

OFFICE OF CHIEF OF ENGINEERS

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WAR DEPARTMENT  
REPORT OF

COMPLETED BATTERIES, ETC.

DEFENSES OF

PUGET SOUND, WASH.

October 10 , 1903

District in the charge of

MAJOR JOHN MILLIS,

Corps of Engineers

# REPORT OF COMPLETED BATTERIES, ETC.

## DEFENSES OF PUGET SOUND, WASH.

OCTOBER 10, 1903.

In charge of Major John Millis, Corps of Engineers.

Name of Harbor	Name and Armament of Battery	Date when turned over to Artillery	Total cost to that date	Remarks
Admiralty Inlet Puget Sound	<b>FORT FLAGLER</b> Battery Wilhelm. Mounted 4 10-inch B.L. Rifles, Model 1888, MII, Nos. 28B, 29B, 30B and 35B, Bethlehem Iron Co 4 10-inch nondisappearing carriages, Model 1893, Nos. 3, 4, and 5, Watertown Arsenal, and No. 10, Morgan Engineering Co. 2 12-inch B.L. Rifles, Model 1888, MII, Nos. 25 and 35, Watervliet Arsenal. 2 12-inch nondisappearing carriages, Model 1891, Nos. 1 and 2, Watertown Arsenal, (altered gun lift) Emp. 1, Rifle 35, Car. 10 ✓ " 2 " 28, " 3 ✓ " 3 " 25, " 1 ✓ " 4 " 35, " 2 ✓ " 5 " 29, " 4 ✓ " 6 " 30, " 5 ✓	August 17 1902	\$191,190.68	Garrisoned This battery was built by contract in 1897-99.
	Battery Lee. Mounted 2 5-inch R.F. Guns, Model 1897, Nos. 5 and 8, Bethlehem Iron Co. 2 5-inch balanced pillar mounts, Model 1896, Nos. 31 and 32, Detrick & Harvey Machine Co. Emp. 1, Gun 5, Car. 31 ✓ " 2 " 8, " 32 ✓	August 17, 1902	\$ 15,000.00	Garrisoned

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Name of Harbor	Name and Armanent of Battery	Date when turned over to Artillery	Total cost to that date.	Remarks.
	<p>Battery Mounted:</p> <p>8 12-inch B.L.Mortars, Model 1890, Nos. 67, 77, 90, 114, 128, 133, 134, and 137, Watervliet Arsenal.</p> <p>8 12-inch Mortar carriages Model 1896, Nos. 269, 270, 271, 272, 273, 274, 275, and 276, Rarig Engineering Co.</p> <p>Pit A:</p> <p>Platf. 1, Mortar 114, Car. 269 ✓</p> <p>" 2, " 77, " 270 ✓</p> <p>" 3, " 133, " 271 ✓</p> <p>" 4, " 90, " 272 ✓</p> <p>Pit B:</p> <p>Platf. 1, Mortar 134, Car. 273 ✓</p> <p>" 2, " 67, " 274 ✓</p> <p>" 3, " 128, " 275 ✓</p> <p>" 4, " 137, " 276 ✓</p>	<p>August 17, 1902</p>	<p>\$ 89,584.47</p>	<p>Garrisoned</p>

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Name of Harbor	Name and Armament of Battery.	Date when turned over to Artillery	Total cost to that date.	Remarks
	*B.C.Station, Emplacements 1 and 2, Battery Wilhelm.	June 30, 1902	\$6,654.99	Ref. of site, 118.17 Ref. of instrument axis, 144.57 One room; 10 feet by 10 feet. Steel tower.
	*B.C.Station, Emplacements 3 and 4, Battery Wilhelm.	June 30, 1902		Ref. of site 118.17 Ref. of instrument axis, 144.57 One room, 10 feet by 10 feet. Steel tower.  *Not conspicuous at a distance of four miles when viewed from the usual channels of approach

Name of Harbor	Name and Armament of Battery	Date when turned over to Artillery.	Total cost to that date.	Remarks
Admiralty Inlet, Puget Sound	<p><b>FORT CASEY.</b>  <b>Battery Mounted:</b>            4 10-inch B.L.Rifles, Model 1895, Nos. 11, 12, 15, and 16, Watervliet Arsenal.            4 10-inch disappearing carriages, L.F. Model 1896, Nos. 59, 60, and 61, Bethlehem Iron Co., and No. 64 Southwark Foundry &amp; Machine Co.</p> <p><b>Not Mounted:</b>            2 10-inch B.L.Rifles, Model 1895, MII, Nos. 40B and 43B Bethlehem Iron Co.            2 10-inch disappearing carriages, L.F. Model 1896, Nos. 71 and 72, Midvale Steel Works.</p> <p>Empl. 1, Rifle 12, Car. 59. ✓            " 2, " 15, " 60. ✓            " 3, " 16, " 61. ✓            " 4, " 11, " 64. ✓            " 5, " " " ✓            " 6, " " " ✓            " 7, " " " ✓</p>	<p>Empls 1-4, June 16, 1902.</p>	<p>Empls 1-4, \$103,894.49</p>	<p>Garrisoned. Emplacements 1, 2, 3, and 4 built by contract in 1897-1898.</p>
	<p><b>Battery Mounted:</b>            2 5-inch R.F.guns, Model 1897, Nos. 12 and 25, Bethlehem Iron Co.            2 5-inch balanced pillar mounts, Model 1896, Nos. 18 and 19, Bethlehem Steel Co            Empl. 1, Gun 12, Car. 18. ✓            " 2, " 25 " 19. ✓</p>	<p>June 16, 1902</p>	<p>\$18,850.00</p>	<p>Garrisoned.</p>

Name of Harbor	Name and Armament of Battery.	Date when turned over to Artillery.	Total cost to that date.	Remarks
Admiralty Inlet, Puget Sound.	<p><b>FORT WORDEN.</b>            Battery Mounted            5 10-inch B.L.Rifles; Model 1888, MII, Nos. 6, 36, 37, and 38, Bethlehem Iron Co.; Model 1888, No. 12, Watervliet Arsenal.            5 10-inch nondisappearing carriages, Model 1893, Nos. 1 and 11, Watertown Arsenal; Nos. 7, 8, and 9, Morgan Engineering Co.            2 12-inch B.L.Rifles, Model 1888, MII, Nos. 9B and 10B, Bethlehem Iron Co.            2 12-inch nondisappearing carriages, Model 1892, Nos. 3 (altered gun-lift) and 27, Watertown Arsenal.</p> <p>Empl. 1, Rifle 39, Car. 7. ✓            " 2, " 6, " 8. ✓            " 3, " 36, " 9. ✓            " 4, " 37, " 1. ✓            " 5, " 10, " 3. ✓            " 6, " 9, " 27. ✓            " 7, " 12, " 11. ✓</p>	June 16, 1902.	\$232,554.97	Garrisoned
	<p>Battery Mounted:            2 5-inch B.L.Rifles, Model 1897, Nos. 9 and 22 Bethlehem Iron Co.            2 5-inch balanced pillar mounts, Model 1896, Nos. 9 and 20, Bethlehem Steel Co.</p> <p>Empl. 1, Gun 22, Car. 20. ✓            " 2, " 9, " 9. ✓</p>		\$ 11,000.00	

Name of Harbor	Name and Armament of Battery	Date when turned over to Artillery.	Total cost to that date.	Remarks.
	<p>Battery Mounted:</p> <p>16 12-inch B.L. Mortars, Model 1890 MI; Nos. 27, 49, 50, 51, and 52, Builders Iron Foundry; Nos. 1, 15, 16, 20, 21, 22, and 24, Niles Tool Works; Nos. 32, 54, 56, and 105, Watervliet Arsenal.</p> <p>16 12-inch Mortar carriages, Model 1896, Nos. 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, and 259, Rarig Engineering Co.</p> <p>Pit A:</p> <p>Platf. 1, Mortar 51, Car. 259. ✓  " 2, " 50, " 258. ✓  " 3, " 54, " 256. ✓  " 4, " 32, " 257. ✓</p> <p>Pit B:</p> <p>Platf. 1, Mortar 49, Car. 255. ✓  " 2, " 24, " 254. ✓  " 3, " 21, " 252. ✓  " 4, " 56, " 253. ✓</p> <p>Pit C:</p> <p>Platf. 1, Mortar 16, Car. 251. ✓  " 2, " 1, " 250. ✓  " 3, " 52, " 248. ✓  " 4, " 15, " 249. ✓</p> <p>Pit D:</p> <p>Platf. 1, Mortar 27, Car. 247. ✓  " 2, " 105, " 246. ✓  " 3, " 20, " 244. ✓  " 4, " 22, " 245. ✓</p>	June 16, 1902	\$162,102.12	

Name of Harbor.	Name and Armament of	Date when turned over to Artillery.	Total cost to that date	Remarks.
Richs Passage Puget Sound	<p>FORT WARD. Battery Mounted: 3 8-inch B.L. Rifles; Model 1888, Nos. 2 and 6, West Point Foundry; Model 1888, MII, No. 42, Watervliet Arsenal. 3 8-inch disappearing carriages, L.F., Model 1896, Nos. 36, 37, and 38, Watertown Arsenal.</p> <p>Empl. 1, Rifle 6, Car. 36. ✓ " 2, " 2, " 37. ✓ " 3, " 42, " 38. ✓</p>			<p>Not garri- soned. ✓</p> <p style="text-align: right;">P</p>



Name of Harbor.	Name and Armament of	Date when turned over to Artillery	Total cost to that date	Remarks.
Richs Passage, Puget Sound	MIDDLE POINT. 1 Torpedo Storehouse.			Not garri- soned.  Completed, except elec- tric light and power plant.

Seattle, Washington,  
October 18, 1903.

Respectfully submitted,

*John*  
Major, Corps of Engineers.

John Millis

# REPORT OF COMPLETED BATTERIES, ETC.,

## DEFENSES OF PUGET SOUND, WASH.

December 31, 1909.

In Charge of Major C. W. Kutz, Corps of Engineers.

Name of Harbor	Name and armament of battery	Date when turned over to Artillery	Total cost to that date	REMARKS.
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Admiralty Inlet, Puget Sound.	<b>FORT FLAGLER</b> Battery John Rawlins ) Mounted: ) 2 10-in.B.L.Rifles, Mod- ) el 1888, MII, Nos.28 & ) 35, Bethlehem Iron Co.) 2 10-in.nondisappearing ) carriages, Model 1893, ) No.3, Watertown Arsenal ) and No.10 Morgan Eng- ) ineering Company. ) <u>Emp.1, Rifle 35, Car.10</u> ) <u>" 2, " 28, " 3</u> )			These batteries built by contract in 1897-9 Magazines dry.
	Battery Wilhelm ) Mounted: ) 2 12-in.B.L.Rifles, Mod- ) el 1888, MII, Nos.25 & ) 35, Watervliet Arsenal ) 2 12-in.nondisappearing ) carriages, Model 1891, ) Nos.1 & 2 Watervliet ) Arsenal (altered gun ) lift) ) <u>Emp.1, Rifle 35, Car.2</u> ) <u>" 2, " 25, " 1</u> )	August 17 1902	\$191,190.68	Garrisoned Magazines dry The 2-12-in. guns are at this date dismantled and alterations of the carriages being made by Ord.Department
	Battery Paul Revere ) Mounted: ) 2 10-in.B.L.Rifles, Mod- ) el 1888, MII, Nos.29 & ) 30, Bethlehem Iron Co.) 2 10-in.nondisappearing ) carriages, Model 1893, ) Nos.4 & 5, Watertown ) Arsenal ) <u>Emp.1, Rifle 29, Car.4</u> ) <u>" 2, " 30, " 5</u> )			Magazines dry

Electric wires for light and power installed at Batteries Rawlins, Wilhelm and Revere. Electric fixtures installed.

Name of Harbor	Name and armament of battery	Date when turned over to Artillery	Total Cost to that date	REMARKS.
	Battery Lee Mounted: 2 5-in. R.F.Guns, Model 1897, Nos. 5 & 8, Bethlehem Iron Company 2 5-in. balanced pillar mounts, Model 1896, Nos. 31 & 32, Detrick & Harvey Machine Co. Emp. 1, Gun 5, Car. 31 " 2, " 8, Car. 32	August 17, 1902	\$15,000.00	Garrisoned Magazines dry
	Battery Henry Bankhead Mounted 8 12-in. B.L. Mortars Model 1890 M.I., Nos. 67, 77, 90, 114, 128, 133, 134 & 137, Watervliet Arsenal. 8 12-in. Mortar Carriages, Model 1896, Nos. 269, 270, 271, 272, 273, 274, 275 & 276, Rarig Engineering Company	August 17, 1902	\$89,584.47	Garrisoned. Magazines dry
	PIT "A" Car Plat 1, Mortar 114, 269 " 2, " 77, 270 " 3, " 90, 272 " 4, " 133, 271			Magazines dry
	PIT "B" Car Plat 1, Mortar 134, 273 " 2, " 67, 274 " 3, " 137, 276 " 4, " 128, 275			Magazines dry

Fixtures and wires for lighting installed at Battery Bankhead.

Name of Harbor	Name and armament of battery	Date when turned over to Artillery.	Total Cost to that date	REMARKS.
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FORT FLAGLER:

Battery James Calwell)	April 23,	\$89,500.00	Garrisoned.
Mounted.)	1907		Magazines dry
4 6-in.B.L.Rifles, Model)			Central elec-
1903, Nos. 48, 60, 65 & 70)			tric plant for
Watervliet Arsenal )			light and power
4 6-in. disappearing car-			completed.
riages, L.F. Model 1903)			No provision
Nos. 53, 54, 55 & 72; )			made for light
Detrick & Harvey Mach)			and power wires
ine Co. )			to, or fixtures
Emp. 1, Rifle 48, Car. 53 )			and wiring in
" 2, " 60, " 54 )			battery.
" 3, " 65, " 55 )			
" 4, " 70, " 72 )			
Battery John Grattan,)	April 23,	\$48,000.00	Garrisoned.
Mounted: )	1907		Magazines dry
2 6-in.B.L.Rifles, Model )			Central Elec-
1903, Nos. 68 & 69, Wat-			tric plant
ervliet Arsenal. )			for light and
2 6-in. disappearing car-			power complet-
riages, L.F. Model 1903, )			ed.
No. 73, Detrick & Harvey)			No provisions
Machine Co. and No. 45 )			made for light
Wellman, Seaver, Morgan )			and power
Company. )			wires to, or
Emp. 1, Rifle 68, Car. 73 )			fixtures and
" 2, " 69, " 45 )			wiring in
			battery.

Name of Harbor	Name and armament of battery	Date when turned over to Artillery.	Total Cost to that date.	REMARKS.
	<p>FORT FLAGLER.</p> <p>Battery Edward Downes</p> <p>1 15 pdr. (3 in) B.L. Rifle, Model 1903, #27</p> <p>Watervliet Arsenal</p> <p>2 Pedestal mounts, Model 1903, Nos. 78 &amp; 79, Watertown Arsenal.</p> <p>Emp. 1, Rifle 27, Car. 78</p> <p>" 2, No "rifle Rec. Car. 79</p>	<p>April 23, 1907</p>	<p>\$12,000.00</p>	<p>Garrisoned. Magazines dry. Central electric plant for light and power completed. No provision made for light and power wires to, or fixtures and wiring in battery.</p>
	<p>Battery Thomas Wansboro. Mounted</p> <p>2 15 pdr. (3 in) B.L. Rifles Model 1903, Nos. 35 &amp; 36, Watervliet Arsenal</p> <p>2 Pedestal mounts, Model 1903, Nos. 16 &amp; 17, Watertown Arsenal.</p> <p>Emp. 1, Rifle 35, Car 16</p> <p>" 2, " 36, " 17</p>	<p>April 23, 1907</p>	<p>\$14,000.00</p>	<p>Garrisoned. Magazines dry. Central electric plant for light and power completed. No provision made for light and power wires to, or fixtures and wiring in battery.</p>

Name of Harbor	Name and armament of battery	Date when turned over to Artillery.	Total Cost to that date.	REMARKS. (All references are to mean low water.)
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<b>FORT FLAGLER.</b>				
x	C 2 (Flagler)			Ref. of site 121.37.
	Observation room 16'x20' x 7' high			Ref. of inst. axis 154.37
	Dormitory 11' x 13' 8" x 12' high.			
x	F'7 (Bankhead)			Ref. of site 121.37
	Observation room 13' x 20' x 7' high.	June 5, 1908	\$8,495.13	Ref. of inst. axis 149.87.
	Plotting room 20' x 23' x 8'11" high.			
	5 telephone booths each 3' x 3'6" x 12' high.			
	Above stations in one building. Sewell type.			
	F' (Rawlins)			
	8 Additions to plotting room 11'6" x 15'6" x 9'5½" high	June 5, 1908	\$1,500.00	Ref. of site 118.17
	4 Telephone booths each 3'6" x 3'6" x 9'5½" high.			
	Dormitory, detached building, Sewell type 72' in rear of F'9 (Flagler). Officers' room 10' x 16' x 9' high.	June 5, 1908	\$1,268.09	
	Men's room, 16' x 19' x 9' high.			

x = Not conspicuous at a distance of four miles when viewed from the usual channels of approach.

Name of Harbor	Name and armament of battery	Date when turned over to Artillery	Total Cost to that date.	REMARKS (All references are to mean low water.)
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FORT FLAGLER.

x	F : Primary Station, 8 Fire Command, Battery John Rawlins Furnish ranges also to Batteries Lee, Grattan & Wansboro	) June 30, 1902	\$3,327.50	Ref.of site 118.17. Ref.of inst. axis,144.57 One room 10' x 10'x 7' high, steel tower.
x	F : Primary Station 9 Fire Command Batteries Wilhelm and Revere. Furnish ranges also to Batteries Calwell and Downes. Addition of 2 tel- ephone booths made since transfer of station. Each booth 3'6" x 3'6" x 7'6" high.	) June 26, 1905	\$4,318.24  \$ 276.10	Ref.of site 123. Ref.of inst. axis,128.87 Two rooms. Inst.room 11' x 16' x 6'11" high .Plotting room 15'4" x 16'x 7'6" high. Reinforced con- crete. Glass lenses in roof of plotting room.

x = Not conspicuous at a distance of four miles when viewed from the usual channels of approach.

	FORT FLAGLER.	)			
x	B'11 Primary Station, Battery Command Battery John Rawlins	) ) )	June 26, 1905	\$4,651.36	Ref. of site 118.17 Ref. of inst. axis, 144.57. Two rooms Inst. room 8' x 8' x 6' 3" high. Plotting room 14' 11-1/2" x 14' 11 1/2" x 6' 3" high. Concrete foundation and steel tower construction. Glass roof.
x	B'12 Primary Station, Battery Command, Battery Wilhelm	) ) )	June 30, 1902	\$3,327.49	Ref. of site 118.17 Ref. of inst. axis 144.57. One room 10' x 10' x 7' high. Steel tower.
x	B'13 Primary Station, Battery Command Battery Paul Revere Originally built for primary station on site of '11. Moved to present site and transferred to Artillery.	) ) ) ) ) ) ) ) )	June 30, 1902     Feb. 10, 1905.	\$3,495.22       \$6,115.44	Ref. of site 115.87 Ref. of inst. axis 142.27 One room 10' x 10' x 7' high. Steel tower.

x = Not conspicuous at a distance of four miles when viewed from the usual channels of approach.



Name of Harbor	Name and armament of battery	Date when turned over to Artillery.	Total Cost to that date.	REMARKS. (All references are to mean low water.)
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B 13 (Revere)	Plotting room, 18' x 20' x 8' high Sewell type, in traverse behind battery.	June 5, 1908	\$1,543.33	Ref. of site 121.37
F 7 (Bankhead)	Secondary. Observation room 10' x 10' x 7' high. Sewell type.	June 5, 1908	\$ 877.80	Ref. of site 81.37 Ref. of inst. axis 86.37.
F ' ' 7 (Bankhead)	Supplementary. Observing Room, 9' 11" x 10' x 7' high			Ref. of site 148.37 Ref. of inst. axis 153.37
B " 11 (Rawlins)	Secondary, Observation room 9' 11" x 10' x 7' high. Above two stations in one building, with dor- mitory in rear, 10' x 20' 6" x 9' high. Sewell type.	June 5, 1908	\$1,816.10	Ref. of site 148.37 Ref. of inst. axis 153.37
B " 12 (Wilhelm)	Secondary. Observation room 9' 11" x 10' x 7' high			Ref. of site 84.37 Ref. of inst. axis 90.37
B " 13 (Revere)	Secondary. Observation room 9' 11" x 10' x 7' high. Two stations in one building with dormitory in rear, 16' x 20' x 9' high Sewell type.	June 5, 1908	\$1,831.20	Ref. of site 84.37 Ref. of inst. axis 90.37

Above stations not conspicuous at a distance of four miles when viewed from the usual channels of approach.

Name of Harbor :	Name and armament of battery :	Date when turned over to Artillery. :	Total Cost to that date. :	REMARKS. (All references are to mean low water. :
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B'12 (Wilhelm)	Plotting room, 18' x 20' x 8' high, Sewell type, in traverse behind battery.			Ref. of site 120.87
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Switchboard station, 16' x 20' x 8' high, & Storage battery room 20' x 20' 6" x 8' high One building, Sewell type, in traverse behind battery Wilhelm				Ref. of site 120.87
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June 5, 1908	\$4,656.66
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M 3 Meteorological Station. 5' x 5' x 8' high, in corner of switchboard room.
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Plotting room Battery Wilhelm, switchboard station, storage battery room and meteorological station in one building.
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T 3 Tide Gauge Station One room, 8' x 10' x 8' 6" high. Frame building on Engineer wharf	June 5, 1908	\$1,400.00	Ref. of site 13.37
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One Dormitory,	Nov. 2, 1908	\$ 958.76
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One Latrine:			
One building, 21' x 36' - 9', 6" high. Sewell type. On terrain in rear of C 2.	June 11, 1909.	\$3567.90	Ref. of site (118.87)
Officers end; 3 closed stalls. 3 lavatories, 2 urinals.	Add		
Mens end: 10 closed stalls; 8 lavatories, 10 urinals.	Sewer	882.59	
	Total	\$4450.49	

Above stations not conspicuous at a distance of four miles when viewed from the usual channels of approach.

Name of Harbor	Name and Armament of battery	Date when turned over to Artillery.	Total Cost to that Date	REMARKS
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Admiralty: Inlet	<u>FORT FLAGLER:</u> Latrine, in rear of primary station. Two rooms, Officers room 10'6" x 19'; 9' 6" high. Mens room 19'x 24'; 9'6" high. Sewell Type.	June 11, 1909:	\$4264.85	
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FORT FLAGLER.

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ELECTRIC PLANT.

CENTRAL PLANT:

Reinforced concrete building with concrete roof.

Boiler room, 38'0" x 41'0" x 20'6" high.  
Engine room, 31'0" x 41'0" x 16'0" high.  
Storage Battery room, 24'6" x 41'0" x 16'0" high.  
Work room, 8'0" x 14'0" x 16'0" high.

Location, 1400 feet south and 600 feet west from Battery Wilhelm.

Reference of site, (boiler room floor) 87.37 above mean low water.

Boilers. Two Babcock and Wilcox water tube boilers, 150 HP each, purchased June 30, 1904.

Engines: Three McEwen steam engines, each 150 HP, stroke 14-inch, bore 15-inch, speed 275 R.P.M. Numbers 1420, 1430 and 1431. Purchased June 30, 1904.

Generators: Three Thompson-Ryan direct connected generators, capacity 75 KW, 300 amperes, 250 volts, speed 265 R.P.M.. Numbers 544, 549 and 550. Purchased June 30, 1904.

Transformers: None.

Storage Batteries. None.

Independent Plants. None. The Central plant will furnish all current for light and power at all emplacements at Fort Flagler. No power to be furnished for searchlights, as each searchlight has its own plant.

Kilowattage Required:

For inside and outside illumination of defensive works, 31 KW  
For motors, 32 KW  
For searchlights, none.  
For telautographs, 8 KW  
For Post lighting, 77 KW

Power house and plant is designed and built to permit installation of one more parallel unit for future demands.

Total cost of plant \$88000 (Paid from Engineer Dept. funds \$63000, from Q.M. Department funds \$25000.)

Transferred to Coast Artillery, June 26, 1908.

GENERAL DESCRIPTION OF THE TIDE-GAUGE

AT

FORT FLAGLER, WASH.

A cedar float treated in boiling parafine wax, enclosed in a wooden box and supporting a wooden graduated staff extending up through the house on which the height of the tide is denoted by a pointer.

An observer in the house transmits the data by telephone to the observing and the plotting rooms.

## S E A R C H L I G H T S .

## FORT FLAGLER.

- =====
- One 30-inch diameter. General Electric Co.  
Date of purchase unknown. Received by transfer  
from Capt. R. H. C. Kelton, Artillery Corps, Fort Terry,  
N. Y., March 29, 1904.  
Electrically and hand controlled.  
Independent power plant.  
Plant fixed. Projector mounted on truck.  
Degree of mobility limited by length of conductor.  
Returns made by Artillery.  
Cost of projector unknown.  
Transferred to Artillery, February 11, 1905.
- One 36-inch diameter. General Electric Co. No. 22.  
Date of purchase unknown.  
Received by transfer from Chief of Engineers, U. S. A.  
Dec. 17, 1907.  
Electrically and hand controlled.  
Independent power plant.  
Plant and projector mounted on track.  
Degree of mobility unlimited; the entire outfit is portable.  
Returns made by Artillery.  
Cost of projector unknown.  
Transferred to Artillery, March 25, 1908.

## DATUM POINT.

## FORT FLAGLER, WASH.

Two temporary datum points located on wharf approach  
on west side of reservation.

Not transferred to Artillery.

Cost \$10,00

One visible from Fort Worden and one from  
Fort Casey.

Name of Harbor	Name and armament of battery	Date when turned over to Artillery	Total Cost to that date	REMARKS.
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# Admiralty

Inlet,  
Puget  
Sound

## FORT CASEY.

Battery William Worth, Mounted;			Magazine No.1 lined with copper and cedar, dry. Garrisoned. Emplacements 1 2,3,& 4 built by contract in 1897-1898
2 10-in.B.L. Rifles, Model 1895, Nos.12 & 15) Watervliet Arsenal.			
2 10-in. disappearing carriages, L.F., Model 1896, Nos.59 & 60 Bethlehem Iron Co.	Empls.1-4) June 16, 1902.	Empls.1-4 \$103,894.49	
Emp.1, Rifle 12, Car.59 " 2, " 15, " 60			
Battery James Moore, Mounted;		Empls.5-7 \$138,392.41	Magazine No.1 lined with copper and cedar, dry.
3 10-in.B.L.Rifles, Model 1895, Nos.11 & 16 Water- vliet Arsenal, and Model 1895 MII, No.40, Bethlehem Iron Co.	Emp.5, Nov.27, 1905		
3 10-in. disappearing car- riages, L.F.Model, 1896) No.61 Bethlehem Iron Co. No.64 Southwick Foundry & Machine Co. and No.72 Midvale Steel Works.			Magazine #2 in Battery Worth, Nos.2&3 in Battery Moore, and Nos.1 and 2 in Battery Kingsbury, usually dry, but occasionally damp.
Emp.1, Rifle 16, Car.61 " 2, " 11, " 64 " 3, " 40, " 72 Rifle 40 moved to #2 Kingsbury, replaced by rifle 29.			
Battery Henry Kingsbury Mounted.	Nov.27 1905		
1 10-in B.L.Rifle, Model 1895 MII, No.43, Bethle- hem Iron Co.			
1 10-in. B.L.Rifle, Model) 1900 No.9, Watervliet Arsenal			
1 10-in. disappearing Car- riage, L.F.Model 1896, ) No.71, Midvale Steel Wks.			
1 10-in. disappearing car) riage, L.F.Model 1901, ) No.8 Watertown Arsenal) Emp.1, Rifle 43, Car 71 " 2 " 9 " 8			
Rifle 9 dismounted; lies on adjacent slope.			



Name of Harbor	Name and armament of battery.	Date when Turned over to Artillery.	Total Cost to that date.	REMARKS
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# FORT CASEY.

Battery Reuben Turman)	June 16, 1902	\$18,850.00	Garrisoned. Magazines dry.
Mounted.			
2 5-in. R.F.Guns, Model 1897, Nos.12 & 25, Bethlehem Iron Co.			
2 5-in. balanced pillar mounts, Model 1896, Nos 18 & 19 Bethlehem Steel Company.			
Emp.1, Gun 12, Car 18			
" 2, " 25, " 19			

Battery Seymour	June 16, 1902	\$93,207.00	Garrisoned
Mounted;			These emplace-
8 12-in. B.L.Mortars, Model 1890, Nos.5,8, 59, and 60, Watervliet Ar-			ments were
senal, No.53, Bethlehem Iron Co. Nos'17,18,19) Niles Tool Works.			built by con-
8 12-in. Mortar Carriages Model 1896, Nos.113,114 115,117 Providence Steam Engine Co., Nos. 134,135,136,138 Amer- ican Hoist & Derrick Company.			tract in 1898-1899. Magazines dry.

# PIT A.

Plat 1, Mortar 19, Car.115			
" 2, " 18 " 113			
" 3, " 59, " 134			
" 4, " 17, " 114			

# PIT B.

Plat 1, Mortar 60, Car.136)			
" 2, " 5, " 117)			
" 3, " 8, " 138)			
" 4, " 53, " 135)			

Battery Alexander Schenck

Mounted;	
8 12-in.B.L. Mortars Model 1890, No.55c Watervliet Arsenal Nos.45,47,48a,Build- ers Iron Foundry, Nos. 48b, 54,55d,Bethlehem Iron Co.No.14 Niles Tool Works.	
8 12-in. Mortar carriages Model 1896,#112,Pro- vidence Steam EngineCo #126,127,137,139,140,) 141 American Hoist&DerrickCo.	

All mortars of Batteries Seymour and Schenck dismounted; carriages being remodelled

Magazines dry

Name of Harbor :	Name and armament of battery :	Date when Turned over to Artillery :	Total Cost to that date :	REMARKS :
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FORT CASEY

Battery Alexander )  
 Schenck )  
 (Continued) )  
 Nos. 293 Rarig Engineering )  
 Company. )

PIT A.

Plat 1, Mortar	48b, Car.	141	)
" 2, "	55d, "	139	)
" 3, "	48a, "	140	)
" 4, "	47, "	137	)

PIT B.

Plat 1, Mortar	45, Car.	293	)
" 2, "	54, "	126	)
" 3, "	55c, "	112	)
" 4, "	14, "	127	)

Conduit ducts for electric wires have been laid connecting all batteries and primary fire control stations, except Batteries Thomas Parker and Isaac Van Horne.

=====

Name of :	Name and armament of :	Date when :	Total Cost :	
Harbor :	battery :	turned over :	to that :	REMARKS
:	:	to Artil- :	date. :	:
:	:	lery :	:	:

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## FORT CASEY:

	Battery John Valleau, Mounted;	) May 22, 1907	\$92,125.00	Garrisoned Magazines dry
4	6-in. R.F.Rifles, Model 1905, Nos. 18, 20, 21, 22	)		
	Watervliet Arsenal	)		
4	6-in. disappearing carriages, Model 1903, Nos. 76, 77, 78	)		
	Detrick & Harvey Machine Co. and No. 83 Bethlehem Steel Co	)		
	Emp. 1, Rifle 18, Car. 76	)		
	" 2 " 20, " 77	)		
	" 3 " 21, " 78	)		
	" 4, " 22, " 83	)		
	Battery Thomas Parker, Mounted;	) May 22, 1907	\$50,380.00	Garrisoned Magazines dry
2	6-in. R.F.Rifles, Model 1905, Nos. 3 & 12	)		
	Watervliet Arsenal.	)		
2	6-in. disappearing carriages, Model 1903, Nos. 74 & 75	)		
	Detrick & Harvey Machine Co.	)		
	Emp. 1, Rifle 3, Car. 74	)		
	" 2, " 12, " 75	)		
	Battery John Trevor, Mounted;	) May 22, 1907	\$15,800.00	Garrisoned Magazines dry
2	3-in. 15 pdr. Guns, Model 1903, Nos. 39 & 50	)		
	Watervliet Arsenal.	)		
2	15 pdr. barbette carriages, Model 1903, Nos. 20 & 21	)		
	Watertown Arsenal.	)		
	Emp. 1, Gun 39, Car. 20	)		
	" 2, " 50, " 21	)		
	Battery Isaac VanHorne, Mounted;	) May 22, 1907	\$14,695.00	Garrisoned. Magazines dry.
2	3-in. 15 pdr. Guns, Model 1903, Nos. 37 & 38	)		
	Watervliet Arsenal.	)		
2	15-pdr. barbette carriages, Model 1903, Nos. 18 & 19	)		
	Watertown Arsenal.	)		
	Emp. 1, Gun 37, Car. 18	)		
	" 2, " 38, " 19	)		

Name of Harbor :	Name and armament of battery.	Date when turned over to Artillery.	Total Cost to that date.	REMARKS
				(All references are to mean low water.)

x F'6 FORT CASEY.

Primary Station, Fire)  
Command, Batteries )  
Kingsbury, Valleau and )  
Trevor. )

Ref. of site  
96.20  
Ref. of inst.  
axis 104.28

(a)x B'8 Primary Station, Bat- ) Feb. 4,  
tery Command, Battery ) 1904 \$8,370.00  
William Worth. )  
(Changed from B'9 )  
(Moore) since Decemb- )  
er 31, 1907). )

Ref. of site  
87.70  
Ref. of inst.  
axis 95.78

x Concrete structures, one room on two levels. Plotting room  
7'6"x15' x 10'6" high. Observation room 10'x12'6" x 7'6" high.

Not conspicuous at a distance of four miles when viewed from  
the usual channels of approach.

(a) Plotting room enlarged to 15'x 20' x 10'6" high.

B'10 Primary Station Bat-) Oct. 6,  
tery Command, Bat- ) 1905. \$3,905.34  
tery Henry Kingsbury)

Ref. of site  
80.18  
Ref. of inst.  
axis 90.28  
One room on  
two levels,  
Plotting room  
15'4"x 16'x  
7'6" high.  
Observation  
room 11'x 16'x  
7' high. Re-  
inforced con-  
crete, steel  
roof supports  
and shutters.  
Roof of plot-  
ting room  
glass lenses  
set in con-  
crete. Not  
conspicuous at  
a distance of  
four miles when  
viewed from  
the usual chan-  
nels of  
approach.

Name of Harbor :	Name and armament of battery :	Date when turned over to Artillery :	Total Cost to that date :	REMARKS : (All references are to mean low water.)
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F'4	Fort Casey (Seymour)			Ref of site 105.28
	Observation room 14'x 20' x 7' high.			Ref.of inst. axis 122.28
	Plotting room 18'x 20' x 8' high.			
	Storeroom, 10'6"x 20' x 10'8" high.			
B'7	(Schenck)			Ref.of site 105.28
	Observation room 14'x 20' x 7' high			Ref.of inst. axis 117.28
	Plotting room 18' x 20' x 8' high	June 11, 1908	\$11,005.70	
	Storeroom 10'6"x 20' x 5'8" high.			
F'5	(Casey)			Ref.of site 105.28
	Observation room 14' x 20' x 6'10" high.			Ref.of inst. axis 112.28.
2	Telephone Booths, each 3'2"x3'6"x8' high.			
	Room in rear, 18' x 20' x 8' high.			
	Above three stations in one building, Sewell type.			
B'8	(Worth)			
	Extension of plot- ting room 12'6"x15'x 10'6" high concrete walls, wire glass roof in iron rafters.	June 11, 1908	\$1,175.33	
B'9	(Moore)			Ref.of site 80.18
	Observation room 11'x 16' x 7' high			Ref.of inst. axis 90.28
	Plotting room 16'x 18'x 7'6" high	June 11, 1908	\$ 3,855.68	
	High site.Reinforced concrete structure.			

These stations not conspicuous at a distance of four miles when viewed from the usual channels of approach.

207

Name of Harbor :	Name and armament of battery.	Date when turned over to Artillery :	Total cost to that date.	REMARKS.
				(All references are to mean low water.)

FORT CASEY.

F" 4	(Seymour) Supplementary Room 9'11"x 10'x 7' high.				Ref.of site 10.28 Ref.of inst. axis 20.28		
B" 7	(Schenck) Supplementary Room 9'11"x 10'x7' high.				June 11, 1908	\$2,634.94	Ref.of site 10.28 Ref of Inst. axis 20.28
B" 10	(Kingsbury) Supplementary. Room 9' 10"x 10'x7'  Above three stations in one building Sewell type.						Ref of site 10.28 Ref.of inst. axis 20.28.
F" 4	(Casey) Room 9'11"x 10'x7' high.				Ref.of site 158.28 Ref.of inst axis 163.28		
B" 7	(Schenck) Room 9' 11"x 10'x 7' high.				June 11, 1908	\$ 2,001.68	Ref of Site. 158.28 Ref. of inst. axis 163.28
	Above two stations in one building Sewell type, with dormitory 10'x20'6" x 9' high, in rear						
B" 8	(Worth) Room 9'11"x 10'x 7' high.				Ref.of site 162.28 Ref.of inst. axis 167.28		
B" 9	(Moore) Room 9'11"x10'x7' high.				June 11, 1908	\$ 2,029.01	Ref.of site 162.28 Ref.of inst. axis 167.28
	Above two stations in one building. Sewell type with dormitory 10'x 20'6" x 9' high in rear.						

These stations not conspicuous at a distance of four miles when viewed from the usual channels of approach.

Name of Harbor :	Name and armament of battery.	Date when turned over: to that date.	Total Cost	REMARKS.
:	:	: to Artil-	: date.	:(All references are to mean low
:	:	: lery.	:	:water.

# FORT CASEY:

	Switchboard Station.	)			
	Room 16'x 20' x 8'	)	June 11,		Ref of Site.
		)	1908	\$3,270.08	70.08
	Storage battery room	)			
	20'x 20'6"x 8' high.	)			
	Switchboard and storage	)			
	battery rooms in one	)			
	building, Sewell type	)			
	located in traverse of)	)			
	left flank Battery	)			
	Trevor.	)			
M 2	Meteorological Station)	)			
	Room 6'x 6'x7' high.	)	June 11,	\$ 428.03	Ref.of site
	Detached building.Sew-	)	1908		98.78
	ell type, adjacent to	)			
	F'6 (Casey).	)			
T 2	Tide Gauge Station	)	June 11		
	One room 8'x10'x7'	)	1908	\$ 871.69	Ref of site
	high. Frame building	)			18.88
	on Engineer Department)	)			
	Wharf.	)			

These stations are not conspicuous at a distance of four miles when viewed from the usual channels of approach.

One dormitory	) Nov.2,		
	) 1908	\$ 900.06	Ref.of site
			162.6

GENERAL DESCRIPTION OF THE  
TIDE-GAUGE AT  
FORT CASEY, WASH.

A cedar float treated in boiling paraffine wax, inclosed in a wooden box and supporting a wooden graduated staff extending up through the house on which the height of tide is denoted by a pointer.

An observer in the house transmits the data by telephone to the observing and the plotting rooms.



FORT CASEY.

SEARCHLIGHTS.

- =====
- One 30-inch diameter. General Electric Co.  
Date of purchase unknown. Received by transfer from  
Lieut. R.M.Mitchell, Artillery Corps, Fort Wright, N.Y.  
February 8, 1904.  
Electrically and hand controlled.  
Independent power plant.  
Plant fixed. Projector mounted on truck.  
Degree of mobility limited by length of conductor.  
Returns made by Artillery.  
Cost of projector unknown.  
Transferred to Artillery February 6, 1905.
- One 30-inch diameter, General Electric Co.  
Date of purchase unknown. Received by transfer from  
Major J.G.D.Knight, Corps of Engineers, November 14, 1898.  
Electrically and hand controlled.  
Independent power plant.  
Plant fixed, projector mounted on truck.  
Degree of mobility limited by length of conductor.  
Returns made by Artillery.  
Cost of projector unknown.  
Transferred to Artillery August 7, 1905.
- One 36-inch diameter. General Electric Co. No.23.  
Date of purchase unknown. Received by transfer from  
Chief of Engineers, U.S.Army, December 17, 1907.  
Electrically and hand controlled.  
Independent power plant.  
Plant on truck. Projector mounted on truck.  
Degree of mobility unlimited. The entire outfit is  
portable.  
Returns made by Artillery.  
Cost of projector unknown.  
Transferred to Artillery March 25, 1908.

## DATUM MARKS.

## FORT CASEY.

=====

One known as "Shields" located off the shore of Admiralty Bay in 14 feet of water at low tide, aximuth from F'6 302.19°, range 7,093.98 yards.

One known as "Jenne" located under secondary stations B"8 and B"9 in 15 feet of water at low tide.

Each datum mark consists of a cluster of creosoted piles on which white boards are nailed and a black square painted. The center of the square is 10 feet above mean low water.

Cost of the two \$275.00.

Not transferred to Artillery.

Datum points visible from Forts Worden, Casey and Flagler.

=====

Name of Harbor :	Name and armament of battery.	Date when turned over to Artillery.	Total cost to that date	REMARKS.
Admiralty Inlet, Puget Sound	FORT WORDEN. Battery Alanson Randol, Mounted; 2 10-in. B.L. Rifles, Model 1888 MII, Nos. 6 & 39 Bethlehem Steel Co. 2 10-in. nondisappearing carriages, Model 1893, Nos. 7, 8, Morgan Engineering Company. Emp. 1, Rifle 39, Car. 7 " 2, " 6, " 8	June 16, 1902	\$232,554.97	Garrisoned Alteration to batteries completed. Magazines dry.  Battery Randol 2 guns only Empls. 1 & 2.
	Battery Augustus Quarles Mounted. 3 10-in. B.L. Rifles, Model 1888 MII, No. 36 & 37, Bethlehem Steel Co. Model 1888, No. 12, Watervliet Arsenal. 3 10-in. nondisappearing carriages, Model 1893, Nos. 1 & 9 and 11, Watertown Arsenal. Emp. 1, Rifle 36, Car. 9 " 2 " 37, " 1 " 3, " 12, " 11			Magazines dry  Battery Quarles 3 guns, by addition of gun No. 3 of Randol which is Empl. No. 1 of Quarles.
	Battery Joseph Ash. Mounted. 2 12-in. B.L. Rifles Model 1888 MII, Nos. 9 & 10, Bethlehem Steel Co. 2 12-in. nondisappearing carriages, Model 1892 Nos. 3 (altered gun lift) & 27, Watertown Arsenal Emp. 1, Rifle 9, Car. 27 " 2, " 10, " 3			x=This gun placed out of commission March 16, 1909.  Magazines dry.

Batteries Randol, Quarles and Ash altered at a cost of \$50,215.00 since date of original transfer to Artillery.

Changes in Randol and Quarles authorized by Secretary of War March 9, 1909. G.O. No. 8, Hdqrs. Artly District of Puget Sound March 16, 1909.

Name of Harbor :	Name and armament of battery :	Date when turned over to Artillery :	Total cost to that date :	REMARKS.
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# Admiralty FORT WORDEN:

Inlet,	Battery Henry Benson )		\$142,500.00	Garrisoned
Puget	Mounted; )			Magazines dry.
Sound	2 10-in. B.I. Rifles, Model 1900, Nos. 12 and 14, Watervliet Arsenal )	April 24, 1908		Retracting motors have been installed, but are not connected with the power lines. No other motors to be installed.
	2 10-in. disappearing carriages, Model 1901 Nos. 6 & 7 Watertown Arsenal )			
	Emp. 1, Rifle 12, Car. 6 )			
	" 2, " 14, " 7 )			

Electric fixtures and light and power mains installed at batteries Randol, Quarles, Ash and Benson.

# FORT WORDEN:

Battery Thomas Vicars )	June 16, 1902	\$11,000.00	Garrisoned
Mounted; )			Magazines dry.
2 5-in. B.I. Rifles, Model 1897, Nos. 9 & 22 Bethlehem Steel Company. )			
2 5-in. balanced pillar mounts, Model 1896, Nos. 9 & 20, Bethlehem Steel Company. )			
Emp. 1, Gun 22, Car. 20 )			
" 2, " 9, " 9 )			
Battery John Brannan )	June 16, x= 1902	\$162,102.12	Garrisoned
Mounted; )			Magazines dry except in Pit B.
8 12-in. B.I. Mortars, Model 1890 M1, Nos. 49, 50, 51 Builders Iron Foundry, Nos. 21, 24 Niles Tool Works; Nos. 32, 54, 56 Watervliet Arsenal. )			
8 12-in. Mortar carriages Model 1896, Nos. 252, 253, 254, 255, 256, 257, 258, 259. Rarig Engineering Company. )			
Plat 1, Mortar 51, Car. 259 )			
" 2, " 50, " 258 )			
" 3, " 54, " 256 )			
" 4, " 32, " 257 )			

x = Total cost Batteries Brannan and Powell.

=====

Name of	: Name and armament of	: Date when	: Total cost	:
Harbor	: battery.	: turned over:	to that	: REMARKS.
:	:	: to Artil-	: date.	:
:	:	: lery.	:	:

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FORT WORDEN.

Battery John Brannan, )  
(Continued) )

PIT B

Plat 1, Mortar 49, Car. 255)  
" 2, " 24, " 254)  
" 3, " 21, " 252)  
" 4, " 56, " 253)

Battery James Powell, )  
Mounted: )

Magazines dry

8 12-in. B.L. Mortars, )  
Model 1890 MI, Nos 27 & 52 )  
Builders Iron Foundry, )  
Nos. 1, 15, 16, 20, 22, )  
Niles Tool Works; #105 )  
Watervliet Arsenal, )  
8 12-in. Mortar carriages )  
Model 1896, Nos. 244, )  
245, 246, 247, 248, 249, 250 )  
251. Rarig Engineering )  
Company. )

PIT A:

Plat 1, Mortar 16, Car. 251)  
" 2, " 1, " 250)  
" 3, " 52, " 248)  
" 4, " 15, " 249)

Pit B.

Plat 1, Mortar 27, Car. 247)  
" 2, " 105, " 246)  
" 3, " 22, " 245)  
" 4, " 20, " 244)

Lighting fixtures and mains installed at Batteries Brannan and Powell.

=====

Name of :	Name and armament of :	Date when :	Total cost :	
Harbor. :	battery.	turned over:	to that :	REMARKS.
:	:	to Artil- :	date. :	:
:	:	lery. :	:	:

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## FORT WORDEN:

Battery Cornelius	)	May 21,	\$104,500.00	Garrisoned
Tolles,	)	1907		Magazines dry
Mounted;	)			Central Elec-
4 6-in. B.L. Rifles, Model	)			tric plant for
1903, Nos. 39, 50, 58 & 66	)			light and power
Watervliet Arsenal	)			completed. Wires
4 6-in. disappearing car-	)			and fixtures
riages, L.F. Model 1903,	)			for lighting
Nos. 56, 58, 59 & 60 Det-	)			installed. No
rick & Harvey Machine	)			provision made
Company.	)			for power wires
Emp 1.1, Rifle 66, Car. 60	)			to battery. No
" 2, " 58, " 59	)			motors are to
" 3, " 50, " 58	)			be placed on
" 4, " 39, " 56	)			these carriages
Battery Amos Stoddard	)			Garrisoned.
Mounted;	)			Magazines dry.
4 6-in. B.L. Rifles, Model	)	May 21,	\$91,000.00	Central elec-
1903, Nos. 17, 19, 45, 61	)	1907		tric plant for
Watervliet Arsenal	)			light and power
4 6-in. disappearing car-	)			completed. No
riages, L.F. Model 1903,	)			provisions made
Nos. 44, 43, 89, 90 Wellman	)			for light and
Seaver, Morgan Co.	)			power wires to,
Emp 1.1, Rifle 17, Car. 43	)			or fixtures
" 2, " 19, " 44	)			and wiring in
" 3, " 45, " 89	)			battery. No
" 4, " 61, " 90	)			motors are
				to be placed
				on these car-
				riages.

=====

Name of :	Name and armament of :	Date when :	Total cost :	
Harbor :	battery.	turned over:	to that :	REMARKS
:	:	to Artil-	date. :	:
:	:	lery. :	:	:

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## FORT WORDEN.

Battery Samuel Walker	)	May 21,	\$12,000.00	Garrisoned.
No guns <del>on mounts</del> on	)	1907		Magazines dry
hand.	)			Central elec-
2 3-in.pedestal mounts	)			tric plant for
in place. #76 & 77,	)			light and power
Model 1903, Watertown	)			completed. No
Arsenal.	)			provisions
15 pdr.Rifles not yet	)			made for light
received.	)			and power
	)			wires to, or
	)			fixtures and
	)			wiring in bat-
	)			ttery.
Battery Haldimand	)			
Putnam	)			
Mounted:	)		\$12,000.00	Garrisoned.
2 3-in., 15 pdr.Rifles	)			Magazines dry
Nos.23 and 24, Model	)			Central elec-
1903, Watervliet Arse-	)			tric plant for
nal.	)			light and power
2 3-in.pedestal mounts,	)			completed. No
Nos.14 and 15, Model	)			provisions made
1903, Watertown Arsenal	)			for light and
Emp. 1, Rifle 23, Car.14	)			power wires to,
" 2, " 24, " 15	)			or fixtures and
	)			wiring in
	)			battery.

=====

Name of	Name and armament of	Date when	Total cost	REMARKS.
Harbor	battery	turned over:	to that	(All references
:	:	to Artil-	date.	are to mean low
:	:	lery.	:	water).

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FORT WORDEN.

C 1 Battle Command	)			Ref.of site
Observation room 16' x	)			278.28
18'4"x7' high Dist.	)			Ref.of inst
Commander's room 8'2"	)			axis 292.39
x 10' x 8' high	)			
Meteorological room	)			
8'2"x 8'6"x 8' high	)	June 16,	\$4,027.38	
Storeroom 8' x 8' x 8'	)	1908		
high	)			
Nine telephone booths	)			
Two 3'x 3'6"x 8' high	)			
Five 3'2"x 3'5"x 8'	)			
high.	)			
Two 3'8"x 3'10"x 8'	)			
high.	)			
Sewell type building.	)			
B'3 (Benson)	)			Ref.of inst.
Observation room,	)			axis 278.39
16'3"x 14'x 7' high	)	June 16,		Ref.of site
Plotting room.	)	1908		272.07
16'3"x 12'6"x 8'4"	)			
high.	)			
F'2 (Worden)	)	June 16,		Ref.of site
Observation room	)	1908		277.07
17'x 14'x 7' high	)		\$5,213.74	Ref.of inst.
Plotting room	)			axis 283.39
17'x 17'6"x 8'4" high	)			
Telephone booths (two)	)			
4'6"x 4'6"x 8'4" high	)			
Above two stations in	)			
one building. Sewell	)			
type.	)			

These stations not conspicuous at a distance of four miles when viewed from the usual channels of approach.



Name of Harbor :	Name and armament of battery.	Date when turned over to Artillery.	Total cost to that date	REMARKS : (All references are to mean low water).
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## FORT WORDEN.

B'1 (Powell)	Observation room.			Ref of site 268.07
	20' x 14' x 7' high			Ref.of inst. axis 274.39
	Plotting room			
	20' x 18' x 8'4" high,			
F'1 (Brannan)	Observation room,			Ref.of site 268.07
	20' x 14' x 7' high	June 16,		Ref.of inst. axis 279.39
	Plotting room,	1908	\$9,246.93	
	20' x 18' x 13'4" high			
	Storeroom			
	20' x 14' x 5' high			
B'2 (Ash)	Observation room,			Ref.of site 268.07
	16' x 14' x 7' high			Ref.of inst. axis 284.39
	Plotting room,			
	16' x 18' x 8'4" high			
	Officers' room			
	7'5" x 9'6" x 9'8" high.			
	Mens' room,			
	16'x 18'x 9'8" high			
	Above three stations in one building, Sewell type.			

These stations are not conspicuous at a distance of four miles when viewed from the usual channels of approach.

Name of	Name and armament of	Date when	Total cost	REMARKS.
Harbor	battery.	turned over:	to that	(All references
:	:	to Artil-	date.	are to mean
:	:	lery.	:	low water)

FORT WORDEN:

B'5 (Quarles)	)	Ref.of site
Observing room,	)	262.95
16' x 14' x 7' high,	)	Ref.of inst.
Plotting room,	)	axis 282.39
16' x 18' x 8' high	)	
Officers' room,	)	
7'5"x 10'6"x 8' high	)	
Mens' room	)	
16' x 18' x 8' high	)	
Storeroom	)	
16' x 14' x 4'2" high	)	
F'3 (Worden)	)	Ref.of site
Observing room	)	262.95
16'x 14' x 7' high	)	Ref.of inst.
Plotting room,	)	axis 282.39
16' x 18' x 8' high	)	
Officers' room	)	
7'5"x 10'6"x 8' high	)	June 16, \$9,571.41
Mens' room	)	1908
16'x 18' x 8' high	)	
Storeroom,	)	
16'x 14'x 4'2" high	)	
B'6 (Randol)	)	Ref.of site
Observation room	)	262.95
18' x 14'x 7' high	)	Ref.of inst.
Plotting room	)	axis 282.39
18' x 18' x 8' high	)	
Officers' room,	)	
9' x 10'6" x 8' high	)	
Mens' room,	)	
18' x 18' x 8' high	)	
Storeroom,	)	
18' x 14' x 4'2" high	)	
Above three stations	)	
in one building, Sewell	)	
type.	)	

These stations are not conspicuous at a distance of four miles  
 hen viewed from the usual channels of approach.

-----  
Name of : Name and armament of : Date when : Total cost : REMARKS  
Harbor : battery. : turned over: to that : (All references  
: : : to Artil- : date. : are to mean low  
: : : lery. : : : water.  
-----

FORT WORDEN.

B'4 (Tolles)	)			Ref.of site
Observation room,	)	June 16,		232.07
16' x 14' x 7' high	)	1908	\$2,874.30	Ref.of inst.
Plotting room,	)			axis 238.39
16' x 16' x 8'4" high	)			
Sewell type construction)	)			
F''1 (Brannan)	)			
B''1 (Powell)	)			
B''3 (Benson)	)			
B''4 (Tolles)	)			
B''2 (Ash )	)			
5 Observation rooms	)	June 16,	\$6,030.11	Ref.of site
each, 12'x 12'x 7' high	)	1908		106.41
Officers' room	)			Ref.of inst.
16'x 20'8" x 9' high	)			axis 113.39
Mens' room,	)			
16'x 41'4"x 9' high,	)			
Five secondary stations	)			
in one building,	)			
Sewell type.	)			
F'''1 (Brannan)	)			
B'''1 (Powell)	)			
F''3 (Worden)	)			Ref.of site
B''6 (Randol)	)			68.41
B''5 (Quarles)	)			Ref.of inst.
5 Observation rooms,	)	June 16,		axis 75.39
each 12'x 12'x 7' high	)	1908	\$5,493.51	
Officers' room,	)			
16'x 20'8"x 9' high	)			
Mens' room,	)			
16'x 41'4"x 9' high	)			
Two supplementary and	)			
three secondary stat-	)			
ions in one building,	)			
Sewell type.	)			
Switchboard Station Room	)			
20'x 16' x 9' high	)	June 16,		Ref.of site
	)	1908	\$3,231.03	262.11
Storage battery room	)			
20'x 20'6"x9' high	)			
One building, Sewell type,	)			
with cellar 19'x 36'x 6'5"	)			
high. Location between	)			
C 1 and B'5 in excavation	)			

These stations are not conspicuous at a distance of four miles  
hen viewed from the usual channels of approach.

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Name of Harbor :	Name and armament of battery.	Date when turned over to Artillery.	Total cost to that date.	REMARKS. (All references are to mean low water).
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FORT WORDEN.		Ref. of site
Central Quarters	)	260.49
Building.	)	
Officers' rooms, two each 16'x 30'6"x 9' high.	)	
Officers' wash rooms, two each 16'x 8'x 9' high.	)	
Mens' room, two, each 26' x 39'x 9' high.	)	
Mens' wash rooms, two, each 12'x 16'x 8'3" high.	)	
Location, between C 1 and B'1 in excavation	)	June 16, 1908 \$9,674.81
Latrine in rear, with two rooms, each 13' x 12'6"x 9'5" high. all Sewell type.	)	

T 1 Tide Gauge Station	)		
One room, 10'x 10'x 8' high. Frame building on the Quartermaster Department wharf.	)	June 16, 1908 \$1,021.87	Ref of site 12.18

The stations are not conspicuous at a distance of four miles when viewed from the usual channels of approach.

Name of Harbor	Name and Armament of battery	Date when Transferred To Artillery	Total Cost to that Date	REMARKS
Admiralty Inlet.	<b>FORT WORDEN:</b> One district signal station Brick structure with concrete foundation and slate roof, outside dimensions 18 ft. by 24 ft. 6 in. Three rooms, operating room 12 ft. by 16 ft.; generator room 8 ft. by 10 ft.; work room 6 ft. 10 in. by 7 ft. 6 in. All rooms 8 ft. high. Observation station on roof.	June 16, 1909	\$2800	

## FORT WORDEN, WASH.

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E L E C T R I C P L A N T . (Central)Location;

About 600 feet south of Battery Brannan and 1,200 feet west of Battery Stoddard.

Boilers;

Two Babcock & Wilcox water tube boilers, 150 HP. Purchased June 30, 1904.

Engines;

Three McEwen steam engines, 150 HP each, stroke 14-inches, bore 15 inches, speed 275 R.P.M., Nos. 1419, 1421 and 1422. Purchased June 30, 1904.

Generators;

Three Thomas-Ryan direct connected generators, capacity 75 kilowatts, 300 amperes, 250 volts, speed 265 R.P.M., Nos. 543, 545 and 546. Purchased June 30, 1904.

Transformers;

None.

Storage Batteries;

None.

Independent Plants;

None. The central station will furnish all current for light and power at all emplacements at Fort Worden. No power to be furnished for searchlights, as each searchlight has its own portable plant.

Kilowattage required:

For inside and outside illumination of defensive works; 50 KW.

For motors; 45 K.W.

For searchlights; none.

For telautographs; 4 KW

For post lighting; 75 KW

Power house and plant has been so designed as to permit of one parallel unit for future demands.

Total cost of plant \$89000 (Paid from Engineer Department funds \$64000, from Q.M. Department funds \$25000).

Transferred to Coast Artillery on June 20, 1907.

## FORT WORDEN, WASH.

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## S E A R C H L I G H T S.

- =====
- One 36-inch diameter, General Electric Co.  
Date of purchase unknown. Received by transfer from  
Lieut. S. Avery, Jr., Artillery Corps, Fort Howard, Md.  
January 11, 1904.  
Electrically and hand controlled.  
Independent power plant.  
Plant fixed. Projector mounted on truck.  
Degree of mobility limited by length of conductor.  
Returns made by Artillery.  
Cost of the projector unknown.  
Transferred to Artillery February 6, 1905.
- One 30-inch diameter, General Electric Co.  
Date of purchase unknown. Received by transfer from  
Major J. G. D. Knight, Corps of Engineers, November 14, 1898.  
Electrically and hand controlled.  
Independent power plant.  
Plant fixed. Projector mounted on truck.  
Degree of mobility limited by length of conductor.  
Returns made by Artillery.  
Cost of projector unknown.  
Transferred to Artillery August 7, 1905.

FORT WORDEN, WASH.

T I D E - G A U G E.

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The tide gauge is located in T 1 -Tide Gauge Station, which contains one room, 10' x 10' x 8' and is furnished with one vertical tide gauge.

Transferred to the Artillery June 16, 1908.

Cost of frame building and tide gauge, \$1,021.87.

Ref. of site 12.18 (M.L.W.)



## FORT WORDEN, WASH.

D A T U M   P O I N T S.

Datum point located south of Quartermaster wharf at  $\frac{1446.09 \text{ S}}{1882.91 \text{ E}}$

rebuilt in May 1907. Now in use. Cost \$125.00. Transferred to Artillery in January, 1905. Visible from Forts Flagler and Casey.

"Simms" datum at  $\frac{588.92 \text{ S}}{15990.14 \text{ W}}$  For use of Fort Worden only. Visible from Fort Casey.

NOTE: ="Wilson" datum carried away by storm November 30, 1909.

Name of Harbor	Name and Armament of battery.	Date when turned over to Artillery	Total cost to that date:	REMARKS.
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Richs Passage, Puget Sound.	FORT WARD: Battery Francis Nash, Mounted: 3 8-in. B.L.Rifles, Model 1888, Nos. 2 & 6, West Point Foundry; Model 1888, MII, No. 42, Water-vliet Arsenal. 3 8-in. disappearing carriages, L.F. Model 1896 Nos. 36, 37 and 38 Water-town Arsenal. Emp. 1, Rifle 6, Car. 36 " 2, " 42, " 37 " 3, " 2, " 38	Jan. 18, 1904	\$120,432.00	Garrisoned Magazines wet from condens- ation.
	Battery William Warner Mounted: 2 5-in. B.L.Rifles, Model 1900, Nos. 15 & 19, Water-vliet Arsenal. 2 Pedestal mounts, Model 1903, Nos. 12 & 13, Morgan Engineering Company Emp. 1, Gun 15, Car. 12 " 2, " 19, " 13	Jan 18, 1904	\$ 24,934.96	Garrisoned Magazines wet from condens- ation.
	Battery John Vinton Mounted: 2 3-in. B.L.Rifles, Model 1898, Nos. 2 and 5. Driggs Seabury Gun & Ammunition Manufacturing Company. 2 3-in. Masking parapet mounts, Model 1898, Nos. 2 and 5, Driggs Seabury Gun & Ammunition Manufacturing Company. Emp. 1, Gun 2. " 2, Gun 5.	Jan 18, 1904	\$ 10,966.50	Garrisoned Magazines wet from condens- ation

Being  
Independent generating set/installed for light and power  
at Battery Nash. Wiring and fixtures installed.

Name of Harbor.	Name and Armament of battery.	Date when turned over to Artillery:	Total cost to date:	REMARKS
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## FORT WARD:

Battery Thomas Thornburgh Mounted;	Jan. 18, 1904	\$21,884.50	Garrisoned Magazines wet from condensation.
4 3-in. B.L. Rifles, Model 1898, Nos. 9, 15, 40 & 45 Driggs Seabury Gun & Ammunition Manufacturing Co.			
4 3-in. masking parapet mounts, Model 1898, Nos. 9, 15, 40 & 45 Driggs Seabury Gun & Ammunition Manufacturing Company.			
Emp. 1, Gun 9.			
" 2, " 15.			
" 3, " 40.			
" 4, " 45.			

Richs  
Passage  
Puget  
Sound

## MIDDLE POINT.

Battery Robert Mitchell, 2 Emplacements for 3-in. R.F. guns on pedestal mounts. (No guns or mounts on hand)	Jan. 18, 1904	\$9,473.00	Garrisoned Magazines wet from condensation.
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## FORT WARD.

Primary Station	June 28, 1905	\$ 6,252.28	Ref of site 209.67 Ref. of inst. axis 221.21. Two rooms. Instrument room, 10' 6" x 15' 4" x 7' high. Plotting room 15' 5" x 16' x 7' 5" high. Reinforced concrete structure Not conspicuous at a distance of four miles when viewed from the usual channels of approach.
Battery Francis Nash			

No provision made for electric plant, wiring or fixtures for Batteries Warner, Vinton, Thornburgh and Mitchell.

Name of Harbor	Name and Armament of battery	Date when turned over to Artillery:	Total cost to that date	REMARKS
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MIDDLE POINT:		)		
x 1 Torpedo Storehouse complete.	) Dec.4, 1905	\$9,000.00	Garrisoned Outside dimensions 55'x 78' Brick and concrete.	
(x) 1 Mining casemate complete.	) Dec.4, 1905	\$5,900.00	Three rooms; 7'9"x22'; 11' 9"x 22'; and 11"x 22'. Outside dimensions of building 26'x37'6"	
1 Cable tank, complete except apparatus for handling cable.	) Dec.4, 1905	\$5,900.00	Outside dimensions 23'x 80' concrete tank with wooden roof.	

x Dry. No provision made for heating or lighting.

(x) Damp.

# REPORT OF COMPLETED BATTERIES, ETC.,

## DEFENSES OF PUGET SOUND, WASH.

December 31, 1909.

In Charge of Major C. W. Kutz, Corps of Engineers.

Name of Harbor	Name and armament of battery	Date when turned over to Artillery	Total cost to that date	REMARKS.
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Naval Armory

### FORT FLAGLER

und. 2 Battery John Rawlins )  
Mounted: )  
2 10-in. B.L. Rifles, Model 1888, MII, Nos. 28 & 35, Bethlehem Iron Co.)  
2 10-in. nondisappearing carriages, Model 1893, No. 3, Watertown Arsenal and No. 10 Morgan Engineering Company.)  
Emp. 1, Rifle 35, Car. 10  
" 2, " 28, " 3

These batteries were built by contract in 1897-9 Magazines dry.

Battery Wilhelm )  
Mounted: )  
2 12-in. B.L. Rifles, Model 1888, MII, Nos. 25 & 35, Watervliet Arsenal )  
2 12-in. nondisappearing carriages, Model 1891, Nos. 1 & 2 Watervliet Arsenal (altered gun lift) )  
Emp. 1, Rifle 35, Car. 2  
" 2, " 25, " 1

August 17 1902

\$191,190.68

Garrisoned Magazines dry The 2-12-in. guns are at this date dismounted and alterations of the carriages being made by Ord. Department

Battery Paul Revere )  
Mounted: )  
2 10-in. B.L. Rifles, Model 1888, MII, Nos. 29 & 30, Bethlehem Iron Co.)  
2 10-in. nondisappearing carriages, Model 1893, Nos. 4 & 5, Watertown Arsenal )  
Emp. 1, Rifle 29, Car. 4  
" 2, " 30, " 5

Magazines dry

Electric wires for light and power installed at Batteries Rawlins, Wilhelm and Revere. Electric fixtures installed.

Name of Harbor	Name and armament of battery	Date when turned over to Artillery	Total Cost to that date	REMARKS.
	Battery Lee Mounted: 2 5-in. R.F.Guns, Model 1897, Nos. 5 & 8, Bethlehem Iron Company 2 5-in. balanced pillar mounts, Model 1896, Nos. 31 & 32, Detrick & Harvey Machine Co. Emp. 1, Gun 5, Car. 31 " 2, " 8, Car. 32	August 17, 1902	\$15,000.00	Garrisoned Magazines dry
	Battery Henry Bankhead Mounted 8 12-in. B.L. Mortars Model 1890 M.I., Nos. 67, 77, 90, 114, 128, 133, 134 & 137, Watervliet Arsenal. 8 12-in. Mortar Carriages, Model 1896, Nos. 269, 270, 271, 272, 273, 274, 275 & 276, Rarig Engineering Company	August 17, 1902	\$89,584.47	Garrisoned. Magazines dry
	PIT "A" Car Plat 1, Mortar 114, 269 " 2, " 77, 270 " 3, " 90, 272 " 4, " 133, 271			Magazines dry
	PIT "B" Car Plat 1, Mortar 134, 273 " 2, " 67, 274 " 3, " 137, 276 " 4, " 128, 275			Magazines dry

Fixtures and wires for lighting installed at Battery Bankhead.

Name of Harbor	Name and armament of battery	Date when turned over to Artillery.	Total Cost to that date	REMARKS.
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**FORT FLAGLER:**

Battery James Calwell)	April 23, 1907	\$89,500.00	Garrisoned. Magazines dry Central electric plant for light and power completed. No provision made for light and power wires to, or fixtures and wiring in battery.
Mounted.			
4 6-in.B.L.Rifles, Model 1903, Nos. 48, 60, 65 & 70)			
Watervliet Arsenal			
4 6-in.d#isappearing carriages, L.F. Model 1903)			
Nos. 53, 54, 55 & 72;			
Detrick & Harvey Machine Co.			
Emp. 1, Rifle 48, Car. 53			
" 2 " 60 " 54			
" 3, " 65, " 55			
" 4, " 70 " 72			
Battery John Grattan,	April 23, 1907	\$48,000.00	Garrisoned. Magazines dry Central Electric plant for light and power completed. No provisions made for light and power wires to, or fixtures and wiring in battery.
Mounted:			
2 6-in.B.L.Rifles, Model 1903, Nos. 68 & 69, Watervliet Arsenal.			
2 6-in.disappearing carriages, L.F. Model 1903,			
No. 73, Detrick & Harvey Machine Co. and No. 45			
Wellman, Seaver, Morgan Company.			
Emp. 1, Rifle 68, Car. 73			
" 2, " 69, " 45			

Name of Harbor	Name and armament of battery	Date when turned over to Artillery.	Total Cost to that date.	REMARKS.
	FORT FLAGLER. Battery Edward Downes 1 15 pdr. (3 in) B.L. Rifle, Model 1903, #27 Watervliet Arsenal 2 Pedestal mounts, Model 1903, Nos. 78 & 79, Watertown Arsenal. Emp. 1, Rifle 27, Car. 78 " 2, No "rifle Rec. Car. 79	April 23, 1907	\$12,000.00	Garrisoned. Magazines dry. Central electric plant for light and power completed. No provision made for light and power wires to, or fixtures and wiring in battery.
	Battery Thomas Wansboro. Mounted 2 15 pdr. (3 in) B.L. Rifles Model 1903, Nos. 35 & 36, Watervliet Arsenal 2 Pedestal mounts, Model 1903, Nos. 16 & 17, Watertown Arsenal. Emp. 1, Rifle 35, Car 16 " 2, " 36, " 17	April 23, 1907	\$14,000.00	Garrisoned. Magazines dry. Central electric plant for light and power completed. No provision made for light and power wires to, or fixtures and wiring in battery.



Name of Harbor	Name and armament of battery	Date when turned over to Artillery.	Total Cost to that date.	REMARKS. (All references are to mean low water.)
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x	FORT FLAGLER. C 2 (Flagler) Observation room 16'x20' x 7' high Dormitory 11' x 13' 8" x 12' high.			Ref.of site 121.37. Ref.of inst. axis 154.37
x	F'7 (Bankhead) Observation room 13' x 20' x 7' high. Plotting room 20' x 23' x 8'11" high. 5 telephone booths each 3' x 3'6" x 12' high. Above stations in one building.Sewell type.	June 5, 1908	\$8,495.13	Ref.of site 121.37 Ref.of inst. axis 149.87.
	F' (Rawlins) 8 Additions to plot- ting room 11'6" x 15'6" x 9'5½" high 4 Telephone booths each 3'6" x 3'6" x 9'5½" high.	June 5, 1908	\$1,500.00	Ref.of site 118.17
	Dormitory, detached building, Sewell type 72' in rear of F'9(Flagler). Of- ficers' room 10' x 16' x 9' high. Men's room, 16' x 19' x 9' high.	June 5, 1908	\$1,268.09	

x = Not conspicuous at a distance of four miles when viewed from the usual channels of approach.

Name of Harbor	Name and armament of battery	Date when turned over to Artillery	Total Cost to that date.	REMARKS (All references are to mean low water.)
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FORT FLAGLER.

x	F : Primary Station, 8 Fire Command, Battery John Rawlins Furnish ranges also to Batteries Lee, Grattan & Wansboro	) June 30, 1902	\$3,327.50	Ref. of site 118.17. Ref. of inst. axis, 144.57 One room 10' x 10' x 7' high, steel tower.
x	F : Primary Station 9 Fire Command Batteries Wilhelm and Revere. Furnish ranges also to Batteries Calwell and Downes. Addition of 2 tel- ephone booths made since transfer of station. Each booth 3'6" x 3'6" x 7'6" high.	) June 26, 1905	\$4,318.24          \$ 276.10	Ref. of site 123. Ref. of inst. axis, 128.87 Two rooms. Inst. room 11' x 16' x 6'11" high. Plotting room 15'4" x 16' x 7'6" high. Reinforced con- crete. Glass lenses in roof of plotting room.

x = Not conspicuous at a distance of four miles when viewed from the usual channels of approach.



Name of Harbor	Name and armament of battery	Date when turned over to Artillery.	Total Cost to that date.	REMARKS. (All references are to mean low water.)
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B 13 (Revere)  
Plotting room,  
18' x 20' x 8' high  
Sewell type, in  
traverse behind  
battery.

June 5,  
1908

\$1,543.33

Ref. of site  
121.37

F 7 (Bankhead)  
Secondary. Observation  
room 10' x 10' x 7'  
high. Sewell type.

June 5,  
1908

\$ 877.80

Ref. of site  
81.37  
Ref. of inst.  
axis 86.37.

F 7 (Bankhead)  
Supplementary.  
Observing Room, 9'  
11" x 10' x 7' high

Ref. of site  
148.37  
Ref. of inst.  
axis 153.37

B 11 (Rawlins)  
Secondary,  
Observation room  
9' 11" x 10' x 7'  
high. Above two  
stations in one  
building, with dor-  
mitory in rear, 10'  
x 20' 6" x 9' high.  
Sewell type.

June 5,  
1908

\$1,816.10

Ref. of site  
148.37  
Ref. of inst  
axis  
153.37

B 12 (Wilhelm)  
Secondary.  
Observation room  
9' 11" x 10' x 7' high

Ref. of site  
84.37  
Ref. of inst.  
axis 90.37

B 13 (Revere)  
Secondary.  
Observation room  
9' 11" x 10' x 7'  
high. Two stations in  
one building with  
dormitory in rear,  
16' x 20' x 9' high  
Sewell type.

June 5,  
1908

\$1,831.20

Ref. of site  
84.37  
Ref. of inst.  
axis 90.37

Above stations not conspicuous at a distance of four miles  
when viewed from the usual channels of approach.

Name of Harbor	Name and armament of battery	Date when turned over to Artillery.	Total Cost to that date.	REMARKS. (All references are to mean low water.)
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B'12 (Wilhelm)  
Plotting room,  
18' x 20' x 8' high,  
Sewell type, in  
traverse behind  
battery.

Ref. of site  
120.87

Switchboard station,  
16' x 20' x 8' high, &  
Storage battery room  
20' x 20' 6" x 8' high  
One building, Sewell  
type, in traverse be-  
hind battery Wilhelm

Ref. of site  
120.87

June 5, 1908 \$4,656.66

M 3 Meteorological  
Station. 5' x 5' x 8'  
high, in corner of  
switchboard room.

Plotting room Battery  
Wilhelm, switchboard  
station, storage bat-  
tery room and meteor-  
ological station in  
one building.

T 3 Tide Gauge Station  
One room, 8' x 10' x 8'  
6" high. Frame build-  
ing on Engineer wharf

June 5, 1908 \$1,400.00

Ref. of site  
13.37

One Dormitory,

Nov. 2, 1908 \$ 958.76

One Latrine:  
One building, 21' x 36' -  
9', 6" high. Sewell  
type. On terrain in  
rear of C 2.  
Officers end; 3 closed  
stalls. 3 lavatories,  
2 urinals.  
Mens end: 10 closed  
stalls; 8 lavatories,  
10 urinals.

June 11, 1909. Add \$3567.90  
Sewer 882.59  
Total \$4450.49

Ref. of site  
(118.87)

Above stations not conspicuous at a distance of four miles  
when viewed from the usual channels of approach.

Name of Harbor	Name and Armament of battery	Date when turned over to Artillery.	Total Cost to that Date	REMARKS
Admiralty Inlet	FORT FLAGLER: Latrine, in rear of primary station. Two rooms, Officers room 10'6" x 19'; 9' 6" high. Mens room 19'x 24'; 9'6" high. Sewell Type.	June 11, 1909	\$4264.85	

FORT FLAGLER.

- o -

ELECTRIC PLANT.

CENTRAL PLANT:

Reinforced concrete building with concrete roof.

Boiler room, 38'0" x 41'0" x 20'6" high.  
Engine room, 31'0" x 41'0" x 16'0" high.  
Storage Battery room, 24'6" x 41'0" x 16'0" high.  
Work room, 8'0" x 14'0" x 16'0" high.

Location, 1400 feet south and 600 feet west from Battery Wilhelm.

Reference of site, (boiler room floor) 87.37 above mean low water.

Boilers. Two Babcock and Wilcox water tube boilers, 150 HP each, purchased June 30, 1904.

Engines: Three McEwen steam engines, each 150 HP, stroke 14-inch, bore 15-inch, speed 275 R.P.M. Numbers 1420, 1430 and 1431. Purchased June 30, 1904.

Generators: Three Thompson-Ryan direct connected generators, capacity 75 KW, 300 amperes, 250 volts, speed 265 R.P.M.. Numbers 544, 549 and 550. Purchased June 30, 1904.

Transformers: None.

Storage Batteries. None.

Independent Plants. None. The Central plant will furnish all current for light and power at all emplacements at Fort Flagler. No power to be furnished for searchlights, as each searchlight has its own plant.

Kilowattage Required:

For inside and outside illumination of defensive works, 31 KW  
For motors, 32 KW  
For searchlights, none.  
For telautographs, 8 KW  
For Post lighting, 77 KW

Power house and plant is designed and built to permit installation of one more parallel unit for future demands.

Total cost of plant \$88000 (Paid from Engineer Dept. funds \$63000, from Q.M. Department funds \$25000.)

Transferred to Coast Artillery, June 26, 1908.

# GENERAL DESCRIPTION OF THE TIDE-GAUGE

AT

FORT FLAGLER, WASH.

A cedar float treated in boiling parafine wax, enclosed in a wooden box and supporting a wooden graduated staff extending up through the house on which the height of the tide is denoted by a pointer.

An observer in the house transmits the data by telephone to the observing and the plotting rooms.



# SEARCHLIGHTS.

## FORT FLAGLER.

- =====
- One 30-inch diameter. General Electric Co.  
Date of purchase unknown. Received by transfer  
from Capt.R.H.C.Kelton, Artillery Corps,Fort Terry,  
N.Y., March 29, 1904.  
Electrically and hand controlled.  
Independent power plant.  
Plant fixed. Projector mounted on truck.  
Degree of mobility limited by length of conductor.  
Returns made by Artillery.  
Cost of projector unknown.  
Transferred to Artillery,February 11,1905.
- One 36-inch diameter. General Electric Co. No.22.  
Date of purchase unknown.  
Received by transfer from Chief of Engineers,U.S.A.  
Dec.17, 1907.  
Electrically and hand controlled.  
Independent power plant.  
Plant and projector mounted on track.  
Degree of mobility unlimited;the entire outfit is portable.  
Returns made by Artillery.  
Cost of projector unknown.  
Transferred to Artillery,March 25,1908.

## DATUM POINT.

## FORT FLAGLER, WASH.

Two temporary datum points located on wharf approach  
on west side of reservation.  
Not transferred to Artillery.  
Cost \$10.00  
One visible from Fort Worden and one from  
Fort Casey.

Name of Harbor	Name and armament of battery	Date when turned over to Artillery	Total Cost to that date	REMARKS.
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## Admiralty

Inlet,  
Puget  
Sound

## FORT CASEY.

Battery William Worth, Mounted;				
2 10-in. B.L. Rifles, Model 1895, Nos. 12 & 15				
Watervliet Arsenal.				
2 10-in. disappearing carriages, L.F., Model 1896, Nos. 59 & 60				
Bethlehem Iron Co.	Empls. 1-4	Empls. 1-4		
Emp. 1, Rifle 12, Car. 59	June 16,		\$103,894.49	
" 2, " 15, " 60	1902.			
Battery James Moore, Mounted;				
3 10-in. B.L. Rifles, Model 1895, Nos. 11 & 16				
Watervliet Arsenal, and Model 1895 MII, No. 40,	Emp. 5,			
Bethlehem Iron Co.	Nov. 27,			
3 10-in. disappearing carriages, L.F. Model, 1896				
No. 61 Bethlehem Iron Co. No. 64 Southwick Foundry & Machine Co. and No. 72 Midvale Steel Works.				
Emp. 1, Rifle 16, Car. 61				
" 2, " 11, " 64				
" 3, " 40, " 72				
Rifle 40 moved to #2 Kingsbury, replaced by rifle 29.				
Battery Henry Kingsbury Mounted.	Nov. 27			
1 10-in B.L. Rifle, Model 1895 MII, No. 43, Bethlehem Iron Co.	1905			
1 10-in. B.L. Rifle, Model 1900 No. 9, Watervliet Arsenal				
1 10-in. disappearing Carriage, L.F. Model 1896, No. 71, Midvale Steel Wks.				
1 10-in. disappearing carriage, L.F. Model 1901, No. 8 Watertown Arsenal				
Emp. 1, Rifle 43, Car 71				
" 2 " 9 " 8				

Magazine  
No. 1 lined  
with copper  
and cedar, dry.  
Garrisoned.  
Emplacements 1  
2, 3, & 4 built  
by contract in  
1897-1898

Magazine  
No. 1 lined  
with copper  
and cedar, dry.

Magazine #2 in  
Battery Worth,  
Nos. 2 & 3 in Battery  
Moore, and Nos. 1  
and 2 in Battery  
Kingsbury, usually  
dry, but  
occasionally damp.

Rifle 9 dismantled; lies on adjacent slope.

Name of Harbor	Name and armament of battery.	Date when Turned over to Artillery.	Total Cost to that date.	REMARKS
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## FORT CASEY.

Battery Reuben Turman)	June 16,	\$18,850.00	Garrisoned.
Mounted.	1902		Magazines dry.
2 5-in. R.F.Guns, Model 1897, Nos. 12 & 25, Bethlehem Iron Co.			
2 5-in. balanced pillar mounts, Model 1896, Nos 18 & 19 Bethlehem Steel Company.			
Emp. 1, Gun 12, Car 18			
" 2, " 25, " 19			
Battery Seymour	June 16,	\$93,207.00	Garrisoned
Mounted;	1902		These emplace-
8 12-in. B.L. Mortars, Model 1890, Nos. 5, 8, 59, and 60, Watervliet Arsenal, No. 53, Bethlehem Iron Co. Nos. 17, 18, 19 Niles Tool Works.			ments were built by contract in 1898-1899.
8 12-in. Mortar Carriages Model 1896, Nos. 113, 114 115, 117 Providence Steam Engine Co., Nos. 134, 135, 136, 138 American Hoist & Derrick Company.			Magazines dry.
PIT A.			
Plat 1, Mortar 19, Car. 115			All mortars of Batteries Seymour and Schenck dismounted; carriages being remodelled
" 2, " 18 " 113			
" 3, " 59, " 134			
" 4, " 17, " 114			
PIT B.			
Plat 1, Mortar 60, Car. 136)			
" 2, " 5, " 117)			
" 3, " 8, " 138)			
" 4, " 53, " 135)			
Battery Alexander Schenck			Magazines dry
Mounted;			
8 12-in. B.L. Mortars Model 1890, No. 55c Watervliet Arsenal Nos. 45, 47, 48a, Builders Iron Foundry, Nos. 48b, 54, 55d, Bethlehem Iron Co. No. 14 Niles Tool Works.			
8 12-in. Mortar carriages Model 1896, #112, Providence Steam Engine Co. #126, 127, 137, 139, 140, 141 American Hoist & Derrick Co.			

Name of Harbor :	Name and armament of battery :	Date when Turned over to Artillery :	Total Cost to that date :	REMARKS :
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FORT CASEY  
Battery Alexander  
Schenck  
(Continued)  
Nos. 293 Rarig Engineering  
Company.

PIT A.			
Plat 1,	Mortar	48b,	Car. 141
" 2,	"	55d,	" 139
" 3,	"	48a,	" 140
" 4,	"	47,	" 137

PIT B.			
Plat 1,	Mortar	45,	Car. 293
" 2,	"	54,	" 126
" 3,	"	55c,	" 112
" 4,	"	14,	" 127

Conduit ducts for electric wires have been laid connecting all batteries and primary fire control stations, except Batteries Thomas Parker and Isaac Van Horne.

Name of Harbor :	Name and armament of battery :	Date when turned over to Artillery :	Total Cost to that date. :	REMARKS :
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# FORT CASEY:

	Battery John Valleau, Mounted;	May 22, 1907	\$92,125.00	Garrisoned Magazines dry
4	6-in. R.F.Rifles, Model 1905, Nos. 18, 20, 21, 22 Watervliet Arsenal			
4	6-in. disappearing carriages, Model 1903, Nos. 76, 77, 78 Detrick & Harvey Machine Co. and No. 83 Bethlehem Steel Co			
	Emp. 1, Rifle 18, Car. 76			
	" 2 " 20, " 77			
	" 3 " 21, " 78			
	" 4, " 22, " 83			
	Battery Thomas Parker, Mounted;	May 22, 1907	\$50,380.00	Garrisoned Magazines dry
2	6-in. R.F.Rifles, Model 1905, Nos. 3 & 12 Watervliet Arsenal.			
2	6-in. disappearing carriages, Model 1903, Nos. 74 & 75 Detrick & Harvey Machine Co.			
	Emp. 1, Rifle 3, Car. 74			
	" 2, " 12, " 75			
	Battery John Trevor Mounted;	May 22, 1907	\$15,800.00	Garrisoned Magazines dry
2	3-in. 15 pdr. Guns, Model 1903, Nos. 39 & 50 Watervliet Arsenal.			
2	15 pdr. barbette carriages, Model 1903, Nos. 20 & 21, Watertown Arsenal.			
	Emp. 1, Gun 39, Car. 20			
	" 2, " 50, " 21			
	Battery Isaac VanHorne Mounted;	May 22, 1907	\$14,695.00	Garrisoned. Magazines dry.
2	3-in. 15 pdr. Guns, Model 1903, Nos. 37 & 38, Watervliet Arsenal.			
2	15-pdr. barbette carriages, Model 1903, Nos. 18 & 19, Watertown Arsenal.			
	Emp. 1, Gun 37, Car. 18			
	" 2, " 38, " 19			

Name of Harbor	Name and armament of battery.	Date when turned over to Artillery.	Total Cost to that date.	REMARKS
				(All references are to mean low water.)

x	F'6	FORT CASEY. Primary Station, Fire) Command, Batteries ) Kingsbury, Valleau and ) Trevor. )	Feb. 4, 1904	\$8,370.00	Ref. of site 96.20 Ref. of inst. axis 104.28
(a)x	B'8	Primary Station, Bat- ) tery Command, Battery ) William Worth. ) (Changed from B'9 ) (Moore) since Decemb- ) er 31, 1907). )			Ref. of site 87.70 Ref. of inst. axis 95.78

x Concrete structures, one room on two levels. Plotting room 7'6" x 15' x 10'6" high. Observation room 10' x 12'6" x 7'6" high.

Not conspicuous at a distance of four miles when viewed from the usual channels of approach.

(a) Plotting room enlarged to 15' x 20' x 10'6" high.

B'10	Primary Station Bat- ) tery Command, Bat- ) tery Henry Kingsbury )	Oct. 6, 1905.	\$3,905.34	Ref. of site 80.18 Ref. of inst. axis 90.28 One room on two levels, Plotting room 15'4" x 16' x 7'6" high. Observation room 11' x 16' x 7' high. Re- inforced con- crete, steel roof supports and shutters. Roof of plot- ting room glass lenses set in con- crete. Not conspicuous at a distance of four miles when viewed from the usual chan- nels of approach.
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Name of Harbor :	Name and armament of battery :	Date when turned over to Artillery :	Total Cost to that date :	REMARKS (All references are to mean low water.)
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F'4	Fort Casey (Seymour) Observation room 14'x 20' x 7' high. Plotting room 18'x 20' x 8' high. Storeroom, 10'6"x 20' x 10'8" high.			Ref of site 105.28 Ref.of inst. axis 122.28
B'7	(Schenck) Observation room 14'x 20' x 7' high Plotting room 18' x 20' x 8' high Storeroom 10'6"x 20' x 5'8" high.	June 11, 1908	\$11,005.70	Ref.of site 105.28 Ref.of inst. axis 117.28
F'5	(Casey) Observation room 14' x 20' x 6'10" high.			Ref.of site 105.28 Ref.of inst. axis 112.28.
2	Telephone Booths, each 3'2"x3'6"x8' high. Room in rear, 18' x 20' x 8' high.			
	Above three stations in one building, Sewell type.			
B'8	(Worth) Extension of plot- ting room 12'6"x15'x) 10'6" high concrete walls, wire glass roof in iron rafters.	June 11, 1908	\$1,175.33	
B'9	(Moore) Observation room 11'x 16' x 7' high Plotting room 16'x 18'x 7'6" high High site.Reinforced concrete structure.	June 11, 1908	\$ 3,858.68	Ref.of site 80.18 Ref.of inst axis 90.28

These stations not conspicuous at a distance of four miles when viewed from the usual channels of approach.



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Name of Harbor :	Name and armament of battery.	Date when turned over to Artillery :	Total cost to that date.	REMARKS. (All references are to mean low water.)
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FORT CASEY.				
F" 4	(Seymour) Supplementary. Room 9'11"x 10'x 7' high.			Ref.of site 10.28 Ref.of inst. axis 20.28
B" 7	(Schenck) Supplementary Room 9'11"x 10'x7' high.	June 11, 1908	\$2,634.94	Ref.of site 10.28 Ref of Inst. axis 20.28
B" 10	(Kingsbury) Supplementary. Room 9' 10"x 10'x7' Above three stations) in one building Sewell type.			Ref of site 10.28 Ref.of inst. axis 20.28.
F"4	(Casey) Room 9'11"x 10'x7' high.			Ref.of site 158.28 Ref.of inst axis 163.28
B"7	(Schenck) Room 9' 11"x 10'x 7' high. Above two stations in one building Sewell type, with dormitory 10'x20'6" x 9' high, in rear	June 11, 1908	\$ 2,001.68	Ref of Site. 158.28 Ref. of inst. axis 163.28
B"8	(Worth) Room 9'11"x 10'x 7' high.			Ref.of site 162.28 Ref.of inst. axis 167.28
B"9	(Moore) Room 9'11"x10'x7' high. Above two stations in one building. Sewell type with dormitory 10'x 20'6" x 9' high in rear.	June 11, 1908	\$ 2,029.01	Ref.of site 162.28 Ref.of inst. axis 167.28

These stations not conspicuous at a distance of four miles when viewed from the usual channels of approach.

Name of Harbor :	Name and armament of battery.	Date when turned over to Artillery.	Total Cost to that date.	REMARKS. (All references are to mean low water.)
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FORT CASEY:

	Switchboard Station. Room 16'x 20' x 8'	June 11, 1908	\$3,270.08	Ref of Site. 70.08
	Storage battery room 20'x 20'6"x 8' high. Switchboard and storage battery rooms in one building, Sewell type located in traverse of left flank Battery Trevor.			
M 2	Meteorological Station Room 6'x 6'x7' high. Detached building. Sew- ell type, adjacent to F'6 (Casey).	June 11, 1908	\$ 428.03	Ref. of site 98.78
T 2	Tide Gauge Station One room 8'x10'x7' high. Frame building on Engineer Department Wharf.	June 11 1908	\$ 871.69	Ref of site 18.88

These stations are not conspicuous at a distance of four miles when viewed from the usual channels of approach.

	One dormitory	Nov. 2, 1908	\$ 900.06	Ref. of site 162.6
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GENERAL DESCRIPTION OF THE  
TIDE-GAUGE AT  
FORT CASEY, WASH.

A cedar float treated in boiling parafine wax, inclosed in a wooden box and supporting a wooden graduated staff extending up through the house on which the height of tide is denoted by a pointer.

An observer in the house transmits the data by telephone to the observing and the plotting rooms.

FORT CASEY.

SEARCHLIGHTS.

- =====
- One 30-inch diameter. General Electric Co.  
Date of purchase unknown. Received by transfer from  
Lieut. R.M. Mitchell, Artillery Corps, Fort Wright, N.Y.  
February 8, 1904.  
Electrically and hand controlled.  
Independent power plant.  
Plant fixed. Projector mounted on truck.  
Degree of mobility limited by length of conductor.  
Returns made by Artillery.  
Cost of projector unknown.  
Transferred to Artillery February 6, 1905.
- One 30-inch diameter, General Electric Co.  
Date of purchase unknown. Received by transfer from  
Major J.G.D. Knight, Corps of Engineers, November 14, 1898.  
Electrically and hand controlled.  
Independent power plant.  
Plant fixed, projector mounted on truck.  
Degree of mobility limited by length of conductor.  
Returns made by Artillery.  
Cost of projector unknown.  
Transferred to Artillery August 7, 1905.
- One 36-inch diameter. General Electric Co. No. 23.  
Date of purchase unknown. Received by transfer from  
Chief of Engineers, U.S. Army, December 17, 1907.  
Electrically and hand controlled.  
Independent power plant.  
Plant on truck. Projector mounted on truck.  
Degree of mobility unlimited. The entire outfit is  
portable.  
Returns made by Artillery.  
Cost of projector unknown.  
Transferred to Artillery March 25, 1908.

DATUM MARKS.

FORT CASEY.

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One known as "Shields" located off the shore of Admiralty Bay in 14 feet of water at low tide, aximuth from F'6 302.19°, range 7,093.98 yards.

One known as "Jenne" located under secondary stations B"8 and B"9 in 15 feet of water at low tide.

Each datum mark consists of a cluster of creosoted piles on which white boards are nailed and a black square painted. The center of the square is 10 feet above mean low water.

Cost of the two \$275.00.

Not transferred to Artillery.

Datum points visible from Forts Worden, Casey and Flagler.

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Name of Harbor	Name and armament of battery.	Date when turned over to Artillery.	Total cost to that date	REMARKS.
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# Admiralty FORT WORDEN.

Inlet, Puget Sound	Battery Alanson Randol, Mounted; 2 10-in. B.L. Rifles, Model 1888 MII, Nos. 6 & 39 Bethlehem Steel Co. 2 10-in. nondisappearing carriages, Model 1893, Nos. 7, 8, Morgan Engineering Company. Emp. 1, Rifle 39, Car. 7 " 2, " 6, " 8	June 16, 1902	\$232,554.97	Garrisoned Alteration to batteries completed. Magazines dry.  Battery Randol 2 guns only Empls. 1 & 2.
3	Battery Augustus Quarles Mounted. 10-in. B.L. Rifles, Model 1888 MII, No. 36 & 37, Bethlehem Steel Co. Model 1888, No. 12, Watervliet Arsenal. 3 10-in. nondisappearing carriages, Model 1893, Nos. 1 & 9 and 11, Watertown Arsenal. Emp. 1, Rifle 36, Car. 9 " 2 " 37, " 1 " 3, " 12, " 11			Magazines dry  Battery Quarles 3 guns, by addition of gun No. 3 of Randol which is Empl. No. 1 of Quarles.
2	Battery Joseph Ash. Mounted. 12-in. B.L. Rifles Model 1888 MII, Nos. 9 & 10, Bethlehem Steel Co. 2 12-in. nondisappearing carriages, Model 1892 Nos. 3 (altered gun lift) & 27, Watertown Arsenal Emp. 1, Rifle 9, Car. 27 " 2, " 10, " 3			x=This gun placed out of commission March 16, 1909.  Magazines dry.

Batteries Randol, Quarles and Ash altered at a cost of \$50,215.00 since date of original transfer to Artillery.

Changes in Randol and Quarles authorized by Secretary of War March 9, 1909. G.O. No. 8, Hdqrs. Artly District of Puget Sound March 16, 1909.

Name of Harbor :	Name and armament of battery :	Date when turned over to Artillery :	Total cost to that date :	REMARKS.
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Admiralty FORT WORDEN:

Inlet, Puget Sound	Battery Henry Benson ) Mounted; ) 2 10-in. B.I. Rifles, Model 1900, Nos. 12 and 14, Watervliet Arsenal ) 2 10-in. disappearing carriages, Model 1901 Nos. 6 & 7 Watertown Arsenal ) Emp. 1, Rifle 12, Car. 6 ) " 2, " 14, " 7 )	April 24, 1908	\$142,500.00	Garrisoned Magazines dry.  Retracting motors have been installed, but are not connected with the power lines. No other motors to be installed.
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Electric fixtures and light and power mains installed at batteries Randol, Quarles, Ash and Benson.

FORT WORDEN:

Battery Thomas Vicars ) Mounted; ) 2 5-in. B.I. Rifles, Model 1897, Nos. 9 & 22 Bethlehem Steel Company. ) 2 5-in. balanced pillar mounts, Model 1896, Nos. 9 & 20, Bethlehem Steel Company. ) Emp. 1, Gun 22, Car. 20 ) " 2, " 9, " 9 )	June 16, 1902	\$11,000.00	Garrisoned Magazines dry.
Battery John Brannan ) Mounted: ) 8 12-in. B.I. Mortars, Model 1890 MI, Nos. 49, 50, 51 Builders Iron Foundry, Nos. 21, 24 Nil- es Tool Works; Nos. 32 54, 56 Watervliet Arsenal. ) 8 12-in. Mortar carriages Model 1896, Nos. 252, 253, 254, 255, 256, 257, 258, 259. Rarig Engineering Company. ) PIT A ) Plat 1, Mortar 51, Car. 259 ) " 2, " 50, " 258 ) " 3, " 54, " 256 ) " 4, " 32, " 257 )	June 16, 1902	x = \$162,102.12	Garrisoned Magazines dry except in Pit B.

x = Total cost Batteries Brannan and Powell.

Name of Harbor	Name and armament of battery.	Date when turned over to Artillery.	Total cost to that date.	REMARKS.
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# FORT WORDEN.

Battery John Brannan, )

(Continued) )

## PIT B

Plat 1,	Mortar 49,	Car. 255)
" 2,	" 24,	" 254)
" 3,	" 21,	" 252)
" 4,	" 56,	" 253)

Battery James Powell, )  
Mounted: )

Magazines dry

8 12-in. B.L. Mortars, )  
Model 1890 MI, Nos 27 & 52 )  
Builders Iron Foundry, )  
Nos. 1, 15, 16, 20, 22, )  
Niles Tool Works; #105 )  
Watervliet Arsenal, )  
8 12-in. Mortar carriages Model 1896, Nos. 244, )  
245, 246, 247, 248, 249, 250 )  
251. Rarig Engineering )  
Company. )

## PIT A:

Plat 1,	Mortar 16,	Car. 251)
" 2,	" 1,	" 250)
" 3,	" 52,	" 248)
" 4,	" 15,	" 249)

## Pit B.

Plat 1,	Mortar 27,	Car. 247)
" 2,	" 105,	" 246)
" 3,	" 22,	" 245)
" 4,	" 20,	" 244)

Lighting fixtures and mains installed at Batteries Brannan and Powell.



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Name of :	Name and armament of :	Date when :	Total cost :	
Harbor. :	battery.	turned over:	to that :	REMARKS.
:	:	to Artill- :	date. :	:
:	:	lery. :	:	:

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## FORT WORDEN:

Battery Cornelius	)	May 21,	\$104,500.00	Garrisoned
Tolles,	)	1907		Magazines dry
Mounted;	)			Central Elec-
4 6-in. B.L. Rifles, Model	)			tric plant for
1903, Nos. 39, 50, 58 & 66	)			light and power
Watervliet Arsenal	)			completed. Wires
4 6-in. disappearing car-	)			and fixtures
riages, L.F. Model 1903,	)			for lighting
Nos. 56, 58, 59 & 60 Det-	)			installed. No
rick & Harvey Machine	)			provision made
Company.	)			for power wires
Emp 1.1, Rifle 66, Car. 60	)			to battery. No
" 2, " 58, " 59	)			motors are to
" 3, " 50, " 58	)			be placed on
" 4, " 39, " 56	)			these carriages

Battery Amos Stoddard	)			
Mounted;	)			
4 6-in. B.L. Rifles, Model	)	May 21,	\$91,000.00	Garrisoned.
1903, Nos. 17, 19, 45, 61	)	1907		Magazines dry.
Watervliet Arsenal	)			Central elec-
4 6-in. disappearing car-	)			tric plant for
riages, L.F. Model 1903,	)			light and power
Nos. 44, 43, 89, 90 Wellman	)			completed. No
Seaver, Morgan Co.	)			provisions made
Emp 1.1, Rifle 17, Car. 43	)			for light and
" 2, " 19, " 44	)			power wires to,
" 3, " 45, " 89	)			or fixtures
" 4, " 61, " 90	)			and wiring in

battery. No  
motors are  
to be placed  
on these car-  
riages.

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Name of Harbor :	Name and armament of battery.	Date when turned over to Artillery.	Total cost to that date.	REMARKS
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## FORT WORDEN.

Battery Samuel Walker	) May 21,	\$12,000.00	Garrisoned.
No guns <del>on</del> mounts on hand.	) 1907		Magazines dry
2 3-in. pedestal mounts in place. #76 & 77, Model 1903, Watertown Arsenal.	)		Central electric plant for light and power completed. No provisions made for light and power
15 pdr. Rifles not yet received.	)		wires to, or fixtures and wiring in battery.
Battery Haldimand Putnam	)		
Mounted:	)	\$12,000.00	Garrisoned.
2 3-in., 15 pdr. Rifles Nos. 23 and 24, Model 1903, Watervliet Arsenal.	)		Magazines dry
2 3-in. pedestal mounts, Nos. 14 and 15, Model 1903, Watertown Arsenal	)		Central electric plant for light and power completed. No provisions made for light and power
Emp. 1, Rifle 23, Car. 14	)		wires to, or fixtures and wiring in battery.
" 2, " 24, " 15	)		

Name of Harbor :	Name and armament of battery.	Date when turned over to Artillery.	Total cost to that date	REMARKS
				(All references are to mean low water).

# FORT WORDEN.

B'1 (Powell)	Observation room. 20' x 14' x 7' high Plotting room 20' x 18' x 8'4" high,			Ref of site 268.07 Ref.of inst. axis 274.39
F'1 (Brannan)	Observation room, 20' x 14' x 7' high Plotting room, 20' x 18' x 13'4" high Storeroom 20' x 14' x 5' high	June 16, 1908	\$9,246.93	Ref.of site 268.07 Ref.of inst axis 279.39
B'2 (Ash)	Observation room, 16' x 14' x 7' high Plotting room, 16' x 18' x 8'4" high Officers' room 7'5" x 9'6" x 9'8" high. Mens' room, 16'x 18'x 9'8" high Above three stations in one building, Sewell type.			Ref.of site 268.07 Ref.of inst. axis 284.39

These stations are not conspicuous at a distance of four miles when viewed from the usual channels of approach.

Name of Harbor :	Name and armament of battery.	Date when turned over to Artillery.	Total cost to that date.	REMARKS.
				(All references are to mean low water)

## FORT WORDEN:

B'5 (Quarles)	Observing room, 16' x 14' x 7' high, Plotting room, 16' x 18' x 8' high Officers' room, 7'5"x 10'6"x 8' high Mens' room 16' x 18' x 8' high Storeroom 16' x 14' x 4'2" high	Ref.of site 262.95 Ref.of inst. axis 282.39
F'3 (Worden)	Observing room 16'x 14' x 7' high Plotting room, 16' x 18' x 8' high Officers' room 7'5"x 10'6"x 8' high Mens' room 16'x 18' x 8' high Storeroom, 16'x 14'x 4'2" high	Ref.of site 262.95 Ref.of inst. axis 282.39
	June 16, 1908	\$9,571.41
B'6 (Randol)	Observation room 18' x 14'x 7' high Plotting room 18' x 18' x 8' high Officers' room, 9' x 10'6" x 8' high Mens' room, 18' x 18' x 8' high Storeroom, 18' x 14' x 4'2" high Above three stations in one building, Sewell type.	Ref.of site 262.95 Ref.of inst. axis 282.39

These stations are not conspicuous at a distance of four miles when viewed from the usual channels of approach.

=====33  
Name of : Name and armament of : Date when : Total cost : REMARKS  
Harbor : battery. : turned over: to that : (All references  
: : : to Artil- : date. : are to mean low  
: : : lery. : : water.  
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FORT WORDEN.

B'4 (Tolles)	)			Ref.of site
Observation room,	)	June 16,		232.07
16' x 14' x 7' high	)	1908	\$2,874.30	Ref.of inst.
Plotting room,	)			axis 238.39
16' x 16' x 8'4" high	)			
Sewell type construction)	)			
F'11 (Brannan)	)			
B'11 (Powell)	)			
B'13 (Benson)	)			
B'14 (Tolles)	)			
B'12 (Ash )	)			
5 Observation rooms	)	June 16,	\$6,030.11	Ref.of site
each, 12'x 12'x 7' high	)	1908		106.41
Officers' room	)			Ref.of inst.
16'x 20'8" x 9' high	)			axis 113.39
Mens' room,	)			
16'x 41'4"x 9' high,	)			
Five secondary stations	)			
in one building,	)			
Sewell type.	)			
F'11 (Brannan)	)			
B'11 (Powell)	)			
F'13 (Worden)	)			Ref.of site
B'16 (Randol)	)			68.41
B'15 (Quarles)	)			Ref.of inst.
5 Observation rooms,	)	June 16,		axis 75.39
each 12'x 12'x 7' high	)	1908	\$5,493.51	
Officers' room,	)			
16'x 20'8"x 9' high	)			
Mens' room,	)			
16'x 41'4"x 9' high	)			
Two supplementary and	)			
three secondary stat-	)			
ions in one building,	)			
Sewell type.	)			
Switchboard Station Room	)			
20'x 16' x 9' high	)	June 16,		Ref.of site
	)	1908	\$3,231.03	262.11
Storage battery room	)			
20'x 20'6"x9' high	)			
One building, Sewell type,	)			
with cellar 19'x 36'x 6'5"	)			
high. Location between	)			
C 1 and B'5 in excavation )	)			

These stations are not conspicuous at a distance of four miles  
hen viewed from the usual channels of approach.

Name of Harbor	Name and armament of battery.	Date when turned over to Artillery.	Total cost to that date.	REMARKS. (All references are to mean low water).
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FORT WORDEN.  
Central Quarters

Ref. of site  
260.49

Building.  
Officers' rooms, two  
each 16'x 30'6"x 9'  
high.  
Officers' wash rooms,  
two each 16'x 8'x 9'  
high.  
Mens' room, two, each  
26' x 39'x 9' high.  
Mens' wash rooms, two,  
each 12'x 16'x 8'3"  
high.  
Location, between C 1  
and B'1 in excavation  
Latrine in rear, with  
two rooms, each 13' x  
12'6"x 9'5" high. all  
Sewell type.

June 16, 1908 \$9,674.81

T 1 Tide Gauge Station  
One room, 10'x 10'x 8'  
high. Frame building  
on the Quartermaster  
Department wharf.

June 16, 1908 \$1,021.87

Ref of site  
12.18

The stations are not conspicuous at a distance of four miles when viewed from the usual channels of approach.

Name of Harbor	Name and Armament of battery	Date when Transferred To Artillery	Total Cost to that Date	REMARKS
Admiralty Inlet.	FORT WORDEN: One district signal station Brick structure with concrete foundation and slate roof, outside dimensions 18 ft. by 24 ft. 6 in. Three rooms, operating room 12 ft. by 16 ft.; generator room 8 ft. by 10 ft.; work room 6 ft. 10 in. by 7 ft. 6 in. All rooms 8 ft. high. Observation station on roof.	June 16, 1909	\$2800	

FORT WORDEN, WASH.

---0---

E L E C T R I C   P L A N T . (Central)

Location;

About 600 feet south of Battery Brannan and 1,200 feet west of Battery Stoddard.

Boilers;

Two Babcock & Wilcox water tube boilers, 150 HP. Purchased June 30, 1904.

Engines;

Three McEwen steam engines, 150 HP each, stroke 14-inches, bore 15 inches, speed 275 R.P.M., Nos. 1419, 1421 and 1422. Purchased June 30, 1904.

Generators;

Three Thomas-Ryan direct connected generators, capacity 75 kilowatts, 300 amperes, 250 volts, speed 265 R.P.M., Nos. 543, 545 and 546. Purchased June 30, 1904.

Transformers;

None.

Storage Batteries;

None.

Independent Plants;

None. The central station will furnish all current for light and power at all emplacements at Fort Worden. No power to be furnished for searchlights, as each searchlight has its own portable plant.

Kilowattage required:

For inside and outside illumination of defensive works; 50 KW.  
For motors; 45 K.W.

For searchlights; none.

For telautographs; 4 KW

For post lighting; 75 KW

Power house and plant has been so designed as to permit of one parallel unit for future demands.

Total cost of plant \$89000 (Paid from Engineer Department funds \$64000, from Q.M. Department funds \$25000).

Transferred to Coast Artillery on June 20, 1907.



FORT WORDEN, WASH.

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S E A R C H L I G H T S.

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One 36-inch diameter, General Electric Co.  
Date of purchase unknown. Received by transfer from  
Lieut.S. Avery, Jr., Artillery Corps, Fort Howard, Md.  
January 11, 1904.  
Electrically and hand controlled.  
Independent power plant.  
Plant fixed. Projector mounted on truck.  
Degree of mobility limited by length of conductor.  
Returns made by Artillery.  
Cost of the projector unknown.  
Transferred to Artillery February 6, 1905.

One 30-inch diameter, General Electric Co.  
Date of purchase unknown. Received by transfer from  
Major J.G.D. Knight, Corps of Engineers, November 14, 1898.  
Electrically and hand controlled.  
Independent power plant.  
Plant fixed. Projector mounted on truck.  
Degree of mobility limited by length of conductor.  
Returns made by Artillery.  
Cost of projector unknown.  
Transferred to Artillery August 7, 1905.

## FORT WORDEN, WASH.

T I D E - G A U G E .

=====

The tide gauge is located in T 1 -Tide Gauge Station, which contains one room, 10' x 10' x 8' and is furnished with one vertical tide gauge.

Transferred to the Artillery June 16, 1908.

Cost of frame building and tide gauge, \$1,021.87.

Ref. of site 12.18 (M.L.W.)

FORT WORDEN, WASH.

D A T U M   P O I N T S .

=====

Datum point located south of Quartermaster wharf at  $\frac{1446.09 \text{ S}}{1882.91 \text{ E}}$

rebuilt in May 1907. Now in use. Cost \$125.00. Transferred to Artillery in January, 1905. Visible from Forts Flagler and Casey.

"Simms" datum at  $\frac{588.92 \text{ S}}{15990.14 \text{ W}}$  For use of Fort Worden only. Visible from Fort Casey.

NOTE: ="Wilson" datum carried away by storm November 30, 1909.

Name of Harbor	Name and Armament of battery.	Date when turned over to Artillery	Total cost to that date	REMARKS.
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# Richs

Passage, Puget Sound.	FORT WARD: Battery Francis Nash, Mounted: 3 8-in. B.L.Rifles, Model 1888, Nos. 2 & 6, West Point Foundry; Model 1888, MII, No. 42, Watervliet Arsenal. 3 8-in. disappearing carriages, L.F. Model 1896 Nos. 36, 37 and 38 Watertown Arsenal. Emp. 1, Rifle 6, Car. 36 " 2, " 42, " 37 " 3, " 2, " 38	Jan. 18, 1904	\$120,432.00	Garrisoned Magazines wet from condensation.
	Battery William Warner Mounted: 2 5-in. B.L.Rifles, Model 1900, Nos. 15 & 19, Watervliet Arsenal. 2 Pedestal mounts, Model 1903, Nos. 12 & 13, Morgan Engineering Company Emp. 1, Gun 15, Car. 12 " 2, " 19, " 13	Jan 18, 1904	\$ 24,934.96	Garrisoned Magazines wet from condensation.
	Battery John Vinton Mounted: 2 3-in. B.L.Rifles, Model 1898, Nos. 2 and 5. Driggs Seabury Gun & Ammunition Manufacturing Company. 2 3-in. Masking parapet mounts, Model 1898, Nos. 2 and 5, Driggs Seabury Gun & Ammunition Manufacturing Company. Emp. 1, Gun 2. " 2, Gun 5.	Jan 18, 1904	\$ 10,966.50	Garrisoned Magazines wet from condensation

Being

Independent generating set/installed for light and power at Battery Nash. Wiring and fixtures installed.

Name of Harbor.	Name and Armament of battery.	Date when turned over to Artillery:	Total cost to date	REMARKS
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## FORT WARD:

Battery Thomas Thornburgh Mounted;	Jan. 18, 1904	\$21,884.50	Garrisoned Magazines wet from condensation.
4 3-in. B.L. Rifles, Model 1898, Nos. 9, 15, 40 & 45			
Driggs Seabury Gun & Ammunition Manufacturing Co.			
4 3-in. masking parapet mounts, Model 1898, Nos. 9, 15, 40 & 45			
Driggs Seabury Gun & Ammunition Manufacturing Company.			
Emp. 1, Gun 9.			
" 2, " 15.			
" 3, " 40.			
" 4, " 45.			

Richs  
Passage  
Puget  
Sound

## MIDDLE POINT.

Battery Robert Mitchell,	Jan. 18, 1904	\$9,473.00	Garrisoned Magazines wet from condensation.
2 Emplacements for 3-in. R.F. guns on pedestal mounts. (No guns or mounts on hand)			

## FORT WARD.

Primary Station	June 28, 1905	\$ 6,252.28	Ref of site 209.67 Ref. of inst. axis 221.21. Two rooms. Instrument room, 10' 6" x 15' 4" x 7' high. Plotting room 15' 5" x 16' x 7' 5" high. Reinforced concrete structure Not conspicuous at a distance of four miles when viewed from the usual channels of approach.
Battery Francis Nash			

No provision made for electric plant, wiring or fixtures for Batteries Warner, Vinton, Thornburgh and Mitchell.

H O I S T S .

-0-

FORT FLAGLER:

Projectile hoists installed in Batteries Rawlins, Wilhelm and Revere.

Type, Taylor-Raymond, back delivery.

Voltage, 220

Speed, 1060 R. P. M.

Rated capacity of motors:

Rawlins and Revere, 5 H. P.

Wilhelm, 7½ H.P.

BATTERY RAWLINS:

Emplacement 1,

Serial number of hoist, 64

Transferred to Artillery, September 26, 1907.

Emplacement 2,

Serial number of hoist, 65

Transferred to Artillery, September 26, 1907.

BATTERY WILHELM:

Emplacement 1,

Serial number of hoist, 29

Transferred to Artillery, September 26, 1907.

Emplacement 2,

Serial number of hoist, 30

Transferred to Artillery, September 26, 1907.

BATTERY REVERE:

Emplacement 1,

Serial number of hoist, 66

Transferred to Artillery, September 26, 1907.

Emplacement 2,

Serial number of hoist, 67

Transferred to Artillery, September 26, 1907.

# HOISTS.

-o-

## FORT CASEY:

Projectile hoists installed in Batteries Worth, Moore and Kingsbury.

Type, Taylor-Raymond, back delivery.

Voltage, 220

Speed, 1060 R.P.M.

Rated capacity of motors, 5 H. P.

## BATTERY WORTH:

Emplacement 1,  
Serial number of hoist, 60  
Transferred to Artillery, September 26, 1907.

Emplacement 2,  
Serial number of hoist, 61  
Transferred to Artillery, September 26, 1907.

## BATTERY MOORE:

Emplacement 1,  
Serial number of hoist, 62  
Transferred to Artillery September 26, 1907.

Emplacement 2,  
Serial number of hoist, 63  
Transferred to Artillery, September 26, 1907

Emplacement 3,  
Serial number of hoist, 31  
Transferred to Artillery, September 26, 1907.

## BATTERY KINGSBURY:

Emplacement 1,  
Serial number of hoist, 30  
Transferred to Artillery, September 26, 1907.

Emplacement 2,  
Serial number of hoist, 29  
Transferred to Artillery, September 26, 1907.

## H O I S T S .

-0-

FORT WORDEN:

Projectile hoists installed in Batteries Randol, Quarles, Ash and Benson.

Type, Taylor-Raymond, back delivery.  
 Voltage, 220.  
 Speed, 1060 R.P.M.  
 Rated capacity of motors:  
     Randol, Quarles, and Benson 5 H-P.  
     Ash, 7½ H-P.

## BATTERY RANDOL:

Emplacement 1,  
     Serial number of hoist, 68  
     Transferred to Artillery, September 26, 1907  
 Emplacement 2,  
     Serial number of hoist, 69  
     Transferred to Artillery, September 26, 1907.

## BATTERY QUARLES:

Emplacement 1,  
     Serial number of hoist, 70  
     Transferred to Artillery September 29, 1906.  
 Emplacement 2,  
     Serial number of hoist, 71  
     Transferred to Artillery, September 29, 1906.  
 Emplacement 3,  
     Serial number of hoist, 72  
     Transferred to Artillery, September 26, 1907.

## BATTERY ASH:

Emplacement 1,  
     Serial number of hoist, 31  
     Transferred to Artillery, September 30, 1907.  
 Emplacement 2,  
     Serial number of hoist, 32  
     Transferred to Artillery, September 30, 1907.

## BATTERY BENSON:

Emplacement 1,  
     Serial number of hoist, 32  
     Transferred to Artillery, April 24, 1908.  
 Emplacement 2,  
     Serial number of hoist, 33  
     Transferred to Artillery, April 24, 1908.



## H O I S T S .

-o-

FORT WARD:

Projectile hoists installed in Battery Nash.

Type, Taylor-Raymond, back delivery.

Voltage, 110.

Speed, 1060 R.P.M.

Rated capacity of motor,  $3\frac{1}{2}$  H-P.

BATTERY NASH:

## Emplacement 1

Serial number of hoist, 4

Transferred to Artillery April 28, 1907.

## Emplacement 2,

Serial number of hoist, 5

Transferred to Artillery, April 28, 1907.

## Emplacement 3,

Serial number of hoist, 6

Transferred to Artillery, April 28, 1907.

FORT CASEY, WASH.

---O---

ELECTRIC PLANT.

Central Plant:

Reinforced concrete building with concrete roof. Outside doors of 3/16" steel plate; window frames, sash and inside doors of wood.

Boiler room:

41 feet by 36 feet, 21 feet 9 inches high.

Engine room:

44 feet by 32 feet, 13 feet 9 inches high.

Floor area of engine room includes a lavatory 8 feet by 7 feet, a work room 12 feet by 7 feet, and a storeroom 8 feet 6 inches by 7 feet.

Location:

480 feet south 35° east from center of Pit "B". Battery Schenck. Reference of site (boiler room floor) above mean low water, 14.28.

Boilers:

Two, E. Keeler & Co., water tube boilers, 150 H.P. each, oil burners, purchased July 24, 1909.

Engines:

Two Buffalo Forge Co. steam engines, 150 H.P. each, stroke 14 inches, bore 15 inches, speed 275 R.P.M., Nos. 12913 and 12914. Purchased July 24, 1909.

Generators:

Two Western Electric Co., direct connected generators, capacity 75 K.W. each. 300 amperes, 250 volts, speed 275 R.P.M., Nos. 48123 and 48124, Purchased July 24, 1909.

Transformers:

None.

Storage batteries:

None.

Independent Plants:

None. The central plant will furnish all current for light and power at all defensive works at Fort Casey. No power to be furnished for searchlights. Each searchlight has its own plant.

Kilowattage required.

For inside and outside illumination of defensive works, 45 K.W.  
For motors, 54 K.W.  
For searchlights, None.  
For telautographs, 8 K.W.  
For post lighting, 83 K.W.  
Power house and plant is designed and built to permit installation of one more parallel unit and two balancer sets.  
Total cost of plant \$51,499.20.  
Transferred to Coast Artillery October 5, 1910.

Name of Harbor.	Name and Armament of Battery.	Date when Transferred to Artillery.	Total Cost to that date.	Remarks.
Richs Passage, Puget Sound.	<p><u>FORT WARD:</u></p> <p>One mining case- mate, frame struc- ture on concrete foundation, with concrete retaining walls and earth pro- tection. Four rooms: Dormitory, 9' X 21' 9" X 8' 10" high. Operating room, 15' 9" X 21' 9" X 8' 10" high. Engine room, 11' 9" X 21' 9" X 9' 8" high. Storage batt- ery room, 7' 9" X 21' 9" X 9' 8" high.</p> <p>One Torpedo Store- house, frame struc- ture, with concrete floor and founda- tion. Inside dimen- sions 28' 8" X 88' 8" X 16' 11" high. Melting room 15' 7" X 10' 1" X 11' 10" high. Small store- room 15' 7" X 10' 1 1" X 11' 10" high. Traveling crane of 1500 lbs. capacity installed.</p> <p>One torpedo load- ing room, frame structure with con- crete floor and foundation, inside dimensions 22' X 45' X 12' 8" high. Concrete tank 7' X 33' X 5' deep.</p>	<p>February 25, 1910.</p> <p>February 25, 1910.</p>	<p>\$6975</p> <p>\$5580</p>	

Name of Harbor.	Name and Armament of Battery.	Date when Transferred: to Artillery.	Total Cost to that date.	Remarks.
	Traveling crane of 1000 lbs. capacity installed. Service magazine adjacent, frame structure, inside dimensions 10' X 7' 11 1/2" X 7' 8" high.	February 25, 1910.	\$2790	
	One cable tank, reinforced concrete structure. Outside dimensions 23' X 80' ft. X 10' 2" deep. Divided into three compartments with inside dimensions on bottom, 18' X 24' X 9 feet deep.	February 25, 1910.	\$9765	
	Traveling crane 10, 000 capacity in- stalled. Testing room adjacent, frame structure, in- side dimensions 5' 11 1/2" X 6' 11 1/2" X 8' 1" high.			
	Double mine prim- ary station. Obser- vation rooms 14' X 14' X 7' 2" high. Plotting rooms, 14' X 18' X 7' high. Sewell type con- struction.	February 25, 1910.	\$4185	Ref. of site 114.33 Ref. of axis of inst. 127.70 above mean low water.
	Double mine second: -ary station. Ob- servation rooms 10' X 10' X 7' 2" high. Sewell type con- struction.	February 25, 1910.	\$2092	Ref. of site 15.08 Ref. of axis of inst. 20.95 above mean low water.

RECEIVED

P

48920

20.

WAR DEPARTMENT

Seattle, Wash.,  
Mar. 15, 1910.

KUTZ,  
MAJ. C. W.

Incluses additional sheets  
for insertion in his report of complet-  
ed batteries for December 31, 1909.

4 Inclos., E.D., not marked.

*File with  
report*

A

UNITED STATES ENGINEER OFFICE  
SEATTLE, WASHINGTON

March 15, 1910.

The Chief of Engineers,  
United States Army,  
Washington, D. C.

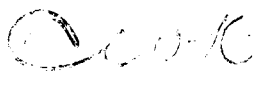
Sir:

1. I have the honor to acknowledge receipt this date of Department letter of February 18, 1910, (E.D. 48920/18), in reference to omission of data in regard to hoists in my report of completed batteries for December 31, 1909.

2. Four additional sheets for insertion in the report are inclosed herewith. Copies of the additional sheets have been furnished the Division Engineer and the Chief Engineer Officer of the Department of the Columbia.

3. The omission occurred through misunderstanding the instructions contained in Circular No. 39 and the amended instructions of Circular No. 42, O. C. of E., 1909.

Very respectfully,

  
Major, Corps of Engineers.

- 4 inclosures. -

Seattle, Wash.  
November 15, 191<sup>9</sup>

Additional sheet for incorporation in last report of completed batteries from Seattle district.

Forwarded by

ARTHUR WILLIAMS,  
Captain, Corps of Engineers.  
(In absence of Major C. W. Kutz.)

*File with 48920/20*

210

FORT CASEY, WASH.

---O---

E L E C T R I C   P L A N T .

Central Plant:

Reinforced concrete building with concrete roof. Outside doors of 3/16" steel plate; window frames, sash and inside doors of wood.

Boiler room:

41 feet by 36 feet, 21 feet 9 inches high.

Engine room:

44 feet by 32 feet, 13 feet 9 inches high.

Floor area of engine room includes a lavatory 8 feet by 7 feet, a work room 12 feet by 7 feet, and a storeroom 8 feet 6 inches by 7 feet.

Location:

480 feet south 35° east from center of Pit "B". Battery Schenck. Reference of site (boiler room floor) above mean low water, 14.28.

Boilers:

Two, E. Keeler & Co., water tube boilers, 150 H.P. each, oil burners, purchased July 24, 1909.

Engines:

Two Buffalo Forge Co. steam engines, 150 H.P. each, stroke 14 inches, bore 15 inches, speed 275 R.P.M., Nos. 12913 and 12914. Purchased July 24, 1909.

Generators:

Two Western Electric Co., direct connected generators, capacity 75 K.W. each. 300 amperes, 250 volts, speed 275 R.P.M., Nos. 48123 and 48124, Purchased July 24, 1909

Transformers:

None.

Storage batteries:

None.

Independent Plants:

None. The central plant will furnish all current for light and power at all defensive works at Fort Casey. No power to be furnished for searchlights. Each searchlight has its own plant.

Kilowattage required.

For inside and outside illumination of defensive works, 45 K.W.  
For motors, 54 K.W.

For searchlights, None.

For telautographs, 8 K.W.

For post lighting, 83 K.W.

Power house and plant is designed and built to permit installation of one more parallel unit and two balancer sets.

Total cost of plant \$51,499.20.

Transferred to Coast Artillery October 5, 1910.



## H O I S T S .

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FORT WARD:

Projectile hoists installed in Battery Nash.

Type, Taylor-Raymond, back delivery.

Voltage, 110.

Speed, 1060 R.P.M.

Rated capacity of motor,  $3\frac{1}{2}$  H-P.

BATTERY NASH:

## Emplacement 1

Serial number of hoist, 4

Transferred to Artillery April 28, 1907.

## Emplacement 2,

Serial number of hoist, 5

Transferred to Artillery, April 28, 1907.

## Emplacement 3,

Serial number of hoist, 6

Transferred to Artillery, April 28, 1907.

## H O I S T S .

-0-

FORT WORDEN:

Projectile hoists installed in Batteries Randol, Quarles, Ash and Benson.

Type, Taylor-Raymond, back delivery.  
Voltage, 220.  
Speed, 1060 R.P.M.  
Rated capacity of motors:  
Randol, Quarles, and Benson 5 H-P.  
Ash, 7½ H-P.

## BATTERY RANDOL:

Emplacement 1,  
Serial number of hoist, 68  
Transferred to Artillery, September 26, 1907  
Emplacement 2,  
Serial number of hoist, 69  
Transferred to Artillery, September 26, 1907.

## BATTERY QUARLES:

Emplacement 1,  
Serial number of hoist, 70  
Transferred to Artillery September 29, 1906.  
Emplacement 2,  
Serial number of hoist, 71  
Transferred to Artillery, September 29, 1906.  
Emplacement 3,  
Serial number of hoist, 72  
Transferred to Artillery, September 26, 1907.

## BATTERY ASH:

Emplacement 1,  
Serial number of hoist, 31  
Transferred to Artillery, September 30, 1907.  
Emplacement 2,  
Serial number of hoist, 32  
Transferred to Artillery, September 30, 1907.

## BATTERY BENSON:

Emplacement 1,  
Serial number of hoist, 32  
Transferred to Artillery, April 24, 1908.  
Emplacement 2,  
Serial number of hoist, 33  
Transferred to Artillery, April 24, 1908.

## H O I S T S .

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FORT CASEY:

Projectile hoists installed in Batteries Worth, Moore and Kingsbury.

Type, Taylor-Raymond, back delivery.

Voltage, 220

Speed, 1060 R.P.M.

Rated capacity of motors, 5 H. P.

## BATTERY WORTH:

Emplacement 1,  
Serial number of hoist, 60  
Transferred to Artillery, September 26, 1907.

Emplacement 2,  
Serial number of hoist, 61  
Transferred to Artillery, September 26, 1907.

## BATTERY MOORE:

Emplacement 1,  
Serial number of hoist, 62  
Transferred to Artillery September 26, 1907.

Emplacement 2,  
Serial number of hoist, 63  
Transferred to Artillery, September 26, 1907

Emplacement 3,  
Serial number of hoist, 31  
Transferred to Artillery, September 26, 1907.

## BATTERY KINGSBURY:

Emplacement 1,  
Serial number of hoist, 30  
Transferred to Artillery, September 26, 1907.

Emplacement 2,  
Serial number of hoist, 29  
Transferred to Artillery, September 26, 1907.

## H O I S T S .

-o-

FORT FLAGLER:

Projectile hoists installed in Batteries Rawlins, Wilhelm and Revere.

Type, Taylor-Raymond, back delivery.

Voltage, 220

Speed, 1060 R. P. M.

Rated capacity of motors:

Rawlins and Revere, 5 H. P.  
Wilhelm, 7½ H.P.

## BATTERY RAWLINS:

Emplacement 1,

Serial number of hoist, 64

Transferred to Artillery, September 26, 1907.

Emplacement 2,

Serial number of hoist, 65

Transferred to Artillery, September 26, 1907.

## BATTERY WILHELM:

Emplacement 1,

Serial number of hoist, 29

Transferred to Artillery, September 26, 1907.

Emplacement 2,

Serial number of hoist, 30

Transferred to Artillery, September 26, 1907.

## BATTERY REVERE:

Emplacement 1,

Serial number of hoist, 66

Transferred to Artillery, September 26, 1907.

Emplacement 2,

Serial number of hoist, 67

Transferred to Artillery, September 26, 1907.

File with 48920/20

Seattle, Wash.

November 15, 1915

Additional sheet for incorporation in last report of completed batteries from Seattle district.

Forwarded by

ARTHUR WILLIAMS,  
Captain, Corps of Engineers.  
(In absence of Major C. W. Kutz.)

FORT CASEY, WASH.

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E L E C T R I C   P L A N T .

Central Plant:

Reinforced concrete building with concrete roof. Outside doors of 3/16" steel plate; window frames, sash and inside doors of wood.

Boiler room:

41 feet by 36 feet, 21 feet 9 inches high.

Engine room:

44 feet by 32 feet, 13 feet 9 inches high.

Floor area of engine room includes a lavatory 8 feet by 7 feet, a work room 12 feet by 7 feet, and a storeroom 8 feet 6 inches by 7 feet.

Location:

480 feet south 35° east from center of Pit "B". Battery Schenck. Reference of site (boiler room floor) above mean low water, 14.28.

Boilers:

Two, E. Keeler & Co., water tube boilers, 150 H.P. each, oil burners, purchased July 24, 1909.

Engines:

Two Buffalo Forge Co. steam engines, 150 H.P. each, stroke 14 inches, bore 15 inches, speed 275 R.P.M., Nos. 12913 and 12914. Purchased July 24, 1909.

Generators:

Two Western Electric Co., direct connected generators, capacity 75 K.W. each. 300 amperes, 250 volts, speed 275 R.P.M., Nos. 48123 and 48124, Purchased July 24, 1909.

Transformers:

None.

Storage batteries:

None.

Independent Plants:

None. The central plant will furnish all current for light and power at all defensive works at Fort Casey. No power to be furnished for searchlights. Each searchlight has its own plant.

Kilowattage required.

For inside and outside illumination of defensive works, 45 K.W.  
For motors, 54 K.W.  
For searchlights, None.  
For telautographs, 8 K.W.  
For post lighting, 83 K.W.  
Power house and plant is designed and built to permit installation of one more parallel unit and two balancer sets.  
Total cost of plant \$51,499.20.  
Transferred to Coast Artillery October 5, 1910.

## H O I S T S .

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FORT WARD:

Projectile hoists installed in Battery Nash.

Type, Taylor-Raymond, back delivery.

Voltage, 110.

Speed, 1060 R.P.M.

Rated capacity of motor,  $3\frac{1}{2}$  H-P.

BATTERY NASH:

## Emplacement 1

Serial number of hoist, 4

Transferred to Artillery April 28, 1907.

## Emplacement 2,

Serial number of hoist, 5

Transferred to Artillery, April 28, 1907.

## Emplacement 3,

Serial number of hoist, 6

Transferred to Artillery, April 28, 1907.

## H O I S T S .

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FORT WORDEN:

Projectile hoists installed in Batteries Randol, Quarles, Ash and Benson.

Type, Taylor-Raymond, back delivery.  
Voltage, 220.  
Speed, 1060 R.P.M.  
Rated capacity of motors:  
Randol, Quarles, and Benson 5 H-P.  
Ash, 7½ H-P.

## BATTERY RANDOL:

Emplacement 1,  
Serial number of hoist, 68  
Transferred to Artillery, September 26, 1907  
Emplacement 2,  
Serial number of hoist, 69  
Transferred to Artillery, September 26, 1907.

## BATTERY QUARLES:

Emplacement 1,  
Serial number of hoist, 70  
Transferred to Artillery September 29, 1906.  
Emplacement 2,  
Serial number of hoist, 71  
Transferred to Artillery, September 29, 1906.  
Emplacement 3,  
Serial number of hoist, 72  
Transferred to Artillery, September 26, 1907.

## BATTERY ASH:

Emplacement 1,  
Serial number of hoist, 31  
Transferred to Artillery, September 30, 1907.  
Emplacement 2,  
Serial number of hoist, 32  
Transferred to Artillery, September 30, 1907.

## BATTERY BENSON:

Emplacement 1,  
Serial number of hoist, 32  
Transferred to Artillery, April 24, 1908.  
Emplacement 2,  
Serial number of hoist, 33  
Transferred to Artillery, April 24, 1908.



## H O I S T S .

-o-

FORT CASEY:

Projectile hoists installed in Batteries Worth, Moore and Kingsbury.

Type, Taylor-Raymond, back delivery.

Voltage, 220

Speed, 1060 R.P.M.

Rated capacity of motors, 5 H. P.

## BATTERY WORTH:

Emplacement 1,  
Serial number of hoist, 60  
Transferred to Artillery, September 26, 1907.

Emplacement 2,  
Serial number of hoist, 61  
Transferred to Artillery, September 26, 1907.

## BATTERY MOORE:

Emplacement 1,  
Serial number of hoist, 62  
Transferred to Artillery September 26, 1907.

Emplacement 2,  
Serial number of hoist, 63  
Transferred to Artillery, September 26, 1907

Emplacement 3,  
Serial number of hoist, 31  
Transferred to Artillery, September 26, 1907.

## BATTERY KINGSBURY:

Emplacement 1,  
Serial number of hoist, 30  
Transferred to Artillery, September 26, 1907.

Emplacement 2,  
Serial number of hoist, 29  
Transferred to Artillery, September 26, 1907.

## H O I S T S .

-0-

FORT FLAGLER:

Projectile hoists installed in Batteries Rawlins, Wilhelm and Revere.

Type, Taylor-Raymond, back delivery.

Voltage, 220

Speed, 1060 R. P. M.

Rated capacity of motors:

Rawlins and Revere, 5 H. P.  
Wilhelm, 7½ H.P.

## BATTERY RAWLINS:

Emplacement 1,  
Serial number of hoist, 64  
Transferred to Artillery, September 26, 1907.

Emplacement 2,  
Serial number of hoist, 65  
Transferred to Artillery, September 26, 1907.

## BATTERY WILHELM:

Emplacement 1,  
Serial number of hoist, 29  
Transferred to Artillery, September 26, 1907.

Emplacement 2,  
Serial number of hoist, 30  
Transferred to Artillery, September 26, 1907.

## BATTERY REVERE:

Emplacement 1,  
Serial number of hoist, 66  
Transferred to Artillery, September 26, 1907.

Emplacement 2,  
Serial number of hoist, 67  
Transferred to Artillery, September 26, 1907.

FORT WORDEN.

Additional electrical equipment installed in Central  
Power Plant and at Battery Kinzie.

At Power Plant:

One 45 H.P., 220 volt, D.C. interpole motor, direct connected to a 30 K.V.A. alternating generator, 2400 volts, 3-phase, 60 cycle.

At Battery Kinzie:

One 38 H.P., 220 volt, A.C., motor, 60 cycle, 3-phase, direct connected to one 25 K.W. compound generator, 250 volts, 100 amp. The current is transformed from 2200 volts to 220 volts by 3 10-K.W. transformers.

Cost of equipment, installed, \$5700.

Transferred to Artillery January 10, 1912.

2677 225 Box 8  
48920

Edna

Name of Harbor :	Name and armament of battery :	Date when turned over to Artillery :	Total cost : to that date :	REMARKS
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Admiral-ty Inlet Puget Sound.	<b>FORT WORDEN.</b> Battery Kinzie, Mounted. 2 12-inch disappearing carriages. Model 1901, Nos. 20 & 21 Alliance Mach. Co.	Jan. 10, 1912	\$207832.50	Garrisoned. Magazines dry  Retracting motors for carriages and engineer terminal boxes not yet received.
----------------------------------	--	------------------	-------------	---

On hand, not mounted,  
2 12-inch B.L. rifles  
Model 1895, M.I. Nos.  
60 & 73. Watervliet Arsenal

Empl. 1, Rifle #60\*  
Car. #21  
Empl. 2, Rifle #73\*  
Car. #20

\* To be mounted

Range transmission device installed in plotting room with dial in rear of each gun platform.

Jan. 10,  
1912 \$775.00

Electric fixtures and light and power mains installed and connections made with central power plant, except power wires at gun wells.

*See supplemental report for 12/31/13*

*H. J. M.*

Name of Harbor :	Name and armament of battery :	Date when turned over to Artillery :	Total cost to that date :	REMARKS. (All references are to mean low water)
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Admiralty FORT WORDEN  
Inlet.

B'14 Primary Station  
Puget Battery Kinzie.  
Sound. Reinforced concrete  
structure.  
Observation room 11'8"  
x11'8"x6'6-3/4" high  
Flooting room is in  
battery

Jan. 10. \$1375.00  
1912.

Ref. of site 176.53  
Ref. of inst. axis  
181.51

B'14 Secondary Station  
Battery Kinzie.  
One room, 12'x12'x7'  
high. Sewell type  
structure.

Jan. 10. \$440.00  
1912.

Ref. of site 86.78  
Ref. of inst. axis,  
94.41

B'14 Supplemental  
Station, Battery Kin-  
zie.  
One room, 12'x12'x7'  
high. Sewell type  
structure.

Jan. 10. \$435.00  
1912.

Ref. of site, 48.78  
Ref. of inst. axis,  
56.41

These stations are not conspicuous at a distance of four miles  
when viewed from the usual channels of approach.

*Spencer*

Name of Harbor	Name and armament of battery	Date when turned over to Artillery:	Total cost to that date	REMARKS
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FORT WHITMAN

Saratoga Passage, Puget Sound, Wash.	Battery Harrison, Mounted	May 9, 1911	\$92000	In charge of a detachment. Magazines dry. Independent light and power plant installed in battery. Wiring and fixtures for electric lights and power installed.
	4 6-in. disappearing carriages, L.F. Model, 1905 MI			
	Nos. 14, 15, 16, 17, Watertown Arsenal,			
	Emp. 1, Rifle 0, Car. #14			
	" 2, " 0, " #15			
	" 3, " 0, " #16			
	" 4, " 0, " #17			

Rifle No. 1  
Model 1908, Watervliet Arsenal.  
On hand, not mounted.

*Mining Casemate:*

*Room in battery suitable for casemate  
(See 27054/93)*

**DATUM MARKS.**

**FORT WHITMAN.**

-----

Located on the west end of Hope Island.

Consists of a 3-inch galvanized pipe about 10 feet long erected on a rock. The datum mark is a board 5' x 2' painted black and white and clamped horizontally across pipe. The center is 25' above mean lower low water at Utsalady, the point of reference for Fort Whitman.

Cost \$150.00.

Not transferred to Artillery.

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**FORT WORDEN.**

**Additional Electric Plant.**

**Location:** In storage battery room in central power plant building.

**Description:** Gasoline actuated engine, direct connected to generator.

Rating of engine: 50 H.P., 560 R.P.M., 4 cylinders,  
7-1/2" diam., 7-1/2" stroke.

Rating of generator: 25 k.w., 230 volts, 109 amp.

Rating of motor: 3 H.P., 230 volts, 12 amperes,  
1240 revolutions.

Manufactured by General Electric Co., Schenectady, N.Y.

Date of purchase: Unknown.

Received April 23, 1912, from Capt. A. E. Waldron, Corps of  
Engineers, New London, Conn.

Cost of installation, \$1000.

Transferred to Artillery, May 31, 1912.



PORT WORDEN.

Searchlight No. 2.

Diameter of projector, 60 inches.

Projector electrically and hand controlled.

Independent power plant, gasoline actuated engine, direct connected to generator.

Rating of engine: 50 H.P., 560 R.P.M., 4 cylinder, 7-1/4" diameter, 7 1/2" stroke.

Rating of generator, 25 k.w. 115 volts, 217 amperes.

Projector, engine and generator made by General Electric Co., Schenectady, N. Y., and Lynn, Mass.

Date of receipt in district, January 20, 1911.

Received from Lieut. Col. Harry Taylor, Corps of Engineers.

Generating sets, radiators and switchboards for lights Nos. 2 and 3 fixed in power house located 490 feet from secondary station of first fire command, Az. 42° 30'.

Degree of mobility of projector: Projector in fixed position in shelter located 605 feet from secondary station of first fire command, Az. 72°20'.

Controller in shelter on skids, located 978 feet from secondary station of first fire command, Az. 71°30'.

Returns submitted to Engineer Department.

Cost of projector and generating set, \$8,832.00.

Cost of installation of generating set and projector, \$3,299.35

Transferred to Artillery, March 1, 1911.

FORT CASEY.

Searchlight No. 8.

Diameter of projector, 60 inches.

Projector electrically and hand controlled.

Independent power plant; gasoline actuated engine, direct connected to generator.

Rating of engine: 50 H.P., 560 R.P.M., 4-cylinders, 7-1/4 inches diameter; 7-1/2 inch stroke.

Rating of generator: 25 k.w., 115 volts, 217 amperes.

Projector, engine and generator made by General Electric Co., Schenectady, N. Y., and Lynn, Mass.

Date of receipt in district, Jan. 20, 1911.

Received from Lieut. Col. Harry Taylor, Corps of Engineers.

Generating sets, radiators and switchboards for lights Nos. 8 and 9 fixed in power house located 660 feet from secondary station of fourth fire command. Az. 146°.

Degree of mobility of projector: Projector in fixed position in shelter located 760 feet from secondary station of fourth fire command, Az. 140°, 15'.

Controller in shelter on skids, located 1614 feet from secondary station of fourth fire command. Az. 141° 15'

Returns submitted to Engineer Department.

Cost of projector and generating set, \$8832.

Cost of installation of generating set and projector, \$3041.50

Transferred to Artillery, April 4, 1911.

FORT CASEY.

Searchlight No. 9.

Diameter of projector, 60 inches.

Projector electrically and hand controlled.

Independent power plant; gasoline actuated engine, direct connected to generator.

Rating of engine: 50 H.P., 560 R.P.M., 4 cylinders, 7-1/4 inches diameter; 7-1/2 inch stroke.

Rating of generator: 25 k.w., 115 volts, 217 amperes.

Projector, engine and generator made by General Electric Co., Schenectady, N. Y., and Lynn, Mass.

Date of receipt in district: Jan. 20, 1911.

Received from Lieut. Col. Harry Taylor, Corps of Engineers.

Generating sets, radiators and switchboards for lights Nos. 8 and 9 fixed in power house located 660 feet from secondary station of fourth fire command, Az. 146°.

Degree of mobility of projector: Projector in fixed position in shelter located 615 feet from secondary station of fourth fire command. Az. 137° 30'.

Controller in F"4.

Returns submitted to Engineer Department.

Cost of generating set and projector, \$8832.

Cost of installation of generating set and projector, \$2825.24.

Transferred to Artillery April 4, 1911.

\*\*\*\*\*  
Name : :Date when:Total cost: REMARKS.  
of : Name and armament of : turned : to : (All references are  
Harbor : battery : over to : that : to mean lower low  
: :Artillery: date : water.)

Sarato- FORT WHITMAN  
ga Pas-

sage, F'1 and M' Double pri-  
Puget mary station for pri-  
Sound, mary fire command and  
Wash. mine command. Reinforc-  
ed concrete structure  
with sheet steel roof.  
Two observing rooms,  
10'x10'x6'6" high.  
Plotting room in rear,  
15'x15'x7' high

May 9, 1911. \$2156

Ref. of site (floor  
of observing rooms)  
68.5.  
Ref. of inst. axes,  
74.0.

SUPPLEMENTAL SHEET FOR REPORT OF COMPLETED BATTERIES  
For December 31, 1913.  
Correcting Report of December 31, 1910.  
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FORT FLAGLER.  
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- Page 6 - Telephone booth added in F'7 (Bankhead) alongside the terminal cabinet.
- Page 7 - Telephone booth added in plotting room of F'9, making three in all
- Page 8 - Telephone booth added in plotting room of F'8, making five in all.
- Page 10- T3. The tide gauge on the Engineer's wharf is dismantled but the 10 by 8 building remains.  
A new gauge was established in May, 1913, inside the warehouse on the Post wharf at cost of \$230.  
No formal transfer made to the Artillery; (Replacement only)  
The description on page 12 holds good for the new gauge.
- Page 11- CENTRAL PLANT. Additional equipment installed by the Engineer Department for the Quartermaster Department in June 1911, at cost of \$1144 including a 25 Kw. gasoline engine generating set, which the Quartermaster has since moved to Fort Ward. Balancer set, Kw, 16; speed 975; volts 250/250; amp. on neutral 128; Gen. Elec. Co. No. N.P. 2221.  
Continuous current generator, Comp. wound, No. 352560; type C.V.C. 115; form B4; speed 975; Kw. 9-1/2; volts 125; amp. 76; Gen. Elec. Co. No. N.P. 7878.
- Page 13- SEARCHLIGHTS. 30-inch. This page should be cancelled as the light has been transferred from the District.

SUPPLEMENTAL SHEET FOR REPORT OF COMPLETED BATTERIES  
For December 31, 1913.  
Correcting Report of December 31, 1910.  
-----

FORT CASEY.  
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- Page 15 - Batteries William Worth and James Moore:  
Powder rooms of emplacements Nos. 2 have been dampproofed by interior linings of hollow wall tile, cedar and felt ceilings. Work done in July, 1913; cost for the two \$740.
- Page 18 - Electric light wires and fixtures installed in all batteries and primary range-finder stations, and power wires where required.
- Page 20 - F'6 (Casey) Telephone booth added.
- Page 21 - F'4 (Seymour) Three telephone booths added.  
F'5 (Casey) One telephone booth added, making three in all.
- Page 24 - ELECTRIC PLANT. Add: installed by the Const. Quartermaster for Post lighting and pumping:-  
One 120 H.P. non-releasing Corliss 4-valve simple engine made by Harrisburg Foundry & Machine Works, direct connected to a 75 Kw., 2300 V., 3-phase A.C. alternator. One 5 Kw. constant current street-lighting transformer. One 50 KW. A.C.D.C. rotary converter with transformer. Alternator, transformer and converter made by Fort Wayne Electric Co.
- Page 25 - SEARCHLIGHTS. 30-inch: 1st. item has been transferred by the Artillery to Fort Whitman. 2nd item, the projector is in commission at Fort Ward; the engine, generator and boiler are at Fort Worden in storage.
- Page 27 - DATUM MARKS. "Shields" was destroyed in March 1913 and has been replaced in approximately the same position by "SHIELDS<sub>2</sub>" azimuth from F'6 294.37°; range 6438 yds. for use of Forts Casey and Flagler only, but visible also from Fort Worden. "Jenne" was destroyed in March, 1913.

FORT WHITMAN

Battery Harrison,  
---  
Electric Plant.

Location: In power room in battery between Emplacements Nos. 1 & 2.

Description: Gasoline actuated engine, 43-54 H.P., direct connected to 25 k.w. generator.

Manufacturer: General Electric Company, Schenectady, N. Y.

Date of purchase: Unknown.

Received from: Lieut. Col. Harry Taylor, Corps of Engineers,  
October 15, 1910.

Transformer: None.

Storage Battery: None.

Kilowattage required:

For inside and outside illumination of battery,

K. W. - - 4 1/2 K.W.

For motors, None.

For searchlights, None

For telautographs, None.

For lighting fire control structures. (No connections)  
(Will require about 1/2 K.W.)

For post lighting, None.

Cost of installation: \$430.28

Transferred to Artillery, May 9, 1911.

## SUPPLEMENTAL SHEET FOR REPORT OF COMPLETED BATTERIES.

For December 31, 1913.

Correcting Report of December 31, 1910.  
-----FORT WHITMAN.  
----LATRINE.  
-----

DESCRIPTION: Reinforced concrete building, 9 feet by 19 feet, 6 inches on parade level across the road between emplacements Nos. 1 & 2. Officers' end: one stall, one urinal, one washbowl; men's end: three stalls, three urinals, one washbowl.

Cost, including sewer, \$1055.

Transferred to the Artillery with Battery Harrison on May 9, 1911.  
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Name of:	Name and Armament of	Date when : turned : : over to : : Artillery :	Total cost : to : that : date : REMARKS. (All references are to mean low water.)
Admi- rality	FORT FLAGLER.		
Inlet.* F'8 (Flagler)	One room	Originally June 30, 1902	Ref. of site 118.17
	10'x10'x7' high. Steel tower	Transferred \$3327.50 Oct. 3, 1911.	Ref. of inst. axis 144.57
	Plotting room in de- tached building, 11'6" x 15'6"x9'5-1/2" high	Originally June 5, 1908	Ref. of site 118.17
	Sewell type. Four tele- phone booths, each 3'6" x 3'6" x 9'5-1/2" high.	Transferred Oct. 3, 1911.	
	*B'11 Primary Station, Battery Command Battery John Rawlins.	June 26, 1905 \$4651.36 Formally transferred Oct. 3, 1911	Ref. of site 118.17 Ref. of inst. axis 144.57. Two rooms. Inst. room 8'x8'x6'3" high. Plotting room 14'11 1/2" x 14' 11 1/2" x6'3" high. Con- crete foundation and steel tower con- struction. Glass roof
	*B'12 Primary Station, Battery Command, Battery Wilhelm,	June 30, 1902 \$3327.49 Formally transferred Oct. 3, 1911	Ref. of site 118.17 Ref. of inst. axis, 144.57. One room 10' x 10'x7' high. Steel tower.
	*B'13 Primary Station, Battery Command, Battery Paul Revere, Originally built for pri- mary station on site of B'11. Moved to present site and transferred to Artillery.	June 30, 1902 \$3495.22 Feb. 10, 1905 \$6115.44 Formally Transferred Oct. 3, 1911.	Ref. of site 115.87 Ref. of inst. axis 142.27. One room 10'x10'x7' high. Steel tower.

\* Not conspicuous at a distance of four miles when viewed from the usual channels of approach.

(This sheet is to replace item 1, page 7, and all of page 8, Report for December 31, 1910).

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Name of Harbor	Name and armament of battery	Date when turned over to Artillery	Total cost to that date	REMARKS
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FORT WHITMAN

Sarato- ga Pas- sage, Puget Sound, Wash.	Battery Harrison, Mounted 4 6-in. B.L. rifles, Model 1908, Watervliet Arsenal, Nos. 1, 2, 3 & 4. 4 6-in. disappearing car- riages, L.F. Model, 1905 MI Nos. 14, 15, 16, 17, Water- town Arsenal, Emp. 1, Rifle 1, Car. #14 " 2, " 2, " #15 " 3, " 3, " #16 " 4, " 4, " #17	May 9, 1911	\$92000	In charge of a detach- ment. Magazines dry. Independent light and power plant installed in battery. Wiring and fixtures for electric lights and power in- stalled.
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FORT CASEY.

Searchlight No. 12.

Diameter of projector, 60 inches.

Projector electrically and hand controlled.

Independent power plant, gasoline actuated engine, direct connected to generator.

Rating of engine: 50 H.P., 560 R.P.M., 4 cylinders, 7-1/4" diameter, 7-1/2" stroke.

Rating of generator: 25 k.w., 115 volts, 217 amperes.

Projector, engine and generator made by General Electric Co., Schenectady, N. Y., and Lynn, Mass.

Date of receipt in district, January 20, 1911.

Received from Lieut. Col., Harry Taylor, Corps of Engineers.

Generating set, radiator and switchboard fixed in power house located 160 feet north of and in rear of tower for projector.

Degree of mobility of projector: Projector in fixed position in tower located 925 feet from F<sup>'''</sup> 4, Az. 275° 00'

Controller in F<sup>'''</sup> 4.

Returns submitted to Engineer Department.

Cost of projector and generating set \$8832.

Cost of installation of generating set and projector \$3766.35

Transferred to Artillery December 20, 1911.

FORT CASEY.

Searchlight No. 10.

Diameter of projector, 60 inches.

Projector electrically and hand controlled.

Independent power plant; gasoline actuated engine, direct connected to generator.

Rating of engine: 50 H.P., 560 R.P.M., 4 cylinders, 7- $\frac{1}{4}$  inches diameter, 7- $\frac{1}{2}$  inch stroke.

Rating of generator; 25 k.w., 115 volts, 217 amperes.

Projector, engine and generator made by General Electric Co., Schenectady, N. Y. and Lynn, Mass.

Date of receipt in district: Jan. 20, 1911.

Received from Lieut. Col. Harry Taylor, Corps of Engineers.

Generators, radiators and switchboards for lights ~~6~~<sup>16</sup> and ~~10~~<sup>11</sup> fixed in power house located 60 feet from Emplacement No. 4, Battery John Valleau. Az. 108°.

Degree of mobility of projector: Projector mounted on car with flanged wheels, and moveable on track from casemate to operating position. Casemate located 590 feet from Emplacement No. 4, Battery John Valleau. Az. 53°.

Controller in primary station of fifth fire command.

Returns submitted to Engineer Department.

Cost of projector and generating set, \$8832.

Cost of installation of generating set and projector, \$4220.67.

Transferred to Artillery, April 4, 1911.

FORT CASEY.

Searchlight No. 11.

Diameter of projector, 60 inches.

Projector electrically and hand controller.

Independent power plant; gasoline actuated engine direct connected to generator.

Rating of engine, 50 H.P., 560 R.P.M., 4 cylinders, 7-1/4 inches diameter, 7-1/2 inch stroke.

Rating of generator; 25 k.w. 115 volts, 217 amperes.

Projector, engine and generator made by General Electric Co., Schenectady, N. Y., and Lynn, Mass.

Date of receipt in district, Jan. 20, 1911.

Received from Lieut. Col. Harry Taylor, Corps of Engineers.

Generators, radiators and switchboards for lights <sup>10</sup>~~9~~ and <sup>11</sup>~~10~~ fixed in power house located 60 feet from emplacement No. 4 Battery John Valleau, Az. 108°.

Degree of mobility of projector: Projector mounted on car with flanged wheels, and moveable on track from casemate to operating position. Casemate located 543 feet from Emplacement No. 4, Battery John Valleau. Az. 41°.

Controller in primary station of sixth fire command.

Returns submitted to Engineer Department.

Cost of projector and generating set \$8832.

Cost of installation of generating set and projector, \$4417.32.

Transferred to Artillery, April 4, 1911.

FORT FLAGLER.

Searchlight No. 16.

Diameter of projector, 60 inches.

Projector electrically and hand controlled.

Independent power plant; gasoline actuated engine, direct connected to generator.

Rating of engine: 50 H.P., 560 R.P.M., 4 cylinders,  
7-1/4" diameter, 7 1/2" stroke.

Rating of generator: 25 k.w., 115 volts, 217 amperes.

Projector, engine and generator made by General Electric Co.,  
Schenectady, N. Y., and Lynn, Mass.

Date of receipt in district, January 20, 1911.

Received from Lieut. Col. Harry Taylor, Corps of Engineers.

Generating set, radiator and switchboard fixed in combined  
power house and shelter for projector, located 824 feet  
from B"11, Az. 352°00'.

Degree of mobility of projector. Projector mounted on car  
with flanged wheels, and moveable on track from shelter  
to operating position, 110 feet.

Operating position of projector fixed.

Controller located in B"11.

Returns submitted to Engineer Department.

Cost of projector and generating set, \$8832.00

Cost of installation of projector and generating set, \$3266.14

Transferred to Artillery, March 1, 1911.

H O I S T S .

F O R T      F L A G L E R .

Powder hoists installed in Battery Wilhelm,

Type A, 12-inch.

Voltage, 220.

Speed, 1060 R.P.M.

Rated capacity of motor, 3 H.P.

EMPLACEMENT N<sup>o</sup> 1,

Serial number of hoist, 2.

Transferred to Artillery, June 7, 1911.

EMPLACEMENT N<sup>o</sup> 2,

Serial number of hoist, 3.

Transferred to Artillery June 7, 1911.

F O R T   C A S E Y

Independent Electric Plant.

LOCATION: In rear of Battery Kingsbury, in detached building.

DESCRIPTION: Two 50-H.P. gasoline actuated engines, each engine direct connected to one 25 k.w. generator.

MANUFACTURER: General Electric Co.

Date of purchase unknown.

Received by transfer from Lieut. Col. Harry Taylor,  
Corps of Engineers, on November 23, 1910.

TRANSFORMER: None.

STORAGE BATTERY: None.

KILLOWATTAGE Required, 39 k.w.

For inside and outside illumination of Batteries

Kingsbury, Moore and Worth, k.w. 12

For motors, k.w. 23

For searchlights, none.

For telautographs, and Signal Corps work, k.w. 4.

For post lighting, none.

Cost of Installation: \$1500.00

Transferred to Artillery on July 29, 1911.



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file with 48920

Seattle, Wash. Dist.

July 29, 1911.

Report of Completed Batteries,  
Fort Casey, Wash.

Fort Casey, Wash.

Submitted by

Captain Arthur Williams,

Corps of Engineers.

For and in the absence of

Major J. B. Gwynn, Jr.,

COPIES OF LETTERS.

FORT WORDEN.

Searchlight No. 6.

Diameter of projector, 60 inches.

Projector electrically and hand controlled.

Independent power plant, gasoline actuated engine, direct connected to generator.

Rating of engine: 50-H.P.; 560 R.P.M.; 4 cylinders, 7-1/4 inches diameter; 7-1/2 inch stroke.

Rating of generator: 25 k.w.; 115 volts; 217 amperes.

Projector, engine and generator made by General Electric Co., Schenectady, N. Y., and Lynn, Mass.

Date of receipt in district, January 20, 1911.

Received from Lieut. Col. Harry Taylor, Corps of Engineers.

Generating set, radiator and switchboard fixed in power house south of and adjoining Chetzemaka Park, Port Townsend, Wash.

Degree of mobility of projector: Projector in fixed position in shelter located 56 feet from power house.

Controller located in F<sup>1</sup>.

Returns submitted to Engineer Department.

Cost of projector and generating set, \$2832.

Cost of installation of generating set and projector \$3733.26.

Transferred to Artillery, October 3, 1911.

FORT FLAGLER.

Searchlight No. 13.

Diameter of projector, 60 inches.

Projector electrically and hand controlled.

Independent power plant; gasoline actuated engine, direct connected to generator.

Rating of engine: 50 H.P., 560 R.P.M., 4 cylinders,  
7-1/4" in diameter, 7 1/2" stroke.

Rating of generator: 25 k.w., 115 volts, 217 amperes.

Projector, engine and generator made by General Electric Co.,  
Schenectady, N. Y., and Lynn, Mass.

Date of receipt in district, January 20, 1911.

Received from Lieut. Col. Harry Taylor, Corps of Engineers.

Generating set, radiator and switchboard fixed in combined  
power house and shelter for projector, located 373 feet  
from B"13, Az. 62°00'.

Degree of mobility of projector. Projector mounted on car  
with flanged wheels, and moveable on track from shelter  
to operating position, 90 feet.

Operating position of projector fixed.

Controller located in B"13.

Returns submitted to Engineer Department.

Cost of projector and generating set, \$8832.00

Cost of installation of generating set and projector, \$3799.48.

Transferred to Artillery, March 1, 1911.

**FORT FLAGLER.**

**Searchlight No. 14.**

**Diameter of projector, 60 inches.**

**Projector electrically and hand controlled.**

**Independent power plant; gasoline actuated engine, direct connected to generator.**

**Rating of engine: 50-H.P., 560 R.P.M., 4 cylinders, 7-1/4 inches diameter, 7-1/2 inch stroke.**

**Rating of generator: 25 k.w., 115 volts, 217 amperes.**

**Projector, engine and generator made by General Electric Company Schenectady, N.Y., and Lynn, Mass.**

**Date of receipt in district, January 20, 1911.**

**Received from Lieut. Col. Harry Taylor, Corps of Engineers.**

**Generating sets, radiators and switchboards for lights 14 and 15 fixed in power house 100 feet from Gun No. 1, Battery Lee, azimuth 200°.**

**Degree of mobility of projector: Projector mounted on car with flanged wheels and moveable on trestle from casemate to operating position 111 feet.**

**Controller located in F\*7.**

**Returns submitted to Engineer Department.**

**Cost of projector and generating set, \$8832.**

**Cost of installation of generating set and projector \$5329.53.**

**Transferred to Artillery, October 3, 1911.**

**FORT FLAGLER.**

**Searchlight No. 15.**

**Diameter of projector, 60 inches.**

**Projector electrically and hand controlled.**

**Independent power plant, gasoline actuated engine, direct connected to generator.**

**Rating of engine: 50 H.P., 560 R.P.M., 4 cylinders, 7-1/4 inches diameter, 7-1/2 inch stroke.**

**Rating of generator: 25 k.w., 115 volts, 217 amperes.**

**Projector, engine and generator made by General Electric Company, Schenectady, N.Y., and Lynn, Mass.**

**Date of receipt in district, January 20, 1911.**

**Received from Lieut. Col., Harry Tayler, Corps of Engineers.**

**Generating sets, radiators and switchboards for lights 14 and 15 fixed in power house 100 feet from Gun No. 1, Battery Lee, azimuth 293°.**

**Degree of mobility of projector: Projector mounted on car with flanged wheels and moveable on trestle from casemate to operating position 120 feet.**

**Controller located in C.2.**

**Returns submitted to Engineer Department.**

**Cost of projector and generating set, \$8832.**

**Cost of installation of generating set and projector, \$4801.27.**

**Transferred to Artillery October 3, 1911.**

FORT WORDEN.

Searchlight No. 3.

Diameter of projector, 60 inches.

Projector electrically and hand controlled.

Independent power plant; gasoline actuated engine, direct connected to generator.

Rating of engine: 50 H.P., 560 RPM, 4 cylinders, 7-1/4" diameter 7 1/2" stroke.

Rating of generator: 25 k.w., 115 volts, 217 amperes.

Projector, engine and generator made by General Electric Co., Schenectady, N. Y. and Lynn, Mass.

Date of receipt is district, January 20, 1911.

Received from Lieut. Col. Harry Taylor, Corps of Engineers.

Generating sets, radiators and switchboards for lights Nos. 2 and 3 fixed in power house located 490 feet from secondary station of first fire command, az: 42° 30'.

Degree of mobility of projector: Projector in fixed position in shelter located 256 feet from secondary station of first fire command, az.: 85° 15'.

Controller located in F<sup>4</sup>.

Returns submitted to Engineer Department.

Cost of projector and generating set, \$8,832.00

Cost of installation of generating set and projector, \$3163.78

Transferred to Artillery, March 1, 1911.

FORT WORDEN.

Searchlight No. 4.

Diameter of projector, 60 inches.

Projector electrically and hand controlled.

Independent power plant; gasoline actuated engine, direct connected to generator.

Rating of engine: 50 H.P., 560 R.P.M., 4 cylinders, 7-1/4" diameter, 7 1/2" stroke.

Rating of generator: 25 k.w., 115 volts, 217 amperes.

Projector, engine and generator made by General Electric Co., Schenectady, N. Y., and Lynn, Mass.

Date of receipt in district, January 20, 1911.

Received from Lieut. Col. Harry Taylor, Corps of Engineers.

Generating set, radiator and switchboard fixed in power house in rear and on right flank of Battery Tolles. *(See supplemental report for 12/31/11)*

Operating position of projector fixed, 400 feet ~~west~~ *east* of Battery Samuel Walker.

Degree of mobility of projector. Projector mounted on car with flanged wheels, and moveable on track from shelter to operating position, 101 feet.

Controller located in F'2, Worden.

Returns submitted to the Engineer Department.

Cost of projector and generating set, \$8,832.00.

Cost of installation of generating set and projector, \$6,131.71.

Transferred to Artillery, February 10, 1911.

FORT WORDEN.

Searchlight No. 5.

Diameter of projector, 60 inches.

Projector electrically and hand controlled

Independent power plant, gasoline actuated engine, direct connected to generator.

Rating of engine: 50 H.P., 560 R.P.M., 4 cylinders, 7-1/4" diameter, 7-1/2" stroke.

Rating of generator: 25 k.w., 115 volts, 217 amperes.

Projector, engine and generator made by General Electric Co., Schenectady, N.Y., and Lynn, Mass.

Date of receipt in district, January 20, 1911.

Received from Lieut. Col., Harry Taylor, Corps of Engineers.

Generating set, radiator and switch board fixed in power house located 710 feet from Gun No.1, Battery Kinzie, Azimuth 255° 45'.

Degree of mobility of projector: Projector in fixed position in tower located 630 feet from Gun. No.1, Battery Kinzie, Azimuth 252° 00'.

Tower provided with moveable roof to permit elevation of projector to operating position.

Controller in station for third fire command.

Returns submitted to Engineer Department.

Cost of projector and generating set, \$8832.

Cost of installation of generating set and projector \$5173.79

Transferred to Artillery, December 20, 1911.



H O I S T S

Fort Worden, Wash.

Installed in Battery Kinzie:

Projectile Hoists.

Type, Taylor-Raymond, back delivery

Voltage, 220

Speed, 800 R.P.M.

Rated capacity of motors, 7-1/2 H.P.

Emplacement No. 1, Serial No. 35.

Emplacement No. 2, Serial No. 36.

Transferred to Artillery January 10, 1912.

Powder Hoists.

Type, A, 12-inch.

Voltage, 220

Speed, 1060 R.P.M.

Rated capacity of motors, 3 H.P.

Emplacement No. 1, Serial No. 4.

Emplacement No. 2, Serial No. 5.

Transferred to Artillery January 10, 1912.

H O I S T S.

FORT WORDEN.

Powder hoists installed in Battery Benson,

Type, A, 10-inch.

Voltage, 220.

Speed, 1060 R.P.M.

Rated capacity of motors, 3 H.P.

EMPLACEMENT No 1,

Serial number of hoist, 17.

Transferred to Artillery, June 7, 1911.

EMPLACEMENT No 2.

Serial number of hoist, 18.

Transferred to Artillery, June 7, 1911.

SUPPLEMENTAL SHEET FOR REPORT OF COMPLETED BATTERIES  
For December 31, 1913.  
Correcting Report of December 31, 191~~2~~.

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FORT WORDEN.  
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- Page 29 - Battery Henry Benson: retracting motors have been connected with power lines.  
Battery Thomas Vicars: No provision made for light wires or fixtures in the battery.  
Battery John Brannan: alterations to mortar carriages are completed instead of "in progress, etc."
- Page 29 (seq) Battery Kinzie: Two 12-inch rifles have been mounted, viz:- Emp. No. 1, No. 60 on carriage No. 21; Emp. No. 2, No. 73 on carriage No. 20.  
Retracting motors installed and connected up. Engineer terminal boxes not required.  
Strike out "except power wires at gun wells".
- Page 33 - Battery Samuel Walker. Two <sup>15</sup>pdr. rifles have been received and mounted, viz:- emplacement No. 1, rifle No. 84, Mod. 1903, Watervliet Arsenal, on carriage No. 77; emplacement No. 2, rifle No. 10, Mod. 1903, Watervliet Arsenal, on carriage No. 76.
- Page 34 - F'2 (Worden) Two telephone booths added making 4 in all.
- Page 35 - F'1 (Brannan) Three telephone booths added.
- Page 36 - F'3 (Worden) One telephone booth added.
- Page 41 - To be cancelled. The 30-inch and the 36-inch searchlights have been transferred from the District.
- Page 41c- Change operating position to read 400 feet east instead of west of battery Walker.

FORT WARD.

Temporary Searchlight.

One 30-inch . General Electric Company.

Date of purchase, unknown.

Received by transfer from Fort Wright, N. Y., Feb. 8, 1904.

Electrically and hand controlled.

Power furnished by independent 25 k.w. gasoline set installed in Battery Nash.

Plant fixed.

Projector mounted on truck.

Degree of mobility limited by length of conductor.

Return made by Artillery.

Cost of projector unknown.

Originally transferred to Artillery on Feb. 6, 1905.

Moved from Fort Casey by Artillery.

Projector installed at Fort Ward by Engineer Department.

Temporary structure for installation of projector transferred to Artillery on Dec. 7, 1911.