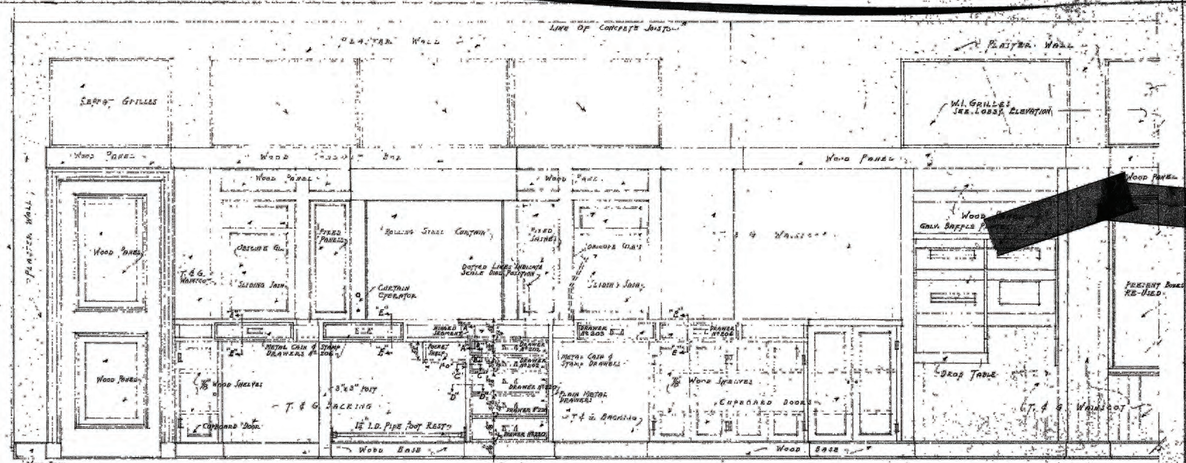
BUILDING U.S. POST OFFICE
CITY CHRISTIANSTED, ST. CROIX, V.I.
DRAWN BY A.H.C. DATE 1-10-39
CHECKED BY W.E.G. DATE
CHECKED BY STR. DATE
CHECKED BY W.R.B. DATE 3/6/39
DRAWING No. GE-D-7044

NHS-VI-9032

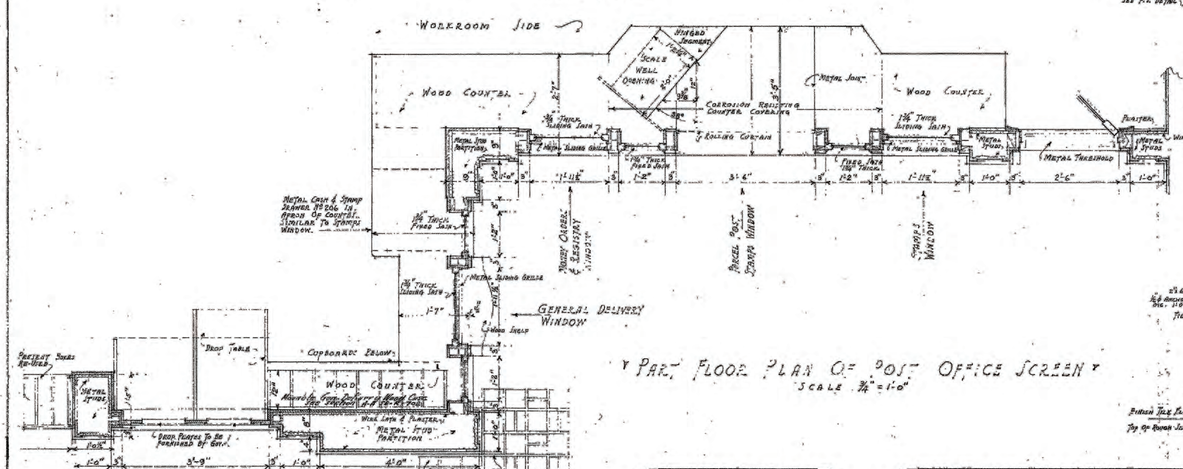
OPR 999(2812) RETURN TO ROOM 111



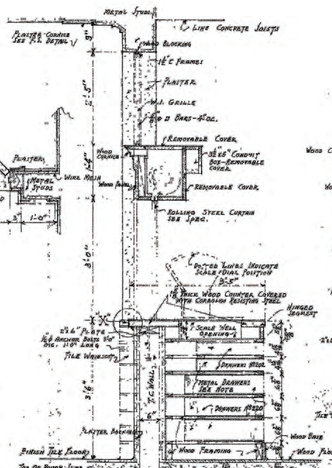
PART LOBBY ELEVATION OF POST OFFICE SCREEN
SCALE 3/8"=1'-0"



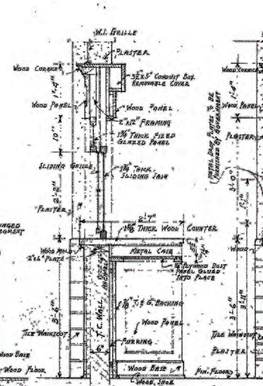
PART WORKROOM ELEVATION OF POST OFFICE SCREEN
SCALE 3/8"=1'-0"



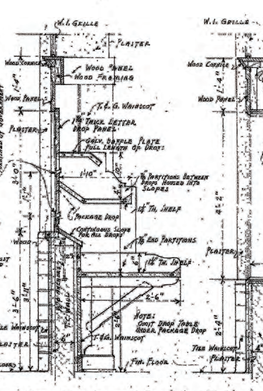
PART FLOOR PLAN OF POST OFFICE SCREEN
SCALE 3/8"=1'-0"



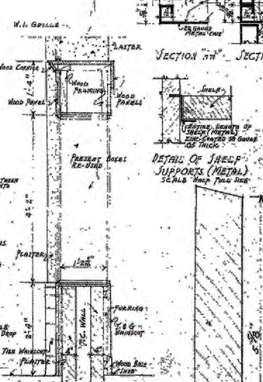
DETAIL SECTION THRU P.O. WINDOW
SCALE 3/8"=1'-0"



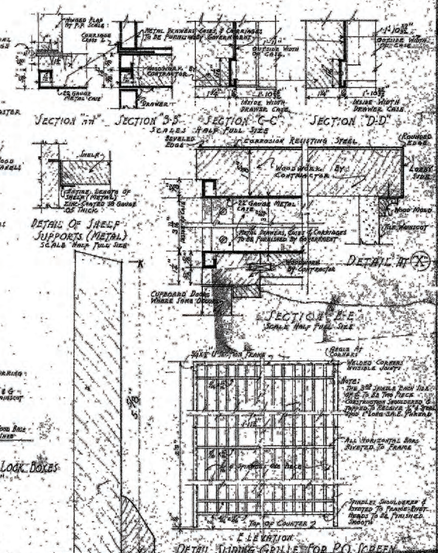
TYPICAL DETAIL THRU P.O. SERVICE WINDOW
SCALE 3/8"=1'-0"

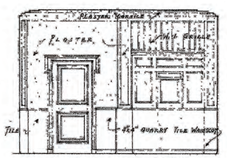


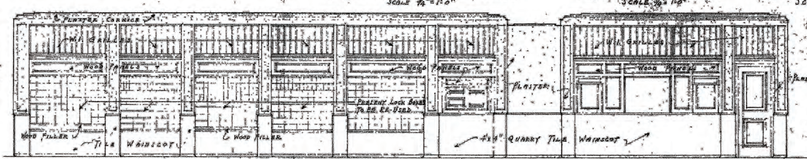
DETAIL THRU LETTER DROPS
SCALE 3/8"=1'-0"



TYPICAL DETAIL THRU LOCK BOXES
SCALE 3/8"=1'-0"







LOBBY ELEVATIONS OF POST OFFICE SCREEN
SCALE 3/8"=1'-0"

Notes:
All cupboard doors under counter shall have concealed locks with keys. All keyed differently but with one change key. Cupboard doors shall have cupboard pulls. Numbers referring to drawers indicate the location of the various types of metal cash & stamp drawers to be installed under this contract. See specification for complete drawer units. Drawer units consisting of drawer, case, carriage and suspension bearings will be furnished by the government but installed by contractor.

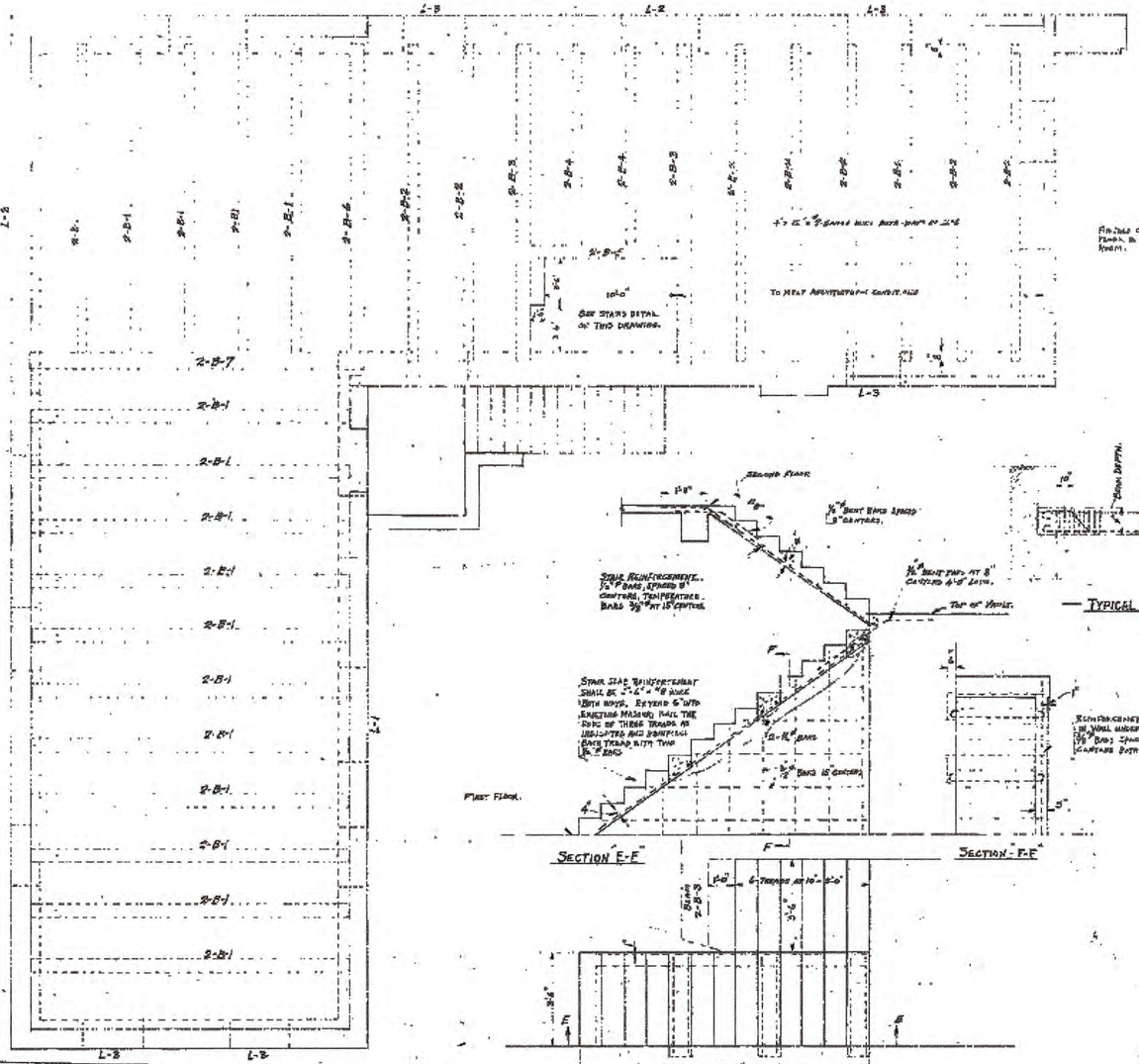
NOTE
All measurements must be verified at building by the contractor before work indicated hereon is started.

BUILDING U.S. POST OFFICE
CITY CHRISTIANSTED, ST. CROIX, V.I.
DRAWN BY ARCH. A.A.J.C. DATE 2/28/38
CHECKED BY MCL
CHECKED BY STR.
CHECKED BY R. B.
DRAWING No. SE-V 705-A

APPROVED
P. B. S. [illegible]

NHS-UI 9062

POST OFFICE SCREEN DETAILS

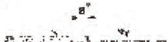


— SECOND FLOOR PLAN —
SCALE 1/8"-1'-0"

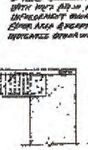
— STAIRS FROM FIRST TO SECOND FLOOR —
SCALE 3/4"-1'-0"



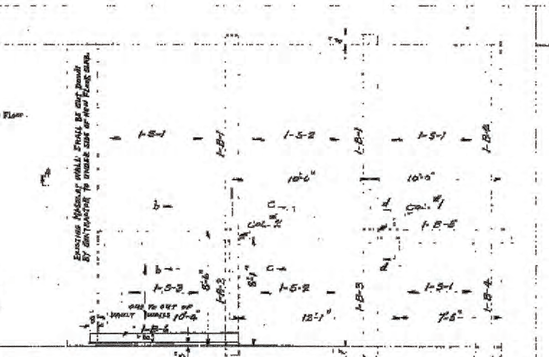
SECTION C-C
SCALE 1/2"-1'-0"



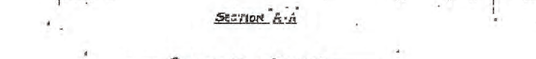
SECTION G-G
SCALE 1/2"-1'-0"



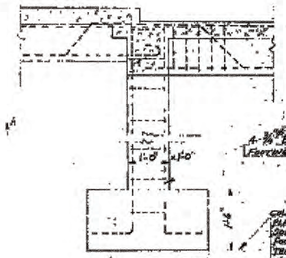
— TYPICAL BEAM CONSTRUCTION —



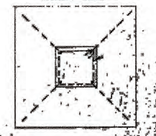
— FIRST FLOOR PLAN —
SCALE 1/8"-1'-0"



SECTION A-A



SECTION B-B



COLUMN NO. 1 COLUMN NO. 2 SIMILAR
SCALE 3/4"-1'-0"



— SCHEDULE OF BEAMS —

MARK	WIDTH	DEPTH	TEE	REINFORCEMENT STRAIGHT BARS	REINFORCEMENT BENT BARS	STIRRUPS No.	STIRRUPS SIZE	STIRRUPS SPACING	REMARKS
1-B-1	12"	16"		2-1" ø	2-7/8" ø	10	3/4" ø	2@3", 20@4", 10@6"	
1-B-2	8"	16"		2-3/4" ø	2-3/4" ø	10	3/8" ø	do	
1-B-3	12"	16"		2-1/2" ø	2-1" ø	8	1/2" ø	5@5", 2@8"	
1-B-4	8"	16"		2-5/8" ø	2-3/4" ø	8	3/4" ø	do	
1-B-5	12"	16"		2-3/4" ø	2-7/8" ø	No STIRRUPS			
1-B-6	8"	16"		2-5/8" ø	2-5/8" ø				AT FIRST LEVEL OF SLAB.
2-B-1	8"	16"		2-3/4" ø	2-3/4" ø	10	3/4" ø	5@3", 3@4", 2@6"	
2-B-2	8"	16"		2-7/8" ø	2-7/8" ø	12	1/2" ø	5@3", 5@4", 2@6"	
2-B-3	12"	16"		2-1" ø	2-1" ø	18	3/4" ø	6@3", 6@4", 6@6"	
2-B-4	8"	16"		2-5/8" ø	2-5/8" ø	No STIRRUPS			
2-B-5	12"	16"		2-3/4" ø	2-3/4" ø				
2-B-6	20"	16"		2-1" ø	2-1 1/8" ø	22	1/2" ø	6@3", 6@4", 10@6"	
2-B-7	16"	20"		2-1 1/8" ø	2-1 1/8" ø	28	3/4" ø	8@3", 12@4", 8@6"	

— SCHEDULE OF SLABS —

MARK	THICKNESS	REINFORCEMENT MAIN REINFORCEMT	REINFORCEMENT TEMPERATURE BARS	REMARKS
1-S-1	5"	1/2" ø 7" CENTERS	3/8" ø AT 12" CENTRE	
1-S-2	5"	1/2" ø 6" "	3/8" ø " "	
1-S-3	6"	1/2" ø 6" "	3/8" ø " "	
	6"			WHERE NO BEAMS SHOWN, FIRST STORY SLAB OF FIRST FLOOR SLABS ARE SIMILAR TO 1-S-3 SLAB.
	5"			

— NOTES — RE: REINFORCEMENT STEEL

WHERE JOISTS OR BEAMS INTERSECT WITH ANOTHER CONCRETE MEMBER, THE REINFORCEMENT STEEL SHALL BE BENT AT RIGHT ANGLES AND EXTEND INTO THE ABUTTING MEMBER AT LEAST 40 DIAMETERS OF BAR STEEL, EXCEPT WHERE IT IS POSSIBLE TO EXTEND REINFORCEMENT STEEL STRAIGHT INTO THE ABUTTING MEMBER OR BAR. THE ENDS OF ALL REINFORCEMENT STEEL IN BEAMS THAT ARE WALL BEARING, SHALL BE HOOKED. THE RADIUS OF HOOKS SHALL BE NOT LESS THAN 4 DIAMETERS OF BAR.

— CHAIRS — ALL REINFORCEMENT STEEL SHALL BE PROPERLY SECURED IN PLACE WITH CHAIRS TO PREVENT ANY DISPLACEMENT OF STEEL WHEN POURING CONCRETE.

— SPLICES — WHERE NECESSARY TO HAVE A SPLICE IN REINFORCEMENT STEEL, THE STEEL BARS SHALL OVERLAP AT LEAST 40 DIAMETERS OF BAR.

— COLUMN FOOTINGS — SHALL BE PLACED ON FIRM AND COMPACT SOIL AND BOTTOMS OF FOOTINGS SHALL BE NOT LESS THAN TWO FEET BELOW EXISTING LEVEL OF GROUND AT EACH COLUMN LOCATION.

— BEAM SPACING — SHALL BE AS INDICATED OTHERWISE. SPACING SHALL NOT EXCEED 4'-0" CENTER TO CENTER OF BEAMS.

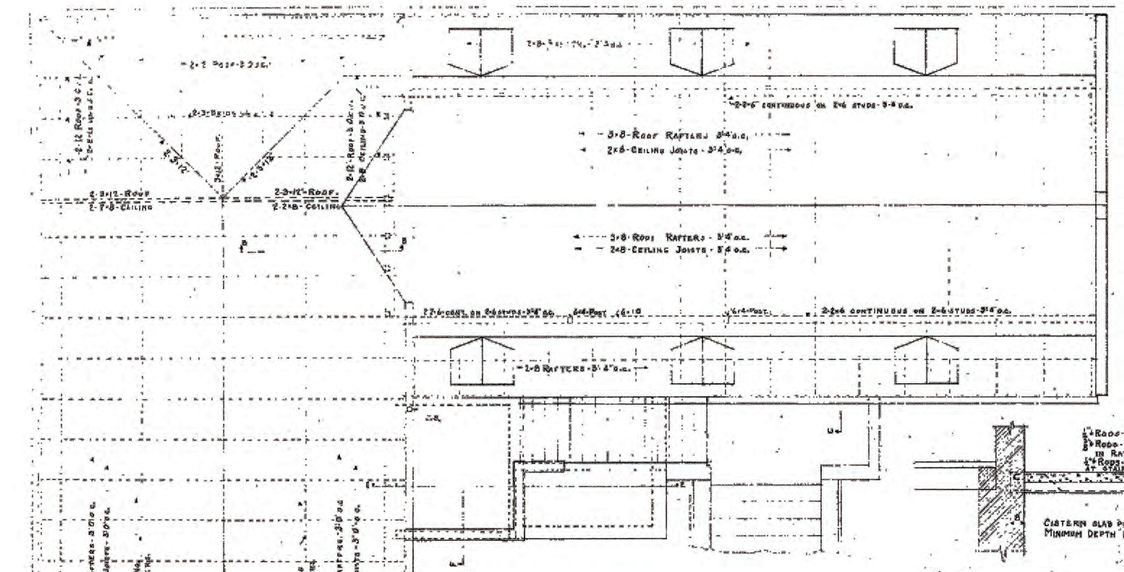
NOTE
ALL MEASUREMENTS must be verified at building by the contractor before work indicated hereon is started.

TREASURY DEPARTMENT
PROCUREMENT DIVISION
PUBLIC BUILDINGS BRANCH
APPROVED:

NHS-UI 9053

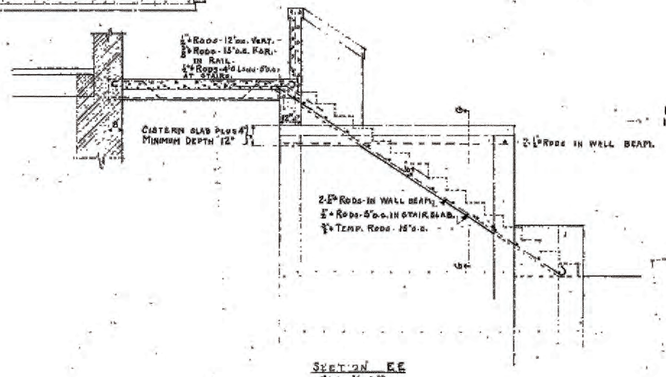
STRUCTURAL PLAN OF FIRST AND SECOND FLOORS

BUILDING U.S. POST OFFICE
CITY CHRISTIANSTED STATE VI
DRAWN BY ARCH. L.A.M. DATE
CHECKED BY M.E. DATE
CHECKED BY STR. P.L.H. DATE
CHECKED BY R. S.S.H. DATE 8/21
DRAWING No. SE-D-210-A

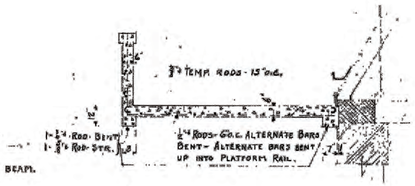




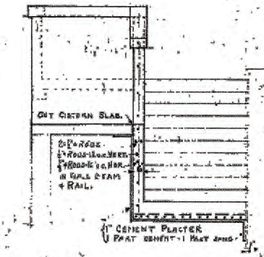
Rods to carry purlin at present roof. Ceiling can be left suspended on joists if desired.



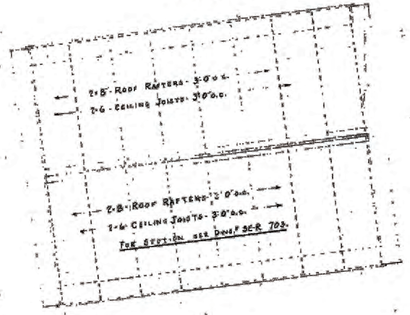
Section EE
Scale 1/4" = 1'0"

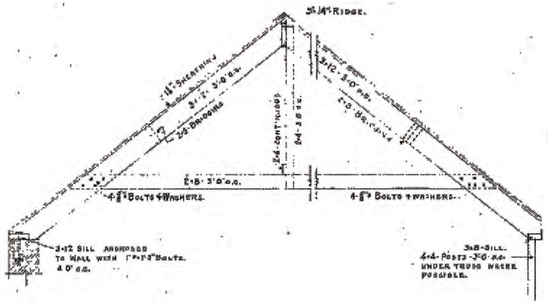


Section FF
Scale 1/4" = 1'0"



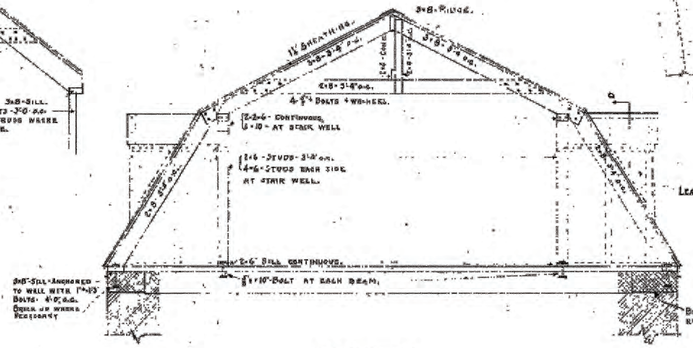
Section GG
Scale 1/4" = 1'0"



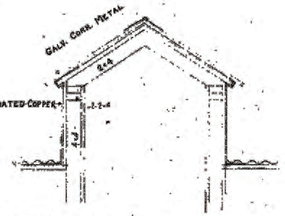


Section AA
Scale - 3/4" = 1'0"

Section BB
Scale - 3/4" = 1'0"



Section CC
Scale 3/4" = 1'0"



Section DD

Roof Framing Plan.
Scale 1/4" = 1'0"

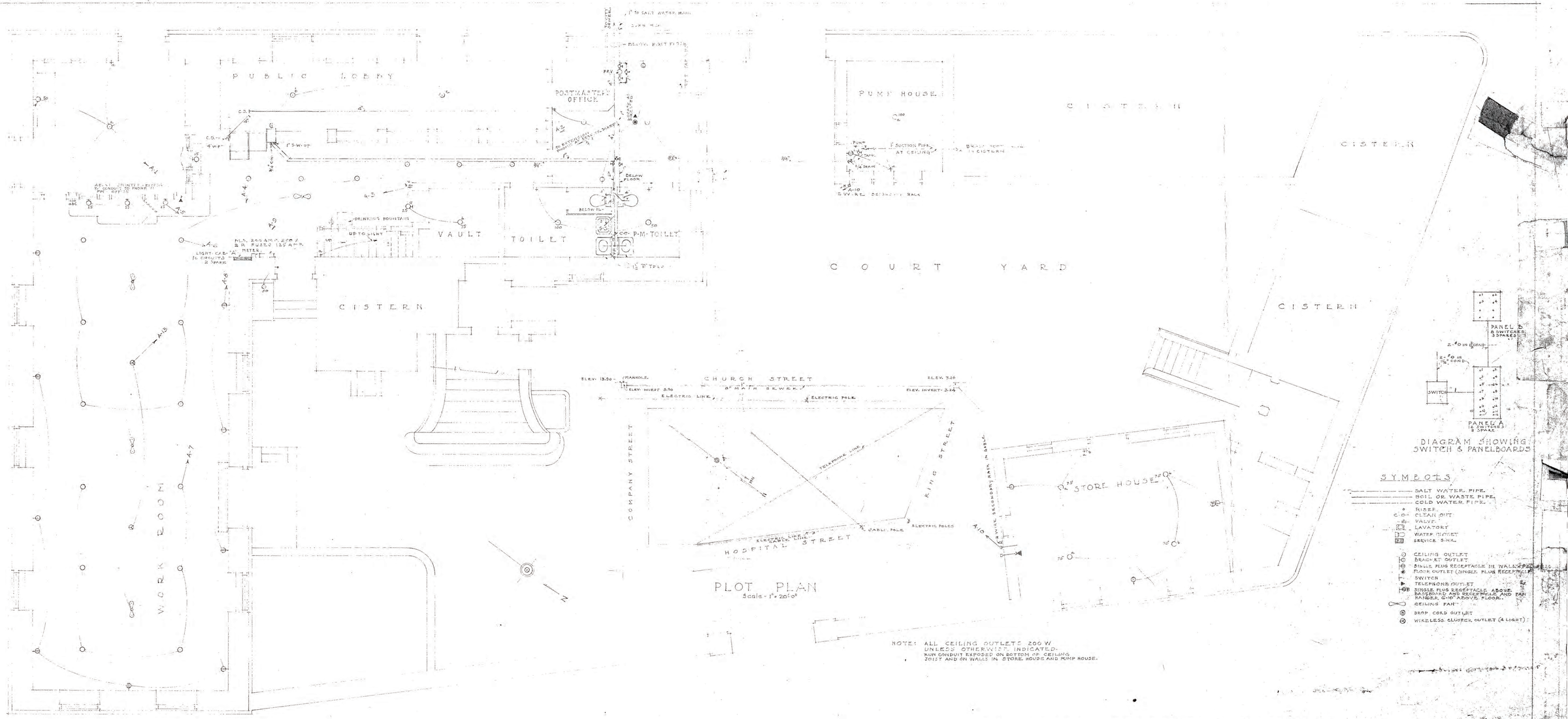
TREASURY DEPARTMENT
PROCUREMENT DIVISION
[illegible]
APPROVED
[illegible]

NOTE
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BUILDING U.S. POST OFFICE
CITY CHRISTIANSTED, St. CROIX, V.I.
DRAWN BY ARCH. [illegible] DATE
CHECKED BY M.E. DATE
CHECKED BY STR. P.L.H DATE
CHECKED BY R. B.J.H. DATE 5/1/41
DRAWING No. SE-R-711-A

WHS VI 9053

Added 3/9/43

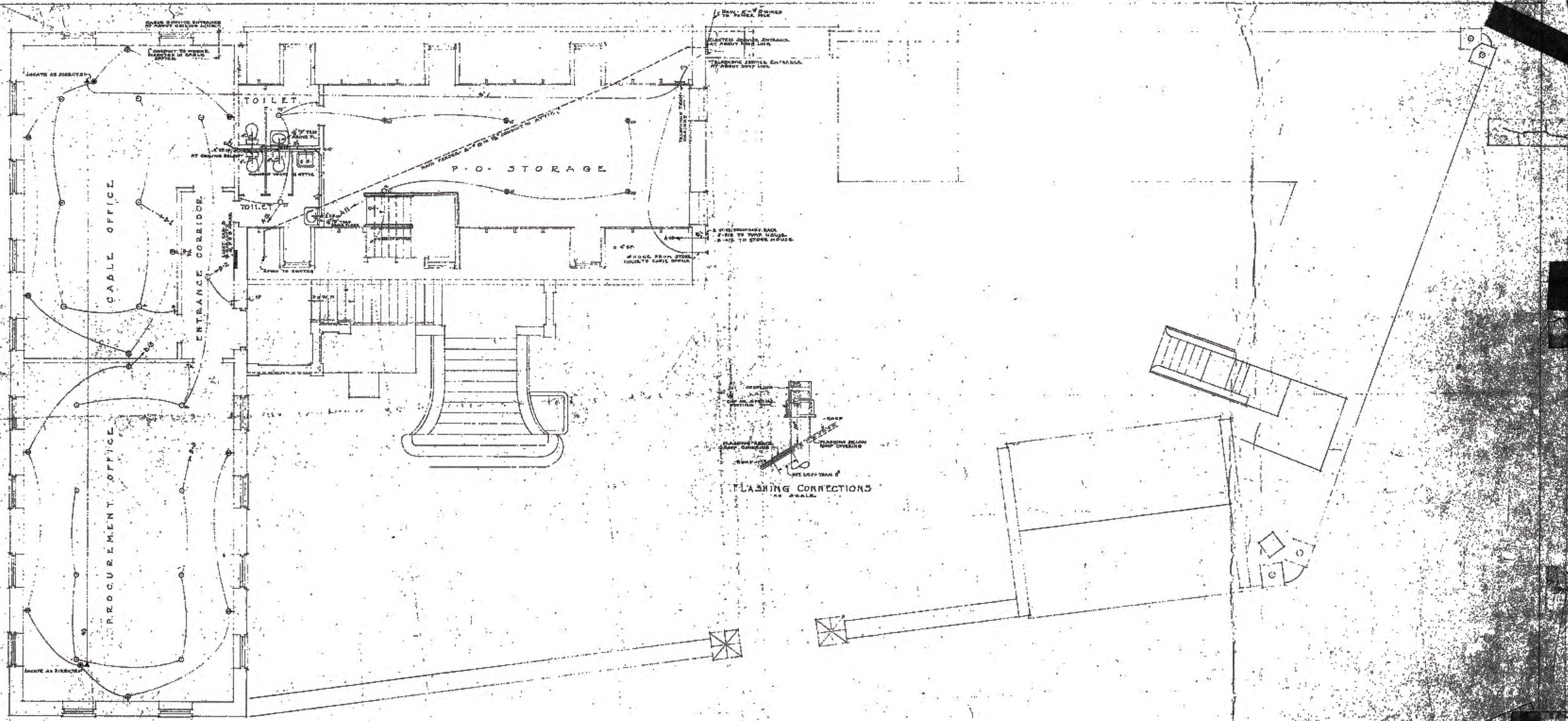


PLUMBING - CONDUIT & LIGHTING

TREASURY DEPARTMENT
PROCUREMENT DIVISION
PUBLIC BUILDINGS BRANCH

BUILDING U.S. POST OFFICE
CITY CHRISTIANSTED, ST. CROIX, V.I.
DRAWN BY ARCH. W.R.V. DATE 12-33
CHECKED BY M.E. DATE
CHECKED BY STR. DATE
CHECKED BY R.B.S.H. DATE 2/11/39
DRAWING No. SE-R-ME-715-A

NHS-VI 9053
9-6-10 U.S. 110-33
394/128/21



TREASURY DEPARTMENT
PROCUREMENT DIVISION
PUBLIC BUILDINGS BRANCH
APPROVED

NHS-VI-2052-1

Appendix B: Mortar Analysis Report

Atkinson-Noland & Associates
2619 Spruce Street
Boulder, CO 80302
303.444.3620
32 Old Slip, 10th Floor
New York, NY 10005
917.647.9530
ana-usa.com

APPENDIX B – MORTAR EVALUATION

Introduction

Three mortar samples were removed by Atkinson-Noland & Associates (ANA) from the Guinea Company Warehouse in St. Croix, U.S. Virgin Islands and tested in the ANA laboratory for mortar composition. The objective was to identify binder/aggregate ratio, aggregate color, and aggregate size gradation to provide an appropriate compatible replacement mortar formulation.

Analysis Techniques

Two analysis techniques were used. The chemical mortar examination followed the method described in Chemical Characterization of Historic Mortars by Middendorf, et al[1]. This method is based on the use of acid digestion and chemical analysis to identify soluble silica resulting from portland cement hydration. Additionally, aggregate sieve analysis followed the requirements of ASTM C136, *Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates*. This method is based on the use of acid digestion of the binder and sieve analysis of the aggregate.

Table 1. Sample identification and location

Sample ID	Location
M1	1st floor, north elevation, west window, west jamb, window 1.3
M2	Crawl space
M3	1st level, west wall, bulletin board, exposed masonry

All samples were evaluated with the aggregate sieve analysis, and only sample M2 underwent the chemical mortar examination.

Analysis Results

The results of the chemical analysis and acid digestion of the sample are shown in Table 2 and Table 3, respectively. The binder component was found to be approximately 85% to 90%, and the aggregate component was found to be approximately 10% to 15%. It is important to note that this analysis assumes that the mortar aggregate will not be dissolved by the acid during the analysis. Aggregate such as shells, coral sand, and crushed limestone, which is typically common in construction by the ocean, is acid soluble and may lead to an overestimation of the binder component. Perhaps common, however acid digestible components of the aggregate were well above expectations. In addition, two of the three samples had less than the recommended 50 grams for the aggregate sieve analysis. Although the original size of the sample would normally have yielded greater than the 50 grams.

[1] Middendorf, et al. *Chemical Characterization of Historic Mortars.* State-of-the-Art Report of RILEM Technical Committee 167-COM: Characterization of Old Mortars with Respect to their Repair. RILEM Publications SARL, 2004.

The lab analysis results show that the mortar formulation matched most closely to a Type O mortar for Proportion Specification mortar mixes. All samples exhibited a binder/aggregate ratio that would be considered under-sanded in comparison with typical modern mortar standards. That is, the mortar has a high binder content in comparison with the sand content. Typically, this formulation would result in very high strength mortar that could also result in significant shrinkage of the mortar materials, especially at wide joints. It is unlikely that this is the case since the mortar was quite soft and crushed with relative ease for analysis. The high binder content is probably due to the presence of acid soluble aggregate.

The aggregate gradation curve, plotted in Figure 1, shows that the aggregate from the three mortar samples do not generally fall within the gradation range of coarse and fine aggregates as specified by ASTM C144, *Standard Specification for Aggregate for Masonry Mortars*. Since the sieve analysis is performed after the acid digestion, any acid soluble aggregate will not be included in the aggregate gradation curve. Samples M1 and M2 retained a greater proportion of coarse aggregate on sieve #4, all samples retained a greater proportion of coarse aggregate on sieves #8 and #16, and samples M2 and M3 retained a greater proportion of coarse aggregate on sieve #30. Sample M1 had a smaller proportion of finer aggregates passing through sieve size #50, and all three samples had a smaller proportion of finer aggregates passing through sieve sizes #100 and #200.

The aggregate size distribution and colors are shown in Figure 2. Ideally, the aggregate for the replacement mortar should match the color and gradation of the existing aggregates. Trial mixtures may be required to produce a repair material that matches the original with respect to color and texture.

Recommended Mortar Formulation

Mortar used for repointing joints, crack repair, and rebuilding should meet requirements of ASTM C270, *Standard Specification for Mortar for Unit Masonry*, for Type O mortar, with volumetric proportions of 1 part portland cement, 2 parts lime, and 9 to 10 parts sand. Type O mortar is relatively low strength and suitable for locations that receive minor to moderate weather exposure. Alternatively, Type N mortar could be used, and is recommended for locations with more severe exposure such as parapets or near grade. These relatively soft repointing mortars should be compatible with both the stiffness and the vapor permeability of the surrounding masonry materials, avoiding stress concentrations and moisture problems that could damage masonry units.

The use of pigments may be required to match the hardened mortar color. Pigments conforming to ASTM C979, *Standard Specification for Pigments for Integrally Colored Concrete*, are suitable for mortar, but should not exceed 5% by weight of binder content in the mortar. It is also possible that the use of white portland cement will be required in lieu of typical gray cement in order to match the existing mortar color. Trial mixtures may be required to arrive at a mix that matches the original mortar with respect to color and texture.

Table 2. Results of chemical mortar analysis

Sample ID	Sample Mass (g)	Aggregate Mass (g)	Soluble Silica (g)	Volumetric Ratio		
				Portland Cement	Lime	Aggregate
M2	10.00	1.73	0.17	1	16	2

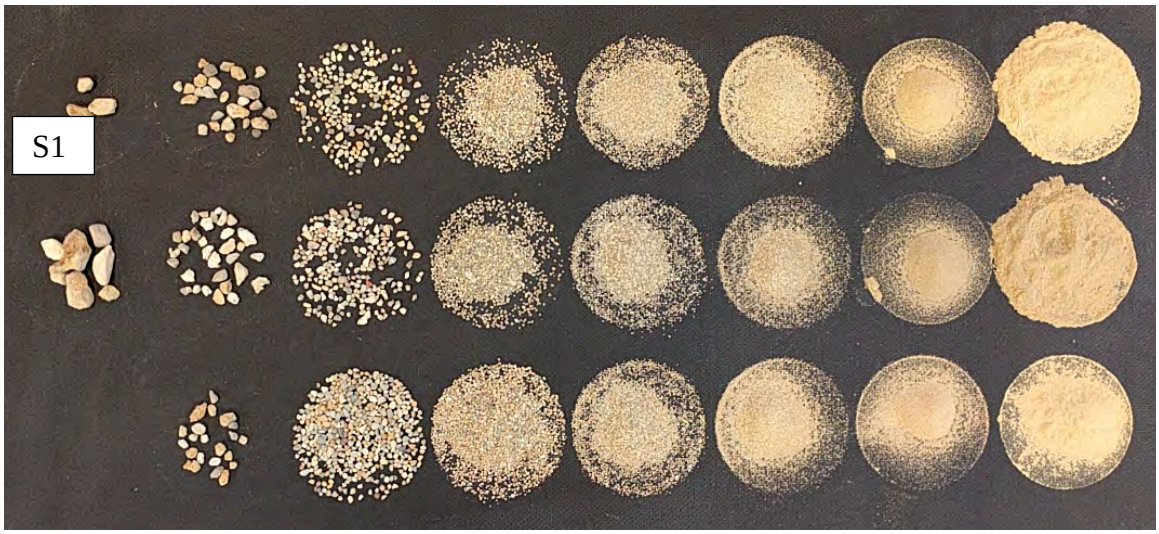
Table 3. Results of acid digestion of mortar samples

Sample ID	Mass before acid digestion (g)	Mass after acid digestion (g)	Binder mass (g)	Aggre-gate mass (g)	Binder volume* (cm^3)	Aggre-gate volume (cm^3)	Total volume (cm^3)	Binder (%)	Aggre-gate (%)
M1	43.90	11.88	32.02	11.88	49.97	9.27	59.24	84	16
M2	46.37	13.69	32.68	13.69	51.00	10.68	61.69	83	17
M3	51.12	9.69	41.43	9.69	64.66	7.56	72.22	90	10

*Assumes binder only consists of hydrated lime with a bulk density of 0.641 g/cm^3 (40lb/ft^3).



Figure 1. Aggregate distribution by sieve size for mortar samples



Sieve Size:	4	8	16	30	50	100	200	Pan

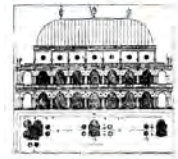
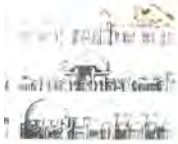
Figure 2. Aggregate distribution and color for mortar sample.

Appendix C: Paint Analysis Report

the COLLABORATIVE inc 2080 PearlStreet Boulder CO 80302
303.442.3601 fax449.3666






PAINT ANALYSIS REPORT

for

DANISH WEST INDIA & GUINEA COMPANY WAREHOUSE

CHRISTIANSTED, ST. CROIX, USVI

Prepared by:
the Collaborative, inc.
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(303) 442-3601 • (303) 449-3666 FAX
email: collab@thecollaborativeinc.net

February 2019

Danish West India & Guinea Company Warehouse
Christiansted, St. Croix, USVI

Paint Analysis
Introduction:

The process of paint analysis is in four stages:
1. PRE-FIELD: Given the specifics of the building, project objectives, and budget constraints, a sampling plan is formulated. There may be an emphasis on determining sequence of construction, the determination of relative ages of an addition to the main structure, and/or the originality of various elements such as windows. One difficulty in setting a budget is a lack of detailed familiarity with the structure to allow comprehensive sampling. Another difficulty is that during historic research, questions may have arisen for which the answer may be provided by paint sampling or the research may indicate a documented comprehensive change such as all windows were replaced.

2. FIELD SAMPLING: Paint sampling in the field begins with the review of the potential locations conceived in the sampling plan and adjustments to the plan to deal with actual situation. Such adjustments will typically include the results of the first rounds of research and associated questions for which the paint analysis may provide answers. Specific locations are chosen for the subject element from areas with the least amount of ultraviolet deterioration and the most apparent paint layers. The samples are taken by a knife plunged into the surface at an angle to a depth that will allow the removed sample to include substrate. The paint sample is placed into an envelope, each of which is sequentially numbered. The element and paint sample location are referenced on the envelope or on a sketch for complex elements with multiple sample locations, and further noted as to location on the drawings of the building's floor plans and/or elevations. Often, there is a question in the field of the integrity of a sample—a detached substrate is a common concern—and other samples from the same location are taken and put in the same envelope.

3. LABORATORY ANALYSIS: In the laboratory the sample is evaluated using a microscope. The sample is viewed flat, with substrate side up, and on edge. Each of the first three or more layers is matched to the "Munsell System of Color Notation," a widely recognized international system of color notation with specific intervals around the color wheel for hue, chroma, and value. There are specific additional tables for neutral colors: whites, grays, and blacks. The light source for viewing is natural daylight from the north, per ASTM D 1729 Standard Practice for Visual Evaluation of Color Differences of Opaque Materials. The color matching to the Munsell System is per the procedures set forth in ASTM D 1535-68 (Reapproved 1974) Specifying Color by the Munsell System. The results for each sample are recorded on individual forms on which each of the layers is identified (per the contracted amount, such as the earliest three) and the total number of

layers is estimated. For projects in which the historic color scheme is the key objective, color matching the first three layers is typical. Other research objectives may require color matching for additional layers. A common language name may be used to identify a color, such as “Gray Avocado” along with the Munsell color notation of 10GY 8/2. This common name designation serves two purposes: the reader gains a sense of the color, and it becomes easier to read the common names than to pick through the Munsell notations to see patterns. Our office has created many common names to ease understanding of the color’s appearance.

4. REPORT: Below is the summary of the results of this sampling campaign. A photo of the actual Munsell color chips are included in this report (see page 9). Note that the colors represented there do not necessarily match what you would see when viewing the actual Munsell Color Notation System chips due to the inherent variations of electronic scanning and printing discrepancies.

With the exception of paint sample #4 (Cistern wall NE corner brick, which is Dark Gray - 10Y 5/1), samples 1-11 were taken from the site and site features and are either yellow or bright yellow.

Paint sample #16 (Kitchen at west perimeter, shutter on east elevation window, which is Dark Green - 5G 3/4), is the only sample in the group of samples nos. 12-17 that is a different color. Samples 12-17 were taken from the outbuildings are bright yellow (10YR 7/8).

The windows 1.3 and 1.5 (sample nos. 18 and 19) and the exterior doors (samples 20 and 21) are neutral white (N9.5 90.0%R) except for the newer doors (samples 22 and 23), which are Dark Green 5G 3/4).

All of the paint samples from the dormer (samples nos. 24-29) are neutral white (N9.5 90.0%R) and only have two layers.

With regards to the Postal work room (sample nos. 30-34), the samples are green (2.5GY 6/2) or spring green (10GY 7/4).

Sample nos. 35, 36, and 37 (taken from locations close to or on the west wall double door), are neutral white (N9.5 90.0%R)

Danish West Indies and Guinea Company Warehouse
Paint Analysis Summary

Site

Location	Sample ID #	TOP Layer	2nd Layer	3rd Layer	Total # of Layers	Notes
Perimeter wall, by cistern at NE corner, brick	1	Bright Yellow - 10YR 7/8	Red - 10R 7/4	Blue - 5PB 7/4	3	Large amount of dirt between layers. Environment? Maintenance issues? NO SUBSTRATE ATTACHED
Wall: by west gate, exterior, see A on dwg 	2	Bright Yellow - 10YR 7/8	Yellow - 10YR 8/6	Beige - 10Y 7/1	4	NO SUBSTRATE
Wall: by west gate, exterior, see B on dwg 	3	Bright Yellow - 10YR 7/8 - thin	Yellow - 10YR 8/6 - thick stucco	Beige - 10Y 7/1 - thick stucco	5	

Cistern wall NE corner brick	4	Dark Gray - 10Y 5/1	Yellow - 10YR 8/6	White - 5Y 9/1	6	incontiguous layers, layer 2 (10G 7/2) is thin, possible copper particles, inconsistent color
Cistern wall NE corner brick	5	Yellow - 10YR 8/6	White - 5Y 9/1	Blue Green - 10G 7/2	6	Incontiguous layers, dirt between layers
Cisterns #1: by 2nd floor entry stairs, brick	6	Bright Yellow - 10YR 7/8	Beige - 10Y 7/1 -	Red - 7.5R 7/6	3	thick stucco
Cisterns #1: by 2nd floor entry stairs	7	Bright Yellow	Dark Tan	Tan	10	layers intermixing
Cisterns #1: by 2nd floor entry stairs	8	Bright Yellow	Dark Tan	Tan	10	appears to match sample #7, but more deteriorated and more mixing of layers; substrate concrete/stucco
Stairs to 2nd floor, south cheek wall, south elevation	9	Bright Yellow	Yellow - 10YR 8/6	Dark Gray - 10Y 5/1	8	intermixing of colors, NO SUBSTRATE Stairs to 2nd Fl
Stairs to 2nd floor, riser	10	Yellow - 10YR 8/6	White - 5Y 9/1	Lemon Yellow - 5Y 8.5/4	6	substrate - concrete/stucco
Stairs to 2nd floor, riser	11	Bright Yellow	Yellow - 10YR 8/6	White - 5Y 9/1	4	substrate - concrete/stucco

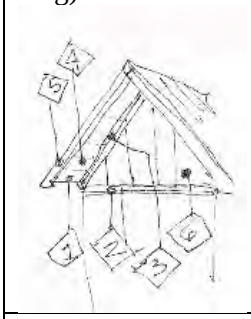
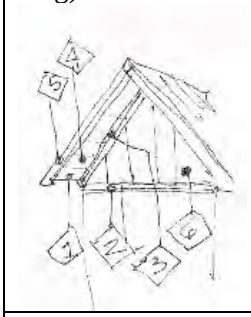
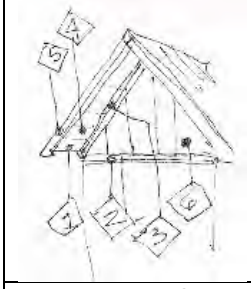
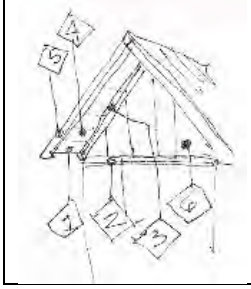
Outbuildings

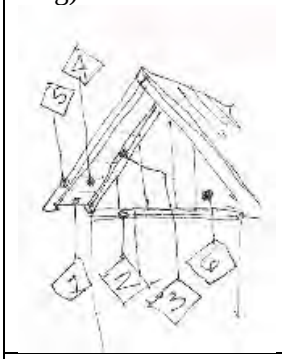
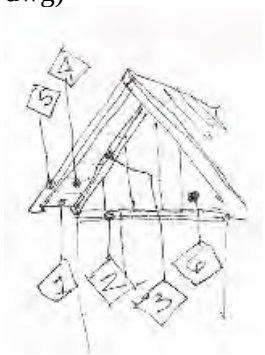
Location	**Sample ID #**	**1st Layer**	**2nd Layer**	**3rd Layer**	**Total # of Layers**	**Notes**
Kitchen at NE corner, beam over hearth	12	Bright Yellow	Yellow - 10YR 8/6	Medium Gray - 10Y 7/1	3	substrate - wood
Kitchen at NE corner, hearth face	13	Bright Yellow	Yellow - 10YR 8/6	—	2	substrate - concrete
Kitchen at NE corner, interior elevation wall by door	14	Bright Yellow	Yellow - 10YR 8/6	—	2	

Kitchen at west perimeter, south elevation, stucco	15	Bright Yellow	Yellow - 10YR 8/6	Red - 7.5R 7/6	3	
Kitchen at west perimeter, shutter on east elevation window	16	Dark Green - 5G 3/4	Neutral White - N9.5 90.0%R	Green - 2.5G 4/4	3	substrate - wood
Kitchen at west perimeter, east elevation wall	17	Bright Yellow	Yellow - 10YR 8/6	Dark Gray - 10Y 5/1	5	substrate - concrete/stucco

Exterior

Location	**Sample ID #**	**1st Layer**	**2nd Layer**	**3rd Layer**	**Total # of Layers**	**Notes**
Window 1.3	18	Neutral White - N9.5 90.0%R	White - 5Y 9/1	—	2	substrate - wood
Window 1.5, newish window	19	Neutral White - N9.5 90.0%R	White - 5Y 9/1	—	2	substrate - wood
Door 102, double doors, white. PO lobby, intersection of rail and stile	20	Neutral White - N9.5 90.0%R	White - 5Y 9/1	—	2	substrate - wood
Door 104, existing by/to loading dock frame	21	Neutral White - N9.5 90.0%R	White - 5Y 9/1	—	2	substrate - wood
Door 104, outer doors, green, newish	22	Dark Green - 5G 3/4	Green - 2.5G 4/4	—	2	substrate - wood
Door 104, outer door, steel hardware, green	23	Dark Green - 5G 3/4	Green - 2.5G 4/4	—	2	substrate - wood

Dormer (see ① on dwg) 	24	Neutral White - N9.5 90.0%R	White - 5Y 9/1	—	2	substrate - wood
Dormer (see ② on dwg) 	25	Neutral White - N9.5 90.0%R	White - 5Y 9/1	—	2	substrate - wood
Dormer (see ③ dwg) 	26	Neutral White - N9.5 90.0%R	White - 5Y 9/1	—	2	substrate - wood
Dormer (see ④ on dwg) 	27	Neutral White - N9.5 90.0%R	White - 5Y 9/1	—	2	substrate - wood

Dormer (see ⑤ on dwg) 	28	Neutral White - N9.5 90.0%R	White - 5Y 9/1	—	2	substrate – concrete/ stucco
Dormer (see ⑥ on dwg) 	29	Neutral White - N9.5 90.0%R	White - 5Y 9/1	—	2	substrate - wood

Interior

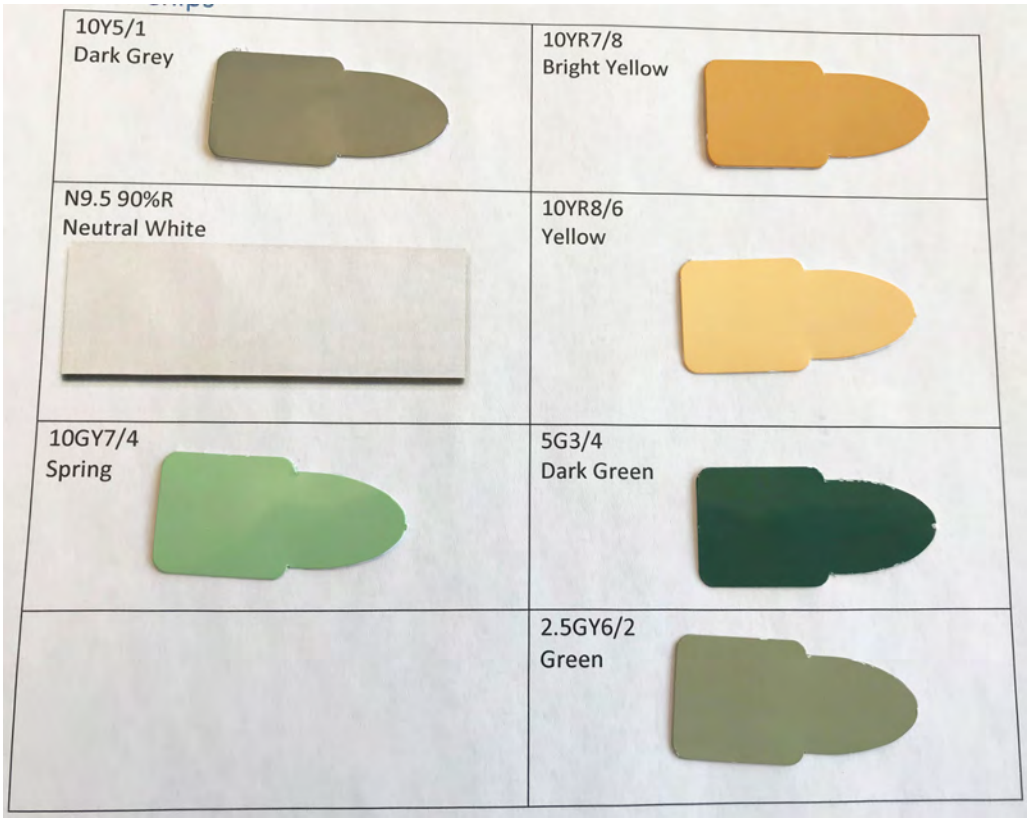
Location	Sample ID #	1st Layer	2nd Layer	3rd Layer	Total # of Layers	Notes
Postal work room, south elevation behind stainless steel panel	30	Green - 2.5GY 6/2 - varnish over	Tan - 10YR 7/4	—	2	Substrate - plaster
Postal work room, stainless steel panel wall	31	Green - 2.5GY 6/2 - varnish over	Tan - 10YR 7/4	—	2	Substrate - plaster
Postal work room, south elevation behind stainless steel panel	32	Spring - 10GY 7/4	—	—	1	Substrate - plaster

Postal work room, south elevation behind stainless steel panel	33	Green - 2.5GY 6/2 - varnish over	Tan - 10YR 7/4	—	2	Substrate - plaster
Postal work room wall, behind stainless steel panel	34	Green - 2.5GY 6/2 - varnish over	Tan - 10YR 7/4	—	2	Substrate - plaster

Exterior

Location	**Sample ID #**	**1st Layer**	**2nd Layer**	**3rd Layer**	**Total # of Layers**	**Notes**
Shelf above west wall double door @ right	35	Neutral White - N9.5 90.0%R	—	—	1	substrate - plaster
Shelf above double doors @ west wall , right side	36	Bright Yellow - 10YR 7/8	Yellow - 10YR 8/6	Red - 7.5R 7/6	3	substrate - plaster
Ledge above double door, west side, right	37	Neutral White - N9.5 90.0%R	Dark Red - 10R 4/8	Red - 7.5R 7/6	3	substrate - plaster

Color Chips



NOTE: The colors represented here do not necessarily match what you would see when viewing the actual Munsell Color Notation System chips due to the inherent variations of electronic scanning and printing discrepancies.

Individual Sample Sheets

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #1:	**Location of sample:** Perimeter wall, by cistern at NE corner, brick
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: none**
By: NFL	**Top Color:** Yellow
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Blue	5PB 7/4	
	Red	10R 7/4	
	Yellow	10YR 7/8	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #2:	**Location of sample:**
Date Taken: 10/29/18	Wall: by west gate, exterior, see A on dwg
By: JDF	
Date Examined: January 14, 2019	**Substrate: none**
By: NFL	**Top Color:** Bright Yellow
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Red	7.5R7/6	
	Beige	10Y 7/1	
	Yellow	10YR 8/6	
	Bright Yellow	10YR 7/8	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #3:	**Location of sample:**
Date Taken: 10/29/18	Wall: by west gate, exterior, see B on dwg
By: JDF	
Date Examined: January 14, 2019	**Substrate: concrete/stucco**
By: NFL	**Top Color: Bright Yellow**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Warm white	5Y9/1	
	Dark red	10R4/8	Thin layer
	Beige	10Y 7/1	
	Yellow	10YR8/6	
	Bright Yellow	10YR 7/8	Thin

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #4:	**Location of sample:** Cistern wall NE corner brick
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: concrete/stucco**
By: NFL	**Top Color: Dark gray**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Red	7.5R7/6	
	Lemon Yellow	5Y8.5/4	
	Blue green	10G7/2	Thin layer, possible copper particles, inconsistent color
	White	5Y 9/1	
	Yellow	10YR 8/6	
	Dark Gray	10Y 5/1	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Note: Incontiguous layers

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #5:	**Location of sample:** Cistern wall NE corner brick
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: concrete/stucco**
By: NFL	**Top Color: Dark Gray**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Red	7.5R7/6	
	Lemon Yellow	5Y8.5/4	
	Blue Green	10G 7/2	
	White	5Y 9/1	
	Yellow	10YR 8/6	
	Dark gray	10Y5/1	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Note: Incontiguous layers; dirt between layers

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #6:	**Location of sample:** Cistern #1: by 2nd floor entry stairs, brick
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: concrete/stucco**
By: NFL	**Top Color: bright yellow**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Red	7.5R 7/6	
	Beige	10Y 7/1	thick stucco
	Bright Yellow	10YR 7/8	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #7:	**Location of sample:** Cistern #1: by 2nd floor entry stairs
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: concrete/stucco**
By: NFL	**Top Color: Bright yellow**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Red	7.5R 7/6	
	Dark Red	10R 4/8	
	Lemon Yellow	5Y 8.5/4	
	Blue Green	10G 7/2	
	White	5Y 9/1	
	Tan		
	Dark Gray	10Y5/1	
	Tan		
	Dark Tan		
	Bright Yellow	10YR 7/8	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Note: layers intermixing

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #8:	**Location of sample:** Cistern #1: by 2nd floor entry stairs
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: concrete/stucco**
By: NFL	**Top Color: Bright yellow**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Red	7.5R 7/6	
	Dark Red	10R 4/8	
	Lemon Yellow	5Y 8.5/4	
	Blue Green	10G 7/2	
	White	5Y 9/1	
	Tan		
	Dark Gray	10Y5/1	
	Tan		
	Dark Tan		
	Bright Yellow	10YR 7/8	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Note: appears to match sample #7, but more deteriorated and more mixing of layers

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #9:	**Location of sample:** Stairs to 2nd floor, south cheek wall, south elevation
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: None**
By: NFL	**Top Color:** Bright Yellow
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Red	7.5R 7/6	
	Lemon Yellow	5Y 8.5/4	
	White	5Y 9/1	
	*Crazy Teal	7.5BG 3/8	very bright, found nowhere else
	Yellow	10YR 8/6	
	Dark Gray	10Y 5/1	
	Yellow	10YR 8/6	
	Bright Yellow	10YR 7/8	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Note: intermixing of colors

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #10:	**Location of sample:** Stairs to 2nd floor, riser
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: concrete/stucco**
By: NFL	**Top Color:** Bright Yellow
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Red	7.5R 7/6	
	Dark Red	10R 4/8	
	Lemon Yellow	5Y 8.5/4	
	White	5Y 9/1	
	Yellow	10YR 8/6	
	Bright Yellow	10YR 7/8	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #11:	**Location of sample:** Stairs to 2nd floor, riser
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate:** concrete/stucco
By: NFL	**Top Color: bright yellow**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Dark Red	10R 4/8	
	White	5Y 9/1	
	Yellow	10YR 8/6	
	Bright Yellow	10YR 7/8	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #12:	**Location of sample:** Kitchen at NE corner, beam over hearth
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: wood**
By: NFL	**Top Color: bright yellow**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Medium Gray	10Y 7/1	
	Yellow	10YR 8/6	
	Bright Yellow	10YR 7/8	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #13:	**Location of sample:** Kitchen at NE corner, hearth face
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate:** concrete/stucco
By: NFL	**Top Color: bright yellow**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Yellow	10YR 8/6	
	Bright Yellow	10YR 7/8	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #14:	**Location of sample:** Kitchen at NE corner, interior elevation wall by door
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate:** concrete/stucco
By: NFL	**Top Color:** Bright Yellow
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Yellow	10YR 8/6	
	Bright Yellow	10YR 7/8	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #15:	Kitchen at west perimeter, south elevation, stucco
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate:** concrete/stucco
By: NFL	**Top Color:**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Red	7.5R 7/6	
	Yellow	10YR 8/6	
	Bright Yellow	10YR 7/8	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #16:	**Location of sample:** Kitchen at west perimeter, east elevation window
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate:** wood
By: NFL	**Top Color:** green
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Green	2.5G 4/4	
	Neutral White	N9.5 90.0%R	
	Dark Green	5G 3/4	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #17:	**Location of sample:** Kitchen at west perimeter, east elevation wall
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate:** concrete/stucco
By: NFL	**Top Color: bright yellow**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Red	7.5R 7/6	
	Dark Red	10R 4/8	
	Dark Gray	10Y 5/1	
	Yellow	10YR 8/6	
	Bright Yellow	10YR 7/8	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #18:	**Location of sample:** Window 1.3
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate:** wood
By: NFL	**Top Color:** Neutral White
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	White	5Y 9/1	
	Neutral White	N9.5 90.0%R	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #19:	**Location of sample:** Window 1.5, newish window
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: wood**
By: NFL	**Top Color:** Neutral White
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	White	5Y 9/1	
	Neutral White	N9.5 90.0%R	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #20:	**Location of sample:** Door 102, double doors, white. PO lobby, intersection of rail and stile
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: wood**
By: NFL	**Top Color: neutral white**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	White	5Y 9/1	
	Neutral White	N9.5 90.0%R	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #21:	**Location of sample:** Door 104, exiting by/to loading dock frame
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: wood**
By: NFL	**Top Color: neutral white**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	White	5Y 9/1	
	Neutral White	N9.5 90.0%R	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #22:	**Location of sample:** Door 104, outer doors, green, newish
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: wood**
By: NFL	**Top Color: dark green**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Green	2.5G 4/4	
	Dark Green	5G 3/4	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #23:	**Location of sample:** Door 104, outer door, steel hardware, green
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: wood**
By: NFL	**Top Color: dark green**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Green	2.5G 4/4	
	Dark Green	5G 3/4	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #24:	**Location of sample:** Dormer (see ① on dwg below)
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: wood**
By: NFL	**Top Color: neutral white**
Data:	

Approx Historic Date	Layer Description (color, varnish, dirt, etc.)	Munsell #	Characteristics
*	White	5Y 9/1	
	Neutral White	N9.5 90.0%R	

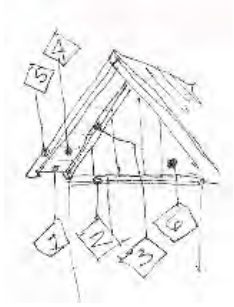
Further Observations, Documentation or Sketches: *** = Original Paint Layer**



Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #25:	**Location of sample:** Dormer (see ② on dwg)
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: wood**
By: NFL	**Top Color: neutral white**
Data:	

Approx Historic Date	Layer Description (color, varnish, dirt, etc.)	Munsell #	Characteristics
*	White	5Y 9/1	
	Neutral White	N9.5 90.0%R	

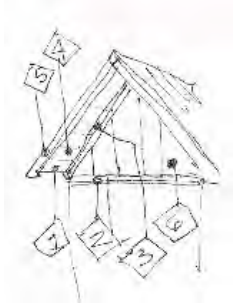
Further Observations, Documentation or Sketches: *** = Original Paint Layer**



Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #26:	**Location of sample:** Dormer (see ③ dwg)
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: wood**
By: NFL	**Top Color: Neutral white**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	White	5Y 9/1	
	Neutral White	N9.5 90.0%R	

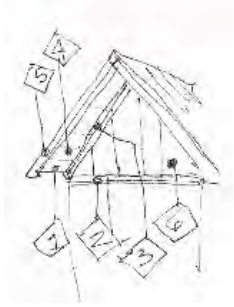
Further Observations, Documentation or Sketches: *** = Original Paint Layer**



Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #27:	**Location of sample:** Dormer (see ④ on dwg)
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: wood**
By: NFL	**Top Color: Neutral White**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	White	5Y 9/1	
	Neutral White	N9.5 90.0%R	

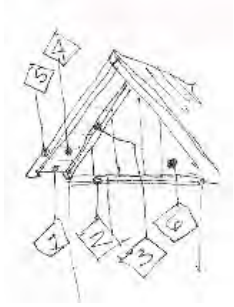
Further Observations, Documentation or Sketches: *** = Original Paint Layer**



Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #28:	**Location of sample:** Dormer (see ⑤ on dwg)
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: concrete/stucco**
By: NFL	**Top Color:** Neutral White
Data:	

Approx Historic Date	Layer Description (color, varnish, dirt, etc.)	Munsell #	Characteristics
*	White	5Y 9/1	
	Neutral White	N9.5 90.0%R	

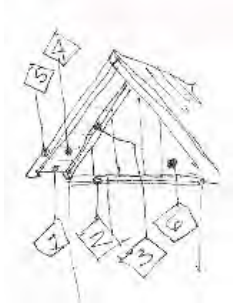
Further Observations, Documentation or Sketches: *** = Original Paint Layer**



Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #29:	**Location of sample:** Dormer (see ⑥ on dwg)
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: wood**
By: NFL	**Top Color:** Neutral White
Data:	

Approx Historic Date	Layer Description (color, varnish, dirt, etc.)	Munsell #	Characteristics
*	White	5Y 9/1	
	Neutral White	N9.5 90.0%R	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**



Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #30:	**Location of sample:** Postal work room, south elevation behind stainless steel panel
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: plaster**
By: NFL	**Top Color: Green**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Tan	10YR 7/4	
	Green	2.5GY 6/2	varnish over

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #31:	**Location of sample:** Postal work room, south elevation behind stainless steel panel
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: plaster**
By: NFL	**Top Color: green**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Tan	10YR 7/4	
	Green	2.5GY 6/2	varnish over

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #32:	**Location of sample:** Postal work room, south elevation behind stainless steel panel
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: plaster**
By: NFL	**Top Color: spring**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Spring	10GY 7/4	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #33:	**Location of sample:** Postal work room, south elevation behind stainless steel panel
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: plaster**
By: NFL	**Top Color: Green**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Tan	10YR 7/4	
	Green	2.5GY 6/2	varnish over

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #34:	**Location of sample:** Postal work room, south elevation behind stainless steel panel, interior south
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: plaster**
By: NFL	**Top Color: Green**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Tan	10YR 7/4	
	Green	2.5GY 6/2	varnish over

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #35:	**Location of sample:** Shelf above west wall double door @ right
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: plaster**
By: NFL	**Top Color: Neutral white**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Neutral White	N9.5 90.0%R	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #36:	**Location of sample:** Shelf above double doors @ west wall , right side
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: plaster**
By: NFL	**Top Color:** Bright Yellow
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Red	7.5R 7/6	
	Yellow	10YR 8/6	
	Bright Yellow	10YR 7/8	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Identification: Danish West India and Guinea Company Warehouse	
Project:	
Location: Christiansted, St. Croix, USVI	**Structure:**
Sample #37:	**Location of sample:** Ledge above double door, west side, right
Date Taken: 10/29/18	
By: JDF	
Date Examined: January 14, 2019	**Substrate: plaster**
By: NFL	**Top Color: neutral white**
Data:	

Approx Historic Date	**Layer Description (color, varnish, dirt, etc.)**	**Munsell #**	**Characteristics**
*	Red	7.5R 7/6	
	Dark Red	10R 4/8	
	Neutral White	N9.5 90.0%R	

Further Observations, Documentation or Sketches: *** = Original Paint Layer**

Appendix D: XRF Report

BUILT ENVIRONMENT EVOLUTION

Built Environment Evolution
PO Box 21433
Boulder, Colorado 80308
303-562-5872

March 3, 2019

Prepared for

John Feinberg
The Collaborative Inc
2080 Pearl Street
Boulder, CO 80302

Prepared by

FINDINGS
for the

DANISH WEST INDIA AND GUINEA COMPANY WAREHOUSE (GCW) XRF ANALYSIS

(H-4, LCS 7029)

BUILT ENVIRONMENT EVOLUTION

TABLE OF CONTENTS

COVER	1
TABLE OF CONTENTS	2
INTRO TO PORTABLE XRF	3
DESCRIPTIONS OF SAMPLES	4
FINDINGS	5
NUMERICAL RESULTS	8
ANALYSIS RESULTS	11
XRF SPECTROMETER SPECIFICATIONS	13

PO BOX 21433 BOULDER, CO 80308 303.562.5872

INTRO TO PORTABLE XRF TESTING

One of the greatest challenges in the conservation field is correctly identifying materials, whether for the purpose of studying and understanding an object, for the purpose of conserving an object for future generations, or for the purpose of restoring an object that has been damaged or degraded over time. Elemental composition—such as provided by XRF technology—is used in the study of historical materials in order to ascertain provenance and fabrication technology; to distinguish between original and non-original materials (i.e. materials that are the product of a previous conservation effort); and to determine the course of treatment.

XRF is an acronym for x-ray fluorescence, a process whereby electrons are displaced from their atomic orbital positions, releasing a burst of energy that is characteristic of a specific element. This release of energy is then registered by the detector in then XRF instrument, which in turn categorizes the energies by element. The process occurs in small factions of a second. A measurement using this process and a modern handheld XRF gun can be made in a matter of seconds. The actual time required for a measurement will depend on the nature of the sample and the levels of interest. High percentage levels will take a few seconds while part-per-million levels will take a few minutes. Handheld X-ray fluorescent (pXRF) analyzers have the capability to quantify or qualify nearly any element from Magnesium to Uranium, depending on specific instrument configurations. Portable XRF spectrometers allow you to take the battery operated analyzer to the sample rather than bringing the sample into the lab.

The Bruker Tracer III V has been used by BEE since 2013. Often used in conservation labs, for field geology, and for archeology, the pXRF Bruker Tracer has been used by BEE for the conservation of the built environment, testing materials in-situ, and enhancing the documentation process. The learning curve in reading the pXRF, analyzing the results, and creating the best practices for field testing continue to develop to make BEE one of the best consultants in the US and abroad with the Bruker pXRF Tracer.

PO BOX 21433 BOULDER, CO 80308 303.562.5872

DESCRIPTION OF SAMPLES

TEST PROTOCOL

Six samples were delivered to the BEE laboratories for elemental analysis using the portable XRF Spectrometer. Each sample was tested with settings to evaluate the largest spectrum of components in the materials, with settings at 15keV and no additional filters. This allows for the widest spectrum of elemental to be analyzed. Typically if specific elements are known to be part of the sample, testing would include a second stage of investigation, with the addition of filters to narrow the spectrum to the specific known elements. However the samples from the DANISH WEST INDIA AND GUINEA COMPANY WAREHOUSE (GCW) were unknown and a protocol with broad results was required for the initial identifications of the constituents.

Sample #	Location Description
35a	Exterior, Shelf above west wall double door @ right, painted surface
35b	Exterior, Shelf above west wall double door @ right, exposed stucco surface
36a	Exterior, Shelf above double doors @ west wall, right side, painted surface
36b	Exterior, Shelf above double doors @ west wall , right side, exposed stucco surface
37a	Exterior, Ledge above double door, west side, right, painted surface
37b	Exterior, Ledge above double door, west side, right, exposed stucco surface

Each sample was taken from the exterior stucco coatings of the GCW. Visual inspection of the samples show multiple layers, of what appears to be white wash of various colors and layers of paint coving a gray stucco coating. Visual inspection of the samples did not allow for a determination of the coatings' components, and XRF testing was suggested, both for the documentation of original coatings, as well for assessing the treatments of the surface over time. Some portions of the samples provided appeared to be in fair - good condition, while other areas of samples showed signs of surface deterioration. Samples showed signs of maintenance of the surfaces, but with sufficient time between coatings to allow for deterioration between coatings.

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FINDINGS

Three samples were examined, with testing on the front and the back surfaces. The front (a) of each sample had what visually appeared to be lime wash and multiple layers of paint. The back side (b) of each sample appeared to be the raw surface of the scratch coat of the stucco finish that was sampled. Analysis of all the samples had similar elements, with no additional elements that may indicate an unusual treatment or a decorative finish. There were differences between the “a” and “b” samples that correspond to the difference in surfaces. All “a” samples had a paint coating with the pigments and binders associated with paint. “b” samples were the stucco and showed differences between samples, indicating different stucco formulas were used in the various locations sampled. Differences in the stucco samples were consistent with the variations seen in hand-mixed mortars and stuccos.

Paint Coatings - “a” Samples

Samples 35a and 36a appear to have different coatings than 37a. Samples 35a and 36a have high readings for titanium and zinc, indicating a paint film that must be from a period later than 1925. The ratios of titanium to other elements would typically indicate a modern paint, from the 1970s or later. An addition element found in the paint layer for both 35a and 36a includes barite, an earth element added to paint, often with zinc, to improve coverage.

Sample 37a shows a higher reading for calcium, indicating a lime wash was used at this location in a different manner than at the sample locations for 35a and 36a. There is also a dip in the readings for the titanium and zinc at this location, indicating more lime wash and less modern paints. Slight variations in typical elements used as pigments indicate a difference in colors over time from each of the sample locations. This indicates that the three sample locations did not match one another over the course of the life cycle of the stucco coating. No gold, cadmium, or cobalt pigments were found in quantities that would indicate a decorative or expensive treatment at the sample locations.

Stucco Renders - “b” Samples

Sample 35b, 36b and 37b all have similar stucco renders, all with high counts for calcium, indicating a lime stucco. Also found was unusually high counts of

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antimony, possibly used to color the stucco and the lime wash in sample 37a a yellow color (see clipping below). Another component in the stucco was high counts for Chlorine. At first this was assumed to be part of a marine environment, as chlorides typically infiltrate the masonry units near coast lines, as well as receiving atmospheric deposits. However chlorides from a marine environment also include sulfides, of which there were little to none found. Chlorides are also often found in plastics and petroleum products. This would not be typical for a historic stucco, which the addition of antimony would suggest, or a historic recipe recreated for a modern coating. Chlorides at this level may indicate a modern penetrating treatment used either for consolidation or adhesion of repairs. Chlorides were detected on all samples, with lower readings on all "a" samples, perhaps due to the Chlorides being intrinsic to the stucco but still measurable through the paint coatings. Alternately if a product has been applied over the paint and stucco, with addition paint added later, then results could be similar.

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Stucco to Imitate Coloured Stones. — This industry now engaged the attention of our artist, and he explored unknown regions where mortars were mixed with metals and metallic oxides with a view to discovering "things precious," as Ruskin would call them, that he might offer them to a wondering and grateful profession. Crude antimony reduced to powder and ground with lime and lime-water acted exactly as sulphur did; but the colour, chameleon-like, changed in an erratic way, first being blue, then brown, and afterwards yellow, so that a man might in the morning leave his house coloured a peacock blue and come back in the evening to find it changed to old gold, the intensity of the colours and the rapidity of the change being dependent on the quantity of ozone in the air at the time. Regulus of antimony was tried, too; but its action was the same as that of any other hard body in powder. It may be explained here that regulus of antimony is, or rather was, a metallic ore consisting of antimony and sulphur, and that when antimony is fused it rises in white fumes or runs to a hyacinthine glass, the former being known to chemists in Higgins's time as "Argentine flowers of regulus of antimony," and either the glass or the flowers could be produced by regulating the heat to which the metal was subjected. Powdered lead matt and potter's ore of lead acted like crude antimony. White-lead was exceedingly injurious mixed with lime, for it converts the latter into whiting, and the lead becomes massicot, so that there is no analogy between calcareous water cements and oil cements. Arsenic and orpiment were badly behaved too, the orpiment being at first a dark-brown colour, which completely disappeared after changing to yellow; orpiment is arsenic and sulphur. Martial pyrites, or that variety of it called mundic, came next for trial. For the sake of these old-time names of chemical substances, they are so refined and suggestive of true nobility, Higgins's experiments are worth recording. With flux of time everything became lowered in tone—vulgarised, in fact. The professions are no longer up to the standard of one hundred years ago, for

Clipping from "The Building News and Engineering Journal, Volume 88", dated Feb 24, 1905

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XRF SPECTRA

SAMPLES 35a, 35b
SAMPLES 36a, 36b
SAMPLES 37a, 37b

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CHART OF NUMERICAL RESULTS

PHOTON COUNTS

Element	#35a	#35b	#36a	#36b	#37a	#37b
Mg (Magnesium, 12)	1	19	18	7	6	10
Al (Aluminum, 13)	94	94	167	117	95	79
Si (Silicon, 14)	452	471	493	453	314	378
S (Sulfur, 16)	61	82	34	63	122	120
Cl (Chlorine, 17)	1369	3062	1200	1826	2649	3114
Ar (Argon, 18)	784	708	618	757	653	690
K (Potassium, 19)	180	2	991	132	67	1
Ca (Calcium, 20)	2758	38108	1426	33486	40190	46979
Ti (Titanium, 22)	102250	922	73330	785	1701	360
Cr (Chromium, 24)	0	22	2	47	104	35
Mn (Manganese, 25)	159	333	108	171	122	129
Fe (Iron, 26)	6143	16673	36563	15159	53817	8888
Co (Cobalt, 27)	95	216	445	241	574	152
Ni (Nickel, 28)	153	285	1	265	314	405
Cu (Copper, 29)	290	298	181	224	230	277
Zn (Zinc, 30)	20329	11130	38770	1372	1346	936
As (Arsenic, 33)	143	221	49	157	92	1
Cd (Cadmium, 48)	8	6	4	8	7	2
Sb (Antimony, 51)	227	5636	5	5127	6293	7327

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Te (Tellurium, 52)	612	2677	59	2505	3299	2670
Ba (Barium, 56)	4704	0	3196	0	0	72
Au (Gold, 79)	215	85	203	119	17	123
Pb (Lead, 82)	1	31	28	13	109	70

The XRF measures elemental components via photon fluorescence. The chart above shows the photon counts for each sample. Notable and significant numbers have been highlighted. Orange highlights show higher counts worth noting, while blue highlights show lower counts. Estimates of “high” and “low” counts are specific to the project base line for each element, and do not necessarily correlate to samples from other projects, or other objects. The ratios are determined specifically by the samples provided.

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ANALYSIS OF RESULTS

Ca - Calcium is a critical component in lime mortars and stuccos. Counts for samples showed calcium in all the “b” samples, indicating lime stuccos at all three sample locations. One surface sample, #37a, showed a significant count for calcium indicating a lime wash for one of the layers of the surface treatment.

Fe - Iron is the most common element on earth, so often there are high counts found in earthen samples, and typically it would indicate the local sands are heavy in iron. However the pattern of sample peaks show both “a” and “b” samples with high iron and low iron. It is difficult to say why unless more is known about the locations of the samples and something of the history.

Zn, Ti - These two elements, Zinc and Titanium, are the base components of modern paints. Zinc and Titanium generally make up the white base pigments of the paint.

Cl - Chlorine was found in all the sample at high enough counts as to be considered significant. The “b” samples showed higher counts than the “a” samples, but all had counts over 1000. For the chlorine to have originated from a marine environment, sulfur, magnesium and potassium would typically be present. However none of these elements are found in the samples in quantities to indicate marine salts. Chlorine is often present in plastics and petrochemical based additives. Consolidants and adhesives typically have chlorine, and could be the possible source.

Sb, Te, Ba - These three elements, Antimony, Tellurium and Barium, are unusual components to find in stucco and paint. Research shows that antimony was a traditional additive for stucco to create a final deep gold color. Tellurium and Barium have not been found in research of traditional stuccos, but read in high enough counts to indicate they are additives. Antimony and Tellurium appear to both be added to the stucco and to the white wash. It is possible that they are naturally occurring, but a count between 2000-7000 would typically indicate an element that an additive.

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Pb - Lead is present in all the samples, but in such small quantities that it is not a major contributor to the paint. In these quantities, lead may be part of the local dirt or other items contaminating the samples. When lead is the base of the paint, counts of 10,000 or higher are typical.

Au - This element, Gold, is used to analyze locations of decorative paint. Typically gold is reserved for small localized areas in a decorative pattern, and is an excellent marker when investigating for hidden finishes. This site showed no samples with significant amounts of gold that would indicate reasons for a paint exposure window or additional paint analysis.

Additional elements were evaluated and analyzed, as certain samples may show “finger prints” or combinations of trace elements that are characteristic to a specific location or material tested. Nothing specific to this location was discovered, although 65 elements were evaluated. Some of these 65 elements were included in the chart above to inform the evaluations, as both elements that are present in significant counts as well as those elements that are missing from the sample.

Please contact BEE for any additional questions or information regarding samples evaluated.

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XRF SPECIFICATIONS

XRF SPECTROMETER SYSTEM SPECIFICATIONS

Brand	Bruker
Model	Tracer III SD
Technical Specs	
Anode composition	Ultra-thin Rhodium foil anode for high efficiency emission of low energy photons to maximize sensitivity to low a mass element like Na. The elemental range in frm Ne to Cf with the capability to measure trace amounts of radioactive elements without the use of the x ray tube
Anode: max. Voltage (V) / max. current (A)	45 kV / 45 micro amps
SDD detector diameter	10mm to provide the customer wit the Highest resolution maximum eds xrf data acquisition of all systems. (145 eV at Mn k line at data acquisition orates of 100,000 cps) Maximum sensitivity is assured by the closest detector sample/ spacing of all systems of 4mm, making the system capable of measuring Sr to levels of 1 ppm and Mg to levels of 0.03 weight percent in ceramics.
Beam Diameter on the samples	From 3mm to 1mm
Lowest beam diameter	1mm
Video Camera (type and if comes with illumination)	Cameral and built in illumination: Misumi MO-B1003, with lens LP10065-50LIR-31. The model number for the camera with lens and camera part numbers independently. 1/10” Color CCIQ II Pico camera White LED light x 4 Pixel: 400 x 400 (NTSC / Pal) 3300mV/Lux

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MATERIALS THAT CAN BENEFIT FROM XRF SPECTROMETER EVALUATION

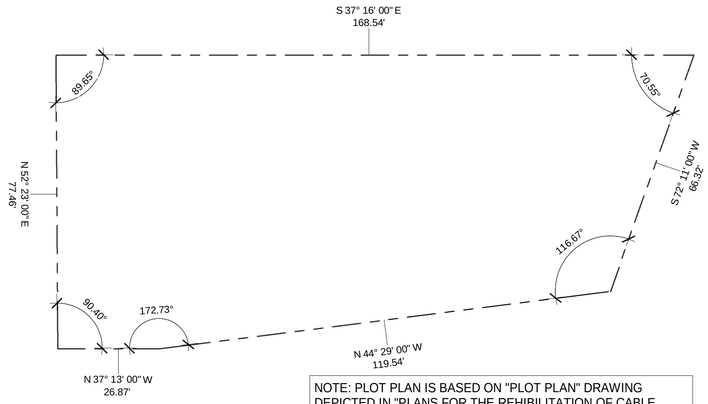
STONE • Identification • Match In-Kind • Identify An Original Quarry Location • Patterns Of Construction • Areas Of Deterioration • Patterns Of Chloride And Sulfide Infiltration • Areas Of An Applied Treatment, Treatment ID	BRICK • Identification • Match In-Kind • Identify An Original Brick Manufacturer • Patterns Of Construction • Areas Of Deterioration • Patterns Of Chloride And Sulfide Infiltration • Areas Of An Applied Treatment, Treatment ID
CONCRETE • Identification • Match In-Kind • Patterns Of Construction • Areas Of Deterioration • Patterns Of Chloride And Sulfide Infiltration • Areas Of An Applied Treatment, Treatment ID	TERRACOTTA • Identification • Match In-Kind • Identify Pigments Of The Original Glazing • Patterns Of Construction • Areas Of Deterioration
PAINT • Pigment Identification • Match In-Kind • Patterns Of Construction • Areas Of Deterioration • Areas Of An Applied Treatment, Treatment ID	PLASTER • Identification • Match In-Kind • Patterns Of Construction • Areas Of An Applied Treatment
METAL • Identification • Match In-Kind • Identification Of Inclusions • Patterns Of Construction • Areas Of Deterioration • Areas Of An Applied Treatment	WOOD • Areas Of An Applied Treatment • Deterioration of Applied Treatments SOILS • Identification • Identification Of Inclusions • Areas Of An Applied Treatment

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Appendix E: Full Set of TCI-Generated Drawings

DANISH WEST INDIA AND GUINEA COMPANY WAREHOUSE AND ASSOCIATED STRUCTURES ON THE SITE

CHRISTIANSTED NATIONAL HISTORIC SITE , ST CROIX, VIRGIN ISLANDS



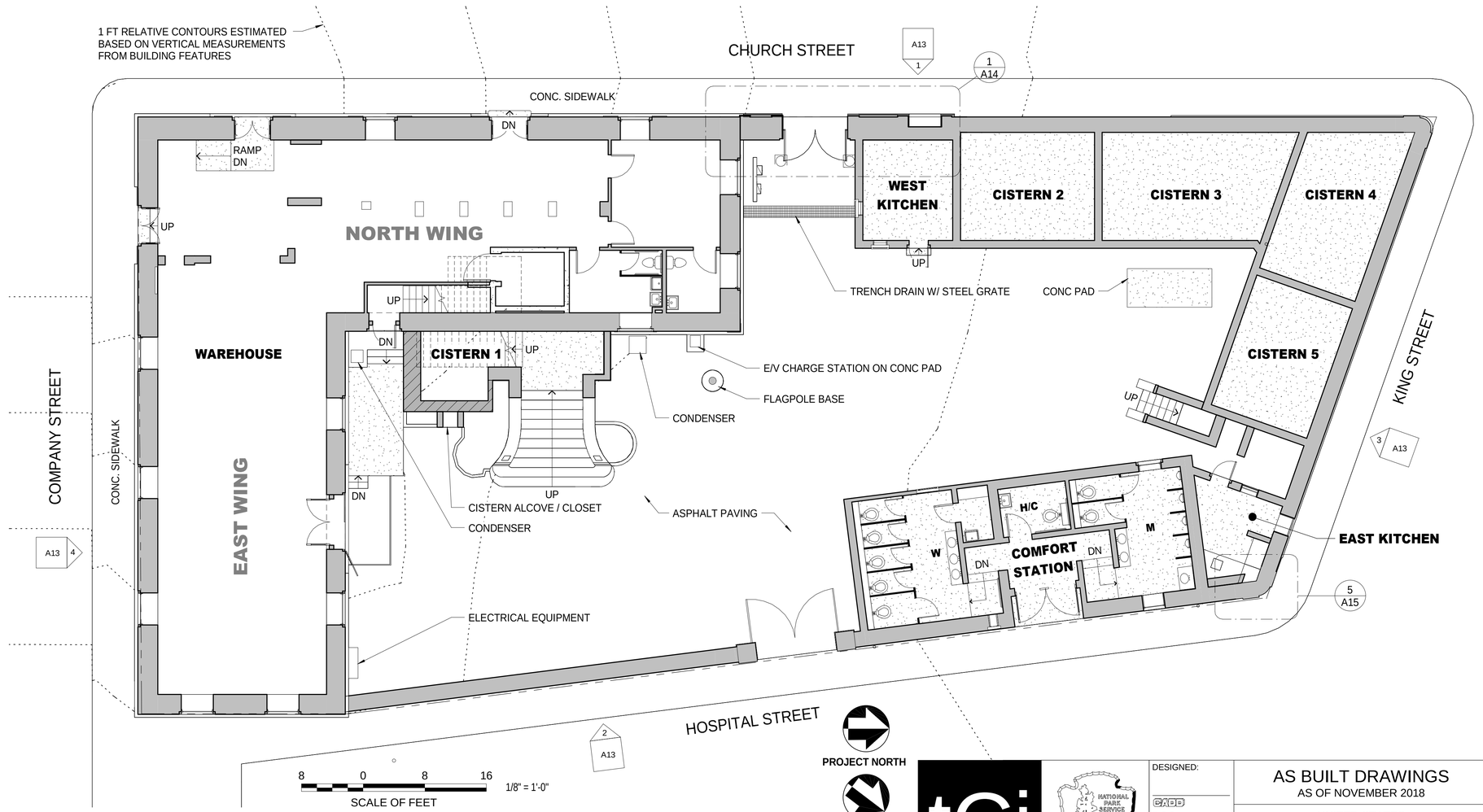
NOTE: PLOT PLAN IS BASED ON "PLOT PLAN" DRAWING DEPICTED IN "PLANS FOR THE REHIBILITATION OF CABLE HOUSE FOR A U.S. POST OFFICE BUILDING", DATED 3/1/1939

PROJECT NORTH

TRUE NORTH

2 PLOT PLAN - PROJECT NORTH

SCALE: 1" = 20'-0"

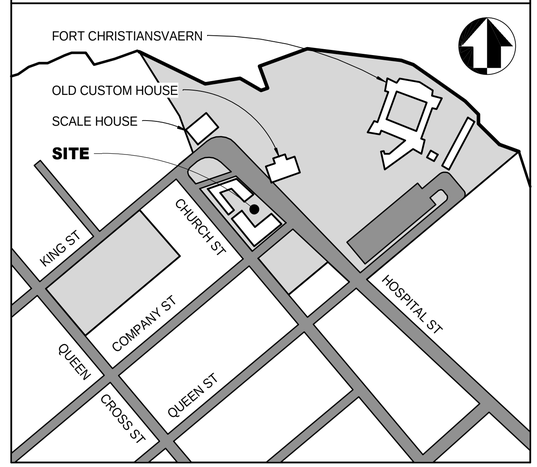


1 SITE PLAN

SCALE: 1/8" = 1'-0"

NOTE: PLAN CUT LEVEL VARIES ACROSS SITE. SHOWN APPX 4'-0" ABOVE NEAREST BUILDING FLOOR LEVEL

VICINTY MAP



PROJECT TEAM

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Boulder, CO 80302 — New York, NY 10005
(303) 444-3620 — (917) 647-9530
dwoodham@ana-usa.com

PROJECT INDEX

SHEET NO.	DESCRIPTION
A1	COVER SHEET / SITE PLAN
A2	3D SITE VIEWS
A3	WAREHOUSE FLOOR PLAN
A4	WAREHOUSE FLOOR PLAN
A5	WAREHOUSE ROOF PLAN
A6	WAREHOUSE ELEVATIONS
A7	WAREHOUSE ELEVATIONS
A8	WAREHOUSE SECTIONS
A9	COURTYARD BUILDINGS FLOOR PLAN
A10	COURTYARD BUILDINGS ROOF PLAN
A11	COURTYARD BUILDING ELEVATIONS
A12	COURTYARD ELEVATIONS, BUILDING SECTIONS
A13	SITE ELEVATIONS
A14	CHURCH STREET WALL FEATURES
A15	HOSPITAL STREET WALL FEATURES
A16	CRACK ANALYSIS ELEVATIONS
A17	CRACK ANALYSIS ELEVATIONS
A18	WINDOW / DOOR SHEET
A19	CHRONOLOGY / SITE EVOLUTION PLANS
A20	CHRONOLOGY / GCW EVOLUTION PLANS
A21	CODE ANALYSIS / ULTIMATE TREATMENT PLAN
A22	TESTING & SAMPLE LOCATIONS
A23	TESTING & SAMPLE LOCATIONS

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DESIGNED:

DOS

TECH. REVIEW: DRB

DATE 10-31-2019

AS BUILT DRAWINGS
AS OF NOVEMBER 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE
SOUTHEAST REGIONAL OFFICE

SUB SHEET NO. A1

TITLE OF DRAWING
COVER SHEET / SITE PLAN
LOCATION WITHIN PARK
DWI GCW
NAME OF PARK
CHRISTIANSTED NATIONAL HISTORIC SITE
REGION SOUTHEAST | CITY CHRISTIANSTED | STATE ST. CROIX, U.S.V.I.

DRAWING NO.

PMIS / PKG NO. ---

SHEET 1 OF 23

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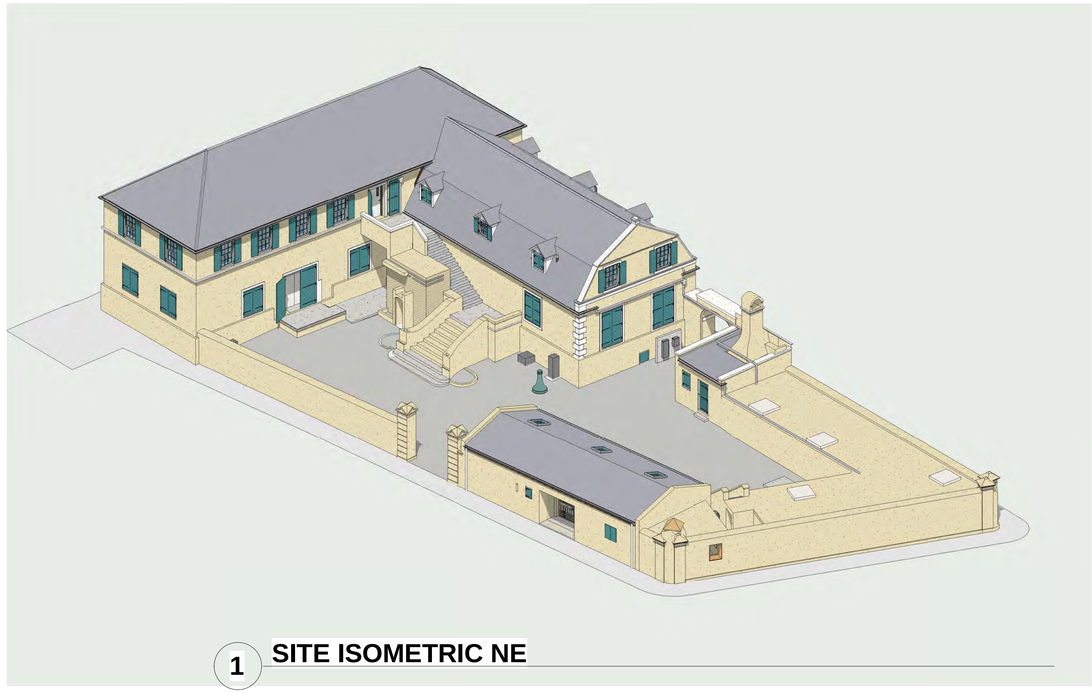
4 SITE PERSPECTIVE NE



3 SITE PERSPECTIVE SW



2 SITE ISOMETRIC SW



1 SITE ISOMETRIC NE

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NATIONAL PARK SERVICE
Department of the Interior

DESIGNED: DADD DOS TECH. REVIEW: --- DATE 10-31-2019	SUB SHEET NO. A2	TITLE OF SHEET 3D SITE VIEWS CHRISTIANSTED NATIONAL HISTORIC SITE	DRAWING NO. --- PMIS/PKG NO. --- SHEET 2 OF 23

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SHUTTERS SHOWN IN CLOSED POSITION

DN 2R

RAMP DN

STAINLESS STL RAILING

100' - 4"

100' - 0"

17' - 3"

4' - 0"

37' - 3"

14' - 7"

3' - 0"

27' - 10"

PUBLIC LOBBY
102

POSTAL LOBBY
101

SOFFIT W/ VERT METAL BARS ABV, TYP EA BAY

QUARRY TILE FLOORING

ASPHALT PLANKING FLOORING

OFFICE
103

UP 2R

SOFFIT W/ VERT METAL BARS ABV

NORTH WING

CRAWLSPACE ACCESS DOOR

VAULT
106

(STOR. SPACE ABV VAULT - ACCESS FROM STAIR LANDING)

WOMEN'S BATH
105

MEN'S BATH
104

DOOR FRAME. NO DOOR. ARCH DOOR HEAD

T-BAR GRID CEILING W/ FLUORESCENT FIXTURES 9'-0" A.F.F.

17' - 10"

9' - 7"

12' - 9"

7' - 7"

UP 21R

DN

26' - 11"

CONDENSER

CISTERN 1

3R @ 20" TTL
2T @ 11" EA

10' - 5"

VEHICLE CHARGING STATION

FLAGPOLE BASE

77' - 6 1/2"

2' - 7"

2' - 3"

7' - 7"

11' - 7"

CONC CURB AT PLANTER

CONC PAD

METAL PIPE HANDRAIL

UP

CONC CURB AT PLANTER

PLANTER IN STAIR WALL, EA SIDE

EAST WING

WORK ROOM
108

DN
3R @ 20.5" TTL
2T @ 10" EA

55' - 9"

26' - 11"

78' - 2"

49' - 8 1/2"

51' - 3"

11' - 6"

SECURITY SYSTEM PANEL

T-BAR GRID CEILING W/ FLUORESCENT FIXTURES 9'-0" A.F.F.

5' - 4 1/2"

DROPPED SURROUND

CONDENSORS SUSPENDED FROM FLOOR ABV

ELEC SUB-PANEL

ELEC EQUIPMENT

4 0 4 8
SCALE OF FEET

1/4" = 1'-0"

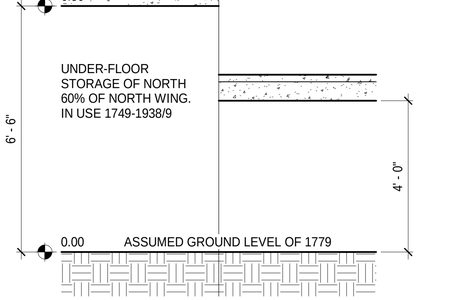
PROJECT NORTH

1 WAREHOUSE FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

NOTE: DIMENSIONS ARE APPROXIMATE DUE TO VARIANCES IN HANDMADE MASONRY CONSTRUCTION

STORAGE	CRAWLSPACE
1749 - 1939	1939 ON



2 WAREHOUSE NORTH WING FLOOR HISTORY DIAGRAM

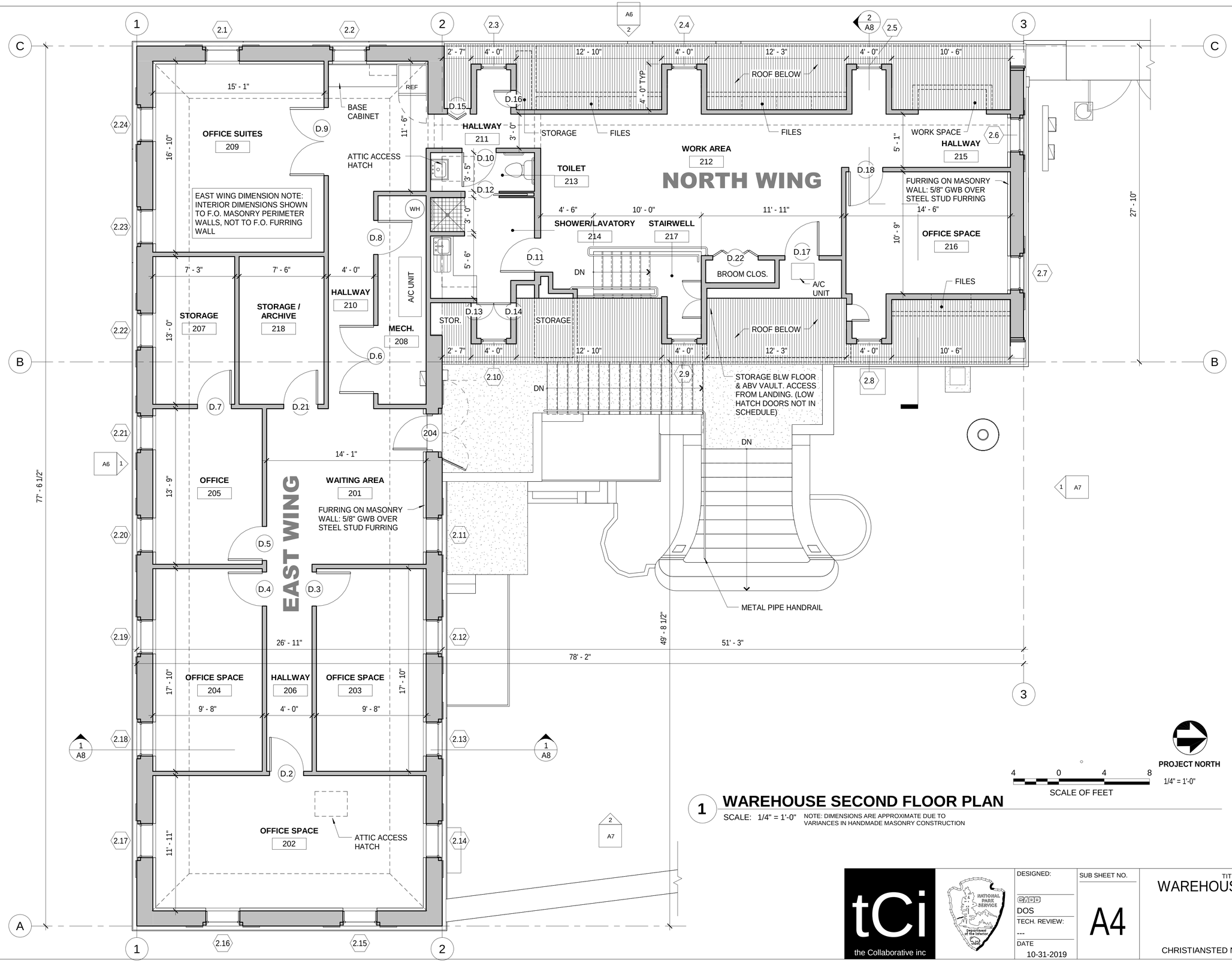
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TECH. REVIEW:	---
DATE	10-31-2019
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TITLE OF SHEET	WAREHOUSE FLOOR PLAN
	CHRISTIANSTED NATIONAL HISTORIC SITE
DRAWING NO.	
PMIS/PKG NO.	---
SHEET	3 OF 23

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1 WAREHOUSE SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"

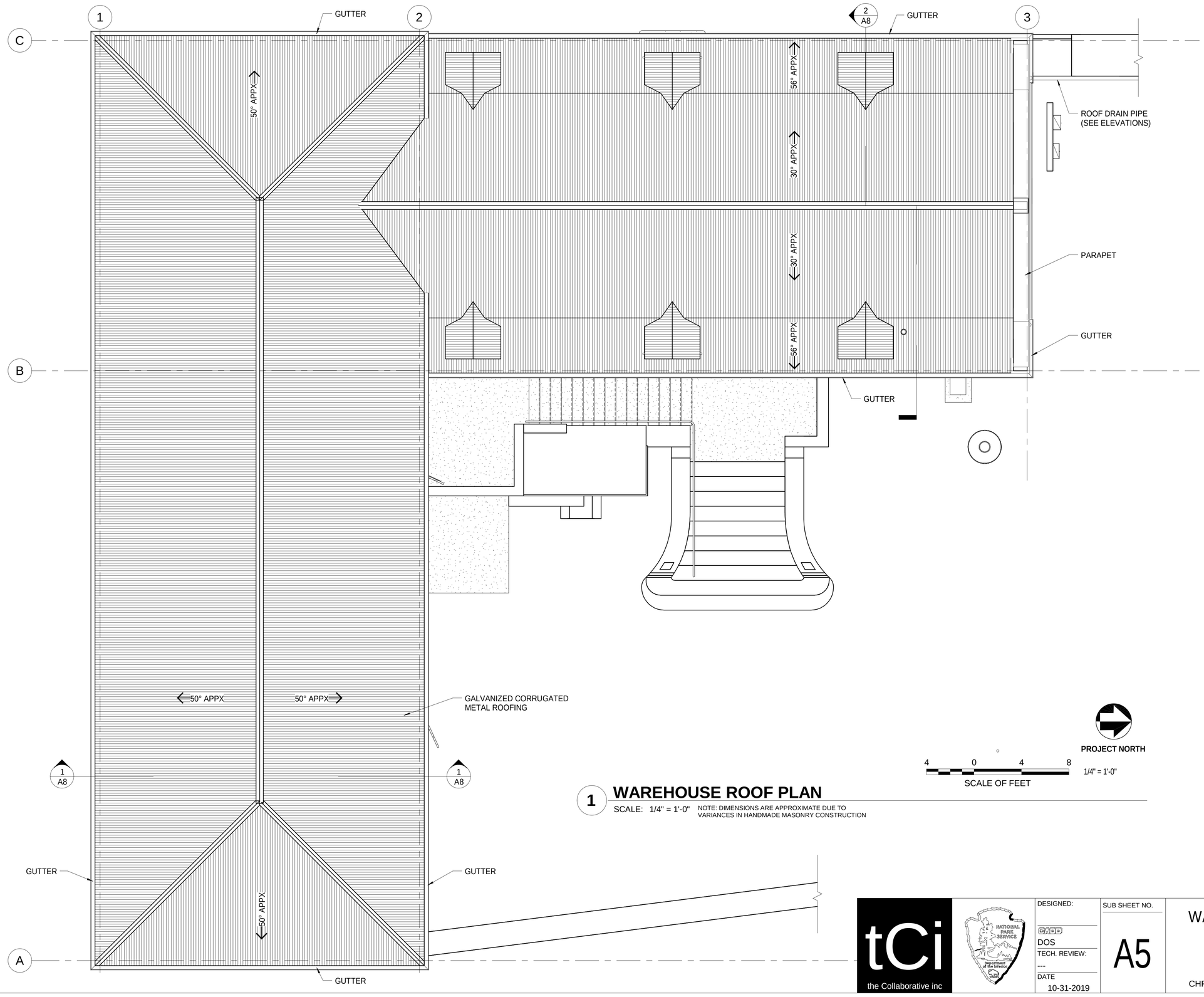
NOTE: DIMENSIONS ARE APPROXIMATE DUE TO VARIANCES IN HANDMADE MASONRY CONSTRUCTION

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DESIGNED: DOS	SUB SHEET NO. A4	TITLE OF SHEET: WAREHOUSE FLOOR PLAN	DRAWING NO.
TECH. REVIEW: ---			PMIS/PKG NO. ---
DATE 10-31-2019		CHRISTIANSTED NATIONAL HISTORIC SITE	SHEET 4 OF 23

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PROJECT NORTH

4 0 4 8

SCALE OF FEET

1/4" = 1'-0"

1 WAREHOUSE ROOF PLAN

SCALE: 1/4" = 1'-0"

NOTE: DIMENSIONS ARE APPROXIMATE DUE TO VARIANCES IN HANDMADE MASONRY CONSTRUCTION

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Department of the Interior

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TECH. REVIEW:	---
DATE	10-31-2019
SUB SHEET NO.	A5
TITLE OF SHEET	WAREHOUSE ROOF PLAN
	CHRISTIANSTED NATIONAL HISTORIC SITE
DRAWING NO.	
PMIS/PKG NO.	---
SHEET	5 OF 23

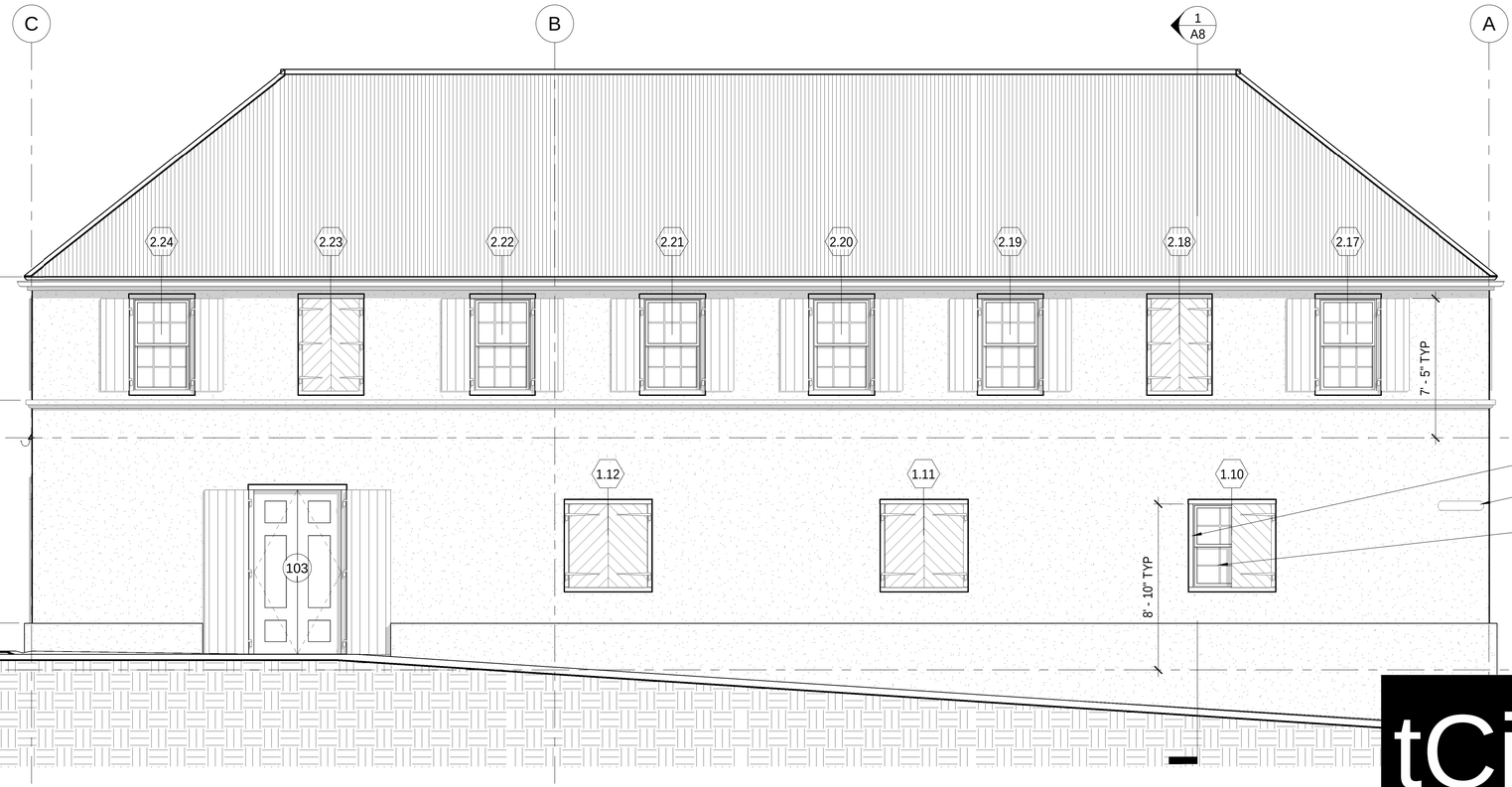
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2 WAREHOUSE WEST ELEVATION

SCALE: 1/4" = 1'-0" NOTE: DIMENSIONS ARE APPROXIMATE DUE TO VARIANCES IN HANDMADE MASONRY CONSTRUCTION



TYPICAL EXTERIOR MATERIALS
ROOFING: CORRUGATED GALVANIZED SHEET METAL
DORMER SIDING: SHEET METAL
DORMER GABLE END SIDING: VERTICAL WOOD
TYP EXTERIOR: STUCCO OVER MASONRY
CISTERN 1 EXTERIOR: BRICK
WOOD SHUTTERS
WOOD WINDOWS
WOOD DOORS

NOTE: SUBSTRATE MATERIALS OF EACH WALL MAY DIFFER IN CLOSE PROXIMITY

4 0 4 8
1/4" = 1'-0"
SCALE OF FEET

1 WAREHOUSE SOUTH ELEVATION

SCALE: 1/4" = 1'-0" NOTE: DIMENSIONS ARE APPROXIMATE DUE TO VARIANCES IN HANDMADE MASONRY CONSTRUCTION

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DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
DADE	A6	WAREHOUSE ELEVATIONS	
DOS			PMIS/PKG NO. ---
TECH. REVIEW: ---			SHEET 6 OF 23
DATE 10-31-2019		CHRISTIANSTED NATIONAL HISTORIC SITE	

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2 WAREHOUSE EAST ELEVATION

SCALE: 1/4" = 1'-0" NOTE: DIMENSIONS ARE APPROXIMATE DUE TO VARIANCES IN HANDMADE MASONRY CONSTRUCTION



1 WAREHOUSE NORTH ELEVATION

SCALE: 1/4" = 1'-0" NOTE: DIMENSIONS ARE APPROXIMATE DUE TO VARIANCES IN HANDMADE MASONRY CONSTRUCTION

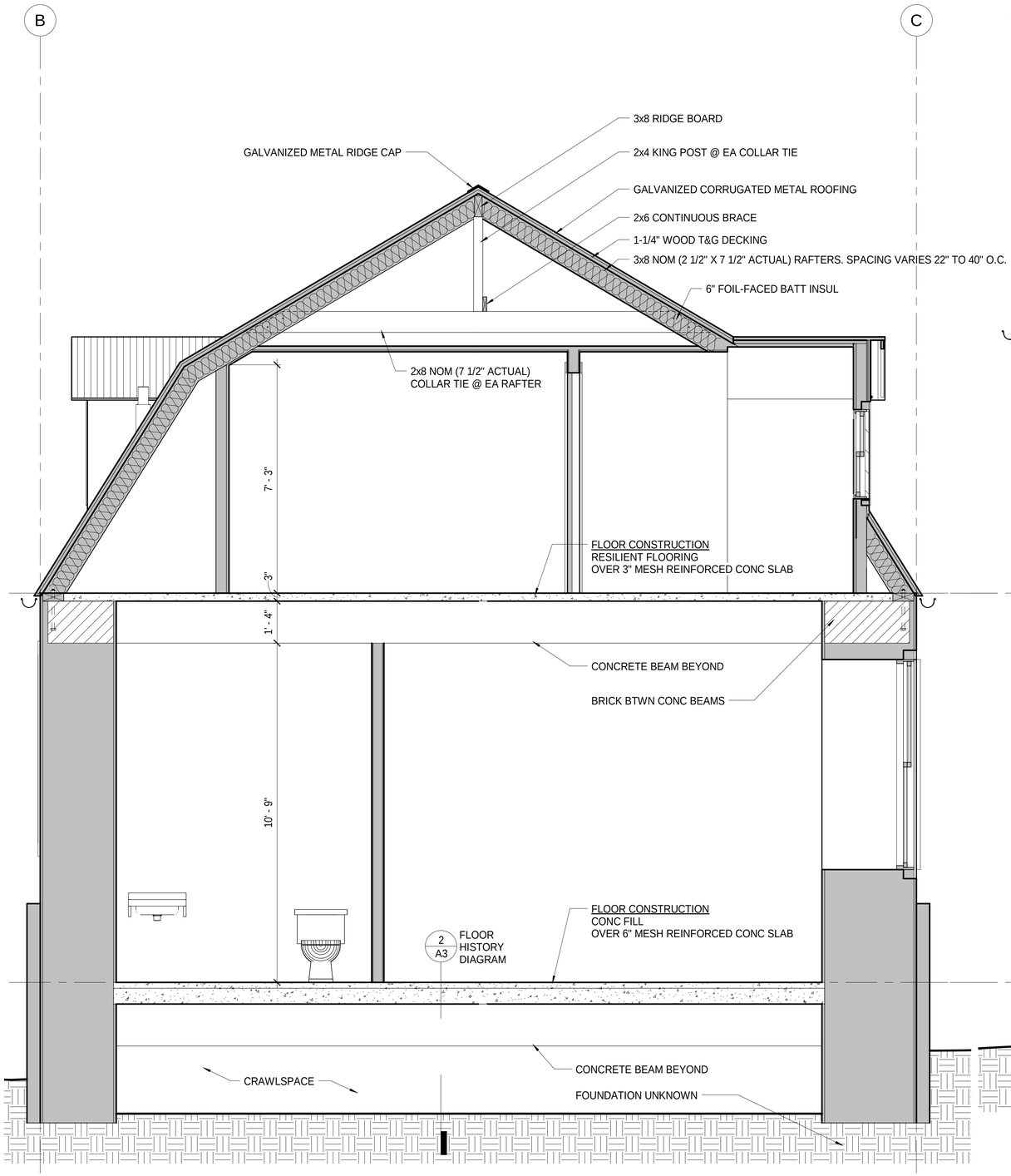
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DESIGNED: DAEP	SUB SHEET NO. A7	TITLE OF SHEET: WAREHOUSE ELEVATIONS	DRAWING NO. ---
DOS			PMIS/PKG NO. ---
TECH. REVIEW: ---		CHRISTIANSTED NATIONAL HISTORIC SITE	SHEET 7 OF 23
DATE 10-31-2019			

6/29/15 13:42 DSACHS R15 C:\SERS\DAVID SACHS\DOCUMENTS\BROOKIE114.FORKED LIGHTNING RANCH\ARCHITECTURAL DRAWINGS\TEMP NPS TITLEBLOCK.DWG

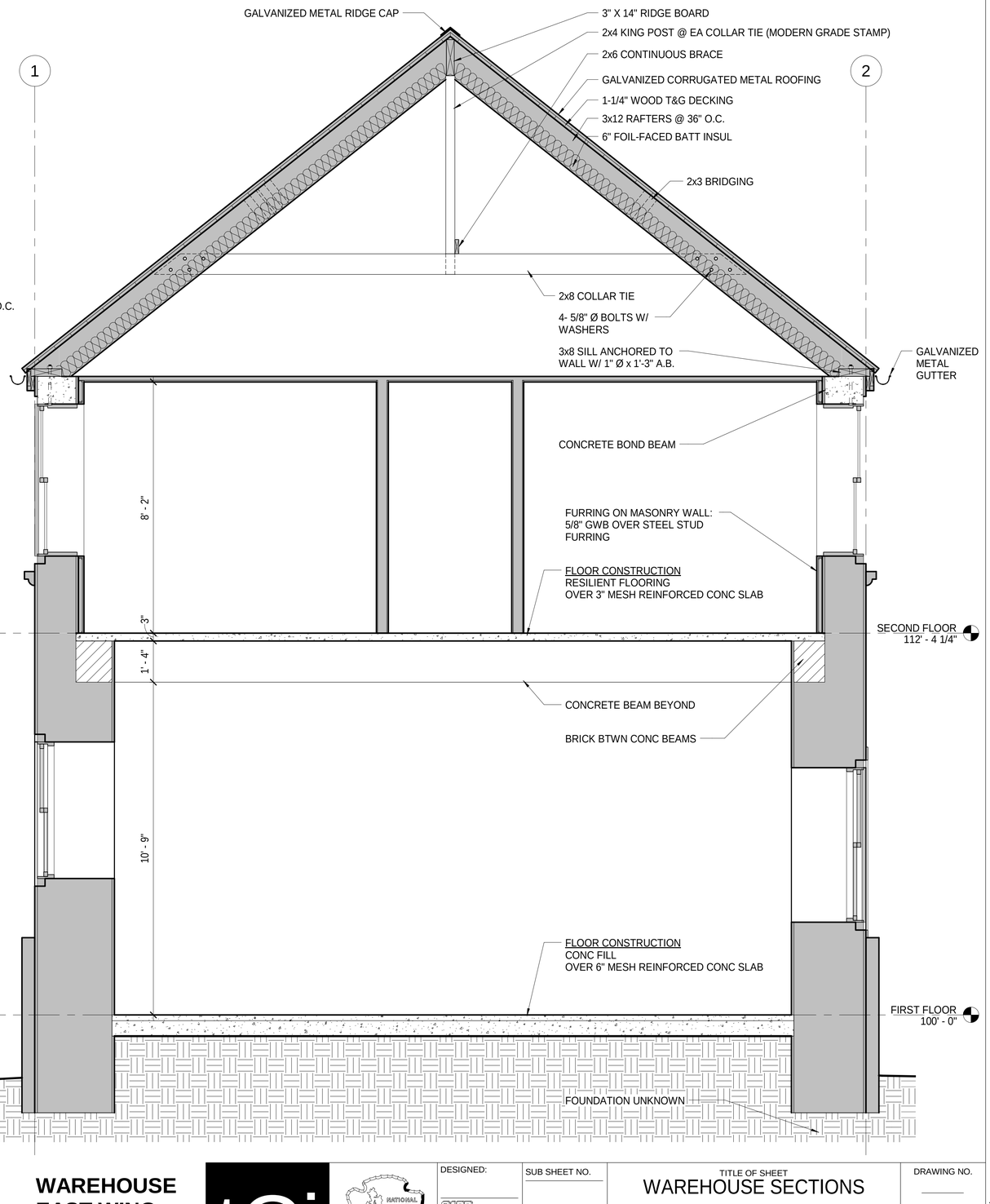
10/31/2019 3:04:26 PM



2 WAREHOUSE NORTH WING SECTION

SCALE: 1/2" = 1'-0"

NOTE: DIMENSIONS ARE APPROXIMATE DUE TO VARIANCES IN HANDMADE MASONRY CONSTRUCTION



1 WAREHOUSE EAST WING SECTION

SCALE: 1/2" = 1'-0"

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DESIGNED:	DADD
	DOS
TECH. REVIEW:	---
DATE	10-31-2019
SUB SHEET NO.	A8
TITLE OF SHEET	WAREHOUSE SECTIONS
	CHRISTIANSTED NATIONAL HISTORIC SITE
DRAWING NO.	---
PMIS/PKG NO.	---
SHEET	8 OF 23

6/29/15 13:42 DSACHS R15 C:\SERS\DAVID SACHS\DOCUMENTS\BROOKIE\14-FORKED LIGHTNING RANCH\ARCHITECTURAL DRAWINGS\TEMP NPS TITLEBLOCK.DWG

10/31/2019 3:04:27 PM

CHURCH STREET

3
C
B
G.1
4 A12
1 A14
4 A14
"WHEEL GUARD" BOLLARDS
ELEC PANELS MOUNTED TO CONC PANEL
14' - 0 1/2"
A12 1
TRENCH DRAIN W/ STEEL GRATE
WEST KITCHEN
3 A12
CISTERN 2
CISTERN 3
CISTERN 4
K1-101
2 A12
13' - 8"
CONC PAD (UNUSED)
51' - 9"
20' - 7"
A11 2
CISTERN 5
5' - 0"
UP
KING STREET
FLAGPOLE BASE
2 A23
45' - 6"
13' - 0"
6' - 0"
8' - 10"
15' - 1"
5 A12
A11 3
CS.2
CS.1
H/C
C.1
C.2
WOMEN'S
MEN'S
COMFORT STATION
16' - 9"
4' - 0"
11' - 0"
4' - 0"
DN
DN
14' - 8"
A11 6
VENT OPENINGS ABV (3 TYP)
17' - 3"
G.2
G.3
METAL GATES
1 A15
5 A11
HOSPITAL STREET
K2-101
K2.1
A11 1
12' - 2"
4 A11
EAST KITCHEN
10' - 3"
6' - 3"
5 A15
3 A13
C.2

PROJECT NORTH

4 0 4 8
SCALE OF FEET
1/4" = 1'-0"

1 COURTYARD BUILDINGS FLOOR PLAN

SCALE: 1/4" = 1'-0"

NOTE: DIMENSIONS ARE APPROXIMATE DUE TO VARIANCES IN HANDMADE MASONRY CONSTRUCTION

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DESIGNED: DAEP DOS	SUB SHEET NO. A9	TITLE OF SHEET: COURTYARD BUILDINGS FLOOR PLAN	DRAWING NO.
TECH. REVIEW: ---			PMIS/PKG NO. ---
DATE 10-31-2019		CHRISTIANSTED NATIONAL HISTORIC SITE	SHEET 9 OF 23

6/29/15 13:42 DSACHS R15 C:\SERS\DAVID SACHS\DOCUMENTS\BROOKIE\L14 FORKED LIGHTNING RANCH\ARCHITECTURAL DRAWINGS\TEMP NPS TITLEBLOCK.DWG

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CHURCH STREET

4
A12

ROOF DRAIN PIPE

KITCHEN CHIMNEY

WEST KITCHEN

CISTERN 2

CISTERN 3

CISTERN 4

CS.1

CS.2

CS.3

GUTTER

CISTERN LID, TYP

ROOF DRAIN PIPE

CISTERN 5

CS.4

KING STREET

DN

COMFORT STATION

5
A12

GUTTER

C.5

C.6

C.7

4" / 12"

4" / 12"

EAST KITCHEN

KITCHEN CHIMNEY

METAL SIGN HANGING BRACKET

GUTTER

HOSPITAL STREET

PROJECT NORTH

4 0 4 8

SCALE OF FEET

1/4" = 1'-0"

1 COURTYARD BUILDINGS ROOF PLAN

SCALE: 1/4" = 1'-0"

NOTE: DIMENSIONS ARE APPROXIMATE DUE TO VARIANCES IN HANDMADE MASONRY CONSTRUCTION

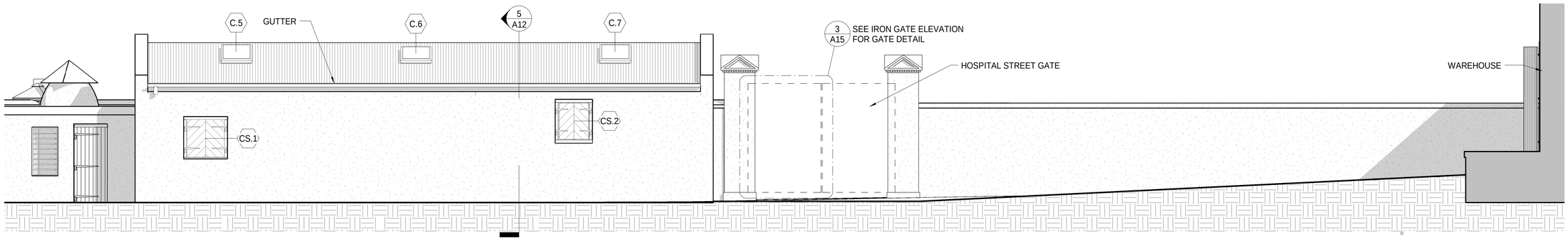
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DESIGNED: DAD DOS	SUB SHEET NO. A10	TITLE OF SHEET: COURTYARD BUILDINGS ROOF PLAN	DRAWING NO.
TECH. REVIEW: ---			PMIS/PKG NO. ---
DATE 10-31-2019		CHRISTIANSTED NATIONAL HISTORIC SITE	SHEET 10 OF 23

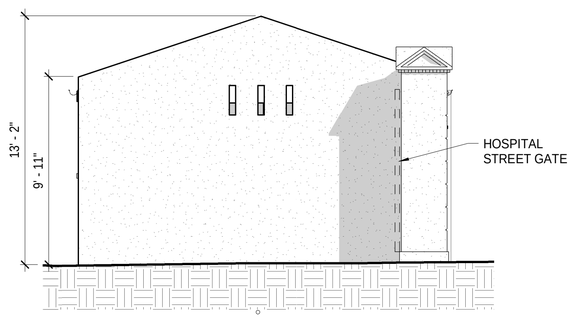
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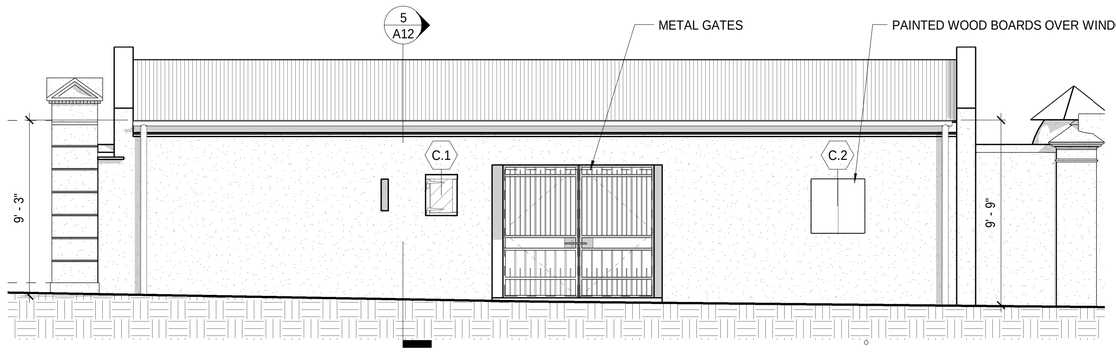
3 COURTYARD ELEVATION WEST

SCALE: 1/4" = 1'-0"



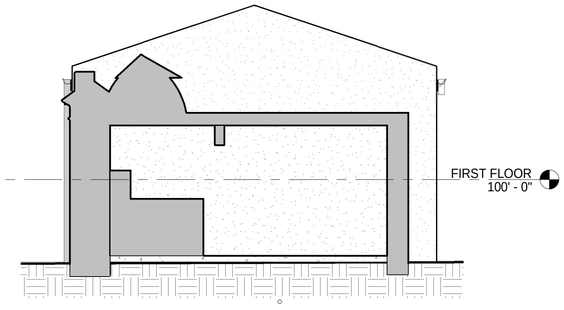
6 COMFORT STATION ELEVATION SOUTH

SCALE: 1/4" = 1'-0"



5 COMFORT STATION ELEVATION EAST (HOSPITAL STREET WALL)

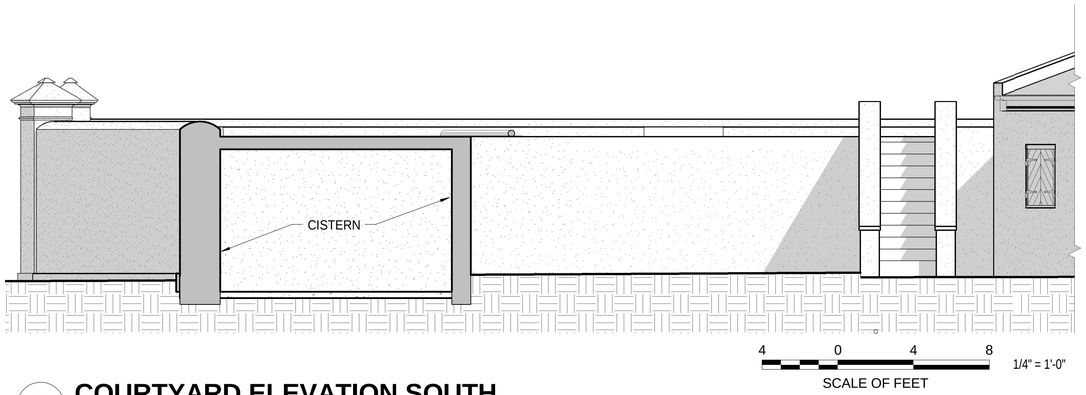
SCALE: 1/4" = 1'-0"



4 COMFORT STATION ELEVATION NORTH

SCALE: 1/4" = 1'-0"

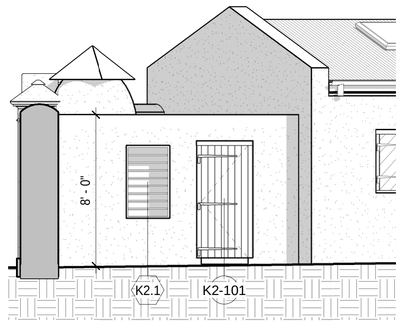
(SECTION THROUGH EAST KITCHEN)



2 COURTYARD ELEVATION SOUTH

SCALE: 1/4" = 1'-0"

(SECTION THROUGH CISTERN 3)



1 EAST KITCHEN ELEVATION WEST

SCALE: 1/4" = 1'-0"

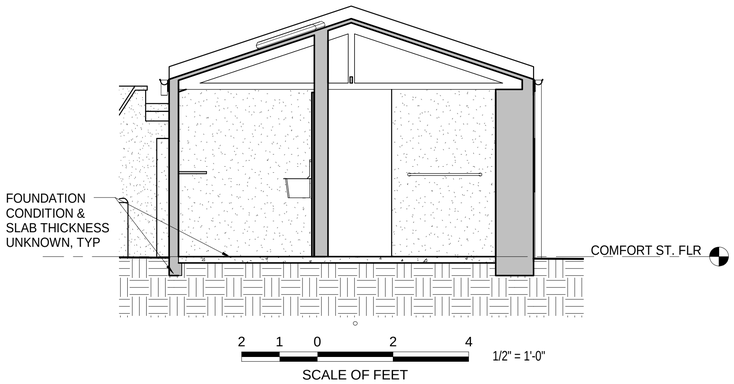
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DESIGNED:	
DOS	
TECH. REVIEW:	---
DATE	10-31-2019
SUB SHEET NO.	A11
TITLE OF SHEET	COURTYARD BUILDING ELEVATIONS
	CHRISTIANSTED NATIONAL HISTORIC SITE
DRAWING NO.	
PMIS/PKG NO.	---
SHEET	11 OF 23

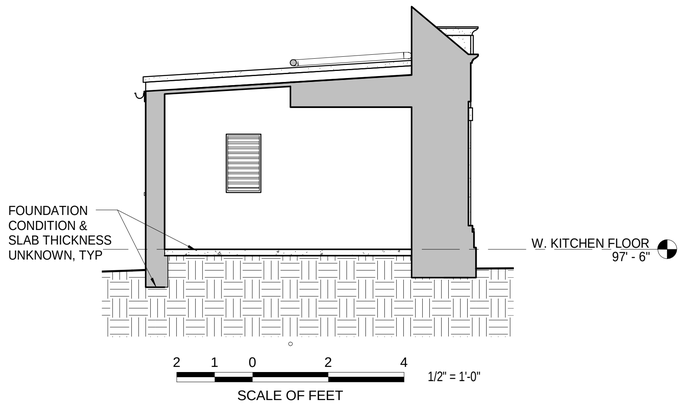
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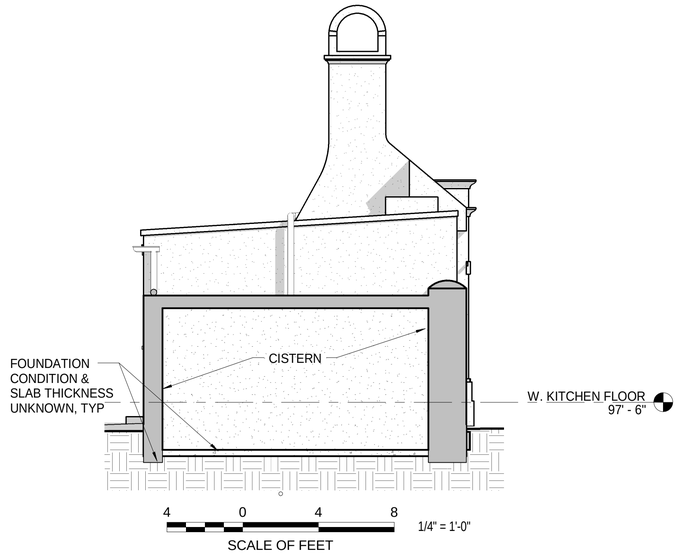
5 COMFORT STATION SECTION

SCALE: 1/4" = 1'-0"



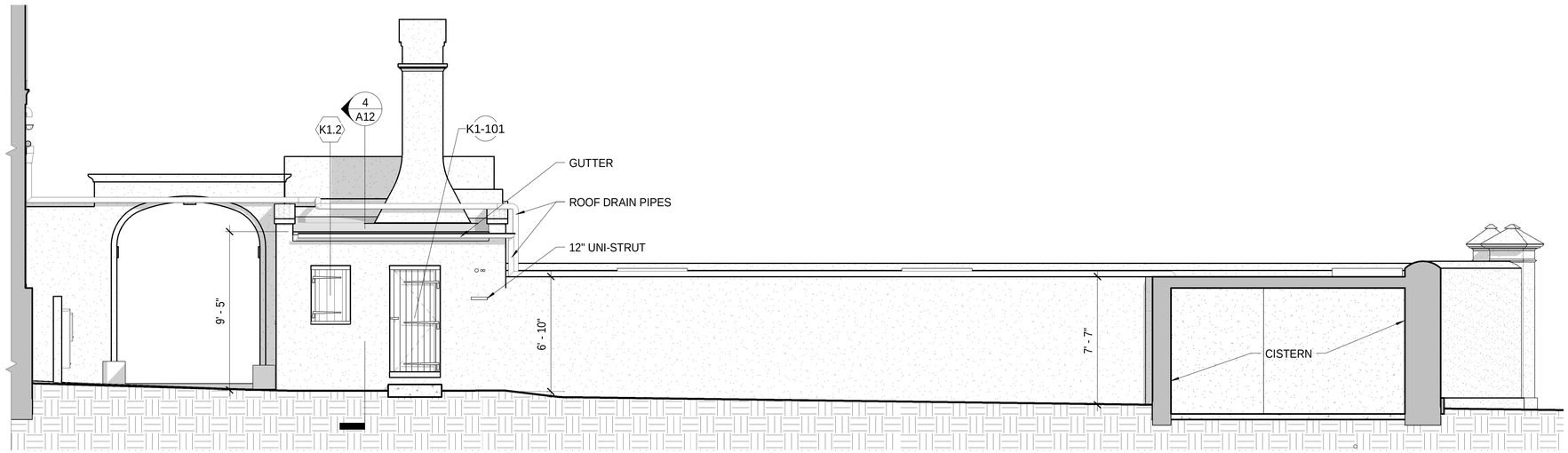
4 WEST KITCHEN BLDG SECTION

SCALE: 1/4" = 1'-0"



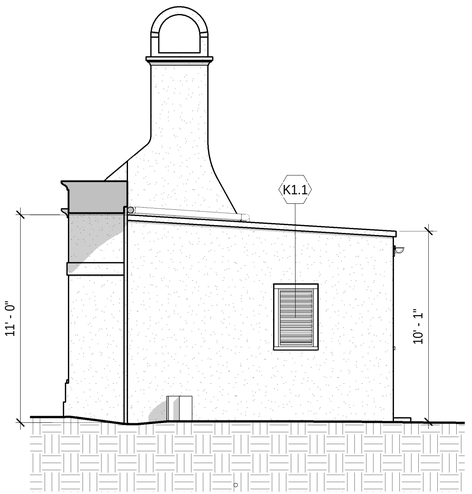
3 WEST KITCHEN ELEVATION NORTH

SCALE: 1/4" = 1'-0"



2 COURTYARD ELEVATION EAST

SCALE: 1/4" = 1'-0"



1 WEST KITCHEN ELEVATION SOUTH

SCALE: 1/4" = 1'-0"

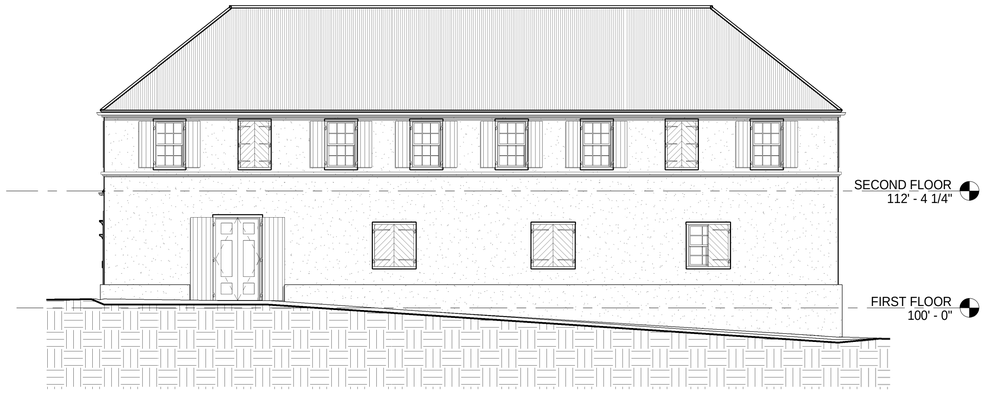
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DESIGNED: DOS	SUB SHEET NO. A12	TITLE OF SHEET: COURTYARD ELEVATIONS, BUILDING SECTIONS	DRAWING NO.
TECH. REVIEW: ---			PMIS/PKG NO. ---
DATE 10-31-2019		CHRISTIANSTED NATIONAL HISTORIC SITE	SHEET 12 OF 23

6/29/15 13:42 DSACHS R15 C:\SERS\DAVID SACHS\DOCUMENTS\BROOKIE114.FORKED LIGHTNING RANCH\ARCHITECTURAL DRAWINGS\TEMP NPS TITLEBLOCK.DWG

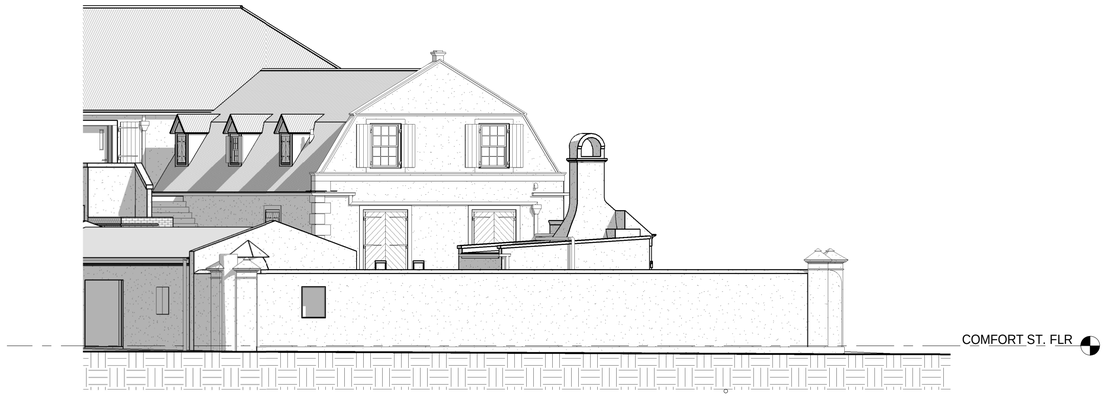
10/31/2019 3:04:35 PM



4 COMPANY STREET ELEVATION

SCALE: 1/8" = 1'-0"

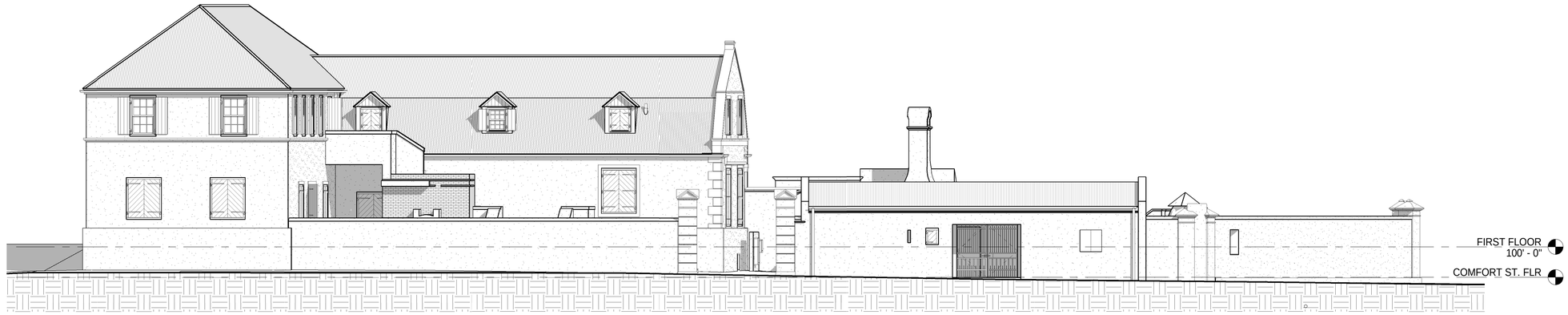
8 0 8 16
SCALE OF FEET
1/8" = 1'-0"



3 KING STREET ELEVATION

SCALE: 1/8" = 1'-0"

8 0 8 16
SCALE OF FEET
1/8" = 1'-0"



2 HOSPITAL STREET ELEVATION

SCALE: 1/8" = 1'-0"

8 0 8 16
SCALE OF FEET
1/8" = 1'-0"



1 CHURCH STREET ELEVATION

SCALE: 1/8" = 1'-0"

8 0 8 16
SCALE OF FEET
1/8" = 1'-0"

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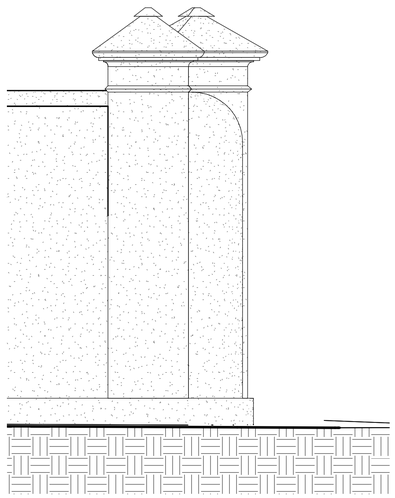
DESIGNED: DADD DOS	SUB SHEET NO. A13	TITLE OF SHEET: SITE ELEVATIONS	DRAWING NO. ---
TECH. REVIEW: ---			PMIS/PKG NO. ---
DATE 10-31-2019		CHRISTIANSTED NATIONAL HISTORIC SITE	SHEET 13 OF 23

6/29/15 13:42 DSACHS R15 C:\SERS\DAVID SACHS\DOCUMENTS\BROOKIE\14-FORKED LIGHTNING RANCH\ARCHITECTURAL DRAWINGS\TEMP NPS TITLEBLOCK.DWG
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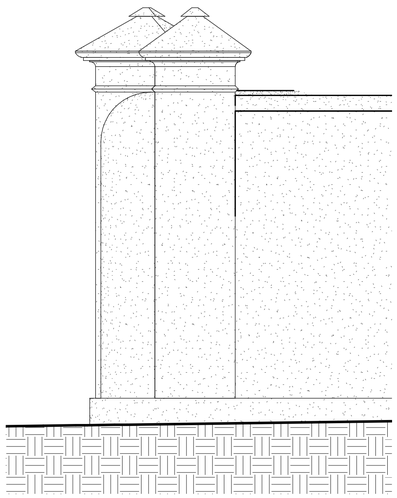
7 CHURCH STREET ELEVATION (COPY)

SCALE: 1/8" = 1'-0"



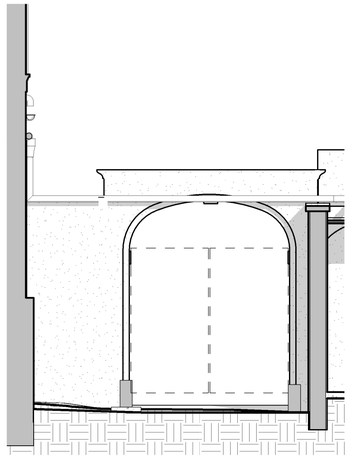
6 CORNER ELEV 1

SCALE: 1/2" = 1'-0"



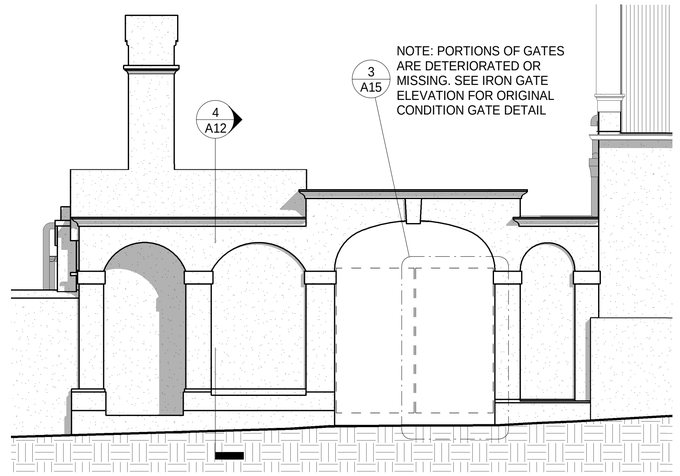
5 CORNER ELEV 2

SCALE: 1/2" = 1'-0"



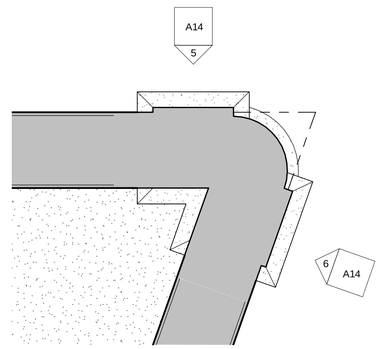
3 CHURCH ST. GATE INSIDE ELEV

SCALE: 1/4" = 1'-0"



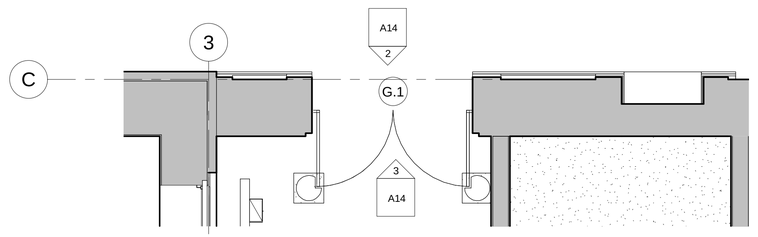
2 CHURCH STREET GATE ELEVATION

SCALE: 1/4" = 1'-0"



4 CHURCH / KING CORNER

SCALE: 1/2" = 1'-0"



1 CHURCH STREET GATE PLAN

SCALE: 1/4" = 1'-0"

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DESIGNED: DADP DOS	SUB SHEET NO. A14	TITLE OF SHEET: CHURCH STREET WALL FEATURES	DRAWING NO. ---
TECH. REVIEW: ---			PMIS/PKG NO. ---
DATE 10-31-2019		CHRISTIANSTED NATIONAL HISTORIC SITE	SHEET 14 OF 23

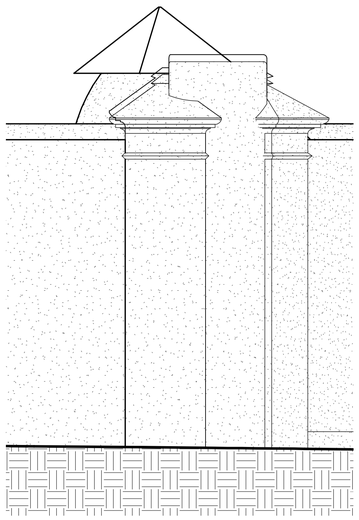
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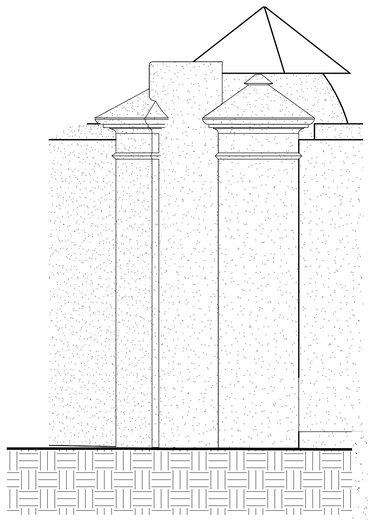
10/31/2019 3:04:47 PM



8 HOSPITAL STREET FEATURES ELEVATION

SCALE: 1/8" = 1'-0"



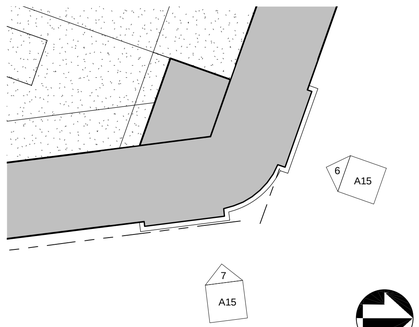


7 CORNER ELEV 4

SCALE: 1/2" = 1'-0"

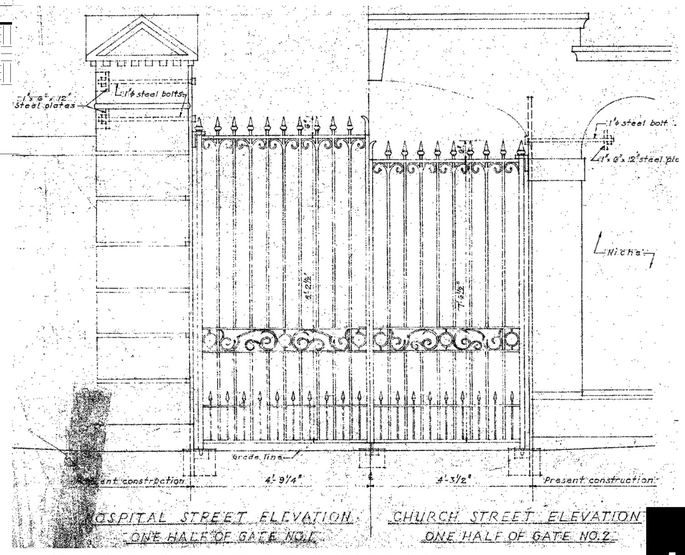
6 CORNER ELEV 3

SCALE: 1/2" = 1'-0"



5 HOSPITAL / KING CORNER

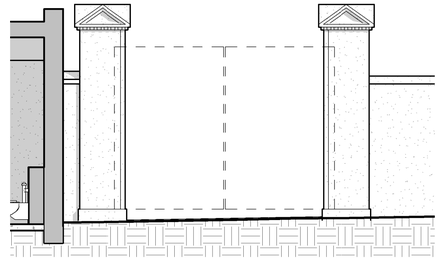
SCALE: 1/2" = 1'-0"



SCAN FROM "PLANS FOR THE REHABILITATION OF CABLE HOUSE FOR A U.S. POST OFFICE BUILDING". DATED 3/1/1939

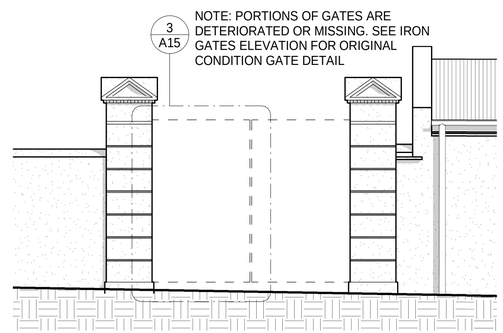
3 GATES ELEVATION PER 1939 DRAWINGS

SCALE: 1/2" = 1'-0"



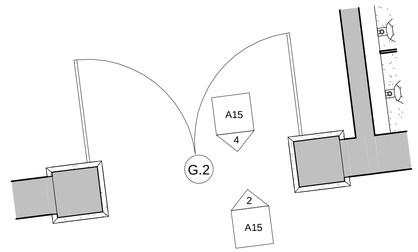
4 HOSPITAL STREET GATE INSIDE ELEV

SCALE: 1/4" = 1'-0"



2 HOSPITAL STREET GATE ELEV

SCALE: 1/4" = 1'-0"



1 HOSPITAL STREET GATE

SCALE: 1/4" = 1'-0"

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DESIGNED: DAD DOS	SUB SHEET NO. A15	TITLE OF SHEET: HOSPITAL STREET WALL FEATURES	DRAWING NO. ---
TECH. REVIEW: ---			PMIS/PKG NO. ---
DATE 10-31-2019		CHRISTIANSTED NATIONAL HISTORIC SITE	SHEET 15 OF 23

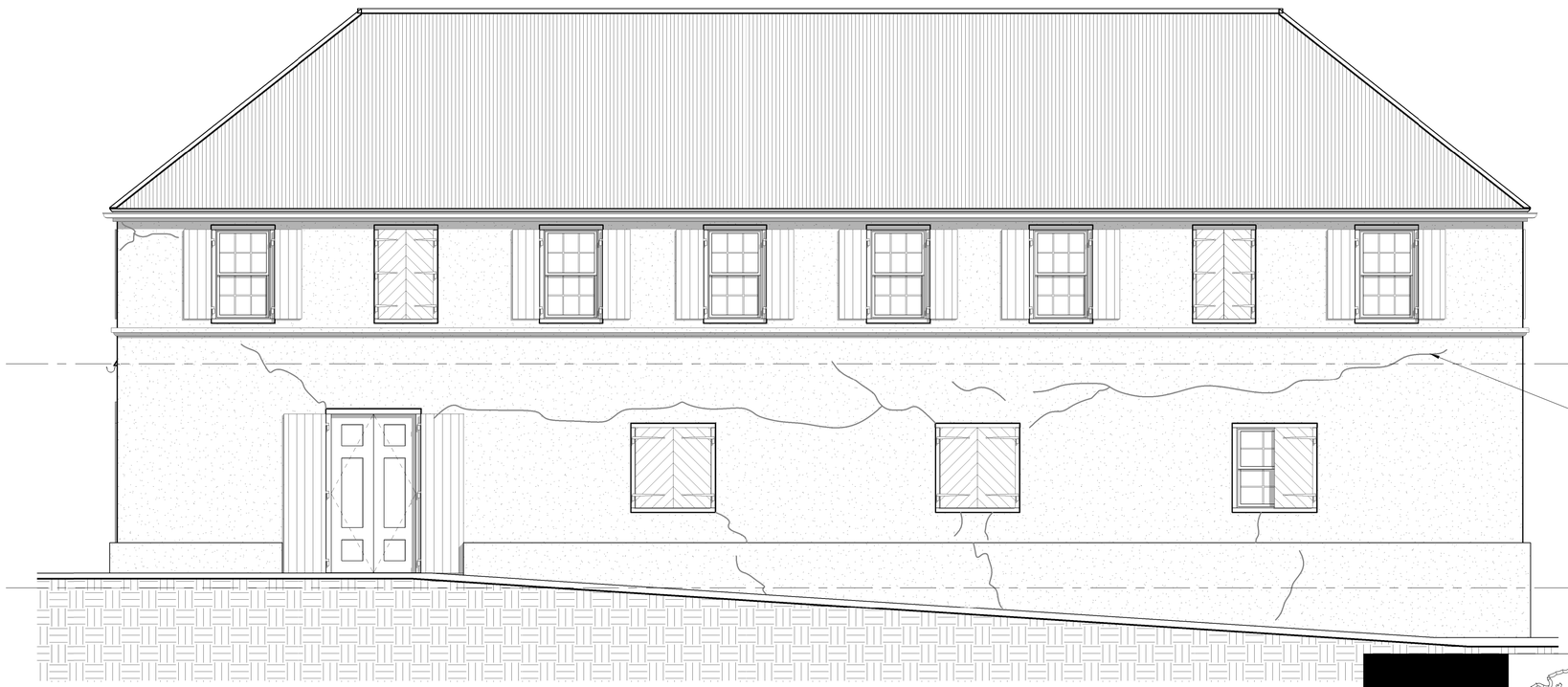
6/29/15 13:42 DSACHS R15 C:\SERS\DAVID SACHS\DOCUMENTS\BROOKIE114.FORKED LIGHTNING RANCH\ARCHITECTURAL DRAWINGS\TEMP NPS TITLEBLOCK.DWG

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WAREHOUSE CRACK ANALYSIS ELEVATION WEST

2 SCALE: 1/4" = 1'-0"



GENERAL NOTE: NUMEROUS POCKETS OF WATER TRAPPED BEHIND PAINT, WIDESPREAD AROUND ENTIRE BUILDING

WAREHOUSE CRACK ANALYSIS ELEVATION SOUTH

1 SCALE: 1/4" = 1'-0"

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DESIGNED: DADD DOS	SUB SHEET NO. A16	TITLE OF SHEET: CRACK ANALYSIS ELEVATIONS	DRAWING NO.
TECH. REVIEW: ---			PMIS/PKG NO. ---
DATE 10-31-2019		CHRISTIANSTED NATIONAL HISTORIC SITE	SHEET 16 OF 23

6/29/15 13:42 DSACHS R15 C:\SERS\DAVID SACHS\DOCUMENTS\BROOKIE\14-FORKED LIGHTNING RANCH\ARCHITECTURAL DRAWINGS\TEMP NPS TITLEBLOCK.DWG

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2 WAREHOUSE CRACK ANALYSIS ELEVATION EAST

SCALE: 1/4" = 1'-0"



GENERAL NOTE: NUMEROUS POCKETS OF WATER TRAPPED BEHIND PAINT, WIDESPREAD AROUND ENTIRE BUILDING

1 WAREHOUSE CRACK ANALYSIS ELEVATION NORTH

SCALE: 1/4" = 1'-0"

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DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD: DOS	A17	CRACK ANALYSIS ELEVATIONS	
TECH. REVIEW: ---			PMIS/PKG NO. ---
DATE 10-31-2019		CHRISTIANSTED NATIONAL HISTORIC SITE	SHEET 17 OF 23

6/29/15 13:42 DSACHS R15 C:\SERS\DAVID SACHS\DOCUMENTS\BROOKIE114-FORKED LIGHTNING RANCH\ARCHITECTURAL DRAWINGS\TEMP NPS TITLEBLOCK.DWG

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WINDOW SCHEDULE

TAG	TYPE	WIDTH	HEIGHT	COMMENTS
1.1	Double Hung	3' - 10"	6' - 8"	
1.2	Double Hung	3' - 10"	6' - 8"	
1.3	Double Hung	4' - 6"	7' - 2"	
1.4	Double Hung	4' - 6"	7' - 2"	
1.5	Double Hung	4' - 2"	5' - 6"	
1.6	Double Hung	4' - 2"	5' - 0"	
1.7	Double Hung	4' - 2"	5' - 0"	
1.8	Double Hung	4' - 2"	5' - 0"	
1.9	Double Hung	4' - 2"	5' - 0"	
1.10	Double Hung	4' - 2"	4' - 5"	
1.11	Double Hung	4' - 2"	4' - 5"	
1.12	Double Hung	4' - 2"	4' - 5"	
2.1	Double Hung	3' - 0"	4' - 11"	
2.2	Double Hung	3' - 0"	4' - 11"	
2.3	Double Hung	2' - 3"	2' - 10"	
2.4	Double Hung	2' - 3"	2' - 10"	
2.5	Double Hung	2' - 3"	2' - 10"	
2.6	Double Hung	3' - 0"	4' - 7"	
2.7	Double Hung	3' - 0"	4' - 7"	
2.8	Double Hung	2' - 3"	2' - 10"	
2.9	Double Hung	2' - 3"	2' - 10"	
2.10	Double Hung	2' - 3"	2' - 10"	
2.11	Double Hung	3' - 0"	4' - 11"	
2.12	Double Hung	3' - 0"	4' - 11"	
2.13	Double Hung	3' - 0"	4' - 11"	
2.14	Double Hung	3' - 0"	4' - 11"	
2.15	Double Hung	3' - 0"	4' - 11"	
2.16	Double Hung	3' - 0"	4' - 11"	
2.17	Double Hung	3' - 0"	4' - 11"	
2.18	Double Hung	3' - 0"	4' - 11"	
2.19	Double Hung	3' - 0"	4' - 11"	
2.20	Double Hung	3' - 0"	4' - 11"	
2.21	Double Hung	3' - 0"	4' - 11"	
2.22	Double Hung	3' - 0"	4' - 11"	
2.23	Double Hung	3' - 0"	4' - 11"	
2.24	Double Hung	3' - 0"	4' - 11"	
C.1	Fixed	1' - 2"	1' - 9"	
C.2	Fixed	2' - 10"	2' - 10"	
C.5	Skylight	2' - 4"	3' - 8"	
C.6	Skylight	2' - 4"	3' - 2"	
C.7	Skylight	2' - 4"	3' - 8"	
CS.1	Fixed	2' - 11 1/2"	2' - 11 1/2"	
CS.2	Fixed	2' - 5"	2' - 11 1/2"	
K1.1	Fixed	1' - 10"	3' - 1"	
K1.2	Fixed	1' - 10"	3' - 1"	
K2.1		2' - 3 1/2"	3' - 10"	
K.5		2' - 6"	3' - 3 1/2"	

DOOR SCHEDULE

TAG	TYPE	WIDTH	HEIGHT	COMMENTS
101	Double	4' - 8"	8' - 9"	
102	Double	4' - 8"	8' - 9"	
103	Double	4' - 8"	8' - 9"	
104	Double	6' - 0"	6' - 10 1/2"	
105	Single	3' - 0"	7' - 0"	
204		3' - 0"	7' - 0"	
C.1	Single	2' - 6"	6' - 8"	
C.2	Single	3' - 0"	6' - 8"	
CS.1		3' - 6"	3' - 6"	
CS.2		3' - 6"	3' - 6"	
CS.3		3' - 6"	3' - 6"	
CS.4		3' - 6"	3' - 6"	
D.2	Single	3' - 0"	7' - 0"	
D.3	Single, louvered	3' - 0"	7' - 0"	
D.4	Single	3' - 0"	7' - 0"	
D.5	Single	3' - 0"	7' - 0"	
D.6	Double, louvered	6' - 0"	7' - 0"	Louvered panel at btm
D.7	Single	3' - 0"	7' - 0"	
D.8	Single, louvered	3' - 0"	7' - 0"	Louvered panel at btm
D.9	Double	6' - 0"	7' - 0"	
D.10	Single	3' - 0"	7' - 0"	
D.11	Single	3' - 0"	7' - 0"	
D.12	Pocket, single	3' - 0"	7' - 0"	
D.13	Single	1' - 6"	3' - 2"	
D.14	Single	1' - 6"	3' - 2"	
D.15		2' - 0"	6' - 8"	
D.16	Single	1' - 6"	3' - 2"	
D.17	Single	3' - 0"	6' - 8"	
D.18	Single	3' - 0"	7' - 0"	
D.21	Single	3' - 0"	7' - 0"	
D.22		4' - 0"	6' - 8"	
D.25	Single	1' - 6"	2' - 6"	
G.1		8' - 0 3/4"		Church street gate
G.2		11' - 5 1/2"		Hospital street gate
G.3	Double Glass	8' - 0"	7' - 0"	Comfort station gate
K1-101	Single entry	2' - 6"	6' - 1"	
K2-101	Single entry	2' - 5 1/2"	5' - 11"	Hardware missing. Off hinges

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DESIGNED:
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DOS
TECH. REVIEW:

DATE
10-31-2019

SUB SHEET NO.
A18

TITLE OF SHEET
WINDOW / DOOR SHEET

CHRISTIANSTED NATIONAL HISTORIC SITE

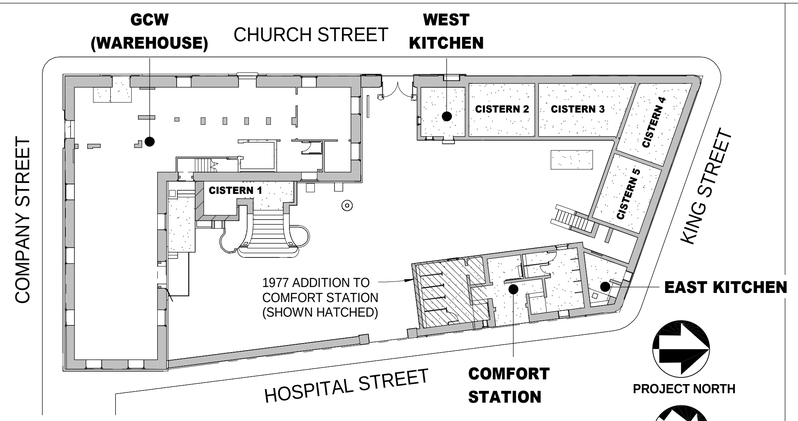
DRAWING NO.

PMIS/PKG NO.

SHEET
18 OF 23

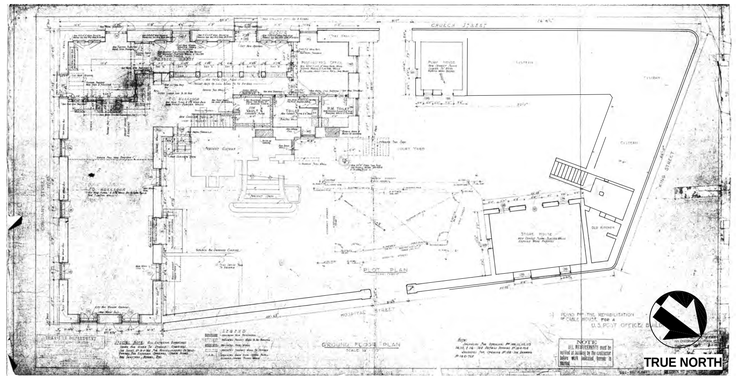
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5 CURRENT SITE PLAN

SCALE: 1" = 20'-0"



4 1939 SITE PLAN

SCALE: 1" = 20'-0"

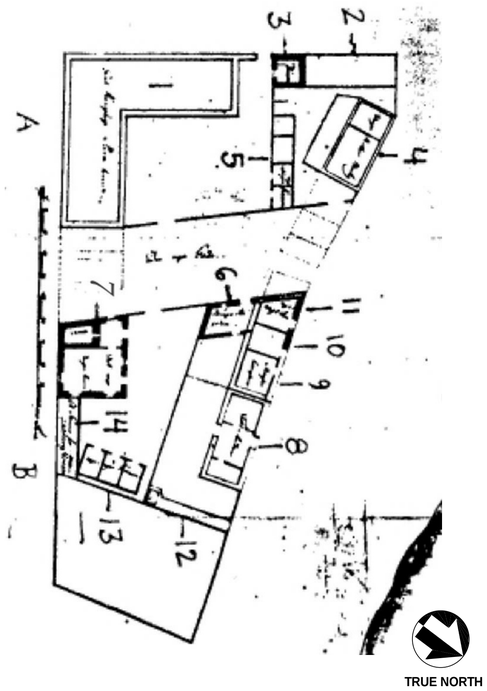
NOTE: BUILDING AND WALL OUTLINE LINEWORK ENHANCED FOR CLARITY



3 1855 EXCERPT OF REPRESENTATIONAL ST. CROIX CITY PLAN SHOWING 3 "MYSTERY" BUILDINGS

SCALE: 1" = 40'-0"

NOTES: 1. PLAN IS ORIENTED TO MATCH 1939 AND CURRENT PLANS
2. DRAWING SCALE IS APPROXIMATE



KEYNOTES AND REMARKS PER KEYNOTES AND REMARKS PER CISSELL 2000, FIGURE 15 (PAGE 50).

Figure 15 clearly shows the two compounds that existed by 1803. These compounds are separated by "the new street" (Den nye Gade). The following new system of identification is inscribed on Figure 15. The compound on the west side of Hospital Street (A) now consisted of

(1) the main building ("the Royal Warehouse" [Det kongelige Pack Huus]).

Structures facing west (viewed north to to south) were (2) a rectangular structure, which use is not specified; and

(3) a single structure, used as a "kitchen" (Kiokken).

The structure facing north (viewed east to west) was (4) partitioned into two rooms, and served as the "Weighing Master['s] residence" (Veyer Mester Boelig).

The structure perpendicular to Hospital Street (5) consisted of four rooms, the eastern two of which were identified as the "new Negro chambers" (nye Neger Kammer), while the use of the western two were not specified.

The complex on the east side of Hospital Street (B) was subdivided into several compounds. Structures facing west (viewed north to south) were (6) a single structure, identified as a "stock warehouse" (Oplage Magazin), and

(7) a structure partitioned into four rooms, used as "the new Baking House" (Det nye Bager Huus).

Structures facing north (viewed east to west) were (8) a structure with three rooms that served as the "Customs Houses" (Told-Boden);

(9) a single structure that was used as the "Broker's office" (Magler Comptoir);

(10) a single structure, the use of which was not specified; and

(11) a single structure entitled the "new Guard Room" (Nye Vagt Stue).

Structures facing east (viewed north to south) were (12) a long passageway, leading to privy; and

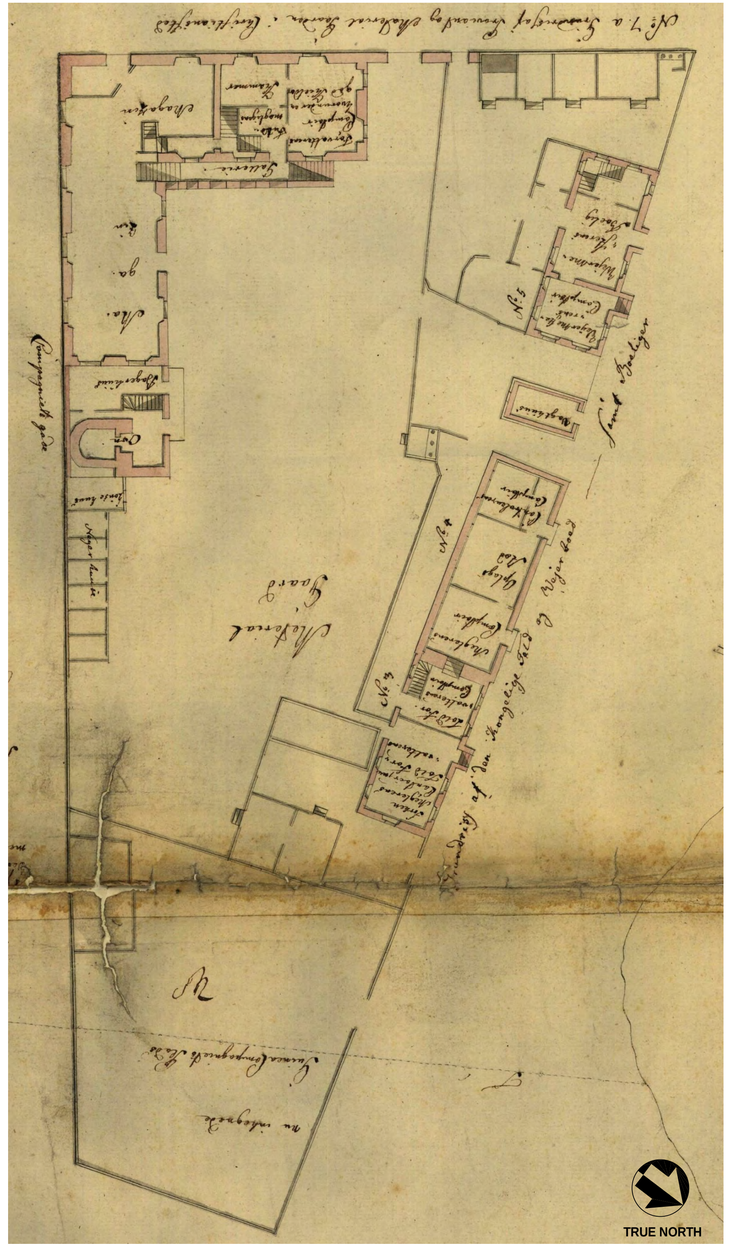
(13) a structure with three rooms, collectively identified as the new Negro chambers" (Nye Neger Kammer).

Finally, facing south (viewed east to west), there was (14) a long rectangular structure, identified as "a chamber for Material [illegible] " (Et Kammer for Material [illegible]) .

2 1803 2ND PLAN (AFTER HOSPITAL STREET EXTENSION)

SCALE: 1" = 40'-0"

NOTES: 1. PLAN IS ORIENTED TO MATCH 1939 AND CURRENT PLANS
2. DRAWING SCALE IS APPROXIMATE



1 1779 OXHOLM SITE PLAN

SCALE: 1" = 20'-0"

NOTES: 1. PLAN IS ORIENTED TO MATCH 1939 AND CURRENT PLANS
2. DRAWING SCALE IS APPROXIMATE

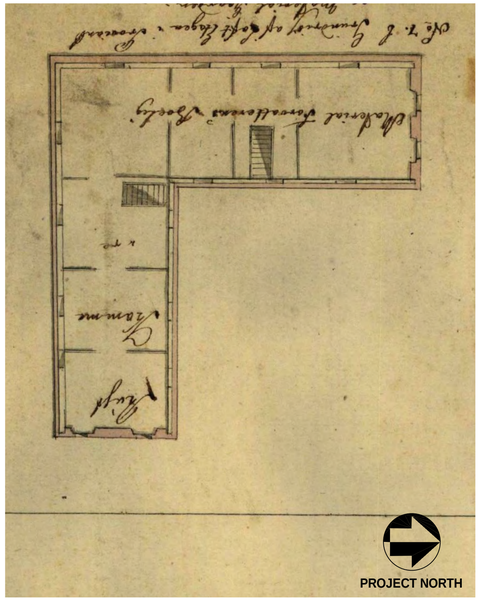
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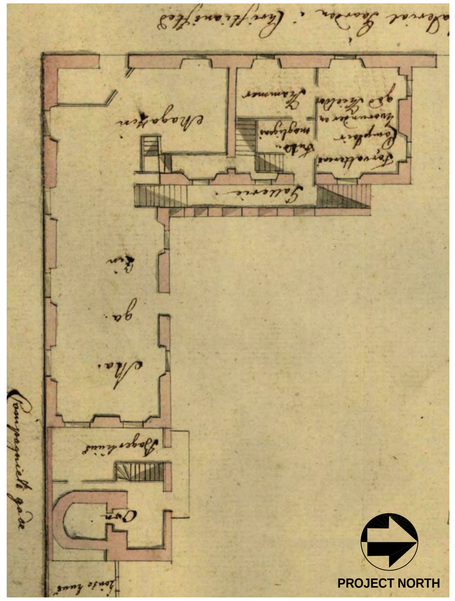
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DOS	A19	CHRONOLOGY / SITE EVOLUTION PLANS	---
TECH. REVIEW: ---			PMIS/PKG NO. ---
DATE 10-31-2019		CHRISTIANSTED NATIONAL HISTORIC SITE	SHEET 19 OF 23

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SECOND FLOOR



FIRST FLOOR

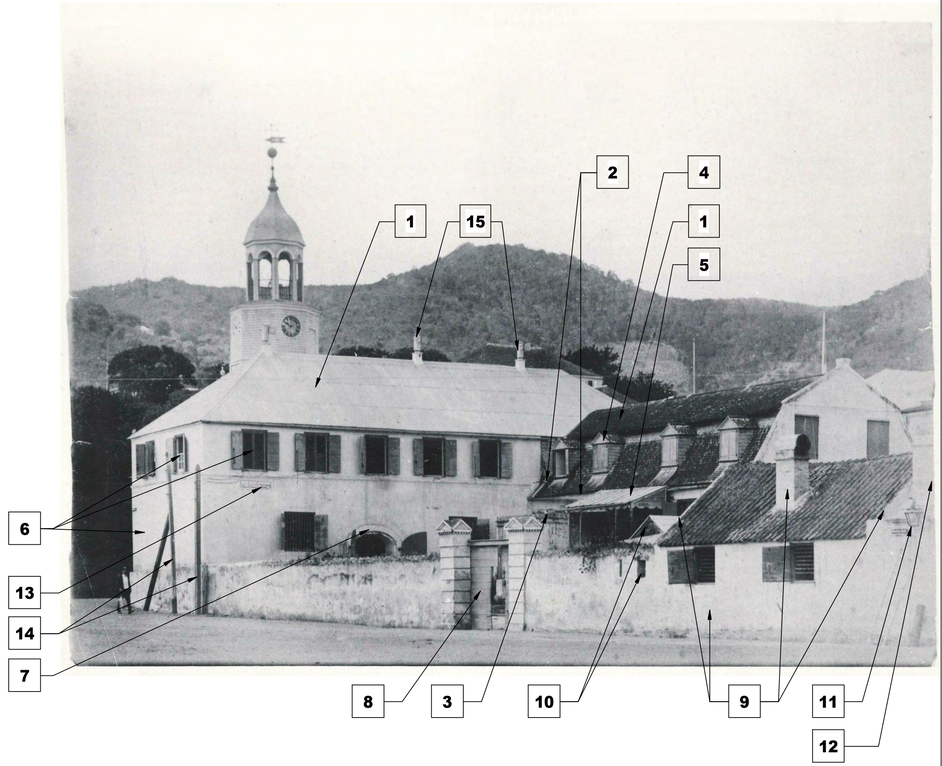


WEST ELEVATION

1 1779 OXHOLM GCW (WAREHOUSE) PLAN & ELEVATION

SCALE: 1/16" = 1'-0"

NOTE: TRANSLATIONS OF THE DANISH ON THE DRAWINGS IS IN THE FULL REPORT IN THE CHRONOLOGY SECTION OF THE GCW



2 1896 PHOTOGRAPH - ANNOTATED

KEYNOTES

1. Roofing materials. GCW is metal with three ventilators, however the north wing is wood shingles, the exterior corridor or gallery has standing seam roofing, the now named/used comfort station has tile, and the mystery building south of the comfort station has what might be metal. The chimney of the north wing's west elevation is just visible extending above the roof ridge in this view just a few inches. This was removed in 1939.

2. Rainwater collection system. There is just the one cistern visible—cistern number one—so the gutter system as seen in this photo all drains to it.

3. Cistern number one is perhaps taller here than present. In 1939 the stairs go over the top and a concrete roof is added.

4. There are four unequally spaced dormers, redone to three in 1939 with equal spacing.

5. The outside access via the gallery is present, but there are no stairs to a second floor doorway as seen in the east wing in Oxholm's plan of the latter half of the 1700s.

6. The GCW windows differ in many respects, while many are obscured by closed shutters, some windows are double hung and some are casement; see the second story of the east wing. The first story of the east elevation of the east wing has no windows in the photograph. When the two current windows were added is not as yet known.

7. The doorway at first story, north elevation of the east wing, to the current loading dock, instead of the current horizontal lintel (1939) the photo shows an arched doorway head. Redone as were all lintels in 1939.

8. The entry gate is wood with a man door in the north leaf, instead of the 1939 metal doors.

9. The now named comfort station is of original size, with no access door to and through the Hospital Street elevation. The roof is in the original configuration with end parapet walls, and, the walls are in the earlier height and not as yet extended to a greater height. The building has a tall chimney.

10 The two openings in the wall south of the comfort station building, and now incorporated into the building, appear to belong to the east-west oriented one-story building, now gone, with the gable roof.

11. The perimeter wall has the lamp on a bracket as seen in all of the historic photographs, situated projecting from the wall at the corner of Hospital and King Streets.

12. The chimney of the east kitchen is just visible at photo right.

13. The building has a sign at the north elevation of the East Wing declaring it to be the Cable Building.

14. The street adjacent to this corner of the building has two utility poles with wires; likely carrying the telegraph cable.

15. Attic vents

Based upon 1939 plans titled: "Plans for the Rehabilitation of the Cable House for a U.S. Post Office Building." The notes follow.

SITE FROM PLAN NAMED "GROUND FLOOR PLAN"

Add	New flagpole, 60 foot, steel
Remove	Wall at east edge of historic stairs
Remove	Historic stairs, parallel to…
Remove	Present septic tank
New	Concrete steps outside in association with new interior stair from 2nd level; beside cistern #1
New	Concrete loading platform
New	Brick wall, blocking entry from north to under stairs
Replace	All damaged curbing
New	Concrete steps to 2nd floor from present platform

OUTBUILDINGS

WEST KITCHEN Called out as "Pump House"

New	"cement" floor sloped to door
New	Pipe to cistern2
New	Metal roof
New	Flashing
New	Storm doors and frames
New	Storm shutters and frames

STORE HOUSE Now, north portion of comfort station

New	Cement floor, plaster walls, exposed wood rafters
New	"Sheet metal roof" from next plan "East Elevation of Wall"
New	"Storm shutters and frames at open window east"2
New	"Storm doors and frames," east elevation2
Replace	Remove existing roof structure and decking, and replace with new 2x8 rafters and 2x6 ceiling joists. Install new 1 ¼" thick wood roof decking.

DWI GCW

Exterior Walls–AKA GROUND FLOOR REMOVALS, ADDITIONS, ALTERATIONS, as seen on Ground Floor Plan 1

Remove	"door and block up opening" east elevation of north wing, previous entry from old stairs, ghost noted in oblique light study
Remove	"brick up opening," north of cistern #1 in the wall between under-stair secret room and current vault
Additions	"cut new window openings"; two, at east wall of east wing, and two at west wall of north wing
Additions	"New window sills" or "new wood sills for windows, typical
Additions	"New metal rolling door" and "New metal flush threshold," both at loading platform
Addition	"New metal thresholds" at doors
Addition	"New concrete step-up, 4 risers" at west elevation of north wing, northern set of doors
Addition	New metal gutters and piping to cisterns
Addition	New dormers3 on the west elevation of north wing, and three new dormers on the east elevation sides of "lead coated copper."
Addition	New metal roof
Addition	New wood storm shutters at all exterior openings
Addition	"New fixed wrought iron (WI) grilles" at east elevation, postal, 1st level & south elevation 1st
Addition	New double-hung sashes and frames, 2nd level
Addition/Repair	Exterior stucco, incomplete notes as to "actions," some new, some repair BUT overall not much direction
Remove	"Brick up present opening," three on west elevation

INTERIOR

In general, all partitions removed, floors removed. New metal stud walls, new "cement floor," new plaster, new 1st floor finishes on the floor/wall/wainscot. Six-inch mesh reinforced concrete floor at first level, second level noted at 3 inches. 2nd floor covering linoleum. First floor wood postal work room and in postal lobby, quarry tile, and tile wainscot. Bathrooms "cement" floor, vault concrete floor. Post Master's office had wood chair rail fixtures define for post office functions.

Addition	New concrete stairs from second level to first level
Addition	New panel doors

STRUCTURAL

Removal	Remove floor joists at first and second floor framing levels (likely wood) and brick up bearing pockets
Removal	Remove top portion of retaining wall between slab on grade and suspended North Wing floor as needed to lower the North Wing floor height to match the East Wing
Addition	New reinforced concrete suspended first floor system with new interior columns and footings at North Wing, located several feet below previous floor level.
Addition	New reinforced concrete second floor beams and slab, including bond beam embedded in the existing exterior walls.
Removal	Remove all existing roof framing (rafters, ceiling joists, etc).
Addition	New wood dimensional lumber roof framing and tongue-and-groove decking.
Addition	New reinforced concrete loading platform
Addition	New reinforced concrete vault at first floor of North Wing with storage above.
Addition	New reinforced concrete landing at second floor entry (at top of new reinforced concrete stairs).

3 1939 LIST OF MODIFICATIONS

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DESIGNED: DADP Author

TECH. REVIEW: Checker

DATE 10-31-2019

SUB SHEET NO. A20

TITLE OF SHEET CHRONOLOGY / GCW EVOLUTION PLANS

CHRISTIANSTED NATIONAL HISTORIC SITE

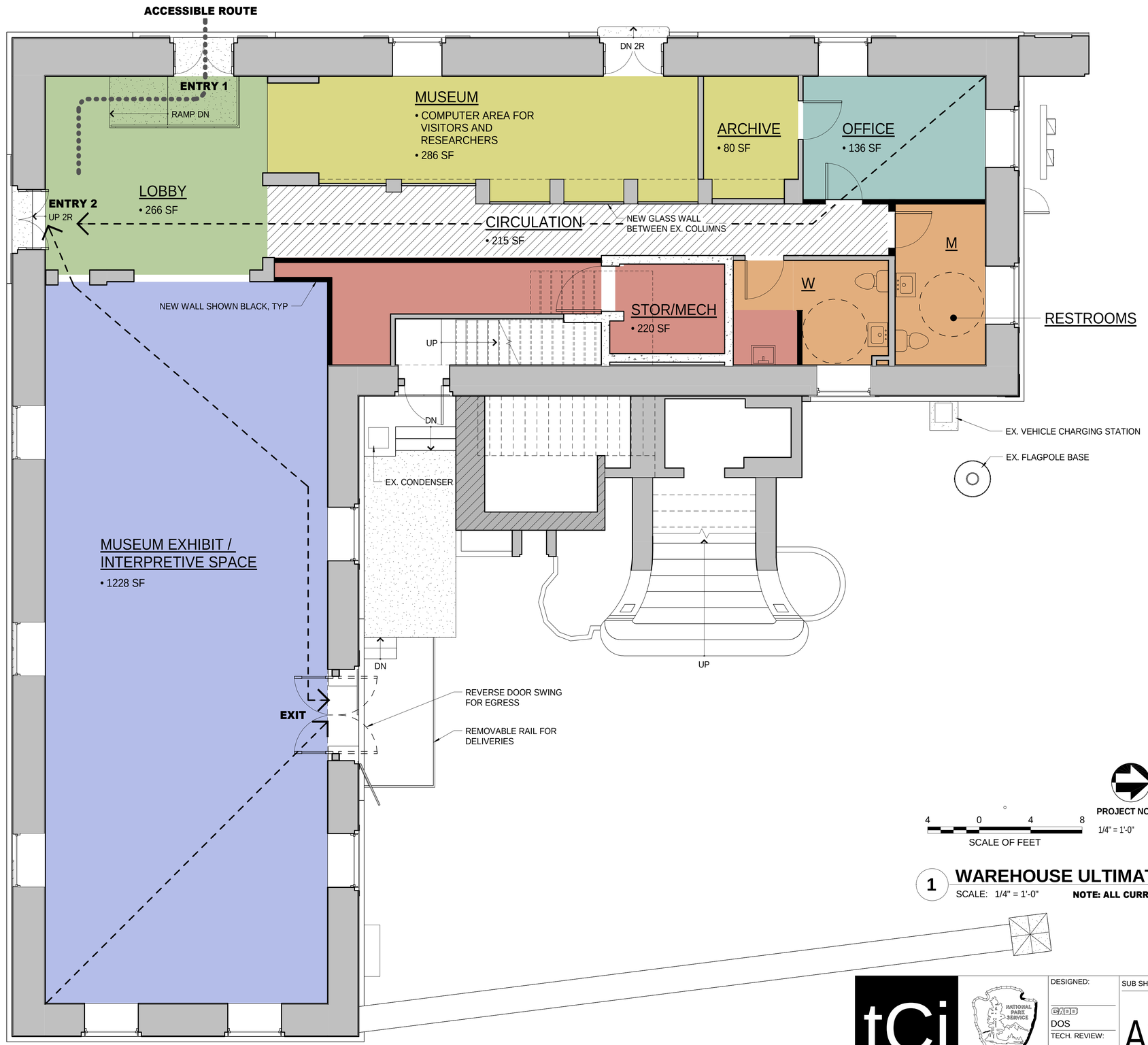
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PMIS/PKG NO. ---

SHEET 20 OF 23

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CODE ANALYSIS - FIRST FLOOR

2015 IBC

SEC 1003.2 CEILING HEIGHT = 7' - 6" MIN

SEC 1004 OCCUPANT LOAD

FUNCTION OF SPACE	LOAD FACTOR	AREA	LOAD
ASSEMBLY, NON-FIXED TABLES/CHAIRS	1/15	1228 SF	81
VAULT / STOR / MECH	1/300	220 SF	1
RETAIL	1/60	366 SF	6
OFFICE	1/100	136 SF	1
LOBBY	NOT COUNTED	266 SF	0
		TOTAL LOAD:	89

SEC 1005 MEANS OF EGRESS SIZING
1005.3.1 STAIRWAYS = .3 (89) = 26.7" (SEE 1020.1,
1005.3.2 OTHER EGRESS COMPONENTS = .2 (89) = 17.8" 1020.2, 1011.2)

SEC 1006 NUMBER OF EXITS & EXIT ACCESS DOORWAYS
1006.2.1 NUMBER OF EXITS = 2

SEC 1007.1.1 DISTANCE BETWEEN EXITS = 44'
OVERALL DIAGONAL = 71'
MIN DIST. BTWN = 71'/2 = 35' - 6"

SEC 1009 ACCESSIBLE MEANS OF EGRESS - YES

SEC 1011 STAIRWAYS
1011.2 WIDTH + CAPACITY = 44" MIN

SEC 1017.2 EXIT ACCESS TRAVEL DISTANCE = 200' MAX

SEC 1020.1 CORRIDOR FIRE RESISTANCE RATING = 0 (OCCUPANT LOAD SERVED BY CORRIDOR <30 [8])

SEC 1020.2 MIN CORRIDOR WIDTH = 44" MIN

PLUMBING FIXTURE CALCULATIONS

A-3 OCCUPANCY. LOAD = 89

	WATER CLOS.			URINALS	LAVATORIES			SERVICE SINKS	DRINKING FOUNTAINS
	M	F	UNI		M	F	UNI		
REQUIRED	1	1	-	-	1	1	-	1	1
PROVIDED	1	1	-	-	1	1	-		

4 0 4 8
SCALE OF FEET

PROJECT NORTH
1/4" = 1'-0"

1 WAREHOUSE ULTIMATE TREATMENT PLAN

SCALE: 1/4" = 1'-0"

NOTE: ALL CURRENT SECOND FLOOR USES TO CONTINUE

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DOS	
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10-31-2019	

SUB SHEET NO.
A21

TITLE OF SHEET
CODE ANALYSIS / ULTIMATE TREATMENT PLAN

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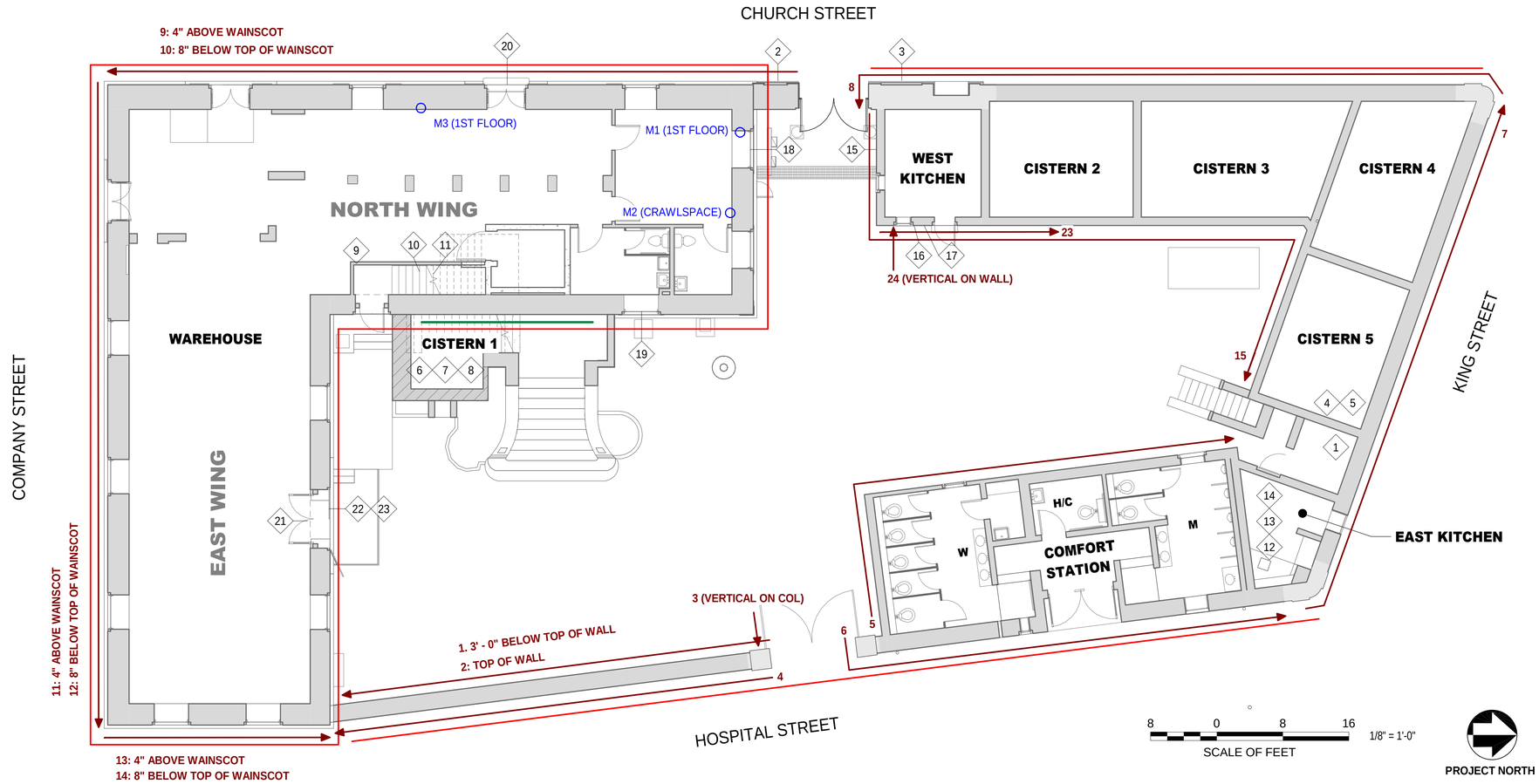
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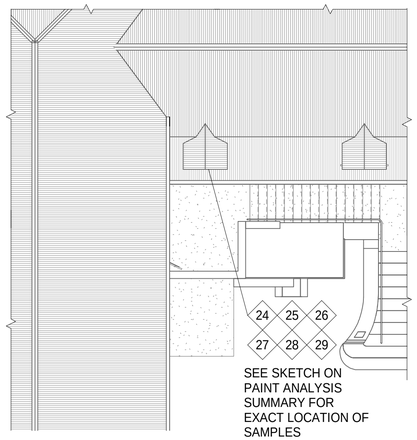
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1 TESTING & SAMPLE LOCATION SITE PLAN

SCALE: 1/8" = 1'-0"



2 TESTING & SAMPLE LOCATION ROOF PLAN

SCALE: 1/8" = 1'-0"

TESTING & SAMPLING LEGEND

1	BORESCOPE TESTING LOCATION
1	GROUND PENETRATING RADAR TESTING (GPR) SCAN PATH
M0	MORTAR SAMPLE LOCATION
	PACHOMETER TESTING LOCATIONS
	INFRARED THERMOGRAPHY (IRT) IMAGING
0	PAINT SAMPLE APPX LOCATION (SEE "DANISH WEST INDIES AND GUINEA COMPANY WAREHOUSE PAINT ANALYSIS SUMMARY" FOR ADDL DESCRIPTION)

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DESIGNED:	DAED
	DOS
TECH. REVIEW:	DRB
DATE	10-31-2019
SUB SHEET NO.	A22

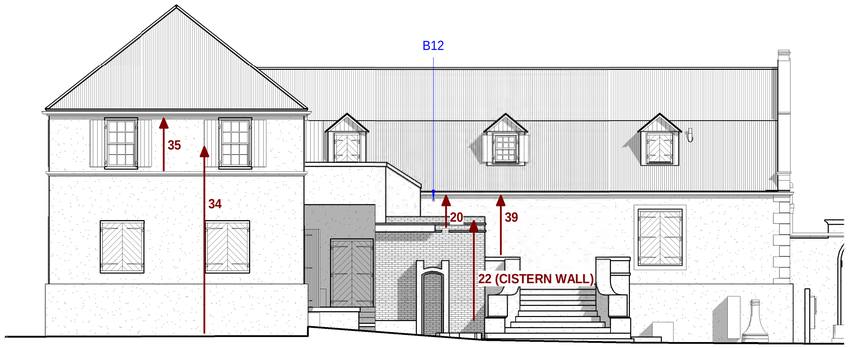
TITLE OF SHEET
TESTING & SAMPLE LOCATIONS

CHRISTIANSTED NATIONAL HISTORIC SITE

DRAWING NO.
PMIS/PKG NO. ---
SHEET 22 OF 23

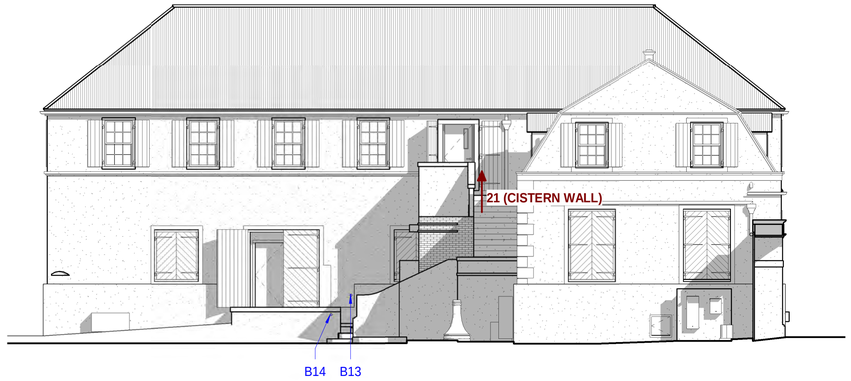
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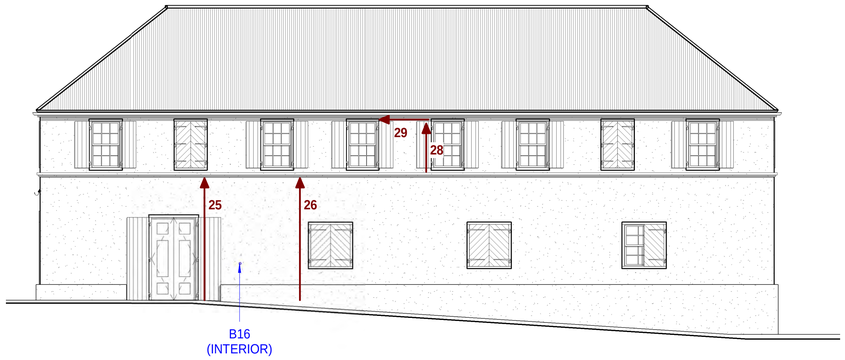
4 TESTING AND SAMPLE LOCATIONS - EAST ELEVATION

SCALE: 1/8" = 1'-0"



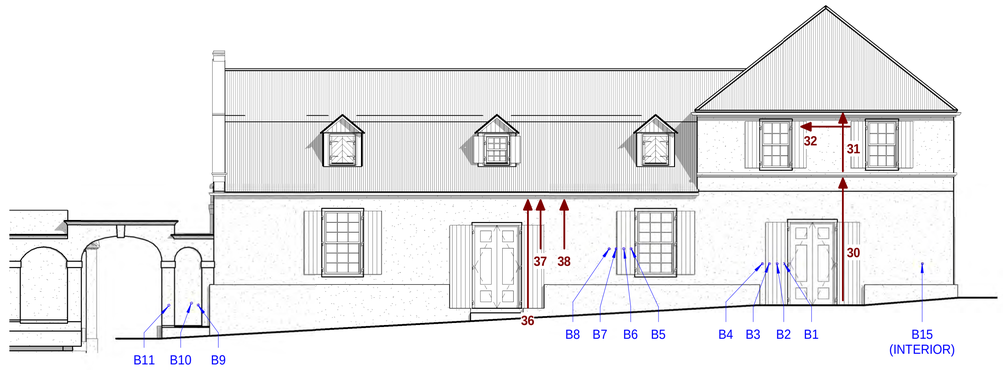
2 TESTING AND SAMPLE LOCATIONS - NORTH ELEVATION

SCALE: 1/8" = 1'-0"



3 TESTING AND SAMPLE LOCATIONS - SOUTH ELEVATION

SCALE: 1/8" = 1'-0"



1 TESTING AND SAMPLE LOCATIONS - WEST ELEVATION

SCALE: 1/8" = 1'-0"

TESTING & SAMPLING LEGEND

1	BORESCOPE TESTING LOCATION
1	GROUND PENETRATING RADAR TESTING (GPR) SCAN PATH
M0	MORTAR SAMPLE LOCATION
	PACHOMETER TESTING LOCATIONS
	INFRARED THERMOGRAPHY (IRT) IMAGING
0	PAINT SAMPLE APPX LOCATION (SEE "DANISH WEST INDIES AND GUINEA COMPANY WAREHOUSE PAINT ANALYSIS SUMMARY" FOR ADDL DESCRIPTION)

tCi
the Collaborative inc

NATIONAL PARK SERVICE
Department of the Interior

DESIGNED: DADP
DOS
TECH. REVIEW: DRB
DATE 10-31-2019

SUB SHEET NO. A23

TITLE OF SHEET
TESTING & SAMPLE LOCATIONS

CHRISTIANSTED NATIONAL HISTORIC SITE

DRAWING NO. ---
PMIS/PKG NO. ---
SHEET 23 OF 23

6/29/15 13:42 D:\ACHS R15 C:\SERS\DAVID SACHS\DOCUMENTS\BROOKIE\14 FORKED LIGHTNING RANCH\ARCHITECTURAL DRAWINGS\TEMP NPS TITLEBLOCK.DWG

10/31/2019 3:05:21 PM

Appendix F: Historic Photographs and Images



Rtk._KTS_337/303 Christiansted, Oxholm 1779


Thorsoe, Csted c. 1825 Maritime Museum



Stereo view, 1860, custom house square


One side of the stereo view, 1860, custom house square



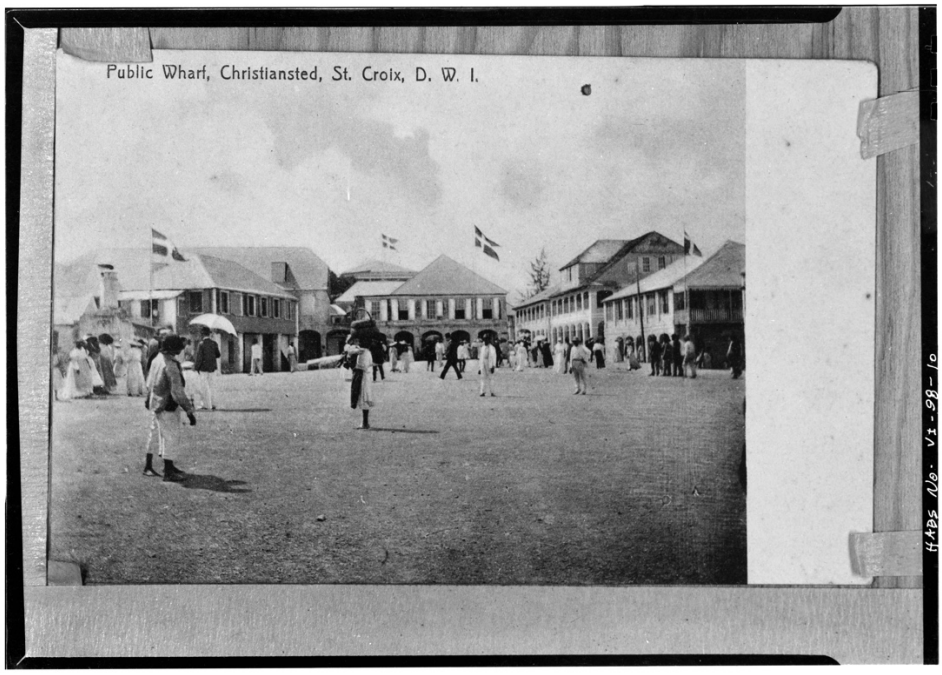
J. Pedersen, c. 1870, Danish Maritime Museum



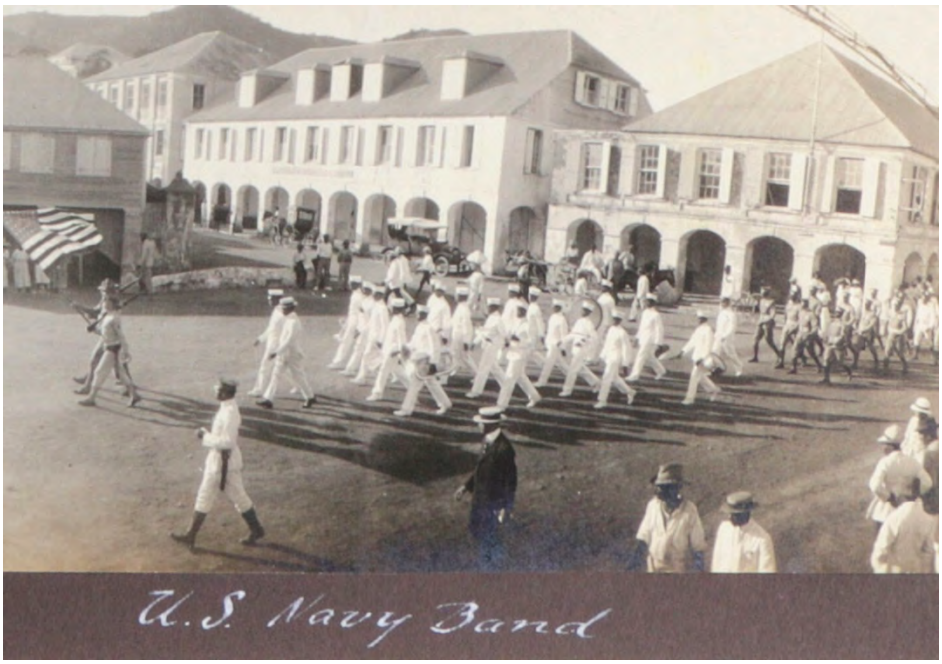
Warehouse building from P. Olsen, view of former DWI GCW, ca 1890



Steeple Building—front view. Officially titled “Steeple Building,” clearly this is the GCW with the steeple of the church behind it.

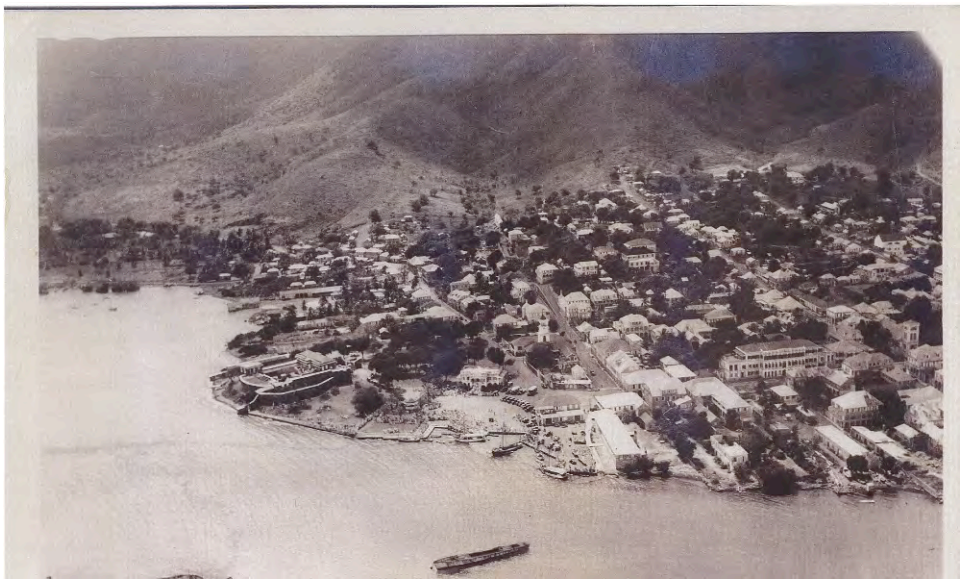


Photocopy of postcard 1910 view of wharf area



U.S. Navy, 1917


Closeup view of U.S. Navy band, 1917



Aerial view of Christiansted, 1930s



WI Panama Cable Bldg., ca. 1939



Christiansted seen from the quay, https-//bruun-rasmussen.dk/m/lots/26E9F0538749/images/16 Christ. seen from the quay

"1950S.1.TIF"



Church Street with U. S. Post Office and Town Clock on left.
Christiansted, St. Croix, Virgin Islands.

"C. 1950S.2.TIF"





HABS, 1960s, General view from the northeast



HABS, 1960s, General view from the north



HABS, 1960s, End façade with gambrel roof



Photo of “Slave Station,” as called by the source (Danish archives). Clearly this image is of the GCW.



HABS, 1960s, view of “East Kitchen”



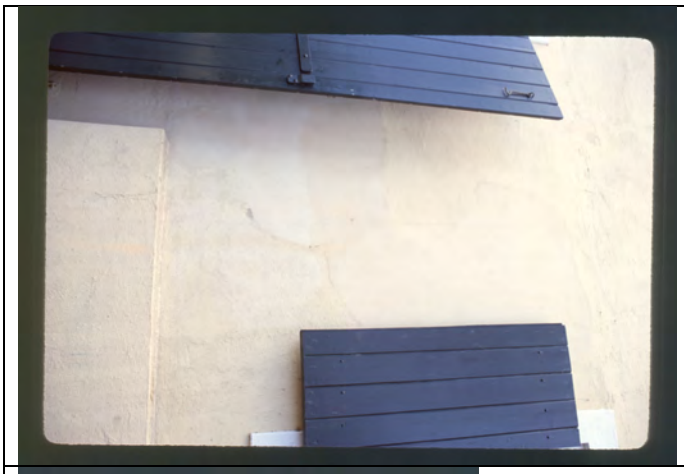
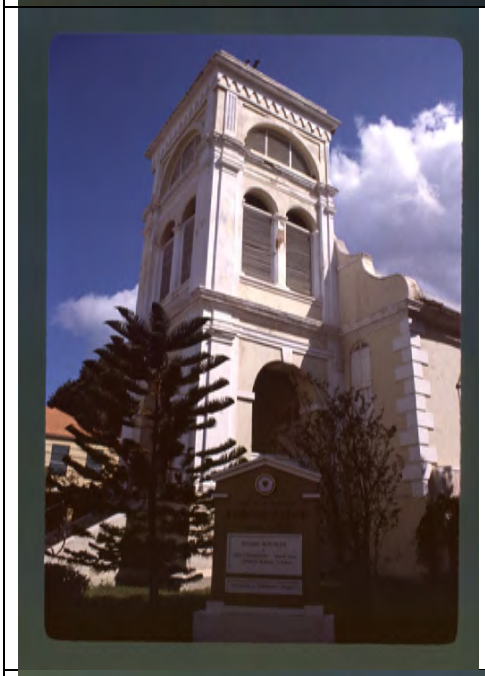
Danish West India & Guinea Company Warehouse, ca. 1985

Photos of Scanned Slides	Caption
	1. View of east elev of main stairs/cistern#1; note the door to the cistern's alcove or closet
	2. SW corner, wall ceiling of Postal Lobby same problems area in 1985.

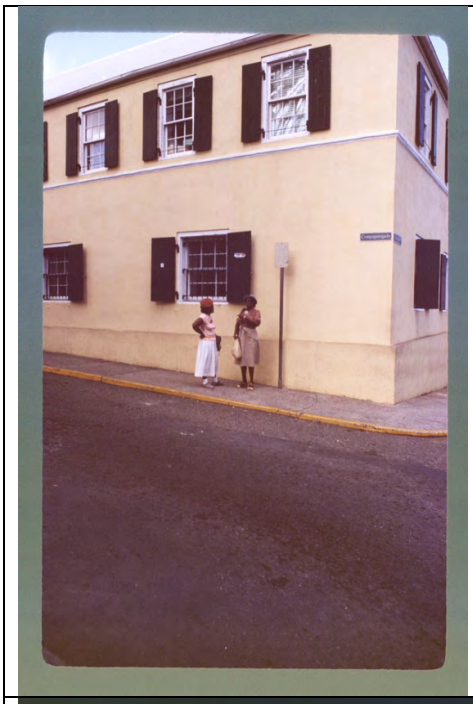
		3. Interior US Customs
		4. Interior US Customs
		5. N elev of east wing

		6. East interior of west gate and south elev of West Kitchen. No significant cracks although some color differences.
		7. View from the East of the GCW
		8. Ditto of the COMPOUND, note East kitchen chimney, "Comfort Station" 1985 configuration, vegetation

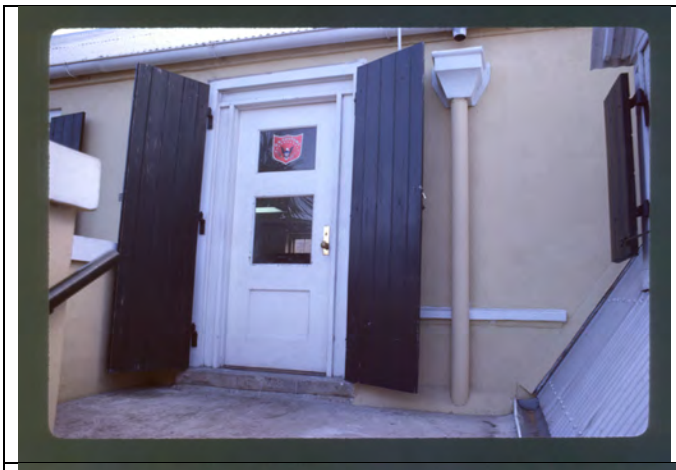
		9. West elevation
		10. West elevation of west kitchen and cisterns #s 3/4
		11. US Customs interior

	12. Wall and shutters, door and window
	13.
	14.

	15. South Elev
	16.
	17. Flagpole with rust noted at collar

	18.
	19. East Elev of GCW

	**20.** South Elev of east wing
	**21.** East courtyard view from above.
	**22.** East courtyard view from above.

	**23.** Second floor entry door and shutters
	**24.** Detail of the corner of the stair platform wall
	**25.** Bottom of entry stairs detail

	**26.** Top portion of north wall of cistern #1 note in 1985 the bricks were more discernible, the stucco was not built up obscuring the bricks.
	**27.** Stair platform detail of surface
	**28.** Upper stairs

		29. Interior corner of courtyard
		30. Detail of cistern's alcove/closet

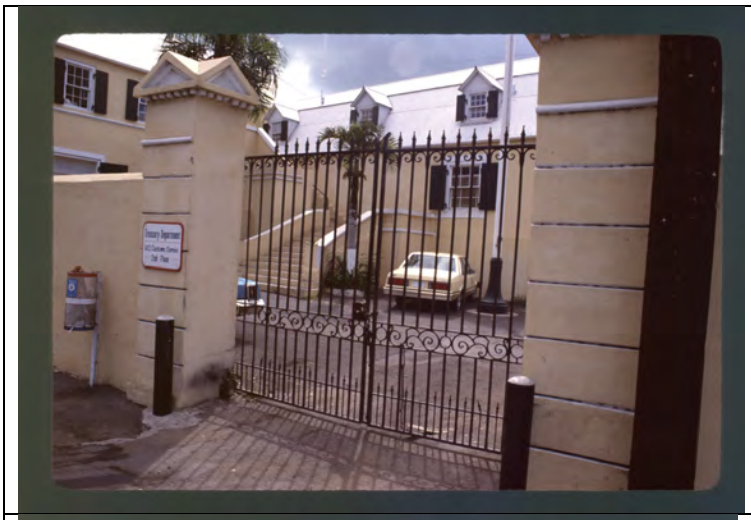
	31. South elevation of “Comfort Station"
	32. Detail of entry stair lower right corner
	33. Roof of East Kitchen

	34. Overview of north portion of courtyard with view from the top of cistern #3
	35. Loading dock, note stainless steel overlay of doors to protect the doors from mail cart impact.
	36. Entry stairs view from the east

		37. East entry gate, south elevation of Comfort Station
		38. North elevation of east Wing
		39. West gate, view from west.

	40. North elevation of the North Wing
	41. East Elevation of the East Wing
	42. North elevation of the north wing. Note the rain capture system does not wrap around the north wing from the east elevation.

	43. Brick, with measurement of 9.75 inch length.
	44. West elevation of "Comfort Station" as now known. Original roof and primary door is on this side at this time; 1985.
	45. Woodwork associated with the Post Office use. Note the bars above the woodwork allowed for air passage but the addition of solid area behind the bnars cut off the airflow. Such change was in response to the installation of air conditioning.
	46. Courtyard view from the north looking south.

	47. East gates of iron , some damage is apparent.
	48. Same view as #44
	49. Entry stairs

	50. Post Office Interior

Appendix G: Emergency Stabilization



CHRI GCW Emergency Stabilization. Corner Company St and Hospital Street



CHRI GCW Emer Stabilization Company Street, patch work completed



CHRI GCW under courtyard stair case cistern wall after patching



CHRI GCW Church Street, Patching complete start of limewash color coating





CHRI GCW Courtyard Opening arms staircase masonry repair series











CHRI GCW courtyard stair case masonry repair to right or south arm complete and limewash coated



CHRI GCW courtyard cisterns, patch complete and first coat of limewash color coating



CHRI GCW Courtyard, north face of main building first limewash color coating



CHRI GCW Courtyard, staircase of main building first limewash color coating



CHRI GCW Kitchen 1, west side, first limewash color coating



CHRI GCW Kitchen 1, west side, first limewash color coating



CHRI GCW Courtyard stair case to upper floor, first limewash color coating, March 23, 2019

Appendix H: National Register Nominations

1974, 1977, 1999

National Register of Historic Places Forms

National Register of Historic Places Inventory – Nomination Form for Federal Properties

Danish West India and Guinea Company Warehouse,
Old Post Office, and Customhouse on the Wharf

October 9, 1974

Pages 123–127

National Register of Historic Places Inventory – Nomination Form for Federal Properties

Christiansted National Historic Site, Wharf Area, Christiansted

October 20, 1976

Pages 128–141

National Register of Historic Places – Registration Form

Christiansted National Historic Site / Wharf Area / Christiansted
Historic District

Entered in the National Register March 5, 1999

Pages 142–168

Form 10-306
(Oct. 1972)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY – NOMINATION FORM
FOR FEDERAL PROPERTIES
(Type all entries – complete applicable sections)

STATE: U.S. Virgin Islands
COUNTY:
FOR NPS USE ONLY
ENTRY DATE: OCT 9 1974

RECEIVED MAY 9 1974 NATIONAL REGISTER

SEE INSTRUCTIONS

1. NAME

COMMON: Old Post Office and Customhouse on the Wharf
AND/OR HISTORIC: (Danish West India and Guinea Company Warehouse)

2. LOCATION

STREET AND NUMBER: ~~Corner of~~ Church and Company Streets
CITY OR TOWN: Christiansted, St. Croix Island
CONGRESSIONAL DISTRICT: Not Applicable
STATE: U. S. Virgin Islands
CODE: VQ
COUNTY:
CODE:

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP		STATUS	ACCESSIBLE TO THE PUBLIC
☐ District ☒ Building	☒ Public	Public Acquisition:	☒ Occupied	Yes:
☐ Site ☐ Structure	☐ Private	☐ In Process	☐ Unoccupied	☒ Restricted
☐ Object	☐ Both	☐ Being Considered	☐ Preservation work in progress	☐ Unrestricted
				☐ No

PRESENT USE (Check One or More as Appropriate)

☐ Agricultural	☒ Government	☐ Park	☐ Transportation	☐ Comments
☐ Commercial	☐ Industrial	☐ Private Residence	☐ Other (Specify)	
☐ Educational	☐ Military	☐ Religious	U. S. Post Office	
☐ Entertainment	☐ Museum	☐ Scientific	U. S. Customs Office	

4. AGENCY

General Services Administration
REGIONAL HEADQUARTERS: (If applicable)
STREET AND NUMBER:
CITY OR TOWN: San Juan
STATE: Puerto Rico
CODE: RQ

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC: Recorder of Deeds, Virgin Islands Government House
STREET AND NUMBER: #3 King Street
CITY OR TOWN: Christiansted, St. Croix
STATE: U. S. Virgin Islands
CODE: VQ

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY: Historic American Building Survey Photodatum Book on Danish West India and Guinea Company Warehouse
DATE OF SURVEY: ca. 1958 ☒ Federal ☐ State ☐ County ☐ Local
DEPOSITORY FOR SURVEY RECORDS: Office of Archaeology & Historic Preservation, National Park Service
STREET AND NUMBER: Interior Building, Virginia Avenue, N. W.
CITY OR TOWN: Washington,
STATE: D. C. 20240
CODE: 11

STATE: U.S. Virgin Islands
COUNTY:
FOR NPS USE ONLY
ENTRY NUMBER: OCT 9 1974
DATE

7. DESCRIPTION

CONDITION	(Check One)					
	☐ Excellent	☒ Good	☐ Fair	☐ Deteriorated	☐ Ruins	☐ Unexposed
	(Check One)		(Check One)			
	☒ Altered	☐ Unaltered	☐ Moved	☒ Original Site		

DESCRIBE THE PRESENT AND ORIGINAL *(if known)* PHYSICAL APPEARANCE

The Danish West India and Guinea Company Warehouse and related outbuildings occupy an irregularly shaped city block bounded by King Street on the north, Hospital Street on the east, Company Street on the south and Church Street on the west. The grade falls approximately eight feet from the southwest to the northeast corner. The main structure is "L" shaped, consisting of a two-story, hip-roofed south wing running the full length of the southern property line adjoining Company Street, and a story and one-half, dormered, mansart-roofed west wing running along a portion of the western property line adjoining Church Street. An iron gate and alley to an inner courtyard separate the north wall of the west wing from a one-story kitchen, which in turn adjoins an above-grade cistern which extends to the northwest corner of the property. Two additional above-grade cisterns adjoin this cistern and extend east on the north property line and terminate in an exterior stair leading to the covered cistern roofs. A second one-story kitchen building and outside oven is located in the northeast corner of the property. A wall joins the southeast corner of this kitchen and the northeast corner of the south wing of the main building, thereby completing the enclosure of the courtyard. This wall contains an iron gate opposite the gate and alley to the west. An exterior monumental stair from courtyard level to the second floor of main building is located in the angle of the "L", and rises through a portion of a fourth cistern.

All courtyard and building walls are stuccoed imported Danish "ballast brick" masonry and rubble construction. The exterior faces of main building walls are increased several inches in thickness from grade to approximately three to eight feet above grade to form a stylobate. The horizontal line thus formed establishes the height of courtyard walls and serves as a strong unifying element. First floor windows of both wings have stucco surrounds; second floor windows of the south wing have none. A stucco string course is just below second floor window sill level of the south wing, and the parapet of the north wall of the west wing has a decorative stucco coping. This is also the only wall of the complex with stucco quoins at its corners. The eastern stuccoed masonry gateposts are quoined and capped with decorative pediments with dentils below; the western gateposts are flanked with decorative arched niches and support a decorative coping. Plain stuccoed surfaces are painted yellow; stucco trim and woodwork are painted white, except shutters are painted green.

The corrugated iron roofs of the main building wings are of recent origin; original roofs were probably wood shingle. Rainwater from the main building roofs is conducted by gutters and leaders to the cisterns, which remain in use. The shed roof of the northwest kitchen is probably flat brick on purlins and joists with galvanized metal overlay. The northeast kitchen has a gabled galvanized metal roof on wood frame construction. The northeast kitchen has an interior fireplace and brick chimney; the large brick exterior oven at the northeast kitchen is protected by a flat brick roof supported by wood purlins and beams. All windows including

SEE INSTRUCTIONS

Form 10-300a
(July 1969)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY NOMINATION FORM

(Continuation Sheet)

STATE	
U.S. Virgin Islands	
COUNTY	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE
OCT 9 1974	

(Number all entries)

7. Description

dormers are shuttered; however, nuts, bolts, screws, frames, sash, doors and shutters are of recent manufacture.

The interiors of the main buildings have been extensively remodelled, and early construction cannot be visually determined.

The general decor is simplified Renaissance with traces of Baroque, and reflects the influence of the French Ecole des Beaux-Arts through the Danish Academy. West Indian influence is evident in the monumental exterior stair, the absence of fireplaces and chimneys in living quarters, second floor location of living quarters above first floor warehouse and office space, and the probable original use of wood roof shingles, storm shutters, and louvered ventilating shutters. Originally constructed ca. 1750 and remodelled in 1838 and 1939, the early basic shell of the building remains intact.



GPO 921-724

8. SIGNIFICANCE

PERIOD *(Check One or More as Appropriate)*

☐ Pre-Columbian	☐ 16th Century	☒ 18th Century	☐ 20th Century
☐ 15th Century	☐ 17th Century	☒ 19th Century	

SPECIFIC DATE(S) *(If Applicable and Known)* Mid 1740's through early 1900's

AREAS OF SIGNIFICANCE *(Check One or More as Appropriate)*

Aboriginal	☐ Education	☒ Political	☐ Urban Planning
☐ Prehistoric	☐ Engineering	☐ Religion/Philosophy	☐ Other *(Specify)*
☐ Historic	☐ Industry	☐ Science	
☐ Agriculture	☐ Invention	☐ Sculpture	
☒ Architecture	☐ Landscape Architecture	☐ Social/Humanitarian	
☐ Art	☐ Literature	☐ Theater	
☒ Commerce	☐ Military	☐ Transportation	
☒ Communications	☐ Music		
☐ Conservation			

STATEMENT OF SIGNIFICANCE

SEE INSTRUCTIONS

St. Croix was the most prosperous island in the Danish West Indies, and during the 18th and early 19th centuries extremely productive and wealthy. The Danish West India and Guinea Warehouse in Christiansted was the center of the colony's commercial activity during the 18th century. This fact alone establishes unusual historic significance for this building. It continued as an integral part of the city's commerce through the 19th century, at one time housing a Panama Telegraph and Cable Company office, and now containing a U. S. Post Office substation on the first floor and U. S. Customs on the second floor.

Although documentation has not been completed, it is certain that most exterior masonry walls are original or of early date. Exterior renovations have been limited to normal maintenance items, and the general configuration of the building has not been altered since the early 19th century.

The building is of architectural significance not only as a representative example of colonial Danish West Indian architecture and West Indian Architecture generally, but also as part of a unique townscape bearing comparison to European Court Towns of the 18th century. This significance was recognized in 1952 when this building was one of six included within the Christiansted National Historic Site.



9. MAJOR BIBLIOGRAPHICAL REFERENCES

Gjessing, Frederik; HABS Photodatum Book on Danish West India and Guinea Company Warehouse; (unpublished); Office of Archaeology & Historic Preservation, National Park Service, Washington, D. C., ca. 1958.

Olsen, Herbert; Historic Structures Report, Part 1, Library Building (Old Danish Post Office and Customs House), Christiansted, St. Croix, U. S. Virgin Islands; National Park Service, Washington, D. C.; 1961, pp. 78, 82, Fig. 8, p. 85.

10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY							OR	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES					
CORNER	LATITUDE			LONGITUDE				LATITUDE			LONGITUDE		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds		Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NW	°	'	"	°	'	"		°	'	"	°	'	"
NE	°	'	"	°	'	"							
SE	°	'	"	°	'	"							
SW	°	'	"	°	'	"							

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: ± one acre

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE

RECEIVED
MAY 9 1974
NATIONAL REGISTER

11. FORM PREPARED BY

NAME AND TITLE: Herschel E. Shepard, Vice-President

DATE:

BUSINESS ADDRESS: Fisher & Shepard, Architects & Planners, Inc.

STREET AND NUMBER: 456 University Blvd. North

PHONE: (904) 725-1112

CITY OR TOWN: Jacksonville

STATE: Florida 32211

CODE: 12

12. CERTIFICATION OF NOMINATION

State Liaison Officer recommendation:

☒ Yes
☐ No
☐ None

Thomas L. Blake
State Liaison Officer Signature

In compliance with Executive Order 11593, I hereby nominate this property to the National Register, certifying that the State Liaison Officer has been allowed 90 days in which to present the nomination to the State Review Board and to evaluate its significance. The recommended level of significance is ☐ National ☒ State ☐ Local

Steven R. Rattenbaum 2/6/74
Federal Representative Signature *Date*

Historic Preservation Liaison Officer

NATIONAL REGISTER VERIFICATION

I hereby certify that this property is included in the National Register.

Director, Office of Archeology and Historic Preservation

Date 10/9/74

ATTEST:

Acting Keeper of The National Register

Date 10-4-74

GPO 938-449

SEE INSTRUCTIONS

on NR 3-4-52

Form 10-306
(Oct. 1972)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY – NOMINATION FORM
FOR FEDERAL PROPERTIES
(Type all entries - complete applicable sections)

STATE: Virgin Islands
COUNTY: St. Croix
FOR NPS USE ONLY
ENTRY DATE

RECEIVED
JUN 10 1976
NATIONAL REGISTER

1. NAME

COMMON: Christiansted National Historic Site
AND/OR HISTORIC: Wharf Area, Christiansted

2. LOCATION

STREET AND NUMBER: Christiansted National Historic Site
CITY OR TOWN: Christiansted, St. Croix
CONGRESSIONAL DISTRICT: Virgin Islands
STATE: Virgin Islands — CODE: 078
COUNTY: St. Croix — CODE: 0800

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP		STATUS	ACCESSIBLE TO THE PUBLIC
[X] District [ ] Building	[X] Public	Public Acquisition:	[X] Occupied	Yes:
[ ] Site [ ] Structure	[ ] Private	[ ] In Process	[ ] Unoccupied	[ ] Restricted
[ ] Object	[ ] Both	[ ] Being Considered	[ ] Preservation work in progress	[X] Unrestricted
				[ ] No

PRESENT USE (Check One or More as Appropriate)

[ ] Agricultural	[X] Government	[X] Park	[ ] Transportation	[ ] Comments
[ ] Commercial	[ ] Industrial	[ ] Private Residence	[ ] Other (Specify)	
[ ] Educational	[ ] Military	[ ] Religious		
[ ] Entertainment	[X] Museum	[ ] Scientific		

4. AGENCY

National Park Service
REGIONAL HEADQUARTERS: (If applicable) Southeast Region
STREET AND NUMBER: 1895 Phoenix Boulevard
CITY OR TOWN: Atlanta
STATE: Georgia 30349 — CODE: 13

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC: Registry of Deeds, Government House
STREET AND NUMBER: King Street
CITY OR TOWN: Christiansted, St. Croix
STATE: Virgin Islands — CODE: 078

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY: Fort Christiansvaern, Scale House, Steeple Building, Old Customs House, Historic American Building Survey
DATE OF SURVEY: 1957-1961 [X] Federal [ ] State [ ] County [ ] Local
DEPOSITORY FOR SURVEY RECORDS: Library of Congress
STREET AND NUMBER: Capitol Hill
CITY OR TOWN: Washington
STATE: D.C. — CODE:

FOR NPS USE ONLY
STATE: Virgin Islands
COUNTY: St. Croix
ENTRY NUMBER
DATE

7. DESCRIPTION

CONDITION	(Check One)					
	☐ Excellent	☒ Good	☐ Fair	☐ Deteriorated	☐ Ruins	☐ Unexposed
	(Check One)		(Check One)			
	☒ Altered	☐ Unaltered	☐ Moved	☒ Original Site		

DESCRIBE THE PRESENT AND ORIGINAL (if known) PHYSICAL APPEARANCE

Preservation and Restoration Recommended:

The town of Christiansted was established in the second quarter of the 18th century by the Danish West India and Guinea Company on the site of the earlier French settlement of Basin. As the main port of St. Croix, Christiansted developed rapidly and in the second half of the 18th century became extremely prosperous on the sugar economy of the Islands. In 1755, Christiansted became the capital of the Danish West Indies and remained as such until 1871 when the seat of the colonial government returned to Charlotte Amalie on St. Thomas.

Christiansted National Historic Site was established in 1952 to preserve the center of Christiansted as an outstanding example of Danish colonial development in the Lesser Antilles. It includes the old wharf area in the center of Christiansted and six buildings of high architectural order representing different functions of the government of the islands when they were at the height of their prosperity.

1. Government House (No. H-1)

It is a large two and three story masonry structure that faces on King and Queen Cross Street, half a block from the wharf area. "U" shaped in plan, around a center courtyard, open towards the north, it measures 270 feet by 135 feet. The three and two story wing on King Street contains Virgin Islands Government offices on the ground floor, the formal reception rooms and the court on the second floor, and the official St. Croix residence of the Governor of the Virgin Islands. The two story south wing on Queen Cross Street houses court chambers and Virgin Islands Government offices. The two story east wing facing on the landscaped courtyard contains offices, services and general maintenance and support facilities for the building.

It was originally two separate structures. The Johan Vilhelm Schopen house on King Street dating from 1747 was a two story structure. It has been preserved in the central part of the existing building. The Schopen house was purchased by the government in 1771 as a residence for the governor and in 1776 a third "attic" story over the central section was added under a manzard roof.

The Søbøtkergaard on the corner of King and Queen Cross Street was built between 1794-97 by the planter and merchant Adam Søbøtker. Acquired by the Colonial Government in 1828 for use as offices, it was joined to Government House in the 1830's. As part of the same expansion, the manzard roof of the Schopen house was replaced by the existing full third story and the piazza and monumental staircase on the north end of the building was added. In the 1930's, Government House was rehabilitated with a reasonable attention to its original architectural features, but with some changes to the interior.

(Continued)

SEE INSTRUCTIONS

Form 10-300a (July 1969)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	
Virgin Islands	
COUNTY	
St. Croix	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

(Number all entries)

It is in good structural condition. Presently, it is used as offices for the Virgin Islands Government and the Federal District Court. The grounds, the formal reception rooms, the ballroom on the second story with period furnishings and the old kitchen in the rear wing of the structure are open to the public. Government House is owned by the Federal Government but managed by the Virgin Islands Government with architectural control by cooperative agreement vested in the National Park Service.

Government House reflects three different architectural styles. On King Street, the two lower stories designed and built by Johan Vilhelm Schopen with local labor and artisans employed by the Danish West India and Guinea Company still retains the barogue details and features characteristic s of the architecture popular in Denmark during the early 18th century. The simpler and more delicate details of the Søbøtkergaard represents a nordic version of the more restrained architecture of the Louis XVI period adapted to a locally developed architectural vernacular expressed in the open arched galleries.

The addition made during the 1830s, the third story of the Schopen house, the formal staircase and piazza on the north end of the west wing and the two story, three-bay section that connects the Schopen house and the Søbøtkergaard exhibit classical revival details modified and scaled to harmonize with the earlier architectural details. The design of these additions, built by the colonial government, have been credited to the Danish Military architect Lt. J. Gjellerup.

The reception rooms have some antique furniture and three portraits of note. Two original ones respectively of King Frederik the VII of Denmark and of Governor General Peter van Scholten, the latter by the Connecticut painter Metcalf. The third is a copy of an early portrait of Alexander Hamilton now hanging in the White House. The ballroom is furnished with replicas of its original chandeliers, wall scounces, mirrors and taburets.

Significance	First order
Longitude 64° 42'-04"	Latitude 17° 44'-53"
Acreage	0.95 acre
Recommended treatment:	Preservation and adaptive restoration
Preliminary cost est:	$120,000.00



GPO 921-724

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NATIONAL REGISTER

Form 10-300a (July 1969)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	
Virgin Islands	
COUNTY	
St. Croix	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

2. Steeple Building (H-2) Formerly known as "The Church of Our Lord of Sabadthai"

It is a one-story rubble masonry and brick structure 77' x 31' facing on Company Street with a 18' x 14' 4 tiered tower, 72 feet high centered on and projecting from the west side of the building. The building was constructed 1750-53 as a Lutheran Church and the tower was added in 1794. A small churchyard extends to the east and north, surrounded by a wood picket fence between brick pillars. Two arched brick gateways on Company Street provide access to the churchyard and the steeple building. In 1831 the Lutheran congregation sold the Steeple Building to the government after acquiring the former Dutch Reformed Church on King Street. It was converted into a military bakery and warehouse. Later it served as a community hall, hospital and elementary school. In the early sixties, the Steeple Building was restored by the National Park Service to its appearance of 1800 under the supervision of Historical Architect F. C. Gjessing, NPS. Owned and operated by the National Park Service, it now serves as a museum. The churchyard is landscaped but has not been included in the restoration except for the fence. The building is in good structural condition.

The building has the restrained formality and classical details of 18th century Nordic architecture that developed out of earlier Baroque traditions. The 1750-1753 structure has been preserved in two walls, the gable end on Church Street and the facade toward Company Street. The two other walls were reconstructed partially on the original foundations in the restoration of the 1960s. It was and is a severely simple structure symmetrical, well proportioned and without architectural adornments beyond a cornice. The steeply piched hipped roof is shingled and the walls plastered and stuccoed. The interior has no subdivisions. The ceiling is wood. Deep and high quarter circle coves springing up from a fairly heavy wood cornice supports a central flat section. An organ gallery supported on turned wood columns stretches across the south end of the interior. The floor is paved in marble and brick.

The church was conceived as a hall church with altar, baptismal font and pulpit, all grouped about the center of the long wall opposite the entrance. The original furnishings, many of which have been preserved in the present Lutheran Church outside the National Historic Site, are elaborate and colorful in contrast to the simplicity of the building.

The tower added in 1794 and preserved in toto was built in front of the original entrance centered in the west wall on Company Street and for its lower story, served as a vestibule to the church. The exterior is plastered. It has an articulated base and panels of quoins flanking arched doorways to the north and south and toward the west an arched window opening. The first

GPO 921-724

Form 10-300a
(July 1969)
RECEIVED
JUN 10 1976
NATIONAL REGISTER

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	
Virgin Islands	
COUNTY	
St. Croix	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

tier of the tower terminates in a cornice that continues in the cornice of the main body of the church. In the second tier, also plastered brick masonry, the quoin panels of the first tier continue in double pilasters with bases and caps of the Tuscan order flanking arched window openings and supporting an architrave and a second and more articulated cornice. The door and window openings of both the first and second tier have fan lights, surrounds and keystones, projecting and moulded transom bars and sills. The third tier is an octagonal drum constructed in wood and with an exterior finish of sheathing and shingles. Four decorative urns are placed above the cornice of the second tier in the triangular areas created by the transition from the rectangle of the lower tiers to the octagonal of the third tier. Clock faces are set in for sides of the drum. The fourth tier is an open octagonal pavilion constructed in wood and supporting a modified onion-shaped shingled dome terminating in a series of copper-covered projecting collars and balls and a weathervane.

Definite documentary reference to the designs of the church and the tower has not been found. Johan Vilhelm Schopen, an official of the Danish Westindia and Guinea Company and Chief Surveyor on St. Croix during the 1740s and early 50s, was involved in the construction and may have supplied the design of the church body. The designer of the tower is unknown. It was constructed by the mason James Entzell and the carpenter Collett. The mason Thomas Gray erected the masonry pillars of the fence in 1786 and the wood picket fencing between the pillars was constructed by carpenter Thomas Boggle who also installed the organ gallery of the interior in 1783.

Significance	First order
Longitude 64° 41'-59"	Latitude 17° 44'-54"
Acreage	0.25 acre

Recommended treatment includes preservation of restored structure and restoration of original features of the churchyard.
Preliminary cost estimate $36,000.00

3. Fort Christiansvaern (H-3)

Fort Christiansvaern is a brick, rubble masonry and half-timber structure located on the shoreline of Christiansted harbor and commanding the harbor entrance to the north and northeast. Sited on the earthworks of the earlier French fortification, Fort Christiansvaern was begun in 1738 and largely completed by 1749. Roughly a square fort measuring 132' x 144' built around a central courtyard, it has corner bastions at the salient angles and a ravelin on the landward side. The south landward curtain is two stories

Pate 4 of 10 pages

GPO 921-724

Form 10-300a
(July 1969)
RECEIVED
JUN 10 1976
NATIONAL
REGISTER entries

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	Virgin Islands	
COUNTY	St. Croix	
FOR NPS USE ONLY		
ENTRY NUMBER		DATE

while all other parts of the fort are one story supporting open gun decks. Toward the north, the harbor side, a projecting water battery supported on a vaulted magazine replaces the conventional curtain. In continuous use as a military installation until 1878, when it became a police station and courthouse, it has been remodeled and rehabilitated at different periods without basically altering the original fabric of the fort. In the 1830s a stableyard was added to the fort toward the east and subsequently a walled prison yard towards the west, increasing the overall dimensions of the fort to 240 feet by 245 feet.

Fort Christiansvaern, federally owned, is managed by the Virgin Islands Government but by cooperative agreement, under the jurisdiction of the National Park Service. It contains the Park Headquarters and is used as the Visitor Center for the historic site.

Fort Christiansvaern was built for the Danish Westindia and Guinea Company by the company's soldiers and slaves and in its initial stages under the guidance of Frederik Moth, the first Danish Governor of St. Croix. The designer of the fort is not known. Governor Moth was supplied with several standard plans of small citadels and also for brief periods had the advice of the Danish military engineers, Lieutenants Stahlmann, Warneck and Stoll. The Chief Surveyors Jens Sørensen Friis and after 1743, his successor Johan Vilhelm Schopen supervised the construction and also provided architectural designs. Others associated with repairs and additions to the fort during the 18th century are building inspector Julius von Rohr, Lt. Peter L. Oxholm and in the 19th century, the Lieutenants Lundbye, Gjellerup and von Friss, building inspection P. Beck and architect A. Løvmand.

In its general organization it follows the standard pattern of a small third degree citadel, varying from the typical in its water battery and two-story south curtain.

As the fort in the early years of the Danish colonization served as residence of the governor and was the nerve center of the colony, its architectural character is more elaborate than normally found in fortifications of its type. Style features such as the sally port, the masonry staircase and two-story arched gallery of the south curtain are derivatives of the "Italinated style" popular in Denmark during the first quarter of the 18th century. The extensive additions to Fort Christiansvaern in the 1830s are more sober in form and with the exception of the gate to the stableyard, plainly utilitarian in character.

GPO 921-724

Form 10-300a
(July 1969)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM
(Continuation Sheet)

RECEIVED
JUN 10 1976
NATIONAL REGISTER

STATE	
Virgin Islands	
COUNTY	
St. Croix	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

The quality of the structure and its impact is heavily dependent on its varied and fine details of pavements, masonry construction and finishes and to some degree, woodwork.

Structurally, it is in fair condition, in part excellent, and in areas, poor.

Significance:	First order
Longitude 64° 41'-56"	Latitude 17° 44'-58"
Acreage	6:00 acre (3/5 of wharf area)

Recommended treatment: Preservation
Preliminary cost estimate $550,000.00

4. Westindia Company Warehouse (Post Office H-4)

A complex of three, two and one story masonry structures facing on Company, Church and Hospital Street, and grouped around a walled courtyard. The complex measures 78' x 168 1/2'. The main structure, a two-story "L" shaped building was completed in 1749 and housed the offices and quarters of the Westindia Company. The complex originally extended further north and included the old customhouse (H-6) as well as other structures, but in the 1790s, Hospital Street was extended and halved the original compound.

After 1833 it was a depot for the Danish military and subsequently used as a telegraph office. In the 1930s the buildings were rehabilitated and converted into office space for Customs and the Post Office. The exterior character and details were retained but interior considerably altered. It is now owned and operated by G.S.A. with architectural control by cooperative agreement vested in the National Park Service. It is structurally in good condition.

The main wing of the post office extends westward along Church Street some 78 feet and is 28 feet wide, while the eastern wing runs north and south along Company Street and is 28 feet wide by 68 feet long. The entire first floor houses the U. S. Post Office while the second floor is utilized by the U. S. Customs Service. The building is located in the southeast corner of the lot.

Two gates split the site on an axis perpendicular to Church and Hospital Streets. To the west of the south gate on Church Street is a kitchen with a brick hearth and chimney. Further west is a cistern which reaches to the southwest corner, and there are two more cisterns on the west side of the lot. In the northwest corner of the lot is a second kitchen with existing hearth and chimney with a flat brick ceiling. All buildings and walls are of brick and rubble masonry construction with brick frames to the original

GPO 921-724

Form 10-300a
(July 1969)
RECEIVED
JUN 10 1976
NATIONAL REGISTER entries

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	
Virgin Islands	
COUNTY	
St. Croix	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

openings and stuccoed brick trim. Within the courtyard there are two stairways of brick masonry with solid balustrades which provide entrances to the second floor of the main building. Thus the post office lot is a complex of joined masonry buildings placed on three and half sides of an irregular walled quadrangular court.

The original Westindia and Guinea Company warehouse was built for the company by its slaves and artisans under the supervision of chief surveyor Johan Wilhelm Schopen and probably according to his designs. It has survived in the exterior masonry walls of the first story of the building toward Company Street and in the exterior of the building, the gateway and the wall facing on Church Street.

The full second story of the wing toward Company Street is an early 19th century replacement of a gambrel roofed second story similar to the one retained in the Church Street wing of the structure. The one-story structures facing on the wharf area and the extension of Hospital Street are late 18th century and early 19th century additions to the original warehouse complex.

The architectural character of the complex is a blending of 18th century and early 19th century details. Basically simple in design, decorative features are concentrated on gateways, corner posts of the surrounding walls and on the gable end of the main wing facing on Church Street. This latter feature with its gambrel gable end and horizontal banding is an unusual feature for the Virgin Islands architecture.

Significance: Second order
Longitude 64° 42'-01" Latitude 17° 44'-55"
Acreage 0.4 acre
Recommended treatment: Preservation
Restoration of exterior and finished
Preliminary cost estimate $40,000.00

5. Scale House (H-5)

The scale house is a two-story building 43'5" x 61'0" located on the wharf area at the extension of King Street. As built in 1856, it had a brick masonry ground floor 25'4" x 61'0" supporting a second wood story with an exterior masonry staircase on the north side of the structure. A one-story extension of reinforced concrete (18'1" x 61'0") was added to the north side of the original structure in 1925. The building housed the facilities for inspecting and weighing imports and exports and on the second story, the weighmaster's office and quarters of the troops attached to the Customs Service. Utilitarian in nature, but pivotal in function to the comunity, it is the fourth structure of its kind to be erected on the wharf area.

GPO 921-724

Form 10-300a
(July 1969)

RECEIVED
JUN 10 1976
NATIONAL REGISTER entries

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	
Virgin Islands	
COUNTY	
St. Croix	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

Managed by the Virgin Islands Government, but by cooperative agreement, the maintenance of its historic integrity is the responsibility of the National Park Service. It is presently serving as a visitors bureau and offices of the Bureau of Tourism of the Virgin Islands Government. It also houses the office of the Harbormaster.

The Scale House was designed by Building Inspector Ludvig Schellerup and built for the Colonial Government by Mason Martin Larke and Carpenter B. Thomas. The Brick masonry ground floor was divided into a scaleroom to the east, a central office and an inspection room toward the west by two wood partitions. Both the scaleroom and the inspection room had wide gates in the north and south walls to allow passage of carts through these rooms. The office in the central section of the ground floor had an exterior door in the south wall, doors to the adjoining rooms and a window in the north wall. The second floor that was accessible by the exterior masonry stairs against the north wall had two rooms only as the scale room went up through both stories. The exterior of the ground floor has projecting quoins at corners and around the four arched gateways. Window openings in the west, north and east walls have keystones but are not otherwise articulated. A rainguard supported on turned wooden posts protects the central entrance door in the south wall. The second story is shingled with groved corner boards to simulate quoins. There is no cornice and the building is covered by a hipped roof with galvanized metal roofing. In 1925 when the reinforced concrete shed was added to the north side of the building, the original staircase was removed. In place of it, a concrete staircase was built against the east end of the addition that gave access to a continuous 4'0" wide passageway against the north wall at the second floor level.

The Scale House is devoid of style elements as such, but its logic, masonry and detail are characteristic of the Virgin Islands. For its effect, it relies on these features and on an exceptional high level of workmanship. On the second floor, for example, all wood members are exposed and finished. The studding serves as frames for door and windows and stop as trim. Moulded base boards are mitered around the exposed studs and around braces with adjustments to the changing angles of the mouldings and of the width of the base board to allow for perfect fit. Although building examples of this sort are now rare it must be assumed from the perfection of the workmanship in this plainly utilitarian structure that a similar degree of craftmanship was not as uncommon as it now appears to be. For this reason as well as its function in the community it is an important element of the National Historic Site.

GPO 921-724

Form 10-300a
(July 1969)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

RECEIVED
JUN 10 1976
NATIONAL REGISTER entries

STATE	
Virgin Islands	
COUNTY	
St. Croix	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

The structural condition of the Scale House varies from good to poor.

Significance: Second Order
Acreage 2 acres 1/3 of wharf area
Recommended treatment: Preservation and adaptive restoration
Preliminary cost estimate $60,000.00

6. The Library Building, formerly Danish Customs House and Post Office (H-6)

It is a two-story free-standing stuccoed limestone and brick masonry structure oriented east-west that faces on the Christiansted wharf. In its ground floor it retains structural elements dating from 1751. Changed and added to on several occasions during the 18th and early 19th century, it received its present form in 1840-1842. Originally part of the Danish Westindia and Guinea Company's compound and constructed as the residence of their bookkeeper, it became the Customs House and later the Customs House and Post Office. It served as such until 1926-27 when the Post Office moved to other quarters and the building was converted to a library. During the late 1940s and 50s, the ground floor was occupied by the St. Croix Museum Inc. Presently the entire structure is used by the Christiansted Library.

Managed and occupied by the V. I. Government, the architectural control of the structure is vested in the National Park Service by cooperative agreement.

The building is 59 feet, 6 inches long. Its ground floor consists of an enclosed section 19'7" wide, one room deep, divided into three rooms by two masonry partitions. A 10 foot wide arcade runs the full length of the enclosed section, along its north side. The center 26'3" of the north side projects another 10'5", providing on the ground floor a double arcade of the center three bays. Still centered on the north side, a large "open arms" brick masonry staircase extending 23' from the face of the second arcade and supported on two vaults provide the exterior access to the second floor and gives the building a "T" shaped plan. On the second floor, the entire area of the arcades and of the main body of the ground floor is enclosed.

A two-story sun and rain guard 8' wide supported on wood posts about 9' on center extends around the east, south and west side of the building. A wood picket fence between the posts excloses a walkway along the back and sides of the building. The structure has a flat roof behind a parapet wall. In 1902-3, part of the brick roof was removed and a corrugated metal roof on joists laid above it. To hide the second roof, the parapet walls were raised to their present height. The interior of the second floor is divided into four rooms by one masonry and two wood partitions. A wood stair at the west end provides interior communication between the first and second floors.

GPO 921-724

Form 10-300a
(July 1969)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	
Virgin Islands	
COUNTY	
St. Croix	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

(Number all entries)

In 1828-29, the second story masonry walls of the existing building were erected to replace earlier wood construction and the library building as it stands now began to emerge. Both Custom Treasurer Testmann and Buildings Inspector Johan von Magens provided sketches for the change. Its final form and its architectural character was arrived at in 1840-42 when Architect Albert Løvmand rehabilitated the building for the colonial government. His improvement included the monumental staircase on the north side of the building, the removal of adjoining structure to the west and south, the designs of the present sash, the two-story sun and rain guards and other exterior and interior details.

Although Architect Løvmand was a classicist, his more usual architectural vocabulary is not apparent except in the selection of mouldings, particularly in the fairly elaborate interior wood work of the second floor. Stylistically, the vernacular elements of the building's design are dominant and its success dependent on the blending of solidity of massing and construction with the slightness and restraint of its mouldings and such contrasts as the perforated ground floor and the slimness of the rainguard provided. It is an exceptionally distinguished building.

Although formal and representational, the Library, like the Scale House is local in its architectural expression and owes less to outside influences than the four other structures included in the Christiansted National Historic Site.

Significance: Third order
Longitude 64° 42'00" Latitude 17° 44' 56"
Acreage 2 acres (1/5 wharf area)
Recommended treatment: Preservation
Preliminary cost estimate $170,000.00



Page 10 of 10 pages

GPO 921-724

8. SIGNIFICANCE

PERIOD *(Check One or More as Appropriate)*

☐ Pre-Columbian	☐ 16th Century	☒ 18th Century	☐ 20th Century
☐ 15th Century	☐ 17th Century	☒ 19th Century	

SPECIFIC DATE(S) *(If Applicable and Known)*

AREAS OF SIGNIFICANCE *(Check One or More as Appropriate)*

Aboriginal	☐ Education	☒ Political	☒ Urban Planning
☐ Prehistoric	☐ Engineering	☒ Religion/Philosophy	☐ Other *(Specify)*
☐ Historic	☐ Industry	☐ Science	
☐ Agriculture	☐ Invention	☐ Sculpture	
☒ Architecture	☐ Landscape Architecture	☐ Social/Humanitarian	
☐ Art	☐ Literature	☐ Theater	
☒ Commerce	☒ Military	☐ Transportation	
☐ Communications	☐ Music		
☐ Conservation			

STATEMENT OF SIGNIFICANCE

SEE INSTRUCTIONS

Christiansted National Historic Site provides an excellent example of the development, accomplishments, and way of life of a society based on a sugar producing plantation economy. It also preserves a representative sample of the architectural qualities that sprang from the wealth and accomplishments of Danish colonial development in the Lesser Antilles.

For more than a century after Columbus sighted St. Croix during his second voyage in 1493 it remained a no-man's land, rarely visited by Europeans. During the 17th century the Island of St. Croix was occupied in turn by the British, Dutch and French, each in turn relinquishing their claim. In 1665 the French left the island, but retained their ownership until 1733 when the Danish West India and Guinea Company bought St. Croix to add to the islands of St. Thomas and St. John which they already held.

Under Danish rule the island thrived, becoming a major sugar producer bound to both Europe and America by commercial, social, and cultural ties. By 1755 the population was over 10,000 and that year the three islands became a crown colony with Christiansted as the capital. Prosperity continued to increase in direct proportion to sugar production as the Danish West Indies became a major part of the "Fabulous Sugar Islands" as the Lower Antilles were known. It was this prosperity that built St. Croix's substantial, attractive buildings and supported the planter's and merchant's gracious and luxurious way of life.

The Town of Christiansted grew as a planned community. Its gridiron street pattern designed to fit the topographic features of the site. Its architecture reflects both the wealth and accomplishments of the plantation society and the social injustices that made such a society possible. By the first decades of the 19th century, the end of prosperity resting on a single crop economy was approaching--the price of sugar dropped after 1820, sugar beets became a viable crop in many countries, and restrictive import laws of other nations curtailed trade. By 1848, when slaves were emancipated, the flourishing economy was a past memory.

Today, Christiansted National Historic Site contains six buildings in approximately three city blocks on the waterfront. They reflect the influence and interest of Danish colonial government. Fort Christianvaern

(Continued) Page 1 of 2

Form 10-300a
(July 1969)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	
Virgin Islands	
COUNTY	
St. Croix	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

(Number all entries)

8. Significance Continued

originally was the residence of the governor, as well as a military installation. It later housed the offices and functions of the metropolitan government. The Customhouse (Library) and Scalehouse were both intimately tied to the commerce and agriculture that was the island's economic base. Colonization by many European Nations often started with licensed private, commercial ventures under diplomatic and military protection of the home government. The West India and Guinea Company Warehouse is an excellent example of the headquarters of such a venture, and for the first 20 years after 1733 was the heart of the settlement.

Government house as the residence of the governor and headquarters of the Crown Colony was the center of administration. As the meeting place of the Colonial Council, it was the setting for decisions that at one time or another affected all individuals residing in the Danish Virgin Islands. Discussions conducted here led to Denmark's abolition of the slave trade in 1798 and emancipation 50 years later.

Denmark was in advance of most European Nations in its acceptance of religious tolerance, but religious functions of an official nature had to be performed by a minister of the Lutheran State Church. Construction on the Steeple building began in 1750 and was completed 3 years later. The steeple was added in 1794. The structure, built of rubble masonry with a four tiered steeple 77 feet high, is an unusual representative of Danish colonial architecture.

These six structures served the population of St. Croix and the adjoining islands and are an architectural expression of Danish colonial development.



Page 2 of 2

GPO 921-724

9. MAJOR BIBLIOGRAPHICAL REFERENCES

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Herbert Olsen, HSR, NPS, Steeple Building 1959, Ft. Christiansvaern 1960, Scale House 1961, Library Bldg., Formly Old Custom House 1962
F.C. Gjessing, HSR, NPS, Steeple Bldg. 1957 Part II, 1959
Henning Henningsen, The Danish Westindies in Old Pictures, Danish Indies Society Copenhagen 1967

10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY

CORNER	LATITUDE Degrees	Minutes	Seconds	LONGITUDE Degrees	Minutes	Seconds
NW	17°	44'	59"	64°	42'	17"
NE	17°	44'	59"	64°	42'	04"
SE	17°	44'	50"	64°	42'	17"
SW	17°	44'	50"	64°	42'	04"

OR

LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES

LATITUDE Degrees	Minutes	Seconds	LONGITUDE Degrees	Minutes	Seconds
°	'	"	°	'	"

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: 11 1/2 acres

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE

SEE INSTRUCTIONS

11. FORM PREPARED BY

NAME AND TITLE: Frederik C. Gjessing, Architect

DATE: June 15, 1973

BUSINESS ADDRESS: Virgin Islands National Park

STREET AND NUMBER: P.O. Box 806, Charlotte Amalie

PHONE: 755-2050

CITY OR TOWN: St. Thomas

STATE: Virgin Islands

CODE: 078

12. CERTIFICATION OF NOMINATION

State Liaison Officer recommendation:

☐ Yes
☐ No
☐ None

State Liaison Officer Signature

In compliance with Executive Order 11593, I hereby nominate this property to the National Register, certifying that the State Liaison Officer has been allowed 90 days in which to present the nomination to the State Review Board and to evaluate its significance. The recommended level of significance is ☐ National ☐ State ☐ Local

NOV 1976

Federal Representative Signature *Date*

Deputy Assistant Secretary

Title

NATIONAL REGISTER VERIFICATION

I hereby certify that this property is included in the National Register.

Director, Office of Archeology and Historic Preservation

Date

ATTEST:

Keeper of The National Register

Date 10-20-74

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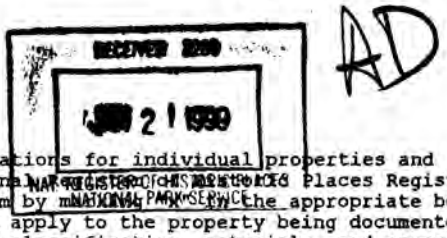
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REGISTRATION FORM



AD

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in How to Complete the National Register of Historic Places Registration Form (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Christiansted National Historic Site (Additional Documentation)

other names/site number Wharf Area, Christiansted Historic District

2. Location

street & number _____

not for publication ___
city or town Christiansted, St. Croix *vicinity* ___
state Virgin Islands *code* VI *county* St. Croix *code* 010
zip code 00820

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this _x_ nomination ____ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property _X_ meets ____ does not meet the National Register Criteria. I recommend that this property be considered significant _X_ nationally ___ statewide ___ locally. (___ See continuation sheet for additional comments.)

additional documentation

Ronald M Greenberg — JAN 21 1999

Signature of certifying official *Date*

National Park Service

State or Federal agency and bureau

In my opinion, the property ____ meets ____ does not meet the National Register criteria. (___ See continuation sheet for additional comments.)

_____ _____

Signature of commenting or other official *Date*

_____

State or Federal agency and bureau

USDI/NPS NRHP Registration Form

Page 2

4. National Park Service Certification

I, hereby certify that this property is:

X	entered in the National Register ___ See continuation sheet.	Signature of Keeper	3/5/99
___	determined eligible for the National Register ___ See continuation sheet.		
___	determined not eligible for the National Register		
___	removed from the National Register		
___	other (explain): ___		

Signature of Keeper *Date of Action*

5. Classification

Ownership of Property
(Check as many boxes as apply)

___ private
X public-local
___ public-State
X public-Federal

Category of Property
(Check only one box)

___ building(s)
X district
___ site
___ structure
___ object

Number of Resources within Property
(Do not include previously listed properties in the count)

Contributing	Noncontributing	
1	0	buildings
0	0	sites
1	0	structures
0	1	objects
2	1	Total

Number of contributing resources previously listed in the National Register 6 (in NHS)

Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.) N/A

USDI/NPS NRHP Registration Form

6. Function or Use

Historic Functions
(Enter categories from instructions)
HEALTH CARE/hospital
DEFENSE/naval facility/fortification
RELIGION/religious facility
GOVERNMENT/custom house/court house/ correctional facility
COMMERCE/TRADE/warehouse/other
RECREATION AND CULTURE/music facility

Current Functions
(Enter categories from instructions)
RECREATION AND CULTURE/museum/music facility/monument/marker
GOVERNMENT/post office/other
OTHER/NPS office/exhibit/visitor center/maintenance facility
OTHER/National Historic Site

7. Description

Architectural Classification
(Enter categories from instructions)
COLONIAL
Danish Colonial
OTHER

Materials
(Enter categories from instructions)
foundation: brick, stone, concrete
walls: brick
roof: metal, brick, asphalt, shingle
other: wood, stucco

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

X A Property is associated with events that have made a significant contribution to the broad patterns of our history.

___ B Property is associated with the lives of persons significant in our past.

X C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

___ D Property has yielded, or is likely to yield information important in prehistory or history.

USDI/NPS NRHP Registration Form

Criteria Considerations (Mark "X" in all the boxes that apply.)

___ A owned by a religious institution or used for religious purposes.

___ B removed from its original location.

___ C a birthplace or a grave.

___ D a cemetery.

___ E a reconstructed building, object, or structure.

___ F a commemorative property.

___ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance
(Enter categories from instructions)
POLITICS/GOVERNMENT
ARCHITECTURE

Period of Significance
ca. 1734-1931

Significant Dates
1734, 1754, 1917, 1931

Significant Person
(Complete if Criterion B is marked above)

Cultural Affiliation
N/A

Architect/Builder
Unknown
U.S. Navy

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.)

USDI/NPS NRHP Registration Form

9. Major Bibliographical References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS)
___ preliminary determination of individual listing (36 CFR 67) has been requested.
_X_ previously listed in the National Register
___ previously determined eligible by the National Register
___ designated a National Historic Landmark
_X_ recorded by Historic American Buildings Survey # VI-1, VI-4, VI-5
___ recorded by Historic American Engineering Record # _____

Primary Location of Additional Data
___ State Historic Preservation Office
___ Other State agency
_X_ Federal agency
___ Local government
___ University
___ Other

Name of repository: Christiansted National Historic Site
St. Croix, VI

10. Geographical Data

Acreage of Property 8.46 (NHS within the 135.9-acre Christiansted HD)

UTM References (Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing		Zone	Easting	Northing
A	__	_____	_____	D	__	_____	_____
B	__	_____	_____	F	__	_____	_____
C	__	_____	_____	F	__	_____	_____

_X_ See continuation sheet.

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

There is no change in the existing district boundary.

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

USDI/NPS NRHP Registration Form

11. Form Prepared By

name/title Christine Trebellas, Architectural Historian

organization National Park Service, Southeast Regional Office

date January 1999

street & number 100 Alabama Street S.E. *telephone* (404) 562-3117

city or town Atlanta *state* GA *zip code* 30303

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps
A USGS map (7.5 or 15 minute series) indicating the property's location.
A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs
Representative black and white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items)

Property Owner *(Complete this item at the request of the SHPO or FPO.)*

name National Park Service

street & number P.O. Box 37127 *telephone*

city or town Washington *state* DC *zip code* 20013-7127

NPS Form 10-900-a (8-86)	OMB No. 1024-0018
United States Department of the Interior National Park Service	Christiansted National Historic Site *name of property*
NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET	St. Croix, Virgin Islands *county and State*
Section 7 *Page* 1	

National Register of Historic Places
Additional Documentation for Christiansted National Historic Site

Christiansted National Historic Site (NHS) was placed on the National Register of Historic Places with the passage of the National Historic Preservation Act on October 15, 1966. Documentation for the district was accepted by the National Register on July 30, 1976. It nominated 135.9 acres of the historic town of Christiansted, including all of the Christiansted Historic and Architectural Control District and portions of the Christiansted National Historic Site. The initial documentation also included six historic structures within the Christiansted National Historic Site significant for their architecture as well as their association with the development of the Danish West Indies (Virgin Islands) as a colonial possession of Denmark. This amendment identifies one additional contributing structure within the National Historic Site, the Fort Christiansvaern Stable Building, that was included, but not individually listed, in the previous nomination. Like the majority of the historic resources, this structure is significant for its association with the development of Christiansted under Danish Colonial rule. After the United States purchased the Danish West Indies in 1917, the U.S. Navy administration greatly improved social services in the Virgin Islands until the islands were transferred to the Department of the Interior in 1931. This amendment also identifies one additional contributing structure within the National Historic Site, the bandstand, which is significant for its association with the U.S. Navy's stewardship of the Virgin Islands between 1917 and 1931. In addition to listing these two structures, this amendment also identifies one noncontributing structure within the National Historic Site, the D. Hamilton Jackson Monument. The district boundaries for the Christiansted Historic District will remain the same. Photographs of the additional contributing structures within the National Historic Site are included, as well as a map indicating the location of these contributing structures.

Description of Historic Resources

Previously Listed Resources
Christiansted National Historic Site

Government House, 1747-1830s

Originally two separate structures, the Government House consists of an approximately 270' x 135' U-shaped masonry structure of two to three stories. The Johan Vilhelm Schopen House, built in 1747 as a two-story building, was purchased by the colonial government in 1771 and is now the central part of the existing Government House. The neighboring Sobotkergaard, built between 1794 and 1797, was joined to the Government House in the 1830s with a two-story, three-bay connecting unit. At the same time, the existing third story was added to the Schopen House, as was the monumental staircase and piazza on the north end of the building. Although transferred to the Virgin Islands government in 1984, and currently maintained and interpreted by it, the

structure is still within the authorized boundary of the National Historic Site. Nonetheless, the National Park Service no longer has responsibility for the management or maintenance of the Government House.

Steeple Building, LCS Number 00187, H-2, 1750-1753, 1794-1796

The Steeple Building, once known as The Church of Lord God of Sabaoth, consists of a 28' x 88', one-story, rectangular-plan building with a hipped roof, and a 15' x 18' x 77' steeple tower. Built as a Lutheran church between 1750 and 1753, the structure has exterior walls of stucco masonry and a roof with wood shingles. The building also contains a main entrance through the steeple tower on the north face, as well as twelve-over-twelve-light casement windows with exterior board shutters. The four-tier steeple tower was added to the building in 1794. The first and second tiers are rectangular with stucco walls and arched window and door openings. Quoins decorate the corners of the first tier, while the second is embellished with pilasters. The third tier consists of a wood-shingled octagonal drum with four clock faces on alternating sides. The top tier contains an open cupola with a wood-shingled roof surmounted by a wrought iron spire and weather vane. The brick masonry gate and wood picket fence with brick pillars are part of a 1964 reconstruction.

Fort Christiansvaern, LCS Number 00188, H-3, 1738-1749, 1835-1840

Built between 1738 and 1749, Fort Christiansvaern is an approximately 132' x 144', four-sided fort built around a central courtyard. The fortification has corner bastions at the salient angles and a ravelin on the south (landward) side. The south curtain (the wall of a fortification between the bastions) contains two stories, while the others are one-story stuccoed brick walls enclosing chambers and magazines. The roofs of the curtains and bastions are flat brick decks with embrasured parapet walls. On the north (harbor) side, a projecting water battery replaces the curtains. The northeast bastion has a 1835 second-story addition used as an enlisted soldiers' dining room. The second story of the south curtain, which contained living quarters, has symmetrical fenestration on the court (north) side. Other features include a projecting double stairway leading to the second-story entry, a fanlight over the door, and jalousie windows with fanlights flanking the main entry. In 1835 a wall was added to the west side of the complex to enclose a prison yard.

[1] According to the Office of the Solicitor, Southeast Region, Department of Interior, the transfer of the Government House and the appurtenant property to the Government of the Virgin Islands did not change the boundary of the National Historic Site. When Congress passed H.R. 98-784 in 1984, it did not remove, nor intend to remove, the Government House and its land from the Christiansted National Historic site. Roger Sumner Babb, Atlanta, Georgia, to Jerry Belson, Atlanta, Georgia, 8 July 1997, Southeast Support Office, National Park Service, Atlanta, Georgia.

Danish West India and Guinea Company Warehouse, LCS Number 07029, H-4, 1749

The Danish West India and Guinea Company Warehouse is a 78' x 168.5' building complex of one-, two-, and three-story structures grouped around a walled courtyard. The main building, a three-story, L-shaped, hipped-roof structure completed ca. 1749, faces Compagniegade (Company Street) and once housed the offices and quarters of the West India Company. The ell addition to the north of the building consists of a two-story gambrel-roof structure with three gable dormers on the east and west sides. A staircase leads from the main building into the courtyard. The north end of the complex has a one-story, V-shaped building with a flat roof that follows the contour of the wall. A shed-roof pump house lies on the northwest end of the complex, while the 25' x 55' National Park Service (NPS) comfort station lies to the northeast. The comfort station, the only part of the complex owned by the NPS, has an end-gable parapet roof and entries on the east facing the street. Windows throughout the complex are six-over-six-light double-hung wood sash with exterior board shutters and iron hardware. All the buildings in the complex have stucco-covered walls and metal roofs. An arched gateway on the west wall connects the south and north buildings on that side of the complex.

Scale House, LCS Number 00191, H-5, 1855-56

The Scale House is a 43.5' x 61', two-story, rectangular-plan building with a hipped roof. As built ca. 1855-56, the structure had a brick masonry ground floor approximately 25.3' x 61' supporting a wood second story with an exterior masonry staircase. In 1925 a one-story reinforced concrete addition approximately 18' x 61' was built to the north side of the structure. This non-historic addition was later demolished in a 1977 rehabilitation. The brick exterior walls on the first floor currently have stucco veneer while wood shingles cover the second. Quoins decorate the corners of the ground floor, which contains arched stable door entries with voussoirs of alternating size and wood gates on the north and south faces of the building. In the center of the facade (north face) is the restored exterior brick staircase with a modern wrought iron railing leading to the second floor. The first floor of the south face has a single-door entry with a shed-roof porch containing wood posts and scalloped wood barge boards. The unglazed windows on the second floor of the structure have exterior board shutters and interior louvered wood shutters. Due to damage from Hurricane Marilyn in 1995, the roof of the Scale House was replaced with wood shingles in 1997.

Danish Customs House, LCS Number 00190, H-6, ca. 1829

The Danish Customs House, also known as the Library Building, is an approximately 40' x 60', rectangular-plan, two-story building with a flat parapet roof. The facade (north face) has symmetrical fenestration as well as a projecting, three-bay entrance and grand staircase with a solid balustrade leading to round newel posts. The first floor has an open arcade supported by square columns that run behind the staircase. The south, east, and west faces

of the building contain a two-story hipped-roof porch with a brick floor, wood post supports, scalloped barge boards, and picket fencing between the posts. The casement windows have three-over-two lights in each panel, keystone details, and exterior board shutters with iron hardware. Doors are double wood panel casement without glazing. The masonry building contains decorative horizontal banding: two at belt course and three at parapet level. The south face also contains an exterior cast-iron staircase leading to the second floor. The roof of the building consists of a double-layer of brick over wood joists and stringers.

Additional Contributing Resources
Christiansted National Historic Site

Fort Christiansvaern Stable Building, LCS Number 91554, H-9, 1835-1840

The Fort Christiansvaern Stable Building, built between 1835 and 1840, consists of an approximately 119' x 16', rectangular-plan, one-story stable building with brick and stucco walls and a brick roof which slopes toward the west. The west face of the building contains eight full and one partial arched stable doorways. There were originally ten openings to the stable, but one and part of another have been filled with brick and now contain two doors and a small window. On the east face of the structure, sixteen narrow windows with shutters and horizontally placed iron bars provide light and ventilation for the building. A wall with a gate connects the stable and stable yard to the fort. The stable building was previously listed as part of Fort Christiansvaern on the 1976 National Register nomination.

Bandstand, LCS Number 91555, H-8, ca. 1917-18

The bandstand, built ca. 1917-18 by the U.S. Navy during its stewardship of the Virgin Islands, consists of a roughly 22' x 22' octagonal platform with a two-tier octagonal hipped roof. The structure contains steps on the east face. Other features include wood railings, posts, roof supports, and decorative barge boards. The bandstand platform rests on an approximately 4 1/2' high brick pier foundation filled in the 1930s with concrete scored to look like stone. Used for concerts given by the U.S. Navy Band of the Virgin Islands, the structure is located near Hamilton Jackson Park between Fort Christiansvaern and the Danish Customs House and Scale House.

Noncontributing Resources
Christiansted National Historic Site

David Hamilton Jackson Monument, LCS Number 91556, H-7, 1978-1979

The David Hamilton Jackson Monument, created to commemorate the famous local judge, editor, and labor leader, is an approximately 6' high monument with a bronze bust sculpture of Jackson wearing his judge's robes. On March 14, 1978,

the Virgin Islands Legislature approved an act (Act No. 4106) authorizing $10,000 for the creation of a mounted bronze bust of D. Hamilton Jackson and a memorial plaque to be placed in the D. Hamilton Jackson Park in Christiansted, St. Croix. Designed by Jose Buscaglia, the completed sculpture rests on a marble veneer and concrete plinth consisting of a square base, square shaft, and a capital. The text on the monument reads "DAVID/HAMILTON JACKSON/1884 1946/JUDGE, EDITOR, LABOR LEADER/'BLACK MOSES'." The monument was completed between 1978 and 1979 and is maintained as a cultural resource because of its commemorative purpose and its association with Jackson, who played an important role in the development of the Virgin Islands in the early twentieth century. Born in 1884, David Hamilton Jackson organized the first labor union in St. Croix in 1915 and founded the *Herald*, the first newspaper to represent the working class opinion in the Virgin Islands. He also served as an educator, editor, labor leader, attorney, councilman, and judge.[2]

D. Hamilton Jackson Park

The park lacks clear boundaries, but as originally designated appears to have extended from the west wall of Fort Christiansvaern on the east, the sea on the north, and the scale house on the south. On the west, the park extends to the vicinity of the bandstand. It was probably named in Jackson's honor after his death in 1946. The first mention of this designation appears in a Virgin Islands Public Works Department map from the late 1940s or early 1950s. Many of the paths, walkways, and benches in this area may have been related to the former Veteran's Memorial, which stood near the balustrated terrace (built 1945) outside the west wall of the fort until it was removed in the early 1980s. Many of the landscape features associated with the memorial were also removed to restore the grounds to their nineteenth century appearance.[3] Further research is needed to determine whether the park area is a cultural landscape eligible for listing in the National Register of Historic Places.

[2] Ruth Moolenaar, *Profiles of Outstanding Virgin Islanders*, 3rd ed. (Department of Education, Government of the U.S. Virgin Islands, 1992), 109-110.

[3] Conversation with William Cissel, Christiansted National Historic Site, 20 January 1998 and 11 January 1999.

Significance

The Christiansted National Historic Site was nominated to the National Register of Historic Places as part of a nationally significant district associated with the development of Christiansted and the Danish West Indies as a colonial possession of Denmark. The historic site contains seven structures which reflect the growth of the colony in the early eighteenth century under Danish West India and Guinea Company rule, and after 1754, under the Danish Crown. This documentation explains the relationship of these structures to the development of Christiansted and the rest of the Danish West Indies. Under Danish Crown rule, Christiansted became the new capital of the colony, and the economy of the Danish West Indies prospered with the sugar production of St. Croix and St. John and the commerce of St. Thomas. However, a decline in profits from agriculture (which began in the mid-nineteenth century) led to Denmark's decision to sell the islands to the United States, which purchased them for military purposes. The U.S. Navy administered the islands from 1917 to 1931, and during these years implemented a number of programs to improve social services on the islands. This additional documentation also discusses the site's secondary significance--its association with the U.S. Navy's stewardship of the Virgin Islands from 1917 to 1931. One structure, the bandstand, reflects this period of significance.

The Danish West Indies

On November 14, 1493, during his second voyage to the New World, Christopher Columbus discovered yet another island in the West Indies and named it Santa Cruz (St. Croix). Shortly thereafter, his ships sailed north through several smaller islands, and Columbus named this group the Virgin Islands, or "Las Once Mil Virgines."[4] Although Spain claimed St. Croix and the Virgin Islands, it neglected to colonize them in favor of larger islands in the area.[5] No serious efforts were made to inhabit the Virgin Islands until the seventeenth century, when both Dutch and English groups attempted to settle on St. Croix. They encountered little resistance from the islands' Native American population, for most of them had disappeared by the mid sixteenth century.[6] After several

[4]St. Croix, however, was not considered one of the Virgin Islands at this time. William W. Boyer. *America's Virgin Islands, A History of Human Rights and Wrongs* (Durham, NC: Carolina Academic Press, 1983), 2.

[5]Fear of the native Carib Indians may have influenced this decision as well. See Isaac Dookhan, *A History of the Virgin Islands of the United States*, 28-9, 31-2.

[6] Although the Virgin Islands were successively inhabited by three Native American groups, the Ciboneys, and Arawaks, and the Caribs, few Caribs remained when the Dutch and English began to settle St. Croix. There are several possible explanations for their disappearance. European powers destroyed many Native American communities in the sixteenth century during the process of colonization. The Spanish may have captured some Caribs on St. Croix to replace the rapidly dying Native American workers (slaves) in the Greater Antilles. Others may have fled southeastward toward the Lesser Antilles. Whatever the cause, the absence of Native Americans

skirmishes, the Dutch left the island to the English, who were then forcibly removed from St. Croix in 1650 by the Spanish. Shortly thereafter, France seized the island from Spain and began to plan its development.[7]

Meanwhile, European nations began colonizing other islands in the area. Denmark was drawn to the West Indies by their trade possibilities. In 1665 the Danish Crown first attempted to establish a colony on St. Thomas, which was chosen for its ideal harbor for trade. Sickness, pirate attacks, severe weather, and meager assistance from Denmark forced the colonists to abandon the settlement after nineteen months.[8] Several years later, in 1670, the Danish Crown granted a charter to the Danish West India Company (a group of investors and merchants) to establish settlements on St. Thomas and other uninhabited islands in the West Indies. By 1672 the Danish West India Company had successfully founded a colony on St. Thomas and began to look into establishing settlements on other islands in the area. The company quickly understood the limited agricultural potential of St. Thomas and needed to expand its claims in the West Indies to remain profitable. It also looked for other markets for its slave trade, for in November 1674, a royal charter gave the company complete control of the Danish-Guinea slave traffic.[9] Consequently, in winter 1717-8, a group of twenty planters, five soldiers, and sixteen slaves landed on neighboring St. John, organized a settlement, and claimed the island for Denmark.[10]

The Danish West India and Guinea Company also turned toward neighboring St. Croix, which had been unoccupied for several decades. By 1695 the French Crown concluded that maintaining a colony on St. Croix was no longer profitable or militarily feasible and moved the whole settlement to St. Dominque (Haiti).[11] When St. Thomas and St. John experienced an economic depression in the 1720s, the Danish company began to consider purchasing St. Croix from the French. The company not only needed to expand its possessions in the Caribbean, but it also wanted to utilize the agricultural resources of St. Croix and benefit from trade with the island. Indeed, the fertile land, the moderate climate, and the size and terrain of the island made it ideal for sugar production.

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on St. Croix prompted the early introduction of African slavery on the island. Boyer, xxiii, 1-3.

[7]Boyer, 3-4.

[8]Isaac Dookhan, *A History of the Virgin Islands of the United States* (St. Thomas, VI: College of the Virgin Islands, 1974), 35-7.

[9]Ibid., 124.

[10]Ibid., 40-2.

[11]Boyer, 6.

Consequently, on June 15, 1733, the Danish West India and Guinea Company officially purchased St. Croix from France for 750,000 French livres with the stipulation that they could not sell the island to a foreign power without French approval.[12]

A slave insurrection on St. John, however, delayed colonization of the island until the following year. On September 1, 1734, a group of settlers from St. Thomas under the leadership of Governor Frederick Moth arrived at the former French settlement of Basin and founded Christiansted. They immediately began construction of a temporary redoubt on the site of an early French fortification. By March 1735, the colonists had completed three sides of a 110' x 116' earthwork fort and built simple dwellings for quarters on the fourth side. The construction of a permanent fortification, however, was delayed by several factors, including indecision about its location, the death of several company engineers, and other company priorities. Work finally began on the new fort in 1738, and by the end of 1749 the three curtains, the battery, the four bastions, and the ravelin were completed. The colonists then named the masonry fortification Christiansvaern ("Christian's Defense") in honor of King Christian VI of Denmark-Norway.[13]

One of the Danish West India and Guinea Company's priorities was the rapid development and settlement of St. Croix. The company had learned from its earlier attempts at establishing colonies on St. Thomas and St. John, and wanted an orderly distribution of land. Between 1735 and 1754 it surveyed the island and established plantation sites according to a logical and uniform plan; St. Croix was divided into nine quarters, which were then subdivided into plantation sites of approximately 150 acres. The company offered the first sites to new settlers at cheap prices. Consequently, many planters in St. Croix owned more that one plantation site.[14] By 1748 most of the flat land in St. Croix was under cultivation, and according to the 1751 census, the island contained 120 sugar estates and 122 cotton estates worked by 1,900 slaves.[15]

By 1749 the Danish West India and Guinea Company had also completed a warehouse in Christiansted to house offices and quarters, as well as a residence for its

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[12]Dookhan, 44.

[13]Jerome A. Greene and William F. Cissel, *Historic Furnishings Report, Fort Christiansvaern, Christiansted National Historic Site, Christiansted, Virgin Islands* (Harper's Ferry, WV: National Park Service, U.S. Department of Interior, 1988), 3; Herbert Olsen, "Historic Structures Report, Fort Christiansvaern, Christiansted, St. Croix, U.S. Virgin Islands" (National Park Service, U.S. Department of Interior, August 1960), 5-6.

[14]Boyer, 11; Dookhan, 75.

[15]Boyer, 12.

bookkeeper (later to become part of the Danish Customs House). However, although trade and plantation agriculture continued to develop, the company still experienced financial difficulties. The company failed because it saw the Virgin Islands solely as a profit-making industry and exploited the resources of the island and the planters for the shareholders' benefit.[16] Planters on St. Croix frequently complained of the monopolistic practices and trade restrictions imposed by the Danish company. Consequently, in 1753, several planters petitioned the King to take over the company. One year later, in 1754, the Danish Crown purchased the Danish West India and Guinea Company's shares and assumed its obligations. St. Croix, the largest and most lucrative island, became the site of the new capital of the royal colony.[17]

With the start of crown rule, the Danish West Indies began to prosper. Instead of being monopolized by the former Danish West India and Guinea Company, trade was opened to all Danish subjects. Since new markets were created and planters could now receive better prices for their produce, cotton and sugar production on St. Croix and St. John flourished. St. Thomas, on the other hand, turned toward trade and commerce in the mid-to-late nineteenth century.[18] The island greatly benefited from its ideal harbor facilities as well as from its status as a free port. Indeed, the deep harbor could accommodate large ships and had the necessary facilities for shipping, including coaling stations for refueling (established 1841), wharves for unloading cargo, tanks for watering, and a dry dock for cleaning and repairing vessels.[19]

As the new capital of the Danish West Indies during this prosperous period of agricultural production and trade, Christiansted benefited from a building campaign. The colonial government established the Danish Customs House and built the Scale House (1856). Significant renovations were made to the Government House (1830s), while Fort Christiansvaern underwent major alterations and improvements. In March of 1836 Governor-General Peter von Scholten approved the addition of a stable and carriage house to Fort Christiansvaern. The stable, built against a new outer wall on the east side of the fort, consisted of a 74' long structure with a flagstone-paved floor and a flat, brick roof laid on timbers. The building contained boxed stalls for twelve horses and had six arched openings with wooden shades on the west wall and twelve shuttered and barred windows on the east. A wooden gutter hung from the eaves of the building while a brick gutter carried water from the stable to a rock gutter leading to the sea. Over the years the stable was extended by

[16]Dookhan, 66-7.

[17]Boyer, 12.

[18]Ibid.

[19]Dookhan, 101-2, 220.

25' and two box stalls were added to the complex.[20]

After the mid-nineteenth century, however, the prosperity of the Danish West Indies began to decline. Plantation agriculture decreased due to a decline in prices for produce and losses caused by hurricanes and droughts. In addition, competition from the expanding beet sugar industry and labor problems created by the abolition of slavery in 1848 further contributed to the decline of sugar cane. Over the next fifty years, some planters attempted to cut production costs by adopting new techniques while others returned to cotton or converted to cattle raising. These efforts to promote agricultural production, however, had limited success.[21] Meanwhile, the shipping industry in St. Thomas was also in decline. In 1867 a hurricane, followed by a tidal wave and earthquake, destroyed many ships in the St. Thomas harbor. These disasters, combined with several epidemics, adversely affected the harbor's activity and status as a "safe" harbor. Furthermore, competition from better shipping facilities on other nearby islands reduced the importance of St. Thomas as a coaling station.[22] Consequently, Denmark began to view her colonial possessions in the West Indies as an economic liability and seriously considered their sale.

The U.S. Purchase of the Virgin Islands

The relationship between the United States and the Danish West Indies, based primarily on commerce, grew over the centuries. In the mid-eighteenth century, the Danish West Indies first developed strong trading relations with Britain's North American colonies. American vessels brought flour, dried codfish, and other necessary plantation supplies such as hoops, barrel staves, planks, shingles, and horses to the islands in exchange for sugar, molasses, and rum. The operation of these plantations depended on these supplies as well as this outlet for their goods. After the American Revolution, trade restraints imposed by the British were lifted, and trade between the United States and the Danish West Indies increased as the new country developed.[23] Trade continued to expand so that by the end of the nineteenth century, U.S. trade accounted for approximately one-third of the islands' imports (two-thirds of St. Croix's). These strong commercial ties with the United States led many of the inhabitants of the Danish West Indies to believe that they would benefit from the transfer of the islands to the United States.[24]

[20]Olsen, 30, 32, 34.

[21]Boyer, 53-5; Dookhan, 82-5, 222.

[22]Dookhan, 220-1.

[23]Ibid., 93-96.

[24]Ibid., 247-8.

The United States, however, was more interested in the Danish West Indies for military purposes than for their commercial value. During the Civil War, the United States first understood the strategic importance of the Danish West Indies as a naval base. U.S. Secretary of State William H. Seward realized that the U.S. Navy could not successfully conduct a blockade as long as the islands presented a weak point, and wanted to obtain the harbor at St. Thomas for its commercial and strategic importance. According to Luther Evans, Seward "saw in St. Thomas an important link in a chain of commercial and coaling stations which he hoped to forge between North and South America, for he regarded the two continents as standing upon the threshold of great commercial developments."[25] As early as 1865, Seward spoke with Danish foreign minister Raasloff of his interest in the West Indies and the United States' concern that these islands would fall into the hands of another foreign power. In 1867, after a U.S. delegation visited St. Thomas, the United States and Denmark signed a treaty in which the United States would pay Denmark $7,500,000 for St. Thomas and St. John. If necessary, the United States could purchase St. Croix for an additional $3,750,000, providing the French government did not oppose its sale. Both houses of the Danish Parliament agreed to the sale of the islands, and the majority of the planters and merchants on the islands favored the agreement as well. Few Americans, however, supported the purchase of the islands, and Congress failed to ratify the treaty before it lapsed.[26]

At the turn of the century, the United States once again expressed an interest in purchasing the Danish West Indies. Many Congressmen felt that American ownership of the islands was necessary for national security, for as long as the islands could be sold to another European power, there was a threat of war if the United States perceived a violation of the provisions of the Monroe Doctrine. In addition, the Danish West Indies, especially St. Thomas, had great military value as a naval and coaling station in the Caribbean. With the outbreak of the Spanish-American War and plans to build a canal across Central America, their significance became more widely understood. Many argued that the Danish West Indies were a threat to the canal and trade if a hostile foreign power controlled them. These factors, combined with the fear of German aggression in the Caribbean, led U.S. Secretary of State John Hay and Congress to once again attempt to purchase the islands from Denmark.[27] In 1902 the United States signed a treaty in which they agreed to pay Denmark $5,000,000 for all three islands. Although Congress ratified this treaty, it was rejected by the Danish Parliament, and the United States failed to purchase the islands once again.[28]

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[25]Luther Harris Evans, *The Virgin Islands from Naval Base to New Deal* (Ann Arbor: J. W. Edwards, 1945), 37.

[26]Ibid., 37-8.

[27]Ibid., 38-41.

[28]Evans, 40-1; J. Antonio Jarvis, *Brief History of the Virgin Islands* (St. Thomas, VI:

Fear of German aggression in the Caribbean became a major factor in the 1916 bid by the United States to purchase the Danish West Indies. The United States felt threatened by Germany's expanding possessions, and although the United States already had a Caribbean naval base in Puerto Rico, the U.S. government felt that the Danish West Indies were valuable to any foreign nation (especially Germany) conducting a campaign in the Caribbean. To prevent this, the United States sought once again to purchase the islands from Denmark. Indeed, U.S. Secretary of State Robert Lansing told the Danish minister that unless the United States purchased the islands, "the United States would be under the necessity of seizing and annexing them, and though it would be done with the greatest reluctance, it would be necessary to do it in order to avoid a serious dispute with the German Government over the sovereignty of and title to the Islands, as we [the United States] would never permit the group to become German."[29] The Danish government, however, thought the completion of the Panama Canal in 1914 would eventually increase its commercial interests in the islands, and had no desire to sell them. The trade they anticipated never developed, and with the outbreak of World War I, the Danish government could no longer maintain the islands financially. Exports had decreased from $629,000 in 1900 to $260,000 in 1916, and the Danish government decided to negotiate with the U.S. for the sale of the islands.[30] Consequently, on August 4, 1916, the United States and Denmark signed a treaty in which the United States would purchase the Danish West Indies for the sum of $25,000,000. The U.S. Congress and the Danish Parliament both ratified the treaty. The Danish minister and U.S. Secretary of State Lansing then exchanged ratifications on January 17, 1917, and officially transferred ownership of the islands to the United States.

On March 31, 1917, one week before entering World War I, the United States took formal possession of the Danish West Indies and renamed them the Virgin Islands of the United States. According to the provisions of the sale treaty, property rights of the islands' inhabitants were to continue unimpaired, and the U.S. Congress was to determine their civil rights and political status. The treaty also addressed the question of citizenship; the inhabitants of the islands could either retain their Danish citizenship, or choose to become nationals of the United States.[31] The U.S. Navy Department was to govern the islands, and Commander Edwin T. Pollock took possession of the islands for the United States during the transfer ceremonies and assumed the position of acting governor. Several months later, President Wilson appointed Rear Admiral James H. Oliver,

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The Art Shop, 1938), 114.

[29]Evans, 41.

[30]Jarvis, 114-5.

[31]Dookhan, 259-60.

U.S. Navy, governor of the Virgin Islands.[32]

Navy Stewardship of the U.S. Virgin Islands

The United States had little knowledge of conditions on the Virgin Islands when it assumed control. Although U.S. Secretary of State Lansing reported that the islands had great commercial value, he did not fully appreciate the economic conditions on the islands, nor realize the financial liability which they had become.[33] The Virgin Islands had long since become unprofitable, and changes were greatly needed. As the first naval governor, Admiral Oliver, noted after he assumed office:

> The death rate is very high, infant mortality being particularly disgraceful to a civilized community....Three hospitals have been run with varying degrees of relative efficiency--none of them really efficient. There is a lack of proper buildings, proper equipment, trained personnel....Sanitation is in imperative need of improvement....Adequate water supply and a proper system of sewerage is a health necessity....There are practically no food crops except a small quantity of yams and sweet potatoes....The cost of the maintenance of the islands, and of the recommended improvements [totaling $1,952,000] is great, but the need is real and vital, and aside from all other considerations, the situation is one that must be faced and corrected. This unfortunate situation is the natural inevitable result of centuries of neglect.[34]

The U.S. government must have followed Oliver's recommendations, for it embarked on an improvement campaign which corrected problems in the public health, water supply, and public education systems in the Virgin Islands. The U.S. Navy sought to increase hospital facilities, better sanitation methods, secure an adequate and safe water supply, and solve the problem of food deficiency, especially in the case of children.[35] During the first year of its administration, the navy successfully completed some of these tasks, for it immediately reorganized the hospitals, improved the equipment in them, and provided additional medical services. According to the annual report of the U.S. Navy Department for the year of 1919, the major reforms that year were in the medical system. With the help of the Red Cross, the hospitals received better equipment. In addition, the navy extended medical services to include

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[32]U.S. Navy Department, *Annual Reports of the Navy Department for the Fiscal Year 1917* (Washington, DC: Government Printing Office, 1918), 75-6.

[33]Evans, 43.

[34]Ibid., 265.

[35]Ibid., 226.

preventive care and increased efforts in Obstetrics and infant welfare work. The U.S. Navy also initiated a program to train native nurses at each hospital to increase the number of health care providers. The Virgin Islands benefited from these measures, for records show that with the implementation of these and other reforms, the death rate and prevalence of illnesses in the islands decreased.[36]

To provide additional health care services, the U.S. Navy converted the Steeple Building into a hospital ward for navy and marine troops stationed in Christiansted. The complex could house thirty patients in an emergency, and military personnel with serious illnesses or injuries were sent there. Members of the Virgin Islands Navy Band, however, were sent to the municipal hospital in Frederiksted.[37] Between 1917 and 1925, while being used as a military hospital, the Steeple Building went through several renovations. The U.S. Navy built a cistern and toilets for the hospital, and an L-shaped building was added to the church yard.[38]

In addition to concentrating on health care measures, the U.S. Navy also strove to improve the water supply and sewerage systems. The first naval governor of the Virgin Islands, Admiral Oliver, urged the United States to appropriate funds to better the water supply on the island to safeguard the public health.[39] His efforts were successful, for by 1920 the naval administration had cleaned the islands' cisterns and made them more sanitary. Several cisterns were built to relieve the water shortage as well, and plans to supply water to St. Thomas, Frederiksted, and Christiansted were prepared. According to the annual report for the U.S. Navy Department for 1921:

> The shortage of water during the dry season is a menace to life and health. This fact was recognized by the congressional commission which visited the islands in 1920 and constituted that commission's foremost recommendations. In its recommendation the congressional commission also admitted the necessity for the Federal Government to assist in building these waterworks.[40]

After a severe drought in 1923, the United States began to realize the

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[36]Ibid.

[37]U.S. Navy Department, 1920, 935.

[38]Historic American Buildings Survey, "Historic Architecture of the Virgin Islands" (Philadelphia: Historic American Buildings Survey, National Park Service, February 1966), 5.

[39]Evans, 267.

[40]U.S. Navy Department, 1921, 16.

importance of these measures. With the decline in trade and the shipping industry, many people in the Virgin Islands turned to agricultural pursuits for their livelihood. While sugar cane cultivation remained an important crop, cattle raising increased in prominence, and together these two activities became the main industries in the islands. A small amount of land was used for fruit and vegetable production.[41] The shortage of water, however, limited agricultural output, created a serious loss of livestock on St. Thomas, and produced a serious sugar crop shortage on St. Croix. The U.S. Secretary of the Navy promptly implemented measures to relieve the drought and provide residents with an adequate water supply for themselves and their agricultural endeavors. In January of 1925 the U.S. Navy began work on the water supply systems of St. Thomas, Frederiksted, and Christiansted. By 1926 the water supply system of St. Thomas, as well as the Creque Dam in St. Croix (a reservoir with a 9,000,000-gallon capacity) and a 10,000-gallon reservoir in Frederiksted were completed. The navy also obtained a well-drilling outfit to drill wells for the Christiansted public water supply and for private concerns at cost to relieve the shortage.[42]

The naval administration also attempted to improve the public education and road systems in the Virgin Islands. Although it built a few roads on St. Croix, the U.S. Navy mainly concentrated on maintaining the roads in good condition, as well as experimenting with oil-surfaced roads.[43] Improvements in education, however, were much more significant. The administration refined teaching facilities and built several new schools, while others were altered or repaired. Teachers received additional training, and more of them were hired. Salaries for school teachers increased as well, until teaching became one of the best occupations in the community. The navy also adopted a new curriculum based on the systems in Arizona or New Mexico, but with a greater emphasis on manual training and the practical arts.[44]

Other naval activities included the formation of the U.S. Virgin Islands Navy Band. Captain William R. White managed the recruitment of band members, who were mostly native black Virgin Islanders from Alton Adams' Juvenile Band.[45] Alton A. Adams was also chosen to lead the band, which performed at local functions and ceremonial occasions.[46] Ironically, the only division of the U.S.

[41] Ibid.

[42] Evans, 269-70.

[43] Evans, 270; Dookhan, 267.

[44] Evans, 272; Dookhan, 268.

[45] According to a 1916 photograph, Alton Adams' band was also referred to as the Christiansted Industrial Band.

[46] Jarvis, 132.

Navy that black Virgin Islanders could join was the band, for the service was still segregated at that time.[47] Nevertheless, the all-black Virgin Islands Navy Band became an "important economic unit in the community," and members were allowed to wear special uniforms and live at home under quasi-military rules.[48] As early as December 1917, the band, which was organized in Christiansted, began its daily concerts and performing for the raising and lowering of the flag at Fort Christiansvaern.[49] Between 1917 and 1918, the U.S. Navy built a bandstand along the wharf area in Christiansted for the band to entertain navy and marine troops stationed there. Band members built the music pavilion while they were not on drill, and Peter G. Thurland, a member of the band, completed much of the carpentry work on the bandstand. The Navy Band remained in Christiansted until 1918, when all twenty-two members of the band had been recruited. It then moved to St. Thomas, where it was attached to the U.S.S. *Vixen* (a minesweeper stationed in St. Thomas) and received "special training."[50] Under Alton Adams, who composed popular marches such as "The Governor's Own" and "The Virgin Islands," the band gained greater popularity and did much to promote the Virgin Islands during its tour of the United States in 1924.[51] The Christiansted bandstand, which still stands in the Christiansted National Historic Site, is a remnant of the U.S. Navy's work on the island, as well as a reminder of Alton Adams' U.S. Virgin Islands Navy Band.

When the United States acquired the Virgin Islands, it had little experience in managing territorial possessions. Because it purchased the islands for their military importance, the governing body established under the U.S. Navy Department administered the islands under quasi-military rule. Although the U.S. Navy did much to improve social services in the areas of public health, water supply, and the road and public education systems, it did little to improve the economic and political situation of the natives. The amount of acreage under cultivation declined, and cotton and sugar production decreased. With the advent of prohibition in 1921, the manufacture and exportation of rum ceased. Severe weather, worldwide depressions, and a drop in sugar prices caused agricultural production to plummet further.[52] By 1931, economic and political conditions in the Virgin Islands had deteriorated to the point that

[47]Gordon K. Lewis, *The Virgin Islands, A Caribbean Lilliput* (Evanston, IL: Northwestern University Press, 1972), 51-2.

[48]Jarvis, 132.

[49]*West End News* (Frederiksted, VI), 6 December 1917.

[50]Karen C. Thurland, *Peter G. Thurland, Sr., Master Cabinetmaker and Bandleader* (St. Croix, VI: Antilles Graphics Arts, 1994), 11.

[51]Jarvis, 219.

[52]Dookhan, 269-70.

the administration of the islands was transferred to the U.S. Department of Interior with the hopes that it could rehabilitate the economy of the islands and make them self-sufficient.[53]

Registration Requirements/Integrity

Seven structures within the Christiansted National Historic Site are associated with the development of the Danish West Indies--the Government House, the Steeple Building, Fort Christiansvaern, the Danish West India and Guinea Company Warehouse, the Scale House, the Danish Customs House, and the Fort Christiansvaern Stable Building. All represent the development of the Caribbean by European powers and are eligible for the National Register under Criteria A (Event) and C (Design). The buildings reflect the growth of the Danish West Indies from company rule to crown possession and represent Danish Colonial architecture. Each retains overall integrity of location, setting, design, materials, workmanship, feeling, and association.

In addition, the bandstand is one of the surviving structures built by the U.S. Navy during its stewardship of the Virgin Islands. It represents a period during and after World War I when the United States was emerging as a world power, with a global military capability and the related need for offshore naval bases. The bandstand reflects the U.S. Navy's attempts to improve conditions in the islands and is a reminder of Alton Adams' Virgin Islands Navy Band. As such, it is eligible for the National Register under Criterion A (Event) and retains integrity of location, setting, design, workmanship, feeling, and association.

Although the David Hamilton Jackson Monument is maintained by the National Park Service as a cultural resource, it is not currently eligible for listing on the National Register under Criteria Consideration G, Properties that Have Achieved Significance Within the Past Fifty Years, because it is not an exceptionally important or extraordinary resource. Research to date has not uncovered enough information regarding the history and integrity of D. Hamilton Jackson Park to determine whether it is eligible for the National Register as a historic cultural landscape. A historical landscape architect or cultural landscape historian will need to conduct further research to determine its significance in the future.

[53] Ibid., 271.

NPS Form 10-900-a (8-86) OMB No. 1024-0018

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section 9 *Page* 18

Christiansted
National Historic Site
name of property

St. Croix, Virgin Islands
county and State

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United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Christiansted
National Historic Site
name of property

St. Croix, Virgin Islands
county and State

Section 10 *Page* 20

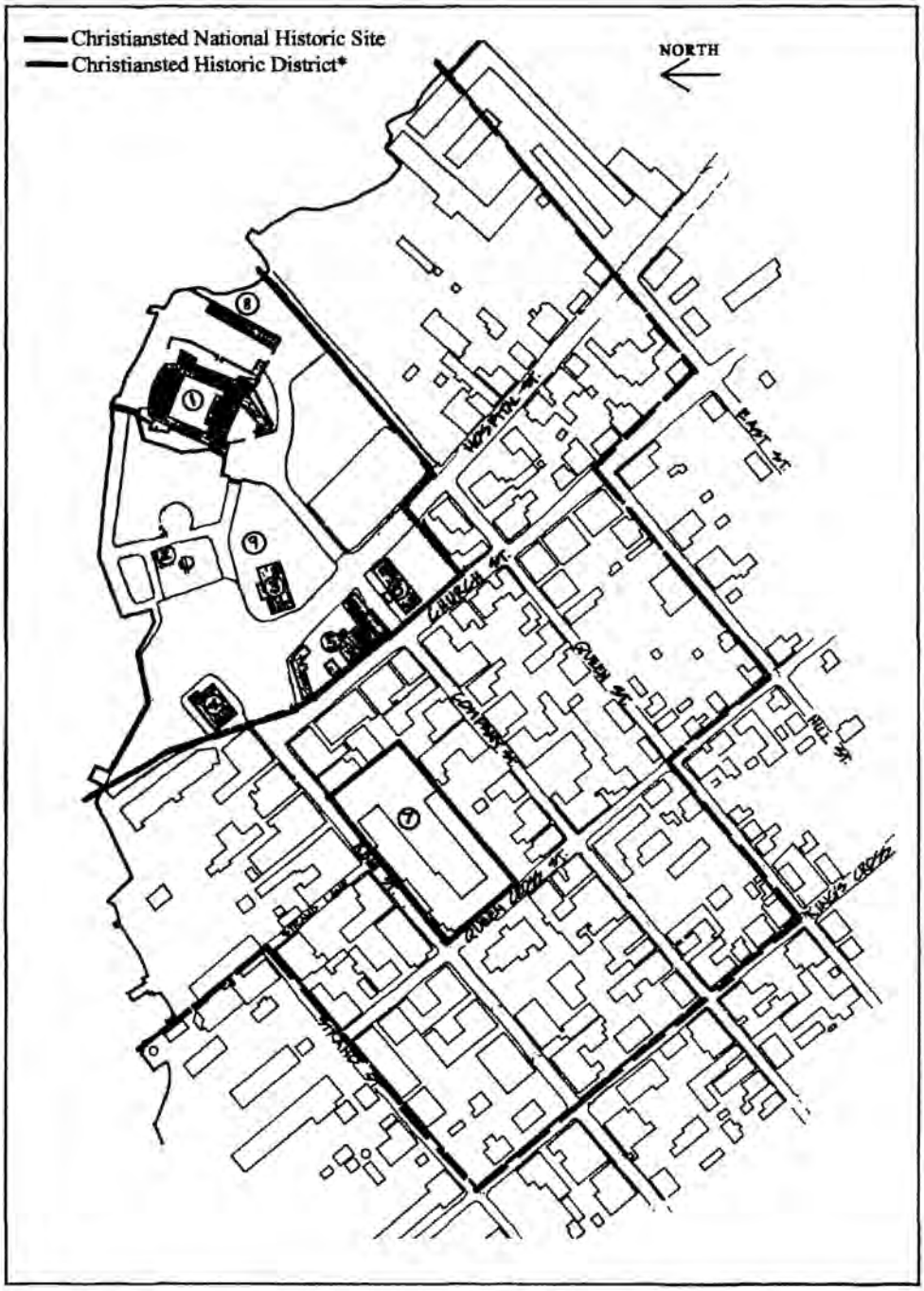
UTM References, Christiansted National Historic Site

Government House (Discontinuous section of the historic site)

	Zone	Easting	Northing
A	20	319340	1963060
B	20	319360	1963020
C	20	319280	1962960
D	20	319260	1963000

Area containing the Steeple Building, Fort Christiansvaern, Danish West India and Guinea Company Warehouse, Scale House, Danish Customs House, Fort Christiansvaern Stable Building, and David Hamilton Jackson Monument

	Zone	Easting	Northing
E	20	319520	1963280
F	20	319580	1963120
G	20	319580	1963140
H	20	319480	1963000
I	20	319440	1963020
J	20	319420	1963000
K	20	319410	1963080
L	20	319310	1963280



1. Fort Christiansvaern
2. Bandstand
3. Customs House
4. Scale House
5. Danish West India & Guinea Company Warehouse
6. Steeple Building
7. Government House
8. Fort Christiansvaern Stable Building
9. David Hamilton Jackson Monument

*Boundary from "General Management Plan/Environmental Assessment, Christiansted National Historic Site, St. Croix, U.S. Virgin Islands," U.S. Department of Interior, National Park Service, June 1986, page V.

Appendix I: 2019 Borescope Investigation

Borescope Investigation

Holes were drilled partially through the exterior wall thickness (generally approximately 8-inches deep) at several interior and exterior locations. The dust was flushed out of these holes with water, and the holes were viewed with a fiberoptic borescope (a.k.a. videoscope). The images acquired are included in the appendix, and the video files will be provided on a flash drive. (Note that we have obtained a new borescope device since this site visit that captures images with better resolution, color, and focus.)

The purpose of the borescope observations was to directly, visually observe subsurface conditions at the exterior walls of the GCW. The focus of these observations included the following:

- The thickness and layers of exterior and interior plaster
- The extents of brick and coral masonry
- The solidity of the wall / extent and nature of internal voids.

Based on the borescope observations, the following conclusions were reached:

- Coatings and exterior repairs over the years have included a dark grey material that appears to have a high Portland cement content (based on color). This finish material is, therefore, likely relatively vapor impermeable and limits breathability at exterior surface. Vapor permeable wall coatings could assist with the wall drying out to the exterior.
- The exterior wall construction generally appears to include fired clay brick around openings and limestone and coral away from openings, at least at first level. Other observations indicate that brick is also used at foundation elements.
- Large voids were observed throughout the masonry in the wall. These voids appear to be distributed and discontinuous (i.e., not continuous collar joints between wythes of masonry). The size and nature of these voids has several implications:
    - Generally, water will tend to drain downward through these voids until it is trapped or perched. Since the second-floor reinforced concrete slab interrupts the exterior wall through the entire thickness (except the plaster), this is one area where moisture would tend to collect from above.
    - The large size of these voids serve as capillary breaks, which would generally tend to reduce the impact of “rising damp” moisture being transported upward through the wall.
    - These types of voids can serve as “reservoirs” for liquid water that can make it difficult for a wall to dry out completely even over an extended time period.

Selected Borescope Images



PICT0120, Caption: Borescope image from Borescope Location B2 showing a glossy white material consistent with coral masonry of the type observed at the interior bulletin board opening.



PICT0127, Caption: Borescope image from Borescope Location B2 showing significant interior void in the wall section (at bottom right of image).



PICT0103 rotate left 90 degrees, Caption: Borescope image from Borescope Location B1 showing the layers of finishes near the exterior surface of the wall. Pink plaster is on the left with an overlay of a dark gray material and a coating at the exterior surface.