Ed Fletcher Company
FLETCHER BUILDING
920 EIGHTH ST.
SAN DIEGO, CALIFORNIA

AGENTS
PINE HILLS
DEL MAR
GROSSMONT

April 24,1913

Mr.Post:

Enclosed find Lane's letter. Kindly return it and let me know what you think of it.

Ed.F.

Good letter, but not necessary to take up points now.
Post.

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MINING AND CIVIL ENGINEER
903 UNION OIL BUILDING
LOS ANGELES

Los Angeles, California,

April 22, 1913.

Mr. Ed. Fletcher,

Cuyamaca Water Company,

San Diego, California.

My dear Mr. Fletcher:-

1 - In compliance with your request of April 21st, I have prepared and herewith submit the following report, concerning the State Utilities Commission's decision. The report is based upon a hasty review of that portion of the decision embraced in Pages 60 to 69 inclusive.

2 - Owing to the limited time for the preparation of this report, I have thought that the most effective service which I could render, both to you and the Commission to which the matter is about to be referred, would be to group the salient features of the question into a concise brief, with a statement of my conclusions, and the reasons therefor, giving page reference for greater detail.

3 - On further consideration and study of going values, I can say that I consider the Commission's point well taken on Page 63. Going business value as I interpreted it was largely the lashing of an inefficient system into that of an efficient one. This intangible value was not due to new extensions and the general activity for the promotion of new business but rather to the increased efficiency of the system. As recent publications of authorities on this subject

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have stamped my interpretation as erroneous in this matter, I beg to withdraw from my earlier impressions.

4 - On Page 64 the Commission reviews the matter of the Indian right a way. The theory may be novel oven as the theory that the world was round was novel. The consideration may be inadequate but the fact remains that this was demanded subsequent to the purchase of the system by Murray & Fletcher. And if submission to these demands was necessary when a change of alignment became necessary to increase efficiency, this value for right a way is justifiable. I have no doubt if Murray & Fletcher had prosecuted suit in this matter with the Government, that had the cost of so doing even exceeded this value of right a way, the Commission would have allowed the amount.

Therefore, what is right from one angle must be so from another, and until such time as this burden can be removed Murray & Fletcher are entitled to this value of right a way, and the values of contiguous territories have nothing whatever to do with it.

5 - In view of the subsequent light that was thrown on the Cuyamaca lands and my uncertainity of the value at the time, I believe the value of $144,000.00 is reasonable. Page 65 states reasons with which I coincide.

6 - While the matter of unit costs on Page 66 is rather ambiguously treated, I shall attempt to review it from the proper angle.

As the analysis of cost was based on ten years' experience

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in construction of similar work and applied to this particular point, the statement that they seem to bear on some other work is without foundation. They say that "Some of these costs are also found to contain local overhead charges, ranging from 10 to 15%, and contractors' profits of from 20 to 30%." This statement is entirely erroneous and misleading, and has no grounds for insertion. There is only one item, that of brick lining, which was no doubt a sub-contractor's job. Mr. Harroun uses a unit cost of $50.00 per 1000 where I used $49.37 per 1000.

Material prices were either those based on five or ten year averages on items which had up and down tendencies in prices, (this is considered the most sound method), or were actual quotations from reputable firms. As the price of redwood was a subject of contention, we made every effort to correct this if we were wrong. Even after repeated substantion of our figure, and the refusal of Mr. Harroun to correct his estimate, we obtained the name of the firm which he claimed had given him the figure he used, and wrote to them for verification. They failed to confirm Mr. Harroun's figure, and their letter is a matter of record.

The matter of the reserve lumber is one that can be eliminated and allowed to rest, if the Commission will include it in future construction, such as form lumber, and miscellaneous cement sheds, camps, etc. But as it has value for these purposes, here is the place it should be inserted.

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7 - On Page 67 the discussion centers on depreciation. It is said that not enough depreciation was allowed for the flume, and a like discrepancy was shown in regard to the other structures. Mr. Harroun's depreciation was greater on the Cuyamaca Dam, Diverting Dam, Flume System, the La Mesa Dam, and Buildings, while on the balance of the items it was either equal or less.

Depreciation is a matter of personal judgment backed up by experience. The natural tendency is partiallity to one's own engi-nder, but that does not make it justifiable. That one's opinion should be so warped as to mis-state facts to justify this end is lamentable, but it would seem, from a strict interpretation of this matter, that this was what had been done.

Furthermore, the Commission required all valuations be submitted before they attempted to draw up their own. Part of the testimony was in also. Then again in privately discussing the matter of depreciation with Mr. Harroun, in regard to the flume he said,- "Lane, I did not think you would allow more than three years' life to this structure." As to the results, under such conditions, you can make your own inferences.

SUMMARY OF CONCLUSION.

8 - The adjustment of intangible value and the values of Cuyamaca lands is entirely agreeable.

9 - The value of all lands and rights a way outside of the Cuyamaca and Indian lands submit no contention or

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reasons that they should be changed. They should remain as submitted.

10 - The Indian right a way, insofar as it was exacted subsequent to purchase by Murray & Fletcher, should stand at $24,000.00. The Commission's reasoning amounts to mere scoffing at such a theory. They say nothing whatever to overthrow it.

11 - In so much as Mr. Harroun showed no cost analysis, it is out of the question to make any intelligent comparisons and should not have been attempted. That the overhead charges were too low on both valuations would seem evident, from a recent report showing the Los Angeles Aqueduct overhead charges amounted to 35% of the total.

Nothing advanced to overthrow the conclusions except age.

12 - Age and a cursory examination are the only arguments advanced to overthrow judgment on depreciation.

13 - The entire matter seems to be a brushing over of facts in order to justify the conclusion, that my boy is the only one in step.

My only excuse for giving this whole superficial treatment any attention is that the Commission wants it to appear that it has considerable weight. The formidable extent and its evident laborious undertaking inspire an expectation that the soundness of its reasoning will bear some relation to these external features.

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Close acquaintance with its contents fails to substantiate this expectation, and compels the conclusion that it is at best a prolonged effort at adjustment - the adjustment of facts to a preconceived theory; and as is usually the case where one makes the mistake of embarking on an undertaking of that sort, the result has proven altogether a misfit.

I shall not undertake to fathom the motive behind this extraordinary performance further than to observe that it certainly was not an impartial conclusion.

In conclusion, quoting from Page 68 the following:- "But on these matters where expert judgment is required and where our own engineers after submitting to the fullest cross examination still maintain the correctness of their conclusions if we retain our confidence in our engineering department, - and it still has our fullest confidence else we would change it, - we should accept, I believe, the report of our own engineers, unless on cross examination they appear to us to have erred either in their ascertainment of facts or their expert opinion based thereon. I believe for this very reason the report of our engineers should always be submitted to the parties in the case and the engineer making the same be required to submit to the most searching cross examination, and merely because he is the Commission's engineer he should not, and of course will not, be spared the same examination as any other witness. But after this is done and his testimony remains unchanged I believe as I have already said, it should be given great weight. For an engineer for a party be he ever so honest and capable - as I

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believe every engineer in this case is - has the natural tendency where there is room for honest doubt to resolve such doubt in favor of his side."

I should say such a precedent was dangerous. This could readily become a bomerang in the hands of a corruptible Commission. It should not be admitted nor allowed to stand, as there is nothing preceding to warrant such a conclusion.

PERSONAL STATEMENT.

14 - Concerning the matter under discussion, I desire that my attitude may be made clear. You explained to me that it was not your purpose to antagonize the Commission but solely to defend your rights. Criticisms at best are odious to some people. This task has not been the most pleasant but I hope that the thought conveyed is more constructive than destructive. If I have achieved that distinction, I am well satisfied.

I have enjoyed the contact with several members of this Commission, and have found them frank, conscientious, and untiring in their effort to show fairness.

That their unrelentless pursuit of justice has overtaxed them is somewhat apparent in the reactionary outcroppings shown in the sheets under discussion.

Respectfully submitted,

Fulton Lane

VALUATION

CUYAMACA WATER COMPANY
BY FULTON LANE C. E.

FOR

PURPOSE OF FIXING RATES

HEARING BEFORE

CALIFORNIA PUBLIC UTILITIES COMMISSION

AUGUST 1912.

C O N T E N T S.

APPENDIX A.
Depreciation & Present Value.

APPENDIX B.
Valuation Detail.

APPENDIX C.
Quantities.

APPENDIX D.
Cost Data.

APPENDIX E.
Letters and Memoranda.

INTRODUCTION

Gentlemen:-

I have here an appraisal of the Cuyamaca Water Company's system the conclusions of which have been determined after a careful and thorough investigation.

Before going briefly into the methods and details of this appraisal I wish to call attention to a few distinctions in which my opinion differd largely from the usual point of view. The value of a water right is measured only by the amount of money paid for it. If a company acquires this right through the purchase of land this land may appreciate in value but the water right can not. If a company has acquired reparian rights it is entitled only to the amount which it has paid for these rights. The public owns the water. A Company's system or plant is the carrier. As such a company is entitled only to a reasonable rate of interest annually in and above the annual depreciation, operating and maintenance charges of its system.

The value of lands and rights of way are not fixed by the amounts a private corporation would be forced to pay if it were to suddenly announce its intention of building a certain system, but by an estimate based on the values of lands immediately adjacent.

I have set the rate of interest on the appraised value of this particular case at 6%. This is a rate somewhat lower than bankers are loaning money in this same community but in my judgement a rate reasonable to both consumer and investor.

I considered that the proper basis of the estimate was to determine the cost of reproduction of the system as it exists today under present conditions of cost of labor and materials and regardless of the question of its efficacy or suitability to the present needs of the community.

Having so determined this cost I deducted therefrom such percentage for depreciation as the age and apparent condition of the different parts of the system would, in my judgment, be fair.

In making up my estimate every class of work in which material and labor combined to constitute a structure an anslysis was made of present cost of eacj class of construction and placed in Appendix D.

As a basis of estimate I have taken the schedule of items furnished by the Company's consulting engineer Mr. W. S. Post. These I have supplemented by original investigations and verifications of my own of all property that is visible. (A set of photographs has also been added) All of this data has been placed in the hands of the commissions expert for the purpose of checking. The data obtained from the various sources may not have been complete but they are certainly the best available. I have been hampered by a lack of complete and systematic plans and records so that a few unaccessible portions of the work are necessarily but approximations.

Where only unreliable maps or data or neither were available from which quantities could be computed a field survey was made to determine actual quantities. All quantities were computed, computations checked and placed in Appendix C. These quantities were transfered to valuation detail sheets unit costs applied, extended, overhead charges added, then checked and placed in Appendix B.These totals representing reproduction

costs were then carried forward to depreciation sheets, amounts of depreciation determined, subtracted, checked and placed in Appendix H, giving Present Value of each Unit.

The addition of these separate items gave the total value of the physical properties. To this was added a Going or Intangible Value thus obtaining the total appraised value.

I submit as engineer in charge of the Appraisal for the Cuyamaca Water Company's system the following items for your consideration.

1 Appraisement of their property consisting of,

A - Valuation of Physical Properties the present value of which I find to be $672,102.00

B - Intangible values

Under this I submit as a proper addition to the above physical items a sum which represents the losses due to an insufficient rate to cover interest, depreciation, operation and maintenance for the two years in which this company has controlled the management namely $159,543.00 or a total appraisement of $831,645.00.

I present the following sums which make up the total annual amount required upon which Murray & Fletcher ask you to fix rates.

A - Interest at 6% on $831,645.00 Present value for this appraisement	$49,899
B - Annual depreciation	31,636
C - Operation and Maintenance	30,000
	$111,535

S U M M A R Y

TOTAL APPRAISED VALUE CUYAMACA WATER CO.

SAN DIEGO, CAL.

Aug.-1912.

Intangible Values.....	$ 159,543.00
Valuation of Physical Properties.....	672,102.00
Grand Total.....	$ 831,645.00

S U M M A R Y

INTANGIBLE VALUES

CUYAMACA WATER COMPANY

BASIS VALUATION SYSTEM - 1910 -	$735,374.
Operation and Maintenance.....	$ 57,224
Depreciation over two years.....	63,272
Interest at 6% for 2 years.....	88,244
	$208,740.

Deducting,

Gross Earnings.....	49,197
Total.....	$159,543

Appendix A

A P P E N D I X A.

DEPRECIATION

AND

PRESENT VALUE.

SUMMARY

C U Y A M A C A W A T E R C O M P A N Y

Physical properties

Page	Item	Cost to Reproduce	Present Value	Annual Depreciation	Total Depreciation
	COLLECTIVE SYSTEM				
7	Lands & Rights of way	$239701	$239701		
8-9	Buildings & Improvements on lands	15858	8948	$ 677	$ 6910
10	Cuyamaca Dam	43311	34850	360	8461
11	Diverting Dam	38167	35916	378	2251
12	Flume	717837	235583	22567	482254
13	Eucalyptus Dam	11992	9588	127	2404
14	La Mesa Dam	24294	20023	359	4271
15	La Mesa Ditch	6550	3729	156	2821
16	Murray Hill Reservoir & Pipes	48707	48219	488	488
	DISTRIBUTION SYSTEM				
17	Pipe Lines	92928	28237	6012	64691
18	Meters	584	384	3	200
	MISCELLANEOUS				
19-22	Material on Hand	3481	3389	92	92
22-29	Tools, Equipment, etc.	3763	3079	342	684
30	Telephone,	2633	456	75	2177
	Grand Totals	$ 1249806	$ 672102	$31636	$ 577704

SUMMARY

FIRST COST • PRESENT VALUE

LANDS AND RIGHTS OF WAY

References Quantity	Cost	Item	Quantity	Unit	Total Cost	Appreciation by Lane Appreciation %	Appreciation by Lane Present Value Per Acre Amt.	Appreciation by Lane Present Value Total
72	114	Lands in Cuyamaca reservoir per map #1444 records of S D Flume Co.	1675	Acres	46. 76906	118	54	100. 167500
"	"	Lands in La Mesa Res.	(96.7	"	1361 13200	87	39	250. 24175
"	"	Lands in Eucalyptus reservoir	4.36	"	-			350. 1526
"	"	Murray Hill Reservoir lands	26.2	"	89 2250	293	261	350. 9170
"	"	Right of way for flume through Indian Reser first cost on capitalized value of water furnished free	60)	"	400 2400	-	-	400. 24000
"	"	Right of way from Indian Line to Los Coches	58	"	-			10. 580
"	"	Right of way from Los Coches to Section #5 House	60)	"	-			75. 4500
"	"	Right of way from Section #5 to end of Flume	30)	"	-			150. 4500
"	"	Right of way from Flume along ditch to La Mesa Reser.	25	"	-			150. 3750
							Grand Total.....	239701

8.

SUMMARY
DEPRECIATION AND PRESENT VALUE
BUILDINGS

Page	Reference Reproduction Detail	Item	Quantity	Unit	Cost to Reproduce Total	Cost to Reproduce Sub Total	Physical Condition	Age Yrs	Depreciation Probable Life Yrs.	Depreciation %	Depreciation Sub Total	Depreciation Total	Present Value Sub Total	Present Value Total
		QUANTITIES by Harriett & Case / COST by Lane / DEPRECIATION by Lane												
31		Cuyamaca Reservoir												
		Fence	2	Miles	480			24		7	34			
		Fence	9.7	"	2746			24		7	192			
		Frame Dwelling	15232	Cu ft.	1828			24	35	69	1263			
		Barn Shed etc.	12613	"	927			24	30	80	742			
		Blacksmith shop	2400	"	202			2	30	7	14			
		Tank Reservoir	64	"	5			24	30	80	4			
		La Mesa Reservoir												
		Frame Dwelling	6720	"	646			17	35	49	316			
		Pump house corr.	2860	"	263			17	35	49	129			
		Barn Shed etc.	2200	"	132			17	30	57	75			
		End of Flume												
		Frame Dwelling	8656	"	1247			10	35	29	362			
		" " "	3080	"	295			15	30	50	148			
		Store Supply etc.	14267	"	851			19	30	63	537			
		Fence	0.5	Miles	120			19		7	8			
		Teralta												
		Barn	2016	Cu ft.	120			2	30	7	8			
		Chocolate												
		Frame Dwelling	4998	"	480			24	30	80	384			
		Barn Shed etc.	4992	"	300			24	30	80	240			
		Fence	0.5	Miles	120			24		7	8			
		Los Coches Trestle												
		Frame Dwelling	2940	Cu ft.	353			10	35	29	102			
		Barn	4032	"	240			18	30	60	144			
		Los Coches												
		Frame Dwelling	6020	"	722			20	35	57	412			
		Barn Sheds etc.	4286	"	254			20	30	67	170			
32		Section #5												
		Frame Dwelling	2600	"	281			-	35	-	-			
		Diverting Dam												
		Adobe house dwelling	18480	"	2198			24	50	48	1058			
		Barn etc.	6040	"	434			24	30	80	347			

Continued on next page.

SUMMARY
DEPRECIATION AND PRESENT VALUE
BUILDINGS

Quantities by Harriott & Case — Cost by Lane — Depreciation by Lane

Reference Reproduction Detail	Item	Quantity	Unit	Cost to Reproduce Sub Total	Cost to Reproduce Total	Physical Depreciation Condition	Age Yrs	Probable Life Yrs	%	Depreciation Sub Total	Depreciation Total	Present Value Sub Total	Present Value Total
32													
	Stand Pipe Shed	3638	Cu ft.	228			12	30	40	91			
	Murray Hill Shed	560	"	34			1	30	3	1			
	South Fork Shed	2560	"	184			1	5	20	37			
	Meter House Frame	1980	"	119			10	35	29	35			
	Basement Concrete Foundation	6	Cu yds	49	$15858		10	-		49	$6910		$8948

SUMMARY

DEPRECIATION AND PRESENT VALUE

CUYAMACA DAM

Quantities by E.W.Case — Cost by Lane — Depreciation by Lane

Reference Reproduction Detail	Item	Quantity	Unit	Cost to Reproduce Subtotal	Cost to Reproduce Total	Physical Depreciation Condition	Age Yrs.	Probable Life Yrs.	%	Depreciation Subtotal	Depreciation Total	Present Value Total
33	Dam											
	Excavation stripping	1360	Cu Yds	490								
	Trenching puddle	4530	"	9241								
	Embankment	11570	"	6247								
	Puddle	6465	"	9697								
	Rip rap	14350	Sq Ft	3444								
	Dry Masonry	230	Cu Yds	1104	30223	Good	24	100	24		7254	22969
	Gate Tower											
	Brick	36	½ Brick	2132			24	100	24	512		
	RLumber	974	½ BM	77			24	35	69	53		
	Structural Iron	1430	Lbs	112			24	35	69	77		
	Plaster	1260	Sq Ft	30	2351		24	100	24	7	649	1702
	Outlet											
	Conduit Masonry	188	Cu Yd	1210			24	100	24	290		
	Wing Wall "	36	"	232	1442		24	100	24	56	346	1096
	Side Feeder											
	Excavation E	5930	Cu Yd	2846		Fair						
	" S R	4250	"	6374	9220	"			2		164	9036
	Miscl.											
	R.C.F. Bridge	530	½ BM	29			24	35	69			
	Weir	1	each	30		Good		35			20	9
	Painting	865	Sq Ft	16		Poor			50		8	30 8
		Grand Totals ------			$43,311						$8,461	$34850

SUMMARY

Depreciation AND Present Value
Diverting Dam

Quantities by E.A. Bartl				Cost by Lane		Depreciation by Lane						
							Physical Depreciation					
Reference Reproduction Detail	Item	Quantity	Unit	Cost to Reproduce Subtotal	Total	Condition	Age Yrs.	Probable Life Yrs.	%	Subtotal	Total	Present Value Total
34	Dam											
	Excavation S R	2074	Cu Yds	4978								
	" " Apron S R	60	"	144								
	Rubble Masonry	3473	"	29173								
	Concrete New Wk	152	"	1366								
	Concrete Apron	53	"	478								
	Concrete under spillway	185	"	1666	37807	Good		100	5		1891	35916
34	Gates:											
	Wooden for flume	2	each	180			26	26	100		360	
	" " sluicing	2	"	180	360	Poor					$ 2251	$35916

Grand Totals 38167

SUMMARY
DEPRECIATION AND PRESENT VALUE
FLUME

Quantities by Lane & Bartl.				Cost by Lane		Depreciation by Lane						
							Physical Depreciation					
Reference Reproduction Detail	Item	Quantity	Unit	Cost to Reproduce Subtotal	Total	Condition	Age Yrs.	Probable Life Yrs.	%	Subtotal	Total	Present Value Subtotal
35	Description											
	Flume											
	Clearing	193	acres	2316		Fair	24	-	5	116		2200
	Excavation E.	103605	Cu Yds	62164		Good	24	-	0			62164
	" S.R.	6882	"	10324		"	24	-	0			10324
	Redwood Lumber	5526	M BM	404503		Fair	24	28	86	347873		56630
	R O P Lumber	2588	"	118013		"	24	28	86	101491		16522
	Tarring and Clking	1202	M Lin Ft	15124		Good	2	6	33	5041		10083
	Reserve R W	474	M BM	19908		Fair	24	-	90	17917		1991
	Reserve R O P	222	"	5328	637680	"	24	-	90	4795	477233	533
35	Tunnels 1,2,3,4,5,6,8.											
	Excavation L.R.	1728	Lin Ft	20736		Good	24	-	0			
	" S. R.	563	"	6188		"	24	-	0			
	Rubble Concrete	850	Cu Yds	5100		"	24	-	0			
	Concrete	158	"	1374		"	24	-	0			
	Plaster	7968	Sq Ft	191		"	24	-	0			
	Timbering	50	M BM	2640	36229	"	24	35	69	1810	1810	34419
35	Tunnel No. 7											
	Excavation L.R.	1901	Lin Ft	22812		"	24	-	0			
	Rubble concrete	763	Cu Yds	4578		"	24	-	0			
	Concrete	123	"	1092		"	24	-	0			
	Plaster	8832	Sq Ft	212		"	24	-	0			
	Timbering	41	M BM	2165	30859	Poor	24	24	100	2165		28694
35	Syphons											
	Excavation	1992	Cu Yds	1793		Good	-					
	Back fill	980	"	211		"						
	Concrete	81	"	704		"						
	R S Pipe 30" #10	31200	lbs	1797		"						
	" " 30" #12	84210	"	5255								
	" " 26" #12	51082	"	3185	12945	"	2	25	8		1036	11909
	Miscl. Fittings	-	-	124					8		10	114

Grand Totals 717837 $482254 $235583

SUMMARY
DEPRECIATION AND PRESENT VALUE
EUCALYPTUS DAM

Reference Reproduction Detail	Item	Quantity	Unit	Cost to Reproduce Sub Total	Cost to Reproduce Total	Physical Depreciation Condition	Age Yrs	Probable Life Yrs	%	Depreciation by Lane Sub Total	Depreciation by Lane Total	Present Value Sub Total	Present Value Total
	QUANTITIES by E W Case			Cost by Lane									
36	Dam												
	Stripping	602	Cu yd	217									
	Trenching puddle	600	"	1200									
	" Pipe L R	25	"	23									
	Excavation Spillway	320	"	268									
	Embankment	5360	"	2099									
	Puddle clay	2830	"	4240									
	Rip rap	8400	Sq"ft	2016									
	Concrete Spillway	20	Cu yd	164	11053	Good	19	100	19		2100	8953	
36	Gate Tower												
	Brick	13	¼ Brk	472		"	19	100	19	90			
	Masonry (wet)	25	Cu Yds	132		"	19	100	19	15			
	R O P Bridge	.6	¼ BM	26		"	19	35	54	14			
	Paint	760	Sq ft	13		Fairly			50	7			
	Plastering	750	"	18	661	Good	19	100	19	3	129	532	
36	Outlet												
	R S Pipe 15" #14	4140	lbs	278	278	Fair	19	30	63		175	103	$9,588
	Grand Totals				$11992						$2404		

SUMMARY
DEPRECIATION AND PRESENT VALUE
LA MESA DAM

Reference Reproduction Detail	Item	Quantity	Unit	Cost to Reproduce Subtotal	Cost to Reproduce Total	Physical Depreciation Condition	Age Yrs	Probable Life Yrs	%	Depreciation by Lane. Subtotal	Depreciation by Lane. Total	Present Value Subtotal	Present Value Total
	Quantities by E A Bartl			Cost by Lane									
37	Dam												
	Excavation stripping	1460	Cu yds	526									
	Excavation puddle T.	520	"	1248									
	Excavation inner toe	324	"	778									
	" spillway	650	"	1560									
	Embankment H Fill	38000	"	13680									
	Asphalt facing	23000	Sq ft	1109	18901	Good	17	100	17		3213	15688	
37	Gate Tower												
	31 joints of 2' R S Pipe	1500	lbs	100			2	30	7	7			
	Cast Iron Flanges	496	"	32			2	30	7	2			
	Concrete	5	Cu yds	41		Not	17	100	17	7			
	Glazed Pipe	134	Lin ft	257		in use	17		50	129			
	R S Pipe 20"	2720	lbs	181		"	2	30	50	90			
	Covers (5)	500	"	30	641	"	17	"	50	15	250	391	
37	Outlet Connecting with Main.												
	Concrete Culvert	265	Cu yds	2147		Good	17	100	17				
	Cast Iron Pipe 24" 204'	41657	lbs	2149		"	17	100	17				
	" " Gate Valves 24"	2	each	456	4752	"	17	100	17		808	3944	
	Grand Totals				$24,294						$4,271	$20,023	

SUMMARY

DEPRECIATION AND PRESENT VALUE

LA MESA DITCH

Reference Reproduction Detail	Item	Quantities by Bartl Quantity	Unit	Cost by Lane Subtotal	Total	Depreciation by Lane Physical Depreciation Condition	Age Yrs.	Probable Life Yrs.	%	Subtotal	Total	Present Value Subtotal
38	Main Ditch											
	Excavation	5887	Cu Yds	2826		Fair	-	-	5		141	2685
38	Syphon											
	Wood Stave Pipe 36"	1242	Lin Ft	3724			18	25	72		$2680	1044
			Grand Totals		$6550						$2821	$3729

SUMMARY

DEPRECIATION AND PRESENT VALUE

MURRAY HILL DAM

Reference Reproduction Detail	Item	Quantities by E.A.Bartl. Quantity	Unit	Cost by Lane Cost to Reproduce Subtotal	Total	Depreciation by Lane Physical Depreciation Condition	Age Yrs	Probable Life Yrs	%	Sub Total	Total	Present Value Sub Total	Total
39	Inlet												
	Concrete Forebay	9	Cu yds	83		Good							
	" Pipe Piers	24	"	194		"							
	Excavation Trench	2160	"	1400		"							
	Backfill	815	"	176		"							
	Pipe Concrete 36"	1977	Lin ft	5029	6882	"	1	100	1		69	6813	
39	Dam												
	Excavation top soil	1672	Cu yds	602		"							
	" Trench puddle	861	"	1291		"							
	Main Embankment	22998	"	12419		"							
	Clay puddle fill	2422	"	$634		"							
	Rip rap	20186	Sq ft	3634		"							
	Back fill spillway	56	Cu yds	12		"							
	Pipe 36" Concrete	40	Lin ft	102	21694	"	1	100	1		217	21477	
39	Gate Tower												
	Concrete	54	Cu yds	438		"							
	Sluice Gate C I 24"	2	each	449	887	"	1	100	1		9	878	
39	Outlet & Connections												
	Pipe C I 20"	192	Lin ft	725		"							
	Pipe C I 24"	132	"	673		"							
	Concrete around pipe	68	Cu yds	551		"							
	Gate Valve 24"	1	each	278		"							
	Gate Valve Crane 20"	1	each	146		"							
	Pipe Concrete 24"	5286	Lin ft	9959		"							
	Excavation trench	2310	Cu yds	1498		"							
	Backfill	875		190		"							
	Fill	90	Cu yds	49		"							
	Concrete Piers	45	Cu yds	365		"							
	Tunnel 5'x5' Cemented Gravel	750	Lin ft	4500	18684		1	100	1		169	18695	
40	Bridge to Gate Tower												
	Channel	2440	lbs	193		"							
	Pipe Railing 2"	430	Lin ft	76		"							
	Pipe Supports 4"	60	"	22									
	Concrete Floor	7.4	Cu uds	60									
	Wire Mesh	200	Sq ft	7	360		1	100	1		4	356	
			Grand Totals		48707						$488	$48219	

SUMMARY
DEPRECIATION AND PRESENT VALUE
PIPE LINE - DISTRIBUTION SYSTEM
Cost by Lane
Quantities by Harriett.

Reference Reproduction Detail	Item	Quantity	Unit	Cost to Reproduce Subtotal	Total	Physical Depreciation Condition	Age Yrs	Probable Life Yrs	%	Subtotal	Total	Present Value Sub Total
	Riveted Steel											
41	4"	5135	Lin ft	598		Fair	22	25	88	525		
	4"	2365	"	921		"	4	25	16	15		
	6"	1200	"	774			4	10	40	310		
	8"	5000	"	3876		"	4	10	40	1550		
	15"	12691	"	16556		Poor	24	25	96	15840		
	20"	18861	"	29538	52263	"	8	10	80	23630	41870	10393
41	Screw Casing											
	3"	380	"	112		Good	0	25				
	3"	2643	"	558		"	8	25	32	178		
	3"	2643	"	558		"	8	15	53	296		
	4"	3296	"	1209		"	13	25	52	630		
	6"	334	"	219		"	2	25	8	18		
	8"	284	"	274		"	2	25	8	22		
	10"	350	"	421		"	2	25	8	34		
	11"	339	"	460		"	2	25	8	37		
	12"	927	"	1507	5326	"	2	25	8	121	1336	3990
41	Standard Screw											
	1½"	460	"	95		"	0	30	-	-		
	2"	2000	"	496		"	4	30	13	61		
	2"	2500	"	620		"	2	30	7	43		
	2"	1500	"	371		"	8	30	27	100		
	2"	1682	"	415	1997	"	24	30	80	332	536	1461
41	Wooden Stave											
	8"	800	"	633		"	15	25	60	380		
	8"	7200	"	5593		"	11	25	44	2450		
	18"	127	"	172		Fair	7	15	47	81		
	20"	6940	"	12640		"	11	15	73	9220		
	24"	6345	"	11893	30931	"	16	25	64	7612	19743	11168
41	Misc1 Valves & Fittings				2411				50		1206	1205
	Grand Totals				$92926						$64691	$26237

17.

First Cost - Present Value. 18.

Meters and Meter Parts
Quantities by Harriett. Cost by Post & Lane. Checked by Hazard Gould.

	No.	Rate	First Cost	Present Value.
Gem Meters - 6"	2	150.00	300.00	100.00
Trident Compound 1 interest 1 - 3"	1	135.00	67.50	67.50
Discs Horsey	2	1.25	2.50	2.50
" " 3/4"	1	1.00	1.00	1.00
" Lambert 1/2"	3	1.50	4.50	4.50
" " 5/8"	3	1.60	4.50	4.50
" " 3/4"	9	1.75	15.75	15.75
" " 1"	6	2.75	16.50	16.50
" " 1½"	7	4.15	29.05	29.05
" " 2"	2	8.30	16.60	16.60
Dials	8	.25	2.00	2.00
Duplex Gears	60	.50	16.00	16.00
Disc Chamber Partitions	41	.22	9.02	9.02
" " Screws	198	.05	9.90	9.90
" Stems	30	.25	7.50	7.50
Eccentric Cups	35	.75	26.30	26.30
" Crank Pins	90	.30	27.00	27.00
Gear Trains	3	2.25	6.75	6.75
Register	4	1.75	7.00	7.00
Register Cup Gaskets	15	.05	.75	.75
Casing Flange Gasket	58	.05	2.90	2.90
Stuffing Box Shafts	14	.30	4.20	4.20
" " Glands	6	.05	.30	.30
Register & Meter change gears	20	.15	3.00	3.00
Register Box Screens	31	.05	1.55	1.55
Grand Totals			564.07	384.07

SUMMARY
FIRST COST - PRESENT VALUE
MATERIAL ON HAND
Quantities by Harriett. Cost-Hazard Gould Co. Check by Post & Lane

A.	No.	Rate	First Cost	Pres. Val.
Air Valves	15	1.25	18.75	15.00
Air Valve Balls	6	.20	1.20	1.20
Axle Grease	6	.10	1.20	1.20
B.				
Bluestone Bbls	9	7.50	67.50	67.50
Barley	18	1.50	27.00	27.00
Bushings small 1½-¾	178	.10	17.80	17.80
Bran	7	1.00	7.00	7.00
C.				
Couplings	120	.20	24.00	24.00
Crosses 2"	9	.37	3.33	3.33
" 20"x24"	1	25.00	25.00	25.00
Cement Sacks	30	.10	3.00	3.00
" "	100	.10	10.00	10.00
E.				
Ells	89	.10	8.90	8.90
G.				
Gasoline Gals.	50	.17	8.50	8.50
Gates Valves 4"	9	8.00	72.00	54.00
" " 6"	2	12.75	25.50	20.00
Garden Valves 1"-1½"	4	1.45	5.80	5.80
Gates " 2"	3	2.25	6.75	6.75
" " 1½"	1	2.00	2.00	2.00

SUMMARY

FIRST COST - PRESENT VALUE
MATERIAL ON HAND
Quantities by Harriett. Cost-Hazzard Gould Co. Check by Post & Lane.

	No.	Rate	First Cost	Pres. Val.
G. (cont.)				
Gates 15"	1	72.00	72.00	60.00
" 1"	1	1.25	1.25	1.25
H.				
Hasps	12	.20	2.40	2.40
Harness Oil	2	.75	1.50	1.50
Hinges	17	.30	5.10	5.10
Hay	10	2.25	22.50	22.50
L.				
Lead	500#	.05	25.00	25.00
Lead Wood	100#	.10	10.00	10.00
Lantern Chimneys	3	.10	.30	.30
Lamp Wicking	2	.05	.10	.10
Lag Screws	100	.10	10.00	10.00
Lug Iron	100#	.08	8.00	8.00
Leading Bands 20"	6	1.00	6.00	6.00
Lumber			50.00	50.00
M.				
Machine Bolts 3/8"	278	.014	3.90	3.90
N.				
Nipples 1"	90	.06	5.40	5.40
" 3/4"	30	.04	1.20	1.20
" 2"	110	.10	11.00	11.00
" 8"	2	4.00	8.00	8.00
Oakum Bales	6	3.75	22.50	22.50

SUMMARY.

FIRST COST - PRESENT VALUE

MATERIAL ON HAND

Quantities by Harriett		Cost-Hazzard Gould Co.		Checked by Post & Lane.
P.	No.	Rate	First Cost	Pres. Val.
Padlocks	3	.50	1.50	1.50
Pipe Bands Sheet Iron	70	.50	35.00	35.00
" " 5/8 Rd.	611	.60	366.60	366.60
" " Sheet Iron	18	.50	9.00	9.00
" " " "	235	.20	47.00	47.00
" " " "	270	.25	67.50	67.50
Pipe Lugs or Shoes	400	.10	40.00	40.00
Paint 10 Gals.	10	1.00	10.00	10.00
Plugs 2"	9	.05	.45	.45
Pipe 3"	2700'	.25	675.00	675.00
" 6" est.	1400'	.60	840.00	840.00
" 20"	12'	2.00	24.00	24.00
" 2"	300'	.13	39.00	39.00
" 1"	500'	.05	25.00	25.00
" 3/4"	200'	.05	10.00	10.00
Pipe Saddles 15" & 20"	33	4.20	138.60	138.60
Lot Old Saddles for 8"W.S.	50	1.00	50.00	50.00
R.				
Reducers-Assorted Sizes	44	.20	8.80	8.80
Reinforcing Steel	400#	.10	40.00	40.00
Rubber	300#	.40	120.00	120.00
Rivets	40#	.15	6.00	6.00
Red Lead	40#	.10	4.00	4.00
S.				
Service Cocks 1"	10	.70	7.00	7.00
" " 1½"	6	1.05	6.30	6.30
" " 2"	2	1.25	2.50	2.50

SUMMARY

FIRST COST - PRESENT VALUE.

MATERIAL ON HAND

Quantities by Harriett.		Cost by Hazzard Gould Co.		Check by Post & Lane
S.	No.	Rate	First Cost	Pres. Val.
Screen Rolls	2	10.00	20.00	20.00
Screws 1¼" Boxes	6	.20	1.20	1.20
T.				
Tees ¾"-2"	86	.20	17.20	17.20
" 12"x4"	1	12.00	12.00	12.00
" 24"	1	63.00	63.00	63.00
" 8"	1	8.00	8.00	8.00
Tank	1	10.00	10.00	10.00
U.				
Unions	113	.15	16.95	16.95
V.				
Valve Stems	1	8.00	8.00	8.00
W.				
Wire, Telephone miles	3	7.00	21.00	6.00
Well Sections	19	4.00	76.00	50.00
" Screens	2	12.00	24.00	12.00
Wire Barbed 1 mile	1	14.00	14.00	14.00
Y.				
Yarn, Plumbers 250#	250	.06	15.00	15.00
Grand Totals----------			$3480.98	$3,388.73

SUMMARY

First Cost - Present Value

Tools, Equipment, Wagons, Harness and Horses.

Quantities by Harriett Cost by Hazard Gould Co. Checked by Post & Lane.

		Rate	First Cost	Pres. Value.
A.				
Automobile	1	691.00	691.00	616.00
Automobile Jacks	1	1.50	1.50	1.50
Axes	10	.75	7.50	5.60
Anvils	4	2.50	10.00	5.00
Adze.	4	1.50	6.00	3.00
B.				
Blacks	13	1.50	19.50	10.00
Boats	9	20.00	180.00	150.00
Bridles	1	.50	.50	.25
Bors	18	1.00	18.00	15.00
Bits	15	.30	4.50	2.25
Barrel	5	.50	2.50	2.50
Bellows	1	5.00	5.00	2.50
Brace	4	1.00	4.00	3.00
Brace Wrenches	3	2.00	6.00	3.00
Buck Saw	2	1.00	2.00	1.00
Belt Punches	2	.20	.40	.40
Buckets	8	.40	3.20	3.00
Bedsteads	1	1.00	1.00	.50
Beaver Stock & Dis	1	70.00	70.00	70.00
C.				
Comforts	6	1.00	6.00	3.00
Caulking Irons	27	.50	13.80	13.50
Crescent Saws	6	3.00	18.00	15.00

SUMMARY

First Cost - Pres. Value.

Tools, Equipment, Wagons, Harness and Horses.

Quantities by Harriett - Cost by Hazard Gould Co. Checked by Post & Lane

		Rate	First Cost	Pres. Value
C. (Cont.)				
Caps	7	1.50	10.50	10.50
Chisels	8	.50	4.00	4.00
Chain Tongs	5	6.00	30.00	20.00
Cement Boxes	1	6.00	6.00	6.00
Carp. Benches	4	1.00	4.00	4.00
Carp. Tables	2	1.00	2.00	2.00
Cook Range	1	60.00	60.00	60.00
Chairs	10	.75	7.50	3.75
Carp Hammers	28	.50	14.00	14.00
D.				
Drills	12	.50	6.00	3.00
Drill Presses	2	26.00	52.00	42.00
Draw Knife	1	1.00	1.00	1.00
Drills, Rock	8	.50	4.00	4.00
Duplex Blocks	1	41.00	41.00	41.00
E.				
F.				
Forges	3	30.00	90.00	50.00
Tenders and Fire Iron	2	1.00	2.00	1.00
Flappers	3	1.00	3.00	1.50
Files	20	.20	4.00	2.00
Flume Wagons	3	20.00	60.00	40.00

First Cost - Present Value

Tools, Equipment, Wagons, Harness and Horses.

Quantities by Harriett Cost by Hazard Gould Checked by Post & Lane.

		Rate	First Cost	Pres. Value
G.				
Grindstones	5	5.00	25.00	10.00
Gasoline Fire Pot	1	4.50	4.50	2.25
H.				
Hardies	11	.50	5.50	2.75
Hand Saws	10	2.00	20.00	10.00
Hand Pump	3	4.50	13.50	10.00
Hammers	4	.50	2.00	1.00
Hack Saws	1	2.00	2.00	2.00
Hoes	15	.85	12.75	10.00
Horse Brushes	2	.50	1.00	.50
Hatchets	10	.75	7.50	5.00
Harness Sets	5	20.00	100.00	50.00
Horses	5	80.00	400.00	400.00
J.				
Jack Hoops	3	1.00	3.00	3.00
Jack Screens	13	3.00	39.00	25.00
L.				
Lanterns	27	90.00	24.30	20.00
Leading Tool Sets	3	3.00	9.00	9.00
Lawn Mowers	1	4.00	4.00	4.00
Levels	5	1.50	7.50	5.00

First Cost - Present Value.

Tools, Equipment, Wagons, Harness and Horses.

Quantities by Harriett, Cost by Hazard Gould Co., Checked by Post & Lane.

		Rate	First Cost	Present Value.
M.				
Mattocks	7	.85	5.95	4.00
Meat Cutters	1	3.00	3.00	3.00
Monkey Wrenches	9	.75	6.75	5.00
Mattresses	7	2.00	14.00	10.00
Measuring Box	2	25.00	50.00	25.00
Motorcycle	1	300.00	300.00	200.00
O.				
Oars	20	1.00	20.00	15.00
Car Locks	22	.10	2.20	2.20
Oilstones	3	.10	.30	.30
P.				
Picks	40	.85	34.00	34.00
Pillows	3	.50	1.50	1.50
Pumps	3	4.50	13.50	10.00
Pipe Vise	3	3.00	9.00	7.00
Pipe Dis	10	1.00	10.00	10.00
Pipe Cutters	5	2.00	10.00	10.00
Punches	10	.50	5.00	5.00
Pipe Tapping Machines	2	15.00	30.00	30.00
Paint Brushes	3	.25	.75	.50
Pipe Wrenches	2	1.50	3.00	1.50
Pliers	6	.75	4.50	3.00

S U M M A R Y

First Cost - Present Value

Tools, Equipment, Wagons, Harness and Horses.

Quantities by Harriett Cost Hazard Gould Co. Checked by Post & Lane.

		Rate	First Cost	Present Value
D. (Cont.)				
Pipe Stocks	5	3.00	15.00	10.00
Planes	5	1.25	6.25	3.00
Portable Melting Pot	1	61.00	61.00	61.00
R.				
Rubber Coats	6	1.50	9.00	4.50
Rubber Pants	5	1.50	7.50	3.75
Rubber Boots	5	7.50	37.50	20.00
Rain Gauges	5	1.00	5.00	5.00
Road Scrapers	5	6.00	30.00	15.00
Rocket Stocks	2	14.00	28.00	28.00
Rakes	5	.60	3.00	2.00
S.				
Steel Taps	2	3.50	7.00	7.00
Screw Driver	13	.50	6.50	6.50
Sledge Hammers	6	.75	4.50	4.50
Scyppers	6	1.25	7.50	5.00
Chips Augurs	7	1.50	10.50	5.25
Shovels	40	.90	36.00	30.00
Sumerpus Chain	1	5.00	5.00	2.50
Sheets	5	.50	2.50	1.25
Scaffolding Irons	2	10.00	20.00	20.00
Stable Brooms	3	.75	2.25	1.00
Squares	7	1.00	7.00	3.50

S U M M A R Y

First Cost - Present Value

Tools, Equipment, Wagons, Harness and Horses.

Quantities by Harriett Cost Hazard Gould Co. Checked by Post & Lane.

		Rate	First Cost	Pres. Value.
S. (Continued.)				
Sewer Pipe	1	7.50	7.50	5.00
Stilson Wrenches	10	2.00	20.00	15.00
Saw Horses	5	.50	2.50	2.50
Saw Sets	4	.60	2.40	2.00
T.				
Thermometers	10	.75	7.50	5.00
Trestle Wrenches	3	.75	2.25	2.25
Telephone Climbers	2	2.00	4.00	3.00
Terets	5	15.00	75.00	50.00
Timber Hooks	2	.50	1.00	1.00
Taps & Dis) sets Bolts	2	22.00	44.00	22.00
Tongs	9	.60	5.40	2.70
Tubs	5	1.00	5.00	2.50
Tin Shears	2	2.25	4.50	4.50
Tool Boxes	3	4.00	12.00	12.00
Terring Machines	2	75.00	150.00	150.00

S U M M A R Y

First Cost Present Value

Tools, Equipment, Wagons, Harness and Horses.

Quantities by Harriett Cost Hazard Gould Co. Checked by Post & Lane.

		Rate	First Cost	Pres. Value
	V.			
Vises	3	6.00	18.00	12.00
	"			
Wagons	4	50.00	200.00	200.00
Wagon Jacks	1	2.50	2.50	2.50
Trenches (Crescent)	4	1.65	6.60	6.60
Whitewash Tank	1	3.00	3.00	5.00
Whitewashing Machines	1	35.00	35.00	35.00
Wheelbarrow	10	6.50	65.00	45.00
Trenches	10	.50	5.00	5.00
Wire Cutters	2	1.50	3.00	2.50
Wind Mill	1	50.00	50.00	50.00
Well Screens	3	4.00	12.00	8.00
Wire Stretchers	1	1.50	1.50	1.50
Work Benches	3	4.00	12.00	8.00
Grand Totals------			3762.75	3098.95

SUMMARY

DEPRECIATION - PRESENT VALUE

TELEPHONES

Quantities by Harriett — Cost by Lane — Derreciation by Lane

References	Item	Quantity	Unit	Cost to Reproduce Subtotal	Total	Physical Depreciation: Condition	Age Yrs	Life yrs	%	Sub Total	Total	Present Value: Sub Total	Total
42	Poles	33	¼ BM	1505			24	28	86	1294		211	
	"	7	"	319		½ new	24	28	43	137		182	
	Insulators	2200	each	41					5	2		39	
	Wire 14 gage	59¾	miles	716		Poor	10	-	100	716		-	
	Wire 12 gage	1½	"	35			2	5	40	14		21	
	Wire 12 gage	¾	"	17			4	5	80	14		3	
			Grand Totals		2633						2177		456

APPENDIX B.

COST TO REPRODUCE

WITH

VALUATION DETAIL SHEETS

Hypsometric B.

SUMMARY
VALUATION DETAIL SHEET
BUILDINGS

Quantities by Harriett — Cost by Lane — Checked by E W Case.

Reference Quantity Page	Cost Page	Item	Quantity	Unit	Cost to Reproduce: Cost	Sub item	Overhead: Item	%	Amt	Subtotal	Total
		Cuyamaca Reservoir									
71	113	Fence 2 strand Barbed wire	2	miles	200	400		20	80	480	
		" 5 " " "	9.7	"	740	2288		"	458	2746	
		Frame dwelling	15232	Cu ft	.10	1523		"	305	1828	
		Barn-Cow Barn- Milk Chicken & Spring Houses	12613	"	.06	756		"	171	927	
		Blacksmith shop - box house no cornice	2400	"	.07	168		"	34	202	
		Tank Reservoir, painted	64	"	.06	4		"	1	5	
		La Mesa Reservoir									
		Frame Dwelling	6720	Cu ft	.08	538		"	108	646	
		Pump house, Corr. Iron	2860	"	.08	219		"	44	263	
		Barn & Sheds	2203	"	.05	110		"	22	132	
		End of Flume									
		Frame Dwelling	8656	Cu ft	.12	1039		"	208	1247	
		" "	3080	"	.08	246		"	49	295	
		" store, supply & blacksmith houses	14267	"	.05	711		"	140	851	
		Fence 2 strand Barb wire	0.5	miles	200.	100		"	20	120	
		Teralta									
		Frame Barn	2016	Cu ft	.05	100		"	20	120	
		Chocolate									
		Frame dwelling	4998	Cu ft	.08	400		"	80	480	
		" barn-tool & chicken hse	4992	"	.05	250		"	50	300	
		Fence 2 strand Barb wire	0.5	miles	200.	100		"	20	120	
		Los Coches Trestle									
		Frame dwelling	2940	Cu ft	.10	294		"	59	353	
		" barn	4032	"	.05	200		"	40	240	
		Los Coches									
		Frame dwelling	6020	cu ft	.10	602		"	120	722	
		" barn-chicken house	4286	"	.05	212		"	42	254	

Continued on next page.

SUMMARY
VALUATION DETAIL SHEET
BUILDINGS

Quantities by Harriett — Cost by Lane — Checked by E W Case — Continued.

Reference Quantity Page	Reference Cost Page	Item	Quantity	Unit	Cost to Reproduce: Cost	Subitem	Overhead %	Overhead Amt	Subtotal	Total
71	113									
		Section #5 Frame dwelling	2600	cu ft	.09	234	20	47	281	
		Diverting Dam Adobe-Brick dwelling	18480	"	.10	1848	"	350	2198	
		Frame-Barn & Tool Hse	6040	"	.06	362	"	72	434	
		Stand Pipe Frame	3638	"	.05	181	"	36	228	
		Murray Hill Frame shed	560	"	.05	28	"	6	34	
		South fork Fr shed	2560	"	.06	153	"	31	184	
		Meter House City Limits San Diego Frame	1980	Cu ft	.05	99	"	20	119	
		Basement Concrete	6	Cu yd	6.75	41	"	8	49	15,858.

SUMMARY
VALUATION DETAIL SHEET
CUYAMACA DAM

Quantities by E.W. Case — Cost by Lane — Checked by Taylor

Reference Quantity Page	Reference Cost Page	ITEM	Quantity	Unit	Cost to Reproduce: Cost	Item	Overhead %	Overhead Amt	Subtotal
		Description Earth Fill Length 635' Height 42' Capacity							
45-49		Dam							
45,-46	82	Excavation stripping	1360	Cu Yds	.30	408	20	82	490
"	"	Trenching 1/3 S.R. 2/3 L.R.	4530	"	1.70	77.01	"	1540	9241
"	"	Embankment	11570	"	.45	5206	"	1041	6247
"	"	Puddle	6465	"	1.25	8081	"	1616	9697
"	"	Riprap well laid	14350	Sq Ft	.20	2870	"	574	3444
"	"	Dry Masonry	230	Cu Yds	4.00	920	"	184	1104
48,49		Gate Tower							
49	73, 81, 84	Brick	36	M Brick	49.37	1777	"	355	2132
47,48	73, 80, 84	R W Lumber	1	M B M	64.35	64	"	13	77
48	73, 84	Structural Iron	1430	Lbs	.065	93	"	19	112
45,48	66	Plaster	1260	Sq Ft	.02	25	"	5	30
47,48		Outlet thru dam							
48	73, 83, 84	Masonry conduit	224	Cu Yds	5.36	1201	"	240	1441
46,49		Side Feeder							
"	82	Excavation E.	5930	Cu Yds	.40	2372	"	474	2846
"	82	" S.R.	4250	"	1.25	5312	"	1062	6374
47, 48		Miscl.							
"	73, 80, 84	R.O.P Lumber in Bridge	0.53	M B M	45.60	24	"	5	29
48	87	Painting	865	Sq Ft	.015	13	"	3	16
49	66	Weir	1	each	25.00	25	"	5	30
								Total -------	43,310

SUMMARY
Valuation Detail Sheet
Diverting Dam
Cost by Lane

Quantities by E.A.Bartl — Checked by E W Case

References Quantity Page	References Cost Page	Item	Cost to reproduce: Quantity	Unit	Cost	Sub Item	Overhead %	Overhead Amt	Subtotal	Total
		Description Masonry Lenght 4 47' Height 32 ' Cap								
		Dam								
50	82	Excavation Trenching SR	2074	Cu Yds	2.00	4146	20	830	4978	
"	82	" apron SR	60	Cu Yds	2.00	120	"	24	144	
"	92	Rubble Masonry	3473	"	7.00	24311	"	4862	29173	
"	"	Concrete raising dam	152	"	7.50	1140	"	228	1368	
"	"	Concrete apron	53	"	7.50	398	"	80	478	
"	"	Concrete under spillway	185	"	7.50	1388	"	278	1666	
		Gates								
"		Wooden for flume	2	each	75.00	150	"	30	180	
"		" " Waste	2	each	75.00	150	"	30	180	38,167
"										

SUMMARY
VALUATION DETAIL SHEET
Flume.
Cost by Lane

Quantities by Lane & Bartl. — Checked by E W Case.

References Quantity Page	References Cost Page	Item	Cost to Reproduce: Quantity	Unit	Cost	Subitem	Overhead %	Overhead Amt	Subtotal	Total
		Description								
52-56		Flume								
56	82	Clearing	193	acres	10.00	1930	20	386	2316	
"	"	Excavation Bench cuts earth	103605	Cu yds	.50	51803	"	10361	62164	
"	"	" " " S.R.	6882	cu yds	1.25	8603	"	1721	10324	
"	80	Redwood Lumber	5,526 M	BM	61.00	337086	"	67417	404503	
"	"	R.O.P. Lumber	2,588	"	38.00	98344	"	19669	118013	
"		Tarring & Calking	1202 M	Lin ft	10.50	12603	"	2521	15124	
"	73,84	Reserve R W	474 M	BM	42.00	19908			19908	
"	"	Reserve R O P	222	"	24.00	5328			5328	637680
57-58		Tunnels 1,2,3,4,5,6,8.								
58	82	Excavation LR 3456 C Y	1728	Lin ft	10.00	17280		3456	20736	
"	"	Excavation SR 1126 "	563	"	9.00	5157		1031	6188	
"	91	Rubble Concrete	850	Cu yds	5.00	4250		850	5100	
"	"	Concrete	158	"	7.25	1145		229	1374	
"	86	Plaster	7968	Sq ft	.02	159		32	191	
"	85	Timbering	50 M	BM	44.00	2200		440	2640	36229
57-58		Tunnel No 7								
58	82	Excavation L R 3802 C Y	1901	Lin ft	10.00	19010		3802	22812	
"	91	Rubble Concrete	763	Cu yds	5.00	3815		763	4578	
"	91	Concrete	123	"	7.25	893		199	1092	
"	86	Plaster	8832	Sq ft	.02	177		35	212	
"	85	Timber	41 M	BM	44.00	1804		361	2165	30859
59-60		Syphons								
	78	Excavation trench LR 4' deep	1992	Cu yds	.75	1494		299	1793	
	82	Backfill	980	"	0.18	176		35	211	
	91	Concrete	81	"	7.25	587		117	704	
	75,84	R S Pipe #10 30" 600'	31200	lbs	.048	1498		299	1797	
	"	" " " #12 30" 2100'	84210	"	.052	4379		876	5255	
	"	" " " #12 26" 1420'	51062	"	.052	2654		531	3185	
59-60	Crane Cat.	Miscellaneous Fittings				103		21	124	13069
									Grand Total----------	717837

SUMMARY
VALUATION DETAIL SHEET

EUCALYPTUS DAM
Quantities by E. W. Case, Cost by Lane, Checked by Taylor.

References Quantity Page	References Cost Page	Item	Quantity	Unit	Cost to Reproduce: Cost	Sub Item	Overhead %	Overhead Amt	Subtotal
		Description Earth Fill Length Height Cap.							
43-44		Dam							
	82	Excavation top soil	604	Cu yds	.30	$181.00	20%	36	217
	82	Trenching puddle	800	"	1.25	1000	"	200	1200
	78	" pipe L.R. 5'	25	"	.75	19	"	4	23
	78	Excavation spillway ditch L.R.	320	"	.75	240	"	48	288
	82	Embankment	5368	"	.45	2416	"	483	2899
	"	Puddle Clay	2830	"	1.25	3538	"	708	4246
	"	Riprap well laid	8400	Sq ft	.20	1680	"	336	2016
	83,84	Concrete in spillway	20	Cu yds	6.85	137	"	27	164
		Gate Tower							
	81,84	Brick	13	M Brick	30.75	393	"	79	472
	83,84	Masonry (wet)	25	Cu yds	4.40	110	"	22	132
	80,84	R.O.P. Lumber (Bridge)	600	M B M	36.60	22	"	4	26
	,87	Paint	760	Sq Ft	.015	11	"	2	13
	86	Plastering	750	"	.02	15	"	3	18
		Outlet Connecting to Main							
	75,84	R.S. Pipe 15" #14 112') " " " 15" #14 150')	4140	Lbs	.056	232	20%	46	278
							Total----------		11992

SUMMARY
VALUATION DETAIL SHEET
LA MESA DAM

Quantities by E.A.Bartl. Cost by Lane. Checked by E W Case.

References Quantity Page	References Cost Page	Item	Quantity	Unit	Cost to Reproduce: Cost	Subitem	Overhead %	Overhead Amt	Subtotal	Total
		Description Hydraulic Fill Length Height 65' Capacity								
		Dam								
51	82	Excavation stripping	1460	Cu yds	.30	438	20	88	526	
	"	Excavation puddle trench	520	"	2.00	1040	"	208	1248	
	"	Excavation trench inner toe	324	"	2.00	648	"	130	778	
	"	Excavation spillway	650	"	2.00	1300	"	260	1560	
	93	Embankment hydraulic fill	38000	"	.30	11400	"	2280	13680	
	96	Asphalt facing	23090	Sq"ft	.04	924	"	185	1109	
		Gate Tower								
	75,84	31 joints of 2' R S Pipe No 14	1500	lbs	.0554.	83	"	17	100	
	95	Cast iron flanges 62 at 8	496	"	.055	27	"	5	32	
	96	Concrete	5	Cu yds	6.75	34	"	7	41	
	94	Glazed pipe 2'	134	Lin ft	1.60	214	"	43	257	
	75,84	R S Steel Pipe 20" 134' #14	2720	lbs	.0554	151	"	30	181	
	95	Covers 5	500	"	.05	25	"	5	30	
		Outlet connecting with main.								
	96	Concrete culvert	265	Cu yds	6.75	1789	"	356	2147	
	85	Cast iron pipe 24" -204'	41657	lbs	.043	1791	"	358	2149	
	97	" " Gate valves 24"	2	each	190.00	380	"	76	456	24,294.

SUMMARY
VALUATION DETAIL SHEET
LA MESA DITCH.

Quantities By Bartl. Cost by Lane. Checked by E. W. Case.

References Quantity Page	References Cost Page	Item	Quantity	Unit	Cost to Reproduce Cost	Subitem	Overhead %	Overhead Amt	Subtotal	Total
		Description								
		Main ditch 4'x2' 18180 Lin ft with smaller ditch near La Mesa Reservoir 3'x1.8 2500 Lin ft. Also 1242' of 36" Redwood stave pipe max head of 100 ft. Inlet and Outlet Redwood. Ditch built in 1895 and wooden stave syphon in 1894.								
61		Main Ditch								
	82	Excavation	5887	Cu yds	.40	2355	20	471	2826	
61		Syphon laid on ground surface.								
	98-100	Redwood stave pipe 36"	1242	Lin ft	2.50	5105	"	621	3726	6552

SUMMARY
VALUATION DETAIL SHEET
MURRAY HILL DAM

Quantities by E. A. Bartl. Cost by Lane. Checked by E. W. Case.

References Quantity Page	References Cost Page	Item	Quantity	Unit	Cost to Reproduce Cost	Subitem	Overhead %	Overhead Amt	Subtotal	Total
		Description Earth Fill Length Height 30' Cap.43 million Gals.								
63-64		Inlet								
	101	Concrete Forebay	9	Cu yds	6.75	61	20	12	83	
	101	" Pipe Piers	24	"	6.75	162	"	32	194	
	78	Excavation Trench Hard Earth & Hardpan	2160	"	.54	1166	"	234	1400	
	82	Backfill	815	"	.18	147	"	29	176	
	109	Pipe Concrete 36"	1977		2.12	4191	"	838	5029	6882
		Dam								
	82	Excavation Top soil	1672	"	.30	502	"	100	602	
	"	" Trench-puddle and spillway	861	"	1.25	1076	"	215	1291	
	"	Main Embankment	22998	"	.45	10349	"	2070	12419	
	"	Clay Puddle fill	2422	"	1.25	3028	"	606	3634	
	"	Rip rap well laid (One side) 8" Thick	20186	Sq ft	.15	3028	"	606	3634	
	109	Pipe 36" Concrete	40	Lin ft	2.12	85	"	17	102	
	82	Backfill spillway	56	Cu yds	.18	10	"	2	12	21694
		Gate Tower								
	101	Concrete	54	Cu yds	6.75	365	"	73	438	
	102	Sluice Gate with ◊ Mechanism C I 24 x 24	2	each	187.00	374	"	75	449	887
		Outlet & Connection with Main								
	85	Pipe C I 20"	192	Lin ft	3.15	604	"	121	725	
	85	Pipe C I 24"	132	"	4.25	561	"	112	673	
	101	Concrete Around Pipe with Collars	68	Cu yds	6.75	459	"	92	551	
	102	Gate valve Crane 24"	1	each	190.00	190	"	38	228	
	102	" " " 20"	1	each	122.00	122	"	24	146	
	109	Pipe Concrete 24"	5286	Lin ft	1.57	8299	"	1660	9959	
	78	Excavation Trench	2310	Cu yds	.54	1248	"	250	1498	
	82	Backfilling	875	"	.18	158	"	32	190	
	7	Embankment	90	"	.45	41	"	8	49	
	101	Concrete Piers	45	"	6.75	304	"	61	365	
	78,82	Tunnel 5'x5' cemented Cyl.	750	Lin ft	5.00	3750	"	750	4500	18684

Continued on next page.

SUMMARY
VALUATION DETAIL SHEET
Cont'd

Quantities by E. A. Bartl. Cost by Lane. Checked by E. W. Case

References Quantity Page	References Cost Page	Item	Quantity	Unit	Cost to Reproduce Cost	Cost to Reproduce Subitem	Overhead %	Overhead Amt	Subtotal	Total
		Description								
64		Bridge to Gate Tower								
	73,84	Channels 12" 114'	2440	lbs	.066	161		32	193	
	108	Pipe Railing 2"	430	Lin ft	.15	65		13	78	
	108	Pipe Supports for Beams 4"	60	"	.30	18		4	22	
	101	Concrete Floor	7.4	Cu yds	6.75	50		10	60	
	73	Reinforcing Mesh	200	Sq ft	.03	6		1	7	360
								Grand Total		48,707.00

SUMMARY
Valuation Detail Sheet
Pipe Lines - Distribution System

Quantities by Harriett Cost by Lane Checked by Lane.

& Reference Quantity Page	& Reference Cost Page	Item	Quantity	Unit	Cost to Reproduce Cost	Cost to Reproduce Sub-item	Overhead %	Overhead Amt.	Sub-total.	Total
		Description								
70		Riveted Steel								
	108	4" - #14	1535	Lin.Ft.	.3387	520	15	78	598	
	"	4" - "	2365	"	.3387	801	"	120	921	
	"	6" - "	1200	"	.5607	673	"	101	774	
	"	8" - "	5000	"	.6740	3370	"	506	3876	
	"	15" - "	12691	"	1.1344	14397	"	2159	16556	
	"	20" - "	18861	"	1.3616	25681	"	3857	29538	52,263
70		Screw Casing								
	"	3"	380	"	.2545	97	"	15	112	
	"	3"	1907	"	.2545	485	"	73	558	
	"	3"	1907	"	.2545	485	"	73	558	
	"	4"	3296	"	.3190	1051	"	158	1209	
	"	6"	334	"	.5676	190	"	29	219	
	"	8"	284	"	.8066	238	"	36	274	
	"	10"	350	"	1.0449	366	"	55	421	
	"	11"	339	"	1.1996	407	"	61	468	
	"	12"	927	"	1.4244	1310	"	197	1507	5,326
70		Standard Screw								
	"	1½"	460	"	.1810	83	"	12	95	
	"	2"	2000	"	.2154	431	"	65	496	
	"	2"	2500	"	.2154	539	"	81	620	
	"	2"	1500	"	.2154	323	"	48	371	
	"	2"	1682	"	.2154	362	"	53	415	1,997
70		Wooden Stave R.Wood								
	"	8"	800	"	.6880	550	"	83	633	
	"	8"	7280	"	.6880	4950	"	643	5593	
	"	18"	127	"	1.1790	150	"	22	172	
	"	20"	6940	"	1.5837	10991	"	1649	12640	
	"	24"	6345	"	1.6300	10342	"	1551	11893	30,931
62		111-112 Miscl. Valves & Fitting				2184	"	327	2411	2411
										92,928

SUMMARY
VALUATION DETAIL SHEET
TELEPHONE

Quantities by Harriott — Cost by Lane — Checked by Lane

Reference Quantity Sheet	Reference Cost Sheet	Item	Quantity	Unit	Cost	Subitem	Overhead %	Overhead Amt	Subtotal	Total
		Description								
72	80	Poles 2020	33	¼ Bl	38.00	1254	20	251	1505	
		" 180	7	"	38.00	266	"	53	319	
	127-128	Insulators	2200	each	1.53⅓	34	"	7	41	
	"	Wire #14 gage	59 3/4	miles	11.10	597	"	119	716	
	"	Wire #12 gage	1 ½	"	19.10	29	"	6	35	
	"	Wire #12 gage	3/4	"	19.10	14	"	3	17	2633.

APPENDIX C.

COMPUTATIONS

OF

QUANTITIES.

C

EUCALYPTUS DAM -- SUMMARY OF QUANTITIES

Excavation:

Stripping	602 Cu. Yds
Puddle Trench	600 "
Pipe Trench	25 "
Waste or Overflow Ditch	320 "

Embankment:

Dam	6736 Cu. Yds
Excavated	602 "
	7338 - 1970 Cu Yds Puddle - Net 5368

Puddle:

Berm	2770
Pipe	60
	2830 Cu Yds

Rip Rap: 8400 Sq Ft

Valve Chamber or Tower:

Brick	13 M
Masonry	25 Cu Yds
Lumber - (Bridge)	600 Ft B M
Plastering	750 Sq Ft
Painting	760 Sq Ft

Pipe:

Outlet	112 Lin Ft 15" Steel
Overflow	150 " " 15" "

Concrete:

Overflow Pipe and Ditch 20 Cu Yds

Eucalyptus Dam Quantities

Station	End Area Dam Sq Ft	Quantities in Dam Cu Yds	End Area Rip Rap Sq Ft	Excavation Base of Dam End Area	Quantities
0 00	98		0	11	
		276			1375
0 50	298		20	44	
		1173		81	3125
1 00	979		43		
		1423		105	2790
1 50	1562		58		
		1116		98	2030
1 50	1456		54		
		1972		75	4200
2 00	694		36		
		739		28	2450
2 50	104		10		
		35		6	300
2 68	0		0		
Total------		6736	8400	74653 -	16270 Cu Ft
				2770 Cu Yds	602 Cu Yds
				60	25 Cu Yds
				2830	

Pipe 600 Cuys

Waste Ditch 320 Cu Yds
Puddle Trench 8 ft deep - 8 ft wide bot 12 ft wide Top - 8' x 10'

Gate Tower

Brick					Brick	
Outside	5.5 =	17.28	Outside	Diam	- 5.5 ft -4-	23.76 Sq Ft
Inside	2.5	7.85	Inside	"	-2.5 ft -4-	4.91 "
Brick per cu ft		25.13		Area Ring		18.85 "
Depth		30		Depth		30
		750 Sq Ft				565.50 Cu Ft
				Brick per cu ft		23
						13006.5

Lumber Bill for Bridge

172' of 1" x 12"	flooring	172 ft B M	Plaster	
96' 3" x 6"	Stringers	192 " " "	Diam	5.5
24' 4" x 6"	Bents	46 " " "	"	2.5
15' 2" x 12"	Bents Caps	30 " " "	Area per ft	
60' 4" x 4"	Railing Caps	80 " " "	Length	
42' 2" x 6"	Railing	42 " " "		
	Top Tower	36 " " "		

Reference Field Book #101

CUYAMACA DAM QUANTITIES

Station	End Area Sq Ft	Quantities In Dam Cu Yds	End Area Puddle Sq Ft	Quantities Puddle Cu Yds	End Area Rip Rap Lin Ft	Quantities Rip Rap Sq Ft
				25		
0 50	42		27		0	
		111		68		50
1 00	78		47		2	
		256		125		300
1 50	196		85		10	
		557		212		735
2 00	404		144		19	
		1372		394		1250
2 50	1080		281		31	
		2670		665		1900
3 00	1800		437		45	
		3040		790		2250
3 50	1690		416		45	
		1600		645		1900
4 00	1040		281		31	
		1780		489		1450
4 50	883		247		27	
		1295		374		1075
5 00	517		154		16	
		752		242		675
5 50	295		107		11	
		487		163		450
6 00	231		69		7	
		440		168		435
6 72.5	97		56		5	
		25		15		39
6 88	00		00		0	
Total --		14585		4375		12509 use 12510 1840

		Dry Masonry Cu Yds	Excavation
S. Spillway 46 x 40		125	
		31	750
N. Spillway	100	47	1790
Outlet		32	
Stripping Base of Dam			1360
Puddle Trench			1990
		Total ---	5890

Plaster D - 7'10" - C 246 ft x 31.5 - 775 Sq ft
D - 5 - C 15.7 x 31.5 - 495
1270 Sq Ft.

Reference
E 15 - Plan of Cuyamaca Dam
Pencil Crossections
Field book 101
page 2 - 4

DRAINAGE DITCH INTO CUYAMACA RESERVOIR

Station	Depth	Bottom Width	End Area Sq Ft	Cu Yds	Earth Cu Yds	Rock Cu Yds
0 00	5.0	5.0	63.1			
				1011	910	101
5 00	4.0	5.0	46.2			
				770	578	192
8 00	6.0	5.0	77.3			
				473	378	95
10 00	4.0	5.0	46.2			
				775	388	387
13 00	6.5	5.0	97.5			
				1550	1162	388
19 00	4.0	5.0	46.2			
				1180	708	472
26 00	3.5	8.0	47.7			
				700	350	350
30 00	4.0	6.0	48.0			
				1020	510	510
36 00	4.0	5.0	44.0			
				778	467	311
41 00	4.0	4.0	40.0			
				810	202	608
48 00	3.0	3.0	22.5			
				700	175	525
57 00	3.0	2.0	19.5			
				414	104	310
64 60	2.0	3.0	10.0			
Total ----------				5930	4250	

Slopes 1½ - 1

Reference

Field Book No 101.

Page 1.

BILL OF LUMBER AND CONCRETE AT CUYAMACA

Bridge

160' of 1" x 12" for flooring
150' of 4" x 4" for stringers and bent
150' of 2" x 4" for guard rail
140' of 1" x 6" for braces — Total -- 530'

Frames

8 pieces 4" x 9" x 10'4"
4 " 4" x 10" x 3'9"
2 " 4" x 7" x 3'9" — Total 314'

Gates

2 pieces 4" x 7" x 3'9"
10 planks 4" x 12' x 3'4"
8 " 1" x 3/4" x 3'4" — Total 173'

Culvert

188 Cu Yds Masonry or Concrete

Reference

D 15

Plan of Cuyamaca Dam

Reference — Field book No 101 Pages 1 - 4.
E-15 Plan of Cuyamaca Dam
Pencil Crossections

CUYAMACA DAM — SUMMARY

2 sheets - sheet 1.

Excavation

Stripping	1360 Cu Yds	
Puddle Trench	1990 "	
N Spillway	1790 "	
S. Spillway	750 "	
Total -----	5890 Cu Yds	
Embankment -----	14585 cu yds	
excavated --	1360 "	15945
	Puddle	4375
Total Net --------		11570

Puddle

Core	4375 Cu Yds	
Trench-	1990 "	
Pipe	100	
	6465	

Rip Rap

Inner Surface Dam	12510 Sq Ft	1 Ft	Thick
South Spillway	1840 "	1 "	"

Dry Masonry

Inner Berm Dam	120 Cu Yds
N. Spillway	47 "
S. Spillway	31 "
Outlet	32
Total ---------	230 Cu Yds

Valve Chamber

Brick	36,000
Plaster	1,260 Sq Ft
Cast Iron	870 Lbs

Wooden Gates

Lumber	974 ft B M
Iron	560 Lbs

Masonry or Concrete Outlet Conduit - 188 Cu Yds

Wing Walls

Outlet	3 Cu Yds
Inlet	33 "
Total ----	36 Cu Yds

Bridge

Lumber 530 ft B M - Painting 865 Sq Ft

Continued on page 49.

CUYAMACA DAM - SUMMARY

Weir

See Page 48 for references.

Ditch Feeder

Earth Excavation	5930 Cu Yds
Rock	4250 Cu Yds

GATE TOWER:

D - 7' 10" Area	48.19		
D - 5 "	19.63		
Ring -----	28.56 Sq Ft		
Depth	315 Ft		
	900 Cu Ft at 23 brick		20,700
Sq Foundation	13½ x 3 x 23		11,700
Base 9' 3"	67.20		
7' 10"	48.19		
	19.01		
Depth	12		
Sq Ft	228.12 at 23		5,250
	)1.75 - 236		
2 partals each 3' x 4.5 x	)3.14 424		37,650
	)2.14 289		2,180
	949 Cu Ft at 23)		
			36,000

DIVERTING DAM

Excavation:	Apron	60 cu yds
	Base 7' x 20' x 400'	2074 " "

Masonry:

Section A	7.5' x 10' x 4.3'	322.5 cu ft
B	10' x 11.3' x 4.7'	531.2 " "
C	16.5' x 16' x 5.9'	1557.6 " "
D	10' x 22' x 7'	1540.0 " "
E	10' x 26' x 9'	2340.0 " "
E	23' x 22' x 9.6'	4857.6 " "
F	75' x 28' x 11'	23100.0 " "
F	22' x 28.5' x 11.5'	7210.1 " "
G	33' x 28.5' x 10.25'	9650.0 " "
H	20' x 23.5' x 10.25'	4817.0 " "
I	19.1' x 25.5' x 10.5'	5087.0 " "
J	38.0' x 30' x 10.3'	11742.0 " "
K	20' x 29' x 10.2'	5916.0 " "
L	50' x 28' x 10'	14000.0 " "
M	10' x 26' x 9'	2340.0 " "
N	20' x 19.4' x 8'	3104.0 " "
O	14' x 17' x 7.4'	1761.2 " "
P	13.5' x 14' 6.8'	1285.2 " "
Q	21' x 10.7' x 6'	1348.2 " "
R	16' x 7.5' x 5.5'	660.0 " "
S	17.5' x 4.7' x 4.7'	386.6 " "
	Total in Dam	103556.2 Cu ft
		3835 Cu Yds
	Less new work	362 " "
	Total old work	3473 " "
	Plus new work before Jun 1, 1912	152 " "
	Total ----------	3625 " "
	Apron wall 26' x 15' x 3.7'	53 " "
	Under spillway	185 " "

Gates:

Wooden for flume	2
Wooden for waste	2

Reference -- see Plat 179 - 105

LA MESA DAM

Reference Plats 179-100 179-101 179-102

Sta.	End Area Dam Sq Ft	Cu Ft	Asphalted End Area	Sq Ft	Excavation Puddle Trench Cu yds	Inner toe Trench Cu yds	Spill -way Cu yds	Foundation End Area " Sq Ft	Cu Ft
0 05	0.00		0					0	
50	160 .	3600	18	450				33.5	745
1 00	412.5	14312	31	1225				52.	2138
1 50	922.	33362	40	1775				66.	2950
2 00	1210.	53300	52	2300				89	3875
2 50	3589	119975	95	3675				163	6300
2 75	6672	128262						197	4500
3 00	7425	176212	139	5850				206	5038
3 20	6930	143550						162-	3680
3 30	2345	46375						163	1625
3 50	1200	35450	46	4625				50	2500
4 00	738	48450	34	2000				65	3800
4 70	0	25630	0	1190				0	2275
		828678		23090					39246
		30692 Cu Yds		S Ft	520	324	650		1460 Cu Yds

Concrete toe wall 4' x 4' x 547' long 324 Cu Yds

Gate Tower:
31 jts 2' dia steel pipe - 2 ft long -- 62 Ft
Cast iron, flanges, swivel, bolt fastenings.
Concrete base of tower 5 Cu Yd

Outlet connecting with main,

Concrete Culvert 4' high x 25' wide inside-walls 2.5 ft thick - 205' long 265 Cu Yd

204 lin ft 24" cast iron pipe - 41657 lbs
2 24" " " Gate valves
5 wells - 67 -2ft joints 20" diem glazed pipe -
134 ft steel pipe
5 covers.

FLUME

Clearing 208.5 Acres

Reference Packet 806.

J. H. Koon, Contractor.

Earth Excavations	112,475	cu. yds
Rock	7,474	" "

Packet 808. Joseph Johndrew, Concractor.

F L U M E

Reference - Packet 812 Engr. Estimates for Construction 1888.

" " 809 Receipts Contractor.

PROFILE Map B #1.

Mile.	Flume R.W. Ft. B.M. Original Estimate	Final basis of payment.	Trestles R.O.P. Ft. B.M. Original Estimate	Final Basis of payment.
1 & 2	402642	442000	49048	28000
3 & 4	378896	392000	121332	121000
5 & 6	414321	440000	658582	43000
7 & 8	405252	441000	118641	86000
9 & 10	389957	431000	88764	46000
11 & 12	394842	437000	125319	82000
13 & 14	406275	430000	55536	32000
15 & 16	368475	399000	62282	35000
17 & 18	397557	424000	61687	34000
19 & 20	382911	408000	124153	99000
21 & 22	373655	401000	203417	176000
23 & 24	376403	428000	172682	127000
25 & 26	302272	331000	89642	61000
27 & 28	392986	410000	34535	18000
29 & 30	378814	416000	171192	134000
31 & 32	368881	399000	228907	199000
33 & 34	390199	412000	59849	38000
35 & 36	340103	364000	67493	43000
	6867440	7408000	1903273	1402000

6867440 plus 1903273 8770713' B.M. Original Estimate
7408000 " 1402000 8810000' B.M. Final Basis of Payment.

Replacement of Flume by R.S. Siphon

Sta. 6 Mile plus 3640 ft. So. Fork Siphon Intake
" 7 " " 2126 " S. F. Outlet of Siphon

3566 ft. abandoned

Sta. 9 Mile plus 1030 ft. Chocolate Intake of Siphon
" 11 " " 1700 " " Outlet " "

10560' " 670 11230' abandoned

11230 plus 3566 14796 amount abandoned.

Profile Map.

F L U M E .

Reference
Note Book A
Page 3.

R.W. $\frac{2x4x4x4}{4x12}$ - 2.7

$\frac{4x6x12}{4x12}$ - 6

$\frac{2x12x9}{4x12}$ - 4.5

$\frac{2x2x16}{12}$ - 5.3

$\frac{6x2x12}{12}$ - $\frac{12}{30.5}$ BM R.W. per Lin ft

Note:- Every 16th yoke 6" x 6" sill 4 x 6 posts.

Use 32' B.M. per ft.

186,440
32
372880
559320
5,966,080

Use 6,000 ½ B M R.W.
Total amt 8,610 ½ B M see sheet
6,000
2810 ½ B M - R.O.P.

Continued on page - 56

F L U M E

Reference
Profile Map
1,2,3,4,5,6

Original Total Length 191,203 feet
" tunnels & approaches 4,763 "
186,440 "

As we have no accurate data of quantities per ft we assume a proportionate method of arriving at quantities abandoned.

32' B M R.W. average per ft
15' B M R.O.P. " " "
.0011 Acres clearing " " "
.6 Cu yds Earth Exc " " "
.04 " " Rock Exc " " "

14796 feet Abandoned see page 54.

14796 x 32 - 474 ½ B.M. R.W.
14796 x 15 - 222 ½ B.M. R.O.P.
14796 x .0011 - 16 Acres clearing
14796 x .6 - 8870 Cu yds Earth Excavation
14796 x .04 - 592 " " Rock "

FLUME TOTALS.

Clearing Acres	Excavation E. Cu Yds	Excavation S.R. Cu Yds	Lumber R.W. ½ B.M.	Lumber R.O.P. ½ B.M.
192.5	105,605	6,863	5,526	2,568

Tarring and Calking,

Length 186440 - 14796 = 171644'

7 joints

7x171644' = 1201508

1202 ½ Lin ft.

F L U M E L I N E.

TUNNELS

Reference M-8. Profile Map 1,2,3,4,5,6,

No.	Length	Rubble Wall	Concrete Wall	Timbered	Un-Timbered
1	338	386		313	
2	236	266		211	
3	91	124		66	
4	711	330	405	280	405
5	319	368		294	
6	316	165	158	133	158
8	280	333		255	
Totals	2291	1992	563	1552	563
7	1901	2208		1267	634

Flume Line

Taking No 7 tunnel separate we have above total quantities.

Tunnels 1,2,3,4,5,6,8.

Excavation average section 2 cu yds per lin ft.

2x2291 - 4582 cu yds
of which 1126 " " - S.R.

3456 " " - L.R.

Rubble Wall

Walls $\frac{2x4.5x1992 \times 1}{27}$ - 664. cu yds

Portal $\frac{.67x3.2x12.6}{27}$ - 1 cu yd) 14 cu yds 10' arch 13.3
$\frac{3.25x12x9}{27}$ -13 " ") $\frac{4}{}$ " " $\frac{.33}{}$ $\frac{14}{}$
) 10 " " 3.3 cu yds 186 cu yds

850 cu yds

Plaster 4 x 1992 - 7968 sq ft

Concrete

sides $\frac{2(.25x4x563)}{27}$ - 47 cu yds

Bottom $\frac{.25x6x1992}{27}$ - 111 cu yds

158 cu yds

Timber

Set 4' c-c

$\frac{2x6x8}{4x12}$ - 2

$\frac{2(3x6x8)}{4x12}$ - 6

$\frac{3x12x8}{12}$ - 24

32' B M per Lin ft.

1552 x 32 = 49664' B M R.O.P.

Tunnel No7

Excavation: 2x1901 - 3802 cu yds L.R.

Rubble wall:

2(4.5 x 2208 x 1) 736 cu yds÷ 26.6 = 762.6

Plaster

4x2208 - 8832 sq ft.

Concrete

$\frac{.25x6x2208}{27}$ - 123 cu yds

Timber

1267 x 32 = 40544' B M

ESTIMATE OF QUANTITIES OF SOUTH FORK STEEL SYPHON

Excavation for 1420 feet of ditch

3' -3" wide - 4' deep — 630 cu yds

Excavation for 2 forebays — 42 " "

Total — 672 Cu yds

Backfilling — 390 cu yds

Concrete on Inlet Forebay (reinforced) — 12 " "

Concrete on Outlet " " — 12 " "

Concrete around pipe at Creek Crossing — 12 " "

1 - 2' Nipple 4" diameter

1 - 4" Gate Valve

2 - 16' long - 4" diameter pipe (O.P.)

1 - 8" L

1 - 8" Nipple

1 - Manhole casting with cover

On Inlet & Outlet a 16' flume connection 6' wide new Redwood Lumber

Concrete Saddles at change of grade — 4 cu yds

E. A. Bartl,

Engineer.

ESTIMATE OF QUANTITIES FOR CHOCOLATE SYPHON

Excavation of 2660 feet of ditch — 1260 cu yds

" for inlet forebay — 21 " "

" " Outlet " — 19 " "

Total ---- — 1320 cu yds

Backfilling — 590 cu yds

Concrete in Inlet and Outlet forebays (reinforced) (3/4" steel) — 24 cu yds

" around the pipe across creek — 11 " "

One 6" blowoff valve

One Manhole casting with cover

2 pipes 20' long - 6" diameter

1 Elbow 6" diameter

1 - 10" Nipple 6" diameter

Concrete Saddles at several angles — 6 cu yds

On Inlet & Cutlet at 16' flume connection 6" wide new Redwood Lumber

E. A. Bartl,

Engineer.

Reference - Profile N-16

La Mesa Ditch built 1895.

Main Ditch 15,160 lin ft 4' x 2' - 5587 cu yds

Temporary Ditch 2500 lin ft 3' x 1.8' - 500 " "

Total 20660 5887 " "

Alvarado Syphon built 1894.

1242 Lin ft 36" Redwood stave pipe.

CUYAMACA WATER COMPANY.

DISTRIBUTION SYSTEM
TOTAL NUMBER - VALVES AND SPECIALS

Field Book 100.

Used on Screw Casing, Lapweld or Riveted Iron

Size Inches	Gate Valves	C.I. Tees	C.I. Crosses	Elbows 90°	Brass Service Cocks	C.I. Saddles	W.I. Saddles	Brass Saddle	Air Valves	Y R.S.	Bushing	Flange Union	Regulating Pressure Gates
1"	-	-	-	-	10					-	-	-	
2"	13	-	-	8	31	8	8	14		-	-	-	
3"	5	-	-	2	-	-	7	-		-	-	-	1
4"	14	-	-	2	-	-	-	2		-	-	-	
6"	10	-	-	6	-	-	-	2		-	-	-	
8"	6	2	-	5	-	-	-	2		-	-	-	
10"	1	-	1	-	-	-	-	-		-	2	1	
12"	1	-	-	-	-	-	-	-		-	-	1	
15"	4	6	-	-	-	-	-	-		2	-	-	1
20"	3	-	-	-	-	-	-	-		-	-	1	
24"		1	1	1	-	-	-	-		-	-	-	

Manhole Ring and Cover

24" - 1

Pressure Guages

4

C. I. Cap

20" - 1

REFERENCE - PLAT - SECTIONS OF MURRAY HILL DAM.

MURRAY HILL DAM.

	END AREA		EXCAVATION				RIP RAP	
	sq.yds.	cu.yds.	Base sq.ft.	Puddle End Area sq.ft.	cu.ft.	Inner Toe	End Area	sq. ft.
0	0							
0+50	27.6	230	0	Cu.Ft. 0	0		0	
1+00	90.3	902	39	925	11.4	285	14	350
1+25	127.8	909	73	2800	17.1	712	30	1100
1+50	161.9	1290	89	2025	18.4	444	39	862
1+75	224.7	1694	111	2500	14.3	409	40	1088
2+00	282.5	2030	122	2912	18.8	414	55	1288
2+25	287.2	2207	132	3175	17.1	449	60	1438
2+50	282.5	2290	133	3312	16	414	62	1525
2+75	254.7	2280	134	3338	17.1	414	64	1575
3+00	220.5	2022	125	3250	16	414	61	1562
3+25	167.4	1700	121	3088	17.1	414	58	1488
3+50	160.5	1450	111	2900	20	464	54	1400
3+75	126.0	1194	102	2662	14.3	429	48	1275
4+00	100.0	942	93	2436	17.1	392	42	1125
4+50	83.0	1275	80	2162	15.4	402	38	1000
5+00	18.6	597	59	3475	14.3	742	25	1575
5+50	5.5	201	38	2425	14.3	742	14	975
5+70	0	18	23	1525	14.3	742	6	500
		23311	0	430	0	143	4'x2' 0	60
				45142		8435	420'	20186
				1672 cu.yds		312 cu yds.		135 cu yds.

Spillway Excavation 285' x 75' x 5.4' - 424 cu. yds.
Puddle 564 x 55 x 16.7 1985 cu. yds. + 437 cu yds in trenches
total 2422

Back fill around pipe at Spillway 7 yds x 4 yds x2 yds. deep 56 cu.yds.
24 C. I. Pipe 132 lin.ft
20 C. I. " 192 " "
24" Gate Valve 1
Concrete around C. I. Pipe 6' x 3.25' x 132' = 2574 cu.ft.
Deduct 2.6 + 3.7 x 132 for pipes 832 " "
Total 1742 " " 65 cu. yds.

Water Tower - Base 9' x 9' x 3' 243 cu.ft.
1st Section 9' x 9' x 14 less 6'x6'op 630 cu.ft.
2nd Section 8' x 8' x16 " 6'x6' " 448 " "
Top 12'x 12'x8" 96 " "
Total 1417 " " 54 cu.yds.

Reinforcement

Forebay
Concrete Base 10'x10'x0.5' 50 cu.ft.
Section 9 1/3 x 9 1/3 x9½ less op 8x8 197 cu.ft.
247 " " 9 cu.yds.

Reinforcement
Cut off collars - Concrete 3 cu.yds.

Continued on page 64.

CONCRETE PIPE LINES

TO AND FROM MURRAY HILL DAM

36" Reinforced Concrete Inlet Pipe	
Excavation	2160 Cu. yd.
Concrete Pipe	1977 Lin. Ft.
Back Filling	815 Cu. Yd.
Concrete around pipe in Dam 5.8' x 5.8 x 26" - less pipe	24 " "
24" Reinforced Concrete Outlet Pipe	
Concrete Pipe	5286 Lin. Ft.
Excavation	2310 Cu. yds.
Backfilling	875 " "
Embankment	90 " "
Concrete around pipe on big fill 4.5'x4.5'x 80 less opening-5.1 Sc. ftx 80	45 " "
Tunnel	750 Lin. Ft.
Bridge	
Channels 2" x 12"	114 " "
2" pipe railing	330 " "
4" " Supports	60 " "
25-2" posts with cross openings -4" long	100 " "
Concrete Floor 3.5 x 57' x 1'	7.4 Cu. Yds.
Reinforcing Mesh	200 Cu. Yds.

LAND OWNED BY THE CUYAMACA WATER COMPANY

CUYAMACA RANCHO.

	Sec. or Lot	Twp. or Blk.	S. Range	Number of Acres.
Beginning at Section corner post at S. W. Corner, Section 3, Twp.14, S. R. r East S.B.B.M. thence No. 89°-25' E. 20 chains to corner 7 of Lot E, thence No. 22' East 9.39 chains Stonewall Mine, thence So. 46° - 37' W. 9.9 chains along the Southeasterly Boundary of said mine, thence No. 43° - 23' West, 19.70 chains along the Southwesterly boundary of said mine to Section line between Section 3 and 4, thence, south 22' West 17.34 chains along said section line to place of beginning, containing 15 acres, more or less, part lot E in	3	14	4 E	15.
Beginning at a point on Northeasterly boundary of the Stonewall Mine on Section line between Sections 3 and 4, twp. 14 S.R. 4 E, S.B.B.M. which point is 27.64 chains North of S. W. Corner of Section 3, thence South 43°- 23' E. 28.79 chains along the northeast boundary at said mine,				

(Cont'd)

LAND OWNED BY THE CUYAMACA WATER COMPANY

CUYAMACA RANCHO.

	Sec. or Lot	Twp. or Blk.	S. Range	Number of Acres.
thence North 22' E. 20 chains, thence South 89°-25' West 20 chains, thence South 22' E. 1.76 chains to beginning containing 21.76 Acres, more or less in Lot E in	3	14	4 E	21.76
Cuyamaca Reservoir Per Map No. 1144 Filed July 13, 1908	32 4 5	13 14 14	4 E.) 4 E) 4 E)	1638.19
Lands outside of La Mesa Colony				
In N. W. ¼	13	16	2 W	61.75
In N. E. ¼	13	16	2 W	18.70
In W. ½ of S. W. ¼ of S. E. ¼	12	16	2 W	11.20
In S.E. ¼ of S.W. ¼	12	16	2 W	6.74
Flume Line & Right of Way 35.07 Miles				
Beginning at the Diverting Dam in N.E. ¼ of S. E. ¼, Section 11, Twp. 14, S.R. 2 E, thence Southwesterly to S.W. ¼ of N. E. ¼ of	17	16	1 W	

(Cont'd)

LAND OWNED BY THE CUYAMACA WATER COMPANY

CUYAMACA RANCHO.

	Sec. or Lot	Twp. or Blk.	S. Range	Number of Acres.
Pipe Line - 15" Iron, 20" Steel 20" Wood, 8.06 Miles				
Beginning in S. W. ¼ of N. E. ¼, thence Southwesterly to N. W. Corner, Block G Teralte	17	16	1W	
Pipe Line - Grossmont, 24" and 36" Cement; 1½ miles -(36" Cement Pipe)				
In S. E. ¼ of N. W. ¼	16	16	1W.	
24 inch Cement Pipe				
In N.W. ¼ of N. E. ¼ thence Westerly direction through the N. E. ¼ and N. W. ¼ of N. W. of Section 16, twp. 16, S.R. 1 W., thence Westerly through the N. E. ¼ and S.E. portion of N.W. ¼ of N.E. ¼	17	16	1W	
Eucaluptus Reservoir				
Beginning at a point 541 feet North 75° -36' E, from the center of Section 17, Twp. 16, S.R. 1W S.B.B.M, thence north 75°-36'E. 60 ft., thence north 71°-06' E. 163-2/10 feet, thence North 88°-01' E. 25-9/10 feet, thence South				

(Continued)

LAND OWNED BY THE CUYAMACA WATER COMPANY

CUYAMACA RANCHO.

	Sec. or Lot	Twp. or Blk.	S. Range	Number of Acres.
79°-29' E. 143-5/10 ft., thence South 66°-23' E. 106-9/10 ft., thence South 58°-41' E. 177 Ft., thence North 3°-3' E. 70-7/10 ft., thence North 45°-17' W. 101-6/10 ft., thence North 52°-51' W. 280-2/10 ft., thence North 45°-29' W. 179-4/10 ft., thence South 84°-7' W. 130-1/10 ft., thence South 72°-33' W. 238 ft., thence South 16°-26' E. 278 ft., to beginning in	17	16	1 W	3.5
Beginning 108-2/10 ft., North 45°-29' W. from corner No. 9 of the reservoir site tract, thence North 20c-21' E. 350 Ft., thence North 69o-39' W. 110 ft., to E. side of Flume Company's Right of Way, thence South 30°-W. 344 ft. along the E. side of Flume Right of Way No. 84°-07' E. 52 ft., thence So. 45°-29' E. 71-2/10 ft. to place of beginning in	17	16	1 W	.86

PLANIMETER COMPUTATIONS - CUYAMACA CO'S. RESERVOIRS.

1 sq in = 68 on Planimeter

M U R R A Y H I L L — Scale 200' = 1"

Post Survey 1910. El Cajon Heights lot 136 — 26.2

Plan Readings E U C A L Y P T U S — Scale 200' = 1"

0
300
598
3)910
303 Mean

AREA = .0135 x 303 — Area = 4.1 Acres

Plan Readings L A M E S A — Scale 500' = 1"

0
1145
2282
3)3428
1143 Mean

1 sq in = $\frac{500 \times 500}{43560}$ = 5.74 acres = 68 on Plan.

Area = $\frac{5.74 \text{ Plan}}{68}$ = .0845 Plan — Area = 96.7 Acres

Flooded area not included in Co's property 45.3 acres.

Flooded Area outside of property
536 Mean

Plan Readings C U Y A M A C A (Transit Traverse around lake) — Scale 1000' = 1"

0
3118
6220
3)9330
3110 Mean:

1 sq ft in $\frac{1000 \times 1000}{43560}$ = 22.9 acres = 68 on Plan

Area = $\frac{22.9}{68}$ Plan = .347 Plan — Area = 1.050 Acres

not planimetered	
Additionals W of Dam	588.07
Lots S of Reservoir	15.00
" " " "	21.76

Note: This is substantially a check of quantities which are a matter of record.

CUYAMACA WATER COMPANY

Distribution System

Summary Pipe

Kind	Size Inches	Gage	Length in feet	Date laid	Character of soil	Field Book #	Reference Pages also Map.
Riveted Steel	4"	14	1535	1890	Good	100	30,32,44,45, 54,55
	4"	14	2365	1908	Good	"	"
	6"	14	1200	1908	Poor	"	25,45
	8"	14	5000	1908	Poor	"	41,42,43
	15"	14	12691	1888	Good	"	22,23,24,28, to 36 inc.
	20"	14	18861	1904	Poor	"	4 to 22 inc.
Screw Casing	3	1/8	380	1912	Good	"	57
	3	1/8	1907	1904	Good	"	51,52,53
	3	1/8	1907	1904	Poor	"	15,14
	4	1/8	3296	1899	Good	"	**55,52**
	6	3/16	334	1910	Good	"	**54,55**
	8	3/16	294	1910	Good	"	24,25
	10	3/16	350	1910	Good	"	25
	11	3/16	339	1910	Good	"	26
	12	3/16	927	1910	Good	"	27,26
Standard Screw	12	5/32	460	1912	Good	"	57
	2	5/32	2000	1908	Good	"	41,42,43
	2	5/32	2500	1910	Good	"	45,57,40
	2	5/32	1500	1904	Good	"	5,6,10,11,12,17,16,21
	2	5/32	1682	1888	Good	"	24,26,30,31,32,33,35
Wooden Stave R.W.	6		800	1897	Good	"	4C
	8		7200	1901	Good	"	39,40
	16		127	1905	Poor	"	2
	20		6040	1901	Poor	"	3,56,59,60,61,62
	24		6345	1906	Good	"	[illegible],47,46

BUILDINGS

Location	Nature	Size in Ft.	Cu.Ft.	Age	Remarks
Cuyamaca Dam	Cottage	32x34x24	15232	24	Painted Shingled roof
" "	Milk house	8.5x10x6	510	24	
" "	Barn & Shed	22x22x12.75	6171	24	Shingled roof whitewashed walls
" "	Chicken house	30x8.5x7	1785	24	
" "	Cow Barn & Chicken house	25x18.5x8.5	3931	24	
" "	Blacksmith shop	16x20x7.5	2400	24	Painted
" "	Spring cover	6x6x6	216	5	
" "	Reservoir	4x4x4	64		Painted
La Mesa Dam	Cottage	32x20x16	6720	17	Rough
" "	Shed	9x17x7	1071	17	
" "	"	4x5x8	160	17	
" "	Barn	9x12x9	972	17	
" "	Pump house	13x22x10	2860	17	
End of Flume	Cottage	24x26.5x12	7632	10	Shingled roof whitewashed
" "	Ell	8x16x8	1024	10	
" "	Lattice Porch	16x8x9.5	1368		
" "	Open porch	5x10x9	450	10	
" "	Cottage	14x22x10	3080	15	Whitewashed
" "	Storehouse	15x13x10	1950	19	"
" "	Supplyhouse	22x13x9.5	2717	19	"
" "	Blacksmith shop	20x40x12	9600	3	
Teralta	Stable	14x16x9	2016	2	
Chocolate	Cottage	14x34x10.5	4998	24	Shingled whitewashed
"	Barn	12x32x9	3456	24	
"	Tool house	9x13x8	936	24	
"	Chic "	8x15x5	600	24	
Los Coches Trestle	Cottage	14x20x10.5	2940	10	
"	Barn	14x32x9	4032	18	
Los Coches	Cottage	14x43x10	6020	20	
"	Barn	14x34x8.5	4046	20	
"	Chic House	6x8x5	240	20	
Sect #5	Cottage	28x10x9.5	2600		Board roof paper cover
Div Dam	House	30x44x14	18480	24	Adobe plastered, shingle roof.
"	Tool house	10x22x10	2200	24	
"	Stable	16x24x10	3840	24	
Stand Pipe	House	16x28x8.5	3638	24	
Meter House		11x18x10	1980	10	
" "	Basement	11x18x6	1188	10	Cement
Murray Hill	Shed	8x10x7	560	1	
South fork	"	16x20x8	2560	1	Old flume lumber.
Cuyamaca Dam	5 wire Barbed fence		9.7 miles		
"	2 wire " "		2 miles.		

TELEPHONES

Total 62 miles.

Poles - along flume - 1900
" - beyond " - 20
1920 R O P 4" x 6" x 8'
30720 ft B M
"
"
100 4" x 4" x 16' 2400 33120 B M
150 Split Cedar 5" x 5" x 16' 3750 B M
2200
Insulators 1 to each pole
Wire #14 gage 59 3/4 miles
" #12 gage 2 1/4 miles

A P P E N D I X D.

ANALYSIS

OF

UNIT COSTS.

Aug. 1, 1912.

MATERIAL COST F. O. B. SAN DIEGO

MATERIAL	UNIT	COST
Brick	M	$ 9.00
Redwood Clear Surfaced	M B.M.	38.75
R.O.P. Lumber	M B.M.	20.00
Structural Iron (small lots)	lb.	.06
Paint (100# kegs)	lb.	.0675
Cement (Carload)	bbl.	2.00
Sand	cu.yd.	1.00
Rock	cu.yd.	2.00
Pipe (See special sheets)		
Lead	lb.	.06
Hemp	lb.	.0425
Gate Fittings, etc. (See Crane Catalogue with discount sheet)		
Reinforcing Rods (Assorted)	lb.	.035

San Diego, Aug. 1, 1912.

L A B O R W A G E S C A L E

	Per 8 hr. Day
Labor - Common	$2.00 - 2.50
Brick Layer	6.00 - 7.00
" " Helpers	3.00 - 3.50
Carpenters	4.00
" Helpers	2.50 - 3.00
Electricians	3.00 - 3.50
" Helpers	1.00 -2.50
Hod Carriers	4.50
Lathers (Wood)	5.50
" (Iron)	5.50
Mechanics	3.50
" Helper	2.50
Painters	4.00
" Helpers	2.50 - 3.00
Plasterers	6.00
Plumbers	5.00
" Helpers	1.00 up
Roofers	5.00
" Helpers	3.00
Sheet Metal Workers	4.50
" " " Helpers	1.00 - up
Structural Iron Workers	3.50

C O S T O F R I V E T E D P I P E

The value of riveted pipe is determined in the following manner:

Weight of Pipe.

Based on finished shipping weights of pipes of various diameters and thickness as given by manufacturers of today.

Cost of Pipe Material.

There have been large fluctuations in the price of sheet and plates during recent years, and especially because of prices being so very low at the time of the preparation of this report, it has seemed advisable to adopt for our units the average prices for each material during the past five years, dating from Jan 1, 1907.

For Sheets of No. 16 gauge, prices have fluctuated between 2.90 and 2.45 cents per pound, f.o.b. Los Angeles, while the average price for this period is 2.78 cents. The adopted prices for sheets are as follows:

Gauge 16	2.78 per pound
" 14	2.68 " "
" 12	2.63 " "
" 11	2.63 " "
" 10	2.53 " "
" 8	2.43 " "
" 3	2.34 " "

Pittsburg prices of steel plates have fluctuated between 2.13 cents at the beginning of the five year period in 1907 and 1.10 cents near the close of 1911, the yearly average f.o.b. Los Angeles being 2.60, 2.44, 2.24, 2.29 and 2.12 cents per pound respectively, with five year average of 2.34 cents, which we have adopted.

It is of interest to note that the average for the past eight years is 2.35 cents, for the past four years 2.27 cents, and for the three years 1908-9-10 is 2.32 cents. These figures serve to justify the adopted unit based on five years of fluctuations.

While material from stock costs about 25 cents more than from the mill, we have not assumed that any pipe lines have been constructed in such haste as to demand this higher cost.

Shop Cost of Pipe Manufacture.

Quotations are usually made by manufacturers on the basis of delivery to the railroad station nearest to the site of the development or for complete erection of the pipe in the trench, the hauling from the railroad to foot of tramway or to delivery alongside of or in the trench, and the trench excavation and backfilling being made by purchaser. From our analysis of many quotations, our segregated costs are found as follows:

The shop cost depends on the diameter of the pipe and

the thickness of the material from which the pipe is made. The minimum unit price per lb. occurs for pipe about 24 inches in diameter by 1/4 inch thick and larger. Smaller and thinner pipe is more expensive, as is also the larger pipe which requires heavy plates and butt strapped joints.

For plain, easy and straight work, the shop cost is about 1.0 cent per lb. for pipe using 1/4 to 5/8 inch plate, while the bends will cost not less than 1.5 cents per pound and for thin pipe of small diameter this cost will become 7 or 8 cents per pound. The cost of dipping in an asphalt or mineral rubber bath is a function of the areas as regards the material used and of the weight and size as regards the handling. The average cost for dipping may be regarded as one cent per square foot counting one surface only.

We have therefore adopted the following shop cost for manufacturing pipes of average characteristics, and including a manufacturer's profit of 12 1/2 per cent.

	Ordinary Lap Riveted Pipe	Light pipe as of No.16 Sheet	Heavy Butt Strapped
Plates or Sheets f.o.b. Los Angeles	2.34¢ lb.	2.78¢ lb.	2.34¢ lb.
Waste etc. 5%	.11	.14	.11
Shop Expense	1.10	1.75	1.65
Dipping (average only)	.06	.35	.04
	3.61	5.02	4.34
Profit 12 1/2 %	.45	.63	.54
Total cost from Mfgr. f.o.b. Los Angeles or Cal. Terminals	4.06¢ lb.	5.65¢ lb.	4.88¢ lb.

On the above basis, our prices for thin pipe, intermediate, between 1/4 inch and No. 16 are as follows:

Gauge No.14	5.30¢ lb.
12	5.10
11	5.10
10	4.75
8	4.34
7	4.25

Cost of Pipe Erection.

The cost of placing the pipe in the trench, of lining up the sections and riveting and calking same, including necessary tramways, hoisting machinery, yarding, storage etc., depends on

the weight, diameter and length of the pipe sections and conditions of location, climate, etc. Light pipe is used for low heads and light pressures, requiring but little calking etc. Heavy pipe under high heads requires more careful work in erection. The unit pound price for erection does not vary sufficiently to warrant graduated prices. Such prices must needs be varied for inaccessibility of location and the difficulty of working on steep hillsides.

Small, thin pipe with drive joints may be erected in easy locations for three cents per lineal foot and increasing with difficulty of condition up to about 8 cents. For large or ordinary pipe in easily accessible locations we may adopt 0.75 cents per pound. For any erection in tunnels add 0.5 per pound.

Specials.

The above prices will include ordinary light manholes flanges, etc. but if specially heavy construction has been made for manholes, we figure same separately on special basis. If the pipe has been cut to special lengths and made to fit knuckle or special joints, such as submarine pipe, we establish the price for making the riveted pipe lengths in the shop and then figure a unit per joint for joining to the special cast joint.

TRENCH EXCAVATION

IN DOLLARS PER CU. YD.

Depth of Cut	Easy Earth Loamy Sands Gravel		Medium Earth Stiff Clay		Hard Earth Hard Pan Wet Clay		Loose Rock		Solid Rock Blasting	
Feet	Cu. Yds per Day	Cost Cu.yd.	Cu.Yds. per Day	Cost cu,yd,	Cu. Yds. per Day	Cost cu.yd,	Cu.Yds. per Day	Cost cu. yd	Cu.Yds. per Day	Cost cu.yd,
2-5	11.0	.24	7.0	.39	5.0	.54	5.0	.75	2.0	1.5
5-7	9.0	.30	5.7	.47	4.2	.64	4.2	.80	2.0	1.6
7-13	4.0	.69	2.7	1.00	2.1	1.28	2.1	1.30	1.5	2.0*
13-15	3.0	.90	2.0	1.35	1.5	1.60	1.5	1.80	1.0	2.70*

REMARKS -

* 2 men in trench
1 man on platform

* 1 man in trench
1 man on platform

NOTE: The Cost given above does not include cribbing, backfilling or removal of surplus earth.

Labot Costs based on a gang of 15 men at $2.50 per 8 hr. and one foreman @ $3.00 per 8 hr. day.

Tunnel excavation is from 4 to 5 times the cost of the same work in Trenches for headings and half that amount for benches. This applies to tunnels from 6 feet in height upward. - Hood, Chf. Engr. S.P.R.R.

References - Packet 809 — Contractor Receipts.

F L U M E

Contract price for construction and material		$413293.
Overhaul charge		73686.
Stoppage "		1000.
Supplemental (omissions)		5886.
TOTAL for 6,810 M.B.M.		$ 494266.
Contract Unit Cost per M------		$58.00
Taking as basis of cost for labor a comparison of contracts where labor conditions were same as San Diego (namely from $3.50 to $4.00) it has been found that flume framing costs	per M	$16.00
Add-distribution	" "	1.00
		[illegible].00
Labor framing bridges, etc.	" "	$14.[illegible]0
To this add cost of Material, freight and haul		
Freight to Lakeside	" "	$ 1.25

Average Haul is made up as follows:

Distance from Lakeside to Diverting Dam	16 Miles.
" " " " end to flume	8 "

Hauling to distributing points every 2 miles, we have 2/3 of total haul to dam and 1/3 to end of flume.

2/3 of 16	10.6 miles
1/3 of 8	2.7 "
AVERAGE	6.65 "
25% of haul by way of Los Coches which is 4 miles from Lakeside For this add	1 "
Use	7.65 Miles.

References - Packet 809 — Contractor Receipts

Weight of M. B. M.	1.5 tons	
Hauling by Truck per ton mile	$ .20	
" " per M B.M.	.30	
" " " " " "	for average haul 7.65 miles -	$2.30
Price of R.O.P.,	$20.00 per M B.M.	
Freight	1.25 " " " "	
Haul	2.30 " " " "	
Labor	14.00 " " " "	
	$37.55 " " " "	
Price of R.W.	$38.75 per M B.M.	
Freight	1.25 " " " "	
Haul	2.30 " " " "	
Labor	19.00 " " " "	
	$61.30 " " " "	
FOR R. O. P. USE	$38.00 per M B.M.	
FOR R. W. USE	61.00 " " " "	

See page 73, for material costs.

B R I C K L I N I N G

BRICK LAYING - Sewer or Conduit — LABOR COSTS (Cement Mortar) MANHOLES Crowded Work, & Specials

Masons	1 @ $7.00	$ 7.00
Helpers	1 ½ @ 3.50	5.25
	Total Labor per day	$12.25
	No. of Brick per day	1000
	Labor Cost per M	12.25
	Local Overhead 15%	1.84
		14.09
	Contractors Profit 20%	2.82
		$16.91

Adopted Unit per M $17.00

Cost of Earth & Rock Quantities.

Item & Detail		Unit	Unit Cost
Excavation	Stripping Earth for Dams	Cu yd	.30
"	Trenching & Light cribbing for Dams		1.25
"	" Rock " "		2.00
"	Shallow Ditch Solid Rock	" "	1.25
"	" " Earth	" "	.40
"	Flume bench cuts Solid Rock	" "	1.25
"	" " " Earth & L.R.	" "	.50
"	Trench for Pipe- See Special Sheet		
"	Tunnels- See special Sheet		
"	" L.R. 1-2 cy per lin ft. to include temporary timbering prior to "lining	Lin ft	10.00
"	" S.R. 1-2 cy per cu ft.	Lin ft.	9.00
Dry Masonry		Cu Ft.	4.00
Pointing & Cutting Rock for Rubble Masonry		cu yd	2.00
Earth Fill Dams		" "	.45
Clay Puddle Fill Dams		" "	1.25
Backfill Trenches		" "	.18
Rip rap Well laid		Sq ft.	.20
" " Loose		" "	.15

Authorities Knight & Hyde- San Diego
Costs sheets Los Angeles, Aqueduct
Contractors in and around Oakland Ludlow
" on Spring Valley Water Co. S.F.
Inspection of conditions of Cuyamaca System- Lane

Concrete

Use 1.25 bbls cement
,5 cy sand
1.0 " rock
per Cu yd Concrete

Note this, take care of waste in handling material
For Cyclopean assume 40% of total as large rock
As sand and rock may be easily obtained where masonry and concrete are used we will adopt:-

50¢ per cy for sand
$1.25 " " " " crushed rock
.75¢ " " " " large rock

Cost of concrete in place

Material

Cement	Sand	Rock	Labor mixing & Placing hand	Forms	Total
2.50	.25	1.25	1.50	.80	6.30

Cyclopean

60% of 6.30	-	3.78
40% " .75		.30
Total		4.08

NOTE: TO above costs add freight & haul for cement

Cost of cement see page 73.

FREIGHT FROM SAN DIEGO

MATERIAL	SHIPPING POINT	DIST.	RATE PER CWT. CL	LCL
Cement	Lakeside	22 miles	.08	.10
Lumber	"	22 "	.042	.08
Brick	"	22 "	.065	.10
Structural Iron	"	22 "	-	.10
Cast Iron Pipe	"	22 "	.075	.10
RIveted S. Pipe	La Mesa	11.1"	.075	.09
Cement	"	11.1"	.055	.09
Lumber	"	11.1"	.04	.067
Brick	"	11.1"	.055	.09
Wood Stave Pipe	"	11.1"	.05	.09
Iron Pipe	"	11.1"	.09	.09
Cement	Grossmont	14 "	.065	.09
Brick	"	" "	.055	.09
Structural Iron	"	" "	.09	.09
Lumber	"	" "	.04	.07
Iron Pipe	"	" "	.09	.09
Riveted Pipe	"	" "	.075	.09

HAULING PER TON

	Dist.	Rate	Total
Lakeside to Cuyamaca	34.5	.20	6.90
" " Diverting Dam	16	.20	3.20
Grossmont " Murray Hill Dam	1	.20	.20
La Mesa to Eucalyptus Dam	2	.20	.40
" to La Mesa Dam	2	.20	.40
Average over Distribution System from La Mesa	3.2	.20	.64

Cost of Cast Iron Pipe Laid

Size of Pipe	20"	24"
* Weight per foot	150	204.2
* " of yarn per Joint	1.25	.50
* " " " " foot	.104	.125
* " " lead per Joint	37.	44.
* " " " " foot	3.08	3.67
Cost of Pipe per ton	35.50	35.50
" " " " foot	2.663	3.620
" " yarn " " @ .0425	.004	.005
" " lead " " @ .06	.185	.22
Supplies & misc. 1% cost of Pipe	.03	.04
Subtotal	2.882	3.885
4% Store room expense	.113	.153
Loading & hauling one mile	.030	.041
Laying calking etc. per foot	.12	.16
	3.145	4.239
Use total per foot	3.15	4.25
For each extra mile haul add	.015	.02

* Weight taken from table in United States Cast Iron Pipe & Foundry Co's catalogue.

P L A S T E R I N G

MASONS	1 @ $6.00
HELPERS	1 @ 3.00

No. of sq. ft. per day	700
Cost per square	$1.30
Add 10% overhaul and 50% profit & material	2.08
Adopted per sq. ft.	$ .02

PAINTING

		Cost	Unit
1 coat	$	.015	Sq Ft
2 coats		.025	" "
3 coats		.035	" "

STAIN

Shingles (dipped) $ 3.00 per M

Weir at Cuyamaca Dam.

Cost of lumber cut ready to frame	$ 8.10
Company's records 1912 add for delivery	2.00
Labor Framing	5.00
Excavation, backfill, and rip rap	10.00
	$25.10

Use $25.00

CLEARING

While the contract price for clearing flume seems to be $2.50 per acre past experience lead me to believe either the contractor lost or this figure is in error.

Recently Mr. Ruis who has charge of the flume told me that the labor cost on clearing under trestle No 297, which is about 300 feet long amounted to $26.00: this would mean about $76.00 per acre. Some difficulty would naturally be experienced with the bents but taking this into consideration I do not believe it high.

After noting the character of clearing along the entire line I believe it of a light character but not under $10.00 per acre so we will adopt this figure:

Clearing — $10.00 per Acre.

TIMBERING TUNNELS

Lumber	$20.00 M	See page 73
Freight to Lakeside	1.25	" " 84
Haul	2.30	" " 84
Labor, framing, placing, backfilling	20.00	
	$43.55	

Use $44.00 per M

CONCRETE IN TUNNELS

Concrete	6.30	See page 83
Freight to Lakeside	.50	" " 84
Average Haul to Flume:		
7.65 x .25 tons x .20	.38	" " 79 & 80
	7.18	

Use for straight concrete $7.25 per cu yd.

Allow $1.50 for pointing, Sorting and laying rock inclusive of any quarrying

Rubble 40% of 1.50 -	.60
Concrete 60% of 7.25 -	4.35
	4.95

Use for rubble masonry lining $5.00 per cu yd.

Concrete and Rubble Masonry

Diverting Dam

Concrete	6.30	see page 83
Freight and haul to dam	1.20	" " 84
	7.50	

Use $7.50

Allow $1.50 for pointing and sorting rock inclusive of quarrying.

60% concrete at $7.50	$4.50
40% rock at $1.50	.60
	5.10
Allow for jointing and laying rubble	2.00
	$7.10

Use $7.00

HYDRAULIC FILL

According to Mr. J. D. Schuyler the La Mesa Dam originally planned for Rock Fill Dam was changed to the hydraulic fill type after bids of about $1.00 per Cu.Yd. had been submitted. It was estimated that the hydraulic fill type of construction could be done for less than half this amount. Material was sluiced with a limited quantity of water about 2200' from the dam through wooden stave pipe. Owing to close proximity to the surface of cemented gravel teams were used in loosening material. On the whole there was however a great saving. Recent work such as the North Harwee Dam L. A. A. where material is sluiced about 1000 ft from the dam through flume show a cost of 26 cents per Cu. Yd., in April Cost Reports. I believe that cost has been considerably reduced since then. 18 cents is the figure on the Dry Canon Dam completed.

At La Mesa the conditions are not so favorable now or at the time built. If reproduced now some means would have to be employed to elevate sluiced material owing to ownership of lands close to lake. However we shall adopt 30 cents as a figure fair to present conditions and methods.

COST OF VITRIFIED SALT GLAZED PIPE IN PLACE

	Per ft
Cost of pipe	$ 1.50
Cu Yd Mortar to each 50 joints.	
For 67 joints 1 1/3 Cu Yd.	
Materials and placing	.112
	$ 1.612

Use $1.60

Note 1-1 Cement Mortar - 16 cu ft of fine sand and 4 bbls of cement make 1 cu yd of mortar.

Cement	8.00	
Freight	.88	see page 84
Hauling	.32	" " 84
Sand	.60	" " 73
	9.80	
Mixing and cementing per yard	1.40	
	11.20	

LARGE CAST IRON SPECIALS

The price to the water department of Los Angeles, for special castings ranges from 4 to 5 cents per pound.

For flanged machined and drilled castings Use 5. cents per lb.

For large light fittings add 15% to cost for erection.

CONCRETE AT LA MESA DAM

Concrete	$ 6.30	see page 83
Freight	.28	" " 84
Haul	.10	" " 84
	$ 6.68	

Use $6.75

Asphalt Facing .04 sq. ft.

24" Gate at La Mesa Dam

Weight 1350 lb

Crane Price 540.00 less 70% discount F.O.B. L.A.

Cost	162.00	
Freight L.A. to S. D.	2.70	
" S.D. to L. A.	1.22	see page 84
Haul	.27	" " 84
Erection 15%	24.30	" " 95
	190.49	

Use $190.00

Redwood Wooden Stave

La Mesa Ditch Line

Average head assume 50'

Cost per ft	1.94	
Cost for laying	.49	F.O.B. San Diego Pacific Tank & Pipe Co.
		Aug 2, 1912.
Freight		
Wt per ft 65 lbs	.03	see page 84
Haul	.01	" " 84
	2.47	

Use $2.50 per ft.

Los Angeles, Cal. Aug 2, 1912.

Mr. Fulton Lane,
c/o Cuyamaca Water Company,
San Diego, Cal.

Dear Sir:-

Replying to your letter of July 30th, addressed to the National Wood Pipe Company, which has been succeeded by our company, we are pleased to quote you on the approximate amounts of Wooden Pipe, as specified in your letter, banded for the maximum gravity head pressures specified, delivered f.o.b. cars San Diego and laid by us, exclusive of unloading the cars, hauling and destributing materials, trenching and backfilling same, trestle work and keeping trench free from water and other obstructions. All prices quoted are merely approximate and for estimating purposes only.

PIPE PROVIDED WITH MORTISE AND TENON JOINTS.

For maximum pressure of ...	25'	50'	75'
8" pipe per foot	44¢	46¢	47¢
Approx. Wt. per foot	9#	9.2#	9.6#
16" pipe per foot	92¢	95¢	1.00
Approx. Wt. per foot	22#	23#	24#

20" pipe per foot	1.07	1.12	1.15
Approx. Wt. per foot	24#	25#	27#

PIPE WITH INDIVIDUAL BANDED WOODEN COLLARS

For maximum pressure of	100'
8" pipe per foot	50¢
Approx. Wt. per foot	10#
18" pipe per foot	1.12
Approx. Wt. per foot	25#
20" pipe per foot	1.34
Approx. Wt. per foot	29#

This pipe will be constructed of staves milled from clear Redwood Pipe lumber and banded with galvanized steel wire. The lengths will vary from 8' to 20' and joints or collars as specified will be furnished for connecting these lengths. After manufacturing the entire outside of Pipe will be covered with our special preservative coating and rolled in saw dust.

Covering your requirements on the larger sizes of Pipe we are quoting you as follows on our Continuous Stave Pipe, banded for the maximum gravity pressures specified as follows:

For maximum pressure of	20'	50'	100'
24" pipe material per foot ...	$1.17	1.28	1.60
Construction cost per foot ...	.25	.29	.36
Approx. Wt. per foot	40#	43#	50#
36" pipe material per foot ...	$1.69	1.94	2.47
Construction cost per foot ...	.40¢	.49¢	.68¢
Approx. Wt. per foot	59#	65#	79#

The above materials will be delivered knocked down for shipment, ready to set up, f.o.b. cars San Diego, and the construction cost quoted covers only the actual labor of constructing the pipe and does not include hauling, unloading the cars, trenching, backfilling, etc.

These materials will consist of staves milled from #1 clear dry Redwood pipe lumber, dressing to not less than 1-7/16" in thickness. The ends of the staves will be cut off square and slotted to receive either a quarter sawed oak or steel tongue, as may be preferred.

To band the pipe we will furnish ½" round mild, steel bands, each band provided with a standard button head on one end and six inches of cold rolled thread fitted with hexagon nut and plate washer on the other end. To connect the ends of the bands we will furnish malleable iron shoes of our standard design.

Our figures also include bending the bands to circle and dipping both bands and shoes in a coating of refined asphaltum or asphaltum paint before shipment from the factory.

We again wish to call your attention to the fact that these are merely approximate figures and when you are ready to proceed with the installation of any of this pipe, we would be glad to receive your profiles and specifications and submit our very lowest figures.

Under separate cover, we are mailing to your address, copy of our Wooden Pipe Booklet, which we trust will be of interest to you.

Thanking you for the inquiry and awaiting your pleasure, we are,

Yours very truly,
PACIFIC TANK & PIPE CO.,

VJB:FS (Sgd) By,

CONCRETE MURRAY HILL DAM

Concrete	6.30	see page 83
Freight	.33	" " 84
Haul	.05	" " 84
	6.68	

Use $6.75

GATE MURRAY HILL DAM

Sluice gate 24" x 24" $160.00		
Weight including operating Mechanism 1.5 ton		
Freight	2.70	see page 84
Haul	.30	" " 84
Erection 15%	24.00	" " 95
Use $187.00		
Gate Valve 24"		
Wt 1350 lbs.		
Crane price 540.00 less 70% discount F.O.B. L.A.		
Cost	$162.00	
Freight L. A. to S. D.	2.70	
" S. D. to Grossmont	1.22	see page 84
Haul	.14	" " 84
Erection 15%	24.30	" " 95
	$ 190.36	
Use $190.00		
Gate Valve 20"		
Wt. 867 Lbs.		
345.00 less 70%		
Cost	$104.00	
Freight L. A. to S. D.	1.73	
" " to Grossmont	.78	see page 84
Haul	.09	" " 84
Erection 15%	15.60	" " 95
	$122.20	
Use $122.00		

CUYAMACA WATER COMPANY

COST OF MATERIAL — SCREW JOINTS

Distribution System

Kind of Pipe	Size Inches	Red Lead per Joint Lbs	Cost of Red Lead Lb	Cost of Red Lead Joint	Cost Red Lead at Trench per joint	Average Length Pipe Section	Cost of Material for joint per Foot of pipe
Casing Screw	3"	.0570	.06	.0034	.0034	18'	.0002
	4"	.0608	.06	.0036	.0036	18'	.0002
	6"	.0684	.06	.0041	.0041	18'	.0002
	8"	.0779	.06	.0047	.0047	18'	.0003
	10"	.0864	.06	.0052	.0052	18'	.0003
	11"	.0906	.06	.0054	.0054	18'	.0003
	12"	.0948	.06	.0057	.0057	18'	.0003
Standard	1½	.0537	.06	.0032	.0032	18'	.0002
	2"	.0604	.06	.0036	.0036	18'	.0002

CUYAMACA WATER COMPANY

DISTRIBUTION SYSTEM

Labor - Cost of Trenching - Placing Pipe & Backfilling.

HARD GROUND.

Basis	9 men	$2.00	$18.00
	1 man	2.50	2.50
	Supervision		.75
	Total		$21.25

Size of pipe	2" - 5"	6" - 12"	15" - 24"
Size of Trench	1"6" x 2'6"	2.0 x 3'6"	3" x 3'6"
Feet per day	212	96	75
Cost per foot	.10	.22	.30

Note:- Wooden Stave Cost per ft. Trenching & Backfilling $ .22

CUYAMACA WATER COMPANY

DISTRIBUTION SYSTEM

Cost of Wooden Stave Pipe at Trench.

8"			
Cost	$	.46	
Freight		.005	see page 84
Haul		.003	" " "
	$	.468	
18"			
Cost	$	.95	
Freight		.0115	see page 84
Haul		.0075	" " 84
	$	.9590	
20"			
Cost	$	1.34	
Freight		.0145	see page 84
Haul		.0092	" " 84
	$	1.3637	

CUYAMACA WATER COMPANY

DISTRIBUTION. SYSTEM

LABOR COST SCREW JOINTS

Basis	1 man at $ 2.00	-	$ 2.00
	1 man " 2.50	-	2.50
	Supervision		.25
	Total		$ 4.75

Kind of Pipe — Screw Casing Lap weld

Size of Pipe	1-2"	3"	4"	6"	8"	10"	11"	12"
Joint per Day	50	46	40	33	28	22	19	16
Cost per joint	$.0950	$.1033	$.1187	$.1439	$.1696	$.2159	$.2500	$.2969
Cost per foot 18' length	$.0053	$.0057	$.0066	$.0080	$.0094	$.0120	$.0139	$.0165

Distribution System

CUYAMACA WATER COMPANY

Cost of Pipe delivered to Trench

Kind of Pipe	Size in inches	Gage	Wt. lbs. per ft.	Cost per 100'	Cost per foot	Carting per lin. ft .00107 per lb	Cost per linear ft. at Trench
Screen Casing	3"	1/8	3.45	$14.49	$0.1449	.0037	.1486
"	4"	1/8	5.56	20.43	.2043	.0059	.2102
"	6"	3/16	10.46	32.78	.3278	.0116	.3394
"	8"	3/16	15.41	56.05	.5605	.0164	.5769
"	10"	3/16	20.36	79.10	.7910	.0216	.8126
"	11"	3/16	23.83	94.00	.9400	.0254	.9654
"	12"	3/16	26.30	115.95	1.1595	.0281	1.1876
Standard Screw	1½"	5/32	2.68	8.26	.0826	.0029	.0855
"	2"	5/32	3.61	10.60	.1060	.0039	.1099
Riveted Steel	4"	14	4.4	-	.2340	.0047	.2387
"	6"	14	6.3	-	.3340	.0067	.3407
"	8"	14	8.4	-	.4450	.0090	.4540
"	15"	14	15.4	-	.8180	.0164	.8344
"	20"	14	20.3	-	1.0400	.0216	1.0616

Distribution System — CUYAMACA WATER COMPANY

Cost per lineal ft. in Trench

Pipe	Size inches	Cost of Pipe at Trench per ft.	Cost of Trenching, Placing & Backfilling	Material cost joint per foot.	Labor Cost joint per ft.	Total Cost of Pipe in Trench per ft.
Screen Casing	3	.1486	.1000	.0002	.0057	.2545
"	4	.2102	.1000	.0002	.0066	.3190
"	6	.3394	.2200	.0002	.0080	.5676
"	8	.5769	.2200	.0003	.0094	.8066
"	10	.8126	.2200	.0003	.0120	1.0449
"	11	.9554	.2200	.0003	.0139	1.1996
"	12	1.1876	.2200	.0003	.0165	1.4244
Standard Screw	1½	.0855	.1000	.0002	.0053	.1910
"	2	.1099	.1000	.0002	.0055	.2154
Rivited Steel	4	.2387	.1000	- -	- -	.3387
"	6	.3407	.2200	- -	- -	.5607
"	8	.4540	.2200	- -	- -	.6740
"	15	.8344	.3000	- -	- -	1.1344
"	20	1.0616	.3000	- -	- -	1.3616
Wooden Stave	8	.4660	.2200	- -	- -	.6860
"	16	.9590	.2200	- -	- -	1.1790
"	20	1.3637	.2200	- -	- -	1.5837
"	24	1.3200	.3100	- -	- -	1.6300

REINFORCED CONCRETE PIPE

This pipe being laid so recently, we will take as a basis the average cost from Mr. N. D. Whitman's letter, a copy of which is included.

36" Pipe -----$2.12 per ft.
24" " ----- 1.57 " "

Los Angeles, Cal., August 5, 1912.

Mr. Fulton Lane, C.E.,
℅ Cuyamaca Water Co.,
San Diego, Cal.

Dear Sir:-

Complying with your request for the cost of pipe which we laid for the Cuyamaca Water Company, Murray Hill Reservoir, will say that the prices paid are as follows:

1950 ft. of	36 inch pipe	at $2.00 per ft.	$3,900.00
27 " "	36 " "	at 1.85 " "	49.95
5286 " "	24 " "	at 1.45 " "	7,664.70
Extra work, materials, valves, openings, etc.			877.27

The price for pipe does not include the excavation or back filling which was done by the Cuyamaca Water Company as well as the 900 foot tunnel near the Eucalyptus Reservoir. The extra work was work done in connection with the pipe lines and dam and for which no specified price was mentioned in the contract.

Should you care to have a detailed statement in regard to the extra work, we will be glad to furnish you with the same or you could secure the same from the Cuyamaca Water Company as they have our original bills,

Very truly yours,
Reinforced Concrete Pipe Co.
N. D. Whitman (Signed)
Engineer.

C U Y A M A C A W A T E R C O .

DISTRIBUTION SYSTEM

Unit Cost - Valves and Specials.

Kind of pipe used on	Description	Size in.	Shipping Wt. lbs	Cost F.O.B. San Diego	Freight & Cartage .00122 per lb	Total Cost
Screw casing	valves SE	2	5	$2.25	.006	2.256
Stand-ard screw	" "	3	15	4.90	.018	4.918
Riv. steel	" HE	4	35	8.00	.042	8.042
"	"	6	70	12.75	.085	12.835
"	"	8	125-	18.90	.15	19.05
	"	10	185	31.50	.22	31.72
	"	12	275	43.75	.33	44.08
	"	15	480	72.00	.58	72.58
	"	20	965	145.25	1.18	146.43
tees		8"	53	8.00	.064	8.064
"	RS	15	48	34.00	.059	34.059
"		24	75	63.00	.092	63.092
Crosses		10	167	25.00	.204	25.204
2		24	400	33.00	.488	33.488
Elbows 90°		2	2	15.5¢	.002	0.157
"		3	5	33.7¢	.006	0.343
"		4	9	54¢	.011	0.551
"		6	20	$1.20	.024	1.224
"		8	45	3.05	.055	3.105
"		24	100	4.00	.122	4.122
Brgs&Cocks		1	3	45¢	.004	0.454
service		2	10	$1.50	.012	1.512
Saddle WI		2"	8	.37	.010	0.38
"		3	9	.46	.011	0.471
"	CI	2	8	.40	.01	0.41
"		4	11	.59	.013	0.603
"		6	21	1.09	.026	1.116
"		8	50	2.57	.061	2.631
Ys	RS	15	825	51.15	1.01	52.16
Bushing		10	24	1.70	.029	1.729
Flange Union		10	177	4.75	.094	4.844
"		12	107	5.15	.131	5.281

August 21, 1912.

CUYAMACA WATER COMPANY
DISTRIBUTION SYSTEM

Unit Costs ---- Valves and Specials.

Kind of pipe used on	Description	Size in.	Shipping Lbs	Cost F.O.B. San Diego	Freight & Cartage .00122 per lb	Total Cost
Riveted steel	Flange Union	20"	120#	$7.20	.122	$ 7.322
	Reg Gates	3	80	12.00	.10	12.10
	"	15	480	72.00	.596	72.586
	Guage 4		10	1.35	.012	1.362
	Cap CI	20	185	10.10	.226	10.326
	Manhole & Cover	24	125	7.50	.153	7.653

DISTRIBUTION SYSTEM

Item	Size	Quantity	Rate	Total
Gate Valves	2"	13	$2.256	$29.33
"	3	5	4.918	24.59
"	4	14	8.042	112.59
"	6	10	12.835	126.35
"	8	6	19.05	114.30
"	10	1	31.72	31.72
"	12	1	44.08	44.08
"	15	4	72.58	290.32
"	20	3	146.43-	439.29
Tees	6	2	8.064	16.13
"	15	6	34.059	204.35
"	24	1	63.092	63.09
C I Crosses	10	1	25.204	25.20
"	24	1	33.488	33.49
Elbows	2"	8	0.157	1.26
"	3	2	0.343	.69
"	4	2	0.551	1.10
"	6	8	1.224	9.79
"	8	5	3.105	15.53
"	24	1	4.122	4.12
Brass Service Cock	1	10	0.454	4.54
"	2	31	1.512	46.87
C I Saddle	2	8	0.38	3.04
W I Saddle	2	8	0.41	3.28
"	3	7	0.471	3.30
Brass Saddle	2	14	0.451	6.31
"	4	2	0.603	1.21
"	6	2	1.116	2.23
"	8	2	2.631	5.26
Ys	15	2	52.16	104.32
Bushing	10	2	1.729	3.46
Union Flanges	10	1	4.844	4.84
"	12	1	5.281	5.28
"	20	1	7.322	7.32
Reg P Gates	4	1	12.10	12.10
"	15	1	72.586	72.59
Manhole	24"	1	7.653	7.65
Press Gage		4	1.362	5.45
C I Cap	20	1	10.326	10.33
				$ 1898.70
Add 15% for installing ----------				285.00
				$ 2184.

COST OF BUILDINGS

Recently the writer has occasion to appraise the value of all buildings taken over by Spring Valley Water Company in Pleasanton Valley and actual bills of material were taken, from these it was computed that these farm dwellings, barns, and sheds ranged from 4 cents to 12 cents per cubic foot. I also include here the cost of a new flume tender's house built by Cuyamaca Water Co.

New Building, Sec #5.

June, 1912	7.75	for screen doors & screen
"	1.25	" hanging screen doors & painting
May,	2.30	"- oil & tacks & Putty
"	69,20	" Lumber
"	.47	" Freight
"	4.65	" Board for carpenter
"	8.25	" " " "
"	66.65	" paint, paper, brushed, etc
"	17.67	" roofing paper, & Hdware & Nails
Total -------	178.19	
30 days labor 1 carpenter $3.00	90.00	
	$268.19	

This figures about $.09 a cu ft with skilled labor, this man being unskilled. There is on file the contract for the meter house which shows about 5 cents a cubic foot.

The writer has made inspection of all buildings as well as photographing same and will use figures between 5 and 12 cents as fits each case in his judgment.

The costs for fence are taken from the Company's books.

LAND AND RIGHTS OF WAY

References, Letters & Memorendum pages 118-124

While I wrote to six men in the locality of the Cuyamaca Watershed asking for the value which their judgment dictated along with their reasons, I received answers from only two Mr. W. L. Dietrick and F. L. Blanc. Each arrived at the same valuation of $100 per acre which has been used on the Cuyamaca Lands.

For La Mesa Reservoir I obtained copies of a proposal of sale from M. C. Heslion on Feb 16, 1911, of from $225 to $250 per acre. For this property I have used $250 per acre.

Eucalyptus and Murray Hill.

The claim is made by Mr. Fletcher in a conversation relative to these values that land recently subdivided adjacent to Murray Hill Reservoir was selling for 7,8,9 and 10 hundred dollars per acre. In view of the few pieces which have changed hands at $700 close to reservoir I have placed a value of $350 per acre. Eucalyptus in this same general locality should be valued the same.

Rights of ways in mountainous country are worth $10 per acre. Below Los Coches we come into country that is subdivided and many acres under cultivation. The land uncultivated is sold for $75.00 per acre.

Below Section No 5 House we get into sections closer to the small towns and hence these hold more value. For these I have used $150 per acre.

These prices were obtained through inquiries while I was making an inspection of the Flume.

I wish to state that I am not an expert on land values but as I have made many inquiries and considerable study of this subject I feel I am thoroughly justified in my conclusions.

OVERHEAD ANALYSIS

	Collective System of Cuyamaca Water Company	
Material	60%	
Labor	30%	
Incidentals	10%	
	100%	
Material	60%	
Store Expense 5%	3%	63%
Labor	30%	
Engineering 10%	3%	
Supervision 20%	6%	39%
Incidentals	10%	10%
	112%	
Insurance 1%	1.1%	1.1%
	113.1%	
General 3%	3.4%	3.4%
	116.5%	
Interest 4%	4.7%	4.7%
	121.2%	121.2%

Use 20%.

Note: Two years time is ample for reproduction and on that basis full interest is allowed for one year.

OVERHEAD ANALYSIS

Distributing System
Cuyamaca Water Company

Material	60%	
Labor	30%	
Incidentals	10%	
	100%	
Material	60%	
Store 5%	3%	63%
Labor	30%	
Engineering 10%	3%	
Supervision 20%	6%	39%
Incidentals	10%	10%
	112%	
Insurance .3%	.33%	.33%
	112.33%	
General 1%	1.12%	1.12%
	113.45%	
Interest 1.3%	1.48%	1.48%
	114.93%	114.93%

Use 15%

Note: 8 months time sample for reproduction and on that basis interest is allowed for 4 months.

DEPRECIATION

Cuyamaca Water Co. Properties, Limits of Useful Life.

Buildings Brick (Wisconsin Commission)	50 years
Frame Dwellings Do	35 years
Frame Stables, Sheds, Etc Do	30 years
Frames Temporary built of old Flume Lumber	5 years
* Reservoirs	100 years
Flumes Redwood	28 years
Cast Iron Pipes large diameter	100 years
Steel Pipe	10 to 25 years
Wood Stave Pipe	15 to 25 years
Wrought Iron Pipe	15 to 30 years
Tunnel timbers	20 to 35 years

* Leonard Metcalfe p.24 Vol LXIV Trans. Am Soc. C.E. 1909.

* U.S. Government Allowance p.203 Foster's Valuation of Public Utilities.

The study of this system enabled the writer (owing to the fact that it was 24 years old) to determine rather accurately rates of deterioration along with his knowledge of other systems and past experience in appraisals in the State of California. As a matter of interest. I have referred to other tables to show relative comparisons.

A P P E N D I X E.

LETTERS

AND

MEMORANDA.

MEMORANDUM OF RIGHTS OF WAY

All 50' Wide

Station	Acres	
0 to 1-00	5	El Capitan Indian reservation ground originally occupied by Reservoir 4 acres and in 1912 to be increased to 7 acres. Ground occupied by tenders house 1 acre T.
0 to M P 6.73	37	El Capitan Indian Reservation contract for right of way in 1888.
S Fork Syphon	1.62	El Capitan Indian Reservation permit in 1911, conditioned on reagreeing to original contract.
Feeder	4.80	El Capitan Indian Reservation original 1888 contract, excepting 2.3 miles, which seems to have no record.
Old M P 7.97 to 9.19	7.20	El Capitan Indian Reservation - original contract (although bet M P 8.50 to 9.19, reservation has since been thrown open.
Chocolate Syphon	3.05	Lands of Head and Alcord paid 1910 - Total $75.00 for rights of way and telephone switch privelege to Alcord as per book account.
#598 to #696		Public or Private land, subject to original right of way granted by El Capitan Indian Reservation, now not included in reservation.
#696 to #720	3.90	A P Knowles - right of way for 1" free water - water not now used, also conveys riparian rights. See Water Contract No 22.
#720 to 88 #1500		Right of way granted in water right contract No 1. July 7, 1886, through the "Jarvis" or "S" tract of El Cajon. Provided flume is built and 200 miners inches reserved to them for sale in 5 years. Modified in 1891 to 150 M I by 1894. (Payment on 100 inches in Dec. 1892. Default on 50 inches. All relinquished in 1894 by issuing to J B Gordon a water contract.)

MEMORANDUM OF RIGHTS OF WAY, PAGE 2,
All 50' Wide.

Station	Acres.		
#1500 to 1541 - 50	4.8	Public land apparently at time of building flume. No record. Now consists of tract. S W ¼ of S W ¼ Sec 8 T 16 S R 1 E and N W ½ of N W ¼ Sec 17.	
1541-50 to 1545-87	.05	No date.	Gordon.
#1545-87 to 1575-78	3.5	No date.	Fulton
#1575 -87 to 1608-37	3.7	No data.	Gordon.
1608-37 to 1658	5.6	May Levi Chase - right of way in water right contract No. 19. over lands in Sec. 13. and E½ of Sect.14. T 16 S R 1 W. consideration free water right to 2½ M.I. and annual charge of $200 per annum. (Water contract lapsed - no longer on books)	
1658 to 1670 - 10	1.5	No data.	Lowe.
1670-10 to 1716-85	5.4	May Levi Chase.	No data.
1716-85 to 1724-23	0.8	Dr. Lewis.	
1724-23 to 1735-04	1.2	Uri Hill - S W ¼ of N W ¼ and West ½ of the E ½ of the S W ¼ pf Sect. 14. T 16 S. R1W. Conveyed in water contract No. 24.	
1735-04 to 1754-01	2.2	Mrs.Christian	No data.
1754-01 to 1892-67	15.8	El Cajon Valley Co right of way per water dontract No. 14. Consideration El Cajon buys 5 inches for $6,000 and pays in land conveyed in right of way figured at $5,250 7 $750 case. Also some data in Contract No. 20. riparian rights on "all lands owned" Date Jan. 19, 1889.	
1892-67 to 1905-13	1.4	Louis Entnre, in lot 5 Sec. 8 T 16 R 1 W right of way as per Water Right contract #16, consideration sale to Entner and assigns for 10 yrs water at 10 cts. per 1000 gals to be pumped above the flume. Perhaps also a La Mesa lot?	
1905-13 to 1912-03 End of flume	1.4	R H Stretch in lot 4 Sec 8 T 16 S R 1 W	

Memorandum of Right of Way, La Mesa,

Reservoir.

La Mesa Reservoir - see water contract No 7., recites tracts 67, 68, 69 of partition map of Ex Mission Ro. also so much of tract 70 as lies south of San Diego River, grants as much of their land as is covered by La Mesa Dam and Reservoir in tracts 67 and 68 for a dam not over 100 ft high. Also rivarian rights to the tracts reserved in the report of the partition of the Rancho Mission of San Diego under order of the Superior Court of said Count.

Includes right of way 50 ft wide along line of said parties flume or aqueduct.

Refers to similar contract with C. F. Francisco and David Gochman, December 28th, 1886.

La Mesa Reservoir Floodage.

Rights were provided in water contract No 7, dated May 14, 1887. between San Diego Flume, 1st party, and Junipero Land and Water Co., 2 nd party

"In consideration of the grants and covenants hereinafter made and stipulated to be performed" 1st party grants 2nd party option to purchase within two years, the right to a supply etc. over certain parcels, (4688 Acres) or right to pump from La Mesa Reservoir at 10 cents per 1000 gallons." Grants the right of way for flume and aqueduct; also "as much of said lands for purposes of a dam and reservoir and the flooding to be occasioned thereby as the party of the first part shall cover with such dam etc. in tracts 67 and 68 up to loo ft height.

Reserves water power privilege 6 hours per day, if not exercised by Francisco etal, to whom it has been granted.

Frank L. Blanc

General Merchandise, Julian Cal.

Julian, Cal. 8/12/12

Fulton Lane,

San Diego,

Calif.

Dear Sir:-

In reply to yours of the 10th regarding the value of the land now under water of Cuyamaca Reservoir, will say I consider $100.00 per acre is the least valuation I would put on it, in fact if I owned the land I would not sell it for that.

Respectfully yours,

(Sig) F. L. Blanc.

Fulton Lane
Mining & Civil Engineer
903 Union Oil Building
Los Angeles

July 30, 1912.

Mr. W. L. Dietrick,
Julian,
San Diego, County,
Cal.

Dear Sir:-

Pursuant to a conversation which I had with Mr. Fletcher (for whom I am acting as appraising engineer) I should like to ask you to give me, to the best of your knowledge, the value of certain lands, now partially under water, owned by the Cuyamaca Water Company, namely:-

* 100 dollars - Cuyamaca Reservoir site & adjacent ground.

Please state briefly your reasons for the values you submit.

Kindly forward this information to me c/o the Cuyamaca Water Company, San Diego, and oblige

Very truly yours,

(Sgd) Fulton Lane

* The reason for this valuation is because it is all of the best land that can be found. Used as apple orchards the land is worth 200 dollars per acre the other sites you mention I do not know anything about them or their valuation,

Respectfully,

(Sgd) W. L. Dietrick,

COPY

Feb. 15, 1911.

Mr. M. C. Healion,

City.

Dear Sir:-

As long as you have asked Mr. Murray to buy 47 acres of land with your house, I would suggest if you care to please make a price on lots 194, 195 196, 157, 155, 154 and that property lying below the Dam Site and North of lots 153, and 154. Also would you make a separate price of lots 155 - 157.

Yours very truly,

(Sgd) Ed Fletcher

EF/D

WK

9-9-12

COPY

La Mesa Development Company
Office Room 22 Sefton Building
Postoffice Box ZZ

San Diego, California.

February 16th, 1911.

Mr. Ed. Fletcher,

1548 D St.,

City.

Dear Sir:-

Answering your inquiry of 15th inst.

I will add to the offer I made you in my letter of 14th inst., La Mesa Colony lots 153 - 154 and 90 for the sum of $7,000.00 net cash or a total of $20,000.00 net cash for lots 150-151-152-153-154- and 90 with buildings and contents.

Lots 153-154 and 90 contain nearly 35 acres. On lot 90 there are about 5000 healthy growing eucalyptus trees set out in the spring of 1909 mostly red gum.

Also until the last day of this month I will make you a price of $2,500.00 cash on Colony lot 155, containing 11.45 acres fenced.

The other lots mentioned in your letter belong to the Company and I would prefer to deal separately with them later.

Yours truly,

M. C. Healion

WK
9-9-12

Santa Fe.

Los Angeles, Cal., Aug. 5th 1912.

-: Cement, Pipe, Lumber, etc, Los Angeles to San Diego:-

Mr. Fulton Lane,
c/o Grant Hotel,
San Diegom Cal.

Dear Sir:-

Replying to your letter of the 30th ult., I am showing below the rates in cents per hundred on the various commodities requested in your letter from Los Angeles to San Diego, together with the minimum carload weight applicable:

	From Los Angeles to San Diego - CL	LCL	Minimum.
Cement	12½¢	20¢	50,000 lbs.
Reinforced Steel	15	20¢	36,000 "
Riveted Pipe	15	60	20,000 "
	(over 12 in. in Diameter)	25¢	
	(12 in. or less in diameter)		
Cast Iron Pipe	15¢	20¢	30,000 "
Wooden Water Pipe	15	25	30,000 "
Wrought Iron Pipe	15	20	30,000 "
Cast or Wrought Iron Pipe Fittings	15	20	30,000 "
Lumber	12	20	30,000 "

Yours truly,
(Sig) W. C. Barnwell.

Los Angeles, Aug. 5, 1912.

Mr. Fulton Lane,
c/o Cuyamaca Water Co.,
San Diego, Calif.

Discounts etc.

Dear Sir:

Replying to your favor of the 8th, we would refer you to our #498 Low Pressure Hub End Gate,Valve, shown on page #108 of our $40 Catalogue, copy of which you have. From list price as shown we quote you a discount of 70%, F.O.B. Los Angeles. Complying with your request, we also quote you as follows:

Pages #132 - 135 - 137	C.I. Screw Fittings -	60% Discount.
" 133 - 134 - 136 - 139	Malleable Fittings, San Francisco Piece list	80-10% "

We are sending you under seperate cover a copy of the catalogue giving list prices on these malleable fittings.

Page 138	Bushings and plugs	60 - 5%
" 144	Female Unions	60 - 5%
" 146	Flanged Unions	60%
" 162 to 164	Nipples, 2" & Smaller	70 - 5%
	2 1/2 " & Larger	65 - 5%

Trusting this is what you desire, we are,

Yours truly,

CRANE & CO.

By - (Sig) E H Hunt.

Telephone - Electric Equipment Co.

Los Angeles, Cal.,
Aug. 9, 1912.

Mr. Fulton Lane,
c/o U.S. Grant Hotel,
San Diego, Calif.

Dear Mr. Lane:-

Replying to your recent inquiry, will state that the cost of #12 BB galvanized iron wire F.O.B. Los Angeles is $5.00 per 100 lbs., and the freight rate to San Diego is $.35 per 100. If this wire was shipped from the East it would take a common point rate of $5.00 per 100. The wire runs 170 lbs. to the mile. You have approximately 36 miles of wire to figure on. There is a discount applying to the above list price of ten and five per cent.

The price of white porcelain insulators #5½, which answer the specifications, 1" x 1½", is $7.80 per 1000, Los Angeles. Some take a freight rate to San Diego of $.75 per 100.

The estimated labor cost of stringing #12 BB iron wire is

If all points are not covered, I would be pleased to furnish you additional data on receipt of further inquiry.

Sincerely,

(Sig) R. H. McHugh.

Telephone - Electric Equipment Co.

Los Angeles, Cal.,
Aug. 10, 1912.

Mr. Fulton Lane,
U. S. Grant Hotel,
San Diego, Cal.

Dear Mr. Lane:-

Supplementing notes of the 9th, - the labor cost of stringing a single wire, based on the best local data is from $7.50 to $10.00 per mile.

In reference to the life of iron wire, the Pacific Telephone Co. report four years as the average. Back East where the climate conditions are more favorable seven or eight years is given. The Home Telephone Co. report their experience where #14, affected by the sea air, did not last over a year. For the #12 BB in the San Diego District I would say that five years would be the limit, as general opinion will support this as a very conservative estimate.

Sincerely yours,

(Sig) R. H. McHugh.

HAZARD, GOULD & CO.

Wholesale Hardware.

San Diego, Cal.

August 17th, 1912.

Cuyamaca Water Company,

City.

Gentlemen:-

We beg to confirm prices made on recent inventory which we assisted you in figuring. Prices as quoted at that time still remain the same.

We are writing you this for your information, as we understand that you are again figuring the same inventory.

Respectfully,

HAZARD, GOULD & COMPANY

(Sgd) E B Gould.

WA

Ed Fletcher Papers

1870-1955

MSS.81

Box: 39 Folder: 5

Business Records - Reports - Lane, Fulton C.E. - "Valuation of Cuyamaca Water Company for Purpose of Fixing Rates; Hearing Before California Public Utilities Commission"