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C. & G. SURVEY,
LIBRARY AND ARCHIVES
SEP 9 - 1910
ACC. No.

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

O. H. Tittmann
Superintendent

State: California

DESCRIPTIVE REPORT

Topographic *Sheet No.* 3086

LOCALITY:

Santa Monica
Bay, Cal.

1910

CHIEF OF PARTY

H. W. Rhodes

3086

3086

Treasury Department,

U. S. COAST AND GEODETIC SURVEY,

O. H. Tittmann, Superintendent.

State: California

SKETCHBOOK.

ABSTRACT OF CONTENTS:

Notes and sketches in connection with revision of chart No. 5144

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1 Vols. Vol. 1

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Vols. Vol.

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Stations for Sextant Angles.

Bristol Pier	11
Del Rey "	13
Hermosa "	23
Hyperion "	15
Marine st. "	9
Manhattan "	19
Peck's "	17
Santa M. City Hall	3
" " munic. Pier	5
Venice Pier	7

June 6-7, 1910 H.W.R.

1

△ La Mesa (primary)

no trace of this station can be found. The ground on the N. side of 22nd st. is now a barley field. On the south side of the street several small houses have been built.

A careful careful search was made through the records and maps in the city Engineer's Office at Santa Monica, and in the County Surveyor's Office in Los Angeles for references or connections to this station.

Information from the City Engineer's office at Santa Monica indicates that the signal formerly standing over the station, has not been there since 1889.

No trace of the red sand-stone surface mark could be found nor any information concerning it from the oldest inhabitants.

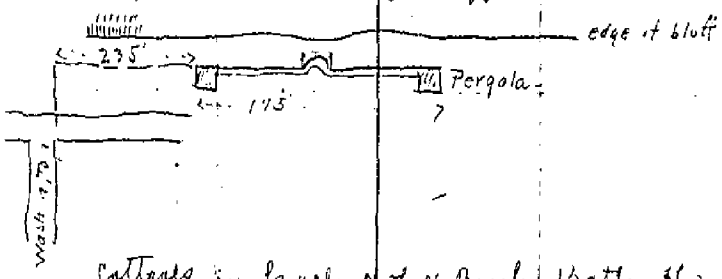
Description of Santa Monica with Line.

There are a number of large residences at the N.W. side of "The Palisades" adjacent to S.M. Canon and then no houses for several blocks or to Montana ave., where the fashionably solidly built res. section of S.M. begins along Ocean ave. The buildings on the outer end of the "Long wharf" are painted yellow and are conspicuous.

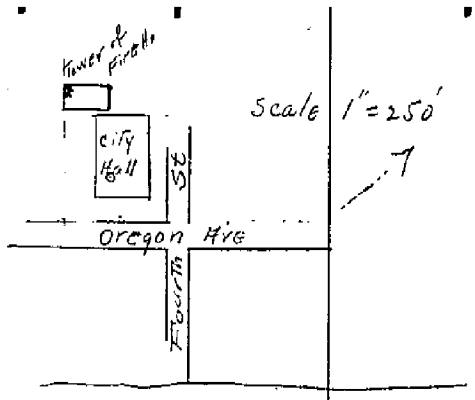
The intersection of the W. line of Georgina ave. and the center line between the two R.R. tracks is exactly in line with the H.W.M. of Pt. Dume and the South cor. of the "Long wharf".

The residence on the N.W. cor. of Ocean ave. & Georgina ave. 40' on Ocean ave. x 75' on Georgina ave. and 38' back from each ave. is a very strong light colored stone (plaster) in mission style with red tiled roof and with a large sq. Pergola tower on the S. corner and thus surmounted by a flag staff.

Pergola in city Park along bluff is 175' long by about 15' in width 15' high. is stained dark brown and shows as a low dark structure on the bluff - 20' from edge of bluff



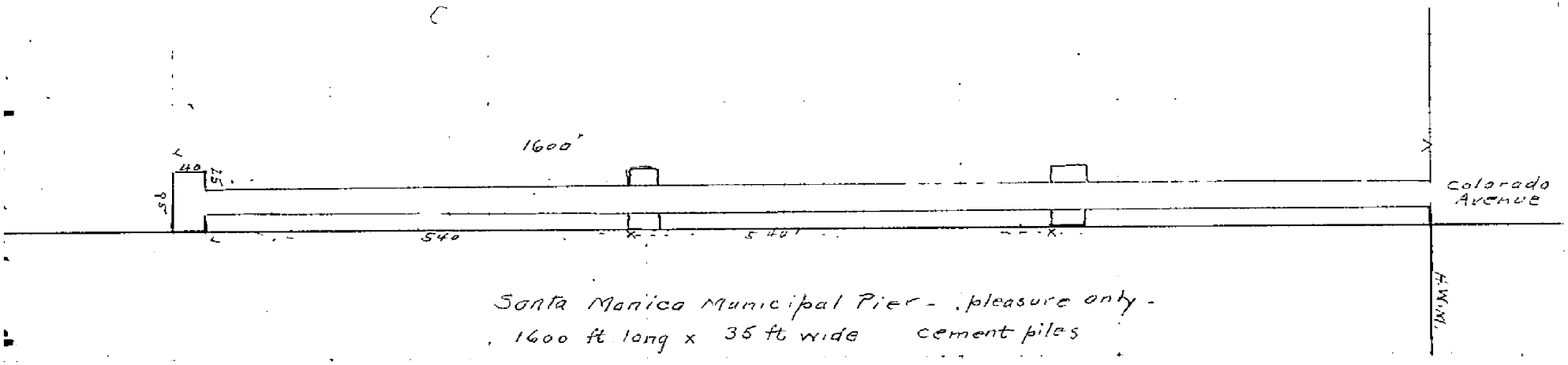
Cottages on beach N. of N. Beach Bath Ho. extend to middle of square between Oregon & Arizona avenues - nothing to N. west of this point below the bluff - high shade trees eclipse most of S.M. larger bldgs.



Sextant Angles from Sta. on roof of City Hall -

Tan. Rocky Pt. H.N.M. to Sauneal Pt. Dune	=	99 39
Cross on Catholic school to		
Flag of Jefferson School	=	104 28
Flag of Lincoln High school -	=	118 59
Flag of Lincoln High School to -		
L. Tan. Garfield school -	=	64 11
windmill on hills beyond Del Rey	=	88 14
L tan. Bay Hospital	=	89 27
Flag of Washington school -	=	90 55
Red dome (Turkish residence)	=	92 18
Center O. P. Gas Tank -	=	96 45
Water Tank on hill beyond Del Rey	=	99 26
S.E. cor. consp. res. " " " "	=	99 31
Mainmast of Ship Hotel, Venice	=	104 17
Tower of Venice Auditorium	=	105 42
S.E. cor. Bristol Cafe	=	117 04
Tan. to Land's end Rocky Pt. H.N.M.	=	120 40

Station for angles is 30' toward center of City Hall from its South corner -



Santa Monica Municipal Pier - pleasure only -
1600 ft long x 35 ft wide cement piles

Sextant Angles at outer center end of Pier. (Santa Monica Municipal Pier)

S.E. cor. Long wharf To

S.E. cor. conspicuous grey Bldg. (2 story Mission style residence on bluff) = 32° 32' 30"

Same to

center gable of S.M. Auditorium (a conspicuous red-brown Bldg on beach) = 92 04 30

Same to

tower of Municipal Bldg. in S.M. = 81 48 30

Municipal tower To

Red Dome ? = 70 47 00

Munic. Tower To

S.E. cor Washington School (a conspicuous red brick Bldg. on high ground near Ocean Park = 91 28 00

M. Tower to center gas tank at Ocean Park = 102 39 00

M. Tower to

inshore end of Bristol Pier. H.W.M. = 96 32 00

M. Tower to

S.E. cor. Cafe on outer end Bristol Pier = 109 45 00

M. Tower to

Cent. of tower of Dancing Pavilion at Ocean P. = 107 48 00

M. Tower To

Outer end of Ocean Park pleasure Pier = 114 29 00

M. Tower To

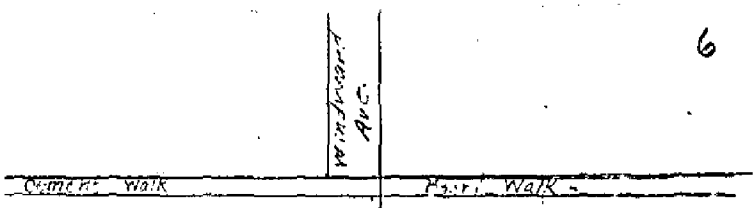
High round tower on Venice Pier = 118 36 00

M. Tower to

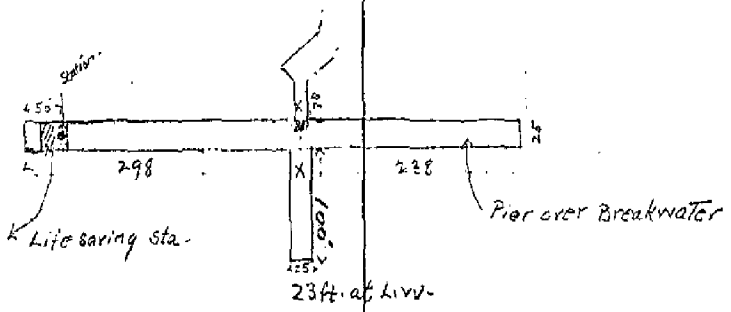
outer end Venice Pier. = 120 52 30

M. Tower To conspicuous Ho. on hill beyond Playa Del R. = 119 43 00
" " " " Watertank " " " = 120 05 00
" " to outer end of Pier beyond Venice = 123 29 00
" " to center line of Pier (S.M.) = 26 28 30
Outer end Pt. Dume to S.E. cor long wharf = 28 55 00

Munic Tower to outer end 2nd Pier beyond Venice = 128 05 00



The "Plunge" at Venice extends along the sidewalk from Zephyr St. to W. line of Horizon Ave. a distance of 235 ft. and is 165 ft. deep to the S.W'ward. a cement bldg 2 stories high with 3 sq towers on front.



Detail of outer end of Venice Pier.

July 11, 1910

Sextant Angles at ⊙ as shown on Life Saving Station at Venice Pier -

End of Long wharf to end of S M municipal pier	= 12°-01-00
Same to S.E. cor. Bldg on Bristol Pier	= 17° 48' 00
Same to S.E. cor. Gray residence on Cliff	= 16°-36'-00
Same to Center of Tower of Dancing Pavilion at O.P.	= 30 43
Same to Red dome of private residence (a 3 story gray house with red tiled dome	= 34 01 30
Same to S E Cor. Washington school (conspicuous red brick Bldg. on high ground	= 47 09 00
Center of O. Park Gas Tank	= 55 29 00
East flag pole on "Plunge" at Venice	139 37 30
Outer end of Ocean Park Pier	= 21 27 00
Dome of Ocean Park Bath House	= 35 03 30

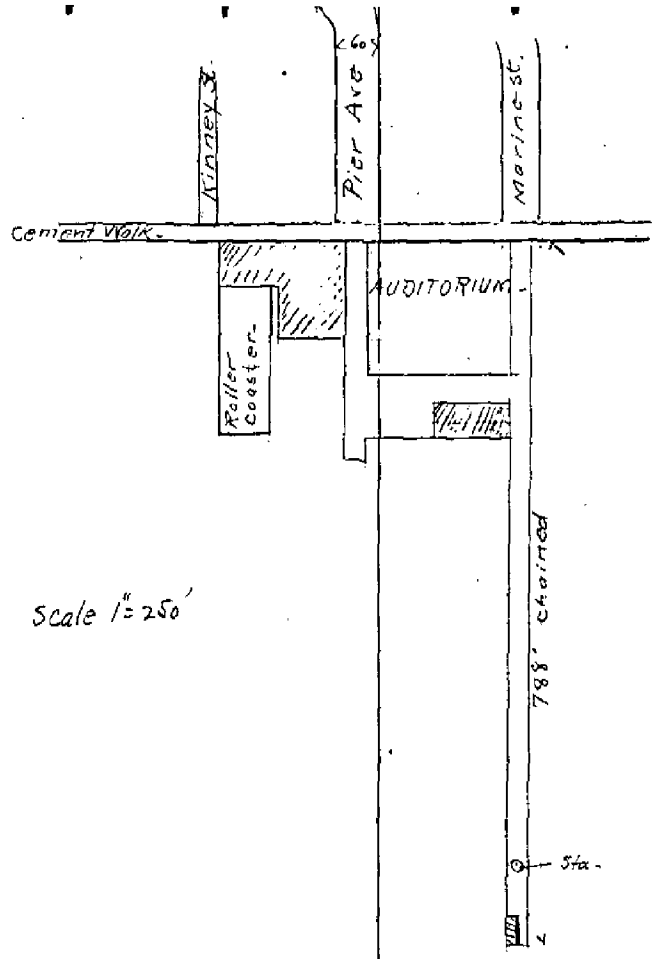
East flag pole on Plunge at Venice to —

High round tower of auditorium on Venice Pier	= 41 32
Conspicuous residence on Hill E. of Rays del Rey (S.E. Cor.)	= 81 48
" water tank " " " " " "	= 82 20
Tower of del Rey Pavilion	= 83 57
Inshore end del Rey wharf H.W.M.	= 84 51
Outer end " " "	= 88 37
Outer end Hermosa wharf? (1st E. of del Rey)	= 93 30

In 1905 H.W.M. was at the point where the present promenade (cement walk) crosses windward ave. Since building the breakwater in 1906 the water back of it has gradually shoaled until under the pier H.W.M. is now (July 1910) 300 ft. out from the sidewalk, and at L.W. the shore bares out nearly to the inner side of the auditorium Bldg. The H.W.M. trends inshore to the eastward of the pier and at Florence St. 3 squares Eastward it reaches the line of the sidewalk and further E'ward the sea is restrained from encroaching on the property by a bulkhead of the side walk line x west of the pier H.W.M. again trends inshore but maintains an average distance of 125 ft. outside the sidewalk -

Proposed Pier at Pier is on
Marine St. Ocean Park -

To be
274' wide x 900' long
including present Marine St. Pier
which is 750' long x 32' wide
16' at M.H.W at end of pier
for 225' out from side walk the pier
is solid between Marine St and Pier
ave. and covered by the auditorium
and smaller buildings.



Scale 1" = 250'

Sextant Angles at station 700ft from sidewalk on Marine st. Pier.

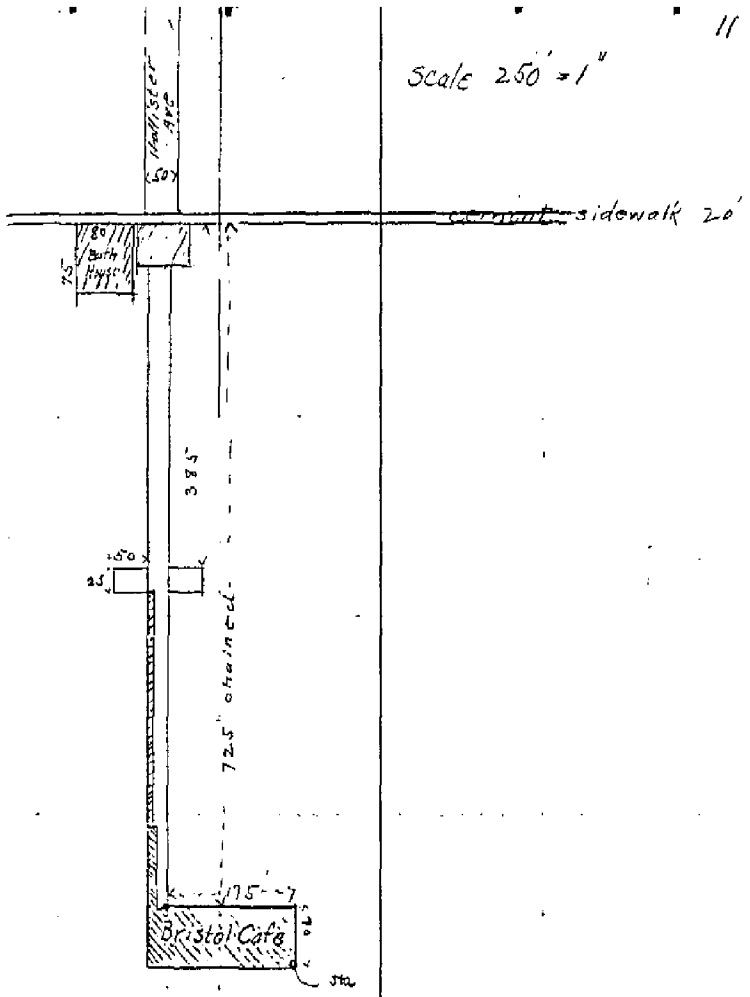
End of Long Wharf to

end Santa Monica Municipal Pier	= 10°	14'	
S.E. Cor. Bristol Cafe Bldg	= 15	37	
Red house on residence (S.M.)	= 48	25	
Flag on Santa Monica Bay Hoop	= 51	50	
water Tank at nursery, on Marine st.	= 108	49	00
Center Gas Tank	= 143	14	

Spire of watertank at nursery on marine st

mainmast of Ship Hotel	= 89	41
Tower of auditorium Venice Pier	= 93	45
Flag of Life Saving Sta. on Venice Pier	= 98	26
end of Venice Pier.	= 99	35

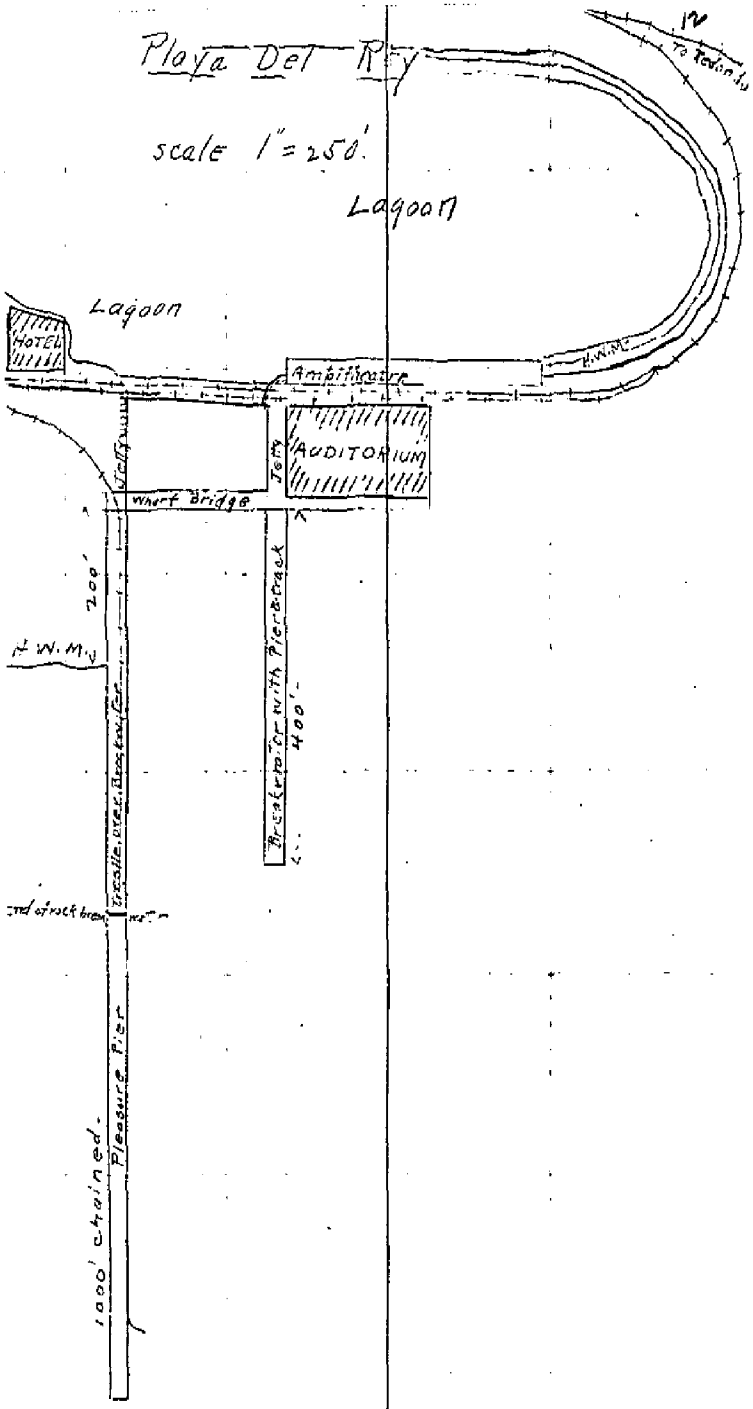
Scale 250' = 1"



Sextant Angles from Sta. at S.E. cor. of Bristol Pier Bldg.

S.E. cor. Washington School to

Center Ocean Park Gas Tank	= 26°-17'
Center Ocean Park Dancing Pavilion Tower	= 34-46
End of Ocean Park Pier	= 50-43
Main mast Ship Hotel Venice Pier	= 50-31
Tower of Auditorium on Venice Pier	= 52-58
End of Venice Pier	= 56 28
End Long wharf to S.E. cor. Washington School	149°-32'
End of S.M. Muir Pier " " " "	140-47


Playa Del Rey
scale 1" = 250'
Lagoon
Lagoon
HOTEL
Amphitheatre
AUDITORIUM
Jetty
Jetty
Wharf Bridge
200'
H.W.M.
Breakwater with Piers & track
400'
Pleasure Pier
1000' chained.

Sextant Angles at Outer End of Del Rey Pier - (S.W. cor)

"Long Pier" to

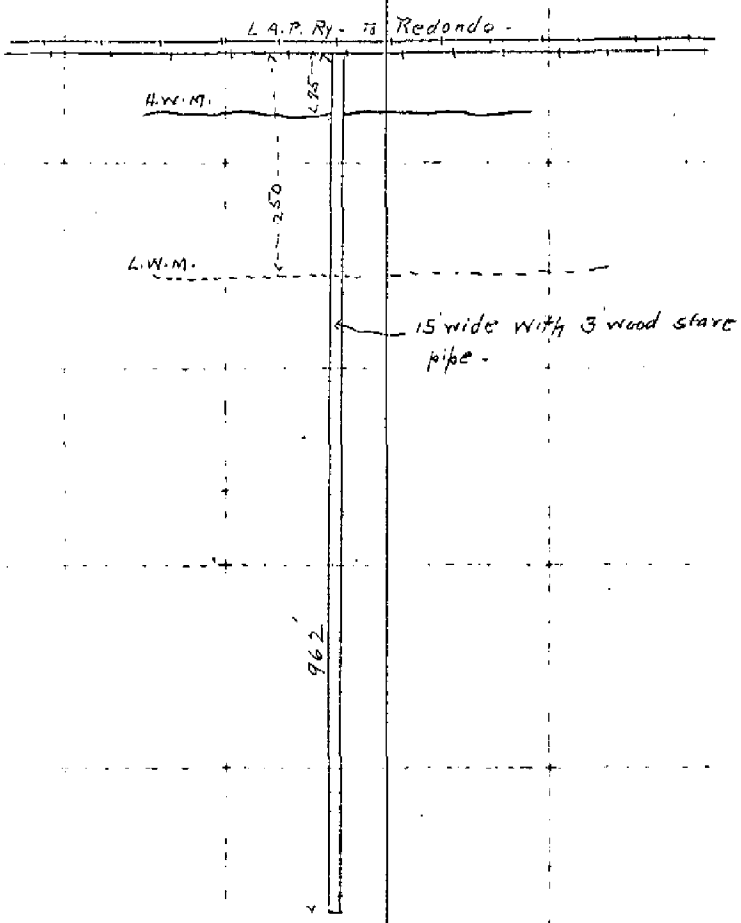
Outer End municipal Pier (S.M)	= 9°	03'	00"
S.E. cor. Bristol Cafe Bldg	= 11°	49'	
Outer End Venice Pier	= 11	26	
Flag of Life Saving station Venice Pier	= 11	54	
Tower of Auditorium Venice Pier	= 13	31	
mainmast of ship Lit S. Venice Pier	= 15	04	
Center of Ocean Park Gas Tank	= 20	11	
High water Tank Ocean Park	= 33	10	
Tree on distant hill	= 108	05	
Tower of Del Rey Hotel	= 107	16	

Tree on distant Hill to -

Tower of Del Rey Auditorium -	= 21	07	
S.E. cor of conspic. residence on bluff (about 150' high and 3/4 mile distant)	= 39	57	
conspicuous water Tank	= 56	10	
End of 1st Pier East (about 2 miles)	= 92	47	
S'ly of 2 high stacks at Redondo?	= 93	21	
End of 2nd Pier to Eastward (Hermosa?)	= 93	26	
Tower of Redondo Hotel	= 93	50	30
Tow. Land End. Pt. Vincente?	= 111	18	

Hyperion.

Los Angeles City Outfall Sewer Pier.



No Bridge along tracks between Playa del Rey and Hermosa Beach - double tracks of L.A.P. (Electric Ry.) along foot of dunes.

Sextant Angles at Outer End of Hyperion wharf -

End of Santa Monica Municipal Pier to

S. E. Cor. Bristol Cafe -	=	2°	01′
Tower of Venice Auditorium -	=	3	53
Outer End of Del Rey Pier	=	7	8
Tower of Del Rey Auditorium	=	11	33
S. E. Cor. of Concep. residence on Bluff	=	15	17
Center High water tank	=	17	32
Pole on Bluff	=	96	43

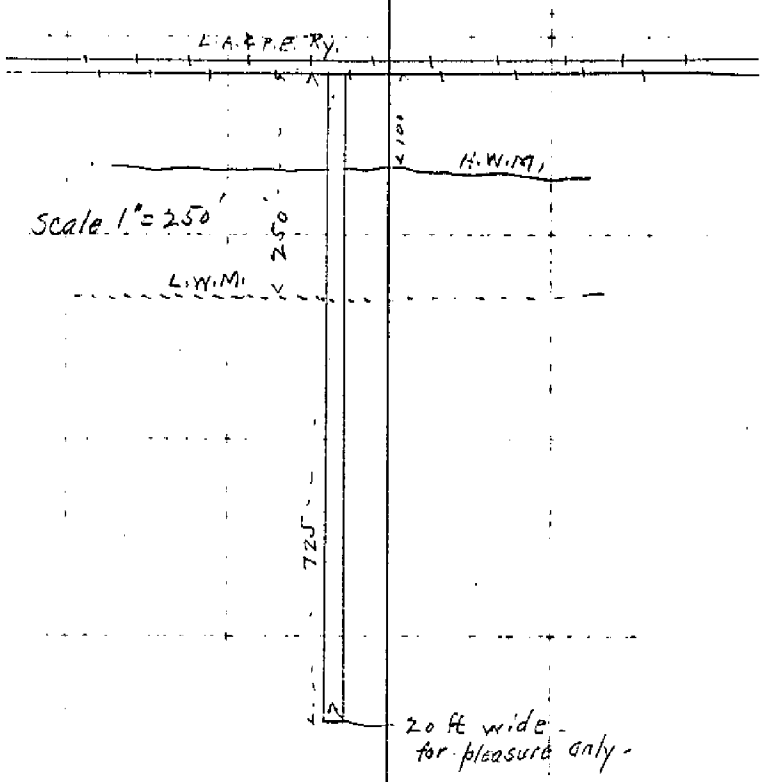
From Pole on Bluff to

End of 1st Pier East, ~~oo~~ tower of Redondo Hotel (Peck's Pier)	=	91	59
End of 3rd* Pier East (Hermosa)	=	93	03
S'ly of two high chimneys	=	91	17
Tan. to Land's End. Pt Vicente?	=	113	57

* 2nd Pier East is Manhattan Beach Pier -

Peck's Wharf

about 1 mile west of Manhattan Beach -



R.R. tracks about 12' above H.W.M.

Sextant Angles at Outer End of Peck's Wharf -

Tower of Venice Auditorium to

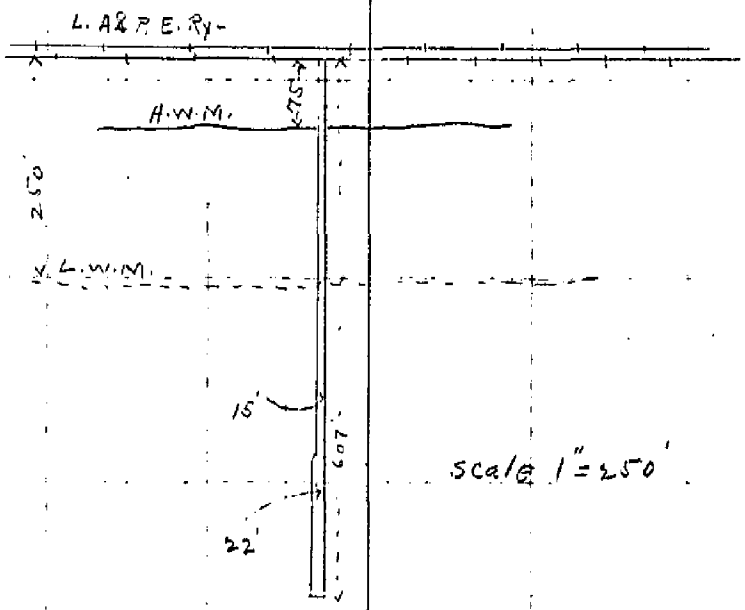
End of Playa del Rey Pier	= 2°	33'
End Hyperion Pier	= 3	28
Tower of del Rey Auditorium	= 5	11
Coast Ho. on Bluff	= 7	19
Water Tank on Bluff	= 8	22
Pole on Hill	= 71	04

From Pole on Hill to

S.E. Cor. Peck's Pavilion (an open pavilion 40 x 100' at N.W.M.)	= 93	46
Bldg of 2 high Chimneys	= 111	23
Outer End Manhattan Pier	= 112	03
Outer End Hermosa Pier	= 114	11
Tower of Redonda Hotel	= 112	24
Tan. Land's End (Pt Vicente?)	= 139	05

Most Nly bldgs of Manhattan Beach are just visible from Peck's Pavilion — Bldg. increase in number to the S E word.

Manhattan Beach Wharf



See plan of Man. B. for location of Bath Ho.

Sextant Angles at outer end of Manhattan Beach Pier - (Center.)

Pt Dume. to Tower of Ind. Venice Pier = 42 19
(approx. dume very dim.)

Tower of Venice Auditorium to -

End Hyperion Pier	= 2°	54'
End Peck's Pier	= 2	38
Tower of Del Rey auditorium	= 4	23
S.E. cor. of Consp. ho. on bluff	= 6	02
Center of high water tank	= 6	52
S.E. cor. Peck's Pavilion	= 10	38
Pole on Hill	= 94	57
* S.E. cor. Manhattan Grocery store	= 92	53

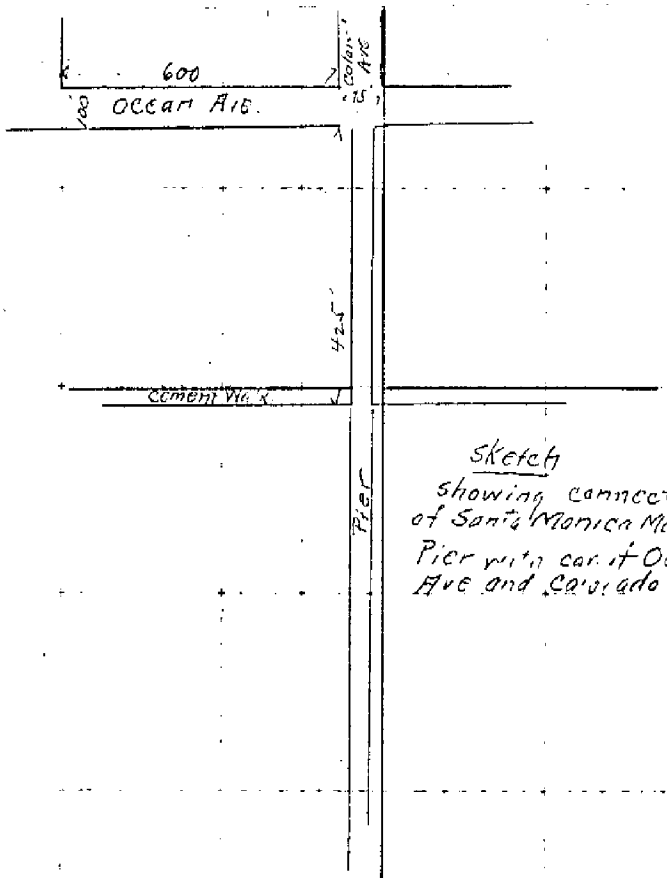
Pole on Hill to

+ Center of Square Tower on Man B. Church (congregational?)	= 27	43
⊕ High tower of Hermosa School Ho	= 76	27
Sily of 2 high stacks at Hermosa	= 86	52
Tower of Redondo Hotel	= 88	18
End of Hermosa Pier	= 91	22
"Land's End" (Pt Vicente?)	= 118	28
"Dome" - Large white dome in Redondo	= 81	40
"Cupulos" - High red cupulos in Redondo	= 82	33

* Manhattan Grocery store is a conspicuous 2 story brick Bldg. 2 blocks inshore from Pier

\+ a conspicuous gray bldg on top of the ridge, sq tower on S.E. cor.

⊕ a conspicuous high gray Bldg with open tower or belfry, on top of the ridge back of Hermosa.

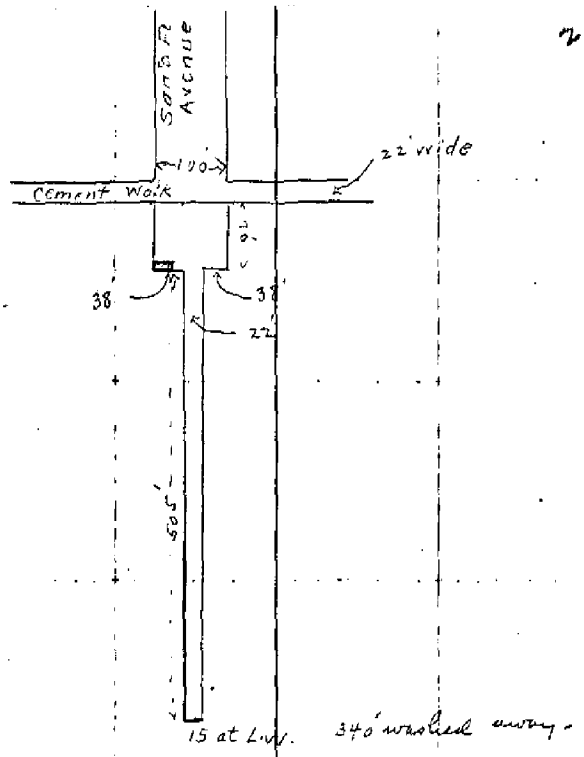


Sketch
showing connection
of Santa Monica Municipal
Pier with cor. of Ocean
Ave and Colorado St.

△ West Beach July 21, 1910

A large 3 story residence with outbuildings known as the "Duncan Ranch Residence" was built on the summit of this hill about 1895.

A cement reservoir about 10' deep and about 40'x100' and occupying what appears to have been the summit of the hill was also constructed at the same time, and the station was probably destroyed at that time. The family at present living in the house have no knowledge of any station mark and as the ground immediately surrounding the reservoir has been ploughed and cultivated by them without finding any stone or other station mark, it confirms the theory that the station was destroyed when the reservoir was built.



Pier at Hermosa Beach.

Scale 1" = 250' July 21, 10.

cement walk 22' wide extends 200' on either side of pier and promenade is then continued in either direction by plank walk. Pier is for pleasure only and has no lights at landings.

Sextant Angles at center of outer end of Hermosa Pier -

Outer End Hyperion Pier to

Outer end Peck's Pier [illegible]	= 00°	41'	00"
Outer end Manhattan Pier	= 2	07	
Square tower of Manhattan B. Church	= 12	15	
Center of high residence in trees near △ West Beach.	= 47	02	
* Tower of Hermosa Beach School	= 55	05	
+ Cupulosa of white water tank	= 63	21	
Center of large roofed reservoir on hill (1 mi. inshore)	= 84	46	

Center pole in roof of Reservoir to

White dome in Redondo (Chatanqua?)	= 77	25	
⊕ High red cup. in Redondo	= 80	09	30"
Sily of 2 high stacks bet Hermosa & Red.	= 83	34	
Tower of Redondo Hotel	= 91	38	
End of wharf (pipe) 3/4 mi. S.E	= 100	38	
End of long pier (P. coast co.) Redondo	= 103	15	
Tan Land's End. (Rocky Pt.) Foot of Bluff. apparent H.W.M.	= 131	21	

* Conspicuous large 2 story gray bldg on top of gray sand dune about 1/3 mi inshore

\+ Large circular white tank with red roof + cup. on top of gray sand dune + about 1/8 mi. S.E. of school -

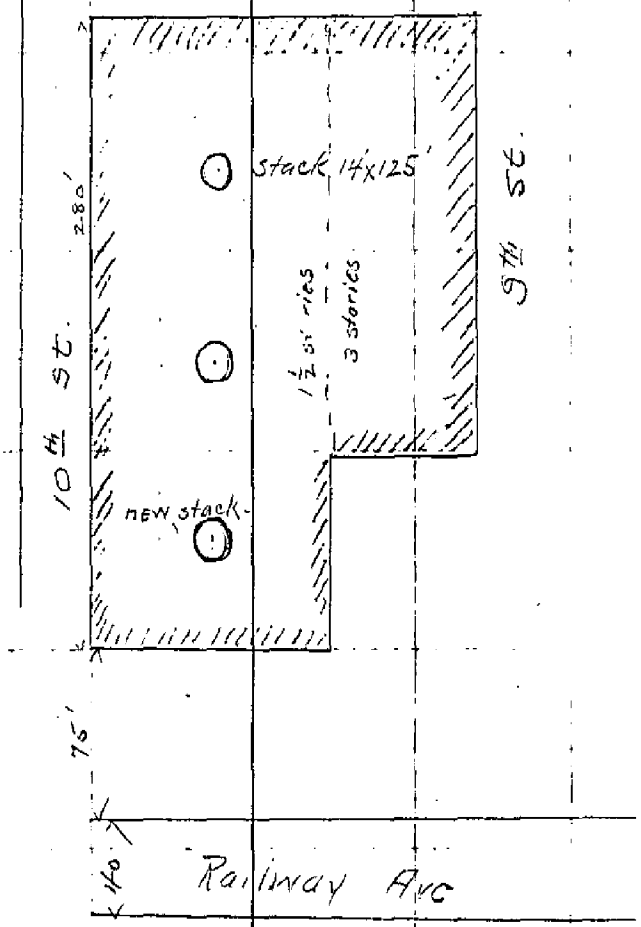
⊕ Belfry? on large red roofed bldg.

July 21, 1910

US 11

Pacific Light & Power Co's
Power House at Redondo -
Scale 1" = 100'

a gray concrete bldg with 3 very high conspicuous stacks -
East half of bldg is 3 stories - west half is 1½ stories - All certain observations previous to this date on stack described as "bldg of two" were on middle stack
a new (3rd) one is now being constructed in line with other two as shown



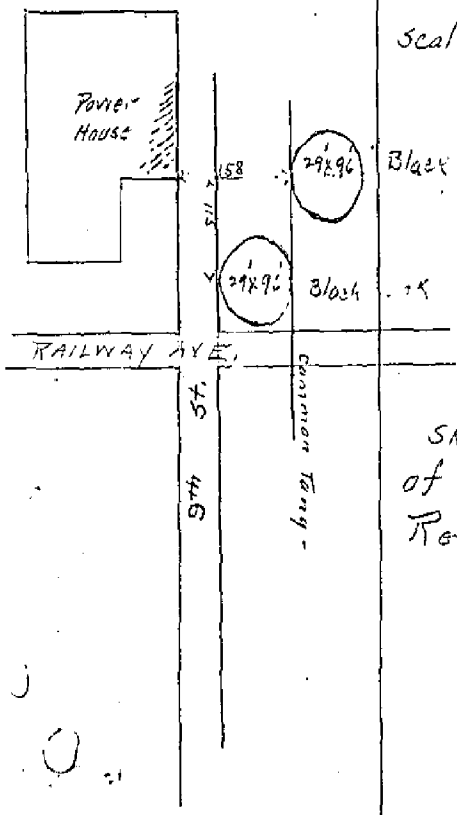
Pacific L & P. Co's Pier at Redondo.

in Extension of 9th st.

703'-11" long July 21, 1910 to be extended to 803'-11" from E. side of board walk (prop. line) at once - to be completed by Oct. 1st 1910 -

Pier is 32' wide for last (new) 100' and inner part is 21 ft. El. of center of pipes is 16.5 above M.L.W. - carries 3 pipes for condensers of power house.

2 Tanks (1 oil + 1 water) are 96' diam X 29' high -



sketch of oil tanks of P.L.&P. Co. at Redondo.

△ Ridge - July 25th

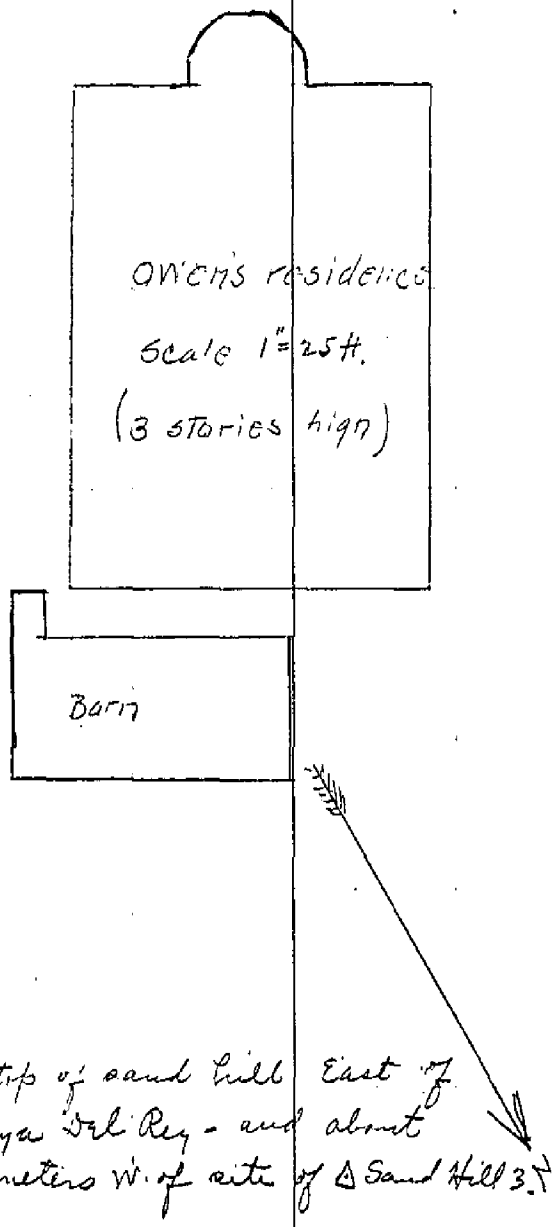
The location of this station was on the ridge lying immediately north of the intersection of Third St. and Rose Ave, in Ocean Park. This land is unimproved but no trace of the station could be found. Neither the O.P. City Engineers Office nor the County Surveyors Office have any record of the station - The oldest inhabitants can give no information concerning it and the description of the station is so vague and indefinite to warrant the expense of digging for the sub-surface mark -

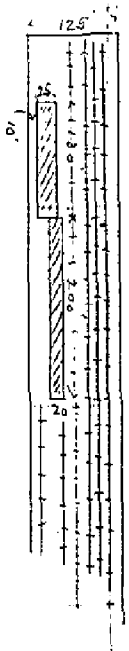
Ocean Park Gas works is in the block south of the intersection of ~~Second~~ Lake St and Rose Ave (about 250' from Rose Ave ?)

△ Sand Hill 3.

The sand hill in the vicinity of this station is much furrowed and pitted up by the action of the wind and no trace of the old station or its marks could be found - An old Spaniard was interviewed, who has known the country intimately for years and who pointed out approximately the site of the sta - and stated that the old signal had been gone for many years.

"Orris" House the conspicuous residence observed on from all the piers stands about 100 meters W. of the site of the station. see sketch below -


Owen's residence
Scale 1" = 25 ft.
(3 stories high)
Barn
on top of sand hill East of
Playa Del Rey - and about
100 meters W. of site of Δ Sand Hill 3.



Long Wharf
Santa Monica, Cal.
Scale 1" = 250' (approx.)

Highland Cottage of old chart is on Lots 5 & 6 200 ft. East of cor of Temple + 5th st and 25 S. of S. line of 5th st: see below *

S. Line col. st. to N. line Hollister = 3605 ft.
N. line Hollister to N. line Marine = 3005 ft.

N. line Marine to N. line windward ave = 4305 ft.
N line windward ave. to S. line Hurt st
= 11200 ft

all above distances scaled from orig. map in City Eng's. Office S.M.

---

* Highland Cottage(?) is in line with the center line of Temple, st. Santa Monica - and its west line is 100 ft. East of the East line of 6th st - this is the oldest ho. on the hill + is on the highest ground. Not the house

Sextant Angles at Highland Cottage (center of W. side) July 30 -

watertank on hill at Del Rey to to W. cor. Bristol Pier Bldg = 68°-48'

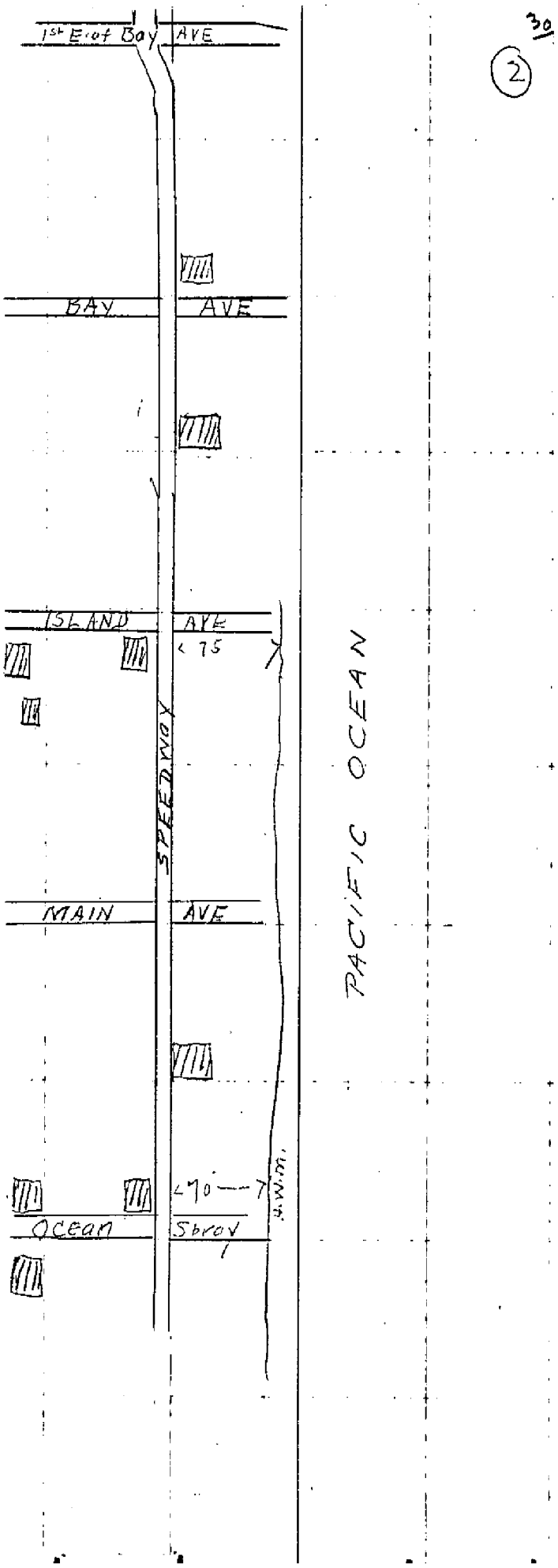
R. tan of consp. ho. on hill at Del Rey to W. cor. Bristol Pier Bldg = 68°-24'

Center Ocean Park Bath House (south of Marine St) to W. cor. Bristol Pier Bldg. = 45-28

approx center O.P. Gas Tank to same = 59°-52'

staff on center of circular red roofed water tank or reservoir in O.P. to same = 67°-44'

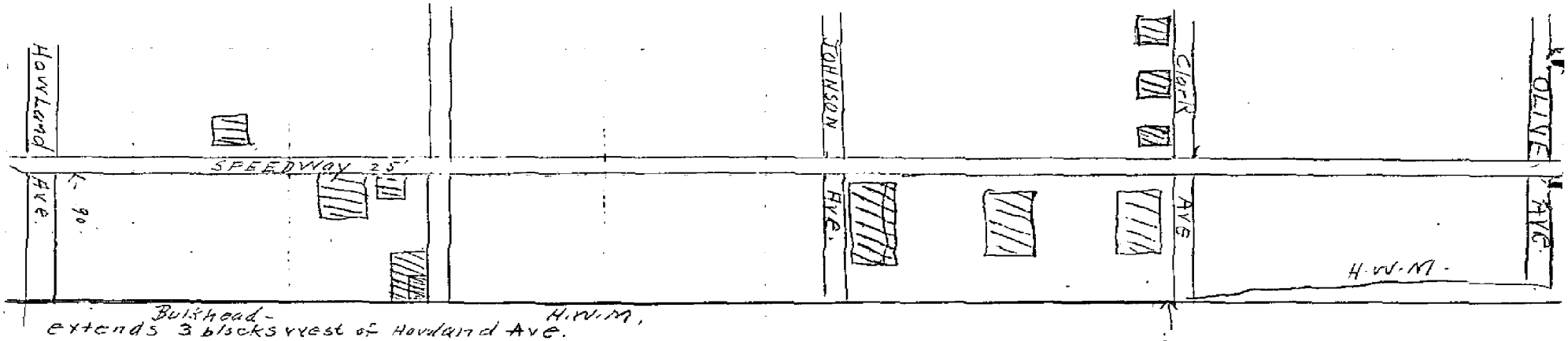
not "Highland Cottage"



1st E. of Bay AVE
BAY AVE
ISLAND AVE
< 75
SPEEDWAY
MAIN AVE
PACIFIC OCEAN
< 70
Ocean Sbroy

30

2



PACIFIC OCEAN

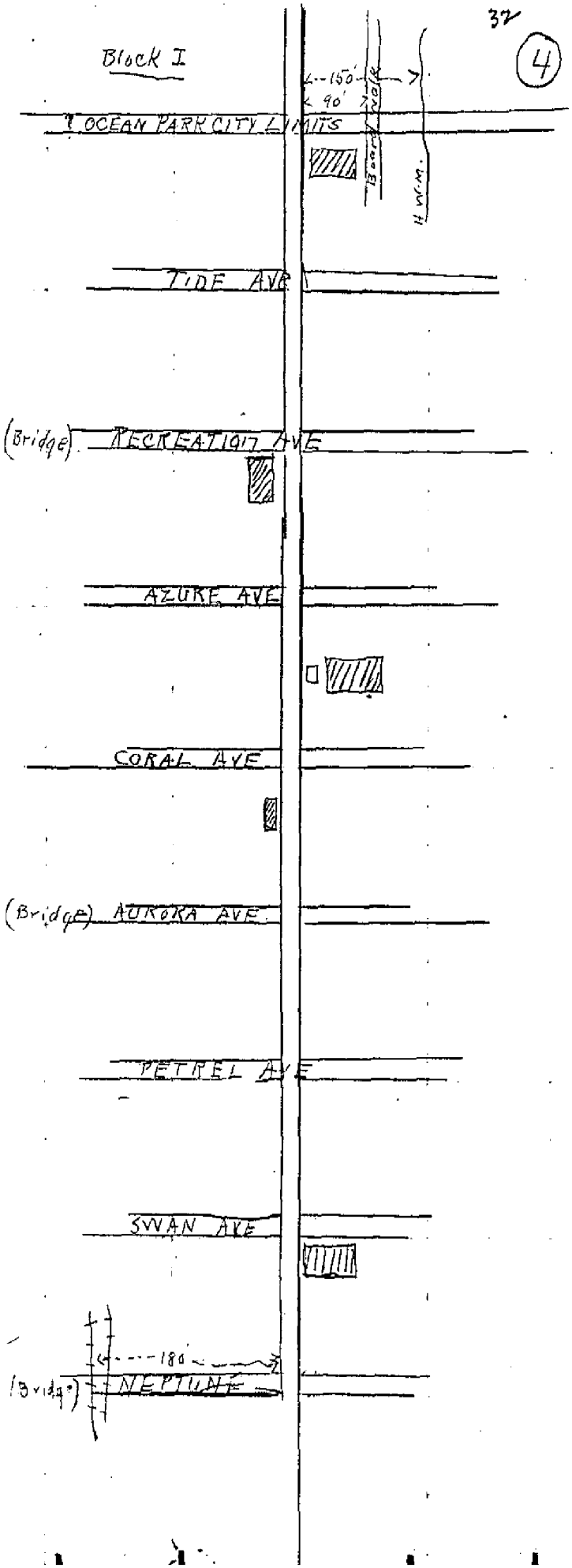
Sketch from Howland Ave (Ocean Park) to Playa Del Rey Pavilion (Playa Del Rey) showing location of all buildings - Positions are proportional to size of blocks as shown -

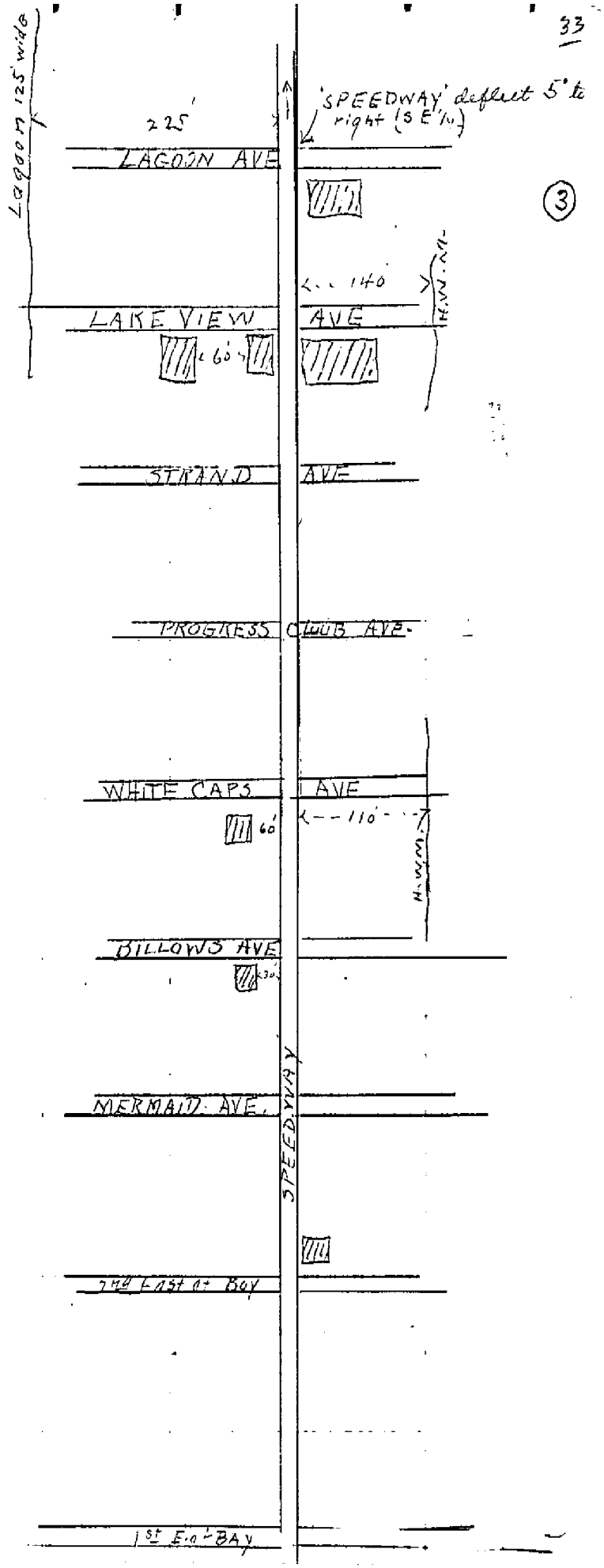
aug. 11th

1

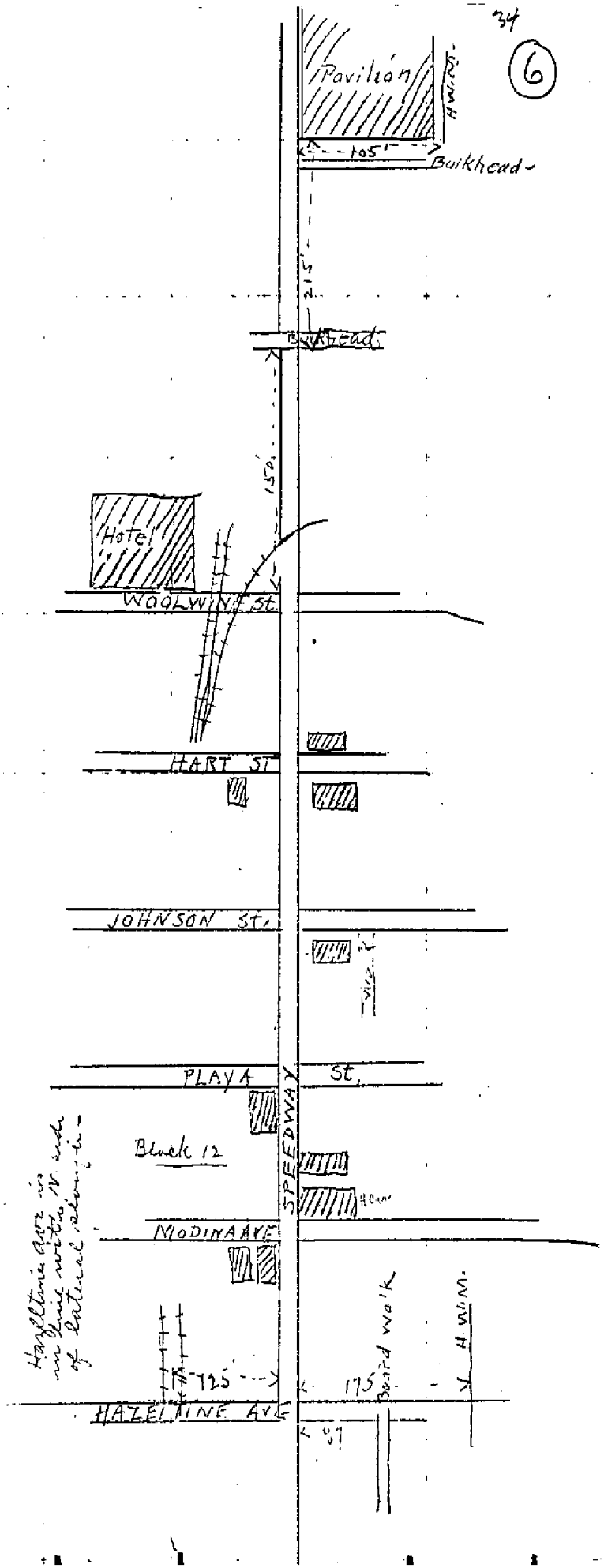
31

4

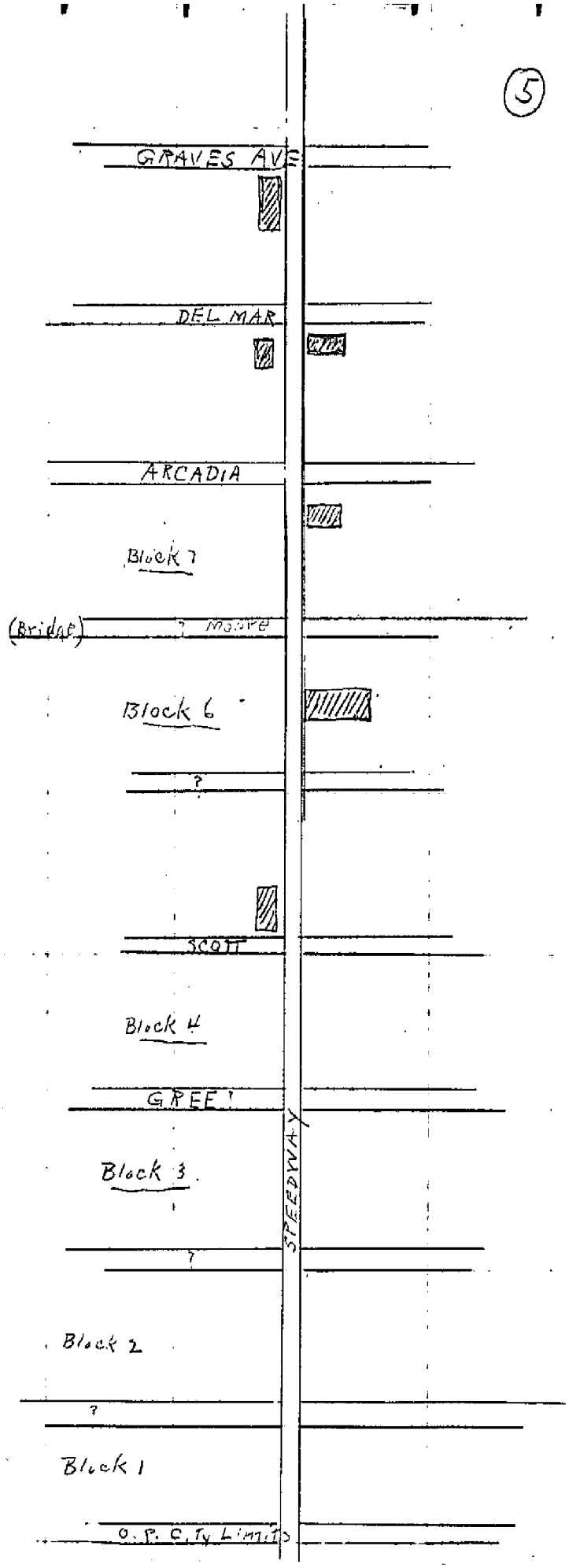

Block I
150'
90'
Board Walk
H.W.M.
OCEAN PARK CITY LIMITS
TIDE AVE
(Bridge) RECREATION AVE
AZURE AVE
CORAL AVE
(Bridge) AURORA AVE
PETREL AVE
SWAN AVE
180'
(Bridge) NEPTUNE


Lagoon 125' wide
225'
'SPEEDWAY' deflect 5° to right (S E'ly)
LAGOON AVE
3
140
H.W.M.
LAKE VIEW
AVE
60'
STRAND
AVE
PROGRESS CLUB AVE.
WHITE CAPS
AVE
60'
110'
H.W.M.
BILLOWS AVE
30'
SPEEDWAY
MERMAID AVE.
2nd East of Bay
1st E. of Bay

6


Pavilion
H.W.M.
105'
Bulkhead
215'
Bulkhead
150'
Hotel
WOOLWINE St.
HART ST
JOHNSON St.
PLAYA St.
Block 12
SPEEDWAY
MODINA AVE
Board walk
H.W.M.
125'
175'
HAZELTINE AVE
97'

(5)


GRAVES AVE
DEL MAR
ARCADIA
Block 7
(Bridge)
? Moore
Block 6
?
SCOTT
Block 4
GREEN
Block 3
STEEDWAY
?
Block 2
?
Block 1
O. P. City Limits

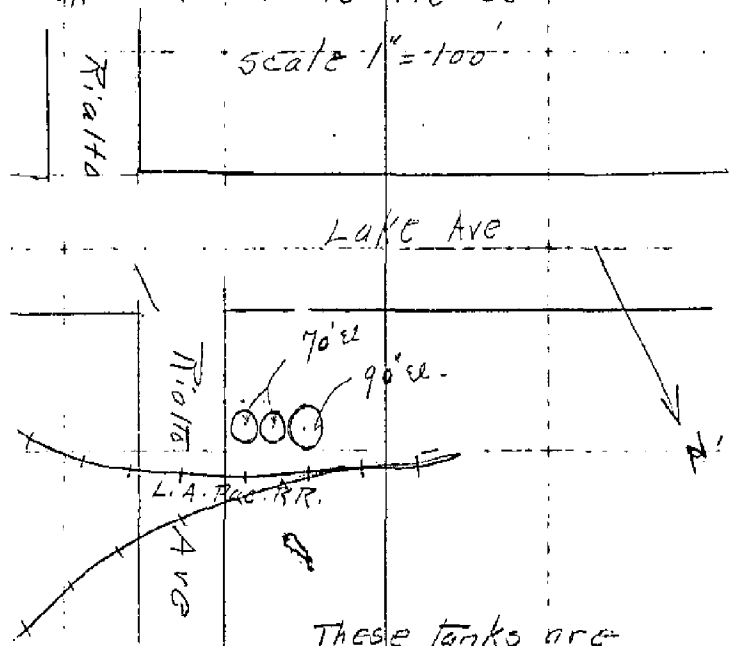
Redondo Beach

Pier No. 1 is 750 ft. long from outer end of Pavilion x 75 wide on outer end

Pier No 2 is 640 out from H W M -

Ocean Park -

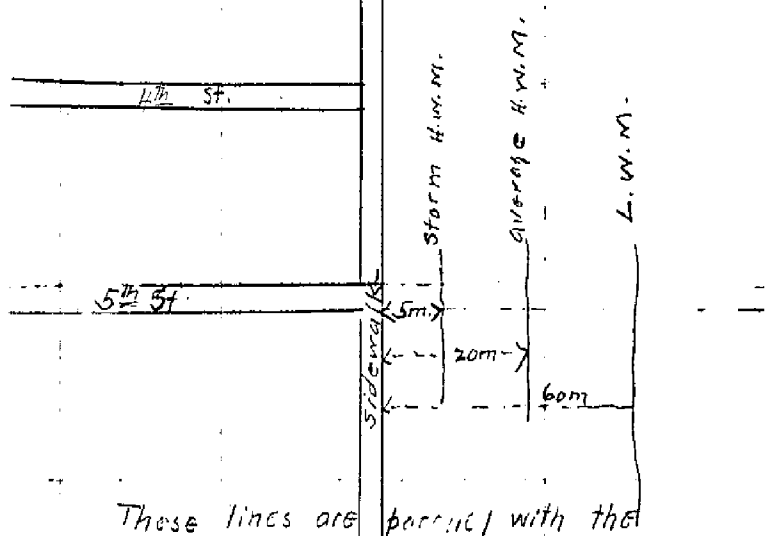
sketch showing location of 3 high tanks at west side Rialto Ave. between Lake and Electric Avenues -



These tanks are very conspicuous -

Hermosa Pier 4 -

Location of H.W.M -



These lines are parallel with the sidewalk (outer property line) between the Pacific Light & Power Co's Pier and Hermosa Pier. The projection (bulge) of the H.W.M. as shown on the chart at this point is incorrect.

△ Rocky Point

The hill on which this station was located is in the Palos Verde Ranch and the surrounding country is used only as a stock range. No trace of the signal or station marks can be found, and the ground is too hard and the exact location too uncertain to warrant digging for the sub-surface mark.

Should it ever become especially desirable or necessary to recover this station, it seems probable that by digging on the summit or on a small knoll or bench slightly below the summit that the sub-surface mark might be found.

The ground has evidently never been disturbed and the hill top is covered (Aug. 1910) by dry grass and sage brush. The soil is a red gravelly loam with some flat rock scattered on the surface.

△ Cove

The ground where this station was located is now a grain field and no trace of a signal or station marks can be found.

Map of Hermosa Beach from
H.B. L. & W. Co.
#503 Grant Bldg. L.A.

Map of Redondo Beach from
L. Friel. L.A.

A West Beach on site of home
on Duncan Ranch - owned by
Burbank & Baker - 5th Floor of
Grant Bldg. L.A.

See Mr. E.R. Davis at on 6th floor
P.E. Bldg (P.L. & P. Co.) for plan of
oil tanks at Redondo Beach.

83
STA
3086

3086

C. & G. SURVEY,
LIBRARY AND ARCHIVES
SEP 9 - 1910
ACC. No.

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

O. H. Tittmann
Superintendent.

State: California

DESCRIPTIVE REPORT.

Top. *Sheet No.* 3086

LOCALITY:

Santa Monica
Bay, Cal.

1910.

CHIEF OF PARTY:

H. W. Rhodes

3086

General description of methods employed in revision of Chart #5144.

C. & G. SURVEY, LIBRARY AND ARCHIVES
SEP 9 - 1910
Acc. No.

None of the old triangulation stations adjacent ot the shore between Point Dume and Rocky Point could be found, and none of the old buildings from which it was possible to obtain a view and make observations could be recovered.

The "Long Wharf" (Port Los Angeles) was found unchanged in length, and by accurately locating the new municipal pier at Santa Monica in the extension of Colorado Street, two points were obtained from which to carry a system of sextant angles between the pier heads along the water front, and obtain a check on the location of the improvements, which were then plotted by obtaining and compiling property maps along the entire stretch of shore line between Santa Monica and Redondo Beach, and reducing to the scale of the chart. This was slow and laborious work but the only feasible means of locating the improvements without the use of the plane table, the use of which was not permitted under the instructions for the work.

Right of way maps of the Pacific Electric Railway covering the whole stretch of territory between Santa Monica and Redondo Beach were secured and used to check the distances on street and property maps wherever possible. The mean distance between Colorado Street in Santa Monica and 8th. street in Redondo Beach as given by the railroad and property maps, was harmonized with the scaled distance between the same points on chart # 5144.

The locationsof all improvements have been made as carefully as possible and it is believed there is no appreciable error in any of the positions as given on the chart. The sextant angles to the ends of the piers check up satisfactorily and afford a

moderate check on the distances between the piers.

The charted entrance to the lagoon at Del Rey was the only point of control between the points named above, and afforded a satisfactory check at that point. Sextant angles to prominent objects agreed in a satisfactory manner with their locations on street maps and with the topography as shown on the chart.

Owing to the great differences in the scale of chart #5144 and those of the street plans and Railway right of way maps, it was impossible to use proportional dividers and all distances had to be scaled and then multiplied by their reducers to bring them to the scale of the chart. The plotting directly on the chart has not been satisfactory owing to its small scale and the fact that in many places it was already covered by topographical symbols.

There are transmitted herewith a report on the triangulation stations included within the limits of the revision work, and a general report on the street car lines within the same area. This latter report has been found necessary as it was impracticable to plot the car lines in many places to the scale of the chart.

The detailed descriptive report also submitted is intended to furnish any required additional information in regard to prominent features which the scale of the chart does not permit to be shown in detail. It has also been found impracticable to indicate the built up districts by shading the blocks in the customary manner, and the description is full enough to permit that to be done on the finished chart if it is desired.

Four sheets of plotting notes are also transmitted showing what corrections have been applied to adjust the discrepancies between the chart distances and those secured from other maps.

34 numbered maps and plans are also submitted together with one volume of field notes and sketches; these are referred to in the detailed report by numbers and pages respectively.

REPORT ON TRIANGULATION STATIONS ON CHART #5144. (AUG. 1910)

LA MESA. (Primary)

This station was located near the intersection of 22nd. street and Michigan Avenue in Santa Monica, but no trace of it can be found. The ground on the north side of 22nd. street is now a barley field. On the south side of the street several small houses have been built. A careful search was made through the records and maps in the City Engineer's Office in Santa Monica, and in the County Surveyor's Office in Los Angeles for references or connections to this station, but nothing could be found.

Information from the city Engineer's Office in Santa Monica indicates that the signal formerly standing over the station has not been there since 1889. No trace of the red sand-stone surface mark could be found or any information concerning it from the oldest inhabitants. The description of the station is too general to give a location accurate enough to warrant the expense of digging for the sub-surface mark.

RIDGE.

The location of this station was on the ridge lying immediately north of the intersection of Third Street and Rose Avenue in Ocean Park. The land is unimproved but no trace of the station could be found. Neither the Ocean Park City Engineer's Office nor the County Surveyor's Office have any record of the station. The land is lying idle now but for some years past it has been ploughed and sown to barley. The oldest inhabitant can give no information concerning the station and its description is too vague and indefinite to warrant the expense of digging for the sub surface mark.

High Table.

This station was too far from the field of operations to be of value in the revision work in view of the fact that none of the adjoining stations could be found, and no search was made for it. The country between it and the beach contains a number of groves of high eucalyptus trees which practically obscure the view in that direction.

Sand Hill 3.

The sand hill in the vicinity of this station is much furrowed and gullied on top by the action of the wind and no trace of the old station or its marks can be found. An old Spaniard was interviewed who has known the country intimately for years and who pointed out the approximate site of the station and stated that the old signal had been gone for many years. Owen's house, the "Conspicuous house" observed on from most of the piers, stands about 100 meters west of the site of the station.

West Beach.

A large three story residence with outbuildings, known as the "Duncan Ranch House" was built on the summit of the hill where this station was located about the year 1895. A cement reservoir about ten feet deep and about 40' x 100' and covering the northern portion of the summit of the hill was built at the same time and it appears that the southern end of this reservoir now occupies the former site of this station. The family at present living in the house have no knowledge of any station mark, and as the ground immediately surrounding the reservoir has been ploughed and cultivated by them without finding any stone or other

station mark, there is little doubt that all of the station markings were destroyed when the reservoir was built.

Salt Pond.

Assistant Ferdinand Westdahl searched for this station in 1893 without success, and no extended search was made for it at this time. The area surrounding the site of this station is now covered by numerous groves of tall and heavy eucalyptus trees and even if found it would be impossible to occupy or observe on the station from other stations.

Cove.

The ground where this station was located is now a grain field and no trace of a signal or station marks can be found. The station was evidently on a shoulder or bench below the main summit of the ridge, shown on the chart as having an elevation of 232 feet. The description of this station states that it was located about 500 meters from the shore line but its position on the ground shows it to have been about 900 meters from the shore and its description should be corrected accordingly.

Rocky Point.

The hill on which this station was located ~~was~~ is in a large unimproved ranch which is used only as a stock range. No trace of a signal or station marks can be found and the ground is now too hard and the exact location too uncertain to warrant the expense of digging for the sub-surface mark. Should it ever become especially desirable or necessary to recover this station, it seems probable that by digging on the summit or on a prominent bench a little below the main summit, that the sub surface mark might be

found. The ground has evidently never been disturbed and the hill-top is covered (August 1910) with dry grass and sage brush. The soil is a red gravelly loam with some float rock scattered on the surface.

Report on Electric and Steam Roads shown on chart #5144.

The Los Angeles Pacific Electric Railway system embraces all the lines shown on this chart excepting the Redondo Railway Co.(narrow gauge electric) and the Southern California Railroad (now Atchison Topeka & Santa Fe,steam) which are shown at the Redondo Beach end.

The Southern Pacific Railroad and the Southern California Railroad, shown on the chart as entering Santa Monica are now electrized and a part of the Pacific Electric System. This Company has four double track lines between Los Angeles and the Coast as follows:-

The Westgate and Brentwood Park line entering Santa Monica on San Vicente Road and Ocean Avenue as shown on maps Nos. 1 and 2.

The Hollywood,Beverly,and Sawtelle Line, entering Santa Monica by Oregon Avenue and Ocean Avenue.

The Venice Short Line entering Santa Monica by way of Venice as shown on maps nos. 1 & 2 and blue prints of the P.E.right of way.

The Del Rey & Redondo Line , connecting at Del Rey with the double track line from that point to Santa Monica, as shown on the accompanying blue prints. The cars from Los Angeles on this line run through to Redondo on a double track line as shown on the right of way blue prints.

The line formerly shown on Nevada Avenue in Santa Monica has been taken up. The old Southern Pacific Line is still a single track road. The old Sou. Cal. R.R. is still a single track line and its present location is shown on maps 1, 3, 10, & 11. Its alignment has been changed through Venice as is shown on map No.3.

The location of the Sou. Cal. R.R. entering Redondo has been changed in the vicinity of Manhattan Beach as shown on map No.34.

Detailed Descriptive Report to accompany revision work on Chart No. 5144, Point Dume to Rocky Point.

The shore line from Point Dume to Port Los Angeles (Long Wharf) is apparently unchanged and there are no improvements which show from the water; the ground is rough and broken and at present used only for grazing purposes. The Long Wharf is unchanged except that the coal bunkers on the west side have been removed and a two story office building and long shed erected at the outer end and closer to the east side as shown in sketch page 28 of sketch book. At present (July 1910) there is but little traffic over the wharf, in fact none except the cargo of an occasional lumber schooner. All of the former passenger and freight business is now handled at Redondo Beach or San Pedro. No steam cars are operated to the wharf, the old Southern Pacific Line having been converted into an electric line and transferred to the Los Angeles Pacific Co. (a subsidiary S.P. corporation) which operates local cars from Santa Monica.

Santa Monica.

The town of Santa Monica has grown to a population of about 11 000 and from Montana Street and Ocean Avenue Southeastward along Ocean Avenue it has been well built up with residences. The edge of the bluff from Colorado Street northward outside of Ocean Ave. is a public park and the shade trees growing there obscure most of the residences inshore. The town is continuous, though somewhat sparsely built up , eastward as far as Sawtelle and the Soldiers' Home. From Hollister Avenue southward to Marine Street, the southerly city limit, there is a solidly built residence district extending from the beach to two blocks inshore; to the eastward, on the higher ground,there is a well built up district for one-

~~half mile inshore~~

half mile inshore , but not so solidly built as along the shore line.

The new municipal pier, a reinforced concrete structure 1600 feet long from H.W.M., in the line of Colorado Street, is a conspicuous mark and is brilliantly illuminated at night;(see p.4 of sketch book) the city's outfall sewer is carried underneath it and its superstructure is used solely as a recreation pier; there are accommodation ladders for the use of parties landing from small boats but no provision for handling freight or passenger boats.

The Arcadia Hotel with its associated buildings,on the beach, for many years a conspicuous land mark has recently been torn down and should be removed from the chart. There are no buildings on the bluff along the water front between Colorado Street and Fremont Ave. except the Kensington Apartment buildings as shown on map No.2. the north side of Ocean Ave. however,is closely built up as indicated on the same map.

Bristol Pier in the extension of Hollister Avenue is "L" shaped and the outer end,which is parallel to the beach ,is entirely covered by a restaurant building ,2 stories in height, which is a conspicuous mark. During the summer months it is brilliantly lighted at night. see p. 11 of sketch book.

Marine Street or "Horse Shoe" Pier in the line of extension of Marine Street was formerly shaped like a horseshoe as shown on map No. 2 but the Pier Ave. part has been destroyed and its present size is given by description and sketch on pages 8 and 9 of sketch book. Preparations are all complete for extending this pier making it 274 feet wide and 900 feet long including the present Marine Street Pier. It is proposed to begin this work on Oct. 1st. and to have it completed within 6 months from that date.

Conspicuous Land Marks.

Map No.2 shows the location of nearly all the public buildings in Santa Monica, but while the street plan of that map is correct, the size of the buildings and piers shown on it have been exaggerated for display purposes, it being intended for a real-estate map. But few of the buildings shown however are conspicuous enough for identification from the water , as they are either on level ground or obscured by shade trees.

"Gray House" (Tower on chart) is a conspicuous gray plastered residence on the corner of Ocean Ave. and Georgina Street. It is located and described on p.2 of sketch book; sextant cuts were taken to it from Santa Monica Municipal Pier, Life saving station on Venice Pier, and from Hyperion Pier. see pp. 5,7, and 15 of sketches.

"Dome" is the red tiled roof,or dome, of a residence at the east corner of Bicknell Avenue and Third St. The house which is of moorish design and stands conspicuously on the west slope of the ridge , is known locally as the moorish or "Turkish" house; it is three stories high ,finished in plaster,and the red tiled dome is a conspicuous mark from the water. sextant cuts to it are given on pages 3,5,7,& 9 of sketch book.

"Hospital". Santa Monica Bay Hospital on the west corner of Fourth and Pacific Streets is a conspicuous red brick building on the crown of the first ridge. sextant cuts to it are given on pages 3 and 9 in sketch book.

"Washington School", a conspicuous red brick building on the west corner of Fourth Street and Ashland Avenue, is on the top of the first slope and easily identified. Sextant cuts to it are given on pages 3,5,7,&11 of sketch book.

"Auditorium". The Marine Street auditorium and Pavilion, a v very large high brown building extending along H.W.M. from Marine Street Pier to Pier Avenue, and partly on shore and partly on the pier , is a conspicuous land mark.

OCEAN PARK.

Ocean Park from its northerly limits at Marine St. southward to Howland Ave., and from the beach to a distance of one block east of the railroad double tracks, is built up solidly. Inshore of this section,to the eastward, the residences are more scattered but extend in that direction for about a mile or to the city's easterly limits. From Howland Ave. southward to the city limits the location of all buildings are shown on pages. 30,31,32,& 33 of sketch book.

Ocean Park includes "Venice of America" a popular amusement resort, and its permanent population is about 4 000 with probably three times as many in the summer time.

Conspicuous Land Marks.

"Bath House". The Ocean Park bath house is a high building with minarets surmounted by spires and is a conspicuous mark on the beach between Navy Street and Ozone Ave. as shown on map No.2.

"Gas Tank". The Ocean Park gas tank is one of the most conspicuous marks along this stretch of the shore line; it lies about 90 meters south of Rose Street in the block between Serena Street and Lake Avenue; its position is shown on map No.3.and sextant cuts are given to it on pages 3,5,7,9,11,and 13 of sketch book.

"Venice Pier". The pleasure pier at Venice with its associated buildings and amusement structures, constitute the most conspicuous group along this part of the shore line. Details of the wharf and buildings on and adjacent to it are shown on maps 2, 3, 8, and

9 and the details of the extension of 100 feet beyond the Breakwater are given on page 6 of sketch book. Where there are differences in the details of this pier among the maps showing it, map No. 9 should control except in the case of the scenic railroad which is not shown on it.

"Auditorium". The tower of the auditorium is a very high circular structure not unlike a light house in appearance, and an excellent land mark. The ship hotel has three masts and is also conspicuous. The dancing pavilion and the Plunge north of it are both large and conspicuous buildings. The Scenic Railroad lies to the north of the pier buildings, its outer end being just abreast the outer end of the Dancing Pavilion; it is a high structure surmounted on the east and south sides respectively by an artificial mountain peak, each of which is about 60 feet high and conspicuous.

Since the construction of the breakwater in 1905 for the protection of the pier and buildings on it , the water has shoaled back of it , and the H.W.M. is now about 300 feet further out than formerly. (see p. 7 of sketch book for fuller description) South of the Venice Pier the sea has encroached on the shore line and from Virginia Ave. to Clark Ave., a distance of six squares, the land has been protected by a bulkhead and the City is now (July 1910) preparing to extend this bulkhead still further to the southward.

"High Water Tanks". These are located at the west corner of Rialto Street and the Inglewood Div. right of way of the Pacific Electric Ry. as shown on map No. 3 and on page 36 of sketch book. The northerly one of these tanks is the larger and higher, having an elevation of 90 feet above the ground while the two smaller ones have an elevation of 70 feet each.

There are three concrete bridges across the lagoon near the southerly limits of Ocean Park but at the present time there are no buildings on the Northeast side of the lagoon.

PLAYA DEL REY.

This is the most southerly of the beach resorts connected with Santa Monica. It consists chiefly of the Auditorium and hotel as shown on pp 12 and 24 of sketch book, and a few buildings north of the lagoon at the junction of the Lagoon and Del Rey Divisions of the P.E.Ry. This was the site of a proposed inner harbor a number of years ago but the idea of maintaining an artificial entrance was finally abandoned as impracticable. There are now two rock jetties at the entrance to the lagoon but the channel between them has apparently but little greater depth than the water outside. Heavy sluice gates in the bridge which crosses the lagoon's entrance at H.W.M.,control the flow of water into and out of the lagoon to a considerable extent. A small suction dredge is kept at work almost continuously just inside the entrance to the lagoon to maintain a sufficient depth of water to permit boating and bathing at that point. The southeast end of the lagoon has been filled in and the track of the P.E.Ry. now runs around the end of it as indicated on the chart. A very high arch bridge of reinforced concrete crosses the lagoon at Moore Street as shown on the chart but as yet there are no buildings east of the lagoon at this point.

The Lagoon Division of the Pacific Electric Ry. connects with the Del Rey Division of the same line at the head of the lagoon and the latter division continues as the Redondo Division to the terminus of the line at Redondo Beach.

About one mile inside of Del Rey on the Del Rey Division of

the Pacific Electric Railway a large motordrome has been constructed, the parts of it forming the grand stand rising to a height of about 40 feet above the ground but it is not conspicuous from the water as the buildings and sand ridges nearer the water partly obscure it.

There is a conspicuous house (a large residence) and a high tank on the high ground just south of Del Rey as shown on the chart. Sextant angles for the location of these objects are given on pages 7, 13, 15, 17, and 19 of the sketch book. These two objects are the most conspicuous marks along the coast as they stand on the summit of the ridge at an elevation of about 150 feet and are not confused by any other buildings; there are several residences on the slope of the bluff just north of the conspicuous house, but they do not show clearly and not at all at a distance.

. . . . . .

Hyperion Pier, built to carry the Los Angeles outfall sewer , is 962 feet long from the P. E. Ry tracks and the deck which carries the pipe is about 12 feet above high water mark. The plan of the pier and sextant angles from its outer end are given on pages 14 & 15 of the sketch book. There are no buildings or structures of any kind , excepting Hyperion Pier, between Del Rey and North Manhattan Beach (Peck's Pier) and no apparent changes in the shore line.

. . . . . .

<u>Manhattan, Shakespeare and Hermosa Beaches.</u>

From Peck's Pier southeastward to Redondo Beach the land along the coast has been subdivided and improved and there are a considerable number of residences from one to three squares back from the beach along the whole stretch.

From Peck's Pier to Manhattan Pier the buildings are more scattering averaging two or three to the square and all within two squares of the water. From Manhattan Pier to Redondo the buildings are more numerous and extend back three squares from the water with more solidly built portions in the vicinity of Manhattan and Hermosa Piers.

The H.W.M. as shown on the chart between Hermosa Pier and the Pacific Light & Power Co's Pier in Redondo is incorrect and should be corrected as shown in red ink; see p. 37 of sketch book.

CONSPICUOUS OBJECTS.

Peck's Pier, Manhattan Pier, and Hermosa Pier are all pleasure piers constructed with raw piles which are at present badly eaten by the teredo and in need of repairs. As portions of the outer ends of all of these piers have been carried away by winter storms during the past few years it is quite probable that their lengths will be further reduced in the near future.

"Peck's Pavilion" located at H.W.M. about six squares south of Peck's Pier is a rather conspicuous mark from the water; its description is given on p.17 of sketch book and on map No.24, and angles to it on pp.17 & 19 of sketch book.

"Church" located three squares inshore and three squares south from Manhattan Pier is a conspicuous gray building on top of the ridge with a square tower on its southeast corner; sextant angles to it are given on pp 19 & 23 of sketch book.

"School" three squares inshore and six squares north of Hermosa Pier is a very conspicuous high gray building with an open tower or belfry on its outboard side. It is on the highest point of the ridge of sand dunes , and as the contours of the chart would indicate its position as inshore of the summit, it is evident (as it

appears) that the dunes are building inshore.

The Pacific Power & Light Co's Pier has been lengthened 100 feet (July and August 1910).

"Chimneys". The P. L. & P. Co's power house has been enlarged and is now surmounted by three large and very conspicuous concrete chimneysas shown by sketch on p. 24 of sketch book. These chimneys are 14' x 125' and are very conspicuous marks.

"Tanks". The two large black tanks adjoining the P.L. & P. Co's plant on the south are 30 feet in height and rather conspicuous; their locations are given on p. 25 of sketch book.

. . . . . .

REDONDO BEACH.

From 9th St. to pier No. 1 the area between the water front and the railroad tracks is built up solidly with summer residences . Piers No.1 and No.2 are unchanged in shape. Pier No.3 has been lengthened about 150 feet.

The old pier shown on the chart about 150 meters south of pier No. 3 has been destroyed.

A number of residences have been built on the bluff between the R.R. track and the beach but none are particularly conspicuous or remarkable in comparison with the large number of conspicuous objects shown in Redondo.

From Redondo to Rocky Point there are no apparent changes in the shore line and no improvements on shore that are visible from the water . The land between Redondo and the canon in Malaga Cove is grain land and southward of the canon the land is used for grazing purposes only. The location of the road from the canon to triangulation station "Rocky Point" has been changed as indicated on the chart . The road is somewhat indefinite being on private

fenced property and little used, but its location has been sketched as carefully as possible.

Plotting Notes
for revision of Chart #5144

(1)

Department of Commerce and Labor

From sta 240+04.2 on S. line of Hart St in Del Rey to sta 327+91.5 (E.C on Tang. along beach) using equation End of Lagoon Division 256+99.63 = Beg of Redondo Division 309+49.81 the distance on Ry. track is 3537.1 ft., and the distance along the beach between perpendiculars to the beach at these points (from property surveys) is 3305.3 ft giving a difference of 231.8 ft. due to curves and deflections in the R.R. alignment at this point, and by which amount the Ry. distances, including this stretch, must be reduced to obtain correct measurements along the beach.

From sta. 625+38.14 on N. line of 1st St. bet. Shakespeare and Manhattan Beach to sta. 727+36.68 on N. line of 9th St. in Ocean Beach (Redondo) is 10198.54 ft on Ry. track and the distance along the beach, bet. perpendiculars to it from the above points, by property measurements is 10108.0 ft.

From Center line of Colorado St. at Ocean Ave - Sta 13+59.6 to sta. 240+04.2 on S. line of Hart St in Del Rey is 22644.6 ft. which is practically the same as the beach measurement.

Reduced distance along beach from center line of Colorado St to N. line of 9th St. Ocean Beach is

22644.4	col st to S line Hart St.
3305.3	S line Hart to 327+91.5
29746.64	Sta. 327+91.5 to 625+38.14
10108.0	To 625+38.14 to N. line 9th
65804.34	

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Dist. by Railroad and property measurements along [illegible] between Center line of Colorado St. in Santa Monica and N. line of 9th St. in Ocean Beach (Redondo) is 65804.34 ft. = 20 057.16 meters.

By chart 5144 the distance between the same points is 20 000.0 meters which gives a correction of 57 meters to be distributed throughout the measured distance. (reduce all measured distances by 1m. in every 352.0 meters.

Distance of Hermosa Pier = 4125.0 ft North of N. line of 9th St. Ocean Beach. (1257.3 meters)
Direction of Pier is S78W true. (local maps)

N. line of Manhattan Pier = 12883.7 ft N. of N. line of 9th St. Ocean Beach = 3926.9 meters
Direction of Pier is S68W true. (from local maps)

N. line of Pecks Pier to N. line of 9th St. Ocean Beach = 5619.41 meters.
Less 16.0 meters correction = 5603.4 meters
Direction of Pier is S70°W true (local map)

N. Line of Hyperion Pier to N. line of 9th St. Ocean Beach = 8585.9 meters
Less 50 meters correction = 8536.0 meters.
Direction of pier is S67°W true (local maps)

S. line of Colorado St to N line Hollister Ave. is 1097.3 meters along promenade by property measurements
Direction of Hollister Ave. & Bristol Pier is S51°W true (local map)

July 30 scaled dist. [illegible] bet. Col St. and 9th St. in Ocean B. as 19210.0 m. (a shrinkage of 6 cm.)

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N. line Hollister Ave. to N. line Marine st is 916.2 meters along promenade by property measurements.
Direction of Marine st. and Pier is S51°W by local map.

N. line Marine st. to N. line Windward Ave. is 1307.9 meters along promenade by prop. measurements.
Direction of Windward Ave + Pier by local map is S53°W (true) Less correction for 3321.4m. from S. line Col. st gives 3311.4 m. from that point

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N. line Windward Ave. to Del Rey Pier is 3642 meters by property measurements along the beach.
Combining this with distances of other piers East of S. line of Colorado St. gives Del Rey pier as 6963.4 meters from S. line of Col. st.
Correcting (*) 41 m. gives 6922.4 m. from S. line of Col St.
Direction of Pier is S65°W true, by local map
(* Col. st, to 9th st. O.B., measures 19940 m. on chart this day giving a minus correction of 117 m to be applied to measured distance bet. those points or 1m in every 171 meters)

Ocean Park Gas Tank is in lower end of "f" in "California".

(A)

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using 800 meter distances

Col. St. to 9th Ave. is 19940m by Chart 5144
meas. distance is 20057m.

20057 measured m. to be reduced by 117 meters
or by 1 for 171 meters - O.K.

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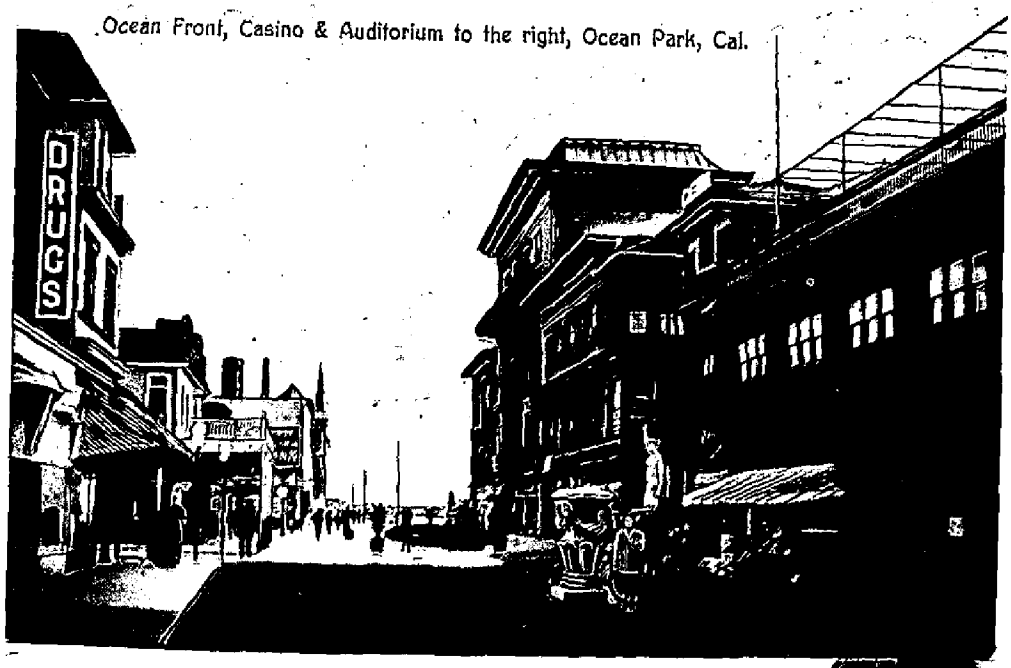
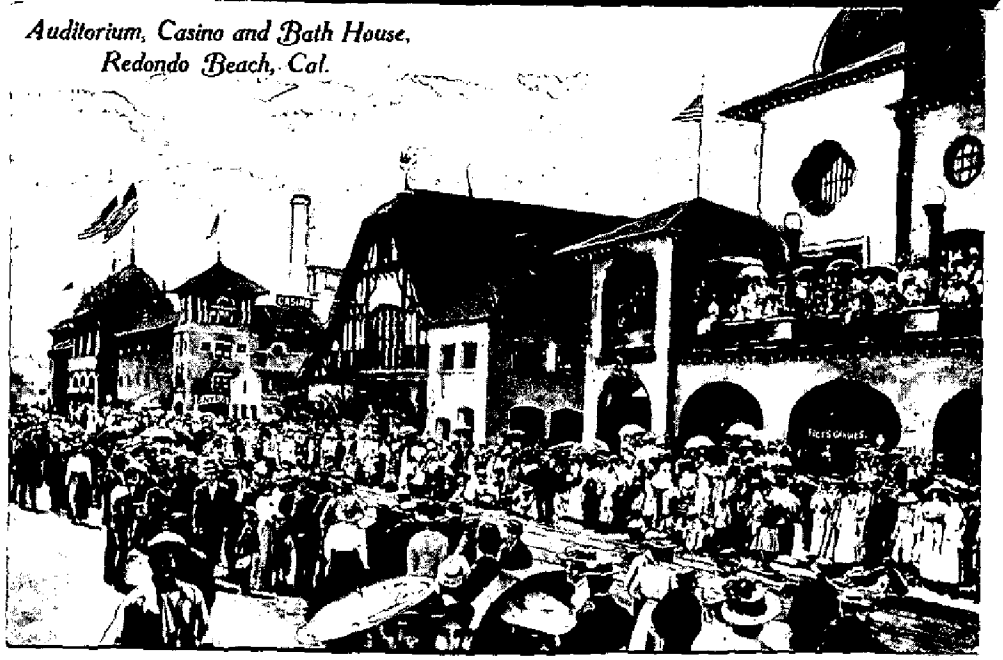
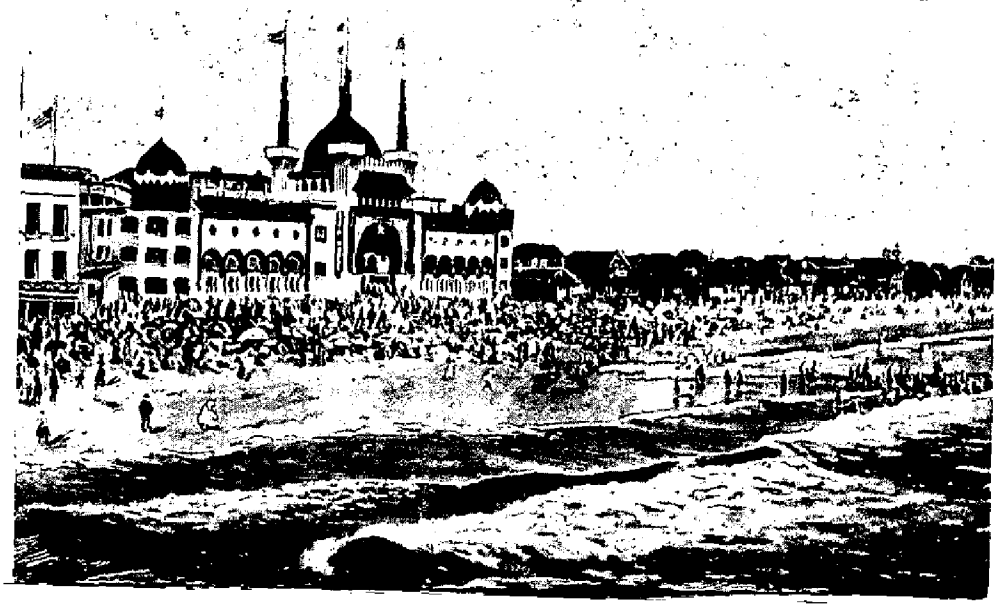
Ocean Front, Casino & Auditorium to the right, Ocean Park, Cal.

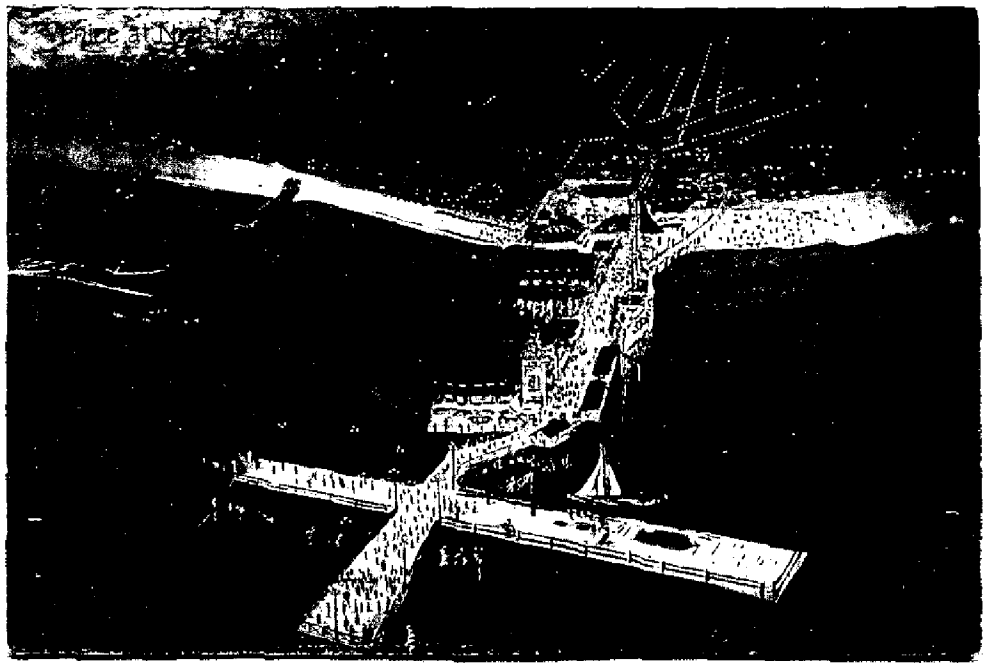


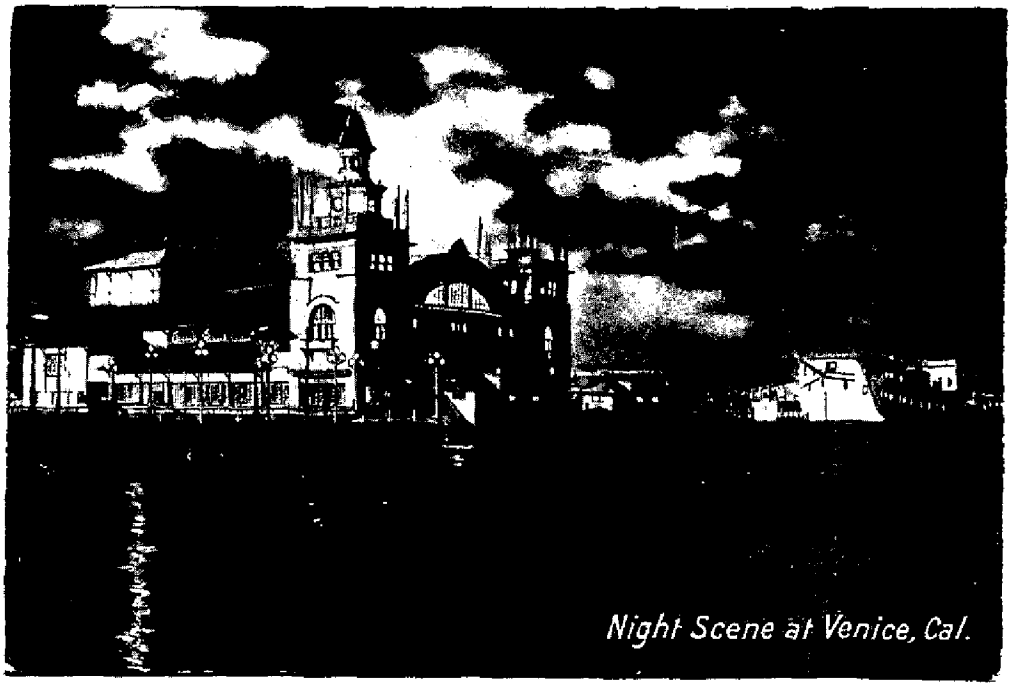
Auditorium, Casino and Bath House, Redondo Beach, Cal.

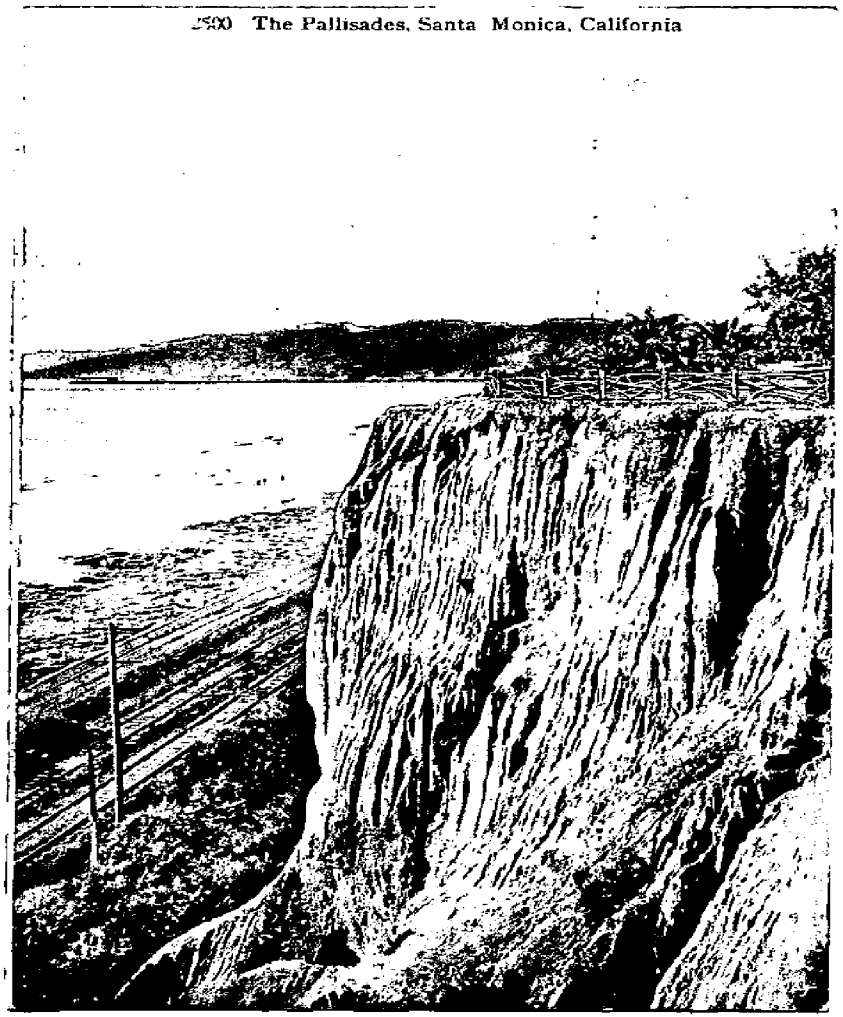


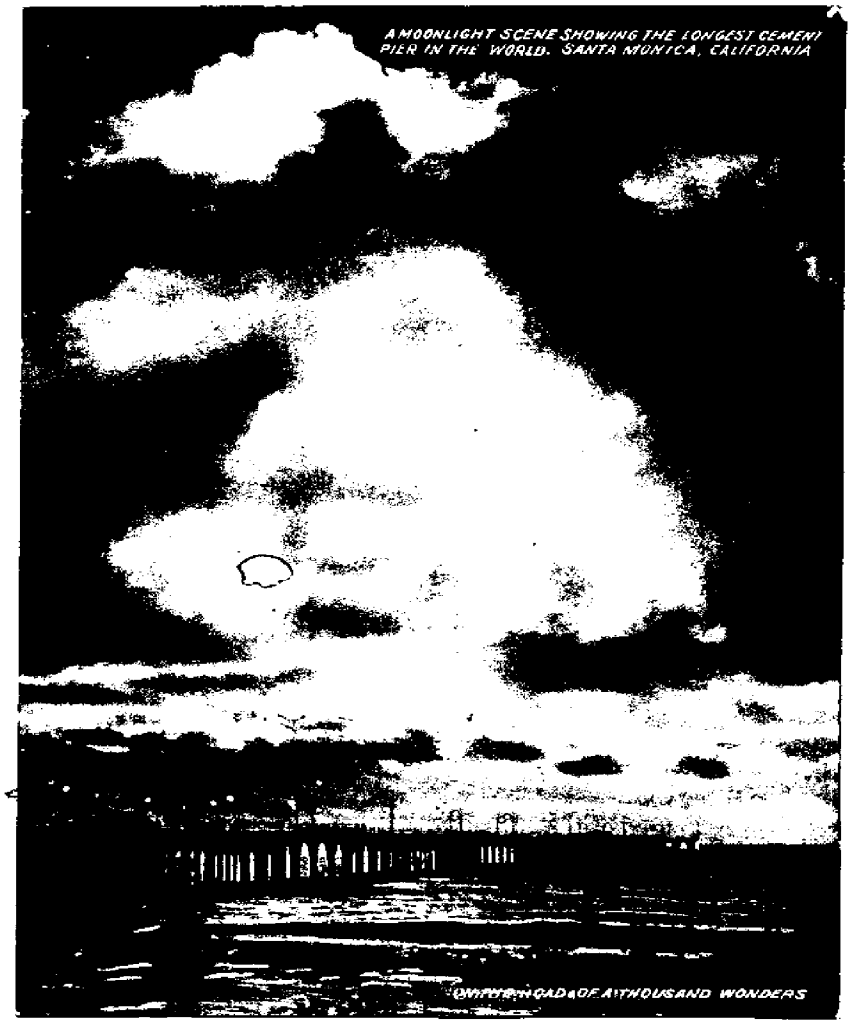
Bath House and Beach, Ocean Park, Cal.






Night Scene at Venice, Cal.


2500 The Pallisades, Santa Monica, California


A MOONLIGHT SCENE SHOWING THE LONGEST CEMENT PIER IN THE WORLD. SANTA MONICA, CALIFORNIA
ON THE ROAD OF A THOUSAND WONDERS